The international magazine for the tube

and pipe industries

TUBE & PEPE September 2009 | Vol 22 No 5 | US\$33 TECHNOLOGY

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A: DaZhuangZi Industrial Park, WeiCheng District, WeiFang, China | T:+86-536-8199-769 / 8915-366 | F:+86-536-8199-759 / 8915-368 | M:shengsian@pipe-fitting.net

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Peter Früchtenicht, Manager of Operations, SIKORA AG





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CONTENTS

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Underground movement

"I bet you won't miss the Tube," was one of the statements that echoed in my ears as I bid farewell to colleagues in London to take up my new role as editor of TPT. Little did they understand the irony of their statement.

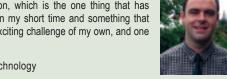
But, admittedly, travelling on London's underground rail network, which is known as the Tube, is not foremost on the list of things I will miss, even though, as a feat of engineering, it has always left me in awe. Indeed, as I travelled on it for the final time I gazed at it with new eyes and was struck by the hundreds, if not thousands, of different tubes and pipes – crafted from a multitude of materials - that were essential to its safe operation. From tiny sprinkler systems to beautiful handrails to the gargantuan concrete and steel pipes that hold back rivers and millions of tons of earth.

And it seems underground is the new overground for many other overcrowded, gridlocked cities around the globe. Last year alone, 140km of tunnels were built beneath Shanghai. In Rome, engineers are sweating over plans for a new metro line that will pass beneath the Coliseum. In Amsterdam a metro line will require 6km of tunnels to be threaded between the largely wooden foundations of its buildings. Hundreds of miles of sewers, tunnels and pipes all situated in a variety of geologies and the foundations of buildings make it a delicate balancing act.

In my old home city of London they are building the new Crossrail, a 120km railway, which will pass beneath the city's busy streets along 42km of underground tunnels, leaving engineers to figure out how to thread Crossrail's tunnels though the tangled subterranean infrastructure. The subsoil beneath the city is packed with sewers and pipes that date back hundreds of years and that carry electricity, gas, telecommunications and water, serving a densely packed population.

For most of us this challenge would be the stuff of nightmares, but for engineers like yourselves, it's just another obstacle to overcome, an opportunity for invention and innovation, which is the one thing that has struck me already about the industry in my short time and something that makes editing the magazine such an exciting challenge of my own, and one that I too hope to rise to.

Rory McBride, editor, Tube & Pipe Technology



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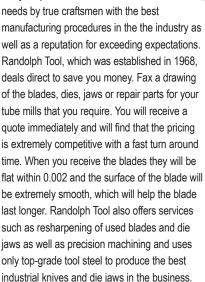
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FRONT COVER STORY

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FEATURES



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FABTECH, North America's largest metal forming, fabricating, and welding exposition, will be held from 15-18 November and this year features 1,000 exhibitors with an expected audience of more than 35,000 from around the world, making it the place to be seen for anyone looking to learn about the latest developments in the industry or to make new business contacts.



96 Tube Southeast Asia 2009

The robust markets in Southeast Asia have faired far better than many others during the global economic crisis, and Thailand, Indonesia, Malaysia and the Philippines, along with the economic super power that is China, are each showing signigicant signs of growth for 2010. That's why this year's Tube Southeast Asia, which takes place in Bangkok from 13-15 October, is set to be one of the biggest and best exhibitions of state-of-the-art technology ever to take place in the region.



98 Advances in Cutting, Sawing and Saw Blades

Manufacturing tubes and pipes to precise specifications is only half the job. If anything the cutting and sawing process must be even more accurate and offers less room for error, which is why some of the most sopisticated machines and biggest innovations in the industry come from companies that specialise in cutting and sawing, as this issue's latest special focus on cutting clearly illustrates.

TECHNICAL ARTICLE

131 Wall thinning during tube bending

By B Lynn Ferguson, PhD Metallurgical; Zhichao (Charlie) Li PhD Mechanical of Deformation Control Technology (DCT); Tim Kreja, manager of new product development, and Dan Auger, director of engineering, Pines Technology



INDUSTRY NEWS

STI webinar highlights cost and weight advantage of hollow structural sections

THE Steel Tube Institute of North America has hosted a webinar that featured the cost/weight advantages steel hollow structural sections (HSS) is providing in the support structures of the video boards, ribbon boards and entry towers at the new Meadowlands stadium under construction in East Rutherford, New Jersey, USA.

The webinar, viewed by architects, design engineers, fabricators and architectural professors, featured Mark VanDyk, project engineer for large sports venues for Daktronics, the world leader in fabricating and installing large electronic display systems.

Mr VanDyk explained why Daktronics specifies HSS in the support structures for their large electronic display systems: "HSS meets our requirements for both strength and weight, and it saves on both fabrication and erection costs," he says.

The combination of scoreboards, video boards and display boards at the new Meadowlands Stadium makes the project the largest LED system in the world. All of the LED systems are supported by HSS structures. Inside the stadium are four 118ft x 30ft corner video screens; a 360-degree

1,800 linear foot ribbon board, which also acts as a protective rail; two 4ft x 130ft game-in-progress displays; and two delay-of-game clocks.

Outside the stadium are a total of ten double-sided entry gate towers – six $38ft \times 20 \text{ ft towers}$; two $54ft \times 20 \text{ ft towers}$; and two $18ft \times 32ft$ double-sided marquees located next to the motorway.

The majority of the HSS used in the Meadowlands project is 6in x 4in rectangular shapes and 6in x 6in squares. The handrails are constructed of 1.5in x 1.5in tubing.

The complete webinar, including questions and answers, is available on the Steel Tube Institute's website at www.steeltubeinstitute.org. Go to the HSS section of the website and click on the HSS webinar banner.

Steel Tube Institute of North America – USA Fax: +1 305 443 1603 Email:

stina@steeltubeinstitute.org Website: www.steeltubeinstitute.org



How the new stadium will look once finished



Record breaking AWS Weldmex-Fabtech-Metalform Expo

A RECORD 6,100 attendees descended on the Cintermex Exposition facility in Monterrey, Mexico to see the latest technology in welding, fabrication and metalforming. The event, held in June, attracted 73% of first time attendees – also a record.

"We achieved our goal of making this a true national show with over 30% of the attendance coming from outside of Monterrey, including 15% from Mexico City and the south," commented Chuck Cross, show manager.

The event, which brought together two existing shows — AWS Weldmex and Metalform Mexico — as well as new event Fabtech Mexico, allowed attendees to see new equipment and processes for welding, metal-forming and metal fabrication technologies. "We were able to bring our entire buying team from different departments, which saves us several months of sourcing," said Ing Roberto Figueroa, sourcing director, Industrias John Deere.

"Face-to-face events are the best way to market our products," commented Enrique Parra, sales manager for Hemsa, a major exhibitor. "We will continue to use this event as our marketing arm in the future."

The exposition was sponsored by the American Welding Society, the Precision Metalforming Association, the Fabricators and Manufacturers Association and the Society of Manufacturing Engineers.

Trade Show Consulting – USA **Email**: chuck@tradeshowconsult.com

Monterrey attracted a record crowd this year



DIARY OF TUBE EVENTS

2009

OCTOBER

5-10 EMO-Milan 2009
Exhibition



Email: info@emo-milan.com Website: www.emo-milan.com

Tubotech / Metaltech 2009
6-8 São Paulo Brazil

São Paulo, Brazil Exhibition

=

Email: cipa@cipanet.com.br Website: www.cipanet.com.br

Tube / wire Southeast Asia 2009

Bangkok, Thailand Exhibition



Email: tube@mda.com.org
Website: www.tube-southeastasia.sg

NOVEMBER



Email: info@itatube.org
Website: www.itatube.org

Tolexpo 2009
13-16 Paris, France
Exhibition



Email: mbazin@tolexpo.com Website: www.tolexpo.com

Fabtech / AWS Welding Show 15-18 Chicago, USA Exhibition



Email: information@fmafabtech.com Website: www.fabtechexpo.com

2010

FEBRUARY

Tube India 2010
10-12 *Mumbai, India*Exhibition



Email: DughL@md-india.com Website: www.tube-india.com

MARCH

Boru 2010
4-7 Istanbul, Turkey
Exhibition



Email: info@ihlasfuar.com
Website: www.borufuari.com

APRIL

Tube / wire Düsseldorf 2010
12-16 Düsseldorf, Germany
Exhibition



Email: infoservice@messe-duesseldorf.de Website: www.tube.de www.messe-duesseldorf.de

MAY

24-27

Tube Russia 2010 Moscow, Russia



Email: ryfischd@messe-duesseldorf.de
Website: www.metallurgy-tube-russia.com

SEPTEMBER

Tube / wire China 2010 21-24 Shanghai, China Exhibition

Exhibition



Email: tube@mdc.com.cn
Website: www.mdc.com.cn

2011

JANUARY

Tekno / Tube Arabia 2011 8-11 Dubai, UAE

Exhibition



Email: alfajer@emirates.net.ae Website: www.tekno7.info

7

RathGibson enters important phase of financial restructuring

RATHGIBSON, Inc and its domestic affiliates have announced that they have begun reorganisation proceedings under Chapter 11 of the United States Bankruptcy Code in the United States Bankruptcy Court for the District of Delaware.

In connection with the filing, RathGibson also has filed a proposed plan of reorganisation that provides for holders of allowed general unsecured creditors to be unimpaired and paid in full on undisputed amounts owed prior to the bankruptcy filing.

The plan has the unanimous support of the company's prepetition secured lender, boards of directors, and the management leadership of the company, as well as certain key noteholders.

The plan, if consummated, will result in significantly reducing the company's debt burden.

The Chapter 11 filing marks an important step in RathGibson's ongoing efforts to position the company for long-term success. "The current management team inherited a significant debt load that cannot be sustained, particularly in these challenging financial markets," said Mike Schwartz, president and CEO of RathGibson. "As a result, we must take action to position the company for the future. No one should be confused about what a bankruptcy process means for RathGibson.

"Following a record year of performance in 2008 for RathGibson and the industry, we are experiencing demand levels reduced by 50%. This reduction in demand combined with our leveraged position necessitates this action. We will emerge from this process stronger than ever."

Mr Schwartz emphasised that the Chapter 11 filing should have no impact on day-to-day operations. "We have, subject to

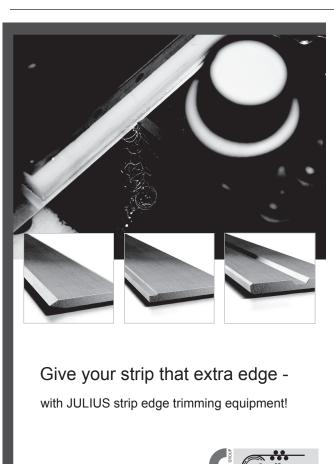
bankruptcy court approval, which we expect to obtain, secured 'debtor-in-possession' financing, which will provide the company with sufficient liquidity to continue normal operations during this transition period.

"Our brand, our products, our quality systems and our people remain strong. This process is strictly a financial restructuring of our debt. We are fully committed to ensuring that our valued customers and channel partners are not affected by this restructuring process.

"During this period, we will work even more closely with our customers, channel partners, vendors, suppliers and employees to deliver the same level of service they expect and deserve from RathGibson.

"I remain thankful for the steadfast support of our employees and other stakeholders throughout this entire process, and I am confident in our ability to expand and pursue new opportunities for the RathGibson brand."

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No. of cameras: Measurable parameters:

Typical accuracy:

(1, 5.5, 12 in.) 1...6 (standard 4) length, width, height, diameter, radii, angles +/- 0.01 ... 0.05 mm

(+/- .0004002 in.)

*Largest product depending on centering

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^{*}Largest product depending on centering

Tube 2010: promising figures in troubled times

THE tube and pipe manufacturing and processing industries are defying the tough economic times and Messe Düsseldorf GmbH continues to report good space sales for the Tube 2010 event.

Tube registered just under 32,000m² of exhibition space by the time the registration deadline expired, which are promising results as the organisers expect to receive many more registrations by late summer. Tube will occupy exhibition Halls 1 to 7.0 and exhibitors will range from current manufacturing technologies to those deploying new materials.

Following the April deadline for registrations for wire 2010 and Tube 2010, wire has already sold approximately 40,000m² of net exhibition space. 70% of existing exhibitors have reserved larger stands for 2010.

Machinery, plant and equipment used for producing and processing wire and cable will be presented in Halls 9 to 12, 15 and 17.

Leading manufacturers, vendors and upstream suppliers from all over the world attend the Tube Düsseldorf Exhibition, 12-16 April 2010, to exhibit information on the latest manufacturing technologies.

The 2010 event will particularly showcase the fields of plastic pipes and tubes, profile sections and section technology, plus the entire area of OCTG technology.

Messe Düsseldorf GmbH – Germany Fax: +49 211 45 60 668 Email: info@messe-duesseldorf.de Website: www.tube.de

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World-class training at The Welding Institute

THE Proclad Group and The Welding Institute (TWI) have joined forces to create a centre of excellence in the Proclad Academy, at the new advanced manufacturing facility in Technopark, Dubai,

The partnership draws upon the skills and expertise of the two organisations.

The Proclad Academy will offer co-branded courses with the TWI in welding, nondestructive testing, inspection and health and safety. It will be a one-stop shop for industries that rely on technically competent, qualified and safety conscious engineers, technicians and operators.

The group CEO of Proclad, Mr Yaseen Jaffer said: "The Proclad Group is a market leader in weld cladding and we have achieved this through constant innovation and research into welding and high-end applications. The TWI is a world-renowned expert and well respected trainer in the industry around the globe, so it's only natural that we wanted to establish this relationship at our Proclad Training Academy."

regional manager Brian Hunt commented: "We are delighted to be collaborating with Proclad and expanding the range of courses and services in this region. The welding industry needs to constantly develop and maintain high standards for everyone's safety and wellbeing, and this centre of excellence will help us promote our best practices and deliver high quality training in the UAE."

The Proclad Academy resides in a purpose built, self-contained training centre at Technopark. Proclad principal Mark Cullens said, "We have an excellent venue that is well-placed for clients, being close to the industrial zones of Dubai Investment Park and the Jebel Ali Freezone, and just 45 minutes away from Abu Dhabi and Mussafah."

TWI provides training and examination services via its network of offices and

training centres (including the UK, South East Asia, Middle East, USA, China, India and South America) and agents worldwide. The institute has more than 2,000 members and operates in 60 countries.

The Proclad Group brings together the core manufacturing capabilities of weld cladding, mechanically clad lined pipe, CNC precision machining, forging and induction bending, supported by the strength of a major stockist and purchasing operation, to provide customers with integrated engineering solutions. The company has manufacturing operations in Scotland, Abu Dhabi, Dubai, Kuwait and Singapore.

The Welding Institute – UK Fax: +44 1223 891630 Email: trainexam@twi.co.uk Website: www.twitraining.com

The Proclad Academy - UAE Website: www.procladgroup.com

Brian Hunt (left) group CEO of TWI Regional, and Yaseen Jaffer, group CEO of Proclad Group



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SIKORA AG management scoop annual awards

HARALD Sikora, chairman of SIKORA AG, and Harry Prunk, vice-chairman of SIKORA AG, have been voted "Entrepreneurs of the year 2009" by regional association The Family Employers-ASU and The Young Employers-BJU in cooperation with Sparkasse Bremen, Germany.

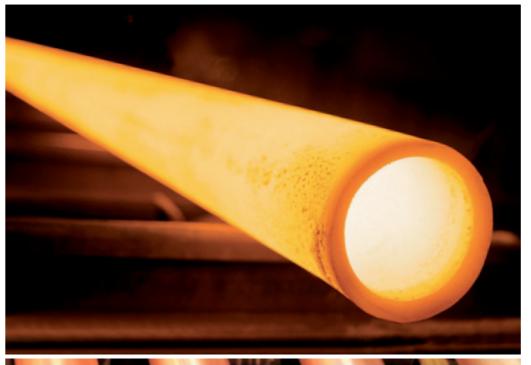
For three decades Bremen-based SIKORA AG has been creating measuring and control devices for application in insulating and jacketing lines and in hose and tube extrusion lines.

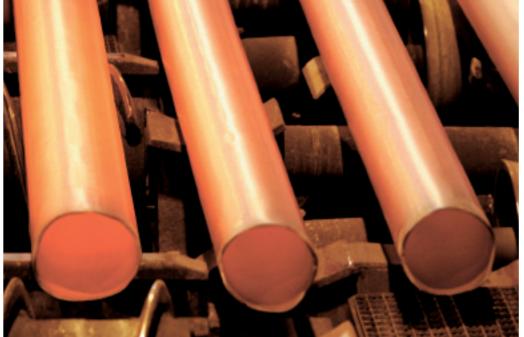
In 1972 Mr Sikora presented the first non-contact measuring systems for energy cables and made the newly founded company a global player in the segment of measuring technology. The scope of supply mainly focuses on non-contact ovality, eccentricity and wall thickness measurement by means of X-ray radiation and optical diameter measurement.

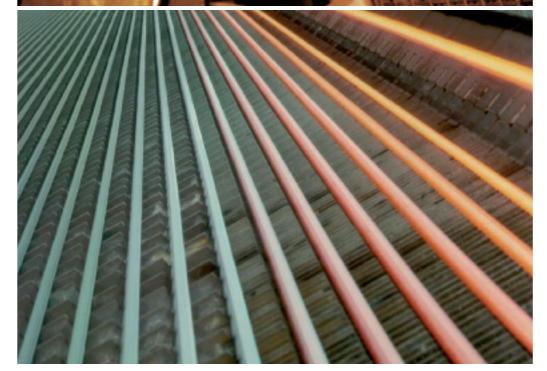
"I am very happy and honoured to receive this wonderful award, but it also goes to all who have significantly contributed to the success of our company", said Mr Sikora.

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Sales and servicing centre to open in Germany



 Dr Werner Wittmann, founder of Wittmann Kunststoffgeräte GmbH

WITTMANN Battenfeld, Austria, is to open a new sales and service center in Meinerzhagen, Germany in September.

The new building will accommodate a total of 2,500m² of storage space with a new logistics system for storage and shipping of spare parts, production facilities for airmould and aquamould equipment and a 1,100m² technical lab.

The lab for machine demonstrations, production of samples and training programmes for customers will be equipped with a selection of injection molding machines and peripheral devices.

Company founder Dr Werner Wittmann said: "Germany represents one of the key markets for injection moulding machines, peripheral equipment and automation systems. Our customer support will be strengthened by this move. One of its tasks will be to supply spare parts and technical support for the large-size machines formerly manufactured there – both locally and internationally."

Dr Wittmann added that the company was also taking action to combat the impact of the recession: "We have been affected by the economic crisis just like the entire plastics industry.

"To our regret, a recent retrenchment of our staff level has proved unavoidable in spite of counter-measures already taken at an early stage, such as reduced working hours and special leave for advanced education and training.

"By establishing a work foundation, we are trying to make this move as socially compatible as possible for the affected staff members."

"But one thing is sure: there will be a recovery. And Wittmann Battenfeld is well prepared to meet it with a policy of continuous innovation and an efficient sales and service network."

Wittmann Battenfeld GmbH – Austria Fax: +43 2252 404 1002 Email:

susanne.binner@wittmann-battenfeld.com **Website**: www.wittmann-battenfeld.com





Technip acquires intellectual property rights

TECHNIP, a leader in the fields of project management, engineering and construction for the oil and gas industry, offers a comprehensive portfolio of solutions and technologies.

The company has announced that it has acquired the intellectual property rights for the application of the small amplitude helical tubing technology for steam cracking furnaces from HeliSwirl.

Steam cracking is a petrochemical process using steam to crack hydrocarbon molecules to produce ethylene and propylene. The technology was invented at Imperial College London, and then transferred to HeliSwirl for commercial development.

The acquisition broadens Technip's technological offering, and will reinforce its position in the steam cracking furnace market.

Technip has also reported that it has been awarded a number of new contracts. The first, awarded by BHP Billiton, is for the fabrication, transportation and installation of a flowline, and transportation and installation of an umbilical, for the BHP Billiton-operated Angostura gas project, located offshore Trinidad and Tobago, in approximately 30m (100ft) of water.

The second contract is for the K2 field expansion project, operated by Anadarko Petroleum Corporation in the Gulf of Mexico.

Two additional wells will be tied back to the existing subsea equipment and to the Marco Polo platform with production flowlines. These wells are located in Green Canyon Blocks 562 and 606, at a water depth of approximately 1,200m (4,000ft).

Technip's operating centre in Houston, Texas will execute these two contracts. The flowlines will be welded at the group's spoolbases in Evanton, Scotland (for the BHP Billiton contract) and Mobile, Alabama (for the Anadarko contract).

The third contract, awarded by Ningxia Hanas Natural Gas Company Ltd, is a lump sum contract for a mid-scale liquefied natural gas (LNG) plant to be built in Yinchuan, China. The contract covers the engineering, supply of main equipment, procurement and construction management services for facilities for natural gas pretreatment, liquefaction, LNG storage and

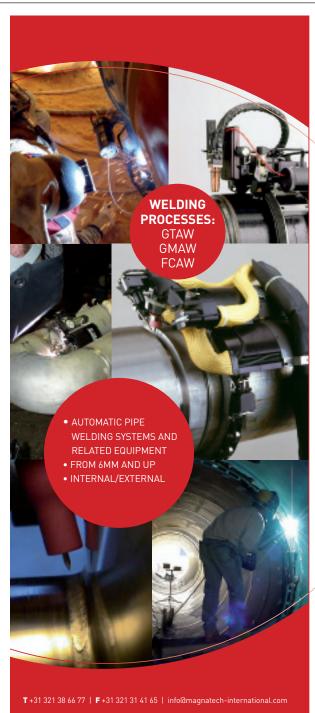
loading, utilities, offsites, buildings and other infrastructure.

This LNG plant will be the largest facility of its kind in China, and will have two LNG trains (units that transform natural gas into liquefied natural gas by cooling it to a temperature of -162°C), each with a capacity of 400,000 tons per year, based on an Air Products liquefaction process.

The LNG will be distributed to the Chinese market to help meet the growing demand for clean energy.

Technip's operating centres in Kuala Lumpur, Malaysia and Shanghai, China will execute the contract, which is scheduled to be completed in the second half of 2011.

Technip – France Fax: +33 14778 2588 Email: press@technip.com Website: www.technip.com



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Italian Ambassador to Ukraine visits Interpipe

STEEL pipe and railway wheel maker Interpipe welcomed the Ambassador of Italy, Pietro Giovanni Donnici, to Ukraine to review the progress of the construction of Interpipe's electric steel plant, Interpipe Steel in July.

The new electric steel plant will provide the company with self-sufficiency in steel and is being built in cooperation with Danieli at Interpipe's base in Dnepropetrovsk.

Mr Donnici said: "I have heard much about the important role of the Interpipe Company in the Ukrainian economy, something that has



Pietro Giovanni Donnici visiting the site

been recognised by the Danieli Company. That's why it's fascinating for me to see the results of the collaboration of these two companies - indeed, the size and scale of the construction is amazing and, without doubt, one of the most important aspects of the future plant is its high ecological standards."

Gennadiy Esaulov, the director of Interpipe Steel, noted the professionalism of the specialists from the Danieli Company that are involved in the realisation of the project: "The electric steel plant, Interpipe Steel, is a unique project for Ukrainian metallurgy and we are pleased with the development of the work under Danieli.

"Construction at the site is pain-staking but making good progress. Over the past few days, a hoisting crane with a carrying capacity of 300 tons, used for assembling large-sized metal goods, has been supplied from the USA."

Interpipe – Ukraine Fax: +38 0562 389 482 Website: www.interpipe.biz

Roll-Kraft launches 'Dr Resolve' website



Roll-Kraft's headquarters in Mentor. Ohio

ROLL-KRAFT has launched a new website with features including an instant request for quote button, and 'Dr Resolve', who can provide remedies to problems with tube, pipe and roll forming applications. The site also features videos and photos of products.

The tube, pipe and roll form tooling and equipment produced by Roll-Kraft is used in a wide variety of fields, including roof and siding products, doors, furniture, wire, rack systems, framing, automotive products, highway, HVAC and appliances.

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Thickness: 0.6mm - 6.0mm & Length: upto 22 Meters

As per **ASTM A249/A269/A270/A312** in Austenitic(300)&(400) Series

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Thickness: 0.8mm - 4.0mm & Length: upto 18 Meters U-Tubes: As per ASTM A688 in Austenitic(300) Series

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Thickness: 1.2mm - 3.05mm & Leg Length:upto 8 Meters

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Polymer demand slumps for 2008

NOT since the early 1980s has the plastics industry in Europe experienced such difficult market conditions as seen in 2008, according to a new report by Applied Market Information (AMI).

Demand for thermoplastics slumped by 8% compared with 2007, according to the latest edition of AMI's European plastics industry report. The downturn followed two years of better than average growth with demand reaching a peak of just over 41 million tons in 2007 but this masked underlying structural weaknesses of overcapacity, under-investment and poor competitive positioning for many plastics processors.

AMI expects the recession to drive significant restructuring within plastics processing markets with growing investment from outside Europe and a continuing drift of manufacturing to Eastern Europe.

Market demand began to slow during the first half of 2008 as concerns began to surface about the liquidity of the banks. Record high oil prices also put the squeeze on polymer converters. Even so, few were prepared for the precipitous slide that occurred from August 2008 as the uncertainty created by the global economic environment translated into a rapid decline in consumer confidence and had the effect of wiping out five years of growth for polymer in just four months. In the last quarter demand declined on average by 20-25% for most resins.

In analysing the reasons for this turn of events, AMI points to massive converter destocking during the final quarter of the year as the main culprit. Weakening consumer demand through the second half of the year also impacted on converter operations resulting in cutbacks.

The crash in demand affected all polymers, applications and markets to a greater or lesser extent. Anything feeding into building, automotive or discretionary consumer products was badly hit.

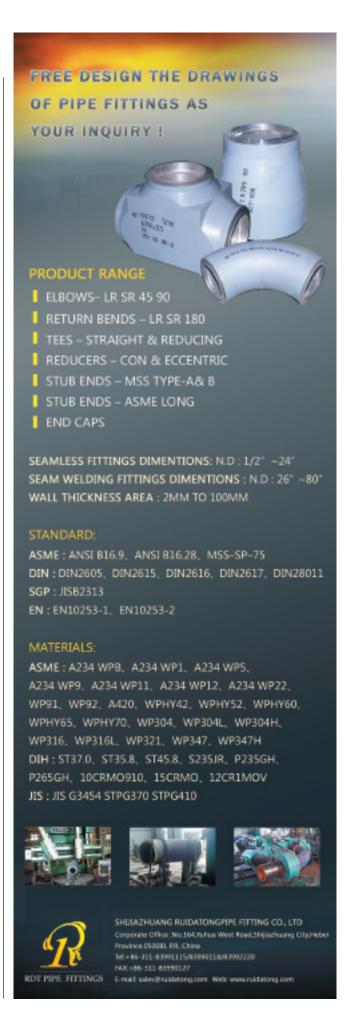
However, there is expected to be some significant up turns for thermoplastics in the period 2010-2013. Hygiene and medical markets will remain strong and automotive applications should recover once car production picks up again, but this is likely to be of more benefit for plants to the East with further rationalisation of capacity expected to be seen in Western Europe. Building markets will pick up driven by government-backed stimulus programmes and ongoing demands for improved energy efficiency.

Applied Market Information – UK

Fax: +44 117 989 2128 Email: info@amiplastics.com Website: www.amiplastics.com

The European plastics industry has taken a battering in 2008





UK pipe industry in 'acquisition gold rush'

ONE in nine companies in the UK pipes and fittings industry could change ownership as a result of the current economic climate, claims a new study by financial analysts Plimsoll. With a surprising number of cashrich competitors waiting in the wings, the market could be set for a prolonged period of consolidation, the report says.

David Pattison, author of the Plimsoll Industry Analysis – Pipes and Fittings, said: "In the current climate, there are simply too many companies chasing too little market. With many directors eyeing the exit doors and highly leveraged buyouts consigned to history, it is a buyers' market for cash rich companies."

"In analysis we have identified 76 companies that have a sizeable cash reserve sat on their balance sheets that, due to record low interest rates, is generating nothing.

"One company has a £78mn cash pot – a whopping 80% of turnover. These companies are now in the position to buy up

large chunks of market share at rock bottom prices and make that money work for them.

"The UK pipes and fittings market is still regarded as one of the UK's most fragmented sectors. In our report we analysed 297 companies with a turnover of £1mn per annum and have picked 51 that are primed to be taken over. Buying one of these represents a massive opportunity."

The Plimsoll Industry Analysis – Pipes and Fittings hopes to explain which companies are set to be buying and who will be selling.

Readers of *Tube & Pipe Technology* are entitled to a £50 discount for the report. Quote reference PR/MT40.

Plimsoll Publishing – UK Fax: +44 1642 626410 Email: c.evans@plimsoll.co.uk Website: www.plimsoll.co.uk

The UK pipes and fittings industry is set for an unprecedented period of acquisition activity, a new report claims

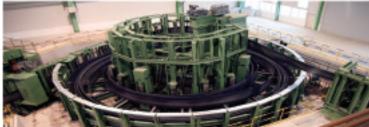




PIPE MILL ERW/API 8"-26"Ø

DPI, Anshan, China/2008















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Polysoude at Schwiessen & Schneiden

AT this year's Schweissen & Schneiden trade fair for joining, cutting and surface coating (14-19 September), automated TIG welding expert Polysoude, France, will show its newly developed systems, machines, components and solutions for orbital and mechanised joining and cladding.

The market launch of the P6 300-ampere mobile TIG welding system, for tube assembly using automated orbital welding, opens up new production possibilities

Polysoude specialises in tube welding technology



for plant construction – technologically, economically and qualitatively, the company claims.

It says this is made possible by more intuitive operation combined with the modular system concept – features shared with the smaller P4 version. A large touch screen provides the interface through which all interactions with the system take place. This touch screen issues all commands to the internal electronics via the software and transmits the status of the joining process to the operator.

Other special features of the P6 are autonomous system configuration and auto-programming. The P6 also features real-time welding data recording for reproducible welding results. The machine not only detects the type of tool connected (open or enclosed weld heads) but it also knows within which limit values the tool can work. Auto-programming takes over the adjustment of the welding parameters down to the last detail.

Along with the precision power source, the weld heads are the most important factor in the joining system when using automated orbital welding.

Visitors can expect significant new developments with open and closed weld heads: more compact with smaller dimensions and lower weight; and easier to use with quick clamping systems that are independent of the tube diameter.

