

TUBE & PIPE

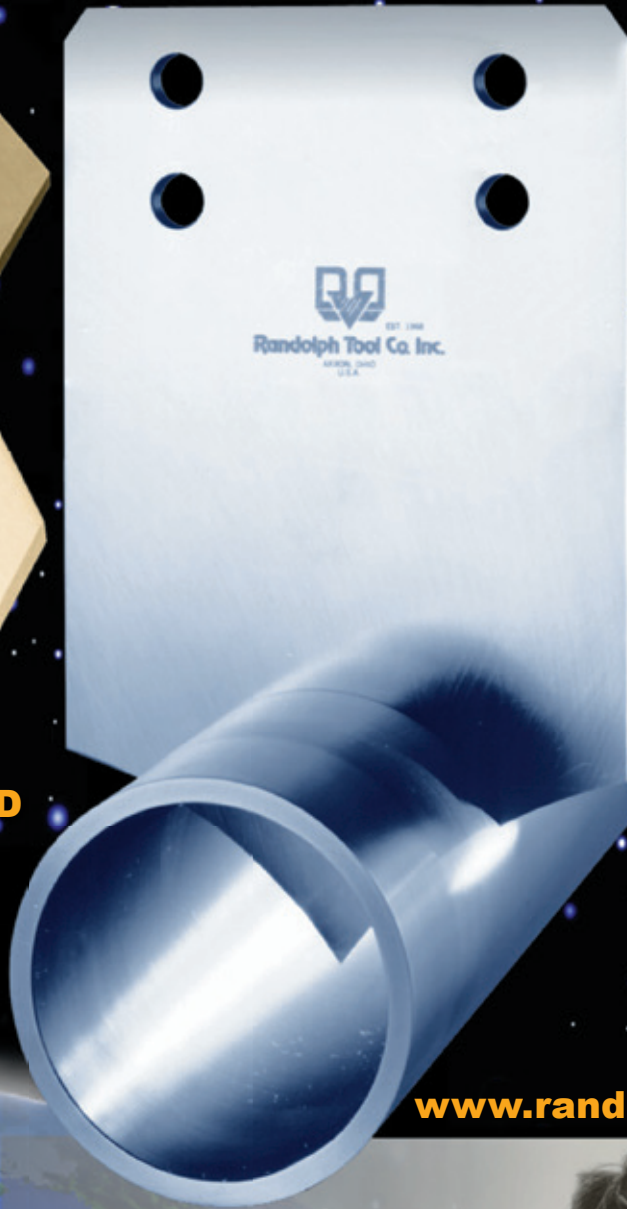
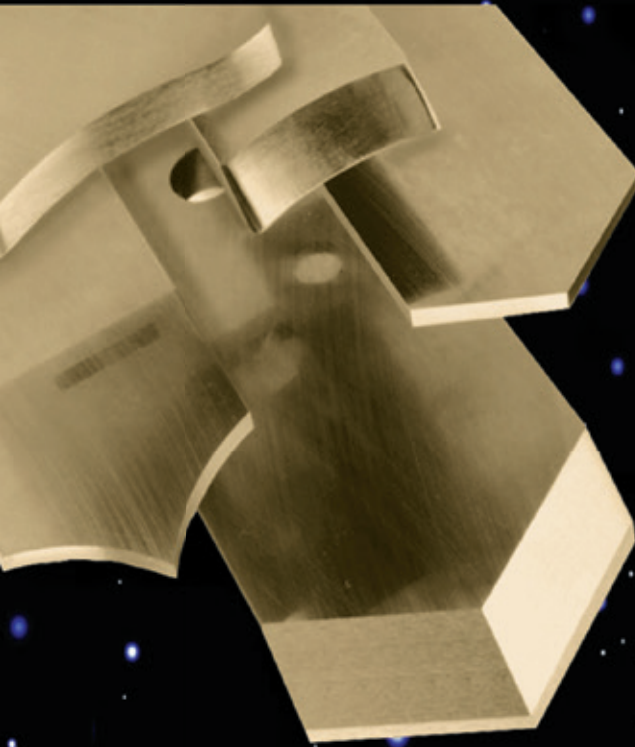
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VOL 30 NO 5

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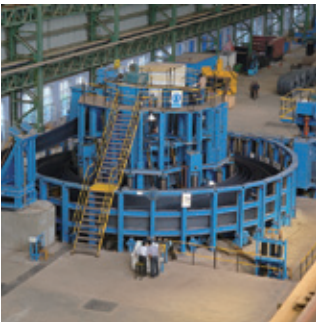


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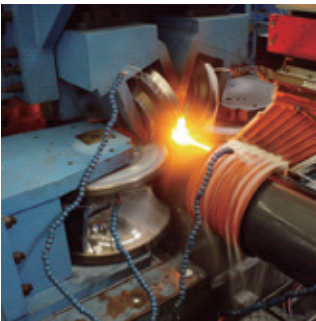
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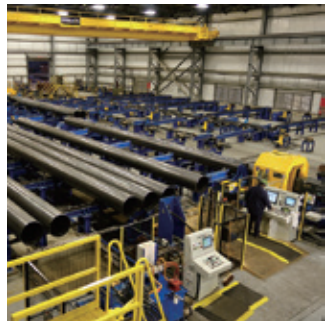
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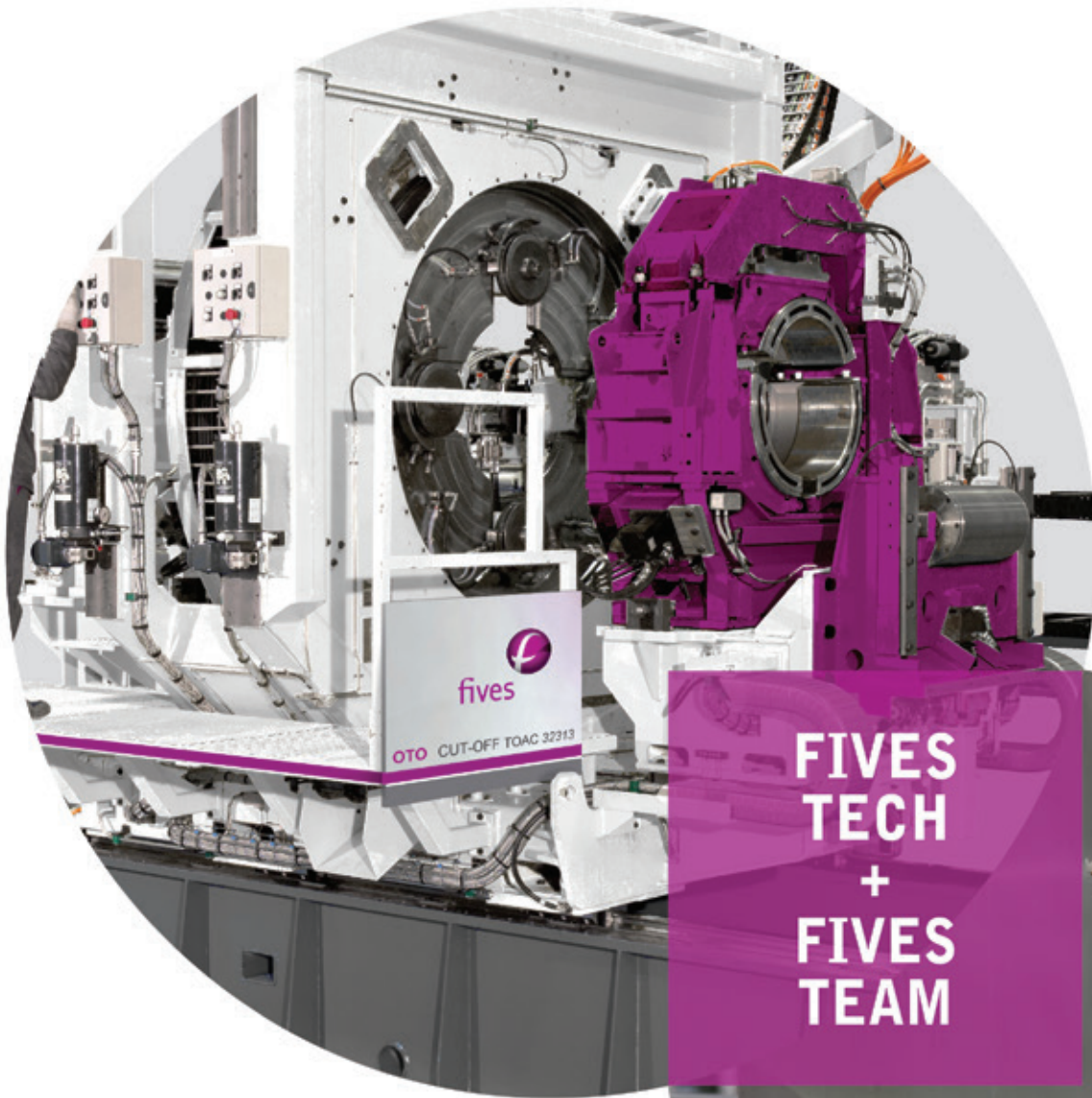
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ARTICLE: Key calculations for maximising tool life in carbide saws

By Christian Mayrhofer, Manager R&D, AME, and Willy Goellner, AME..... 117

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September/October 2017

Vol 30 No 5

The September Issue

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



Rory McBride –
Editor

This month we have an article on maximising the tool life of carbide tube cutting saws written by Christian Mayrhofer and Willy Goellner from AME on page 117. We also have a full feature on cutting, sawing and profiling starting on page 102.

This issue of the magazine will be distributed at FABTECH in the USA and EMO in Germany. The team will be at both making sure that an international audience is aware of all the machines featured in these pages. It is particularly good to see EMO in Hanover return after a four-year break.

For the first time this year FABTECH will feature a special tube pavilion, due to growing interest in the area, so I hope this is a great success and continues to grow over the next few years. There is definitely room in the calendar for a major tube trade show in the US every couple of years.

Next issue we have features on finishing, end finishing and superfinishing as well as welding technology and heat treatment. If you would like to submit an article for the magazine the editorial deadline is 8 September. The advertising deadline is 22 September.

Enjoy the magazine.

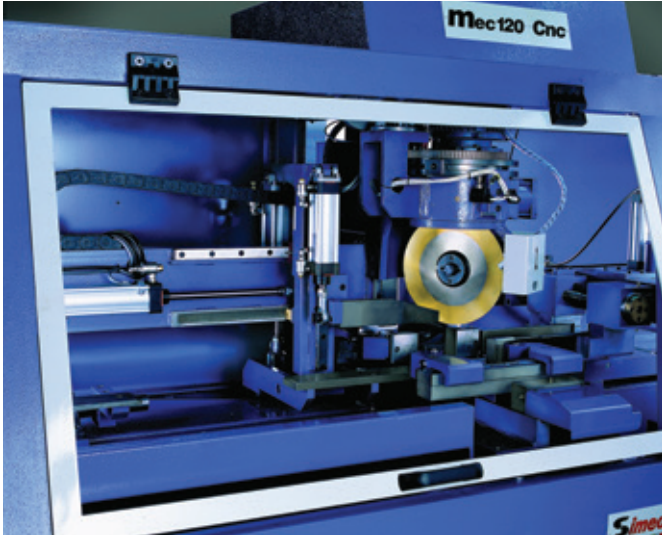
On the cover . . .

Randolph Tool Co, Inc offers the highest quality tube cut off blades and die jaws in the industry, manufactured to your specifications to best suit your production needs by true craftsmen with the best manufacturing procedures as well as a reputation for exceeding expectations.

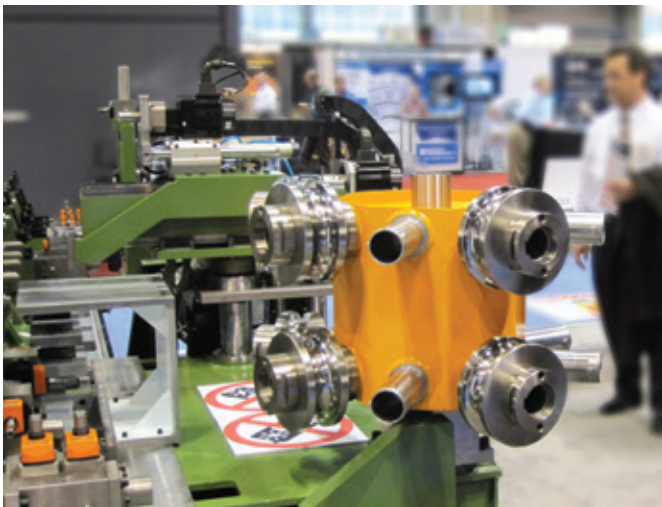


Randolph Tool, which was established in 1968, deals direct to save you money. Fax a drawing of the blades, dies, jaws or repair parts for your tube mills that you require. You will receive a quote immediately and will find that the pricing is extremely competitive with a fast turn around time. When you receive the blades they will be flat within 0.002 and the surface of the blade will be extremely smooth, which will help the blade last longer.

Randolph Tool also offers services such as resharpening of used blades and die jaws as well as precision machining and uses only top-grade tool steel to produce the best industrial knives and die jaws in the business. Visit www.randolphtoolco.com or email info@randolphtool.com



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INDUSTRY

High-performance tube and pipe bending machines

SCHWARZE-ROBITEC is presenting its extensive product range of tube and pipe bending machines at FABTECH 2017 in Chicago, USA. The tube and pipe bending specialist is exhibiting its CNC 100 E TB MR and will demonstrate the speed and precision of his current high-performance machines at booth B13074. In addition, experts from the American branch office and the Schwarze-Robitec sales team will be on hand to answer any questions that visitors may have on the subject of tube bending.

Schwarze-Robitec places the high-performance tube bending machine CNC 100 E TB MR at the centre of its trade show presence. This all-electric machine enables companies in the automotive industry to manufacture the serial production of pipe systems even faster and more efficiently.

The machine is equipped with numerous components that reduce downtimes and thus increase productivity. These include the rapid clamping system 'Quick Tool Unlock'. Its central clamping function allows for a fast change of bending tools. The best advantage of all is that the easy tool changes



CNC 100 E TB MR

require a minimum of tools. In addition, customers benefit from a high degree of sustainability as this machine can be used to bend a particularly wide range of different tube and pipe dimensions. The NxG control system also contributes to the fast cycle times of this high-performance series. Thus the users can

expect a reduction in production time of up to 35 per cent due to simultaneous axis movement.

Schwarze-Robitec GmbH – Germany
Fax: +49 221 8900 89920
Email: sales@schwarze-robitec.com
Website: www.schwarze-robitec.com

Tube Russia 2017 declared a success

THE Expo Centre in Moscow, Russia, hosted a joint presentation of four technology trade shows in June: wire Russia – the international wire and cable fair; Tube Russia – the international tube and pipe fair; Metallurgy Russia – the international metallurgical technology processes and metal products fair; and Litmash Russia – the international foundry fair.

The four events took place in one venue, creating ideal synergies for exhibitors and visitors as well as short routes between stands. The

regional trade fairs were organised by Messe Düsseldorf GmbH and Messe Düsseldorf Moscow, in partnership with the Russian joint-stock company VNIKP for wire Russia, and Metal Expo for Tube Russia, Metallurgy Russia and Litmash Russia.

Around 400 companies presented technical innovations from their industries, covering an exhibition space of 5,545m². As well as Russian exhibitors, many international companies were represented in Moscow, showcasing their products and services to the

Russian and Eastern European markets. With the football World Cup being held in Russia soon this is proving beneficial to the Russian construction industry as well as international companies that are involved in building Russia's many stadiums and are working on infrastructure projects. Wire, cables, tubes, metal and foundry products are needed in large quantities for the stadiums.

Tube Russia 2017
Website: www.tube-russia.com

DIARY

of Tube Events

2017

New order for SBQ mill

MAANSHAN Iron & Steel Co Ltd (Masteel) has placed an order with Friedrich Kocks GmbH for a reducing and sizing block (RSB®) 370++/4 in 5.0 design with SCS® size control system, 4D Eagle light section measuring gauge and thermo-mechanical rolling process.

Masteel is one of the largest iron and steel enterprises in Mainland China. The state-owned company, headquartered in Maanshan, Anhui Province, was founded in 1958, and in 1993 split into Magang (Group) Holding Company and Maanshan Iron & Steel Company Ltd.

The Kocks three-roll RSB 5.0 with four stand positions will be installed as core equipment in the new 400,000 t/a SBQ mill, finishing straight bars for automotive, aerospace and mechanical engineering applications within a dimension range of Ø 16 to 100mm at a maximum speed of 18m/s. The RSB 5.0 will be located behind a continuous roughing and intermediate mill consisting of 22 stands in H/V arrangement, and is designed for temperature-controlled rolling at low temperatures.

At the core of the future-orientated RSB is the real-time closed-loop control system SCS, which further improves the rolled tolerances and simplifies the operation due to automated optimisation of the roll gap settings and motor rpms.

The Kocks 4D Eagle measuring gauge complements the SCS, integrating the newest technologies and meeting the requirements of most modern rolling mills for full process transparency. The scope of supply is completed by the thermo-mechanical rolling (TMR) process, including the Kocks Process Simulator (KPS) and the appropriate automation package. Commissioning is scheduled for mid-2018.

Friedrich Kocks GmbH & Co KG –
Germany
Email: marketing@kocks.de
Website: www.kocks.de

www.read-tpt.com



18-23 September

EMO
(Hanover, Germany)
International Exhibition

www.emo-hannover.de



19-21 September

Tube Southeast Asia
(Bangkok, Thailand)
International Exhibition

www.tube-southeastasia.com



3-5 October

Tubotech
(São Paulo, Brazil)
International Exhibition

www.tubotech-online.com



6-9 November

FABTECH
(Chicago, USA)
International Exhibition

www.fabtech-expo.com



28-30 November

Stainless Steel World
(Maastricht, Netherlands)
Conference & Exhibition

www.stainless-steel-world.net

2018



15-18 January

SteelFab
(Sharjah, Dubai, UAE)
International Exhibition

www.steelfabme.com



27-30 March

TOLexpo
(Paris, France)
International Exhibition

www.tolexpo.com



16-20 April

Tube Düsseldorf
(Düsseldorf, Germany)
International Exhibition

www.tube.de

SeAH Changwon and SMS group build tube extrusion press line in record time

SEAH Changwon Integrated Special Steel (SeAH CSS) in South Korea has commissioned a tube extrusion press line, which SMS has recently supplied in record time.

The 50-MN tube extrusion press line installed in Changwon in South Korea has an annual capacity of 35,000 tons of tubes in diameters between 2" and 10" in Fe and Ni-based austenitic steels, duplex and super-duplex alloys as well as special steels made of nickel-based alloys. With the inauguration of the plant taking place less than 24 months after the contract signing, the team of SeAH and SMS group specialists have succeeded in sticking to an extremely tight project schedule.

Within the scope of the contract SMS group supplied a multi-stage IAS induction heating plant, a vertical 20-MN piercing press, a 50-MN extrusion press and the run-out facilities. The pusher-type two-strand horizontal induction heating plant with integrated temperature equalisation chambers processes billets of 204 to 380mm in diameter. The billets are reheated in the four-station vertical induction heating plant before being prepared in the piercing and expansion press for the process in the tube press.

After a three-station final heating process the billets are transferred to the tube press. The run-out facilities with quench and cooling table are designed for extrusion lengths of up to 22m. SMS group also supplied associated ancillary equipment such as glass lubrication



systems, manipulation and auxiliary equipment and a machine for making glass pads.

In South Korea, SeAH Changwon Integrated Special Steel produces stainless steel bars, wire rod and tubes made of high-grade special steel for customers in the automotive, shipbuilding, energy and plant engineering industries. With the new tube extrusion press line SeAH CSS will expand its capacities and be able to offer a wider range of tube diameters, wall thicknesses and extruded lengths.

"We wanted to become more productive. We are sure that we will achieve this with our new extrusion line. The extended range of products will allow us to open up new customer segments," said CSS corporate senior manager Kang Seung-Hoon. "With SMS group we had a perfect partner, capable of offering the complete

process chain – from reheating down to the finished tube – from a single source."

The contract for the supply of the equipment was signed in July 2015. During the engineering phase it became obvious that IAS and the SMS group's extrusion press team worked efficiently together.

The equipment was installed and commissioned in close cooperation with the SeAH project team. The first tube was extruded in January 2017. The official inauguration took place by the end of March. In recognition of the project execution SeAH CSS CEO Lee Jee-Yong presented SMS group executive vice-president Ulrich Vohskämper with a plaque of appreciation.

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

Rafter upgrades Yoder QVW-250 tube mill

RAFTER Equipment Corporation has shipped a new RT-2000S strip entry table, HFI weld squeeze box, and double-sided turkshead straightener to a North American tube producer.

The equipment will replace equipment on a Yoder Manufacturing QVW-250 tube mill that was no longer robust enough for the tubular products being produced. The strip entry table was updated to utilise common parts from the company's popular idle side roll stand design. The unit's guide roll blocks

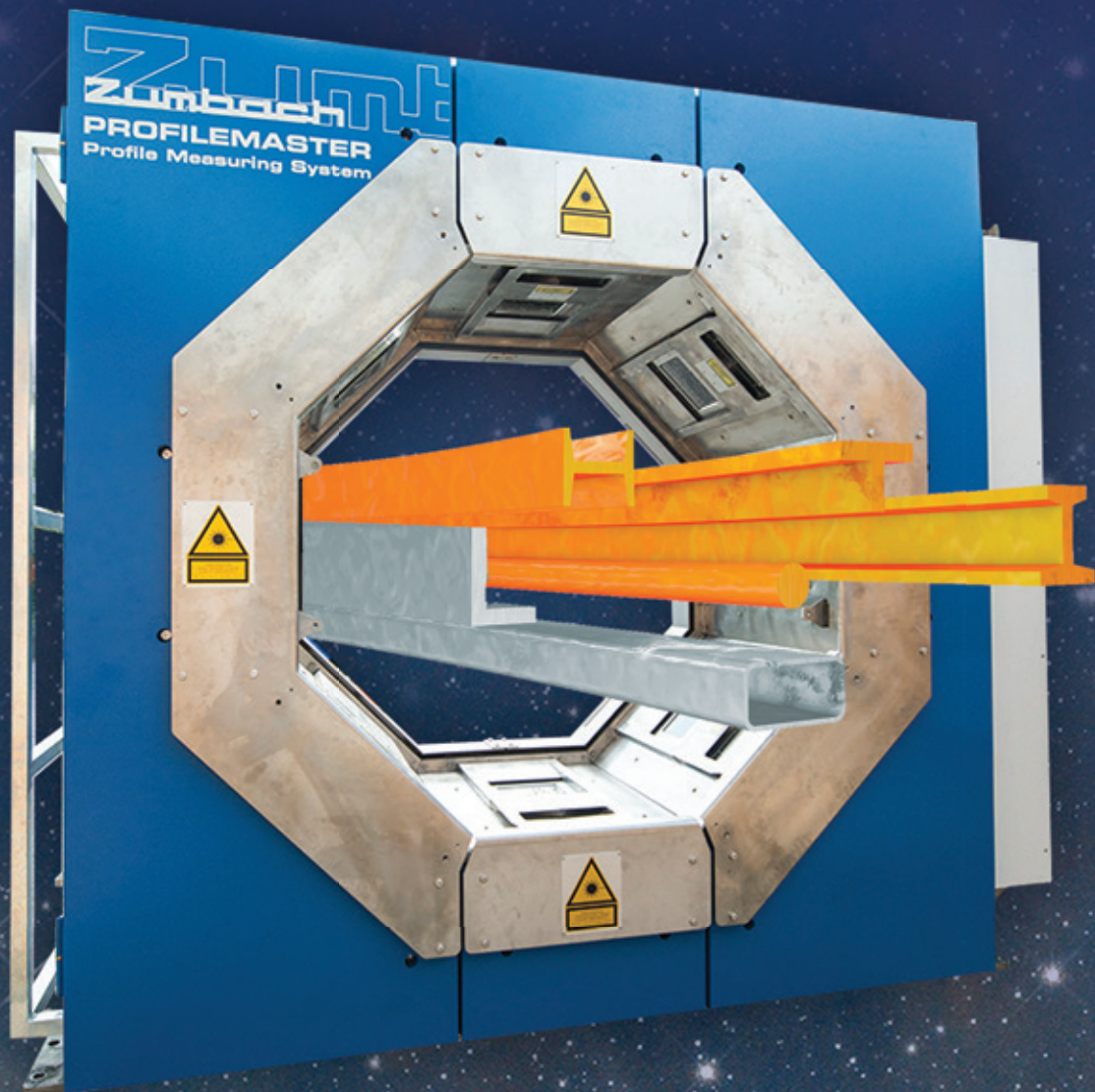
now slide on bushed rods that allow mill scale and dirt to fall away and be more easily cleaned. The adjusting screws are made of stainless steel with the centre portion protected from contamination by a telescoping screw cover.

The HFI weld squeeze box has a familiar three-roll arrangement but incorporates the company's latest heavy-duty, push on centre weld box design. The design has been a popular retrofit item since its introduction in 2015. Finally, the turkshead straightener is a double-sided

version for straightening and de-twisting of both round and rectangular tubes. The unit includes removable faceplates for enhanced quick-change possibilities and two-axis remote adjustment of the entry faceplate. The motorised adjustment allows straightness corrections to be made from a location downstream of the turkshead.

Rafter Equipment Corporation – USA
 Email: sales@rafterequipment.com
 Website: www.rafterequipment.com

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Using big data and artificial intelligence to control surface quality

THE need for higher quality indexes in wire rod and hot rolled bars and tubes is increasing.

Customers no longer accept only statistical classification. Nowadays, they also demand the exact location and type of surface defects that the material may present.

In theory there are different methods for identifying hot rolling defects, but in practice, only two currently have an industrial application: eddy current and artificial vision.

The integration of both, from a purely mechanical point of view, is feasible, but also presents difficulties in the algorithms and patterns used for real-time identification. In the end, these are two methods that could be considered as “senses of the same brain”.

The artificial vision would be equivalent to the eyes and the eddy current to the hands. So, the difference is the brain.

ISEND has developed artificial intelligence and big data solutions for the accurate identification of defects in hot rolling in real time and for the analysis and characterisation of the same at any time.

These solutions integrate data from two methods, which in the future may be increased – such as induced

currents and artificial vision, processed, stored and reprocessed so that the accuracy in identifying serious defects is increasingly fast and accurate. All this is done without conditioning the statistical information of the defects.

In the EDDYeyes solution, ISEND provides sophisticated mechanical and software equipment aimed at solving

the main problems of hot rolling in real time, and in addition determining their origin. In this way perpetual results are obtained with scope and validity of benefit to the users.

ISEND SA – Spain
Email: contact@isend.es
Website: www.isend.es



Tube and wire show in Iran relocated

THE relocation of the Iran Wire trade show to the new, state-of-the-art exhibition centre Exhibiran International Fairground, which is currently under construction, has now been agreed.

The Aria Group, owner and organiser of Iran Wire, will be holding this high-profile technology trade fair for the first time at the new exhibition centre. Fifteen exhibition halls are being created in Tehran, of which three have already been completed: A6, A5 and A4.

Relocation of the trade fair to the new hall, A6, will mean a postponement, so Iran Wire will now be held from 6 to 9 December 2017. It is the only Iranian trade fair for wire, cables, pipes, tubes, profiles and accessories.

Any European or international companies interesting in selling their wire and tube products on the Iranian market will find Iran Wire an attractive entry point into the markets of the Middle East. They will be given professional support by the Messe Düsseldorf exhibition professionals in organising their participation.

Acting under a joint contract, Messe Düsseldorf GmbH will be the first and only sales partner of Iran Wire with responsibility for organising all German and international company participations. This makes it a single point of contact for all businesses in the wire, cable, pipe and tube industries seeking to access the promising Iranian market.

Messe Düsseldorf is handling a wide range of organisational areas, from registration to stand design, ensuring smooth operations at the exhibition centre.

Demand from companies has been enthusiastic and the exhibition space reserved so far (1,500m²) in Hall A6 is almost fully booked.

Interested companies are advised to talk to the relevant contacts at Messe Düsseldorf as soon as possible – Cem Bağcı and Cordula Link: bagcic@messe-duesseldorf.de and linkc@messe-duesseldorf.de

Messe Düsseldorf – Germany
Website: www.mdna.com

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Prinz-Mayweg invests in Thermoatool equipment

PRINZ-MAYWEG has recently taken the decision to invest in another Thermoatool HF welder manufactured by Inductotherm Heating & Welding Ltd UK.

For more than 100 years Prinz-Mayweg Gruppe has been processing precision steel tubes for customised applications in trade and industry. This long-standing company, headquartered in Wickede, Germany, prides itself on precision, a high level of innovation and quality in creating and processing steel tubes.

Its company leadership and mission statement have significantly influenced the success of the family-owned company over the years. Its management is known for a high level of entrepreneurial flair, investments and the ability to expand at the right time, which has led to the Prinz-Mayweg Gruppe's current success and reputation.

Michael Standop, from Prinz-Mayweg Gruppe, said: "Thanks to optimised manufacturing methods, products with dual-phase steels and boron-manganese alloy steels are produced and

processed into components according to the customer's request.

To reduce the weight and material cost, structured and rolled tube materials are welded using the high-frequency welding process.

"To make these processes with the highest quality and to develop our business constantly we are using the highest technology and most innovative equipment such as the HF welding systems from Thermoatool. It is very important to us to work with reliable partners like Mr Hasan Simsek from Thermoatool."

Wayne Hine, sales director of Thermoatool brand, said: "The company is delighted to have this opportunity to play a key part in a series of strategic investments currently being made across Europe. The long-term commitment by Thermoatool to German shaped-tube producers is exemplified by Mr Hasan Simsek – who has provided the expedient service and support that Thermoatool's European customers expect.

"Thermoatool has a long history of innovation and technical excellence in

the welded tube market. The company will participate in the ITA Conference in Düsseldorf in November and is now looking forward to meeting friends, colleagues, associates and current and prospective customers at Tube Düsseldorf in April 2018."

Thermoatool specialises in the design and manufacture of high technology tube and pipe production equipment, offering a comprehensive range of HF welders, seam annealers and high-speed flying shears to the tube and pipe sector worldwide.

Inductotherm Heating & Welding Limited is one of forty companies making up the Inductotherm Group and is the European manufacturing and technical headquarters for Thermoatool, Radyne, Banyard and Newelco, producing a diverse range of induction heating and welding equipment specifically suited to the metal processing industry.

Inductotherm Heating & Welding Ltd
– UK

Email: info@inductothermhw.co.uk
Website: www.inductothermhw.com

Safe, space-saving solutions from Combilift

THE Irish specialist forklift manufacturer Combilift will be exhibiting at EMO for the first time this year, showing a selection of its customised handling solutions, which are designed for the safe, space-saving and productive handling of the long and bulky loads typically encountered in the metalworking sector.

The manoeuvrability and versatility of Combilift's models means that they can be deployed from the initial stages of offloading raw materials, during the manufacturing process, through to the storage and dispatch of finished products.

Exhibits will include the five-tonne capacity C5000 XL model with high ground clearance and roomy cab. These robust trucks work inside and out and on uneven terrain in all weathers, making them tough and reliable workhorses for universal applications in the yard and warehouse.

Sideways travel with loads resting on the platform also offers greater stability and safer manoeuvring.



Severfield C series

The award-winning compact Combi-CB, which combines multi-directional ability with counterbalance design, will also be on show. Capable of handling a mix of pallets and long loads, it is available with load capacities of up to four tonnes with a choice of LPG, electric or diesel power.

