The international magazine for the tube & pipe industries

TUBE & PIPE Technology

管道技術

JULY 2012

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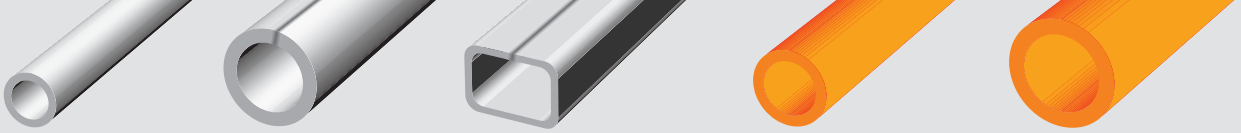
Tube CHINA

Zumbach

Our technology, your vision



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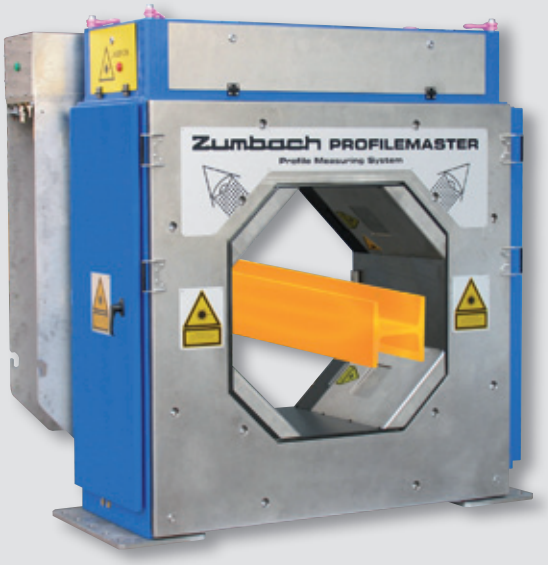

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Straightening

Editorial Index

TIANBAO,CHINA 2004 - API/ERW 8"-25"Ø

ORRCON,AUSTRALIA 2006 - API/ERW 8"-20"Ø

DRAGON PIPE,CHINA 2007 - API/ERW 8"-24"Ø

HALL LONGMORE,SOUTH AFRICA 2008- API/ERW 8"-24"Ø

GIPI,OMAN 2010 - API/ERW 8"-24"Ø

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We supply the mill and finishing equipment in Turn-Key package as well as technical assistance for training and operation.

MILLTECH
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Contents

Vol 25 No 4
July / August 2012

Features this issue:

Once every two years the All China-International Tube and Pipe Industry Trade Fair (Tube China) is jointly organised by Metallurgical Council of China Council for the Promotion of International Trade and Messe Düsseldorf (Shanghai) Co Ltd

By Bjørnar Grande, Olav Wærstad and Peter Runeborg (EFD Induction)

The July Issue

This issue we have features on tube scarfing systems and welding and, as always, a comprehensive round-up of the very latest industry and technology news.

Eagle-eyed readers may notice that this issue we have made several design changes to the magazine. On the front cover the Tube & Pipe Technology logo has been updated and given a fresh modern look. We have also updated the contents pages and used a new font style throughout the magazine, which aims to make the stories and features even easier on the eye for readers. We are very excited about the changes and we hope you enjoy the fresh new look as much as we do.

This is also a special Tube China show issue and, although still relatively new, the show has already become a massive date on the international tube calendar. This year it will again be held at the excellent Shanghai New International Expo Centre in Shanghai. It is a great international city and always offers a warm welcome. When I was at the show two years ago it attracted 1,306 exhibitors and the tube machinery and tube production market in China has continued to grow at a steady pace since, so expect an even bigger show this year.

In the September issue we will have a first look at EuroBlech 2012, FABTECH 2012 and Tube India 2012. We also have features on drilling, piercing and punching technology and measuring and marking. Thanks for reading.

Rory McBride – Editor

Front Cover Story

Since 1985 Universal Tube & Rollform has been committed to being the number one supplier of used tube, pipe and rollform machinery in the world. Its presence in this industry has always been strong and honourable, working with companies locally and all over the world it says.

Its President, Ralph Girkins, has over 35 years of experience in the tube and pipe industry. The company takes pride in its knowledge and ability to mix and match various machinery to fit customer needs. New, used or reconditioned, it can help put it all together to balance clients' budgets and increase the value of customer spending.

It has one of the largest selections of used tube and pipe mills in the world. Utilising over 125,000 square feet of warehouse space, it also stocks rollformers – cut to length – slitting lines and more. It has the resources and expertise to satisfy companies' machinery needs.

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Schuler acquires large pipe expertise

View of a spiral pipe plant

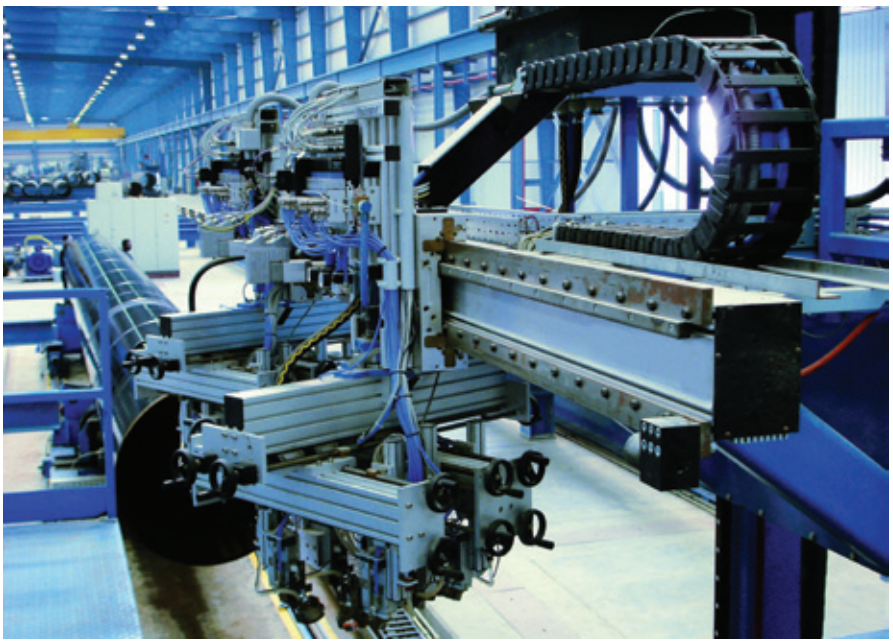
THE demand for large pipes for the construction of pipelines is currently growing. Schuler AG, Germany, has reacted to this trend and expanded its product spectrum to include turnkey systems solutions for the economic production of large pipes. This was made possible by the company's acquisition of ATIS GmbH, an engineering firm specialising in this field. The respective contracts were signed in April.

Schuler has more than 170 years of expertise in the field of metal forming, as well as extensive know-how in research and development, large equipment manufacturing, project processing, and global service network. ATIS will provide detailed knowledge of the planning, development, delivery and modernisation of complete pipe equipment and systems throughout the world. "This strong partnership offers numerous benefits for our customers," said Jochen Früh, managing director of Schuler Pressen GmbH.

Pipelines have to span huge distances across inhospitable terrains and are often exposed to extreme conditions. Temperatures well below freezing and enormous pressures, such as on the seabed, exert huge loads on the pipes. At the same time, the pressure inside the pipes is being constantly raised in order to extend the distances of the transported materials.

"The stability and absolute quality of the manufactured pipes is therefore all the more important," explained Dietmar Rieser, managing director of ATIS. During their manufacture, pipes are carefully scrutinised using ultrasonic devices, X-rays and water pressure (with a hydrotester). There are two basic methods for the production process itself: "Large pipes are either welded together as spirals from a long metal coil or bent to an 'O-shape' with a longitudinal weld," explained Manfred Wischnewski, managing director of Schuler SMG GmbH & Co KG.

Spiral-shaped pipes can be manufactured in lengths of up to 24m, with diameters of 450 to 3,500mm and wall thicknesses of 6 to 25mm. The forming and welding stages can directly follow each other (online process). Longitudinal weld pipes with diameters of up to 1,625mm and wall thicknesses of up to 65mm are produced using either crimping presses, U-forming and O-forming presses, or equipment for the step forming process – such as Schuler's Linear Feeding J-Press (LFJ press). Longitudinal weld pipes are usually produced in lengths of 12 or 18m. The new LFJ press can also produce lengths of up to 24m.



A lower-priced alternative to stainless steel pipes, needed for the transport of aggressive or sensitive substances, are lined pipes – a combination of thin-walled stainless steel and conventional carrier pipes. They are produced using the hydroforming process during which the pipes are also sized. They can be produced in lengths of up to 12m and reach diameters of up to 530mm.

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Email: info@atis-germany.de
Website: www.atis-germany.de

Allied Tube and Conduit

THERMATOOL has announced the installation of an Alpha Mach 3 cutoff system for Allied Tube and Conduit, a brand of Atkore International. Allied Tube and Conduit, located in Caxias do Sul, Brazil, is an industry leader in the manufacturing of galvanised steel tubes and pipes, electrical conduit, metal framing systems and building components serving the construction, electrical, fire and security, and mechanical and automotive industries.

The power of the Mach 3 Flying Cutoff makes it possible to cut high tensile strength tube and pipe for the most cost effective and reliable cutting solution. Although shearing through high tensile materials, Thermatool Alpha Shears are made of high speed tool steel, superior to any other type of commercially available material, resulting in long blade life. Excellent blade life decreases the number of times the Alpha blades need to be changed and reduces maintenance, or downtime.

Decreasing downtime allows Allied Tube and Conduit to continuously operate its mill longer to manufacture profitable products. At full speed, up to 500ft per minute, the Mach 3 Flying Cutoff's cut accuracy of ±0.039" allows products to be shipped right from the mill, resulting in less secondary handling and increasing profitability. While lowering secondary handling expenses the Thermatool Alpha Mach 3 Flying Cutoff produces ready to ship precision cut products directly to the customer.

The Thermatool Mach 3 Flying Cutoff purchased by Allied Tube and Conduit was installed on a new mill and is capable of cutting 1008/1010 low carbon steel with wall thicknesses between 0.028 and 0.250" and a cut tolerance of ±0.039" at mill speeds up to 500ft per minute.

Thermatool Corp – USA
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Website: www.thermatool.com

Diary of Tube Events

2012

25-28 SEPTEMBER — **Tube China 2012**
Shanghai, China
Email: tube@mdc.com.cn
Website: www.mdc.com.cn

23-27 OCTOBER — **EuroBLECH**
Hanover, Germany
Email: info@euroblech.com
Website: www.euroblech.com

30 OCTOBER – 1 NOVEMBER — **Tube India**
Mumbai, India
Email: dughl@md-india.com
Website: www.tube.india.com

12-14 NOVEMBER — **Fabtech / AWS Welding Show**
Las Vegas, USA
Email: information@fmafabtech.com
Website: www.fabtechexpo.com

27-29 NOVEMBER — **Valve World Expo**
Düsseldorf, Germany
Email: infoservice@messe-duesseldorf.de
Website: www.messe-duesseldorf.de

2013

7-10 JANUARY — **Tube Arabia**
Dubai, UAE
Email: infoservice@messe-duesseldorf.de
Website: www.messe-duesseldorf.de

20-23 FEBRUARY — **Indometal**
Jakarta, Indonesia
Email: infoservice@messe-duesseldorf.de
Website: www.messe-duesseldorf.de

28-30 MARCH — **BORU 2013 (Ihlas Fuar)**
Istanbul, Turkey
Website: www.borufuari.com

MAY — **Tube Russia**
Moscow, Russia
Website: www.messe-duesseldorf.de

25-26 JUNE — **Valveworld Expo Americas** (MD)
Houston, TX, USA

16-21 SEPTEMBER — **EMO Hannover** (Mack Brooks)
Hanover, Germany

17-19 SEPTEMBER — **Tube SE Asia 2013**
Bangkok, Thailand
Website: www.messe-duesseldorf.de

30 SEPTEMBER — **ITA Conference**
St Petersburg, Russia

8-10 OCTOBER — **TuboTech**
São Paulo, Brazil
Website: www.messe-duesseldorf.de

16-23 OCTOBER — **TOLexpo 2013**
Düsseldorf, Germany
Website: www.messe-duesseldorf.de

‘Hydra Green’ technology a success at Düsseldorf

TUBE bending design, manufacture and supply and end-forming technologies expert AddisonMckee of Ohio, Ontario and Bamber Bridge, UK, has announced one of its most successful ever appearances at a trade show with its recent attendance at Tube Düsseldorf 2012.

From the moment the show opened its doors to over 30,000 international trade visitors from over 100 countries, the AddisonMckee stand created a buzz with its new innovations and green technologies. Tube Düsseldorf attendees travel from all over the world in search of groundbreaking new technologies and AddisonMckee’s new IO ‘Hydra Green’ sizing machine, along with its new eb80 ESRB machine, attracted considerable interest.

The company’s new ‘Hydra Green’ technology is designed to allow its latest end-forming equipment to take advantage of hydraulic power without the constant noise, heat and energy usage associated with traditional hydraulic power units.

Whereas traditional hydraulic systems for endforming machines use an AC motor continuously driving a hydraulic pump even when the machine is not in use and no oil pressure and/or flow is required, AddisonMckee’s new technology is designed so that the pump is in operation only when there is a demand for pressure/flow.

AddisonMckee showed its Hydra Green technology at Tube 2012

In the final analysis, the ‘Hydra Green’ solution, at the heart of the new HG70 range of end formers, will deliver a number of key benefits over a traditional hydraulic circuit in terms of using 50 per cent less electricity due to the significantly reduced duty cycle of the hydraulic pump, minimising heat emissions and drastically reducing noise emissions by as much as 50 per cent. The system also achieves a major reduction in the amount of hydraulic maintenance required, while the smaller hydraulic reservoir uses a remarkable 65 per cent less oil.

The technology’s functionality will also allow for enhanced machine motion control by using the variable speed of the servo pump to control oil flow rate and machine speed.

The new eb80 ESRB machine represents a significant alternative to the existing world renowned DB 75 machine but with major cost advantages achieved through removing the ball screw providing the boost and allowing the gearbox and motor instead to provide the force required for boosting, enabling freeform bending for the full length of the bed.

Given the cost of floorspace at any facility, the new machine’s modular design also has significant benefits if bed length flexibility is important.

The standard machine itself is two metres long but offers the capability to increase in length by bolting two sections together to extend the bed when required, converting the machine easily and cheaply to a three/four metre model.

AddisonMckee – UK
Email: paspinall@addisonmckee.com
Website: www.addisonmckee.com

Business manager appointed

QUAKER Chemical supplies the tube and pipe industry with system-wide expertise, as well as a comprehensive portfolio of processing fluids and coatings, with manufacturing and R&D facilities in 18 countries. The company’s capabilities include process expertise, and custom-formulated process fluids and coatings for all production operations in welded and seamless tubular mills.

The company has technical support staff in each of the major industrialised regions of the world, to support local business.

The company has announced that, with effect from 1 August 2012, Andy Barker will be promoted to the position of tube and pipe business manager, Europe, the Middle East, and Africa (EMEA). John Fivash will retire from this role at the same time.

With just under twenty years at Quaker, Mr Barker brings a vast amount of experience to the role, gained from working within various business sectors in the company.

Mr Barker commented: “I am delighted to be given this opportunity to work in one of the most exciting business sectors within our company at the moment. Our unique product offering, which covers the entire fluid process from front to back, means I get to work with interesting product technology; and I am looking forward to working with the team of people around me, transferring that into a creative cost saving opportunity for our customers.”

Quaker Chemical Corporation – USA
Fax: +1 610 832 8682
Email: info@quakerchem.com
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Maximilian Bövingloh, Global Service Manager at SIKORA AG

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ECOCONTROL 6000 displays production data of the X-RAY 6000 PRO

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X-RAY 6000 BASIC
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Boeing award for tube bender manufacturer


Pines Bender for V-22 Osprey fuel and hydraulic lines

PINES Technology has been honoured by Boeing for the outstanding performance of its CNC tube benders for the V22 Osprey Program. The Pines benders are used to make replacement fuel and hydraulic lines for the Osprey.

The benders are built in two configurations – one for mobile land operations and one for fixed, shipboard-based applications. They are designed with a small physical footprint to fit into compact maintenance trailers for land-based operations and to fit in the cramped maintenance decks of aircraft carriers.

The machines are specially built to withstand shock, vibration and temperature variation and are equipped with intuitive controls for easy operation.

The benders are linked to a coordinate measuring machine which takes precise measurements of the lines pulled from each plane. The results are fed into the control and the bender then makes an identical copy. Dimensions differ slightly from plane to plane and the custom bending approach ensures a more precise fit, speeds installation, and gets the aircraft back into service more quickly. Pines CEO Ian Williamson commented, "We're very thankful to Boeing for their faith in our company and for this award, and are extremely proud to be an integral part of the V22 program."


Ian Williamson accepting the award from Boeing

Boeing Philadelphia has also nominated Pines for small business supplier of the year – only one of six companies to be selected. The company has shipped over 300 bending machines for the US Government and other military applications around the world.

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Website: www.pinestech.com

Tube China 2012 in Shanghai

ASIA's number one tube and pipe industry exhibition, the 5th All China – International Tube & Pipe Industry Trade Fair – Tube China 2012 – will take place again for the 5th time in Shanghai New International Expo Centre from 25 to 28 September, 2012. This year, the tube and wire exhibitions are estimated to occupy 7.5 halls, covering a total of 85,000m². 1,500 exhibitors from all over the world are expected to participate, demonstrating the innovative technologies, products and solutions from the areas of global tube industry.

According to the statistics of World Steel Association, China's annual production of crude steel was 695.5 million tons in 2011 accounting for about 45 per cent of global output, with an increase of 8.9 per cent year on year, and was above the average global growth rate of 6.8 per cent. China's crude steel production accounted for 44.7 per cent of the world in 2010 and has increased to 45.5 per cent in 2011.

From January to November 2011, the seamless tube production in China was 24.17 million tons with a year-on-year growth of 8.90 per cent. In terms of production, the top three provinces were Shandong, Jiangsu and Tianjin with production accounted for 19.21 per cent, 14.86 per cent and 13 per cent of the overall production respectively.

Meanwhile, welded tube production has reached 36.68 million tons, an increase of 28.36 per cent year on year, with Tianjin and Hebei achieving more than half of the national output. Energy-saving and emission-reduction will become an important goal, and development of new product will further accelerate, while steel tube production and export continue to grow steadily. It is an important period of strategic opportunity for China's steel tube industry to restructure and move forward to a steel power.

Tube China 2012 is jointly organised by Metallurgical Council of the China Council for the Promotion of International Trade (MC-CCPIT) and Messe Düsseldorf (Shanghai) Co Ltd. Based on the success of past editions, the organisers expect to achieve a new zenith as a famous international trade platform in 2012, given the extending scale and a rapid growth in demand.

Tube China
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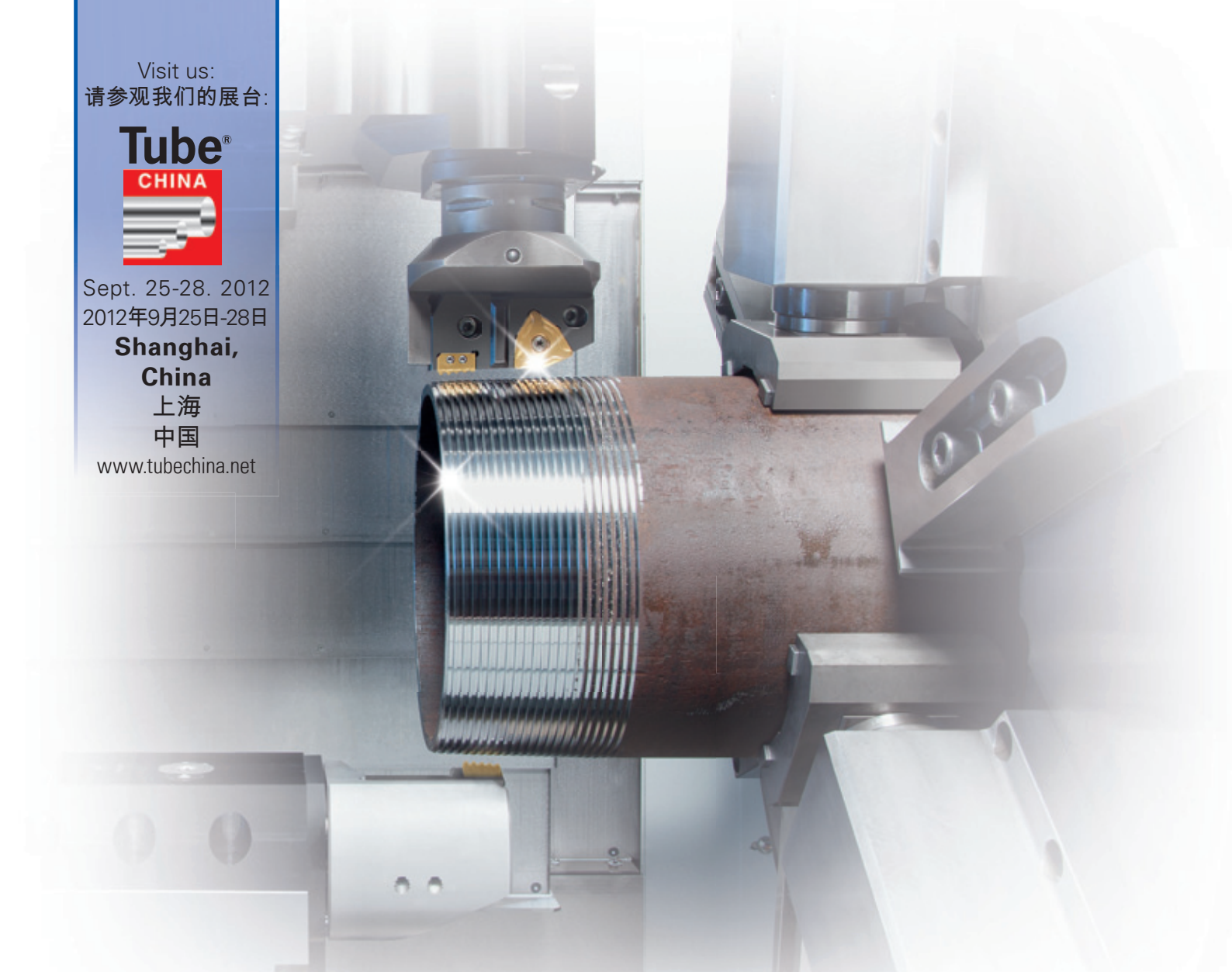

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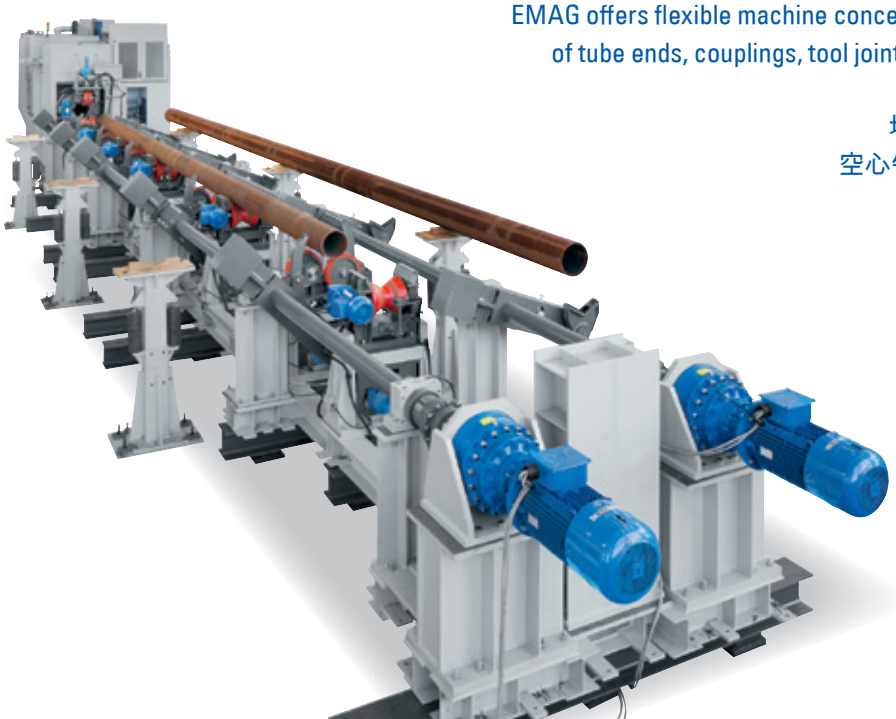

EMAG

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Successful open house

DURING the course of the participation in Tube Düsseldorf 2012 Rosendahl Metal Tubes & Hoses organised an Open House for interested metal tube producers at its headquarters in Pischelsdorf, Austria.

In order to offer customers from Europe, Russia, Asia and South America the possibility to get to know Rosendahl and its products, the open house took place on two different dates – one event before and one right after the tube show in Düsseldorf. Both events featured a varied mix of presentations, company tours and expert discussions. As a special highlight Rosendahl presented two tube mills in operation: a tube mill with laser or plasma welding for corrugated stainless steel hoses and another tube mill with TIG welding for smooth stainless steel and titanium tubes. More than 60 guests from leading tube producers worldwide who joined the events were impressed and enthusiastic about the technology, knowhow and services provided by Rosendahl.

These events were important milestones for a successful partnership and future with customers in the metal tube business.

Rosendahl Maschinen GmbH – Austria
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Website: www.rosendahlaustria.com

AICON opens new showroom

IN order to handle requests from China more efficiently and to develop the Chinese market for its optical tube measuring system TubeInspect, AICON has recently opened a new showroom in Shanghai, China.

Offices and conference rooms are available for presentations, seminars or training courses. A full-size TubeInspect is already installed and ready for use. Thanks to AICON's efforts in the last decade the optical tube measuring system TubeInspect becomes more and more a standard in quality control for bent tubes and wires.

Car manufacturers, aerospace industry and their suppliers use TubeInspect because of its high precision and the capability to improve the efficiency of tube production. A quick return on investment is obvious, because TubeInspect is able to replace mechanical gauges and to cut down setup time of bending machines.

AICON 3D Systems GmbH – Germany
Fax: +49 5 3158 00060
Email: china@aicon.de
Website: www.aicon3d.de

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Service centre for Chinese market

DUTCH saw blade producer Kinkelder has further expanded its international network. In the Chinese sales and service branch of Kinkelder, which has been active since 2010, high quality saw blades will be ground and repaired specifically for the Chinese market. For this purpose, German grinding machines have been exported to China, via which Kinkelder responds to the strongly increasing Chinese demand for high-quality circular saw blades.

The international saw blade specialist was founded in the Netherlands in 1945 and grew into one of the most important enterprises worldwide with the production and sales of saw blades. Only 10 per cent of the production remains in the Netherlands. The rest is designated for export to approximately 80 countries. At present, Kinkelder has its own sales and service branches in significant export countries such as Germany, USA, France, Belgium, Czech Republic, England and China. Saw blades are also developed and produced for the local market in the USA and France. However, there is no export from these countries. Export takes place from the main production branch in the Netherlands. The entire Kinkelder range includes about 10,000 different types of HSS, TCT, segmental saw blades, band saws, friction saw blades and circular knives. Apart from the delivery of an extensive standard programme, Kinkelder also produces custom-made saw blades for clients with specific demands with regard to, for instance, size, hardness and tooth shape. With its 340 employees, Kinkelder also advises in and supports producers with setting up and optimising their frequently fully automated sawing lines. Important users of Kinkelder saw blades are manufacturers and suppliers of tubes and profiles that are used in the automotive industry, the oil and gas sector and the world of construction.

"We have an international network of our own sales and service branches, where we also repair saw blades and sharpen these on high-quality European machines," states Louis Raucamp, commercial manager at Kinkelder BV about the organisation. "In other countries we work with specialised engineering distributors. This was also the case in China. At least until 2010, as in this year we strengthened our presence in China with our own sales and service branch, so called WFOE (Wholly Foreign Owned Enterprise), in Suzhou, which is managed by Liu Tao, general manager, China. We have now further expanded and equipped this branch for the grinding and resharpening of TCT saw blades, solely for the rapidly growing Chinese market. The infrastructure in Suzhou is perfect, with good haul roads, efficient public transport and good utilities. This is why in Suzhou we are accompanied by large well-known multinationals such as Samsung, Philips and VDL, yet another Dutch company."

Kinkelder – The Netherlands
Website: www.kinkelder.com

Fives Bronx ships cold sizing mill

FIVES Bronx, the provider of Bronx/ Taylor-Wilson and Abbey International equipment, continues its global success in the tube and pipe market and substantial contributions to the worldwide demands of the oil and gas industry, with the completion of a recent ERW tube and pipe mill project.

Fives Bronx recently shipped a 10" cold sizing mill, used for high grade casing products, to the Shaanxi Province of China. This line uses a series of four-roll driven passes with quick change capability. It is used to increase the physical properties of the casing as well as to improve its dimensional characteristics, such as to reduce the diameter of discrete lengths of round pipe. The result is a perfection of the pipe roundness and an increase in the material strength. This process is done after the pipe has been full-body heat treated. The heat treatment can be a fully annealing process or a quenching and tempering process.

The four-roll driven passes progressively reduce the pipe diameter, varying from 1-2 per cent, depending on the requirement for each pipe grade. A quick change system is included with this mill so that the rolls may be changed often due to frequent size changes.

The Abbey Division of Fives Bronx has been designing and manufacturing world-class tube and pipe production equipment since 1901. Its production innovation combined with its experience makes Abbey the quality choice for ERW mills, no matter what size tube is required for production.

Fives Bronx – USA
Website: www.fivesgroup.com

API finishing line

MAIR Research SpA has supplied Brazilian tube manufacturer Tuper with an integrated API finishing line suitable for processing 340mm tubing.

The line has been recently commissioned and API certified. It is connected in line with the mill and composed of tube cut-off sampling, ID flushout and bead chopping, chamfering, hydrotesting (two machines in parallel: one triple head up to 8" and one for over 8" and up to 340mm), ultrasonic testing, WMS, coating, packaging and strapping. A software system keeps track of information connected to the individual operations and is interfaced with the supplier's server.

Mair Research SpA – Italy
Email: salesdept@mair-research.com
Website: www.mair-research.com

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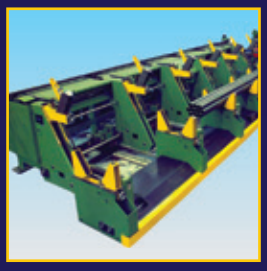
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Record Butting deal signed

THE Ichthys gas-condensate field, where pipe-laying operations are due to begin from 2013, lies off the Kimberley Coast of Western Australia. Butting is playing a significant role in constructing the 889km long pipeline that will run from the offshore production platform to Darwin, where the gas is to be processed. It is supplying about 75km of Butting bimetal pipes. At the beginning of this year the contract for the Ichthys LNG Project was signed with INPEX.

The benefits of Butting Bimetal (BuBi®) pipes convinced the customer. The pipes the Ichthys LNG Project ordered are made from material grades TP 317L/UNS S31703 for the inner pipe, and SAWL 450 FD for the carbon steel outer pipe. Construction is being done according to the DNV-OS-F101 standard and to other requirements of the customer specifications. The size for this order is 457.0 x (21.9 + 3)mm.

"The total volume of this major order will be supplied in several stages and first deliveries will start in third quarter 2013. Before the pipes are laid in the appropriate place, the customer will process them further by arranging a coating", says Brigitte Blechinger, head of the oil and gas upstream sales department.

The BuBi® pipes consist of the inner pipe and an outer carbon steel pipe. These two pipes are connected to one another with hydraulic expansion to a mechanical tight fit. The process developed by Butting for mechanically connecting two pipes is cheaper than compared to a solid-wall version.

H Butting GmbH & Co KG – Germany
Fax: +49 5834 50 320
Email: info@butting.de
Website: www.butting.com

Bending machines catalogue

EAGLE Bending Machines Inc has released its updated 2012 product catalogue in PDF format for easy and immediate email delivery. The full-colour illustrated catalogue showcases the company's entire line of section rolls and profile bending machines with important features, advantages, and popular available options, and includes complete specifications and bending capacities for every model. It is designed to assist potential machine buyers determine the most appropriate machine type and size to match their needs.

Eagle Bending Machines Inc – USA
Website:
www.eaglebendingmachines.com

New heavy plate stand

THYSSENKRUPP VDM GmbH has placed an order with SMS Siemag for the supply of a new 2.7m heavy plate stand for its Siegen, Germany, location. With this new millstand, ThyssenKrupp VDM will be able to offer plates with narrower product tolerances and higher plate weights.

The scope of supply of SMS Siemag includes the millstand with X-Pact® electrical equipment and automation system, a new hydraulic descaler, and the complete erection of the new equipment and modification of the foundations. Commissioning is scheduled for the summer of 2013.

The new 2.7m millstand will replace the current stand from 1954. The new unit will have a rolling force of 60MN and be equipped with a hydraulic adjustment system and work roll bending. The millstand will be pre-assembled and tested in SMS Siemag's workshop in Hilchenbach.

Within the area of automation systems, SMS Siemag will deliver the level-1 systems and level-2 process models with pass schedule calculation system. The automation equipment is set up beforehand in the SMS Siemag test fields, and tested and pre-optimised in accordance with the proven Plug & Work concept.

As part of the modernisation, ThyssenKrupp VDM is investing a total of around €30mn in its plant in Siegen.

SMS Siemag AG – Germany
Website: www.sms-siemag.com

New offices opened in Moscow

DANOBATGROUP has opened new offices in Moscow and the new offices will become a service centre and a representative office.

The activity of the representative office aims to promote the equipment and automated production lines in Russia, defending the interests of the company and assist in dealing with the performance of contractual obligations to supply equipment. The main aim of the service centre is to provide a local team of engineers, full service to the machines installed and storage of spare parts for a faster delivery. The company Danobatgroup believes Russia to be a priority market, in view of the active development of the railway, oil and gas and aircraft industry, where the company is a leading provider of technology solutions.

Danobatgroup – Spain
Website: www.danobatgroup.com

transfluid Asia Pacific with on-site service in Bangkok

TOP-CLASS service can be delivered only by those who are physically present where their clients are. For this reason transfluid Asia Pacific has established an office in Bangkok. After five years of operation, transfluid Maschinenbau GmbH has declared the move a complete success.

The service and sales office in which four employees of the South-Westphalian (German) business are currently working plays a vital role in the success of transfluid in the economic region of Asia Pacific and is the basis for further, sustainable expansion.

Thannarong Vasunirachorn has been the head of transfluid Asia Pacific since 2008. He said: "We have been very consistent and target-oriented in our development and constant expansion of our presence in the interest of our clients. We want to offer local service on the same level as in the German town of Schmallenberg in Europe where we are based." From the Thai capital, the senior executive coordinates all sales activities for transfluid vendors from Korea, India, China, Australia and New Zealand. He also oversees the installation of machines and equipment, and the subsequent service of the equipment is organised from Bangkok. Being close to the client is of primary importance for the company.

The Thailand-based sales people and engineers are thoroughly educated and qualified at the German master plant. On average, they spend 16 weeks there. This exchange with their German colleagues is highly appreciated and determines the success of transfluid in Asia Pacific. "The professional competence of our staff is highly esteemed and boost it gives to our services cannot go unnoticed. The timing and decision to open a subsidiary in Asia was just right. It was a true success. The proximity to clients is an aspect that opens the door to the local market", says Gerd Nöker, CEO of transfluid. To ensure fast technical support, the company maintains a stock of spare parts in Bangkok.

Sufficient storage areas guarantee short response times. Its qualified team of engineers can provide fast service whenever needed. The recent success has confirmed that transfluid shall continue developing and timely expanding its subsidiary on the Asian-Pacific market.

transfluid Maschinenbau GmbH – Germany
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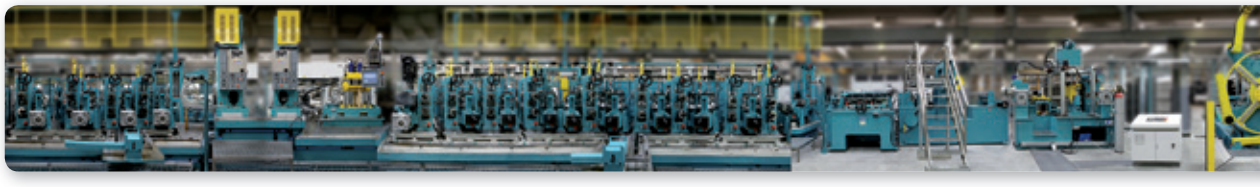

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www.mtmtubemills.com
sales@mtmtubemills.com

Rofin-Baasel receives Intel award

ROFIN-Baasel has been recognised as one of 19 companies receiving Intel Corporation's Preferred Quality Supplier (PQS) award for their performance in 2011. Rofin-Baasel is recognised for its significant contributions providing Intel with laser mark equipment, deemed essential to Intel's success.

"It is a great honour for us to receive the Preferred Quality Supplier award from Intel for the fifth time in a row," commented Günther Braun, president and CEO of Rofin. "This award is a testament of the long-standing relationship and the excellent cooperation between Rofin and Intel. On behalf of the Rofin team, I would like to thank the Intel team for the honour of being selected once again and we are proud that our laser marking products continue to contribute to Intel's success."

Congratulating Rofin for winning, Carolin Seward, Intel assembly test capital equipment development director, commented, "Rofin demonstrated excellent customer support and a commitment to providing the technology required to meet Intel's evolving mark needs while continually improving equipment delivery lead time. We look forward to continuing to work with Rofin to achieve world-class laser mark solutions and executing to our operational excellence challenges."