For wear-resistant finishing to the inside and outside walls of tubes and components, Polysoude has developed a system for TIG hot wire surface cladding. The company also produces mechanised and automated joining solutions for a number of other branches. Its engineers have developed a special automated joining technology for boiler construction in power plants: TIG narrow gap welding. This process is especially suitable for joining thick-walled, concentric circular work pieces. The joining technique is suited to wall thicknesses between 25 and 300mm.

Polysoude – France **Website**: www.polysoude.com

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50 years on, and Konecranes UK is still enjoying healthy growth

MAY 1959 saw the official opening of the new East Kilbride factory of JH Carruthers, now Konecranes UK. At that time, the company manufactured pumps and cranes, but by 1967 pumps were discontinued.

More than 400 people were employed at the factory, building up to 100 overhead cranes a year, but today, modern computer aided techniques in design and manufacturing mean that fewer people are required to maintain higher levels of production. However, the company has been increasing both its capacity and its employee numbers over the past decade, with an average of 100 people involved in supplying more than 300 cranes a year to the UK and overseas markets.

From 1996 to 2007, 25% of the factory space was used for warehousing. The decision was taken to reclaim the space to enable further modernisation and expansion to take place. Managing director Gordon Adie has been the driving force behind the expansion since he took the job in 1992.

Mr Adie, whose father also worked for the firm before him, not only has responsibility for Konecranes UK's operations, but within the Konecranes global group he coordinates many of the worldwide manufacturing and sales facilities.

Speaking of the company's continuing success and growth since it moved to East Kilbride 50 years ago, Mr Adie said: "Our markets are varied by sector and geography. We have been fortunate and, I think, astute enough to keep abreast of our customers' needs and flexible in our ability to tailor our crane models to suit. Konecranes is also an innovative group and we enjoy cutting edge technologies producing very beneficial components for sector demands."

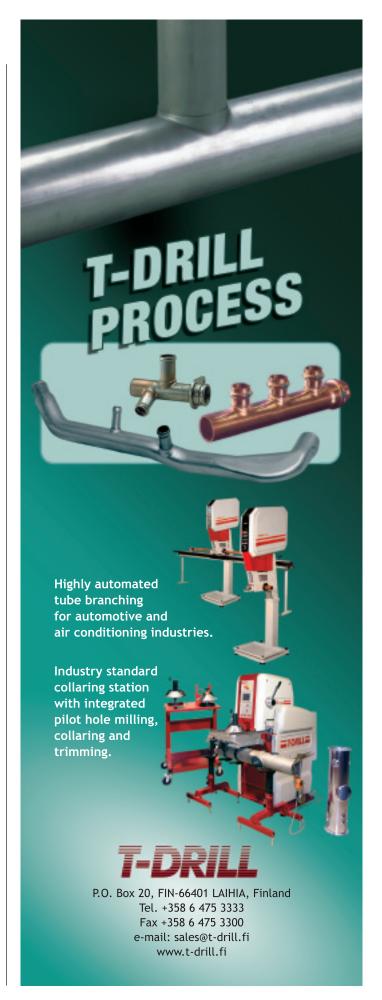
"Obviously, not all sectors are always buoyant, for example the automotive market at present," Mr Adie continued, "but others are growing, like the power and waste-to-energy areas, and we are winning orders both here in the UK and overseas."

Konecranes – UK Fax: +44 1355 263654

Website: www.konecranes-uk.com

A photograph of the Konecranes factory in East Kilbride taken in the 1960s





Linde Group joins environmental pact

THE Linde Group, Germany, has become a member of the Bavarian Environmental Pact.

Professor Dr Wolfgang Reitzle, chief executive officer of Linde AG, commented:

"Sustainability is a key issue for us as a company and in the world in general. It is therefore only logical that we should support this environmental initiative established by the Bavarian State Government and Bavarian industry."

The Linde Group says it is committed to helping the Bavarian State Government to fight global warming

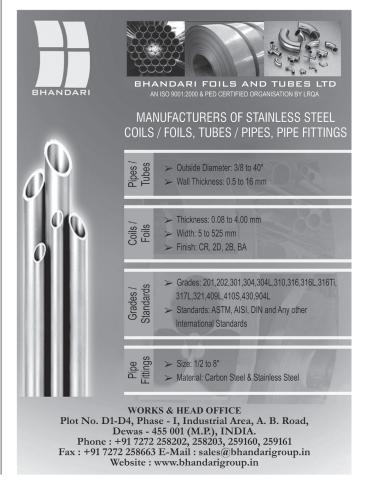


At the presentation of the membership certificate, Bavarian State Premier Horst Seehofer said: "The Bavarian Environmental Pact is a superb example of successful cooperation between government and industry in the field of environmental protection. The initiative is based on the fundamental conviction that environmental protection is the joint responsibility of politicians, industry, society and the state."

Linde's activities in the field of environmental protection include the production of environmentally friendly energy carriers and fuels such as hydrogen and innovative technologies for solar cell manufacture — products and processes that are becoming increasingly important in the context of global warming. The member companies of the Bavarian Environmental Pact have committed themselves to achieving environmentally sustainable economic growth by saving resources and using eco-friendly technologies.

Linde AG – Germany Fax: +49 89 35757 1075 Email: info@linde.com Website: www.linde.com





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Management shake up at BC Extrusion

WOLFGANG Studener has resigned from his position as president and chief executive officer of BC Extrusion Holding, Germany, leaving the company after 30 years to join Battenfeld. He will continue to work for the company as a consultant and member of the advisory board.

Under Studener's leadership, the group has seen significant growth and development in the pipe, profile, cast film and sheet extrusion industries.

U Jürgen Arnold, president and CEO of BC Extrusion



Jürgen Arnold succeeded Mr Studener on 1 July 2009 and can draw on a wealth of experience in the plastics and machine manufacturing industries. After studying plastics engineering and economics he worked in various positions in the plastics industry for more than 20 years. Subsequently, Mr Arnold held several managerial positions in the industrial gas and mechanical separation sectors. From 2003 to 2009, he was president and CEO of Sterling SIHI, a leading supplier of liquid and vacuum pumps and pump systems.

Mr Arnold said: "I am looking forward to my new task at BC Extrusion and to continuing Wolfgang Studener's successful work in the best interest of the company and its staff, and I am sure that we will master the extremely difficult current market situation and continue to be successful."

BC Extrusion Holding GmbH – Germany **Fax**: +49 5731 27124

rax. +49 3/31 2/124

Email: welcome@bc-extrusion.com **Website**: www.bc-extrusion.com

Duo join TTI technical sales

TUBE Tech International has made two new appointments in the UK.

Peter Lord will manage technical sales across the Northern area of the UK.

Gareth Gillings will manage technical sales across the Southern region of the UK.

Tube Tech International – UK Fax: +44 1268 786998 Email: info@tubetech.com Website: www.tubetech.com

Peter Lord (left) and Gareth Gillings of Tube Tech

















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Phamitech is a consolidated supplier backed by the best manufacturers of their sectors in China. Choosing phamitech means obtaining immediate access to highly trained technical personnel and high level facilities, reliable information, and unparalleled services, all of which are available at an extremely competitive quality/price ratio throughout the world.

Phamitech has now emerged as one of a few companies in the world who can offer complete Tube Plants and services including all toolings and turnkey solutions by providing plant engineering for all utilities and auxiliary equipment, and as probably the only one in the world that can offer all the tube making technologies such as ERW Tube Mill, JCOE Pipe Mill, UOE Pipe Mill, Spiral Welded Pipe Mill, Seamless Tube Mill, Copper Tube Plant, Aluminum Tube Plant, as well as all the finishing equipment.

Phamitech machines are one of the most cost effective tube manufacturing equipment available in the world. Our products are working in more than 40 other countries besides China, such as USA, Mexico, Brazil, Venezuela, Ecuador, Korea, Turkey, India, UAE, Malaysia, Indonesia, Iran, Uzbekistan, Kazakhstan, Vietnam, Cambodia, Thailand, Syria, Jordan, Pakistan, Kuwait, Iraq, Nigeria, Egypt, Sudan, Ethiopia, Kenya, Tunis, South Africa, Ukraine, Russia, Belarus, Italy, Belgium, Macedonia, Greece, and so on.

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Technip awarded subsea contract in Gulf of Mexico

TECHNIP, France, has been awarded two lump sum contracts by Anadarko Petroleum Corporation as unit operator for the Caesar/Tonga oil field development in the Gulf of Mexico. This field is located 190 miles (300 kilometers) from New Orleans (in Green Canyon Blocks 683, 726, 727 and 770), in water depths of around 1,500 meters (5,100 feet). It will be tied back to the Constitution Spar platform.

The first contract covers the design and supply of the components for four pipe/inpipe flowlines and the installation of these flowlines, representing a total of 27 miles (43 kilometers). It also includes the design, fabrication and installation of eight pipeline-end terminations (PLETs).

This development will use the pipe-in-pipe technology, which provides insulation and flow assurance for effective production in deep and ultra-deep water. Offshore installation will be carried out with Deep Blue, Technip's deepwater pipelay vessel.

The second contract covers the project management, engineering and fabrication of two control umbilicals and their termination hardware.

Technip – France **Fax**: +33 147 782 588

Email: press@technip.com • Website: www.technip.com

Technip has been awarded two contracts in the Gulf of Mexico



China Steel Tube Expo 2009 in Tianjin Binhai

THE second China Steel Tube Expo 2009 will be held from 14-16 October 2009.

The first event two years ago attracted 14,000 visitors from Korea, Iran, India, Pakistan, Germany, Spain, Japan and the US to see more than 200 exhibitors from 10 countries.

A series of activities and conferences will be help to ensure the show is a must for all international steel tube companies.

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Services brochure from Manchester T&D

MANCHESTER Tool & Die, Inc (MTD) has designed and produced a new brochure detailing the company's steel fabricating and production machining services, as well as the production machining and tube-end forming services from BKB Manufacturing.

The new literature details the capabilities available from Manchester Tool & Die, including shearing, press brake, welding,

milling, boring mills, grinding and heattreating capabilities.

BKB Manufacturing machining and tubeend forming capabilities are also listed for machining centres, lathes, saws, mills, MTD equipment and EDMs.

MTD and BKB also have straight trucks and a gooseneck trailer for pick up and delivery services. The company supplies tube end forming equipment and tooling to a variety of industries, with machines ranging from ³/₁₆" to 3" OD capacities.

Machines and parts can also be manufactured for special applications.

Manchester Tool & Die, Inc – USA Fax: +1 260 982 4575 Email:

edegner@manchestertoolanddie.com Website:

www.manchestertoolanddie.com

All China-International Tube and Pipe Fair

THE fourth All China-International Tube and Pipe Industry Trade Fair (Tube China 2010), jointly organised by the Metallurgical Council of the China Council for the Promotion of International Trade and Messe Düsseldorf China Ltd, will be held at Shanghai New International Expo Centre (SNIEC), 21-24 September 2010.

The event has witnessed continuous growth of its exhibition area, exhibitors,

booths and international section since the first show.

wire and Tube China 2008 attracted wide attention from the industry, with 1,098 companies from 30 countries and regions occupying five exhibition halls, and featuring a total exhibition area of 57,500m². The event also attracted more than 30,000 trade visitors from around the world.

Based on the success of the previous show, the organisers say they hope that wire and Tube China 2010 will be of great assistance to the industry as it fights against the economic downturn because the show provides an excellent platform to showcase all the latest products, business communication and investment decisions in front of a global audience.

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Fourth All-India Exhibition and Conference

MESSE Düsseldorf GmbH, with its Indian subsidiary, Messe Düsseldorf India Pvt Ltd, will present the Indian satellite event of Tube Düsseldorf: Tube India International, now in its fourth edition, at the Bombay Exhibition Centre from 10-12 February 2010.

Alongside this fair, the 3rd edition of Metallurgy India will be organised. This is

the satellite event of METEC, the trade fair for international metallurgical technology in Düsseldorf.

A third trade fair, Essen Welding India, is the satellite event of the welding trade fair Schweissen Und Schneiden (Essen), and will be organised for the fourth time by Messe Essen GmbH and Messe Düsseldorf India.

Tube India International will be organised under the patronage of the International Tube Association (ITA), and ITA – Indian Management Board (ITA-IMB). The co-sponsors of this event are the Ministries of Commerce & Industry and Science & Technology, Government of India. In the upcoming trade fair in 2010, a high-level technical conference synchronising with the exhibition will also be organised by the International Tube Association.

Messe Düsseldorf India Pvt Ltd - India

Fax: +91 11 2697 1746 Email: dughl@md-india.com Website: www.tube-india.com

Interpipe appoints new director for

oil and gas sales

INTERPIPE, a global producer of steel pipes and railway wheels, has announced the appointment of Denis Solomin as director for oil and gas sales. Mr Solomin will supervise and manage the company's sales of pipe used in the oil and gas industry.

Mr Solomin commented: "It's clear that Interpipe has a rich industrial heritage, excellent potential as well as a high-technological base and an ambitious and professional team. All these factors mean that we can face the future with a good degree of optimism and develop the company's pipe sales positively in the oil and gas segment."

Before joining Interpipe, Mr Solomin held executive positions at the Lukoil oil and gas company and worked in its foreign offices in Romania and Bulgaria, as well as at Nafta Belgium. He began his professional career at the US-based company Occidental Petroleum.

Mr Solomin graduated from the Gubkina Oil and Gas Academy, Russia, at the faculty of 'Development of oil and gas fields', and also studied at the South Alberta Institute of Technology, Canada, with a specialisation in business law and management.

Interpipe – Ukraine **Fax**: +38 562 389 482

Email: press-office@interpipe.biz **Website**: www.interpipe.biz



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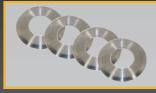
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Hill & Smith announces disposal of investment in Neholl BV

HILL & Smith Holdings Plc, the international group with positions in the supply of infrastructure products and galvanising services to global markets, has announced the disposal of its minority investment in Neholl BV, a Netherlands-based holding company with galvanising operations across the Benelux region, for a cash consideration of €5.8mn.

The minority investment was classified as an Available for Sale Financial Asset at 31 December 2008 and no income was included in the Income Statement in 2008. The disposal will result in a profit on disposal of c. €1.1mn. The proceeds will be used to reduce the Group's net debt.

Hill & Smith's interim results were due to be announced on 17 August 2009. Overall, trading in the period has been in line with the board's expectations. Notably, a reduction in net debt of more than £30mn has been achieved since December 2008, through

cash generated from operations, tight working capital management, exchange rate movements and the proceeds from the disposal reported above.

Hill & Smith Holdings Plc - UK Fax: +44 121 704 7439 Email: enquiries@hsholdings.com Website: www.hsholdings.co.uk

Sensor gains accreditation from the A2LA

A2LA has accredited Sensor Developments Inc, USA, for technical competence in the field of calibration. The laboratory is accredited in accordance with the recognised International Standard ISO/

IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories.

The laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional programme requirements in the field of calibration.

The accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated 18 June 2005).

Sensor Developments Inc - USA

Fax: +1 248 391 0107 Email: sensor@sendev.com Website: www.sendev.com

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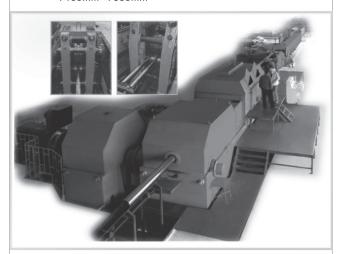
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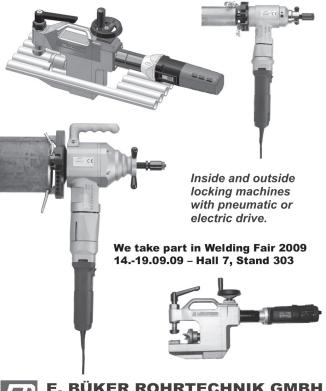
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IMechE appoints its 124th president

LEADING engineer Keith Millard has been appointed as the 124th president of the global engineering body, the Institution of Mechanical Engineers (IMechE).

Mr Millard's inaugural speech before 200 engineers, titled Managing to Improve the World through Engineering, focused on better project management skills for engineers and the need for the UK to encourage more people into engineering. He said: "The UK has committed itself to reducing CO₂ emissions by 80% by 2050. However, without a pool of engineers to research, develop, construct and maintain all the future energy, environmental and transport projects over the next 40 years. we will be reliant on overseas engineering or will simply fail to reach our targets."

Mr Millard focused much of his speech on inspiring the next generation of children to see engineering and science as a valuable and worthwhile career choice. He strongly advocated that all engineers needed to do their bit in positively promoting the profession.

In his address Mr Millard also highlighted many of the engineering developments over the last 50 years, such as nuclear power, offshore oil and gas platforms, medical science and space exploration, and emphasised the importance of leadership and strategic thinking to such ground breaking achievements. He added: "For engineering to be seen as a valuable future career option, the UK needs to do more to identify engineering role models. This is a task I want to champion over the next year."

Mr Millard studied mechanical engineering at Hendon College of Technology, and

Keith Millard FIMechE, the 124th president of the Institution of Mechanical Engineers

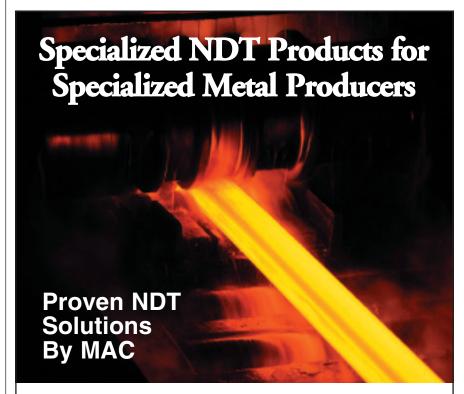


continued his studies as a Sea Cadet and then at South Shields Marine Technical College and Peterborough Technical College. He has held several senior posts including senior resident engineer for Ewbank and Partners in Saudi Arabia, managing director of Gilbert Associates (Europe), international business development director at Balfour Beatty, and vicepresident of Parson Group International. He is also group chairman of Vistage, where he provides mentoring to chief executives throughout the country.

Mr Millard replaces out-going president Professor William Banks, a leading UK academic and materials expert.

Institution of Mechanical Engineers - UK Fax: +44 20 7222 4557

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Fronius national HQ plans near final stages

FRONIUS, Germany, which manufactures pipe and tube machinery, has purchased a 23,000m² property in the business park of Neuhof-Dorfborn, which it plans to develop into its new headquarters.

The company says it has outgrown its present 45-employee capacity building and the new HQ will hold 250 people.

The larger relocation also offers logistical advantages for Fronius with a highway and ICE-train connection situated close to the new premises, and in 2013 there will be a highway junction of the new A66 (Fulda-Frankfurt) on its doorstep.

Fronius – Germany Fax: +49 6655 9169430

Email: wehner.judith@fronius.com

Website: www.fronius.de

Plastic Pressure Pipes 2009 hits Cologne

THE second AMI international conference on plastic pressure pipes will take place from 5-7 October 2009, at the Maritim Hotel in Cologne, Germany, and will bring together leading experts in pipeline technology.

Plastic Pressure Pipes 2009 takes place just before Sewerage & Drainage Pipe 2009 at the same venue, to enable plastic pipe experts to attend both events at minimal cost. The event will cover developments that will have an impact on the market, and will provide information on the latest issues for the pipeline industry, from new build to rehabilitation of existing pipelines.

Applied Market Information Ltd – UK

Fax: +44 11731 11534 Email: sh@amiplastics.com

Website: www.amiconferences.com

Tube mill exporter offers cooperation

VEGA Engineering, a tube mill manufacturer from Taiwan, which has specialised in exporting machinery for more than a decade, is exhibiting at Tube South East Asia.

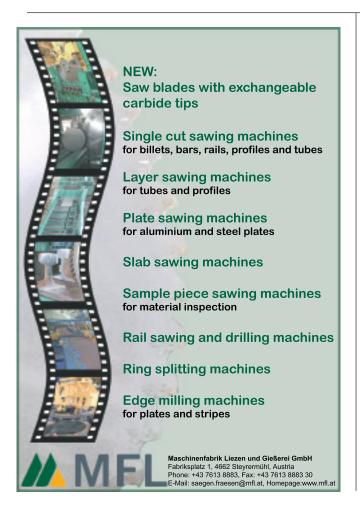
The company says it can offer cooperation in large or smaller projects upgrading machinery or optimising equipment.

It can offer specialist help in: turnkey projects for carbon steel, stainless steel, copper, aluminium and titanium; materials for tube producing with HF, TTT, TPT, laser welding solutions; maximise existing lines to be more productive; and integrate the existing lines.

Vega Engineering Corporation – Taiwan

(Stand S13)

Fax: +886 473 67241 Email: sales@vegaet.com.tw Website: www.vegaet.com.tw





Not getting enough attention? ...







DK Jones reveals Tube SEA offering

DK JONES Ltd provides pipe, fittings and flanges in a wide range of both standard and difficult-to-find grades and sizes and is exhibiting at this year's Tube South East Asia

In addition to stocks of more than 4,000 tons of fully certified material, DK Jones has developed long-term relationships

with many major manufacturers. This enables the supply of an extensive, and ever increasing, range of materials from stock or on short manufacturing lead times providing a cost-effective single source for customers' project requirements.

Materials provided by the company include low temperature steels, chrome

molybdenum steels, high yield steels, carbon steels, stainless steels, duplex stainless steels, nickel alloys, copper alloys and aluminium alloys.

Complete packages of materials, or single items, are regularly supplied for projects in the oil, gas, power, chemical and petrochemical sectors and the current customer base covers more than 60 different countries on five continents around the world.

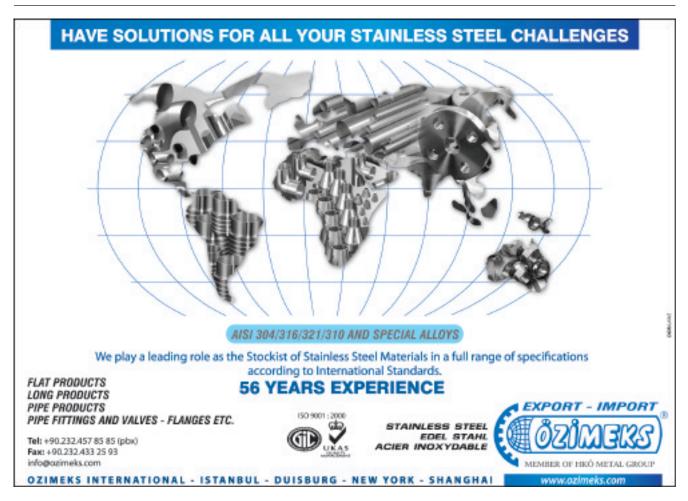
The company's original objectives of developing business both in UK and abroad by maintaining the quality of the products, ensuring price competitiveness and enhancing service standards still remain unchanged.

DK Jones is again exhibiting at Tube South East Asia 2009 in Bangkok, Thailand. Further details of the range of products and grades stocked and supplied can be obtained by visiting DK Jones Ltd on stand number N04 during the exhibition which runs from 13 to 15 October.

DK Jones Ltd – UK (stand N04) Fax: +44 1789 772444 Email: sales@dkjones.com Website: www.dkjones.com

DK Jones stocks more than 4.000 tons of fully certified material





MFL sawing and cutting machines

MASCHINENFABRIK Liezen und Gießerei GmbH (MFL), Austria, which is exhibiting at Tube South East Asia, specialises in producing sawing and milling equipment for the steel and aluminium industry.

The company's cold circular sawing machines are used for cutting stainless steel, high and low alloyed steel, structural steel and non-ferrous metals in the form of billets, tubes, profiles and plates. The machines are equipped with carbide tipped blades that ensure a long service life.

The cutting machines are classified into single cut sawing machines and layer sawing machines. The single cut sawing machines are able to cut billets and single tubes with a diameter from 30 to 800mm in diameter.

The biggest layer sawing machine is equipped with a saw blade diameter of 2,200mm and has a layer width of 1.5m. The layer sawing machine is used for cutting of tubes, I- and U-beams, sheet pilings and angles. Smaller laver sawing machines. starting with a layer width of 650mm, are also available.

Plate and stripe edge milling machines are used for the welding seam preparation of ERW and spiral pipes, containers and rail car construction.

Maschinenfabrik Liezen und Gießerei GmbH – Austria (Hall 102, Stand N13/4) Email: marketing@mfl.at

Website: www.mfl.at

The large 2,200mm cutting saw



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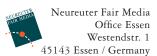
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Maillefer insulated composite pipes

MAILLEFER, which is exhibiting at Tube South East Asia, offers complete systems for multilayer composite pipe manufacturing and delivers lines for producing flexible corrugated or foam insulated composite pipes.

The company claims that a composite pipe manufactured with a foam tube offers several advantages over a pipe insulated by the contractor at the building site.

Both the foam tube and the composite pipe are fed to the line using two single payoffs. The coil length of the foam tube ranges from 700 to 1,200m with a diameter range of 28 to 46mm. An accumulator is used when switching from one empty payoff to the other full one. In parallel, the composite pipe is introduced from another pair of single payoffs. The pipe is either on coils or reels and diameters range from 16 to 26mm.

The foam tube is applied around the pipe by first slicing it open lengthwise, then merging the pipe into the foam tube. The cut edges are then heated before being joined together

to form a welded seam. A compression phase maintains the edges perfectly aligned and holds the foam tube in place as the weld solidifies. Finally the product is ready to receive its outer jacket.

The foam insulated pipe enters the extrusion head where a medium/high density PE layer ranging from 0.15 to 0.20mm uniformly seals the foam tube. The MXC extruder coupled with the most recent screw and barrel innovations offers a linear and homogenous melt across the full RPM range. The nearly finished pipe then enters a section of cooling water trough before reaching the conditioning components of the line.

The Nomos® PSU line control ensures a precise synchronisation of the various line operations at the highest possible speeds for the product.

Maillefer – Switzerland (Stand G11)

Fax: +41 21 691 21 43 Email: info@maillefer.net

Website: www.mailleferextrusion.com

EJP presents pipe drawing system

EJP is a manufacturer of combined drawing systems that are designed for the production of tubes, bars – including round, hex, square and flat profile – for steel, copper, copper alloys and aluminium.

The manufacturing programme includes combined drawing systems (coil to bar, bar to bar), peeling machines, two-roll straightening and polishing machines, tube and profile straighteners, shotblasting machines, rotation and flying shears, flying saws, chamfering machines, bundling machines, resawing machines and special equipment according to customer needs.

EJP will present several pictures, literature and videos out of the complete manufacturing range at the Tube South East Asia event.

EJP – Germany (Stand K19) Fax: +49 2401 954199 Email: info@ejpmachines.com Website: www.ejpmachines.com

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DWT to exhibit pipe bevelling machines

DWT has held the license to manufacture portable pipe bevelling machines under brand name Babcock for many years.

DWT offers specialist applications for boiler walls and heavy-duty pipes on-site operations with flexible and low weight machines. Their high working speed and quick readiness for use allow economic manufacture.

The new machine MF6i-50 can handle pipe diameters up to 711mm ID. They are driven by pneumatic motors and controllable by a single operator.

The machines have a high metal removal rate, are light weight and are designed to be easy to handle.

DWT – Germany (Stand 7 306) Fax: +49 201450 9999 Email: info@dwt-gmbh.de Website: www.dwt-gmbh.de

Complete ERW pipe mill line and finishing

Established in 1992, SMACO offers complete ERW pipe mill line and pipe finishing equipment and will be exhibiting at Tube South Fast Asia.

It produces pipe mill for API/ASTM pipe and structural hollow section 1/2" to 16" and this includes advanced mill entry equipment with double uncoiler, automatic shear and end welder and accumulator. It also has a forming and sizing mill with hydraulic push out quick disconnect coupling during size change, flying cut-off machine including cold saw with AC servo feed, servo saw blade drive and carriage drive for pipe up to and pipe bundling and bundle transfer system.

Pipe finishing equipment includes automatic high-speed dual-head end facing and chamfering machine with cam follower for API facing, hydrotester with multihead testing for 7,500psi test pressure, straightening machine with roll quick lift feature, auto roll adjustment with data storage for operation parameter, fully automatic pipe threading machine, pipe

end cropping machine for API end crop and complete finishing floor pipe transfer and handling system.

Customised equipment for API testing includes online ultrasonic testing, off-line ultrasonic testing with mechanical pipe handling system, internal weld bead scarfing with cutting depths monitoring system, edge milling machine, high speed pipe cutting machine specially designed for heavy wall pipe cutting with servo feed 4 x carbide cutter and special design equipment.

The company says it is also able to supply various ancillary equipment including coil slitting line, coil shearing line, automatic pipe galvanising plant, spiral pipe mill and finishing equipment for spiral welded pipe and wide range of other steel processing lines and machineries.

SMACO - Malaysia (Stand P11-Hall 102)

Fax: +603 5191 2286 Email: info@smaco-intl.com Website: www.smaco-intl.com





TECHNOLOGY UPDATE

Portable, ultrasonic corrosion monitoring thickness gauges for improved stability

THE DM5E range is the latest generation of portable, ultrasonic, corrosion monitoring thickness gauges from GE Sensing & Inspection Technologies. It offers improvement in performance over previous corrosion thickness gauges in terms of better thickness measurement stability and repeatability at normal and, especially, at elevated temperatures. It has been designed for operation in the harshest of working environments, performing wall thickness measurements on pipelines, pressure vessels and storage tanks in the oil and gas industry, as well as the petrochemical and power generation sectors.

The new corrosion measurement solution is available in three versions: the DM5E Basic, the DM5E and the DM5E DL. All versions weigh just 223g, including their AA batteries, which allow up to 60 hours of operation. They feature an LCD data display, which is backlit to be visible in all lighting conditions, and operation can be carried out with one hand via a user-friendly operator interface.

The sealed, watertight and dust-proof membrane keypad features a minimum of function keys and arrow keys. Navigation through the single level menu is simple and intuitive and the keypad allows access to all calibration, set-up and display modes.

A range of displays is available, including normal, where thickness is displayed digitally, Min Scan and Max Scan, where either the minimum thickness or the maximum thickness is displayed after the ultrasonic probe is passed over the wall surface being monitored, and B-scan, which is generated by measuring and recording at one point per second to create a B-scan graph showing thickness values graphically.

The DM5E instrument additionally offers the dual multi-operating mode, which allows metal thickness to be measured through coatings.

Protective coatings, including paint, contribute significant error to thickness measurements of underlying metal walls when using conventional methods. In addition, the removal of coatings, and their subsequent reapplication, involves considerable cost and time.