Combilift's portfolio encompasses a wide range of products – from pedestrian pallet stackers, four-way forklifts and sideloaders, up to straddle

carriers, which can transport containers and oversized loads weighing 80 tonnes. The company exports to over 75 countries and has won numerous awards.

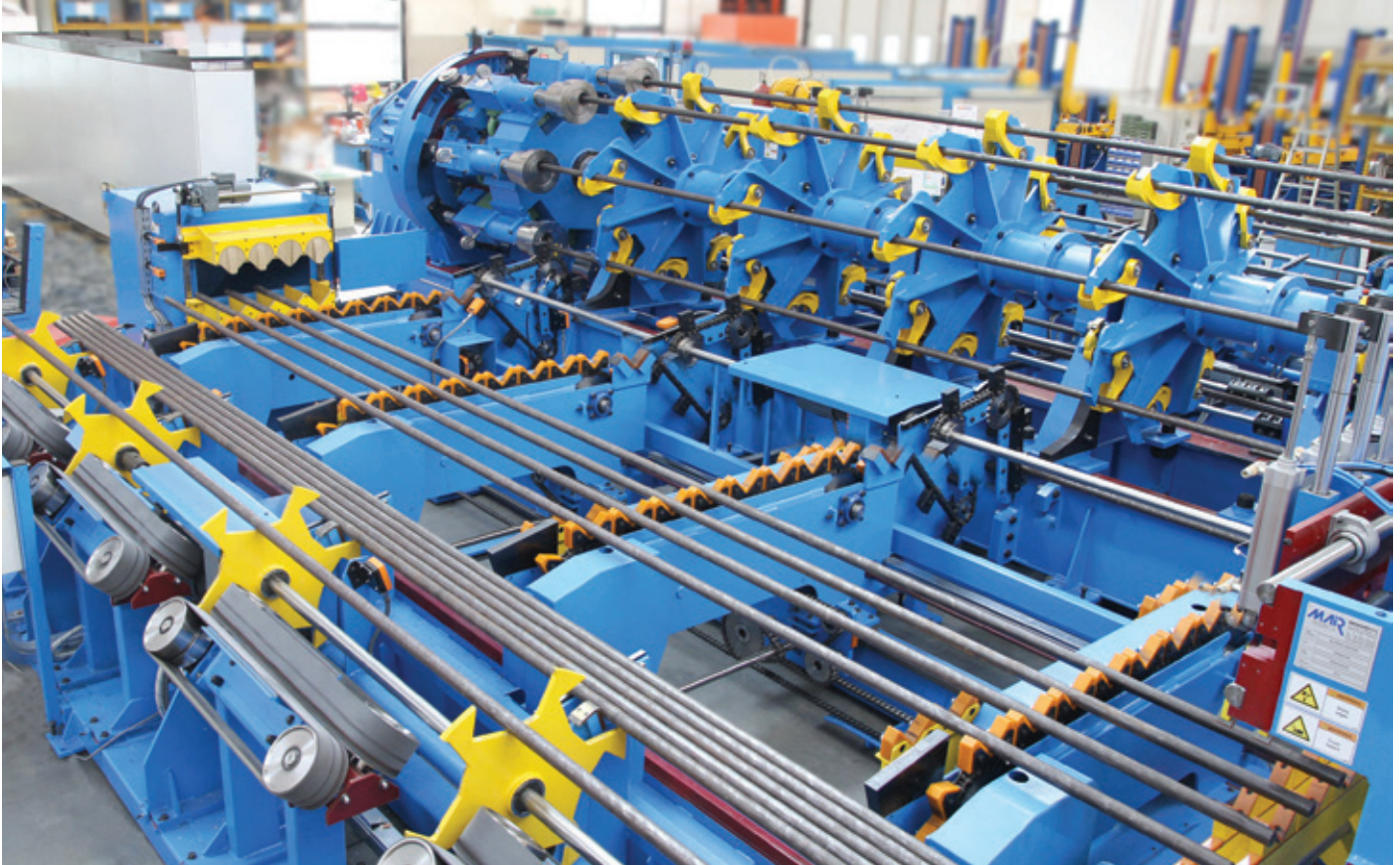
Visit Stand E35 in Hall 7 at EMO to find out more about the specialist in the long load handling sector.

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



Visit us at Fabtech

6 - 9 November 2017



Rotative Hydrostatic testing machine with blow out exit for CW (Continuous weld tube mill)



Double head chamfering machine and triple packaging unit exit for CW (Continuous weld tube mill)

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battenfeld-cincinnati strengthens sales team

MARKO Koorneef has been named the new director of sales for battenfeld-cincinnati USA. He has 25 years of management and sales experience with global manufacturing organisations within the plastics industry.

Michael Ferlic has joined battenfeld-cincinnati USA as sales manager with primary focus on Latin America.

Mr Ferlic has more than 20 years of sales experience, successfully managing teams delivering equipment to the plastics industry into the European, North American and Latin American markets.

Peter Hammer has worked for battenfeld-cincinnati for many years, most recently as vice-president technology at battenfeld-cincinnati Austria and general manager service and chief quality officer at battenfeld-cincinnati.

He is now based in Florida, USA, and has taken over the position of vice-president special projects for North America for construction applications.

Albert Fuerst also comes from battenfeld-cincinnati Austria, where he has worked as director of service. He will use his experience at battenfeld-cincinnati USA as manager of after market sales and service.



Michael
Ferlic



Peter
Hammer

Mark Mulone has accepted the position as sales manager infrastructure for North America. He has an extensive 25-year career in plastics and extrusion sales for North and South America. He has a wealth of experience in business development and account maintenance as well as experience in both domestic and European equipment manufacturing.

"I am confident that as we build and expand our team we will bring experience and market knowledge to respond quickly and efficiently to our

customers' needs," said Paul Godwin, president and CEO of battenfeld-cincinnati USA.

battenfeld-cincinnati is a producer of energy-efficient, high-performance extruders and complete extrusion lines according to customer-specific requirements, with production facilities in Germany, Austria, China and the USA, as well as an extensive worldwide sales and service network.

battenfeld-cincinnati – USA
Website: www.battenfeld-cincinnati.com

The dynamic sawing method from Behringer

AT EMO 2017, the sawing specialist Behringer will present the new HBE663A Dynamic band saw machine with an extended material feeding axis of 1,500mm or 3,000mm per stroke.

With a cutting range of 710 x 660mm and a robust design, the machine is suited to cutting solid materials and heavy bundles, as well as for aluminium. It ensures a smooth transport of even strapped bundles, by moving off the material vices at the fixed vice side. It thus covers an extensive field of application in the steel trade, mechanical engineering and petrochemical industry.

You can visit the company at EMO at Booth D8, Hall 15.

Behringer GmbH – Germany
Email: info@behringer.net
Website: www.behringer.net



The HBE663A

Tube machinery challenge for Termomacchine

THE Termomacchine Tube Division (TMTD) has been newly created to supply the latest high frequency generators and related technology to the tube industry as well as the complete range of consumables for tube welding, tailored for each customer to maximise output, minimise electrical costs and to increase production yield.

The agreement with LB Sidertech, represented by Luca Briganti as worldwide coordinator of sales of TMTD, thus helping to boost the project

from a new separate office, which will be based in the city of Milan, Italy.

A new facility has also been built, almost doubling the production and office space at the headquarters in Rivalta, Italy. Many new engineers and experts have been hired, with more to follow. As well as a direct sales force, the company is improving its agent network, which will become a worldwide operation.

TMTD has also signed a distribution contract with a Turkish market leader for the distribution of consumables and

tube mill machineries. With its own local stock the company covers the entire territory of Turkey and Cyprus in terms of demand for consumables and HF generators. TMTD is already present with an exclusive agent in the Maghreb area (Algeria, Libya, Morocco and Tunisia). This company is also a partner of many other premium quality machine makers, as well as seeking additional quality-orientated partners.

An agent has already been put in place in Iran with a local company with many years of experience and a reputation for quality. Other areas and customers will also soon be represented by agents worldwide.

TMTD is particularly interested in hearing from those with specific technical problems that need solving or where the quality of current products needs to be significantly improved.

Termomacchine Srl – Italy
 Email: lucabriganti@termomacchine.com
 Website: www.termomacchine.com



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Venjakob to unveil surface technology

AT FABTECH 2017 in Chicago, Venjakob – a German manufacturer of complete finishing lines – will demonstrate its expertise in coating via its US and Canadian subsidiaries Nutro Inc, located in Ohio, and Venjakob North America Inc in Ontario.

The main emphasis is on the flexible entry-level model in automatic spray coating – the Ven Spray Mini – and on a coating solution consisting of a spray robot and a chain-on-edge conveyor system. Both will be exhibited at booth A6484.

In addition to the established dry separation systems in the finishing industry, Venjakob will be introducing an entirely new dry separation system at the trade show.

This system combines the advantages of a dry separation system (low purchase and operating costs, no unpleasant odours due to breakdown products) and the familiar arguments in favour of the water-backed system (clean booth and constant exhaust air capacity).

The new design is suitable for high and low paint throughput, and for high-quality finishes. The new dry separation system is suitable for different paint systems and can be tested by potential customers in cooperation with their paint suppliers at Venjakob's in-house demonstration centre in Germany.

Venjakob/Nutro provides innovative coating solutions for different kinds of workpiece materials and geometries and has acquired cross-industrial knowledge in developing finishing solutions over several decades in business. It is also a specialist in exhaust air filter systems, eliminating harmful organic substances and odours (VOC abatement).

It specialises in complete system solutions such as pre-treatment including cleaning and activating, painting, industrial process automation, drying and

exhaust air filtering. These customised solutions are established in the following industries: automotive industry (interior and exterior), building site (fibre cement and acoustic ceiling panels), steel and metal (sheets, tubes and pipes), ceramic, glass, plastic, wood furniture and aerospace.

Venjakob – Germany
Website: www.venjakob.de



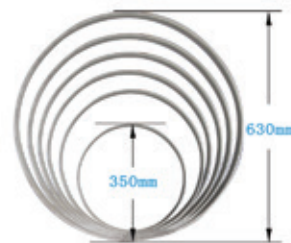
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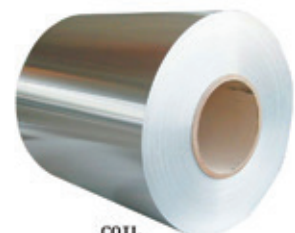
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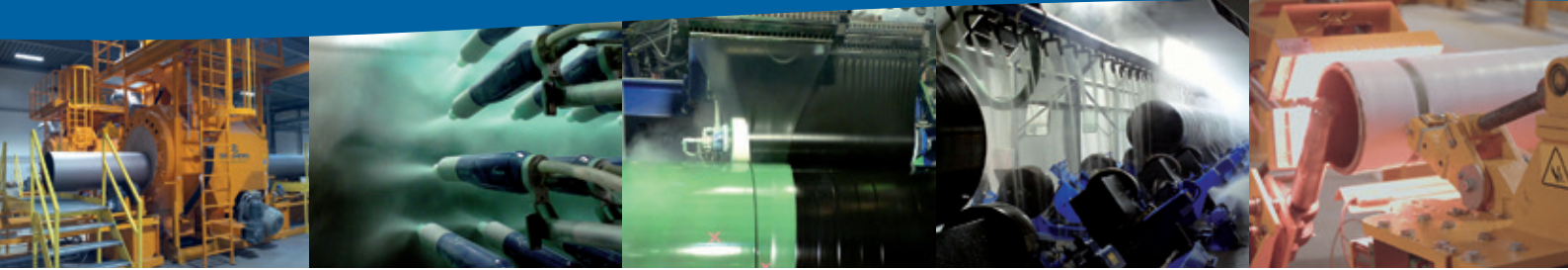


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ESAB to demonstrate high-tech welding

ESAB Welding & Cutting will be on stand 10F04 in Hall 10 at Schweissen & Schneiden, which takes place in Messe Essen, Germany, from 25 to 29 September 2017.

The company will have a number of high-tech products and systems on its stand, many of which will be demonstrated live so visitors can see them in action for themselves. Knowledgeable, experienced staff will be on hand to explain the technologies and discuss end-user applications.

ESAB will have live demonstrations with its new Excellerator pre-engineered robotic cell, which will show various MAG welding processes as well as featuring ESAB's Swift Arc Transfer (SAT) high productivity welding process.

ESAB will also have live demonstrations of the Gantrac 300 gantry-based welding system with ICE submerged arc welding (SAW) and Aristo® 1000 AC/DC power sources with Marathon Pacs of wire and BlockPacs of flux. Demonstrations will be performed both with automated spiral cladding and welding, both in narrow and normal V-joints. Further live demonstrations will include high-deposition cladding with 60mm stainless steel strip. ESAB will also display a number of different welding tractors, welding heads and accessories for automated welding.

A major focus of the ESAB stand will be automated bevel cutting; there will be live demonstrations of both the new DMX automated plasma beveller and the three-torch global oxy-fuel IR-VBA. Both systems are installed on ESAB's new Suprarex HDX heavy-duty large gantry cutting machine, which will

Training to use the ESAB equipment



also be equipped with ESAB's iSeries plasma system.

The new DMX automated plasma beveller is a reliable, easy-to-use, compact bevel system designed for safe, high-quality plasma bevel cutting. DMX offers enhanced reliability and advanced collision sensing that easily detects and absorbs a torch crash, then automatically resets without touching the torch. This non-breakaway system enhances operator safety by eliminating dangerous operator tasks.

The compact DMX design can be mounted on smaller gantries, making bevel cutting more affordable and saving valuable floor space. DMX also includes SmartBevel Technology to simplify bevel programming and deliver consistent, accurate results.

The three-torch global oxy-fuel IR-VBA is used for complex bevelling on thicker mild steel plate.

The infinite rotating system features programmable bevel angles and offsets, which can change on-the-fly in order to cut variable bevels, or automatically change bevel geometry during a program. This design offers high productivity for customers cutting complex bevels on mild steel up to 75mm thick.

The iSeries is an advanced power supply, providing cost-performance benefits and with customers having the option to upgrade the unit as their requirements grow and they need more cutting power. Also incorporated within iSeries systems, the Water Mist Secondary (WMS®) process produces superior cut quality and a lower cost-per-cut on non-ferrous materials.

ESAB Welding & Cutting – UK
Email: info@esab.co.uk
Website: www.esab.co.uk

Commissioning and ramp-up of hot leveller

ARCELORMITTAL Galati has commissioned and finalised the ramp-up of the new hot leveller serving its heavy plate mill no 2. This project was part of an extensive technical upgrading programme currently underway at the rolling mill and at the steel melting shop.

"This investment solidifies our position in the plates market as we can now deliver new and better products with better services for customers," said Bruno Ribo, chief executive officer of

ArcelorMittal Galati. The new plate leveller replaced a machine that had been operating for more than 30 years, increasing the overall performance in terms of productivity, quality, consistency of flatness in the finished products and operational safety.

With 80 per cent more levelling power and advanced automation, the new Danieli hot leveller also ensures the production of a higher range of thicknesses and qualities for plates

used in applications such as energy pipes, shipbuilding and construction.

The project and construction works were carried out without disruption to ongoing production, and without any safety issues.

ArcelorMittal is currently operating another Danieli high-performance hot leveller installed at Gijon plant, in Spain.

Danieli SpA – Italy
Website: www.danieli.com

FFX MILL

High Performance Tube Forming Mill



1. Common-use roll technology

- Possible to manufacture the pipes from large to small diameter (O.D. ratio 1:3) without roll change.
- Highly accurate roll positioning by NC control.

2. Excellent forming function

- Control of forming curvature by the rolls with involute curve profile.
- Stable forming by embraced bending method.

3. FEM simulation technique

- Unique development of analysis softwares in consideration of intrinsic characteristics of roll forming.
- Construction of parallel simulation system that makes high speed and large scale analysis possible.

Ambrell to highlight Ekoheat technology at trade shows

AMBRELL Induction Heating Solutions is exhibiting at both EMO Hannover and FABTECH 2017.

Its Ekoheat® induction heating systems with VPA Technology™ will be highlighted at both trade shows. The Ekoheat product family has been designed with Ambrell's exclusive Versatile Performance Architecture (VPA). This includes an innovative feature set that provides versatility and product performance.

Ekoheat VPA systems are available in a wide array of models to cover a broad spectrum of applications. Models range from 10 kW to 500 kW with frequencies from 2 kHz to 150 kHz.

Incorporating this architecture, the control and power delivery intelligence is standardised throughout the product line using a common set of circuit components. Additionally, the spare board set addresses all models using

stored and easily transferred application attributes. Ekoheat VPA systems are parallel resonant so generators can be located more than 30m from the application, and each one offers true, high-resolution RF power control. They all include wide impedance RF transformers for application matching and are equipped with an automatic scan feature that sets the appropriate initial frequency and determines the best RF setup.

True digital tuning provides accurate part heating, resulting in excellent repeatability. Finally, Ekoheat VPA systems offer 100 per cent duty-cycle for demanding, automated processes.

Ekoheat systems have been used for numerous tube and pipe applications. Examples include tube and pipe coating curing, pre- and post-weld heating, hot pipe bending and drill pipe heat treatment. Ambrell will exhibit in hall 11,




stand B02 at EMO Hannover, and stand B10020 at FABTECH.

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Tube mill & finishing line capable of producing **API 3" to 12" OD x 18t & API 8" to 24" OD x 20t** pipes, developed with advanced technology and verified through continuous R&D based on extensive field experience accumulated **over 40 years in the tube mill & finishing line sector.**



i-Special Forming System uses an edge forming method which gives an advantage over conventional forming facilities. As the strip edges contact each other in an "I" shape on the squeeze stand, it secures excellent welding quality, and it is capable of forming various sizes without changing the roll. In particular, it is excellent for the forming of heavy wall high-strength pipe.

Available size : 4"~12" x 14t, API X70
8"~20" x 16t & 12"~24" x 20t, API X70



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

As it connects the two ends on an improved 40° groove by bevel cutting, this results in excellent strength of the joint, maintaining the welded surface beautifully as the ends are welded. It also boasts a short welding cycle time, and a longer life of the Z-shape cutting blade.

Available size :
3"~12" x 16t & 8"~24" x 20t

Milling Cutter boasts a precise control system, excellent design, optimum cycle time, a high quality cutting face, and long life of the cutting blade.

Available size :
3"~12" x 16t & 8"~24" x 20t



End Facer & Hydrostatic Tester

2"~6" x 500bar Four Head
4"~12" x 700bar Double Head
8"~24" x 500bar Single Head
16"~62" x 350bar Single Head



GLOBAL PATENT

- i - SPECIAL FORMING SYSTEM (2014)
- CASSETTE TYPE ROLL CHANGING BOX (2012)
- INSIDE BEAD REMOVING E/Q (2012)
- BEVELLING CUT IN SHEAR & WELDER (2011)
- ROLL CHANGING METHOD IN TUBE MILL (1996)

Cassette Type Quick Changing System

enables fast and easy replacement of the roll by pre-assembling the roll before replacing it on the Cassette Box.

Available size :
3"~12" x 16t & 8"~24" x 20t



MAJOR SUPPLY LIST

- Supplied 20" i-Special Forming Stand to AJU Besteel Co., Ltd. (2014)
- Exported 20" API OCTG Pipe Threading Line to SAUDI Steel Pipe Co., Ltd. (2013)
- 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)
- Supplied 12" tube mill line and finishing equipments on full turn-key to HUSTEEL. (2004)
- Exported 24" end facing to NKK (JFE) in Japan. (2002)

We provide API, high-strength and high-end tube mill line and an advanced finishing line alongside the latest technology on a turnkey basis.

- Tube Mill Line Capable of Manufacturing up to 24"
- 6-Roll, 7-Roll, and 10-Roll Straightening Line
- Max. 2-Head Automatic End Facing & Beveling M/C
- Max. 5-Head, 700bar Hydrostatic Tester
- Automatic and Semi-automatic Bundling M/C
- Related Equipment and Facilities to Comply with API Standard

FABTECH 2017 to showcase advanced manufacturing technology and innovation

THE latest innovations in metal forming, fabricating, welding and finishing will be on show at FABTECH 2017, North America's largest event showcasing those industries. The event is being held at Chicago's McCormick Place from 6 to 9 November. The expo is expected to attract more than 50,000 attendees and 1,700 exhibiting companies.

FABTECH 2017 features the largest lineup of exhibitors, speakers and educational sessions in the event's 35-year history, taking place across more than 750,000ft² of exhibit space. That includes a series of TED-style talks, dubbed 'FABx Tech Talks', by visionary leaders who are shaping the future of manufacturing.

"Each year, the best in the metal fabricating industry exhibit at FABTECH," said Mark Hoper, FABTECH show co-manager and FMA SVP of expositions and media.



"Holding the show in Chicago, in the heart of the Midwest, enables greater attendance from all manufacturing partners. Attendees can expect to discover the newest innovations, network with potential business partners and gain insight into the latest industry developments and trends."

New this year at FABTECH 2017 will be an expanded Tube & Pipe Pavilion and 3D/Additive Manufacturing Pavilion giving visitors the opportunity to explore

more technology than ever before. The expanded Tube & Pipe Producers' and Suppliers' Pavilion – a collaboration between Messe Düsseldorf and FABTECH – will create the largest annual gathering of tube and pipe equipment users in North America.

In addition to the technology on the show floor, FABTECH 2017 will offer a host of networking opportunities, including an Industry Night celebration to be held on Tuesday, 7 November at Chicago's Soldier Field.

FABTECH is North America's largest collaboration of technology, equipment and knowledge in the metal forming, fabricating, welding and finishing industries, and provides a hands-on, face-to-face networking and trading experience.

FABTECH 2017 – USA

Website: www.fabtechexpo.com



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The TCC-series can handle tube wall thickness up to 2,5 mm (.100") and there is several models available for different applications. The T-DRILL Chipless Cutting Technology is applicable to aluminium, steel, stainless steel, copper, brass and coated materials.

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Single Blade Flying Cut-Off | Special Profiles Series

SB4-SP

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This special flying cut off has been developed to **cut special profiles** made in stainless steel. Due to the holes pattern present, the profile is very unstable. For this reason, **Adda Fer developed special clamps actuated with independent cylinders** for inlet and outlet clamp and special internal vices **in order to reduce the vibrations of the profile during the cut.** The carriage has been provided with an **integrated coolant system** that permits to collect the liquid, filter it and re-use for the cutting.

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Hypertherm wins awards from EPA and Manufacturing Institute

HYPERTHERM, a manufacturer of plasma, laser and waterjet cutting systems, has announced its selection as an Environmental Merit Award recipient from the US Environmental Protection Agency (EPA). The award, presented annually, recognises outstanding environmental advocates in the New England region for making significant contributions toward preserving and protecting natural resources, and ensuring New England remains a vibrant community with clean air, land and water.

The company is one of four honourees from New Hampshire and eight businesses in New England to receive the award. In selecting Hypertherm, an independent EPA panel looked at the company's work to identify and measurably improve its environmental impact, replicate its sustainability programmes, and share its model with other organisations.

Achievements cited include Hypertherm's success in reducing its landfill waste to 2.2 per cent last year, as well as the company's work to increase the energy efficiency of its operations by 30 per cent and reduce its operational carbon impact by 50 per cent. In addition, the EPA considered Hypertherm's use of life cycle assessments and a 'design for sustainability' scorecard to reduce the environmental impact of the products it manufactures and sells.

Separately, Hypertherm also announced the selection of Robin Tindall, its environmental stewardship manager, as a Women in Manufacturing STEP (Science, Technology, Engineering and Production) Ahead honouree. The STEP Ahead Award, presented by The Manufacturing Institute, honours women who have demonstrated excellence and leadership throughout their careers. It examines and promotes the role of women within the industry through recognition, research and leadership. As the company's environmental stewardship manager, Ms Tindall is a driving force behind its work to deliver value through sustainable engineering by convening associates around specific environmental challenges.

Additionally, Ms Tindall is central to achieving aggressive goals outlined in Hypertherm's 2020 Sustainability Dashboard. These goals encompass the waste, energy efficiency and carbon impact of the company's products, logistics and business operations. At the same time, she is passionate about sharing her knowledge with others by mentoring and coaching team members and volunteering for causes that engage young women in engineering and STEM work.

Hypertherm's product line includes plasma, laser and waterjet cutting systems, in addition to CNC motion and height controls, CAM nesting software, robotic software and consumables.

Hypertherm Europe BV – Netherlands
Website: www.hypertherm.com

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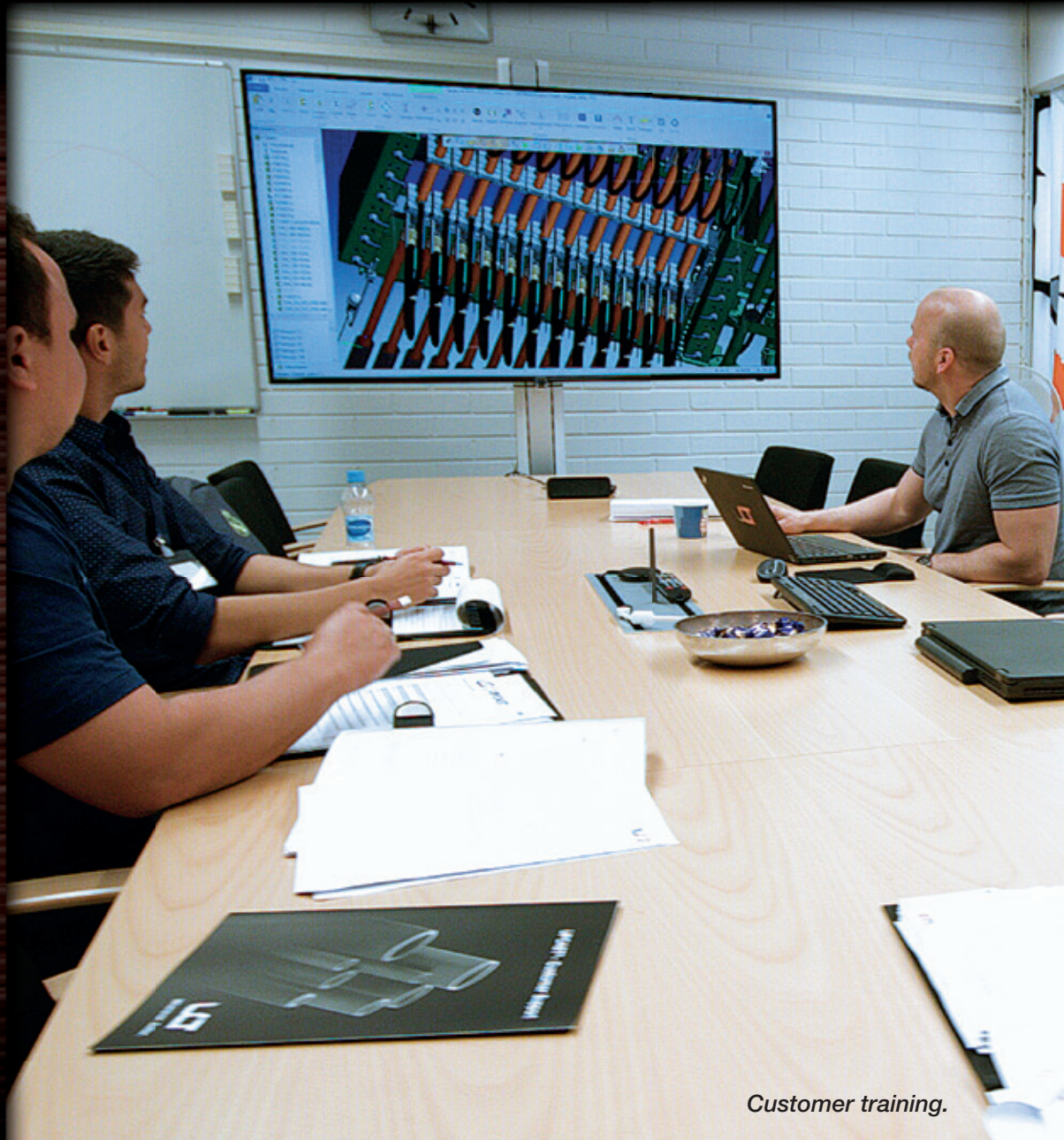
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New head of machine tech at KraussMaffei

DR Stefan Kruppa has been appointed head of the machine technology department at KraussMaffei in Germany. He will take over from Dr Reinhard Schiffers, who will succeed Prof Dr Johannes Wortberg as Chair for Design and Plastics Machines at the University of Duisburg-Essen.

Since 2010 Dr Kruppa has been working as a development engineer and project manager in the machine technology department at KraussMaffei. In 2015, he obtained his PhD from the University of Duisburg-Essen with a thesis on the 'Adaptive process control and alternative injection concepts for the injection moulding of thermoplastics'.

Dr Kruppa sees the aim of his task to be the development of new intelligent systems and solutions for injection moulding machinery. Within this framework, he will also be in charge of activities involving Industry 4.0 for the injection moulding machinery

segment, which KraussMaffei brings together under the name Plastics 4.0. "We are delighted to have gained the services of Dr Kruppa, an experienced developer and visionary in digital plastics processing, as head of the machine technology department. Due to his excellent personal and technical skills, he will help to strengthen and expand this important business unit for KraussMaffei," said Dr Hans Ulrich Golz, president of the injection moulding machinery segment at the KraussMaffei Group and managing director of KraussMaffei Technologies GmbH.

The current head of the machine technology department, Dr Reinhard Schiffers, left KraussMaffei on 1 August. Dr Schiffers has been at KraussMaffei since 2009, initially in research and development, and since October 2012 as head of the machine technology department. With his appointment as Professor at the University of Duisburg-



Dr Stefan Kruppa

Essen, he will return to a familiar location: It was where Dr Schiffers studied mechanical engineering and, in 2009 under Prof Wortberg, submitted his PhD thesis.

KraussMaffei Technologies GmbH – Germany
Website: www.kraussmaffeiberstorf.com



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transfluid intensive practical workshops

ADVANCED tube processing machines that deliver the latest tube solutions are extremely complex. To grasp all of their technological and value-added features and functions while also providing optimal support, even the most experienced service professionals need to attend training workshops regularly.

For transfluid, a high-tech international machine manufacturer, this combination of regular training workshops and practical knowledge building is a fundamental principle. That is why the company recently invited the employees of its sales and service partners in the USA – Advanced Fabricating Machinery and Modern Machinery – to its German headquarters in North Rhine-Westphalia.

It was the first time that employees of Modern Machinery had visited the company headquarters. Modern Machinery has been assisting transfluid customers in Ohio, Indiana, Kentucky and Michigan since 2016. For many

years, Advanced Fabricating Machinery has been providing on-site support for US transfluid customers, covering primarily the East Coast region all the way to Georgia and Tennessee.

“We are very pleased to welcome our American partners here for the service training workshops and, naturally, would like to thank them for attending. For outstanding service in the US it is very important to us to share information in person and to transfer knowledge. This helps all of us to advance together. Our customers, particularly in the US, will benefit from this. And that, of course, is our main priority,” said Stefanie Flaeper, CEO of transfluid.