Rofin-Baasel Lasertech – Germany
Fax: +49 8151 776 4159
Email: sales@baasel.de
Website: www.rofin.com

Boeing performance award

ENGINEERED joining technology company Norma Group AG has received a 2011 Boeing Performance Excellence Award. The Boeing Company issues the award annually to recognise suppliers who have achieved superior performance. Norma Group maintained a Silver composite performance rating for each month of the 12-month performance period. In the latest awards, Boeing recognised 529 suppliers who achieved either a Gold or Silver level Boeing Performance Excellence Award.

"We are very proud of this achievement, which is a result of our excellent partnership. Having received the Boeing Performance Excellence Award demonstrates the high quality of Norma Group's engineered joining technology products and solutions as well as our focus on client service and customer satisfaction," said Werner Deggim, CEO of Norma Group.

Norma Group AG – Germany
Website: www.normagroup.com

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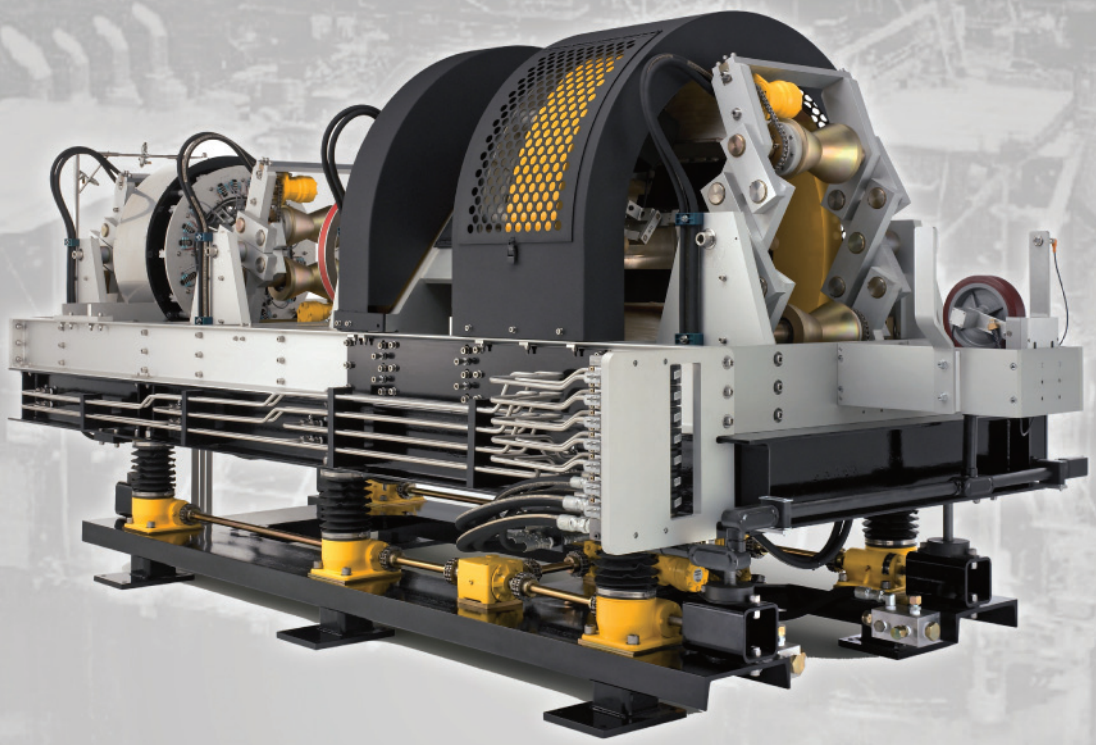

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+011.281.219.9480

Modernisation of meltshop

ACERINOX, Palmones, Spain, has awarded SMS Siemag, Germany, and SMS INNSE SpA, Italy, a contract for the supply of an AOD converter vessel and the modernisation of an electric arc furnace supplied in 1998.

SMS INNSE supplies an AOD converter vessel and two change vessels with a tapping weight of 108 tons. The converter design was optimised on the basis of studies that Acerinox had previously ordered from SMS Siemag. SMS Siemag's study investigated the vibrations that occur during the AOD blowing process on account of bath movements. Comprehensive measurement series were recorded and evaluated throughout the campaign of the refractory lining.

On the basis of this data, SMS INNSE examined the effects on the service life of the converter tilting gear unit. SMS INNSE will modernise the valve station (O_2, Ar, N_2, air), which will receive an individual shrouding-gas control system. Also included in the scope of supply are the engineering, the mechanical equipment and the supervision of erection and commissioning.

The electric arc furnace with a heat size of 120tons will be modernised by SMS Siemag. The spout-tilting electric arc furnace supplied in 1998 will receive a new furnace roof. The former conventional type of roof will be replaced by a spray-water cooled furnace roof. This patented method of roof cooling uses water at atmospheric pressure, reducing the potential risk that large amounts of high pressure water present in case of leaks.

SMS Siemag's scope of supply includes the engineering, the supply of the mechanical equipment, electrical equipment and automation system, and the supervision of erection and commissioning.

The AOD converter is to start production this year, while the electric arc furnace is scheduled to be commissioned in 2013.

SMS Siemag AG – Germany
Fax: +49 211 881 4902
Website: www.sms-siemag.com

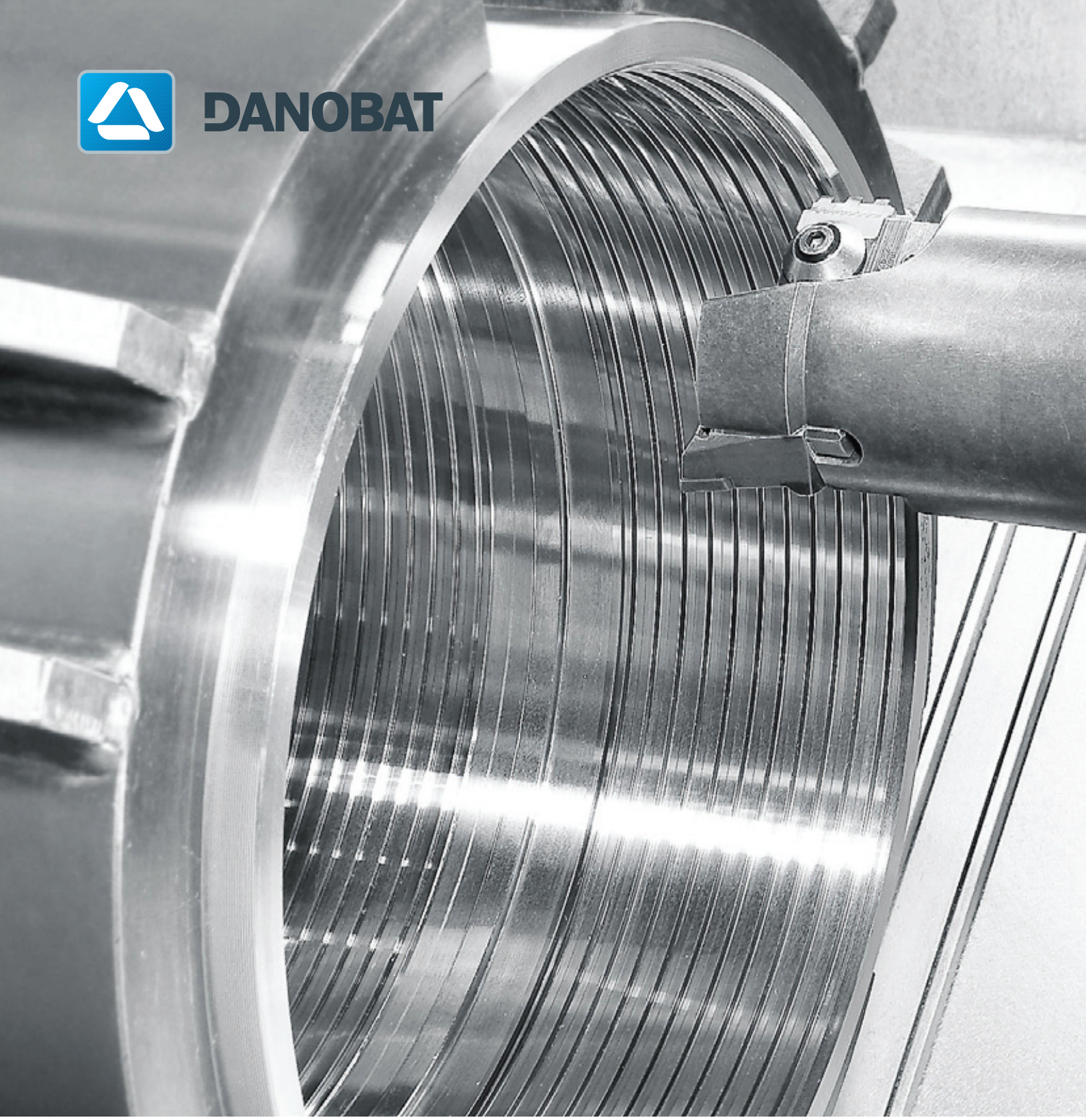
Rafter expands capability

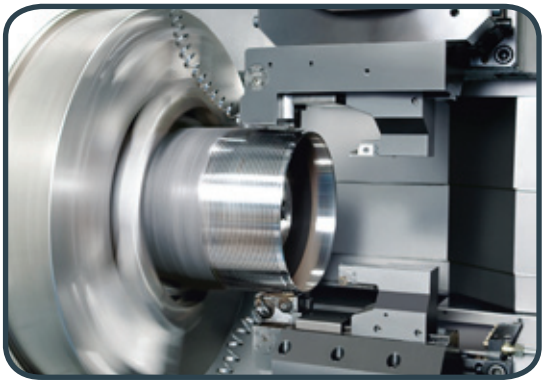
RAFTER Equipment Corporation has expanded its in-house manufacturing capabilities with the addition of another machining centre. The new machine is a Mazak Integrex 200SY six-axis turning mill centre with sub-spindle.

The main goal of this machine is to produce more parts in-house for both quality and delivery control improvements. The machine has dual, opposed powered chucks with a live milling tool for true 'done in one' manufacturing capability. The addition further reinforces the company's commitment to the 'Made in USA' philosophy that is still important to its customers.

Rafter Equipment Corporation – USA
Fax: +1 440 572 3703
Website: www.rafterequipment.com

DANOBAT





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Tube 2012 – biggest to date

THE 2012 edition of Tube Düsseldorf bounced back in style following the disappointing final two days of the 2010 event that were marred by the Icelandic volcanic eruption. Also in 2010 the effects of the global economic crisis had resulted in a slight reduction in visitor numbers.

However, there were no such problems this year with increases posted in exhibit space (+9.4 per cent), occupying nearly 49,000m^2 and in visitor numbers (+6.3 per cent for wire and Tube combined). Although the number of exhibitors at Tube was up marginally there was clear evidence of renewed confidence in the trade fair's strategic importance with the return of high profile companies like V&M Deutschland GmbH and the fact that a number of organisations booked increased space this time.

The ITA participated at Tube 2012 in an imposing new look stand in hall 4, providing a comprehensive range of support services for members and their guests, whether exhibiting or visiting. The free, well-appointed meeting rooms were in regular use and the refreshment facilities much appreciated. Advice on technical matters as well as information about ITA events and the ITA's unique range of membership benefits was provided by the new executive secretary Peter Byroslawsky and attending board members Steve Loynes and Andy Houghton. Over the five day event more than 100 new enquiries were obtained and nearly 20 new members signed up with more sure to follow as a result of visits to the stand.

On Wednesday 28 March the ITA's annual general meeting was held in the Congress Centre at which important elections to the IEMB were held.

Following the completion of the formalities of the meeting and before ITA members and VIP guests enjoyed a free buffet lunch there were a number of presentations made. Chairman of the Technical Management Committee Steve Loynes presented speaker awards for the best papers given at ITA conferences over the previous two years. For his paper at the Pipe & Tube Düsseldorf World Conference 2011, "FRT- four rolling technology – the latest developments in tube OD finishing", the Professor Hugh Sansome Trophy was awarded to Fabio Lacapruccia of Danieli Centro Tubi, Italy, and the Speaker's Shield was presented to Matthias Hermes of Institute of Forming Technology and Lightweight Construction, Germany for his paper "New flexible tube forming processes – tool independent forming of tubes to complex workpieces with workpiece-invariant tools".

The John C Hogg Lifetime Achievement Award was presented by ITA president Gunther Voswinckel to Tsutomu Nakata, current ITA chairman, for his support for the association over many years. In addition to a commemorative gift Mr Nakata received free lifetime membership of the ITA.

A special presentation was made to retired executive secretary Phillip Knight for his close collaboration with the company over a ten-year period, which saw the development of important exhibitions supported by the ITA in China, Russia, India, Thailand, Brazil and the UAE.

ITA – UK
Website: www.itatube.org

Trends in ferrous and non-ferrous metals in 2011 and 2012

AT the AIB (Industrial Association of Brescia) headquarters the coming editions of Metef-Foundeq and Metalriciclo-Recomat – the international trade fairs organised by Alfin-Edimet – were presented. Metef-Foundeq is the world renowned biennial trade fair for the aluminium sector, technological metals and the foundry and Metalriciclo-Recomat is the trade show dedicated to technologies for the recycling of metals and industrial materials.

The presentation was made at the closing of the meeting "Ferrous and Non-ferrous metals in 2011 and 2012 – Leading players speak", an event that saw representatives of the major industry associations, who have long supported the two events organised by Alfin-Edimet, discuss the situation of the Italian metallurgical industry and prospects for 2012, a year which will be taken with caution as well as optimism following 2011, which saw positive results for the foundry sectors and steel in particular.

The meeting, opened and moderated by Paolo Kauffmann, senior partner of Kauffmann & Sons, also offered the participation of Giuseppe Pasini, president of Federacciai, Romano Pezzotti, president of Assofermet Rottami (Scrap), Franco Zanardi, vice-president of Assofond, Gino Schiona, director general of CiAl, and Stefano Vittorio Kuhn, deputy director general and sales director of Banco di Brescia, the main sponsor of Metef-Foundeq. The speakers expressed their satisfaction with the transfer of Metef-Foundeq and Metalriciclo-Recomat to Veronafiere and the belief that this will ensure the further development of the events.

What emerged from the AIB meeting is that 2012 will be a year to be taken with caution for the metals market. After a 2011 that, with ups and downs, concluded positively from the production standpoint, 2012 raises some concerns. According to the data provided by Giuseppe Pasini regarding the first 11 months of 2011, the Italian steel industry enjoyed a growth of 11.3% over 2010, with an +18% for flat products and +7.3% for long products. Furthermore, Italian exports of steel grew a good +12.5% while imports grew at a slower pace – 7.3%. Mr Pasini highlighted the growth in sales to the EU and a decrease to emerging countries. The Federacciai president commented that: "Italian domestic consumption of steel is expected to be consistent with last year," adding that the steel industry will not be able to escape the effects of a decreasing GDP.

On the contrary, 2011 was a weak year for copper according to Assomet: the consumption of refined metal declined -6.2% (581,000 tons) as a consequence of the reduced activity of transformers. In fact, the production of semifinished copper products dropped 6.7% (556,100 tons). Electrical copper products like wire and bars did worse than the industry average, dropping 8.8% (433,000 tons). Products for construction such as rolled products (-19.3% to 45,100 tons) and pipes for plumbing, heating and industrial uses also fell below the average, 6.2% to 62,400 tons. This is an economic trend that joins a long-term trend characterised by the progressive replacement of copper in building applications either because it is vulnerable to theft or because it suffers the competition of cheaper materials.

In addition, the production of semi-finished copper alloy products (501,400 tons) decreased by 2.8% primarily due to a lower production of brass bar, which lost 2.6% (455,700 tons).

Rolled alloys did poorly also: -4.2% (62,400 tons). In contrast, aluminium showed a good trend: according to Assomet, the global consumption reached nearly 2 million tons (1,955,000 tons), up by 19.7%, the second best result ever, second only to 2007 (2,050,000 tons).

In contrast with the rigid domestic production of primary metal, imports have increased to 1,013,400 (+23.5%). The production of secondary metal is also doing well, having benefited from a strong demand, both domestic and foreign (especially from the EU), which pushed domestic production to 750,000 tons (+24.2%). Even the use of secondary, especially in the die casting sector, increased significantly to 666,000 tons (+28.5%). On the semi-finished products front, extruded products experienced a +4.0% to 475,400 tons, benefiting from a lively foreign demand (+5.3%) thus reaching an export quota of 45% of production. The global demand for rolled products was satisfactory (+6.8% to 458,100 tons), largely a result of the positive performance of the packaging sector given that the demand for other uses dropped. Lead production also showed positive figures with an increase of 6.5%.

Metef-Foundeq – Italy
Website: metef.com

Rosendahl at Tube China 2012

ROSENDAHL Metal Tubes & Hoses provides manufacturing solutions for smooth tubes and corrugated hoses with diameters from 2 to 220mm at wall thicknesses of 0.05 to 10mm, with highest demands regarding precision and corrosion resistance.

The main technological competencies are in the fields of metal forming, welding (TIG, laser and plasma welding), in-line heat-treatment, tube cold working, calibration and corrugation of circular round products for solutions for processing high-alloyed stainless steels, nickel-base alloys, copper, aluminium and titanium.

At Tube China 2012 the company will present new advancements and technology highlights, including the latest developments for the application fields of solar tubes, heating tubes, hygienic and process tubes, automotive industries and turnkey solutions. The company will especially focus on solutions for processing of titanium.

Rosendahl Maschinen GmbH – Austria
Email: office@rosendahlaustria.com
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Eagle solution for one of the world's largest exhaust manufacturers

DESIGNER, manufacturer and supplier of tube bending, AddisonMckee of Ohio, USA, Ontario, Canada and Bamber Bridge, UK, has been commissioned, under its renowned 'Eagle' brand name to manufacture a complete muffler line using entirely new and rebuilt equipment for use by one of the world's largest exhaust manufacturers at its Mexican facility. The equipment in question will be used to produce the muffler assembly for Ford's global CD4 platform vehicle, badged 'Fusion' in the US and 'Mondeo' in Europe.

This latest order typifies the benefits enjoyed by AddisonMckee in recent times through the 2009 incorporation of the Eagle team into its business with its unrivalled knowledge and expertise in the field of innovative muffler assembly design.

AddisonMckee will be supplying a rebuilt lockseamer with a new de-stacking unit, a new sheet embossing press, a shell oval forming station, new vertical flanger, new vertical internal stuffer, a vertical end cap to the shell assembly machine, a vertical muffler end spinner and three stand alone baffle to tube ridgelock machines.

In well over a quarter of a century in business, AddisonMckee has established itself as global market leader in tube manipulation technologies, predominantly for the global automotive industry, experience which has readily translated to muffler assembly with a range of supremely cost-effective work cell and individual product solutions designed to achieve the very highest standards in muffler manufacture.

The company's landmark 2009 merger with Eagle Precision Technologies brought together the two largest global names in tube manipulation products and services to form a complete global solutions provider offering the absolute best in technical solutions from two highly innovative industry leaders.

Harnessing innovative technologies, including advanced weld-free production, AddisonMckee can automate entire motorcycle, car and truck muffler manufacturing processes, delivering precise acoustics and outstanding system integrity. And, with machine capabilities for muffler shells of up to 600mm in diameter, AddisonMckee can deliver on any shape or size of muffler requirement. The company's state-of-the-art manufacturing centres can devise innovative solutions to enhance production capabilities, maximise efficiency and deliver absolute precision.

AddisonMckee also offers high quality tooling solutions to ensure that its muffler assembly machinery continues to perform just as effectively as the day it was first commissioned.

There's a comprehensive range of high quality replacement tooling solutions including mandrels, flanger tools, stuffer and ram tooling, spinner assembly tooling, ridge lock and perforation tools. A wide range of tooling permutations is available to create the precise shell shapes and internal configurations required with bespoke tooling available to suit any requirement.

For frequently used items, 'just in time' delivery protocols can be established to significantly reduce reliance on on-site stockholdings.

To ensure maximum operator efficiency, AddisonMckee provides rigorous and highly effective training programmes for all of its production disciplines.

AddisonMckee is an acknowledged world leader in the manufacture of tube end-forming and cutting machinery for a wide variety of applications. From simple expansion and reduction process tube end forming machine models to tube sizing equipment, blade parting machines and highly versatile multi-hit ram formers, all machines are robust and easy to operate, with reliability rigorously tried and tested over many years in some of the most demanding production environments on the planet.

The fortunes of AddisonMckee have certainly taken a turn for the better in recent months as the market climbs out of recession and the company's launch of exciting and innovative new technologies along with its landmark presence at Fabtech are certain to provide further evidence of its increasing strength and confidence.

AddisonMckee – UK
Email: paspinall@addisonmckee.com
Website: www.addisonmckee.com

Three press rolls sold

ONE of the top groups in the USA in different fabrication fields has purchased three plate rolls with capacity from 40 to 100mm ($1^5/_8$" to 4") for the manufacturing of train-tanks for the transportation of special liquids, which require high wall thickness.

The customer chose the Davi variable axis Press Rolls, which are able to bend the cans with good roundness even at heavy thicknesses, evaluating the guaranteed performance and the availability of the Davi service in the USA. This ensures prompt start-up and training.

The American company already owned some Davi rolls, and its satisfaction with the results of those machines was the key factor to decide to continue to invest in Davi. The customer was also impressed by the innovative mechanical design.

Davi – Promau Group – Italy
Fax: +39 0547 317850
Email: davi-sales@davi.com
Website: www.davi.com

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http://www.nakata-mfg.com

Sawing large billets with the KSS 1600

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

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

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

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

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

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

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

Linsinger – Austria
Website: www.linsinger.com

The Linsinger bed saw

Roll forming for seamed tubes

PM has specialised in the production of sheet metal working machines, and in particular roll forming lines for the production of welded and seamed tubes, for more than 30 years.

For approximately 10 years it has also been producing various kinds of profiles for the following sectors: automotive (cars, trucks, trains, buses and containers), storage systems (light, medium and heavy shelving, supermarket, mezzanines, automatic storages and lockers), electricity (profiles for rack cabinets, cable trays and ceiling), road sector (guard rails, road signs profiles, soundproofing panels and ducts), agriculture (vineyard posts, irrigation pipes, greenhouses, silos and breeding profiles), furnishing (refrigerators, washing machines, stoves, kitchens and radiators), buildings (gutters, C-U-Z profiles, elbows, corrugated and ondulated panels, rolling shutters and octagonal tubes), doors and windows (blind and sliding doors and fire doors), grates (pressed and welded grates).

Furthermore PM can offer its customers a wide range of solutions for their products. It can supply the whole range of equipment directly; it can make and design the production for a number of years and then give the entire plant at the agreed price; it can arrange for the production of the profile with material supplied by the customer; and it can also produce and supply the material.

PM – Italy
Email: pm@pm-eng.info
Website: www.pm-eng.info/novita

HFI/HFC longitudinal seam welding of tubular sections

ELOTHERM claims to be the only manufacturer to offer customers both constant-current and constant-voltage high-frequency welding generators.

Constant-current welders using a parallel resonant circuit with Mosfet transistors are designed for welding powers up to 800kW and frequencies from 100 to 600kHz. The EloWeld™ constant-voltage HF generator with a series resonant circuit and IGBT transistor modules, introduced by Elotherm in the mid-1990s, offers welding power up to 2,000kW.

Both EloWeld™ systems feature convenient and reliable load adaptation using reproducible capacitor switching with pneumatic switches, either manually or automatically from the control cabinet.

A drawback of variable frequency adjustment, eg retuning the resonant circuit for different jobs, is the need for readjustment to restore the original frequency, voltage and current settings, which may be very time-consuming.

To reduce service costs, easily replaceable standard modules with a single Mosfet or IGBT are used instead of expensive power units in the form of compact modules with many transistors. The digitally configurable converter features modern diagnostics and visualisation with online status and fault indications in plain text.

Separation of the converter from the external resonant circuit offers additional decisive advantages. The external resonant circuit contains no unprotected electronic power units liable to cause problems due to vibration and moisture. There are no sensitive components, such as transistors or driver boards, in the direct vicinity of the welding line. They are located in the converter cabinet behind the line or in a central control room for easy servicing. The HF output transformer is designed as an isolating transformer, and pneumatic inductor clamps protect the external resonant circuit against deformed tubes (risk of being dragged along) and simplify safe inductor changes.

If impeders cannot be used in individual sections due to a lack of space, a separate contact unit makes it easy to change from induction welding to contact welding with automatic contact adjustment and wear indication. Contact wear is monitored and compensated by position encoders.

Extensive process expertise gained from using EloWeld™ HF generators with virtually all high-frequency weldable materials and tube sections over several decades enables users to produce perfect welds thanks to fully reproducible frequencies matched to production processes and defined welding energy.

SMS Elotherm supports customers with the services of experienced commissioning specialists.

SMS Elotherm GmbH – Germany
Website: www.sms-elotherm.de

Cut-off machines for optimised end cutting into finishing lines

THE first result of this year's Tube Show in Düsseldorf was a big order received by Reika from Vallourec & Mannesmann, a global leader in the tube industry. The company ordered two cut-off machines for optimised end cutting of tubes after ultrasonic testing.

The new cut-off equipment will enable fully automatic cutting of untested ends and defect zones after tubes have passed through an integrated phased array testing system (an advanced method of ultrasonic examination). "This will give the possibility to separate untested or defective tube ends and samples, in a given cycle time, after the phased-array test," says Reika managing director Hans-Jörg Braun. The cutting machines including conveyors will be integrated in the existing material flow.

"With our cutting machines, several improvements can be achieved with a single stroke," Mr Braun added. "First of all, material yield is improved through precise cutting of the non-compliant tube ends rather than always cutting fixed crop lengths, thereby leaving the maximum possible prime length. Given the non-compliant tube ends will vary in length and the possibility for special fault areas that must also be removed, the resulting prime tubes will vary in length. In this case, unnecessary material losses will be avoided by optimising the actual prime length against the customer order log. In essence, the actual prime lengths, after testing, are best fit to the customer order log so multiple orders can be accumulated simultaneously thereby limiting material loss and optimising yield."

By integrating the new cutting equipment, the customer will reduce non-value added transportation and enable post inspection re-working without sorting. In addition, untested ends could be separated and sampled easily, leading to an additional run-time optimisation of the tested products.

Clean cuts are guaranteed on all cutting machines delivered by the Hagen company, equipped with carbide cutting tools – perpendicular and parallel, so there will be no damage on the surface, Mr Braun said. "High tool life is reducing also the tooling cost, whereas the high speed rotating cut-off head and large tool feed lead to reduction of cutting time. Short idle times and total cycle times increase productivity." Since processing is done cleanly and dry without coolant lubricants, there is no need for another finishing step. Hans-Jörg Braun concluded: "Simple but effective – just like all our machines."

Reika GmbH & Co KG – Germany
Email: sabine.gerstkamp@reika.de
Website: www.reika.de

Circular saw for inline cutting

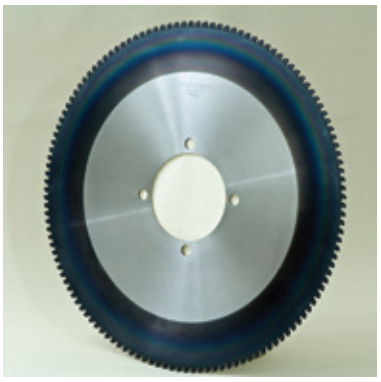
INTERNATIONAL Dutch-based saw blade expert Kinkelder has developed a special circular saw for the inline cutting of ID-scarfed ERW-tubes. The new ScarfMaster breaks the weld bead effectively during cut-off. When compared to 'normal' saw blades, ScarfMaster outlasts other products by a factor two to three times.

"An important customer that produces welded ERW tubes for the oil and gas industry asked us to develop a better solution for their cut-off application," said Leo Molenaar, application engineer at Kinkelder. "The point is that after ID scarfing the internal weld bead, often about 6mm thick solid steel, remains inside the tube. During cut-off this inside wire is caught by the saw, causing a huge peak load usually on one saw tooth. This can easily lead to tooth breakage. We started developing a new saw in 2010, which resulted in the conception of ScarfMaster."

ScarfMaster is a carbide tipped saw blade featuring a very specific tooth-geometry, while tips themselves are made of a highly shock resistant type of carbide. The teeth are supported by a saw body with extra strong shoulders, which give the combination tooth/body very high stability and fracture resistance. The ScarfMaster was officially introduced at the Tube trade fair in Düsseldorf this year.

"Not only is the blade life of the new ScarfMaster considerably longer, it can also cut 50 per cent faster," emphasised Mr Molenaar. "Due to this, line speed can be significantly increased. Also, the line does not have to be shut down as often to change the saw blades, which means better uptime. In all regards, the new ScarfMaster saws improve productivity of the tube line and this automatically reduces cost of production per tube length. There is already a rapidly growing number of enthusiastic tube manufacturers in the USA, Spain, Romania and Poland who successfully use ScarfMaster saw blades for their tube lines." ScarfMaster saw blades are available in diameters of 400, 450, 500, 560 and 600mm destined for the production of tubes in the diameter range of 2.5" to 7" (63.5mm to 168mm).

The ScarfMaster breaks the weld bleed effectively during cut-off



Kinkelder – The Netherlands
Website: www.kinkelder.com
Website: www.scarfmastersaw.com

New software platform for all data and processes around manufacturing of bent parts

THE newly developed software platform BendingStudio was introduced by Aicon at this year's Tube Düsseldorf show. BendingStudio connects all data and processes around production of bent parts: from production process planning to manufacturing to quality control. It is the only tool to meet and combine these requirements with emphasis on metrological processes.

Especially in combination with the AICON TubeInspect systems, BendingStudio offers efficient and customer-orientated solutions for all applications around manufacturing of bent parts. The software platform combines all data belonging to a certain part and allows manufacturers to monitor, quantify, visualise and document all changes in the different process steps. BendingStudio optimises the data handling for every production step and offers the right solution for every user.

At the same time BendingStudio has a simple and clearly structured handling concept. Many small tools ease the daily work in all areas of bent part manufacturing. For example, it is possible to construct bend data from centre line data. Or, before applying corrections, the effects of a modified bending program can be simulated.

The data concept of BendingStudio is already prepared for future applications. Be it if the connection to different measurement systems, the integration of new manufacturing technologies or the addition of new applications around bending like end forming or assembly management – the AICON BendingStudio offers a platform for the optimised integration of all data and processes for bent parts.

The software platform BendingStudio was presented in public at Tube 2012 in Düsseldorf.

Visitors received detailed information on AICON's stand in hall 7a, booth B02. The software will be ready for use in a production environment in the 4th quarter of 2012.

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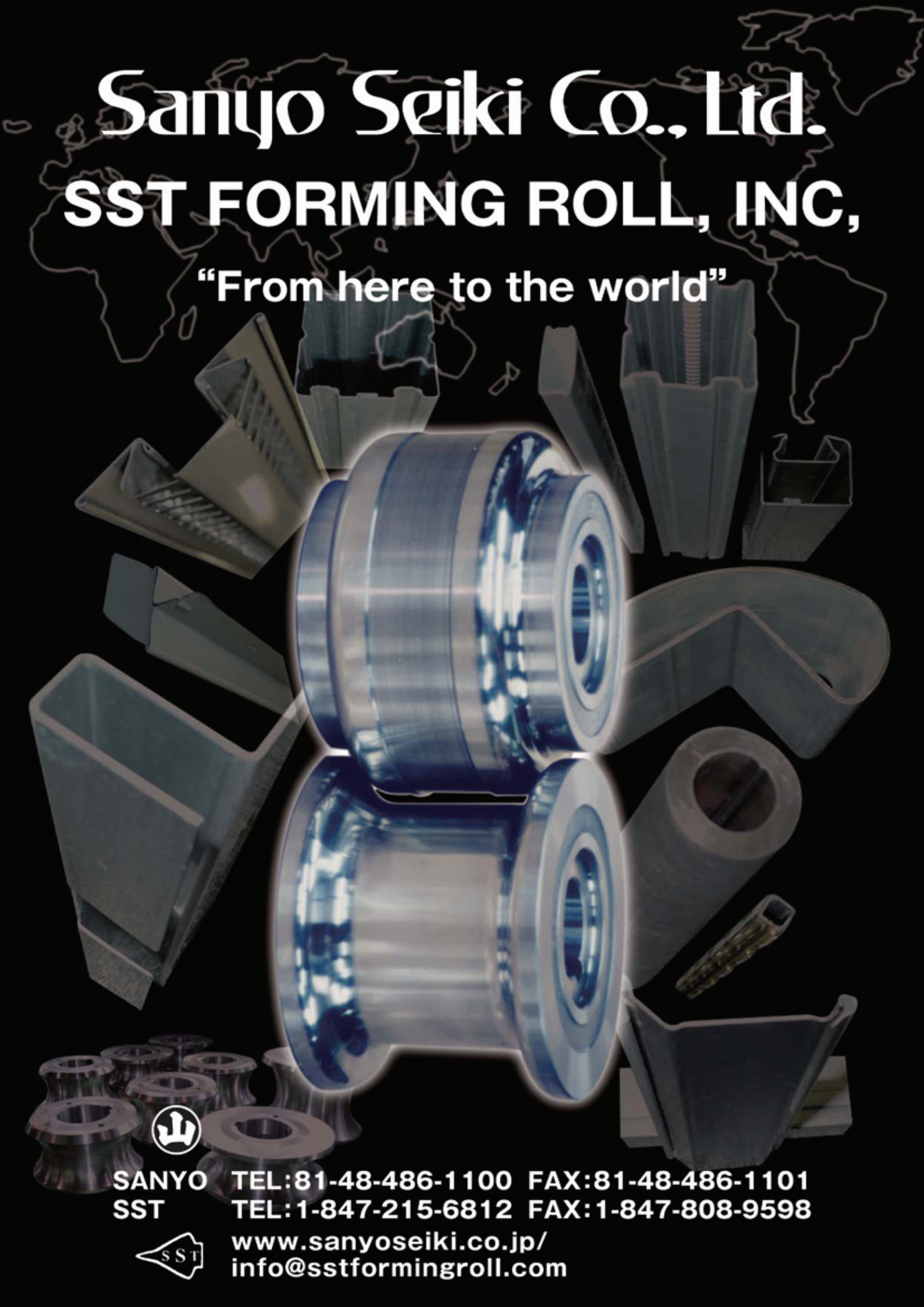
Sanyo Seiki Co., Ltd.

SST FORMING ROLL, INC,

"From here to the world"



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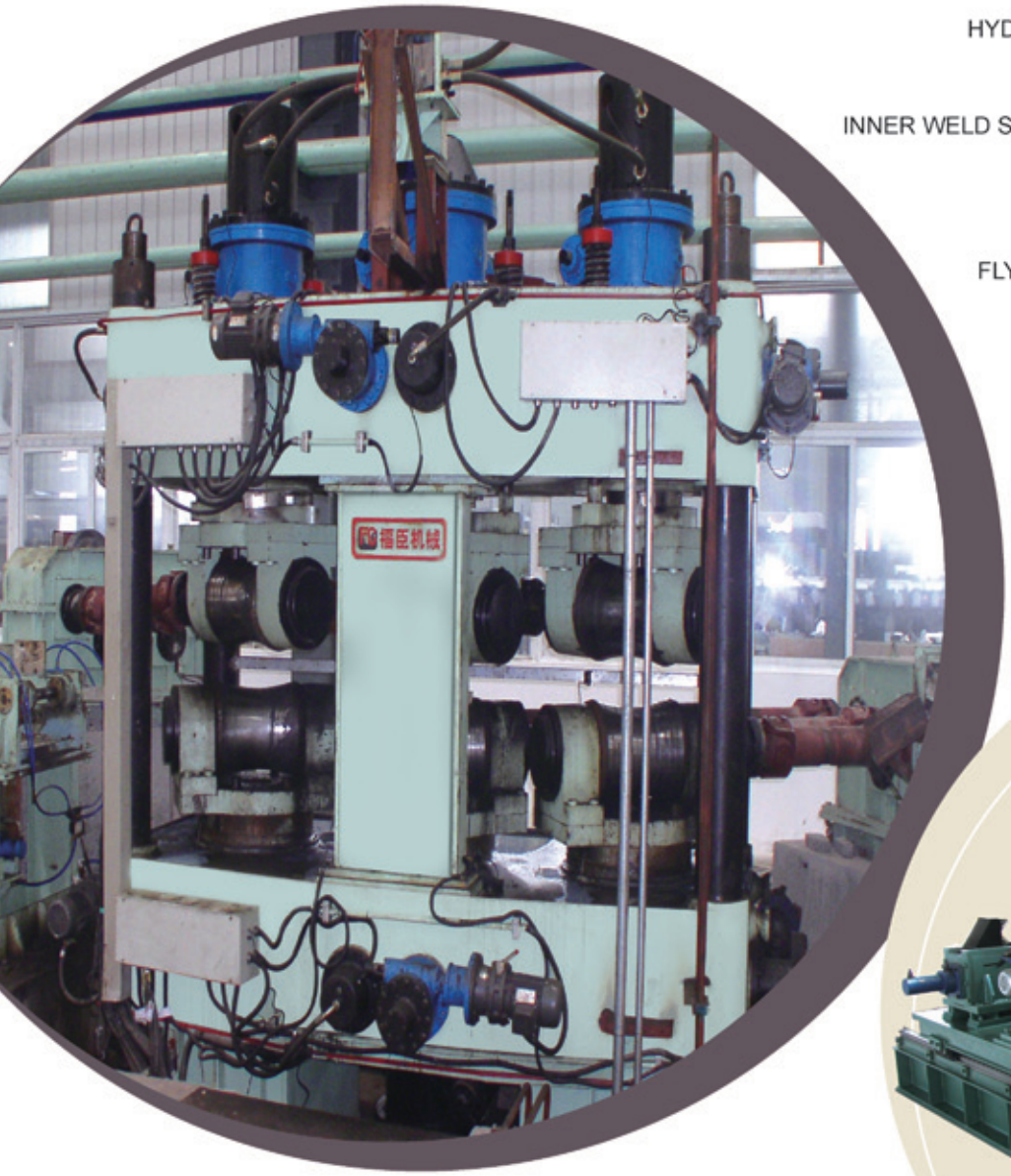

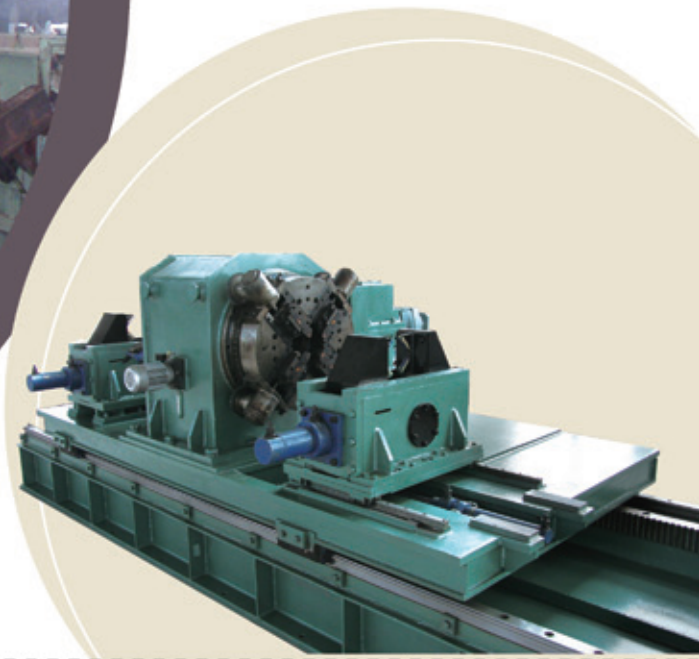

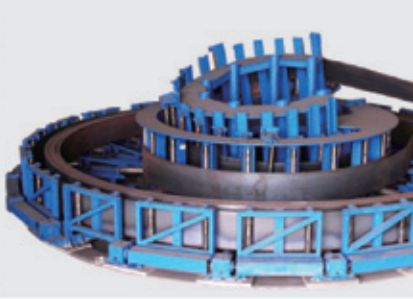

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HTTP : //www.tjfuchen.com E-mail : tjfc@eyou.com

Unique cold pilger tube mill

EZTM JSC is developing a unique cold pilger rolling tube mill CRTM 380 that is intended for production of seamless cold rolled tubes from carbon, alloy and stainless steel grades.

