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JANUARY 2016

管道技術 Technology

VOL 29 NO 1

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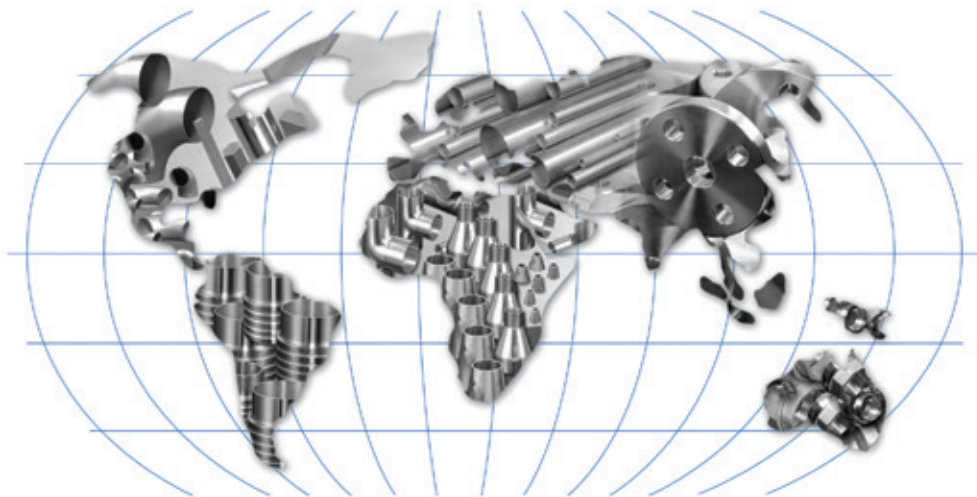


FINISHING LINE / 8"-24"Ø



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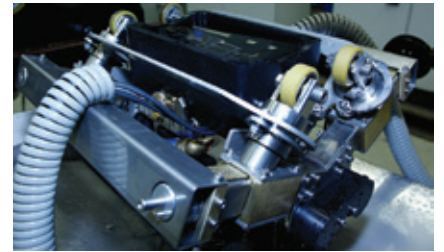
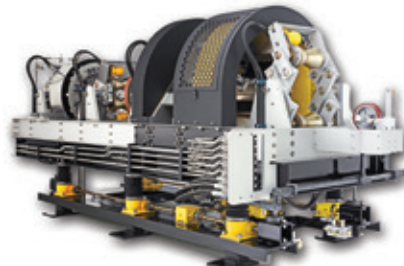
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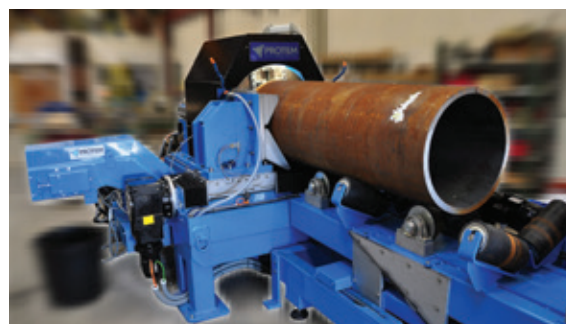
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Welcome to the latest issue of Tube & Pipe Technology magazine.



Rory McBride –
Editor

This issue we have features on inspection, testing & quality control and welding technology, equipment & consumables. We also have two in-depth articles, from Metalube about water-based steel rollforming packages and from Schwarze-Robitec on tube resource efficiency in shipbuilding and plant construction, as well as all the latest industry and technology news.

Next issue is our special Tube Düsseldorf show issue, so please do submit your editorial to be included in plenty of time as it always proves a popular and busy issue. The magazine will be widely distributed at our two stands at this fantastic show so it is a great opportunity to let readers know precisely what you will be exhibiting and where your stand is located. I hope to see many of you at the show. You can find us in the North Hall at stand EN03 or Hall 4 at 4B27.

In the forthcoming March issue we also have features on coiling and uncoiling technology, and tube scarfing systems and tools. The deadline for editorial is 7 January so please submit your stories to rory@intras.co.uk. The advertising deadline is 8 February.

I hope you enjoy the magazine.

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Metalube's water-based steel rollforming packages deliver new levels of performance at Top Tubes

By Wayne Thornhill, product specialist, Metalube



ARTICLE:

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Tube resource efficiency in shipbuilding and plant construction

By Dipl.-Ing. (FH) Jürgen Korte, sales manager, Schwarze-Robitec



On the cover . . .

From sheet metal strip to finished tube – SEUTHE is the one-stop source for standardised plant equipment and entire lines. In close cooperation with its customers, SEUTHE customises and tailors equipment and machines to fit to customers' exact requirements when it comes to worldwide steel tube and section production.

Innovative technology and various tube mill concepts for different requirements are in the product portfolio giving SEUTHE its excellent reputation – and its customers a competitive advantage. SEUTHE can now offer both groups more than ever since the owner-managed ASMAG group acquired the company in 2010.

In-house production, the technology alliance between both companies, the high quality standards and in-depth know-how of SEUTHE in the manufacture of machines and equipment for the production of longitudinally welded tubes and sections have catapulted the company all the way forward again – for the benefit of the customer.



AddisonMckee and Eaton Leonard announce global rebranding

AS of 1 November 2015, AddisonMckee, Eaton Leonard, Eagle, and Tube Fixture are operating under one name – Addition Manufacturing Technologies™.

Addition stated that an integrated world demands that companies operate seamlessly on a global scale while delivering locally in customers' markets, and this is why the companies have pooled their expertise and talents to work more efficiently and to create meaningful

solutions. Executive chairman Alastair Tedford commented, "Eaton Leonard, AddisonMckee and Eagle were all founded by pioneering engineers who built their success on engineering imagination and excellence and a strong commitment to integrity, their people, their customers and their suppliers. These three brands together with Tube Fixture will, in the future, operate as Addition Manufacturing Technologies.

Our business is the technology of manufacturing and our purpose is to provide manufacturers with the most advanced systems that human ingenuity can devise. Through this combination of talent and reach we have the size and diversity to continue our success."

Addition Manufacturing Technologies
– USA
Website: www.additionmt.com

Combilift wins Irish exporter of the year award for a second time

THE Irish Exporters Association has announced Combilift as the Exporter of the Year 2015 at the Export Industry Awards, which were held recently in Dublin. In their 15th year, the awards are the premier event to recognise the achievements of companies working in the export industry in Ireland.

Combilift took home the overall Exporter of the Year Award 2015 after also winning the Multinational Exporter of the Year Award earlier in the evening. This is the second time the award was scooped by Combilift, as it won the same accolade in 2008 as an SME.

Combilift developed the world's first IC engine-powered all-wheel-drive

multidirectional forklift and today exports its wide range of handling products to over 75 countries. Sales in the period from 2012 to 2014 rose by 48 per cent, underlining the company's almost unprecedented success in its industry sector.

Speaking at the ceremony, Hugh Kelly, president of the Irish Exporters Association, said: "We are delighted to announce Combilift as the winner of the overall Exporter of the Year 2015. Since it was established in 1998 by Martin McVicar and Robert Moffett, Combilift has grown to become a global leader in its field. The standard of award entrants this year was higher than ever before but

our judges were struck by the energy, ability and ambition of Combilift's management and employees to deliver strong results, year after year. They commended the continuous innovation evident in the company's product range, its standards of excellence in manufacturing and its contribution as a substantial employer in the Monaghan region. We wish Combilift every success in the years to come."

Combilift MD Martin McVicar commented: "We are honoured to have our achievements recognised by the IEA with the overall Exporter Award. We are also particularly proud to have come out on top in the Multinational Category where we were up against some very tough competition from major concerns such as Irish Distillers, Valeo Vision Systems and ABP Food Group."

The Irish Exporters Association (IEA) is the 'Voice of the Export Industry' in Ireland, representing the whole spectrum of companies within the export industry, including SMEs who are beginning to think about exporting for the first time right through to global multinational companies who are already extensively exporting from Ireland. The IEA is the connecting force for Irish exporters, providing practical knowledge and support across Ireland and in foreign markets.

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



MD Martin McVicar (centre) celebrates with the Combilift team

Sunnen appoints new COO

HONING technology leader Sunnen Products Company has appointed Chris Miltenberger (pictured) as president and COO, Matthew Sunnen Kreider, the company's board chairman, has announced.



"Chris brings a proven ability to identify and capitalise on the strengths of an enterprise, as well as the team members he leads," said Mr Kreider. "We believe his progressive leadership style and demonstrated technical competence will strengthen Sunnen and be great assets in guiding the company to a successful future."

Mr Miltenberger brings Sunnen 25 years of experience in operations, management and business development for industrial and automotive manufacturing companies. Most recently, he was director of manufacturing and logistics – North American operations of PlayPower Inc. Prior to that, he held positions of increasing responsibility with NN, Inc, ATC Drivetrain, Zolo Technologies and Delphi. Mr Miltenberger holds a BSBA from Ball State University, an MBA from Michigan State University, and a BSMET from Purdue University.

"Sunnen is a company with a great record of innovation in developing precision manufacturing technology that gives its customers competitive advantages," said Mr Miltenberger. "The culture and history of the company are unique, its future is bright, and I look forward to helping Sunnen realise even greater success."

Sunnen is the world's largest vertically integrated manufacturer of precision honing systems used in the manufacture of small engines, oilfield equipment, gears, fuel injectors, gun barrels, aerospace and hydraulic components. Sunnen employs more than 650 people at 12 worldwide facilities and holds dozens of technology patents.

Sunnen – USA
Website: www.sunnen.com

www.read-tpt.com

Diary of Tube Events

2016

METAV

23-27 February

METAV (Düsseldorf, Germany)
International Exhibition
www.metav.com



22-24 March

FABTECH Canada (Toronto, Canada)
International Exhibition
www.fabtechcanada.com



4-8 April

Tube Düsseldorf (Germany)
International Exhibition
www.tube.de



11-14 May

Lamiera (Bologna, Italy)
International Exhibition
www.lamiera.net



6-9 June

Tube Russia (Moscow, Russia)
International Exhibition
www.metallurgy-tube-russia.com



26-29 September

Tube China (Shanghai, China)
International Exhibition
www.tubechina.net



5-7 October

Tube India (Mumbai, India)
International Exhibition
www.tube-india.com



25-27 October

Indometal (Jakarta, Indonesia)
International Exhibition
www.indometal.net



25-29 October

EuroBlech (Hanover, Germany)
International Exhibition
www.euroblech.com

MAC to feature tube, bar & wire test systems at Düsseldorf

MAGNETIC Analysis Corp will be featuring test systems for tube, bar and wire in Hall 11, Stand 11J14 at Tube/wire Düsseldorf 2016. Using a full range of eddy current, ultrasonic and flux leakage technologies, the latest developments in MAC's Multimac®, Echomac® and Rotoflux® systems will be introduced at the show. Additional information on a variety of applications ranging from the 500mm ultrasonic/flux leakage system for inspecting large diameter pipe, to the new compact Minimac® 55 eddy current test for detecting short ID or OD defects, will be available.

MAC's 500mm test systems utilise rotary ultrasonic and flux leakage technology. The rotary test technique spins large numbers of transducers around the pipe as it passes through an enclosed rotary test chamber continuously supplied with pressurised

water couplant. This design offers advantages of higher throughput speeds, quicker reconfiguration of transducers for different diameter material, repeatable test results, and 100 per cent coverage. The 500mm UT tester can detect longitudinal and transverse crack type defects on OD and ID pipe surfaces, and throughout the product's cross section, meeting standards that require finding artificial notches at a 5 per cent or 10 per cent level of the wall in pipe with any wall thickness. The system, which also features MAC's wireless transmission of test signals, can ensure compliance with industry standards at throughput speeds up to 1m/s.

The 500mm transverse and longitudinal Rotoflux® flux leakage testers, together with the ultrasonic test provide a more comprehensive test.

The ultrasonic technology provides critical full inspection capability, including shear wave inspection of longitudinal and transverse defects at any quality level, and wall thickness measurement and lamination detection.

Magnetic Analysis Corp's 500mm UT/MFL test system for large diameter pipe

The addition of the UT rotary to the magnetic flux leakage testers provides complete all-direction test capability and gives the user full flexibility to optimise the pipe inspection process. The two flux leakage units can test to 10 per cent OD and ID notch levels up to approximately 14mm wall thickness and 5 per cent OD and ID levels for thickness up to 12mm. The result of the combined test technologies is a system that is compliant with API 5CT and 5L, ASTM E570 and other standards, including those that require ultrasonic testing as the first method and a second method at the discretion of the pipe producer.

MAC's experienced engineers will be present at the booth to discuss the ultrasonic/flux leakage test systems and the new compact Minimac® 55, which features all the capabilities of MAC's Multimac® software, in a single channel instrument, as well as other non-destructive test solutions for tube producers.

MAC's 85+ years developing and supplying non-destructive test equipment and systems to tube, bar and wire manufacturers ensure a thorough understanding of customer inspection needs.

Magnetic Analysis Corp – USA
Fax: +1 914 703 3790
Email: info@mac-ndt.com
Website: www.mac-ndt.com



Next level of stainless steel tube production

A RENOWNED South-East Asian producer of high-quality stainless steel tube products for the automotive industry has placed an order for a tube mill with Seuthe.

Challenging thin-walled stainless steel tubes up to a tube diameter of 60mm and a minimum wall thickness of 0.5mm will be produced on this specially developed laser mill.

High-precision tube production is the key target. Individual drives in the tube forming and sizing section

support challenging tube dimensions in combination with perfect tube surface quality.

The stainless steel tubes to be produced on the Seuthe mill will be seam grinded, laminated, non-destructive tested and chip-less cut, even in the shortest tube lengths.

The tubes can pass an in-line heat treatment to homogenise the microstructure and bright anneal the tube surface. Further tube manipulation processes are integrated in the tube

finishing section. As a result the customer benefits from reproducible mill settings and a fine-tuned mill control system to reach high productivity at a consistent product quality.

Seuthe, a member of the Asmag group, is a premium machine supplier to the international tube and pipe industry.

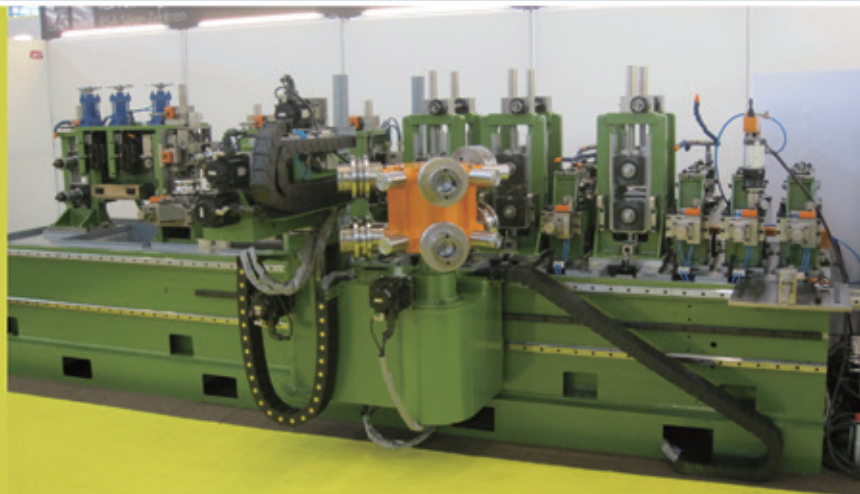
Seuthe GmbH – Germany
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FD has engaged in pipe mill designing & manufacturing for over 26 years, developed over 60 items of authorized patent.

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①

②

③

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Tube Developments celebrates 50 years in business

FOUNDED in 1965, Tube Developments Ltd has become one of the largest steel tube stockholders in Europe, and is now celebrating 50 years in business.

The company's initial aim was to provide an immediate stock supply of steel tube throughout Scotland and the North of England, servicing the shipbuilding and heavy engineering industries. The company states that

it quickly developed a reputation for quality, reliability and value, and this allowed it to establish itself in the international markets covering Europe, Australia, USA, Africa, India, the Middle East and Asia.

The company still operates with the same principles and commitment to quality and service that the current chairman and founder, John Fraser, envisaged when he created the company. Tube Developments operates from modern premises near Glasgow, UK, and has at any one time thousands of tonnes of carbon steel pipe and tubulars in covered and controlled warehouses.

The company's reputation for supplying carbon

steel pipe and high yield tubulars has seen it working on complex projects around the world, including the petrochemical, offshore/onshore oil, and construction industries. Tube Developments has an extensive customer base, and in 2013 received recognition, at a presentation ceremony in London, for its successful supply of the structural tubulars on the Jasmine Project in the central North Sea.

Following its vendor approval status for many of the leading oil and gas contractors, some of which include Saipem, Technip and Saudi Aramco, 2014 saw both Qatar Petroleum and Oman Oil & Gas Industry's Joint Supplier Registration System added to the list of registered vendor approvals. The company's QA/QC procedures and manuals are assessed and approved by each customer prior to achieving this type of status.

Tube Developments Ltd – UK
Email: info@tubedev.com
Website: www.tubedev.com



Topsides being added to Chevron Big Foot in Texas, USA, prior to starting in the Gulf of Mexico in 2014

Ideal Welding Systems names new president/GM

IDEAL Welding Systems LP, subsidiary of Ideal-Werk, Lippstadt, Germany, has announced the appointment of Christian Kloeckner as president/GM. He brings more than 20 years of solid

international experience in the welding industry, which includes sales of large welding machines and equipment, as well as marketing and customer service.

"We believe he will help shape our leading position in the market of resistance and laser welding," noted Dorothee Jungeblodt, managing director of Ideal-Werk in Lippstadt, where the headquarters are located.

"His professionalism and proven dedication are great assets to Ideal Welding Systems LP where he oversees the US and Canadian

markets and is a first point of contact," added Max Clemens Jungeblodt, managing director.

Mr Kloeckner is a married father of two children and speaks English, German, Portuguese and Spanish fluently.

Established in 1995, Ideal Welding Systems is responsible for sales and service of the German Ideal brand of automated wire and sheet metal equipment.

Since 1923, Ideal has produced automated machinery for the wire and sheet metal industry worldwide, including laser welding and mesh welders, and is a leader in automated band saw welders.

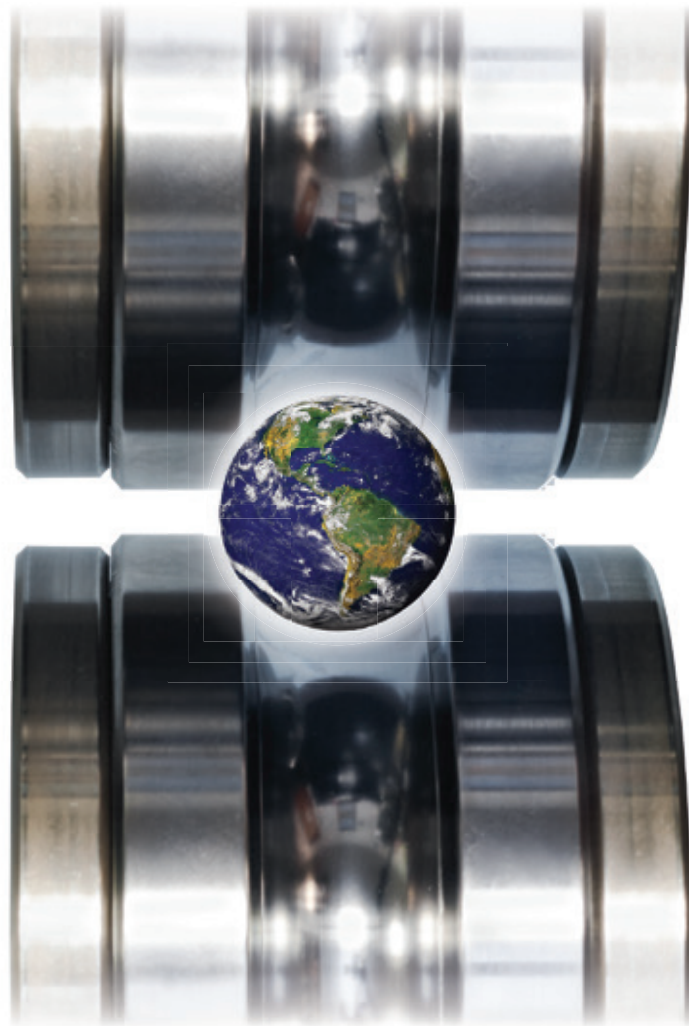
IDEAL-Welding Systems LP – USA
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Christian Kloeckner

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| Working Speed | 0 - 35 m./min. |

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| | |
|----------------|-------------------|
| Tube Diameter | 127,0 - 273,0 mm. |
| Wall Thickness | 2,0 - 6,0 mm. |
| Tube Length | 6,0 - 12,0 m. |
| Working Speed | 0 - 50 m./min. |

ERW TUBE MILL TM8 *Installed in Vietnam*

| | |
|----------------|------------------|
| Tube Diameter | 89,0 - 219,1 mm. |
| Wall Thickness | 3,0 - 8,0 mm. |
| Tube Length | 6,0 - 12,0 m. |
| Working Speed | 0 - 50 m./min. |



**ADDA FER @ NEXT TUBE DUSSELDORF FROM 4TH TO 8TH APRIL 2016
HALL 6 - BOOTH # D02**

NDC appoints marketing director

NDC Technologies, a global provider of precision measurement and control solutions, has appointed Dr Ian Benson as marketing director. Dr Benson, previously global sales and marketing director for the company's food and bulk business, brings a wealth of international marketing and business development experience to his new position.

Dr Benson will be responsible for the development and execution of the company's marketing strategy for its measurement and control solutions serving the food, bulk, packaging, cable, metals and tubing industries.

He will lead the company's marketing communications and product management teams, oversee the company brand and market intelligence programmes, and drive customer engagement to increase demand of NDC's products and services. Dr Benson takes up his role with immediate effect, reporting to Drew Cheshire, president of NDC Technologies.

Dr Benson said: "I am very excited about being offered this role and having the opportunity to play an integral part in the development, business strategy and market direction of the company. I look forward to expanding my knowledge of other industries and applications and building upon what has been truly an exemplary pattern of growth and market leadership.

"With greater market focus and deeper interaction with our customers and partners, and through strategic acquisitions, we will continue to expand our business through the delivery of new and unique measurement and control solutions."

Dr Benson holds an honours degree and doctorate in chemistry from Bristol University in the UK and is based at NDC's European manufacturing, sales and service centre in Maldon, England.

NDC Technologies is a global organisation committed to the innovation, design and manufacture of precision measurement and control systems for



Dr Ian Benson

a wide range of industries. For more than 50 years the company has served a long list of satisfied customers in the food, bulk, packaging, cable, metals and tubing industries, providing a wide range of on-line and off-line, non-contact measurement solutions.

NDC Technologies – UK
Website: www.ndc.com

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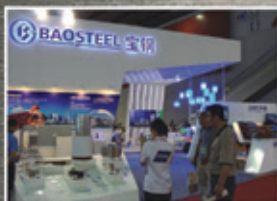
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THE 17th CHINA(GUANGZHOU) INT'L TUBE & PIPE INDUSTRY EXHIBITION

Lincoln named accredited provider

LINCOLN Electric has successfully passed a rigorous accreditation process to become an IACET Accredited Provider (AP) of continuing educational programming. The company will now be able to offer accredited continuing education units (CEUs) for educational workshops, seminars and welding school courses held at its global headquarters in Cleveland, Ohio, USA.

"This recognition is a major milestone in Lincoln Electric's ongoing development of strong continuing education and training initiatives," said Jason Scales, manager of education services at Lincoln Electric. "We can now offer valuable CEU credits to those who enrol at programmes here at our Cleveland headquarters, which takes our training to a new level."

According to IACET's mission statement, the organisation "leads the way in bringing quality, excellence and integrity to continuing education and training programs around the world." Its mission is to advance the global workforce by providing the standard framework for quality learning and development through accreditation. The organisation's history includes developing the original CEU and creating and maintaining the ANSI/IACET Standard for Continuing Education and Training.

Through its new status as an IACET AP, Mr Scales says Lincoln Electric's in-house educators are assessing continuing education and training programmes for potential CEU opportunities for future participants. The company is also looking at new courses to develop for future opportunities for welding professionals to obtain both CEU and skills growth.

This IACET accreditation is another notable achievement in Lincoln Electric's growth in the education sector. In addition to its workshops, seminars and welding school courses, and in support of the continued effort to teach future skilled workers the art and craft of welding, Lincoln Electric has created a successful programme to bring learning and high quality educational products to welding professionals and welding educators.

These offerings can be accessed through the company's in-depth, online Education Resource, where visitors can register for seminars and workshops, enrol in the company's registered Weld School, purchase literature and curriculum and even locate valuable welding safety

information, among other features. For more information about Lincoln Electric's educational programming and services, visit its education website at www.lincolnelectric.com/education

Lincoln Electric is a leader in the design, development and manufacture of arc welding products, robotic arc welding systems, and plasma

and oxyfuel cutting equipment, and has a leading global position in the brazing and soldering alloys market. Headquartered in Ohio, USA, Lincoln has 47 manufacturing locations and distributors in 160 countries.

Lincoln Electric – USA
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Arabia Essen Welding & Cutting and Tube Arabia

METAL Middle East celebrated its première in Dubai in January 2015 and the dates for the next show have now been announced – 10-13 January 2017. The two trade fairs – Tube Arabia and Arabia Essen Welding & Cutting, a joint project of Messe Essen, Messe

Düsseldorf and Al Fajer Information & Services – received a further boost last time through an additional event, Metal Middle East and this will again be the case in 2017.

The fifth Tube Arabia, the second Arabia Essen Welding & Cutting and

the newly acquired Metal Middle East, attracted 176 exhibitors from 21 countries, thus adding up to an important international trade and contact platform for the industry and for the future market of the Middle East and the United Arab Emirates. 3,541 trade visitors visited the Dubai International Convention and Exhibition Centre. Thanks to the parallel character of these events, numerous comprehensive solutions were offered for the requirements of this growing regional market.

The United Arab Emirates and the Middle East are a highly attractive market for companies and investors alike. As major efforts have been made in the Gulf region to improve its transport infrastructure the steel industry can look forward to substantial growth. Projects that are now well underway include extensions of the metro network, multi-billion-dollar road construction projects, bridges and capacity expansions of harbours and airports. Set against the background of EXPO 2020 in Dubai, projects in local transport and air traffic are of particular significance. The Gulf states are also investing \$330bn in the development of two regional airports. All these projects and a booming gas and oil industry are producing an increase in demand for manufacturers of steel products, tubes and welding technology.

Metal Middle East was supported by VDMA's (German Engineering Federation) Foundry Machinery, Metallurgical Plants and Rolling Mill specialist associations as well as the Thermo Process Engineering specialist association, CECOF (the European Committee of Industrial Furnace and Heating Equipment Associations), CEMAFON (the European Foundry Equipment Suppliers Association) and EUnited Metallurgy (the European Metallurgical Equipment Association). Tube Arabia was supported by the ITA, and Arabia Essen Welding & Cutting had the support of DVS).

Metal Middle East, Tube Arabia and Arabia Essen Welding & Cutting – United Arab Emirates

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OptaSense finalist in global awards

OPTASENSE has been recognised for its contribution to pipeline leak and intrusion detection by being shortlisted for a prestigious international award. The company has been recognised in the ASME Pipeline Systems Division Global Pipeline Awards for the innovative use of its award-winning distributed acoustic sensing (DAS) system on Colombia's Bicentennial oil pipeline.

The judging panel recognised OptaSense's unique use of a single fibre system to provide both leak detection and intrusion detection on the country's largest pipeline. The 235km first phase of the pipeline was completed in 2012 and has a diameter of 36-42", with a capacity of 450,000 barrels per day (bpd) of crude.

The integrated DAS solution works across multiple functions via a single fibre optic cable that effectively 'listens' to the pipeline in order to provide detailed data about its current status. Any changes to the condition of the pipe are fed back through an interrogator unit in real time, allowing users to identify and address issues early and maintain

the highest level of pipeline integrity and product throughput.

Leak and intrusion detection are vital to maintaining pipeline integrity and production maximisation in the oil and gas industry. The pipeline was closed in 2014 due to third party attacks on it, costing the Colombian economy thousands of barrels per day in lost deliveries.



*OptaSense executive director
Magnus McEwen-King*

OptaSense executive director Magnus McEwen-King said, "This award not only recognises the innovative use of fibre, but also the engineers of Ecopetrol and OptaSense who have jointly worked to deliver real improvements to the integrity management process of the Bicentennial pipeline.

"This nomination is a further acknowledgment of our leading position in South America, and highlights our commitment to continued growth in the region. Our award-winning technology has a proven record of reducing the costs of asset ownership and providing life-long intelligence through highly effective monitoring, thereby reducing incidents and extending asset life."

The annual awards ceremony aims to recognise pipeline technology innovation processes in phases such as research laboratory, field applications, technology incubators, and development of markets for new products, and is open to all companies.

OptaSense – UK
Website: www.optasense.com

Upgraded double blade flying shear from Italy

WHEN Adda Fer designed its first double-bladed flying shear ten years ago the idea was to market a machine that would use the best available technology, meeting the demand of pipe producers for a shear that cut slowly with extreme accuracy, no burr on the cut, high performance, versatility and ease of use.

Several upgrades have been applied to the flying shear created by Adda Fer that have allowed the company to optimise the initial design with significant modifications in all its parts, using components that keep up with technological evolution.