The intensive training workshops focused on tube bending and tube forming machines, cutting tubes or pipes cleanly without chips using t cut machines; and lastly, the options and benefits of tailor-made transfluid automated systems for tube processing that meet specific customer needs. In view of the strong increase in its



customer base in the USA the recent training workshops offered by transfluid have once again improved the services expertise of its partners. Within their respective regions both Advanced Fabricating Machinery and Modern Machinery can now respond to support requests within 24 hours, ensuring immediate service for transfluid customers in the USA.

transfluid Maschinenbau GmbH – Germany

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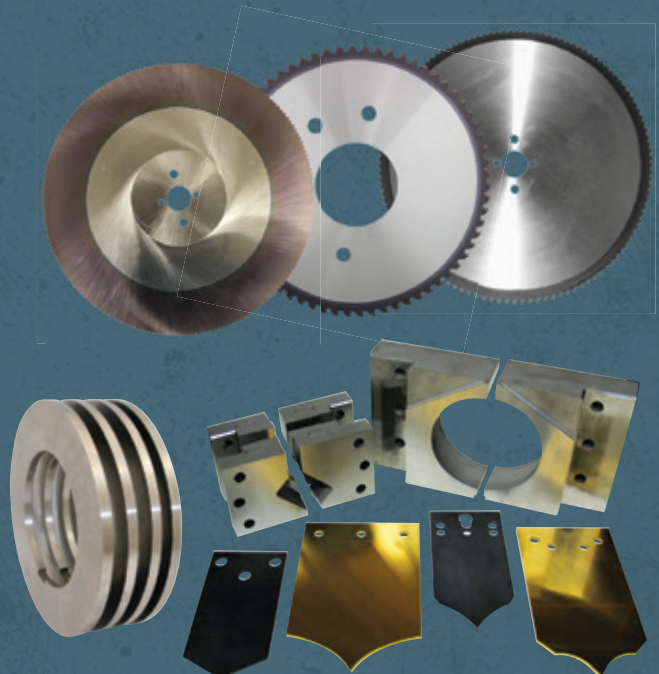
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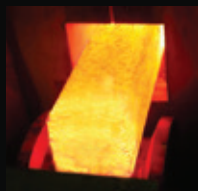
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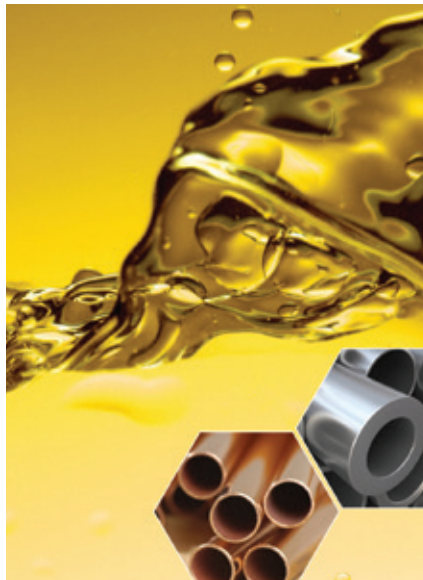
Enhanced aluminium tube drawing at Tubotech

CONDAT has earned an international reputation for supplying lubricants to the steel wire industry with its brand name Vicafil™, and the company has used its 160 years' expertise in lubricant technology to develop a comprehensive range of products dedicated to the electrical wire and cable market. It has now also developed lubricants specifically for tube drawing.

Among a range of neat oils, soluble and vanishing lubricants, Condat will highlight at wire South America an innovative and effective new lubricant.

Vicafil TFA 1460 has already provided results for customers drawing aluminium, in particular on drawing from rod to diameters of 1mm. Designed to offer both low residues and extended operating life, its specifically formulated additives package minimises thermal oxidation and maintains longer lubricant performance.

The bath life is increased and maintenance costs are reduced. Thanks to its low viscosity, Vicafil TFA 1460



reduces lubricant consumption while offering high lubricity and increased die life.

Vicafil TFA 1460 is also compatible with the insulation process and has

the advantage of being a chlorine-free, semi-synthetic lubricant: a step forward to 'user-friendly lubricants' and an environmentally responsible technology.

Tubotech 2017 is a perfect opportunity for Condat to show its lubricant specifically designed for tube drawing. The Condatub product range covers most tube forming processes from hot forming to cold forming.

It has been designed to answer specific issues for all metals (carbon and stainless steel, aluminium and copper alloy) and includes hot forming graphite and ceramics dispersions, non-reactive and reactive drawing soaps, pilger rolling and forming soluble lubricants, neat drawing oils and corrosion inhibitors.

Visitors can discover the company's large range of lubricants at wire South America/Tubotech booth number 514.

Condat – France

Email: wire@condat.fr

Website: www.condat-lubricants.com

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ECOmax – Scarf CUTTING HEAVY ID SCARF

The new **ECOmax – Scarf** circular saw blade is customized for cutting tubes and profiles with heavy ID Scarf on flying cut-off units.



Conventional blades are heavily damaged after only a few cuts because they cut the high strength weld bead inside the bottom of the tube.

With a special tooth form and cutting geometry, in combination with a new proprietary coating, the **ECOmax – Scarf** saw blade is the most suitable for this application, on single as on multiple head machines as well.

Successful trials and on-going production usage, have shown the **ECOmax – Scarf** blades achieve up to 7m² of material removal on welded tubes with wall thickness up to 14mm.

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TECHNOLOGY

Straightening line for US tube customer



Echomac 6/6A ultrasonic equipment for weld inspection, flaw detection and thickness and dimensional measurement

MAIR Research has its headquarters and production site at Schio, near Vicenza, Italy, and specialises in the design and manufacture of tube and bar finishing equipment and integrated lines. Over the last 40 years the company has been commissioned to produce a large number of lines for companies in the steel and tube industry.

Within its sites the entire production cycle takes place for all of its equipment, including design, fabrication, assembly and testing in the presence of customers prior to dispatch. Mair Research has designed and installed a

straightening line suitable to process tubes of up to 330mm diameter with 30mm wall thickness and 1,250N/mm² yield strength for a customer in the USA. These tubes are employed by the end user for purposes where high quality and resistance are vital.

The straightening process is carried out with a machine equipped with five pairs of rollers, with each pair composed of two opposite rollers that are adjustable in height and angle.

These rollers, placed in rotation and following a specific path, will force the tube to undergo a combination

of bending and crushing during the rotation and transit. To deform a tube of similar characteristics it is necessary to employ rollers of 1.5 tons with drive power up to 750kW.

The machine is composed of two welded and machined main structures, one upper and one lower, connected by columns in order to obtain one rigid structure that can easily be disassembled for transportation.

Mair Research SpA – Italy

Email: salesdept@mair-research.com

Website: www.mair-research.com

Full penetration welding technology

K-TIG is a welding technology company based in South Australia. The company claims that its new high speed, full penetration GTAW welding technology has productivity, cost and quality advantages over existing processes, particularly in stainless steels and other corrosion-resistant materials.

K-TIG welds are performed in a single, full penetration pass up to 13mm (½") in stainless, duplex, super duplex, Hastelloy, Inconel, Nimonic and other

corrosion-resistant materials and super alloys, and up to 16mm (5/8") in titanium, zirconium and other reactive metals.

The process requires no edge bevelling and no wire (although wire can easily be added). It uses as little as ten per cent of the gas normally required, and produces repeatable, X-ray quality welds.

The K-TIG process involves a specially controlled high current arc that opens a full penetration keyhole in

the joint between the two surfaces to be welded. It provides high stability and operates over a wide range of welding currents and travel speeds.

It was developed by the Australian Government's Commonwealth Scientific & Industrial Research Organisation (CSIRO).

K-TIG – Australia

Email: sales-enquiry@k-tig.com

Website: www.k-tig.com

More power in a smaller cabinet

EFD Induction has introduced the world's first 1,000kW single-cabinet induction welder – the first of its kind in terms of power-to-volume ratio. According to the company the new Weldac 1,000kW offers less power consumption, better weld quality and easier operation.

EFD Induction specialises in developing equipment with the best power-to-volume ratio possible. With the introduction of Weldac 600-1,000kW it can now offer up to 1,000kW in a single-cabinet solution.

Weldac is part of EFD Induction's family of high-output, solid-state tube and pipe welders. It is a proven solution used over many years for welding low-

carbon high-strength steel, stainless steel and aluminium.

The Weldac builds upon EFD's extensive process and applications knowledge and decades of international experience in solving tough welding challenges.

The Weldac covers a wide range of power sizes: from 50kW low-power welders up to 2,200kW high-power welders. All Weldac systems are backed by EFD Induction's extensive worldwide service and support programme.

A modular design makes Weldac 1,000kW compact, saving valuable floor space and simplifying in-line integration and retrofitting. A 34 per cent smaller

footprint from EFD's previous design makes it even easier to install and maintain.

Faster installation results in reduced costs and retrofit downtime as well as reduced delivery time on higher power. Running costs are also lower due to low power consumption.

What is known as 'harmonic distortion' is a growing concern, because the proliferation of non-linear loads causes disturbances that impair equipment performance and affect total voltage supply. A 12-pulse rectifier reduces this by 50 per cent, resulting in a more even temperature and a better weld quality.

The Weldac offers high total efficiency measured from the mains inlet to the weld coil. In combination with the 12-pulse rectifier, this minimises power and cooling-water consumption.

The Weldac 1,000kW has longer coil lifetime, resulting in minimal scrap and re-working of material. This further strengthens EFD Induction's eco-friendly welding policy.

The Weldac 1,000kW is easy to operate, with a minimum of manual settings. Operation is via an easy-to-use control panel. Minimal operator intervention results in fewer operator errors and, consequently, increased throughput and efficiency.

EFD Induction — Norway
Email: eni@efdgroup.net
Website: www.efd-induction.com



Weldac 1,000kW

Burrmaster Rotoburr from Kent Corporation

KENT has developed a new Burrmaster Rotoburr to complement its full line of tube end deburring machines. The new system is designed to remove the burr from the ends of tube, roll form and welded shapes.

The new, more economical machine is manually loaded with deburrs one

end at a time. The steel deburring brushes rotate at high RPM while the entire brush head rotates a full 360° to deburr every edge and corner. The burrs from cut off saws and shear blades are also removed, for safer part handling. Large, more automatic machines are also available, which

can be loaded directly from the mill or manually. The parts are then picked up one at a time and transferred through the machine by chain driven fingers.

Kent Corporation – USA
Email: sales@kenttesgo.com
Website: www.kenttesgo.com

Performance comparison between roll change robot and flexible pipe mill

NOW that automatic roll change has become the first choice of many buyers, the performance comparisons between the robot and flexible pipe mill are as follows, according to Dalian Field:

- The roll change robot keeps the original features of an agile pipe mill and product variety but without any restrictions. There are a lot of restrictions when using a flexible pipe mill because the roll cannot be changed freely and a variety of products cannot be produced.

- Factory space and labour costs are increasingly high and the production line is more and more expensive because

of the rising cost of automation. The production of higher specification products with the smallest and most efficient pipe mill will soon become a mainstream customer demand. It is very easy for a pipe mill with a roll change robot to create products with a wide number of potential specifications, but it is difficult for a flexible pipe mill to do the same.

- Roll cost for flexible pipe mills is higher than that of normal pipe mills. When compared with a roll change robot, roll disassembly time and shut-down time for a flexible pipe mill will be longer.

From the above analysis it is not difficult to see that the robot not only keeps the existing pipe mill with its advantages of simple structure, reliable and convenient operation and easy maintenance, but also realises the automatic change of specifications. Therefore the future mainstream of pipe mill is the roll change robot, not flexible pipe mills.

Dalian Field – China
Fax: +86 411 83192716
Email: fd@fdmachinery.com
Website: www.fdmachinery.com

A roll change robot



Testing, measuring and quality control

CONTRÔLE Mesure Systèmes (CMS) is a specialist in non-destructive testing, and with its complete NDT range of products in eddy current, ultrasonic and measuring methods the company can supply solutions for most industrial applications.


CMS's product line is designed to meet inspection, testing, measuring and quality control on both ferrous and non-ferrous products in steel, copper, alloys, carbon steel, stainless steel and

aluminium. All the systems (on- and off-line) meet quality standards such as API, ASTM and DIN.

Based on its RotoUTscan ultrasonic rotating head the latest product from CMS, RotoUTDim is designed for dimensional measurements of tubes and cables from 4 to 250mm diameter in the production line. Measurements are performed all around the product, with more than 500 measurements per turn. RotoUTDim measures in real time and

in 360° the wall thickness and coating thickness, ID, OD, ovality, concentricity and eccentricity. A wide range of industrial applications are covered, including nuclear, automotive, precision tubes and cables, medical, and multi-layer coating.

Contrôle Mesure Systèmes – France
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Expanded range of closed chamber welding heads

THE Schweissen & Schneiden trade fair provides members of the welding industry with the opportunity to present their latest innovations to the market.

The event is an excellent opportunity for Polysoude to demonstrate its latest developments in both the orbital welding and automated cladding industry. These are changes in technology that have been driven by the desire to satisfy specific customer requirements.

With recent global economic difficulties a significant investment in technology requires a quantifiable improvement in productivity in return, as well as ease of use and a boost to product quality. Schweissen & Schneiden is an opportunity for Polysoude to showcase these advances.

In order to meet these demands Polysoude has expanded its range of closed chamber welding heads with the new MW 34, which has an application range of 6 to 34mm. Like the other welding heads from this series, the MW is easy to use, with the controls placed directly on the handle of the head and a high duty cycle, which meets growing market demand.

The MW welding head not only reduces the radial space requirements of the micro-fittings industry, but also the quality requirements of the pharmacology and food industries. Another advantage of the welding head is the casing (TCI), used for all closed chamber welding heads by Polysoude.



Closed chamber welding heads

It is made of titanium and this allows a response to variations in temperature on the outer diameter of tubes. By using titanium Polysoude is in a position to provide a lifetime casing warranty and can also help to avoid performance loss over time in comparison with aluminium casing.

Polysoude has also revealed the TS 8/75-2 – the latest in a series of tube-plate welding heads. Several welding heads can be used simultaneously thanks to the compact and ergonomic design of the double handle with integrated welding and clamping controls. This welding head has an enhanced level of automation with its integrated AVC. With this new series even tubes with a lower value can be welded in assembly with the new clamping/centring system.

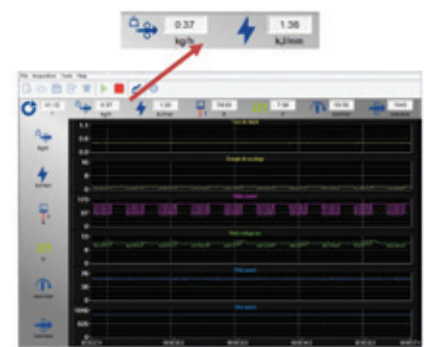
The close collaboration between users in the field and the research and development department has resulted in the creation of the DAQbox: a new concept combining data acquisition with functions enabling the optimisation of productivity while ensuring a reproducible quality weld.

The core function of the DAQbox is data acquisition – an essential tool for production monitoring as part of the quality process. Polysoude has added features that provide the welder and also the quality department with enhanced monitoring of the welding process.

The welder can now simultaneously monitor the smooth functioning of the welding process and respect the operating procedure, while also closely following the deposit rate and monitoring the levels of welding energy that are being used. In a single click the operator can choose the type of setting to be displayed and at all times return to the original settings.

The installation is performed very simply with the use of a USB2 stick with a free software licence. There is no need for an Ethernet network. This way the data saved during the complete welding cycle can be read on any PC in order to validate production.

In comparison with data acquisition systems currently available on the market, which consist of only six measurements (current, voltage,



rotation speed, wire speed, hot wire current and gas flow), the DAQbox proposes the following additional data acquisition: temperature measurement, welding energy, wire deposition rate and linear and analogue channels are increased to 15 (previously five) and are customisable by the user according to the process requirements. Polysoude exports more than 85 per cent of its equipment abroad. Non-Latin languages such as Russian and Chinese are also available.

A major concern for manufacturers is the length of time between the decision to install the equipment and the moment the equipment is ready to start production. This is often considered to be too long.

Having engaged in years of development and feedback Polysoude has widened its approach to meet shorter deadlines even for more complex of configurations.

The new Polysoude catalogue contains solutions to most automated welding and cladding problems. The company can provide the exact tool to respond to a specific customer problem, providing advice and enabling the implementation of projects without delay.

Polysoude – France
Website: www.polysoude.com

Two-roll straightener for premium quality steel bars

BAOSTEEL Special Metals Shaoguan, China, has entrusted global industrial engineering group Fives to design and supply a Bronx straightening machine to process high-yield, heat-treated premium quality steel bars.

The Bronx PBRV6 two-roll straightener is a fully automatic, motorised machine, complete with ancillary electrical and hydraulic control systems, that is able to process steel bars up to 80mm in diameter at operating speeds of up to 75m/minute. The machine will be designed and pre-assembled at Fives' workshop in the UK and supplied to China at the end of 2017.

"It's a very smart machine: all work roll and guide bar functions are set automatically from the HMI panel, located within the operator's control

desk," said Jane Zhang, Fives Bronx representative in China.

"Advanced heat treatment processes and profile technology enables the machine work rolls to provide greater product straightness and ovality criteria, before re-profiling or roll change becomes necessary."

Fives has been designing Bronx straightening machines since the 1950s. More than 800 of the machines have been designed and supplied in over 50 countries. Bronx bar straighteners are custom-engineered machines suitable for cold- or hot-rolled bars. They provide straightening solutions for virtually any



Bronx bar straightener

material composition, and for sizes ranging from 5 to over 200mm.

Fives – France

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THE core competence of Ingenia, founded in 2001, is the conception, implementation and servicing of partially and fully automated crane, material handling and material logistics systems. In these fields the company's engineers based in Linz, Austria, can draw on decades of process know-how both for

hot-dip galvanising plants of any size and for pre-treatment processes in the steel tube and non-ferrous metals industry.

Ingenia is able to implement both individual components and, as a general contractor, complete turnkey plants tailored to customer requirements, from

greenfield site to finished production hall, all around the world.

The offer includes dimensioning of these plants, an eco-friendly and energy-efficient plant technology, and the optimisation of individual production processes and material flow planning. For the latter, a specifically developed software package has been created that simulates the operation of the control system software and optimises it where necessary, reducing the time for actual commissioning. These developments and tests are carried out at Ingenia's in-house technology centre, which also serves as a showroom for customers.

High capacity hoisting, crane and material handling technology is the heart of each production plant and ensures a smooth process sequence and/or material flow. Ingenia also offers its expertise for applications beyond the usual standard, for example in the field of pickling and painting lines.

Ingenia accompanies its customers throughout the life cycle of the plants. The services offered comprise the procurement of spare parts, regular servicing, ongoing documentation of the state of the plant, and a 24-hour hotline including remote maintenance.

Since February 2017, Ingenia has been part of the ASMAG Group, which is mainly active in the development and construction of machinery and plants for the metals industry in the fields of extrusion, drawing, straightening, cutting, finishing, testing, and stacking and bundling.

By merging forces and technical know-how, Ingenia completely covers the field of handling systems for interlinking production plants, both for galvanising plants and individual plants for the steel and non-ferrous metals industry. ASMAG benefits from the hoisting, crane and material handling technology of Ingenia.

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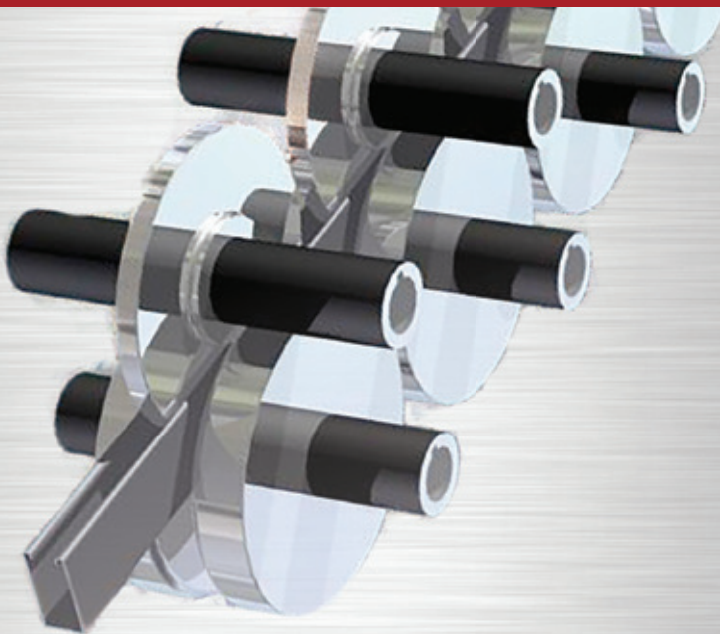
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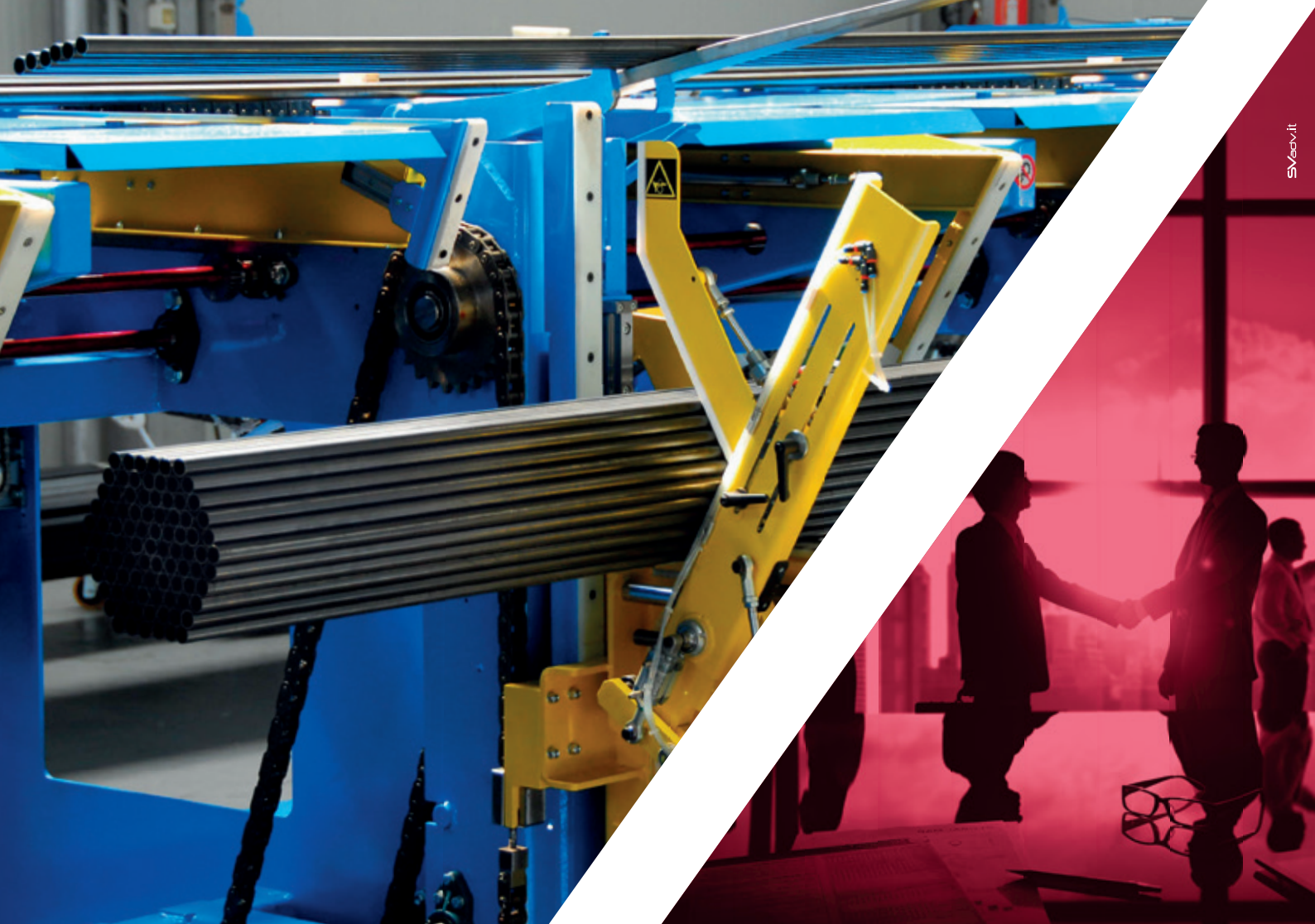
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Barnshaws section benders used on stadia

THE stadia that host English premier-ship football matches are often seen as the physical representations of the sporting and financial battles in one of the world's most competitive leagues.

Etihad Stadium, The Emirates Stadium, Selhurst Park and Old Trafford all incorporate curved structural steel from metal bending and fabrication expert Barnshaws Section Benders.

Supplying steelwork for stadia is one of the most demanding applications for structural steel.

The high safety requirements place stadia at CE Execution Class 3, one of the highest quality certifications for structural steel. Due to their size, a large capacity is required to deliver typically hundreds of tonnes of sections to what are often exacting deadlines on each project.

Stadia builds and upgrades are usually required to be finished before major events or at the beginning of a season, so that the investment made by clubs can be quickly recouped. Barnshaws Section Benders offers both high capacity and extensive production expertise, which has enabled the business to service a wide range of stadium requirements.

Greg North, commercial director at Barnshaws Section Benders, explained how the demands are managed: "Most building projects are managed to strict timescales; new builds have investors to satisfy, refurbishments have shutdowns and redirects contributing to the cost and time pressure. Stadia, however, are a little different; if the ground isn't finished, the game won't be played there, as football fixtures won't wait. Our focus on precision and on-time delivery means that, like a top player, we can add value to a team effort and ensure a good result is delivered."

Projects for Premier League sides have included developing the roof over what is now known as the Sir Alex Ferguson stand at Manchester United's Old Trafford; fabricating the cones for Manchester City's Etihad Stadium; and supplying roof tees for Arsenal's Emirates – all in conjunction with contractor Severfield. Barnshaws also aided in the redevelopment of Crystal Palace's Selhurst Park roof with contractor Archbell Greenwood.

Recent projects include the relocation of West Ham to the ex-Olympic London

Stadium, including its 6,000-tonne roof, and elements for the new Spurs ground adjacent to the original White Hart Lane.

Barnshaws has also been involved with a number of renovations for Championship and Football League sides. Barnshaws specialises in precision curving of ferrous and non-ferrous products. Established in 1969,

the company supplies market sectors such as construction, power generation, mining, transport and general manufacturing with shaped beams, tubes, plate and other profile section materials.

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Duright grows following investment in BLM all-electric benders

UK-based Duright Engineering is a tube cutting and processing sub-contractor and was an early adopter of laser tube cutting in the UK.

The family-owned business is looking to continue its growth strategy, so managing director Ross Taylor decided to diversify and expand the tube bending side of the business. This has resulted in a significant increase in turnover in the last financial year since the addition of two BLM Elect all-electric tube benders.

“We are well known across our key industry sectors of automotive, rail, agricultural equipment and shopfitting



Duright team leader Daniel Ward (left) with engineering manager David Wright at the controls of the Elect 130



The powerful Elect 130 is capable of bending round tube up to 130mm diameter and the equivalent square or rectangular sections



The efficiency of the Elect machines comes into its own on smaller batch sizes

for our tube laser cutting capabilities and we could have opted to expand further on this, but as tube laser accounted for 70 per cent of our business we wanted to opt for a different strategy, and tube bending, particularly larger diameter tube bending, provided an opportunity for a lot of customers, providing laser and bending under the same roof,” said Mr Taylor.

Duright already operates four BLM tube laser machines 24 hours a day and six days per week. The latest of these is the Adige LT Fiber tube laser systems. This combined laser capability allows Duright to process round tube up to 154mm and square rectangular tube up to 120mm section in lengths up to 8.6m.

Duright was one of the first in the UK to adopt fibre optic laser and it is unusual for the tube sector to be leading the flat sheet sector, but when it came to fibre laser the tube industry was ahead of the curve. “We had our first fibre laser from BLM four years ago and we are surprised that people still buy CO₂ tube lasers as we cannot see any downside with fibre, especially on the mix of materials that we are cutting.”

After reviewing the market, the company spotted opportunities to develop by bending larger diameter tube. The decision, therefore, was taken to invest in two Elect all-electric, multi-stack tube benders from BLM. The first to be installed was an Elect 102 machine with capacity to bend tube up to 102mm diameter with a wall thickness up to 2.5mm. This was quickly followed by an Elect 130, which can bend up to 130mm diameter and 3mm wall thickness material. There are many advantages to an all-electric system, namely the elimination of hydraulics, lower power requirement, improved machine setting and component quality.

“Competition is tough in the small diameter tube bending sector and chasing that volume work was not of interest to us,” said Mr Taylor. “However, there are few companies that have invested in larger capacity tube bending and we could see the benefits of going after what may be smaller volume work that would provide better margins.

I would say that we have reduced set-up times by between 50 and 70 per cent compared to our old hydraulic machines, but the biggest advantage that we have seen is in getting the first-off part right.”

Previously it may have been the case that between 10 and 20 parts had to be produced before consistent production was achieved. Now they are guaranteed that the second part off the machine will be exactly to drawing. The saving in material and time is significant. This speed and consistency of set-up fits well with Duright’s ‘just-in-time’ production mentality and with batch sizes varying from 20-off to 1,000-off efficiency in setting the machines is a valuable asset.

An additional benefit to Duright was eliminating the need for hydraulic systems for bending. This has taken away the risk of oil leaks and the need for a pump to be constantly running, which in turn leads to a better and safer working environment. Electric operation also gives greater control over the bending process.

Another factor in the success of the tube benders is the machine control and software system, which provides a seamless crossover between programs for the tube laser machines and the Elect benders. The control also provides detailed feedback to Duright.

“Speed is key when it comes to quoting, but those quotations need to be accurate. To achieve speed and accuracy we invested in a multi-user licence for the BLM software and we gave all of our salesmen training in the application of it. So when a customer sends us a CAD 3D model (STEP or IGES) our salesmen can upload it to the software, which then analyses every option to bend that tube, whether it’s multi-stack, one centreline radius, multiple centreline radii, or variable radius bending, the software confirms if the bend is possible and outputs a reliable cycle time, which leads to an accurate quotation being produced.”