The DM5E DL version has a built-in datalogger, with a capacity to store 50,000 readings in grid and linear files. This makes the measurement data available for further processing. Using GE's UltraMATE software, measurement data files can easily be transferred from the instrument to a PC via a USB interface, for further analysis and storage.

The Basic version can be simply upgraded into a DM5E instrument and both DM5E Basic and DM5E can be field-upgraded to become DL versions.

GE Sensing & Inspection Technologies

– UK

Fax: +44 1727 795400 Email: david.jervis@ge.com

Website: www.gesensinginspection.com

Installations for the continuous induction heat treatment of tubes, bars and wires

AN increasing role is being played by continuous induction heat treatments in the production of high quality steel pipes, according to ATE Applicazioni TermoElettroniche Srl, Italy.

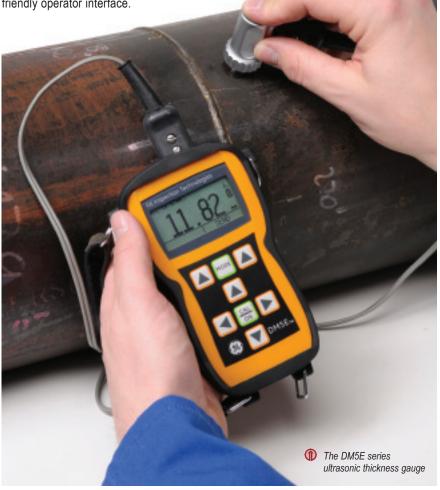
It says the process helps achieve high production rates with reduced installation space requirements, lower energy consumption and a better working environment.

The company says ATE's production programme offers: annealing furnaces of steel tubes, wires, strips, round and square section bars; annealing furnaces of nonferrous tubes and wires (aluminium, copper, brass and precious alloys); hardening and tempering equipment for steel tubes, bars and wires; and localised heating of steel tubes and bars.

ATE Applicazioni Termo Elettroniche

Srl - Italy

Fax: +39 0444 406434 Email: info@ate.it Website: www.ate.it



TECHNOLOGY UPDATE

Self-healing elastomer enters industrial production

ARKEMA, France, announced in February 2008 the joint development with the Paris Ecole Supérieure de Physique et Chimie Industrielles (ESPCI) Matière Molle et Chimie Laboratory of a self-healing rubber based on the concept of supramolecular chemistry.

Arkema will now begin the industrial production of the first highperformance materials derived from this chemistry. A comprehensive range of supramolecular materials and additives will be marketed under the trademark Reverlink™.

During the past twelve months, Arkema has been fine-tuning pilot plant processes capable of producing, on a semi-industrial scale, materials based on supramolecular chemistry, and studying applications that might benefit from this chemistry. The production plant, based in France at the Feuchy facility (Pas-de-Calais), has an annual capacity of almost 100 tons.

The new supramolecular materials are composed of at least 60% fatty acid oligomers derived from vegetable oils, and their production is part of Arkema's strategy to increase the use of renewable raw materials.

Supramolecular materials specifically feature 'reversible' (nonpermanent) intermolecular bonds, in contrast with polymers derived from traditional chemistry, which are based on 'irreversible' (permanent) bonds.

This reversibility feature imparts a capacity to self heal: cracks or breaks occurring in supramolecular materials can be repaired simply by putting the fractured surfaces back together and applying light pressure; the materials recover nearly all of their initial strength without the need for bonding or heating.

The self-healing elastomer technology offers opportunities wherever an elastomer part is likely to suffer damage from micro-cracks or deep grooves.

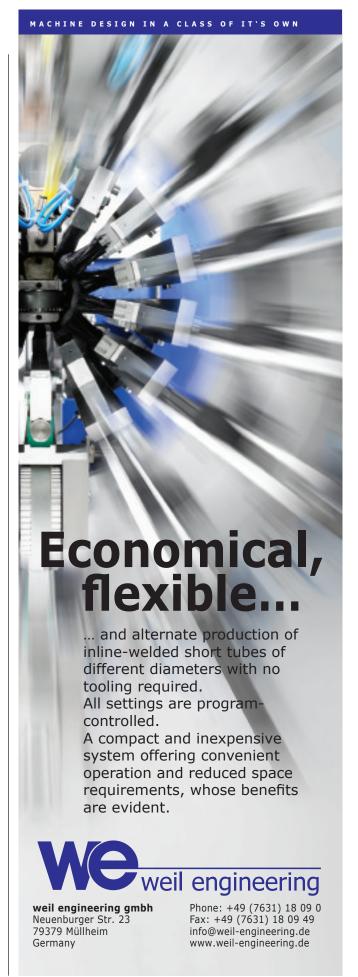
Many industrial applications are being explored: conveyor belts, sealing joints, impact protection, insulation and shock-absorbing layers, industrial gloves, anti-corrosion coatings for metal, and formulation additives for adhesives, bitumen, organic binders, paints, varnishes, pastes and sealants.

Over 30 confidentiality agreements have already been signed between Arkema and industrial partners relating to possible developments in supramolecular chemistry.

Arkema has developed a range of products with self-repairing characteristics tailored to several application areas. The Reverlink range consists of ten grades of supramolecular elastomers featuring optimum self-healing characteristics, products for traditional polymer modification, and various additives.

A video demonstration of Arkema's self-healing rubbers can be viewed at www.reverlink.com.

Arkema - France Fax: +33 1 49 00 83 96 Website: www.arkema.com



T&H Lemont delivers dual capacity high frequency quick-change welded tube mill

T&H LEMONT has installed a new dual capacity, quick-change tube mill system, which will produce standard mechanical rounds as well as hollow structural shapes.

The company developed the dual capacity pipe and tube mill systems to give pipe and tube producers wide ranging flexibility to handle demand for JIT deliveries of welded pipe and tubular products. The dual capacity mill design allows for a greater range of production diameters in a minimal amount of floor space. In effect, the dual-capacity mill system gives a pipe and tube producer the ability to produce a range of pipe and tubing normally produced from two different sized mills.

With a dual-capacity mill, the entire entry and exit equipment is designed to be universal, as are the mill bases and drive systems. The dual capacity of a mill is achieved by two different sized sets of quick change subplates, designed to mount on a single base system and utilise a universal drive system. In this most recent instance,

one set of subplate-mounted driven stands with 3.5" shafts was designed for producing tubing from 1.25" to 5", and a second set of subplates with 6" shafts was designed to produce tubing from 2.5" to 8" diameter.

The distance between the stands was optimised for the products produced on each set of subplates. As with all quick-change systems, one set of subplates will be in production while the second set of subplates is available for change-over. The mill was also designed to use an overhead crane system to assist in the change out of the subplates. The subplates are held to the base by a special hydraulic clamping system, allowing them to be connected rigidly and precisely to the mill base and, when necessary, disconnected from the base quickly and efficiently.

T&H Lemont has also signed a new contract with a second customer to supply a dual capacity, high-frequency, quick-change welded pipe mill to produce API products.

The overall size range for this new mill will be 0.75" to 4.5" diameter.

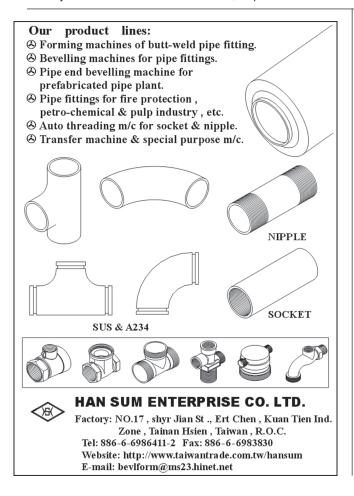
T&H Lemont – USA Fax: +1 708 482 1802 Email: sales@thlemont.com Website: www.thlemont.com

Magnetic billet lifter for increased safety

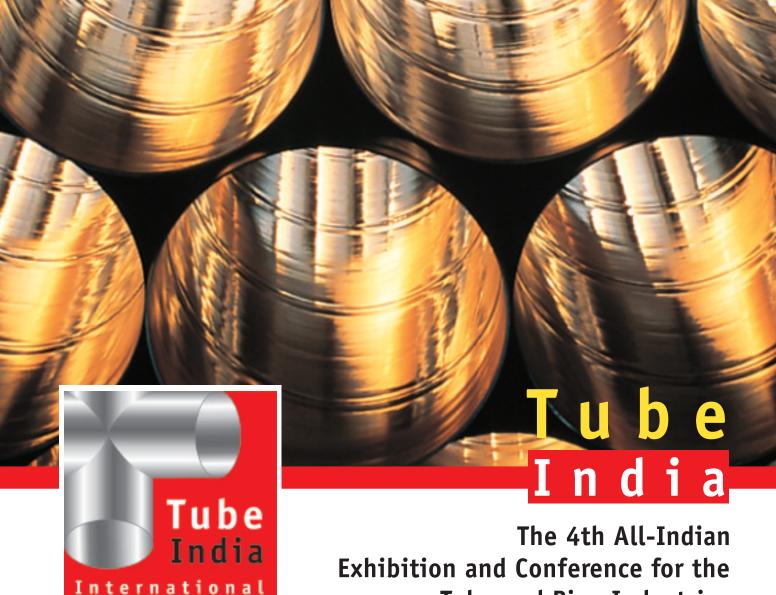
INDUSTRIAL Magnetics, Inc, USA, has designed a magnetic billet lifter to lift and rotate round, thick, steel billets, increasing production cycles and safety.

Each billet lifter is designed for the application, based on the shape and weight of the steel billet. The on/off magnetic billet lifter can lift and rotate steel billets from horizontal to vertical orientation, or vice-versa, and load the billet safely into machines and stations without fear of dropping the load.

Industrial Magnetics, Inc – USA Fax: +1 231 582 0622 Email: imi@magnetics.com Website: www.magnetics.com







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Easy-to-use image sensor for industrial vision applications

A COMPACT, self-contained image sensor with touch-screen controls to solve inspection applications on the factory floor has been introduced by Banner Engineering, USA. The new iVu series TG image sensor operates without a PC, combining the simplicity and low cost of a photoelectric sensor with the intelligence of a vision sensor. The unit features a touchscreen with an intuitive interface for easy configuration of inspection parameters.

The iVu includes three inspection tools in one package: a match sensor that compares a part to a reference, an area sensor that detects presence or absence of a feature, and an area sensor that adjusts for motion. It is designed for use in industries including pharmaceutical, automotive, food and beverage, packaging, metal stamping, plastics and electronics.

Placement, quality and size of holes are verified by the iVu image sensor on a metal stamping



Setup can be accomplished in minutes with only four steps: install and connect the sensor, select inspection type, acquire a good image and set the inspection parameters. All necessary information is displayed on the 68.5mm LCD screen displaying 320x240 pixels. An adjustable focus lens makes image acquisition fast and easy.

The onboard interface allows the user to select operation in English, French, German, Italian, Spanish, Portuguese, Japanese and traditional or simplified Chinese. Its robust housing is rated to IP67 for operation in harsh industrial environments, and a variety of cordsets and mounting brackets are available. While the iVu is designed to be configured and operated without a PC. an offline software emulator tool allows applications to be set up remotely.



Banner Engineering manufactures vision sensors, photoelectric and ultrasonic sensors, fibre optic assemblies, indicator lights, machine guarding systems, precision measurement and inspection systems and wireless network products.

Banner Engineering - USA Fax: +1 763 544 3123

Website: www.bannerengineering.com

ID printer that produces custom barcode tags

INFOSIGHT, USA, manufactures industrial marking machines, metal tags, metal tag printers, barcode readers and custom machinery for manual and automatic identification and traceability applications.

The company's latest metal tag printer, the JM410, produces custom barcoded ID tags on demand. Designed for low volume applications, the JM410 prints tags for asset identification or industrial marking.

At up to 80" per second, the printer is suitable for asset tagging utilising UID, GS1 and Data Matrix compliant barcodes.

The JM410 has a marking area of up to 4"x4" to print a range of tag sizes.

InfoSight Corporation - USA Fax: +1 740 642 5001 Email: sales@infosight.com Website: www.infosight.com

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Cincinnati extends standard extruder series with its largest model yet

SINCE the introduction of the Alpha standard extruder family, machine manufacturer Cincinnati Extrusion has already sold more than 700 of its single-screw extruder models. Now the company has added a new model to the range: the Alpha 75-25B for technical profiles and mini-diameter and corrugated pipes.

Similar to the Alpha 45 and Alpha 60 models, the new Alpha 75 single-screw extruder offers the advantages of short lead-time and high-grade technology. With an output of up to 120kg/h for polyethylene, 150kg/h for polyvinyl chloride and 180kg/h for PC/ABS blends, the extruder lends itself to a variety of applications.

The standard equipment package for the 75mm extruder with smooth feed bushing and a processing length of 25D includes a screw, a control cabinet based on a relay control system (SecuRe) and a mobile, digital operator terminal. Customers can choose between a screw geometry suitable for HDPE, PP, ABS, PS and PET; one for modified hard PVC granulate and hard PVC with filler content; and one for soft PVC granulate, which can process TPE blends



in addition to soft PVC compounds with and without filler content.

Options for the new Alpha Extruder include a CAN-bus interface, a UPS voltage drop protection unit, and melt pressure and melt temperature sensors.

Cincinnati Extrusion GmbH – Austria

Fax: +43 1 61006 266
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Compact pipe rotator positioning device

BODE Positioners, UK, manufactures the type 1/CR40 'Sizzer' rotator, a versatile rotational positioning device for pipe or vessel fabrication workshops. The machine consists of a drive and idler section, and will support and rotate two tons in weight.

Manual adjustment of the support arms gives four positions to handle diameters from 150 to 2,000mm. Each section has

two rollers made from interchangeable polyurethane wheels, 233mm diameter x 38mm wide.

The motorised drive is via AC inverter technology and control of rotation is from a hand pendant with forward, stop, reverse and speed control potentiometer.

The machine has a small footprint, and is suitable for 110 or 240 volts input. The Bode Sizzer rotators are part of a large portfolio

of machinery built for rotating and positioning workpieces. Bode will be exhibiting at Schweissen & Schneiden 2009, Hall 1, Stand 409, 14-19 September.



Bode Positioners Ltd – UK Fax: +44 1995 643211 Email: sales@bode.co.uk Website: www.bode.co.uk

Acoustic piping system helps keep new development quiet

POLYPIPE Terrain's Acoustic dB12 piping system has been implemented in the new Saxton residential development in Leeds, UK. The dB12 pipes and fittings have been used to create soil and waste systems that provide a high degree of acoustic insulation and prevent noise transmission within the new Urban Splash development.

The development involves the complete refurbishment of two tower blocks that previously provided accommodation for housing authority tenants. The prevention of noise transmission between the new apartments demanded an acoustically insulated piping system that would provide reliable and effective performance.

Terrain Acoustic dB12 was specified by mechanical engineers RAD Mechanical Services Ltd. "We have used Terrain's PVC above-ground soil and waste system on a large number of developments in the past and it has always provided excellent

performance," commented RAD's Mark Radcliffe. "We were naturally keen to see if the Acoustic dB12 system, which was launched recently, could meet our specifications and perform to the same high standards, which it has. Polypipe Terrain worked with us to overcome some initial technical issues, and once work

started we found the Acoustic dB12 system to be both quick and easy to install."

The pipes and fittings in the Terrain Acoustic dB12 range allow the creation of soil and waste piping systems in multi-occupancy buildings such as hotels, apartments, hospitals and schools, where minimal noise transmission is a key requirement.

The three-layer construction allows the pipes and fittings to provide acoustic performance that surpasses the requirements of Building



Regulations Part E, and to also meet Class B1 fire protection standards.

A wide variety of components, pipes and fittings are available, providing flexibility in system design and allowing an acoustically insulated drainage system to be created for virtually any application.

Polypipe Terrain – UK Fax: +44 1709 770001

Email: commercialenquiries@polypipe.com

Website: www.polypipe.com



www.sw-wil.com

Flexible large bore cryogenic hoses for next generation offshore LNG transfer

BLUEWATER Energy Services BV has introduced a composite cryogenic hose made with Dyneema® fibre, designed as a flexible large bore hose for high volume offshore LNG (liquefied natural gas) transfer. This is the first cryogenic application in which Dyneema fibre has been used.

In transferring LNG, hoses ideally need to be large-bore, durable and able to handle the sustained and potentially high loads induced by the offshore marine environment. They should also be flexible to allow operability in harsh weather conditions. Large volume fluid transfer enabled by these large-bore hoses (up to 5,000 cubic metres of LNG/hour with 16" hose) reduces the duration of the marine transfer operation and, therefore, the overall risk exposure.

This is a challenging requirement, as the low LNG temperatures, along with unfavourable environment, severely restrict the range of materials that can be used for hose construction. Dyneema provides exceptional strength, is light weight and resistance to low temperatures, all of which meet performance needs. Bluewater's large-bore hose construction includes a patented circular braided layer made from Dyneema, a key enabling component providing the Composite Cryogenic Hose with high axial strength, flexibility and increased pressure capacity.

Key characteristics of the Composite Cryogenic Hose are its tensile load performance, pressure capability, flexibility and bending endurance. This allows easy and controlled offshore handling and reliable operations. The hose is the result of an extensive ten-year research and development programme. DSM Dyneema and Bluewater cooperated closely for the last two years and both companies have now committed to a strategic partnership that

will involve cooperation on marketing and further product innovation developments.

Jorn Boesten, segment manager offshore for DSM Dyneema commented, "This hose is another extension to the range of demanding applications where Dyneema fibre is used in harsh marine and offshore environments, ranging from LNG tanker mooring lines, deepwater installation lines to offshore platform mooring lines and heavy-duty lifting slings."

Natural gas is the most environmentally friendly fossil fuel source for energy production and LNG is considered to be the ideal means to transport stranded natural gas, found in remote offshore areas, where the traditional pipeline infrastructure cannot reach. Mining of stranded gas is not always economically or physically viable, but the world's growing demand for energy is driving industry to explore new production solutions and the new large bore flexible cryogenic hose will enable safer, more efficient harnessing and transportation of new gas reserves.

LNG transfer operations include the offloading from a tanker to an offshore floating storage and regasification unit (FSRU), ship-to-ship (STS) transfer of LNG from a floating production, storage and offloading (FPSO) vessel to a shuttle tanker in an exposed location, STS lightering operations and even exposed ship-to-shore LNG transfers.

DSM Dyneema – The Netherlands Email: info.dyneema@dsm.com Website: www.dyneema.com

Bluewater Energy Services BV –

The Netherlands

Fax: +31 23 565 2053

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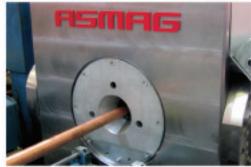




ASMAG

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phone: +43 7616 8801 0 email: sales@asmag.at web: www.asmag.at



Tabletop computed radiography (CR) scanner for detecting flaws

THE CRx Flex is the latest addition to the suite of digital radiography conversion options from GE Sensing & Inspection Technologies. Combining flexibility, versatility and reliability with wide latitude and high image quality, the CRx Flex will find applications in flaw detection in welds and cast parts, and in the inspection of piping for erosion/corrosion.

The scanner can be used with either isotopes or X-ray sources, and is designed for the rigorous radiographic inspection requirements encountered in the oil and gas, aerospace, power generation,

automotive and military sectors.
Unlike competitive phosphor scanners, it can be used either with hard cassettes, in which the phosphor imaging plate never leaves the cassette, or it can scan any size of phosphor screen up to 14"x17", and any shape can be accommodated. These individual imaging plates can be exposed using a soft, flexible cassette (with or without lead) before scanning.

Productivity is also improved due to the wide dynamic range and high signal-to-noise ratio of the scanner.



The new CRx Flex computed radiography scanner

This combination allows a broad range of thicknesses to be inspected in a single exposure, resulting in streamlined procedure development, less exposures/retakes and increased component throughput.

The CRx Flex also has the ability to produce a high level of image quality due to its specially designed optics, its true square 50-micron pixel size and its 30-micron laser spot size. This precise scanning resolution allows the CRx Flex to qualify for the IP Class Special/60 (ASTM E2446-05) and IP Class 1/60 (EN 14784-1).

The robust CRx Flex has a small tabletop footprint and is designed to provide reliable operation within the harshest of NDT environments, offering long mean-time-between-failures and maintenance. To further minimise downtime, its internal modular construction allows easy and rapid field serviceability.

Its horizontal transport system extends the life of the imaging plates, as it has little or no direct contact with the imaging plate during the scanning process. This eliminates the possibility of plate damage during the scan process and reduces general wear and tear.

Juan Mario Gomez, product general manager, radiography, commented: "By combining the operational features of CRx Flex with our Rhythm software platform, customers can now acquire, review, report and archive inspection data. They can also enjoy the benefits of data sharing and image enhancement, which allow significant improvements in productivity and faster identification of defect indications."

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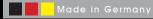
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CNC hand-held marking system that aids product traceability

MANY products leaving industrial manufacturers require marking with a serial or manufacturing number. In many cases the product also needs to be marked with a company logo or a certification mark for quality management.

The traceability of products to verify when and where they were manufactured is important for future reference.

The mobile and self-sufficient hand-held marking system MV5 M75 ZE 301 from Markator Manfred Borries, Germany, fulfils these requirements, and features easy handling combined to provide permanent, durable and economical marking of components directly on-site.

The marking area of the system is 75x25mm and the marking pin, which is oscillated by compressed air, generates precise, deep markings. The system can mark many materials, from hardened steel to plastics.

For the marking of small workpieces, the handgrip of the marking system can be

released, enabling the marking head to be mounted to a column frame.

This allows the positioning and adjustment of the small workpieces to be marked.

The MV5 ZE 301 external central control unit, equipped with integrated PC functions, is

just one of the control units that can operate with the hand-held marking system.

Markator Manfred Borries GmbH -

Germany

Fax: +49 7144 8575 616 Email: info@markator.de Website: www.markator.de



High performance plastics design and material knowledge

QUADRANT EPP has launched www. designwithtorlon.com, a multimedia website that provides information to engineers, designers and machinists on the material properties and advantages of the company's machinable Torlon® PAI shapes.

In addition to standard material information such as product specifications, basic application information and downloadable documentation, the new site also features specially commissioned video elements that hope to increase the site's usefulness for the design community.

Video segments cover topics such as saw cutting, turning, milling and fly-cutting. Site visitors can see first hand how these processes are performed in Quadrant's Technical Centres. The processes demonstrated address many frequently asked questions about designing parts with Torlon PAI and many other advanced engineering plastics.

In addition to the video segments on material fabrication and machining

procedures, Quadrant has introduced a newly commissioned series of video shorts modelled on a US talk show format that address design and performance concepts.

These segments are grouped in the site's Vodcast area and are intended to be light-hearted, entertaining and informative. The show can be subscribed to as an RSS feed by visitors who want to stay connected to new updates from the programme.

The primary aim of the site is to illustrate the material properties and performance advantages of Torlon PAI when compared to machinable polyimide materials. The versatile performance benefits Torlon PAI offers at elevated temperatures, ranging from 150°C to 250°C, are not always understood in the wider materials design and engineering community.

These include excellent wear and frictional performance, exceptional strength, stiffness, and dimensional stability – all of which are described in the 'Why Torlon' section of the site.

Torlon PAI also displays high creep resistance and inherent low flammability, as well as resistance against high energy radiation (gamma- and X-rays).

Torlon PAI shapes are available in extruded, injection moulded and compression moulded grades, for a range of highly demanding applications in various industries, especially the aerospace, chemical processing, energy and semiconductor sectors.

Quadrant Engineering Plastic Products

Switzerland

Email: sigrid.dopfer@qplas.com **Website**: www.quadrantplastics.com

Brushes for removing the coating of tubes

LESSMAN, Germany, makes wire brushes for industrial applications like de-burring of working components or cleaning or structuring surfaces of materials and removing the coating of tubes.

The external surface of steel pipelines is often coated with epoxy resin and PE or PP layers. These protect the tube from corrosion but must be removed at the tube ends to enable the welding procedure to take place when the tubes are put together.

Usually several rings of knotted wire brushes are mounted together to get one massive block of wheel brushes. Diameter of the brush, wire thickness and the overall shape of the brush are defined by the sizes of the tube, the material of the layers and the cut back machine in use.

The company offers brushes up to the diameter of 500mm, filled with hard drawn high tensile wire.

Most of the brushes are made-to-order, as the individual applications often vary.

Beside these cut back brushes, Lessmann offers various special tools for the pipeline industry like brushes for cleaning weld seams or brushes for pigs to clean the inside of tubes.

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Non-stop production of foam insulated composite pipes for greater protection

THE use of composite pipes (PEX-Al-PEX) has grown to occupy an important segment in the heating and plumbing pipe industry. These pipes are available in different forms according to the installation conditions. Certain composite pipes require a protective outer construction, such as a flexible corrugated pipe or a foam tube.

Composite pipe inserted in a flexible corrugated pipe is typically placed in cement foundations and inside walls. Aerial or free hanging composite pipes are fitted with a thick foam tube in order to enhance their insulation properties. Maillefer, Switzerland, provides complete systems for multilayer composite pipe manufacturing, and also delivers lines for producing flexible corrugated or foam insulated composite pipes.

For a line configuration that features nonstop, full-speed production of foam insulated composite pipe, typical specifications include entry foam tube lengths from 700 to 1,200m, entry foam tube diameter from 28 to 46mm, entry composite pipe diameter from 16 to 26mm, typical foam tube thickness of 6 or 10mm, maximum bar length of 6m and a maximum production speed of 35m/min.

Cooling of the extruded jacket



The line functions are composed of five steps: pipe and foam payoff, foam tube application, seam welding, jacket extrusion and conditioning in bars or coils.

Both the foam tube and the composite

pipe are fed to the line using two single payoffs. To make continuous production possible, an accumulator is used when switching from the empty payoff to the full one. In parallel, the composite pipe is introduced from another pair of single payoffs. The pipe is either on coils or reels. Composite pipe diameters range from 16 to 26mm.

The foam tube is applied around the pipe by first slicing it open lengthwise, then merging the pipe into the foam tube. The cut edges are then heated before being joined together to form a welded seam. A compression phase maintains the edges perfectly aligned and the foam tube is held in place as the weld solidifies. Finally the product is ready to receive its outer jacket.

The foam insulated pipe enters the extrusion head where a medium/high density PE layer ranging from 0.15 to 0.2mm uniformly seals the foam tube.

The MXC extruder, coupled with the most recent screw and barrel innovations, offers a linear and homogenous melt across the full RPM range. The nearly finished pipe then enters a section of cooling water trough before reaching the conditioning components of the line.

The product is conditioned either as coils or bars. Coils are wound on the MWB 1300



Merging the pipe into the foam tube

fully automatic dual coiler, which features continuous coiling and strapping with up to six straps. The pipe being coiled is cut at predetermined lengths by one of two saw types, radial or planetary. Both full cuts and partial circumferential cuts are possible. Straight bars are fully cut at predetermined lengths with the radial saw.

The Nomos® PSU line control ensures a precise synchronisation of the various line operations at the highest possible speeds for the product. Extruder control and line speed are optimised for high quality and minimum scrap.

Advantages offered by composite pipe manufactured with a foam tube include a foam insulated pipe that is ready to use; a perfect alignment of cut edges for a round product; a complete weld throughout the full thickness of the foam tube; a fine weld seam that is barely noticeable; a smooth, continuous surface from end to end, without foam tube retraction and wrinkles; and a product that is sealed with a protective outer layer.

Maillefer SA – Switzerland Fax: +41 21 691 2143 Email: info@maillefer.net

Website: www.mailleferextrusion.com



Turnkey line concept for technical profiles

AT Plast09 Cincinnati Extrusion GmbH, Austria presented the Alpha protech complete line concept for technical profiles, developed in close cooperation with Extrunet GmbH. Alpha protech offers an output of up to 150kg/h, and the profile dies are manufactured to customers' specifications. The line can be also run in and approved directly at Extrunet, upon request, using materials supplied by the customer.

For the complete line, five different Cincinnati extruder models are available to choose from. These include the single-screw extruders alpha 45, 60 and 75 for processing a wide variety of granulates such as HDPE, PP, ABS, TPE-S or PVC-soft, as well as the Konos 38 and 50 twin-screw extruders for PVC dry blend materials.

The entire downstream equipment, starting with a 6m calibration table, can be controlled via a 6" touch display at the front end of the calibration table. The PLC control system can be operated in six different languages

and adjusted to customers' specific needs. As haul-off units, either a belt haul off or a caterpillar haul off are available, both operating with a maximum haul-off speed of 20m/min. The caterpillar haul-off is recommended for profiles with special contours, since it can be perfectly adjusted to the form of the product.

The haul off is followed by a saw as cutting device, with a standard saw blade 300mm in diameter, or optionally 400mm in diameter. Using a PLC-controlled cutting program, up

to six different cutting lengths and numbers of units can be pre-set. A tipping device is mounted at the end of the downstream unit.

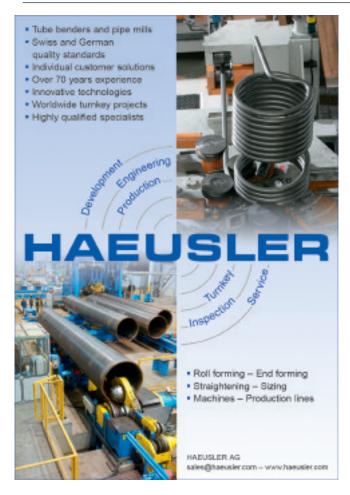
A number of optional extras are available, also tailor-made to fit into the complete package. These include an additional vacuum pump, a water/air separation tank including vacuum and water pumps, a water treatment system and a saw equipped with a servo drive for higher cutting accuracy.

Cincinnati Extrusion GmbH – Austria

Fax: +43 1 61006 266

Email: welcome@cet-austria.com Website: www.cet-austria.com







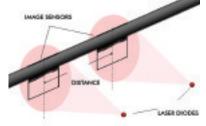
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Length measuring system for tubes and hoses

SIKORA has developed a system called PRECILENGTH 6000 for non-contact online measurement of lengths of hoses and tubes and length measurement of extruded round products. It assists by defining the product profile and its movements and calculating the speed and the produced length calculated.

In combination with two laser diodes, two image sensors are positioned next to each other. The product passes the first image sensor, which defines the shadow of the product shape. The exposure of the second image sensor occurs when the product shape, which has been recorded by the first image sensor, passes the second sensor. Hence, the characteristics of the shapes of both sensors are identical.

The delay time for the exposure of the second image sensor is calculated and controlled adequately by the result of the correlation of both characteristics of the contours. Thus, PRECILENGTH 6000 exactly determines the produced length of the hose or tube.