The current configuration of the double-blade flying shear DB10 has cutting heads mounted on two columns with brushless motors on the X and Y axes, independently controlled. This allows any type of profile (round, square, rectangle and irregular shapes) to be cut. A clamp arrangement very close to the

cutting area ensures closure of the tube, which minimises deformation. Blade AC motors with vector control ensure the optimum torque under any condition, and are capable of cutting common to high-resistance steel grades with HSS blades or TCT inserts.

The easy-to-use control software allows optimisation of parameters and cutting paths, and is also able to capture all useful working data.

Siemens Sinamics drives are mounted on the flying cut-off, and the control logic of the board is managed by Simotion with Profinet cabling.

The software is developed on two levels: the first, PLC, is made by the tool Simotion Scout, while the second, the supervisor's touchscreen, is made with the new development environment Siemens Simatic TIA WinCC Comfort. The operator's interface graphic pages are designed to allow users a rapid



takeover of the machine after start-up. Interactive diagnostics allow the operator to immediately identify the cause of any operational stop or anomaly of the system. The alarm/failure signals follow a logical sequence, avoiding irregular indications. The alarms are also saved in the database for diagnostics and maintenance.

AddaFer will show the latest flying cut-off DB10 at Tube Düsseldorf 2016 – Stand 6D02.

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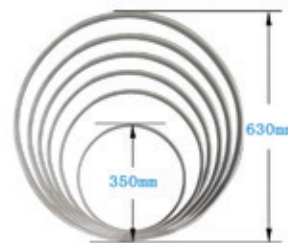
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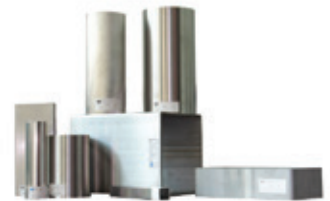
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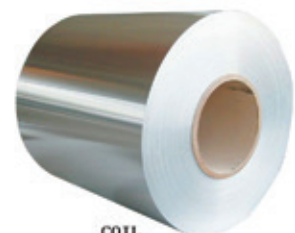
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Tangshan orders Primetals continuous galvanising lines

TANGSHAN Iron and Steel Group, a Chinese steel producer, has awarded Primetals Technologies an order to supply two continuous galvanising lines to expand cold rolling mill no 2 at its Tangshan plant in Hebei Province. This will increase the production capacity

for high-strength, coated metal sheets by 650,000 metric tons per annum. The sheets will mainly be used by the automotive industry.

Continuous galvanising lines nos 5 and 6 will be constructed in a new hall alongside the existing cold rolling mill, which was also supplied by Primetals and has been in production since the beginning of 2015. The two new continuous galvanising lines are scheduled to come into operation in 2017. A special aluminium-silicon coating technology package will be implemented on one line.

Cold rolling mill no 2 comprises a coupled tandem pickling line, a continuous annealing line and a galvanising line. The mill has an annual capacity of 1.8mn metric tons of high-strength cold strip, and also produces high-quality steels for the Chinese automotive industry.



The existing galvanising line supplied by Primetals Technologies in the cold rolling mill of Tangshan Iron and Steel Group

The two galvanising lines now ordered from Primetals Technologies are part of the second expansion stage intended to create production capacities for these steel grades. The lines will process not only grades for vehicle body parts but also aluminium-coated hot-forming steel.

Primetals Technologies is responsible for the engineering, manufacturing and supply of the mechanical, electrical and process technology equipment for the lines. Galvanising line no 5 will have a capacity of around 250,000 metric tons per annum. It will process cold strip in widths ranging from 850 to 1,300mm, and thicknesses from 0.18 to 1.5mm.

Galvanising line no 6 will be able to galvanise 400,000 metric tons of cold strip per annum in widths ranging from 850 to 1,600mm, and thicknesses from 0.5 to 3mm. There will also be the possibility of coating the cold strip with an aluminium-silicon alloy.

The new lines will be integrated into the cold rolling mill plant's existing quality control system. Primetals Technologies will also supervise the assembly and commissioning of the lines.

Primetals Technologies Ltd – UK
Website: www.primetals.com

Tube scarfing equipment from TSE

TSE GmbH Tube Scarfing Equipment is an international operating company offering solutions for tube inside and outside weld bead scarfing (de-burring) of longitudinally welded steel tubes, welding equipment, sawing technology, cutting tools for slitting machinery, strip conditioning, bead chopper applications, filtering technology, and turning/milling/drilling processes.

The company'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, welding impeders,

ferrite cores, epoxy fibreglass tubes, silicone fibreglass tubes, mica silicon tubes, induction coils, and flexible PTFE tubes.

TSE also supplies HSS/HSSE/TCT saw blades, friction saw blades, cut-off knives, slitter knives and accessories, strip shaving units, bead choppers, induction coils, filter systems, filter fabrics, carbide inserts and holders for turning/milling/drilling.

TSE GmbH Tube Scarfing Equipment – Germany
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Schuler streamlining production in Germany

SCHULER AG is streamlining its production in Germany and will only be manufacturing at four facilities in future, instead of the current seven. "We will merge the wide range of production sites in Germany resulting from acquisitions made in the past," explained CEO Stefan Klebert following a meeting of Schuler AG's supervisory board in Göppingen, Germany.

"This will create more efficient manufacturing structures and help us remain successful in the face of fierce international competition." The press manufacturer has strongly expanded its manufacturing activities in foreign markets over the past years in order to meet shifts in its global demand profile.

In addition, changes in its product mix have resulted in revised capacity needs. Schuler has also successfully entered new market segments, such as equipment for the production of large pipes or high-speed railway wheels.

The plant manufacturer acts as a systems supplier for these major orders and buys in a large number of the components – thus reducing the proportion of in-house production.

The Göppingen plant will produce all presses that can be fully assembled and put into operation in-house. At this site, the company is currently investing €40mn in the construction of a technology and development centre as well as a test centre for lightweight construction in the automotive sector. The facility in Erfurt will be the company's only German production

site for large-scale presses. Over the past few years, the press manufacturer has invested tens of millions in modern manufacturing equipment.

"This is a clear sign that Germany will remain our high-tech location and home base – despite all our globalisation activities," explained Mr Klebert.

At the same time, the production of presses and new machine components will be discontinued at the company's sites in Netphen (by the end of 2016), Waghäusel (by the end of 2017) and Weingarten (by the end of 2017). External assembly, commissioning and service will be maintained at all three sites, and engineering and support activities will be continued.

The planned changes will affect around 450 jobs in Germany in the medium term. Schuler will try to implement these measures in a manner which is as socially compatible as possible.

This can be achieved in part by transferring staff to other business units or sites, giving preference in the case of internal vacancies, offering semi-retirement programmes or making voluntary redundancy agreements.

The company has estimated that the consolidation of its manufacturing structures in Germany will involve costs of around €55mn.

Provisions will be formed and costs incurred for the major share of this amount in fiscal year 2015. Following the completion of these measures, the board of management expects



The facility in Erfurt will be the company's only German production site for large-scale presses

annual cost reductions of €30mn to €35mn.

In 2011 Schuler launched a strategy and growth programme in connection with the acquisition of Müller Weingarten in 2007.

In addition to realignment with target markets and technology fields, this also involved a streamlining of the group's organisation and a reduction of duplicate structures.

Schuler continued the strategic project in 2013 in order to adapt the company to changing global challenges.

"All in all, the measures helped Schuler return to growth and achieve its current healthy financial status after the difficult years of 2009 and 2010," said Mr Klebert.

In its fiscal year 2015, Schuler expects sales to exceed the prior-year figure of €1.18bn.

The operating result before special items for factory consolidation is expected to be on a par with the healthy prior-year level.

Schuler – Germany
Website: www.schulergroup.com

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8"~20" x 16t & 12"~24" x 20t, API X70



V-Shear & Welder connects the ends of two coils.

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- Supplied 8" Heavy wall Tube Mill Line to HUSTEEL Co., Ltd. (2012)
- Supplied 8" Milling Cut-Off M/C and Shear & Welder to HUSTEEL Co., Ltd. (2011)
- Supplied 60" Hydrostatic Tester(Max. 500kg/m²) and End facing to HUSTEEL CO., Ltd. (2009) & GLOBAL PIPE (2010)
- Exported API 20" Tube Mill Line to SAUDI Steel Pipe Co., Ltd. (2009)
- Exported 18" Tube Mill Line to NAKATA Mfg. Co., Ltd. in Japan. (2005)
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Testing systems for ERW-welded pipes

TWO ultrasonic testing systems for ERW-welded pipes were to be installed at the Polish pipe mill Huta Labedy in 2015. They are part of a completely new pipe mill, realised by the SMS Group from Moenchengladbach, Germany. The SMS Group was also the contractual partner of Karl Deutsch.

Basis of the contract were pipes with following dimensions: diameters from 114mm to 324mm, wall thicknesses from 3mm to 16mm and lengths from 6m to 18m. After forming the steel strips and welding, a first ultrasonic testing of the longitudinal weld is performed on the (still) endless pipe. The ultrasonic probes are mounted on a carriage, which is mounted to a machine stand. The carriage is placed on the top of the pipe and follows the pipe with rollers in an optimal way.

The carriage can be into a service position (offline) to check the calibration on a short reference pipe. The reference pipe can be moved motor-driven, allowing a dynamic verification of the calibration.

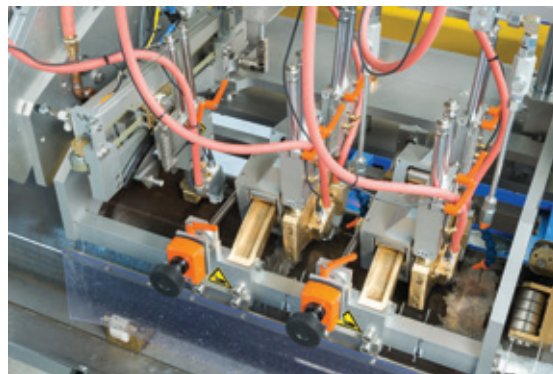
The carriage contains five probes, all working with a water delay line for ultrasound coupling. Four probes are used for longitudinal flaw detection, two of them for inner flaws and two for outer flaws. The fifth probe is an oscillating

straight beam probe, measuring the wall thickness in the area of the weld seam and controlling the quality of the scarfing.

At the end of the production line, the pipes undergo final testing executed by means of a testing bridge since this concept provides maximum throughput. In the extreme case 140 pipes per hour have to be inspected.

The self-supporting bridge, with an overall length of 30m, is equipped with probe carriages on both sides. In twelve o'clock position the longitudinal weld seams are inspected first. Then the pipes are transported transversally underneath the bridge into the second testing position. Here, the pipes are rotated and tested for delaminations on the full pipe body. Both testing positions are equipped with calibration units, which allow a reproducible calibration of the probes' sensitivity with the aid of short tube sections (left side in the picture above).

The weld testing is performed by a total of eight probes mounted on a single carriage, working with a test speed of 2m/s. As in the first testing system, four probes are used for longitudinal flaw detection.



Arrangement of probes for weld inspection on the endless pipe

The remaining four probes are used to inspect the heat-affected zone next to the weld for delaminations. The rotational inspection of the pipe body is carried out at a circumferential speed of approximately 1.5m/s with five special TR-probes with three channels each. Each probe has one transmitter and three receiver channels, yielding a scan width of 50mm.

The total scan width of 250mm from all five probes enables a high throughput. Ultrasonic coupling is performed by a water gap and all probes are mounted in holders, which perfectly follow the surface even in case of changing radius curvatures.

Additionally, the probe holders are designed to cover the entire diameter range without the need for mechanical changes.

Karl Deutsch GmbH – Germany
Website: www.karldeutsch.de

Fives to supply a new vertical furnace to South Korea

POSCO, an autosheet manufacturer, has entrusted Fives with a contract for design and supply of a high-performance vertical annealing furnace for the new hot-dip galvanising line at POSCO's Gwangyang plant in South Korea.

In line to expand its production of premium automotive steel sheet for global carmakers, POSCO launched the construction of its seventh continuous galvanising line (CGL) at its largest and most modern plant of Gwangyang Steelworks on Korea's southern coast. CGL No7, a specialised production line with an annual production capacity

of 500,000 tons dedicated to the high-end GI/GA exposed and advanced high strength steels (AHSS), is expected to be completed in 2017.

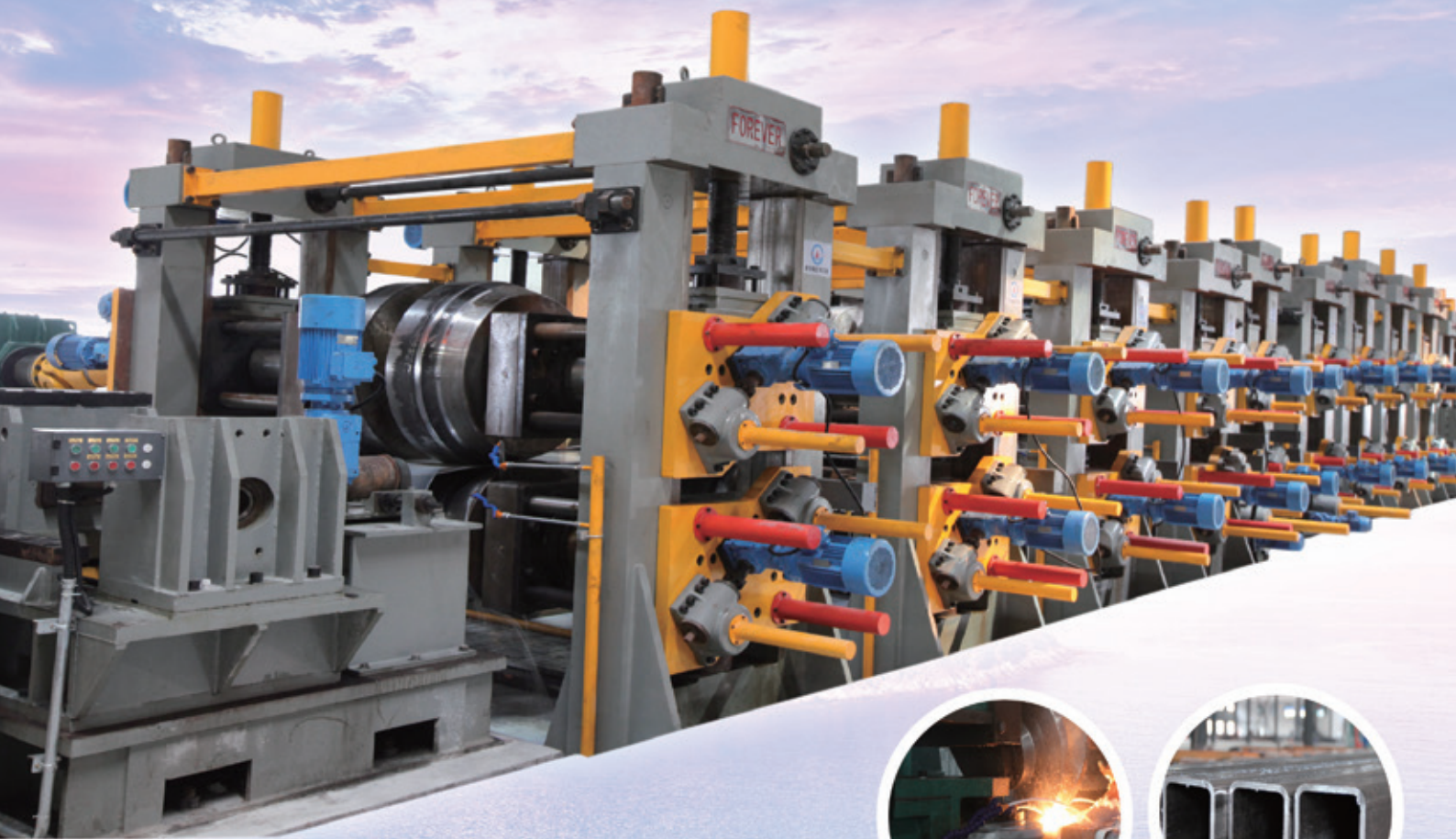
The vertical annealing furnace is critical process equipment needed to produce the latest AHSS grades, which are becoming an important part of steelmakers' strategy. Fives will design and supply its latest generation Stein Digiflex® vertical annealing furnace, including the patented Flash Cooling® technology operating at high H₂ rate (up to 65 per cent H₂) and the latest AdvanTek® 2.0 radiant tube combustion

system operating with coke-oven gas. Fives stated that it gained the contract by offering the best operational expense savings, production flexibility, accuracy of operation and compact furnace design. The last two continuous galvanising lines of POSCO's Gwangyang plant, CGL No5 and CGL No6 producing exposed panels and HSS grades, are also equipped with Fives vertical annealing furnaces.

Fives Group – Russia
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Contract awarded to Fives Bronx

FIVES has signed a contract between its UK-based entity – Fives Bronx Limited – and Salzgitter Mannesmann Stainless Tubes France in Montbard for the supply of a six roll 6CR10-HD straightening machine, complete with ancillary electrical and hydraulic control systems.

The equipment has been purchased to process high-yield stainless steel tubes up to 280mm in diameter, and at wall thicknesses of up to 50mm.

The contract between SMST Tubes France and Fives Bronx Limited was signed in Montbard (France)

Jon Dunn, managing director at Fives Bronx Limited, said: “The order was secured as a result of numerous technical and commercial exchanges that took place over a two-year period. Despite fierce competition from several European manufacturers we were able to convince the client to invest in Bronx, mainly based on our experience of similar straightening applications – a fact underlined by our extensive customer base.

“We also demonstrated the ability to integrate our straightening equipment into an existing space-restricted workshop layout and tailor the design load of the main machine in order to withstand the arduous loads associated with processing such thick-walled tubes. This contract award, once again, portrays the trust and reliability that our clients place in Bronx straightening equipment. Throughout contract negotiations, we have developed a first-class working relationship and we are looking forward to building on this in the years to come.”

The equipment will be subject to a full inspection in the UK prior to it being delivered to SMST Tubes France in August 2016.

Fives Bronx – UK
Fax: +44 870 442 2989
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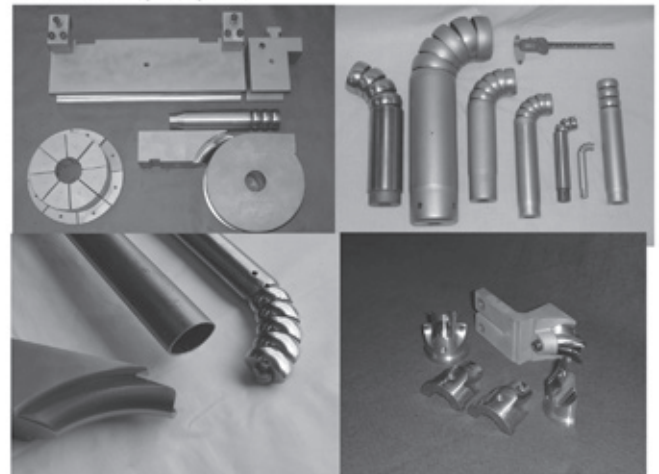
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Entech specialise in the design & manufacture of bend tooling. Tube end-forming tools including end curl tools, expansion & reduction, I/O expanding & reducing, dimple tooling, inserted & standard wiper dies, cable & linked type mandrels. To suit any make and model of machine. Tools to suit mandrel bending, empty bending & crush bending. Large selection of tooling Ex-stock.

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Brazilian trade fairs confirm positions in South American market

THE international trade fairs TUBOTECH and wire South America were held jointly at the São Paulo Expo Exhibition & Convention Center in Brazil in October. TUBOTECH, a trade fair for tubes, valves, pumps, fittings and components, took place for the eighth time, while the second wire South America confirmed the trade fair concept after a successful premiere in 2013.

Although Brazil's economic growth has slowed down, and despite the negative growth expected for 2016, the products of the wire, cable and tube industries are of the same importance for Brazilian industry.

This is especially true for the construction and automotive industries, as well as for household electronics in general.

"The Brazilian market continues to be highly attractive for our exhibitors," said Erhard Wienkamp, division director at Messe Düsseldorf GmbH. "Even in tense economic times it is important to fly your flag, make contacts, strengthen partnerships and to prepare business deals. We rely on the Brazilian market and will do our utmost to develop wire South America further, turning it into an established name in South America."

Together wire South America and TUBOTECH occupied 32,000m² of gross exhibition space, with approximately 500 exhibitors. The 11,000 international trade visitors attending the three-day trade fairs primarily came from the oil and gas, automotive, and construction industries, metal construction and mining.

Innovative trends and technologies from the fields of pipe and tube making, finishing and processing as well as pipe and tube trade were centre stage at TUBOTECH. Since its debut in 2001 the tube trade fair has developed into a top event for experts from the tube sector in Latin America. Just under 500 exhibitors from 15 nations introduced their innovations in 2015.

At wire South America 150 exhibitors from 25 countries presented the latest from the wire and cable industry. For the first time there was a German national participation, comprising 22 companies that showcased their technologies for the South American market.

TUBOTECH and wire South America will again be held concurrently, from 3 to 5 October 2017 at the São Paulo Expo Exhibition & Convention Center.

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PUTTING THE SMARTER
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Tri Tool appoints new VP of global sales and field services

TRI TOOL Incorporated has appointed a new key executive to oversee and coordinate global operations for sales and contract services. As a machine tool and welding equipment manufacturer, continued growth has required ongoing strategic optimisation of the organisation and corporate restructuring to assist coordination of managers operating in different facilities and travelling overseas.

To address this need at the highest level, Troy Todd has been appointed as Tri Tool's vice-president of global sales and field services. Mr Todd was previously tasked with launching a very successful corporate and field operations safety programme and had headed up HR for corporate, manufacturing and contract service personnel.

Prior to working for Tri Tool, Mr Todd served as VP at Cascade Drilling and as senior district manager for waste management. In those positions



Troy Todd is the new vice-president of global sales

he demonstrated his ability to grow revenues, institute effective safety programmes, and successfully deploy organisational streamlining processes.

Mr Todd will have the authority and feedback to provide effective problem solving that will facilitate both sales and services in a dynamic new way.

He said: "I look forward to providing unified management for our sales departments to create an optimised level of interactivity and collaboration that will be so crucial as we grow."

Mr Todd is confident that he can effectively tie together global sales and service operations that will result in excellent products and services and a high level of customer service.

Tri Tool Incorporated is a privately held manufacturer of portable precision equipment designed for pipe bevelling, flange facing, in-line cutting, multi-process welding, high performance pipeline machinery, and a wide range of internal line-up clamps. In addition, Tri Tool offers on-site machining and code welding services, special engineering and custom machine design, and equipment rental.

Tri Tool Inc – USA
Website: www.tritool.com

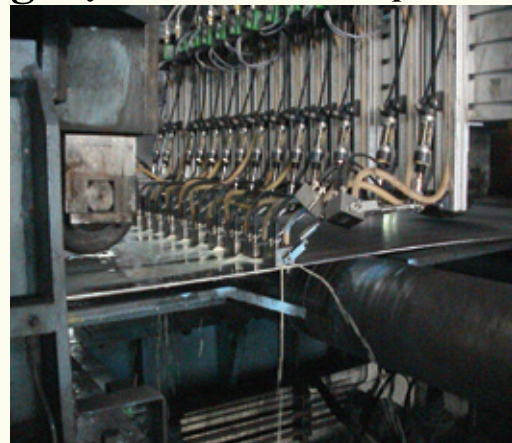


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Record-breaking figures for EMO Milano 2015

EMO MILANO 2015, the exhibition dedicated to the industry of manufacturing machine tools, robots and automation systems, enjoyed a record-breaking event.

The show registered 155,362 visits over the six exhibition days from visitors representing 120 countries. The international character that is traditionally a strong feature of EMO Milano was again in evidence with the attendance of foreign visitors amounting to 51 per cent of the total.

Commissioner general Pier Luigi Strepavara said: "These figures confirm how appealing the Italian venue has

been for the global manufacturing industry, which met in Milan to discover and learn about the technological innovations that will determine the future of manufacturing production and of work procedures inside factories."

EMO Milano also confirmed once again that it is an event capable of anticipating new trends by proposing a focus upon additive manufacturing, and held an international conference dedicated to this issue, which was attended by around 180 people including researchers, technical specialists, entrepreneurs and experts. The presence of European (62 per cent

of the total foreign visitors) and Asian visitors (32 per cent) was significant this year and even wider than at the previous edition of EMO Milano.

Around 4,000 students, accompanied by teachers and tutors, also took part in EMO Milano 2015, a traditional meeting opportunity between schools and the industry world.

The next edition of EMO Milano will take place in six years time, from 4 to 9 October 2021.

EMO – Italy

Email: info@emo-milan.com

Website: www.emo-milan.com

Metalube opens new laboratory

METALUBE'S new Manchester laboratory is now fully operational, having doubled its capacity to 126m². The purpose-built space is fitted with specialist furniture and equipment for



solving tough technical challenges. Along with the new laboratory, Metalube has invested more than £100,000 in new equipment to further enhance development capability. This equipment includes a Seta 4-ball tester, Mettler differential scanning calorimeter and Liebsch Kesternich cabinet, and covers the key functional properties of friction and wear, thermal stability and corrosion protection.

Technical director Chris Nettleship commented, "As award-winning innovators we needed to update our laboratory facilities accordingly. We have in recent

years increased our number of chemists by 25 per cent and the new lab provides them with a fabulous contemporary 21st century environment to work from."

Metalube manufactures a range of non-ferrous drawing oils and maintenance lubricants as well as a variety of corrosion protection and forming oils. The company has offices in China, India and Brazil.

Metalube Ltd – UK

Fax: +44 161 775 7511

Email: post@metalube.co.uk

Website: www.metalube.co.uk

Rafter completes RT-2000S tube mill

RAFTER Equipment Corporation has completed a new RT-2000S HFI tube mill, ready for shipment to a major North American aluminised carbon/stainless steel tube producer. The mill is designed to produce tubing from 0.5" OD x 0.038" wall minimum, to 2" OD x 0.12" wall maximum.

The company was awarded the contract because of the familiarity and success with the existing Rafter tube mill.

The customer also appreciated the company's willingness to listen to feedback necessary to improve and

customise the new mill for its particular application.

The mill includes an improved three-roll weld box design, a new tandem OD bead trimmer design, and an improved turkshead straightener design. The weld box for this mill was on display at the company's stand at the FABTECH show in Chicago, USA.

Although only contracted to supply the tube mill, the company worked closely with the customer to integrate the directly purchased entry/exit equipment, HFI welder, mill coolant system, and high-speed shear cut-off.

Other integrated components included the ID scarfing system, weld seam remetaliser, eddy current NDT equipment, and rust preventative spray applicator.

Rafter Equipment Corporation manufactures tube mills, pipe mills, roll forming machines, cut-off machines and other related tube and pipe mill machinery. Additional services include rebuilding and upgrading mill equipment.

Rafter Equipment Corp – USA

Fax: +1 440 572 3703

Website: www.rafterequipment.com

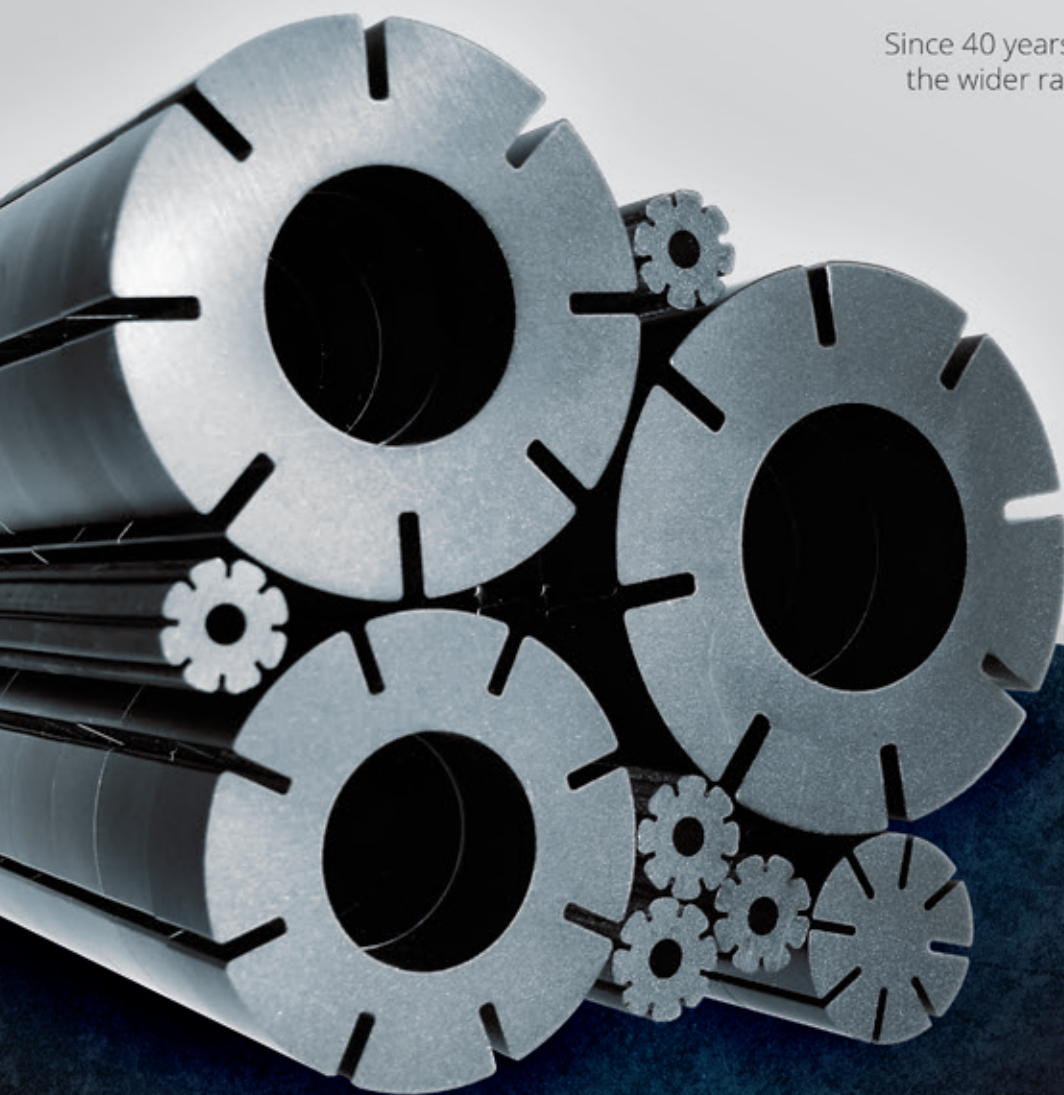
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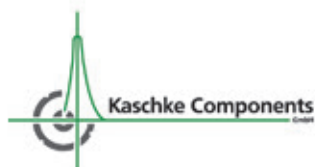


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Continuous casting technology

UPCAST OY is a supplier of Upcast®-SGTube production lines for upward casting of thin-walled Cu-DHP tubes ready for further processing into various tube products.