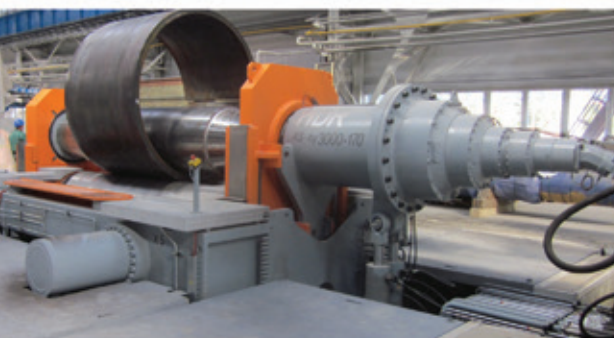
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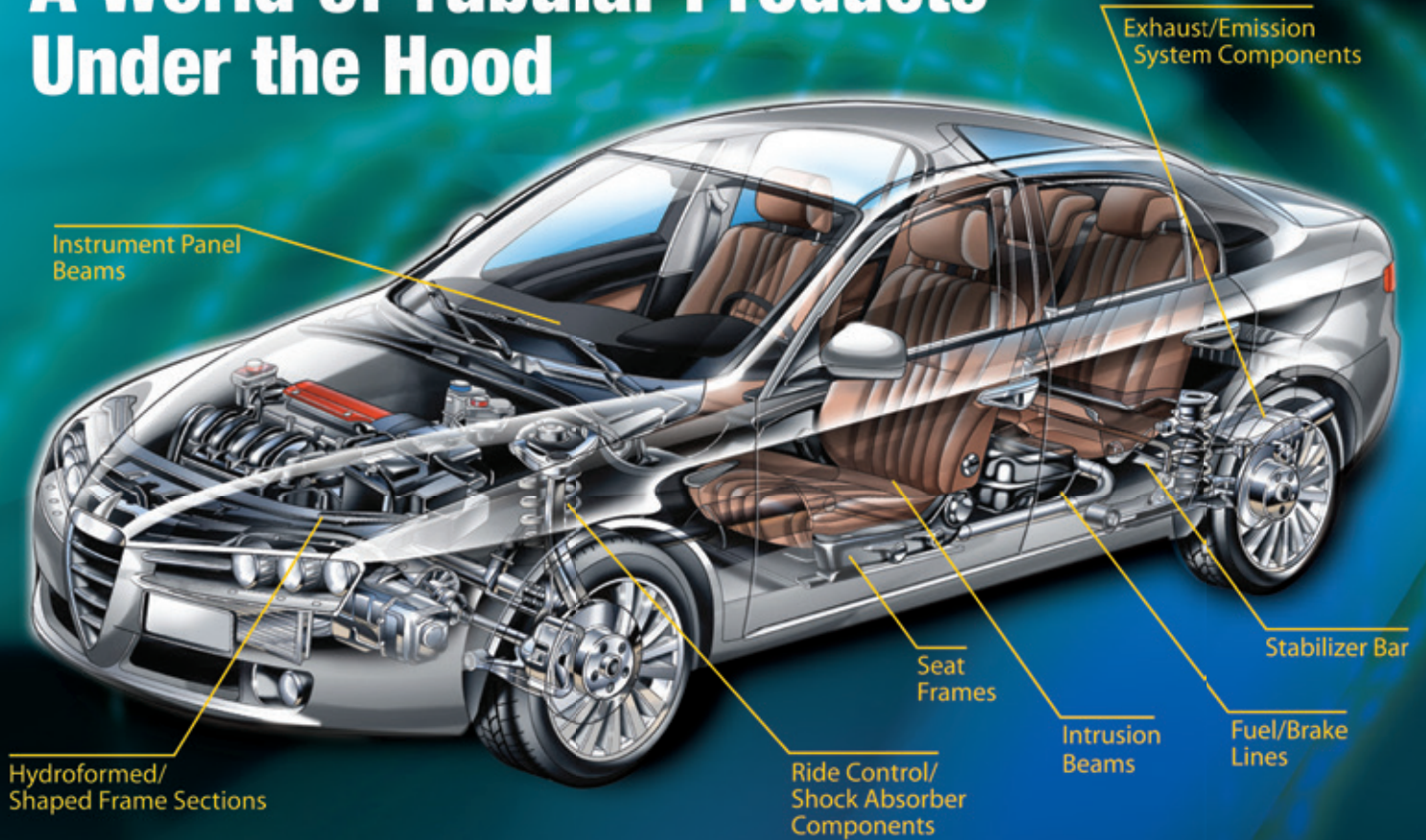


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Tailor-made solution for challenging demands in steel tube and bar

A GERMAN bar manufacturing company that had highly non-standard cutting and testing requirements for its unique thread bar products, which are made out of high-tensile specialist steels, has been offered an innovative solution by Bültmann.

Bültmann's reputation for innovation and high levels of experience dealing with similarly challenging specialist applications made it a logical choice for the bar manufacturer.

Special bars of 30m length and with a maximum diameter of 85mm are flexibly cut into several different lengths by means of an efficient sawing unit with tungsten carbide tools.

As a consequence the bars are distributed in different order-related transport racks and packed into

transport bundles when ready. Length positioning to the nearest millimetre, as well as the automatic loading and unloading of the products, is carried out by two handling units with independent axis control.

Adequate gripper systems ensure precisely defined material handling and high process reliability.

A 100 per cent quality control inspection of the final thread automatically takes place before the bars are passed and discharged into the transport racks without intervention by the user.

Special testing units are installed to provide the necessary dimension-dependent thread testing gauges. The test procedure is fully torque controlled. This automated, precision



process ensures that when the end user receives the product, the thread bar systems delivered correspond exactly to their demands for quality and ensure that the bars can be used for the most demanding applications.

Bültmann added that it is looking forward to continuing to take on challenging projects and maintaining a close cooperation with its customer, which has used several specially designed Bültmann peeling and straightening lines for many years.

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Echomac FD-6/6A ultrasonic test equipment

MAGNETIC Analysis Corp (MAC) will be featuring its Echomac® FD-6/6A ultrasonic test equipment at booth B10018 at the FABTECH 2017 show. Information will be available on a variety of applications, ranging from full body testing for spinning tube and weld zone inspection during production, to 500mm ultrasonic/flux leakage multi-test systems for large-diameter pipe.

The Echomac FD-6/6A is a computer-based ultrasonic inspection instrument designed for on- or off-line flaw detection, thickness, weld inspection and dimensional measurement in tube and pipe. This latest model achieves improved signal-to-noise ratio, finer adjustments, improved thickness resolution, repeatability and reliability.

Featuring MAC's user-friendly Echohunter® interface software and versatile, intuitive operation, control of

all key test parameters is on a single screen, and thresholds can be moved by selecting and dragging on-screen. A 'global' key allows parameters for several test channels to be adjusted at once, or copied from one channel to another.



The 6A model has also received GE qualification for P3TF31, Class A & B, and P29TF82 Class A&B, a typical requirement for nuclear and aerospace applications. MAC states that new installations or older ones that need to be upgraded can benefit from use of the Echomac FD6/6A. The instrument is compatible with rotary, immersion, bubbler or squirter type and 'spin the tube' applications.

Also featured on the booth at FABTECH will be MAC's Minimac® 55 eddy current tester for detecting short defects in ferrous or non-ferrous tube and wire, including laps, slivers and cracks, and weld line faults.

Magnetic Analysis Corp – USA

Fax: +1 914 703 3790

Email: info@mac-ndt.com

Website: www.mac-ndt.com

McElroy releases outlet fusion tool

MCELROY has designed the first all-in-one fusion tool for outlet fusion of polypropylene pipe. The Hornet helps installers maintain perfect alignment of the pipe and fitting for more efficient and accurate fusions, with less time and strain compared to manual methods.

"It's exciting to offer a machine that did not exist in this marketplace until now," said Jason Lawrence, director of product development for McElroy.

The 'V-base' design of the Hornet allows it to self-align on the centre of the

main pipe. A slide-mounted precision carriage guides the drilling of the outlet hole and fusion of the fitting, keeping everything perfectly aligned to produce consistent and accurate fusions.

With a small footprint and weighing just 13 lb, the Hornet is capable of performing outlet fusions in any orientation, making it suitable for overhead and vertical fusions in tight spaces.

The Hornet works with all McElroy socket heaters and fusion outlet adapters for polypropylene pipe from

20 to 63mm, on mains up to 630mm. Each socket adapter is Teflon-coated for durability and long life. The Hornet utilises small McElroy heaters that feature microprocessor control and a dial thermometer for precise, reliable temperature. The Hornet is built to withstand tough environments, and comes with a five-year warranty.

McElroy – USA

Email: fusion@mcelroy.com

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Electrolytic pickling of stainless steel and special steel tubes

IN THE stainless steel pipe production sector, the main cost item, excluding raw material, is generally related to production personnel. This is particularly the case in the production of TIG or laser welded tubes, on in-line profiles starting from coils.

In 1999, Condoroil Stainless began researching a plant that would allow pickling of the tube in a few seconds, without danger to the line operator. The research was completed positively with the use of electrolytic technology, and in 2000 the first tunnel Elettra TU was created, which allowed annealing, pickling, rinsing with demineralised water, drying and packing the pipe bundles directly on the profile, eliminating numerous handling steps.

Over time it became apparent that the possibility of pickling in-line was not the only advantage given by electrolytic technology. An important advantage

was the high pickling speed, even on corrosion-resistant materials. For example, a super duplex annealed tube can be pickled in two minutes, compared to 12 hours required for a nitro-hydrofluoric solution.

There is little environmental impact, and the absence of nitric and hydrofluoric acid means increased safety. The solution conduction is simple, and a zero-discharge process is easily implemented. More than 40 in-line pickling units have been installed in Europe alone, prompting



Condoroil to develop similar processes for pickling other types of pipe.

The range includes the following plant families:

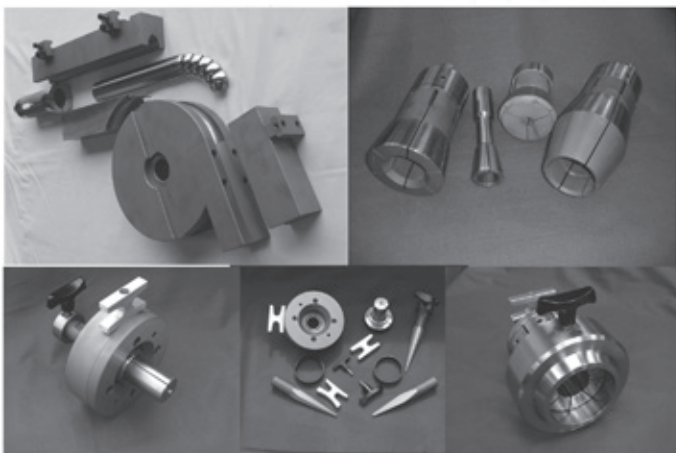
- Elettra TU standard in-line pickling unit for TIG and laser welded tubes
- Elettra TU Fast, with increased power, allowing it to be applied on induction welding lines
- Elettra TU BR, developed for in-line electro polishing
- Elettra TBS batch operating unit for internal and external pickling of hot extruded tubes
- Elettra TBL batch operating unit for internal and external pickling of large diameter tubes from calender or press machine

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CNC production line for cutting/bevelling

COPIER Bevelmachines has unveiled its latest invention for metal pipe cutting and bevelling in a single production line. The company offers stationary equipment for pipe shops, mainly pipe bevelling machines, pipe cut and bevelling machines, CNC pipe end working machines and pipe spool welding machines.

As customers often need to cut or saw the pipes before they start bevelling, Copier has invented a production line for length measuring, cutting and bevelling of metal pipes. The machine is called the Beaver CB and has length measuring, cutting and bevelling all in a single machine.

When using the Beaver CB the pipe is always clamped while cutting or bevelling. One operator can control the complete production line from the operator panel. The main advantage of Beaver CB is that output is higher because length measuring, cutting and bevelling are combined.

The Beaver CB is a completely CNC-controlled machine with both radial and axial feeding. It cuts with up to three cutting bits from outside to inside of the pipe, and during this process it preforms a bevel shape with the required angles.

The Beaver CB will be on display at the Schweissen & Schneiden exhibition at stand 10B04.

Copier Bevelmachines – The Netherlands
 Email: info@copierbv.com
 Website: www.bevelmachines.com



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Multi-process welder range

DURING the international trade fair Schweissen & Schneiden 2017, Helvi SpA will introduce the new Maxitech range. Designed with inverter technology, the new 3ph multi-process welding machine range includes compact units and models with separate wire feeders.

The large 3.3" display shows all the welding parameters and makes their setting easy and intuitive. The units are equipped in standard configuration with MIG/MAG manual and synergic, MMA and TIG processes (plus gouging for the 500-amp version). The CAN bus technology allows the power source to be expanded with optional single pulse, double pulse and root welding functions.

In synergic/pulsed MIG/MAG welding, the microprocessor allows quick and easy setting of the programs, ensuring optimal arc stability and high welding quality. MIG/MAG features include continuous, pre-set synergic/pulsed curves; storage of custom welding settings; 2T/4T spot function selection;

pre-post gas time regulation; electronic reactance; soft start; burn back time; hot start; slope down; and crater filler.

TIG DC features include lift arc; continuous and pulsed welding; 2T/4T; and current and final current up/down slope regulation. The MMA selection features anti-sticking, and adjustable hot start and arc force.

An optional interface can be installed to enable use of spool gun or push-pull torch, with analogue or digital control. The user can save and recall more than 200 working points and store them in a customised job list. A USB interface enables easy updating, with the possibility to extract welding data. For Maxitech 380-500 models, from the separate wire-feeder the user can set all the parameters up to a distance of 100m from the power source.

Helvi SpA – Italy
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Maxitech 355C welding inverter



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Tube welding accessories

TITANIUM, stainless steel and other corrosion-resistant materials are used for tubing and pipework especially where there are highly corrosive materials flowing through them.

When such pipework is welded for joining or repairs, it is necessary to protect the material in and close to the weld joint using weld purging. Oxygen and nitrogen can be harmful to the weld joint in particular as they will combine very easily with the hot material, forming oxides and nitrides, until the temperature falls below its oxidation point.

One accessory – called a Weld Trailing Shield® – can be added to a GTAW/TIG welding torch before beginning a pipe weld. This lightweight tool, designed and manufactured by weld purging expert Huntingdon Fusion Techniques (HFT), is easily manoeuvred around the pipe joint as it is being welded, with no inconvenience to the welder.

The Trailing Shield® is connected

to an argon gas source and when the weld is started it allows extra argon to flood to the sides of the weld, covering the heat affected zone adjacent to the weld. As the welding torch is moved forward because of the length of the Trailing Shield® the weld remains under an argon gas shield until the welded metal has cooled below its oxidation temperature.

For manual welding this lightweight and low cost tool is easy to drag along the surface being welded. One further benefit is that it carries the welding torch at 90° to the weld.

With automatic welding machines it is possible to raise the welding speed dramatically and enjoy the major benefits of automatic welding. Each Trailing Shield® is delivered with a variable diameter connector so that it can fit any size of TIG/GTAW/PAW welding torch for manual or mechanised welding.

Savings on expensive cleaning and pickling costs to remove oxidation and discolouration on these corrosion-resistant materials pay for the shields in the first weld and the shields can be used for years without replacement.

Trailing Shields® are available immediately for any diameter of tube and pipe from 17mm upwards. They are also manufactured in flat format for sheet metal welding.

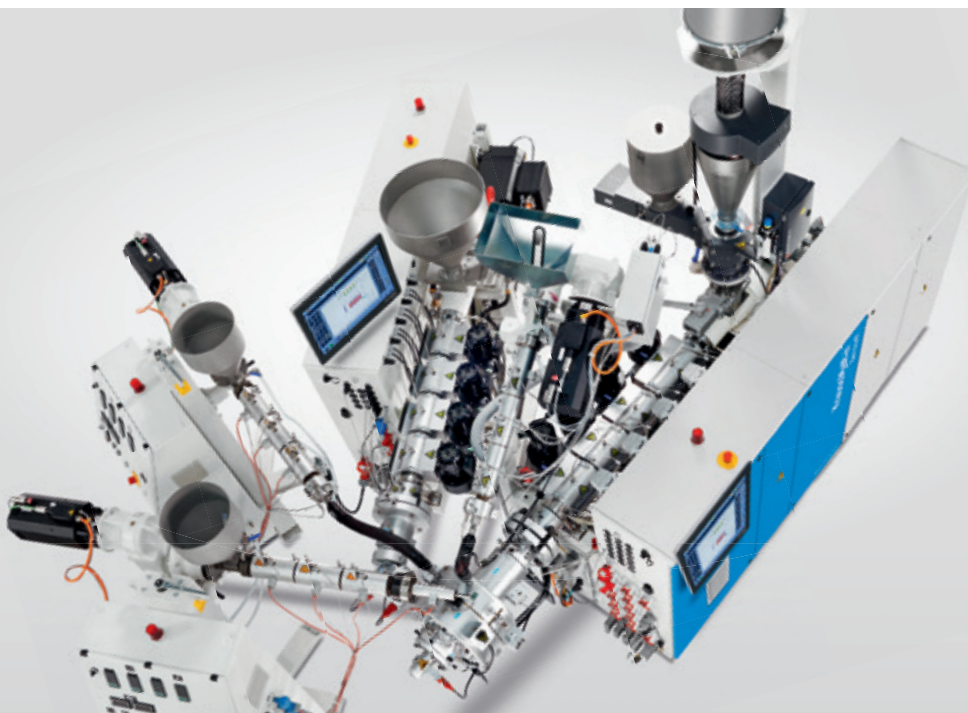
Luke Keane, distributor support for HFT, said: “The Trailing Shield is connected to the argon gas supply and it diffuses gas out evenly without turbulence through the multi layers of stainless steel mesh built into the body of the shield.”

Huntingdon Fusion Techniques – UK

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User-friendly pipe fusion data collection

MCELROY'S new DataLogger® 6 is loaded with features to make collecting and analysing data on fusible pipeline projects easier.

The ruggedised, Android-powered tablet offers a modern touchscreen interface and easy-to-navigate software system with on-screen instructions. Fusion operators are guided through each step of the fusion process to ensure that the pipe joint was fused with

the correct pressure and heating time, according to the supported standards.

"Data collection is the future and we want to help the plastic pipe fusion industry be ready for it and comfortable with incorporating it into their operations," said chief innovation officer Jim Johnston.

"By simplifying the data logging process, users will be able to validate joint integrity more easily before their pipelines go into the ground."

The new DataLogger has a larger, glove-friendly HD touchscreen that produces excellent visibility even in direct sunlight, and is water and dust resistant. A wired connection ensures the reliable transfer of information from the fusion machine to the DataLogger, which syncs wirelessly to the DataLogger Vault, where joint records can be safely and quickly sorted, tagged and shared

by machine, joint, operator, device or job. Other new features include front and rear cameras to capture job site conditions, GPS joint location, a laser barcode scanner to input pipe and fitting information, a real-time fusion graph for visual interpretation, and contextual help including how-to videos and other media for easy reference.

McElroy – USA

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DataLogger 6



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EMMEDI presents an evolution in induction welding

EMMEDI, the tube specialist which is part of the the Ajax TOCCO Magnethermic Corporation group of companies, is presenting a new evolution in induction welding technology, which will be shown at the most important events globally in the second half of 2017.

Equipped with reliable silicon carbide transistors this innovative product has been tested for more than a year on different applications – including tube welding – and it has been demonstrated to be efficient and reliable. Those

characteristics combine with a compact footprint for the power supply, minimising floor space needed for the mill and making it an ideal solution in terms of energy consumption and space. Output power ranges up to 800kW and this solution is able to accommodate a contact head for continuous contact welding.

The EMMEDI induction line is not limited to welders, but covers a wide range of solutions dedicated to the tube and pipe industry, including seam annealers, body annealers (bright

and dull), coating and heating prior upsetting. EMMEDI benefits from new synergies with Ajax TOCCO and its extended network to offer a wide range of products designed to high standards. This partnership is ensuring the foundations are in place to increase its influence in the tube and pipe market, including widespread technical support and after-sales services.

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Induction welding from EMMEDI



Handheld brazing

USA-based Ultraflex Power Technologies specialises in the design and manufacture of induction heating and metal joining equipment.

Its new UBraze handheld and automated brazing system is a mobile induction heating solution that can be used as a handheld unit or can be integrated with a robotic arm for automated production lines. The system operates with UltraHeat UPT-SM5 (5kW), UPT-W10 (10kW) or UPT-W15 (15kW) induction heating systems.

The company has a network of dealers and distributors offering its products in many countries in Europe. It also has manufacturing facilities in New York, USA, and Sofia, Bulgaria, which allows it to cover these markets with locally manufactured products, services and support. Sales and support offices are also located in India and China.

Ultraflex Power Technologies – USA
 Website: www.ultraflexpower.com

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Pipe freezing system for repairs

PUBLIC buildings, factories, hotels, sports facilities and apartment blocks may have pipework systems, such as sprinkler systems, that are full of water or other fluid that needs to be completely drained for the smallest of repair. Such drainage costs time, money with respect to the product that is lost, plus delays and costs related to bringing the system back online.

Repairs can now be done in-situ with the Accu-Freeze™ system, which will work on metal and plastic pipes up to 12" diameter, making ice plugs either side of the repair site without draining the whole system.

The Pipestoppers® division of Huntingdon Fusion Techniques (HFT) recently carried out installation of an Accu-Freeze system for a client who was contracted to repair pipework in large blocks of apartments. Working in the plant room, access was tight as the

pipes were only 6" to 8" from the ground. At one end of the pipe was a pressure gauge, and at the other a 1,000-litre hot water cylinder. Ambient temperature in the pipe was approximately 38°C.

A 6mm Ø copper coil was wrapped around the 2" carbon steel pipe between the hot water cylinder and the repair site. A freeze was performed using the Accu-Freeze system connected to a container of liquid nitrogen (LN₂). Within 50 minutes, a solid ice plug had been formed, blocking the flow from the cylinder to enable the pipe section to be cut out and replaced.

Following the repair work, the ice plug defrosted naturally and the flow continued in the system, with minimum disruption, no system drain down, no air locks, and in a short time in relation to alternative methods.

Accu-Freeze utilises LN₂ in a controlled way to freeze stationary liquids in a

selected section of pipe or tube. By controlling the surface temperature, Accu-Freeze can accurately and safely form an in-line ice plug capable of withstanding 138 bar in diameters up to 300mm (12").

Huntingdon Fusion Techniques – UK

Fax: +44 1554 836 837

Email:

pipefreezing@huntingdonfusion.com

Website: www.huntingdonfusion.com



Compact storage tower for sheet metal

METAL sawing and storage equipment manufacturer Kasto has introduced a new tower to provide a compact, standardised solution for automated storage and retrieval of pallets and

flat material. Advantages of the KASTOecostore system include its low space requirement, high storage density and short material access times.

The store accommodates material up to 1,500mm deep by either 3m or 4m wide. Both types are available with a load capacity per station of either 1.2 or 3 tonnes. System height can be specified by the customer, from 3.1 to 8m. The same applies to the level at which loading and unloading takes place, as users can select different heights up to 950mm.

As well as being suitable for storing sheet metal in a wide range of sizes, KASTOecostore can hold Euro-pallets and stillages, for applications involving different materials in small businesses, workshops and maintenance shops. It can also be used as a buffer store between production areas in factories, close to machinery if necessary.

The lifting gear drive is equipped with frequency converters from Siemens, and the motor is stationary to allow precise, dynamic loading and unloading. Robust roller chains ensure long service life and low maintenance. The steel frame consists of standardised rolled sections

and can be dimensioned in accordance with the relevant standards for earthquake resistance. Comprehensive safety control measures prevent malfunction and downtime.

KASTOecostore comes as standard with the manufacturer's own SmartControl, which has an intuitive touchscreen user interface for error-free data input. Loads can be on pallets or special cassettes, which are stored and retrieved automatically and brought to an ergonomic height. Additional lifting equipment such as a forklift is not necessary, keeping access times short.

Kasto offers an extensive range of accessories for adapting the store to special requirements, including a movable carriage for loading and unloading material from the back of the tower; and insert bolts for subdividing pallets and cassettes. A storage aid with lift-off bolts is available to assist in the handling of sheet metal and other materials using a stacker or crane.

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The Kasto tower storage system



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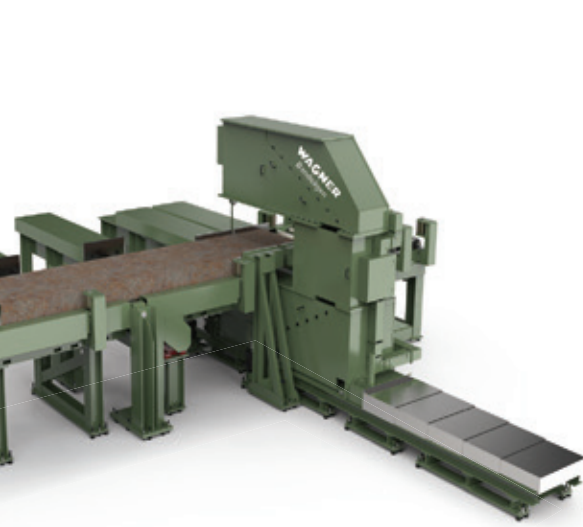


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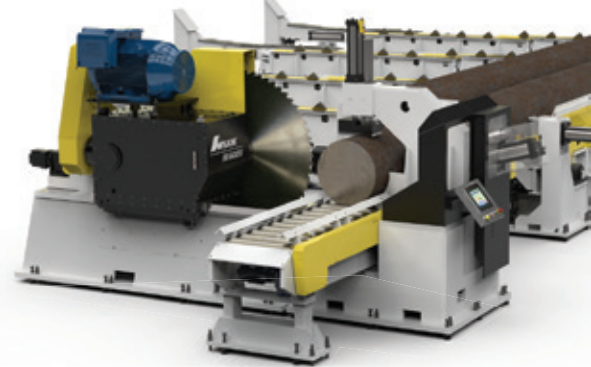
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Servo-controlled dual-blade shear cut-off

HAVEN Manufacturing's flagship machine – the Model #873 dual-blade shear cut-off – has been installed at a Tennessee, USA-based manufacturer of high quality tubular products for furniture and other related industries.

The primary application will be for mattress foundations – an assembly made from 1" square tube lengths.

Oddello Industries has been able to develop a fully programmable process, which couples a piercing operation – supplied by another manufacturing partner – with a Haven servo-controlled dual-blade shear cut-off machine. The resulting process has proven able to process nearly 15 miles of tube per day into 38 unique parts (SKUs) within length tolerances that never exceed 0.0015".

This collaboration was proven so successful that the customer has made plans to expand its operation further. The original Haven machine efficiency resulted in an immediate second order of the servo dual-blade shear cut-off machine to handle increased demand from a number of new customers.

The Haven machine is capable of cutting tube from square or round stock, in lengths from 2" up to any customer-specified length, and employs a programmable closed-loop servo drive to ensure accuracy. Haven prides itself on a robust steel construction and

quick-change features for its entire line of cut-off machines and related equipment.

Haven Manufacturing – USA

Email: info@havencut.com

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Model #873 dual-blade shear cut-off

Robots as tube bending machines?

THE trend towards flexibility in machining processes with a high degree of automation is a major focus in many sectors. Nonetheless, with all the innovative strength and performance power of such systems the question remains: When and how does it make sense to automate? And is the robot a means to an end or the deciding factor?

Stefanie Flaeper, managing director at transfluid, has the answer. The specialist for high-tech tube processing equipment has been developing its 't motion' solution for process automation for many years and for a great variety of application areas.

"Of course, with all the enthusiasm for automation there is always the question of benefits. Because the reasons for deciding to go for an automated process are certainly diverse.

"Sometimes the objective is to achieve process capability and quality independent of the operator. In other sectors or applications, the focus is on

cost reduction for a process. Because a great deal of 'know-how' is required to be able to leverage the optimum results from the machining components through to operation," explained Ms Flaeper.

With the integration of well-proven technologies for tube bending or forming, the automation options are always being consistently exploited.

For example, if it is necessary to cut at the start, transfluid's chipless orbital tube cutter provides a fast route for direct further processing. As a result, it is possible to carry out forming processes at the end of the tube and bending pre-formed tubes, for example, without delay.

With the great variety of possibilities, such as integrated labelling systems or optical measurement systems, the clarification of the general question of the layout of the respective handling system is one of the most important.

"Robots are one variant, the other could be an electrical servo driven four-axis linear handling unit, for example. Both systems have their appeal – certainly the linear system if the central factors are the handling times, short tubes or machining prior to the bending process," said Ms Flaeper. The advantages of the linear systems in comparison to robots lie in particular in the high speed and that they are easier to program.

"Linear systems increase the degree of utilisation of the integrated machines. In contrast, a robot is a great deal



more flexible. At least when it comes to automated tube bending," explained Ms Flaeper.

A supplementary concept for the forward-looking 't-motion' automation systems from transfluid is the option to employ the robot as a machine rather than only for handling tasks. "With one of our current projects we must find a solution and decide whether we install a bending machine and automate this via a robot or simply take the opportunity to use a robot as a machine," said Ms Flaeper.

In order to realise this the transfluid engineers have simply put a bending machine into the robot's hand. This robot bending machine is able to bend right-left with a single setting. It is flexible, in particular when long tubes have to be bent or, for example, pipe-hose combinations whereby the hose has already been installed prior to the bending process.

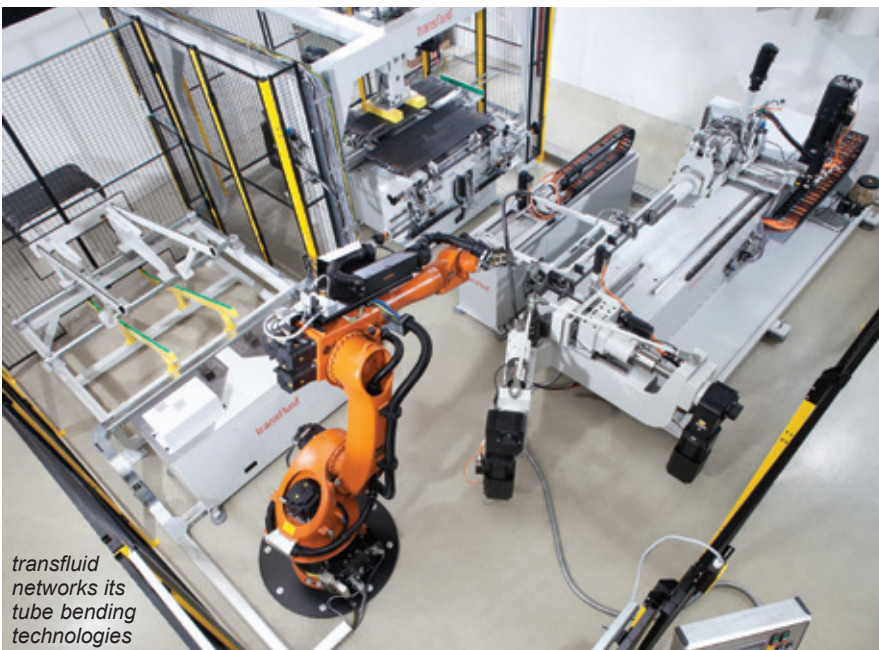
Because this enables the bending head to be equipped with several levels, it is possible to bend different tube diameters without a tool change.

In addition to conventional bending methods, there is also a further process available for using robots to bend tubes with an internal mandrel. This is of interest if both ends of the workpiece have already been machined, for example. The robot can start the bending from both sides. As a result the transfluid concept has opened up an opportunity to bend both ends into the final shape without an additional length being required.

transfluid Maschinenbau GmbH – Germany

Email: sales@transfluid.de

Website: www.transfluid.net



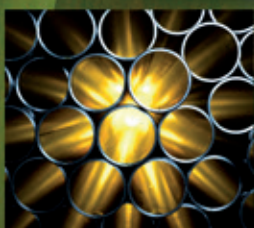
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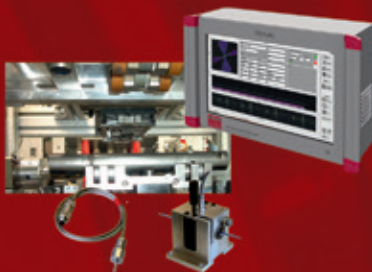
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Cutting heavy ID scarf

GEBRÜDER Lennartz GmbH & Co KG, based in Germany, specialises in the manufacture and supply of carbide-tipped circular saw blades for the ferrous and non-ferrous industry. It has now released another new product from the ECOMax family.

The ECOMax – Scarf circular saw blade is a new development and is customised for cutting tubes and profiles with heavy ID scarf on flying cut-off units. Previously conventional blades were damaged after only a few cuts because they cut the high strength weld bead inside the bottom of the tube. The service life of the blades was poor and the cost per cut was high, resulting in a cutting application that was not economical.

Because of its special tooth form and cutting geometry – and in combination

with a new proprietary coating – the ECOMax – Scarf saw blade is suitable for this application. This new design works successfully on single head machines as well as on twin saws with the simultaneous operation of two saw blades, to meet customer requirements and decrease the cost per cut. Successful trials and ongoing production usage, together with target customers and machine manufacturers, have shown the ECOMax – Scarf blades can achieve up to 7m of material removal on welded tubes with wall thickness up to 14mm.