Conventional length measuring devices using the principle of frequency shift, the so-called "Doppler-effect", are suitable for the measurement of flat materials such as paper, steel sheet or textile. However, this technology encounters difficulties for length measurement of profiles with round or blank surfaces.

The technology of the PRECILENGTH 6000, which defines the length through comparison of image patterns, is also reliable for round products and for products with blank surfaces.

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

Italian tool manufacturing

ABS UTENSILI, Italy, has been involved in the field of tool manufacturing since 1975. The company says it has always been committed to continuous technological development and extending its range in order to meet the needs of the mechanical industries. The company is involved not only in standard production, but also in the development of parts according to customers' designs. It claims that great attention is paid to consulting, designing and processing, as well as to ensuring prompt deliveries and assistance by qualified technicians.

ABS Utensili selects raw materials assessed according to quality criteria, performance and long life. The company then uses advanced machinery and the latest generation NC equipment to provide precise results.

ABS Utensili Srl – Italy Fax: +39 0438 482076 Email: info@absutensili.com Website: www.absutensili.com



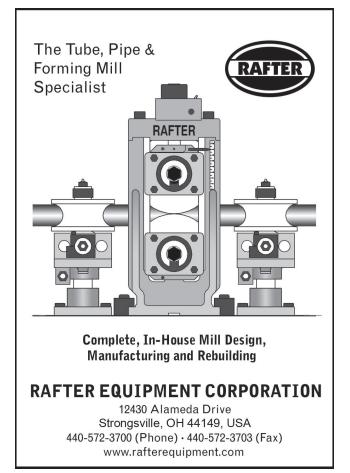
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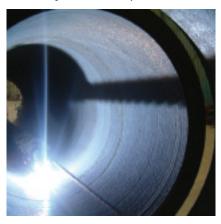
High quality piping with TIG hot wire

THE Norwegian company Sub Sea Services AS specialises in products in the offshore industry. Since the middle of this year, it has been welding and finishing its pipe assemblies and components using TIG hot wire technology from Polysoude, France.

Otto Henning Sulen, weldshop manager at Sub Sea Services, explained: "Pipes and systems used to convey crude oil or natural gas energy sources at high speed and at high pressure demand high levels of investment.

"The sand and other abrasive minerals, as well as corrosive media, which are also conveyed during exploration, necessitate pipe materials of the highest possible quality. To control costs and preserve resources, we finish the internal walls of

U Cladding solutions from Polysoude



our components using deposition welding. In this process, the extremely hard material inconel is melted onto the cost-effective and easy-to-process carbon steel parent metal. To achieve this, we found an effective system in the shape of the automated TIG hot wire and deposition welding system from Polysoude. The new system, with its six computer-

controlled axes, welds and coats both reliably and efficiently."

The range of materials processed by Sub Sea Services extends from X60, X65, X70 to AISI 4150, 4140, 8630 through to low carbon steel F22. Pipe components from 1,000 to 1,500mm in length with diameters of 150 to 1,000mm are manufactured.

Thanks to shorter production cycles, the new system has increased productivity for both joint and deposition welding. This has enabled Sub Sea Services to achieve between 50 and 80 per cent greater inconel application levels than previously; and the increase in quality, cited at 30 to 40 per cent, makes it possible to meet specifications more closely. For example, the melt level of the carbon steel parent metal is consistently below three per cent, making it extremely hardwearing.

Polysoude SAS – France Fax: +33 240 681 188 Email: info@polysoude.com Website: www.polysoude.com

Six computer controlled axes enable welding and coating with a higher degree of reliability





Orifice meter tube manufacture process benefits from a major safety boost

SUNNEN Products, USA, is aiming to simplify and improve the safety, accuracy and efficiency of the orifice meter tube manufacturing process using a new automated honing system.

ID finishing of orifice meter tubes is still often tackled with a die grinder and an improvised hone, which can be both dangerous and time consuming, but Sunnen Products says it has developed a new solution in the shape of the HTA tube hone, which it claims is ideal for meter runs because it is automatically stroked, safer (clutched) and more accurate.

The control features a load meter to determine areas of bore tightness, with the capability for dwelling the tool in tight spots using a joystick. The tool-feed system can be programmed to expand the honing tool to a pre-determined spindle load that is adjustable, protecting the machine, tooling and workers, and allowing even inexperienced operators to produce good results.

The machine is available for 6ft (2 metres) and 12 ft (4 metres) part lengths, with bore IDs of 2.5 to 21 inches (63.5mm to 533mm) and maximum part OD of 24 inches (610mm) and part weights to 4,000 pounds (1,818kg). An electronically controlled 3-hp (2.24kW) AC gear motor powers the spindle at 0-300RPM.

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Corrugated pipe production at 30m/min

UNICOR, Germany, is a manufacturer of corrugated pipe extrusion machinery and it claims its UC 125 corrugator has been designed to allow producers to reduce the cost of production while simultaneously increasing output of plastic pipe.

It says the machine can produce double wall pipe with the nominal size of 110mm at 30m/min, compared to an average speed of around 18m/min for other corrugator machinery available on the market.

The company attributes the high production speed to a new developments in the cooling system and the mould blocks.

Unicor's managing director Klaus Kaufmann commented: "Our new technology enables pipe manufacturers to replace two corrugators that worked with average speeds by the faster UC 125."

According to Unicor, one main focus of the development department has been the reduction of operation and maintenance costs. The result is that the number of wearing parts could be minimised, and the change of wearing parts can be executed much faster. The Unicor staff optimised the curve geometry of the mould block in-let and out-let in reaction to the higher mechanical requirements and the demoulding of the forming blocks has been extended by an additional demoulding element. These developments ensure an extension of the





Visitors at the UC 125 symposium watching the corrugator's starting process

It says it is possible to replace single mould blocks quickly, and a complete mould block set consisting of 82 pairs of blocks can be replaced by two operators within only 30 minutes. This hopes to keep any interruptions in the production process to a minimum.

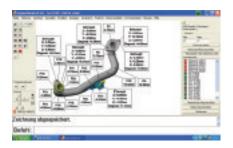
Unicor presented the UC 125 during an in-house show in May, in its technical lab in Hassfurt. Impressed by the speed, a visitor to the symposium said that the UC 125 "might be the fastest corrugator in the world".

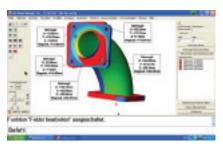
Unicor's managing director, Klaus Kaufmann, said: "The UC 125 is not only fast and efficient. The corrugator is furthermore an important tool for pipe producers that, when focusing on output and price per metre, can help customers to remain one big step ahead of the competition."

Unicor GmbH – Germany

Cutting out deviations in repeatability measurements

A NEW 'robotically' programmed measuring technique that aims to radically improve repeatability measuring consistency has been developed by TeZet Technik AG, Switzerland. The tube-specialised software. TeZetCAD, is modularly structured and has more than 100 tube functions. It is also menu driven, making it more user friendly and accurate than previous technology available to the industry.





The measurement process has always been time consuming and complex for tube measurements. For example, optical measurements using fixed cameras to measure a fixed tube are only accurate when the tube has no re-entrant angles or add ons. The process is particularly fraught with difficulty when it comes to bending tubes, with many attempts often needed to get it right, often wasting material and time. TeZetCAD claims to ensure that the bent tube is correct almost immediately due to the software's built in bender correction processes.

TeZet adds that other techniques can result in bent tubes springing back and claims that using its measuring software removes this possibility of error, however complex the pipe is.

TeZet Technik AG – Switzerland Email: tezet leistritz@compuserve.com Website: www.tezet.com

Wide range of bending equipment

TUBE & Pipe Bending Machines Ltd (formerly TurnKey37 Ltd) supplies a comprehensive range of tube and pipe bending machinery and automatic handling equipment. The company offers a family of nine machines ranging in capacity from 2" to 48" OD.

The company has a programme of custom-designed induction pipe benders, tube bending, end-forming machinery and automatic handling equipment. Tube & Pipe Bending Machines Ltd can design and build a totally bespoke solution, as well as supplying equipment from a list of proven machines.

The company can assist customers with upgrading, and will discuss purchasing old machinery in part exchange. The company can also promote and sell customers' used machinery for them.

Tube & Pipe Bending Machines Ltd - UK

Fax: +44 1782 641020 Email: john@t-pbm.com Website: www.t-pbm.com

New range of four band saws for cutting pipes and fittings at different angles

RITMO SpA, Italy, is offering a new range of band saws for cutting plastic pipes and fittings.

SIGMA is RITMO's new line of band saws for plastic sheets and pipes and offers four easy to use models.

The SIGMA 1600 PRO band saw is capable of cutting pipes up to OD 1,600mm and features a blade housing arm (bell type) that

moves at an adjustable speed and moves sideways on a rail, performing a wide range of cutting angles. The company claims the SIGMA 1600 PRO's blade guide telescopic system offers a very high level of precision when cutting, eliminating problems with blade flexion and vibration.

Special focus was given to safety and from inside the luminous pilot cabin the operator can easily control all stages by using the

intuitive control panel.

The SIGMA 1600 PRO cutting range goes from -45° to +67.5° and segmented pipes to produce special fittings are well within its capabilities. It also has an auxiliary bench for the pipe, including sliding rollers and an anchor system.

RITMO – Italy Fax: +39 049 9901993 Email: info@ritmo.it Website: www.ritmo.it





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61

Specialist bending of copper allows consistent high voltage

TRACTO-TECHNIK, Germany, has supplied a manufacturer of on-load tap changers (OLTC) with a TUBOTRON 20 RL fully automatic right-and-left-hand CNC bending machine.

The machine is used for bending the conducting copper rods, which are installed at the OLTCs. Tap changers are important components within the field of high-voltage technology and their main function is to regulate transformers by compensating voltage jitters.

Although bending of copper rods can initially appear to be a straightforward process, there were some particular difficulties in this special case – the copper rods with a bigger outside diameter were insulated with paper. In order to prevent damage of this insulating layer the bending machine was equipped with special pressure dies, consisting of several counter rolls.

Furthermore, some of the rods were provided with connecting plates, even before the

bending process. Therefore, the corresponding collet chucks have special gaps that hold the plates and allow for a defined and precise rotational alignment of the plate prior to the first bend.

The TUBOTRON

20 RL has an exposed and compact bending head that ensures maximum bending space when producing even complicated tube figures with an outside diameter up to 20mm.

The company claims that intuitive programming of all axes is performed via SIMATIC touch panel PC control with menu-driven user guidance. The bending machine has a servo-electric bending drive that allows for precise bending with highest repeat accuracy. Maximum bending speed

Bare and insulated copper rods for on-load tap chargers

is 450°/s. The Tracto-Technik product range covers CNC tube bending machines up to 170mm OD, semi-automatic and one-axis-controlled tube bending machines, tube-end forming machines and tube measuring systems as well as piping software solutions.

Tracto-Technik GmbH & Co KG -

Germany

Fax: +49 27 2595 4033

Email: tubomat@tracto-technik.de Website: www.tracto-technik.de





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Langbow reveals ATM-19 for small-to-medium tube manufacture process



LANGBOW UK, has unveiled the latest development from Soco for small-to-medium precision tube and wire component manufacture.

The ATM-19 is a comprehensive CNC tube and wire production cell and can undertake uncoiling, straightening, end forming, bending and cutting from coil to finished component.

The company will be targeting the automotive, air conditioning, refrigeration systems, heating systems and hydraulic equipment industries. Materials including copper, aluminium and stainless steel can be processed on this complete process machine.

The production cell can work from 4mm tube and wire up to tubes of 19mm OD in copper and 8mm OD in wire.

It is equipped with Soco's DGT Technology (direct gear transmission) the worldwide-

patented bending system offering high accuracy and repeatability of bend angle.

Included is the built in Soco proprietary software and operator interface, which features an industrial PC and touch screen.

Bending interference and anti-collision software are also included in the package.

This production cell has been designed for small-to-medium diameter tubes and offers the total solution in one package, which otherwise would take several separate processes with the associated manpower required, downtime between processes, longer lead times and additional floorspace.

Langbow Machinery – UK Fax: +44 1889 578872 Email: salwas@langbow.com Website: www.langbow.com

Products for sewer systems and industrial applications

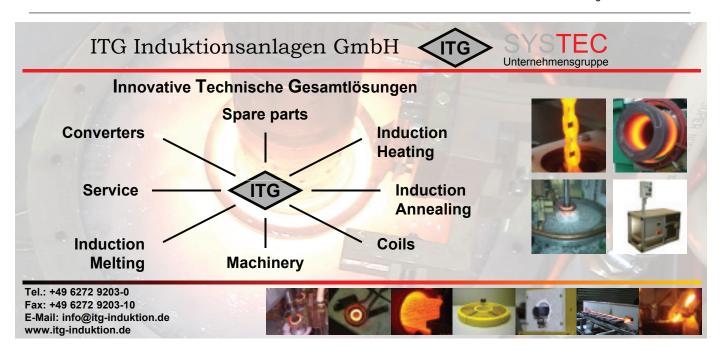
KERAMO Steinzeug specialises in the production and development of vitrified clay pipes and fittings. Three production units in Hasselt (Belgium), Cologne and Bad Schmiedeberg (Germany) manufacture high-quality sewerage products for sewer systems and for industrial applications.

The company offers a range of pipes and fittings in diameters from DN 100mm to 1,400mm. In addition to traditional pipes and fittings with spigot and socket joints, micro tunnelling pipes, inliner pipes, drainage pipes, inspection manholes and cladding sheets are all part of the product range.

Vitrified clay is a material that is created by firing high quality clay in controlled circumstances at a temperature of around 1,200°C. In contrast to many other materials used in the sewerage industry, vitrified clay is chemically and mechanically resistant and ensures a long lifespan.

The company sells its products all over the world, particularly in Europe, the Middle East, the Far East and Oceania.

Keramo Steinzeug NV – Belgium Fax: +32 11 265 243 Email: info@keramo-steinzeug.be Website: www.steinzeug-keramo.com







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50-ton turret ironworker makes its mark

SCOTCHMAN Industries, USA, manufactures the 5014 TM Ironworker, featuring a three-station revolving turret.



The turret accepts up to three pieces of tooling that can be changed in seconds, allowing users to reduce set-up time and increase productivity. The machine has 50 tons of pressure and the ability to punch a ¹³/₁₆" hole in a ³/₄" plate.

The 5014 TM is made in America, with many standard features and equipment, including an angle shear that will shear up to 4"x4"x3/8" angle iron and a flat bar shear that can shear 3/4"x4" to 1/4"x14".

The machine also features a rectangle notcher that will notch up to $2\frac{1}{2}$ "x3" in $\frac{5}{16}$ " material.

With its component tool table design, it has the ability to accept optional equipment, such as the 12" press brake, rod shear, square tube shear, picket tools, pipe notcher, and special tooling.

Scotchman Industries, Inc – USA Fax: +1 605 859 2499 Email: info@scotchman.com Website: www.scotchman.com

German plastic applications specialist extends exports globally

PLASTIC-Maschinen-Handelsges, Germany, is expanding its delivery of refurbished extrusion lines for plastic applications. The company exports extruders and extrusion lines and all associated equipment.

It says it can arrange fitting of the right mould for extrusion from required raw plastic material and its range includes extrusion lines for blown films, cast films, sheet films, pelletising, tapes, strapping tapes and monofilaments. It also supplies single machines such as extruders, twinscrew extruders, pipe heads, dosing and feeding equipment and melt pumps.

Plastic-Maschinen-Handelsges - Germany

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Sch5S – XXS
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Specifications

ASME B16.9 ASTM A403 304/L 316/L 321 347 ASTM A234 WPB P11 P22 P5 P9 ASTM A420 WPL6 ASTM A815 S32205 S32750 JIS B2311 2312 2313 DIN 2605 2615 2616 2617 EN 10253-1













Inspections RT UT MT PT IGC PMI Hardness, Tensile Bending, Flattening, Flaring Impact, Hydrostatic Test Spectro-analysis

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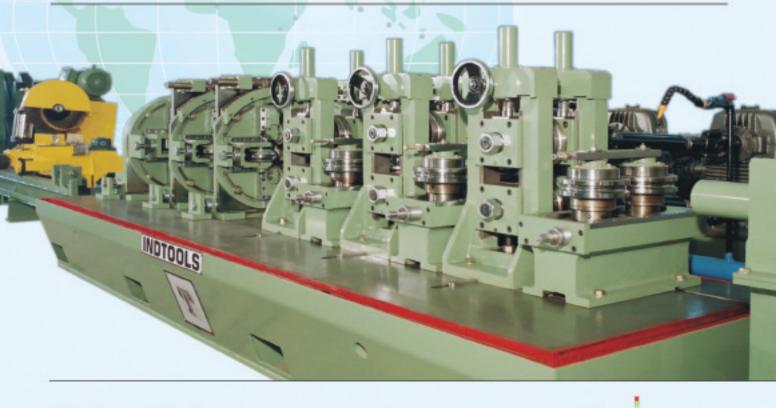
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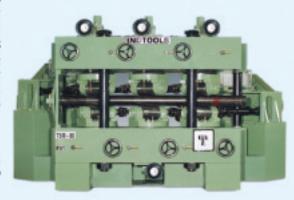


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ITL, a trail-blazer in High Speed Sawing Technology has commendably established itself in domestic and global markets as a dependable 'Cutting Solution Provider' and in its strive, ITL has achieved yet another milestone by introducing to the country High Speed Circular Sawing Machine, keeping pace with Time and Technology.

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Taking control of trenchless technology

WARRIOR, UK, claims to have come up with a solution to the problem of accurately controlling the direction of moleing systems.

Accuracy is key when installing new pipe with mistakes potentially causing disruption to the surface, or damage to other services, negating the environmental benefits of using trenchless technology in the first place, and the company says that, with directional thrust boring, these issues can be minimised.

Full-directional control Warrior equipment uses detection technology located in the head of the rod to accurately establish its location underground to within millimetres at any one time. The rod can be directed around obstacles such as tree roots, other



pipes, ducting and services until it emerges into the receiving pit.

"Both the WR4 and WR6 work from compact starting pits and thrust a series of connecting rods into the ground," explains Tony O'Brien, Warrior's managing director.

"Once the rods are in place the pipe or cable to be installed is attached to an expanding head in a receiving pit. The pipe or cable is then pulled into position and the rods are removed from the launch pit."

The WR4 only needs a launch pit measuring approximately 10cm wide by 15cm to operate and



is easily manoeuvred into place within the pit due to its compact and modular design. Lateral connections can be easily undertaken from open trenches.

"The WR4 boasts a pushing rate of up to 2.7 metres per minute yet only weighs 168kg, so it can easily be manoeuvred and operated by just two people," said Mr O'Brien. "The WR4 is capable of installing a 100mm diameter pipe and the WR6 up to 225mm, both in very compressed soils."

Warrior - UK

Website: www.warriorworldwide.com



Automatic and manual strip welding solutions

SHEAR-FORM Machine Tools Ltd, is a sheet metal and plate working machinery supplier and sole UK representative for Swiss coil processing equipment manufacturer Soprem Automation AG.

The automatic and manual strip welding machines available from the company provide an economical solution for joining the strip end from a processed coil with the beginning of a new coil.

Soprem variable speed SGA strip-end TIG welding machines, with automatic strip cutting, strip positioning and welding, provide component fabricators using coil strips in their production with the capability to weld 0.2-1.5mm thick coils strip in widths up to 250mm using both DC and pulsed welding.



An automatic strip end welder

This equipment is able to store up to 100 different welding parameters, including start, main and end-current flows.

The integrated management control system provides the user with fast repetitive welding of different types of coil strip.

The variable speed BSM three-phase, 230V, manual strip-end TIG welding machine has the capability to join 0.2-1.5mm coil strip in widths up to 250mm using both DC and pulse welding.

Up to 100 different welding parameters can be stored, including several start and stop ramps. This machine, which is highly mobile, is supplied with gas flow meter, cutting unit with cut-out die and an electrode grinder.

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The Leading Manufacturer of High-Technology Tube Production Equipment

New series of high power fibre lasers

ROFIN has launched a new series of high powered fibre lasers. The new FL Series offers two models, the FL x75 and FL 010, with output powers of 750 and 1,000 Watts respectively.

The beam quality from the new lasers can be coupled with fibre optics of between $50\mu m$ and $600\mu m$ in diameter, equivalent to beam quality of 2.5 to 30mm x mrad.

In addition, the Rofin FL 010 S offers a fibre laser solution with single mode beam quality of 0.4mm x mrad and 1,000 Watt output power.

Small parts can be welded with low thermal distortion and minimal heat affected zones, and steel or aluminium can be joined with welding depths of several millimetres.



Rofin's FL 010 with 11kW output power and multi-beam switch

The beam quality allows the efficient use of 'dynamic beam' scanner systems, enabling 2D and 3D geometries to be processed.

The optional beam switch and energy share modules make it possible for a single laser to be used in up to four individual work cells, providing maximum use of the beam source.

These features support improved cycle times and productivity while minimising the initial capital equipment costs. FL Series lasers are designed to be easily integrated to new or existing production work-cells.

The lasers are designed for low-maintenance operation and long-term performance.

Unlike the traditional concept, where the laser beam moves repeatedly between the air and the laser active medium, the beam of a fibre laser does not leave the fibre optics before reaching the processing optics (single mode) or the beam switch (multi mode).

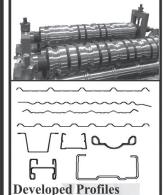
This 'all-in-glass' technology also reduces the risk of optical contamination and eliminates changes in beam quality.

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Hydraulic CNC contour turning unit

THE development of the new CNC contour turning unit by Wolf Maschinenbau AG, Germany, has opened up new ways of producing small turned parts, the company claims.

And it says the new CNC contour turning unit has already been successfully used as an element of the TSM 280 rotary table transfer machine.

The two axis hydraulically controlled contour turning unit combines complex sequence of operations such as face, longitudinal and cylindrical turning in one production cycle and greatly reduces production and tool costs.

A single tool takes over the functions of the form tools and it remains in constant use without interuptions in the production

sequence until the respective contours on the turned part are machined.

These conditions allow for higher time cycles, reduction of rejects and minimises wear and tear of cutting tools, therefore achieving more efficeient production for a

Wolf's CNC turning unit

longer period by optimising the use of the machine, tools and material.

The precision allowed by the TSM 280 enables planning and execution of the production process in a reliable and efficient way with the rate of possible rejects reduced to a minimum.

Appropriate measuring systems enable up to 100% of component testing during the production process within the scope of the machine.

The hydraulic two-axial CNC contour turning unit is operated by means of a newly developed CNC control, which conforms with ISO standards.

The operation and handling of this CNC control can be learned thanks to specially designed, easy to learn programs, so that the machine operators can quickly and safely get to grips with it.

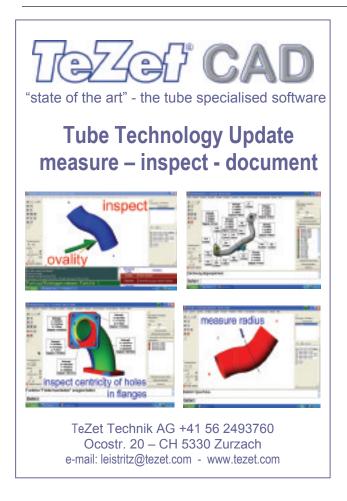
Wolf Maschinenbau AG

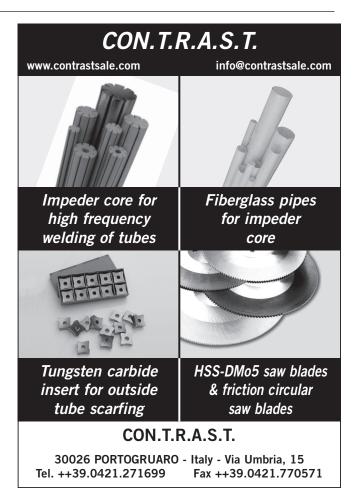
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Vacuum pipe lifters break new ground

SCHOENBECK GmbH and Co KG, Germany, has designed a new engineered vacuum pipe lifter range called ELiTE.

The company says the machine is easy to maintain and its training program trains the operator in material handling, safety, start check procedures and general trouble shooting.

Schoenbeck claims that the machine's multiple excavator yoke with hydraulic rotator and oscillation brake assembly gives customers an extra flexible cutting edge and these are also fully adjustable, allowing the vacuum lifters to be coupled to just about any available excavator model and size that is presently on the market.

Schoenbeck GmbH and Co KG

- Germany

Fax: +49 5721 81433

Email: info@schoenbeck-maschinen.de **Website**: www.schoenbeck-maschinen.de

Quality control measuring systems

ZUMBACH, Switzerland, offers modular, single, dual or triple axis ODAC laser gauges and USYS data acquisition, processing and display units.

The gauges are based on the latest laser scanning technology and can be used in all manufacturing processes, including extrusion of cables, hoses, profiles; steel and metal industries; drawing, grinding, cold and hot rolling of rods, tubes, NDT lines for any product; and tubing, pipe and conduit extrusions.

USYS systems for data acquisition, processing, display, statistics, process control and networking are also available. They can process up to 6 ODAC® gauges plus other sensors, speed and event inputs.

Zumbach Electronic AG

Switzerland
 Fax: +41 3235 60430

Fax: +41 3235 60430 Website: www.zumbach.com

Pipe rotators for clamping and tilting

KISTLER pipe rotators are used for clamping, rotating, and tilting pipes in manual and automatic welding, mainly in the field of pipe construction. The 'U' range features three machines: U150 (20 to 200mm diameter pipe), U500 (20 to 400mm diameter) and U1000 (25 to 800mm diameter).

The pipe rotators with clamping roller system can be used for pipes with elbows, tee pieces, or other offset loads and a wide range of pipes can be clamped. Centring is quick and precise, and clamping does not require a chuck or clamping shoe.

The pipe can be clamped at its centre of gravity, and tilting moments and supports are unnecessary in most cases and it is possible to centre two pipes with the same diameter.

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Pentamac introduces moving column CNC machining centre

PENTAMAC, Italy, has integrated a new larger capacity machine into its workshop, which allows it to handle tubes with a length of up to 7,500mm. The new Moving-Column CNC Machining Centre XL series are also faster and more versatile for drilling, processing,



tapping and milling iron, steel and aluminium. The spindle power (ISO40) is 7.5/11Kw with higher torque and power compared to the standard for vertical centre machines.

Rotary tables mean the machine can also work tubes and cylinders with "continuous" movement through the support of lead guides. They are equipped with disappearance protection and double cooling circuit air/ liquid that can be mixed to create the required level of lubrication.

The machines are also equipped with Numeric Control VISEL VSC1020M, which Pentamac says make it easier and more intuitive to use with the help of interactive graphics and pre-edit fixed cycles (macros), which can be programmed with numerous working cycles for boring and milling. Programming can be completed using ISO and by receiving files directly from CAD-CAM.

Pentamac - Italy Fax: +39 0331 878 196 Email: info@pentamac.it Website: www.pentamac.it

Seamless hot or cold manufactured steel pipes

ROHRWERK Maxhütte, Germany, has announced a number of new products that are to be made available globally. It specialises in produces seamless steel pipes, either hot-rolled or cold-manufactured, in a wide range of dimensions and quality grades and claims to offer high product and process quality as well as sustained costeffectiveness through continuous investment in its workshops.

The company supplies its products to mechanical engineering, steel construction, the construction/plumbing trade, the boiler and plant construction industry and the ball bearing industry. It offers threaded black and galvanised tubes, water boiler tubes, linepipes up to 4" OD, boiler tubes, quality grade I/III and ball bearing tubes and can deal with steel grades: St. 35.8, TTSt. 35, St. 37, St. 52; 15Mo3, 13CrMo44, 10CrMo910; 100Cr6; as well as other steel grades on request. Its manufacturing ranges include external diameter 21.3mm-139.7mm and wall thickness 2.3mm-13mm.

Rohrwerk Maxhüette says quality testings take place before, during and after the production process and a multitude of examinations are carried out with stationary and mobile testing units in order to guarantee the quality of its products.

Rohrwerk Maxhütte GmbH – Germany

Fax: +49 9661 814 409

Email: em418@rohrwerk-maxhuette.de Website: www.rohrwerk-maxhuette.de



GLOBAL MARKETPLACE



Supply and demand begin to find balance in a market driven by China

Here and there – mainly within the force-field of Beijing's \$586bn stimulus plan for the Chinese economy – the price of steel is edging up in response to strengthening global demand and higher raw materials costs. And steel operations are being resumed to replenish depleted inventories.

China Steel, Taiwan's leading steel maker, on 21 July announced plans to restart a key blast furnace in August. The No. 3 furnace, which ordinarily accounts for one-third of China Steel's annual output of 10 million metric tons, is one of four shut down for maintenance in mid-April and scheduled for reactivation in September. A company attaché ascribed the accelerated schedule to improved demand in China, Taiwan, and the USA.

"We have to act quickly once the market is faring well," this source told Reuters in Taipei. "In fact, there is room for us to raise prices."

A day earlier, South Korea's POSCO announced a second domestic price increase in a month for its stainless steel. The world's No. 6 steel maker said its prices for hot rolled stainless would rise by an additional 7.1%, to \$2,387 a metric ton; for cold rolled by 6.5%, to \$2,615, effective 27 July.

POSCO, whose stainless steel business took a loss in the first quarter, said that the division turned profitable in April and was expected to show a further profit in the second half as prices recover in the global steel industry.

On 20 July cold-rolled stainless steel was trading at around \$2,550 a metric ton in China, up some 36% from April lows.

As for China itself – the world's largest steel producing nation, generating some 35% of total global demand – some contrarian sentiments about steel production have already been expressed by a spokesman for the Ministry of Industry and Information Technology. According to Bloomberg News, Zhu Hongren said at a conference on 22 June in Beijing that China should act now to contain runaway growth in the domestic steel industry by withholding project approvals.

Citing figures published by the China Iron and Steel Association (CISA) for 2008, Mr Zhu reiterated that China's demand for steel is about 500 million metric tons per year. Its production capacity is 660 million mt per year.

Bloomberg's Eugene Tang, in Beijing, noted that crude steel output in China rose to a record 266.6 million mt in the first half as the nation's huge stimulus package spurred demand from builders and car makers. Annualised, this exceeds the output of 460 million mt projected by CISA for this year.

"The industry must produce according to market needs, and avoid adding to excess capacity," Mr Zhu said. "They should avoid reckless investments. The government must also take action to curtail additional investments by companies that are already in excess."