Upcast-SGTube continuous casting technology offers a shortcut in copper tube production process, with one step compared to the traditional multi-step tube production. It is an extension of the Upcast system used for casting Cu and Cu-alloy rod, sharing the same benefits of the standard system, with specific construction of the casting machine, coils and casting machine tooling.

The Upcast-SG cast tube has a fine grain structure, allowing for its straight breakdown drawing followed by inductive in-line annealing.

To ensure complete softening, a total area reduction of minimum 50 per cent is required before intermediate annealing.

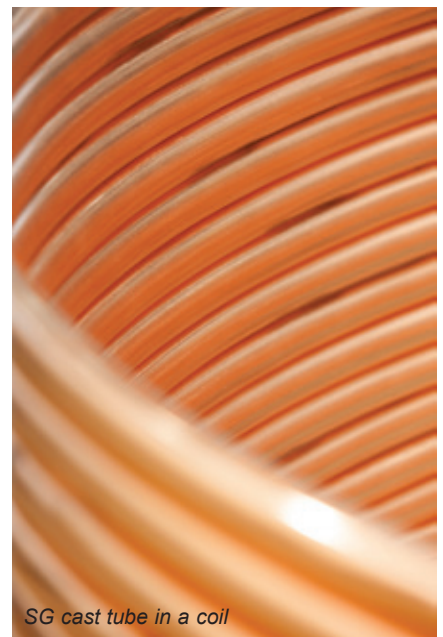
Upcast rod and Upcast-SGTube lines are both of modular design, offering solutions for small and medium capacities. With a double-furnace configuration (separate melting and casting furnaces) it is possible to reach 12,000 tpa.

Sizes of tube with outer diameters from 38 to 60mm have been cast, with wall thicknesses of 2mm and 3mm respectively.

Different tube sizes can be cast simultaneously when the casting machine is equipped with more than



Casting equipment



SG cast tube in a coil

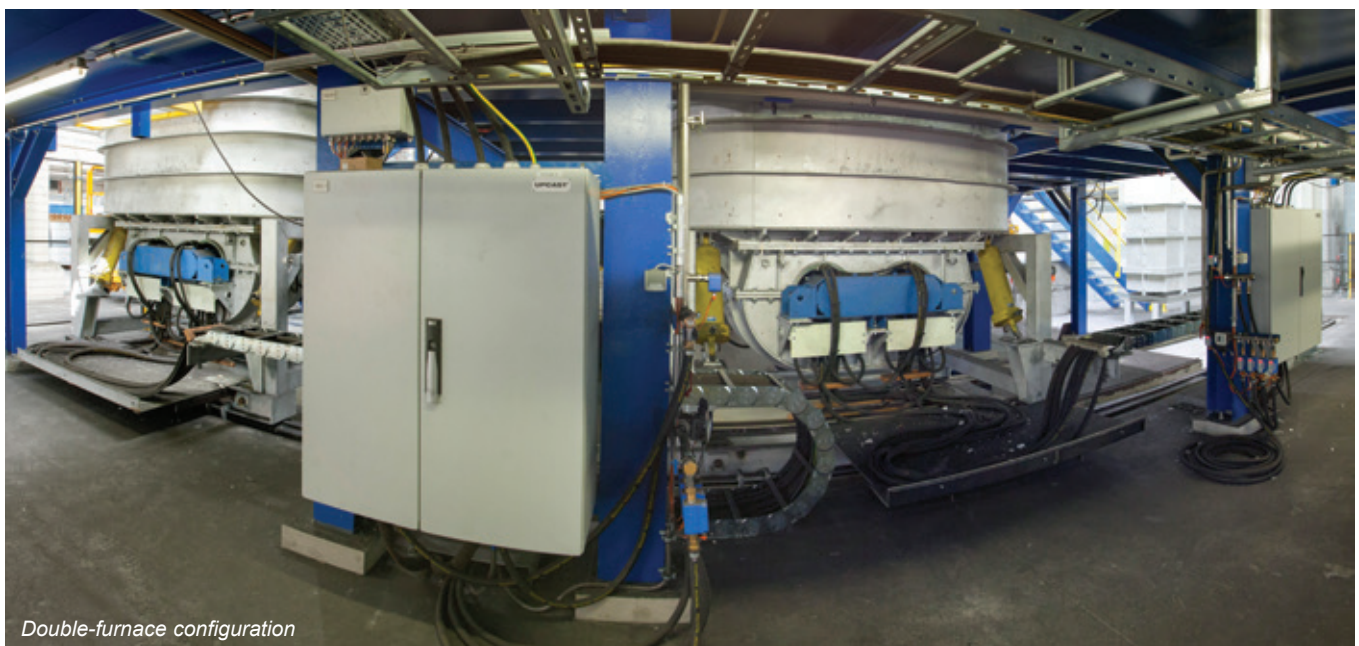
one servo-drive system. The smaller the final tube size, the smaller the cast tube size. With respect to coil weight, Upcast-SGTube is flexible, with an upper limit of around 1.5 tons. The final weight limit is more likely to be determined by the downstream process equipment.

The main use of Upcast-SGTube is in the casting of phosphor deoxidised (DHP) copper tube for the production of sanitary, industrial and ACR tubing. The process is not limited to DHP copper, and is also suitable for other copper grades/copper alloys.

Oxygen-free copper and copper nickel alloys have all been successfully cast.

Having the Upcast-SGTube process as the first step of tube production is claimed to reduce energy consumption. It is also possible to use clean and dry scrap in the process with the double-furnace configuration.

Upcast OY – Finland
Fax: +358 207 577 401
Email: upcast@upcast.com
Website: www.upcast.com



Double-furnace configuration

Orbital tube processing equipment

AXXAIR manufactures and sells a complete range of orbital tube processing equipment, from cutting, facing and bevelling to orbital welding machines. Its research and development department is continuously developing the products and adding innovations to improve customers' productivity and satisfaction.

Axxair has therefore revisited the complete range of orbital open heads, launching a new smaller model, the SATO-40 with water cooling and wire. This model is necessary whenever the package around the tube is tight and the access difficult.

The other models, SATO-80, SATO-115, SATO-170 and SATO-220, have been improved with a more compact design, for a lighter machine with an ergonomic approach. They all have mechanical tracking through a tracking ring which avoids marking the outside shape of the tube. The wire fixing has also been improved in order to follow the main hosing and therefore keep a lower package.

All these models can be upgraded with the AVC/OSC/WIRE module, allowing the user to weld thicker pipes up to 12.7mm (1/2") thickness.

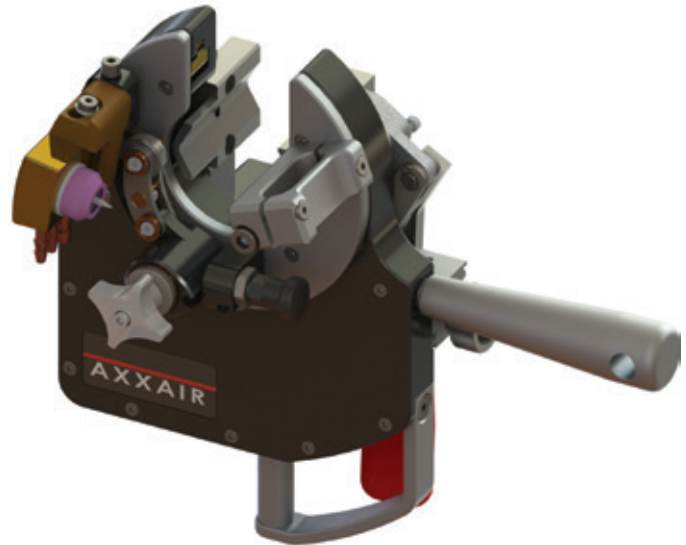
All the models can be equipped with an angular head drive to better adapt to the working environment.

Powered with a range of orbital welding power sources, these machines

are suited to helping increase productivity through simple and easy operation. The auto-calculation function adapts the parameters, from diameter, thickness and material to configuration information. The colour touchscreens display the main functions very simply and intuitively in order to have a very quick learning process.

The closed head range is also growing. The new models include the SATF-40MI, SATF-65MI and SATF-115MI. These heads are directly compatible with all AMI power sources that are equipped with auto calibration.

The facing range is completed with two new models. DC115-AM2 is a collet system facing machine driven by a Metabo motor. This model allows similar tool adjustment to the smaller model DC65. It can be equipped with two tool holders and is suitable for customers that want a real burr-free square cut in semiconductor industries and pharmaceutical industries on electro polished tubes. The model DC115-BM2 is a concentric clamping facer that allows the facing of a wide range of tubes to be faced without having to buy one collet per



diameter, and is claimed to be unique in the market. It can clamp from 12mm to 115mm. It can also be equipped with two tool holders to allow facing and edge bevelling on tubes. This model is for the workshop as it cannot be lifted on the tubes. This model will be completed soon with a DC221, which will allow the facing of tubes up to 220mm.

Through subsidiaries and a network of distributors Axxair can serve customers in more than 60 countries around the world and offers a global approach from prepping to automatic orbital welding on tubing and piping.

Axxair – France
Website: www.axxair.com

Clean room in operation at Sikora AG

THE Purity Scanner laboratory and developing area at Sikora was extended with a new clean room in 2015. Due to the constantly filtered air and the slight overpressure in the room, plastic materials can be tested for impurities under clean room conditions.

This provides the perfect conditions for reliable detection and sorting results by the Purity Scanner. "Thanks to the implementation of the clean room, we are able to work with the smallest

probability of external contamination and achieve the best possible test results," said Klaus Bremer, project manager for the Purity Scanner.

The new clean room for the Purity Scanner was positively tested and perceived by many customers. Further material tests are also planned in Bremen and can still be requested on short term. When purchasing the device, charges for material tests are refundable.



Klaus Bremer, project manager, Purity Scanner

Sikora AG – Germany
Email: sales@sikora.net
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Tailor drawn technique

Straight tubes

AGAINST the background of increasing requirements for lower weights in the automotive industry, the tailor drawn tubes (TDT) technique has become more important. Existing methods for the production of these special tubes can only be applied experimentally and are, therefore, labour intensive.

According to Bültmann GmbH, Germany, the increased demands for narrow tolerances can only be fulfilled by current technical possibilities with difficulty. Furthermore it is not possible to achieve a 'steady' process reliability based on current technology. Due to the numerous influencing parameters in the TDT drawing technology, the tube drawing process currently used will soon reach its technical limits.

Intensive development work and positive practical experience enables Bültmann to assist customers in combining theory and practice. Bültmann's patented TDT Production System, in conjunction with the company's draw bench technology,

can now be implemented in the tube production industry.

When developing the TDT tube drawing technology, Bültmann attached greatest importance to the possibility of using technological components that have already been used for other applications.

In order to achieve very narrow tolerances, especially in the transition zone of wall thickness, and to ensure the necessary process reliability at the same time, a closed control circuit is indispensable.

This process control is assured by combining sensible and very dynamically reacting drive systems and specially designed measuring devices and process software.

You can visit Bültmann GmbH at Stand 6E39 at Tube Düsseldorf 2016.

Bültmann GmbH – Germany
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 Website: www.bueltmann.com

ABSOLUTE straightness is one of the concise quality criteria in the production of round bars and pipes. Bendcheck – the precision laser measuring system from Zumbach – monitors bending continuously without missing any sections directly within the production process. This replaces the ODAC® laser measuring heads used currently to manually spot test with a non-contact online test for bending. Apart from the obvious gain in quality, the manufacturer also saves considerable time through the use of the online data check.

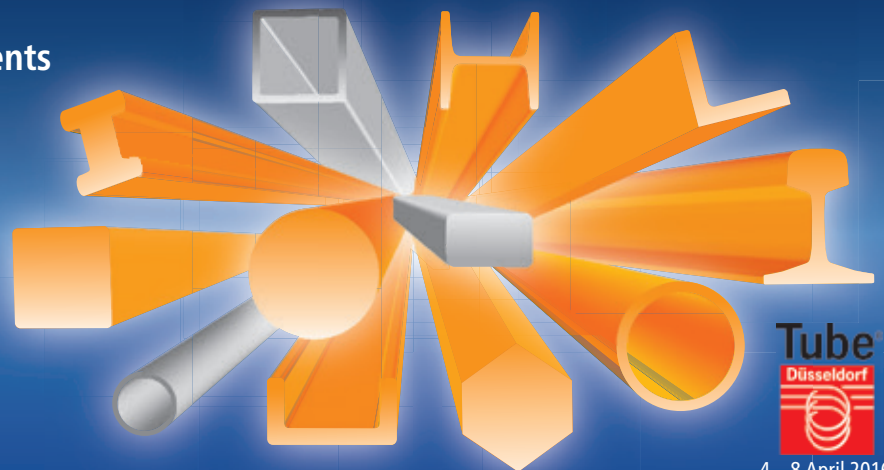
Bendcheck can be used for synchronous real time scanning in the production process, and quality assurance directly after the straightening process, without time consuming and laborious checks with manual tools.

Zumbach Electronic AG – Switzerland
 Website: www.zumbach.com

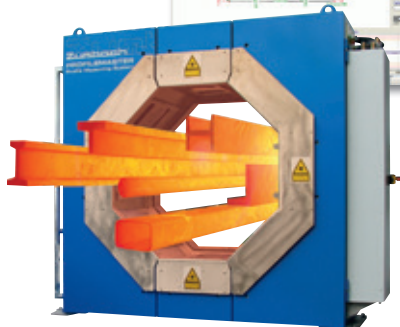
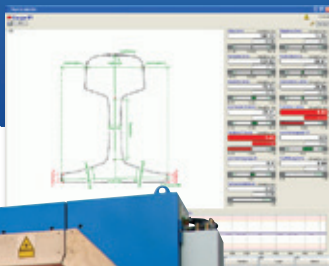
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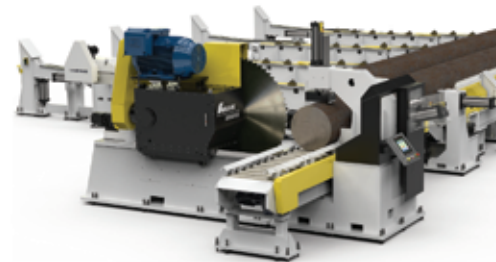
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The AMSAW® S-Series is a heavy duty, oblique slide saw for bars, billets, rails, pipes, or tubes. It is available as a standalone system or can include fully automated infeed and outfeed material handling systems to meet the customer's specifications. Other options include weighing, part marking, sorting and robotic stackers.



The AMSAW® V-Series is a vertical saw for layer sawing multiple bars, pipes, tubes, or profiles. Capable of cutting material sizes from 25mm to 250mm and layer widths from 600mm to 1300mm, the vertical saw is ideal for high production sawing of various material. With five available models, we have the right saw for you.



This AMSAW® 600S carbide circular saw system was designed for a Tubular Manufacturer of Oil Country Product. The system includes a heavily constructed Ducking Dog transfer table with a capacity for 10 bars measuring 600mm diameter and 40' long.

To see Amsaw saws in action, search "AMSAW" on Youtube.



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72760 Reutlingen
+49-(0)7121-322 346

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In-plant holiday detector for FBE as well as for three-layer PE/PP coatings

IN addition to its well-established portable holiday detectors, Elmed GmbH offers complete stationary holiday detection systems for the automated testing of coated pipes.

Now the ISOTEST act P2 is available, especially developed for the all-in-one testing of factory coatings of all conventional coating materials.

The all-rounder offers all necessary voltages for the reliable and safe testing of FBE (fusion bonded epoxy) as well as three-layer PE/PP coatings according to international standards and specifications.

The North American market can take advantage of a special version designed to meet local specifications.

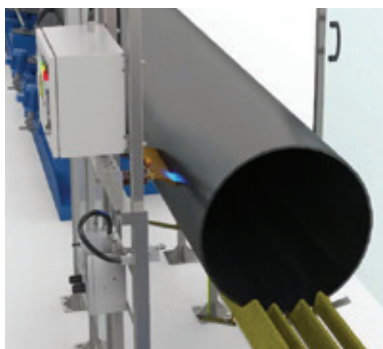
Thanks to flexible components and suitable accessories, not only a helical but also a circumferential testing of pipe coatings is possible with the ISOTEST act holiday detection system. By means of the unique impulse test voltage, even fully coated pipes without "bare pipe ends" (cutback) can reliably and economically be checked for cracks and pinholes.

The capacitive grounding of the pipe is applied by means of special electrodes similar to the principle of a capacitor. These electrodes can be integrated with little effort in the existing roller conveyor.

The application of capacitive grounding is one of the main advantages of the impulse voltage in comparison to conventional holiday detector systems using constant DC voltages.

Even damp surfaces can be tested quickly, reliably and non-destructively for absence of porosity. A large variety of test electrodes of different materials (such as stainless steel, brass or conductive rubber), shapes and sizes guarantee the safe and reliable porosity testing of coatings, linings and foils without material stress.

Elmed GmbH – Germany
Email: info@elmedgmbh.de
Website: www.isotest.de



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Düsseldorf, Germany | www.tube.de

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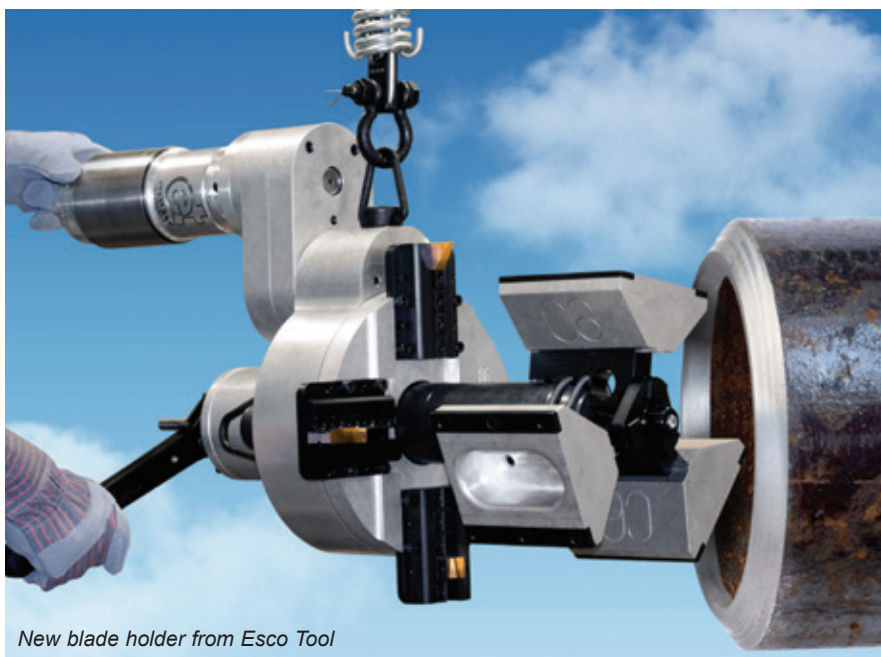
www.messe-duesseldorf.de


Messe
Düsseldorf

Pipe beveling tool ensures weld end alignment

ESCO Tool is introducing a new blade holder for the Commander Millhog® heavy-wall pipe beveling tool that

includes a bore blade to create a more uniform ID and ensure proper pipe end alignment.



New blade holder from Esco Tool

The Commander Millhog pipe beveling tool machines heavy wall, highly alloyed pipe from 95.25mm ID to 355.6mm OD, including super duplex and P-91. Featuring an optional three-blade holder, the tool can bevel, face and bore simultaneously, providing a uniform inside bore to create a tight weld that X-rays well, and a smooth face and bevel for proper pipe end alignment.

Capable of performing any angle of end-prep, including 37½° and J-bevels for orbital welding, the Esco Commander Millhog pipe beveling tool uses one mandrel and only seven sets of clamps for the entire range of the tool. Available with pneumatic or hydraulic motors, the oversize clamps have six contact points to mount securely for chatter-free machining end preps. The Commander Millhog pipe beveling tool is available for sale and rent.

Esco Tool – USA
Fax: +1 508 429 2811
Website: www.escotool.com

Quality inspection for stainless steel tubes

CONTRÔLE Mesure Systèmes (CMS) designs, develops and manufactures a complete range of NDT products in eddy current and ultrasonic testing methods, including high performance instruments and systems, probes and transducers, accessories, and complete turnkey machines with associated mechanics.

Non-destructive inspection systems from CMS are adapted to different kinds of material, ferrous or non-ferrous, welded or not.

For high quality and precision tubing, CMS has developed its ultrasonic rotating head RotoUTscan, for tube

inspection in stainless steel, titanium, zirconium and carbon steel (diameter range 6 to 250mm), for longitudinal and transversal defect detection,

RotoUTscan ultrasonic rotating head



thickness measurement, OD-ID and ovalisation.

It can be combined with other CMS equipment (including magnetising units, rotating systems and support coils) for a full body inspection of the product, and can be installed together in a strong control bench including centring devices.

Probus supervision software, to collect information provided by NDT equipment, allows the display of combined signals (UT/ET) and creation of inspection reports that can be used as control evidence for quality services and customers.

Data stored can be recalled for analysis and quality treatment.

Contrôle Mesure Systèmes – France
Email: contactcms@cmseddyscan.com
Website: www.cmseddyscan.com

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Innovative RFID pressure measuring technology

IN addition to the individual components from the PT-RF series, Stauff now also offers convenient service cases for maintenance and servicing. These complete systems offer space for up to ten RFID pressure transmitters including process connection adapters, as well as the reading and display device and other accessories such as connecting and charging cable, power supply unit with adapters, and operating instructions and software on CD-ROM.

If required, the robust plastic cases can be individually equipped and supplied to customer requirements.

Specially moulded and resistant foam inserts offer the required flexibility for the stored items, providing safe and permanent accommodation for the components while allowing maintenance personnel to see everything at a glance.

For applications where the actual pressure transmitters are permanently installed in the system, another version

of the case is available as an alternative to accommodate only the reading and display device including accessories. Both versions are also available empty.

With the PT-RF series, Stauff offers an alternative for pressure measurement in fluid technology applications on the basis of innovative RFID technology.

The energy required for a measurement is transferred to the pressure transmitter via the antenna of the reading and display device so that the transmitters require no internal or external power supply and no external wiring as is common for conventional sensors. This omits the manual mounting and dismantling of measuring and display devices, which often require the system to be opened temporarily. This effectively prevents the introduction of contamination into the system (eg in environments with high levels of dust) as well as potential hazards for people, machine and environment, which may occur due to residual oil in the test hose or leaks on the measuring point.

Walter Stauffenberg GmbH & Co KG
– Germany
Fax: +49 2392 2505
Email: sales@stauff.com
Website: www.stauff.com



Convenient service case from the PT-RF series

TNO series from Protem

THE TNO machines from Protem cleanly and efficiently cut and bevel tubes and pipes with diameters ranging from 4.5" ID to 72" OD (114.3mm ID to 1829mm OD).

These high speed, prefabrication orbital cutting and bevelling machines are specially designed to fit piping or tubing prefab applications on the job site or at a fabrication workshop.

The machines cut and bevel heavy wall pipes faster than many other machines, according to Protem.

The TNO range of machines are electrically driven and equipped with a hydraulic power unit for the automatic clamping system. Clamping screws located on the front and back of the machine adjust the concentricity and create a perfect alignment and perfect squaring.

The TNO machines are portable, rigid, fast and accurate. They save space in workshops or can be integrated into production lines. They also save man hours by avoiding grinding operations, flame cutting, difficult handling and setting of pipes on a lathe.

Protem SAS – France
Email: contact@protem.fr
Website: www.protem.fr



Updated laser tube cutter

AMADA Miyachi America Inc, a manufacturer of laser welding, marking, cutting and micro machining equipment and systems, has updated its Sigma Laser Tube Cutter, which can be used with both microsecond fibre and femtosecond disk lasers.

The new cutting system provides improved edge quality for both metals and plastics, making it suitable for medical device applications, including a wide range of tubes and stents. With three and four axes motion options, and the ability to cut tubes with diameters from 0.2 to 25mm, the Sigma is suitable for both wet and dry cutting. It features an automated tube loader option and a 22" graphic user interface on a swing arm.

The Sigma Laser Tube Cutter allows users to maximise throughput with high speed direct drive integrated X and Theta 'lathe' axes stages. Featuring two, three and four axes options, the tube cutter can be configured to the specific cutting application for both on and off axis cut geometries. The lathe stages are mounted directly to a granite base, while the vertical and horizontal stages are mounted to a granite gantry secured to the granite base.

Two different laser source options are available. The microsecond fibre laser is claimed to offer excellent beam quality and high pulse repetition rates for high-speed precision cutting. The femtosecond disk laser uses cold ablation cutting to produce edge quality that significantly reduces post-processing costs.

The Sigma can be used for both wet and dry cutting. Small tube diameters cut with the fibre laser are cooled using a self-contained water system that features flow and level sensors to monitor operation. The lathe stages and all connections are sealed for use in wet cutting.



Sigma tube cutter

Enclosure options include Class 1 systems in both open and closed frame, and Class 4 systems, customised to specific integration, access and loading speed requirements.

Amada Miyachi America manufactures equipment and systems for resistance welding, laser welding, laser marking, laser cutting, and hot bar reflow soldering and bonding. The company provides products to a wide range of markets, including the medical device, battery, electric vehicle and solar industries, as well as the global electronics, automotive and general industrial markets.

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New industrialised weld camera to view all open arc welding processes

XIRIS Automation Inc displayed its new XVC-1000e weld camera at the recent Fabtech show, in Chicago, USA.

The XVC-1000e camera is the ruggedised version of the XVC-1000 weld camera, a high dynamic range camera capable of capturing images of open arc welds so as to simultaneously see all features of the weld arc, its surrounding environment and its position relative to the weld seam.

The new camera comes loaded with features, including integrated solid state lighting, motorised focus and replaceable front window all in a rugged, IP67-rated housing that can be cooled with air or

liquid. Using the XVC-1000e camera, operators are able to remotely monitor the quality of their welding processes and make adjustments as necessary on the fly up to 100m away.

The XVC-1000e camera is intended for implementation on a variety of welding processes, providing productivity benefits including faster set-up times, increased weld-on times, better process troubleshooting and off line quality auditing and review. Videos can be recorded to disk for off-line retrieval and quality analysis.

The combination of powerful welding specific features, such as image

triggering, general purpose I/O, image windowing capability and a weld arc photodetector with a full suite of welding-specific imaging software tools, provides high image quality of a variety of welding and laser processes.

Xiris Automation Inc specialises in developing optical systems for quality control for several niche industries, providing some of the world's most dynamic manufacturers with the ability to detect, recognise and interpret quality defects in their manufactured goods.

Xiris Automation Inc – Canada
Website: www.xiris.com

Sensor mimics bats to detect dangerous cracks

AN ultrasound sensor for detecting dangerous cracks in structures such as aircraft engines, oil and gas pipelines and nuclear plants has been developed by researchers at the University of Strathclyde, with inspiration from the natural world.

The transducer identifies structural defects with varying ultrasonic frequencies and overcomes the limits of other, similar devices, which are based on rigid structures and have narrow

ranges. It is thought to be the first device of its kind.

The transducer developed at Strathclyde has a more flexible structure, based on a natural phenomenon known in mathematics as fractals. These are irregular shapes that recur repeatedly to form objects such as snowflakes, ferns and cauliflowers, making their structure appear more complex than it often actually is. The same concept lies behind the hearing system of animals such as bats, dolphins, cockroaches and moths.

Dr Tony Mulholland, a reader in Strathclyde's Department of Mathematics and Statistics and co-researcher on the project, said, "Fractal shapes and soundwaves are characterised by having geometrical features on a range of length scales. However, man-made transducers tend to have a very regular geometry, similar to a chessboard, and this restricts our ability to use this technology in finding cracks and flaws in structures where safety is critical.

"The reason transducers are still made this way is mostly

historical; they were usually made by an engineer cutting with a saw and their design was traditionally done by manufacturing, but now, with 3D printing, computer manufacturing and more laser technology, the transducer we have designed is increasingly viable.

"We know if we can send out soundwaves that are complicated and have different frequencies, we can work towards simulating what nature does. If there are defects in a nuclear plant or an oil pipeline, we would be able to detect cracks that have a range of sizes and do so at an early stage. This device could not only improve safety but also save a great deal of money, as early detection means inspections don't have to be carried out as often. This is something industry is telling us it needs, and we are responding to that need."