The tubes rolled at the mill have precision sizes of the wall thickness, outer and inner diameter, and high quality of the outer and inner surfaces. Such tubes are used in space and air engineering, oil and chemical engineering, ship building and other industries.

The design decisions which are applied for the CRTM-R 380 roller are patented.

It is the first time when the mill for the billet of such size is performed with end loading scheme which allows to perform reloading without extracting of the mandrel from the deformation zone, that increases the accuracy of the finished tubes and allows using mandrels with slight taper.

It is the first time when the mill for the billet of such size is performed without transmissions but using of servo drives for mechanisms, which perform feed and turn, that increases significantly its technological capabilities. Designed arrangement of the stand unit and drive mechanism eliminates the ingression to the foundations of high-efficiency cooling lubricant, based on mineral oils, which is used for cooling of the deformation zone, as well as mixing with lubricant used in the drive mechanism.

EZTM JSC – Russia
Website: www.eztm.ru

Fast cutting

SAWING bar or tube is a machining process that all too often leaves the operator to decide the speed of the blade and the downfeed rate, which means it is the operator who dictates the cutting efficiency and, therefore, the actual cost. However it is possible to take the guesswork out of the process and to achieve significantly improved production rates as well as longer blade life.

Danobat's range of heavy-duty automatic horizontal bandsaws offers a maximum round cutting capacity of 420mm for the smallest model up to 1,100mm for the largest model. All models in the range are designed to cut difficult materials such as Inconel, Hastelloy, titanium and stainless steel as well as mild steel.

The new iDS 5A, which has a cutting capacity up to 600mm in width and 520mm in height, achieves a blade speed of 18-150m/min courtesy of an 11kW main motor. In addition to an enhanced twin column structural design, the iDS 5A also features the latest version of the intelligent cutting system, the new "intelligent cutting software".

Danobatgroup – Spain
Website: www.danobatgroup.com

"Lula" – the second-largest oil field ever found – lies off the coast of Brazil. 8 billion barrels of crude oil will be extracted here in the near future from depths of up to 7 kilometres. That is only possible with premium seamless tubes of the highest quality. Vallourec & Sumitomo Tubos do Brasil has therefore purchased the best plant engineering available worldwide: The PQF® process from SMS Meer. Staying on the safe side.

Quality unites – a fact that our customers and we discover time and again with every new project. Together we develop solutions that give our partners the competitive edge in their business. Thanks to this good cooperation, SMS Meer is a leading international company in heavy machinery and plant engineering.

MEETING your **EXPECTATIONS**

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Multilayer pipe production

MULTILAYER pipes have remarkable physical properties – with the corrosion resistance of plastic pipes and pressure ratings of metal pipes it does not come as a surprise that these pipes have conquered radiant heating and plumbing markets in the recent past. Dreistern supplied its first industrial production system in 1984. Since then production technology has evolved dramatically and Dreistern has supplied more than 60 systems all across the world. In the meantime markets have consolidated and settled, at least in Europe, and it seems that there is no current need for additional production capacity. As a logical consequence manufacturers concentrate on reducing cost and are trying to load production schedules. As an equipment builder Dreistern is able to help with both issues. First, the biggest part of the total cost of tube manufacturing is made up by the cost of the base material itself. Today there are a number of possibilities to save as much as 5 per cent of the overall cost by optimising individual line components without the need for costly equipment.

New ideas become even more interesting if, besides saving money, they help order books to fill up. One direction of thought could be finding new additional uses for multilayer pipe. This process requires thinking outside the classic box of plumbing and radiant heating applications. New product uses usually also bring new requirements along with them. Production capabilities of today's equipment are limited to tubing with varying diameter and/or wall thickness, which might not be able to satisfy new requirements. Tests at Dreistern with slightly modified equipment have proven that existing systems can also produce multilayer pipes with layers of copper or stainless steel in lieu of aluminium.

Stainless steel looks exceptionally promising. These new "species" of multilayer pipe could become a low-cost version for ornamental or chemical tubing. In order to keep cost low the thickness of the stainless steel layer can be as small as only 100 microns or even less. An inner or outer plastic tube supplies the necessary strength. Best of all, these new members to the family could still exhibit the advantages that have gained their older siblings a hefty market share within plumbing and radiant heating markets in the first place. Equipment builders like Dreistern are able to contribute their know-how during product development. This could level some bumps in the road ahead to new products.

Dreistern GmbH & Co KG – Germany
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Email: sales@dreistern.com
Website: www.dreistern.com

New species of multilayer pipes are possible

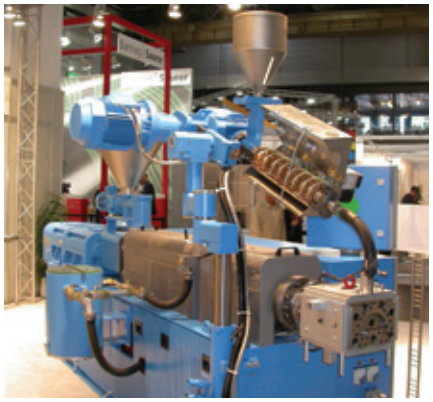
Extrusion lines, tools and pipe heads

HIGH Tech Extrusion, consisting of the companies Theysohn, Technoplast, Topf and Extruder-Komponenten Salzgitter, is an "all-in-one" provider, which has developed a unique series of extrusion lines, tools and pipe heads. For more than ten years High Tech Extrusion has engaged intensely with this topic and works on future trends for coextrusion.

Now the group offers three different and advanced solutions for the industry. Coextrusion is very important for the extrusion market as costs for material can be reduced dramatically. The core of profiles or of pipes is produced from recycled or other cost-effective material. For example, material costs can be reduced by 30 per cent with the production of 3-layer pipes.

"Piggy back solution" for profile coextrusion – The conical extruder (CON 40 or 50) or the CO.32 single screw coextruder is mounted on the main extruder. With the newly developed clamp system for the piggy back solution the adjustment of the coextruder is possible in all directions (up, down, side and angular), therefore a perfect position of the coextruder can be guaranteed. This version is cost-effective and extremely space saving. This piggy back solution can be also mounted on non-Theysohn extruders, of course. Recently High Tech Extrusion was technically challenged by British customers as they were interested in modifying their old extrusion lines into co-extrusion lines. High Tech Extrusion accomplished this by mounting a conical extruder CON 50 "piggyback" on the existing extruder from a competitor. These customers were highly satisfied with the result. The requested output was achieved and due to the unique "piggyback" system, shortage of space at the plant was no longer an obstacle. The guaranteed output with the CON 50 conical extruder as coextruder is for PVC window profiles 125kg/h and for rigid-PVC profiles 150kg/h. To increase output, High Tech Extrusion is now working on a solution for the conical extruder CON 63 as coextruder. In this case a successful mounting is dependent on the size of the main extruder.

Extrusion lines



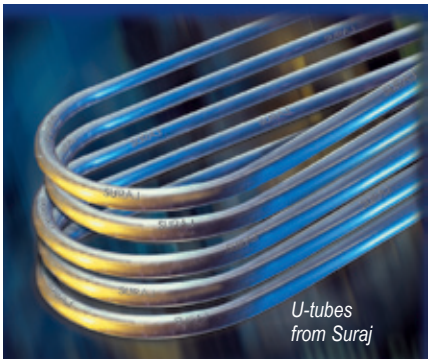
Pillar version for profile tools of all kind – for this type the extruders are positioned next to each other and the coextruder is mounted on a pillar. High Tech Extrusion offers solutions for the single screw coextruder CO.32 as well as the conical extruders CON 40 and 50, and is working on a construction for the CON 63.

The CO.32 single-screw extruder can be used for profile- and pipe extrusion with rigid-PVC, soft-PVC, PA, PMMA and thermoplastic elastomers (TPE).

High Tech Extrusion GmbH – Austria
Email: heinz.w.ebner@ht-extrusion.com
Website: www.ht-extrusion.com

Stainless steel seamless and welded products

SURAJ Ltd manufactures and exports stainless steel seamless and welded pipes, tubes and U-tubes, and large diameter welded pipes in various sizes, grades and specifications. The company, which is ISO-9001, 14001 and BS OHSAS 18001 certified, has a strong presence in the global market, serving more than 70 countries.



U-tubes from Suraj

Materials include all austenitic, ferritic, Duplex and Super Duplex stainless steels. Welded products range from 6 to 1,016mm OD, and 0.6 to 25mm thickness, while seamless products are available from 6 to 323.9mm OD, in thicknesses from 0.8 to 25mm. Maximum length is 30m, and specifications include ASTM, ASME, DIN, NFA and JIS standards.

Specialisations include heat exchangers, heating elements, surface condensers, evaporators, digestors, instrumentation tubing and fluid piping, and the products find applications in industries such as refinery, petro-chemical, food, pharma, fertiliser, oil and gas, breweries, sugar and ship building.

Suraj also holds certificates for quality in accordance with AD2000 Merkblatt W0 and Pressure Equipment Directives (PED) 97/23/EC from TUV Nord, and offers material under all national and international third party inspection. The company also has its own lab to perform tests such as hydro test, eddy current, PMI, IGC, UT, RT, spectro analysis, mechanical properties and others, as per customer requirements.

Suraj Ltd – India
Fax: +91 79 2754 0722
Email: suraj@surajgroup.com
Website: www.surajgroup.com

Protection caps with straps

PÖPPELMANN has expanded its Kapsto® range of standard products. The new GPN 696 protection cap with retaining tab reliably prevents banjo screws from being damaged or contaminated. Compared to other protection caps, the GPN 696 series has a number of beneficial distinctions.

Whether during transportation or storage, the GPN 696 offers protection from damage and contamination.

At the same time, it simplifies assembly of banjo screws and pipes.

GPN 696 protection cap with retaining tab

This is due to the GPN 696's retaining tab. It continues to hold the banjo screw tight after the protection cap has been removed from the threads, preventing the screw from coming loose from the ring fitting. As a result, each banjo screw can be reliably installed in the vehicle or pipe system.

The GPN 696 can be removed just as easily and with low abrasion by gently pulling, which splits the perforated retaining tab at the predetermined breaking point.

The GPN 696 series also saves time. Its flexible TPE material (thermoplastic polyester elastomer) and internal clamping points ensure fast and simple assembly.

Produced in sizes M 10, M 12, M 14 and M 16 for banjo screws, the new standard Kapsto products are produced in yellow. More than 3,000 different plastic caps and plugs can be delivered from stock, and a team of application engineers develops special solutions based on customer specifications, such as combining protection with assembly functions.

The perforated retaining tab of the GPN 696 opens at the predetermined breaking point

Pöppelmann GmbH & Co KG – Germany
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Email: info@poeppelmann.com
Website: www.poeppelmann.com

Pöppelmann Plastics UK Ltd – UK
Fax: +44 1482 373949
Email: ppuk@poeppelmann.com

Induction tube hardening and tempering with EloMat™ multi-zone technology

INNOVATIVE solutions from SMS Elotherm offer higher flexibility than conventional furnace systems for induction hardening and tempering of long products, especially with small batch sizes.

In just a few minutes, tube hardening and tempering lines can be ramped up or down and reconfigured for the next material batch. In situations where materials of different sizes and batches with different steel grades need to be hardened and tempered at different temperatures on a daily basis, output capacity can sometimes be increased by more than half compared to hardening and tempering in a conventional furnace.

In induction tube hardening and tempering systems, thermal energy is induced directly in the material to achieve maximum throughput for the entire range of tube products. This avoids lost time due to conductive heating, which requires longer process times.

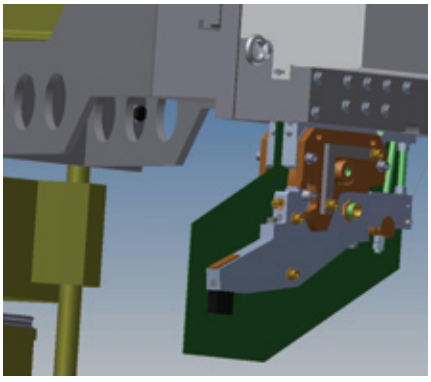
A significant feature of modern tube hardening and tempering systems is the high homogeneity of the tempered structure, with uniform Rockwell hardness (variation ±1 HRC or better) measured over the entire tube length. Due to the very short heating times achieved with induction heating, surface decarburisation does not occur and scale formation is minimal compared to furnace hardening. The negative effect of tempering brittleness with various material grades that are preferably used for hardening and tempering does not occur with induction technology.

Precise process management with high reproducibility in conjunction with specific material handling during transport, induction heating with controllable multi-zone technology, effective quenching and a special cooling bed allow a high degree of tube straightness to be achieved after hardening and tempering. The straightness corresponds to that of the input material and usually does not exceed 2mm/m; sometimes it is even better.

SMS Elotherm offers to customers complete quench and temper system solutions with comprehensive process expertise.

SMS Elotherm GmbH – Germany
Website: www.sms-elotherm.de

Tube hardening



Tube and pipe bending equipment

PHI tube and pipe benders are designed to meet a wide variety of customer requirements, from small production or prototype job shop to the high-end user.

PHI offers the right machine for the right application providing a full complement of machines, from manually operated machines, where precision bending and portability are required, to more sophisticated higher production machines that require hydraulic bending and programmability for precision forming. This provides accurate repeatability from part to part.

PHI is also known for quality products such as tube end finishing machines for flaring, squaring and deburring and bead forming the ends of tubes. Pipe flanging machines and automated multi-head welding systems are among the family of specialised products offered by PHI.

PHI has introduced many innovative refinements to the industry such as drop-away clamps to allow the bending of more complicated shapes, and pressure die assists that provide the operator with more precise control over wall thickness issues. As manufacturers of production equipment, PHI has taken special care to design safety and reliability into each tube and pipe bender. Every PHI bending machine is warranted for parts and labour, for one year from date of delivery. Expert service specialists are available for travel to all parts of the world for consultation and service.

PHI has been a leading manufacturer of automatic steel beam welders, benders, end finishers and presses for over 50 years, first as Leonard Precision Products, then Conrac Corporation machine tool division, and now as PHI. As manufacturer of production equipment, PHI has taken special care to design safety and reliability into each machine.

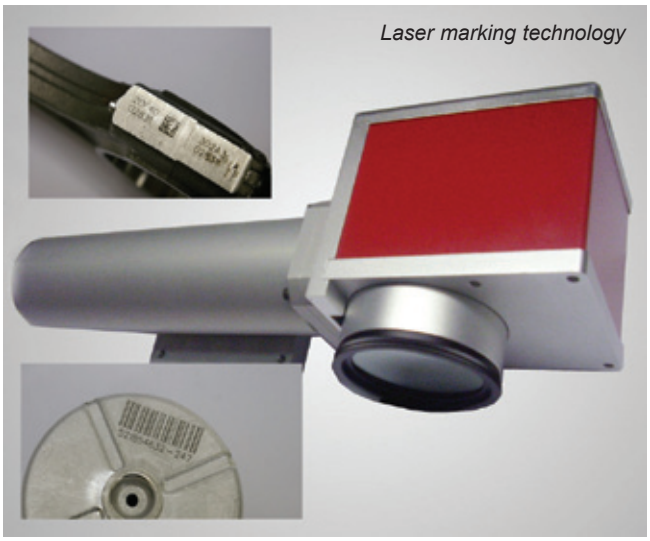
PHI – USA
Email: smoss@phi-tulip.com
Website: www.phi-tulip.com

Industrial fibrelasers for metal marking

SIC Wostor, German subsidiary of the SIC Marking Group, is now offering modern laser marking technology in the area of industrial metal marking with their Ytterbium-doped fibrelasers.

In comparison to marking lasers based on YAG and CO_2, which have been on the market for quite some time, Ytterbium-doped fiberlasers are more powerful and enjoy a considerably longer lifetime of about 100,000 working hours. Even hard metal can now be marked quickly and deeply. Using a marking laser is an option especially where the visual impression counts and suggests greater value. Additional advantages include silent operation and low marking cycles, resulting in a high throughput.

Optical traceability by automated systems is fully supported with optimal quality. Like the well-established dot-peening systems, which SIC Wostor also supplies, the laser marking system supports DataMatrix marking, but may also mark conventional bar codes which depend on strong, ideally black-white, contrast. Company logos, images and fonts may be marked with a greater range of options for design purposes, and the strain put on the marked piece is considerably less. Typefaces can easily be read even at low sizes. SIC Wostor also offers optical systems for the reading, evaluating and tracking of items marked with barcodes or DataMatrix, so that complete solutions for stock or complaint management can be obtained from SIC Wostor.



Laser marking technology

SIC Wostor offers two different laser systems. The system c173 L-G is designed to be a fully contained workstation with a wide array of optional extensions such as fume control and automated item positioning; yet it remains highly customisable to fit the customer's purpose. All laser security regulations are fulfilled.

The integratable system i103 L-G is well-suited for inclusion into established or planned construction environments. The marking head is designed to take up little space, and the controller unit, which also contains the laser source, can be integrated into a standard rack. Both parts of the system are conjoined by a flexible optical cable. For the purpose of integrating the system trained specialists can be provided by SIC Wostor.

Both laser marking systems are compact, require only cooling by air and need little maintenance, so that keeping numerous expensive replacement parts in stock is not a necessity.

SIC Wostor Markiersysteme GmbH – Germany
Email: info@wostor.de
Website: www.wostor.de

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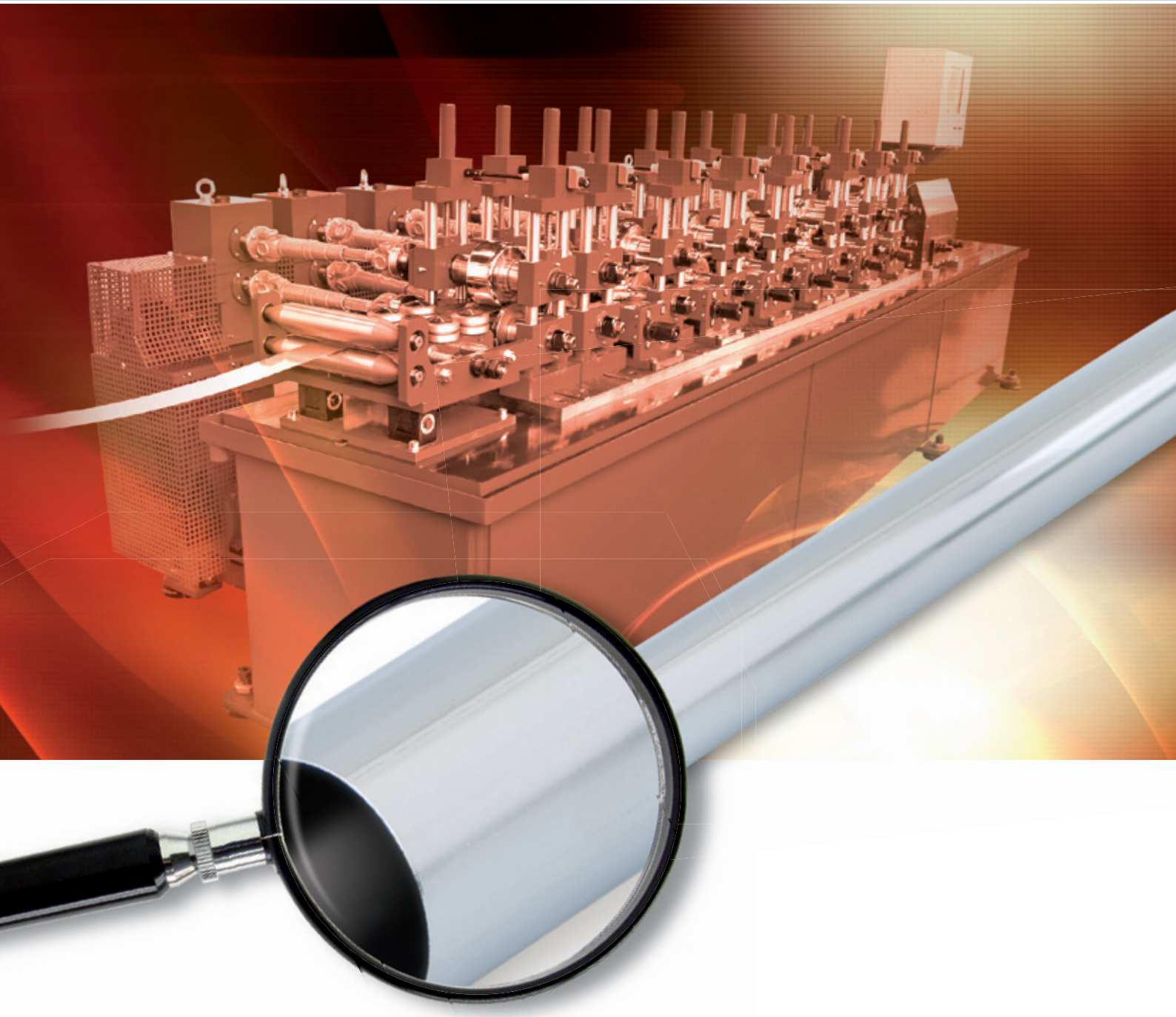

Titanium Tube Mills

Rosendahl Titanium Tube Mills are designed for high-security relevant applications. They combine highest tube quality levels, production reliability and production speed.

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Delapena's E-series demystifies honing

THE three honing machines in the Delapena E-series are adding a level of simplicity, combined with accuracy, through controllability, that has not been seen before in the area of small bore horizontal honing.

Honing has always been seen as a highly skilled, labour intensive process and one that is vulnerable to the threat of operators taking their knowledge away with them if they change jobs, or even in situations of sickness, retirement, or holidays. Removing this process vulnerability was the driving force behind Delapena Honing Equipment's decision to invest in the development of a series of machines that would help to de-skill a highly skilled process.

The resulting E-series machines have the capability to mimic the 'human touch' and automatically recreate the hands-on stroking, feathering the hone expansion, increasing speed to polish, stroking slowly to improve surface finish, that would normally be the domain of highly experienced machine operators, all at the push of a button. Not only that, they will accurately repeat the process day in and day out. Targeting small to large sized batches, the E-series honing machines produce bores ranging in diameter from 1.14mm to 120mm, with the XL version achieving bore lengths up to 1,000mm.

E-series machines, through clever use of the Siemens touch-screen control and bespoke application software, have converted what was a highly skill-based process into an engineered process. The results are machines that deliver accuracy, consistency and simplicity to what was a complex process. A key feature is the controlled honing time, which gives predictable production rates with consistent quality. Programs are stored on an external hard drive, which can be easily downloaded for secure data storage.

Delapena honing machines

The machines target a wide range of industries and applications including aerospace, nuclear, medical, automotive and defence, and are capable of producing components from the smallest batch sizes through to large volume batch sizes. The ease of changeover is achieved through a combination of the fixturing and tooling that Delapena designs and manufactures in-house for the E-series machines and the simplicity of the machine user interface.

The E-series comes in three variations, the E1000S, E2000S and E2000S-XL, and are attracting interest from customers that recognise the ability of the machines to add capacity to their operations through the automation of what was a very 'hands-on' process for medium and high volume batch sizes. In fact the operator now just has to set up the fixturing and tooling, select the correct program from the control and the machine will do the rest. The controller even features a stone wear compensation feature to ensure repeated size control across the batch of components. Other features within the control's software ensure precision cutting leading to extended tool life.

The recently developed E2000S-XL further extends the capability of the E-series providing a platform to hone bores between 6mm and 80mm diameter up to 1m in length with the ability to extend these size ranges depending on specific applications. This extended small bore precision honing machine is the first purpose-built, precision, NC controlled, long-bore, horizontal honing machine available. As with its sister machines the E2000S-XL makes use of the Siemens control to provide precise control of the honing process, including programmable stock removal rates from 0.0001mm per second.

By working closely with Siemens, Delapena has optimised the design and operation of these E-series machines in order to replicate the traditional manual inputs found on conventional honing equipment. By using the installed routines the operator can produce pre-determined small and extended diameters, control stock removal rates and monitor tool pressures, which means that the high skill levels once needed are no longer required.

Delapena Honing Equipment – UK
Website: www.delapena.co.uk


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DataLogger quality assurance tools

MCELROY has introduced the latest version of the DataLogger® series of quality assurance tools. The DataLogger 4 is a new, smaller version that records and documents key parameters of the pipe fusion process.

DataLogger devices are used to verify that the proper pipe fusion procedures have been followed prior to installation. The device consists of a rugged handheld computer for recording and navigating the data, as well as a data-collection unit that records fusion pressure over time.

McElroy's DataLogger 4 handheld unit

The DataLogger 4 has a wide range of enhancements over previous models. One of the major additions is FusionGuide™, a feature designed to give a faster visual 'go/no-go' interpretation of the graphs presented on the handheld computer and the PC after data download. A trained inspector could look at the generated graphs and determine if a fusion joint was fused with the correct pressures and times according to published standards.

Fusion technicians will also appreciate a smaller size, internal battery within the handheld computer that powers all the included DataLogger equipment, twice the screen resolution as previous models, and a coiled cord between the pressure sensor data-collection unit and the handheld computer that extends to four feet long and stores at a smaller two feet long. The pressure sensor has a 0 to 3,000 psi pressure range. Technicians will also be able to provide temperature readings using their own preference of pyrometer.

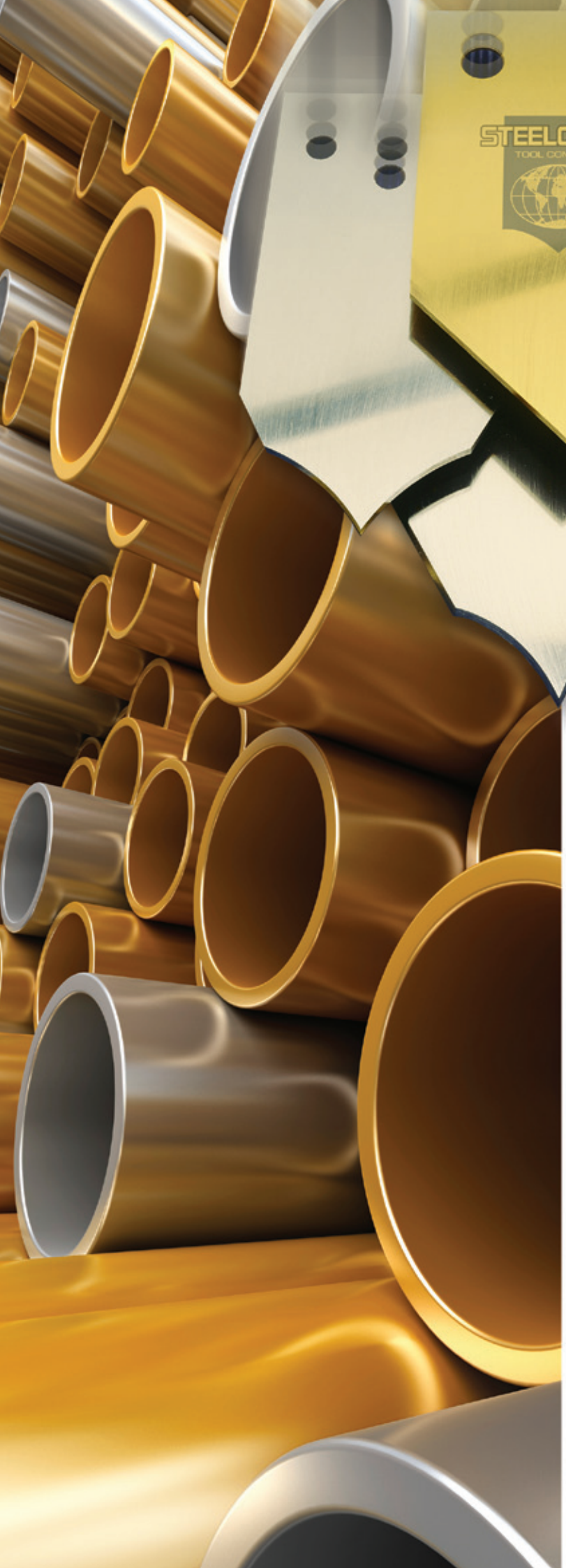
"The new DataLogger 4 is a huge step in the progression of our quality assurance tools," said Chip McElroy, president and chief executive officer of McElroy. "This DataLogger has many of the world's fusion standards built into the software. That will help more fusion technicians accurately fuse pipe to the standards chosen for their job."

Besides cosmetic improvements, the DataLogger 4 will have worldwide appeal due to the multilingual options. English, Portuguese, Spanish, Russian and Simplified Chinese are all installed and available for use with the DataLogger 4 software, and the desktop computer software also supports these languages.

The DataLogger 4 supports ASTM F2620-11, ISO 21307:2011-05, GIS/PL2-3:2006-07, Profuse, WIS 4-32-08:2002-04, DVS 2207-1 PE-HD:2005-09 and DVS 2207-11 PP:2008-08 standards. More standards could be added later through software updates.

The handheld computer is designed to be simple and versatile, using the familiar Microsoft Windows user interface to navigate the software. All of the data generated can be stored, viewed, printed or transferred from the handheld computer to a desktop computer for archiving. Transfers from the handheld computer to desktop are performed through a standard USB port and Microsoft Windows Mobile Device Center or ActiveSync. Reports can be generated in imperial or metric units.

McElroy – USA
Fax: +1 918 831 9256
Email: fusion@mcelroy.com
Website: www.mcelroy.com



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On-site cutting and bevelling

PIPE Ltd is a UK-based specialist supplier of pipework fabrication cutting and bevelling equipment.

The company is able to cater for any cutting and bevelling requirements whether cold or hot, for workshop or on-site environments.

Two of the most popular machines in its range are the split frame cutting and bevelling machines: the heavy duty steel frame "supercutter" and the light-weight alloy body "MCA Clamshell". These machines are designed for the cold cutting and bevelling of pipe, where the use of a hot cutting method is prohibited or a machined bevel is required. The split frame design enables the operator to mount the machine anywhere along a pipeline to cut and bevel the pipe simultaneously. Ideal for on-site work or in areas where there is restricted access to the pipe, due to their low profile design, once clamped on the pipe, the cut and bevel is produced by an inner rotating ring, housing cutting tools mounted in spring loaded toolboxes which follow the contour of the pipe to produce an accurate weld preparation.

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

Among the other pipeworking equipment PIPE Ltd manufactures and supplies are an extensive range of pipe jack stands and supports, pipe welding alignment clamps, and specialist pipe purging equipment.

Prestige Industrial Pipework Equipment (PIPE) Ltd – UK
Email: sales@pipe-ltd.com
Website: www.pipe-ltd.com

Precision tubing

TUBE Hollows International (THI), formerly known as Dearborn Precision Tubular Products, is demonstrating precision seamless tube hollows (otherwise known as 'starter tubes' or 'mother tubes') to the tube/tube reduction industries. The process THI uses, known as deep hole drilling or 'gundrilling', serves the seamless tube producing industries, as well as manufacturers of tubular devices and components used in applications such as medical/surgical, aerospace, oil and gas, and commercial nuclear.

Through a unique and proprietary drilling process THI is able to produce and guarantee extreme concentricity with unmatched uniform wall thickness tolerances that separate it from off-the-shelf gun-drilling equipment.

Tube Hollows International – USA
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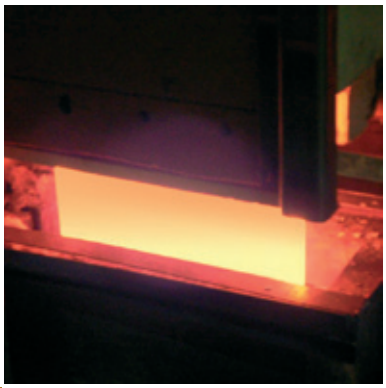

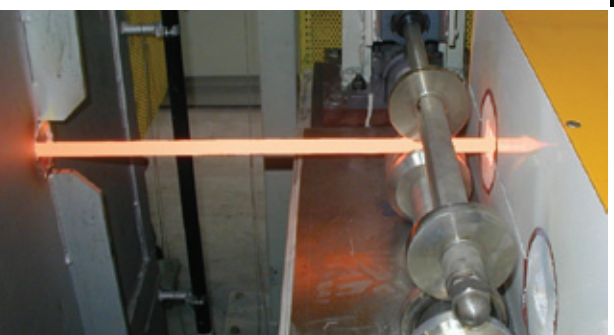

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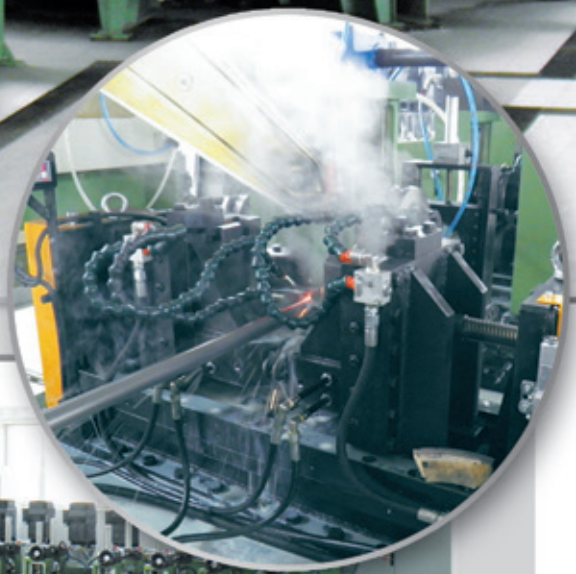

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ML30 curved tube polishing machine

THE ML30 round tube polishing machine is the ideal equipment for polishing small diameter round tubes with tight bend radius.

One of the challenges tube fabricators say they experience is not being able to automatically finish tubular components after they've been bent or end-formed. The tube's surface can get scratched or gouged as it is clamped and handled during bending. With ML planetary machines the grinding and finishing process can be applied after the tube has been bent. Actually the tube does not have to be perfectly round – with ML30 planetary machine tubes that have an irregular-shape can also be processed.

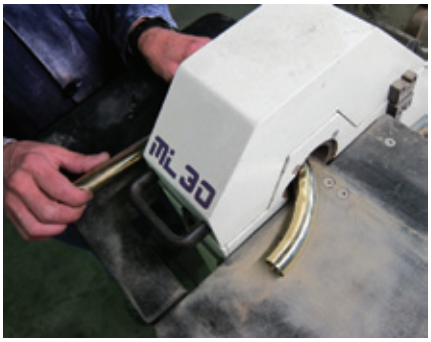
This is the case of water taps and faucets finishing, where the pipes have to be polished all around inside and outside the bend.

Kitchen and bathroom faucets often need to be chrome plated and the ML30 tube finishing machine provides a smooth surface, which will deliver a perfect chromed surface.

Company JGS, Portugal, produces water faucets for kitchens and bathrooms all made in brass. According to Mr Domingos, managing director, before having the final chromed faucet produced, finishing and polishing steps are essential to have a perfect result.

Mr Maia, responsible for the finishing and polishing division of the factory, said that before purchasing an ML30 tube finishing machine this step was done manually by an operator who worked with a stationary belt grinder. The faucet has to be turned several times in order to polish all sides and curves of the product.

With the ML30 round tube polishing machine the operator simply feeds the tube through the machine following the curves of the faucet through the planetary station. The flexibility of the planetary system enables a perfect adaptability to different types of bent tubes.



The ML30 polishing machine

This change in the faucet finishing production dramatically dropped the production time, having increased three times the production of several faucet models, explained Mr Maia. Also, as the abrasives are rotating all around the tube, the finishing is always consistent, which becomes evident after chrome plating the faucets.