SiFang China

Shandong Province SiFang Technical Development Co., Ltd

The Popularization Center of High Chromium Alloy Roll of Productive Force Promotion Center of National Metallurgical Industry



High chromium alloy straightening rolls are widely used in cold and hot straighten-

ing towards seamless pipes, welded pipes, H-steel and other section steels. Applications in large-scale metallurgical enterprises in China, as Tianjin Pipe (Group) Corporation, Shanghai Baosteel Group, Laigang Group and Shougang Group, have proved that the technical level and service life of high chromium alloy roll has reached advanced world level. Being used in cold roll forming steel and welded pipe machines like 24" ERW butt welded pipes and 500mm rectangular pipes, high chromium alloy roll have been proved with its technical level and service life reaches that of products such as D2 and H13 of America, X155CrVMo121 of Germany, SKD11 and SKD61of Japan. High chromium rolls have been supplied to more and more international customers and got good feedback.





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Changes in the way iron ore is bought and sold may be on the way

At this writing, China's 5 July detention of four executives of Rio Tinto, the multinational mining group based in Britain and Australia, has not been resolved. It is not even clear whether the charges relate to criminal activity or to espionage, corporate or otherwise. What is definite, however, is that Rio Tinto sells about half its iron ore on the spot market; and China, the world's largest customer for iron ore, vital to steel making, has been pressing mining companies to slash their ore prices.

In the Asia edition of the Wall Street Journal, Robert Guy Matthews reported on an unintended consequence of China's action in the matter of the Rio Tinto employees: acceleration of a drive by steel makers and miners alike for greater transparency in the ore market. ("Industry Pushes New Iron-Ore Pricing Plan," 20 July)

The proposed agreement – which could be in place by the New Year, according to miners and steel makers prepared to say even that much about the developing deal – would set iron-ore contract prices on a quarterly rather than, as now, an annual basis. Quarterly sales would likely mean more volatility in global steel prices. But they would enable steel makers to adjust their prices, up or down, four times in the course of a year instead of once. Mr Matthews said: "They might also be likely to rely more on market supply and demand, and less on secretive criteria, as is currently the case."

The system now in effect generally involves one miner negotiating behind closed doors with one big steel maker. While the longer-

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term contract has its adherents among big buyers of steel, such as automobile makers, supporters of quarterly sales are persuasive. lan Ashby, chief of the iron ore division at Australia's BHP Billiton, the world's largest miner, told the Journal that lower-cost producers of iron ore, his company included, would function better in a quarterly system.

"The spot market is where buyers and sellers meet to find the true market price for iron ore," Mr Ashby had said at a meeting of bank investors in Australia, in May. "It should be clear to everyone that the changed market dynamics created by China's voracious appetite for iron ore, over the past five years or so, makes obsolete a system whereby pricing is locked in for twelve months, based on little or no transparency."

For an even more succinct comment, consider this online response to Mr Matthews's article, from Jinliang Guo: "Chinese want cheap. But the market does not allow."



'The Fortune 500'

With gross revenue as a gauge, Chinese firms gain, US firms lose ground

Marking the first time in over a decade that a non-US firm has led the Fortune 500, Anglo-Dutch energy giant Royal Dutch Shell topped runner-up Exxon Mobil (Irving, Texas) by a margin of \$15.2bn in sales. Moreover, Fortune reported that the number of American companies (140) making the business magazine's annual list of the world's top 500 companies by gross revenue was the lowest ever. Japan, with 68 firms, was in second place behind the US.

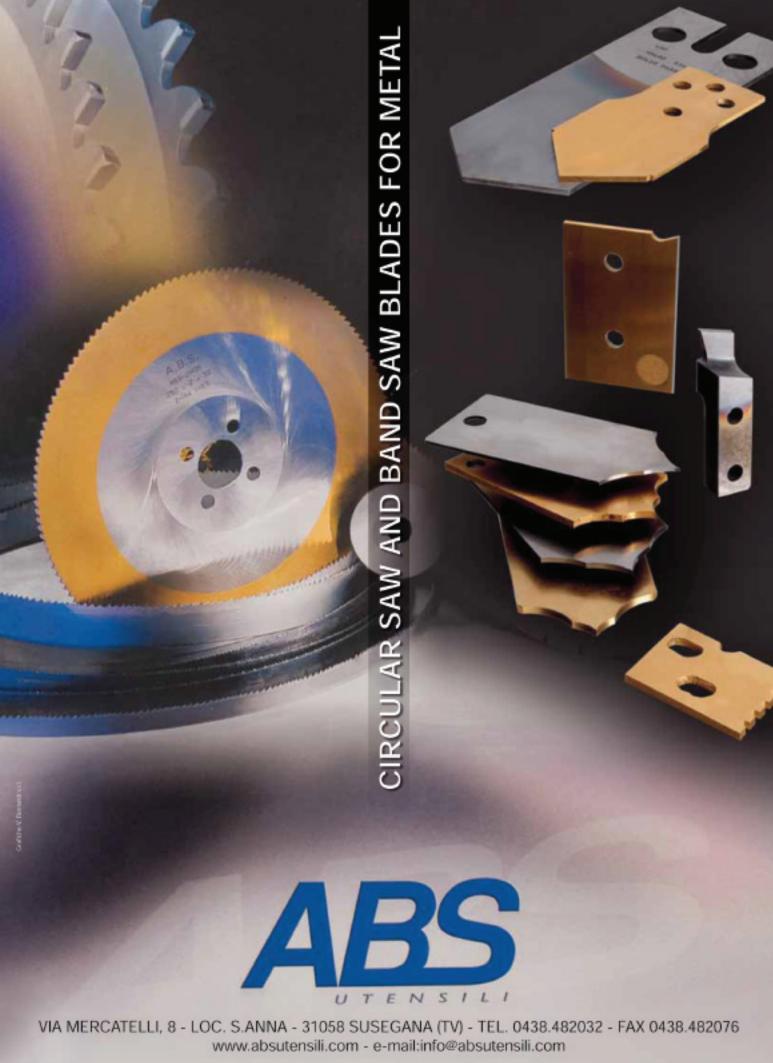
A feature of the benchmark list, published 8 July, was the presence of 37 Chinese firms – more than ever before, and with nine new entries and Chinese incumbents climbing in the rankings. Appearing in the top ten for the first time was China Petroleum and Chemical Corp, or Sinopec, the oil giant that supplies some 80% of China's fuel. France and Germany – with 40 and 39 firms, respectively – barely edged out China.

Of the top ten companies, only one was an automobile maker (Japan's Toyota Motor Co, with revenues of \$204bn), while no fewer than seven were oil firms: Shell (\$458bn); Exxon Mobil (\$442.8bn); Britain's BP (\$367bn); Chevron, of the US (\$263bn); Total, of France (\$234.6bn); ConocoPhillips, of the US (\$230.7bn); and Sinopec (\$207.8bn).

Recent financial-sector turmoil can be traced in the disappearance from the list of these US firms: AIG (insurance), Freddie Mac (mortgages), and Lehman Brothers (brokerage). Among the rising US firms are Google (Internet services), Amazon (online sales), and Nike (sportswear and equipment).

The ascent of Chinese firms in the Fortune 500 reflects the gathering strength of China's economy. The most recent edition of Global Trends from the US National Intelligence Council reports that China is on course to become the world's second-largest economy by 2025. According to a 2008 study by the Carnegie Endowment for International Peace, also US-based, China's economy will have overtaken that of the USA by 2035, and be twice its size by mid-century.





LOREB GROUP

Nearer-term economic news from China would appear to support these predictions. On 16 July, the government at Beijing said that the Chinese economy – propelled by aggressive bank lending and a big economic stimulus package – grew 7.9% in the second quarter as compared with the equivalent period of 2008.

The growth this time was driven by strong auto and property sales, a rebound in manufacturing, and huge infrastructure spending which, incidentally, is propping up global commodity prices.

Gross domestic product figures released by the National Bureau of Statistics, in Beijing, suggest that China will most likely achieve the 8% full-year growth target it set for 2009.

Notes on the UK

With UK property investors returning to market, Britain appears to be better positioned than the USA to lead a recovery in commercial real estate. One American firm of realty analysts estimates London's market cycle to be about six months ahead of that of New York, thus at least that much closer to recovery. Some analysts credit the British advantage partly to the greater price transparency in that market, where property funds traditionally attract more small investors. When the market dropped, many of these investors took themselves out of the funds, forcing companies to revalue their assets more frequently – with all that that means for accurate accountancy and responsible decision-making.

Another distinction between the UK and US property markets is that Britain's is financed more through commercial bank loans and less by mortgage-backed securities, the obligations implicated most heavily in the subprime-debt debacle in the US financial industry.

According to the Carbon Trust, a London-based group dedicated to the development of commercial low-carbon technologies, the potential for wind and wave power in Britain is immense. A new report from the group asserts that, with carefully targeted subsidies and regulations, Britain could build 29 gigawatts of electrical capacity from offshore wind (the global total is now 66gW) by 2020, giving it 45% of the offshore power market. The report also noted that Britain accounts for a quarter of all wave power technologies, strongly suggesting that the country "could be the 'natural owner' of the global wave power market" in this century.

Writing on 3 July, James Kanter of the ecology blog Green Inc reviewed new analysis by the Carbon Trust indicating that, in addition to the over \$4bn a year that British businesses could save themselves through carbon reduction methods, Britain could generate up to \$114bn for the economy and almost 250,000 jobs from offshore wind and wave power.

He quoted David McVeigh, an executive from a heavy industries division of Harland and Wolff, shipbuilders, as saying that he discerns "a great opportunity" in marine power.

"Our investment in this sector has resulted in our busiest activity level for many years, building offshore wind farm foundations such as jackets, monopiles, and gravity bases," said Mr McVeigh. "In the UK we have all the right ingredients – reliable wind, wave, and tidal resources in reasonably shallow water close to population centres that need energy."



Oil and gas

In a reversal, Russia recruits Royal Dutch Shell for its Sakhalin project

Prime Minister Vladimir Putin said on 27 June that Royal Dutch Shell Plc had been invited by Russia to participate in the development of two oil fields on Sakhalin, the island north of Japan that has estimated reserves of 14 billion barrels of oil and 96 trillion cubic feet of natural gas. As reported by the Russian news agency RIA, Mr Putin struck a markedly collegial note in his meeting in Moscow with Shell's CEO, Jeroen Van der Seer, making plain that he envisions a long-term relationship.

Stressing Shell's expertise in gas liquefaction, Mr Putin told the oil major's chief, "I expect it is quite possible to continue cooperation with Shell on other sections. We are speaking about sections farther away from the shore, at greater depths (viz. Sakhalin III and Sakhalin IV), and here your experience could be in demand."

The meeting of minds followed a period of strained relations between the Kremlin and the Western energy company over one of the world's largest natural gas fields. In 2007, Shell was forced to relinquish its controlling interest in Sakhalin II development to Russia's state-controlled gas monopoly OAO Gazprom for \$7.5bn.

But Shell retained 25.7% of the stake, and helped launch a \$22bn liquefied natural gas (LNG) plant, Russia's first, in February.



SEPTEMBER 2009

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Customers in Japan, South Korea, and the US have already bought all the gas to be produced at the Sakhalin II plant over the next 20 years. Obviously pleased with Shell's performance, Prime Minister Putin told Mr Van der Veer, "The work goes on successfully and ahead of schedule. We will have a chance to diversify our cooperation." For his part, the Shell official said that his company was ready for more work, and that he hoped the necessary licenses and permissions to begin would be issued promptly.

On the same day as the meeting in Moscow, Shell signed a deal with the Russian state-owned shipping company OAO Sovkomflot to build tankers for transporting LNG produced at Sakhalin II to Europe. Earlier in the month, Gazprom's CEO Alexei Miller said his company was considering inviting Shell to participate in LNG projects on the Yamal peninsula in western Siberia.

Shell is not the only Western company to be tapped by Russia for assistance in exploiting its challenging oil and gas fields. On 24 June, the French 'supermajor' Total and the Russian gas firm Novatek agreed to invest some \$900mn in joint development of a gas field in western Siberia. The deal was the first major foreign investment in Russia's energy sector to be announced this year. And Total, together with Norway's Statoil Hydro, is working with Gazprom on the huge Shtokman field in the Barents Sea. Russia has also invited foreigners to help develop the Arctic shelf off its Pacific coast.



French economic stimulus

Fast off the mark, but with a care for la beauté

The Organisation for Economic Cooperation and Development expects the gross domestic product (GDP) of France to drop only 4% from the peak of the current economic cycle, far less than the 7.4% plunge expected in Germany. The OECD, the Paris-based intergovernmental research and policy advisory agency for the world's industrialised countries, also says that French economic decline is likely to be significantly milder than in Spain, Belgium, and Britain. To offer another comparison, the American economy is expected to shrink by 3.5% before starting to grow again.

What explains these discrepancies? Nelson D Schwartz is the European economics correspondent of the New York Times, reporting on companies and economic trends on the Continent. He attributes the definitely brighter outlook from his office in Paris

largely to the French government's \$37bn economic stimulus programme, which requires all projects to be under way in 2009 and expects to have emptied its coffers by 75% by the end of the year.

"As it turns out," wrote Mr Schwartz, "France's more centralised, state-directed economy – so often criticized in good times for smothering entrepreneurship and holding back growth – is proving remarkably effective at deploying funds quickly and efficiently" in bad times. ("Unlike US, France Is Deep into Stimulus Projects," 7 July.)

A notable feature of the French initiative is the earmarking of stimulus funds for restoration and improvement of cathedrals, chateaux, palaces, museums, and other monuments of the nation's cultural patrimony – as well as a new \$14mn centre for Mediterranean culture, at Marseilles. These efforts are going forward even as France races ahead of the US in such 'shovel ready' projects as upgrading railroads and filling potholes.

"America is six months behind," Patrick Devedjian, the minister in charge of the French relance, or stimulus, told the Times. "It has wasted a lot of time." (The reference is, of course, to US President Barack Obama's economic stimulus plan, which will not reach the current French disbursement percentage until the fall of 2010.) In Mr Devedjian's opinion, by the time Washington gets around to doling out most of its money, the economic crisis could be over.

The minister in charge of the stimulus is not the only optimist to be found in French official circles. Insee, the National Institute of Statistics and Economic Studies, expects the economic situation to stabilise in France by the fourth quarter of 2009, around the time that the American economy is expected to start sending up the 'green shoots' that Mr Obama is expecting. Eric Dubois, head of Insee's short-term analysis department, has even said he discerns "a growing possibility" that French GDP could rise as early as the third or fourth quarter. Update: It was announced on 13 August that France, along with Germany, had seen a second quarter increase in GDP of 0.3%, after four consecutive quarters of contraction.

But the Times noted that, despite these expressions of confidence, France remains highly vulnerable to the threat of rising unemployment. The OECD expects the French jobless rate, currently 8.9% and lower than the 9.5% rate in the USA, to hit 11.2% by the end of 2010, above the expected American peak of 10.1%. As Hervé Boulhol, head of the France desk at the OECD, told Mr Schwartz in early July, "There has been a lag with unemployment, but now it will start to bite."





If mounting job losses do lie ahead for France, even as the country successfully works itself out of its slump [See "French economic stimulus," above], this should not be dismissed as a lagging indicator.

According to the independent strategic-consulting firm Oxford Analytica, rising unemployment is in fact a strong sign of social pressures that can drive governments to restrict or distort trade. ("Trade Protectionism Shadows Recession," Forbes, 16 July.)

Oxford Analytica, which draws on a 1,000-strong network of experts at leading universities and research institutions worldwide, considers it "probably inevitable" that the economic crisis would drive governments to use loopholes in trade rules to introduce measures in restraint of trade.

While "so far" there have been no blatant breaches of the rules, it warns of severe testing in conditions of rising unemployment. Similarly alert to the dangers of unemployment, World Trade Organisation (WTO) Director General Pascal Lamy warned that "the stress test of the multilateral trading system is still to come".

The WTO now produces quarterly reports that track tariff increases, new non-tariff and anti-dumping measures, and financial measures that favour the member-nations' domestic goods and services over imports. The Oxford Analytica report issued in April found that governments had been keeping protectionist pressures under fairly

good control but that "significant slippage" had occurred since the beginning of this year.

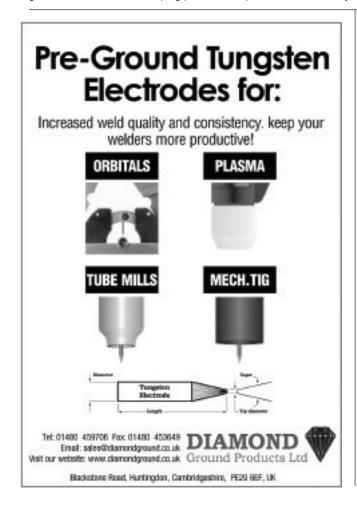
While the latest report, issued in July, found no outright violations of WTO rules, it also discerned no improvement in the general picture.

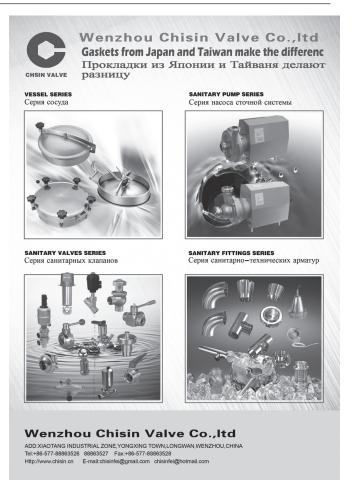
The Oxford group also considered the stalled Doha Development Round of WTO trade negotiations, taking note of Director General Lamy's belief that its successful completion would help the world economy emerge from recession by boosting confidence, narrowing the scope for trade restrictions, and stimulating consumption.

The recent summit of the Group of Eight industrialised nations in the Italian city of L'Aquila was seen as effectively endorsing this view, both in the official communiqué and in a statement, supported by 10 major non-G8 countries, calling for urgent resumption of the negotiations in Qatar and a "realistic" conclusion date of 2010.

While no agreement on key issues is currently is in sight, prospects for the Doha Round would appear to have improved slightly. Notably, the US and India appear ready to engage in serious discussion of crucial differences over protection of industry, and President Barack Obama is expected to make a major statement soon on US trade policy.

Also helpful, in the view of Oxford Analytica, the Indian general election is over, and both India and the US have new trade ministers.









Do not depend on Uncle Sam, the president tells car companies

"It was the right thing to do," said President Barack Obama, on 14 July, in reference to Washington's bailout of the US auto industry. The occasion was Mr Obama's first visit to Detroit since the controversial advance of more than \$50bn in federal loans that kept General Motors and Chrysler from going under.

GM's emergence from bankruptcy in the previous week enabled the president to take a few jabs at the sceptics who had held that he and his Auto Industry Task Force were wasting their concern and the taxpayers' money on a moribund industry.

But Tom Walsh, writing in the Detroit Free Press, noted that the president is now also "chief executive officer of the outfit that owns most of General Motors" – the American public. And the new CEO made plain to the car makers that he will be looking for shareholder value. Moreover he expects the leaner companies, under new management, to go forward under their own power, without any more support from Washington. ("Obama's Sobering Message to Detroit," 15 July.)

The bailout, which seemed a tortuous process at the time, has in fact been completed in record time, and the key players are declaring victory and going home. Steven Rattner, who led the White House bailout team, has already returned to private life. And, on the same day Mr Obama spoke in Detroit, Harvey Miller – the lawyer who pushed GM through bankruptcy in only 40 days – told Bloomberg TV that he expected the auto task force to disband in six weeks' time.

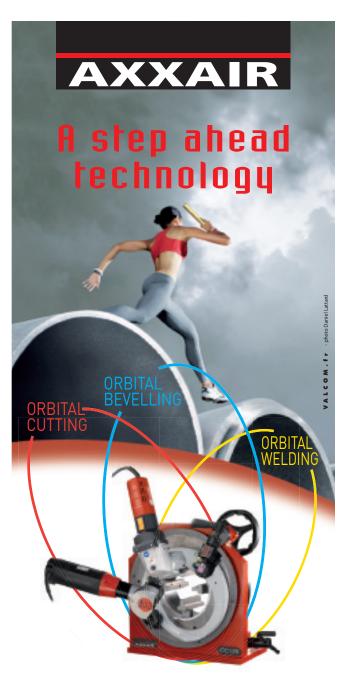
Of course, the test of all this velocity will be the success of the relaunched GM and Chrysler-Fiat, and the revival of the fortunes of the auto parts suppliers. Even while avoiding the word failure, the US president strongly conveyed to the car makers that Washington had rescued them from their difficulties for the first and last time. The Freep's Mr Walsh spoke for many, in Detroit and elsewhere, when he wrote, "Let's hope that resolve doesn't get tested."

Elsewhere in automotive . . .

In its biggest recent investment, General Motors Corp is directing \$1bn to the development of two new car models in Brazil, where GM sold 580,000 vehicles in 2008 – its best year in the country. Jaime Ardila, the president of GM's Brazilian operations, said on 15 July that his unit would provide about half the investment outright, borrowing the rest.

The new cars, one small and one medium-sized, are expected to be in production at the company's Gravatai plant in southern Brazil by 2012. Mr Ardila noted that GM Brazil has avoided the problems of its parent company in the US because of strong demand for autos in Latin America's largest economy.

Dorothy Fabian, Features Editor (USA)





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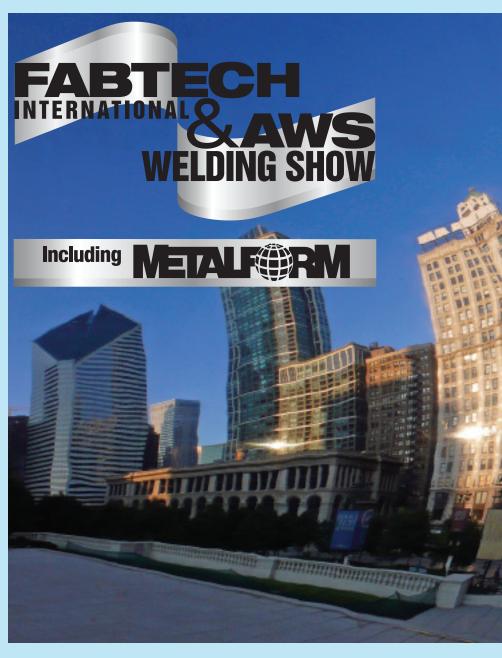


Fabulous feeling









FABTECH Chicago 2009 – McCormick Place, 15-18 November

Whether or not fabrication and fabulous have a common root, to many thousands of visitors to FABTECH since its inception the two words have made a natural conjunction for some time now.

In its 2009 edition, the FABTECH International & AWS Welding Show — now including METALFORM — expects to welcome 35,000

attendees to examine the best that 1,000 exhibitors have to show them. But, despite its comprehensiveness, North America's largest metal forming, fabricating, and welding exposition never loses touch with its fundamental purpose: to bring the buyer and the seller together in an environment that fosters the lasting business relationships essential to them both. Accordingly, the world-

class conference held concurrently with the exhibition will offer panels on a full roster of industry-pertinent business topics.

As for the programmes on core technologies and processes on which FABTECH has built its renown, the list begins with "Arc Welding" and ends with "Welding Machines." In between can be found every

in the windy city



category of interest to someone requiring to be fully informed about state-of-the-art metalworking.

"I came here to see everything," asserts one prior-year attendee, on the video now playing on the FABTECH website. And he did: thousands of live equipment demonstrations of metal forming, tube and pipe fabrication, stamping, lasers, thermal spray, welding, and every conceivable related

technology. This time, there will be even more to see, of the most advanced processes and equipment on offer anywhere.

How to describe such an abundance pavilion after pavilion of it, ably presented by people keenly alert to the privilege and responsibility of engaging the attention of a visitor to FABTECH?

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Date: 15-18 November.

10.30am - 5pm

Venue: McCormick Place Trade & Exhibition Centre

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Email: information@fmafabtech.com

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Tube & Pipe Pavilion Exhibitor List

3R Software Solutions	2031	Kent/Tesgo	4055
Abbey International Ltd	4081	Lillbacka Powerco USA Inc/Finn-Power	4097
ABP Induction	4060	Mair USA LLC	4040
Accurex Measurement Inc	3080	Manchester Tool & Die Inc	4091
Addison Machine Eng Inc	4104	MiiC America Inc	4025
AIM Inc	2005	Mill Masters Inc	2045
Ajax Tocco Magnethermic	4090	George A Mitchell Co	3066
AltaMAR Laser and Control		New Form Tools Ltd	
Ameritherm Inc an Ambrell Co		Nikko Sangyo Co Ltd	4006
Andy J Egan Co Inc	4016	Officine MTM SpA	
Automated Solutions Inc		OMNI-X Inc	
Beckhoff Automation		Oto Mills SpA	3049
Bend Tooling Inc		Overton Industries	
BLM Group USA Corporation		PHI	
Bronx International Inc		Proto-1 Manufacturing	
Bronx Taylor-Wilson		Quaker Chemical Corp	
Burr Oak Tool Inc		Rattunde Corporation	
Chiyoda Kogyo-Maruka USA		REA Elektronik Inc	
Clark Fixture Technologies		Saar Hartmetall USA LLC	
Comco USA		Sage Automation Inc	
Commonwealth Oil Corp		Saws International Inc	
Continental Pipe & Tube Cut-Off Machines		Schuler Inc	
D&H Machinery Inc		Shandong Taifeng Steel Co Ltd	
Dubak Engineering Group LLC		Sharpe Products	
Eaton Leonard Mexico		SST Forming Roll Inc	
Eaton Leonard Tooling		Sweed Machinery Inc	
EFD Induction Inc		T&H Lemont	
ESCO Tool Co		Tallyrand Ind Systems Inc	
		T-Drill Industries Inc	
European Technology Center NA LLC (ETCNA)			
Fairing Industrial IncFlowdrill Inc		Thermatool Corp	
		Thermo Scientific NITON Analyzers	
Foerster Instruments Inc		Tools for Bending	
Formdrill USA Inc		Tube & Pipe Technology Magazine	
Galaxie Corporation		Tube 2010 Messe Düsseldorf North America	
Gem Tool Corp		Tube Bending Concepts Inc	
Graebener Group Technologies Inc		Tube Products INTERNATIONAL Magazine	
Guild International Inc		Tubex Technology Machinery Inc	
H & S Tool Inc		Universal Tube & Rollform Equipment Corp	
Haven Manufacturing Corp		UTE Inc	
Horn Machine Tools Inc		Vulcan Tool Corp	
Innerspec Technologies		WAFIOS Machinery Corp	
Innov-X Systems		Wauseon Machine & Manufacturing Inc	
Inspectech Analygas Group Inc		Weldlogic Inc	
International Tube Association		Winton Machine Co	
J & B Industries Inc		Yingkou Meihong Pipe Fitting Co Ltd	
J & S Machine Inc	3101	YLM-Ying Lin Machine Industrial Co	3101

Exhibitor list correct at time of going to press - please visit www.fmafabtech.com for updates



Exhibitor Profiles

3R Software Solutions
Germany

2031

3R Software Solutions specialises in software for tube endforming as well as tube shop optimisation, and its applications are used in shipyards, chemical and power plants, and the automotive industry.

The 3R software framework aims to increase efficiency in tube and pipe production and is combined with a fully automated workshop, which uses CNC-data provided by 3R programs.

The company claims total awareness of the status of each spool at each point in the fabrication process can help to eliminate bottlenecks, improve the flow of material, and anticipate and avoid potential problems.

3R applications can be used as stand-alone software as well, because the company offers a wide array of interfaces for the most common construction and measuring platforms. Designs can be constructed as usual, and then be transferred into the RoniCAD platform to generate CNC data, or the RoniKolli bending simulation to test for collisions. Customer-specific requirements and modifications can often be integrated, and make the applications even more useful to the end-user.

3R offers consulting services on how to best restructure a tube shop to complete planning and construction platforms with tube shop control, and each concept is individually designed to help customers achieve maximum efficiency. Existing structures are taken into consideration as well, in order to integrate them as much as possible.

Website: www.3rsoftware.org

Ambrell USA

3072

AMBRELL has introduced a new model to its EKOHEAT family of induction heating systems. With a condensed form factor, it says the EKOHEAT compact models are versatile and rugged and easily integrated into existing manufacturing cells.

The EKOHEAT power control system delivers output power from 100W to 15kW with 100% duty cycle at output frequencies from 50 to 150kHz.

The EKOHEAT compact system is CE marked and is packaged in a NEMA 12 enclosure and a wide range of features and functions are standard.

The work head where the heating occurs can be located up to 30 metres from the power, making it well suited for a variety of production environments.



Ambrell's EKOHEAT 10-15kW model

Ambrell has also announced the expansion of the EKOHEAT line of induction heating systems with lower frequency (7-15 kHz).

With full scale output power ranging from 35kW to 500kW, these CE-marked systems are equipped with the EKOHEAT power control system that efficiently delivers power to the part with significant cost savings for the heating phases of manufacturing processes.

Website: www.ambrell.com

Arc Machines, IncUSA

TBC

ARC Machines, Inc Model 2 is a series of specialised durable, high precision components that are custom-configured for a specific set of application requirements.

The Model 2 is used in production applications where orbital welding may be

impractical. The Model 2 'building block' approach uses a series of standardised motion stages for functions such as arc voltage control, torch oscillation (weaving), onboard wire feeder and travel. Up to eight motion axes of movement can be integrated into a welding system and controlled by the AMI Model 415 power supply, including positioners, side beams, welding lathes, seamers and rotators.

Website: www.arcmachines.com

CML USA Ercolina
USA

TBC

ERCOLINA says its new top bender model TB100 is ideal for producing consistent quality bends in large diameter pipe, tube, squares, rectangular, solids and other profiles.

Interactive touch screen control offers easy access to auto and manual operating modes, programming, system diagnostics and multiple language capability with programmable bend angles of 0° to 180° - up to 12 bends per program; unlimited program storage available with USB; independent springback compensation for each bend; engineered heavy-duty steel gear case accepts bend profiles with CLR to 16"; class 3 safety hand-held remote controls bend, return and emergency stop functions; autoload sensing improves bend productivity while protecting machine components. Bends to a centreline radius as small as 2D are possible without a mandrel and there are no hydraulic components, reducing cost and improving bend accuracy.



The Ercolina GB100 S CNC 6 tube bender

The company is also set to unveil its Ercolina® GB100 S CNC 6, a tube bending machine that is an intelligent choice for the most demanding requirements for heavy tube and profile bending in industrial sectors such as shipyards, petrol-chemical, agricultural and heavy carpentry.