Dr Mulholland was partnered in the study by Ebrahim Algehyne, a research student at Strathclyde's Centre for Ultrasonic Engineering. The research has been published in the *IMA Journal of Applied Mathematics*.

University of Strathclyde – UK
Email: corporatecomms@strath.ac.uk
Website: www.strath.ac.uk

Ebrahim Algehyne (left) and Dr Tony Mulholland



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New aluminium frame curving technique

UK bending machine manufacturer Inductaflex has mastered a new technique that the company says completely solves the difficulties and high costs of curving aluminium window frame sections to very tight radii.

An Inductaflex AL-1 aluminium bending machine successfully curved a 45mm wide x 65mm high extruded glazing section to a 165mm outside radius and 120mm inside radius. Inductaflex managing director Craig

Barnshaw described it as a significant innovation for the window industry: "Our customer had actually been turned away from two UK companies who considered bending the section to such a tight radius to be impossible. This was perhaps an understandable response as, on the face of it, it does look to be a curving task beyond normal limits. Nonetheless, we still carried out a feasibility study and, once we began analysing the section, we realised that it could in fact be done and, of equal importance, very cost effectively too.

"The key to success was very careful design of the specialist machine tooling for AL-1 that we designed and manufactured specifically for this task. The end result is an affordable and reliable solution for more extreme bending of profiles that has the capability of introducing new design possibilities for aluminium glazing system manufacturers."

The Inductaflex AL-1 is one of the company's current range of five flexible CNC bending machines for aluminium extrusions, light steel, polished tubes and scratch-free stainless steel bending.

Meeting CE, UL and CSA standards, the AL-1 has a very short production time of between 60 and 90 days, with machines sometimes available ex-stock.

Inductaflex Ltd – UK

Email: sales@inductaflex.com

Website: www.inductaflex.com



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Curving challenge solved?

Integrated customer interface platform

LIFTING equipment manufacturer Konecranes has developed what stands as a fully integrated customer interface and asset management platform. YourKonecranes enables customers to bring together complete lifting equipment inventory information, service data, maintenance scheduling and archived asset-related documentation in one, fully transparent location. Where available, it can also be supported by real-time data from Konecranes' Truconnect remote monitoring service.

Aligned to the era of the developing industrial Internet, YourKonecranes is accessible on any device or tablet with network connectivity to provide complete mobility and flexibility as it seamlessly integrates with a customer's own processes. In order to deliver the best possible customer and user experience, the platform has undergone extensive field trials.

Designed to be user friendly, YourKonecranes' menu-driven content and logical, clear and concise screen layout makes navigation and information retrieval straightforward.

After logging onto the platform, the user is presented with a main menu of information with a customised date range relating to the system's key features: overview, asset fleet, service calendar, service agreement and service costs. From this point it is possible to create a service request for any specific asset listed within the platform, plus a feedback button, always visible within the main menu, channels customer information directly back to the YourKonecranes development team.

Project leader Mo Tarki said: "YourKonecranes is an extremely functional tool that presents a wealth of valuable information in one easily accessible location."

Konecranes Plc – Finland
Fax: +358 20 427 2099
Website: www.konecranes.com

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New T-Drill T-65 stainless steel tee-forming machine

THE patented T-Drill tube tee-forming method has been established for almost 40 years and sold all around the world.

T-Drill continues to expand its product range with the introduction of the portable T-65 SS tee-forming machine for stainless steel pipe up to SCH10/wall thickness up to 3mm.

The powerful T-Drill T-65 SS is a portable solution for making tee joints of OD17 to 51mm in main run tubes up to 300mm in just a couple of minutes.

While giving comparable quality to commercial tee fittings, profit can be increased because the T-65 SS eliminates cutting of pipe, two welded joints and fitting cost.

If tube polishing is required at the welding points, the T-65 SS also reduces that, as well as any inspection costs.

The branch pipe can be connected to a formed outlet either by orbital welding or by manual welding.

T-Drill Oy – Finland
Email: sales@t-drill.fi
Website: www.t-drill.fi



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Preventing pipe damage during handling and transportation

IN the global supply chain of pipeline projects, pipes travel long distances and are stored, handled and transported multiple times before they arrive at the construction site. This handling, storage and transportation of pipes carries risks of damage to the pipe or its coating, quality loss, corrosion and even accidents.

Dhatec, a specialist in line pipe logistic solutions, delivers products to prevent pipes from being damaged, from the production mill to the construction site. This includes safe handling, as well as transport and storage of pipes during the whole supply chain of the line pipe.

The product categories are divided into coating, preservation, handling, transport, storage and construction. These segments contain pipe closure, bevel protection, cross bracing, flange protection, pipe handling, anti-corrosion,

pipe transport and storage, and pipe coating.

In addition to supplying products, Dhatec is a knowledge partner for support, advice and training to improve logistic operations in the supply chain of line pipes anywhere in the world. It is an expert in optimising line pipe logistics and reducing associated costs within pipeline projects.

The organisation operates from a client-centric perspective, in which it recognises that each situation is different and needs its own approach. In this way Dhatec can offer optimal service, fitting the client's needs and wishes.

Dhatec will be exhibiting at Tube Düsseldorf, on stand 4G18.

Dhatec – Netherlands
Email: info@dhatec.nl
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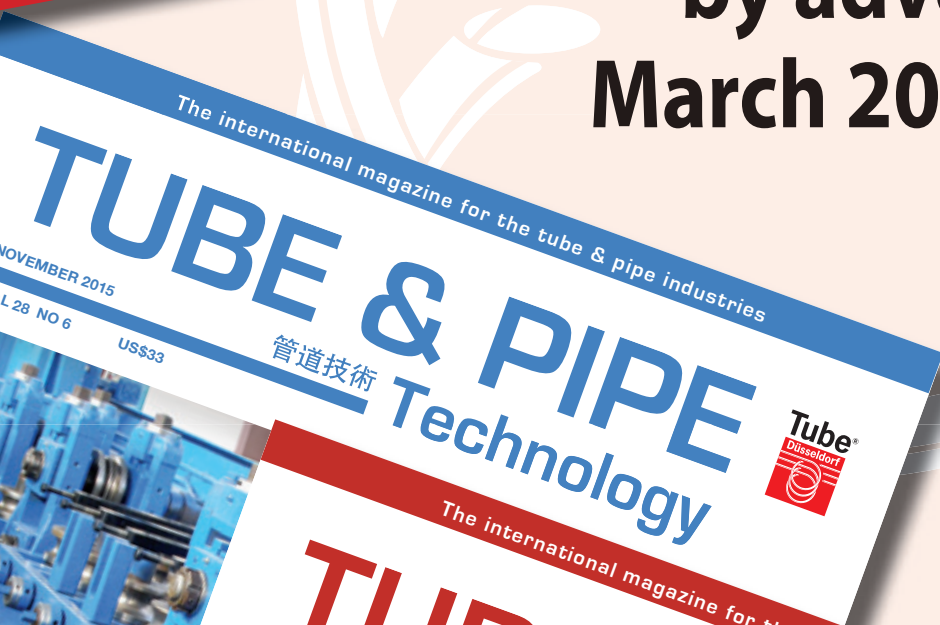
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Exact pipe cutting system

EXACT Tools has created a range of pipe cutting tools that not only save time while cutting and bevelling pipes, but also make what was once a specialist skill safer and easier.

The company claims that its pipe cutting machines have revolutionised the work of a wide range of industries, from construction to shipbuilding, municipal utility work to power stations.

Exact pipe saws cut pipes of all materials – steel, stainless steel, cast iron, plastic or copper. All the pipe saws are portable, so work can be performed on location. They provide a near-perfect cut in seconds, utilising stabilising grip or torque control features.

The blades are concealed in a protective casing and the machine is tightly fitted to the pipe. The ergonomic design means that the saws are easy to operate for even the most inexperienced user. The blades can also be re-sharpened two or three times.

The product range can be divided into three series. Universal Lightweight pipe saws include the PipeCut 170, 170E

and the PipeCut 220E – all extra-lightweight tools of less than 6kg, suitable for users cutting metal or plastic pipes up to 220mm in diameter with an 8mm thickness for steel and a 14mm thickness for plastic.

Heavy Duty universal pipe saws include the PipeCut 280E and 360E, which offer the capacity to cut larger (up to 360mm diameter) and thicker (10mm steel, 38mm plastic) pipes. Additional features of the Heavy Duty series include a vacuum cleaner attachment for safe removal of plastic chippings, and vibration control to reduce the effects of cutting tough, uneven material.

The Special pipe saws range includes the PipeCut P400, able to simultaneously cut and bevel plastic pipes up to 400mm in diameter.

The other model in this series is the PipeCut V1000, specially designed for cutting spiral ducts up to 1,000mm



PipeCut 280E, from the Heavy Duty universal pipe saw range

in diameter. The PipeCut 170, P400 and the V1000 are now also available battery operated, giving even greater flexibility.

Exact Tools Oy – Finland
Website: www.exacttools.com

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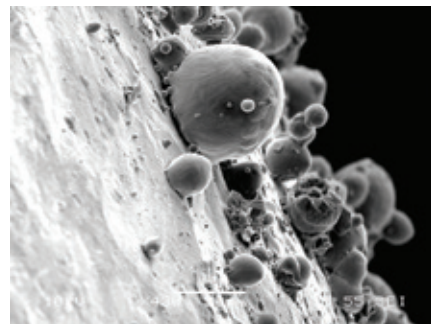
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Novel approach to identify corrosion problems

CORROSION protection provided by metalworking fluids remains a concern during the manufacturing of tubular goods. Since pipe products are vulnerable to multiple conditions that can lead to oxidation, corrosion



Example of SEM imagery (taken at 3,300x magnification) depicting typical rust (round bubble-like appearance) that forms in the presence of ambient humidity on a high carbon content substrate

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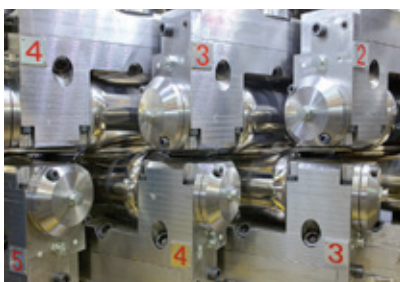
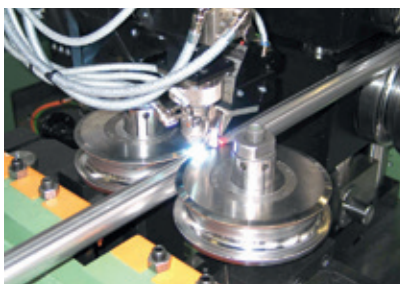
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can unknowingly occur in production or during storage. As a consequence, the pipe producer is at risk for financial losses in non-conforming products, scrap and/or rework costs.

Challenged to investigate the sources of pipe corrosion, Quaker Chemical Corporation addressed the issue with scanning electron microscope (SEM) and energy dispersive spectroscopy (EDS) technology. Quaker's research efforts have resulted in a methodology to pinpoint corrosion through visual and chemical composition data.

Providing insight at a molecular level, the findings from the SEM/EDS give clues on how to rethink the manufacturing process and how to adjust the metalworking fluids to tackle rust prevention. The SEM imagery produces characteristic visuals that allude to corrosion stemming from causes such as trapped moisture, surface contamination, scale, humidity or carbon levels.

The EDS analysis, produced by X-radiation, generates a wavelength spectrum to indicate the present levels of chemical elements. Depending on the atomic and weight percentages, the corrosion trigger can be inferred and possibly resolved by a tweak in the process fluid properties to inhibit or eliminate the problems upstream.

Quaker says that its study in SEM/EDS technology is a helpful tool in understanding corrosion phenomena. "When performed carefully and with proper interpretation of the results, advanced surface analyses with this tool can contribute to solving corrosion issues in tube and pipe operations," commented Karl Kunkel, North American industry business director – metalworking.

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Freeze sealing for pipe repairs

CONTRACTORS and maintenance personnel involved in repairing pipework in buildings and other constructions have long faced the problem of making repairs on tubes and pipes when they are full of fluid and may not be economically viable to drain.

The Accu-Freeze® pipe freezing system is able to freeze a plug in fluid

Accu-Freeze uses liquid nitrogen to freeze stationary liquids, to form an ice plug inside the tube



either side of a repair zone, isolating it, to allow work to be carried out without draining the whole system.

Luke Keane, technical support at Huntingdon Fusion Techniques (HFT), said, "Accu-Freeze utilises liquid nitrogen (LN₂) in a controlled way to freeze stationary liquids in a selected section of pipe or tube. By controlling the surface temperature of the pipe or tube, Accu-Freeze can accurately and safely form an in-line ice plug, capable of withstanding 136 bar in diameters up to 12" (300mm)."

To form an ice plug, the water or liquid inside the pipe or tube is brought to a static condition and a specially designed insulated jacket is placed around the section to be frozen, upstream from the repair zone. Once the plug is formed, maintenance and repair can take place without draining or shutting off the entire system. The controlled ice plug only forms beneath the Accu-Freeze jacket.

It does not expand outside of this area and does not create enough pressure to affect the integrity of the pipe.

The primary advantages of the patented Accu-Freeze system include the increased freezing capability of LN₂ and the ability to control the pipe wall temperature throughout the freeze process.

The LN₂ injections are automated, which reduces the operator's workload and reduces the amount of LN₂ that is consumed. Accu-Freeze can also be operated remotely, which makes it suitable for use inside 'hot' nuclear areas where personal exposure must be kept below certain limits. The Accu-Freeze technique is able to freeze large diameters and control the entire freeze process.

Huntingdon Fusion Techniques – UK

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Subcontractor extends automated finishing to sheet metal components

UK subcontractor J Reeves Engineering, which specialises in machining and fabricating components and assemblies from sheet metal and tube, took delivery of a vibratory trough deburring machine from PDJ Vibro at the beginning of 2015. It joins a twin vibratory bowl finishing and drying system from the same supplier that has given reliable service for more than 20 years.

The bowl is suitable for deburring and edge breaking of sawn and machined tube and bar. It accommodates batches of components weighing around half a tonne and finishes them automatically to a consistent standard. The variability of manual finishing is eliminated and so is the labour cost associated with dedicating someone to the job.

However, what the bowl does not handle well are some sheet metal parts. If they are too long, they cannot follow the toroidal path of the abrasive media. Parts that are too small, on the other hand, tend to stick in the sides of the mechanism that automatically separates components after processing. The hinged arrangement, which directs finished components

over a separator screen when a flap is lowered into the counter-rotating media, necessarily has areas in which thin sheet can become wedged.

In this case, the solution suggested by PDJ Vibro was a Model 300DB trough in which the vibrations cause the ceramic abrasive media to tumble linearly across the width of the machine, rather than take a toroidal route. It means that batches of sheet metal components measuring up to the internal length of the trough (787mm) can now be finished automatically. As with tube and bar parts, the benefits are consistency of finish and elimination of labour cost.

Heavy gauge steel coated with rust-inhibiting enamel and a hard-wearing polyurethane lining indicate that the 300-litre capacity trough will last as long as the vibratory bowl at Braintree. A fluid pumping system including container, hoses and fittings has been supplied for recirculating a surface finishing compound.

Jerry Reeves, who started the privately owned family business in 1976, said: "We have been impressed with the

performance and longevity of the PDJ Vibro finishing bowl and dryer, bearing in mind that this type of machine due to its very design can literally shake itself to destruction.

"Earlier this year, we started receiving orders for more repetition parts in sheet metal. The ability to do away with the cost of hand finishing justified our purchase of the trough, which conveniently requires only a single-phase electricity supply.

"When I telephoned the company, which is also family owned and run, I received the same prompt, straightforward service from the second-generation directors as I did from PDJ Vibro's founder, John Hurley, back in the mid-90s. So I decided to go with the same supplier."

There was another aspect of the PDJ Vibro approach that Mr Reeves appreciated. Bearing in mind that such finishing machines are relatively low cost items, it did not make sense for him to drive for nearly two hours to the supplier's Bletchley showroom to see the trough demonstrated. So he bought it unseen on a sale or return basis.

A majority of J Reeves Engineering's work comes from firms within a 30-mile radius of Braintree, although the furthest customer is 160 miles away in Wimborne. A hallmark of the business and a prime reason for its success is the quality of the assemblies supplied. Every order is a priority and, as Mr Reeves puts it, "there is no room to have a bad day."

Wiedemann turret punch presses and Trumpf laser cutting machines are used on sheet metal gauges up to 15mm, while thicker plate is profiled on a Flow water jet cutting machine.

Materials processed by the subcontractor include steels and non-ferrous metals including stainless steel and aluminium.

All are suitable for processing in the PDJ Vibro equipment prior to fabrication, either by hand or in two Fanuc robotic welding cells. Stove enamelling and powder coating are also carried out on site.

J Reeves Engineering – UK
Website: www.pdjvibro.co.uk

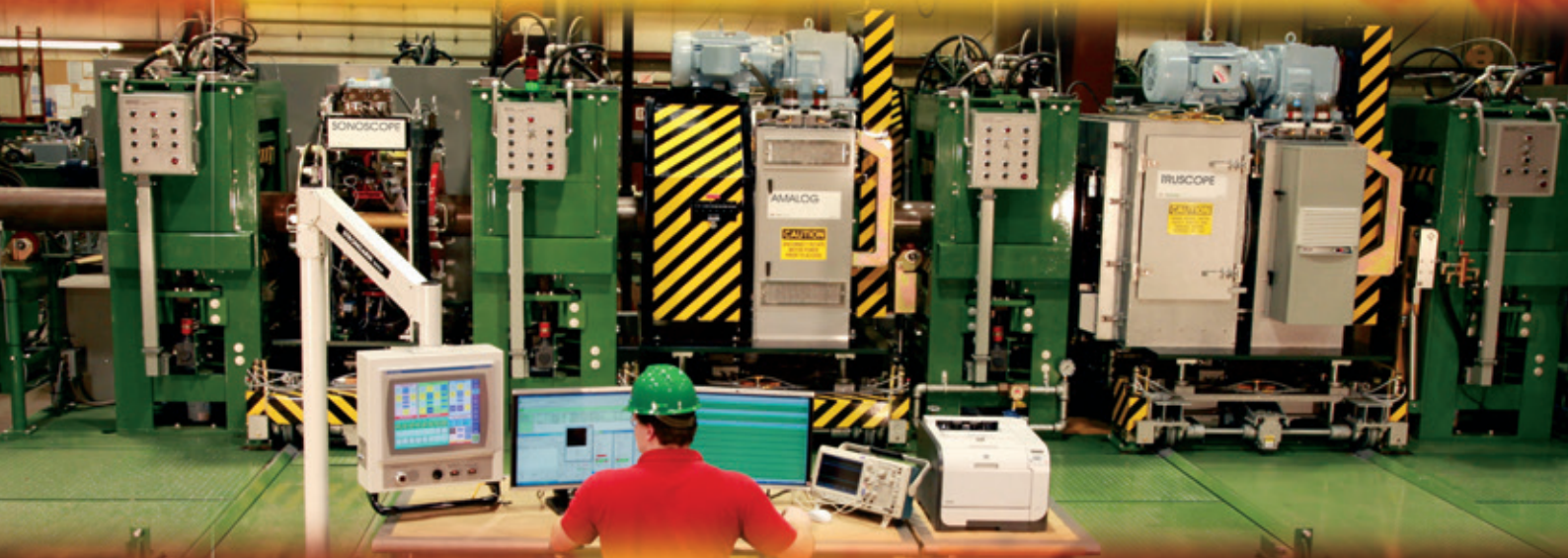


The PDJ Vibro vibratory trough in use on the shop floor

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Next-generation 'non-phosphate' pre-treatment, aluminium finishing and anodising

CHEMETALL, a developer, manufacturer and supplier of speciality chemical products, exhibited at FABTECH in November. At the show, Chemetall presented its advanced pre-treatments, aluminium finishing and anodising technologies.

"We were excited to return to FABTECH and share Chemetall's outstanding 'Cut It, Clean It, Coat It, Conserve It' product portfolio," said Suresh Patel, business manager, general industry.

"They are developed to improve overall process efficiency and performance, and reduce operation costs required in today's surface finishing industries."

Chemetall showcased its complete portfolio of aluminium finishing processes, now complemented by a full line of cutting edge anodising products.

Chemetall has been developing, manufacturing and supplying chemical products for more than a century. The company offers products ranging from metalworking fluids, and drawing and

stamping compounds, to cleaners, rust preventatives and surface treatment chemistries. Its integrated products, chemical management systems, process equipment and technical service programmes deliver efficient solutions for industrial manufacturing needs.

Chemetall – USA

Fax: +1 908 464 4658

Email:

chemetall.products@chemetall.com

Website: www.chemetall.com

New cutting fluid for efficiency and reduced workplace pollution

WITH its new water-soluble Cool 3 cutting fluid, Buehler – ITW Test & Measurement GmbH meets the demand for an efficient and eco-friendly coolant/lubricant for use in materialography and production.

Cool 3 removes heat, abrasion products and chips quickly and efficiently from the cutting surface, enabling high

sectioning performance and throughput. The transparent cutting fluid features a boron-free formula without mineral and synthetic oils, and has a pleasant smell, which avoids negative impact on the health and well-being of laboratory and production staff.

At a recommended concentration of four to eight per cent in water, Cool 3 is suited to sectioning and grinding tasks encountered in environments ranging from research laboratories to industrial quality control, and for a wide range of materials, including ferrous and non-ferrous metals, plastics and composite materials, and ceramics.

Owing to its high stability, Cool 3 offers a long useful life in recirculating cooling systems. The coolant/lubricant prevents corrosion and helps to maintain the quality of chucks without leaving a sticky residue.

Cool 3 is available in containers of one and ten litres, and is compatible with all abrasive wheels used on abrasive cutters from the AbrasiMet, AbrasiMatic and Delta series, as well as the IsoMet™ and PetroThin™

precision cutters and the new PlanarMet 300 bench-top planar grinding machine.

It is also suitable for use with additional Buehler products used in sample preparation, such as AddiCool, an additive specifically designed to prevent galvanic corrosion of non-ferrous metals, or the anti-bacterial system cleaner Reciclean. Third-party instruments may also benefit from the advantages offered by Cool 3.

Buehler – ITW Test Measurement GmbH, based in Düsseldorf, Germany, has been a manufacturer of scientific equipment, supplies and accessories for use in metallography and materials analysis for 75 years, and also offers a broad range of hardness testers and hardness testing systems.

A network of branch offices and dealers provides customers with support and service around the globe, while the central lab located in Düsseldorf offers assistance with all application-related questions or the development of repeatable specimen preparation processes.

Buehler – ITW Test & Measurement GmbH – Germany

Email: info.eu@buehler.com

Website: www.buehler.com



The new cutting fluid Cool 3 ensures efficient removal of heat and particles

Photo credit: © Buehler – ITW Test & Measurement GmbH

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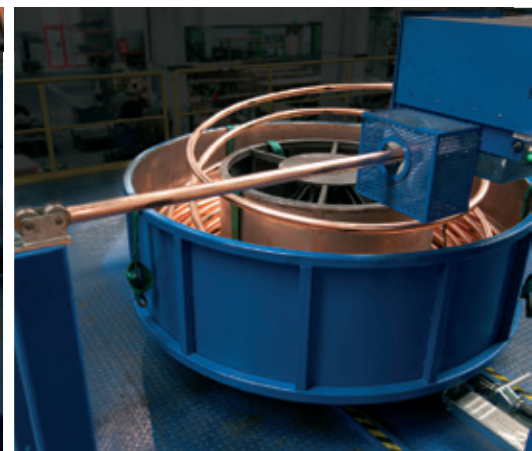


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Improved precision in pipe and pipe end heating

By Dr-Ing Peter Turewicz, Dipl-Ing Joachim Brettel and Dr Jürgen Kern

THE heat treatment of pipes and pipe ends is an important process step, which occurs in the manufacture of a variety of different high quality products. There is a distinction to be made between preheating before mechanical processing like drilling, sealing, threading or forming to increase/decrease the diameter and heat treatment to harden the metal, eliminate residual stresses or achieve a structural transformation.

Induction heating offers many advantages in comparison with conventional heating systems. The main benefits are process reliability, high throughput and, in particular, the possibility to generate a precise temperature profile. The particular challenge is to provide a homogeneous predefined temperature distribution for different diameters, wall thicknesses or irregular geometries in one installation. Only by an interaction between experience, know-how and high-grade components is it possible to meet the high requirements regarding precision and quality.

EMA Indutec, as a manufacturer of modern induction heating systems, is specialised in the area of pipe and pipe end heating, offering technical solutions with improved precision and efficiency.

One of the most important factors to ensure a high product quality is the precision of the temperature distribution at the heat treatment. Particularly in the case of pipe and pipe end heating, it is important to generate a defined temperature for a certain period and only in a specific region. For example in the case of local thermal stress relief, a simple rule of thumb gives an exposure

to approx. 610°C for a period of 1h for each 25mm of thickness (minimum of 1h for any thickness). At the same time, neighbouring regions should remain cold.

In this manner, selective heat treatment is fundamental to achieve the demanded mechanical properties of the final product. Conceptually, this approach demands: precise heat source distribution with highest power at the surface (to compensate the heat loss to the environment) but also heat generation inside the volume to guarantee a uniform temperature distribution in radial direction; high power density for fast heating to avoid an undesirable spread of temperature in axial direction; and an intelligent regulation which controls rapidly all process parameters, with regard to the desired temperature distribution.

Especially for pipe end heating, induction technology offers a reliable solution. However, the difficulty is to hold the desired temperature profile for a period of time retaining the required accuracy. In this regard EMA Indutec developed a technology for highest precision, which has already been proven in a large number of different applications.

EMA Indutec pursues continuous improvements by finding innovative solutions for processes and products. In this respect, multi physical numerical simulations are used to analyse different technical concepts including all relevant process parameters in a virtual model. In order to achieve optimum levels of precision and accuracy the most suitable solution will then be chosen from a large number of possible variations. In this way numerous induction heating systems have been implemented successfully.

An example of a heating plant for pipe ends is shown above right. The main issue was to increase or decrease the diameter and achieve a specific wall thickness.

Providing defined thermal conditions by the induction heater, the material flow can be selectively controlled during the forming



Induction plant for pipe end heating

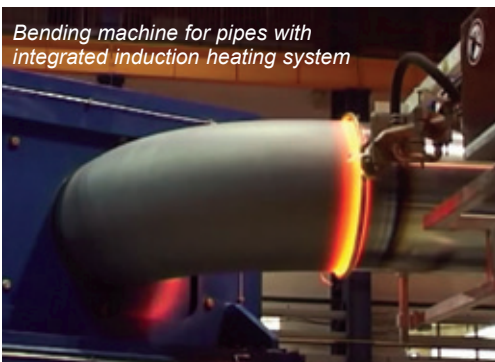
process. A variation of this installation type was designed for stress relief heat treatment. The plant's flexibility allows both preheating for forming and for thread cutting. As a result two individual heating systems can be replaced saving space and costs.

Pipe bending is also a widespread application for the induction technology. In order to prevent cracks, deformations or other damages during the bending process the pipe is preheated sequentially to approximately 1,000°C. The usual procedure consists of an integrated induction heater, which is shown for large diameters (see below left). The pipe is transported continuously through the coil, which is heated with high precision only in a defined narrow area.

The process for manufacturing high quality pipes and tubes had to fulfil very demanding requirements in terms of precision during the heat treatment. The induction technology offers many advantages in comparison to conventional heating systems. However, only an accurate technical design guarantees high standards of the final product.

Based on decades of experience combined with modern computer-aided calculation and simulation methods EMA Indutec sets new standards of accuracy. This new generation of induction heating system has proven successful in manufacturing tubes and pipes but can be also transferred to other industrial applications.

EMA Indutec GmbH – Germany
Website: www.ema-indutec.de



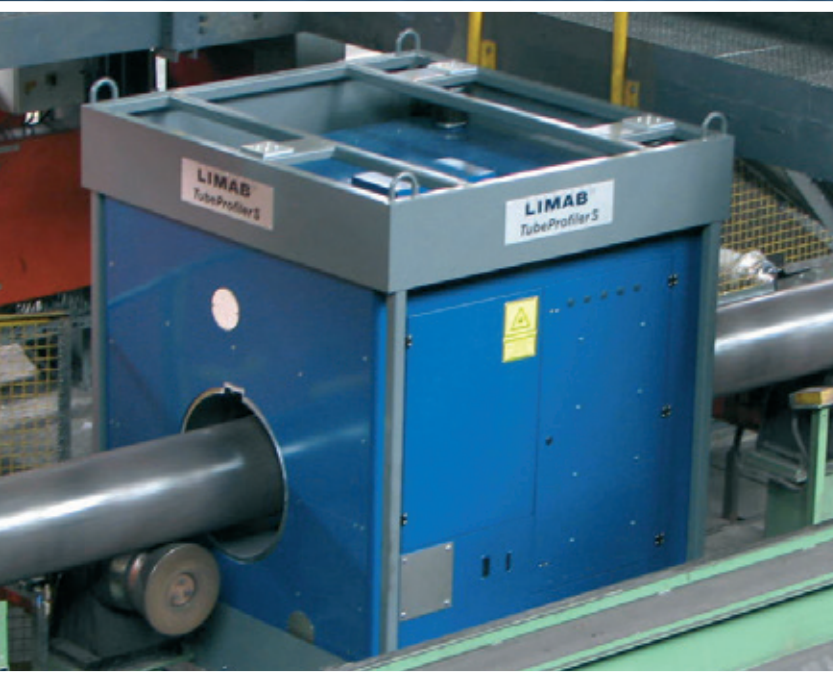
Bending machine for pipes with integrated induction heating system

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Seam tracking and quality control during laser welding

NUMEROUS trends are dictating the use of the laser in automotive engineering. The use of high-strength steels, weight-saving aluminium alloys, innovative joint geometries and unusual material mixes has the overarching aim of making the vehicles safer, more cost effective and more energy efficient. Process monitoring systems play a key role here.

