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JULY 2014

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Tube CHINA

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The July Issue

Rory McBride – Editor

Welcome to the latest issue of the magazine. Inside you will find a comprehensive selection of the latest industry and technology news, our usual look at the global marketplace from the perspective of our US features editor Dorothy Fabian and a feature on finishing and end finishing. We also have a technical article from Huntingdon Fusion Techniques about tube and pipe welding.

It seems a number of companies signed big deals at the recent Tube Düsseldorf show. You can read about some of them in our Industry News section starting on page 6. SMS Meer, for example, signed a deal worth €180m with Tulachermet-Steel of Russia. It just shows what can happen when the right people are in the right place. The Tube show will take place once again in 2016 and the dates have already been announced as 4-8 April. Information on the trade fair can be found at www.tube.de

Next issue we have features on advances in heat and surface treatment and stainless steel production. The magazine will also be distributed at three big trade shows: Fabtech in Atlanta, USA, EuroBLECH in Hanover, Germany, and Tube India in Mumbai. If you would like your company news or information about the latest products included then please send your press release to: rory@intras.co.uk

On the cover . . .

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

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

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

Tulachermet-Steel orders complete steelworks with two connected mills

TULACHERMET-STEEL and SMS group have concluded a contract for the supply of a complete steelworks with a connected continuous billet caster and two connected light-section mills.

The order value comes to around €180mn. The contract was signed on the SMS Meer booth at the Tube and wire fair in Düsseldorf, Germany, in the presence of the State Secretary of the Ministry of Economic Affairs of the Federal State of North Rhine-Westphalia, Günther Horetzky, and the Consul General of the Russian Federation, Evgeni Shmagin.

Agreed was the construction of a converter-based steel and rolling mill complex in the immediate vicinity of the Tulachermet iron works around 200km to the south of Moscow.

Tulachermet-Steel will assume the project management and the construction activities.

The contracts for the construction and installation work will be placed with Russian companies.

Back row from left to right: Ulrich Svejkovsky, SMS Meer; Reinhard Reddel, SMS Siemag; Evgeni Shmagin, Consul General of the Russian Federation; Dr. Günther Horzetzky, State Secretary of the Ministry of Economic Affairs, Energy, Industry, Small and Medium-Sized and Craft Trade of the Federal State of North Rhine-Westphalia; Jens Barth, SMS Meer. Front row from left to right: Sergey Frolov, vice president, strategy & communications KOKS Group; Konstantin Pitjul, director general Tulachermet-Steel; Andrey Zubitskiy, senior vice president KOKS Group; Burkhard Dahmen, SMS group; Bernhard Espendiller, SMS Siemag

The rolling mills, which will make light sections, bar steel and wire rod, will be designed for an annual capacity of 1.5 million tons in the first phase, with the possibility of a later increase to two million tons.

The major part of the production will be supplied to Moscow and to other regions in Central Russia. Here, there is a demand for high-quality steel products, above all from the construction industry and from mechanical engineering and automotive companies. The steelworks and rolling mill complex will go into operation in 2016.

SMS Siemag is supplying a 160 ton converter shop, equipped with a restraint-free lamella suspension system and a dedusting plant.

The latter will be fitted with electro-static precipitators from SMS Elex. SMS Siemag will also be supplying an energy recovery system. For the further optimisation of energy efficiency, SMS Siemag can provide a converter-gas recovery and mixing plant for subsequent combustion of the gas in the existing Tulachermet power station.

SMS Concast is supplying a ladle furnace, a twin-tank vacuum degassing facility for secondary metallurgical treatment and a six-strand billet caster.

The continuous caster will be equipped with CONVEX® technology and be able to produce square sections in sizes from 150 x 150 to 180 x 180mm.

SMS Meer is supplying two almost identical light-section mills, each of which will be supplied by a walking beam furnace with a capacity of 160 tons per hour.

One of these light-section mills will be equipped with a wire rod line for the production of quality steel in the form of bar steel and wire rod.

SMS group is also supplying the electrical and automation systems for all production lines.

Tulachermet-Steel is a Russian-based company established by several investors with the participation of shareholders of the KOKS Group. The KOKS Group is a leading producer of merchant pig iron and coke. Furthermore, the group possesses various assets for the production of high-quality coking coal and the extraction and processing of iron ore.

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Expanded presence in Mexico

ADDISONMCKEE has announced that it will relocate Eaton Leonard's operations in Queretaro, Mexico, to a new manufacturing and distribution facility nearby, with nearly 24,000ft^2. The building will provide a substantial increase in space over the company's current location of 5,000ft^2.

AddisonMckee and Eaton Leonard currently employ approximately 300 associates around the world, and the upcoming expansion will, in time, increase the companies' workforce in Mexico.