Gebr Lennartz GmbH & Co KG – Germany

Website: www.heinemannsaw.com

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Double synchronised cutting

SICA recently patented a method for cutting plastic pipes that makes it possible to reach higher production rates (patent EP2008749). The machines are designed to cut and chamfer PP, HDPE and PVC-UP pipes performing simultaneous double cutting cycles automatically.

For example the Duet 125 automatic cut-off saw can reach hourly production rates of around 2,000 pipes of 150mm in length and sockets and more than 2,300 pipes/hour of 500mm length and sockets. The system also guarantees the necessary cut length precision (tolerance of ± 1 mm) thanks to the machine's CNC control system. This system allows perfect synchronisation of the cutting unit with the pipe extrusion speed and consequent exact positioning of the unit at the required cutting dimension. The machines are also equipped with specific anti-wear tools to guarantee high and enduring quality of the cutting/chamfering process.

The logical control system also offers 'on the fly' cutting capabilities (Sica patent EP129515), optimising the use of the effective stroke to further increase output in terms of the number of cuts per hour. Equipped with an intuitive icon-based graphic interface and a classic production system for preset sequences of lengths, the machine also features a

new length sequences management system. Specifically, having entered the basic production parameters (extrusion speed, pipe diameter, capacity of downstream machines) the user can define the required production batches, automatically optimised by the system in order to exploit the machine's potential to the full.

Intelligent planning of production sequences, in addition to the availability of libraries in which process parameters and user product dimensions can be stored, result in versatility and ease of control.

Given the large number of cuts that can be performed per unit of time, the machine has been equipped with an extra-powerful cyclone-type dust exhausting system.

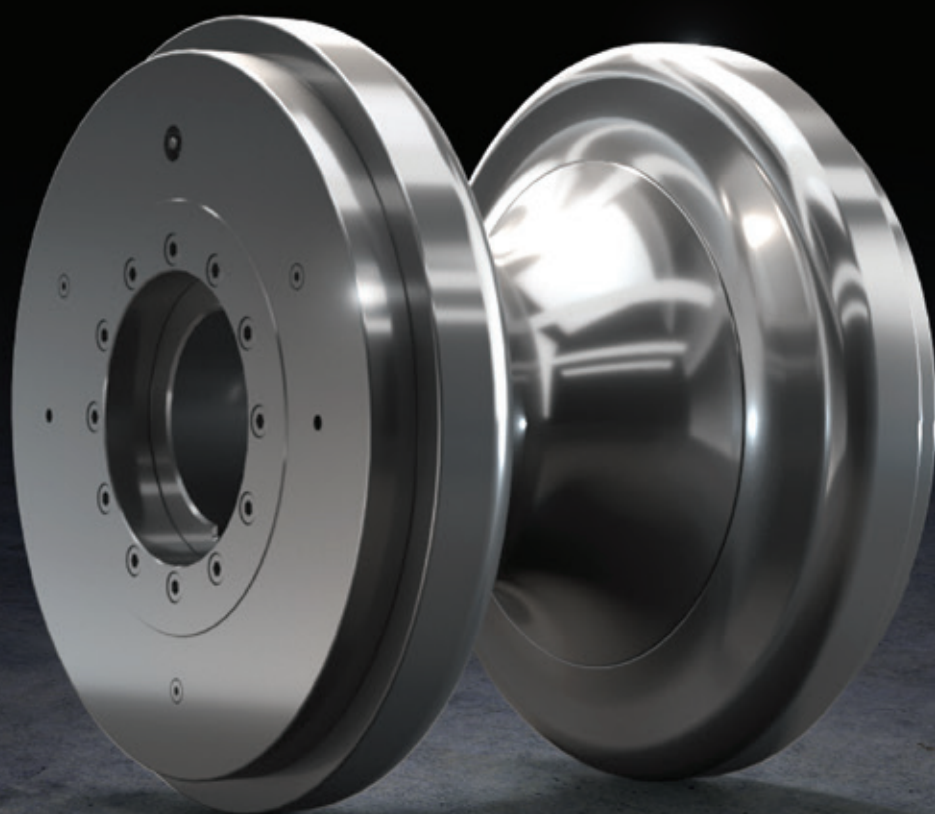
The range of automatic in-line planetary saws in the duet series (available in the Duet 125, Duet 160 and Duet 200 versions) includes the Duet/K (cutting with knife without material removal for HDPE and PPR) and Duet/C (cutting with chamfering unit and knife without producing chips inside the pipe) versions in addition to the standard model for PVC.

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The compact heavyweight

THE new KKS 500 series from framag features a compact design (saw station dimensions: 2,100 x 3,200 x 2,200mm) and a mass of 9 tonnes, making it a heavyweight that is suitable for use in heavy industry (dust, dirt, three-shift operation) and in forging.

The hydraulic pipework and the electrical cables are maintenance-free and integrated in the machine bed for the best protection from damage – a concept that has been proven over decades of use. The remaining machine components are all accessible and easy to maintain.

The Hydropol® configured by the framag engineering team was designed in a special type of concrete and adapted specifically for high-performance use with optimal attenuation of vibrations occurring during cutting processes. This also has a positive influence on the cutting performance. The billet support from below and the horizontal and vertical tensioning provide three-point tensioning and especially increase

output for curved billet and extend tool service life. Chips are reliably deflected by guide plates to the integrated chip conveyor.

With the smooth-running saw blade the cut gap is minimised and material loss is reduced. The saw blade drive has an output of 45kW, which enables cutting speeds of up to 400m/min. High quantities and high machine availability

are guaranteed as a result. Depending on the saw blade the machine can be used to cut all materials ranging from non-alloy construction steels to high-alloy special steels and stainless steel.

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Pipe production machines from the experts at Faccin

PIPE production technology is an area of such complexity that only companies with many years of experience and technological expertise can safely and reliably deliver machines suitable for the most challenging projects.

Faccin SpA has many years of experience in the design and manufacturing of specialist machines, both standard and customised, for the production of pipes.

The company uses the very latest technology at its 60,000m² facility in Visano, Italy, to complete the construction of the machinery in a fluid process – from receipt of the order to the machine's design by the in-house engineering department and from the construction of the electro-welded structures to the machining of structures and forged rolls up to assembly, shipping, installation and training.

In order to meet the specific production requirements of the industry, the

company offers the HAV-2P, a series of NC-controlled high-performance pipe mill bending rolls able to support the production of pipes delivering productivity, repeatability and automation of the entire process. These pipe production bending rolls are constructed with extremely sturdy electro-welded structures and are fitted with three rolls in thermally treated steel alloys.

HAV-2P long bending rolls are designed for rolling plates up to 45mm thick, ideal for producing pipes up to over 18m long, complying with certain technical specifications and roundness tolerances and offering a high quality finished product complying with API standards.

To further increase the production speed and automation Faccin also offers the HAV-2P pipe mill bending roll, an accurate post-bending machine that prepares the pipe for welding and a series of outboard motorised guide

rollers that control the movement of the pipe from the HAV-2P to the post-bending machine and successive working stations.

For specific customer projects Faccin's professional engineering and R&D department designs and produces customised solutions that suit the specific requirements of even the most demanding pipes producers.

Faccin is one of the world leaders in tube machinery production and design with more than 50 years' experience in the manufacture and commercialisation of plate bending rolls, profile bending machines, dished head machinery and specialized machines including ship frame bending rolls and presses and plate straightening machines.

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The future of networking sawing plants

THERE is a lot to be said for the use of fully automated plant systems for tasks such as order picking girders in the steel trade. The parts being handled here are extremely bulky, the risk of potential accidents is high, and the frequency of errors should not be underestimated. Networked plants and intralogistics can be an invaluable aid to handling operators and customers. Kerstin Besemer, press and PR officer at Behringer GmbH looks at the technology involved.

Automated operations in the steel trade require only a handful of employees to control and monitor a machining process that involves minimal direct contact between personnel and material or machines – from the goods-in department to loading the finished parts onto trucks for shipping.

Different tasks, from materials management, machining and order picking to shipment, are all performed according to a programmed sequence and logical material flow process: a driveway along the hall wall permits part delivery and storage. Without encountering any crossroads, the girders and profiles are delivered straight to the warehouse, and travel from there to the sawing machines on infeed roller conveyors.

High-performance sawing plants in the centre of the hall, such as mitre bandsaw HBP510-923G-NAP, cut the material. Some parts then pass through a conservation line for surface treatment, while others are loaded immediately following sawing. Processing takes place on a program-controlled, bar-optimised basis.

A transport management system ensures the material-saving assignment of starting lengths by matching them up to orders, and takes care of trouble-free material flow along the plant. The material and data arrive at the right time,

Feed gripper unit



The mitre bandsaw HBP510-923G-NAP

in the right place, enabling maximum output. Marking and labelling devices are used to identify material on an order-by-order basis. A separate transport system is provided for return transport of offcuts without disrupting or interrupting the processing sequence.

Alongside the sawing machines, Behringer GmbH supplies all the peripherals from its own in-house steel works. CEO Christian Behringer has a positive take on the trend towards networked plants in the steel trade: "The benefits of automated intralogistics systems make absolute sense for a number of reasons. Alongside process reliability, employee safety, throughput speed and, of course, the prevention of errors all have a role to play."

Features that guarantee optimum process reliability and a low frequency of errors are to be found not only in the machines themselves but also in the plant's coordinated control system. The robust, torsionally rigid design of the mitre bandsaw features saw blade guiding components made of vibration-damping grey cast iron, which extends the service life of tools and is the optimum choice for fully automated multiple-shift operation.

Depending on the material size and weight, different versions of the transport systems are used. In many cases, one particular variant might be the preferred option – for instance, taking into account past user experience.

Depending on the job in hand, good parts are deposited in the order-picking zone for delivery, or are sent automatically for surface treatment to the blasting or painting booth. Markings and labels on the parts simplify the process of assigning parts for commissioning, or enable information to be scanned in.

All material movements are controlled from the central control desk. However, each sawing line has its own PC-based control system from which the data is sent collectively to the higher-level control desk. The machines themselves have only a control system with functions for servicing, repair and maintenance. Here, mobile operator panels are used which can be docked onto different locations along the complete plant.

As safety takes top priority, all fully automated plants are surrounded by a protective fence, although connecting steps and raised control centre stations ensure an optimum overview of the entire process.

Investing in networked plants also pays off in view of the demographic changes currently taking place. "We are already experiencing a shortage of skilled labour, and this is a situation we can defuse by introducing the wide-ranging automation of our plants," added Mr Behringer.

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In real time the Sikora support engineer gets direct access to the Sikora device for immediate diagnosis. In the same way software updates are installed.

The work of the SAM starts with the installation of the measuring device. The customer transmits via video-stream the environmental conditions as well as the line layout to Sikora. This support assists, for example, with detailed information

on the best possible positioning of the equipment in the factory. Due to diverse connection possibilities – such as USB 3.0, RJ 45 Ethernet, Bluetooth 4.0 and the LTE/UMTS module – as well as the various application possibilities, the SAM is an important tool for modern production lines, for example to support maintenance and diagnosis tasks as well as every Smart Factory in the era of Industry 4.0. The individually

designed licence module guarantees the most current version of the Sikora diagnosis software for a live session for fault detection or as an offline diagnosis system for all Sikora measuring, control, inspection, analysis and sorting systems.

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Dual product launch

HYDRA-ZORB Co, a manufacturer of products for clamping pipe or tube in the hydraulic, pneumatic and HVAC/R industries, has launched the Bronco tube and pipe saddle, and the Titan riser clamp. The products were unveiled at the AHR Show (Air-Conditioning, Heating, Refrigerating) in Las Vegas, USA.

The Bronco tube and pipe saddle uses high-strength plastic that can snap into channels of any depth, offering stability and preventing damage to the insulation from pipe movement. The product is available in several sizes, in either black or white to match the insulation colour.

The Klo-Shure Titan insulated riser clamp series is made to fit vertical pipe runs and create a clean vapour barrier after insulation is installed. Titan risers are moulded with high-strength plastic with a crush-resistant design and a vertical load rating range of 1,000 to 2,000 lb. The clamps are claimed to offer three times faster installation with an improved finished appearance.

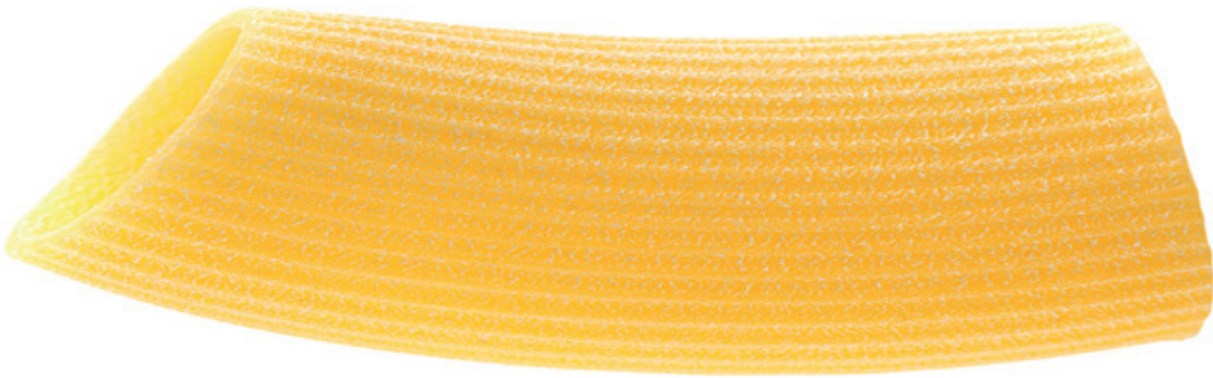
Both products are made in the USA at Hydra-Zorb's new 52,000 ft² plant in Auburn Hills, Michigan, which was built specifically with these products in mind.

The company's two primary products – Hydra-Zorb cushion clamps and Klo-Shure insulation couplings – are simple but important components in projects ranging from small power units for hydraulics to couplings used for HVAC/R lines in construction.

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KRAUSSMAFFEI Berstorff introduced the KMD 63 K/R conical twin-screw extruder into the Chinese market at Chinaplas in Guangzhou earlier this year, expanding its portfolio in the U-PVC pipe sector for the lower and medium output range.

“With the introduction of the conical model we will be able to professionally handle the requirements of pipe producers for a robust machine with small diameter ranges of up to 63mm as well as for twin-strand systems,” said Kaijun Fan, vice-president of extrusion in China.

The model – seen for the first time at Chinaplas in Guangzhou – is designed for the performance range of 130 to 360kg/h, and precisely matched to the local Chinese U-PVC formulation. It is suitable for the lower performance range because traditionally more conical machine designs are used here. “We therefore cover the entire spectrum of pipe processing, as the models of the 36D Performance series are still

available for the high output range in the U-PVC sector, and two specialised machines, the KMD 60 KK and the KMD 90-26, are available for C-PVC processing,” said Mr Fan.

Apart from the space-saving design, the conical extruder features a high performance gearbox and a high level of flexibility and process stability from a process technology standpoint. The C6 control system has many monitoring and control functions for an optimal production process.

“We consistently pursue high quality standards in terms of a comprehensive cost-effective production approach for the Chinese market,” commented Mr Fan. “In our Performance series we rely on high machine quality and German expertise, but the product is specifically tailored to Chinese needs.

“We source the performance-determining components of the machine from our main plant in Germany, while the finalisation, installation and commissioning takes place in Haiyan.

This allows us to offer our customers the highest quality for the usual Chinese formulations and market requirements.”

KraussMaffei Technologies GmbH – Germany

Website:

www.kraussmaffeiberstorff.com



The KMD 63 K/R

Tube Notching Machine

Tube Notching Machine is applicable to Automotive, Furnishing Industry, Home Appliances, Gymnasium, HVAC Pipes, etc. for tube end preparation. Tube Notching Machine is an alternative process replacing existing process of manufacturing by Press route, Milling, Mitering, Laser cut, etc.

Technical Specifications

- Hydraulically operated
- PLC controlled
- Angle variation flexibility up to 30-120°
- 5-10HP Power requirement

Salient Features

- Consistent quality and productivity
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- Low tool maintenance
- Economic operating cost
- Punch resharpening alert through SMS
- Suitable for faster prototyping
- Forming & Notching operation can be performed in single stroke



Types of Machine

Type	Min Dia (mm)	Max Dia (mm)	Min Thk (mm)	Max Thk (mm)	Length (mm)	Angle Flexibility
Single End	16	32	1.4	2.3	Infinite	0° to 33°
Single End with Pre-Notch	16	38	1.4	3.2	Infinite	0° to 40°
Double End	16	32	1.4	2.6	100 to 400mm	0° to 30°
Double End with Pre-Notch	16	38	1.4	3.2	100 to 350 80 to 250	0 to 30°



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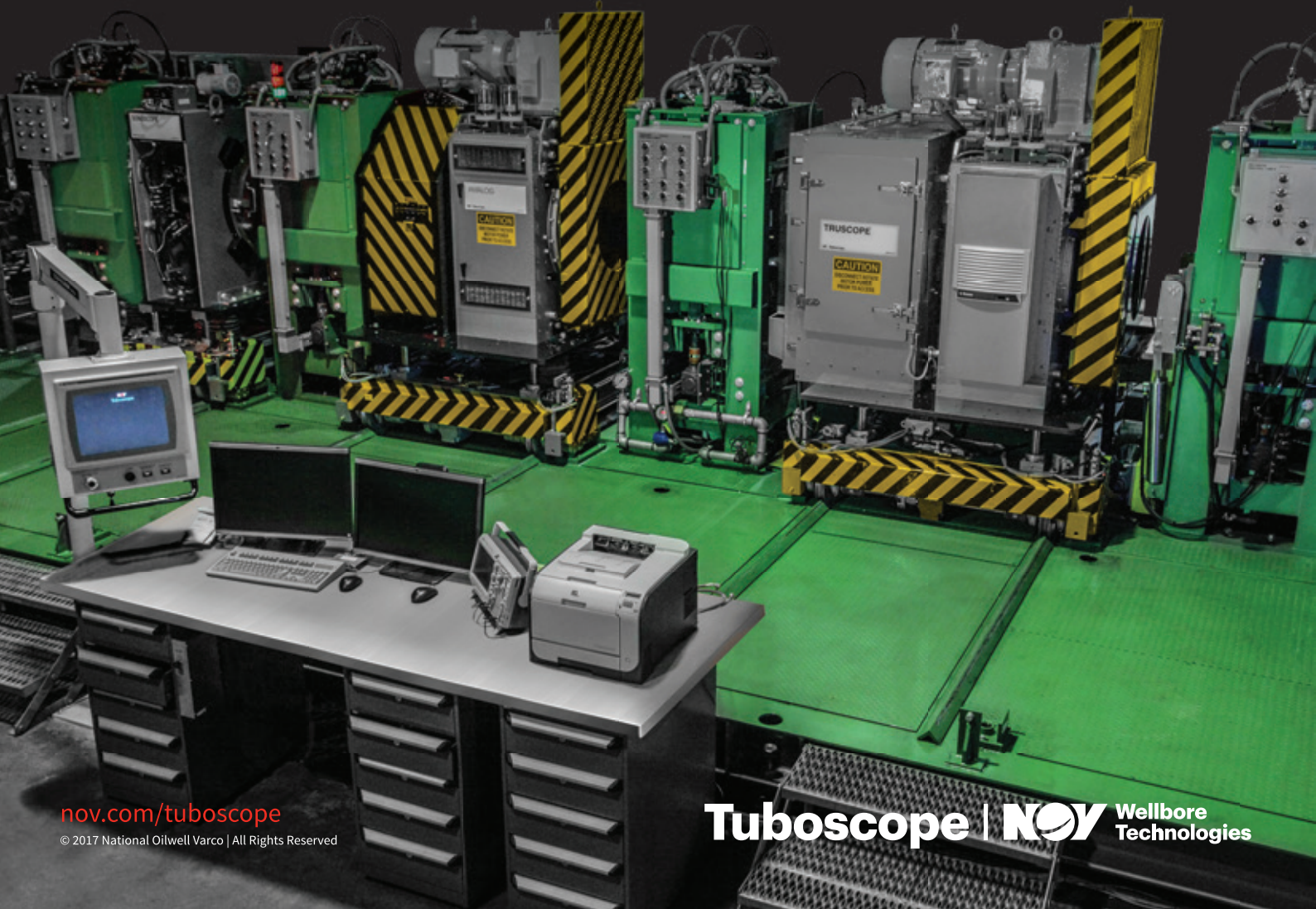
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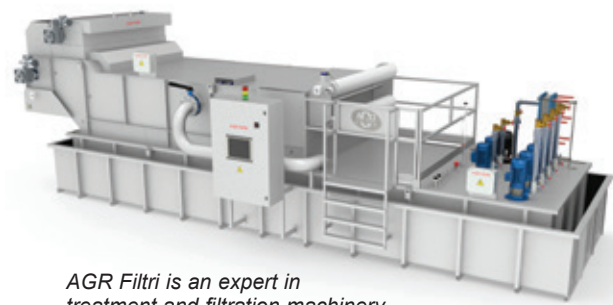
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The company's knowledge of the tube manufacturing market and the problems related to the use of dirty emulsion makes it a suitable partner in filtration, able to manufacture high quality, long-lasting, reliable, user-friendly machinery with low maintenance requirements, for the worldwide market.

Experience, knowledge, reliability and the ability to offer customised solutions enable AGR Filtri to be present in more than 25 countries worldwide, with a growing number of commissioned filtration systems and an expanding sales network.

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Welder with clamps

RITMO'S Delta 1600 HDR is a welding machine with hydraulic motion and a working range from 800 to 1,600mm. The machine was recently used at a job site in Bahrain to weld several kilometres of PE100 Ø 1,200mm SDR 26 to be used for carrying water from the sea to be desalinated.

The welding machine features hydraulic clamps for faster operation. In just a few minutes all the clamps are open wide without any support from other mechanical devices. The hydraulic clamps provide another benefit in terms of grip on the pipes: avoiding slip during the pressure phase, which can occur with insufficient manual fastening.

The high temperatures at the job site do not affect the welding machine, as it is equipped with a heat exchanger for the hydraulic circuit. Welds are certified by 'The Inspector', Ritmo's data-logger, which records and monitors all of the Delta 1600's workflow. The device relies on an internal memory of 1,000 cycles and a GPS system.

Ritmo SpA – Italy
Website: www.ritmo.it

Upgrading WPS and qualification management

WELDEYE software simplifies welding management, and now offers an efficient and secure cloud solution to create and manage WPS and qualification base.

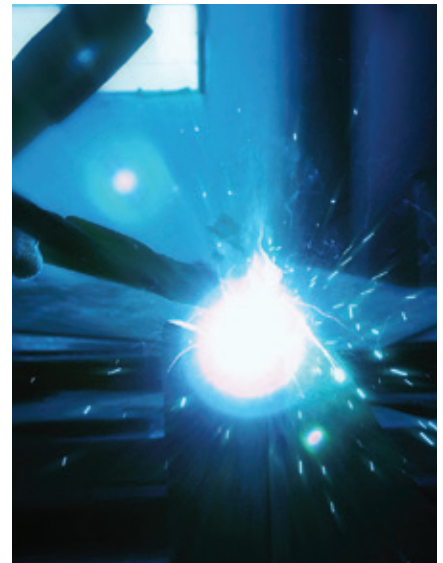
Suitable for any size and type of company with welding operations, WeldEye Welding Procedure and Qualification Management software is claimed to be up to 85 per cent faster in prolonging personnel qualifications compared to traditional methods. It has a user-friendly built-in drawing tool for sketching weld joints, enabling the creation of sketches in just one minute. Support for AWS, ASME, EN and ISO standards capitalises on the full potential of digitalised welding management.

"This is efficiency at its best in WPS and qualification management," said Vesa Tiilikka, product manager, software, Kemppi Oy. "WeldEye has been tested and proven to perform in an excellent way in the coordination of welders, operators and NDT personnel alike, regardless of the industry."

WeldEye is suitable for multi-site welding management. It generates a range of EN ISO qualifications and enables convenient qualification prolongation with internal and third-party signatures. It also has a time-saving function for copying templates, sends automatic certificate expiry warnings via email, and offers an advanced search function and content filtering.

Welders' data is transferred automatically in connection with the creation of new qualification certificates, which results in significant time saving in qualification management. When used together with Kemppi's X8 MIG welder, WeldEye enables the use of digital WPS.

Headquartered in Lahti, Finland, Kemppi's offering includes welding solutions – intelligent equipment, welding management software and expert services – for both demanding industrial applications and ready-to-weld needs. Local expertise is available



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One- to four-axis motor controller

A NEW all-in-one scanner controller has been developed by Phoenix Inspection Systems that is capable of manipulating one to four motorised axes simultaneously in a precisely controlled and coordinated manner.

'Drive' incorporates an industry-standard military grade connector ensuring compatibility with existing scanning devices. Linear amplifiers provide 150W of motor power, for interference-free NDT signals.

Equipped with a powerful integrated touchscreen PC, Drive has built-in automated scan plans that are fully customisable. A flexible GPIO interface permits synchronised control over other equipment such as pneumatics, sensors and cameras. With rugged, site-ready construction, Drive provides the added advantage of remote control via Ethernet, so it can remain in-situ on sensitive inspection sites without an on-site inspection engineer.

Neil Hankinson, engineering manager at Phoenix Inspection Systems, said,

"Having commissioned many automated scanners with a range of third-party motor controllers, we are aware of a number of shortcomings with other available systems that can cause problems for ultrasonic inspections. Our focus has been to develop a control instrument that minimises electrical noise and interference and hence provides the highest quality inspection data. Drive has been produced as a stand-alone, low-noise motor controller that can pass encoder information to slave data acquisition instruments. We can also provide a motion control command library for system integrators who wish to control Drive from their own software."

Phoenix Inspection Systems specialises in the design and manufacture of ultrasonic, non-destructive testing (NDT) solutions for sectors including energy, aerospace, process industries and rail. Established for over 30 years, Phoenix offers a wide range of standard NDT products and provides custom-made solutions to clients worldwide.



The controller of the Drive system

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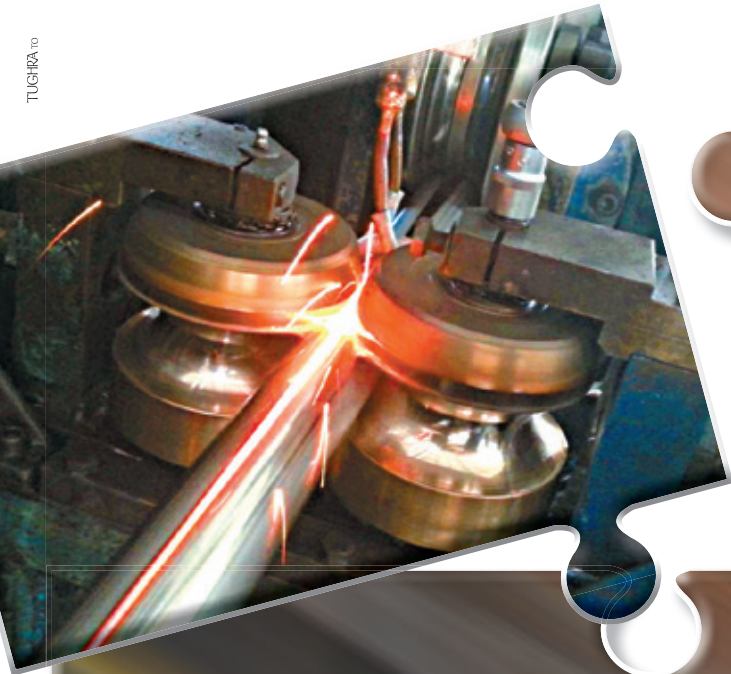
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Solution for plant and pipeline design

SMALL companies and offices without a dedicated CAD program, and that are seeking a pipeline design solution, are likely to benefit from software solution Smap 3D Plant Design Studio, which has recently been unveiled.

Companies with an urgent need for practicable and easy-to-learn software would also benefit, according to the creators.

Small and medium-sized plant design has now become digitalised and the demand is increasing for 3D software suitable for day-to-day construction.

Until now there was no complete solution that could combine two applications: a cost-effective 3D CAD software on the one hand, and a software solution for 2/3D pipeline planning on the other hand, based on a comprehensive process chain for automated data transmission with centralised definition of pipe specifications. This gap has now been closed with the 3D CAD solution Smap3D Plant Design Studio.

The CAD system not only has all essential functions for direct modelling but is also easy to use.

The integrated Help function features videos with instructions on many topics. The user interface is also highly intuitive and is similar to the interface of MS Office products.

Another feature is beneficial to offices whose clients use different CAD systems: Smap3D Plant Design Studio can immediately import all established formats (STEP, IGES, DXF, DWG and Microstation) at the touch of a button. This fast import ensures that the designer can begin working and process the data immediately. 2D data can also be transferred into the 3D CAD (incl Wizard) with a mouse-click.

Through the combination of CAD with pipeline design software the user achieves consistent process reliability. At the same time, fast and stable construction is ensured: centralised, company-specific and project-specific pipe specifications are defined through the one-time input of data.

The pipe specifications allocate components such as fittings or mountings to pipeline characteristics such as diameter or medium. Working with pipe specifications and the already integrated standard pipe specifications with over 120,000 standard parts


enables immediate use of the software. Tim Frie, sales manager at Smap3D Plant Design, said: "There are a number of companies that have a CAD system with more than one functionality, but only a fraction of these functionalities are needed.

"At the same time, however, there is no CAD solution currently available that is particularly suited for plant design

by simplifying and partly automating pipeline planning."


Smap3D Plant Design provides three components in a single software solution for an integrated process chain: Smap3D P&ID, Smap3D Piping and Smap3D Isometrics.

CAD Partner GmbH – Germany
Website: www.smap3d.com




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New transfer system for increased flexibility

SCHULER has conducted a live demonstration, at its premises in Canton, Michigan, USA, of the Intra Trans automation solution for single presses. The transfer will be on display in the SIC lobby until the end of December.

The transfer rails of the Intra Trans do not work through the press window, but are mounted between the press uprights. Parts are moved in the transport direction by movable carriages that sit on the transfer rails, where servo drives are integrated into the rail.

Each carriage of the Intra Trans can be moved individually, enabling the central joining of parts or even different distances between stations. By using this compact transfer system, the same transfer press can produce larger parts.

This solution also offers an alternative to progressive die manufacturing. Conventional transfers require a larger press for the same maximum part size. The compact design of the Intra Trans means it needs only the same space as the progressive die.

The transfer makes the most of its key advantage – reducing material consumption – as the parts are transported by the carriages and not by the coil material itself. In progressive die manufacturing, additional material is required which must later be separated from the finished stamping as scrap. The Intra Trans is therefore suitable for retrofitting, which reduces the per-unit costs of existing progressive die presses.

“The installation of a new transfer is an effective and cost-efficient way to modernise existing lines,” explained Paul Nicholson, CEO of Schuler North America. “Reliability, precision and throughput capacity are improved.”

The Schuler Intra Trans can be equipped with all part weights and stroke rates, from ‘L’ (light) to ‘S’ (speed). The available capacities are designed for use on presses with bed sizes of up to 8,100 x 3,100mm (319" x 122"). Applications range from smaller parts, such as seat rails and axle brackets, to doors and hoods.



Schuler's automation solution

Schuler's Active Vibration Dampening system ensures reliable part transfer for all three transfer solutions.

All models include transfer drive housings that can be mounted inside the press, between the press uprights or externally on the press uprights. The drive housings can be installed above the feed level or below the feed level/passline.