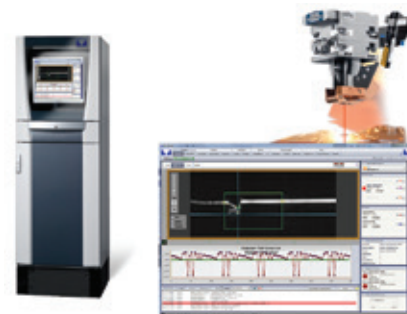
At the Laser World of Photonics trade fair in Munich, Precitec presented the YW52 laser welding head with integrated ScanTracker for the controlled weld position and weld seam width. In conjunction with the WeldMaster system for realtime process control and quality monitoring, this is a flexible and comprehensive solution for difficult welding tasks under changing conditions.

The WeldMaster measures the joining position laterally and the width of the gap. Instead of an external axis, the integrated scanner mirror of the ScanTracker precisely controls the focal position along the measured joint. Additionally, the mechanically controlled collimation lens corrects any change in the standoff distance. If, for example, the gap width or height changes as well as

the position of the joint, the WeldMaster system, in addition to the scanner mirror, can overlay a high-frequency pendulum motion and thus increase the seam width. The WeldMaster also controls the laser power, which is freely programmable, in sync with the pendulum motion. This makes ScanTracker the ideal solution for applications involving differing weld seams or extensive retooling. The seam width is freely adjustable via an analogue interface and requires no additional control. A synchronous laser power control is available to avoid intensity peaks at the reversal points, and this can be achieved through the freely selectable performance profile.

The minimum lead times for the measurement, less than tenths of a second, and the adapted lateral and longitudinal distribution of the linear energy leave nothing to be desired when it comes to optimal process control.

The WeldMaster systems for realtime process control and quality monitoring of laser seams are based on one standardised platform, which is responsible for data processing and operator guidance. Camera systems



The WeldMaster

and sensors for measuring and controlling the laser joining process can be connected and evaluated to suit the application concerned. The operator concept is always the same, no matter whether the system is supposed to detect and control the joining position, whether an image is evaluated for detecting welding seam errors or whether only a simple sensor signal, the laser power for instance, is to be depicted.

Precitec KG – Germany
Fax: +49 7225 684 900
Website: www.precitec.de

Pipe fusion for large-diameter pipe

THE release of the TracStar® 1200 brings the largest pipe fusion capability to date in McElroy's line of self-propelled, track-mounted fusion machines.

The TracStar 1200 has many of the same benefits as the smaller models, but with some major upgrades. It

features an advanced emission control engine that burns ultra-low-sulphur diesel to meet the EPA's latest Tier 4 standards. The cowling has also been redesigned so that technicians have better and quicker access to the engine for maintenance.

"The TracStar line was quickly embraced when it was launched 18 years ago and its design continues to improve based on the input we receive from the field," said the company's president, Chip McElroy.

"The ability to propel the machine from joint to joint has always been a major selling point and this feature will help meet

the growing demand for fusing large-diameter pipe."

The TracStar 1200 butt fuses pipe from 450 to 1,200mm OD (16" to 48"), and can traverse almost any terrain, including mud, loose soil, snow and gradients up to 30 per cent. It is self-contained with an on-board generator for powering the hydraulic pivoting heater and facer.

The three- or four-jaw convertible carriage is easily removable for in-ditch use.

Other new features include hydraulic outriggers for machine stability and levelling, an ergonomic operator platform and remote engine stop/start capabilities.

McElroy – USA
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The TracStar 1200 from McElroy



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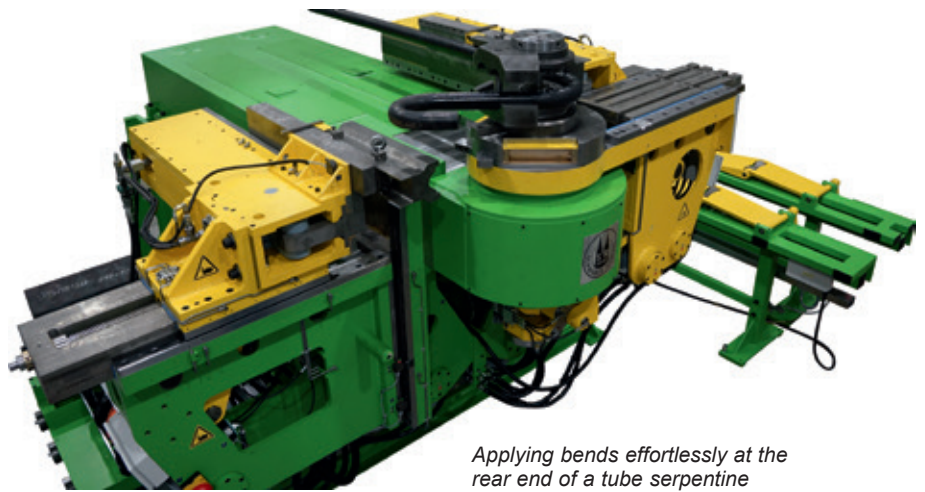
Bending efficiency with low emissions

HIGH efficiency, low emissions and cost-optimised construction processes are the main demands for power plants and their construction. Pipelines have an essential significance. On the one hand tubes or pipes made of wear-resistant and resilient material, as well as small bending radii, enhance the degree of efficiency of power plants. On the other hand, lean tube bending processes and automated production lines provide a decisive contribution to cost efficiency in power plant construction.

The higher the process temperatures of power plants, the higher their efficiency. So that pipelines can resist the high temperature loads of 600°C and more, high-temperature-resistant steels such as T91 are increasingly being used. In comparison to normal steels, these have the required creep strength to resist the loads through pressure and flow values.

When forming these tubes it is vital to take various aspects into consideration. Due to the strength of these steels, the bending machines used must have the necessary bending forces. Yet despite the strength, these materials react more sensitively, and wall-thickness tapering and out-of-roundness can occur in the tube bend. It is, therefore, essential that the tube bending machines engaged for pipelines in power plant construction meet the corresponding tolerance specifications. These include, for example, the European standard EN 12952 or that of the American Society of Mechanical Engineers ASME B31.1. Meeting these standards plays a significant role, in particular, in light of the fact that power plant construction makes increasing use of smaller boilers with higher capacity. Heavier wall thicknesses and smaller bending radii are required to manufacture these high-performance boilers. Not infrequently, the minimal bending radius must be 1xD, depending on tube diameter (in part also less than 1xD). In view of the high temperature-resistant and sensitive materials, the bending challenge behind this is correspondingly significant.

Processes can be designed to be cost efficient through efficiency increase, not just in power plant operation. Lean production processes already provide an essential contribution towards cost efficiency during the construction of



Applying bends effortlessly at the rear end of a tube serpentine

power plants. That is why machines with two bend heads have established themselves for the production of pipelines, because they permit time-optimised production of complex tube serpentines.

The CNC 100 DB Twin by Schwarze-Robitec represents such a solution. It has two bend heads, which can be moved vertically and horizontally (1x left bending, 1x right bending) and which bend the tube alternately clockwise and anticlockwise. In this manner, the machine offers high flexibility, for example when manufacturing superheater coils. The tube serpentine does not need to be turned after each bend, which guarantees quick and economic production processes and the manufacture of long side lengths. As an option, both bend heads can also bend in the same bending direction. By using different sized bend formers, different sized bending radii can be produced.

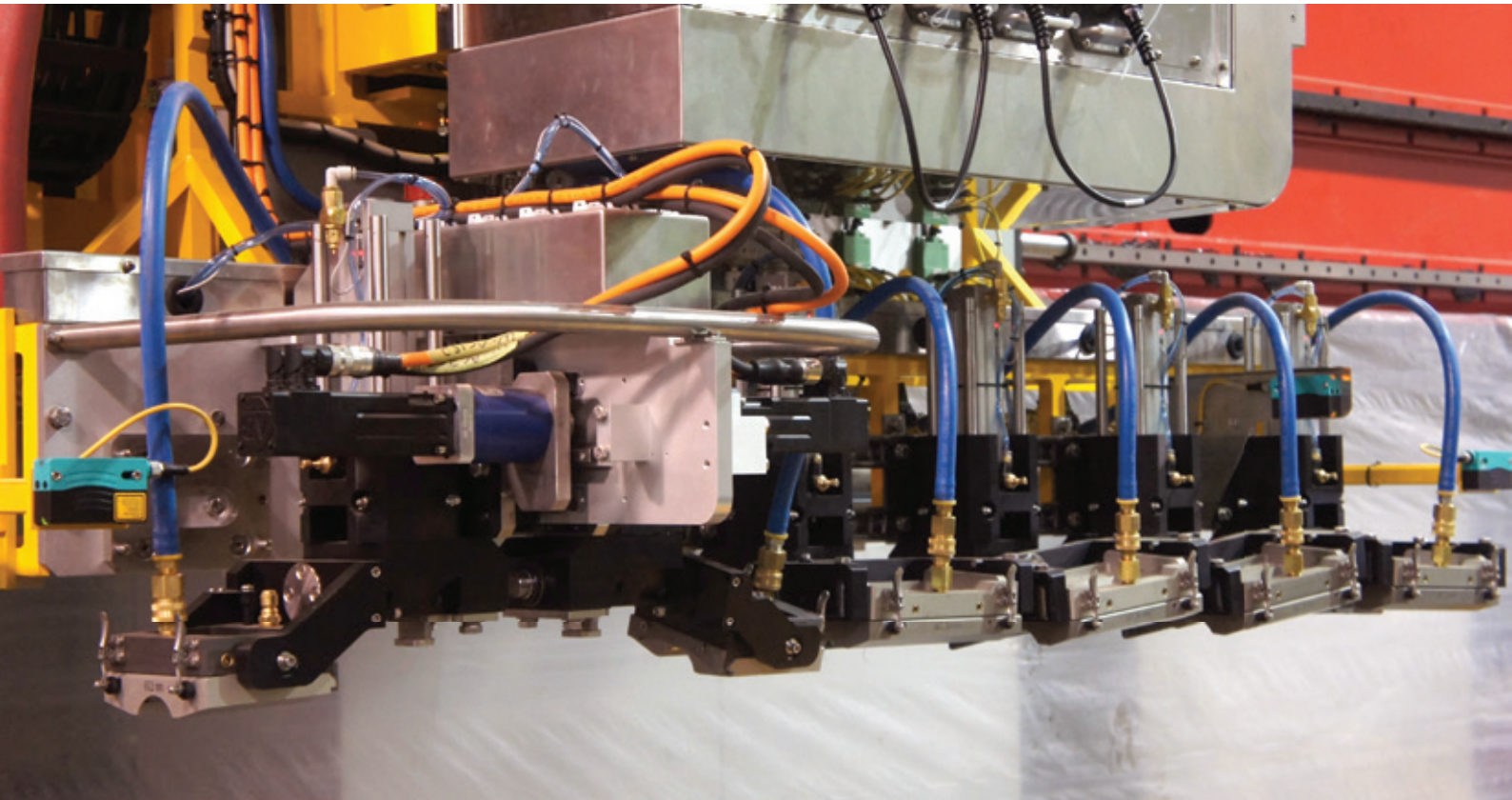
Especially conceptualised for power plant construction, the CNC 100 DB Twin also takes into consideration the initially described properties of tubes made of high-temperature-resistant steels. For a Chinese power plant builder, for example, Schwarze-Robitec designed both the CNC 100 DB Twin and the customer-specific bending tools according to international standards. The power plant builder produces boiler tubes made of the high-temperature-resistant steels with dimensions from 32 x 3.5 to 63.5 x 13mm.

Fully automatic manufacturing chains make a further contribution towards cost efficiency in power plant construction. When storage, materials-handling and

manufacturing technology interact optimally they reduce cycle times and therefore decide about the performance and competitive edge of a company. Schwarze-Robitec has developed an automation concept with which all machines can be fitted with optional extras, depending on bending order, and expanded to a fully automatic manufacturing system. Such a system on the basis of the CNC 100 DB Twin has just been delivered to the already mentioned Chinese power plant construction company. The rationalisation extends across the complete production chain: from material supply to handling and quality testing all the way to the dispatch of the ready bent pipelines.

The tube is moved via a transport system from the warehouse to the separating unit and is then conducted on to the quality control of the weld seams. After the X-ray control, the transport system moves the flawless tube – the faulty ones are rejected – to the other end of the system. The transport trolley with index head, which is mounted on a hanging guide surface, takes over the feed to the bending machine and flip-over table. The flip-over table is specially designed for handling the long pipelines. The integrated flip-over arms turn the tube serpentines quickly and securely between the individual bending procedures. During the bending procedures, the flip-over arms position themselves flat in rest position to avoid collision with the serpentines.

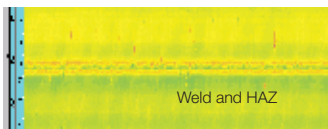
Schwarze-Robitec GmbH – Germany
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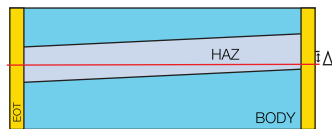
All-in-One Nondestructive Inspection Solution for ERW Tubes

Olympus offers a phased array solution for full-body inspection of ERW pipes that includes an independent weld seam and heat-affected zone (HAZ) inspection feature.

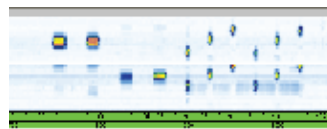
Fully compliant with the latest API requirements for P110 and Q125 grades



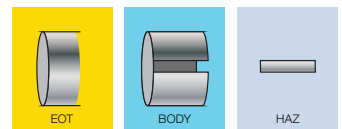
Full-body inspection provides high resolution WT mapping of the pipe to identify the weld position from an absolute reference and the weld deviation over the complete pipe length.



WT mapping data is used to automatically position the weld seam prior to the inspection and automatically adjust the phased array probes to compensate for weld deviation during the inspection.



Optimized weld seam inspection can detect up to 1/32 in. through drilled holes created by large phased array curved probes, covering a wide sector with homogeneous amplitude.



WT mapping view can also be used to automatically discriminate between specific pipe zones to apply independent criteria and reject different-sized defects in each zone.

Inspection, testing & quality control

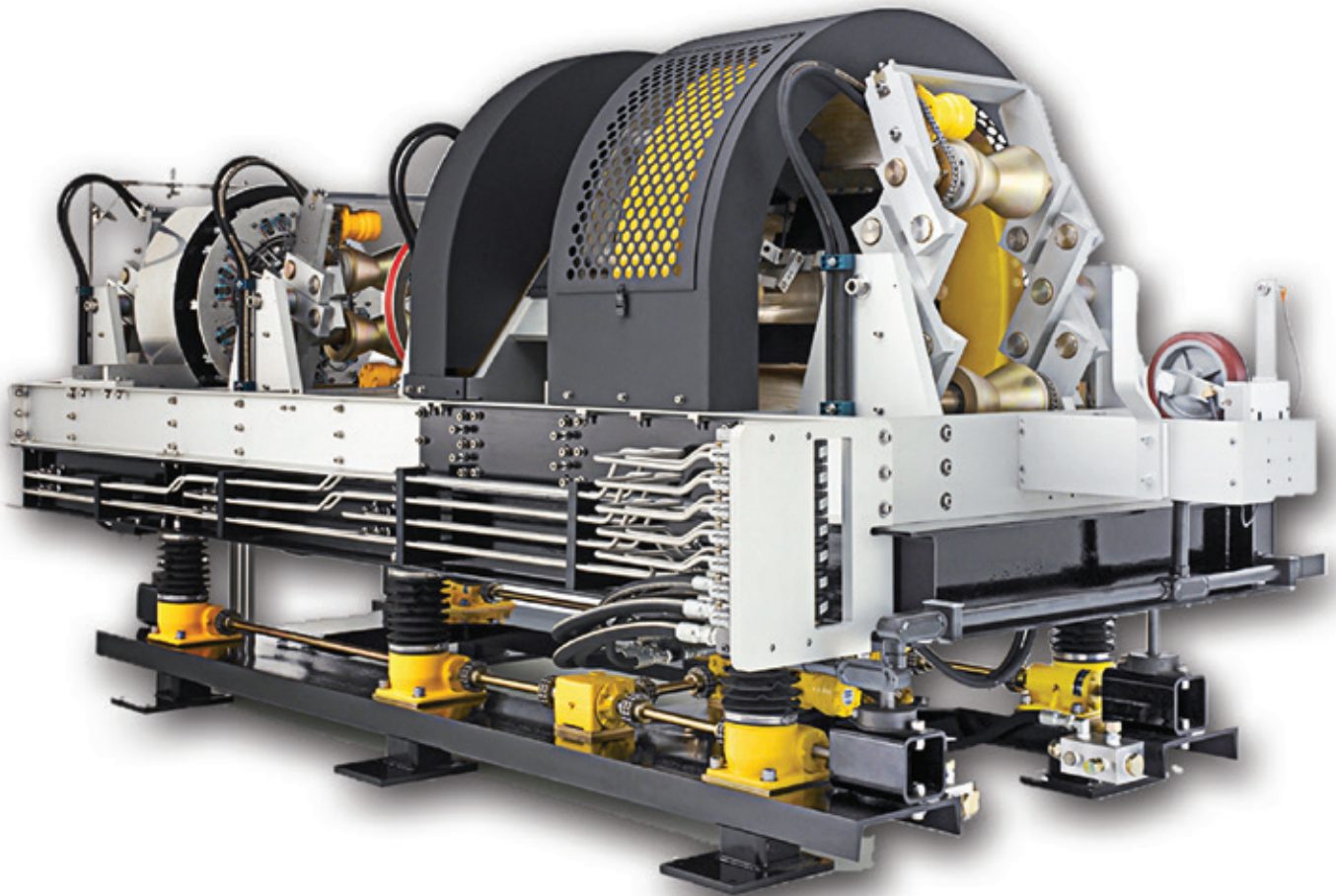


Photo: Scan Systems Corp, USA

What would constitute a very strong challenge to this trio of closely allied techniques? A likely candidate might be the making of on-line corrections to a machine imposing multiple and complex bends in a tube intended for long, hard use in a hostile environment.

Information supplied to the system would need to be accurate not only about the bend points but as to the entire complex tube contour. The workpiece would at

all times require direct comparison with a master tube or a CAD model, with supersensitive alerts to any area out of tolerance. Correlation, conformation, correction: all would be instantaneous and to standards well beyond the norm and very little short of absolute ideal. In fact, to the professionals whose products and services are reviewed here, this is not a counsel of perfection. It is daily practice in an industry in which inspection, testing and measuring are crucial but standard fundamentals of production.

Full body ultrasonic testing of spinning tube

MAGNETIC Analysis Corp (MAC) has developed a new automated pitch control (APC) ultrasonic system for full body tube testing in spinning tube applications. Capable of handling a larger range of dimensions, and material that is not as straight as that usually required by other test systems, the APC design is a new option for this application.

A recent MAC APC system for full body seamless tube testing uses a test head that incorporates 30 ultrasonic

transducer elements within a water box carrier, with follower rolls that ride on the under surface of the tube being tested. The transducer holder within the test head can move to either end of the water box to allow for testing to the very end of the tube, minimising untested ends.

The spinning tube moves longitudinally past the transducers and the APC design automatically adapts the angle of the rolls to the helical pitch produced by the tube's rotational speed and forward

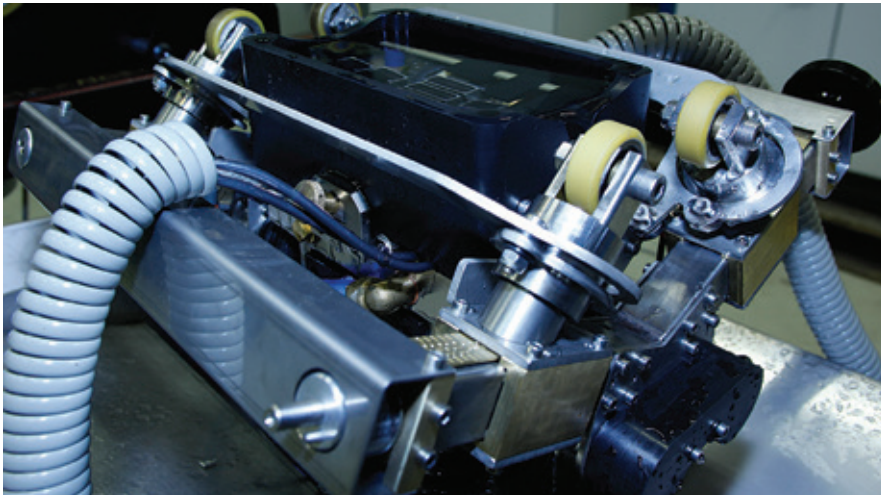
motion. This design ensures minimal wear and allows testing of some non-round tube shapes.

The system's design allows the tube producer to test a broad range of tube diameters (in this instance from 45.7 to 292.1mm) with only a convenient, minimal adjustment of the roll separation for changes in dimension.

The test head is lifted into the test position beneath the tube by an air cylinder when the leading end of the tube has passed, and lowered when the trailing end is approaching. This ensures the head is securely positioned when the tube ends pass, preventing possible damage during normal operation. A 49ft-long inlet and exit conveyor system, controlled by a PLC and conductor, includes a kick-out mechanism for transferring rejected tubes off to the side.

The system is designed to detect longitudinal and transverse OD and ID defects 5 per cent of the tube wall, and a circumferential wall thickness reduction of 5 per cent.

MAC's APC ultrasonic test head for full body spinning tube inspection



Magnetic Analysis Corp – USA

Fax: +1 914 703 3790

Email: info@mac-ndt.com

Website: www.mac-ndt.com

Ultrasonic thickness measurement

ELCOMETER is a manufacturer of inspection equipment, with specialised divisions dedicated to coatings inspection, ultrasonic NDT inspection, concrete inspection and metal detection.

The company's new MTG ultrasonic thickness gauges are designed to make measuring material thickness easier. Rugged, fast and easy to use, the new range of hand-held gauges accurately measure up to 500mm (20") thick. With an easy-to-use menu system in multiple languages, the gauges can be used with little or no training.

Measurement modes include pulsed-echo (P-E), echo-echo ThruPaint™ and velocity mode – suitable for determining the homogeneity of a material.

Key features include user-programmable calibration memories,

ensuring accurate and repeatable results; display readings, statistics, bar graph, run chart, reading & differential and B-scan; up to 40 user-programmable limits, with audible and visual pass/fail warnings; storage of up to 100,000 sets of readings in 1,000 sequential or grid type batches; and integral zero disc and intelligent transducers for automatic probe recognition.

The new Elcometer MTG ultrasonic thickness gauges offer accuracy of ± 1 per cent across the full 0-500mm range on smooth, rough, curved coated or uncoated surfaces.

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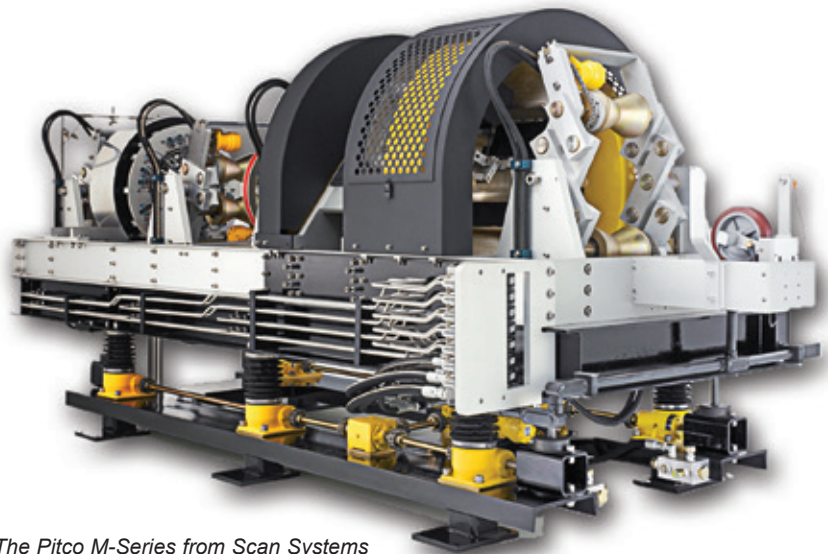
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EMI inspection for OCTG industry

MANY OCTG MFL (magnetic flux leakage) inspection equipment manufacturers claim their machines detect flaws on 0.545" (13.84mm) walls and greater during the inspection process, but often these claims ignore a key component of a quality inspection – repeatability.

API 5CT specifications require a minimum of 20 per cent repeatability on all inspection runs. Often the detectability specifications given by EMI vendors to the steel mills, processors or inspection companies are a reflection of the equipment manufacturer's upper limits of detection capabilities, or best case scenarios – and they hope to address the repeatability of their equipment much later in the vendor selection process. "In our opinion, there needs to be more focus on repeatability much earlier in the technical evaluations," said Danny Uselton, president of Scan Systems Corp.

In EMI inspection, repeatability comes down to the equipment's hardware and software capabilities to identify the signal given by an imperfection or artificial reference indicator and report those imperfections at a similar amplitude, consistently and repeatedly. The equipment must have the capability to pick up the flaw and break the alarm threshold each and every time in order to provide the level of confidence in the inspection that API requires. If the signal from a flaw falls within an area of significant noise generated from the pipe, it may stand out during one pass (detected), but get lost "in the grass"



The Pitco M-Series from Scan Systems

during the next run (repeatability). Using advanced signal processing algorithms combined with proprietary sensors and cutting-edge signal detection hardware, Scan Systems' Pitco M-Series with ESP upgrade has dramatically improved the ability to separate a flaw's signal from the background noise, and is claimed to offer the best S:N ratio on any given pipe in the industry.

Matt Rutledge, general manager/VP of Scan Systems, believes that repeatability is a top priority and something customers should ask about sooner in the vendor selection process. "Surprisingly, many steel mills, processors and third party inspection companies neglect to inquire about the inspection equipment's capabilities in regards to repeatability

until much later in the selection process."

While 0.4" (10mm) pipe wall thickness has historically been the limit for existing EMI/MFL inspection equipment, Scan Systems' Pitco M-Series with ESP upgrade can reliably detect and repeat on N5 ID notches up to 0.545" (13.84mm) wall thickness and N10 ID notches up to 0.625" (15.875mm) walls. This ability to accurately detect and repeat on these types of indications has been accomplished through the hard work and determination of the employees in the R&D department of Scan Systems Corporation.

Scan Systems Corp – USA
Email: mattr@scansystems.com
Website: www.scansystems.com

Tubular inspection services

TUBOSCOPE, a division of National Oilwell Varco, is a supplier of tubular inspection services and equipment to the petroleum and pipe manufacturing industry. Its technologies allow inspection of new and used tubular goods to demanding industry and customer specifications.

The company's systems include Amalog® and Sonoscope® electromagnetic inspection technologies, and Truscope®, TruWall®, and TruScan® ultrasonic (UT) inspection systems.

Tuboscope supplies mill inspection equipment, available to manufacturers

of tubular goods worldwide, that can be employed to effectively inspect tubulars as rapidly as they are fabricated. These mill units are capable of operating at high testing speeds and can be custom-designed to production line requirements.

An example of this capability within the Tuboscope product line is the Truscope A/S, which stands for Truscope-Amalog-Sonoscope. This inspection system combines the non-destructive techniques of EMI (electro-magnetic induction) and UT (ultrasonic) principles to detect, evaluate and classify, in a single pass of the pipe through the system, transverse

and longitudinal, internal and external flaws as well as wall thickness variations and laminations.

The Truscope A/S system provides full-body inspection across a large range of pipe diameters. These pipes can be seamless or ERW, manufactured of ferrous or non-ferrous alloy materials, and with a variety of end conditions – saw-cut or cropped; plain-end; threaded; coupled; and upset or non-upset.

NOV Wellbore Technologies – USA
Fax: +1 713 799 5452
Website: www.nov.com

Quality control for pipes and tubing

DIFFERENT sizes, radii and angles make measuring tubes and quality control a difficult job, regardless of whether measuring single bends, complex pipe shapes or planned pipe courses. The Proliner Tracker 10IS and TubeCheck software are quality control solutions for the metal industry developed by Prodim.

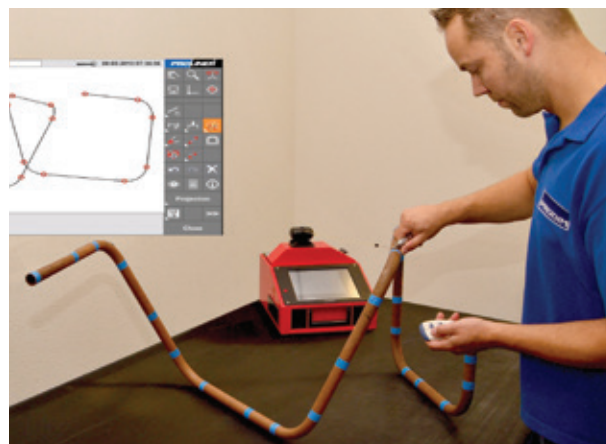
Both solutions offer 3D portable digital measuring and tube inspection software for bending machines and other applications. TubeCheck gathers all necessary LRA and XYZ coordinate data for tubing and pipe bending.