The larger space will not only allow increased production capacity and efficiency of the end-forming product line, but will also provide the opportunity to stock consumable tooling and machine spare parts locally for the Mexican market.

"Mexico is a vital region for AddisonMckee/Eaton Leonard and currently accounts for 10 per cent of North American sales," commented Jim Sabine, president of AddisonMckee. "Our customers' needs are constantly evolving and it is important that we grow with them. They have requested local manufacturing and technical support and we are delivering on our commitment to manufacture and stock consumables and spare parts locally, thus reducing logistics costs and time in transit. Expanding our service and manufacturing capabilities within closer proximity to our valued customer base is a key part of our strategic plan for growth globally."

AddisonMckee and Eaton Leonard provide tube manipulation equipment, tooling and integrated process solutions from manufacturing facilities in the USA, Canada, Mexico, the UK, France and China. The companies primarily serve automotive, aerospace, furniture and ship building market segments.

AddisonMckee – USA
Website: www.addisonmckee.com

Eaton Leonard – USA
Email: contact@eatonleonard.com
Website: www.eatonleonard.com

Diary of Tube Events

2014

24-27 September
Tube China 2014 *(Shanghai, China)*
International Exhibition
www.tubechina.net

21-25 October
EuroBlech *(Hanover, Germany)*
International Exhibition
www.euroblech.com

28-30 October
Tube India 2014 *(Mumbai, India)*
International Exhibition
www.tubeindia.com

10-12 November
Fabtech *(Atlanta, USA)*
International Exhibition
www.fabtechexpo.com

2-4 December
Valveworld *(Düsseldorf, Germany)*
International Exhibition
www.valveworldexpo.com

11-13 December
Indometal Tube *(Jakarta, Indonesia)*
International Exhibition
www.indometal.net

2015

10-13 January
Tube Arabia *(Dubai, UAE)*
International Exhibition
www.tekno-arabia.com

15-17 September
Tube SE Asia *(Bangkok, Thailand)*
International Exhibition
www.tube-southeastasia.com

6-8 October
Tubotech *(São Paulo, Brazil)*
International Exhibition
www.tubotech-online.com

Tube and wire 2014 review

MORE than 2,500 international exhibitors from the wire, cable and tube industries can look back on five successful trade fair days. Inspired by the upswing of the steel market, the exhibiting companies presented their product innovations at the Düsseldorf Exhibition Centre during the trade fairs Tube 2014 and wire 2014.

"The trade fairs took place at exactly the right time. Now several companies are planning on investing in order to position themselves for continued competition," commented Joachim Schäfer, managing director accountable for the fairs at Messe Düsseldorf. "Once again, wire and Tube recorded exhibitor growth as well as a significant increase in booked exhibition space."

The exhibitors presented themselves to 72,000 trade visitors who travelled to the exhibition halls from 104 different countries to learn about the latest machines, equipment and products for the wire, cable and tube processing industries.

Tube 2014 took place in halls 1 to 7 and in hall 7a. More than 1,200 exhibitors from 47 nations showed their innovations on approximately 50,000m^2 of total exhibition space. This represents a 3.1 per cent increase in exhibiting companies and close to a 4 per cent increase in booked space compared with the previous event in 2012.

Tube presented the entire spectrum, from manufacturing to processing, to reprocessing and tube trade. The offerings ranged from raw materials, tubes and accessories, machines for tube production and tools for process engineering to auxiliary materials, as well as measurement and control technology.

Test engineering and special areas such as warehouse automation and control systems rounded off the broad spectrum of offerings. Machines and equipment for the manufacture of profiles and their end products were presented in a variety of forms and materials. The areas of tube trade and OCTG technology again covered a large area.

Trade fair guests at Tube came from a total of 62 countries. Visitors came primarily from Italy, France, the USA, the Netherlands, India, Spain, Sweden, Turkey, Poland, Austria, the Czech Republic and the UK. 64 per cent of all trade fair visitors came from industry, 18 per cent from trade and 6 per cent from craft. Visitors were primarily interested in tubes (54 per cent), machines for tube processing (24 per cent), machines for tube reprocessing (23 per cent), raw materials (21 per cent) and machines for tube manufacture (20 per cent).

wire and Tube once again take place simultaneously in 2016, from 4 to 8 April in Düsseldorf. Information on the trade fairs can be found on the respective websites, www.wire.de and www.tube.de

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Seminar on choosing the right NDT techniques

With more than 85 years of experience in designing and manufacturing non-destructive test instruments and systems for the metals industry, Magnetic Analysis Corp (MAC) is to host a seminar later this year in South-East Asia.

The event will take place in Shanghai, China, on 23 September.

Building on the success of the Echomac® rotary ultrasonic testers, the company will be featuring a new spinning tube ultrasonic test system at the seminar. This system features a unique APC (automatic pitch control) transducer carrier that contains the water couplant and follows and adjusts to the pitch of the tube as it rotates through the tester. This allows testing of a large range of pipe sizes, including large diameters, with minimal transducer adjustments during size changeovers.