Schuler AG – Germany
Website: www.schulergroup.com



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Made in Italy

Braude (London) acquired by Heatrod Elements

BRAUDE, based in Sandhurst, UK, has announced its acquisition by Heatrod Elements, a member of the Backer Group and part of NIBE.

The Backer Group is a leading company in the design and manufacture of components and solutions for measurement, control and heating.

David Snoxhill, general manager of Braude, said: "Joining the Backer Group will give us the influential presence and financial backup of a large group, coupled with access to many products throughout the NIBE group which will enhance the Braude range and allow it to grow further."

Simon Ellam, managing director of Heatrod Elements Ltd, added: "The products and expertise developed by Braude in this specialist area of application was clearly an excellent fit for NIBE and the Backer group of

companies. Braude have prestige clients and the ability to not only supply products into particularly harsh environments but also the engineering expertise to help design a complete solution. We see these capabilities as a very good strategic fit with our growth in industrial market sectors."

By continually developing and expanding its range of UK-manufactured acid-proof equipment, such as Polaris heaters, Nautilus heat exchangers, Levelmaster and Tankmaster controllers and chemical transfer pumps, Braude is seeking to move with the times.

Braude (London) Ltd will continue to run its operations from its premises in the UK.

E Braude (London) Ltd – UK
Website: www.braude.co.uk


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BBLUBRICANTS produces and manufactures polymer-based lubricants to meet demands in environmental and clean production. Products are designed for a wide range of metalworking operations, including tube bending, deep drawing, stamping and punching.

Performance and cost are factors in the decision between synthetic lubricant and mineral oil. BBLubricants states that a synthetic base can provide performance benefits such as improved energy efficiency, wider operating temperature range, reduced maintenance costs, better reliability and safer operations. A key element when developing synthetic BBLubricants is easy clean-up. Water-based lubricants are easily washable using only warm water.

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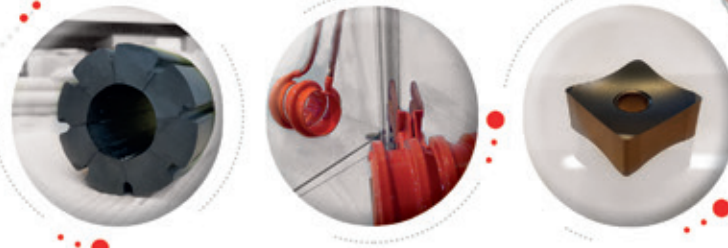
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Enhanced fibre lasers with power up to 1,000W

AMADA Miyachi America, a manufacturer of resistance welding, laser welding, marking, cutting and micro machining equipment and systems, has added four new higher power models to the LF Series range of fibre laser welders. The addition of the new models will address thicker materials or increase processing speed for a given application.

The company now offers an LF Series fibre laser in power levels ranging from 250W to 1,000W in the same form factor and with the same features.

With the precise control needed for small component welding and fine precision cutting of metals, the LF Series fibre lasers are suitable for micro spot welding, seam welding and precision cutting. They are also an option for medical spring attachment and medical component assembly, as well as battery tab welding.

The LF Series offers continuous wave and modulated fibre laser technology with both single-mode and multi-mode options. Featuring a large touchscreen pendant that enables clear visibility of process schedule parameters, the LF Series has an intuitive interface that offers users quick and easy programming.

All models in the series enable spot sizes down to 10 microns for thin metal welding, with welding penetration depth beyond 4mm (0.16") in metals. Their power stability provides reliable results.

The new models incorporate the most recent enhancements to the LF Series, including a new chiller updated to

accommodate laser engines with up to 1kW of average power. This additional capacity improves performance in hot environments. Several other chiller design changes make routine maintenance easier.

In addition, the new models feature improved industrial design, adding safety and serviceability features.

The back panel has been modified for improved airflow to extract heat from the chiller, and the front door and frame have been updated for improved appearance and functionality.

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Electrofusion machines from MSA Engineering

MSA Engineering Systems Ltd has won its second Queen's Award for Enterprise Innovation. The award was announced in April, on the birthday of Her Majesty The Queen.

The electrofusion technique is used when water and gas pipes require joining to other pipes and to other accessories. An electrofusion fitting has an embedded heating coil of wire, which is placed over two thermoplastic pipes (as a sleeve) and is energised to melt the plastic of the pipes and corresponding fitting, fusing them together.

The traditional electrofusion fitting manufacturing process is complex and can have quality issues, according to MSA Engineering Systems. The company has created a wire-laying system for installing heating wires into curved surfaces for the production of electrofusion saddle fittings, overcoming the limitations of traditional manufacturing methods.

The same electrofusion wire-laying principle can be applied in cylindrical



The SWL saddle wire laying machine

parts to manufacture electrofusion fittings for large diameter pipelines, or smaller specialist electrofusion fittings.

The company states that the benefits to fittings producers include higher quality products, lower manufacturing costs and the ability to make special parts that previously were not possible.

Downstream pipeline installers can benefit from reduced installation time, leading to improved continuity of gas and water supply for end users.

MSA Engineering Systems Ltd – UK
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X-ray measurement technology from Zumbach

IN order for a manufacturer to select a measurement and control solution with the best price/performance ratio, suitable technology must be chosen.

After many years of experience in using eccentricity gauges with X-rays and ultrasonic, laser diameter and inductive measurement devices for different products and materials, Zumbach has expanded the X-ray family for dedicated tube and hose applications.

Zumbach's static X-ray system Rayex® S has been specially developed for use with any kind of foamed pipe, vulcanised products and hydraulic hoses.

Rayex® S measures and controls diameter, ovality, wall thickness and eccentricity of single- and multi-layer products with up to four layers.

It provides precise measuring values and high reliability for pipe and hoses with an outside diameter of up to 80mm. The system features the latest X-ray technology and software solutions.

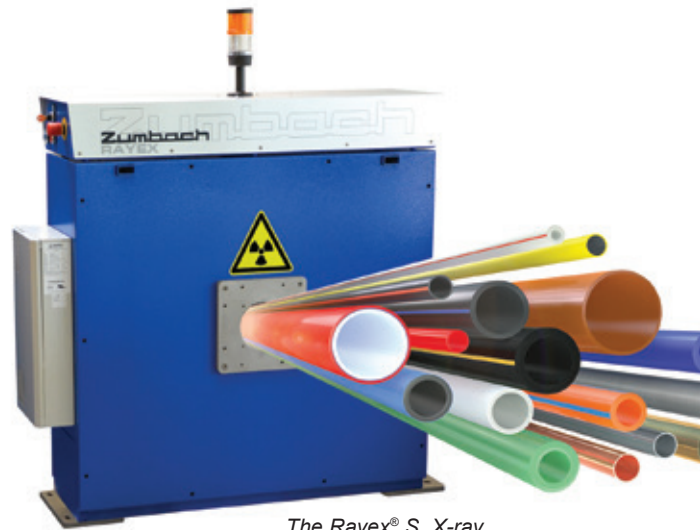
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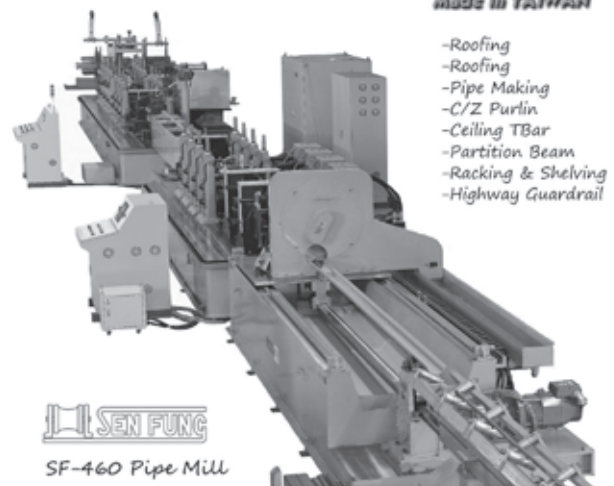
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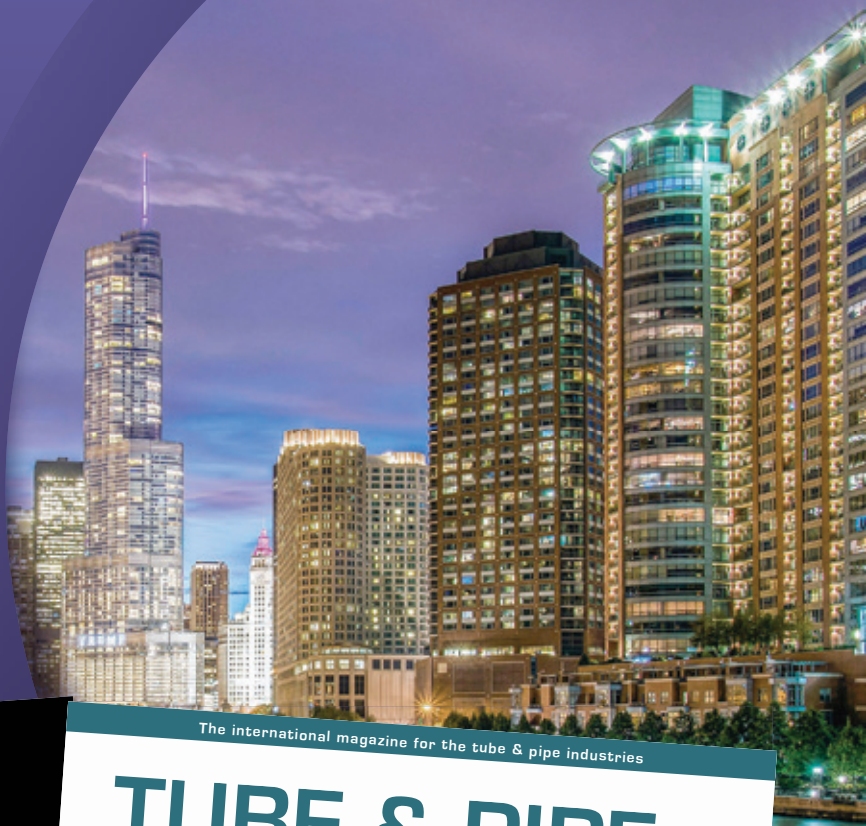


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The GMAW automated pipe spool welding solution – Rotoweld

THE Rotoweld is a fully automated pipe welding work cell developed specifically for industrial pipe prefabrication, small pressure vessel manufacturing or similar 1G welding projects. It integrates machine vision, adaptive control and robotics technology in a complete dedicated solution that is fast and offers full penetration 1G high quality welding.

Because of the adaptive controls it welds the open root automatically, in a normal set-up situation. There is always some degree of variation in gap and land and there is also some misalignment of the wall. This is no problem for the Rotoweld. Its 'welder's' eye (machine vision) checks penetration and its 'welder's brain' (adaptive controls) reacts and adjusts parameters as required to obtain a good penetration all around. Fills and caps are welded with fixed settings.

This system is up to five times faster than SMAW and uses GMAW for the root, the hot pass and the cap. The work cell can process spools from 4" to 42". It can weld pipe to fitting connections and welds carbon steel pipes with standard wall at one dia-inch per minute, root, fill and cap included.

The Rotoweld can weld 12" carbon steel pipe with standard wall in only 12 minutes, for example. The Rotoweld 3.0 welds the root with GMAW and the fill and the cap with GMAW, FCAW or SAW.

The Rotoweld is also easy to operate: at full swing one operator controls the welding and one operator the unloading and loading of pipe-spools. A capacity of 300 dia-inch per shift is possible.

The Rotoweld is also of a modular build. The user has the option to choose to work with a single bay or twin bay. However, the twin bay system has major advantages and is currently the most popular set-up. The twin bay is the most efficient choice because of the ability to work on two bays at the same time and the higher output this leads to.

The vision-based technology enables the operator to control the process from start to finish. The system continually analyses the image of the root weld pool picked up by a video camera incorporated in the welding arm. Unique algorithms use this information to adjust welding parameters such as travel speed, wire feed rate, arc voltage and weaving width, constantly adapting the process to varying conditions such as changes in gap, alignment, root face or temperature.

Full-penetration root pass in an open bevel joint represents the ultimate in pipe welding skills and this applies in the fabrication of pipe spools; that is, a sub-assembly of pipes and fittings welded in pipe shops and then sent into the field. If the welder deposits metal too far above the weld pool, it sinks and cools



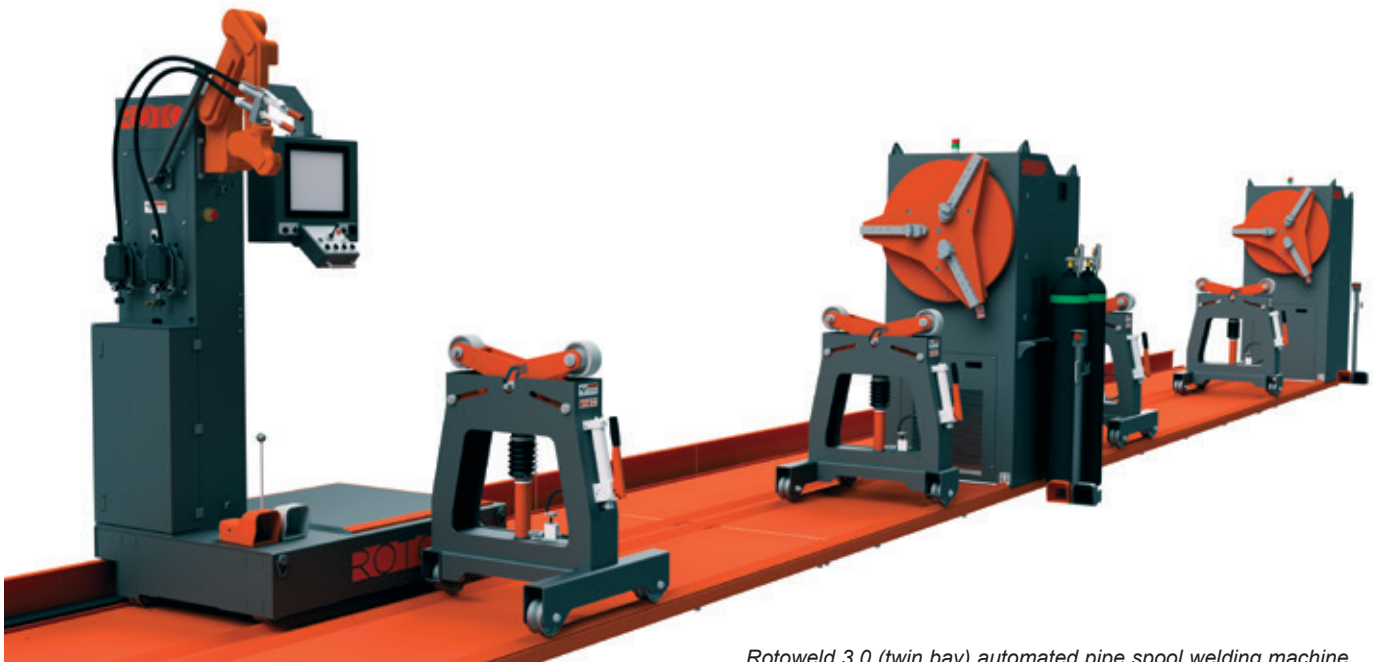
prematurely, so fusion is incomplete. But if the welder keeps the arc in front of the weld pool, and at just the right height, hot metal flows toward the root and a full-penetration root pass is obtained.

At the Schweißen & Schneiden exhibition in September, Copier will exhibit the Rotoweld and would be happy to welcome visitors to stand 10B04.

In 2014 the company released the third iteration of the Rotoweld 3.0 technology, which uses a custom robot to perform 1G girth welds. The robot arm performs the root, fill and cap passes with one welding gun and can be configured for multiple processes.

For example, a thick walled pipe might call for GMAW for the root pass and SAW for the fill and cap passes.

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Rotoweld 3.0 (twin bay) automated pipe spool welding machine

Pipe spool surveying and measurement

SPECIALIST pipework set-up and measurement software developer mltech is celebrating the completion of several contract wins, totalling six figures, for the provision of its pioneering automet technology and associated training.

automet enables direct transfer of design information from plant design systems, which can then be compared with survey data to give fast and accurate certificates of conformity. It also allows a reliable, safe and cost-effective way of replacing existing (or installing new) pipe and steelwork by removing the requirement for hot work.

Earlier this year mltech completed its first training contract in pipe spool surveying and dimensional control for engineering company Ocean Kinetics. The firm has also provided training to Forsyths Ltd's pipework surveyor to enhance its staff's skills for fixing and reporting interface surveys on preassembled skid units, ultimately increasing Forsyths' survey capability. On an international level, mltech's



Mike Lloyd

new clients include SDL Nobel, one of the largest steel fabricators in Baku, Azerbaijan, for which the team provided training for the pipe spool measurement within the fabrication process to workshop personnel over a five-day period. USA-based Becht Engineering

tripled the amount of automet software licences held with mltech, while key personnel within IKM Mekaniske in Norway also received training for pipe spool measurement, and the company signed a further hire contract with mltech. DEE Development Engineers, based across India and Thailand, also added a new licence to its pool of automet licences.

Mike Lloyd, managing director of mltech, said, "It's been a successful first half of the year for mltech on both a local and international level. We're delighted to have secured clients around the world and build on our training offering, which is a key component for the success of any company. The varied scope and location of these achievements also underpin our view that, regardless of whereabouts, time and cost savings are at the forefront of effective solutions of the energy industry."

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North America's largest metal forming, fabricating, welding and finishing event heads to McCormick Place in Chicago, Illinois, USA, from 6 to 9 November 2017. The upcoming event is expected to cover more than 550,000ft² and it is anticipated that over 40,000 attendees and 1,500 exhibiting companies will take part over the four days of the show.

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A Tube Producers' and Suppliers' Pavilion is at the event this year due to rising demand from the tube industry and the tube trade for a separate segment covering tubes, tube end products and the tube trade.

GLOBAL MARKETPLACE

Steel

Net steel exports

India's *Economic Times* reveals that consumption of carbon steel grew by over 7 per cent in June, compared to the same period last year, but that net steel exports declined to their lowest level in the last 12 months. Overall steel consumption grew by a small margin of 5.3 per cent, year-on-year in June, taking the growth in consumption in the quarter ending 30 June to 4.6 per cent.

Major producers benefitted the most as carbon steel production grew by 7.3 per cent in June. Brokerage firm Edelweiss reported that Tata Steel and Rashtriya Ispat Nigam continued to gain market share, compared to the stable production of minor players.

"In our view, if domestic demand holds firm, the supply-demand equilibrium in the domestic market is likely to [be sustained] ...aided by [a] recent pick-up in [the] Chinese export price," the report said.

Dispute brought to an end

After initiating legal proceedings against Essar Steel Minnesota for a claim of over \$1bn, citing unmet iron ore supply pacts, ArcelorMittal has agreed to a compromise and the claim lowered to \$605mn. The development is significant because Essar Steel Minnesota is reorganising as Mesabi Metallics in a US bankruptcy court, and a deal with ArcelorMittal will avoid an expensive legal battle.

DNA Money reports an ArcelorMittal spokesperson, confirming: "ArcelorMittal is pleased to reach an agreement, without litigation, with Mesabi Metallics' bankruptcy estate on the amount of ArcelorMittal's allowed claim."

The legal document submitted to the court on 5 July shows the ArcelorMittal claim allowed as a "general unsecured claim in the amount of \$605mn". The agreement also states that the debtors have analysed the underlying contracts and believe that the allowed amount of the ArcelorMittal claim, as fixed by the agreement, is "fair and reasonable". The US court is expected to ratify the agreement. The claim arose in September 2016, when ArcelorMittal argued that its North American operations were forced to buy expensive iron ore from other producers, despite having a firm ten-year agreement with Essar Steel.

Steel trade tension

The dry bulk market faces further complications from shifts in steel trade policies. In its weekly report, Allied Shipbroking noted that "trouble seems to be looming once more in the

steel industry as US President Trump puts forth his plans for specialist protectionist measures for the badly weathered US steel industry. This latest push has been based on a Cold War-era trade law that would allow him to restrict imports of any goods or, in this case, commodity, which is deemed to be critical to national defense."

The new administration launched a special investigation into steel imports, and whether the 1962 law conditions were met to justify a limit to imports as a threat to the country's security. George Lazaridis, Allied's head of market research and asset valuations, said: "With this backing, it looks as though the Trump administration is now set on course to impose such quotas and tariffs and, to make matters worse, it could in effect cherry pick particular exporters and... freeze any further imports from those locations of origin."

He continued: "As expected, this came under a 'fire barrage' at the World Trade Organization... with some of the most prominent countries to be affected, namely China, the European Union, Brazil, Australia, Taiwan and Russia, raising serious concerns. It seems as though we are now in the midst of a potential trade war, as countries take steps to retaliate in the case that the proposed protectionist measure is implemented."

Moves in advance of metals import limits

US domestic flat rolled steel mills were raising prices in June, as they awaited Department of Commerce Section 232 recommendations on steel. Section 232 of the Trade Expansion Act of 1962 authorises the secretary of commerce to investigate the effects of imports, and how they might affect the overall security of the US. In anticipation of decreased competition from foreign steel, every major US and Canadian flat rolled sheet mill announced \$30/ton increases. According to the Steel Market Update index benchmark hot-rolled pricing was approaching \$600/ton after declining to an average of \$580/ton.

Price announcements, and the resulting surge of orders from service centres and end users, brought order lead times up to four weeks, depending on product, producer and location. And extended lead times also reassured North American steel mills.

At time of writing there was still no deadline for the Section 232 investigation results, although the *Guardian Australia* was reporting that Australian steel and aluminium manufacturers will be exempt from any imposed US import tariffs.

The G20 Summit concluded on 8 July with some concessions made by members on trade. Pressure from the United States resulted in a G20 joint statement including a more strongly worded pledge for members to "fulfil their commitments on enhancing [steel] information sharing and cooperation by August 2017, and to rapidly develop concrete policy solutions that reduce steel excess capacity".

Is allocation in sight?

A review by *The Fabricator* indicated that US mills are anticipating allocation measures, with mills “vowing” to protect current and loyal customers, rather than “bump them out” in favour of new customers willing to pay the higher spot pricing. The vice president of a large US-based service centre responded: “I find this disturbing, as 232 is yet to be announced, and the mills are already talking allocation language. Almost like the mills were tipped off on what is coming?”

Allocation could leave a steel-buying and using company unable to get the steel it needs. *The Fabricator* commented: “Steel buyers are also potentially in jeopardy whenever the US government gets involved with picking winners and losers.”

The form that sanctions against imports might take is still an unknown, with educated guesses ranging anywhere from a 30 per cent tariff to a trade rate quota (TRQ) system. Steel Market Update’s prediction is that Commerce Secretary Wilbur Ross will recommend a formula for determining the “normal” level of imports, put a collar around that average and subject imports that exceed it to a very high tariff.

Picking the appropriate time period for the TRQ formula will be politically and emotionally charged. If the time period is a five-year average, with the suggestion being prior to the surge in imports in 2014-2015, then we may be looking at the years 2009-2013. Yet, due to the prolonged recession, 2009-2010 were two of the worst years for both the international and domestic steel industry.

Many in the industry believe restricting foreign steel is a bad idea, including manufacturers that rely on foreign steel, ports that handle foreign steel, logistics and trading companies that support foreign steel, and even certain segments of the government.

This summer will also see the start of a one-year review of the anti-dumping and countervailing duty trade cases on corrosion-resistant, cold-rolled and hot-rolled steel.

The steel industry continues to live in interesting times.

Oil and gas

Qatar blockade

Qatar energy and industry minister Mohammed al-Sada has said that the current economic and diplomatic blockade imposed by Saudi Arabia, Egypt, Bahrain and the UAE will continue to have a limited impact on its oil and gas trade. He explained that Qatar: “Has never failed a single shipment and has not compromised on its long-standing image of being a

reliable supplier of energy to all corners of the world.” Sada spoke at the World Petroleum Congress in Istanbul.

S&P Global Platts Analytics reports that Qatar is the world’s largest LNG supplier, having exported 78.8 million tonnes of LNG in 2016, over 30 per cent of global supply of 257.8 million tonnes, with an increasing share of its production delivered to emerging Middle Eastern buyers, including Egypt and the UAE.

Sada assured the conference that the blockade would not have a wide impact as: “Total exports in trade to Saudi Arabia, UAE and Bahrain account for less than 8 per cent” of its total global trade, continuing that total trade flows of energy to Japan, India, South Korea and China – the main centres of oil demand growth – account for three quarters of its exports, and trade to these nations “remains unchanged”.

The countries accuse Qatar of supporting terrorist groups and seeking to undermine regional stability; all claims that Qatar strongly denies.

Pipeline to Mexico

Oil & Gas Journal’s Washington editor writes that NuStar Logistics LP has received approval from the US Department of State to construct a 108,000-barrel-per-day pipeline to Mexico. The system will cross the US-Mexico border near Penitas, Texas, carrying oil products. President Donald Trump mentioned the project in his energy policy reforms address on 30 June.

The 10" Burgos pipeline will parallel an existing line already in operation, and will use the same right of way between NuStar’s Edinburg, Texas, terminal and Petroleos Mexicanos’ gas plant near Reynosa, Tamaulipas.

NuStar also received cross-border permits for the existing Dos Laredos and Burgos pipelines, authorising transportation of a broader range of petroleum products.

Energy bills

On 28 June, the US House Energy and Commerce Committee approved three bills aimed to establish realistic ground-level ozone limit implementation schedules, facilitate interagency reviews of proposed natural gas pipelines, and to create a process to review applications for cross-border gas pipelines and electricity transmission lines.

HR 806, introduced by Energy Subcommittee vice-chairman Pete Olson, cleared the full committee by a 29-24 vote. It will grant more time to states that have not yet implemented 2008 National Ambient Air Quality Standards, without triggering penalties for failing to meet the current schedule. The committee also passed, by a 31-20 vote, HR 2883 to promote cross-border energy infrastructure, introduced by Oklahoma Republican Markwayne Mullin.

A third bill, HR 2910, passed by a 30-23 vote, aims to improve coordination among the US Federal Energy Regulatory Commission and other agencies in siting interstate gas pipelines.

These, and five other energy and infrastructure bills, will now pass to the House floor.

Energy advocacy, by any other name

On the tenth anniversary of the formation of the Institute for 21st Century Energy, the US Chamber of Commerce broadened the energy advocacy group's focus and renamed it the Global Energy Institute. Speakers at the 20 June event affirmed the redesignation as reflecting the country's energy progress since 2007, and placing a new emphasis on using its position as "the world's top oil and gas producer" to help other countries grow.

"Some things have changed. Some haven't. We still wake up each morning determined to build the country's global energy presence," observed Karen A Harbert, president of the institute, while others applauded the organisation's contributions in helping build a more robust domestic energy dialogue.

Daniel Yergin, vice chairman of industry watcher IHS Markit, said that the institute's focus, analysis and advocacy are vital during a period when the US is undergoing an energy renaissance. "When it was launched, the peak oil debate was strong. Even at that time the shale revolution had begun, but the news hadn't travelled far yet," he recalled, continuing: "That revolution changed the global energy outlook and was recognised sooner outside the US than in. Now, at a time when US influence in the world supposedly has declined, this is one area where it definitely has increased."

Senate Energy and Natural Resources committee chair Lisa Murkowski (Alaska) noted that 20 June was also the 40th anniversary of the Trans-Alaska Pipeline System (TAPS). "Our task today is to refill TAPS, which is only one-quarter full today. That's unacceptable when it's close to so much potential oil production."

Industry

Macron's old-school policy?

Reuters correspondents report that President Emmanuel Macron's government, apparently looking to "liberate" France's economic forces and transform it into a country of entrepreneurs, is hardly breaking with tradition in its first big industrial test. The report said that, while Macron likes to spend time talking about France as a 'start-up nation', his government is using a time-honoured recipe of taxpayer cash, and leaning on big companies in which it has a stake, to rescue the car parts supplier GM&S.

Benjamin Griveaux, the secretary of state for economic affairs, is hopeful a buyer has been found for GM&S, but the deal demands the state supplies \$5.7mn to finance investments, with a further similar sum each from the buyer and the carmakers Renault and PSA Peugeot Citroën.

"It's not up to the state to do everything," Griveaux told RTL radio: "It's also not up to the state to stump up the totality of the funds in this case. Its role is to get everyone involved and around the table."

Though Macron's economy minister, Bruno Le Maire, has been instrumental in the efforts to save GM&S and preserve the 277 jobs in a rural area where work is scarce, he stated irritably: "It's typical of the French system. A company was set up in the 1970s... to bring activity to a region. There is no industrial network around, there's only a few big clients for a small company. It's just not solid."

Originally a children's scooter maker, GM&S adapted to supply mainly Renault and PSA with car parts, but gradually became uncompetitive. The government, which holds sizeable stakes in both Renault and PSA, has encouraged the carmakers to continue to keep orders flowing to GM&S.

Manufacturing

Bankruptcy in the manufacturing sector exceeds all others

Business credit analyst Creditsafe USA has reported its findings from an analysis of the US manufacturing industry. Despite recent overall consistent performance, the study highlights several areas of concern across the entire sector, in particular the rate of bankruptcy, signalling the possibility of an industry slowdown. With the manufacturing industry being the major employer in the US, any decline is likely to impact on the overall US economy.

According to data from the Bureau of Economic Analysis, manufacturing is the largest sector in the US with approximately 600,000 actively traded companies. Representing 16.35 per cent of all companies in the country, it is the biggest sector for both number of people employed and annual sales revenue. In 2016 US manufacturers contributed \$2.18 trillion to the US economy, representing 11.7 per cent of the overall GDP.

Manufacturing's overall bankruptcy rate of 0.34 per cent, while an improvement from recent years, is higher than the overall national average. In addition, the industry faces increasing pressures from cheap offshore imports and the increasing cost of raw materials. Recent bankruptcy filings by companies such as the industrial storage tank manufacturer CST Industries Inc, and Suniva, a manufacturer of solar cells, hint at the potential future of the sector.

The majority of US manufacturing businesses have been in existence longer than those in other industries, with more than 23.88 per cent operating for two to five years, compared to only 2.32 per cent nationally. 2012 to 2015 saw a 35 per cent decrease in the number of bankruptcies in the manufacturing sector, but the overall bankruptcy rate remains significantly higher than that of other business areas. At 362, manufacturing industry ranks third in the highest number of bankruptcies per 100,000 companies, behind construction with 459 and other services at 412.

Matthew Debbage, CEO of Creditsafe USA and Asia, concluded: "The sheer size and nature of this industry makes

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it extremely vulnerable to many external market forces. It is a sector that needs to be closely monitored, as it poses a significant risk to the health of overall US economy if there is continued decline.”

US labour outlook

A survey by Reuters, examining the labour situation, suggested an increase in hiring during June and an increase in wages for workers, both signs of US labour market strength that could keep the Federal Reserve on course for a third rise in interest rate. The economists surveyed expected the Labor Department's employment report to show that non-farm payrolls increased by 179,000 jobs during June, after gaining 138,000 in May. The unemployment rate is forecast steady at a 16-year low of 4.3 per cent, having dropped five-tenths of a percentage point this year and matching the most recent Federal median forecast for 2017. Economists say labour market buoyancy could also encourage the US central bank to announce plans to start reducing its \$4.2 trillion portfolio of treasury bonds and mortgage-backed securities in September.

“June's employment report could provide sufficient evidence to Fed officials that they are still positioned to proceed with their monetary policy normalisation plans in the second half of the year,” commented Sam Bullard, a senior economist at Wells Fargo securities in North Carolina.