NS – Maquinas Industriais Lda – Portugal
Email: info@nsmaquinas.pt
Website: www.nsmachines.com

Stream finishing machine

THE SF-5 stream finishing machine is the latest product from Otec, and is designed to produce perfect surfaces through edge rounding, polishing, de-burring and smoothing, with high precision, and with finishing times of as little as 3 to 4 seconds for a single workpiece (eg for edge rounding).

Otec is constantly striving to find better solutions for the surface finishing of workpieces, both from the point of view of performance and in terms of cost-effectiveness.

A key feature of the new machine is that five workpieces can be finished at the same time and can be changed whilst the process is running, making down time for loading and unloading unnecessary. The machine has five grippers that can hold items such as thread taps or carbide drills of widely varying diameters: two with diameters of over 10mm and three with diameters of less than 10mm. Workpieces with diameters ranging from 2 to 20mm and with lengths of up to 350mm can be inserted.

The SF-5 stream finishing machine

The pneumatically operated three-finger grippers 'know' everything: the depth to which each workpiece needs to be immersed, the speed and the right processing time. When the job is done, they move the workpiece into the changeover position.

A further technological advance is the use of purging air. This serves to prevent the cooling lubricant holes from becoming clogged during the rounding of cutting edges. With Otec's patented process, air is blasted through at a pressure of 1.5 bar when the workpiece is immersed in the medium. The pressure is then reduced to 0.5 bar during the process and briefly increased again to 1.5 bar when the process is complete.

With the standard version of the SF-5, the only manual operation (as per process definition) is the loading and unloading of the individual workpieces. When linked to a robot, even this task is dispensed with. This second component therefore transforms the SF-5 into a fully automatic system.

The robot picks up the tools from marked pallets and in doing so receives all the data needed for inserting them into the gripper, as well as the data needed for the respective process, such as immersion depth, speed and the processing time that must elapse before the changeover position is reached, from which the robot then collects the items concerned and sets them down again correctly.

Typical applications for these machines include the edge rounding and polishing of drills and carbide cutters, the polishing of drill bodies and the de-burring and rounding of thread taps.

Otec Präzisionsfinish GmbH – Germany
Fax: +49 7082 4911 29
Email: info@otec.de
Website: www.otec.de

Combined sawing and chamfering

RAVNI Technologies has developed a combined sawing and chamfering machine. The main characteristic of the line is the flexible process on a small range: 13m long distributor; Ø from 0.8 to 45mm (0.032" to 1.8"); thickness from 0.5 to 5mm (0.02" to 0.2"); cutting from 30 to 8,000mm long (1" to 26ft); and length accuracy ±0.5mm (0.02"). The line also features a high production rate: one 6.5m (21.5ft) long bar with both ends chamfered and faced is produced every eight seconds.

The working processes include HSS slitting saw module; chamfering internal, external and face, on the same station; blasting station to remove chips; control station; and touch panel screen from Siemens.

Ravni Technologies – France
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Website: www.ravni.com

New features for collaring machine

T-DRILL has added several new features to its S-54 collaring machine, making it even more flexible to use in automotive, air conditioning, refrigeration or cooling applications.

With the addition of integrated tooling and new programming, the machine can perform three different operations in one set-up, with one tool: drilling only; pulling a collar; or pulling and trimming a collar. This provides more flexibility in production without additional machinery.

Another recent innovation from T-Drill is the re-designed versions of its manual and automatic feed tables (MFT/AFT). These feed table options are modular in construction and can be adapted to existing S-54 collaring machines. As production requirements increase, the manual version can be upgraded to an automatic version by adding the necessary modules and automation components.

The manual feed table is simple, safe and easy to operate. Standard modules are available for 1,500, 2,500, 2,500 and 4,500mm-long tubes. Tailored feed table sizes are possible for up to 6.5m-long tubes. In some cases, it is possible to handle complex bent tubes with the MFT system.

With the standard MFT it is possible to make the positioning of collars on the whole tube length by using three selectable pre-drilled templates or using the pneumatic brake by foot pedal. As an option there is a digital positioning device with a display. This is convenient when manufacturing a wide variety of products instead of long series of similar items. It is also possible to use the most typical method, namely marking locations on the tube. For this purpose there is a laser pointer that can be obtained as an option.

In addition to the accurate location of collars along the length of the tube, the tube can be rotated at standard intervals of 15°. Any degree interval is possible through the use of a different template, and it is easy and quick to change templates when needed. Since chips are generated during the collaring process, a chip tray has been incorporated into the system for the easy removal of material, which can then be recycled.

The new Automatic Feed Table (AFT) has been designed around two concepts: high production capacity, and a system that is easy to understand, efficient to operate, ergonomic and safe.

This fully automatic servo controlled system is also equipped with new state-of-the art T-Drill ProUser Interface for an elegant programming solution. Using a touch-screen for input, the T-Drill ProUser Interface provides on-screen prompts to guide the operator through the programming process. Even complicated manifolds can be programmed in minutes, and they can be stored as templates to be modified later or completely re-written.

T-Drill Oy – Finland
Fax: +358 6 4753 300
Email: sales@t-drill.fi
Website: www.t-drill.com

Forklift range for tube handling

MEMBERS of one of Germany's leading wholesale plumbing suppliers, the GC Group, are benefiting from the 4-way abilities of the Combilift forklift range to handle tubes, pipes and metal materials at a number of locations across the country.

Hamburg-based Hermann Stitz & Co KG recently extended its range and added a new building to the existing storage facilities to cope with the increase in volume, bringing the total warehousing area to over 31.000m². This larger footprint also brought with it the need to rationalise storage to make it as efficient as possible.

Operations manager Dirk Ehler explained: "When we started the expansion programme we realised that we needed to find an efficient method of transporting our long and heavy loads in very narrow aisles and lifting them to a height of 6 to 7m. We also ideally wanted indoor and outdoor capability."

Previous methods for handling the company's steel and plastic tubes and pipes, which range in length from 5 to 12m, involved counterbalance forklifts, mobile outdoor cranes and indoor overhead cranes. None of these complied with the wish to save space nor did they meet the need for speedier handling. The company was new to Combilift's 4-way concept, but after having tested a machine it became evident that this was the way forward.

Two models were chosen from the Irish manufacturer's wide range to suit the operational requirements: a 2.5 ton capacity electric powered Combi-CB and a heavier duty, 4.5 ton diesel C4500. The multi-directional capability of the forklifts enabled new cantilever racking to replace block stacking outside, resulting in a substantial increase in storage capacity. The manoeuvrability of the compact CB also facilitated a new racking configuration in the undercover storage area, again optimising space utilisation.

The versatility of both models to operate inside and out has made them invaluable acquisitions according to Mr Ehler. In practice the smaller counterbalance design CB tends to be based inside whilst the C4500 works mainly in the outside storage area. This machine was also fitted with a spreader bar to ease the handling of the longest 12m products. Olaf Mielke, facility manager, is impressed with its performance. "It is a robust, strong workhorse and is also extremely economical to run. When I get the fuel bills for the truck I am constantly amazed at how little diesel it consumes. It effortlessly lifts over 4 tons, and with no noticeable increase in rev. speed you would hardly think it is handling such heavy loads. As with our electric Combilift, it is also capable of loading and offloading from HGVs, is perfect for our requirements and both performance and value for money are spot on."

Combilift – Ireland
Email: info@combilift.com
Website: www.combilift.com

Blast and wash systems

VIKING Blast & Wash Systems announces the release of its newly redesigned tumble belt blast machine in the fleet of Industrial blast machines – the 3-cubic foot, model 300. The latest version incorporates changes that make it a more efficient blast mill by lowering operating costs. The increased options lineup makes the 300 a more versatile machine providing wider applications to the many industries served.

This new 300 has a smaller footprint by the integration of the media lift system and the elimination of the auger which lowers overall maintenance cost and improves component accessibility.

The unique repositioning of the 10-HP VKPowerMax series blast wheel optimises the blast pattern to make most efficient use of wheel performance. The drum heads and side liners are manganese alloy as standard and easily serviced. Other optional features are a vertical pneumatic access door, rotary scalping drum for removing debris from blast media and an auxiliary abrasive hopper. Front bucket loaders and custom unloading conveyors are common options for the 300.

Viking – USA
Email: sales@vikingcorporation.com
Website: www.vikingcorporation.com

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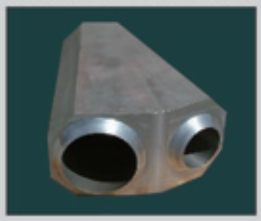

Hebei Wenlong Pipeline Equipment Co.,Ltd

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website:www.tenghaope.cn http://tenghao.en.alibaba.com

Dry launch cleaning system

THE Ultra Clean System from Ultra Clean Technologies is a patented dry launch cleaning system that uses a gun-like pneumatic launcher to shoot a foam projectile through a tube or tube assembly, eliminating residual lubricant leftover from the drawing process, and/or particles left behind during the cutting, bending, de-burring and flaring processes that occur during assembly fabrication.

The company says that the system has surprised tube manufacturers by proving to remove contaminants from an apparently 'clean' tube or pipe. Contaminants unseen inside the tube are picked up by an Ultra Clean projectile and are plainly visible on its surface.

The system is claimed to be quicker, easier and cleaner to use than traditional flushing and other methods of pipe and tube contamination control.

A variety of launcher attachments and projectile sizes and types, including abrasive surface projectiles, are available to fit the requirements of all carbon, stainless steel and copper tubing. The system works equally well with cold and hot draw processes.

The company states that tube mills, in particular, are benefitting greatly in using the Ultra Clean System because it accommodates varied drawing processes and tube sizes and styles. The system is used throughout the drawing process, then again one final time to ensure no contamination is left behind before capping and shipping.

The Ultra Clean System Hand-Held Launcher

AutoLoader for volume production

In addition to hand-held and bench mount launchers for cleaning single units, Ultra Clean offers the AutoLoader for volume production. The AutoLoader allows full automation of the cleaning process and is equipped with a projectile verification system (PVS) that counts and captures projectiles to ensure they have been dispelled. The PVS is also available separately for use with hand-held and bench mount launchers.

Ultra Clean Technologies – USA
Email: sales@ultracleantech
Website: www.ultracleantech.com

Pipe mill equipment

UNIWELD Maschinenbau is one of the leading pipe mill equipment manufacturers in Germany. Its production solutions are customised and provide optimised manufacturing procedures in order to guarantee the highest quality for the final product. In the sector of pipe production equipment, the company has introduced machines such as multi wire submerged arc welding equipment, pipe end bevelling machines, hydrotesters for pipes and valves and complete handling systems for ultrasonic and x-ray testing equipment.

There are many possibilities of application for special purpose machines, including tube panel welding and bending machines, induction pipe bending machines, windmill tower and lamppost fabrication equipment as well as manufacturing of pressure vessels and standard welding appliances, such as 250 ton positioners and 800 ton automatic anti-drift rotators. Apart from special purpose machines, the company is also able to offer complete production lines, incorporating fully integrated robotic welding cells and transfer lines for boiler fabrication, as supplied in 2008/2009 to one of the leading European boiler manufacturers.

Tube mill equipment from Uniweld

The expertise of traditional manufacturing and the development of modern technologies is the ideal fundament to offer a broad range of solutions for customers on an international level. The reduction of manufacturing costs to a minimum is essential to survive in today's marketplace. Uniweld Maschinenbau offers such cost effective production solutions by optimised utilisation of automation techniques.

From 2005 to 2011 the company received several orders to construct such systems for customers all over the world.

From the first analysis of the initial problem over the design to the final manufacturing of the customised product every step is realised by the specialists of Uniweld Maschinenbau, which comprises a staff of 50 co-workers in Germany and another of 100 in the company's Croatian production site.

Uniweld Maschinenbau – Germany
Email:
juenger.thomas@uniweld-group.com
Website: www.uniweld.de

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Through continued investments in technology and innovation, Oto Mills has become the only manufacturer in the world capable of producing tube mills with a complete range from 4.75mm to 660mm outside diameter.
The creation of a more complete package of products and services for customers by offering lift trucks and stackers from 16 to 52 tons and the acquisitions of excellent companies has driven the reconfiguration of the corporate structure while maintaining the original values and corporate philosophy that has led Oto Mills for many successful years.

Since September 2011 OTO S.p.A. has assumed the role of parent company containing three business units and one 100% owned subsidiary: OTO Mills manufacturing Tube Mills Lines, OTO Lift Trucks producing Forklift Trucks, OTO Steel, the Motteggiana plant, which produces welded structures and OTO Automation Srl the former Elletre S.r.L. of Sovizzo (VI) which is completely owned by OTO S.p.A.

With more than 300 employees, a total area of 85.000 square meters of which 36.000 square meters is covered, with products completely made in Italy, OTO S.p.A. continues to consolidate and develop its own know-how over time.
Transforming and adapting to the requirements of the market, OTO S.p.A. is offering itself to customers as a partner of great reliability, excellence and innovation with the aim of making history together.

OTO® mills OTO® lift trucks OTO® steel OTO® automation

100%-owned subsidiary of OTO S.p.A.

Headquarter:
OTO S.P.A.
Via D. Marchesi, 4
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info@otoautomation.com
www.otoautomation.com

High-precision circular saws

ROHBI Tech AG can meet all requirements when cutting large quantities of materials with small diameters starting with a length tolerance of ±0.02mm.

Rohbi-automatic circular saws are built using a component system that allows them to be custom built to the customer's needs and requests. Materials like steel, stainless steel, titanium, alloys, aluminium and most plastics can be cut easily.

At the heart of a Rohbi-automatic circular saw is a high-precision spindle on which a thin solid carbide blade (starting from 0.4mm thickness) is mounted. The sawhead feeding is driven by an AC-servo motor and a ball to allow different feeding speeds within one operation.

For smaller batches, a programmable material feeding length is available without any influence on the length accuracy. Different material handling devices for vertical, horizontal or bundle loading magazines as well as unloading and interlinking are available.

Typical applications for Rohbi high-precision circular saws include: tubes for injection, brakes and general vehicle lines; hydraulic tubes and cooling systems for the automotive industries; tubes for injection needles, bone nails, implants and endoscopes for medical and dental industries; and temperature sensors for household apparatus.

Rohbi Tech AG – Switzerland
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Website: www.rohbitech.com

Horizontal bandsawing machines

BEHRINGER Saws Inc is a leading manufacturer of heavy-duty, high performance horizontal bandsawing machines, plate saws and power hacksaws. Behringer offers cost effective, easy-to-operate, superior saws designed to cut ferrous and non-ferrous solids, tubes, profiles and plates. Behringer provides a wide variety of world-class quality semi-automatic and automatic bandsaws, circular cold saws and material-handling systems designed to increase production, accuracy and profitability. These products are sold to job shops, corporations, service centres and manufacturers throughout the world.

With more than 85 years of experience in metal saw manufacturing, Behringer has positioned itself as the technological leader in the industry. This, coupled with the synergistic manufacturing capabilities, commitment to excellence, and a mindset of not taking shortcuts, keeps it on the forefront of quality.

Behringer – USA
Website: www.behringer.com

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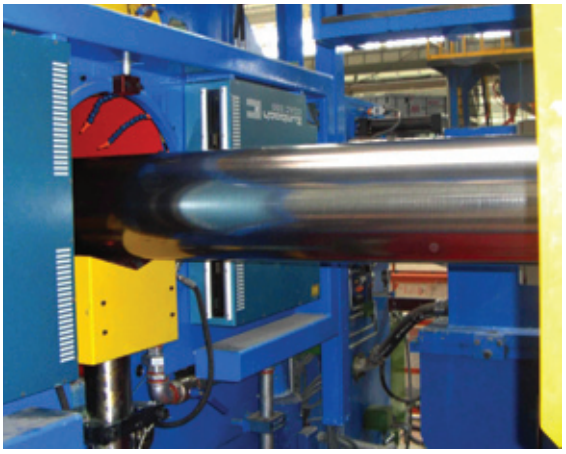
Large field scanners for diameter control in cold processes

ZUMBACH Electronic, Switzerland, has extended its range of ODAC® laser scanners for non-contact inline diameter measurement for large size solutions.



ODAC 550 installed on the biggest peeling machine in the world
(photograph courtesy of Landgraf, Italy)

With the ODAC 550 it is now possible to measure large steel bars, tubes and rolls up to 500mm or more at accuracies of a few metric microns and rates of up to 2,000 measurements/s. Other materials, such as titanium, brass, alloys and plastic, work as well.

This was made possible by the development of a revolutionary optical scanning technique with a highly parallel and seamless measuring field (no dead zone). The technology also allows mounting emitter and receiver far apart from each other, depending on the available space conditions. Typical processes where the system offers new solutions are peeling, grinding, polishing and straightening, as well as in quality control lines (NDT).

The dimensional data for diameter, ovality, etc, can be fed directly to the user's network or displayed in real-time for the operator by USYS processors, and also for feedback to the machine. Complete accessories like secondary protection enclosures, cooling devices, air purging and air knives are available for heavy-duty environments.

Zumbach Electronic AG – Switzerland
Fax: +41 32 356 04 30
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Website: www.zumbach.com

Flying cold saw installed

THERMATOOL Corp has announced the installation of a CS-090 flying cold saw with supplementary material handling equipment for Jaytec, LLC.

Located in Milan, Michigan, USA, Jaytec specialises in round, square and rectangular HF induction welded metallurgical tubing. The company is a top tier supplier for assemblies of instrument panels, seating, side impact beams and structural support for the automotive industry. It also produces rack and frame components for ATVs, structural tubing for tractors, tubular chassis frames for golf carts, snowmobile frames, and trailer hitches. In addition, Jaytec serves in the conveyor, material handling, and recreational vehicles industries.

Jaytec's newly commissioned CS-090 flying saw retains much of the functionality and features of Thermatool's larger CS2-170 cold saw, allowing it to handle the high demands of heavy gauge and high strength tube cutting in a small footprint. It is capable of cutting a wide range of materials from 0.5" to 4" OD product and up to 0.25" wall thickness.

This CS-090 cold saw was custom built for Jaytec to fit the company's needs of cutting up to 4" OD 115ksi UTS carbon steel and stainless steel tube at competitive speeds, adding more versatility to its mill. The Jaytec CS-090 cold saw is capable of cutting 20ft lengths at 270ft/min, and 40ft lengths at 350ft/min. It is equipped with hydraulic clamping to ensure proper tube support, reducing vibration, and preventing blade drag and pinching, which results in longer blade life and lower operational costs.

Like other Thermatool flying saws, Jaytec's CS-090 has programmable feed rates to control the tooth load and plunge speeds, resulting in greater cut quality, precision, and increased blade life. The CS-090 blade, powered by a 40HP servo blade motor, is driven through the product via a servo controlled ball screw for accurate and repeatable blade motion to improve cut quality and reduce cut time.

The precision offered by the CS-090 cold saw helps Jaytec meet the stringent cut quality and length specifications of the automotive industry.

The rugged one-piece base of the CS-090 cold saw was designed for stability, quick and easy installation, and possesses a sloped bed for convenient mill coolant and chip collection. To complement the saw, Jaytec purchased a compact pinch roll table to aid with the material handling process and to consistently feed the pneumatic double dump table.

Thermatool Corp – USA
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Website: www.thermatool.com

Jaytec, LLC – USA
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Website: www.jaytecllc.com

Cutting tubes with a diameter of 76mm regardless of thickness

READY-to-use solutions are only as good as their integrated process steps. Offering tailor-made concepts to clients who need their tubes to be processed means for the South-Westphalian/German solution provider transfluid that all integrated processes must document current technological progress – from semi-finished products to ready products.

High expectations, but this is the only way to guarantee the right results for special requirements. The company is therefore developing all fields in its portfolio, so that it can offer the machines that are needed.

In the further development special attention is paid to the chipless tube cutting technology. This method is highly economical when work proceeds from the coil, when chips are to be avoided in the production process or when large amounts of tubes shall be separated. "We have installed our cutting equipment over many years in automated manufacturing units and make them ready for the future," explains Gerd Nöker, CEO of transfluid. The systems are extremely powerful and convinces through amazing cutting quality independently of material and wall thickness. The software is specially programmed for optimised cutting as to ensure that almost no waste originates from the process.

Chipless cutting equipment can be individually equipped for manual loading with a tube bunker or for cutting from the coil with a straightening line. The systems provide a cutting output of max Ø30 x 3 for stainless tubes and offer a production speed of up to 1,600 pieces per hour. The shortest cutting length is 25mm without pulling apart and 55mm with pulling apart, all with a residual length of 110mm. On top of that, more machines for cutting tubes with a diameter of up to 76mm are available. Separated parts can be sorted in up to ten separate containers.

As the tubes are pulled apart when being separated, it is ensured that they will not get constricted or deformed in the joint. Any material can be processed in the way as required. Being a future-orientated solution provider, transfluid is pushing ahead the technological progress in tube cutting.

transfluid Maschinenbau GmbH – Germany
Email: info@transfluid.de
Website: www.transfluid.de

Fast, precise and versatile cutting technology

HAVEN Manufacturing Corporation's Dual-Blade cutting method utilises a three-stage cutting method.

The tube is first clamped with custom dies, which are designed to hold the material to be cut securely and establish a precise cutting angle. A specially engineered notching blade then makes a shallow scarfing cut, which is performed through a precise cutting action that penetrates the outside layer of the tube just deep enough to allow a second parting blade, in step three of the process, to enter and cut the material without the stress and potential distortion caused by the initial penetration of the material.

The total cycle time is less than one second per cut, and many Haven customers safely and reliably achieve production rates as high as 4,000 cycles per hour. Tubes can be cut to extremely precise lengths, ±0.12mm, without deflection or distortion in any manner.

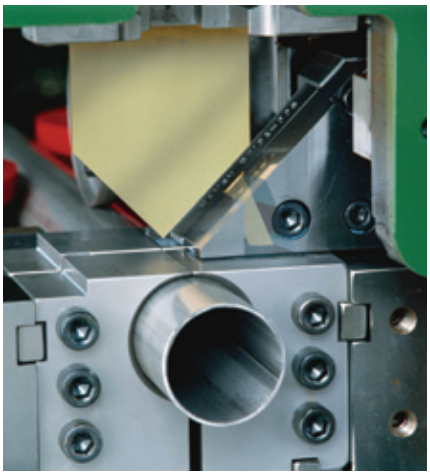
Haven developed and perfected this technology, which is currently used by thousands of manufacturers around the world. The company says that customers have found that the Dual-Blade shear cutting technology allows them to achieve the lowest total cost of operation while maintaining high production rates and minimising the time required to change tooling or to program new cut lengths. The Haven technology easily integrates with secondary chamfering or de-burring and works well on a variety of carbon steels, 400 series stainless steels, and most alloys commonly used in manufacturing.

Haven currently produces five standard Dual-Blade shear tube recut machines. Through the addition of numerous available options and features, the tube cutting technologies can be customised to nearly any tube manufacturing process. Haven has standard models that are capable of handling material as small as 3mm or as large as 127mm round (up to 95mm in square), with wall thickness from 1.5 to 4.2mm, and to cut lengths from 50 to 3,000mm (although shorter or longer lengths are available with optional modifications).

Haven's experienced designers and engineers are able to adapt, modify or design machines to fit companies' specific manufacturing needs. The company offers a full line of shearing products, including supported shear systems, cold saw systems, and laser cutting systems.

Haven Manufacturing Corporation – USA
Fax: +1 912 264 9001
Website: www.havencut.com

Haven's dual-blade technology



Innovative and growing company

HPL-Neugnadenfelder Maschinenfabrik GmbH is an international company specialised in the design and manufacture of machines and lines for the machining and processing of strips made of steel, stainless steel, coated metals, non-ferrous metals and special materials. Another focus is on modernisation and reconstruction of existing rolling mills, coil handling equipment and coil packaging lines and the contract manufacturing of single components, individual assemblies, machines and complete lines as well as the design and manufacture of customer-specific machines for the steel and metal industry and for mechanical engineering companies.

Since its foundation in 1979, hpl-Neugnadenfelder Maschinenfabrik GmbH has made a significant development and belongs today to the leading suppliers of: cold rolling mill technology; strip processing lines and associated components; strip edge trimming lines; slitting and cut-to-length lines; recoiling lines; coil packaging lines; coil handling systems; panel stackers and packaging facilities; contract manufacturing and spare parts manufacturing; and after-sales service (repairs and maintenance).

Strip edge trimming lines belong to one of the core business areas, for which an increased demand worldwide was noted throughout the year 2011. In June 2011, the contract for a completely new edge trimming line was signed at a Chinese supplier for saw blades.

hpl-Neugnadenfelder Maschinenfabrik GmbH – Germany
Website: www.hpl-neugnadenfelder.de

Recycling of composite materials

COMPOSITE materials such as metal and plastics or plastics and glass fibre composite materials are very popular: it is easy to produce lighter material-saving parts with these compound materials. The recycling of the emerging production waste has also to be taken into consideration – as well as the recycling of post-consumer parts. With the latest state-of-the-art technology from Herbold Meckesheim GmbH these materials can be sorted in a cost-effective way and recycled for reuse into homogeneous material categories with a high degree of purity. The main focus is on the purity of all resulting fractions.

Herbold Meckesheim GmbH – Germany
Website: www.herbold.com

Thickness gauge to tackle corrosion monitoring

CORDEX Instruments has launched its next-generation corrosion monitoring device, which streamlines readings gathered in the field and enables users to monitor integrity levels at specific points on an asset or pipeline.

The latest UT5000 intrinsically safe thickness gauge was unveiled at the Offshore Technology Conference in Houston.

The handheld device, which can be used for non-destructive testing to establish the extent of corrosion, boasts several updates, including intelligent measuring technology, which can record multiple readings at specific locations.

A total of nine multi-point readings can be saved against each radio frequency identification (RFID) tag on the asset or pipeline, which greatly reduces time spent in the field and increases the effectiveness and efficiency of corrosion monitoring.

The device, which provides accurate thickness readings to the nearest thousandth of an inch, uses the latest Echo-Echo technology, which has the ability to read metal thickness levels, even through a painted surface.

The UT5000, which is ATEX and IECEx certified for Ex ib IIC T4 Gb and Ex ibD IIIB T200ºC Db hazardous areas, has also achieved its dust certification and can be used in dust environments that have been assessed as having an explosion risk.

CorDEX Instruments chief executive Tony Holliday said, "Integrity and corrosion testing is becoming increasingly important for the energy industry as a significant number of assets are approaching the end of their designed life-spans.

"Failures on ageing assets and pipelines are often attributed to corrosion and defective welds, so effective inspection and maintenance is increasingly vital.

"The latest updates to the UT5000 have been made in direct response to feedback received from industry and makes the monitoring process more efficient and saves valuable time in the field. The device is pushing the boundaries in this area and can transform the way assets and pipelines are inspected, maintained and repaired."

To effectively manage and assess the information gathered by the UT5000, CorDEX offers CorDEX CONNECT™ – a software program that can be downloaded to any PC. The software uses RFID to tag every thickness measurement with a specific location, date and time, enabling trend analysis of the asset or pipeline. Engineers can use the data to easily identify trouble spots and create predictive maintenance programmes.

US sales manager Scott Lang was appointed recently as the company sees huge potential for its technologies in North America.

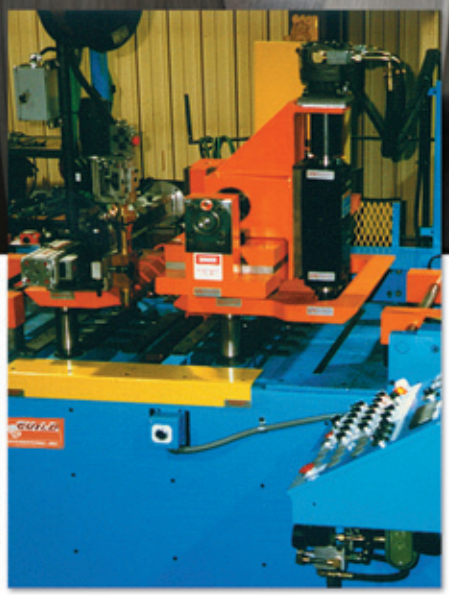
Based in North Carolina, Mr Lang, who previously worked with Lockheed-Martin as a systems engineer on NASA's Space Shuttle at Kennedy Space Center, is focused on growing business in the US and promoting CorDEX Instruments' full range of hand-held devices.

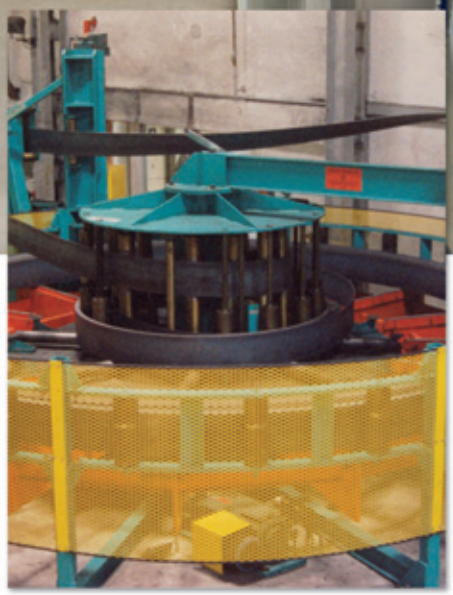
The UK-headquartered company has a network of distributers across North America, South America, Africa, Australasia, Europe, South East Asia and the Middle East.

CorDEX Instruments Ltd – UK
Fax: +44 1642 424737
Email: sales@cord-ex.com
Website: www.cordexinstruments.com

Tony Holliday, CEO of CorDEX Instruments, with the UT5000

UT5000 intrinsically safe thickness gauge





When there is no end in sight, Guild will help you make sure there are no ends.

Guild International can design and build the welding machinery you need to keep your lines up and running smoothly and profitably. We are the world leader in supplying coil joining equipment for the steel processing and tube manufacturing industries. Contact us today to keep your lines always working.

www.guildint.com GUILD INTERNATIONAL **+1.440.232.5887 USA**

Coating and thickness measuring

ELCOMETER has been developing coating thickness gauges for more than 60 years. The new Elcometer 456 digital coating thickness gauge builds on what has been learned over this time. The first Elcometer 456 was developed some 10 years ago and this new Elcometer 456 sets even higher standards for the measurement of coatings on metal substrates.

Fast, reliable and accurate, the Elcometer 456 sets high standards in coating thickness measurements. Available in a range of models for measuring dry film thickness on ferrous and non-ferrous metal substrates, the Elcometer 456 is more powerful, rugged and easier to use than before.

The Elcometer 456 gauges are available in four firmware versions, E, B, S and T, with each level providing the user with increasing functionality, from the entry level Elcometer 456E to the top of the range Elcometer 456T with memory, alpha-numeric batch identification and Bluetooth® wireless communication.

The Integral probe versions are ideal for single handed operation and the wide footprint of the Bigfoot™ probe provides stability during thickness measurement.

The Separate probe versions provide a wide range of thickness scale and probe-format options, to enhance the operational flexibility. Separate probes are fully interchangeable, with ferrous (F) versions of the gauge accepting any 456 ferrous probe and non-ferrous (N) gauges accepting any non-ferrous probe. The Dual FNF gauges accept all ferrous, non-ferrous and the dual FNF probes.

Separate probes are available as straight, right angle, mini, telescopic and PINIP™ formats and there are special formats for waterproof and high temperature probes, with large area probes for soft coatings and chemical resistance (Anodiser probes) with armoured, metal reinforced cables.

The Elcometer PINIP™ is a Plug-In probe that converts a separate into an integral gauge for maximum flexibility. There is a high temperature PINIP™ with a capability to measure on substrates up to 250°C.

Ferrous probes measure non-magnetic coatings on ferro-magnetic substrates. Non-ferrous probes measure coatings that do not conduct electricity (non-conductive coatings) on non-ferrous (non-magnetic) metal substrates. The dual FNF probes measure coatings on both ferrous and non-ferrous substrates with the type of substrate automatically detected and displayed.

Scale 1 probes have a range from 0 to 1,500µm, Scale 2 probes operate from 0 to 5mm, Scale 3 probes operate from 0 to 13mm and Scale 6 probes have a range from 0 to 25mm. The Scale 0.5 probes have a range from 0 to 500µm and are known as the Mini probes. These are ideal for edges, narrow pipe internal coatings and small surface areas, including those with difficult access.

Elcometer – UK
Email: sales@elcometer.com
Website: www.elcometer.com

Milling stainless steel


Experts in milling stainless steel

THE first plate edge milling machine exclusively for stainless steel has started up in Western Europe and is exceeding expectations under tough conditions.

Stainless steel is a hard nut to crack for milling machines. It readily clogs the cutting tool due to its toughness. The varying chemical compositions and mechanical properties of the individual types of stainless steel require completely different cutting and tension parameters to non-alloy steels; the maximum processing speed is correspondingly lower. Efficient machining of stainless steels therefore poses a significant challenge.

The Austrian manufacturerer of special purpose machines, Linsinger, has taken on this challenge – and has succeeded, as shown in practice. The first stainless steel plate edge milling machine has been successfully in use since Autumn 2011 on the premises of a leading producer of stainless steel pipes. In the longitudinal welding process, pipes for the natural gas and oil industry (petrochemical) are manufactured there.

The machine from the Linsinger PFM series ensures the optimum preparation of the welding seams on the two long sides of the stainless steel plates. The machine has a vertical plate waviness tracking function and the milling units work over the whole plate length with high precision. They particularly allow the whole milling profile to be produced in a single working step on both long sides at the same time. This is a decisive plus point for perfect welding, which should ideally be produced in one go. The cutter head must only be replaced when changing to a different profile – this exchange can also be automated.

Another advantage of the PFM is its huge flexibility: all parameters can be adapted to the different types of stainless steels. As the machine measures each plate separately, even the smallest batch sizes can be produced efficiently. Linsinger has also developed specific, multi-layer coated and particularly resistant carbide inserts with special cutting geometries for a wide range of stainless steels.

With this innovative and unique concept, Linsinger sets new standards in accuracy, speed and efficiency when machining stainless steel. The high service life and short cutting times make a contribution as well as the milling precision with correspondingly low loss of material. “Stainless steel is expensive. Savings totalling millions can result over the life cycle of the machine,” emphasised Linsinger CEO, Hans Knoll.

Linsinger – Austria
Website: www.linsinger.com

Underwater pipe cutting

HGG, a specialist in 3D profiling, has introduced a line of underwater cutting machinery. With a unique 3D steel profile plasma cutting capability, HGG's UWPC (under water pipe cutter) reduces grinding, fitting and welding time, leaving no metal slag on the inside of the pipe.

The UWPC is a pipe cutting machine specifically designed to eliminate the foundation of metal slag on the inside of pipes during the cutting process. The machine is suited for applications and sectors where such formations are undesirable or even prohibited, such as the process industry (headers, high alloy piping and synthetic piping).

Due to these restrictions, companies have been forced to explore complicated alternatives in order to create complex bevels in thick-walled pipes. Using submerged plasma cutting, the UWPC provides a high output processing method for these complex bevels.

The UWPC can be customised to suit specific requirements. An example of this is the configuration supplied to Meyer Werft in Germany, which featured ERP integration (programming/work preparation/management information system); infeed buffer-chain conveyors; pipe support (linear positioning based on data files/levelling a few millimetres above water level); three-jaw chuck (automatic chucking); Y-carriage with cutting head (hi-definition plasma); water bed (integrated chuck/automatic circulation/integrated conveyor for outfeed of parts and scrap); and operator interface.

All HGG Profiling Equipment solutions are designed to profile complex bevelled edges and 3D profiles made from steel. Combining robotics, the company's patented cutting head and proprietary software, HGG Profiling Equipment machinery enables users to cut angles from +70° to -70°.

This capability ensures optimal weld preparation for precision part alignment, which in turn reduces welding and fitting costs.

HGG Group BV – The Netherlands
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Email: sales@hgg-group.com
Website: www.hgg-group.com

Automated cleaning of shafts and tubes

SUITABLE pre-cleaning and post-cleaning is frequently necessary, particularly in cases where tubes, shafts and continuous tapes are processed in high throughput. When using a conventional washing machine, the parts often have to be taken out of the existing automation and handled separately. ph-cleantec GmbH offers with its cleaning systems a space-saving alternative that can be integrated into existing automation designs.

The basic technology is low pressure, hot cleaning devices. The high cleaning capacity of the systems is reached with hot water at a temperature of 95°C and a pressure up to 14 bar, as well as a water volume of up to 4 l/min. The capacity can be distributed to several nozzles and therefore reduced to approximately 3 bar per nozzle. This low pressure makes sure that there are no splash back effects and therefore the system does not need a special housing.

The components can be brought into the cleaning station by simple – mostly existing – transport systems, and after cleaning they go into the further processing steps. The virtual cleaning cell is very compact, depending on the parts geometry. Integration into automation is effected by simple control engineering. Alternatively, a robot can perform the handling of the parts or nozzles, allowing the cleaning technology to be integrated into existing automation systems.

The used water is cleaned by a special sedimentation method and operated in circulation. The company summaries the advantages for the user as: simple concept that assures a manageable investment and permits a fast realisation; a compact system that could be integrated without problems into the existing layout; full integration into the existing parts transport system; water recycling via circulating automatic system with waste water filtration; and the water jet does not splash back, so an expensive housing is not necessary.

The low pressure, hot cleaning systems can be used in industrial production as mobile plants for different tasks. Starting with small series cleaning (without automation) over large components and tasks in maintenance, up to machine cleaning, the devices are all-rounders.

They also protect the health of the operator and the environment due to the chemical-free cleaning method.

ph-cleantec GmbH – Germany
Email: info@ph-cleantec.de
Website: www.ph-cleantec.de

(EFFICIENCY)M

3D FABRI GEAR Mk II series

Automatic 3D laser cutting for long, heavy tube & profile

The 3D FABRI GEAR Mk II series provides highly accurate angle cutting of almost any profile shape. Giving an excellent fit in joint connections between tubes, this allows for significant reductions in welding and assembly time.