Because the transducers are under the pipe, no tight fitting glands or shoes are needed, resulting in lower water circulation requirements, fewer wear components and virtually no changes required to the basic water tank on size changeover.

The spinning tube transducer system can also be used for testing tube ends, as well as for a retrofit or upgrade of existing installations. A Rotomac® eddy current rotary and coil platform will also be on display.

Information will be presented on test systems using a combination of more than one type of test technology, a requirement to meet many stringent test standards such as API and ASTM, as well as information on inspection of specific products.

Knowledgeable field staff will provide information in multiple languages on all of the company's products. Guests will include vice president Dudley Boden; Casey Powers, systems engineer; Paloma Domenico, advertising manager; David Terry, business development manager for SE-Asia; and Jerry Zhu, business development manager for China.

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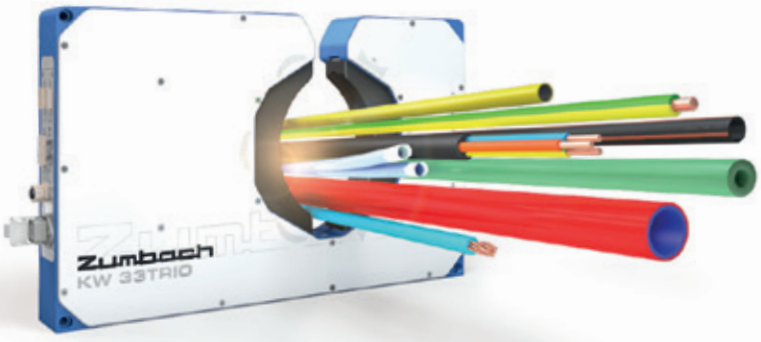

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Viraj's fully automatic section rolling mill in India

VIRAJ Profiles, one of the largest producers of stainless steel engineering products globally, has inaugurated its new state-of-the-art Section Rolling Mill (SRM) plant in Tarapur, Maharashtra, India. Neeraj Raja Kochhar, chairman and managing director of Viraj Profiles, inaugurated the plant in the presence of other senior management members.

Equipped with completely automated process, the plant is first of its kind in the country on an industrial scale. The plant is unique in terms of online pickling facilities, automatic labelling and packaging line.

This new facility will be able to manufacture more than 700 different shapes and designs of angle, flats and other profiles. With the new plant in place, the company, which has created a niche for its products globally, hopes to deliver world class quality products at assured delivery time and thus increase its efficiencies in catering to the significant global and local requirements.

CMD Mr Kochhar said: "We are very pleased commencing this long planned project and with this new plant, Viraj is going to enter into a new dimension of its history. Viraj has come a long way in the last two decades. The journey which started with employee strength of 150 people has a team of more than 9,000 people today. We have always tried to take one step at a time but make that step count. I have personally always believed in forward integration to explore new market opportunities and it is with this principle that we started with one induction furnace and then slowly we moved on to manufacturing stainless steel wire rods, wires, fasteners, flanges, profiles and bars." Sharing the main


Renu Kochhar

reason behind this new mill, Mr Kochhar added, "We wanted to offer products to our customers faster and quicker without compromising on the quality, and that is how we conceptualised the need of fully automatic Section Rolling Mill. The annual capacity of this plant will be up to 180,000 tons per annum."

Renu Kochhar, managing director, Viraj Profiles, who played a very important role in the conceptualisation and execution of the whole project added, "This new facility has proven to be like a leap into the future for our customers as my personal endeavour is to serve the customers better and better. At Viraj we have always tried to focus on tomorrow and streamline our activities today to achieve that tomorrow. Consequently, commencing of this new mill aligns very well with our strategy. The new facility will allow us to strengthen our business both locally as well as globally. The use of fully automated processes will not only help increasing our production capacity but it will also ensure the standardisation in the manufacturing process."

The project is spread across around ten hectares of land. In the setting up of this plant, the company has collaborated with several partners including Siemens, Steuler Anlagenbau GmbH & Co KG, ABP, FEHR, INOXIHP and Tenova Hyperthem Pvt Ltd. Engineering support for the project has been provided by ESPIC Consulting Pvt Ltd. The plant boasts of some of the best machinery in the world in the stainless steel industry.

The new project has been implemented within the scope of Viraj's strategic investment programme targeted at production facility modernisation, improved product quality, rise in production volumes and increased output of high added value products. The plant complies with the high environmental standards of modern stainless steel manufacturing and has Level 2 automation processes.