The Proliner Tracker 10IS (industry series) is a precise and reliable machine for immediate digital measuring, scanning and quality control. The Proliner is portable and versatile, and can run on rechargeable batteries or via a socket connection for optimal power.

The Proliner is simple to operate and uses physical touch with wire technology on an object's surface or contour for accurate results. The built-in CAD software combined with a large 10"

touchscreen display makes it possible to check, edit and complete the measurements directly at the job site. The Proliner 10IS can measure points and contours with precision; along with the integrated Proliner Leapfrog software, measurements larger than 20m (65ft) can be performed easily and accurately. All measured data can be exported as a DXF (CAD) file into a PDF report.

Prodim TubeCheck software is developed to gather, analyse and inspect LRA and XYZ coordinate data for tubes or pipes, to ensure quality control. Data is displayed as 'pass' or 'fail' for ensuring precise quality control for tube or pipe bending machines. Final calibration of bending machines can be



adjusted according to the Tube Check software calculations.

Prodim will attend Tube Düsseldorf in April (stand H09 in Hall 5), where it will present the advanced version of Prodim TubeCheck.

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Gantry ultrasonic tester

THE energy industry consumes an enormous amount of tubular products. Given the strict quality standards, new and used pipes must be thoroughly tested before being used in the field.

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Haven Manufacturing has expanded its material handling and systems control knowledge into the oil and gas pipe testing market.

In cooperation with ultrasonic electronics producers, Haven has designed a gantry and rail system that will support a full body phased array ultrasonic system. The capacity of this system is from 2.5" to 20" diameter, and up to 48ft length.

The sequence of operation begins with measuring the length of each pipe, to determine the end-of-pipe location. A walking beam transfer device then positions the pipe in the test station, while simultaneously removing a tested pipe to an exit table or conveyor.

In the testing station, the pipe is rotated at a controlled RPM to match the specified linear speed of the ultrasonic tester carriage.

The combination of rotation and carriage linear speed creates the desired test helix pattern for a given pipe diameter and wall thickness.

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 Weight : 11 kg



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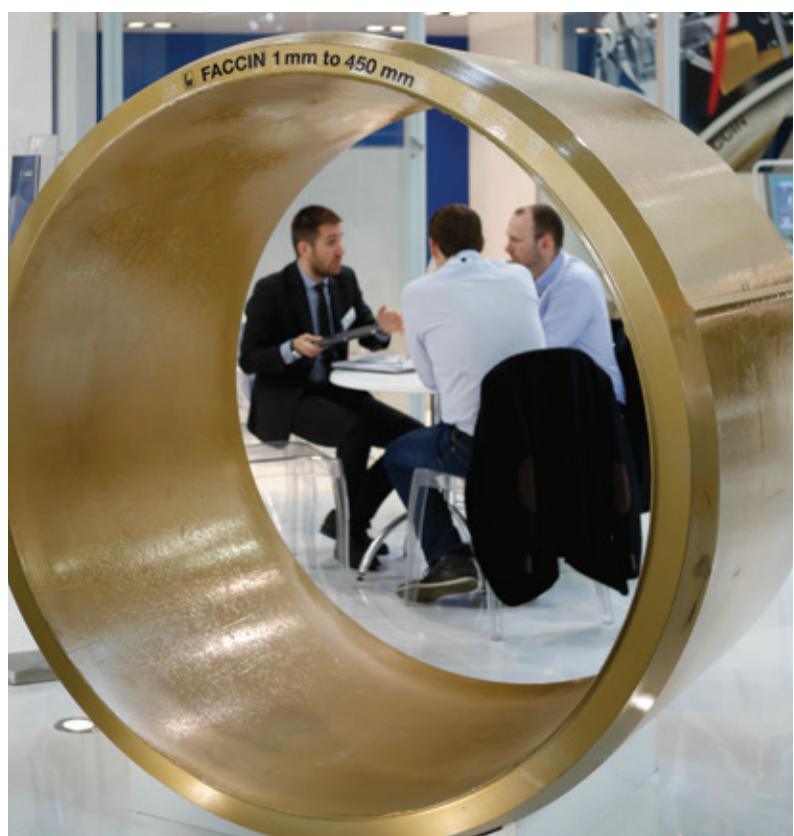
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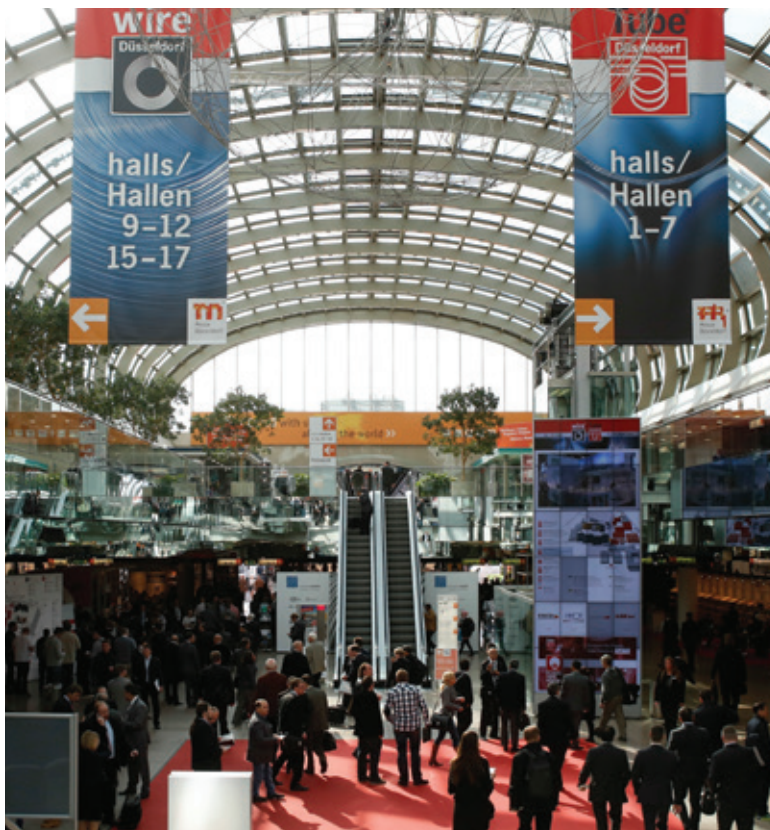
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To thousands of producers, designers, engineers, suppliers and customers in dozens of countries Düsseldorf means one thing: the biennial International Tube and Pipe Trade Fair, the world's biggest and best showcase for the tube and pipe industry and those serving it.

Tube and pipe manufacturers, committed to realising maximum productivity from existing plant and equipment while actively weighing the benefits of upgrading, are well acquainted with this double perspective.

The most renowned names in the industry worldwide are there in force. But some names will be encountered for the first time. The organiser's experience suggests that by the time the next edition of Tube is in preparation many of these companies will have joined the A-list.

Those heading for Düsseldorf for Tube 2016 will meet old friends and make new ones. They will strengthen their command of current industry practice and explore tomorrow's methods today.



Photos courtesy of Messe Düsseldorf GmbH

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Airbus and Boeing

A new \$600 million plant in the Gulf Coast city of Mobile gives Europe's Airbus a springboard to expansion in the lucrative American market

"We expect to get about half that total, if not more."


The total cited by Allan McArtor to the *Seattle Times* is 4,800 – the number of single-aisle aircraft that North American airlines will likely be buying over the next two decades. With this confident assertion of his own company's prospects in that market, the chairman and CEO of the North American subsidiary of Airbus was taking aim at Boeing Co on its rival's own turf.


The hometown newspaper of Boeing's original headquarters city termed the plan "an aggressive move" on the part of the European aerospace company, which commands about 20 per cent of the US market. While that will reach 40 per cent when carriers including American Airlines take delivery of Airbus planes on order, the US market has traditionally favoured Boeing even as the two manufacturers share the global market 50/50.

Airbus made plain its intentions for the US with a \$600 million plant for single-aisle airplanes, inaugurated recently in Mobile, Alabama. As noted by the *Seattle Times* reporters Julie Johnsson, Andrea Rothman and Matthew Miller, the factory is only the second such plant built by the plane maker outside Europe. The other is in China, which is poised to eclipse North America as the world's biggest market. ("Airbus Guns for Boeing with New Alabama Factory," 15 September)

Airbus president and CEO Fabrice Brégier, who according to *Aviation Week & Space Technology* (11 September) has long advocated for an international footprint for the French-based group, said that its first US facility had been years in the making. It is, he said at the opening ceremony in Mobile, "the most significant, game-changing incident in US aerospace in decades."

Most of the jets built in Mobile will be delivered to North American customers, Airbus said. Deliveries are due to start early this year, with production rising to four aircraft a month by 2018. The company holds an option to double the 116-acre site to accommodate expansion.

 The *Seattle Times* reported that the first two aircraft taking shape in the new facility are A321s, the largest single-aisle model and the one Airbus is counting on to wrest market share from Boeing. The jets, seating upward of 200 passengers, are becoming a mainstay of transcontinental routes flown by American, Delta and JetBlue. Asked if he were planning a new midsize plane to counter the 757 replacement on Boeing's drawing boards, Mr Brégier nodded to the A321. "The aircraft exists already," he said. "You don't need to reinvent it."

 Yet another Airbus executive to strike a strongly proactive note was co-CEO Tom Enders, who led an unsuccessful attempt by parent company EADS to beat Boeing for a \$35 billion aerial tanker refuelling contract from the US Air Force, in 2011, and would perhaps relish a re-match.

"We are a large aerospace company," Mr Enders observed in a televised interview in Mobile. "And should the situation arise where we have something competitive to offer the US Air Force, for instance, this would certainly be a site where we'd consider doing something."

Manufacturing

A German programme to bolster its factory owners is at risk of eclipse by a similar initiative led by US tech companies

"There's great concern that a Google or an Apple might master the manufacturing world. It's important that we try to do it ourselves while we still have the opportunity."

Heinz-Jürgen Prokop, head of development at Trumpf, a family-owned maker of metalworking machinery that is participating in a programme known as Industrie 4.0, was expressing sentiments being heard more and more in German industrial circles. These concerns were examined by Alex Webb of *Businessweek* in the broader context of Germany's plan to jump-start web-linked factories, now facing some unwelcome competition. ("Can Germany Beat the US to the Industrial Internet?," 18 September)

The German government in 2013 launched the Industrie 4.0 alliance of companies, academics and political leaders to encourage the small enterprises at the heart of the economy – what Germans call the *Mittelstand* – to embrace new technologies. Then, in 2014, AT&T, Cisco Systems, General Electric, Intel and IBM set up a similar initiative: the Industrial Internet Consortium, or IIC.

As described by Mr Webb, both groups aim to streamline communication among the machines in factories throughout the companies' supply chains. A typical goal is to reduce downtime through timely notification of when a factory will have spare capacity or need replacement parts. According to global consultant McKinsey, built-in sensors collecting data for better allocation of resources could help manufacturers cut energy use by as much as 20 per cent and labour costs by 25 per cent.

What is at stake, wrote Mr Webb, is no less than "the health of German manufacturing," which employs 15 million people – some one-third of the workforce. By 2020, according to PricewaterhouseCoopers, Industrie 4.0-related projects will account for half of capital investment by German manufacturers, or some \$45 billion. Another US consultancy, Wikibon, estimates that global investment in the industrial Internet will have topped \$500 billion a year by 2020, up from \$20 billion in 2012.

To avoid falling behind, Volker Treier, deputy head of the German Chambers of Commerce & Industry, told Mr Webb, the “Mittelstand must maintain contact with the customer and not lose out” to software companies that might end up with valuable market data. Hence Mr Prokop’s worries about Google and Apple.

‘WHERE SOFTWARE IS KING’

In Mr Webb’s view the Germans will enjoy certain advantages as “the next wave” – machines talking to one another – gathers strength. He notes that, as distinguished from computing with its standardised suite of keyboards and USB connectors, there are no dominant standards in industrial equipment. That in fact gives the hardware makers – even small ones like Trumpf – an edge over giants like Google or Apple.

To seize that opportunity, Trumpf last year quadrupled its coding staff, to some 25 people. “We recognised that we needed far greater IT expertise,” Mr Prokop told *Businessweek*. “We needed to be able to analyse data.”

Mr Webb observed that, for all of Germany’s concern about its position in the new industrial economy, Industrie 4.0 “acts primarily as a cheerleader,” offering little financial help.

Politicians and labour representatives have a strong say in setting the group’s agenda, focused mainly on sponsoring research at top universities.

“The US-dominated IIC, by contrast, coordinates trials of new technologies,” wrote Mr Webb. Two examples are a system to track handheld tools to ensure their effective use and a 100-gigabit-per-second network to connect machinery. The results of IIC experiments are shared among the membership, which has grown to 200 and includes Japan’s Hitachi and even Germany’s SAP and Siemens.

“The big difference is that Industrie 4.0 is driven by the government and is unmistakably part of industrial policy,” said Krzysztof Bledowski, director of economic studies at the Manufacturers Alliance for Productivity & Innovation in Arlington, Virginia. “[The IIC] is already getting together to do joint experiments.”

▶ While the IIC appears to be out in front, Rainer Glatz, who leads Industrie 4.0 projects at the German machine makers association VDMA, pointed out that the adoption of greater connectivity in manufacturing could take decades. Thus Germany’s approach could lead to greater progress down the line.

“In the US they want to take lots of small steps as quickly as possible,” Mr Glatz told *Businessweek*. “In Germany, the effort is far more theoretical: Find the model first and then move toward implementation.”

▶ For his part, Mr Webb recalled the joke that, for a job to be taken seriously in Germany it must start with an “e” and end in “ngineering.” Yet, he wrote, “German officials fret that, for all their country’s hardware know-how, the economy is at risk in a world where software is king and factories are increasingly linked by the Internet.”

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In brief . . .

➤ Benteler Steel/Tube has announced the start of operations at its tube rolling mill at the Port of Caddo-Bossier in Louisiana, USA, with an initial workforce of 350.

As reported by *WorldNow* (4 September), this marks the completion of Phase I of a project that will eventually employ 675 workers.

The location, on the Red River Waterway just south of Shreveport, offers ready access to barge, rail, motor freight and air transport.

For Benteler, which makes seamless hot-rolled steel tubes and seamless cold-drawn precision steel tubes, the \$975 million project is the first of its kind outside Germany.

In November 2014 – on the campus of neighbouring Bossier Parish Community College – the company opened the Center for Advanced Manufacturing and Engineering Technology, a \$21 million, 65,000ft² manufacturing training facility.

Duelling weather models

Having invested heavily in computing power, Europe outshines the US in storm forecasting

“Maybe it will be Joaquin’s false alarm, not another Hurricane Sandy, that gets America to make the GFS great again.”

The Joaquin referenced by Nate Cohn of the *New York Times* was a 2015 hurricane that fizzled out; Sandy was a 2012 hurricane that, famously, did not. The GFS is the Global Forecast System, which is run by the US National Weather Service. Mr Cohn has serious reservations about its effectiveness.

Writing in the watch-and-wait period that is a feature of every Caribbean storm system, the *Times*’s “Upshot” blogger called his shots. Hurricane Joaquin would yield one clear winner: the model from the European Centre for Medium-Range Weather Forecasts (ECMWF) – or simply, the European model – which consistently forecast that Joaquin would head off to sea.

It did, avoiding the direct hit from which, post-Sandy, the East Coast of the US has not yet fully recovered.

The ECMWF forecast this time – the mirror image of what happened with Hurricane Sandy – would not mark the first instance of Europeans leading the pack.

In 2015, the US model and others called for Joaquin to turn left. The European model dissented.

Wrote Mr Cohn, “It’s a familiar story for meteorologists who have been calling for vast and attainable improvements in American weather forecasting for years.” (“Hurricane Joaquin

Forecast: Why US Weather Model Has Fallen Behind,” 2 October)

In early 2013, the European model had nearly ten times the raw computing capacity of the GFS. Mr Cohn noted the “obvious and irrefutable” cumulative effect of this and other problems with the GFS: the inferiority of the American system was playing out in high-profile cases.

After Hurricane Sandy, Congress gave the National Weather Service the money for more powerful computers. In January 2015 the National Oceanic and Atmospheric Administration announced that it had increased computing capacity and begun running an upgraded model with higher resolution.

The improved system in fact scored an early victory in the matter of a blizzard that largely bypassed New York City. But in the view of experts the upgraded GFS remains second-rate or worse.

“The GFS is still quite inferior” to European and British models, Cliff Mass, a professor of atmospheric sciences at the University of Washington, told the *Times*.

STEADY DATA COLLECTION VS ‘SNAPSHOTS’

Additional upgrades – which will yield a nearly tenfold increase in computing capacity – will help, but not enough.

According to Mr Mass the problems of the GFS run deeper, all the way down to the description and modelling of the basic physics of radiation, clouds, precipitation and turbulence.

Data assimilation is the process of taking all available data and building an initial description of the atmosphere. The model runs from that. But a perfect model of a “wrong” atmosphere will produce a wrong answer (ie a flawed weather forecast).

“It is clear that our initialisations are inferior,” said Mr Mass, who believes that flawed initialisation was probably at play in the GFS forecast for Joaquin.

“That’s the real problem. [The Europeans] have a lot more people and have taken a more sophisticated approach . . . There’s a subtlety that the European centre is getting right that we’re not.”

➤ Specifically, the European model relies on many more observations than does the GFS – including satellite measurements of radiation from clouds, crucial in the absence of land-based observations. It also assimilates the data over time, starting with the weather heading into the forecast period and monitoring its evolution.

The superiority of the European model is scarcely to be wondered at, since the supercomputer complex at ECMWF headquarters in Reading, England, is linked to the computer systems of the national weather services of 21 European member-nations and 13 cooperating states. Its archive of numerical weather prediction data is the world’s largest.

➤ The GFS is making strides in the area of data assimilation, Mr Mass acknowledged to “The Upshot”. He added – unnecessarily – that the US model has a long way to go.


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Automotive

The Tesla Model S hits a quite jarring speed bump

In late August, *Consumer Reports* said that Tesla's Model S P85D, the most expensive of the company's "S"-series all-wheel-drive electric sedans, performed "better in our tests than any other car ever has, earning a perfect road-test score."

Connie Loizos, the Silicon Valley editor of *TechCrunch*, noted at the time that this was "something you don't see every day." The Model S P85D was awarded 103 points, a total so high that it broke the *Consumer Reports* road-test ratings system.


But something even more remarkable would be seen two months later: *Consumer Reports'* dilution of the earlier high praise with its assignment of a "worse-than-average" rating to the Model S in the category of predicted reliability of new vehicles.

As reported by Ms Loizos, in interviews with more than 14,000 Model S owners "an array of detailed and complicated maladies" came to the attention of the respected testing and survey organisation. The main problems, it said, involve the drivetrain; power equipment; charging equipment; the giant iPad-like centre console; and body and sunroof squeaks, rattles and leaks. Systems that scored worse on the 2015 model, compared with 2014, are steering, suspension and climate control. ("Consumer Reports Withdraws Its Tesla Model S Recommendation," 20 October)

The issues were enough to knock the car out of its "average" predicted reliability slot, wrote Ms Loizos. Worse, for Tesla, the Model S lost its chance at the coveted *Consumer Reports* "recommended" designation. For this, a vehicle must meet "stringent testing, reliability, and safety standards, including having average or better predicted reliability."


Asked for comment, a spokesperson for California-based Tesla e-mailed *TechCrunch*: "*Consumer Reports* also found that customers rate Tesla service and loyalty as the best in the world. Close communication with our customers enables Tesla to receive input, proactively address issues, and quickly fix problems. Over-the-air software updates allow Tesla to diagnose and fix most bugs without the need to come in for service. In instances when hardware needs to be fixed, we strive to make it painless."

If the response was a little to the side of the issues, *Consumer Reports* did in fact largely endorse Tesla's self-praise, noting that according to its data 97 per cent of Tesla owners would buy the car again. It commented, "Despite the problems it appears that Tesla has been responsive to replacing faulty motors, differentials, brakes, and infotainment systems, all with a minimum of fuss to owners . . . For its early adopters, Tesla has made a practice of overdelivering on service problems under the factory warranty."

 For an outside opinion on Tesla's fall from grace *TechCrunch* turned to Max Zanan, a New York-based

automotive retail expert who downplayed the likelihood of a lasting negative impact. Mr Zanan noted the rising fortunes of Korean automakers Kia and Hyundai, early laggards in the *Consumer Reports* reliability survey.

"In the 1990s, Kia and Hyundai had poor ratings, too," he reminded Ms Loizos. "With time they improved their processes and are now able to build very reliable cars with which consumers are very happy." Mr Zanan said something else that should buoy Tesla: "Purchasing decisions aren't guided by *Consumer Reports*. They're guided by feel of the car, marketing, and word of mouth."

 That may be, but initial reaction to the Model S news would scarcely have rejoiced management in Palo Alto. The *Los Angeles Times* began covering the story early. Shares in 12-year-old Tesla, which has a \$26.5 billion market cap, took a nosedive, falling 10.3 per cent by midday.

Oil and gas

In natural gas country, combative presidential hopeful Marco Rubio champions drilling, fracking, and the Keystone XL pipeline

Only those with a strong tolerance for boredom and exasperation will pay much attention to the run-up to the US presidential election before, say, midyear. But very early in the cycle one of the aspirants – Senator Marco Rubio, of Florida – made a speech that warrants attention for its almost total repudiation of President Barack Obama's environmental agenda.

In eastern Ohio, with its extensive underground natural gas deposits, Mr Rubio on 16 October declared an intention to roll back Mr Obama's most consequential achievements and laid out his own energy policy. As reported in the *New York Times*, he declared that, if elected, he would: immediately authorise construction of the controversial Keystone XL oil pipeline that would traverse the western US from Alberta, Canada, to Illinois, Texas, and Oklahoma; permit more offshore oil and gas drilling, already expanded by the president; and effectively nullify an international climate change accord the administration is pursuing.

Not least, the Republican senator would move promptly to reverse Environmental Protection Agency regulations on greenhouse gas emissions and hydraulic fracturing ("fracking") to allow the extraction of gas buried deep in the ground near places like Salem, where he addressed an audience of some 300 people. ("Marco Rubio's Energy Policy Centers on Drilling and Reversing Obama Rules," 16 October)

Taking issue with what he described as a Democratic "fear campaign" against fracking, Mr Rubio said that the hundreds of billions of dollars' worth of natural gas and oil underneath the ground "are doing the people of Ohio no good pent-up in shale rock."

The *Times's* Jeremy W Peters and Coral Davenport noted drily, "If his words left any doubt about the intended beneficiaries of his energy plan, the setting he chose spoke volumes: a company that makes equipment used to drill and refine fossil fuels – BOC Water Hydraulics."

The reporters observed that the Rubio plan seemed explicitly intended to weaken Mr Obama's hand in advance of the 2015 United Nations Climate Change Conference, held in Paris from 30 November to 11 December, at which the president would strive to negotiate an international accord to combat climate change. They wrote, "While Mr Obama hopes that such a deal will be a cornerstone of his legacy, the ultimate success of the accord hinges on whether his successor will actually carry it out – and Mr Rubio's plan makes clear that a President Rubio would not do so."

Whether he would or not is a moot question since at the time of the Salem speech some dozen candidates were vying for the Republican nomination, and Mr Rubio was not the front-runner. Former secretary of state Hillary Clinton, who leads a much smaller field of Democratic aspirants, has pledged, if elected, to fully carry out and expand on Mr Obama's climate change initiatives.

It is worthy of mention that, also on 16 October, in Paris, the ten companies in the Oil & Gas Climate Initiative unanimously voiced their support for an international agreement to limit global warming. As reported by the French oil "supermajor"

Total (19 October), "Never before had so many of the industry's stakeholders assembled to work together to shrink their climate footprint."

Elsewhere in oil and gas . . .

Residents of New York are increasingly dependent on natural gas produced in other states to heat their homes, according to new data from the US Census Bureau cited by Scott Waldman and Bill Mahoney of *Politico* (5 October). Ready supplies of natural gas mean that heating prices are expected to be 30 per cent cheaper in upstate Buffalo this season, the lowest in two decades. Central New York will likely see a similar drop. New Yorkers are also becoming more reliant on natural gas for the production of electricity. While both trends can be seen throughout the country, they are especially notable in New York, which has both a huge deposit of shale gas and a ban on the production of natural gas through fracking.

According to the *Politico* reporters, polls show that most New Yorkers support the fracking ban, in effect since late 2014, and opposition to new natural gas pipelines is fierce. However, they wrote, "When it comes to staying warm and keeping the lights on, gas fracked in other states is a growing part of daily life in New York."

Dorothy Fabian, Features Editor (USA)




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Welding technology, equipment & consumables



Photo: Protem SAS, France

When the hydraulic and fuel lines on a single jetliner can total 700 assemblies, the golden ideal of welding and of tubemaking is identical: a faster weld at no sacrifice in quality. Even orbital welding is continually fine-tuned to deliver its benefits at ever-higher speeds.

Tubemakers have mastered welding setups for rotation, dwell and penetration parameters, different for each size of tubing. They know how to regulate a power supply for welding current, primary and background amperes, weld bead overlap, and for delay of rotation at the start of the weld and

current downslope at the end. They share with welders a zeal amounting to passion for a clean cut-off operation with smooth surfaces. For as long as welding is the method by which tube and pipe are joined, the advances that lie ahead for the two already highly developed technologies will be made in tandem. In the meantime, this partnership of equals acknowledges a common obligation: to provide perfect leak-tight joints having uniform circumferential weld strength to the automotive, defence, aerospace, biomedical and machine tool industries of the world.

MultiStrike tungsten electrodes offer safer, easier TIG welding

A SPECIAL recipe for TIG welding electrode material offers benefits in quality, safety and ease-of-use, according to its British developer.

MultiStrike® tungsten electrodes, developed by Huntingdon Fusion Techniques®, were designed to address growing concerns about the radiotoxic thoria that is present in standard red tipped tungsten electrodes.

It was found that other rare earth elements that are not radiotoxic were also used in the industry for activating tungsten, as in the case of normal light bulbs, and that a mixture of those elements added during the manufacturing process produced a superior tungsten electrode.

The MultiStrike is claimed to strike an arc ten times more than a red

tipped thoriated tungsten, when tested under identical conditions. Because MultiStrikes have no radiotoxic and carcinogenic dopants such as thoria, there is no hazardous dust to be inhaled during grinding of the tips, which is also reduced with these electrodes.

Suitable for a wide variety of welding operations, MultiStrikes are said to be particularly effective in the welding of titanium, stainless steel and aluminium AC and DC, in industry sectors such as aerospace, petrochemicals, pharmaceuticals and motorsport.

Each packet of MultiStrike tungsten electrodes carries a total traceability identification that makes the electrodes particularly valuable for companies operating to ISO9000 standards or similar.



Huntingdon Fusion Techniques – UK
Email: hft@huntingdonfusion.com
Website: www.huntingdonfusion.com

Industrial welding package

WELDABILITY-Sif, a UK-based 'one-stop source' for welding products, has launched the SifWeld MTS 400 electronically controlled MIG/MAG/MMA industrial welding package featuring IGBT inverter technology.

With clear digital displays, low-spatter, polarity reversal (for FCAW) and integral four-roll wire feed system able to accommodate up to 15kg of wire spools, the unit is designed for use in heavy-duty fabrication applications such as structural steel and marine/shipyard tasks.

The SifWeld MTS 400 can be used to weld mild steel, low-alloy, stainless and aluminium in solid and flux-cored MIG applications. It can also be used for DC MMA welding (DC+/DC-) and scratch-start TIG welding.

Its control system allows infinitely variable control of welding voltage, wire feed speed, crater current and burn-back. The power source also benefits from 4T/2T torch-latching and gas line purging. It offers a high duty-cycle for applications requiring long runs, and features adjustable burn-back control.

The separate, removable four-roll wire feed unit offers four gear driven rollers and a counter-balanced wire

tension system for precision wire feeding.

The wire feed unit houses the wire feed speed and voltage controls as well as the wire-inching feature, to provide complete control of feed rate when used remotely via the interconnecting cables.

The ergonomic design of the SifWeld MTS 400 incorporates an integrated MIG torch holder for easy storage, and a wire spool cover to protect wire from the elements. A robust trolley accommodates a full-size gas cylinder and includes a wire feed unit mounting bracket, which allows the feed unit to rotate a full 360° while ensuring that the interconnecting cable is secured via the attachment bracket. The trolley also features a storage compartment for common spare parts.

The SifWeld MTS 400 features MIG, MMA and Smart-TIG functionality, comes with a 400V 3ph

32A input supply and supplies 400A DC output at 100 per cent duty cycle.

Weldability-Sif – UK
Fax: +44 1462 482202
Email: sales@weldability-sif.com
Website: www.weldability-sif.com



MTS300 and 400

Forming gas system with convenient carrying case

WELD-TECH has more than 23 years' experience in the development and production of flexible tools for pipe welding.

The company's products include the Purge-Flex forming gas system. This double-sealed flushing system can be easily pulled through pipelines, and bends without tendency. The design of the system ensures that at least one sealing disc remains sealed, reducing both the flushing duration and the volume of inert gas required. Typical flush time is under two minutes.

At interchanges between pipes of different diameters, the sealing discs on

the base unit can be simply exchanged. There are three different base units (with lengths of 120, 150 and 200mm), and silicone sealing discs with diameters ranging from 25 to 300mm.

Weld-Tech has also assembled a compact carrying case kit for easy storage and transport. The sturdy case holds a 200mm base unit, silicon sealing discs ranging from 25 to 165mm, 10m of argon hose and 10m of stainless steel cable.