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www.mazak.eu

Mazak
Your Partner for Innovation

Metal cutting band saws for all operations

PEDDINGHAUS Corporation, a leading provider of innovative machine tool technology for structural steel and plate fabrication, offers a wide range of Eco-Line band saws for cutting of steel. It claims the heroes of any shop are band saws such as the 410 DGA and the 320 G-HSS, as they are quick, efficient and take up minimal footprint.

Peddinghaus specifically developed the Eco-Line steel band sawing machines to meet the needs of daily production requirements. These patented Peddinghaus band saws offer an economical solution while providing the superior cutting performance that Peddinghaus band saws are known for.

As with all Peddinghaus products, the Eco-Line band saws were developed with the user's needs in mind. These saws can cut at 30°, 45°, 90° and 135° angles. Offering a full range of capabilities, the Eco-Line band saws facilitate the integration of straight and mitre cuts into the section size.

"These saws truly are a saviour in any shop," Lyle Menke, vice-president of Peddinghaus, said. "They get the job done quickly, without occupying a large footprint or sacrificing versatility and accuracy."

These heavy-duty saws with a patented mitre system are packed with features to fit the needs of day-to-day use. This line that is best suited for cutting material with different cross-sections and frequent change of straight mitre cuts. The swivel of the saw head remains the same for each mitrecut above the intersection of the saw blade, and fixed vice so that there is a datum measuring point that does not change, resulting in no material loss. The saws offer plenty of power and will provide years of trouble-free operation.

The 320G-HSS model delivers fast and efficient mitre sawing economically. The 320G-HSS saws up to 305mm (12") high, and 495mm (19.5") wide at 90°, with a 178mm (7") high, and 178mm (7") wide capacity up to 60°.

The 320 Series band saws are designed and manufactured for lighter duty operations. However, like their counterparts, the 320 models are built with the same rugged performance components. This saw is capable and ready for cutting tasks associated with beams, columns, tubing, pipe, angle, channel, round and square stock.

The production minded 410 DGA 2300 is ideally suited for streamlined orientated manufacturing, steel stocking centres and fabrication shop production. This automated saw delivers CNC accuracy and repeatability up to 410mm (16") high and 698.5mm (27.5") wide at 90° as well as 400mm (16") high and 317.5mm (12.5") wide up to 60°.

Peddinghaus takes pride in the accuracy of its machines. Regardless as to what project the customer is using the machine for it upholds a strict standard when it comes to the precision of its machines. What is important to its customers is important to it, and the company added that it was proud to see its customers succeed with the help of its equipment.

Peddinghaus Corporation – USA
Website: www.peddinghaus.com

Portable 3D laser tracker

WITH the latest firmware update, Hexagon Metrology has improved the usability of the Leica Absolute Tracker AT401, which now features a full speed digital read out (DRO) for dynamic laser tracker measurement processes and free-form surface inspection.

The updated AT401 can perform measurements without a warm-up period. This allows the operator to switch the system on directly out of the box and start measuring within seconds. The 1.1 firmware also includes such specialised features as 'Outdoor Mode', which enhances the system's performance when using it in adverse conditions like rain or snow.

Enhancements also include the use of several reflectors in view of the sensor at the same time. The built in Wi-Fi on the AT401 can now be used in a company's encrypted Wi-Fi infrastructure, even with several sensors in the same network. The 1.1 firmware further facilitates the user compensation of the sensor, making an already simple task even easier.

All new Leica Absolute Tracker AT401s are already shipping with version 1.1 on board. However, existing AT401s can be easily updated to take advantage of the new functionality. No advanced knowledge is needed to update a system: simply drag and drop the update file into the TrackerPilot and the rest is handled automatically.

Existing AT401 users can download the new firmware from the Leica Geosystems website.

Hexagon Metrology is part of the Hexagon AB Group and includes leading metrology brands such as Brown & Sharpe, Cognitens, DEA, Leica Geosystems (Metrology Division), Leitz, m&h Inprocess Messtechnik, Optiv, PC-DMIS, QUINDOS, ROMER and TESA. The company's offering of machines, systems and software is complemented by a wide range of product support, aftermarket and value-added services.

Leica Geosystems Metrology produces a broad array of control and industrial measurement products, including laser trackers, local positioning technology (LPT) based systems, hand-held scanners, 3D software and high-precision total stations.

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AT401 portable tracker

Control in composite pipes production lines

A MEASURING device can be very progressive and precise: with just its integration in the production line it does not provide hose and tube manufacturers with decisive advantages. Only when it directly controls the process can the production be managed. The following example shows the different control methods in composite pipe extrusion lines.

Composite pipes are made of an inner PE-tube, on which a thin aluminium layer is applied, covered by an additional outer PE-layer. The plastic layers are each connected with the aluminium by an adhesive layer. With an X-ray measuring system like the X-Ray 6000, the inner and outer diameter as well as the wall thickness of the single layers of the composite pipe can be measured and controlled. Moreover, faults in the inner tube can be detected.

The improvement of the production process is nowadays possible with an automatic control of the line without intervention of the operator. From the setpoint-actual value difference of the diameter respectively the wall thickness the correcting variable is continuously calculated by a control module and directly transferred to the line control, for example via a Profibus interface. The correcting variable considers the product specific minimum values, the eccentricity and statistical data. This method is the most modern type of control because control parameters are directly transmitted to the line control via the Profibus interface.

Not every line can be controlled in this advanced manner. There are many lines with direct current drives. These usually work with a 0 to 10 volt signal. 0 means standstill of the line, 10 volt maximum line speed or extruder rpm. Both variables can be controlled alternatively continuously with highest precision to the nominal value. The specification of tolerance limits is not required.

Rarely, we find contact controls (motor potentiometer). For this type of control the operator has two buttons to run the line faster or slower. Via the buttons motor potentiometers are controlled. Later, the buttons were replaced by contacts of a control module. This, in the 80s modern control, worked discontinuously and required that a tolerance band was accepted with no intervention in the control.

There was always the question of a hot or cold value control. If the hot diameter measured and controlled, the material shrinkage is an unknown variable. The difficulty is that not the complete diameter is shrinking, but only the outer PE-layer. That is why the specification of a fixed percentage shrinking value is not a solution. Depending on the product type a separately calculated shrinking value has to be considered.

Alternatively to the hot value control a control from the cold end is possible with limitations. For processes that run with low line speeds this method is less suitable as the feedback about product parameters is only late as a result of the time delay.

During the early 1990s Sikora launched a Hot-Cold-Control. This at that time patented method that combined the advantages of the fast measurement and control of the hot value control with the product dimensions, which are relevant for the end customer, namely the cold measuring values. From the hot/cold value difference the material shrinkage is continuously calculated and is automatically considered for the control of the diameter. Due to specific line configurations or product structure it is not always possible to install a measuring system directly after the extruder. For these applications a software concept with a virtual hot gauge head is used, which learns the control behaviour of the line and conducts the hot/cold control by means of calculations without a hot measuring head.

With regard to the diameter and wall thickness the line speed or the extruder rpm are controlled. As there are often reservations that, with an extruder control, the thermal balance is disturbed, hose and tube manufacturers prefer line speed control if the line is equipped with only one extruder. However, for tandem lines the control of the extruder rpm is typical.

Today online control of the line is an industry standard. Whereas in the past quality assurance at the end of the production process and the offline storage of production data were in focus, material saving and increase of productivity of the line becomes increasingly important.

Sikora AG – Germany
Email: sales@sikora.net
Website: www.sikora.net

The X-ray measuring system X-Ray 6000 measures the wall thickness, eccentricity and the inner and outer diameter

The tube & pipe mill installation history of Fives Bronx – formerly known as Abbey International – in the OTC global marketplace is unmatched. With the Abbey Technology and it's long history of small to large mill installations in almost every corner of the globe, Fives Bronx boasts the largest O.D. range in the industry – up to 914MM (36") O.D. Fives Bronx engineers have developed mill innovations like our patented Quick Change technology for changeovers in as little as 15 minutes. The system can be retrofitted and reduces downtime, improving overall production efficiency while reducing costs. In addition to Tube & Pipe Mills, Fives Bronx manufactures Entry Systems, Rotary Cutoffs, Draw Benches and Slitting lines.

fivesbronx

www.fivesgroup.com/fivesbronx

Mill Solutions

Steel pipes cut and manufactured

WITHIN the Knauf Interfer Group is Interfer in Voerde in the Lower Rhein area, an expert in the manufacturing of seamless boiler and welded steel tubes.

When entering the production hall measuring nearly one kilometre two fully automated band saw cutting machines from Behringer GmbH Kirchardt are responsible for the cutting of all standard diameters and wall thicknesses quickly, precisely and reliably.

"The Behringer machines operate nearly fully automatically, non-stop round-the-clock in our three shift working model," stated Mr Werner Peters, the plant manager. "We have to be able to rely on our machines completely and this was one of the main reasons which led us to buy these sawing machines with their wide range of matured accessories."

"Up till now our saws have been too people and time-intensive. What previously had to be positioned by hand can now be carried out by the program-controlled machine allowing the machine to run problem-free throughout the night," explains Mr Peters. During the late shift the machine is programmed to run smoothly at night. But also in the late shift the time saving advantages are clear to see. In the mean time the employees know exactly how long the machine can run without supervision and when it is necessary to refill the machine. The employees are then free to tackle other tasks.

"The initial investment in the extensive automation has really been worth it," said Mr Peters. "With a monthly throughput of up to 2,000 tons, the large band saw machine HB800-1201A and the high-powered band saw machine HBM540A have got their work cut out for them. The blades normally have to cope with steel tubes of different qualities and a tensile strength of up to 750N/mm^2. The tubes and rings produced by 'Rohrunion Knauf' are implemented in many different fields, stretching from the transportation of gases and water, to ship construction and crane construction, engine and steel construction, power plants and boiler construction, the chemical industry, apparatus construction and plant construction."

The plant at Voerde specialises in the production of seamless and welded tubes, steel pipes, precision steel tubes, high pressure lines, threaded tubes, boiler tubes, profile tubes and structural hollow sections.

As a result of the wide cutting range of the large band saw, tubes with an exterior diameter of up to 800mm can be cut. It is therefore capable of dealing with the largest available dimensions of seamless rolled tubes on the market.

The feed gripper can handle round material ranging from 30mm and has a clamping range of 1,000mm in width and 800mm in height. The machine is equipped with a bundle clamping device for the economic cutting of a number of tubes in one position or bundles of tubes. The maximum height of the bundles depends on the height of the drive wheel.

The large band saw can be used in connection with bi-metal band saw blades as well as with carbide saw blades.

Behringer GmbH – Germany
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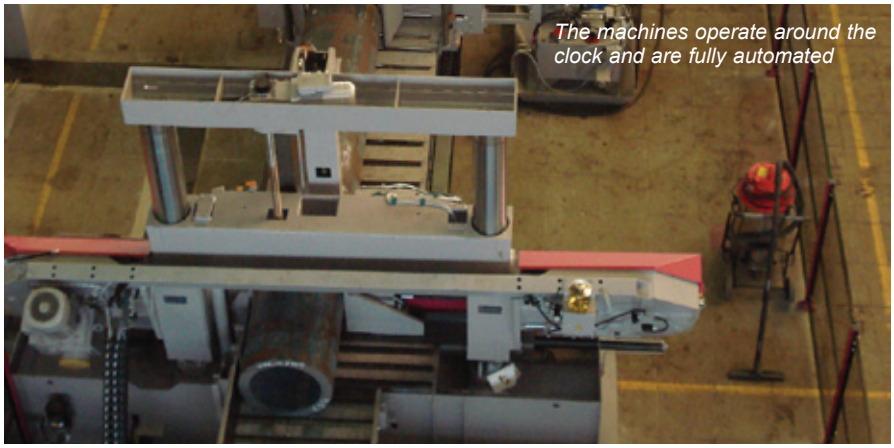

The machines operate around the clock and are fully automated

Vestolen A Rely for high performance HDPE pipes

SABIC's latest Vestolen A Rely bimodal high density polyethylene grades are able to meet stringent requirements for typical pressure pipes, as well as providing energy savings when producing the pipe.

Two grades of SABIC Vestolen A Rely are currently available, both typically suitable for producing pressure pipe that meets the PE 100 standard. Vestolen A Rely 5924R delivers good low sag performance for large-diameter pipes and pressure pipes with a low standard dimension ratio (SDR).

Vestolen A Rely 5922R helps customers meet the stringent slow crack growth requirements for pressure pipe, according to PAS (Publicly Accessible Standard) 1075.

Certification to PAS 1075 enables the grade to be used for pipes intended for installation using the most demanding techniques, including new trenchless methods such as guided boring and horizontal directional drilling.

These methods have a reduced impact on the environment, but they are more demanding of pipe properties, since surface damage during the installation process is more likely to occur.

Apart from their good mechanical properties, 5924R and 5922R have unique rheological and morphological properties, created through a combination of proprietary catalysts and fine-tuned reactor and extrusion technology, that can provide processors with considerable energy savings.

According to Jean Engels, business manager for HDPE at SABIC, processors will be able to make savings: "So, for example, a company already operating a line at full capacity could be able to increase output by as much as 1 per cent (compared with commonly used bimodal HDPE) while reducing electricity consumption. On the other hand, a pipe producer that does not need to raise production can realise energy savings by running at the same speed. Pipe size will also play a part in determining exactly how big the savings are."

Vestolen A Rely grades are currently available in black. For customers requiring fully coloured pipe, SABIC is working on the development of two coloured grades possessing enhanced resistance to slow crack growth propagation, to be commercially available in 2013.

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Hydraulic cylinders reconditioned efficiently

USA-based Air Hydro Power has acquired a Sunnen HTA horizontal tube hone to repair and recondition hydraulic cylinders. The tube hone allows Air Hydro to bring previously farmed honing work back in-house, helping it regain control of job turnaround times and save costs.

Air Hydro Power's repair division services and repairs all brands of industrial and mobile hydraulic pumps, motors, valves and cylinders. Work in the repair shop is primarily focused on refurbishing steel hydraulic cylinders used in construction equipment, material handling equipment (forklift trucks, telehandlers, and lift-gates) and heavy industry (cranes, oil rigs, off-road vehicles).

When Air Hydro Power's Perry Goldstein assumed leadership of the repair division in 2007, in-house honing capability consisted of hand honing with a half-inch chuck Milwaukee drill. "Hand honing was physically demanding and a little tricky," said Mr Goldstein, Air Hydro's director of value added services. "If someone accidentally hit the reverse switch while adjusting the hone, the stones would bite the tube and rotate the drill, which is not good if you're the one standing next to it." Other factors, such as inability to maintain stone pressure and having to deal with blind bores, relegated Air Hydro's in-house honing to low-end tasks such as taking out light scratches, deglazing or polishing.

"Correctly honing a tube, maintaining accurate diameter and keeping all the taper out, is really difficult to do by hand," added Mr Goldstein. Therefore, parts requiring more significant material removal had to be sent out at significant cost. Outsourcing also took out some control of meeting delivery dates, putting Air Hydro at the mercy of its honing subcontractors. "There were times when subcontracting came back to bite us," said Mr Goldstein. "A third party may not have the same sense of urgency we do. We'll work all night and do everything we can to deliver parts on time, because we have ultimate accountability to our customers. Bringing the HTA on board gives us more control of projects and the ability to deliver when we promise."

Approximately 80 per cent of AHP's repair work is done on cylinders 8" (203.2mm) or smaller in diameter, however it has honing stone sets and holders that handle bores up to 18" (457.2mm). "Our largest lathe has a three-foot swing and 15-foot bed," said Mr Goldstein. "But, most of our work is done on our 22" swing lathe. The HTA fits perfectly with our other equipment."

The Sunnen HTA tube honing system handles parts weighing up to 8,000lb. (3,629kg) with ID ranges from 2.5" to 21" (63.5 to 533mm). The HTA machine is available for 6-foot (2m) and 12-foot (4m) part lengths. Air Hydro has the 12-foot model. The HTA is designed for resurfacing and repair work where light-duty stock removal up to 0.03" (0.76mm) is required. Air Hydro's HTA hone also gives the repair shop greater flexibility on how to approach a job, and has saved many cylinders from the scrap heap. The HTA also comes in handy when AHP builds a cylinder from scratch, which requires the tube to have a trunnion mounted. When the trunnion is welded on, the cylinder will distort and cause a tight spot. AHP hones the tube to eliminate the tight spot and allow the piston to pass. The shop also hones across all ports on the tube, which improves the life of the seals and wear bands.

The HTA includes a Siemens drive and PLC-control with touch-screen HMI for setting machine parameters such as stroke reversal point, spindle/stroking speed and crosshatch angle calculation. The control features a load meter to determine areas of bore tightness, and provides the ability to dwell the tool in multiple areas to correct part geometry. A touch screen-controlled hone provides a safer working environment and reduces operator fatigue. It also provides better quality parts by producing a controlled crosshatch pattern, which allows the honed surface to retain oil or grease, ensuring proper lubrication and ring seal of pistons in cylinders. "Having an automatically stroked machine is better for our crew and better for our parts," said Mr Goldstein.

Sunnen – USA
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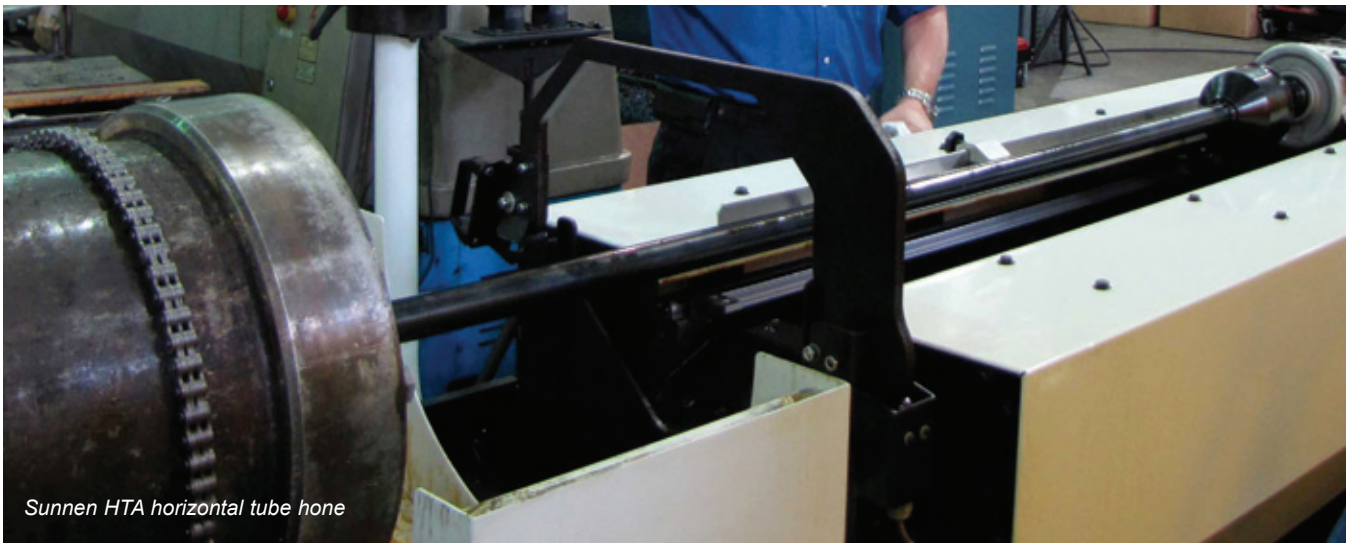


Sunnen HTA horizontal tube hone

Small diameter hairpin bender

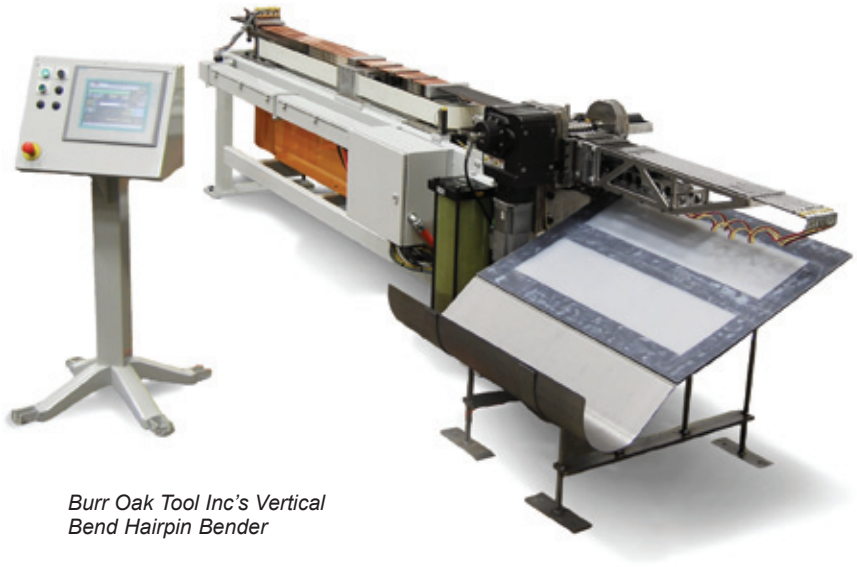
THE new Small Diameter Vertical Bend Hairpin Bender (SD-VBHB) from Burr Oak Tool Inc features throughput capacities of up to 4,000 hairpins per hour or 70% higher production due to eight parts per cycle, versus seven, and a faster cycle time. The machine utilises less floor space due to a compact design, with a size reduction of 9.5m² (102ft²).

The new bender handles tubes up to 10mm (3/8") diameter, making it a suitable choice for air conditioning/ refrigeration applications. Maintenance time is reduced with a servo hitch feed eliminating the belt feed used on previous designs, which required additional care and attention for proper operation.

Other features include intuitive operator interface using a touch screen, and independent tube clamping for variations in tube diameter without causing clamp marks on the hairpins.

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

Burr Oak Tool Inc – USA
Fax: +1 269 651 4324
Website: www.burroak.com



Burr Oak Tool Inc's Vertical Bend Hairpin Bender

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Production of extruders

WEBER is a German machinery manufacturer with more than 50 years of experience in the production of extruders.

The solid and rugged extruder design stands for reliability and a long life and the high degree of self-made components, including high-performance gear boxes, guarantees the quality, fosters new developments, offers flexibility to design tailor-made solutions for customers and allows for rapid spare parts lead times.

Weber's philosophy to provide excellent service is a valuable benefit to the customers. Weber's large state-of-the-art test lab is available for trials. A large stock of screws, barrels and spare parts as well as well-trained service personnel ensure quick response times. Weber's wear protection systems are also applied for repair and refurbishing of screws. Weber offers extruders and also complete pipe and profile extrusion lines.

The range of extruders encompasses DS series parallel twin screw extruders as well as CE series conical twin screw extruders, ES series single screw extruders and the NE grooved feed series of single screw extruders. The standardised, inexpensive single screw extruders of the Super-Edition ES-SE series can be supplied on short notice and are suitable for the extrusion of a variety of pipes and profiles. The conical twin screw extruders and the single screw extruders are also available as standard or tailor-made CE Z or ZE series co-extrusion units.

Hans Weber Maschinenfabrik GmbH – Germany
Email: info@hansweber.de
Website: www.hansweber.de

API pipe

KHANNA Industrial Pipes Pvt Ltd is an India-based manufacturer of HFIW pipes and tubes as per various Indian standards along with International Specifications of EN as well as ASTM/ISO standards. The company currently manufactures up to 4" diameter pipes catering to automotive, furniture, structural and general engineering usages.

The company has embarked on a new project setting up a new pipe mill with the latest technology to produce pipes conforming to API 5L & 5CT specifically used by oil and gas industries worldwide. The size range covered in this new line is from 2-3/8" to 8-5/8" OD and the wall thickness up to 10mm. The grades in API 5L will start from X42 to X70 in PSL 1 & PSL 2. API 5CT variety will cover initially H40, J55 and K55 in PSL 1 and in future other grades like N80, M65, C95, etc may be developed.

The company will also be producing the pipes as per ASTM A53 Grade A & B, ASTM A500, ASTM A252, ASTM 1083 in thickness Sch 10, STD, Sch 40, Sch 80 in round variety and square and rectangular sections up to 150mm x 150mm and 200mm to 100mm with 8mm maximum wall thickness.

Khanna Industrial Pipes Pvt Ltd – India
Website: www.khannagroup.org

Surface crack detection system

THE ISOTEST 30 E mobile crack detection unit is a new, state-of-the-art power pack designed by Magnaflux GmbH of Essingen, Germany for magnetising specimens with AC or full-wave DC in magnetic powder testing. Satisfying a requirement expressed by numerous customers, this system complements the company's range of Isotest mobile systems 60 E (for test currents up to 6,000 A DC) and 100 E (for test currents up to 10,000 A DC) with a model designed for test currents up to 3,000 A DC and AC.

The model 30 E features a new, wear-free electronic high-current change-over switch which enables easy and quick switching between DC and AC with the simple push of a button, without the need for re-connecting or re-assembling high-current cables. This light weight and extremely compact power pack provides exceptional mobility and flexibility on-site. Isotest 30 E is suitable for use in all industries where highest reliability under harsh conditions is a requirement, including the automotive and aeronautical industries, foundries, forging shops, steel production and processing, along with OEMs and suppliers, testing contractors and service providers.

All three Isotest models enable the demagnetisation of work pieces previously magnetised with full-wave DC current by means of a multi-stage, low-frequency demagnetisation system. The control system is programmed in such a way that current control starts at least with the selected test current intensity and is then continued until zero current is reached.

This ensures the complete demagnetisation of the work piece, as is required for many of the subsequent processing steps. Alternatively – depending on the type of magnetisation selected previously – demagnetisation with alternating current is also possible. To increase testing safety, the Isotest systems, which are designed for constant current magnetisation or impulse current magnetisation, feature a constant current control or (optional) current flow detection system. A broad spectrum of high-current cables, coils of various diameters and designs, and a variety of contacting options provide the user with maximum flexibility.

Holger Wilhelm, head of sales office and service at Magnaflux Germany, commented: "In the design of the new Isotest 30 E system, we were guided strictly by market requirements. We are offering a system that provides a maximum of operator convenience, safety and mobility, with a combination of features which is, to our knowledge, currently unsurpassed anywhere in the world. Our customers can now choose exactly the performance level that best suits their requirements. In addition to our three mobile standard crack detection systems, we also offer stationary systems for testing large work pieces, as well as customised designs – for example, we have built several systems with test currents up to 3 x 17,000 A for multidirectional testing."

Magnaflux – Germany
Website: www.tiede.de

Blades from Germany and Italy

REFORMS Machines and Tools LLC, Dubai has an unmatched expertise in supplying, servicing and distribution to its customers. Reforms is the distributor for Magnescale Measurement machines, scales, gauges and sensors, Rontgen Mettalsagen cutting blades from Germany, Taube blades from Italy, Lamina Inserts from Switzerland and Ensinger Industrial plastics from Germany.

Reforms are marketing agents for Liqui Moly Lubricants, Germany, Crown lubricants, UAE and Year Long Plastics, Taiwan. Reforms also manufactures metal cutting band saw blades with its in-house facility from raw materials stocking to final packing and dispatch. It is among the largest stockists and suppliers of steel materials including copper, alloys such as bronze/gun metal, brass, copper, zinc and lead bars and sheets, metal perforated sheets, cast iron and chrome-plated bars, engineering plastics in sheets, tubes and bars, decorative plastics such as acrylic and polycarbonate sheets. Reforms also deals in sheet metal, wood and aluminium machines such as lathe, milling, shearing, bending, drills, bandsaws, hacksaws, pipe benders, punching and plasma cutting machines and tools.

Reforms Machines and Tools is an organisation that ensures its products are of the highest quality standards and parameters for which it is under the process of acquiring ISO 9001 quality certification. Tremendous performance and a long-term association is what the team at Reforms assures. Reforms has state-of-the-art welding facilities in Dubai and stock of coils and loops to meet last minute demand for blades.

Reforms Machines and Tools LLC – Dubai
Website: www.reformsdubai.com

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The 'Orbit'

Facilitated by the world's largest steel maker, a 'curve in space' makes a monumental statement at the London 2012 Summer Olympics

Artist Anish Kapoor's "Orbit" – the ruby-red tower of tubular steel brought to vivid life in Olympic Park in London by the structural designer Cecil Balmond – is Britain's biggest piece of public art. Some 72 feet higher than the Statue of Liberty, it is also the tallest sculpture in Europe. The four builders involved in its construction gained experience from work on such office skyscrapers as architect Renzo Piano's Shard London Bridge, Europe's tallest building.

Made of 2,000 tons of steel latticework formed into giant entwined figures-of-eight, the 377-foot looped and twisting Orbit was unveiled on 11 May, a day after the flame that would burn in the new stadium during the Summer Games was lit at the Temple of Hera in Greece, on the site of ancient Olympia. The tower, which can accommodate up to 5,000 visitors a day, will be opened to the public at the start of the games on 27July.

"It is a genuine Kapoor," said London's mayor, Boris Johnson.

That it is. The London-based Mr Kapoor is noted for large-scale installations like "Marsyas," the giant blood-red PVC membrane displayed at Tate Modern in 2002. He is also responsible for "The Bean," a 100-metric-ton stainless steel sculpture in Chicago's Millennium Park. But the Orbit is monumental even by the Indian-born sculptor's own standards.

The structure is officially known as the ArcelorMittal Orbit, for the Luxembourg-based steel company that put up at least $30 million of the $36.5 million estimated cost of the project.

Two other figures who bulk large in the picture are Lakshmi Mittal, CEO and 41% owner of ArcelorMittal, and Mr Johnson, who pitched the idea of the tower to the steel magnate at the World Economic Forum in Switzerland in 2009.

Mayor Johnson is not reticent to claim credit for the successful outworking of his idea. He also makes no secret of his motivation. An ardent booster of his adopted London, Mr Johnson has described the Orbit, which seems set to become a major tourist attraction, as a "calling card for investment – a symbol of prosperity and growth."

The aesthetic qualities of the Orbit are less quantifiable than its physical statistics. But at the unveiling Mr Kapoor assured Reuters that, given time, people would be won over by his spiralling red tower, just as an initially dubious Parisian public has come to cherish the Eiffel Tower. Mention was also made of London's much-loved St Paul's Cathedral, whose magnificent dome initially offended those who would have preferred a spire.

One early visitor to the Orbit, an 11-year-old from a local primary school, pronounced it "kind of beautiful and confusing." Its creator apparently would concur. "It's awkward," said Mr Kapoor. "It has its elbows sticking out."

He acknowledged that the ArcelorMittal Orbit is experimental and unsettling – but not unbeautiful.

In more mundane news of ArcelorMittal, the company expects to show higher profit for the second quarter, largely on the basis of strong sales to US oil and gas drillers and auto producers. Also on 10 May the world's largest steel maker reiterated a forecast that its core profit for the first six months would be higher than the $4.1 billion posted for the second half of 2011. The company sees global steel consumption rising by between 4 and 4.5% this year, after expanding 6.3% in 2011.

ArcelorMittal's outlook is in chime with that of other major steel players. World number three POSCO, of South Korea, and Japan's Nippon Steel both look for improvement in global and Asian markets, although the latter warned of record output from China – responsible for half of global output – and a possible squeeze on coal supply.

India makes China an attractive offer: produce your iron ore pellets in our country and finesse two sets of duties

China, the biggest importer of Indian iron ore, has been invited to set up pelletisation plants in India. As reported by *Press Trust of India* (PTI), Chinese steel makers are being encouraged to take full advantage of the zero duty on pellet exports from India.

Another inducement is the recent drastic reduction, from 7.5 to 2.5%, in customs duty on pelletisation machinery imported into the country. ("India Invites Chinese Steel Makers to Set up Pellet Plants," 11 May)

The chief benefit to the Chinese steel makers of what PTI terms a "win-win deal" was spelled out squarely by CS Verma, the chairman of the Steel Authority of India (SAIL): their establishment of pelletisation plants in India would offset the expense to them of the current 30% duty on Indian iron ore exports. SAIL and the Chinese Iron and Steel Association (CISA) had already signed a memorandum of understanding intended to facilitate greater interaction between the two major producers and consumers of steel.

Reporting from Beijing, PTI noted that Indian iron ore exports to China – by tradition the top item – dropped 14% to $9.6 billion in 2011, from $11.2 billion in 2010. Imposed early this year, India's increase in export duty from 20 to 30% could be expected to drive the total down still further.

Mr Verma said that India, which has about 25 billion metric tons of iron ore reserves, will continue to export the raw material. But toward the close of a four-day visit to Beijing he expanded on the domestic advantages of his pelletisation proposal.

"Since buying ore will be costlier, [Indian] companies who need it have to neutralise it," the SAIL chief told PTI. "This is why we should export it in the value-added form, not the mineral form. It will create employment and investment opportunities for India to have the value addition."

Mr Verma said that the Chinese steel companies had shown keen interest in his overture. He noted that China has been importing 75 to 80 million tons of iron ore every year from India alone.

He observed, "That means there is lot of incentive for setting up pelletisation plants in India."

Trade cases

The European Union has threatened to impose tariffs on some steel tubes from three nations whose exports are allegedly being sold below cost in the bloc. The EU on 2 April opened a probe into whether producers in Ukraine, Turkey, and the Republic of Macedonia are dumping welded tubes, pipes, and hollow profiles in the euro zone. The inquiry excludes hollow sections made of cast iron or stainless steel as well as line pipe and tubing used in the oil and natural gas industries.

The European Commission, the trade authority of the 27-member EU, said its investigation will determine whether the Ukrainian, Turkish, and Macedonian shipments are "being dumped and whether the dumped imports have caused injury to the union industry." The EC has nine months to decide whether to impose provisional anti-dumping duties for half a year; EU governments then have 15 months to decide whether to apply "definitive" levies for five years.

The dumping inquiry stems from a 16 February complaint by a group speaking for EU manufacturers accounting for more than a quarter of the bloc's production of welded tube, pipe, and hollow profiles. The commission did not identify individual producers.

India on 8 April was reported to be preparing to challenge a United States import duty on steel pipes by requesting "consultations" at the World Trade Organization. In the latest in a series of recent disputes between the two allies, a senior Indian trade ministry official told Reuters, "[The US is] in absolute and total breach of the WTO. There is no subsidy involved."

The US Commerce Department in March set a preliminary import duty of nearly 286% on circular welded carbon-quality steel pipe from India to offset government subsidies. A final decision is expected in August. The Indian government will challenge the allegation that the manufacture of the pipes has in fact been subsidised.

The official in New Delhi said Washington imposed the duty on the Indian material because a portion of the iron ore used to produce the pipe is provided by state-run NMDC – the country's largest miner. The challenge mounted by India will apparently turn on the question of whether or not public-sector involvement implicitly signifies subsidisation.

The US Commerce Department on 17 May announced the imposition of anti-dumping tariffs of more than 31% on solar panels from China, the world's largest exporter of the units. The department said that consumers in the US bought $3.1 billion worth of Chinese solar cells last year, giving China more than half the American market for the devices.

The *New York Times* noted that the move was certain to infuriate Chinese officials, who point out that the US has for years urged China to embrace renewable energy as a way to reduce air pollution, combat climate change, and limit the need for oil imports from the politically volatile Mideast.

According to the *Times*'s Keith Bradsher and Diane Cardwell, the American decision was made by civil servants in a quasi-judicial process and does not represent a deliberate attempt by the Obama administration to confront China on trade policy. But, they said, that distinction has been largely lost in China.

Support by Beijing for solar energy is an important feature of China's current Five-Year Plan, which runs through 2015, although Premier Wen Jiabao said in March that he was becoming concerned about overcapacity in the sector.

Post-tsunami Japan

Its economy strengthening, a nation long given to inwardness looks for outside investment to keep the momentum going

Data released by the Japanese Cabinet Office on 17 May showed that Japan's economy, the world's third-largest after those of the United States and China, expanded at an annualised rate of 4.1% during the January-to-March period, a faster clip than economists had forecast. The strong report signified the third consecutive quarter of economic growth for Japan and eclipsed the annualised 2.2% growth posted by the US for the first quarter.

Even so, memories that stretch back to Japan's listless economy before the natural and nuclear catastrophes of last year have been shaping a new mind-set in this former manufacturing powerhouse known for its exports and overseas investment.

As noted by Hiroko Tabuchi of the *New York Times*, Japan is finding that it must do what it has long resisted: welcome foreign manufacturers. ("Japan Looks Beyond Its Borders for Investors," 8 March)

Writing from Aizu-Wakamatsu, an industrial city in Fukushima Prefecture, centre of the nuclear disaster of March 2011, the Tokyo-based Ms Tabuchi interviewed an official who had executed a stark role reversal in a nation accustomed to sending factory jobs to China. Last September, doing "the unthinkable," Mayor Shohei Muroi flew to China to ask a fast-growing maker of heavy machinery to set up shop in Aizu-Wakamatsu.

"We've come to a point in Japan where we can no longer grow without outside help," Mr Muroi told the *Times*. "Whether you are based in China or America, we want you to please come do business in Aizu-Wakamatsu."

Ms Tabuchi observed that the new dynamic in Japan is a sign of a larger regional power shift. A small but rapidly increasing amount of foreign capital comes from neighbouring China, which is seeking to diversify its export-orientated approach to doing business. Recent Chinese manufacturing deals with Japan include plans for a plastics plant in Tottori and a heavy machinery factory in Kochi, both in western Japan.

"The Chinese are starting to look like saviours," said Kotaro Masuda, an economist at the government-affiliated Institute for International Trade and Investment in Tokyo.

'Ray of hope for Fukushima'

Aizu-Wakamatsu, the fourth-largest city in Fukushima, with a population of 125,000, has known for a while that domestic industry can no longer sustain local employment. At the height of the global economic crisis in 2009, a semiconductor plant run by Fujitsu, a cornerstone of the local economy for almost 40 years, announced it would eliminate a third of its 2,000 jobs.