Website: www.ercolina-usa.com



Combilift USA

7139

COMBILIFT, which supplies four-way forklifts, will showcase four new models at Fabtech 2009.

The new CB6000 will bring many advantages to fabrication companies who today may be using standard conventional counter-balance forklifts, reach trucks, side loaders, or electric four-way forklifts. This new 6,000lb capacity multi-directional COMBI-CB is available in lift heights up to 25ft and it can be used indoors or outdoors.

The C6000 offers customers even more solutions for handling long and awkward loads, particularly in confined warehouses and manufacturing plants. It can also operate in semi-rough terrain and harsh environments such as snow.

The C10000XL model is ideally suited for steel yards. The XL model has larger wheels and higher ground clearance than



Combilift manufactures four-way forklifts

traditional models, allowing it to manoeuvre on especially rough terrain with ease and increased comfort for the operator.

The C6000ST is designed for flexible indoor and outdoor operation and has a 6,000lb lift capacity. The Combilift GT sideloader range has been on the market for five years, and with the addition of the ST takes the narrow aisle concept in a multi-directional twist.

Website: www.combilift.com

Diamond Ground Products USA TBC

THE tungsten electrode experts at Diamond Ground Products are offering the guidebook, 'How to Correctly Grind, Cut & Prepare Tungsten Welding Electrodes' on its website at no cost for a limited time.

This guidebook was created to provide the manufacturing engineer with a general reference for selecting the most appropriate tungsten material and emphasises the importance of a correctly prepared, ground and cut tungsten electrode. Other topics include safety issues surrounding the use of Thoriated Tungsten, and alternatives to this common yet radioactive tungsten material.

Diamond Ground Products is dedicated to the improvement of weld quality and welder productivity and maintains a reputation as the industry leader in tungsten and tungsten preparation. The company's management philosophy is to provide quality product and receptive service.

Website: www.diamondground.com



PIPELINE-BRUSHES

BRUSHES FOR CUTBACK

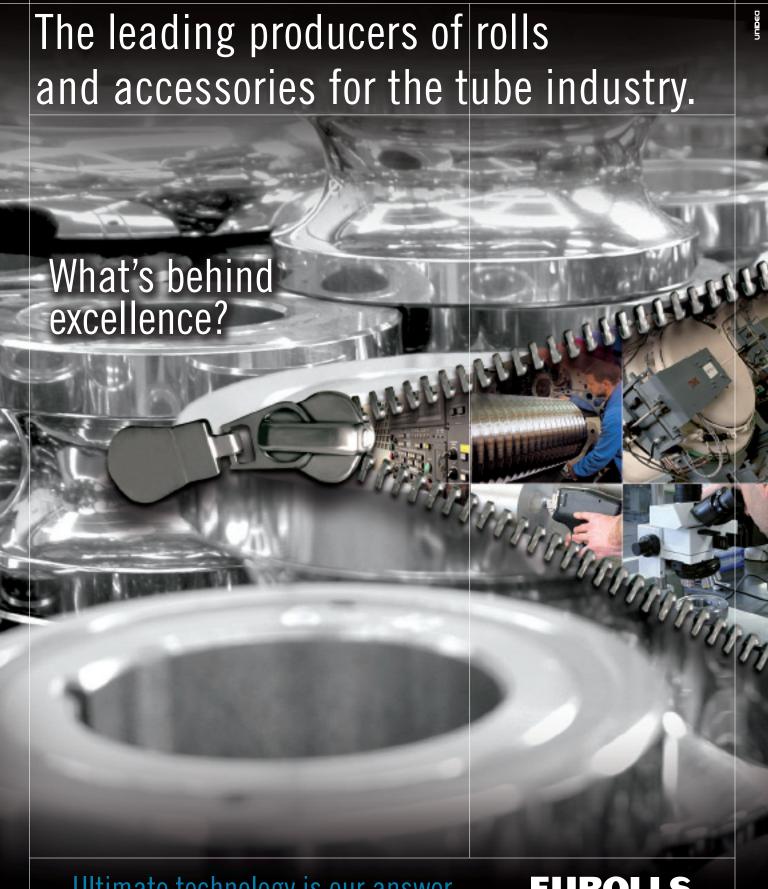




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Fontijne Grotnes The Netherlands

16101

FONTIJNE Grotnes has developed over the years into a specialist in the design and construction of pipe-ends and full-length pipe expanders for the pipe industry.

The Fontijne Grotnes Expander offers a constant, reproducible process regarding diameter and mechanical properties. The design maximises the radial forces in order to obtain maximum output in relation to pipe dimensions. The pipe expander process makes the welding of the pipeline in the field, even for cut pipe sections, much easier. The straightening system is

Fontijne Grotnes produces pipe expanders



a special development of Fontijne Grotnes, which is especially designed for small pipes ranging from 16 to 30". This system controls the straightness of the pipes in all directions within ½-API- and DNV-standards.

In the metal forming industry Fontijne Grotnes designs and builds production lines for a vast range of markets, including large-scale producers of domestic appliances such as dishwashers. In addition, Fontijne Grotnes is involved in a variety of other industrial processes in the aerospace and forging and wind power industry.

Website: www.fontijnegrotnes.com

Formitt Metal Labs USA/Europe

5067

THE Formitt Metal Labs division of Hess Industries Inc now offers tube spinforming and flowforming contract services.

Formitt was created specifically to support product development for a variety of industries, offering development, prototyping and production runs that utilise patented technologies to form tube ends while eliminating welding of end-cones.

Formitt Metal Labs uses spinforming, flowforming and assembly technologies to create hollow tube symmetrical and asymmetrical shapes, fabrications, and assemblies using tubing in both ferrous and non-ferrous metals, including stainless and high alloy steels.

By eliminating the need to weld end-cones to a tube, spinforming technology enhances overall component quality, reliability and cost. Formitt hollow tube fabricated assemblies may include the insertion of filtration elements, heat exchange components, catalytic elements, or others.

Formitt metal tube spinforming technologies are currently being used in the automotive, HVAC, filtration, marine and other industries.

Website: www.formitt.com **Website**: www.hessindustries.com

Haven ManufacturingUSA

2060

HAVEN Manufacturing has unveiled a new addition to its tube cutting product line in the shape of the Haventrak Tying shear.











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Telephone: ++39 0744 8081 Telefax: ++39 0744 812902 Email: info.tubificio@thyssenkrupp.com



The Haventrak utilises the company's dualblade shear cut-off head combined with a Utrak™ length control system to deliver dimple free cuts at speed, which provides improved production rates with increased accuracy of up to 250 FPM.

Haven Manufacturing says the machine produces high quality cuts on a variety of tubular shapes and materials utilising the dual-blade shearing method. Universal Controls Group, Perrysburg, Ohio developed the Utrak length control system blending hi-tech electronics and simple mechanics to provide an accurate and rugged solution to length control needs.

Website: www.havencut.com

Website: www.universalcontrolsgroup.com

HMT USA 2042

HMT says it is revealing its most exciting ever lineup of tube bending technology at this year's Fabtech.

The company says its Unison all electric 40mm Multi-Stack is one of the most environmentally friendly benders available, with its high precision state-of-the-art control system, low heat during operation, and minimal noise.

The Horn Metric Series CNC45EMR all electric CNC tube bender has a rotatable head that combines left and right hand

bending with triple stack tooling, which is capable of push rolling and draw bending all in one machine.

The HMT#4CNC-LP bender is a heavy-duty CNC bender with a low-to-the-floor load height. This puts the tube at a comfortable and ergonomically correct height for the operator without the use of work platforms. The machine is equipped with direct acting programmable clamp and pressure die to reduce set-up time as well as Y axis boost and a retractable wiper die.

HMT CAD File Import will be demonstrating the ability to import Step files and other CAD files directly into the bender control, simulating the part on the screen and then forming the part on the machine. The company claims this unique ability allows the part to go from design to production faster than traditional methods.

Website: www.hornmachinetools.com

Interlaken USA

TBC

INTERLAKEN Technology Corporation designs, engineers and manufactures servo-controlled production equipment with sophisticated controls and monitoring software. The company will exhibit hydroforming press systems for use in productionormaterials research applications. The computer-controlled hydraulic press systems feature data acquisition that uses a high-pressure liquid to hydroform materials.



Interlaken's hydroforming technology

The company's hydroforming press systems are designed for both tube and sheet hydroforming applications. Gas forming systems are also available.

The hydroforming press systems are equipped with Interlaken's UniPress control system for reliable and precise control over the hydroforming process. Easy to use, Windows-compatible interface software enables users to build motion and force profiles designed to fit specific forming needs.

The multi-channel, closed loop control system is easily programmed to handle event as well as time dependencies.





The control system offers dynamic mode switching, which enables the user to switch between a variety of feedbacks such as force, position, internal pressure and other system variables.

Hydroformed parts are stronger and lighter, due to structural integrity and fewer welds or add-on pieces.

In addition, costs are reduced and time is saved by eliminating secondary operations, reducing scrap, lowering material and manufacturing costs, and increasing design flexibility.

A dual operation mode provides added flexibility. The learning/research mode determines tool and die specifications, measures and optimises processes, and programs forces and motions. The production mode runs the optimised profile while monitoring and recording process variables.

Website: www.interlaken.com

Klingelhofer Corporation USA 5061

THE Kasto Model KASTOwa-90R/S automatic sawing machine in combination with the RSA Model NN 1000A wire brush deburring machine will be shown at the Fabtech 2009 International Tool Show by the Klingelhofer Corporation.

This sawing and de-burring system is designed for tubes and shapes up to 3½" in diameter. It is equipped with a length gauge and a tilting support table for long cutoffs.



Klingelhofer is a specialist in sawing machinery

It also includes an automatic loading table, pusher type stock feeder, trim cutting, remnant end separation, and variable blade speeds up to 780sfpm by means of a frequency controlled motor.

The newly developed saw carriage enables the efficient use of notch grind, TiCN-coated cobalt blades for extremely high cutting rates. Vertical and horizontal clamping on the in-feed side and horizontal clamping on the discharge side ensure square and burr-free cuts.

The heavy-duty tube and bar end de-burring machine is loaded automatically by means of an interlinking cut piece transfer system.

Burrs are simultaneously removed from both ends with tubes being de-burred on the ID and OD. Interchangeable support rails are available to rotate rectangles or shapes.

The machine has a simple horizontal and vertical adjustment of the brushes as well as lateral adjustment for the cut piece length. Standard sawing and de-burring lengths of 40", 80", and 120" are available.

Website: www.klingelhofer.com

Magnatech USA

36053

MAGNATECH'S Pipemaster is used for multipass orbital pipe and boiler tube welding.

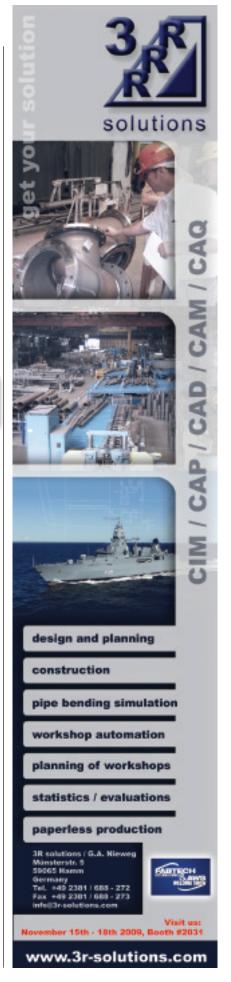
The Pipemaster has an autoranging input of 220 to 480 VAC and a 200amp output, and will operate weld head models incorporating controls for torch rotation, wire feed, torch oscillation, and arc voltage control functions.

The company says its orbital multi-pass pipe welding systems can potentially provide productivity improvements but in the past potential users had expressed concerns with the need to program the equipment for each pipe size and material, and at the learning curve necessary for their welders to program a CNC tool.

Now, the new Autoprogramming mode allows operation without programming training. An inexperienced user enters pipe OD, wall thickness, and material and a weld program will automatically be generated. This can then be run, and if not perfect, can be modified in two ways.

Using Edit mode, any parameter can be changed at any point during the weld. Using Scaling mode, certain parameters (such as rotation spread, or amperage) can be changed by a percentage for the entire program. The power source stores up to 100 weld programs.

Website: www.magnatechllc.com





Manchester Tool & Die 4091

MANCHESTER Tool & Die offers standard and custom-built tube end forming machines with OD capacities ranging from 3/16" to 3" and a research and development lab to help meet customers' specific applications.

Manchester will present its full range at the show





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Fax: ÷ 33 I 34 75 53 41
E-mail: sales@sofratest.com
Website: http://www.sofratest.com

Representatives welcome

The company will be highlighting its full line of tube-end forming machines at the show, as well as Aristo Machines. The tube-end forming systems (machines and tooling) are used for automotive and truck, construction, HVAC, plumbing and other markets.

BKB Manufacturing machining and tube end forming capabilities for machining centres. lathes, saws, mills, MTD equipment and EDM's will also be featured.

Manchester Tool & Die's manufacturing facility is available for customers' machining needs such as CNC and manual turning, CNC and manual boring, CNC milling, grinding and wire EDM. Steel fabricating services are also available.

Website: www.manchestertoolanddie.com

Officine MTM SpA

4070

OFFICINE MTM SpA specialises in designing and manufacturing complete ERW tube mills for metal tubes and sections.

MTM's product range includes automatic strip entry line systems, forming mills and tube production equipment, flying cut-off machines and tube exit line and packaging systems.

Main field applications are: automotive. mechanics, building, furniture, conduits, double glazing and heat exchangers.



MTM manufactures complete ERW tube mills

MTM also supplies custom-designed equipment to attempt to improve productivity and offers solutions for revamping of existing systems.

The company works in partnership with ATOMAT SpA, MTM on turnkey projects for the production of ERW tubes in carbon steel, stainless steel and aluminium allovs.

Website: www.mtmtubemills.com

Protem SAS

France

TBC

PROTEM SAS will be exhibiting the new Protem OHSB-C 6-14, which is designed to carry out bevels or compound bevels by copying.

A carriage with hydraulic radial movement, mounted on the tool holder plate, enables it to perform bevelling works while using a copying cam. The tool holder is equipped with carbide plates and maximum wall thickness of tube can be 60mm on a height of bevel lower than 30mm and a maximum angle of 37°.

Protem will also be exhibiting the SERCO XP 1800 portable machining unit, which is used for flanges, safety valves, sealing valves, high pressure valves, flat seats, conical seats, man holes and diesel engine repair.

Website: www.protem.fr

Quaker Chemical USA

4044

QUAKER Chemical will be showcasing Quakercoat Coatings technology Fabtech.

Quakercoat Coatings are custom engineered to meet all the requirements of the steel tube and pipe Industry. The ongoing development of Quaker's coating chemistry has produced new products to meet the ever-increasing performance demands of end users and the stringent guidelines for environmental and safety concerns. This includes a new series of low-to-zero VOC water-based coatings, ZERO VOC UV coatings, and high-solids solvent-based varnishes.

Most Quakercoat Coatings can be easily applied with airless, conventional air spray, flood and wipe, or a vacuum coater. To assure consistent performance, Quaker tube and pipe engineers and technicians provide on-site support to optimise coating applications.

Quaker can also help improve coating equipment performance if needed by working closely with preferred OEM partners.

Website: www.guakerchem.com



3101

Silfax Group

France

TBC

SILFAX Group's hydroforming machine model SHD4N was designed in 2007 and prototyped in 2008, and more than five machines have already been sold around the world, to cope with the growth in the exhaust gas recirculation (EGR) business.

SHD4N can handle tube diameters from 12 to 50mm, and lengths from 200 to 800mm. The fully electric machine produces a hydroforming pressure of 350 bar.

The machine's tooling features a quick tool tightening system and an adaptive concept, with a common framework, removable and independent internal parts, and 'multi-waves group' within the same tool. Changeover takes five minutes for a complete set, or 15 minutes for internal parts.

SHD4N is suited to multiple uses as a means of connecting all of the components of an exhaust gas circulation system. From the exhaust gas sampling point (eg manifold or cylinder head), through the EGR cooler and the EGR valve to the intake tract, the cramped conditions in the engine compartment often call for complex connections with flexible pipes.

Some EGR lines require cooling by means of a (partial) water jacket. This also facilitates the cooling of the recirculated exhaust gas without seriously compromising installation space. Under certain conditions, it may even be possible to dispense with an EGR cooler altogether.

SHD4N also has applications in oil return lines, secondary air pipes, compensators and fuel filler pipes.

Website: www.silfax.com

Solar Atmospheres USA

8071

FOR more than 25 years Solar Atmospheres has been established in the vacuum thermal processing industry.

The company combines the latest technology with experienced professionals to create solutions for the needs of the tube and pipe industries.

Its capabilities include over forty vacuum furnaces from R&D to the world's largest,



 Solar Atmospheres is an expert in the vacuum thermal processing industry

large furnaces 6, 8, 10, 12, 24 and 36' lengths, loads up to 150,000 lb, material handling capability with lifting capacity up to 20 tons, high temperature processing up to 2,500°F/1,371°C, precise temperature monitoring of parts during process, lab furnaces for cycle development and small parts, furnaces up to 80" diameter, 80" high, 36' long, non-destructive testing and metallurgical and process consultation.

Solar Atmospheres also offers various other services including bright annealing, normalising, solution treating, hardening, homogenising, precipitation hardening and metallurgical testing.

Website: www.solaratm.com

Thermatool Corporation 4001

THERMATOOL is to unveil its latest advancements in equipment and process technology at Fabtech.

Solutions for tube and pipe producers will include: solid state high frequency welders with HAZControl Technology™; developments in welding process control; innovative induction coil design: latest operator control concepts; seam annealing solutions; and flying cut-off display.

Additional products featured will include: quench and temper lines for bar; pipe and tube: HF welded engineered structured section mills; bright and dull annealing systems for stainless steel; and in-line coating applications.

Visitors to the Thermatool stand will have an opportunity to discuss all of their tube and pipe welding, cutting and heating requirements with a seasoned applications specialist.

Website: www.thermatool.com

YLM & J&S Machine

YLM & J&S Machine will be displaying the newly released CNC38 at Fabtech, a 1-1/2" capacity all electric rotary bender working with an autoloader.

This quiet, fast machine utilises the technologies developed from experience with the servo motor technology of earlier models. The control is capable of importing data in various forms, connecting to a network, displaying the part in 3D, and showing a bending simulation of the programmed part.

The second newly released machine to be shown will be the CMP 16. The CMP 16 pulls material from a coil, straightens, endforms, bends and cuts, completing multiple processes in one operation. This model was developed for fast accurate work in the copper and aluminium bending fields.



1&S Machine carries a full range of Tre C bending

Tre C & J&S Machine will be displaying the CR138RIMW - a Windows-based CNC roll bender with 21/2" capacity. The control is capable of importing dxf formatted files, connecting to a network, displaying the part as it is programmed, and showing stored profile shapes. The 160 roller rotation speeds and 500 roller location speeds are servo controlled for precision settings and automatic calculation of the 36 radii per part program.

Programs can be stored for recall, which ensures repeatable parts with the desired blending actions when changing from one radius to another or going from a straight to a radius. Automatic encoder positioning with photo eye part detection coupled with the usage of the bending archives facilitates quick setups and optimum cycle times.

Website: www.jsmachine.com

www.read-tpt.com

A wise choice

Tube Southeast Asia 2009, Bangkok — 13-15 October

NOT only is Thailand, by virtue of its location, a superb choice to host Tube Southeast Asia for the second time; the timing of this year's conference is also extraordinarily apt. On 24 July, the chief economist of the Asia Development Bank (ADB) confirmed that East Asian countries have begun their recovery from recession.

Jong Wha-Lee, the head of ADB's Office of Regional Economic Integration, projects the recovery of the regional economies as occurring in a V-shape pattern, with Thailand, Indonesia, Malaysia, and the Philippines — members all of the Association of Southeast Asian Nations (ASEAN) — each growing at its own rate. But Mr Lee sees all four nations enjoying positive growth in 2010, led by a Chinese economy poised for 8% expansion this year.

A positive note of another kind was struck by Piamsak Milintachinda, a former executive director of the Asia-Pacific Economic Cooperation Secretariat in Singapore. Now Thailand's first appointee to the Committee of Permanent Representatives (CPR) formed last year under the ASEAN charter, he told the Bangkok Post (25 July): "We use the European Union, which has a CPR based in Brussels, as an example."

Given this double impetus Thailand richly deserves the honour of hosting Tube Southeast Asia 2009. Those going to Bangkok for the show will take in the premier showcase in the Greater Mekong Subregion for state-of-the-art tube and pipe technology. They will come away from the event prepared to exploit the opportunities presented by the recovery even now gathering steam in the area.

Registration for Tube Southeast Asia 2009, organised by Messe Düsseldorf Asia with its industry partner International Tube Association, is now open.

Event: Tube Southeast Asia 2009

Date: 13–14 October, 10.30am–6pm

and on 15 October, 10.30am-5pm

Venue: Bangkok International Trade & Exhibition Centre

Phone: +65 6332 9620 (Organiser)

Email: tube@mda.com.sg

Website: www.tube-southeastasia.com



Exhibitor List

Preliminary list of exhibiting companies at Tube and wire Southeast Asia

Aesa SA	Switzerland
Agir Technologies (Mouton)	
Ajex & Turner Wire Dies Company	India
Alliance Technology Co Ltd	Thailand
An Chen Fa Machinery Co Ltd	
Anand Arc Ltd	
Anbao (Qinhuangdao) Wire & Mesh Co Ltd	China
Anhui Changjiang Jinggong Wire & Cable Machinery Co Ltd Asian Industry and Information Services Pvt Ltd	Unina
Balloffet	Eropoo
Beta Lasermike	
Borouge Pte Ltd	
Britx Wire Rope Ind Corp	Taiwan
Candor Sweden AB	
Ceeco Bartell – Bartell Machinery Systems LLc	
Changzhou Wujin Hengtong Metal Steel Wires Co Ltd	China
Cheng I Machinery Co Ltd	
Chengdu Centran Industrial Co Ltd	China
Chengdu Heyi Steel Tube Industrial Co Ltd	
China Fastener Info	
Chyau Long Machinery Co LtdCM Tech	
Cogebi Asia Sdn Bhd	
Condat	
Construcciones Mecanicas Caballe SA	Spain
Cotimptrade SA	
Dalian Field Manufacturing Co Ltd	
Dee Tee Industries Ltd	India
DSR Wire Corp	South Korea
Enkotec A/S	
Erocarb SA Esteves (Shanghai) Diamond Dies Co Ltd	Switzeriand
Eunsung Ind Co	
EuroWire Magazine	UK
Fa.In.Plast – Faraotti Industrie Plastiche Srl	ltaly
Fastener Technology (M) Sdn Bhd	Malaysia
FIB Belgium SA	
Flymca	
Flyro Used Cable EquipmentFMS Force Measuring Systems AG	Spain Spain
Fontijne Grotnes BV	Netherlands
Fort Wayne Wire Die Inc	USA
Foshan Shunde Kindme Electric Industrial Co Ltd	China
T Fukase & Co Ltd	Japan
Gauder Group	
Gimax Srl	
Golden Spot Industry Inc	China
Guangzhou Hongda Steel Tube Co Ltd	China
Gwo Lian Machinery Industry Co Ltd	Taiwan
Hangzhou Sanp Machinery Co Ltd	China
Hanyu Cable Materials Co Ltd	China
Hefei Smarter Import & Export Co Ltd	China
Hsiang Chuan Machinery Co Ltd	
Huestis Industrial	
International Machtronic Co Ltd	
International Tube Association	
International Wire & Machinery Association	
ISA Technology Pte Ltd	Singapore
Ito-Sin (Deyang) Wire & Cable Equipment Co Ltd	
J + J Alloys	
Jagular Industry Ltd	
JJ Advanced Products (Thailand) Co Ltd DK Jones Ltd Piping Products	
Kalpena Industries Ltd	
Kolon Industries Inc.	
Krais Tube Expanders	
Kyoeisha Chemical Co Ltd	Japan
Kyoudo Engineering Co Ltd	Japan
Lamnea Bruk AB.	
Liwei Electrical Machines Co Ltd	
Locton Ltd	
IVIGIIIGIGI OA	

Medek & Schoerner GmbH	
Meltech-Confex Ltd	UK
Minerals & Metals Review	
Mohindra Stainless Ltd	
Nevatia Steel and Alloys Pvt Ltd	
Oto Mills SpA	
Pan-Pioneer Co Ltd	
Pioneer Machinery Co Ltd	Taiwan
Powermaster Engineers Pvt Ltd	
Prasum Metals Pvt Ltd	
Pressure Welding Machines Ltd Proton Products International Ltd	
Ptca Technologies Sdn Bhd	
PWT Limited	
Qingdao Xite Carbon Co Ltd	
Quality Foils (India) Pvt Ltd	
Qunye Electrical Machinery Factory Yangzhou	China
Raajratna Metal Industries Ltd	India
Ratnadeep Metal and Tubes Ltd	
Rautomead Limited	
RIK (Thailand) Co Ltd	I hailand
Ringier Trade Publishing Ltd	
Sanxin Wire Die	
Schlatter Industries AG	Switzerland
Shanghai Electric Cable Research Institute	
Shanghai Nanyang Electrical Equipment Co Ltd	
Shanghai Wangxun New Material Co Ltd	China
Sheng Chyean Enterprise Co Ltd	Taiwan
Shenyang Tianrong Cable Materials Co Ltd	China
Shree Ganesh Forgings Ltd	
Siam Charn Co Ltd	
Sk Dies Co Ltd	South Korps
SMACO (M) Sdn Bhd	Malaysia
Solvay Padanaplast SpA	
Spring Tooling Ltd	UŘ
SPX Precision Components Fenn Division	USA
Sumon Industrial (Jiashan) Co Ltd	China
T & H Lemont	USA
Taymax Wire Rope Industry Corp Co Ltd	
TGM Enterprise Co Ltd	Thailand
Thai Trade and Industry Media Co Ltd	Thailand
Thai Unique Coil Center Plc	
Thai-German Products Public Company Limited	Thailand
The No 23 Research Institute	
Thermatool Corporation	
Threesixty Parkgate Technology Ltd	UK
Tien Chen Diamond Industry Co Ltd	
Tien Dat Company Limited	
Toyo Millennium Co Ltd	Thailand
Tube & Pipe Technology Magazine	
Tube Products INTERNATIONAL Magazine	
Upcast Oy	
Vega Engineering Corporation	
Venus Wire Industries Pvt Ltd	
VSH Fittings Netherlands	
Walson Woodburn Wire Die Pvt Ltd	
Weihai Hongda Trading Co Ltd	
Weng Zheng Sdn Bhd Wica Machinery Co Ltd	
Wire & Cable ASIA Magazine	
Wire & Plastic Machinery Corp	
Wuxi Quantong Cable Materials Co Ltd	
Ya Sih Technology Co Ltd	
Yee Young Industrial Co Ltd	
Yih Shen Machinery Co Ltd	Taiwan
Zhangjiagang Sanfeng Machinery & Electric Development Co Ltd Zhejiang Rongtai Electric Material Co Ltd	China
Zhenxiong Copper (Thailand) Co Ltd	UNING
Literations Copper (Triuliuna) Co Ltu	

Exhibitor list correct at time of going to press - please visit www.tube-southeastasia.com for updates

ADVANCES IN CUTTING, SAWING & SAWBLADES

PRECISION, which informs every aspect of tube making, does not take on greater urgency at the cutting station. And yet there is a sense in which it does. This is the point toward which the effort has been directed. It is here that the process yields a saleable product.

It is also the point at which the transformation from workpiece to artefact could run into trouble. A tube that is not cut perfectly is not a tube that can be sold.

Strictly speaking, it is not a tube at all, but a piece of very elegant scrap — essentially

MFL's sawblades feature exchangeable carbide tips



of interest only to a scrap dealer.

That this is a virtually negligible worry in our industry is due in no small part to the equipment and services available from companies such as those reviewed in this section of *Tube & Pipe Technology.*

From pipettes to oil pipes, from soft copper to PVC — the specifics of a given



The SDSF from EH Wachs



Flexible and mobile plasma cutting of up to 50mm material thickness from Kjellberg

cutting job are, to cutting professionals, factors with which they have an easy familiarity.

They are also elements of a precision-oriented speciality that demands mastery as great as any in the entire field of tube making.





Safe and fast high-performance band saw

THE new HBV500A from Behringer, Germany, is a fully covered machine featuring improved discharge of swarf and easy access for cleaning.

The cutting range for round bars is Ø510mm and for flat materials up to 500x500mm. The cutting speed can be adjusted infinitely from 20 to 140m/min, according to the material. The HBV500A quickly and securely cuts steels, high tensile solids and other materials.

The machine is designed to provide the best cutting results. A rigid, low-torsion and low-vibration cast iron saw frame and two large, ground and hard-chrome plated guide columns deliver the base for performance. The quadruple guides, pre-tensioned and backlash-free, simplify difficult cutting tasks while an optional 3° inclined saw frame offers special benefits for cutting profile materials.

Behringer has also equipped the HBV500A with high-precision cutting force control.

This feature offers constant cutting feed rate for solids and constant cutting force for pipes or sectional materials. The optimum service life and the precise cutoffs at high output are setting standards for band saws, claims the company.

An intelligent stroke control of the saw frame ensures minimum downtime

Rehringer's new

by lifting the saw frame only to a small clearance for material feed and by moving the frame with a rapid lowering speed before cutting.

Behringer GmbH

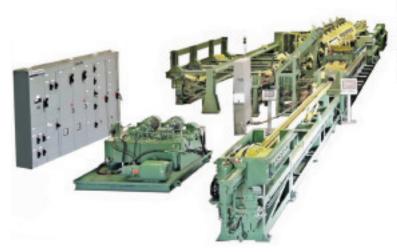
- Germany

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Carbon tipped saw blade technology

MASCHINENFABRIK Liezen und Gießerei GmbH (MFL), Austria, has introduced saw blade technology, which it says is aimed at customers requiring a longer service life and lower investment cost.

The saw blade features exchangeable carbide tips. While common saw blades have the carbides brazed at the tooth, the carbides of the MFL saw blades are clamped

into the gap between the main body and the tooth. The clamped carbide tips are easily exchanged, removing the need for expensive grinding centres. The removal of long transport times for regrinding of saw blades also means that less basic equipment is required. Successful trials at the MFL workshop in Liezen have already been finalised, and a durability test is due to be started soon.

Another recent invention from MFL is a ring splitting machine used primarily in ring mills to separate multiple rings. The machine is equipped with a carbide tipped saw blade and cuts the ring in an interpolated process from the inside out.