The case is suitable both for transportation and for reliable storage in the workshop, ensuring that no loose parts are misplaced.



Carrying case for the Purge-Flex system

Weld-Tech ApS – Denmark

Fax: +45 4619 4642

Email: weld-tech@weld-tech.com

Website: www.weld-tech.com

Lincoln Electric introduces welding and cutting curriculum

LINCOLN Electric recently launched U/LINC, a complete curriculum of lesson plans, videos, student handouts, assessment tests, presentations and more, designed to streamline the teaching experience and free welding school instructors from curriculum

Lincoln has introduced a new welding and cutting curriculum



development. With more than 1,500 teaching assets and growing, this subscription-based online learning management system allows instructors at high schools, technical colleges, universities, unions or private industrial training centres to focus on teaching in the classroom, rather than spend hours developing custom curriculum from available sources.

“The era of stand-alone DVDs and textbooks is coming to an end,” said Dr Jason Scales, Lincoln Electric manager of educational services.

“We can deliver a specific lesson plan and matching student or presentation materials over the web and update the files immediately whenever welding or teaching advances require a change. Whether you

are teaching stick and GMAW or are ready to tackle robotics, CNC plasma cutting or manufacturing engineering, U/LINC curriculum is ready to help you get your training started now.”

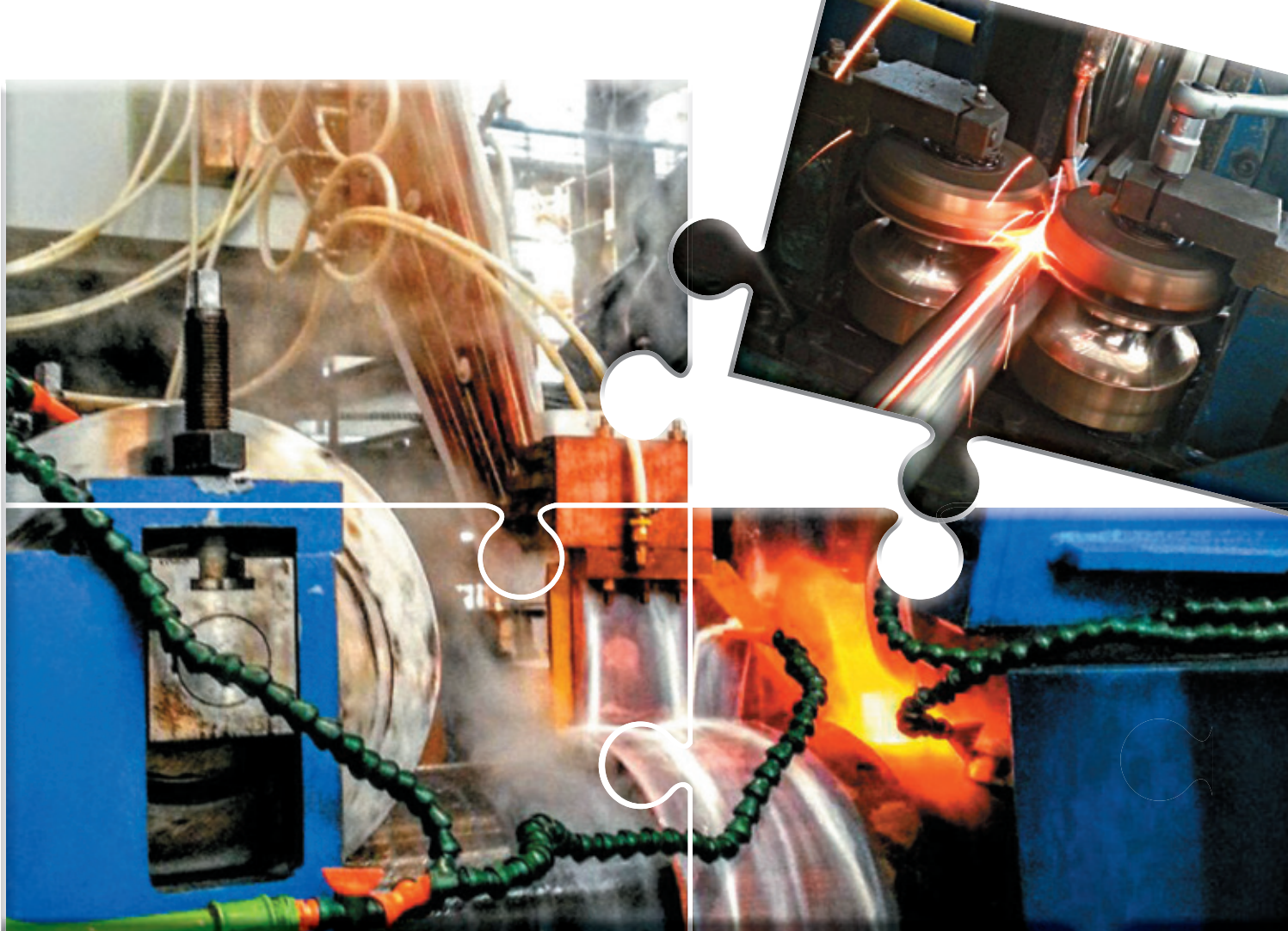
Educational topics include safety, principles of welding, SMAW, GMAW, FCAW, GTAW, thermal and CNC plasma cutting, mathematics in welding, careers, aluminium, stainless, robotics, fabrication, manufacturing and engineering, and pipe.

Lincoln Electric a leader in the design, development and manufacture of arc welding products, robotic arc welding systems, plasma and oxyfuel cutting equipment and has a leading global position in the brazing and soldering alloys market.

Headquartered in Cleveland, Ohio, USA, Lincoln has 47 manufacturing locations, including operations and joint ventures in 19 countries, and a worldwide network of distributors and sales offices covering more than 160 countries.

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Quick purging pipes for perfect welds

WAITING for pipes to be purged ready for welding can take many hours, depending on the diameter of the pipe being welded and the method chosen for purging.

Huntingdon Fusion Techniques (HFT) designs and manufactures a range of QuickPurge® inflatable pipe purging systems that reduce waiting times. The company was recently tasked with a special project in the USA, where pipes with 90° elbows, up to 54" OD, were required to be purged.

Georgia Gascoyne, CEO at HFT, said, "We manufactured QuickPurge systems with longer sleeves so that they could easily be pulled around the sharp bends in the pipework. The welders were previously spending half a day purging the pipe, which was costing a considerable amount in time and gas costs. With the help of the QuickPurge the pipe was purged in just 55 minutes. The dramatic savings in time and gas paid for the system in just one weld."

QuickPurge has an additional gas input line, which allows extra purge gas to be introduced, achieving a faster purge down to the lowest oxygen

levels. QuickPurge is suitable for purging tube, pipe and pipeline joints over 6" diameter, where oxygen levels are required to be as low as 100 parts per million (ppm) or less.

HFT's design means that zero colour welds will be achieved, and there will be no loss of corrosion resistance caused by oxidation.

Using IntaCal® combined with the integrated PurgeGate® device makes it possible to safely inflate the dams with argon gas, for purging the space between the dams where the weld joint is located. With PurgeGate, burst dams are prevented in the event of undue pressure increase or accidental flow increase of the purging gas.

All systems are manufactured as standard with a hose for connecting a Weld Purge Monitor®, which can read oxygen levels down to as low as 10 ppm, depending on the model. Materials used in the manufacture of QuickPurge are resistant to the higher weld temperatures present, and they do not outgas, preventing weld contamination.

For pre-heated chrome steel and high strength stainless steel pipe joints, HFT designs and manufactures the HotPurge™ range for a higher and longer temperature exposure.

Huntingdon Fusion Techniques – UK
Email: hft@huntingdonfusion.com
Website: www.huntingdonfusion.com



HFT's QuickPurge inflatable pipe purging system

New generation of welding heads

500kW into 500dm³ – Termomacchine has developed a new generation of welding heads with small sizes.

The company's technical staff have analysed requests arising directly from customers, from operators and maintenance operators of installations, in addition to the information received

from collaboration with manufacturers of forming machines.

Counting upon the improvement of the traditional proven reliability in the field, and more than 1,000 installations manufactured in 40 years of activity, the company set a main target to reduce the sizes of both welding head and power supply unit, besides improving the aspects related to maintenance.

For welders with power up to 500kW and frequencies up to 400kHz, several modifications have been made. These include a 50 per cent reduction in the volume of the heating heads; a reduction in the volume of the power supply unit, with access from one side and more flexibility for positioning and electrical and hydraulic connections; reduction in the connecting cables between the power supply unit and the welding unit; improvement and optimisation of internal cooling systems; modularity and

interchangeability of inside cards for upgrade or downgrade of output power; and optimisation of the internal layout to facilitate and speed up maintenance activities.

Technological and structural innovations have also been implemented in the high and medium frequency generators designed and manufactured for heat treatment by induction.

In addition to the design and manufacturing of equipment for tube welding, Termomacchine deals with design and manufacturing of induction heating systems with manual or automatic loading, and robotic cells for single element or high production heat treatments.

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New welding machine for HDPE pipe

DELTA 1000 Trailer is a self-aligning fusion machine suitable for welding thermoplastic pipes for the transport of water, gas and other fluids under pressure, up to Ø 1,000mm (36" IPS/DIPS). The machine can fuse pipes according to the ISO 21307 High Pressure standard, enhancing productivity and allowing a claimed 60 per cent time saving.

The machine body is mounted on a four-wheeled chassis, with two steering wheels and a safety brake, and is easily removable for working in tight spaces. Steel hydraulic clamping with fast-locking inserts allows placing and removal of inserts in seconds. A self-detaching device helps remove the heating plate during the welding procedure.

An on-board hydraulic electric facer is equipped with a safety microswitch to prevent accidental starts, and a thermal circuit breaker protects the motor.

The PTFE-coated hydraulic heating plate is supplied with a high-temperature-proof bag, to prevent the heating element from being scratched.

The Easy Life control panel, with a large graphic display and GPS traceability, is removable from the machine body to enable welding from outside the ditch. This allows the operator to program and pilot the welding cycle in an easy, fast and intuitive way.

A data-logging system is included, to store full welding data, downloadable through a USB port straight into PDF files. The Easy Life system has the capability store up to 4,000 joint reports.

The Delta 1000 Trailer allows easy welding of fittings such as elbows, tees, Y-branches and stub flanges.

Accessories available on request include clamp inserts from Ø 335 to 900mm, a trolley, a tool for flange necks, a kit for in-ditch use, and a hoist.



Delta 1000 trailer

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Measurement for ultra-deep offshore project

OIL and gas pipe measurement specialist Optical Metrology Services (OMS) has completed a series of pipe measurement surveys for the Kaombo Ultra-Deep Offshore Project. The scope of work involved end dimensioning, numbering and colour banding of deep-sea, fatigue-critical flowline pipe, steel catenary risers (SCR) and long seam welded line pipe.

Kaombo Ultra-Deep Offshore Project involves the development of six of the 12 fields discovered at Block 32, around 260km offshore Luanda in Angola. The project is located in an 800km² site in the central and southeast part of the block. The water depth at this location ranges from 1,400m to 1,900m.

The project involves the drilling of 59 subsea wells, which will be connected via 300km of subsea pipelines to two floating production, storage and offloading (FPSO) vessels. Associated gas from the fields will be transferred to the Angola Liquefied Natural Gas (LNG) plant in Soyo. Production is scheduled to start in 2017, with production capacity expected to be 230,000 barrels a day.

Marcus Smiles, client solutions executive at OMS, commented, "OMS is really excited to be involved in such an important deep-sea development project – currently the largest of its kind in the world. By measuring every pipe end and then colour banding these to a calibration block group code [in accordance with calibration blocks to be used for the AUT inspection], 'golden joints' can be allocated to the more critical sections of the deep-sea pipeline. Identifying and marking pipe ends in this way will improve operational logistics for the customer, ensuring the least possible disruption and handling to their pipe fit-up and welding processes, which in turn will minimise project cost and delays."

OMS was contracted to perform onshore pipe end dimensioning of more than 10,000 pipe ends. The work was carried out in three separate mobilisations. Five OMS engineers were deployed for ten weeks at the Bredero Shaw pipe yard in Batam Island, Indonesia, to measure more than 9,000 pipe ends. In addition, two OMS engineers were deployed for two weeks at the Socotherm pipe facility in Sicily, Italy, where an additional 750 pipe ends were measured. The pipe sizes measured were a mix of 10", 12", 14" and 16" in diameter.

OMS also deployed four engineers for two weeks in Brazil, where an additional 800 pipe ends were measured. These were 18" diameter subsea arc welded line (SAWL) pipes.

For end dimensioning, OMS utilised its own AutoTool laser measurement tool, which is capable of recording more than 2,000 internal and external measurements around each pipe end in less than 20 seconds. This tool is accurate to 0.05mm and enables OMS staff to measure hundreds of pipe ends in a single shift. This means less time on site, minimising project delays and costs for the customer. The AutoTool is a non-contact laser-based measurement system that is provided to the customer as a service together with trained operators.

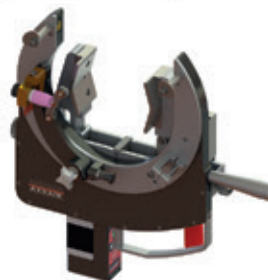
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Protem pre-fab machines

THE BB high-speed bevelling benches from Protem are powerful and reliable machines used for achieving high quality weld end preparation in just a few seconds. This equipment is used for projects that require a near-perfect weld end preparation.

The machines can be used in virtually all industries where the weld quality is critical and projects must stay on schedule.

These machines are easy to install and are quickly adjustable to any size of tube or pipe within the machine's range. They will machine the pipe ends in one smooth pass in a matter of seconds. This makes them suitable for use on heat exchangers, pipeline construction and maintenance, onshore and offshore construction and maintenance, prefabrication workshops, shipbuilding and many other applications.

The BB machines are used for bevelling, facing and counterboring operations. These operations can be processed individually or simultaneously. They will perform repeatable high quality bevels with an I, V, J or X shape, or compounded bevels. Suited for either manual or automated welding processes, these machines can achieve perfect weld preparations on virtually all materials: carbon steel,

stainless steel, and exotic alloys such as Incoloy, Hastelloy, duplex and super duplex.

The CTA series machines are able to machine pipes within a range of 1" to 36". These are ideal for production and prefabrication requirements. The CTA machines save space in workshops and can be integrated in production lines. Tubes and pipes up to 36" can be cut and bevelled within a few seconds. Machines capable of machining larger diameters are also available upon request. Machining is performed in a cold cutting process that does not produce a heat affected zone. The result is extremely high quality weld end preparations.

To machine the pipe ends with the CTA series machine the tube to be cut and bevelled is held stationary. The CTA's OD clamping devices keep the pipe immobilised during machining operations. The tool bits, mounted on the rotating plate, are put into rotation around the tube to perform the cut. The forward and reverse feed of the tool bits are handled mechanically during the rotation of the tool holder plate. While cutting, the machine performs bevelling on both ends. The tool holder carriages, mounted on the rotating plate, are equipped with housings

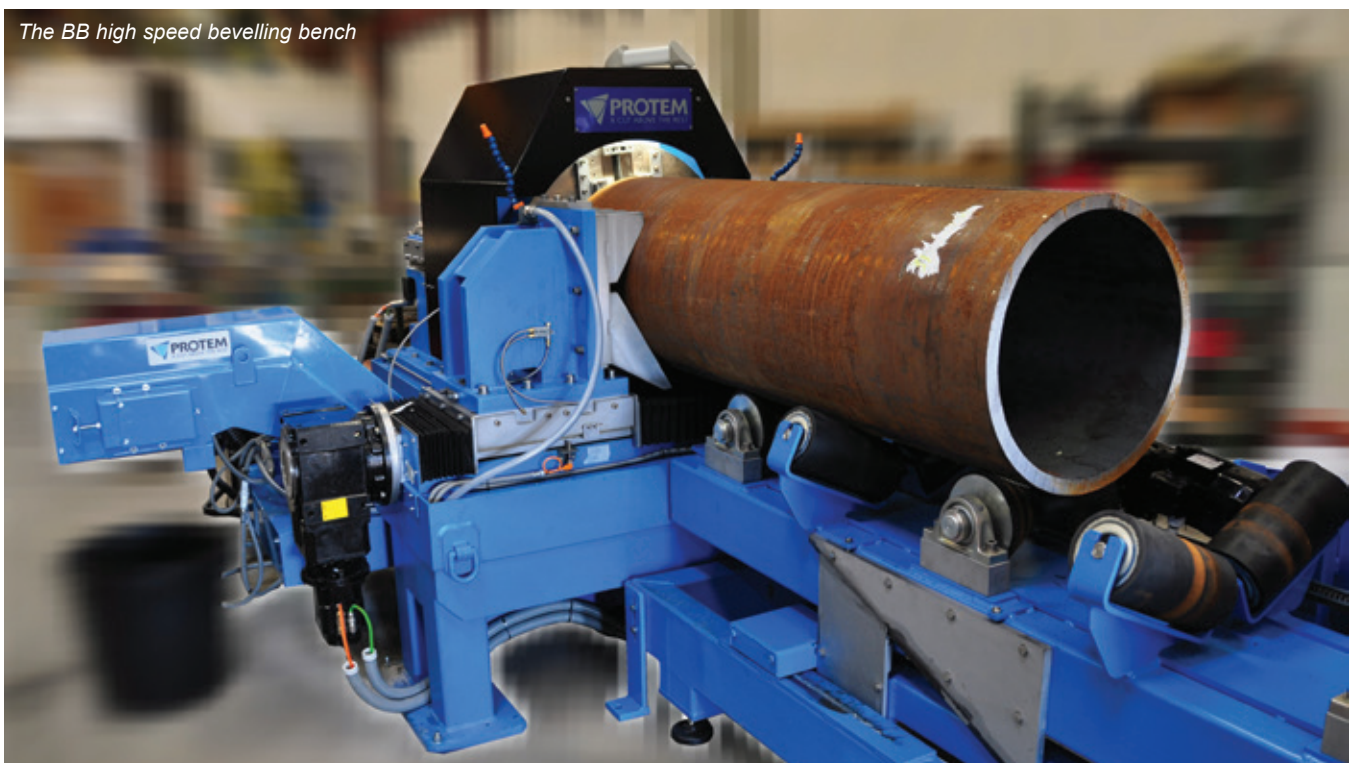
which can accept several types of tool blocks.

The CTA machines have earned an excellent reputation around the world in a variety of industries – nuclear, power generation, oil and gas, tube processing, prefabrication workshops, pipelines and the chemical industry.

Protem has designed a wide range of portable equipment for welding preparations on tubes, pipes and pipelines. The range of equipment includes ID mount bevellers; OD mount bevellers; orbital tube cutting and pipe cutting and bevelling equipment; high-speed cutting, facing, bevelling, and counterboring equipment. These machines can be pneumatically, hydraulically or electrically driven. The TNO machines cleanly and efficiently cut and bevel tubes and pipes with diameters ranging from 4.5" ID to 72" OD (114.3mm ID to 1,829mm OD).

These orbital cutting and bevelling machines are specially designed to fit piping or tubing prefab applications on the job site or at the fabrication workshop. Protem claims that the machines cut and bevel heavy wall pipes faster than any other machine.

Protem SAS – France
Website: www.protem.fr



The BB high speed bevelling bench

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Ajax Tocco supplies air-cooled induction weld preheat system

AJAX Tocco Magnethermic recently delivered 5/10kW Toccotron AC induction heating systems to an international on-site heat treating firm. These systems are designed for portable/on-site preheat prior to welding applications.

The customer chose these systems over larger 35kW induction heating systems due to lower equipment costs. At 5kW continuous output, the customer stated the 5/10kW Toccotron AC systems satisfied the majority of its small to medium preheat prior to welding applications and were capable of heating 50kg of steel to 200°C in 30 minutes.

The customer also cited a simple, robust design in addition to the light-weight (hand carried), 100 per cent air-cooled design, including quick setup and broad application capabilities as other factors in their decision.

Ajax Tocco air-cooled induction weld

preheat systems offer many advantages, including controlled cooling rates; increased penetration; increased feed rates; improved quality; and reduced consumables.

High-frequency induction heating cables can be configured for round, flat or irregular surfaces.

No tools are required for installation and use. All electrical connections are made with quick disconnects and circular military-style connectors. Other applications include bearing/sleeve shrink fitting, coatings curing, coatings removal, die heating and bulk heating applications.

Ajax Tocco Magnethermic, a subsidiary of Park-Ohio Holdings Corp, designs and manufactures induction heating and melting equipment for



various industries and applications throughout the world. In addition, the company provides a range of services including laboratory process development, preventive maintenance, equipment repair, and parts, coil repair facilities and installation services through its locations in North America, South America, Europe and Asia.

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Innovations for welding process

EWM's top priorities are to provide the best solutions to welding tasks, reduce costs and increase its customers' competitiveness on a lasting basis. Users were able to experience all the innovations for themselves at the recent live demonstrations at Blechexpo/Schweisstec.

EWM's Multimatrix technology ensures safe, convenient and environmentally friendly welding. All components are perfectly attuned to one another – always with the single objective of increasing customer benefits.

EWM states that this is why it can offer the perfect solution for every user. Updates keep users up to date in terms of welding processes, software and operation at all times.

Users report cost savings of up to 60 per cent in practice with Multimatrix technology. This is achieved by reducing consumption of energy and materials, which also significantly decreases the

time taken to perform welding work and increases productivity. With an EWM welding machine users are equipped to tackle any welding challenge.

The "all-in" concept means that the price of EWM welding machines always includes all machine-specific welding procedures for steel, CrNi and aluminium, so the full range of tasks is covered.

The free EN 1090 WPQR package not only includes diverse welding procedure specifications relevant for practical use, but also replaces the welding procedure tests required for the EN 1090 certification.

ForceArc puls is a new, innovative MIG/MAG welding process with very straightforward handling, which makes it easy to introduce pulse welding into your workflow. ForceArc puls offers numerous benefits, particularly in the higher performance range, including minimal finishing work thanks to a virtually spatter-free arc, reduced heat

input, reliable gap bridging and higher welding speed.

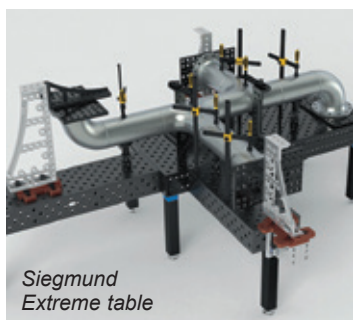
The new Picomig Synergic 180 A-300 A machine series has been designed for flexible use in both production and assembly. In addition to MIG/MAG standard welding, the Picomig is also suitable for TIG lift arc, MMA and flux cored wire welding and for GMAW brazing.

The Picomig 305 D3 Synergic and Synergic puls are equipped with all relevant innovative welding processes, enabling users to take full advantage of the entire range of applications. A particularly beneficial feature is the connection capability for remote controls and MT up/down function torches. This allows the operating point and the voltage correction to be adjusted directly at the workstation.

EWM AG – Germany
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New professional welding tables

STRONG Hand Tools, a manufacturer of welding clamps and BuildPro welding tables and the North American distributor of German-made Siegmund high precision welding tables, has introduced the new Professional Extreme 750 Siegmund welding tables, claimed to be the hardest, most durable and flat welding tables available.



Siegmund Extreme table

Constructed from premium through-hardened steel, the Professional Extreme 750 welding tables are finished with a newly optimised plasma nitride treatment, which results in a deep, hard case for a table that will last a lifetime. This hardening process protects against stroke impact, and provides a more wear- and corrosion-resistant surface.

The Professional Extreme 750 tables have a surface hardness of 750 HV (~60 HRC), and are available in two versions, System 28 and System 16, with 28mm and 16mm boreholes, respectively.

Strong Hand Tools – USA
 Email: sales@stronghandtools.com
 Website: www.stronghandtools.com

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ESCO MILLHOG® Pipe and Tube Beveling Tools produce precise end preps with ± 0.001 " accuracy for fast fit-up and increased weld quality.

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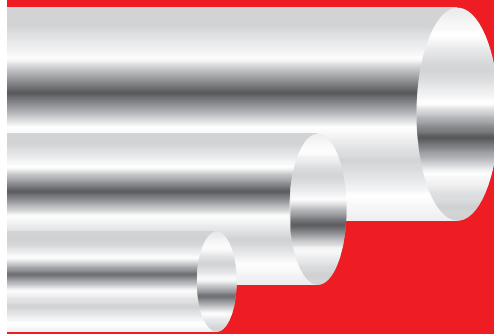
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Messe Düsseldorf GmbH

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BurbullaK@messe-duesseldorf.de



**Messe
Düsseldorf
Shanghai**

侵蚀性液体内更长的寿命

E BRAUDE公司总部位于英国，并服务行业58年多。公司在传统上一直专注于其他供应商避开的液体和条件，而且专供传统设备不能承受的具有侵蚀性和腐蚀性的溶液。Braude已经出口多年，而且最近增加了在亚洲市场的投入。公司的优势之一是能够根据客户的具体需求定制产品。Braude最近被印度公司接洽为不锈钢管制造商建造工厂，需要在新的酸洗设备上加离线加热系统。

这台换热器在饱和蒸汽系统上的最高输出为400,000千卡/小时。Braude设计和建造了蒸汽换热器，特别适合储罐，同时满足成本报告的挑战。Braude最近还在亚洲承揽了另一份合同，为全球

最大的镀锌厂之一的预处理线提供换热器。Braude的所有产品都是用高完整化学惰性氟聚合物（如聚四氟乙烯™）制造的，确保在侵蚀性溶液中使用寿命延长。

产品范围包括使用蒸汽、热水或热流体的储罐和容器加热器/冷却器；化学服务泵；安装在处理罐外面避免杂乱以及防止工作负载过重而引起损坏的外部加热系统；以及电加热器和控制器。

E Braude (London) Ltd – 英国
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Bendcheck确保平直度

绝对的平直度是生产圆形棒材和管材简明的质量标准之一。Zumbach公司的精密激光测量系统Bendcheck能在生产过程中直接连续监控弯曲加工，无任何遗漏。

它取代了目前所用的ODAC® 激光测量头，用非接触式在线检测对弯曲过程进行手动点测。

除了质量上的明显优势，制造商通过使用在线数据检测节省了大量时间。Bendcheck可用于：生产过程中同

步实时扫描；拉直加工后直接地质量保证；直接集成到生产过程中（客户特定装置）；而且无需使用手工工具进行耗时辛苦的核查。

该系统沿产品轴线在三个不同位置测量产品位置和直径。Bendcheck从左测头位置到右测头位置投射的虚拟直线数据计算中心测量头偏差。数值由距离或平方距离除得。操作者可选择最佳公式计算弯曲。有了这一信息，可连续计算产品弯曲并呈图形显示。

Bendcheck可不用编码器进行连续测量，或交错测量，测量脉冲由沿切割边的编码器产生。

各自的数据清晰显示在显示板上。直径、绝对弯曲值、弯曲角度以及三个探测头各自当前的测量值都能清晰地显示出来。其他的统计可补充测量信息值。

Zumbach Electronic AG – 瑞士
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连铸技术

UPCAST OY公司是薄壁高磷脱氧铜管上引连铸Upcast®-SGTube生产线供应商，为进一步加工成高质量管道生产做准备。

Upcast-SGTube连铸技术为铜管生产过程提供了捷径，只需一步就可以替代传统的多步生产。它是铜和铜合金棒材Upcast铸造系统的扩展，而且具有与标准系统一样的优势，以及铸造设备、卷取机和铸造设备工具的特殊结构。Upcast-SG铸造的管道晶粒结构精细，可以在在线感应退火后直接进行粗拉。为确保完全软化退火，在中间退火前必须将总面积减少至少50%。

Upcast棒材铸造和Upcast-SGTube管道铸造线都是模块化设计，为中小产能提供解决方案。双熔炉配置（单独的熔炼和铸造熔炉）可实现12,000吨的年产量。可铸造外径38至60毫米，壁厚分别为2毫米/3毫米的管道。

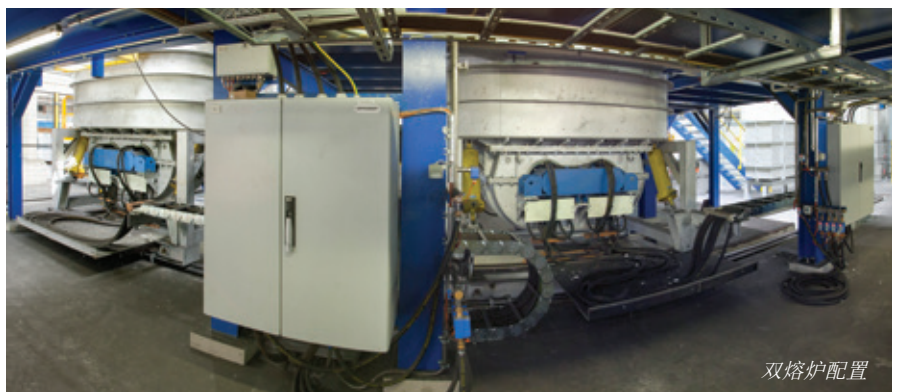
当铸造机配备一个以上的伺服驱动系统时可以同时铸造不同尺寸的管道。成品管道尺寸越小，铸造管道的尺寸就越

小。对于卷材重量，Upcast-SGTube是非常灵活的，上限约为1.5吨。最终重量限制更可能取决于下游工艺设备。

Upcast-SGTube主要用途是铸造用于生产生活、工业和ACR管道的高磷脱氧铜管（DHP）。但该工艺不仅仅限于生产DHP铜管，还适用于其他铜//铜合金的生产。无氧铜和铜镍合金已被成功铸造。