The outlook for Japanese manufacturers has only worsened since then. It is little wonder, then, wrote Ms Tabuchi, that when Mayor Muroi brought back an agreement with the Chinese heavy equipment maker Zoomlion, he received a hero's welcome.

"The deal could create jobs and revitalise Aizu," the newspaper *Fukushima Minpo* said in an editorial. "It's a ray of hope for Fukushima."

The Chinese are also buying struggling Japanese companies. Last year, the *Times* reported, the washing machine and refrigerator business of Sanyo Electric was bought by Haier, a Chinese company, for $124 million. In 2011, for the first time on record, the number of mergers and acquisitions by Chinese companies in Japan exceeded those by American businesses in the country.

The *Times*'s Ms Tabuchi cautioned that the new openness, if it is to last, will require Japan to break decades-long habits that discouraged foreign investment while most other developed countries were doing everything possible to lure foreign capital. The Japanese impediments have included relatively strong regulations, high operating costs and tax rates, and weak government inducements.

Even now, in Japan's disaster zone, there have been expressions of concern that foreign companies, helped by generous subsidies, will hurt local businesses trying to rebuild. But, Ms Tabuchi wrote from Aizu-Wakamatsu, "The overriding impulse seems to be to seek help from whoever is willing to offer it."

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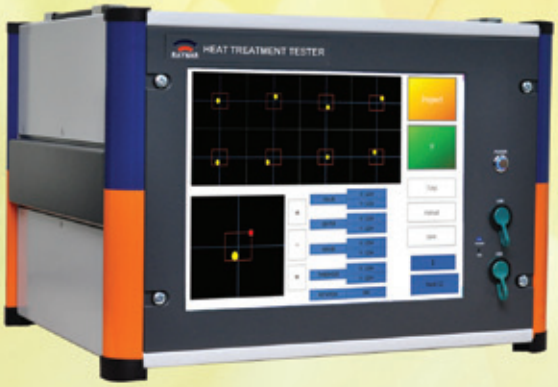

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RAYNAR

In brief . . .

Facebook has a market value of nearly $105 billion, and its initial public offering on 18 May drew worldwide attention. Almost as riveting as the IPO itself was a news item about Eduardo Saverin, one of four co-founders of the social networking site. The event made Mr Saverin into a multi-billionaire with federal tax consequences that he chose to sidestep by renouncing his US citizenship and taking up residence in Singapore.

The United States does not eliminate or reduce income tax assessments on those of its citizens who make their principal residence elsewhere. According to Reuters, "This makes America's plutocrats qualitatively different from every other country's super-rich."

While most of the reaction to the defection fell in the narrow range from anger to scorn, a few outliers took the view that paying a tax rate of 35% – and reducing his fortune by more than one-third – was too much to ask of the 30-year-old Mr Saverin.

According to the *Wall Street Journal* (27 April), American multinationals have been adding jobs – but mostly abroad. In the WSJ analysis, 35 big US-based multinational companies added jobs much faster than other US employers over the previous two years; but nearly three-quarters of those jobs were overseas. These companies boosted their employment at home by 3.1%, or 113,000 jobs, between 2009 and 2011, the same rate of increase as the nation's other employers. However, notes the WSJ, they also added more than 333,000 jobs "in their far-flung and faster-growing foreign operations."

Automotive

With European city-dwellers souring on car ownership, Daimler and BMW turn their attention to membership-based carsharing

"Daimler AG is flooding Berlin with Smart cars to claim a greater share of Europe's burgeoning rent-by-the-minute urban auto market."

Chris Reiter, of *Bloomberg News*, went on to report that in April the maker of Mercedes-Benz cars installed the largest fleet of its Car2go short-term rentals in the German capital, overwhelming Bayerische Motoren Werke AG's (BMW) DriveNow offerings two-to-one.

A result of the fading allure of car ownership in European cities, this pursuit of Berlin drivers marks a trend: fierce competition among auto makers to win over urban consumers and boost sales from services.

To tap a growing customer base, Daimler and BMW are ramping up city-based services that allow drivers to pay by the minute for the use of a car. According to Frost & Sullivan, a consulting group cited by *Bloomberg*, total membership in carsharing services in Europe is projected to surge to about 15 million people by 2020 from 700,000 at the end of last year. To put this in context, 13.6 million cars were sold in the region in 2011. ("Autos-by-the-Minute Flood Europe with 20-Fold Surge Seen," 11 May)

Mr Reiter observed that, for Daimler, its Car2go service – which like DriveNow costs 29 cents a minute in Berlin – is part of a strategy to retake the luxury-car lead from BMW by the end of the decade. He wrote, "Achieving the goal rests on its success in expanding its appeal, especially with younger drivers."

After Daimler started up the Car2go service in Ulm in southern Germany in 2008, BMW responded last year with DriveNow, a joint venture with rental company Sixt AG. The Munich-based company intends to overtake Daimler in services, matching the top position it has held in luxury-auto sales since 2005. BMW sold 1.67 million cars last year, outpacing the 1.38 million deliveries of Daimler's Smart and Mercedes models.

Bloomberg pointed out that BMW's DriveNow, which also operates in Munich and Düsseldorf, has "a lot of catching up to do." Car2go has expanded to 12 cities, including electric-vehicle fleets in Amsterdam and San Diego, and plans to add an average of one a month this year. The expansion will reach 20 markets in Europe and North America, where DriveNow will compete with the likes of Massachusetts-based Zipcar Inc. The Daimler startup, which plans to break even in two years, targets 50 cities in Europe and 30 in North America by 2016. Car2go has 85,000 customers; DriveNow, 27,000.

Mr Reiter said both services differ from station-based carsharing in allowing customers to start and end a rental anywhere in the service area, making one-way trips the norm. The cars are accessed and tracked electronically.

Elsewhere in automotive . . .

Infiniti, the luxury division of Japanese auto maker Nissan, intends to begin making cars in China in 2014. For the brand to reach its aggressive sales target of 500,000 units by 2016, local production in the world's largest automobile market is considered a necessity. In Infiniti's first production outside of Japan, factories run by Nissan and its Chinese joint-venture partner will turn out two models.

The Infiniti announcement on 20 April came on the eve of the Beijing auto show, a platform for both domestic cars and the global brands for which the Chinese have a perceived partiality.

In the same week Ford Motor, of the US, announced it would build a $760-million auto assembly plant in the eastern city of Hangzhou, under a plan to double its Chinese production capacity to 1.2 million vehicles a year.

Growth in China's vehicle sales – which plunged from an astonishing 35% in 2010 to 2.5% last year – is forecast to rebound to about 5% this year: stronger than in either the US or Europe.

Oil and gas

By requiring disclosure on chemicals, Washington claims to bolster its supervision of 'fracking' on US public lands

The US Department of the Interior said 4 May that companies drilling for oil and natural gas on public and Indian lands are to be required to disclose the chemicals used in their hydraulic fracturing operations within 30 days of "fracking" a well on federal land. The process entails the injection into rock formations of millions of gallons of water and sand laced with chemicals to release the oil and gas within the dense rock. Chemicals used in fracking include benzene, toluene, ethylbenzene, and xylene.

Interior Secretary Ken Salazar said that the updated rules, which are to be finalised by the end of the year, protect the public while at the same time promoting domestic oil and gas development. But the effort by the Obama administration to strike a compromise on the controversial technique satisfied neither the industry and its allies in Congress nor most environmentalists. Jessica Ennis, legislative representative for the environmental group Earthjustice, said Interior's proposal falls "far short of what's needed to protect public health." In her view, disclosure as to chemical usage by oil and gas companies should be made in advance "so communities can test drinking water before fracking occurs, and monitor the safety of water supplies in real time."

As noted by Washington correspondent Neela Banerjee of the *Boston Herald*, earlier versions of the proposal – discussed by agency officials with representatives of both sets of interests – had in fact called for preliminary disclosure. The shift to notification after the fact can only be read as a concession to the oil and gas companies. ("Obama Administration Issues New Fracking Rules," 5 May)

Industry officials cite wide geological differences region-to-region as a reason for addressing hydraulic fracturing at the state level. And according to the Western Energy Alliance, an industry group based in Denver, operators required to obtain state permits to produce oil and gas on federal lands are already amply supervised.

Ms Banerjee wrote, "The alliance and other industry voices assert that regulation of fracking should be left to state regulators, rather than having the federal government impose a 'one size fits all' regime."

Jennifer A Dlouhy of the *Houston Chronicle* reported (4 May) that several states, including Texas, already require that companies disclose their fracking chemicals (but not their proprietary formulas) on the industry website www.fracfocus.org. She believes the federal rule would probably require disclosure there as well – also with a trade secrets exemption.

Dorothy Fabian, Features Editor (USA)

Welding – latest developments

Photo: Migatronic (Denmark), see story on page 90

Tubular steel should be welded so as to develop the maximum strength at the connections.

This directive has informed tube welding practice since the beginning and still applies to all its methods, from a workbench vice-hold operation through shielded metal arc (stick) welding, GMAW, GTAW, and on to whatever processes the future may hold for this already highly evolved technology.

To stipulate “maximum strength at the connections” may state the obvious.

But what a number and variety of demands it imposes on the weld: soundness, smoothness, even contour, freedom from undercutting and arc strikes, total absence of gaps or unwelded areas between the members being joined, high impact toughness, receptivity to coating, and many more.

Another truism with a long reach holds that welding is expensive, and extra weld metal does not improve the quality of the structure.

That is the province of sound welding practice and procedures – of the kind that are routine to the contributors to this section of *Tube & Pipe Technology*.

Orbital welding with filler wire

The OP heads are suitable for producing pipe coils for heat exchangers, collectors and in boiler construction

With the smallest version, the design engineer can set the gap between the pipes to just 31.8mm with a pipe bundle having a pipe diameter of 25.4mm

WITH the new model OP modular pipe-to-pipe weld heads, Orbitalum Tools GmbH presents a compact solution for automated TIG orbital welding with filler wire for unalloyed, low-alloy and high-alloy pipes and their black-and-white connections.

With their small modules (base machine, head module and cold wire unit), the heads are suitable tools for the production of pipe coils for heat exchangers, collectors and in boiler construction. Filler wire (cold wire) must be used when welding pipes with a wall thickness of 2mm or more. With pipe walls of 4mm or more the geometry of the weld seam requires oscillation of the torch during the filling and final passes.

The OP series includes three head models, OP 46, OP 51 and OP 102, all with a nearly identical base machine and cold wire unit (1kg coil). The difference is in the maximum weldable outer diameter of the head module – 46, 51 or 102mm, respectively. With models 51 and 102, the user can choose additional equipment with automatic control of the arc gap (AVC – arc voltage control) and integrated oscillation of the torch (OSC – oscillation). This enables pipes with wall thicknesses up to 12mm to be welded.

The weld head body, torch and clamping jaws are water-cooled, which ensures continually reproducible, high-quality weld seams, even with high currents (up to 200 amperes). The heat-affected zone remains extremely narrow.

In order to ensure the weldability of martensitic pipes containing chrome, they must be preheated to 150 to 200ºC. The OP heads are capable of this task.

The pocket with the torch that rotates around the pipe is supplied with filler wire, protective gas, cooling water flow with copper braid for current transfer and cooling water return (also with copper braid) via a long flat hose (four channels) made of heat-resistant Viton. This super-light supply design enables the operator to position the head, start the welding process and let it run by itself while he or she positions a second weld head (efficient and economical alternating operation), for example.

The arrangement of the pipes to be connected, ie horizontal, vertical or angled, does not affect the welding results. Other pipe-to-pipe weld heads demand the full attention and support from the operator, even in horizontal operation. During the joining process, the operator must ensure that the heavy hose assembly coming from the power source is winding properly according to the revolution of the torch. This also means hard work and increased wear for the rotary drive of the head.

With the smallest version of the OP orbital weld heads (for pipe diameters from 12.7 to 27mm and a head module diameter of 85mm), the design engineer can set the gap between the pipes to 31.8mm with a pipe bundle having a pipe diameter of 25.4mm. With the large OP 102 version for pipes up to 102mm in diameter (diameter of the head module of 190mm), a pipe gap of 46.2mm is sufficient for a 101.6mm pipe.

OP modular pipe-to-pipe weld head for automated TIG orbital welding with filler wire

Orbitalum Tools GmbH – Germany
Fax: +49 77 31 792 500
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Website: www.orbitalum.com

Welder range expanded

RITMO SpA has added the new Elektra 315 electrofusion welder to the already wide range of Elektra machines. The range now includes four models: the compact and light Elektra Light, able to weld couplings up to Ø 125/160mm; and Elektra 315, Elektra 400 and Elektra 800, for welding diameters up to 315mm, 400mm and 800mm, respectively.

Elektra 315 is a universal electrofusion welder with a working range from 20 to 315mm, and is suitable for welding pipe/fittings for the transport of gas and water, and for welding fire sprinkler systems (HDPE, PP, PP-R couplings from 8 to 48V). The machine is manufactured in compliance with the most important international standards.

Ritmo SpA – Italy
Website: www.ritmo.it

Grupo Condesa invests in Thermatool solid state welder

GRUPO Condesa has confirmed its investment with Thermatool for a new high frequency, solid state 900kW contact welder, for future increased production at its Lorraine Tubes Rettel operation in France, in August 2012.

Thermatool product manager Wayne Hine said: "This is recognised as a significant order for Thermatool and confirmation of the confidence, reliability, reputation and service capabilities Thermatool can deliver, supported by its growing European offices in France and Germany. When deciding which welder in our range best met with Lorraine Tubes' production requirements, having clear objectives and open communication from the Rettel and Lexy plant managers (where Thermatool also has welders) was invaluable."

The latest in a string of high profile global references shows a continuing trend and strength in Thermatool's full range of high power, low power and fixed to selectable variable frequency welders that can be configured to meet all tube production requirements. Mr Hine continued: "We also recognise the positive investment by the Grupo Condesa and of course will continue to work closely with them to maintain their business objectives, that may see the start of further discussion to replace Valve Technology units still in operation across Europe."

Inductotherm Heating & Welding Ltd – UK
Email: info@inductothermhw.com
Website: www.inductothermhw.com

Sigma Galaxy welding machine

MIGATRONIC hopes more welders will now get a chance to achieve the best results with its newest welding process setting new standards in welding.

Migatronic R&D manager Anders Hjarnø Jørgensen said the IAC (Intelligent Arc Control) is a new welding process in the Sigma Galaxy welding machine. Sigma Galaxy is one of the Danish welding machine manufacturer's top of the line welding machines within the Sigma range.

The interaction between user and welding machine expresses itself in IAC welding process. The company's motto is still "Switch on, press and weld" but customers have also asked for a number of other features such as less application of heat to the welding, improved stability, less weld spatter and, if possible, even faster welding, says the R&D manager. He also pointed out that the new welding machine comes with Intelligent Gas Control – IGC.


Intelligent Arc Control

All the features of the popular Sigma2 welding machine are also included in the Sigma Galaxy. It has all the good features of the last generation and more, says Mr Jørgensen.

The machine is structured with a strong computer monitoring the welding processes in real time: 50,000 times per second. That is intelligent control. It used to be the user who controlled the welding process, but now the machine is built for the world that we live in. The first welding machines, practically consisting of a couple of spools, needed full control. The next welding machine generation required some more knowledge and was able to help the user a little more. Now the welding machine knows everything and compensates for the users' differences, added Mr Jørgensen.

Users' varying feeding speed is also compensated for. Welders are widely different when they work – some have the torch right down in the weld pool, while others keep the torch at a distance, and other welders' hands may be shaking a little. It used to require a very skilful welder to control the welding process if the weld pool suddenly changed. The new welding process allows for these situations, says Migatronic engineer Jesper Skovfo.

Lower heat-input, better control of the weld pool and less distortion are the result of the improved arc stability of the new welding process. Less weld spatter gives a nicer finish and the root passes will no longer cause the usual problems for the welders.

You can easily have a situation where the heat accumulation changes during the process of a multipass welding or the joining of thick and thin plates. All problematic situations are taken into account now and sheet metal welding becomes a piece of cake; it will almost be like filling up the wire. The welder no longer balances on a knife edge in these situations, says product manager Torben Henriksen.

The precise control of the welding process helps to maintain the mechanical properties of the material, and the metallurgic strength of the parent material has been changed as little as possible.

The purely electronic solution in the Migatronic Sigma Galaxy reduces maintenance and service requirements to a minimum, and the possibility of software update is a matter of course. This makes the machine more applicable as opposed to the less flexible mechanical welding solutions that require more space. The power source is ready for assembly with robots and the interface meets users' requirements for quick changeover and optional choice of control of the welding process. It is also optimised to reduce energy intake.

Migatronic – Denmark
Website: www.migatronic.dk

Inflatable purge dams and weld gas analysers

SUMNER Manufacturing has launched new inflatable weld purge dams for use with stainless pipe from 50 to 350mm (2" to 14") in diameter. Inflatable purge dams can be used to quickly and efficiently create a reduced oxygen weld chamber where it is critical to avoid oxidation in the weld, for example when welding exotic metals such as stainless, duplex or titanium.

"Inflatable purge dams provide welders with an inexpensive, time-saving, reusable device that not only performs a critical application of increased weld quality, but reduces argon consumption and increases weld production rate," said Sumner president Rob Collins. "Using an inflatable weld purge dam system, purging a 6" pipe to less than 1 per cent oxygen content takes less than 3 minutes. Other solutions such as paper dams can't match that production."

The purge dams are constructed using a primary and secondary inflatable dam at either end that are covered with heat- and spark-resistant double-stitched Proban® cotton and connected with a 12" to 14" armoured stainless steel spinal hose. The spinal hose has a reactive valve to vent argon to the weld chamber. The primary dam is fitted with a primary hose to inflate the dams, a secondary hose that can be used to bypass inflation and quickly flood the weld chamber with argon, and a hose outlet for venting excess argon. Both the primary and secondary dams have a reinforced eyelet pull loop for feeding and retrieving the purge dam system inside pipe.

The inflatable weld purge dam system works by connecting the primary inflation hose to the argon supply hose. Once the purge dam system has been positioned with the primary and secondary dams on either side of the weld the flow of argon to the purge dams can begin. Argon inflates the primary dam, flows through the spinal hose and inflates the secondary dam before finally venting through the reactive valve in the spinal hose to flood the weld chamber. Once the weld chamber is fully pressurised, argon will exhaust in the vicinity of the weld and through the argon vent hose. When the oxygen level has reached acceptable levels welding can begin.

Sumner has also launched two new weld gas analysers for monitoring oxygen levels in oxygen-controlled weld gas chambers.

The Ar-Gone weld gas analyser quickly measures oxygen levels and provides a feedback display down to 0.01 per cent. The Argo-Naught weld gas analyser is hermetically sealed, making it air and water tight, and measures oxygen levels down to 0.1 per cent.

Sumner Manufacturing Co, Inc – USA
Website: www.sumner.com

Handheld wireless weld inspection system

SERVO-ROBOT has launched WiKi-SCAN, a unique handheld laser-based welding inspection system. To inspect the part, the inspector simply holds the system up to the unwelded or welded joint and presses the trigger to take measurements and determine if there are any defects present.

The WiKi-SCAN allows inspection of joint preparations, joint fit-up, weld bead profiles and weld defects. It accurately measures critical parameters such as face and root openings or gaps, mismatch and bevel angle. Results can be automatically compared to the tolerances set and provide GO/NO-GO feedback. Furthermore, a permanent record of the weld measurements, voice and written comments and pictures of the weld are stored in the WiKi-SCAN and can be sent to your computer. Advantages of the WiKi-SCAN include less redundant inspection, fewer unneeded repairs, reduced inspection time and cost saving.

Servo-Robot – USA
Email: info@servorobot.com
Website: www.wiki-scan.com

Success for 'Welding World'

THE AWD (Association of Welding Distribution) Welding World™ Village was a resounding success and brought another dimension to MACH 2012. With 27 welding and cutting equipment, consumables, safety and gas suppliers in one area, visitors found it easy to find the products and companies they were seeking. With more than 20,000 visitors overall and the Thursday attendance 23 per cent up on 2010, AWD members were delighted about the quality of enquiries being received. Visitors also agreed how useful it was to have all aspects of welding represented in one zone. MACH 2012 proved extremely successful for all exhibitors and it is hoped that many will return in 2014 to produce an even bigger and better Welding World™ Village.

Association of Welding Distribution – UK
Website: www.awd.org.uk

Submerged arc welding flux

Arc welding flux

GEDIK Welding Company's submerged arc welding flux, manufactured under the GeKa Flux brand, has been successfully provided to various major projects in Turkey and in other countries.

As the product has been in high demand, Gedik Welding decided to triple its flux production capacity in 2012. At present, the company produces aluminate rutil, aluminate basic, fluoride basic and manganese silicate, for the hard facing sub arc wire and stainless steel sub arc wire fluxes, with a capacity of 5,000 tons per year.

The 'wire+flux' combination has started to be used in pipe mills in the Middle East and GCC countries for X65 and X70 grade pipes for oil and gas pipeline projects, as well as for LPG cylinder manufacturing.

Gedik's R&D team is continuing to develop new products in order to meet customers' various needs for submerged arc welding fluxes.

By producing these fluxes, Gedik Welding is now able to provide 'wire+flux' combination from same producing company for various applications.

Gedik Welding Company
– Turkey
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Email: gedik@gedik.com.tr
Website: www.gedik.com.tr

Range of welding cameras

MELTTOOLS LLC has developed a range of cameras for cost-effective visual monitoring of fusion welding processes. MeltView cameras automatically adjust to immense changes in light to provide a clear image before, during and after welding. The cameras are ruggedised against the welding environment and customised to fit automated and mechanised welding applications such as internal pipe cladding and tube/pipe welding.

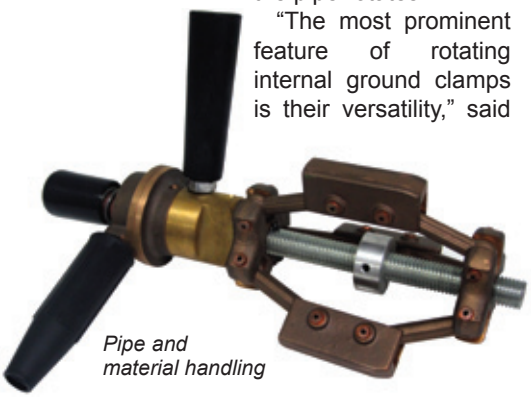
Rework and scrap rates have a significant impact on profit margins, and a clear image of the melt pool enables the operator to detect product flaws in real-time and correct processing errors. Other benefits of real-time visualisation include faster and more accurate set up of welds, reduced operator stress/fatigue and shared process monitoring among operators, managers, and quality assurance team.

MeltTools – USA/New Zealand
Email: nicole@melttools.com
Website: www.melttools.com

Rotary internal ground clamp

SUMNER Manufacturing, the pipe and material handling equipment expert, has announced a new rotary internal ground clamp for welders.

The rotary internal ground clamp prevents ground wire tangles for welding applications that are rotating pipe by keeping the ground wire stationary as the pipe rotates.



Pipe and material handling

"The most prominent feature of rotating internal ground clamps is their versatility," said Sumner's national sales manager, Brendan Conway. "With the positive ground and firm hold they provide, they can be used horizontally or vertically with welding applications that are manual, semi-automatic or fully automatic. And since they are brass they are ideal for use with stainless steel and stainless titanium pipe."

Rotating internal ground clamps have three mandrels providing contact to the internal dimensions of a pipe, and come in two sizes: 4" to 8" and 8" to 16". Clamps attach and detach in seconds with easily adjustable tension spring and mandrel adjustment handle.

Clamps utilise the reliable "C" rotary ground that incorporates both a stationary and movable contact plate that rotates 360°. Positive anti-arc bearings take loads up to 500 amps. Ground wires attach easily with removable ground cover and double oval-point screws.

Founded in 1965 in Houston, Texas, Sumner Manufacturing has served the welding and mechanical contracting industry for nearly half a century, creating high quality material lifts, jack stands, pipe fit-up clamps, welding tools, and material carts that are currently used daily in more than 50 countries around the world in numerous industries. All Sumner products are built with the concept of providing safe, common sense tools, which are priced right. Sumner Manufacturing maintains offices in Houston, Texas, Canada, China, the UK and the Netherlands.

Sumner Manufacturing Co, Inc – USA
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Website: www.sumner.com

Welded spiral pipe mills, from design to commissioning

BYARD Spiral Mill designs, builds, installs and commissions complete welded spiral pipe mills. In order to create optimal solutions, the company analyses customers' requirements, and uses its experience to provide recommendations and to start planning, developing and designing.

The team of engineers takes care of the mechanical design and plant layout, using the latest available software such as 3D Solidworks 2012. The steel structure, electrical system and hydraulics system are built in Malaysia with imported parts. All essential parts and equipment are imported from well-known international suppliers from Canada, Germany, Italy, Japan, UK, South Korea and USA. The company integrates the latest available technology, but considers alternatives if the customer has a preferred brand.

A team of in-house engineers carries out the installation and commissioning. The goal is an optimal functioning in terms of efficient production, speed and high product quality. Extensive instruction helps operators to achieve the necessary skills for operation and maintenance, and Byard's team of operators will support production to the required standard. Upon request, the in-house production operators can provide customers with experience for the production process on-site or in its own Malaysia pipe production plant.

Byard Spiral Mill Sdn Bhd – Malaysia
Website: www.spiralpipe.com

Mill machinery and inspection

RAFTER Equipment Corporation manufactures tube and pipe mills, roll forming machines, cut-off machines and other related mill machinery. The company is able to provide equipment for tube sizes from 4.76 to 400mm OD (0.188" to 16"), and has supplied mills using high-frequency induction (HFI), high-frequency contact (HFC), TIG/plasma, and laser welding. Its equipment has been used for the production of mechanical, structural, HSS, energy, API, refrigeration, automotive, appliance, and other tubular products.

Rafter has remained busy during the recent economic downturn. The RT-4000 mill is capable of producing energy tubing up to 76.2mm OD x 6.4mm wall (3" x 0.25") with material yield strengths up to 1,000 MPa (150,000 psi). The mill was shipped during the week it was originally promised, and a second duplicate mill is expected to be ordered in early 2012.

Last year also brought many mill upgrades – mainly weld squeeze box and turkshead straightener retrofits. Most the upgrades were driven by the customer's need to produce tubes with heavier wall thicknesses and/or using higher yield strength materials.

In 2009 Rafter expanded its offering through an overseas partnership to include uncoilers, levellers, coil end joiners, strip accumulators, flying saw cut-offs and tube bundling and packaging equipment. Although the mechanical portions are manufactured overseas, the electrical and hydraulic portions will be supplied by Rafter from US sources. In addition, after-sales service and support will be handled by Rafter.

Rafter also reached an agreement with HKS-Prozesstechnik GmbH (www.hks-prozesstechnik.de) to become the exclusive United States system integrator for its ThermoProfilScanner (TPS) non-destructive weld seam inspection system. The TPS uses a unique 'lens-less' thermal imaging sensor to capture the heat profile of the weld seam just after welding. The heat profile is recorded and displayed at the operator's interface.

Recipes for various products can be established based on known thresholds for temperature distribution across the seam, profile symmetry, profile position (ie on or off centre), and maximum temperature. The heat profiles are stored in a database relative to the location within a given tube as determined by a speed input signal. The individual tubes are identified and numbered in the database by using the customer's existing cut-off signal. Additional parameters such as tube speed and weld power are also recorded. The database can be accessed and backed up to the customer's existing network via an Ethernet connection. Profiles for individual tubes can be recalled at any time for further inspection making this system ideal for ISO requirements.

Originally started in 1917 as a roll forming machine builder, Rafter was purchased, relocated and transformed into a tube mill manufacturer in 1988. Since this time the company has provided nearly 100 tube mills and more than 400 mill accessory upgrades. Its focus is to provide robust equipment that is simple to operate and maintain.

Rafter Equipment Corporation – USA
Fax: +1 440 572 3703
Email: sales@rafterequipment.com
Website: www.rafterequipment.com

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Keyhole TIG welding

THE Keyhole TIG welding breakthrough delivers major cost reductions to pipemakers by reducing the time, skills and materials needed to weld thick gauge and difficult materials such as stainless steel and titanium.

Already used in Asia and the USA, Keyhole TIG (K-TIG) welding solves many problems that beset traditional gas tungsten arc welding (GTAW), also called TIG (tungsten inert gas). Widely used in pipe fabrication, GTAW can be costly, complex and time-consuming when used for larger welds.

K-TIG is a new, high performance enhancement of the GTAW process that can weld thick materials, including stainless steel and titanium, in one tenth of the time of traditional welding processes.

Unlike standard GTAW, which can require many weld passes on thicker pipe and large amounts of filler material, the K-TIG process can weld half-inch-thick stainless steel in a single pass at a speed of 12" per minute.

The improved speed of K-TIG welding can deliver large cost savings, improved productivity and increased profits to pipe manufacturing companies.

The K-TIG welding technology is delivered by Keyhole TIG Ltd, which has commercialised a scientific breakthrough achieved by Australia's largest research institution, CSIRO.

The patent-protected K-TIG welding process is gaining international recognition and market acceptance. This innovative welding technology is already used by major organisations including US pipemaking companies and the South Korean shipbuilding industry.

Earlier this year, K-TIG Ltd signed an exclusive three-year agreement that licenses UK-based PCT Group to distribute the K-TIG welding technology in the UK, Germany and the United Arab Emirates.

K-TIG Ltd chief executive officer Gordon Kay said the K-TIG welding process was a "game-changing" technology. "It is faster, cheaper, simpler and less energy-intensive than standard GTAW," he said.

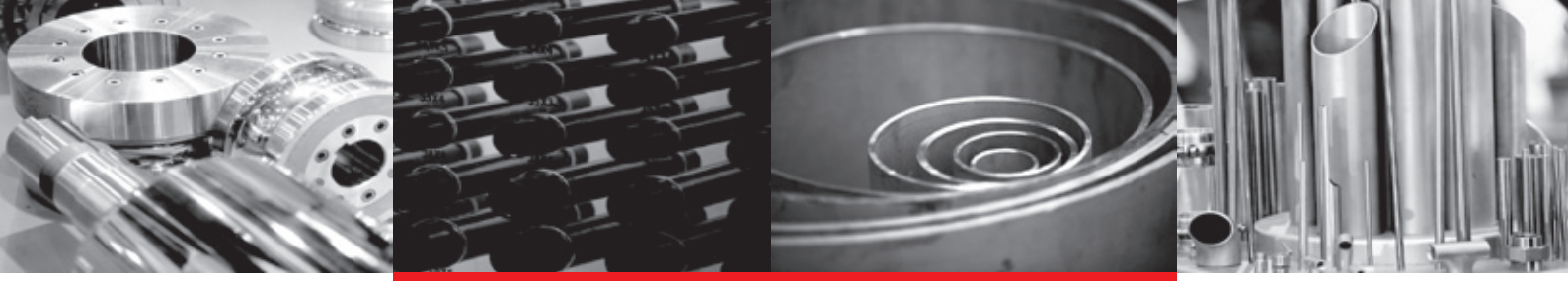
"For example, using traditional GTAW, a specialist welder can take as long as six hours to join two sections of 10" schedule 80 stainless steel pipe. Using the K-TIG welding process, a less qualified operator can complete this weld in less than 10 minutes. K-TIG welding can deliver a massive competitive advantage to any company that uses it."

In the pipe manufacturing industry, K-TIG technology greatly improves productivity by reducing the required preparation time for welding. With square edged butt joins achievable in materials as thick as 5/8", deep edge preparations are a thing of the past.

K-TIG welding relies on a combination of arc pressure and surface tension to create a welding "keyhole". Even when welding through 5/8" of titanium using 800 amps or more, the process is very quiet: without raising ripples in the weld pool and leaving a flawless finish.

Unlike traditional GTAW welding, the penetration of K-TIG means it is possible to weld up to 5/8" thick material with a single pass with no filler materials from either side of the pipe.

K-TIG – Australia
Website: www.k-tig.com



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Special Thanks

*Below names are listed in alphabetical order, partial exhibitors only

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Baosteel Group
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Colgar S.p.A.
Corrosion Materials Inc.
Dalian Sage Group
EFD Induction (Shanghai) Co.,Ltd.
Emag Machine Tools (Taicang) Co., Ltd.
Euromaquina S.A.
Faccin S.r.l.
Fives Bronx
Fontijne Grotnes B.V.
Framag Industrieanlagenbau GmbH
Hebei Huayang Steel Pipe Co.,Ltd
HYTORC Trading (Shanghai) Co., Ltd.
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ITA - International Tube Association
Jiangsu Huacheng Industry Pipe Making Corp.
Karl Deutsch Prüf- und Messgerätebau GmbH & Co. KG
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Kinkelder Cutting Technology (Suzhou) Co., Ltd.
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Tianjin Youfa Steel Pipe Group
TRUMPF (China) Co., Ltd.
WKÖ - Wirtschaftskammer Österreich
Yangzhou Lontrin Steel Tube Co., Ltd.

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For more information
Messe Düsseldorf (Shanghai) Co.,Ltd.
Tel : (86 21) 6169 8300 Fax : (86 21) 6169 8301
Email : tube@mds.cn
www.mds.cn

in Cooperation with

Messe Düsseldorf GmbH
Organizer of Tube Düsseldorf

wire CHINA

Concurrent Event: wire China 2012

Lightweight inverter welders

KEMPPI (UK) Ltd has launched the Minarc Evo range of lightweight inverter welders, which offer a choice of MMA, MIG/MAG and DC TIG welding equipment, and are easy to use and light to carry.

All the machines in the Minarc Evo range include power factor correction (PFC) technology for energy efficiency, delivering their maximum output current at 35 per cent duty cycle from any single phase 230V, 16A industrial power network, and are fully compliant with the latest European EMC Harmonics Directive, IEC6000-3-12.

The welders are designed for professional industrial repair and maintenance work, including agricultural and horticultural applications, welder training colleges as well as DIY applications, and they can be used with generator power supplies, including extra long 100m+ extension cables, making them suitable for use both on the shop floor and on-site. Minarc Evo 150 is an MMA/TIG machine rated 140A at 35 per cent duty cycle for MMA welding and 150A at 35 per cent duty cycle for TIG welding.

It incorporates precise arc ignition, large voltage reserves and automatic arc dynamics control, making it suitable for welding with all electrode types, and it has a large LED meter display, remote current control option and lift TIG ignition.

MinarcMig Evo 200 is a MIG/MAG machine with a large welding capacity, and options include either automatic or manual mode set-up for precise weld quality and arc ignition, monitored and controlled by Kemppi's adaptive arc regulation system.

Rated 200A at 35 per cent duty cycle, it has a large LCD graphical interface for easy user set-up. The automatic mode enables the user to simply set the plate thickness and weld. Material selection includes ferrous, stainless steel, aluminium and CuSi filler wires, satisfying a wide variety of industrial applications. MinarcTig Evo 200 and MinarcTIG Evo 200MLP are two TIG/MMA machines with accurate and refined HF ignition plus the necessary control, power and work capacity to reliably complete a variety of professional TIG welding tasks. Rated 200A at 35 per cent duty cycle for TIG welding and 170A at 35 per cent duty cycle for MMA welding, they are a suitable DC TIG welding solution for light industrial manufacturing, installation, repair and maintenance applications.

Functions include pre- and post-gas time control, current upslope and downslope time control and remote control options. The MLP version is equipped with the Minilog control and semi-automatic arc pulse function. MinarcTig Evo is a dual-process machine that also provides quality MMA welding for a range of DC electrode types.

Kemppi (UK) Ltd – UK
Fax: +44 845 6444202
Email: sales.uk@kemppi.com
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ITALIA

Web page and e-mail:
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We are producing a **wide range of profiles** for various sectors, such as: for the roofing and the building industry in general, for the automotive industry, shelving systems, metallic doors and windows, tubes, etc. Based on the specific customer's requirements we integrate in our roll forming lines processes like punching, embossing, tapering, clinching, seaming or laser welding, etc.

EuroBLECH 2012: Booking status reflects recovery of sheet metal working industry

THE 22nd International Sheet Metal Working Technology Exhibition, EuroBLECH 2012, will take place from 23 to 27 October 2012 in Hanover, Germany. The event is renowned as the leading trade exhibition for this industry sector. The current booking status of this year's show reflects a significant stabilisation of the sheet metal working industry.

Several months ahead of the opening of the exhibition, a total of 1,235 exhibitors from 38 countries had already reserved their stand space, covering a net exhibition space of 83,000m^2. These are some 5,000m^2 more than the total exhibition space at the previous event.

"The trend, which had already become apparent during the previous exhibition, has now been confirmed: the industry sector is investing again, and, after one of the worst crisis for this industry, manufacturers and suppliers of machines, materials and systems for sheet metal working are finally able to, once again, witness some planning reliability," explains Nicola Hamann, exhibition director EuroBLECH on behalf of the organisers, Mack Brooks Exhibitions. "Apparently, the sheet metal working industry has recovered, and now presents itself as stabilised, confident and thoroughly positive. Despite some incertitude due to the currency crisis in the Euro zone or the recent developments in some north African and middle Eastern countries, there are generally positive sales prospects for suppliers to the sheet metal working industry; and not only in the growth markets of Asia and South America, but also in many European countries as well as in the USA," says Nicola Hamann.

As for the exhibitor countries at this year's EuroBLECH, it is already clear that the exhibition will be able to hold its high percentage of international participants. Almost half of the exhibiting companies that have already booked their stands come from outside Germany, with Italy, Turkey and Switzerland being the biggest exhibitor countries after Germany. According to the current booking status there are also significantly more exhibitors from the USA and China than at the previous exhibition.

EuroBLECH 2012 will again occupy halls 11,12,13,14,15,16,17 and 27 at the Hanover Exhibition Grounds. The exhibition profile represents the entire sheet metal working technology chain: sheet metal, semi-finished and finished products, handling, separation, forming, flexible sheet metal working, joining, welding and surface treatment, processing of hybrid structures, tools, quality control, CAD/CAM systems and R&D.