The Federal Reserve raised its benchmark overnight interest rate in June for the second time this year, but with inflation retreating further below the central bank's 2 per cent target in May, economists are not expecting another rate rise before December.

June's anticipated employment gains would be close to the 186,000 monthly average for 2016 and reinforce views that the economy picked up speed in the second quarter after a slow start to the year. There is growing anecdotal evidence of companies struggling to find qualified workers and, as a result, some companies are increasing wages to attract and retain the workforce.

Economists expect worker shortages to boost wage growth. Ryan Sweet, senior economist at Moody's Analytics in Pennsylvania, said: “The days of month after month of 200,000 jobs being created are likely behind us,” yet the economy needs to create 75,000 to 100,000 jobs per month to keep pace with growth in the working age population. President Donald Trump inherited a strong job market from the Obama administration, but has pledged to boost economic growth and strengthen the labour market by slashing taxes and cutting regulation.

Aerospace

Boeing winning the orders battle?

Up to 30 June, Boeing delivered 352 aircraft, ahead of Airbus with a six-month total of 306, but Airbus narrowed the delivery gap to 46 aircraft, trimming Boeing's first-half advantage by 31 aircraft compared to results in 2015 and 2016.

According to data released by both manufacturers on 7 July, Boeing was off to a good start on first-half orders this year although, in recent years, the European manufacturer has often won the full-year result. In the first half of 2017, Boeing collected 381 net orders, opening a margin over the Airbus total of 203 in the six months ending 30 June.

But troubles elsewhere

FlightGlobal reports that Thai Airways International has grounded some of its Boeing 787-8 fleet due to turbine replacement issues with the Rolls-Royce Trent 1000 engine. The carrier says it is working with Rolls-Royce, and expects the problem to be resolved by September.

Thai's acting president, Usanee Sangsingkoo, said in a statement: “Due to the shortage of Boeing 787 Dreamliner engine spare parts, it is necessary that some aircraft of this type must be parked and temporarily cannot be operated,” continuing that this: “Is a problem that affects Thai and other airlines worldwide whose 787 aircraft are equipped with Rolls-Royce Trent 1000 engines [with] turbine blade problems.

“As this problem may affect flight safety, Thai has removed these engines from its aircraft and sent them for repair at the Rolls-Royce technical maintenance centre in Singapore.”

Looking to a UK-US trade deal

In an announcement given comprehensive coverage in the UK media, but unsurprisingly little elsewhere, President Donald Trump said at the G20 summit in Hamburg that he expects a “powerful” trade deal with the UK to be completed “very quickly”.

A UK government official confirmed that in private talks, Mr Trump and the UK prime minister Theresa May agreed to prioritise work on a post-Brexit trade deal, adding that the president made it clear he believed Britain would “thrive” after leaving the European Union. The two leaders were said to have spent a significant amount of time on trade in a discussion described as entirely “positive”. Mrs May had been expected to urge Mr Trump to reconsider his decision to take the US out of the Paris Agreement on climate change.

Mr Trump hailed the “very special relationship” he had developed with Mrs May, adding: “There is no country that could possibly be closer than our countries. We have been working on a trade deal which will be a very, very big deal, a very powerful deal, great for both countries, and I think we will have that done very, very quickly.” However, under EU rules, the US and UK are unable to begin negotiations until the UK has left the European Union (March 2019) unless Brussels agrees to an earlier start.

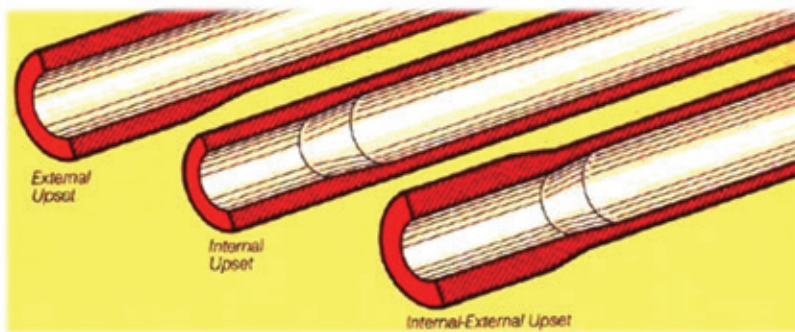
Trade talks can be complex and technical, and take several years. For example, the EU and Japan took four years to reach an agreement in principle, but those discussions involved 29 nations, whereas UK-US talks will involve just two. If the political will is there, a UK-US agreement could perhaps be completed more quickly than is the norm for trade pacts. Talks will cover reducing customs duties on products such as cars and food, but the average UK-US tariff is relatively low at 3 per cent, and huge amounts of trade are already taking place.

By Gill Watson – features editor

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OPENING TIMES

18 to 23 September: 9:00am – 6:00pm

ORGANISERS

VDW — German Machine Tool
Builders' Association
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E-mail: vdw@vdw.de
Website: www.vdw.de

EMO Hannover presents an unparalleled variety of products and services throughout all production areas, from machine tools and production systems for cutting and forming which form the heart of machining, precision tools, accessories and controller technology, to system elements and components for automated manufacturing.

This is what makes EMO attractive to a whole spectrum of user industries. The trade visitors to EMO come from all major sectors of industry, such as machinery and plant manufacturers, the automotive industry and its component suppliers, shipbuilding, medical technology, tool and die manufacture, steel and lightweight construction.

The trade show is organised by the German Machine Tool Builders' Association (VDW), located in Frankfurt am Main, on behalf of the European Association of the Machine Tool Industries (Cecimo).

CUTTING, SAWING & PROFILING



Photo: BLM

The expression “clean-cut” did not originate in a tube mill, but it might well have. A precise, immaculate cut, with minimal detritus, has been the ideal since tubing was first offered cut-to-length. That this quickly became an achievable goal attests to the importance accorded the cutting operation from the earliest days of the tube and pipe industry.

Only a perfectly cut or sawn end will serve the purposes of peristaltic pumping, medical diagnostics and therapeutics, and remotely piloted aircraft. Just as materials, dimensions and tolerances preside at the beginning of the production cycle for such high-end applications, repeatable and precise cutting is the essential means to a satisfactory ending.

High-speed flying cold saw powered by U-Trak technology

UNIVERSAL Controls Group (UCG), a manufacturer of industrial control systems, has introduced U-Saw, a high-speed flying cold saw for tube mills equipped with the company's Length Control System.

The new flying cold saw is available in both single and double blade version, in sizes ranging up to 16" and speeds up to 300 fpm.

The U-Saw can use either TCT or HSS blades. The 76mm (3") version

of the U-Saw will be featured at the FABTECH show in Chicago, USA, in November on Universal's booth (Tube & Pipe Hall, Booth B10057).

UCG builds new control systems, die accelerators, drives and other accessories to retrofit new or existing machinery in almost any industrial environment. Located under one roof with a used machinery dealer, Universal Tube & Rollform Equipment Corporation, their relationship enables them to offer a wide array of services.



U-Saw high-speed flying cold saw



Universal Controls Group – USA

Fax: +1 419 874 2825

Email:

sales@universalcontrolsgroup.com

Website:

www.universalcontrolsgroup.com

Responsiveness builds customer trust

WINTON Machine Company produces tube fabrication equipment and other engineered solutions for customers in the USA and in countries across Europe, South America and Asia. The company's machines have been utilised by companies in industries such as HVAC/refrigeration, electronics, aerospace and military.

Celebrating its 20th anniversary in 2018, the company partly credits its success to its responsiveness to customer requests. "Our customers know they can share their production improvement needs with us and receive custom-engineered options to existing Winton-produced machines," said George Winton, PE, president, Winton Machine Company. "When we get emails and calls asking for design help or improved efficiencies from customers or prospective ones, we are very responsive. Once the discovery process is complete, our team works to find the best upgrade or option. We've even created an innovative new machine design altogether. We are agile and flexible in our engineering design work which has allowed us to produce over 100 different tube fabricating machines."

As an example of the requests the company receives, an existing customer

asked, "Our tubing supplier identifies defects in the spool by painting that section of tubing. Do you have a way to cut this section out and discard automatically?"

This customer uses one of Winton's free-standing, all electrical tube cut-off machines that automatically feeds and cuts from a bulk spool of tubing (level wound spool) or straight lengths. The CTL-23PA automatic tube cutter makes use of two backup rolls and one chipless type cutter to cut through small diameter tubing.

With the tubing clamped, the backup rolls and cutter both move in to make the cut. As the cutter continues to come in, the backup rolls plateau on the tube's outside diameter, providing support during the chipless cutting process.

Dubbed the 'black mark detection' option, the engineering team worked to design and build an automated solution for the CTL-23PA that would sense defects marked on tubing and then remove only that section of the tube before being used in the next step of production. The Winton engineering team determined that an additional option needed to be designed and built to discard the defective section after it

was cut. An off-load table with a diverter was the solution that allows the 'good' tube material to continue into production, while the 'defective' section is sent in a different direction.

Manufacturers producing parts, commercial equipment or consumer products for the refrigeration industry will be aware of the issues related to tubing imperfections.

Another option for the CTL-23PA includes software features that enable the user to manage multiple types of cuts. Improved robust guarding was added for operator safety. Winton's standard on-board diagnostics makes the machine simple to operate, and the tube straightener has digital pressure control to compensate for the difference in the tubing's wall thickness. The CTL-23PA automatic tube cut-off machine comes standard with programmable part quantity and programmable cut length. 80 psi shop air ensures the tube is clamped. Winton Machine will be exhibiting at FABTECH 2017 in Chicago, Illinois, USA, from 6 to 9 November.

Winton Machine Company – USA

Email: sales@wintonmachine.com

Website: www.wintonmachine.com

M-Steel Calculator digital service tool

OVAKO has launched the M-Steel Calculator, a digital tool based on the company's Steel Navigator platform, which guides customers in identifying the right machine settings based on steel properties and cutting tools.

The M-Steel Calculator also allows customers to compare tool life and cutting speeds between M-Steel® from Ovako and conventional steel.

"We are pleased to be able to offer our customers the M-Steel Calculator for comparison and verification of the correct machine settings," said Göran Nyström, EVP group marketing and technology. "Similar digital tools on the market have until now been based only on the equipment and not the type of steel being used. With the M-Steel Calculator, we can provide our customers with an efficient and user-friendly way to calculate the right settings and evaluate the difference in processing costs between M-Steel from Ovako and conventional steel."

The M-Steel Calculator is a development of Ovako's Steel Navigator, a



M-Steel Calculator's start page

platform to help customers identify the best steel, and is part of the company's digitalisation strategy. Primarily aimed at operators in the automotive and engineering industries, it is based on Ovako's M-Steel, which has characteristics that improve machining

and can enhance the life of cutting tools. The calculator is available for computers, tablets and smartphones.

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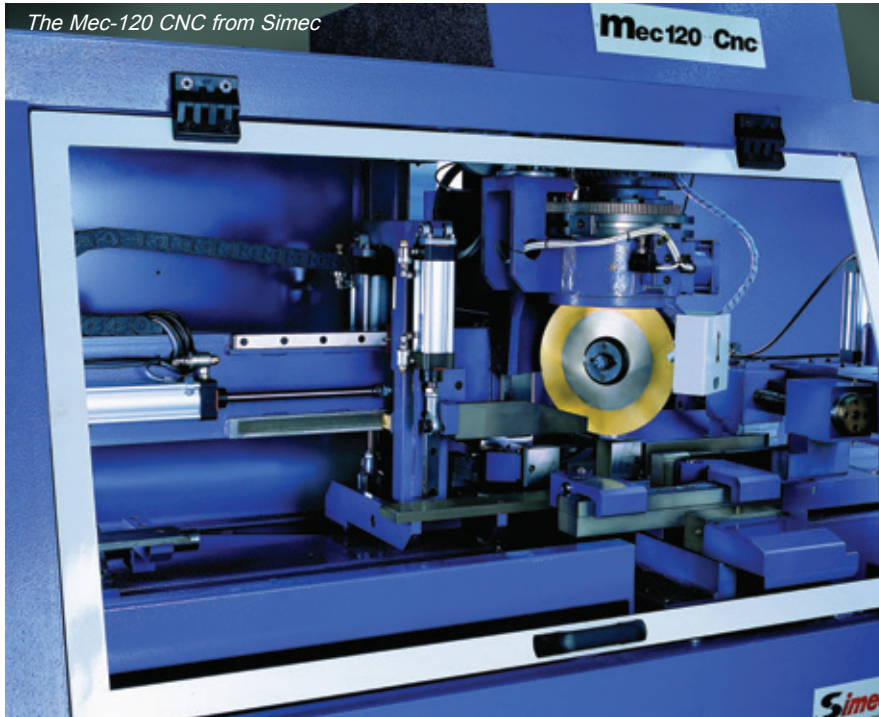
Fully automatic CNC machine

SIMEC from Italy offers a fully automatic CNC machine designed to utilise DMO5 circular saw blades and all their derivatives. The machine can cut to any

pre-programmed angle of $\pm 60^\circ$ and has the ability to cut intersecting angles on the end of a wide selection of material types. With a choice of three loaders the machine is suited to load and feed both symmetrical and asymmetrical profiles.

The CNC control uses a sophisticated program that is able to process all the data and then select and optimise this to give the greatest efficiency with the minimum of waste. Particular attention has been paid to reducing the scrap end of the material so that this can be as little as 20mm.

The material in-feeding is servo controlled, as is the head rotation; with this the tolerances of the cut pieces are maintained to a high accuracy making this suitable for robotic welding systems. The saw can be linked to a deburring machine or multi-discharge feature (the standard version has three-position discharge).



Simec – Italy
Website: www.simecsl.it

Cutting heavy ID scarf

GEBRÜDER Lennartz GmbH & Co KG, from Remscheid, Germany, a manufacturer and supplier of carbide-tipped circular saw blades for the ferrous and non-ferrous industry, has launched another product in the ECOmax range.

The newly developed ECOmax – Scarf circular saw blade is customised for cutting tubes and profiles with heavy ID scarf on flying cut-off units. Previously, conventional blades were heavily damaged after only a few cuts because they cut the high strength weld bead inside the bottom of the tube. The service life of the blades was poor and the cost per cut was high, resulting in a cutting application that was not economical.

Because of its special tooth form and cutting geometry, and in combination with a new proprietary coating, the ECOmax – Scarf saw blade is suitable for this application. The new design works successfully on single-head machines as well as on twin saws with the simultaneous operation of two saw blades.

Successful trials and ongoing production usage together with target customers and machine manufacturers have shown that the ECOmax – Scarf blades achieve up to 7m² of material removal on welded tubes with wall thickness up to 14mm. Further wear life tests and enhancements are planned to improve the blades' performance.

Gebr Lennartz GmbH & Co KG – Germany
Fax: +49 2191 9960 60
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Website: www.lennartz.de

Heinemann Saw Company – USA
Fax: +1 330 456 0318
Website: www.heinemannsaw.com



Multi-blade cutting solution

MACHINE tool manufacturer Danobat has developed a high-precision multi-blade solution aimed at cutting high added value steel tubes used in strategic sectors such as oil and gas, automotive and bearing manufacturing.

The solution, conceived for a steel industry multinational company, facilitates cutting steels of different qualities in diameters from 60 to 280mm, with a maximum thickness of 40mm and lengths ranging from 25 to 400mm.

However, the system has the flexibility to adapt to other parameters depending on the client's requirements.

The system is envisaged to be integrated into the production plant manufacturing execution system (MES).

Its operation is fully automated and it is equipped with a load bed that places tubes in the exact position ready to start cutting operations.

The three-blade machine is assembled on a rotating head.

The device also features a robotised exit system that moves the cut tubes to the next machining stage or on to storage.

Equipped with Danobat's proprietary software, the system enables communication with the production plant's central control system, which sends production orders directly to the device.

Danobat's development integrates Industry 4.0 technology, fits within the zero-defect manufacturing framework, and complies with requirements for minimisation of kerf, reducing the amount of waste material generated in the cutting process.

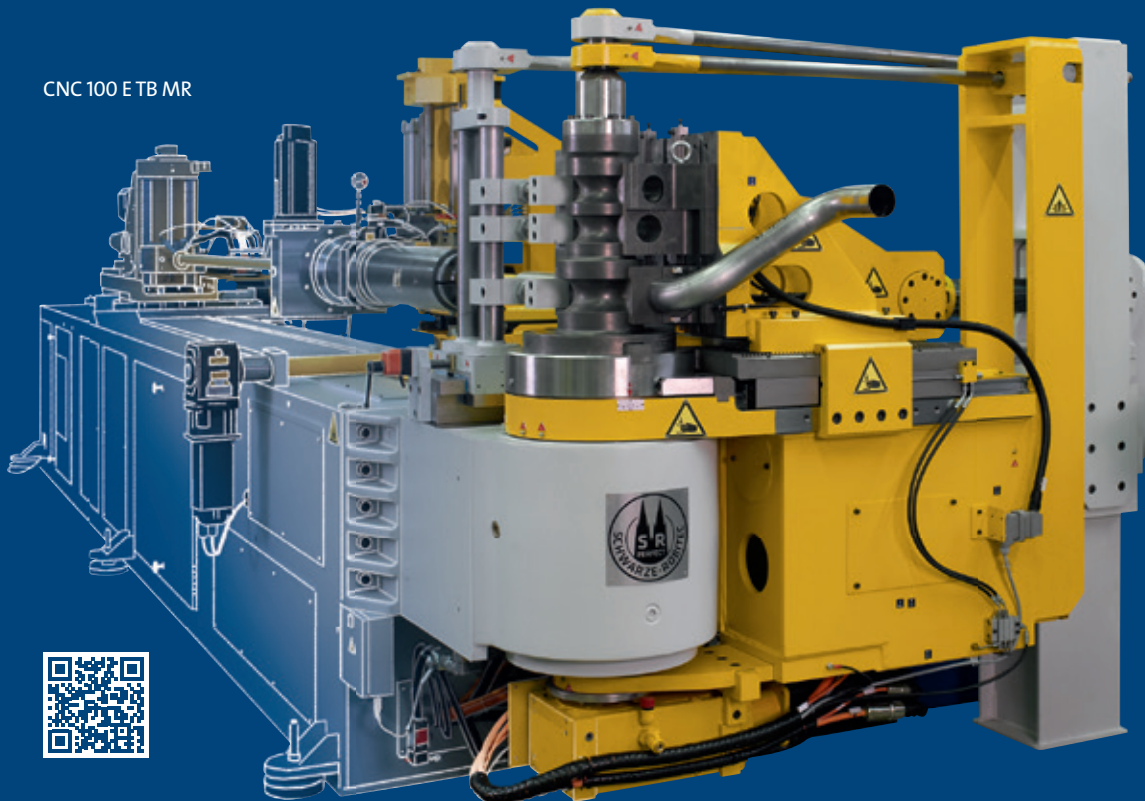
The system can be integrated with other equipment already installed at the plant, with the aim of working on-line, but also allowing cut parts to be palletised to be stored and delivered to another destination.

Danobat – Spain
Email: danobat@danobat.com
Website: www.danobatgroup.com



Danobat's multi-blade circular saw

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Laser cutting solutions from the USA

HORN Machine Tools, Inc (HMT), a manufacturer and distributor of CNC tube bending machinery, offers both flat sheet and tube laser cutting machines.

The machines utilise efficient fibre laser technology and are configured in four different models, which can be customised to fit customers' requirements.

The fibre laser power source is from IPG Photonics, the laser cutting head is from Precitec, the servo motor system is from Yaskawa and the control system is from Power Automation.

The machines utilise Lantek software to facilitate programming and nesting functions. All the major components have worldwide support and are readily available.

According to company president Kent Horn, "We can now provide both a high quality CNC tube bender and laser cutter, for much less than the laser would cost from other sources."

The high production, fully automatic tube laser model FLTA loads the tube

into the cutting area and processes the cut parts without assistance from the operator.

For entry-level buyers there is a semi-automatic machine that has the same cutting capability, but the operator provides minimal assistance to position the tube into the tube chuck.

The flat sheet cutters are configured in two formats: the FLSA model is a conventional 5 ft x 10 ft flat sheet laser cutter with a double exchange sheet

handling system; the FLTS model is a combination machine that combines a 5 ft x 10 ft flat sheet cutter with a tube spindle for processing tubular shapes.

The combination machine is of interest to fabricators who have both flat sheet and tube cutting requirements, but cannot justify two separate machines.

Horn Machine Tools, Inc – USA

Email: sales@hornmachinetools.com

Website: www.hornmachinetools.com



Tube laser technology from HMT



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Air curtain for underwater cutting

PLASMA, laser and water-jet cutting systems manufacturer Hypertherm is introducing a new Centricut air curtain for underwater cutting with ESAB plasma systems.

The air curtain is designed for use with the Centricut quick-change torch for ESAB PT-36, PT-600 and PT-19XLS torches, and mounts directly onto the torch. Once installed, it produces a curtain of air that surrounds the plasma arc, to keep the arc free from the effects of water.

According to Hypertherm, its simplified design makes the air curtain smaller and lighter than its OEM counterpart, and because it is mounted to a quick-change torch it is easier to install and remove from the table. This saves time and effort, and makes changing consumables more efficient. The air curtain is adjustable to any position, and works with all three Centricut quick-change torches for ESAB plasma systems.

"The introduction of this air curtain

expands the appeal of the Centricut brand quick-change to the 20 per cent or so of ESAB customers cutting



underwater," explained Cynthia von Recklinghausen, product marketing manager for Hypertherm's Centricut brand. "These customers are now able to enjoy the convenience and time-saving benefits of the quick-change torch without sacrificing cut quality."

Centricut products are designed with critical-to-function tolerances and are precision manufactured by advanced machinists. Businesses interested in a free trial of a Centricut brand product or a technical consultation to improve their cutting process can contact Hypertherm or their authorised Hypertherm distributor.

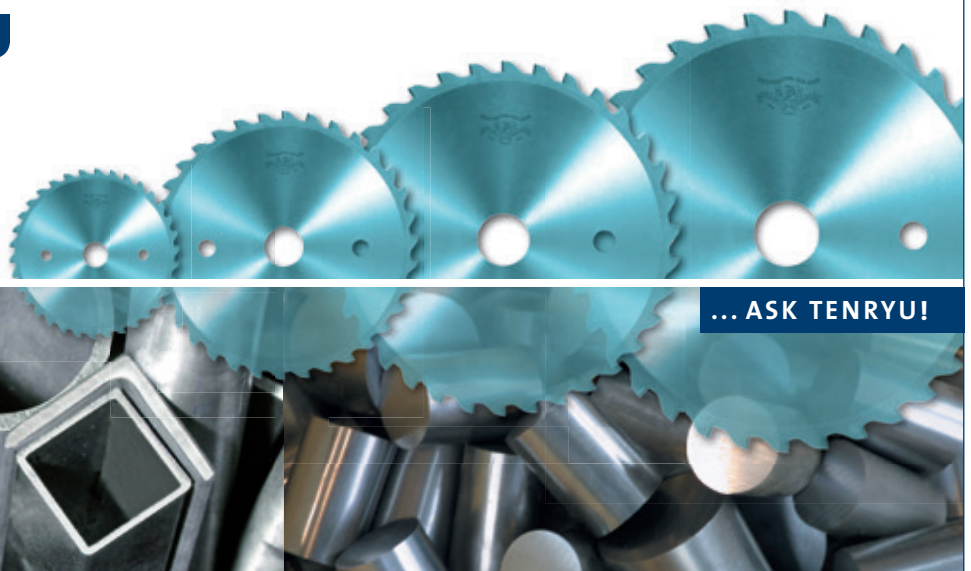
Hypertherm designs and manufactures cutting products for use in a variety of industries such as shipbuilding, manufacturing and automotive repair. Its product line includes plasma, laser and water-jet cutting systems, in addition to CNC motion and height controls.

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Plasma cutting up to 100mm

AS A long-established manufacturer of plasma cutting techniques Kjellberg offers plasma and laser cutting equipment for a wide range of tasks in automated, mechanised or manual cutting.

Following the launch of the plasma systems Smart Focus 130, 200 and 300 in 2014, Kjellberg has added a new model to the series: the Smart Focus 400, with a maximum cutting current of 400A for material thicknesses up to 100mm, expands the application areas of the plasma series.

When cutting electrically conductive materials, the Smart Focus 400



achieves precise cuts and high cutting speeds, while keeping the costs per cutting metre low. The results are sharp cut edges and smooth cut surfaces, fine markings and low angular deviations.

With the Contour Cut technology for cutting mild steel, the user cuts fine contours and small holes with a material thickness to diameter ratio of 1:1.

For cutting larger contours, the further technological development Contour Cut Speed is used. With equivalent cut quality, the cutting speed is increased by 50 per cent.

Kjellberg's foremost objective when planning the new system was meeting the requirements of customers in all application areas, eg 2D plasma cutting, bevel cutting up to 50° or underwater plasma cutting. The user-friendly system achieves results with only a few settings, even under challenging conditions.

Kjellberg Vertrieb GmbH – Germany
Fax: +49 3531 500 229
Email: vertrieb@kjellberg.de
Website: www.kjellberg.de



The Smart Focus 400

Improvements in laser cutting technology

FONON Corp has introduced a number of advancements to its latest generation of laser equipment for industrial applications that were previously underserved by the most common laser cutting technology.

The most widely used conventional laser cutting machines incorporate CO₂ lasers, and have proven less effective when used to process certain metals and reflective materials. Due to their highly reflective nature, a large number of metals and materials cannot be efficiently cut with conventional CO₂ lasers, including aluminium, copper and brass. When processed by a CO₂ laser, these metals reflect a majority of the laser power, causing equipment damage due to back reflections.

Industries that use these metals, including manufacturers of construction equipment, aluminium vehicles, kitchenware, copper and brass gaskets, food processing equipment of any kind,

and materials used in the aerospace and defence industries, can now access advanced laser cutting capabilities.

Fonon's latest laser cutting technology benefits from the company's understanding of material behaviour at transition temperatures – the point when the material changes properties, such as reflectivity and absorption, as it transitions from a solid to a liquid state. Fonon's cutting machines incorporate advanced lasers that are specially configured for metal cutting, with variable laser beam output parameters, making them suitable for cutting a wide variety of metals, and metals with changing thicknesses.

When compared to a CO₂ laser of equal wattage, Fonon laser cutting technology is claimed to be three times faster when cutting stainless, mild or galvanised steel. Power consumption by Fonon laser equipment is less than one quarter the consumption of a

comparable CO₂ cutting system, and the laser is maintenance-free and requires no consumables.

"More than ever, manufacturers need to find ways to improve quality, speed and their financial bottom line, and there is a dramatic increase in demand for laser cutting machines that can efficiently work with reflective metals," said Dmitriy Nikitin, CTO and interim CEO of Fonon Corporation.

The advanced laser cutting technology is currently incorporated into the new models of the Titan FX line of large, flat-bed laser cutting machines, and is scheduled to be included as optional equipment in all cutting, marking and engraving products available under the Laser Photonics brand.

Fonon Corp – USA
Email: products@fonon.us
Website: www.fonon.us

Orbital cutting of tubes

TUBE cutting is a necessary machining operation for the prefabrication, construction, maintenance, repair or removal of damaged parts caused by corrosion, for example. Tubular components are affected by channelled substances that affect the original condition of the tube. Oil, gas or water at high pressures are abrasive and can alter the corrosion of the tube chemically and/or mechanically.

When the replacement of the tube is absolutely necessary, the cut is made in upstream and downstream sections of the damaged tube. This maintenance operation can be done on-site and requires the best equipment for a perfect surface quality before performing welding operations. Protem tube cutting and bevelling machines are portable. They are lightweight, reliable, easy to use and they ensure a perfect weld preparation with no heat affected zones on all types of materials, such as steel or inox tubes.

The Protem product range includes several types of cutting and bevelling machines: TT-NG orbital cutting machines cut and bevel tubes with large wall thicknesses; the TT-LW series machines, with a simpler design, cut and bevel tubes up to 25.4mm (1"); The TTS-NG machines allow accurate cutting and/or bevelling of tubes and pipes, of all schedules, from 10.3mm (0.406") up to 273mm (10.7") OD in one simultaneous operation; and the TTS-RD machines have been specially developed to cut thin-walled tubes from steel and titanium in restrictive space conditions.

They are composed of two rings: one fixed and one rotating. The tool holders are mounted onto these rings. They can be opened into two "half-shells", which allows them to be mounted on any type of pipe at the required place for machining. They perform simultaneous welding preparation operations in order to get a regular land, an appropriate counterboring if necessary, and a bevel as desired.

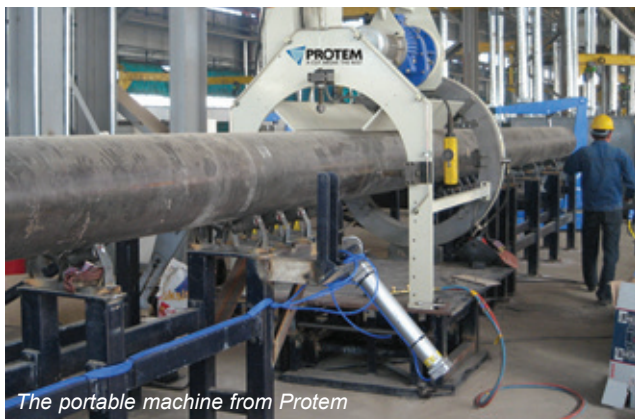
The CTA – high-speed cutting and bevelling – machines tubes and pipes with OD diameters ranging from 60.3mm (2") to 914.4mm (36"). Tubes are cut and bevelled within just a few seconds.

The TNO are high-speed cutting and bevelling machines that are designed to fit piping or tubing prefab applications, on-site or in workshops.