MFL is an experienced manufacturer of sawing and milling equipment, and says it constantly refines and develops its machines to increase service life.

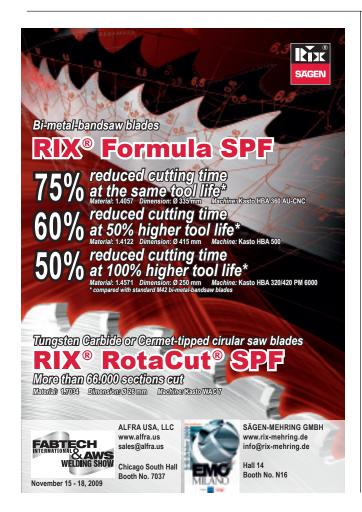
The company's product range includes single and layer sawing machines for tubes, billets, rails and profiles. Each of these machines is designed to use carbide tipped saw blades, which it claims ensure high performance, low costs and long service life.

The company's plate and strip edge milling machines are mainly used for the edge preparation of longitudinal welded pipes in the shipbuilding and spiral pipe industry.

Maschinenfabrik Liezen und Gießerei GmbH – Austria

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Carbide bandsaw blades for cutting tough metals

A NEW range of tungsten carbide tipped bandsaw blades, designed for cutting large cross-sections of metals that are difficult to machine, has been introduced to the UK and the Republic of Ireland by US manufacturer Lenox.

It claims the Tri-Tech CT products are versatile in their ability to saw accurately a wide range of materials from high strength steels to nickel-based alloys and says the blade's robust construction results in longevity, high productivity and low cost per cut. Tri-Tech CT has a proprietary set-style tooth pattern, and the positive rake provides strength and durability at the cutting edge. With each pass, the tooth design creates three chips that are claimed to be 50% thicker than most other bandsaws.

The sawing action produces straight cuts and eliminates the pinching and seizing that can occur when sawing high stress and work-hardening metals like inconel and other super alloys.

High grade carbide tips are precision ground for efficient bandsawing and to balance the work load across all of the teeth in the cut. The backing steel of the Lenox band goes through a detailed preparation process that minimises body breakage and extends the life of the blade.



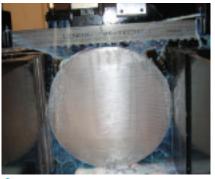
The new QXP bandsaw blade from Lenox

Tri-Tech CT blades are available in fourteen specifications ranging from 34mm to 80mm in width and from 1.07mm to 1.6mm thick.

There are five teeth per inch configurations: 0.6/0.8, 0.9/1.1, 1.4/1.8, 1.8/2.0, and 2.5/3.4. Two of these are new, making it possible to cut high stress metals in an even wider range of sizes.

Materials processed include high-nickel superalloys such as inconel, nimonic, Hastalloy and Waspalloy, iron-based superalloys, tool and mould steels, stainless steels, high chrome alloys, titanium, nonferrous alloys such as bronze, copper and brass and aluminium.

Lenox has also introduced a series of bi-metal bandsaw blades, which it claims last up to 60% longer than other products when cutting solid aluminium and alloyed steels. Marketed under the designation QXP, they are available in the UK and Ireland through the existing Lenox network of distributors.



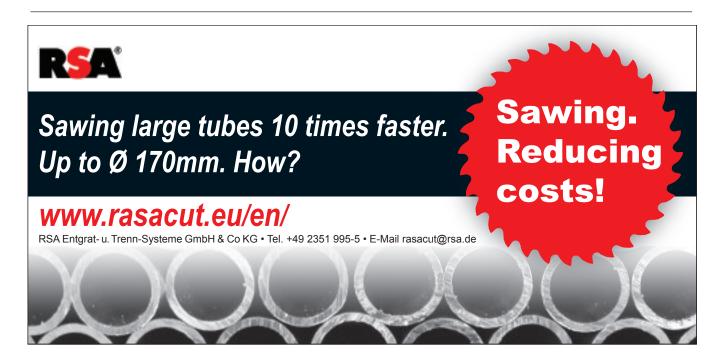
A Lenox Tri-Tech CT blade in action

The Q prefix signifies the proprietary method of manufacture, developed by Lenox, that improves the blade's performance and extends its life. Tooling costs are lower and productivity is increased, as the blade needs to be replaced less frequently.

The QXP series is suitable for use on solid stock of mild to moderate machinability, such as aluminium, carbon steel and alloyed steels including stainless and bearing steels. The deep gullet improves chip-carrying capacity, enhancing the blade's ability to cut at increased speed and feed rates, while the extreme positive rake tooth form penetrates material with less feed force.

QXP blades are supplied in sizes from 27mm to 54mm wide and 0.9mm to 1.6mm thick. TPl can be 2/3, 3/4, 4/6 or 5/8.

Lenox – UK
Fax: +44 8008 99719
Email: bandsaw@lenoxtools.eu
Website: www.lenoxtools.com



Planetary cutting and bevelling technology

ORBITALUM Tools GmbH, formerly known as Georg Fischer Rohrverbindungstechnik GmbH, has launched the GF 4 (AVM/MVM) pipe saw range for cutting and bevelling of high alloy, low alloy and unalloyed metal pipes according to the tested process of planetary cutting.

The RA pipe saw series, which had already been marketed successfully over the last 40 years, has been improved upon, and was reintroduced as the GF series in 2008 with a new design and innovative new functions.

The GF 4 (AVM/MVM) has a new motor optimised for speed, especially designed for stainless steel and high performance materials, without any additional driving mechanism. An ergonomically designed handle ensures a safe operating position, and the cutting of elbows is possible without any additional adjustment.

An integrated laser beam ensures accurate positional cutting of the pipe. An automatic or manual feed module — AVM or MVM — can be installed for better saw blade life, although

this is not available as a retrofit. The unit also features a plug-and-socket connection with a quick screw mechanism for exchanging the power cord easily and conveniently.

The machine is able to process, through deformation-free clamping, pipes with an outer diameter between 12 and 120mm (0.472" to 4.724") and a wall thickness between 1 and 9mm (0.039" to 0.354"). The burr-free square cut is the optimal

pre-condition for further processing of welding materials. Areas of application for the GF 4 in the field of construction include the pharmaceutical, chemical, foodstuff and drinks industries, the construction of energy systems, and the shipbuilding industry.

Orbitalum Tools GmbH – Germany Fax: +49 7731 792 500 Email: tools@orbitalum.com Website: www.orbitalum.com

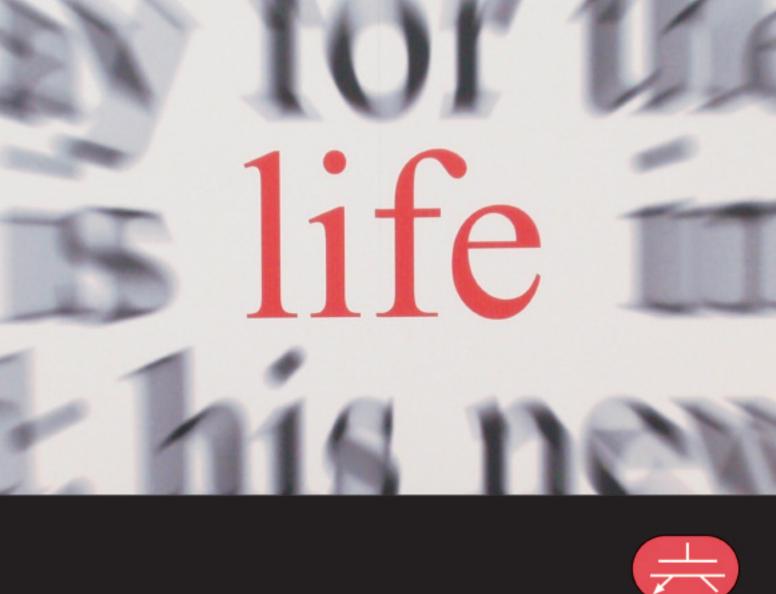




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Small diameter low clearance split frame

THE latest product from EH Wachs, maker of the Trav-L-Cutter and LCSF™ Low Clearance Split Frame, is the SDSF™ Small Diameter Split Frame. The SDSF is the foundation of a complete field portable machine tool system, designed to perform parting (cutting), single bevelling and compound bevels prior to welding.

Named for its ability to be 'split' in half and placed around the OD of inline tube and pipe, the SDSF is engineered for smaller OD pipes that require a precision lathetype finish where machining clearances are low.

The Small Diameter Split Frame is suited to industries where pipe and tubing are concentrated in close proximity, as in shipbuilding and pipe racks.

Equipped with optional accessories, the SDSF will counterbore the ID and perform perfect socket weld removal operations (either axially or radially) in extremely tight

quarters. With the FME (foreign material exclusion) module, the SDSF delivers chipless parting, suitable for high purity applications such as food, dairy and pharmaceutical.

All Wachs SDSFs include the company's latest innovations in split frame design, with each individually hand assembled to exacting standards.

High quality components are used, such as full roller bearing construction (instead of bushings), hardened steel components and an improved pinion drive with virtually infinite drive motor mounting options.

A new bearing configuration requires fewer adjustments and decreases drag, while the redesigned trip assembly has improvements for safety and performance.



The SDSF from EH Wachs

Standard SDSF sizes accommodate 1" to 6" (25.4 to 152.4mm) OD, with additional sizes available by special order. The SDSF operates with Wachs electric or air drive motors.

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TruLaser Tube 7000 tube cutting system paves the way to new fields of application

THE new TruLaser Tube 7000 laser cutting system from Trumpf Inc, USA, processes tubes inside a tunnel-like safety enclosure and then, depending on size, moves them forward to the brush table or ejects them to a parts container behind the machine. It features heavy-duty drives engineered for heavy tubes, a broad chucking range and a high degree of flexibility.

This machine can cut tubes and profiles with large diameters and wall thicknesses without sacrificing productivity and it is able to process tubes up to 30ft long and can handle a maximum weight of 496lb. The system has a 0.6 to 10" clamping range, and is available with up to 3.6 kilowatts of laser power, making it suitable for a wide range of applications.

Trumpf states that the TruLaser Tube 7000 can boost productivity, compared with conventional processes like sawing, drilling or milling. It claims one example of a productivity enhancement is the short setup time when changing programs. Nearly all of the adjustments depend on profile specifics and values that have to be entered at the machine and the loading unit can easily be handled by the parts program.

The self-centring chucking jaws do not need to be changed and the rollers that provide support and lateral guidance for the tubing automatically adjust to the diameter. Even the integrated scrap container in the feed station is emptied without operator intervention.

The FocusLine function automatically adapts the laser focal position to the material type and thickness. The machine's

software independently adjusts to the focus parameters given in the technology table, eliminating any set-up problems. A new slender cutting head with a 6" lens and new clutch is designed for flexibility and process safety, the company claims.

When combined with the LoadMaster Tube, featuring a tube magazine holding 8,000lb of raw material, the TruLaser Tube 7000 can be also be fully automated. Its pivoting feed support holds a number of tubes and keeps them at constant orientation. The loading unit performs a feasibility test to compare the tube geometry with the parts program and special profiles and small batches can be fed by a conveyor section. The LoadMaster Tube measures the pipe length and adjusts the position of the grippers accordingly.

The TruLaser Tube 7000 works with a new version of TruTops tube software to make sophisticated processing strategies available and this software is built around a database that contains all of Trumpf's technical knowledge.

With this new software, complex tube designs can be fabricated more easily, precisely and reliably. It is now possible, for example, to position one 3D tube on another instead of designing and programming individual tubes. This saves time since parameters such as length, width, height, wall thickness and spacing between cut-outs can readily be modified to generate any number of variations.

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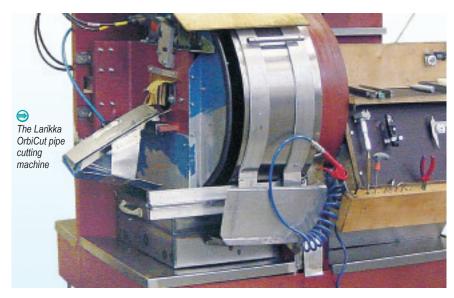
Pipe cutting in orbital welding

LARIKKA, Finland, the specialist in technologies for processing tubular parts, has introduced a new pipe cutting machine called the Larikka OrbiCut to international markets.

Larikka OrbiCut was developed to meet customers' evolving needs for pipe cutting and to provide cutting results suitable directly to orbital welding without filling wire.

After tests in full-scale production over several years the machine has shown it can create pipe cutting results for several pipe dimensions (OD 6x1 – 114.3x2mm) and all machine functions of Larikka OrbiCut are CNC-controlled. During the fully automatic cutting process the pipe is stationary, whereas cutting inserts rotate outside the pipe.

The company says it hopes the new machine will not only ensure that the cutting surface is free of burr, and even



and smooth on the outside, but also inside and that the cutting surface is even.

In addition to a positive burr on the pipe's inner and/or outer surface, a chamber in one of the four corner bevels might be needed or a chamfer or shape cutting to all corner bevels, which is also possible if required by the customer. Larikka claims that

the machine also meets these demanding needs for an even cut as an automatic process fulfilling the requirements of orbital welding without filling wire.

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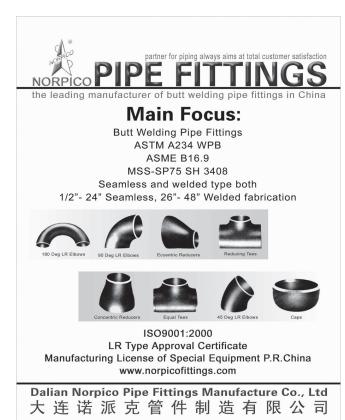
- LEHAI portable shear welder provides the coil processing industry A wide range of strip shearing and welding application. THE special capability will improve weld quality, lessen maintenance cost, increase operator efficiency.
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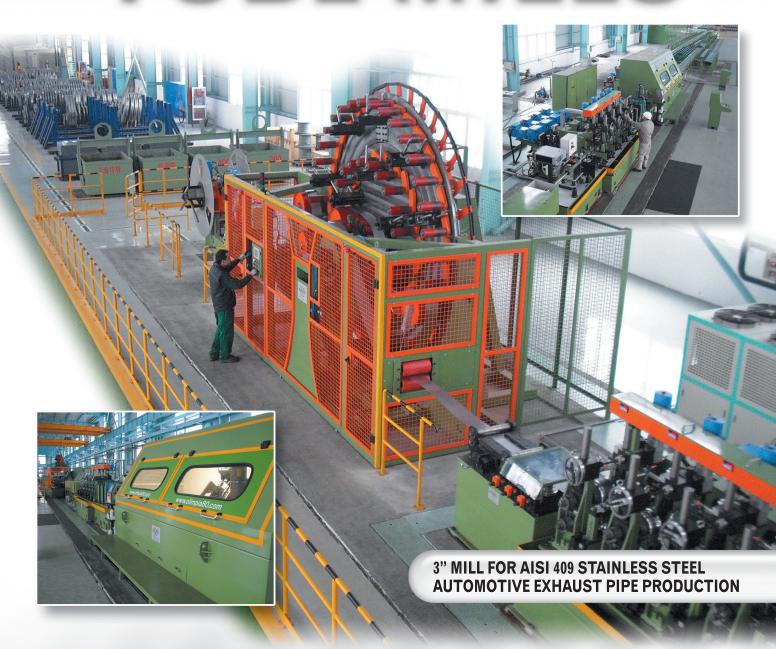
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Brass billet sawing and cutting

ASMAG, Austria, offers a wide range of machine concepts in the area of saws and cutters.

Its metal circular saws are used for sawing of pre-material, semi-finished products and finished products.

The robust structure guarantees vibration free machine operation, even when sawing large material. This leads to more accurate cutting results and extended saw blade service life.

One of the latest innovations in this area is a sawing line for brass billets. The sawing machine is arranged in-line with an extrusion press for brass tubes. The length of the incoming material is 2.8–3.2m and the diameter of the billets is up to 320mm.

At the end of the charging unit, the billets are automatically separated into the saw entry roller table. Before sawing, the billets are measured and the optimum dividing length is calculated by the control system.

High cutting performances and vibration-free operation of the machine are guaranteed due to the rigid, robust design. The sawn billets with a length of 280–900mm are weighed by the weighing system and are then lifted by means of a manipulator into the storage system with a capacity up to 400 billets.

The inclusion of an integrated material tracking system allows billets to be selected by alloy and weight on demand from the billet stock.

The company claims that the essential benefits of the machine include: fully automatic operation of the entire sawing line; highest cutting performance and vibration free operation due to robust design; ergonomic plant design; and efficient flow of material.

ASMAG-Anglagenpanung und Sondermaschinenbau GmbH – Austria

Fax: +43 76168 80188 Email: andreas.moro@asmag.at

Website: www.asmag.at

Three-cylinder hydraulic cutting unit

BIKE Machinery Srl, Italy, manufactures the M8 cutting unit – a hydraulic unit with two knives to cut the tube at length.

The unit is composed of three cylinders with hydraulic function to execute the cutting: one cylinder to lock the tube, one to engrave and another to perform the cut. The machine is suitable for tube diameters up to 45mm.

Bike Machinery Srl – Italy Fax: +39 035 682873 Email: info@bikemachinery.it Website: www.bikemachinery.it

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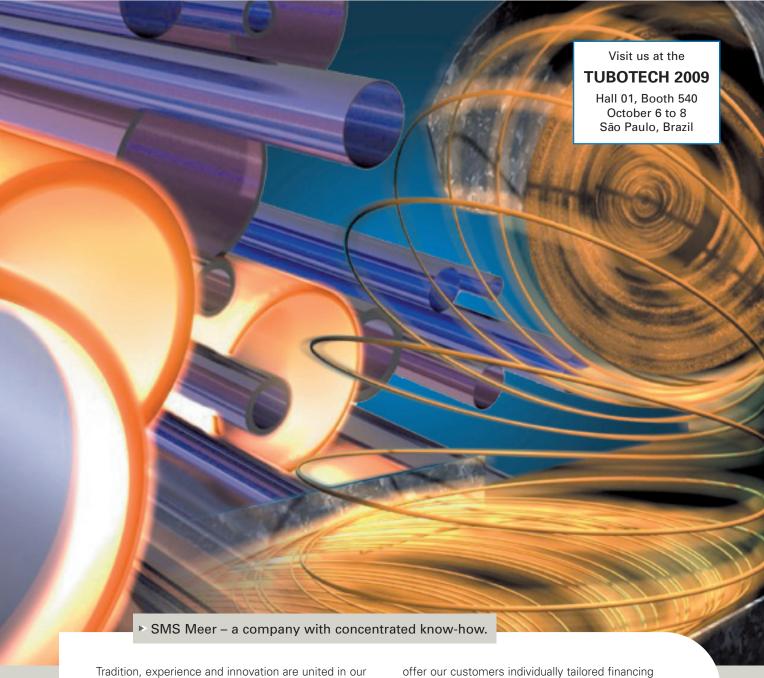
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MEETING your **EXPECTATIONS**

First global distribution event takes place

FOLLOWING months of preparation, Bewo Cutting Systems, Netherlands, held its first official distributors event. On 7 May more than 25 people from 16 countries travelled to Tilburg to attend presentations and demonstrations.

During the factory tour several automated sawing machines were demonstrated. The production of parts and the assembly of manually and automatically operated sawing machines were displayed. One of the new generation Quatro SCF-90 sawing lines, destined for the American market, was shown in full working order. This particular unit has been built in combination with an automatic de-burring unit and optical measuring unit (SCD-90+SCC-90), followed by an automatic Bewo stacking machine (SCP-90).

The company's FCH was fitted with a custom-made automatic hacking unit and this machine is set to be delivered to a customer in the Benelux region. A standalone SCF-90 Single with de-burring unit

was also demonstrated, and sister company Safan presented two of its machines, the E-brake and B-Shear.

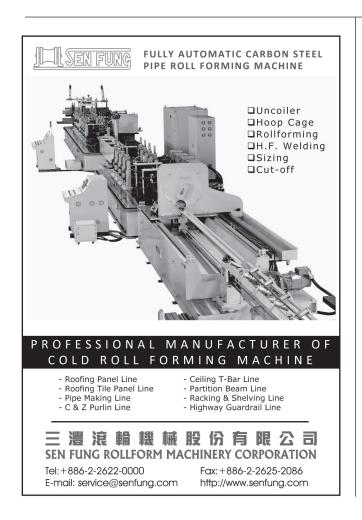
Bewo's new sales organisation has chosen to work with a clear distribution strategy based on geographical areas and skilled distribution networks. The company has aligned its distributors in various parts of the world, and in addition to salestasks, these distributors will be part of increasingly important after-sales.

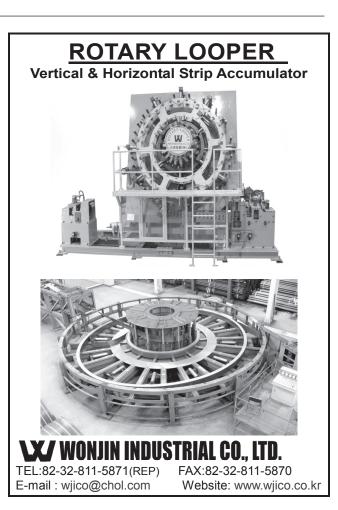
Bewo Cutting Systems BV – Netherlands

Fax: +31 13 4680201 Email: info@bewo.nl Website: www.bewo.nl

Bewo's first official distribution event was attended by delegates from around the world







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High-speed shearing technology

IN recent years increased world demand for higher tensile materials including austenitic and ferritic grades of stainless steel has created the need for a more reliable cutting solution, as precision cutting of stainless steel tube has always been fraught with difficulties.

To satisfy this challenge, Thermatool engineers have introduced a series of strategic design enhancements to its range of Alpha Flying Shears.

One such example has been the introduction of aircraft-grade aluminium for use on the latest die-sets, where increased strength-to-weight ratio – several times greater than that of steel – has significantly improved operating performance, reliability and overall cutting efficiency.

The latest Alpha Flying Shears also benefit from fully automated lubrication of the entire cutting system. Automatic lubrication of the die-set has also served to reduce wear and improve blade life by helping to maintain correct blade alignment longer, thus reducing mill downtime.

The latest generation of modular die-sets have been re-designed to reduce vibration, thereby improving blade life while shearing higher tensile materials including austenitic and ferritic grade stainless steels.

Central to the Alpha die-set design is the patented, horizontal, double-cut scarfing mechanism, which is rack and pinion driven and designed to deliver a smoother transition through the entire cutting cycle, a significant improvement on former camdriven systems.

The latest generation of Alpha shears also utilise AC servo accelerator systems, proven to deliver millions of cut cycles with cut length accuracy up to ±1mm.

Thermatool IHWT – UK/USA Fax: +44 12564 67224 Email: info@ihwtech.co.uk

Website: www.inductotherm-hwt.co.uk

Cutting and bevelling of tube sections

PROTEM'S CTA model is designed for production or prefab workshops, and allows cutting and bevelling of tube sections. The cutting is square and the bevel angles are precise and the cold machining process gives a clean surface finish.

The tube to be cut is kept stationary by the machine's outside clamps, while the tool bits mounted on a rotating plate are put into rotation around the tube to perform the cut.

While cutting, the machine performs bevelling on both ends. However, this radial cutting principle does not allow the performing of any counterboring or de-burring.

Protem GmbH – Germany Fax: +49 72479 39333 Email: info@protem-gmbh.de Website: www.protem-gmbh.de

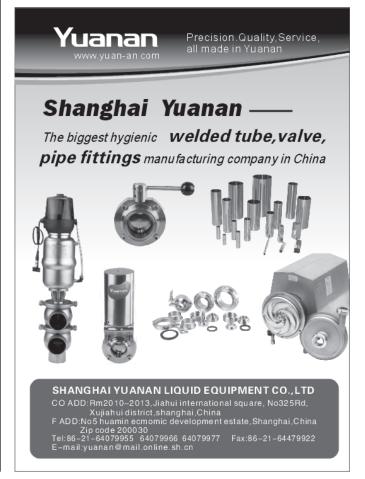
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Compact cutting machine launched

ROLF Schlicht GmbH, Germany, has developed and delivered a cutting machine after seeking customer feedback.

The flexible plant offers advantages, especially concerning rigid profiles such

as scanner strips made of rigid PVC or ABS, where the user is looking to produce quickly and cleanly, without expensive subsequent processing, whether inside or outside the extrusion line. The new machine features a caterpillar in-feeder type RB-600/100, which is equipped with a stop/start or continuous operation, with a sensor system to detect the product, and the possibility to return remaining pieces from the plant.

This process allows automatic operation in which the only task of the operator is to place the profiles.

A pre-warming station ensures that the necessary warming-up takes place, so that the cut is performed cleanly and without white breakage.

During a stoppage the pre-warming station automatically runs into a parking position in order to eliminate the risk of over-heating of the profiles.

The rotation cutter MC-80 provides a clean, exact cut without burr and discharge systems then automatically convey the cut pieces into respective commissioning boxes.

Rolf Schlicht GmbH - Germany Fax: +49 4067 99 4211 Email: info@schlicht-gmbh.de Website: www.schlicht-gmbh.de





ULTRASONIC NDT SYSTEMS FOR PIPE & TUBE MILLS



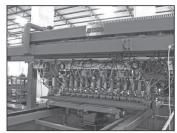
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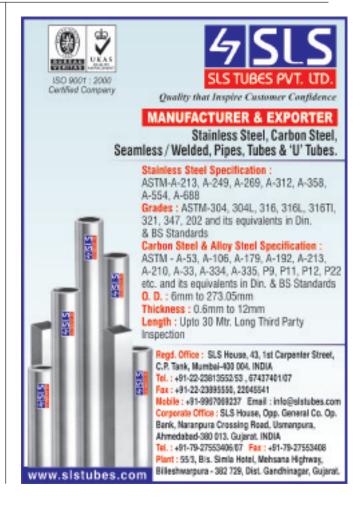
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High potential consumables

TO meet customer demands for reducing running costs and increasing efficiency of the cutting process, Kjellberg Finsterwalde has developed new YellowXLife™ plasma consumables for HiFocus and FineFocus systems.

The company claims that these consumables can achieve up to 3.5 times longer life than previous models, and as much as seven times longer life than copies.

The new generation of consumables for plasma torches PerCut 370.2 used on the machine types HiFocus 280i, HiFocus 360i and HiFocus 440i, as well as for PB-S80W used on the FineFocus 800 machine are available now from Kiellberg suppliers.

The latest knowledge attained through Kjellberg Finsterwalde's research and development work contributed to the optimisation of the consumable sets, consisting of the new oxygen cathode T012Y, the nozzles T2115Y, T2120Y, T2125Y, T2127Y and T2130Y, and the new cooling tube T902Y. A new tool for the cooling tube can also be used for the preceding model.

The previous consumables are replaced by the new YellowXLife generation with a longer life time. Mixing previous and new consumables is not possible, as these are incompatible, and the new consumables are optimally adapted to each other.

Flexible and mobile plasma cutting of up to 50mm material thickness with the inverter CUTi 120



The company has also launched the new PerCut 450M plasma torch, which is equipped with long-life consumables and enables cutting at high speed. The machines of the new CUTi series for manual plasma cutting are characterised by low weight and high capability. The inverter CUTi 35C features an integrated compressor, providing a cutting process

that is independent of an external supply of compressed air.

The new CutFire 100i is a reliable plasma cutting unit with low investment costs. With 100% duty cycle and low weight it is suitable for simple CNC applications and for cutting thin and medium-sized plates.

Kjellberg Finsterwalde – Germany

Fax: +49 3531 8510 Email: plasma@kjellberg.de Website: www.kjellberg.de















JETCAM knife cutter in pole position Fully automatic

RED Bull Technology, which manufactures Formula 1 motor sport cars for Red Bull Racing, has replaced its existing flat-bed knife cutter with two Zund knife cutters, one with a conveyor bed.

Red Bull Technology claims it has seen an increase in throughput on the machine due to features such as common-line cutting, which allow plies to be separated with a single cut rather than leaving a skeleton.

The company added that, since being installed, the system has proven to be very reliable and it had experienced no down time because of either machine or software-related problems. It also claims maintenance costs are lower than before.

Andy Bosworth, Red Bull Technology production coordinator, said: "JETCAM had the lowest scrap rate and highest efficiency, with nests 16% more efficient and it was also recommended by the machine tool vendor."

JETCAM International – Monaco

Fax: +37 7935 07626 Email: info@jetcam.com Website: www.jetcam.com



Zund's inkjet marking software

roller feed saw

Scotchman Industries, USA, has developed the CPO 315 roller feed automatic cold saw, which it says is a fully automatic cold saw that provides uninterrupted cutting.

The saw suits high volume and long length applications. It comes equipped with either a supply table or a full bundle loading attachment. Either system allows the saw to automatically load, trim, cut and sort lengths up to 120" (60" is standard) and hold ±0.006" lengths of material up to 3" in diameter.

With optional equipment the user can also feed directly into a de-burring machine or form jaws that can handle thin wall applications without distortion. The CPO 315 RFA saws are available in ferrous and non-ferrous models.

Scotchman Industries – USA Fax: +1 800 843 5545 Email: info@scotchman.com Website: www.scotchman.com



Red Bull's successful F1 motor car







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New cutting machines boost capacity

VOESTALPINE Tubulars is using Framag technology to produce seamless steel pipes with an outside diameter up to 177.8mm (7 inches) at its plant in Kindberg, Austria.

The capacity of the hot pipe production, boiler tube finishing department and oil country tubular goods finishing department operations is around 350,000 tons per year. The products are of unalloyed or medium-alloyed steel, manufactured to international standards.

In its stretch-reducing mill the mother tubes, which have been re-heated and descaled using a water blast, are deformed in a stretch-reducing mill with 28 stands until they have the final desired diameter and wall thickness. Following cooling on 90m rake-type cooling beds, the ends are cropped and the tubes are cut into processing lengths. The ends are cut using two Framag cold circular sawing machines – KKS 1430L.

For the best possible cut the pipes are adjusted at the length measuring unit of

the sawing machine and the top ends of the tubes are cut.

After a further adjustment at the lengthmeasuring device, the pipes are cut into partial lengths between 2 and 18m. The tail ends can also be cut off and transported into a scrap container.

The KKS 1430L in the finishing line

The sawing machine KKS 1430L allows for cutting of tube diameters between 25 and 200mm and wall thickness from 2.5 to 25mm. The layer width is designed for 850mm and saw blades of up to 1,430mm are useable.