Featuring an enormous amount of live machinery demonstrations, EuroBLECH is renowned with international sheet metal working professionals as the ideal event to find smart solutions and the right machines, equipment and materials for their companies. A total of 61,500 trade visitors from all over the world attended the previous show.

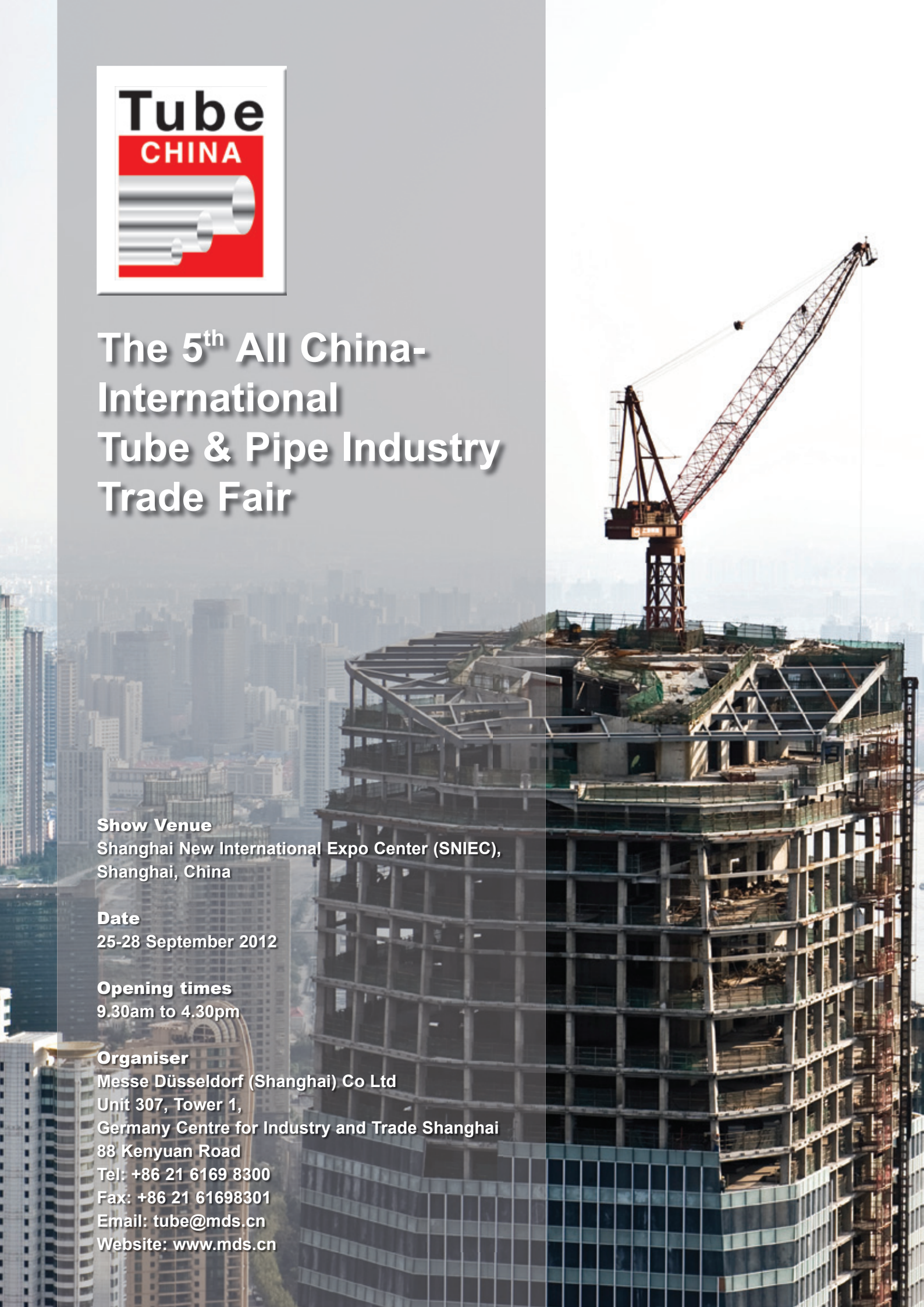
EuroBLECH 2012 – Germany
Website: www.euroblech.com

Orbital welding

GULLCO'S Pipe Kat® automated pipe welding system with integrated wire feeder unit incorporates a 40 IPM welding carriage design with quick-action mounting for ease of installation. The carriage is equipped with a high-speed return feature for faster repositioning of the carriage.

The Pipe Kat is equipped with a linear oscillator with adjustable weave width and weld joint centreline adjustment, and all electronic motorised functions incorporate jog settings. The system is supplied with a main control box with 7,620mm (25ft) umbilical, wire feed spool capacity of 4.5kg (10lb), with a maximum wire speed of 89-226cm/min (35-633 IPM) and a wire size range of 0.8 to 2mm. The welding torch uses standard consumables.

Gullco International Limited – Canada
Website: www.gullco.com



The 5th All China-International Tube & Pipe Industry Trade Fair

Show Venue
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Shanghai, China

Date
25-28 September 2012

Opening times
9.30am to 4.30pm

Organiser
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Unit 307, Tower 1,
Germany Centre for Industry and Trade Shanghai
88 Kenyuan Road
Tel: +86 21 6169 8300
Fax: +86 21 61698301
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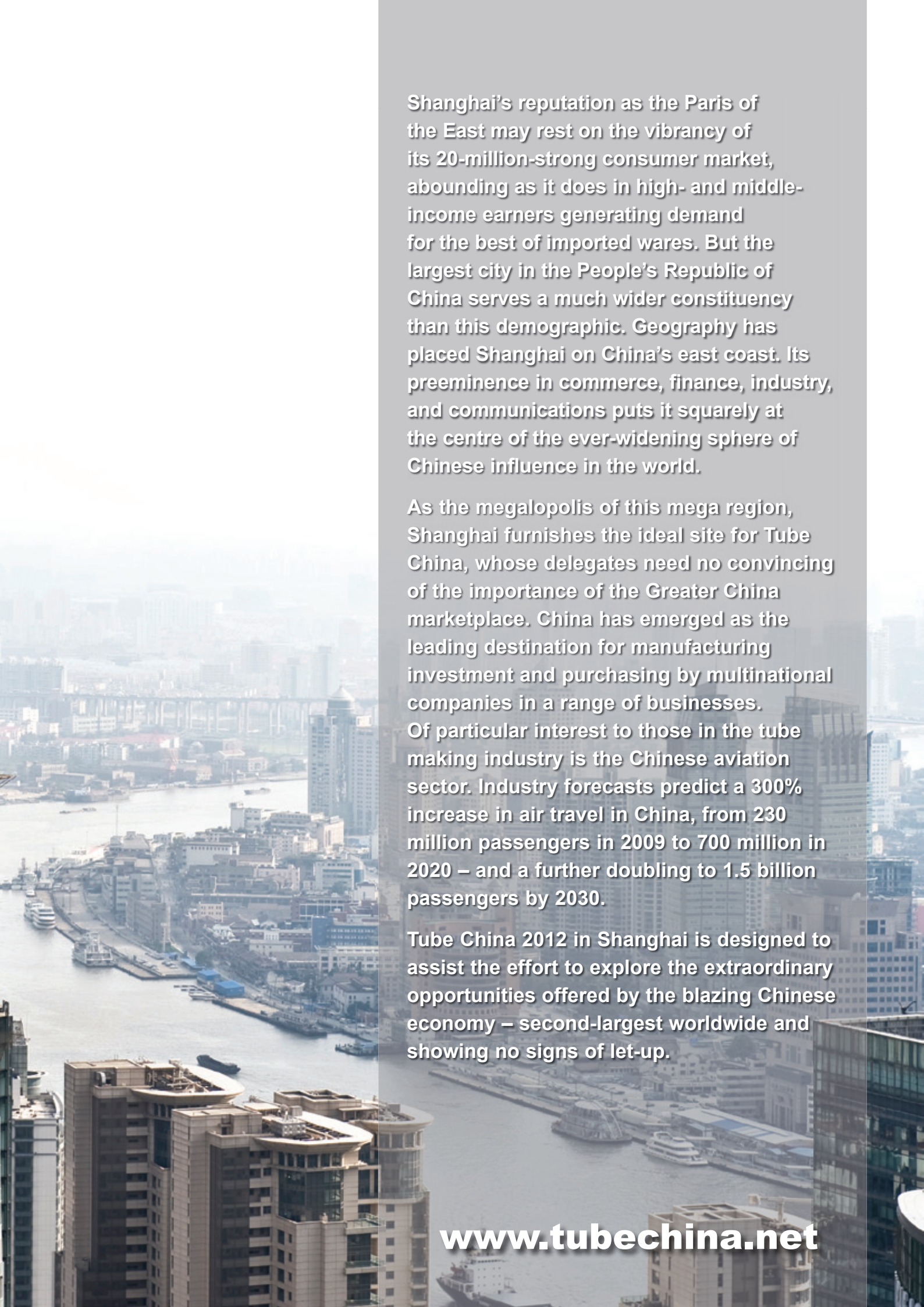
Website: www.mds.cn



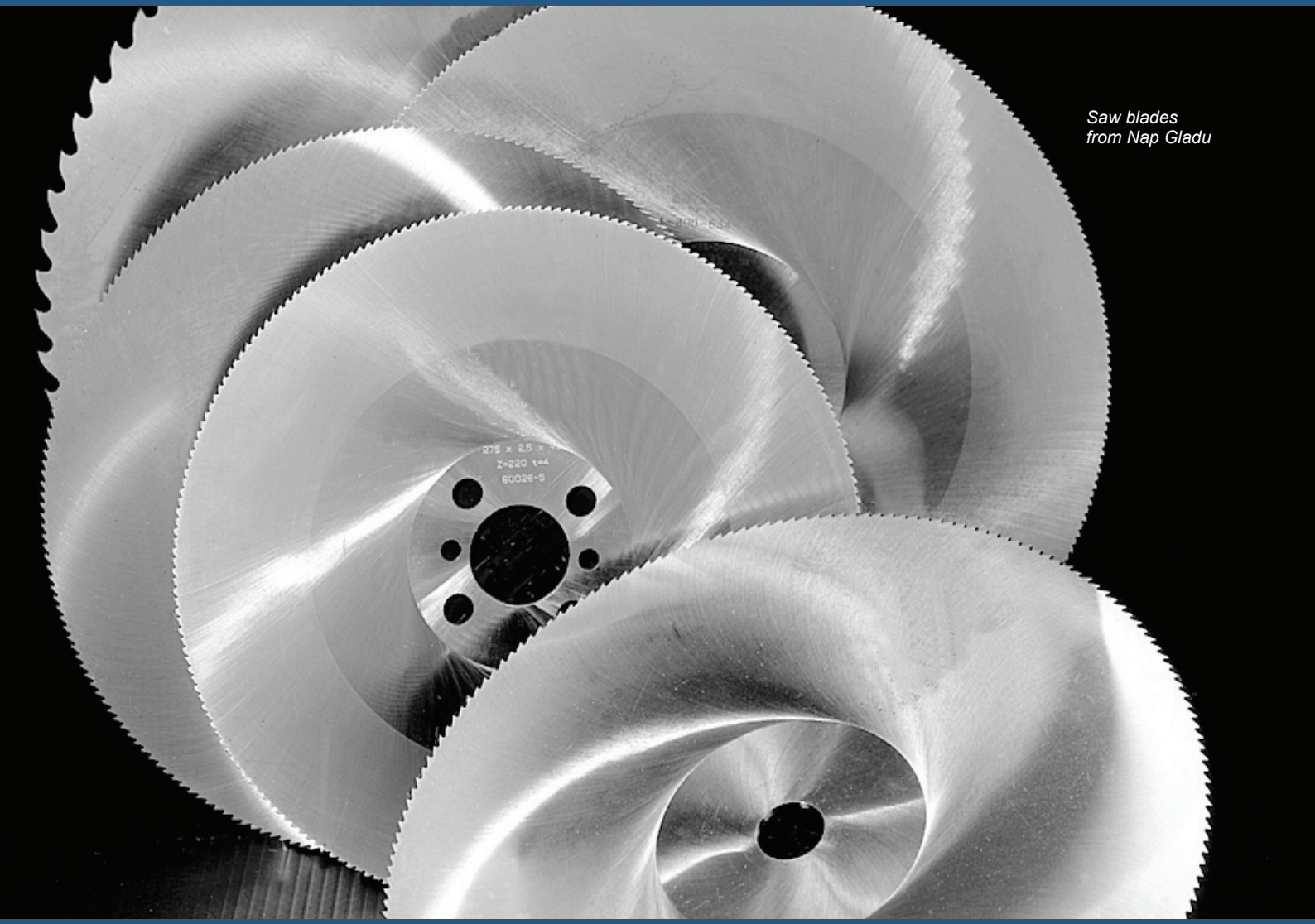
Shanghai's reputation as the Paris of the East may rest on the vibrancy of its 20-million-strong consumer market, abounding as it does in high- and middle-income earners generating demand for the best of imported wares. But the largest city in the People's Republic of China serves a much wider constituency than this demographic. Geography has placed Shanghai on China's east coast. Its preeminence in commerce, finance, industry, and communications puts it squarely at the centre of the ever-widening sphere of Chinese influence in the world.

As the megalopolis of this mega region, Shanghai furnishes the ideal site for Tube China, whose delegates need no convincing of the importance of the Greater China marketplace. China has emerged as the leading destination for manufacturing investment and purchasing by multinational companies in a range of businesses. Of particular interest to those in the tube making industry is the Chinese aviation sector. Industry forecasts predict a 300% increase in air travel in China, from 230 million passengers in 2009 to 700 million in 2020 – and a further doubling to 1.5 billion passengers by 2030.

Tube China 2012 in Shanghai is designed to assist the effort to explore the extraordinary opportunities offered by the blazing Chinese economy – second-largest worldwide and showing no signs of let-up.

www.tubechina.net

Tube scarfing systems and tools



Saw blades from Nap Gladu

The best proof of a successful scarfing operation is a tube that looks to be “as welded” rather than to have been scarfed at all; that is, it has a perfectly smooth surface and a weld zone practically indistinguishable from the parent material.

This achievement is largely the work of small ceramic tools – the inserts used for scarfing the outside-diameter upset seam of a tube after welding – that have the fault (brittleness) of their essential virtue (hardness).

Because so much is asked of these tools, considerable care must be taken with them: from proper coating and grinding and inspection for flaking or crazing, to raising the insert when the weld passes and controlling vibration and deflection throughout the process.

That scarfing tools perform as reliably as they do reflects an industrywide convention that even the smallest component merits outsize attention to its selection, preparation, and utilisation.

Tube and pipe scarfing tools

NAP Gladu offers custom saw blades and will audit customer operations to gather machine specifications, and material being cut, and look at other variables that may have an impact on the cutting process.

It will then use this information to design a saw blade that is specific to the application.

The information will help determine the blade diameter, number of teeth, tooth style, carbide grade, the grindline and coating.

Nap Gladu carries a complete line of solid high speed steel circular saw blades made from the latest technology and equipment achieving precision accuracy, in uniform hardness, structure and toughness. It will carry lines for ferrous cutting and non-ferrous materials.

Service capability is also available for this product. The company also has a complete line of industrial band saws no matter if it is heavy duty, medium or light, it has blades that are designed for each application.

It carries a complete line of disposable saws for high performance sawing machines. It carries both carbide and cermet depending on the final cutting application it is used for. Saws are manufactured with high precision tolerance to maximise run times.

Nap Gladu also provides scarfing, bevelling and threading inserts. It will look at each individual cutting application and provide them with an insert with the correct grade, geometry and coating to maximise the cutting performance and life.

Nap Gladu – USA
Email: hhanselman@napgladu.com
Website: www.napgladu.com

Tube scarfing equipment

TSE GmbH Tube Scarfing Equipment, located in Germany, is an international operating company offering high quality solutions for tube inside and outside weld bead scarfing (deburring) of longitudinally welded steel tubes, strip conditioning, bead chopper applications, welding equipment, sawing technology, filtering technology, and turning/milling/drilling processes.

TSE's product range includes tube inside weld bead scarfing tools/systems, carbide cutting rings for tube inside weld bead scarfing, carbide inserts and holders for tube outside weld bead scarfing, bead choppers, strip shaving units, welding impeders, ferrite cores, epoxy fibreglass tubes, silicone fibreglass tubes, mica silicon tubes, induction coils, flexible PTFE tubes, HSS/HSSE/TCT saw blades, chrome vanadium friction saw blades, filter systems, filter fabrics, carbide inserts and holders for turning/milling/drilling.

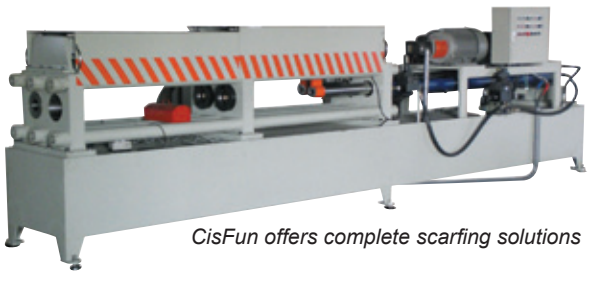
The company works with a network of representatives worldwide to offer the best service.

TSE GmbH Tube Scarfing Equipment – Germany
Email: info@tube-scarfing.de
Website: www.tube-scarfing.com


Scarfiing equipment from TSE

Tube scarfing systems and tools for longitudinal welded tubes

CISFUN Technology Corp, Taiwan, is a provider of total solutions for tube/pipe and has developed a wide range of inside tube scarfing systems and tools for longitudinal welded tubes with fullly automatic loading and unloading.


CisFun offers complete scarfing solutions

Some of the features include: mechanical inside tube scarfing tools and feeding by hydraulic system with a tube ID range of 12mm – 200mm. They are suitable for a maximum tube length (auto feeder) of 6m but special size requirements are also welcome.

It also has an automatic feeding function by NC control including: an automatic loading input table; the loading mechanism has a capacity to handle the maximum tube weight of 120kg (piece weight); the shortest length is 400mm. 400mm length tube can be pushed forward by the other tube after the last cut so that the unloader's pusher can push it to the side for continuous operation. It is also possible to put the tube surface that you need to drill on the loading table manually. To drill holes on wide surface of rectangular pipe is possible.

CisFun Technology Corp – Taiwan
Email: sales@likest.com
Website: www.likest.com
Website: www.punching-machine.com

New mill located in China

FIVES Bronx, with the Abbey International and the Bronx Taylor-Wilson line of products, has announced its most recent ERW tube and pipe mill project located in China. The Shashi Pipe Works in Hubei Provence has purchased a series 24KH mill, which is the largest ERW pipe mill project being produced today.

The equipment supplied by Abbey includes coil storage, coil car, dual uncoiler, coil stripper, pinch roll, flattener, crop shear, shear and end welder, horizontal accumulator, accumulator exit pinch roll, flying crop shear, edge milling equipment, forming section, edge forming pass, TBS system, fin section ID scarfing, milling cut-off, mill management system and all necessary electrical equipment.

The series 24KH 630mm ERW pipe mill will produce line pipe for oil and gas API 5L grades A, B, X42, X46, X52, X56, X60, X70 and X80, casing API 5CT grades H40, J55, K55, M65 and N80, structural round pipe and structural profile sections (square and rectangular). Specifications are as follows: OD 219.1 to 630mm, thickness 4 to 19.1mm, length 8 to 20m, yield strength of 758 MPa (110,000psi) max tensile strength of 827 MPa (120,000psi) max production speed of 30 MPM, and a production rate of 238 tons per hour.

Other key design features include a flying crop shear that allows the outgoing strip to be processed in the mill while the strip coming from the accumulator is stopped – a feature that minimises scrap during strip width changes. The TBS forming system gives the customer the ability to make expanded diameters and wall thickness range with programmable setup software. It is adjustable in three independent axes and also includes convertible roll/beam section along with flip/flop top rolls. The TBS system has driven rolls at several locations to aid in making extreme sizes. The quick-change system will permit the customer to change over the mill to a new size with minimal downtime.

The Fives Group's expertise in designing and supplying process equipment, production lines and plant facilities on a turnkey basis, along with its global presence in the steel industry with companies such as Fives Stein, Fives Engineering, Fives Celes and Fives DMS, allows Fives Bronx to design world class custom machinery for every size, grade and length.

Abbey International products include ERW tube and pipe mills, draw benches, cutting solutions, accumulators and slitting lines. Products from Bronx Taylor-Wilson include tube, pipe, bar and section straighteners, hydrostatic pipe testing machines, rotary cut-off and end facing equipment, collapse testing machines, material handling equipment and other ancillary finishing equipment, and the company continues to be a leading manufacturer of equipment, with a focus on providing innovative solutions customised to fit each customer's specific needs.

Fives Bronx, Inc – USA
Fax: +1 330 244 1961
Website: www.fivesgroup.com

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www.tuboscope.com

NOV Tuboscope

Email: tuboscopesales@nov.com

EFD acquires EHE

EFD Induction has announced its acquisition of Electronic Heating Equipment (EHE), Inc, a supplier of impeders, coils, scarfing equipment and related products to tube and pipe manufacturers around the world.

Commenting on the acquisition, EFD Induction CEO Eivin Jørgensen said, "EHE is a dynamic enterprise that since its foundation in 1980 has won the trust and confidence of top tube and pipe makers. The company is a perfect fit for us to strengthen our presence in North America, and to further expand in the global tube and pipe market."

EHE builds customised coils, impeder and scarfing assemblies – components critical for high productivity welding. "The acquisition means EFD Induction now offers tube and pipe manufacturers everything from high-uptime solid-state welders to specialised coils, impeders and scarfing products," said Mr Jørgensen. "And since induction welders, impeders and ID scarfing equipment all have to work together, there are obvious benefits to customers in having EFD Induction as a single source. We can ensure that impeders and coils work with the ID scarfing equipment so that each welder operates at optimum efficiency."

EHE founder John Wright will continue as managing director of Washington state-based EHE for the next several months. He will continue to work for both EHE and EFD Induction as a consultant.

"We're thrilled to be able to call on John's expertise in the future," said Mr Jørgensen. "His experience and contacts will be invaluable as we continue to grow the business."

EFD as – Norway
Fax: +47 35 50 60 10
Email: sales@no.efdgroup.net
Website: www.efd-induction.com

Inside tube scarfing system

ERNST Blissenbach GmbH – which manufactures quality inside tube scarfing systems – offers customers the production security that pipe and tube manufacturers as well as plant engineers desire when it comes to complex production processes. The innovative BLISSart® custom tools remove the internal weld bead in HF longitudinally welded tubes and impress customers with a high degree of know-how, precision, intelligent technology, impressive durability and an effective increase in production output, resulting in considerable cost savings.

Ernst Blissenbach GmbH – Germany
Website: www.blissenbach.de

这一栏目专为我们的中文读者介绍国际管道行业的最新技术和行业新闻的综合信息。

轻逆变焊机

KEMPPI（英国）有限公司发布了Minarc Evo系列逆变焊机，该系列提供MMA、MIG/MAG和DC TIG焊接设备选择，易于使用且便于携带。

Minarc Evo系列所有机器都包括节能的功率因数校正(PFC)技术，可以通过单相230V，16A工业电网在35%负载持续率下提供最大输出电流，而且完全符合最新的欧洲EMC谐波指令，IEC6000-3-12。

这些焊机专门用于专业的工业修理和维护工作，包括农业和园艺应用、焊工培训学校以及DIY应用，而且还能用发电机电源，包括超长的100m+延伸电缆，使其适用于车间地板和现场。

MinarcTig Evo 200MLP逆变焊机

Minarc Evo 150是MMA/TIG焊机，对于MMA焊接，35%负载持续率下额定电流为140A；对于TIG焊接，35%负载持续率下额定电流为150A。它结合了精确的引弧、大电压储备和自动电弧动态控制，使其能够使用各种焊条进行焊接，而且还有大的LED仪表显示盘、远程电流控制选择以及TIG提升引弧。MinarcMig Evo 200是MIG/MAG焊机，焊接能力大，选择包括自动或手动模式设置，确保精确的焊接质量和引弧，由Kemppi的自适应焊弧调节系统监控。35%负载持续率下额定电流为200A，有一个大的LCD图形界面便于用户设置。自动模式使用户能够简单地设置板厚和焊缝。材料选择包括黑色金属、不锈钢、铝以及CuSi焊丝，能满足各种工业应用。

MinarcTig Evo 200和MinarcTIG Evo 200MLP是两种TIG/MMA焊机，带精确及改良的HF引弧加上必要的控制，电源和工作能力，能可靠地完成各种专业的TIG焊接任务。对于TIG焊接，35%负载持续率下额定电流为200A；对于MMA焊接，35%负载持续率下额定电流为170A，他们是轻工业制造、安装、修理及维护应用适用的直流TIG焊接解决方案。功能包括气前气后时间控制、电流增加和减少时间控制以及远程控制选择。MLP版配备有Minilog控制以及半自动电弧脉冲功能。MinarcTig Evo是双工艺焊机，还提供直流焊条系列高质量MMA焊接。

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高灵活度卷闸制造新技术

顾客们越来越不热衷大规模生产，相反他们想要适合自己需要的产品。而且，一旦决定购买，他们不愿意等很长的交付时间。如果他们不满意，你就会像得到一样那么快地失去他们。这句话也适用于卷闸生产。按这些要求设计生产的制造商们将在招揽客户的竞争中占据优势。

要保持相关成本增长在控制之下并不容易。在斯图加特R+T展会上，Dreistern展示了卷闸百叶和卷闸门盒新制造概念，能够为这方面提供帮助。在两种情况，这一概念都是高度灵活的制造解决方案，能够经济有效地生产最小批量产品，因为在产品更换上设置时间非常短。

目前，卷闸百叶生产机器进行产品更换时很容易就花掉两个小时或更长的时间。许多制造商因此完全不更换工具，而是选择用不同的机器生产不同的产品。这样，产品型号变化受到可用机器数量的限制。这种情况常常不能满足客户需要的灵活性。使用这个新的系统，整个产品系列更换时间可减少到四分之一(不到30分钟)。最受欢迎的是，通常，旧机器也可以用新系统升级。

这并不是新辊轧成型系统的唯一提高点。用于制造泡沫填充的卷闸的现代化辊轧成型机器上的工具具有很多调节功能。工具制造商利用这些特点完美地将心工具修正到最高品质。在日常生产中，只有很少的调节功能需要用来补偿偶尔的材料波动。

在最坏的情况下，产品质量甚至可能会降低，如果，比如机器操作者因缺乏专业知识而做出错误的设置。但现在这种情况将会成为过去。新一代Dreistern工具独有日常生产实际所需的那些调整功能。其他行业经验表明这个步骤使报废数量减少了至少30%。

新系统概念的多功能性并不降低生产力。如果更换产品设置时间只需要几分钟。每40秒就有一个完整卷闸门盒离开机器。因此，没耐心的顾客不需要为他们的新“专门设计的卷闸门盒”等太长时间。卷闸制造商也有理由高兴。因整个系统惊人的生产力，无需担心成本效益损失，即使是生产极端的产品。

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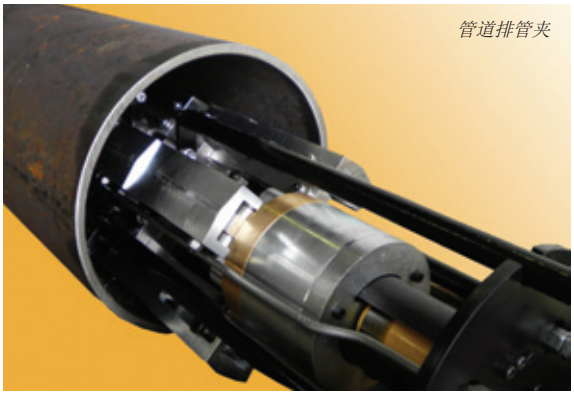
卷闸百叶机67

HPC——内对管器


管道排管夹

管道施工中焊接质量是至关重要的，而且必须符合国际权威机构认证的世界标准。

一些公司，如Norske Veritas，通过使用最好的管道设备，设定了准则，来避免缺陷以及因其引起的环境和健康风险。

非常重要的是应选择正确的内对管器用于焊接准备，来补偿管道制造商造成的公差以及避免焊接过程中边缘未对准。内对管器目前是最常用的对准设备，因为在整个焊接过程中，它能够提供焊缝全接触。

这种新的创新型系统HPC是第一次在2012杜塞尔多夫管材展上展出。液压系统提供6" 到 60"范围内所有尺寸而且是可手动或全远程控制的系统。

与外对管系统相比，HPC可提供快速精确的调整，无需拼焊，而且可以直接完成根部焊道。

它有助于避免椭圆管问题，而且能用于不同壁厚的管道。通过遍布的管托可以施加均衡的力，提供精确的轴对准。在管道施工中，管子内部对准可由液压或气动内对管器完成。但与气动内对准系统相比，液压驱动提供更多的好处。脚部不需要对每个内径调整，而且HPC对管器范围比气动系统大。

现场无需高压压缩机，而且系统维护也降低了。

DWT GmbH – 德国
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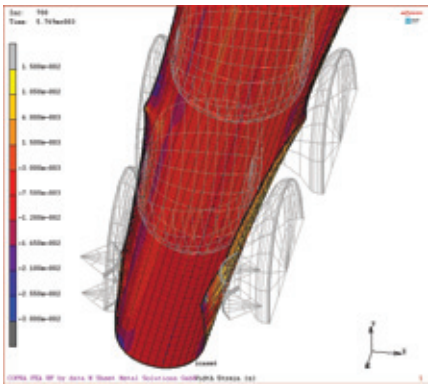
来自日本的辊压成形技术


Sanyo Seiki利用有限元分析技术

Sanyo Seiki Co, Ltd有限公司是来自日本的成型辊制造商，正以“技术，从这里到世界”的口号扩大全球业务。

公司自2007年开始进行辊压成形分析。分析将显示每个工作站是怎样进行成形加工的，并能显现各种成形缺陷，如边缘波纹（在薄壁管成形时最易发生的）、扭曲、翘曲或型材切割变形。使用此方法，公司能够设计各种对抗措施，无需进行实际成形。

2009年，Sanyo Seiki 的 Partial Step Forming 成形法技术获得了JSTP (Japan Society for Technology of Plasticity)技术开发奖。该技术是将加工硬化控制到非常小的一种方式, 同时成形电阻焊管。在过去, 管道需要艰难的二次加工，如汽车消声器, 必须退火来防止管道内部应力。该技术获得了好评, 因为它能够无需退火工序而且削减了成本。

公司去年拿到了来自俄罗斯Vyksa Steel Works的一份重要的合同，收到了制作1492个轧辊的订单，材料总重量为1267吨。制作由4月份开始，12月份完成。Sanyo Seiki将参加三月份举行的杜塞尔多夫管材展

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小巧的新型侧装机

Bulmor的侧装载机

著名的Bulmor叉车集团——著名Lancer和 Baumann品牌制造商——非常骄傲地公布了Bulmor旗下新的小巧型Qc 30-40系列带公司独特的蓝色标志的侧装机。

这一系列提供了三吨和四吨装载能力的专业侧装机。他们为那些最大的空间利用以及安全的材料搬运对其很重要的应用提供了全面的多功能性。

紧凑的设计节约了空间以及成本同时，同时侧装机系列结合了最佳人体工学标准，包括一个可调手柄以及加高了操作人员座位以确保视线不受阻以及全方位视觉。

十二英寸的车轮能够平滑行驶可以跑长途——而且像所有Bulmor系列一样，这种新车是坚固可靠的，而且完全配备了所有独特的特点和优点，而且质量不打折，以及包含相同的的机柱、轴以及液压部件。Qc机配备有标准的道路照明，很容易在街道上行驶。

作为标准配置，Bulmor侧装机配有半驾驶舱，但也可选全驾驶舱，这样就还需要加热器和通风系统。同样，大型气胎为驾驶员带来了与Pendeling系统在路面不平造成的震动时保持平稳一样多的舒适度。

该装载机有柴油和液化石油气型，而且Bulmor以拥有Perkins品牌引擎而自豪，因为它的可靠性、动力以及服务支持。

简言之，Bulmor Qc 30-40是行业专家正确而安全的选择。

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各种各样按系列生产的产品

来自Jacob的模块化管道加工系统

JACOB Pipework Systems已增加了其按系列生产的特殊产品范围。到目前为止销售了约200,000的专利Jacob接地桥正补充了新的型号——万能接地桥。

这一更新有了更广的应用领域，替代了用于管道系统静电为均衡的传统接地电缆。因这种桥是用螺栓与Jacob拉环固定的，不需要焊接，即使是改装现有的系统。

额外的防腐系统和抗粘涂层的差异得到了不同衬里管道和管件的证明。各种不同的衬里材料和厚度适用于满足客户要求。用厚度为2到8毫米的久经考验的聚氨酯衬里或专业品牌的衬里进行管道内衬以最大化管道服务寿命是普遍的选择。这些也能用于食品级标准，如需。

新的Jacob Hygiene Distributor适合部件快速简单的拆卸和重新组装所需的内表面快速清理。分布器创新的设计使其在已被安装的状态下实现这一功能。整个轴以及皮瓣部件能够非常容易地拆卸并重装，无需使用工具。

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新型线圈成型机

BURR Oak Tool Inc有限公司提供线圈成型机，用来生产一端连接的单排线圈或多个单排线圈弯曲。该机器能处理60"宽3米长的圆形和扁形管线圈，用于大型商用HVAC/R的应用。一个单的垂直定位的弯曲轴可生产一个、两个或三个90°的弯曲，形成L型、U型或盒装线圈。

新型线圈成型机是全电动的，比传统的液压机更节能、更精确以及更低维护。RFID将部件数据与弯曲范围匹配，避免半径成型错误，防止昂贵的线圈报废。还可利用的选择包括滑托盘、线圈长度测量、内部带圈推出器、条形码扫描仪以及线圈分段工作台。65年多来，Burr Oak Tool Inc有限公司为传热和管道加工行业设计和定制了生产机器。

Oak机器在70多个国家安装和成功运行。为全球客户提供优质的机器、服务以及部件加强了Burr Oak的口号：“全球经验，当地解决方案。”

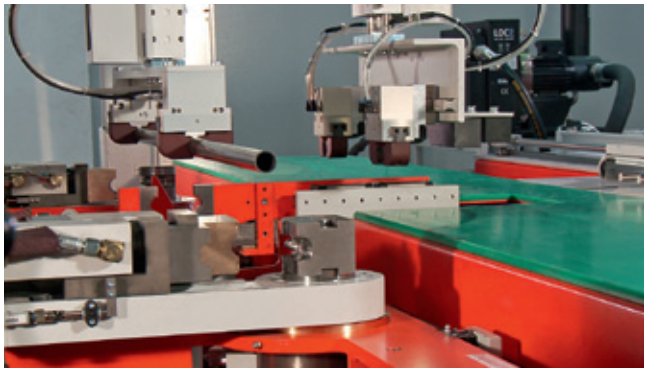
电动成圈机

Burr Oak Tool Inc – 美国
网址: www.burroak.com

transfluid工艺提高了生产性能

如果有特殊要求，有时少一点就是多一些，以便优化高质量成果输出。在管道弯曲技术领域证明transfluid Maschinenbau GmbH公司有办法将简单过程智能而有效地互相连接起来。因客户要求，transfluid的专家们现在开发了一种经济的系统，用于自动生产有六个弯曲的封闭式管框架。在弯曲过程中，框架端部降低并合并起来。整套设备解决方案包括一个额外的压紧装置，在这里制作好的管框架是自动插入的。

“所面临的挑战是为我们的客户创造一个最佳工艺，确保有效结果快速、方便。而且循环时间仅为15秒，”transfluid总经理Gerd Nöker解释道。在建立和发展中，transfluid一开始主张整个系统无需人力能运行1小时。为此，该方法有一个能容纳240根直径30毫米的管道料斗。在分开后，长度再次被测量，而且一个管端自动降低，以便两端随后能够互相执行。



transfluid 的弯管机

弯曲过程由一台配有两个轴向伺服电动定位头的transfluid双头弯曲机执行。“两个弯曲头通常是同时使用的，驱动也是伺服电动的，”Nöker先生说到，“弯曲过程中工件定位提供了端头之间的自动连接，形成一个封闭的框架。”最后，是自动移除和送入到压紧装置。有各种压花冲床固定框架。通过附加的不同的压平和冲压，可保证随后的刷漆过程中，油漆能顺利流动。

transfluid Maschinenbau GmbH – 德国
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网址: www.transfluid.de

辊轧成形工业模拟

DATA M Software India (dSI)公司为印度和东南亚金属板冷轧成形工业提供Copra® RF（辊轧成形）软件。

Copra RF是转为管道工业以及简单和复杂金属板型材辊轧成形工业量身定制的。该该软件为开口式和封闭式（焊接的或锁缝的）型材提供了多种模块，使工程师能够设计、优化以及验证（生产过程高端仿真）随后的轧辊工具性能。产品组合还包括光学扫描系统，用于轧辊工具质量控制。

为了软件能快速使用，dSI在印度和邻近国家用当地资源提供培训和售后支持。公司不仅培训怎样设计和模拟软件，而且还讲授金属板材成型基础知识。培训通常分两个阶段进行。第一阶段之后，工程师们有足够的时间实习并为第二阶段做准备，第二阶段包括Copra RF怎样在他们公司的环境应用。dSI还提供热线支持与网路培训。

作为当地合作商，dSI在第一个实时项目中提供支持，从产品开发项目一开始就帮助客户。公司还协助客户开展“首次就做好”的方针，在最佳时间段里以最少的成本或不必要的机器停机时间成功开发全部产品。轧辊工具设计、优化、验证以及工具组故障诊断是dSI为印度辊轧成型工业提供的特殊服务。