Protem – France

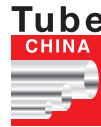
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这一栏目专为我们的中文读者介绍国际管道行业的最新技术和行业新闻的综合信息。

中文综合

不锈钢铣削和斜切

Linsinger公司专为不锈钢应用设计的各系列PFM板材铣边机以及RFM管端坡口加工机目前成功应用于艰难的环境下，效果超出了预期。该趋势凸显，新增的机器订单正在Linsinger位于奥地利的工厂生产。

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这样可以在一个工作道次里高度精确地对两长边同时加工出整个铣削形状。这对完美的焊缝外形来说非常重要，在

一个道次里完成焊接准备是最好的。只有在更换不同的形状时，才需要更换切割头——这个功能对全自动化来说也可以。

Linsinger机器的另一个优点是其灵活性。所有切削参数均可根据不同类型的不锈钢进行数字调节。因机器是分开测



Linsinger PFM 不锈钢铣边机

量每个板材的，因此即使是最小批量的尺寸也可以高效地加工。Linsinger还开发了具有特殊形状的多涂层耐腐蚀的镶硬合金齿，用于各种不锈钢加工。

管道行业对定制解决方案也有很高的需求。比如，对于纵向管道焊接准备和管端倒角对精度、速度和效率都要求最高的标准。

Linsinger RFM管端坡口机能够由一个操作工同时加工两边管端。加工的管道超出API和ASME规范。这种可移动的坡口加工装置可以加工不同长度的管道，整体外形复制系统提供了一致的加工形状，即使管道变形。

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厚壁、直接成型的轧管机通过验收

FD Machinery完成了一台新的全自动直接成型轧管机，并且通过了客户验收。第二台机器正在组装，而且将在未来三个月内交货。两台轧管机是数控直接成型方管轧管机中能够加工壁厚最大管道的机器。更换尺寸只需要十分钟，而且无需更换工具。尺寸更换后无需试运行，因此没有废

料。这对于大尺寸轧管机来说非常重要。该轧机可以生产各种尺寸的管道。有自动进料区和自动捆束机，整套机器只需要三名操作工。FD Machinery是“整轴”灵活成型方形轧管机创始公司。该设计最主要的优点是能够加工厚壁管道。新轧机比之前的版本更节能，工具寿命更长。可以通过

穿入轧机的钢带更换尺寸。轧机使用超高强度设计，可以精确地生产管道，无需进一步的调整，提高了生产率。

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T-Drill钻孔机S-54的新特点

T-DRILL的S-54钻孔机增添了一些新功能，使其能更灵活地用于汽车、空调、制冷或冷却应用领域。增添的集成工具以及新的编程，使这台机器能够用一种工具一次设置完成三种不同的操作：仅钻孔；钻孔用于管道钎焊，以及用于管道对接焊。来自T-Drill的最新创新是重新设计的手动和自动进料盘(MFT/AFT)。这种进料盘是模块化结构，能够适配现在的S-54钻孔机。如果您的生产需求增加，可以通过添加必要的模块和自动化组件将手动版升级到自动版。手动进料盘简单、安全且易于操作。有标准模块用于1500、2500、3500、4500、6000和8000的长型管道。在某些

情况下，使手动进料盘系统还可以处理复杂的弯管。有了标准手动进料盘，就可以使用三种可选的预钻孔模板或脚踏的气动制动器在整个管道长度上定位开孔。还可以选用带显示器的数字定位装置。这在生产各种集合管时非常方便，不需要一系列类似项。可以使用最典型的方法，即在管道上标上位置。为此，还可以选用激光指示器。除了沿整个管道长度精确定位开孔外，还可以使用现成的模板将管道转到任何弧度。因在钻孔过程中会产生切屑，因此系统内集成了切屑盘，可以轻松地清除可以回收的材料。干净的工作区域提高了安全工作环境。新的自动进料盘(AFT)有两种设计理念，可用于

高生产力，是一套易于理解、运作高效、符合人体工学以及安全的系统。这种全自动伺服控制系统还配备了一流的新型Weintek人机界面HMI，提供了简练的编程解决方案。Weintek HMI人机界面使用触摸屏输入，屏幕上有提示指导操作员通过编程过程。即使是复杂的集合管也可以在几分钟内完成编程，并且可以存储为模板以便后续修改或完全重写。自动进料盘使用USB记忆卡存储程序，只需要更换新的USB就可以无限储存不同的程序。

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管道加工强大的数字连接

管道加工工艺日益强大的数字连接是行业技术进步的动力。尤其是液压需要解决方案确保安全加工管道，以及需要自动化工艺的地方。以极少的单元数量就可以实现强大的自动化，比如液压连接件的技术加工。因此，transfluid公司以其REB型轴向成型机以及SRM型工具独立的辊轧成型系统。为直接安装在管道上的软管接头或DKOL接头提供解决方案。这样可以实现密封件锋利的外形和最佳的表面。对于夹紧长度较短的20°和90°之间法兰的生产，可以使用transfluid的UMR型成型机实现——可以在一个过程中生产出最佳的密封面。

transfluid董事总经理Stefanie Flaepel表示：“将来，更好的工艺需要更大的灵活性。比如设计和弯曲软件项目之间的在线连接。以及同时测量生产过程中的管道和成品管道的系统。这样的系统必须易于使用。可确保更大的弯曲灵活性。”概述了要求和进一步的发展。

这是transfluid工程师们在开发t型心轴弯曲机DB 40220-3A-CNC目标。该机器可以生产直径40到220毫米的厚壁和薄壁管道。稳定的设计确保更长的服务寿命、更简单快速地进行工具更换，适用于各种应用，而且提高了效率。

这台左/后弯曲机带有旋转头，为外形要求极高的生产提供强大的性能，即使存在结构障碍。伺服电动驱动理念，可加工直径达42毫米的管道，标准机型每个弯曲头有两个高度的工具。

整个生产过程在自由可编程数控触摸屏控制面板上的完全可视化提供了过程保障。

transfluid公司最新一代的移动t型弯曲机MB 642可以灵活、简单、高效地直接在工厂现场进行弯曲加工。这样，液压线可以直接放在安装现场。作为额外的设备，你还可以选择内部和外部去毛刺机、锯切机、传统连接系统（折边和环刀配件）组装设备，以及金属圆盘锯。



transfluid的安全自动化加工处理

管道加工机器行业专家们将在2017年汉诺威博览会20展厅B14展位展出各种管道解决方案。

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新型Rebel多进程便携式焊机填充金属的选择

ESAB公司正在帮助客户更容易地选择和购买公司最近开发的Rebel多进程焊机兼容的填充金属。客户表示该焊机的智能惰性气体保护焊功能可以提供稳定的电弧以及创新型用户界面，界面是彩色屏幕，使设置更简单。为帮助客户最大化生产力而且质量不打折，ESAB公司也发布了一个与Rebel兼容的填充金属清单。

清单包括四种惰性气体保护焊焊丝（包括两种用于不锈钢的）、两种药芯焊丝以及三种手工焊条（一种用于不锈钢）。此外，当客户使用Rebel进行钨极惰性气体保护焊时可以用自己选择的填充金属。ESAB网站上增加了关于Rebel的新网页，可以从上面看到适用于Rebel焊机的填充金属。每种填充金属都提供了链接，可以通过链接了解更多的产品信息。新网页更进一步的用户友好性特征，客户可以点击“购买”按钮来找到最近的经销商。



Rebel的惰性气体保护焊功能可以产生平稳的电弧，因此ESAB推荐进给平稳、拥有表面特征极佳的AristoRod 12.50无镀铜焊丝。除了极其平稳的进给，该焊丝焊炬寿命更长、飞溅更少，可以确保极佳的引弧而且烟雾减少。

ESAB的OK Autrod 12.51是镀铜焊丝，可以提供更流畅的熔池以及更光滑的界面。焊丝极佳的表面质量与劣质的焊丝相比可以减少铜层剥落。

对于奥氏体不锈钢的制造，ESAB推荐使用Rebel的电感功能以及使用OK Autrod 308Lsi，可以进一步提高润湿度，减少焊接隆起并提高接头质量。低碳减少了晶间腐蚀的风险，而且更多的硅提高了焊接性能。对于耐腐蚀性要求更高的应用，Rebel能够与更高的合金ESAB填充金属搭配，如OK Autrod 316Lsi。

当制造镀锌薄钢板（0.8-5毫米）时，ESAB的Coreshield 15药芯焊丝适用于全定位的单道焊。除了产生平稳的焊弧外，Coreshield 15也确保全夹渣覆盖、夹渣更易于清理而且飞溅少。轻锈以及氧化皮也可以接受，而且该焊丝无需保护气体，这是对可携带性要求高的应用带来的进一步的好处。

对于低、中抗拉强度结构钢应用，在使用OK Tubrod 15.14 (E71T-1)药芯焊丝和氩气/二氧化碳或者100%二氧化碳气体保护焊时采用喷流过渡，ESAB的Rebel可以提供极好的焊接结果。OK Tubrod 15.14是全位置的，而且被所有主要机构评为三级。

对于MMA“手工”电弧焊，考虑到可携带性以及单相供电操作Rebel可以提供极好的焊接性能。为了充分利用这个功能，ESAB推荐OK 48.00。下一代E7018-H4R构想已经设计减少在高湿条件下的吸湿性，有助于防止氢裂化，即使在很苛刻的环境条件下也可以生产出无孔焊缝。

ESAB相信OK 46.00是最好的全位置氧化钛药皮焊条，这种填充金属和Rebel配合的非常好。OK 46.00是E6013焊条，对锈迹或其他表面杂质相对不敏感，可以全位置生产光滑的焊道，包括垂直向下，使用DC+，适用于Rebel。易于引弧、复弧以及夹渣清除，该焊条非常适用于短焊缝，根部焊道以及定位焊。

当需要焊接19% Cr钢-10% Ni钢、或者类似成分稳定的不锈钢时，ESAB的OK 61.30 (E308L-17)含碳量极低(0.03%)，可以减少晶间腐蚀风险。该焊条可以用AC或DC+焊接电流，焊渣几乎是自清理的。

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先进的检测和分类

Sikora 公司在 K 2013 展会上展出的塑料材料检测和分类用扫描仪 Purity Scanner, Sikora 研发部门将注意力放在了 2011 年开发系统未曾关注到的应用领域。

最初针对电缆行业的要求,尤其是交联聚乙烯高压电缆的生产,在 K2013 展会上对纯度的要求变得很明显,同时也存在于其他行业。

公司随后与塑料制造商、来自不同行业分枝的配料员以及消费者举行了多次讨论,并在自己的洁净实验室对几吨塑料在接近生产的条件下进行了试验。

一些材料,包括聚乙烯、聚酰胺和交联聚乙烯等,使用 Purity Scanner 光学和 x 光摄像系统进行了测试。

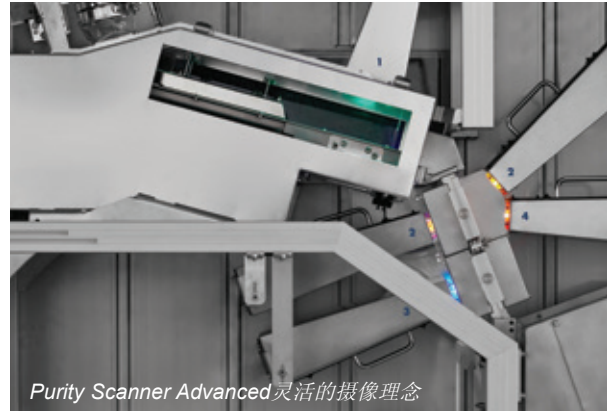
对于杂质检测能力和分类,检测结果不管是图形还是统计数据都一样重要。与有经验和要求较高的客户群的讨论产生了 Purity Scanner Advanced。

Purity Scanner 的概念,以及其光学和 X 射线颗粒检测和自动分类,打开了新的可能性,目前在全球成功运行。Purity Scanner Advanced 拥有用于特殊应用的灵活性摄像系统,将首次在 K2016 展会上展出。可以选配高速光学摄像机以及 X 射线、彩色和红外摄像机。

对于颗粒内部的杂质检测, X 射线摄像机作为标准能可靠地检测例如 50 μm 的金属杂质,而光学摄像机检测颗粒表面褪色、焦痕和其他杂质。

通过使用 Purity Scanner Advanced 彩色摄像机,能够将不同颜色和有色差的异常颗粒分出来。

在工厂里,有外部特征相似的各种不同的材料需加工,这是红外摄像机将起



Purity Scanner Advanced 灵活的摄像理念

到作用。高光摄像机用宽带光照射颗粒流并继而特定频率结果和检测交叉污染。

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尺寸达82毫米的管端成型机

Soco TF 管端成型系列产品用于各种管端成型应用和行业,比如汽车尾气排放装置、家具和空调。这些成型机与传统管端成型机不一样,他们的设置时间更短,更灵活,精度更高,设计更紧凑。

该机器可以加工的尺寸达到 82 毫米,包括液压操作和触摸屏控制。他们可以配备一到两个操作站加工管端,适用于直的和弯型管状部件。

C 型成型机适用于常见的管端成型应用,包括扩管、缩径和开槽。C 型机器使用由扩管段和缩径夹组成的分段工具,可以快速设置(下拉工具)。

和 C 型机具有类似功能的是 E 型机,增加了冲压成型和钳式成型功能,可以加工更复杂的形状,如各种卷边和扩口工艺,以及其他管端成型。



来自 Soco 的 TF-80-E 管端成型机

I/O 型成型机用于管道紧密加工,适用扩口和缩径段精确控制内外直径。为了提高精度,降低椭圆度,顺序可以任意

排列。I/O 成型机也有触摸屏控制,可以快速设置。不像 C 型和 E 型使用的工具系统, I/O 成型机工具包括一套内部扩口夹和外部缩径夹。I/O 成型机将灵活性和 I/O 机以及 E 型机最大生产力等特点结合起来。Soco 公司在英国和爱尔兰由是 Langbow Ltd 公司独家代理。

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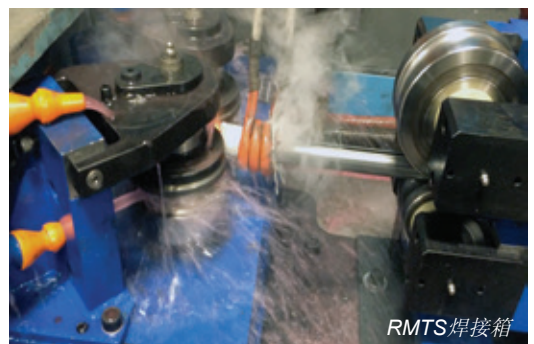
两分钟转换的焊接箱

RMST 公司总裁和首席运营官 Rick Olson 宣布 RMST 焊接箱取得成功。从现场培训到轧机操作工的教育合作, RMST 已经看到越来越多的 RMST 焊接箱安装在世界各地轧管机上。RMST 雇佣了了解操作工正面临的挑战的管道专家。能够向操作员展示设备提供学习制造优质的管道同时减少材料报废。

RMST 焊接箱提供两分钟的转换,无焊瘤,而且减少了焊接开裂。设计时考虑到了操作工,因此该装置具有一个扳手调节轧辊的开、关。

Olson 先生表示保持装置易于使用并从操作工的角度进行设计使其成为成功的产品。RMST 在 2017 年第一季度安装了四台新的焊接箱,而且有望继续扩展新客户,第 2 季度已经安排了几个培训计划。

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RMST 焊接箱

多层耐热聚乙烯管道整套生产系统后续订单

德国Enetec Plastics GmbH公司已投资第三套挤出生产线，用于生产换热系统用五层耐热聚乙烯管道。公司于2014年成立，选择来自KraussMaffei Berstorff公司的解决方案。已有两个相同的系统多年来一直用于生产直径8到32毫米的加热管道系统。最近一套被订购的系统将于今年年底试运行。

在决定选择KraussMaffei Berstorff时，Enetec的董事总经理Michael Frenzel表示：“有一个能提供一体化、定制概念的交钥匙系统的合作伙伴对我们来说非常重要，使我们能生产出不仅

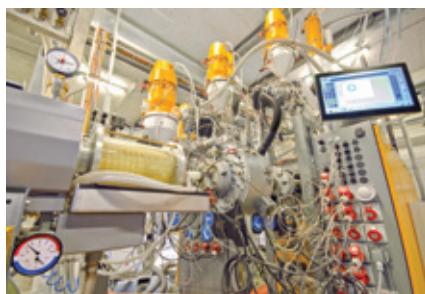
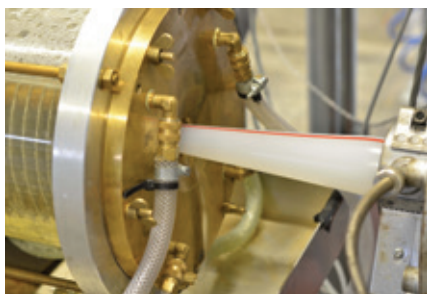
仅是仿品的产品。管道制造商在初次安装该公司生产线9个月后又订购了第二套生产线，现在又订购了第三套，这家机械工程公司用这样一种方式表示出能够满足这一要求。”

该系统的亮点是KM 5L-RKW 01-40五层管机头，KraussMaffei Berstorff表示这是业内独一无二的。KraussMaffei Berstorff慕尼黑公司销售总经理Andreas Kessler表示：“我们已成功设计了包含螺旋分配器理念的管道机头。使用管道机头能够高速生产厚度分布完美的多层管道。”

内层沿轴向螺旋分布，而聚乙烯醇粘接材料层分布在一个螺旋分配器上，外层选用了锥形螺旋。该设计可以精确地分布各层，减少管道生产材料成本。

管机头由六个单螺杆挤出机喂入，每一个都配有自己的材料重量计量，以便配置不同的层厚。具体上，该挤出机位KME 45-36 B/R主挤出机，用于耐热聚乙烯内层，而KME 30-30 B共挤机用于耐热聚乙烯外层。

还有两台KME 30-25 D/C型共挤机，每台将粘接材料原料增塑到内置的聚乙烯醇阻氧层中。为此在主挤出机上安装了KME 30-25作为分段式挤出机。第六台挤出机KME 20-25 D/C也安装在一台共挤机上作为分段式挤出机，管理钢带设备。



KraussMaffei Berstorff多层挤出系统用于Enetec工厂生产五层耐热聚乙烯管道

KraussMaffei Technologies GmbH

— 德国

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Enetec Plastics GmbH — 德国

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新系统无需特殊的轧机机座或辊轧工具，也无需复杂的轧机驱动连接件或电控系统。无需特殊的操作员或维护培训，而且也不需要桥式起重机或专门的板式运输设备。该系统能够快速进入生产运行，然后快速回到之前的产品。它

有内置冗余，能增加生产线正常运行时间，而且更换时轧机操作员一侧不会受到影响。

该公司还生产轧管机、辊轧成型机、飞切机以及其他相关轧制机械。公司业务主要包括常用轧机零部件的改造和更换，包括驱动辊架，从动辊架、焊接挤压盒、焊珠清理设备（即外径焊瘤除器）以及组合式轧辊矫直机。

公司于1917年成立，成立之初为辊轧成型机制造商，1988年被收购、

重组为轧管机制造商。自此，Rafter Equipment公司提供了近100台轧管机以及400多套轧机配件升级。公司着重于提供易于操作和维护的牢固的设备，而且通过提供个性化和专业的售后服务及备件来支持设备。

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集成双管端加工和长度检测技术

在零缺陷要求的世界里，外观检查是远远不够的。即使100%的外观检查也只有80%有效。汽车供应商必须拥有可靠的方法确保产品始终如一地满足行业的严格要求。



双管端加工和长度检测结合

现代电子技术使一些公司如Haven Manufacturing在解决管道制造质量问题上非常有想象力。在一个特定的应用中，要求Haven公司开发一个集成的长度检测模块，用于双管端加工后的检测。

添加长度检测听起来很简单，但是标准机器在加工后立即脱离成品部件。为了加入长度测量，管道必须重新定位到稳定的位置。这需要额外的搬运设备以及单独的长度检测机，增加了成本而且需要更多的空间。

对于这一挑战解决方案是将两个过程集成到一个框架和控制装置中，确保管道从加工到检测都不会变方向。为此

Haven的工程师们设计了一个步进梁式传输系统。管道被精确定位在加工站上，而相对的精密轴承主轴进行外径和内径倒角以及将端面加工到接近公差的可重复的长度。部件从这里进入到切屑清除站，然后是长度检测站。完好的部件生产出来离开机器，同时淘汰的部件自动转到机器下面的收集箱里。如果连续三次出现淘汰，机器会停止并向操作工发出检查信号。

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Key calculations for maximising tool life in carbide saws

By Christian Mayrhofer, Manager R&D, AME, and Willy Goellner, AME

Theoretical analysis, calculation and practical identification

Torsional vibrations are hard to measure because of the rotating elements (gears, shafts) that are inside a closed gear case and not easily accessible.

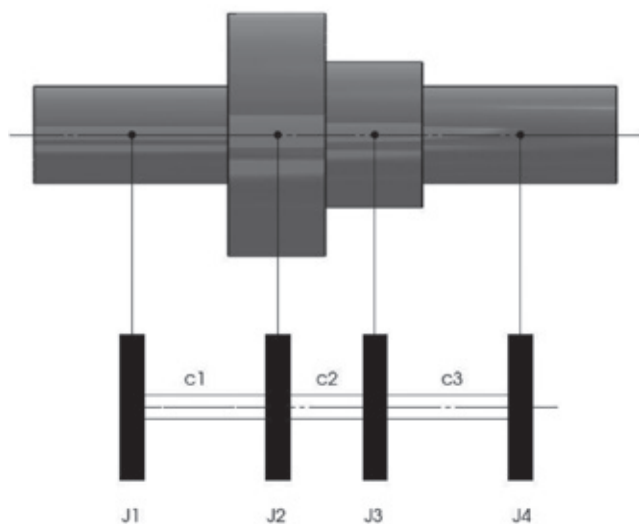
However, knowing the exciting torque, passing through the gear train and the gear data, critical vibrations such as resonance can be calculated and analysed.

The following calculations and theoretical analysis are perhaps boring for most individuals dealing with carbide saws, but they show that much can be theoretically analysed, where practical limitations exist.

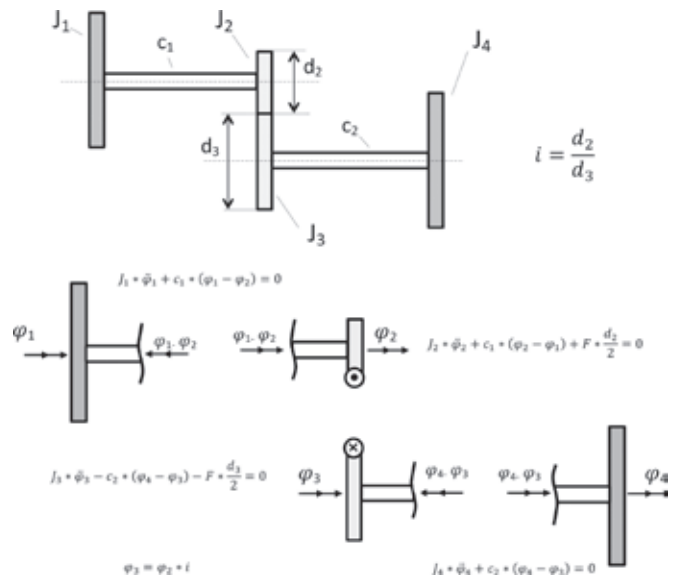
A well experienced carbide saw specialist will be able to analyse torsional vibration from the noise level, the cut surfaces, and the form of the chips. He will, however, have difficulty pinpointing where the trouble starts and what to change in order to solve the problems.

In every gear train torsional vibrations and torsional natural frequencies can cause significant problems if not addressed properly.

One approach to realise basic effects and parameters is to discretise every shaft in stiff inertias and massless torsional springs which connect these inertias.



This has been done for a simple one-stage gear train with four inertias and three degrees of freedom since inertia two and inertia three are coupled with the ratio. After having modelled up the system in this fashion the dynamic equilibrium of the forces can be formulated for the free body diagrams.



The result is the following set of differential equations which has the structure: $M * \ddot{x} + K * x = 0$

$$\begin{pmatrix} J_1 & 0 & 0 \\ 0 & J_2 + i^2 * J_3 & 0 \\ 0 & 0 & J_4 \end{pmatrix} * \begin{pmatrix} \varphi_1 \\ \varphi_2 \\ \varphi_4 \end{pmatrix} + \begin{pmatrix} c_1 & -c_1 & 0 \\ -c_1 & c_1 + i^2 * c_2 & -c_2 * i \\ 0 & -c_2 * i & c_2 \end{pmatrix} * \begin{pmatrix} \varphi_1 \\ \varphi_2 \\ \varphi_4 \end{pmatrix} = 0$$

With the concept of eigenvalues and eigenvectors the natural frequencies and corresponding mode shapes can be calculated.

$$\begin{pmatrix} J_1 * \lambda^2 + c_1 & -c_1 & 0 \\ -c_1 & (J_2 + J_3 * i^2) * \lambda^2 + (c_1 + c_2 * i^2) & -c_2 * i \\ 0 & -c_2 * i & J_4 * \lambda^2 + c_2 \end{pmatrix} * \begin{pmatrix} \varphi_1 \\ \varphi_2 \\ \varphi_4 \end{pmatrix} = 0$$

The determinant is set equal 0 and values below are used to calculate λ^2 .

Example values based on a simplified portion of an AMSAW gearbox:

$$J_1 = 2 \text{ kgm}^2 \quad J_2 = 0.4 \text{ kgm}^2 \quad J_3 = 0.6 \text{ kgm}^2 \quad J_4 = 1.33 \text{ kgm}^2$$

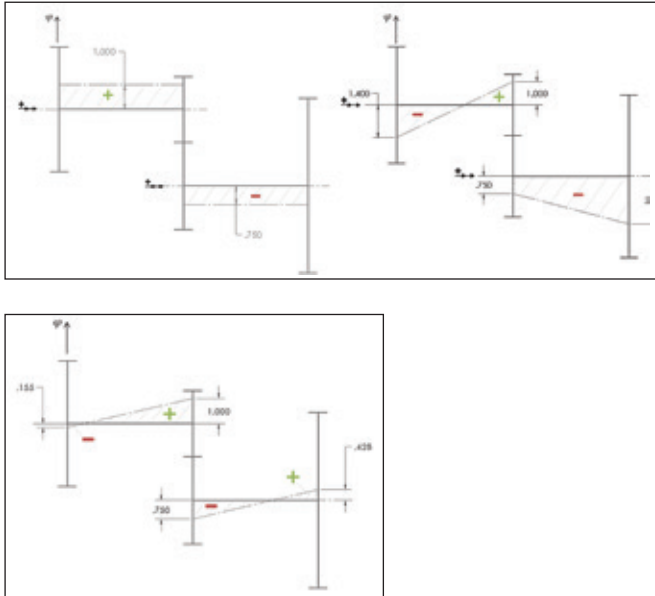
$$c_1 = 137000 \frac{\text{Nm}}{\text{rad}}, \quad c_2 = 246600 \frac{\text{Nm}}{\text{rad}}, \quad i = -0.75$$

The torsional natural frequencies and mode shapes are:

$$\omega_1 = 0 \quad \hat{x}_1 = (1, 1, -0.75)^T$$

$$\omega_2 = 342.9 \quad \hat{x}_2 = (-1.400, 1, -2.056)^T$$

$$\omega_3 = 741.1 \quad \hat{x}_3 = (-0.155, 1, 0.428)^T$$



From this diagram one can see where the nodes which are standing still are and which parts are moving against each other.

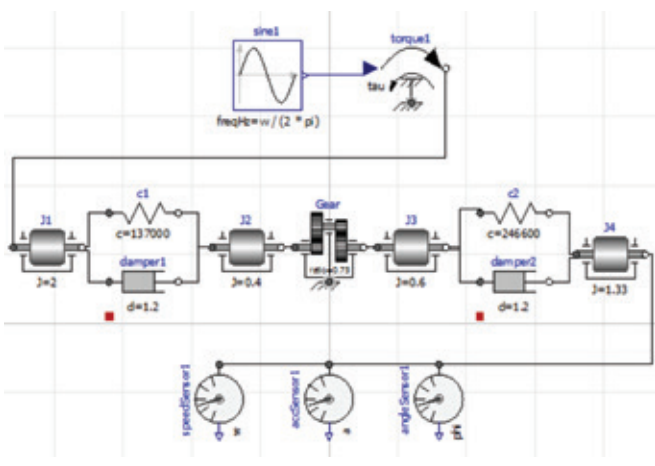
You can also see where torsional dampers will be effective, and how a flywheel affects the system.

For real-world problems the use of a numerical system such as Octave with necessary coding is needed to handle the large matrices efficiently.

One other approach is the use of OpenModelica, which is quite intuitive to use for developing a gear train.

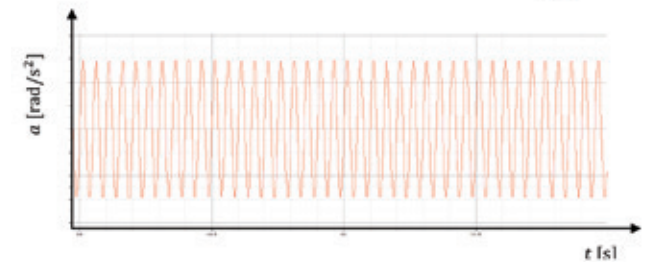
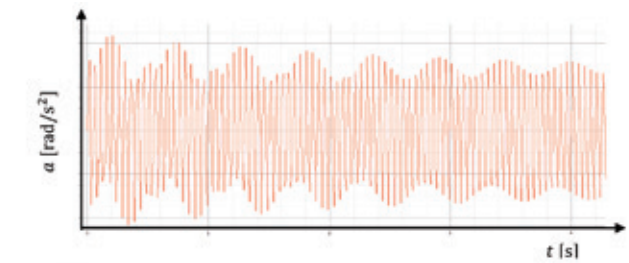
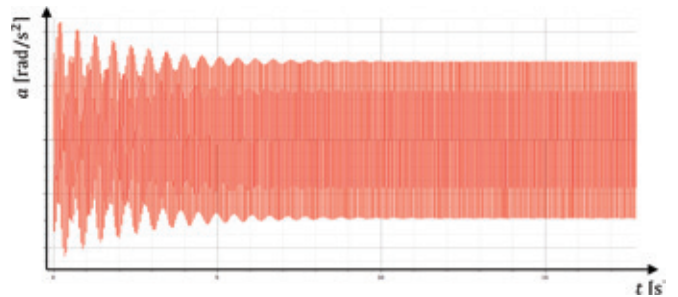
Basically you drag and drop predefined objects, link them to represent your system and set the parameters.

Example: Input is a sine-signal with a certain frequency. (See picture below).



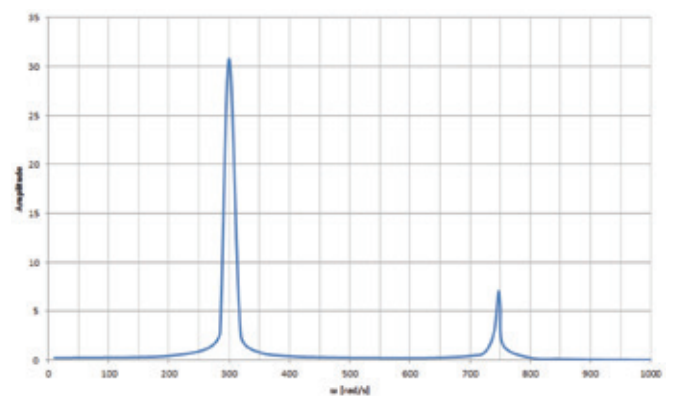
If you mount an accelerometer and measure the angular acceleration you can see the vibration with its homogeneity and a particular solution.

Due to damping the system is settled within a certain time frame as you can see in the following charts.



Afterwards you can measure the amplitude. You can repeat this for several frequencies.

If you show the amplitude vs frequency you get a chart like this:

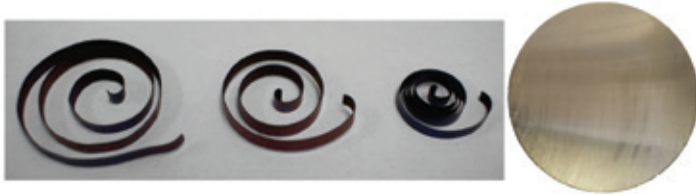


This shows that at around 300 rad/s and 750 rad/s the amplitude has a peak.

These are the two resonant frequencies.

How can you tell if you experience torsional vibrations with your saw?

Just take a look at the chips and the cut surface.



The chips are evenly spiral curved with a clean surface. The cut surface is smooth showing no vibration pattern.

The sound of the saw blade and gearbox measured with a sound level meter is smooth, indicating no vibration.



A blade subject to torsional vibration will produce wrinkled, unevenly curled chips. The surface of the chips and the cut surface are rough and show the vibration pattern.

The noise of the blade and the gearbox sounds rumbling: this is caused by the wind-up and relaxation of the gear train.

This fluctuation of the torque creates an uneven chip thickness and in consequence reduces the tool life.

This forces the operator to slow down the machine, and reduces the output.

Furthermore, the uneven surface requires more stock for finishing operations and increases material waste.

Instruments such as stroboscopes and accelerometers allow us to pinpoint where trouble occurs inside the gearbox.

This helps especially for troubleshooting when a gearbox gets worn or an accident has damaged gears or bearings.

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