将Upcast-SGTube铸造过程作为管道生产线的第一步据说能降低能耗。在双熔炉配置下，在过程中还能够使用清洁、干燥的废料。

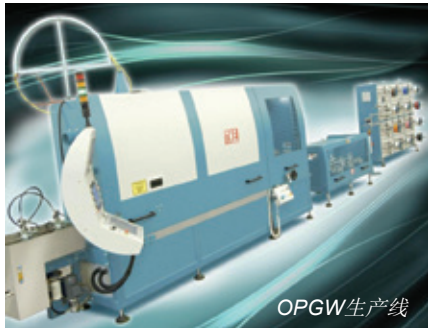
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双熔炉配置

Stop and Go焊接自动化

THE Machines公司开发了Stop And Go焊接自动化技术，可直接集成到LSL激光



OPGW生产线

光焊接生产线中。该系统最初开发用于生产长度超过100千米的、无焊缝中断的深海电缆。

这在以前是不可能实现的，因为在线轴上加预应力钢丝的过程中用到的凯装机需要频繁的重新加载，迫使生产线停止以及焊接中断。

Stop And Go自动化技术能够在生产线加载并重新启动后停止生产线并继续焊接过程，而且焊接质量无损失。因为不中断，因此能够生产长达250千米的电缆，无任何拼接。

典型的电缆是由带纤维和阻水的钢管管内芯组成的，由钢丝铠装的。

钢丝上面用的是纵向焊接的铜管。铜管的成型和焊接过程在加载凯装机时被中断并在生产线再次投入使用时开启。

无中断电缆长度的实际限制取决于纤维长度，常常是100千米左右。

THE Machines公司能够生产钢松零件，用于在任何长度无中断的高纤维计数深海电缆。

THE Machines Yvonand SA – 瑞士

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双管端精整机用于弯曲航空航天用弯头

HAVEN公司是双管端精整设备专家，设备用于从简单的倒角到公差极其严密的应用，如汽车减震器。

这些标准应用有一个共同点即：工件都是直的。但，航空航天供应商却要求一台自动机器能够对弯管弯头的两端同时进行倒角和端面加工。

Haven遇到的挑战是设计一款能够通过一次设置就完成弯管两端精加工的机器。

此外，该机器必须可以编程为可自动调节管道进给和速度，用于无限的管道直径和长度，而且不是所有部件都是对称的。

传统的双轴布置并不实用。Haven的工程师们找到一种方法能精确地将部件从一端旋转到另一端，而且能精确地加工两端，无需漫长的设置过程。



Haven的专业双管端精整机用于弯曲弯头

解决方案是使用伺服控制的牵引转盘和伺服控制的精密轴承主轴。这些设备需要非常准确，将部件定位到精确的位置上，并将切割刀具进给到适当的深

度，以确定弯头每个肘的成品长度。在实现可重复性的同时，必须开发一个能够接受几十种直径和长度组合的程序。Haven的系统工程师们定制设计了用户友好型程序以及操作者界面，用来输入部件参数数据。需要转换时，操作人员只需要简单地从菜单中选出部件号就可以更换程序。

在机器设计的机械方面，工件固定件是加工成部件形状的。

该机器取代了手工操作，因为这很难保持尺寸的一致性。Haven的解决方案不仅提高了生产率和质量，而且更能用于下游组装过程。

Haven Manufacturing – 美国

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Ecocontrol显示和控制单元增强

SIKORA的Ecocontrol系列显示和控制单元能够精确调控生产线，具有高度的过

Ecocontrol 1000 和 Ecocontrol L 600更新了实用功能



程可重复性和稳定性。这些单元可以与所有Sikora测量系统组合，因此可以快速清楚地提供调控生产过程使用的相关数据。

为了方便机器操作员的生产工作，Sikora公司通过一些实用功能增强了Ecocontrol 600和Ecocontrol 1000设备。

两台设备都在前面配备了直观控制元件以及USB接口，可将生产数据选择储存在外部储存介质上。

此外，Ecocontrol设备的操作系统更新为Windows®嵌入式，可以

现代化以及结构化显示测量数据以及趋势和统计数据。在8英寸或15英寸的显示屏上，Ecocontrol 600 和Ecocontrol 1000能为操作人员提供时间和长度相关值、图形可视化、以及最小值、最大值和公称值的综合统计，标准偏差信息以及Cp和Cpk值。

当然，你还可以在Ecocontrol 6000的22英寸的TFT彩色显示器上找到这些功能和特征。

Sikora AG – 德国

电子邮件: sales@sikora.net

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新型25CNC-EMR R/L弯管机

德国制造商Lang Tube Tec公司目前提供一款新型全电动管道弯曲机——CNC-controlled 25CNC-EMR R/L，弯曲方向可以自动改变。

凭借回转式弯曲头，夹紧装置的可移动，以及压紧模支撑，这台创新型弯曲机可实现最短的循环周期，与传统的采用全旋转弯曲头的弯曲方法相比，时间可节省20%。

Lang Tube Tec 公司销售总监Sabine Neff 表示：“凭借创新的机器设计和高度动态的驱动，以及全新的控制系统 Bend Motion Control，我们成功优化了弯曲周期。因此25CNC-EMR R/L不仅是最灵活的弯管机，而且还是同类产品中最快的一台。”

一些要求高输出周期和最大化加工精度得领域，如汽车或航空航天工业，将受益于Lang Tube Tec的这一创新。还有供热和空调领域也将受益。

25CNC-EMR R/L设计成有多个限位夹和多种半径的机器，一种设置能够弯曲多种半径，不管是旋转拉弯还是自由成型的弯曲。

轴向精度可达到 ± 0.05 毫米（运输工具、夹具以及压紧模支撑）以及 0.05 度（弯曲、旋转和回转），即使最复杂的弯曲件都可以加工。

这款引领潮流的机器概念建立在极高的机器刚性基础上的，专为最大尺寸为 30×1.5 毫米的管道设计的，而且操作舒适度最大化。还有装、卸功能。

回转式安装的夹头回转装置可以将待弯曲的管道从储存库里移出来，而回转弯曲头可以将成品件放在地上或传送带上。

25CNC-EMR R/L是被全部包装的，即使加上集成开关柜，这款新型弯管机也只占有生产环境中非常少的空间。该弯



新型数控25CNC-EMR R/L弯管机

管机设计为全电动机，没有任何液压组件，可确保误差率减少，以及维护成本降到最低，同时数字驱动机构可增加远程维护效率并提高生产力。

此外，Lang Tube Tec的这款新型弯管机还带有能量回收系统。当加工轴制动时，释放出的能量重新供给系统。

新控制系统部分负责涡轮加工，除此之外，在自动设置循环的帮助下还负责管道夹具和压紧模支撑的定位。自动生成的最佳数值直接被弯曲程序接收。不管操作者什么时候激活弯曲程序，这些值都自动验证，必要时还会在生产过程开始前全自动纠正。这意味着重新调整时间降到最低。

还可以确保最大的安全性，因为一旦保存下来的包含了所有弯曲参数和设置参数的程序被激活，就可以在降低10%的速度的情况下首先执行模拟循环。这

种试运行消除了因安装了错误工具可能造成的意外冲突。

除了通过轴的协调和同步运动增加产能外，Lang Tube Tec的新型25CNC-EMR R/L还提供更多的优化。软件模块通过预测运动以及将机器移动到下一步弯曲加工的位置来节省时间。预先计算的位置可使用动态限位开关假定，也有助于防止冲突。

新版控制系统还包括广泛的维护和诊断功能。使用各种帮助功能有助于避免停机。

Lang Tube Tec的数控电动系列带有直观的控制面板，甚至之前没有数控机床操作经验的操作者都可以控制。

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称重和测量技术

BRANDT Engineered Products公司30多年来一直为管道行业提供精整工段解决方案，包括能够承受在艰难环境下操作的稳健的管道生产机器。

公司的Weigh Measure Mark Stencil (WMMS)以快速、准确的方法确保客户收到的材料符合严格的标准。为了自动移动管子并获取测量值，WMMS可利用集成到设备现有可编程逻辑控制器的定制设计控制系统。它使用步进梁将管道运送到每个加工站。

每个装置都可以选择检测、长度测量、称重、探针冲压、型版喷刷以及管道标色带。每一步都记录在自定义数据记录器内，发送到客户数据库并

显示到屏幕上用于即时观察。定制人机界面提供全面的数据显示，确保操作者完全清楚机器的状态并能够处理发生的问题。

Brandt公司已能使用传感器和高分辨率编码器确保按照学会标准如API来测量和记录长度。

称重站可确保保持界定公差并反复使用。减震器和称重传感器设计用来确保在各种长度和直径范围内精确的称重，公差常常达到 $\pm 0.5\%$ 。

用直观的管道规格记录和观测到的信息通过冲压、型版喷刷和标色带完成管道标识。

能够生产印制正确信息并在轧制完成

阶段清晰可见的标记和模板是非常艰难的任务。Brandt与客户密切合作了解环境并正确选择合适的油墨和漆料。

长度和重量的测量要求快速、准确和可重复性。Brandt WMMS装置完成整个称重、测量、色带、模板以及标记的循环时间只需要18秒，具体取决于管道的长度和重量。

Brandt Engineered Products Ltd –

加拿大

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engineeredproducts@brandt.ca

网址: www.brandt.ca

创新的弯管解决方案

SCHWARZE-Robitec公司是管道冷弯机制造商。这家德国公司成立于1903年，专为汽车、造船和海上工业、电厂建设和化工行业开发和制造弯管机，以及为其他行业分支提供专业的弯曲解决方案。

为了提高对北美和墨西哥不断增加的客户的服 务，公司在美国密歇根州开设了自己的子公司。Schwarze-Robitec America Inc公司总裁Chris Dorgan和他的团队将与来自德国的专家一起在芝加哥美国金属加工展及焊接展会（FABTECH）N8103号展台介绍整个生产线（11月9号到12号）。

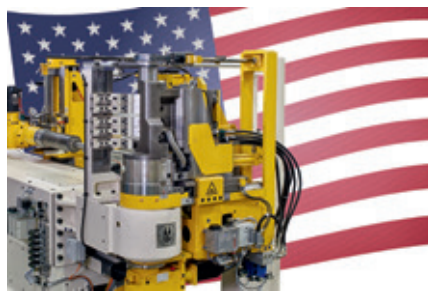
产品范围包括管道冷弯机、弯曲工具和专用设备。来自美国，加拿大和墨西哥的新老客户都将受益于客户专用现场建议，以及备件交货时间的缩短。

公司将展出整个模块化、可配置的高性能机器，以及新开发的数控系统和配件。

该产品系列新增加的成员是创新性切割工具，据说能将管道浪费量减少

90%，并缩短生产时间。而之前的加工过程需要用到外部的剪切在弯曲过程后将部件从拉紧装置或支撑装置上分开，而新工具只需要一步就能完成弯曲和分开过程。

‘Quick Tool Unlock’快速夹紧系统提供了进一步节省时间的潜力。中央张紧装置使弯曲设备更换更快，无须使用额外的工具。



美国金属加工展及焊接展会的参观者们可以在N8103展台见到Schwarze-Robitec America的团队

如果需要不同的半径，bend-in-bend系统或tube系统（集合管和排气管）是必须有的，Schwarze-Robitec推荐带有多半径弯曲工具的工具弯曲机，这些工具可以单独调整。

Schwarze-Robitec America Inc公司销售1/8"到16"的管道冷弯机、弯曲工具以及专用机器设备。专家团队负责备件采购、机器维护和检查，以及为用户提供修改、现有机器大检修以及弯曲工艺优化方面的建议。

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即使投入材料波动也可实现一致的高产品质量

SMS集团开发的“成型”技术模块的基本概念是实现高质量生产，甚至是在进料有波动的情况下。该系统有三个模块化子系统ShapeBase、ShapeView以及ShapeControl，设计用于优化JCOE®工艺生产过程中大口径纵向焊管的成型。SMS旨在为客户提供一个能满足市场不断增长的质量要求，同时还保持生产效率的工具。

ShapeView以及ShapeControl的最新发展得起点是ShapeBase计算模块，该模块自2013年以来一直用于JCO®管道成型过程参数计算。JCO®管道成型工艺最突出的特点是高度灵活性以及相应的生产范围广泛性，可生产直径16英寸到64英寸（406到1626毫米）、壁厚45毫米以上的管道。为了使管道压型机灵活的参数更好地适应计划生产，SMS集团为客户开发了ShapeBase软件，帮助客户通过显示的程序计算基本的机床调整参数：这些包括将使用的工具半径，将设置的较低的工具间隙，以及弯曲步骤得最佳数量。另一方面，还能根据这些机器参数计算和输出弯曲过程的可靠的启动参数。特别之处是可以预先计算出板材上每个弯曲步骤的位置以及相应的弯曲工具冲程。工具冲程的计算不仅考虑到了当前的弯曲轮廓，还考虑到了材料

弯曲后的回弹，这主要取决于壁厚、屈服强度和弹性模数。

然而有些参数是不能再预先的计算中考虑的。这些包括壁厚的波动以及进料板材的屈服强度，可能会有偏大或偏小的公差。实际上，这些过程数据——尤其是成型工具的冲程——是适应每个管道到管道的目前的进料板材的。直到今天，半径模块才在生产启动阶段普遍使用，但半径模块的使用非常费时，即使是经验丰富的操作人员使用。如果进料板材有波动，就很难检测到而且几乎不可能进行手动补偿。

此外，板子定位上微小的误差也会导致成型过程中的偏差。为此，新的ShapeView系统为“ShapeBase”的理论计算提供了最佳补充。在每一步成形后产生的管道轮廓可以通过使用激光截面传感器在确定的横截面上详细地测量出来。而且该系统不仅仅提供一个数字模块——它会在接入的ShapeControl模块里“考虑”到更多的一步。测得的轮廓会在这里与理论上预期的轮廓进行比较。

如果发现偏差，ShapeControl开始校正计算，为成型机接下来的成型步骤提供适合的工具冲程。这样就形成了测量和校正的闭合的控制回路，从而优化每

根管道的成型。这种校正计算必须自然地考虑到机器当前的参数——尤其是工具半径和较低的工具间隙——这样才能计算出合适的调整值。Shape系统会立即与机床控制器沟通交流重要的过程参数。专用数据库可以使Shape系统快速访问先前计算的数据集，为操作者提供现有生产菜单非常方便的一个概述。

在门兴格拉德巴赫SMS集团试验机上的大量试验证明了整个Shape系统中控制算法和校正数据处理的功能。在完成试验机上的试验后，该系统就已经卖出去了多次，用于工业应用。在Corinth Pipeworks公司的首次试运行就证实了很高的期望。即使是在安装ShapeView系统前，离线计算也可以为成型机简单的技术试运行提供可靠的过程参数。

凭借Shape技术，SMS集团为客户提供了一个能满足市场不断增长的质量要求，同时还保持生产效率的工具。Shape技术是可以配置的，也可以对现有的JCO®管道成型压力机进行改造。

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Metalube's water-based steel rollforming packages deliver new levels of performance at Top Tubes

By Wayne Thornhill, product specialist, Metalube

Metalube (a global leader in the design, manufacture and supply of high performance lubricants and rust preventatives) has launched a unique and innovative range of products for the rollforming of ERW steel tube and pipe and rollformed sections/profiles. Metalube's dedicated team of development chemists and industry specialists took the process back to basics and developed the grades from first principles with only rollforming in mind (rather than simply renaming CNC cutting fluids as many other suppliers do).

Top Tubes Ltd (Wednesbury, UK), a major UK producer of tube for the automotive, agricultural, construction, office and retail sectors producing over 40KTPA, has now adopted Metalube's products for use on its two rollforming lines. Metalube's unique package of low oil, semi-synthetic forming lubricant (Cool-Tek 250) and compatible water based rust preventative (Meta-Shield W1000D) has proven technically superior, environmentally kinder and economically beneficial.

The new range of products developed by Metalube includes:
Cool-Tek – low oil content, semi-synthetic forming lubricants
Meta-Shield – solvent-based and water-based rust preventatives
Sol-Tek – evaporative lubricants.

These products can be used separately to provide their own unique benefits or combined to achieve the highest levels of cleanliness and corrosion protection. The combination of Cool-Tek 250 and Meta-Shield W1000D, as used by Top Tubes Ltd, was specifically designed to overcome the issues faced by producers who use inline application of rust preventatives (application before tube cut off).

Traditionally solvent-based rust preventatives have been used for the protection of steel tube. As manufacturers who use inline application of solvent based rust preventatives will know, the cross contamination of solvent-based rust preventative and mill lubricant can cause a number of issues:

- Roll slip/skidding – variations in lubrication
- Decreasing levels of cleanliness on both the mill and the finished products
- Increased dermatological risk for operators

Metalube wanted to overcome these issues and others faced by the tube manufacturer (such as the increasingly



stringent demands by its customers to easily remove the rust preventative film). To that end the rollforming range was developed. The Cool-Tek 250 and Meta-Shield W1000D package represents the pinnacle of this development.

Cool-Tek 250 (mill lubricant) was designed using Meta-Shield technology to incorporate high levels of corrosion protection into the mill lubricant itself. This means that strong corrosion protection is applied to the inside bore of the tube even when used as low as 4 to 5 per cent. The high level of detergents mean that both the mill and the finished tube remain very clean and the low level of oil in the product stops fines compacting into hard deposits. As the product has a low oil content the drag out is minimal and consumption is around 0.2L/T.

Meta-Shield W1000D is provided as a ready-to-use emulsion. It is a milky opaque emulsion (see pictures) and uses the special MAT (Metalube Adhesion Technology) to deposit a

thixotropic, hydrophobic oil film. The thixotropic nature of the film means that it is semi-permanent. Once applied to the tube it stays in place and does not gather at the bottom of the pack. The film gives protection from water and dirt but is easily removed by wash systems. The flexible nature of the film protects from accidental contact and can “self-heal”. As water is the carrier, the product dries well; drying can be further improved as heat can be safely applied to the product for incredibly quick/flash drying. The use of water as a carrier, instead of solvent, means that the cost of Meta-Shield W1000D is much lower. This provides a huge economic saving whilst delivering very high levels of performance. Meta-Shield W1000D is also available as a concentrate, Meta-Shield W1000C, which can reduce transport costs as well.

When used together, Cool-Tek 250 and Meta-Shield W1000D have shown major benefits for the tube manufacturer. As the products are compatible, cross contamination of Meta-Shield W1000D into the Cool-Tek 250 emulsion acts like top-up. This reduces consumption rather than increasing it as normally seen. The mix of fluids does not destabilise the emulsifiers/detergents, so roll skidding is not seen and cleanliness remains excellent.

Observations from use on-site are that the drying time of the rust preventative is much quicker when sprayed than the previously used solvent-based products. The packs dry very quickly and do not drip wet rust preventative. The odour within the factory environment was greatly improved as reported by operators and complaints of skin irritation eliminated. The package has been used to manufacture a large variety of steel products (black, cold rolled, hot rolled and dipped, galvanised and aluminised steels) in a variety of sizes and shapes.



After switching to Metalube’s Cool-Tek 250 and Meta-Shield W1000D package Top Tubes found that corrosion protection was improved on both the inside and outside bores of the tube.

Top Tubes found that its customers were no longer having issues with removal of the rust preventative film during subsequent processes such as automated e-coating or chromating. They were also very pleased with the finish offered by Meta-Shield W1000D, which gives the tube a shiny and clean aesthetic.

The use of the compatible water-based technology means that a significant cost saving (>30 per cent) can be achieved, as well as the many technical benefits experienced.

Simon Moore, ERW operations manager for Top Tubes Ltd, said, “Top Tubes always strive to use the latest technology to achieve the best quality for our customers. Switching to Metalube’s water-based package of products has solved many issues for both us and more importantly for our customers.”



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Tube resource efficiency in shipbuilding and plant construction

By Dipl.-Ing. (FH) Jürgen Korte, sales manager at Schwarze-Robitec

Subjects such as sustainability and green technology have been discussed in the media for some years now, or are used as a popular plug for corporate announcements. Nevertheless, the reality is that the industry is still not fully sustainable, because companies use the majority of the gross production value for material. According to calculations by the German Federal Office of Statistics, that is an average 45 per cent. This results in a large savings potential with regard to both sustainability and company operating costs.

In view of rising costs for raw materials and energy, one thing is sure: whoever wants to stay competitive, must use resources sensibly, streamline production processes and therewith increase efficiency. The human operator should also be taken into consideration in this context, because operator-friendly and secure production processes make a considerable contribution to the profitability of companies.

Introduction

In shipbuilding and plant construction, miles and miles of pipelines made of the most varied materials and with variable diameters and nominal widths are processed. That is why high flexibility is in great demand with tube bending machines. "Time and cost savings are achieved, for example, when avoiding any welding of tubes," explained Jürgen Korte, sales manager at the bending machine manufacturer Schwarze-Robitec GmbH.

Multi-stack CNC tube bending machines have proven themselves in this context. They are equipped with stacked tooling, which is capable of bending tubes with different nominal widths on one system without any conversions. Due to the minimised set-up times, productivity increases massively. An advantage that international shipyards and plant construction firms have used for themselves over recent years.

Schwarze-Robitec from Cologne has supplied the industry internationally with the multi-stack CNC tube cold bending machines in the most diverse design sizes. One of these systems is the CNC 220 HD MW of the heavy-duty series from Schwarze-Robitec. The tube and section cold bending machine, with 32 tons total weight, processes tubes with a

maximum diameter of 219.1 x 12.7mm – and that for a tube length of up to six metres. Despite its size, the system is unusually flexible in handling.

With the help of the stacked tooling, up to 70 per cent of the set-up time of market-based systems can be saved. It is possible to process tubes of different materials, such as steel, copper-nickel-iron alloys and stainless steel on one tool.

At the same time, thin-walled and thick-walled tubes with different diameters can be bent. With this clever tool concept, users have the most varied material standards and tube geometries under control.

The set-up times between the different versions are minimal: a conversion of the system is not necessary. A further time-saving plus of the CNC 220 HD MW is that the different production data are stored in the control system and do not need to be re-entered if required.

This concept has the potential to offer significant economic advantages said Mr Korte. The quick set-up times make sure that downtimes are short and utilisation of the machine remains high.

"Schwarze-Robitec has already sold the machine type around 50 times to customers from the shipbuilding sector, the chemical industry and power plant construction," reported Mr Korte.

Time-saving details

The production of complex three-dimensional tube systems becomes cost-intensive, particularly because numerous production steps are necessary. Often, each individual step involves optimisation potential with regard to time.

Mr Korte said: "To manufacture three-dimensional tube systems, individual bent tube pieces are welded together and the weld seams then checked. The checking is such a time-intensive work step, which we have abolished with our automatic CNC machines of the HD series."

Thereby, the tube is clamped in the index head and positioned in space by means of the transport unit and index head. After the first bend, it is directly transported on and turned if necessary. This quickly creates three-dimensional tube systems without an excess of weld seams. The tubes can be delivered custom-fit to the building site. The use of



Tube cold bending machine CNC 220 HD MW from Schwarze-Robitec: Tubes with different nominal widths can be processed quickly with the stacked tooling, which can be seen quite clearly at the front

flanged tubes in shipbuilding and plant construction also causes additional processing steps in forming, for example the subsequent flanging of finished tube bends. A remedy is flanged tube facilities, which take the flange and sleeve positions before the bending process into consideration. In this manner tubes that are already flanged can be bent economically.

The heavy-duty systems from Cologne's bending specialist are designed for the forming of double-walled tubes and flanged tubes. These can be implemented in existing systems ready-to-install after bending.

Another "time saver" is the marking facilities, which mark the positions on the tubes where welds or bypasses are to be carried out after bending. By this procedure, the facility takes the load off the operator, who now no longer has to conduct time-consuming calculations for subsequent determination of the corresponding points on the bent tube.

Reduced material input

Tube runs in ships, as well as in offshore and chemical facilities, offer great potential for material savings because the long stretches of tube cause considerable material costs.

The tube materials used in the industry sector are also very high quality and need to be installed efficiently. One option is small bending radii. They optimise tube runs enormously in the case of tight space conditions and result in less material input.

The CNC 320 HD from Schwarze-Robitec, for example, produces extremely small bending radii of 1.5 x tube diameter even for large, very thin-walled tubes with a diameter of up to 323.9mm.

Similarly, tight radii with such large tubes are usually only achieved with much slower and costlier warm bending processes or welding bends. Anyone wanting to produce with material efficiency will also want to avoid residual tube lengths. Machine expansions such as the tube residual length optimisation from Schwarze-Robitec function like "cost brakes". An additional savings potential with regard to material is the dosing of lubricants. These counteract the high tribological loads on tool and work pieces, which occur during cold bending.

With most lubricating methods the lubricants are added in large quantities into the tube to be bent. To remove lubricants from the finished bent tubes after bending, the tubes normally need

to undergo an elaborate cleaning, where further chemicals are used in the process. A considerably lower consumption is achieved with automatic lubricating systems. With the help of compressed air they simply moisten the bending mandrel surface and tube inner wall. Through this optimal dosage both the costs and the effort for the subsequent cleaning of tube and machine are considerably reduced. The micro-lubrication from Cologne's bending specialist functions according to this principle: the lines for oil and compressed air run through the mandrel rod all the way to the mandrel. There, the oil is distributed by the compressed air. During the bending process it exits from the mandrel through small drilled holes. In this way the system combines a need-based lubrication with minimal lubricant consumption.



The CNC 320 HD from Schwarze-Robitec produces extremely small bending radii of 1.5 x tube diameter, even for very large, thin-walled tubes with a diameter of up to 323.9mm

Precision and quality check in one work step

A high degree of precision avoids unnecessary waste of expensive materials. "Ideally, the tubes are already checked during the bending process and the results corrected, if necessary," explained Mr Korte.

"The optionally integratable measuring system from Schwarze-Robitec determines the spring-back value directly after bending of a tube, and the CNC control uses this to calculate the necessary re-bending angle."

Re-bending is done directly following this – if desired fully automatically or after release by the machine operator. The bend is carried out precisely to half a degree deviation and nearly every component is a useable good part. The complete process only takes a few seconds per work piece on average.

In comparison, measuring and adjusting by the conventional method require about three to five minutes. The operator also benefits from the integrated measuring system: if the previous manual calculation posed an increased source of errors and cost the operator time, the work steps are now considerably simplified.

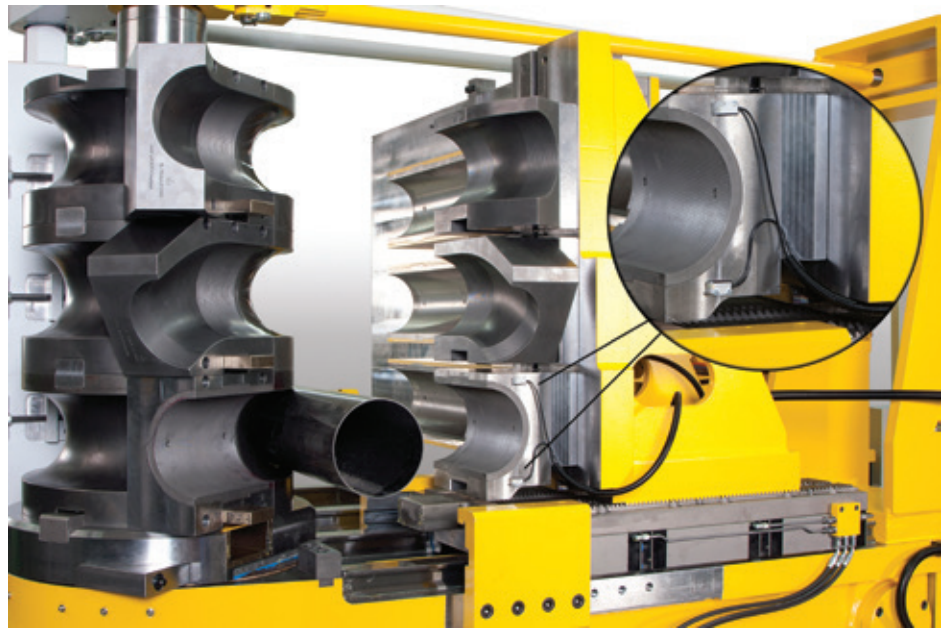
At this point it shows that the operator-friendly and safe production processes are important factors when dealing with profitability in shipbuilding and plant construction. When work steps such as machine re-fits or checking tubes on separate systems are omitted, the operators have less physical stress, and it leads to a higher degree of occupational safety.

From solutions for time efficiency to concepts for material savings and all the way to work-simplifying extras: all these need to be taken into consideration when production processes are to be designed economically and sustainably.

Schwarze-Robitec GmbH – the Company

The company, founded in 1903, is a leading producer of tube bending machines. Since 2011 it has been run by the managing directors Bert Zorn and Hartmut Stöhr. At its headquarters in Cologne, the specialist for automatic cold bending machines currently employs 130 staff.

The company is represented worldwide via long-term partner enterprises. Schwarze-Robitec manufactured the world's first CNC-controlled tube bending machine back in 1977. To date, more than 2,400 machines have been sold – some of them



With the help of the measuring system integrated in the bending tool, tube processing companies can bend, measure and adjust in a single operation

have been used in production unrestrictedly for far more than 35 years.

The Schwarze-Robitec product range includes, in addition to tube bending machines and bending tools, tube perforating machines, measuring stations, and solutions in the area of special machinery construction.

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