Copra FEA RF软件通过非线性弹塑性计算模拟辊轧成型操作，使产品质量检测在新工具组投入生产前进行。该软件还能用于辊轧成型之后的操作，比如管道拉拔、弯曲、开口型材在线弯曲、环轧以及型材拉弯。

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复合管材生产线控制

一个测量仪器可以是非常先进和精确的：但仅集成到生产线上，并不能为管道制造商提供决定性的优势。只有直接控制过程才能管理生产。下面的例子显示了复合管材挤压生产线不同的控制方法。

复合管道是由内部PE-管做成的，上面有很薄的铝层，外面还覆盖了PE层。每层塑料层靠粘结层与铝层连接。使用X射线测量系统，如X-Ray 6000，可以测量和控制复合管道的内径和外径以及单层壁厚。此外，还能检测到内部管道的缺陷。

无需操作者介入的生产线自动控制如今使生产工艺的改进成为可能。从直径的设定点和实际差值，到壁厚以及调整变量不断通过控制模块计算出来并直接传送到生产线控制系统，比如通过Profibus接口。调整变量考虑产品规定的最小值离心率和统计数据。这是最现代化的控制方法，因为控制参数是直接通过Profibus接口传送到生产线控制系统的。

不是每条生产线都可以用这种先进的方法控制的。有很多生产线是直流驱动的。这些通常对0到10伏信号有效。0意味着生产线停止，10伏意味着最大线速度或挤压机转速。两大变量都可以连续交替控制，以最高精度达到标定值。规格公差限制是没有要求的。我们很难发现接触控制(电机电位器)。对于这种控制类型，操作者有两个按钮可以使生产线运行加快或变慢。通过这两个按钮控制电机电位器。随后，两个按钮被控制模块触体替代。这在80年代的现代控制系统中，不连续地工作以及要求无控制介入的情况下公差带是可以接受的。

通常会遇到热或冷值控制的问题。如果热直径被测量和控制，则材料收缩是未知变量。问题是不是全部直径都收缩，而仅仅是外部的PE层收缩。这就是固定百分比收缩值规格不能解决问题的原因。应根据产品类型，考虑单独计算收缩值。

另外热值控制的从冷端控制可能是有局限性的。对于低线速度运行过程，该方法是不太合适的，因为产品参数反馈由于时间延迟而仅仅晚了点。

20世纪90年代早期，Sikora推出了Hot-Cold-Control控制。在那时，这种结合了快速测量以及热值控制优点的专利方法控制与终端客户相关的产品尺寸，即冷测量值。根据热/冷差值不断计算出材料收缩量，而且自动考虑到了直径控制。因特殊的生产线配置或产品结构，不太可能直接在挤出机后面安装测量系统。对于这些应用，可使用带虚拟热测量头的软件概念，这一概念应知道生产线控制行为，并通过计算进行冷/热控制，无需热测量头。至于直径与壁厚,线速度或挤出机转速是可控的。因为通常的疑虑是，采用挤出机控制,热平衡会被打破，如果生产线只配了一台挤出机，则软管和钢管制造商们更新换线速度控制。但，对于串联生产线，挤出机转速控制是典型方法。

如今，生产线在线控制是一个工业标准。而在过去生产过程最后阶段的质量保证以及产品数据离线储存是重点，现在材料节省和生产线产率提高变得越来越重要。现代控制方法，如直径热值控制，生产线冷端控制或热/冷控制，结合精确的测量仪器，对生产工艺的持续提高做出了很大贡献。它们可以与生产线控制直接沟通，并能为最佳生产工艺提供实时控制。

与处理器系统Ecocontrol 6000结合使生产数据可视化以及得到控制

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集成到挤出生产线的X射线测量系统X-Ray 6000测量软管和管道壁厚、离心率、内径和外径以及椭圆度

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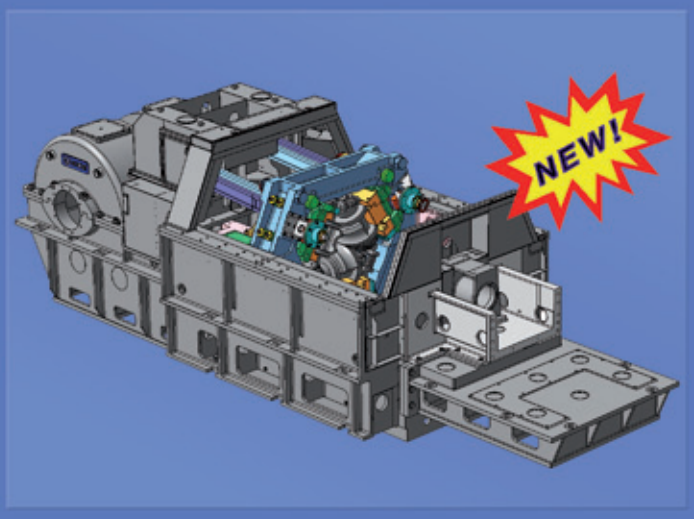
CRTM350-8型皮尔格（周期式）冷轧管机是用于生产外径140毫米 - 325毫米的碳素钢、合金钢和不锈钢材质的冷轧无缝钢管。该型号冷轧管机生产出的钢管具有精确的壁厚和内外径尺寸，高质感的内外表面和优良的金属构造。该设备已经售往中国的TISCO公司，并且已经投产使用。



新技术产品：CRTM380特种型号冷轧管机

俄罗斯EZTM股份公司新研制了一款型号为CRTM380的特种型号皮尔格（周期式）冷轧管机，该设备用于生产碳素钢、合金钢和不锈钢材质的冷轧无缝钢管。

该冷轧管机生产出的钢管具有精确的壁厚和内外径尺寸，高质感的内外表面。所生产的钢管广泛用于航空航天技术领域、石油化工行业、造船业，以及其它领域。



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机器人通过法兰连接到管道焊接装置

当荷兰公司Kranendonk被要求帮助提高管道焊接质量、生产灵活性、循环周期和交货时间时，它用世界上第一台通过法兰连接到管道焊接装置的机器人作为回应。

法兰连接到管道装置的是机器人生产系统，用于将法兰和管座组装和焊接到管道上，用于海上、造船、石化工业定制管道基础设施。这一创新型系统由安装在滑轨上的四个同时操作的机器人组成。

这些机器人利用视觉技术自动定位、跟踪以及将各种法兰和管座焊接到任意所需长度的管道上。

系统所需的信息从CAD设计加载。因为事先计算了变形之后管子随后将被弯曲。按正确的长度切割管子，并根据变形信心计算螺栓孔的方位。

两个大的机器人用特殊的工具拿起法兰。在拿起的过程中，集成视觉系统确定法兰的位置和方位。视觉系统可弥补管子的尺寸并将法兰与管子对准。两个小的机器人将法兰点焊在夹持的管子上。在点焊之后，管道以焊接速度旋转，同时四台机器人同时焊接全部法兰。完成之后，管道转移到输出缓冲区。

生产线由一名操作工通过完整的图形操作界面进行操作。ARAC软件的菜单结构和按钮引导操作者用正确的命令来执行某项任务。

结合高精度、更快的交货时间以及易于控制等特点，该系统有助于提高生产率，以及更多的控制生产过程。

Kranendonk – 荷兰
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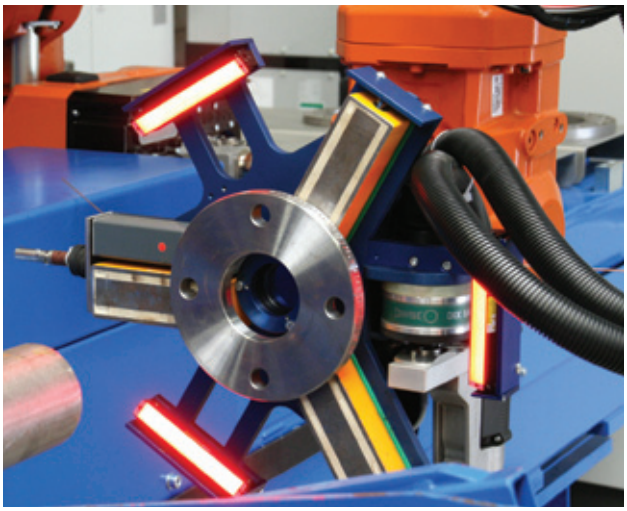


带锯的卫星导航

很明显，近年来，带锯机和带锯锯片技术已取得巨大进步，但这并不意味着我们可以放松，因为目前仍缺乏机器控制方面的技术。

决定锯片以什么样的速度运行以及决定机器的向下进刀速度是操作者的“经验”，这意味着是锯机操作者而不是管理人员在控制生产，而且是锯机操作者在主宰锯片寿命和成本费用。

所以，目前影响切割效率的最重要的因素是操作者的经验。决定锯片速度的是操作者的经验，向下进刀也是操作者的经验，这意味着是操作者在间接决定锯片的寿命。

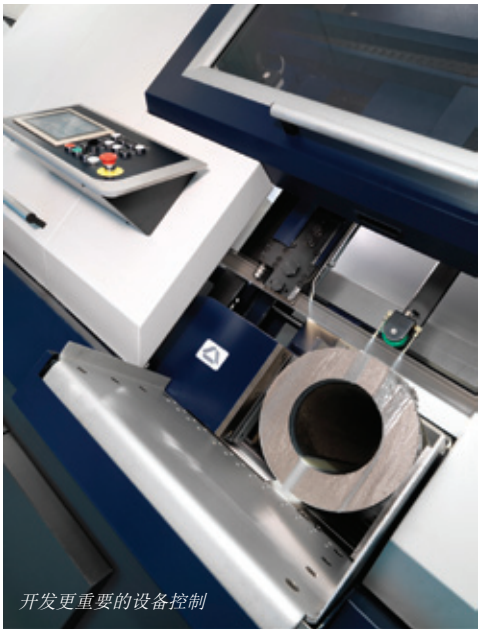
Danobat推出了新的iSOFT控制系统来消除这一因素。这个新系统使公司能实现最大生产率，最佳锯片寿命，以及操作者参与最少。

从一个非常简单的屏幕简单地选择不同选项，机器就能自动工作，比任何人都更可靠。在不同选项中，用户可以找到一些参数，比如：材料等级，所以一旦在碳钢、不锈钢、镍铬钛合金或有色金属材料，实心的或管状的，之间进行了选择，机器将自动设置切割速度和锯片速度方面的参数并将根据材料的横截面以及锯片的情况不断自我调整，

在大多数材料规格预编到iSOFT系统的同时，还有一些备用程序，公司能够加入自己的特定材料组，如需。另一个独特之处是能自动“运行”新的锯片，不管它是双金属、硬质合金或一种新的锯片（futurible nueva cinta）。这是一个往往被忽视的领域，并导致锯片过早损坏。

有了Danobat系统个，不仅能排除猜测工作，而且允许操作者放入特制锯片，以确保按照正确的程序运行。

该机器还将计算每个切割部件的重量并在控制台上显示出来。iSOFT系统带来的结果是最高产量以及最佳锯片寿命。



开发更重要的设备控制

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无毛刺切割和磨削

真正的无毛刺切割和磨削很容易在Everite Machine Products的电化学管道切割机和表面磨削机独特的生产线上实现。通过将金属电化学溶解无应力原理与磨削的精度结合，使快速、清洁、精确以及无毛刺切割成为常性。

Electrochemical Grinding或ECG能有效切割几乎所有导电材料。材料硬度和可切削性对速度和刀具寿命影响很小。这个过程非常简单——低电压、大直流电流用于导电砂轮（阴极）和工件(阳极)之间，合适的电解液流到整个电化电池。材料开始氧化，使砂轮里面的磨料以很小的热度或应力进行切割，因而无毛刺。该技术已被广泛用于切割皮下注射针、插管和其他医疗相关产品。许多其他行业比如航空航天、色谱、汽车、核能、半导体和换热器管道加工和制造公司已发现ECG的无毛刺、无应力优点将带来减少劳动力以及提高加工能力的优点。ECG最常用于不锈钢以及高温合金钢，但ECG工艺也能快速精确去毛刺地切割几乎所有金属。ECG对薄壁、易碎以及热敏感金属也是理想的。

Everite SR8属于我们最新一代管道切割机。这个重型伺服控制切割机有一个易于操作的界面，对快速、精确以及无毛刺切割来说是很理想的。

Everite Machine Products – 美国
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高精度激光切割

来自Yamazaki Mazak Optonics的Mazak 3D Fabri Gear是一台同于大型管材和型材的三维激光切割机。它能够以一次单机设置不停地切割不同的形状，用一个通用的聚焦割炬 (7.5" 和 5")在任何一个点都能获得适当的倾角。这能保证不同形状切割部件之间的完美匹配，并为焊接操作开出适当的坡口。这一技术特性可为木工建设实现构件的高效加工。

该机器配有四个夹盘，用来加工长制件；有自动、紧凑型定心夹，使废料最少化；以及可以双侧纵向运动。自动装卸系统能处理最大长度为15米、最大管道直径为323毫米以及最大截面为250x250毫米的管材及型材。

数控控制管道形状，使用测量系统检测工件的形状破坏。因切割炬旁边有一个特殊的装置，可以将焊缝定位在一个方便的位置上。

Yamazaki Mazak Optonics 是日本Yamazaki Mazak Corporation公司的激光分部。Yamazaki Mazak有八家生产工厂，50个科技中心和45个技术中心。

2008年，公司创立了Phoenix Laboratory——一个独特的未来派工厂，拥有10000多平方米生产区域，20米地铁，用来创造先进的激光技术。

新的Mazak World Parts Center中心与全球分销中心联系起来，为全球提供备件。

所有生产工厂都有研发中心，为客户需求开发最合适的解决方案。

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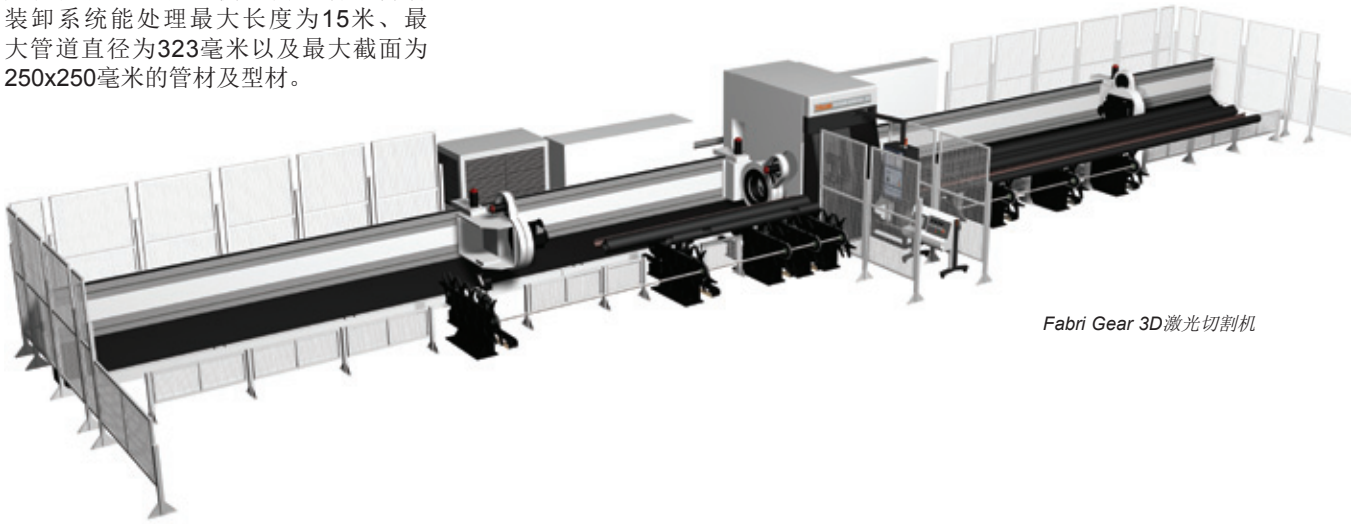


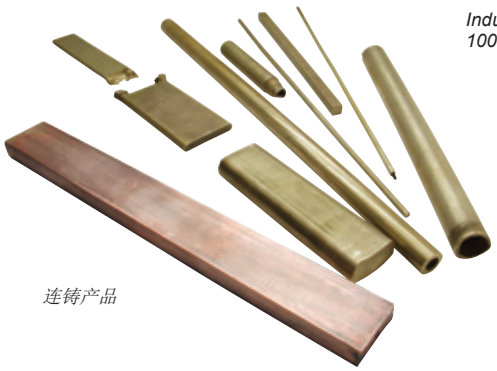
Fabri Gear 3D激光切割机

连铸机提供灵活性

INDUTHERM连铸机设计用来帮助节约生产成本，提高生产灵活性。在几分钟内就能生产任何合金每个所需尺寸的管材、带材或线材。

公司声称其连铸系统是市场上唯一一个提供可选真空功能的系统。使用这些机器，可以在真空或惰性气体环境下完成熔融。这适合所有含铜合金，比如黄铜、青铜、银或纯金，因这些材质很容易氧化。

在真空下除气使半成品得到提高，因为没有氧化还原反应。



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Indutherm VCC 1000真空连铸机

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AKE是有着多年开发和生产经验的圆锯锯片生产商。

其客户包括来自金属加工行业各个领域的专家。公司提供技术以及经济效率，用来不断改进生产过程。

AKE生产的Wagner是高性能锯片系列，用于切割钢材、有色金属及复合材料。

这些圆锯锯片应用领域将包括平均切割范围为80毫米的固体材料切割，尤其是对刃口质量以及锯片公差要求越来越高的领域。

“tubeExtreme cut”精密圆锯锯片代表了这家成立已久的公司另一个成功的开发——该产品有连接的硬质合金刀头以及一个非常小的4.5毫米的齿距。该锯片适合所有薄壁管材和型材，通过利用好的导向功能，可提供高质量的切割，而且因切口薄，材料利用率高。超小的齿距使进给速度很好且周期短。

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Weld setup, variable frequency and heat affected zones in high-frequency tube and pipe welding

By Bjørnar Grande, Olav Wærstad and Peter Runeborg (EFD Induction)

The article investigates the impact that geometrical changes in the weld zone have on weld frequency and the Heat Affected Zone (HAZ). The article evaluates the consequences of controlling HAZ by a variable frequency option. The article points out the importance of weld setup control.

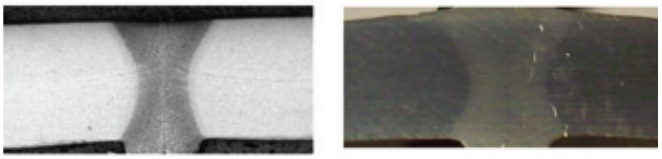
Introduction

Tube and pipe manufacturers aim to achieve and repeat successful production runs – something requiring knowledge of the impact of many parameters in the manufacturing process. One of the first theoretical research works based on Finite Element Method calculations on the two-dimensional (2D) heat affected zone (HAZ) was published in 1998, with the focus on weld frequency [1]. Further studies focused on geometrical variables of the weld vee [2, 3]. A key result of this research was the realisation that geometrical parameters have a significant impact on the HAZ. This suggests that more attention should be paid to weld setup control in order to obtain the desired HAZ.

In addition to the use of welder recipes (tube identification, power set point, energy monitoring factor, etc) weld setup recipes should be used to maintain the HAZ for all production batches of a product [9]. Other published research focused solely on the weld frequency's impact on the HAZ, and has resulted in a proposed welder concept that includes frequency adjustment to control the HAZ [6, 8]. This paper, from a principal point of view and based on a 2D model of the HAZ, investigates the proposed concept's ability to repeat a product's HAZ throughout production.

Heat affected zone

The heat affected zone is typically defined as the area of base metal where the microstructure and material properties have been altered by the welding process and subsequent re-cooling. One author defines the HAZ as any metal heated to 650°C (1,200°F) or hotter [4]. Figure 1 shows two weld samples, wall thicknesses of 2.8mm (0.11") and 8.9mm (0.35"), for two common steel materials. The hourglass shape of the HAZ is clearly visible, showing that the heating of the faying strip edges is not uniform across the wall thickness.



a) 2.8mm wall, steel

b) 8.9mm wall, steel

Figure 1: Real 2D heat affected zones

HAZ control concept

One main objective of the proposed HAZ control solution is to reproduce the HAZ of an earlier production run [5, 6]. The proposal makes two separate but related claims:

1) It is possible to calculate the 1D temperature distribution in the x-direction, and the maximum vee wall surface temperature at x=0, provided we know certain tube material properties, the weld speed and the weld vee length (Figures 2a and 2b)
2) Weld frequency and welder output power can control the 1D temperature distribution in the x-direction, and the maximum vee wall surface temperature at x=0

With the ability to estimate the shape of this heat distribution, the HAZ width can be calculated and controlled. The HAZ width is given by the temperature assumed as the lower limit of the HAZ. It is denoted ½ * HAZ in Figure 2b, since the total HAZ is given by the area of heated material on both tube wall edges.

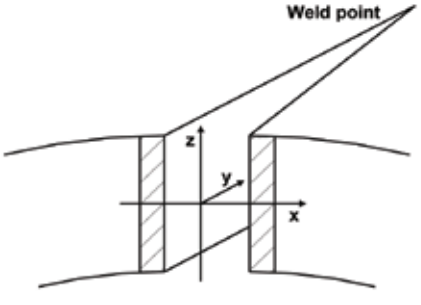


Figure 2a: System of axes

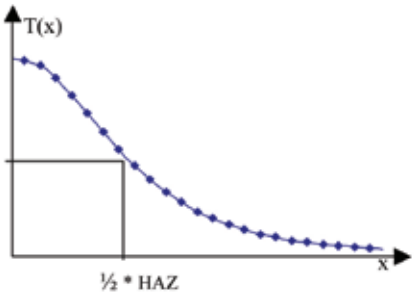


Figure 2b: Temperature distribution

If the calculated HAZ width is not as requested, the weld operator or a computer must adjust frequency according to the following:

- Calculated HAZ width < requested HAZ width ⇒ reduce frequency
- Calculated HAZ width > requested HAZ width ⇒ increase frequency

In addition, welder output power is adjusted by the operator or calculated by a computer program to give the required energy input to obtain the requested HAZ width and weld temperature at the vee wall surface (x=0).

The HAZ at the weld point is the most significant parameter, so T(x) is calculated at y = vee length. The whole concept is based on uniform current distribution in the weld vee walls and a uniform temperature across the weld; that is, a 1D model [8].

Parameters influencing the HAZ and investigation procedure

A number of parameters influence the weld temperature and heat distribution in the weld vee, thereby affecting weld quality. Loebbe presents 16 such parameters [7]. Focusing on the HAZ and the geometrical parameters that can change over time in the weld zone, we examine the following:

- Weld vee angle and springback
- Moving weld point, continuously changing position
- Non-stable vee angle ('breathing' vee), continuously changing vee angle
- Distance weld point – coil (or contacts); the vee length

One idea critical to the proposed HAZ control concept is to reproduce from an earlier production run the temperature distribution and the maximum weld temperature at the tube wall's surfaces. In the proposed concept, the two parameters to be adjusted (by the operator or computer system) are the welder frequency and welder power. The first step is, therefore, to determine how changes in the weld setup parameters alter the resonance circuit's frequency and the required load power. This is what we call the *process response*. The second step is to identify the adjustments of welder frequency and welder power, according to the proposed control concept. This can be called the *system response*.

The final step evaluates how this system response affects the HAZ, which has already been altered by the initial change in the weld set-up (compared with the previous production run). This lets us evaluate the overall value of the proposed system.

Process response

The resonance frequency for both series and parallel resonance circuits is given by:

$$f_0 \approx \frac{1}{2\pi\sqrt{(L_i + L_{Load}) \cdot C}}$$

Note: Valid for both current-fed and voltage-fed inverter-based welders

C is the total capacitance of the electrical circuit and is given by the installed compensating capacitors inside the welder's cabinet. L_i is the internal inductance of the welder and consists of the inductance in coil leads, busbar and the output circuit parts inside the machine's cabinet. L_{Load} is the load inductance and, in the case of induction welding, can be divided in three parts:

- $L_{OD\ tube}$; mainly due to air gap between the induction coil and the outside surface of steel strip
- L_{Vee} ; mainly due to air gap between the strip edges in the weld vee
- $L_{ID\ tube}$; mainly due to impeder and air gap between impeder and inside surface

The two last inductances are in parallel in the equivalent electrical circuit (Figure 3). The process responses are listed in Table 1. It is important to note that these responses are independent of welder type. These are the process responses. The symbol '-' denotes no change.

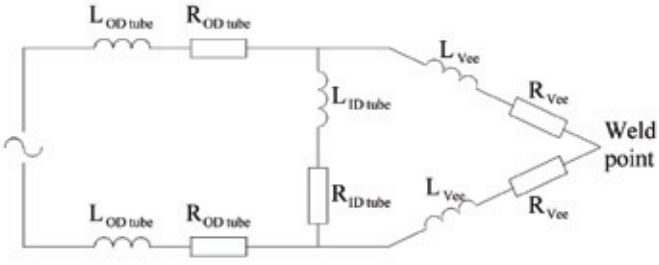


Figure 3: Electrical circuit model of tube (strip)

Table 1: Process responses to parameter changes

Parameter	Change	L_{vee}	L_{IDtube}	L_{ODtube}	L_{Load}	Frequency	Power
Vee angle	Wider	Inc(rease)	-	-	Inc	Dec	Inc
	Narrower	Dec(rease)	-	-	Dec	Inc	Dec
Springback	More	Inc	-	-	Inc	Dec	Inc
	Less	Dec	-	-	Dec	Inc	Dec
Moving weld point	Downstream	Inc	-	-	Inc	Dec	Inc
	Upstream	Dec	-	-	Dec	Inc	Dec
Vee length	Longer	Inc	-	-	Inc	Dec	Inc
	Shorter	Dec	-	-	Dec	Inc	Dec

System response

The investigation of the system response and its influence on the HAZ starts with a change in the weld vee angle. First, the proposed HAZ control concept [5, 6] is investigated, followed by an evaluation of a welder design (with constant internal inductance) without the feature of step-less adjustable frequency. In the proposed system, power input is one of two parameters to be adjusted. If power can not be adjusted within set tolerances of the reference run, the operator must check and adjust weld setup to get the same power as in the previous production run. This is exactly the same procedure as for a plain welder that does not include the proposed concept. All welders should have a feature such as a weld recipe for each product to be welded [9]. Power can then be compared against a recorded value for the reference product. Further investigation of frequency adjustment and HAZ control, therefore, will be based on required power being within set tolerances after a change in the actual parameter.

Weld vee angle

Figure 4 summarises the results of previous research [1, 2, 3]. A wider vee angle and higher frequency have both the same principal impact on the HAZ. In resonance frequency, the process response to a wider vee angle is a lower frequency (Table 1). The wider vee angle results in a more pronounced hourglass-shaped HAZ (Figure 4). To keep the calculated HAZ width unchanged, the proposed system's response to a wider vee angle is to increase the weld frequency to that of the reference production run. But, according to Figure 4, this response does not compensate for the initial change in HAZ, as would be expected for a control system. On the contrary, it amplifies the change by increasing the heating of the corners. The outcome of this situation, with the HAZ control concept, is that production continues to run, at a somewhat higher power (within accepted tolerances), with a more pronounced and amplified hourglass-shaped HAZ than for the reference run. A welder without the step-less variable frequency option also continues production with the changed HAZ shape, with the somewhat higher power output, but at the lower frequency (process response). The initial change in HAZ, due to the wider vee angle, is somewhat counteracted by the natural reduction in frequency (Figure 4). Figure 5 summarises these effects.

In case the initial parameter change is a narrower weld vee angle, the process response, the system's response and change in HAZ are all in the opposite directions. The final outcome is, however, the same as outlined above.

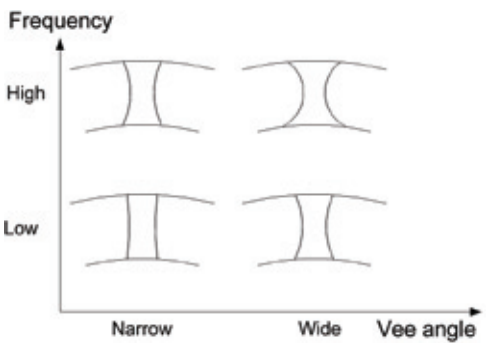


Figure 4: HAZ shape vs frequency and vee angle

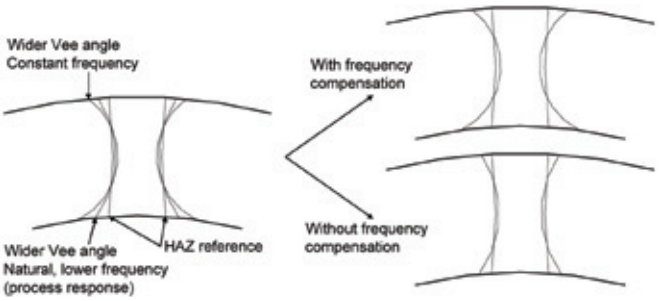


Figure 5: Implications of change to wider vee angle for the HAZ

Springback

The resilient flexing of the strip edges, also called springback, was investigated with respect to both heating of the corners of the strip and depth of heating in the centre of the tube wall [2]. The more pronounced the springback, the more pronounced the hourglass shape of the HAZ. The springback has the same influence on HAZ shape as the vee angle.

As can be seen in Table 1, the process response in the springback case equals that of the weld vee angle. The system response of the proposed HAZ control concept will then be identical to the one described above for the vee angle. The final result is that no real HAZ control has been achieved by the proposed HAZ control concept, which amplifies the initial change in the temperature distribution.

Moving weld point and breathing vee

Situations with a moving weld point and the 'breathing vee' are most likely to occur at the same time. As the weld point moves downstream and upstream, the distance between the strip edges increases and decreases accordingly. This is a situation with a continuously changing effective weld vee angle and length. Analysis of the results shows that the heat penetrates deeper into the material in circumferential direction both in the centre of the tube wall and at the outside and inside surfaces as the vee length increases [2]. The shape of the HAZ is relatively unchanged as the vee length (heating time) changes. But the overheating of the corners occurs as the heating time gets longer [3].

First, we assume that the weld point moves downstream. According to Table 1, the process response to an increased vee length is a lower frequency. Due to the request to keep calculated temperature distribution equal to the distribution of the reference run, the proposed system's response is to increase frequency. The initial, extra heating of the corners is strengthened by the increase in frequency. Next, when the weld point moves upstream, the opposite will happen. This means that the proposed system continuously amplifies the mechanically initialised HAZ changes.

Weld vee length

The distance from the weld point to the coil is an input value to the HAZ control system. Therefore, the evaluation in this

paragraph is based on an incorrect input to the system. The purpose is to see how the system responds to this flawed input. First, we assume that the vee length is longer than the input value entered into the system. The process response to a longer vee length is a lower frequency. The system is not aware of the wrong input, and the HAZ control concept responds by adjusting frequency up, in order to calculate a HAZ width equal to the one in the reference run. The initial increase in heating of the corners is again reinforced by the increase in frequency. The opposite amplification will take place in case of a vee length shorter than the entered input value to the system.

Considerations and limitations

The calculation model used in the HAZ control concept presented by Scott and others has two shortcomings [5, 6]:

1. The high frequency current in weld vee is assumed uniformly distributed in the strip wall [8]
2. The proximity effect in the weld vee is not taken into account in the model

The first limitation results in a current and temperature distribution in the x-z-plane as shown in Figure 6. This is a 1D model of the HAZ. However, the HAZ is two-dimensional (2D) in the x-z-plane for a large range of wall thicknesses. This is shown in Figure 1, where the hour-glass shape of the HAZ is evident. This implies that the equations used in the 1D calculation model do not accurately describe what happens, electrically and thermally, at the inside and outside corners of the strip edges in the weld vee.

Figure 6: 1D model of HAZ

Figure 7: 2D model of HAZ

When the proximity effect – a fundamental effect in high frequency current welding – is not a part of the weld vee model, it means that changes in weld vee angle, springback and other geometrical parameters in the weld vee are not properly handled by the proposed concept. A real 2D model (Figure 7) takes into account the proximity effect and can describe the effects that take place at the strip corners and in the tube wall centre when high-frequency current is present. Although pointing out the weld vee angle as one of the parameters affecting the HAZ width [5, 6], the proximity effect's influence on the 2D temperature distribution in the x-z-plane of the HAZ is neglected in the proposed system.

It can be argued that a 1D model is valid for thin-walled products, where the 2D hour-glass shape of the HAZ is less pronounced. The wall thickness at which a 1D model can replace the real 2D model depends on strip material and weld vee angle. Figure 1a shows the 2D model's validity for a wall thickness of 2.8mm (0.11"). The hour-glass shape is pronounced in this picture, indicating that the 2D model must be valid for even thinner products. A theoretical study based on Finite Element Analysis shows that the HAZ is still two-dimensional at a wall thickness equal to 1.27mm (0.05") for low-carbon steel [4].

Summary

The above evaluation focuses on the impact of geometrical parameters on the HAZ, and the influence frequency adjustment has in maintaining the HAZ when the weld vee geometry changes. Other parameters, such as coil and impeder, are not covered. The general result of this investigation is that the inherent response of the HAZ control system is to amplify the initial HAZ change caused by geometrical alterations, rather than opposing changes, which would be an expected and desired response of a control system.

This 2D-model-based investigation shows that the ability to adjust frequency as described in the proposed concept can not compensate for changes in HAZ shape caused by geometrical changes in the weld zone. For the investigated parameter changes, the inherent property of the system is to ensure a constant frequency, regardless of the reason for the initial HAZ change. It acts more like a frequency control, rather than a HAZ control.

It is difficult to see that a variable frequency welder, with the proposed HAZ control system, gives the tube and pipe manufacturer any real added value in maintaining the HAZ and weld quality for every production batch of a product. In other words: real and true HAZ control requires weld setup control.

In a welder with a constant internal inductance (no step-less frequency adjustment), there is no extra adjustable inductance present that can reduce or mask a change in frequency due to a deviating weld process parameter. A repeated and unchanged weld frequency (and power) is then the direct result of a successful reproduction of the reference production weld setup, heat affected zone and weld quality.

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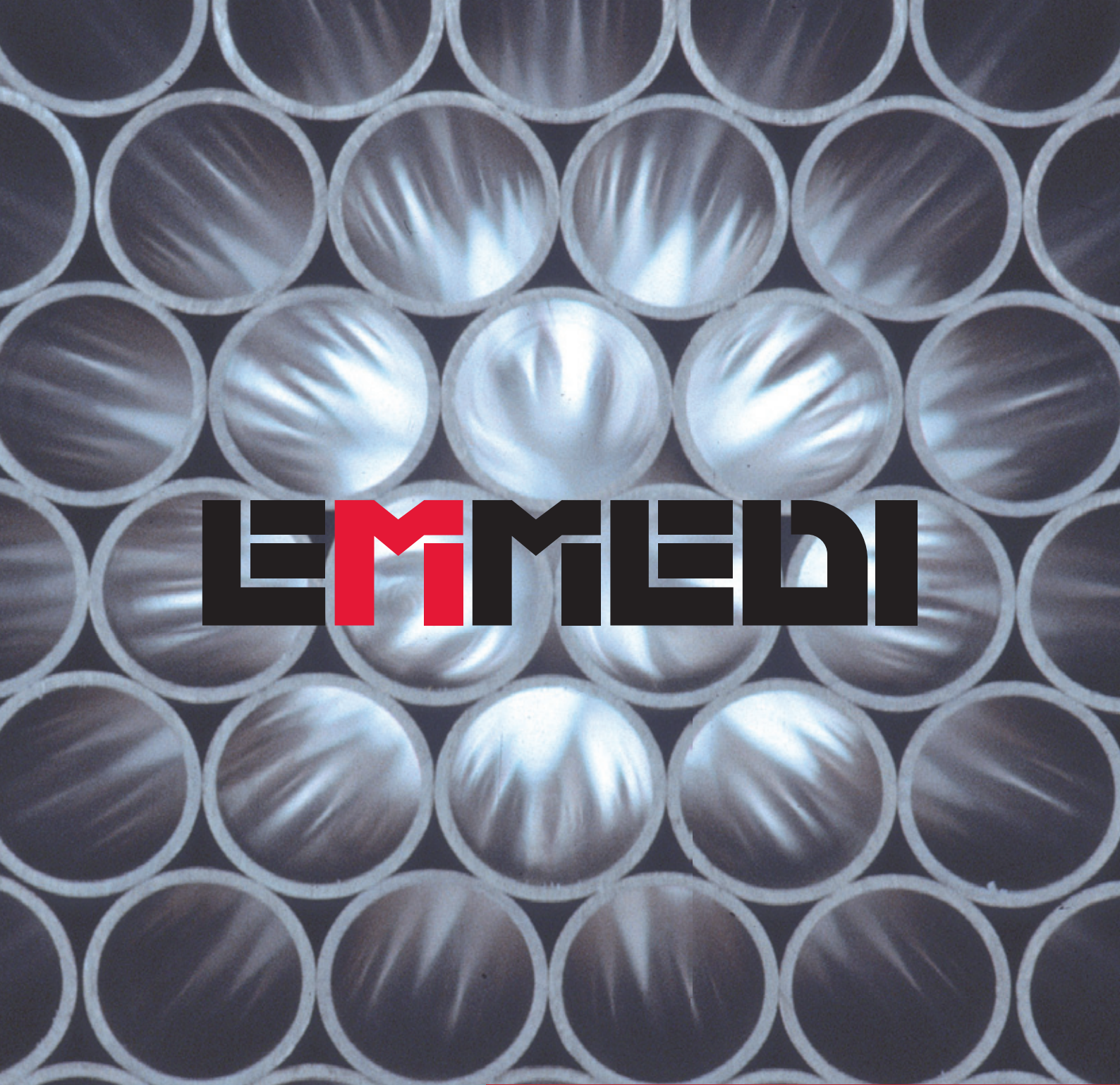

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