Framag Industrieanlagenbau – Austria

Fax: +43 76835 04086 Email: w.steiner@framag.com Website: www.framag.com



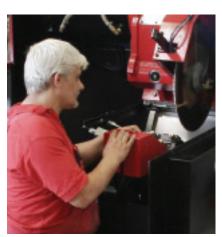
Circular saw aims to increase overall efficiency

RSA, Germany, has developed a circular saw, RASACUT XXL, for cutting tubes and solid bars with diameters ranging from 20 to 170mm.

Further modules for de-burring, checking, cleaning and stacking can be integrated or added, allowing the powerful saw to be expanded into an extensive sawing centre. Due to a gearing that can absorb extreme loads, a drive power of 20 to 40kW and its robust construction, the sawing centre can cope with large diameters and heavy work pieces.

Compared to modern band saws, which are often used in this field, RSA says its circular saw can help reduce cutting time so that the customer can even use it to replace several band saws and still create additional capacity.

The machine can also been used to cut short tubes with diameters of up to 30mm



The RASACUT XXL in operation

and fixed lengths of up to 150mm, which are used as rubber-to-metal joints for chassis stabilisers.

The de-burring module of the RSA sawing centre is equipped with high performance brushes and the combination of sawing and deburring at a sawing centre significantly reduces the cycle times, says RSA.

RSA Entgrat u Trenn-Systeme GmbH & Co KG – Germany

Fax: +49 2351 995300
Email: anke.nuesken@rsa.de
Website: www.rsa.de

HSS circular sawblades for precision and improved surface finish

JULIA Utensili, Italy, a specialist in HSS circular sawblades, produces a wide range of sawblades with diameters from 20 to 620mm for tube cutting.

Recent investments in modern production systems have increased the company's total production capacity and improved the quality of the products, it claims.

In order to remain competitive, it says it has reduced production costs by fully automating its production plant.

Results from the company's investment in research and development include the new Silver Fox surface coating, which is designed to provide better performance than traditional PVD coatings, especially in those applications with high-speed cutting parameters.

Close collaboration between the technicians of Julia Utensili and those of leading machine manufacturers has also allowed the development of increasingly sophisticated software for the precise calculation of the best cutting parameters.

These improvements have already been applied to the most recent generation of sawing machines, enabling better sawing performance and longer tool life.

The company states that, in comparison with friction saws, HSS sawblades can offer a higher degree of cutting precision and better surface finish, and believes they are more competitive in comparisons of the most expensive cut with carbide tipped sawblades.

Julia Utensili SpA

Italy

Fax: +39 0432 784 725 Email: juliacom@julia.it Website: www.julia.it

Better saw length and performance

MACHINE saw manufacturer Trennjaeger, Germany, has unveiled its new SPA range of products, which feature saw blade stabilisers, zero backlash heavily prestressed spur gearing and hard metal production sawing facilities, which can now deal with materials up to 160mm thick with a tensile strength of up to 2,200Nm, with automatic handling and storage/stacking.

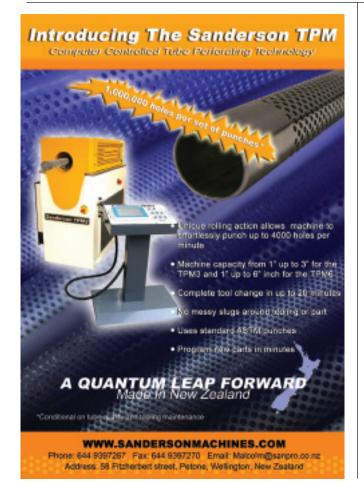
Marking, deburring and sorting, as well as chamfering and centring associated with drilling, are also implemented, as are the automatic database steering of the optimisation of all technological sawing parameters. In band saw operation, the same up-to-date hardware ensures an accurate end result.

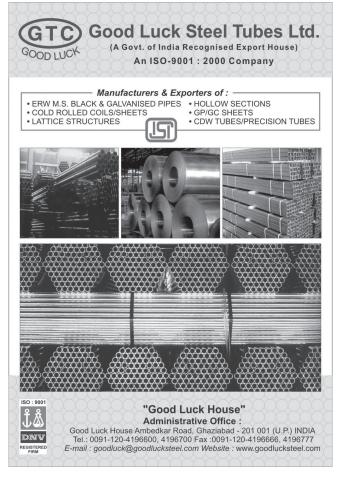
Trennjaeger

Germany

Fax: +49 7843 70076

Email: contact@trennjaeger.info **Website**: www.trennjaeger.com





Increasing tool life using cooling

BY using improved MMKS-systems, high additive lubricants, cooling-nozzles, blades with specially adapted cutting geometrics and modern machines, it is now possible to achieve 50,000 pieces of steel and 30,000 pieces of stainless steel compared to former tool lives, Sat Semer Anlagen-Technik claims.

This increase is possible by improvement and higher precisions of the machines, higher feed, the use of high-performance lubricant and the use of cooling-nozzles.

One case study using a fully automatic sawing-machine - the MMKS-system SAT P-202 - a SETOL high-performance lubricant and cooling-nozzle, achieved the following results:

- High-tensile steel S460MC with a tensile strength of 670N/mm²
- Tube 30x2x1,700mm

End forming

Tool life ca. 6,000 by 1,027 per hour

The 100% lubrication and cooling provide a performance increase of stress on the tooth up to > 0.12mm/tooth.

100% lubrication results in steel tube 40x1.5mm at 50.000 cuts consumption uses only 400ml SETOL high-performance lubricant.

The combination of MMKS with highadditive lubricants and cooling-nozzles is used serially for HM-sawing-blades with diameter up to 1,600mm.

The company says the use of MMKSsystems and the high-performance lubricants results in:

- Increase in tool life
- High cutting performance
- Less burr cuts
- Non-ferrous heavy metal can be continued
- Processing by using special lubricants (no degreasing before soldering is now required)



- The MMKS-systems cooling nozzle
- Savings by reduction of washing process
- The tubes can be brushed, measured and discharged into the carrier after
- Savings in removal of emulsion and cleaning cost for polluted workplaces and machine parts
- Using non-water-miscible-oil the elixir water is preserved.

Sat Semer Anlagen-Technik GmbH -

Germany

Fax: +49 2377 919060 Email: info@sat-semer.de Website: www.sat-semer.de



Cutting line fitted with double rollers

A CUTTING line from Maco, Italy, features a tube feeding system made from two rollers provided with a device for the trim-cut – with adjustable dimension. With accelerating and decelerating ramps, the head cut-off length can be changed and memorised.

A logic control system with a touch-screen user interface allows different programs to

be entered and stored (ramps and feeding speeds, number of pieces and bars). It also includes alarm messages and an electronic disk protection device for added security.

The workpiece length is determined by a bar stop that can be positioned manually.

The bar stop back feeding device and workpiece unloading are standard, and the workpiece discharging length is variable at the customer's request.

Maco Srl - Italy Fax: +39 04455 19522 Email: info@macosaws.it Website: www.macosaws.it

Maco's VK 370 circular sawing machine





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Burr free cold cut off carriage saw

ITL INDUSTRIES, India, is offering a high speed burr free cold cutoff carriage saw to use inline with conventional and high-speed tube mills. It can handle up to 150m/min speed to get 25 cuts of 6m long pipes with cut length accuracy of ±2mm with least burrs and accurate square cuts without dimple.

The machine has been designed to offer low cost per cut and to be ecologically friendly

as it has low power requirements, using 30KW compared to the usual 60 to 75KW. It also claims to offer a greater number of cuts before its HSS saw blades need to be sharpened. For thick wall and tough steel tubes, TCT saw blades can be used and ITL Industries says the new machine now offers a more user-friendly computer menu.

Tube clamping is performed by pneumatically operated double acting

clamps so that both the jaws retract back to avoid rubbing and scratching of the blade and clamping jaws can be changed quickly.

The hardened and ground alloy steel lengthmeasuring roll is connected to the rotary encoder and the whole assembly is housed in a spring-loaded sliding block.

ITL Industries – India Fax: +91 731 2721110/2722372 Email: info@itlindustries.com Website: www.itlindustries.com



Friction saws that 'maintain toughness'

DEE TEE Industries, India, has unveiled a range of friction saws and HSS saws for tube cutting applications. These friction saws are designed for high-speed cutting and are manufactured from chrome vanadium steel with a maximum stability at surface speed of 60-90 metres per second.

Chrome vanadium steel is used as it retains its toughness and has the ability to resist the stresses of high operating speed. Its edge retention quality is ensured by closely controlled heat treatment. Dee Tee Industries makes saws of up to 710mm OD.

Friction saw operation is based on the strength of the frictional heat that is generated between the saw teeth and a work piece when the saw runs at high speed.

Dee Tee Industries also manufacturers slitting line tooling such as slitting cutters, overarm separator discs and tube mill tooling.

Dee Tee Industries – India Fax: +91 731 2422108

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Roll Inspection System

Model: RAY-8000AE Series

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- ECT and/or UT sensors mode operation.
- 16 channels array ECT probe.
- + Minimization of lift-off and dead-zone.
- . Specifications.

 ECT sensors Frequency: 1 lftz ~ 5000 lftz.

Sensing width: 32 mm

Moving Speed: 20 ~ 10000 mm/s

 UT sensors Frequency: 0.2 ~ 30 IIIz

PRF: 50 ~ 8000 Hz

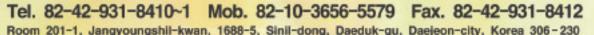
Sensing range: 2.5 ~ 9999 mm

Sensitivity: 0 ~ 110 dB, 0.5/ 1/ 6 step

Gate: 3 Gates

* Main customer : POSCO, Hyundai-steel, etc.





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Large diameter saw and scrap slab cutter

ADESCOR Inc, Canada, has developed a plastic fittings saw for diameters from 450 to 1,800mm and upwards.

The machine features a vertical reciprocating motion with a 200mm wide blade and a guide that follows the contour of the pipe, providing extra stability.

The saw blade head arrangement is mounted onto a right and left pivoting head that moves into a clamped pipe.

The saw also features a laser projected light for the pipe, which is clamped to a bed and allows for linear blade to pipe alignment movement.

Adescor has also unveiled a new semiautomatic slab cutter that cuts large diameter misformed pipe into strips for feeding into a grinder. This new machine takes a 2m length of corrugated pipe and cuts it longitudinally into 300mm wide strips. The operator rolls the 2m section of pipe into the slab cutter, which activates the safety light barrier and the slab cutter cuts a section of pipe, ejects the cut slab, rotates the pipe for the next cut to be made, and continues the process until the pipe is cut up. This machine is small, compact and can be easily stored when not required. It provides an effective way of handling the recycling of scrap pipe and helps to reduce health and safety issues.

Adescor Inc – Canada Fax: +1 519 520 8614 Email: sales@adescor.com Website: www.adescor.com

Double mitre plastic fittings saws

NEU, Germany, has released details of its new double mitre saws and multi-head saws, which have been produced under the EKAL brand.

The saw features universal adjustment possibilities and a rafter trimmer with some models, which the company claims makes the saws particularly suitable for

manufacturers that require a high degree of flexibility.

The sawing heads are highly adjustable and can be used for any standard designs as well as more complicated cutting. The main advantage is that one bench with 4,000mm of length is connected with a second bench of 2,500mm in an 'L' shape. This means that

bent tubes can be worked on both benches or just one bench as required.

Neu has also developed new cutting lines with a loader-magazine and automatic mitre adjustment as well as high-speed cutting lines for tubes.

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Wall thinning during tube bending

By B Lynn Ferguson, PhD Metallurgical; Zhichao (Charlie) Li PhD Mechanical of Deformation Control Technology (DCT); Tim Kreja, manager of new product development, Pines Technology; and Dan Auger, director of engineering, Pines Technology

Introduction

Applying lateral pressure and axial push to the outside of a pipe during bending can minimise distortion of the cross section and reduce the amount of wall thinning along the outer radius of the bend. Many pipe bending machines are equipped with Pressure Die Assist (PDA) that apply the lateral pressure and axial push to meet this requirement; an example is shown in Photo 1. The axial push or boost relies on friction between the pressure die and pipe to work effectively. However, in heavy wall tube or pipe, a greater axial pushing force is necessary.



Photo 1:
Pines No. 4 equipped
with a 25,000lb open

Pines first introduced booster bending in the 1960s when the Navy ship yards started to use steam pipes with minimum wall thickness to save weight, bend tighter radius to save space and reduce the overall cost. More recently, booster bending has been introduced to CNC bending machines using the carriage to push. Carriage booster bending provides a positive method of pushing on the end of the pipe without necessarily relying on friction. The ability to control the axial load or push for this type of boosting is critical for CNC operations to provide predictability and repeatability. However, carriage boosting generally cannot provide sufficient boosting forces to achieve the less than 10% wall thinning and the corresponding ovality requirements demanded in less than 1D bends in schedule 40 and 80 pipe and tube required by high pressure pipe applications.

Pines, in cooperation with Deformation Control Technology (DCT) has developed a computer simulation of the bending process that can accurately determine the conditions necessary to effectively booster bend heavy wall pipe or tube while minimising wall thinning.

Objectives of the research

- To accurately predict the wall thinning of heavy wall pipe or tubing during bending
- To accurately predict the percentage ovality relevant to the amount of wall thinning
- To determine how much 'boost pressure' is necessary to minimise wall thinning

Methodology

DCT used ABAQUS/STANDARD finite element software to model the tube bending process. The models were run on a desktop computer, with each simulation taking around two hours. Pines used

a No. 4 Bender equipped with a 12-ton booster, Dial-a-bend SE machine control and a Pines CNC 150 HD CNC using the TS 2000 machine control and a 30-ton PDA booster. Tooling was designed and made by H&H Tooling (a division of Pines Technology).

To make an effective simulation model:

- Pines bent several pipes (2.5 schedule 40 pipe made from SA213T22 material) through 180° without boosting. The dimensions of the pipe were measured before and after bending at several locations and recorded.
- Tube material was sent to a commercial testing lab to establish the mechanical properties of the specific material (yield strength, tensile strength etc).
- A computer model was developed to simulate the conditions found in the practical tests.
- A series of simulations were run to determine the effect of various boost schedules (pressure vs bend angle) on the bend geometry and wall thickness.
- Using the range of boosting pressures examined in the models, bending tests were run using a Pines No. 4 Bender fitted with a 12-ton booster, Dial-a-bend SE machine control.
- Boundary conditions in the bending models, such as friction between the tooling and tube, were adjusted so that simulation results accurately predicted bend geometry and wall thickness as measured in the bending.
- The computer model was validated in terms of accurate material property data and accurate process boundary conditions, and it can be used to simulate bending of other dimensions and geometries, and to determine booster bend schedules.

Finite element simulation of the tube booster bending process

The finite element analysis (FEA) used to simulate tube booster bending is described in the following paragraphs. The simulation results include prediction of the wall thinning of the bend outer diameter (OD), the tube wall thickening of the inner diameter (ID) of the bend, and the tube ovality around the bend diameter. The bending conditions such as clamping pressure, the use of a boost load, the geometries of the clamp die and the bend die, and friction can all be accommodated in the model. An example application of FEA is described, which involved the use of a boost load to bend a steel tube of 2.5 inch diameter and a wall thickness of 0.23 inches.

The FEA model setup is shown in Figure 1. The pressure die, the clamp die, and bend die were assumed to be rigid, and they were modelled using rigid surfaces. A friction coefficient of 0.15 was applied to all the interfaces between tooling components and the tube being bent. The 'D' of bend was 1.5 for this example. D is the ratio of the diameter of the tube bend axis (3 inches in this case) and the bend die radius (2 inches). The angle of the bend was 180 degrees. The tube was modelled as elasto-plastic material

using solid 8-node hexahedral elements. To simulate the action of the boost die, an axial pressure was applied directly to the end of the tube cross section. As shown in Figure 1, a half model was used instead of a whole model to take advantage of symmetry and thus reduce computation time. The maximum allowed boost load at different bending angles was determined using a series of FEA models, and the effect of the boost load schedule on bending results was also investigated.

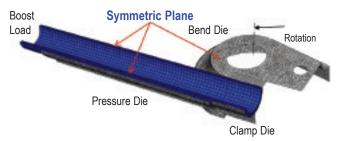
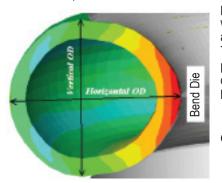


Figure 1: Finite element model setup of boost tube bending process

To start the tube bending process, the head of the tube is forced against the bend die by the clamp die. Then the pressure die translates to contact the tube OD surface with a fixed amount of load applied. Once the position of the pressure die is locked, the bend die and the clamp die rotate to bend the tube. In this example, bending



processes with and without a boost load applied were simulated. The position of the pressure die is locked during the entire bending process.

Figure 2: Ovality calculation using cross section dimensions of a hent tube

A typical cross section of a tube is shown in Figure 2. The ovality ratio, the OD wall thinning ratio, and the ID wall thickening ratio are the three important parameters to characterise the geometric quality of the bend. These three parameters are calculated using the following equations:

Ovality Ratio =
$$\frac{\text{Vertical OD}}{\text{Horizontal OD}} - 1.0$$
 (1)

Where vertical OD and horizontal OD are shown in Figure 2.

For a tube bending process that uses a boost load, the magnitude and timing of the boost load affect the wall thinning ratio at the outside of the bend significantly. Higher boost load leads to less OD wall thinning and higher ID wall thickening. However, too much boost load may cause tube buckling, or the tube may detach from contacting the bend die, as shown in Figure 3. The maximum allowable boost load at a specific bend angle is defined as the highest load that can be applied without causing a bend defect,

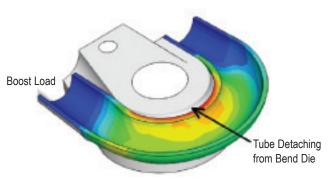


Figure 3: Determination of the maximum final boost load

such as tube detachment from the bend die or buckling. At different bend angles the maximum allowed boost loads are different. For example, it becomes increasingly easier to detach the tube from the bend die as the bend progresses, so the boost load must be decreased during bending. The maximum allowable boost loads during the bending process were determined by a series of FEA models. An acceptable boost load schedule in terms of the bend die rotational angle that is predicted to minimise OD wall thinning is plotted in Figure 4. The relative boost load is defined as the ratio of the axial boost load pressure to the yield strength of the tube material, so that this schedule could be used for other steel grades that may have different yield strengths.

Using the boost load schedule shown in Figure 4, two FEA models were simulated with two bend die geometries. One bend die is referenced as the original bend die, and the other is referred to as the

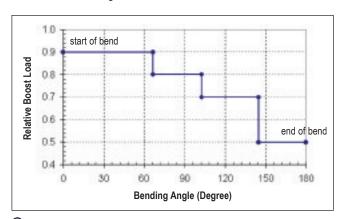
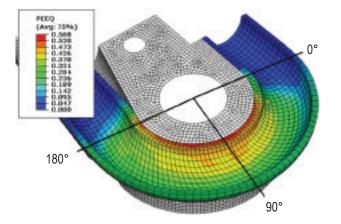


Figure 4: Optimised boost schedule during tube bending

Figure 5: Equivalent plastic strain distribution after bending



new bend die. A third model was simulated without an applied boost load, using the original bend die profile. The same friction and other conditions were applied to the three models except as mentioned above. The bend OD wall thinning ratio, ID wall thickening ratio, and ovality predicted by the three models are plotted in terms of the bend angle. As shown in Figure 5, the clamp die, or the head of the tube is considered the start of the bending angle (0°). The tail of the tube is considered the end of the bending (180°).

With no boost load, the OD wall thinning ratio is about 16%, as shown in Figure 6. The distribution of the OD wall around the bend was predicted to be fairly uniform. With the optimised boost load schedule, the OD wall thinning was effectively controlled for bending angles less than 150°. The OD wall thickness is directly affected by the boost load. The higher boost load at the beginning of the bending process is predicted to result in a low amount of OD wall thinning, around 3% to 4%. However, as bending progresses past the 90° position, the maximum boost load is limited due to the possibility of the tube detaching from the die, and the amount of OD wall thinning is predicted to increase. The OD wall thinning ratio predicted from the FEA model is about 10% close to the tube tail. The two bend die geometries are predicted to result in similar levels of wall thinning at the OD of the bend.

Without boost load, the wall thickening at the bend ID is about 20%, as shown in Figure 7. With boost load, the ID wall thickening is much greater, with values of 35 to over 40%. The bend die profile is also predicted to affect the ID wall thickness and the ovality significantly, as shown in both Figures 7 and 8. It is interesting that for this specific case, the bend die profile did not affect the OD wall

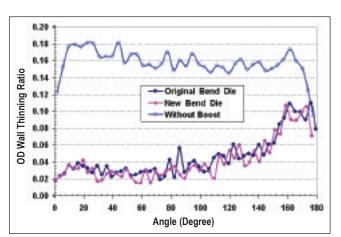
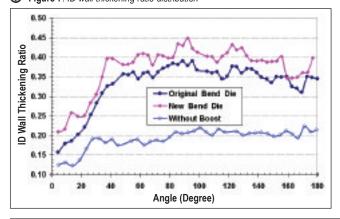


Figure 6: OD wall thinning ratio distribution





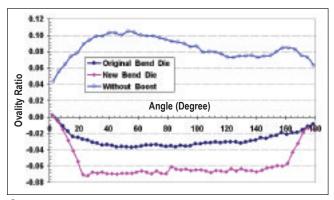


Figure 8: Ovality distribution

thickness significantly while it did affect the other two geometric characteristics of the bend.

With the new bend die, the ID wall thickening is predicted to be about 40%, versus 35% from the original die. The ovality ratio is shown in Figure 8; a positive ratio means the vertical OD is greater than the horizontal OD. With no boost load, the ovality is greater than with a boost load and the tube slightly collapses, as signified by the positive sign for the ovality ratio. When a boost load is used, the ovality is reduced and the sign is reversed. Besides the effect of the bend wall thickness, the bend die geometry has an impact on ovality. The effect of the bend die on the ovality ratio should be a combined effect of boost load and the pressure die profile as well.

Using the research data to program the tube bender

The results from FEA simulations can be effectively used to set-up a tube bending process and improve the quality of the bend geometry from the first bend trial. However, to be successful as a design tool, the model must be validated against experimental results to be certain that the model variables are equivalent to the actual process variables, namely friction, tube strength, tube dimensions and the variations of these parameters. The following example compares the results of the FE model presented above and tube bending experiments.

Machine settings

A Pines CNC 150 HD tube bender, shown in Photo 2, was available for the practical tests. The CNC 150 HD has programmable booster pressures and 180 pressure zones.

Photo 2: Pines CNC 150 HD tube bender



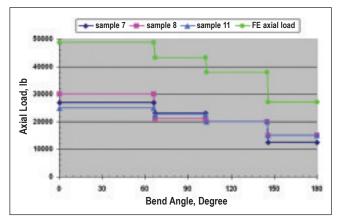


Figure 9: Axial load settings for booster bending trials

The FEA simulation indicated that minimum OD wall thinning should result, by decreasing the boost pressure after the bend arm angle reaches 66°, and again at 102° and 145°. Trials were completed using the concept of a declining axial load per the simulation schedule. Figure 9 shows the load vs bend angle schedule used in these trials, including the load schedule determined from simulation.

Making bends

Automatic separation of tools is essential to allow the tube, now bent to 180° , to be removed from the die. CNC machines particularly need to be able to easily manipulate the tube after bending. Photo 3 shows the tubing before insertion between the upper and lower halves of the bending dies.



Photo 3: Split tooling used for tube bending

Table 1: Percentage wall thickness change data

Wall thinning

Figure 10 reports the OD wall thinning and the ID wall thickening results for the booster bending trials. Table 1 contains the actual percentage thinning or thickening values as determined at the specific bend locations. Photo 4 shows the cross section of sample 10, where the outer and inner walls of the bend are directly displayed. The



trial data indicates a direct connection between the OD wall thinning and the ID wall thickening. It can be observed that initially high boost pressure (up to 102°) provides improved wall thinning ratios.

Photo 4: Cross section of sample No.8 showing the outer and inner walls of the tube bend

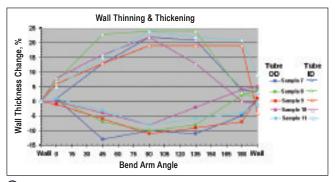


Figure 10: Percentage wall thickness change data

Ovality

Besides outer wall thinning, ovality and any reduction in cross sectional area of the tube are important. Ovality was measured at 45° and 125° around the degree of bend and is reported in Table 2.

Ovality is difficult to predict because most wall thinning specifications include an ovality requirement, in this case < 4%, and a minimum flow reduction (inside diameter area) of not less than 85%. The following data indicates that the ratio was satisfactory in samples 10 and 11 but not 9. Sample 9 appears to be an anomaly, most likely caused by a misaligned clamp die.

Changes in Wall Thickness											
		Sample 7		Sample 8		Sample 9		Sample 10		Sample 11	
	WALL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bend Arm Angle	0°	1%	1%	1%	7%	-1%	6%	0%	8%	1%	5%
	45°	-13%	13%	-7%	23%	-6%	13%	-4%	16%	-3%	15%
	90°	-10%	22%	-10%	24%	-11%	19%	-8%	22%	-8%	24%
	135°	-11%	21%	-8%	24%	-9%	19%	-2%	13%	-6%	22%
	180°	-5%	4%	2%	3%	-7%	19%	4%	0%	-4%	21%
	WALL	1%	3%	4%	1%	1%	-4%	5%	-1%	-1%	9%
		Thinning	Thickening	Thinning	Thickening	Thinning	Thickening	Thinning	Thickening	Thinning	Thickening



Photo 5: Cross section of sample 12 at the bend location of 45° showing the outer wall thinning, the inner wall thickening, and a small amount of ovalling

Ovality Data								
	Sample 9		Samp	ole 10	Sample 11			
Angle of Bend	45°	125°	45°	125°	45°	125°		
Vertical	1.965	1.925	1.970	1.980	1.970	1.977		
Horizontal	2.000	2.035	1.976	1.985	1.980	1.980		
Ratio	-2%	-6%	0%	0%	-1%	0%		

Table 2: Tube ovality data

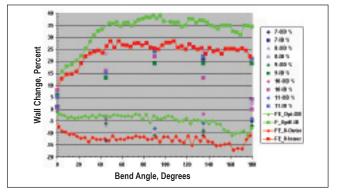
Generally, over boosting will cause negative ovality. This condition exists when the horizontal axis is larger than the vertical.

Conclusion

A comparison of the inner and outer wall thickness change data for the bend trials in Figure 10 with the model results shown in Figures 6 and 7 shows that the simulation did achieve the objective of reduced outer wall thinning because of the greater boost load (Figure 9). However, comparison of Figure 8 predictions for ovality with the experimental ovality data in Table 2 shows that the simulation load schedule produced greater ovality than realised in the bend trials. Using the mentioned 4% limit for ovality, the model boost load schedule was predicted to produce ovality of about -3.5%, which is still acceptable but greater than the ovality measured for the trial bends (ignoring sample 9).

Another simulation was run using a boost load schedule similar to that of test 8 to compare simulation results against bend tests for similar boost schedules. A comparison of inner and outer wall thickness changes is shown in Figure 11. For this simulation, the reduced boost load predicted that the outer wall thinning would be greater and the inner wall thickening would be less, and this is shown in Figure 11. Furthermore, the predicted wall thickness changes are in fair agreement with the measured changes from the bend trials.

Figure 11: Comparison of FE simulation results with booster bend trials



It is clear that the model results and the results from the trials collectively show that:

- Boosting changes the ovality direction so that the in-plane (horizontal) tube diameter remains larger than the normal (vertical) diameter
- As the boost load is increased, the amount of outer wall thinning is reduced
- However, the boost load must not exceed the load that could cause buckling or separation of the tube from the inner wall of the bend die. This means that the boost load must decrease as the bend angle increases.

It is also clear that an accurate model predicts tube bending results that are sufficiently accurate to be used for process design.

Summary

The study showed that pipe bending could be simulated successfully given accurate data for the material, interfacial friction, and bending conditions. Product development time can be reduced considerably by simulating the process first in order to establish the machine settings, such as the boost load as a function of bend angle. Getting close to an acceptable machine/tool set eliminates the trial and error process that can often prolong downtime during changeovers.

Machines need to be capable of varying booster pressure during the bend cycle to minimise wall thinning while avoiding tube buckling. Carriage boosters and normal PDAs do not provide sufficient boost to overcome the material's natural yield strength, especially as the inside wall thickness increases and the force required to deform the material becomes higher.

Boosting at a high pressure for the first 60° of bend arm provided the best wall thinning ratio. However, maintaining the boost pressure at a high level after 102° of bend arm travel has two negative effects: Firstly, the pipe becomes detached from the die and, if continued, the booster will push the pipe out of the die completely, and negative ovality is caused. Pipe detachment from the die was clearly forecast by the simulation model. In agreement with experience, the model predicted negative ovality for its higher boost load.

Both machines used in the tests, the Pines No. 4 and the Pines CNC 150 HD, are designed to bend 4-inch schedule 80 pipe. To bend pipe of that size with minimal outer wall thinning, it is clear that a high capacity booster is needed. The Pines No. 4 has a boost capacity of 25,000 pounds force and the Pines CNC 150 HD has a boost capability of 30,000 pounds force.

The results of the simulations and subsequent confirmation that simulation can provide an accurate predictive model are encouraging. Pines will continue to conduct further tests and simulations during 2009 when three CNC 250 HD machines, capable of bending 10-inch schedule 80 pipe, will be tested. The results will be published as soon as they are available.

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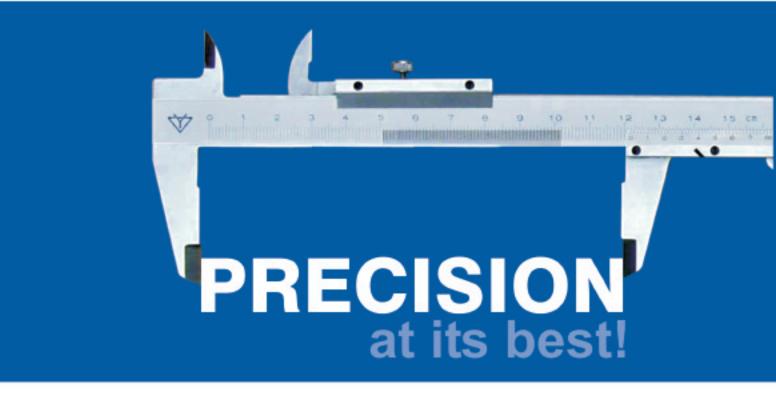
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