This new facility also has several locational advantages. The nearest railway track is only 8km from the production site and the nearest port is around 170km. Inland Container Depot (ICD), started by Viraj Profiles at Tarapur will ensure smooth logistical support to its clients. The combination of the specific design and fully automated process coupled with smooth logistics arrangement allows for a reliable and consistent production and supply of high quality products at optimum operational economy. The new facility will help Viraj to serve current and future markets in a more efficient manner.

Viraj Profiles – India
Website: www.viraj.com

SPI Lasers appoints new CEO

SPI Lasers, a designer and manufacturer of fibre lasers, has appointed Dr Christian Schmitz as its new CEO.

To build on the success of SPI, the Trumpf group is investing in further resources available to the company, particularly into research and development. As part of these changes the CTO of the Trumpf laser division, Dr Christian Schmitz, will take up the new role as CEO of SPI Lasers, assuming full responsibility in guiding SPI forward in the company's growth and development.

John Tinson, vice president of sales and marketing at SPI, said, "Over the last year SPI has seen significant changes in the fibre laser markets. One outcome from these changes has been a rapid expansion in market size and opportunity, and it is vital that SPI takes maximum advantage of this."

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Strategic alliance with lightweight construction centre

THE Aachen Center for Integrative Lightweight Production (AZL) plans to begin manufacturing on a new composite press from Schuler by the end of the year.

The upstroke press with a force of 1,800 metric tons will serve as a joint research and development platform for the large-scale testing of new dies, lines, components or automation technologies, for example. The tests will be conducted under production conditions and ensure that equipment is ready for start-up. Schuler has forged a strategic alliance with AZL especially for this purpose.

"Our collaboration in the field of lightweight production will help us enhance our press technology and production processes for modern lightweight materials," said Joachim Beyer, Schuler's chief technology officer. "The tremendous expertise of AZL in production technology and materials science will take us a major step forward."

Dr Michael Emonts, AZL's CEO, commented, "We are very much looking forward to a long-term cooperation with Schuler and are very grateful for their collaboration and support. As a premium partner, Schuler will be able to use our holistic expertise and complete portfolio of services, as well as our international partner network which we are constantly expanding."

AZL has ordered a similar upstroke press from Schuler
Photo credit: Schuler

For the further development of its press equipment, Schuler is focusing in particular on the areas of high-speed RTM (resin transfer moulding), wet pressing and the processing of thermoplastics.

Academic and practical feedback from the AZL network is expected to help Schuler optimise its customer solutions.

For the mass production of lightweight components, such as in the automotive and aerospace sectors, the main focus is on increasing productivity: cycle times of two to three minutes for the RTM process, or even less than a minute for thermoplastic processing, help meet the requirements of OEMs, especially with regard to reducing CO_2 emissions and improving their ecological footprint.

With a bed size of 2,800 x 1,800mm, the press will enable AZL to research and develop manufacturing processes for the production of real parts with industry-typical dimensions.

"For example, we can produce large car body panels fully automatically," said Dr Emonts. "Schuler's composite press gives us the capability to link individual processes into complete process chains and then enhance the part systems correspondingly."

AZL offers a combination of machine tool construction, automation technology and composites technology within walking distance on a single campus.

The centre gives its partners access to over 750 scientists and a full range of competencies along the entire value chain of lightweight production, from fibre, semi-finished and component production to machining, quality assurance and production planning.

Schuler AG – Germany
Fax: +49 71 61 66 233
Website: www.schulergroup.com

AZL – Germany
Website: www.azl.rwth-aachen.de

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EFD wins ITA award

A TECHNICAL paper co-authored by two senior EFD Induction R&D engineers won an International Tube Association (ITA) award at Tube Düsseldorf.

Leif Markegaard and John Inge Asperheim, both of whom are based at the EFD Induction facility in Skien, Norway, were granted the ITA's 'Papers Award' for co-authoring a technical article on seam annealing. The paper, titled 'Parameters Influencing In-line Weld Seam Heat Treatment', was written together with two employees of Baosteel, the giant Chinese iron and steel manufacturer.

The award is granted by the ITA to honour the best technical paper presented at an ITA-endorsed conference during the past two years. The ITA is an association of tube and pipe engineers, and a major presence in the global tube and pipe industry.

EFD Induction has to date installed thousands of heating solutions for a wide range of industrial applications, bringing the benefits of induction technology to many of the world's leading manufacturing and service companies. The company has manufacturing plants, workshops and service centres in the Americas, Europe and Asia.

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John Inge Asperheim (left) and Leif Markegaard (centre) were presented the award by Andy Houghton, chairman of the ITA's technical management committee

Boost to orders in first quarter

"WITH its first-quarter results, Schuler has got off to a successful start in the new fiscal year 2014," explained CEO Stefan Klebert on presentation of the company's interim report in Göppingen. From January to March 2014, orders were up 19.8 per cent year on year to €319.8mn. The press manufacturer made strong gains in Asia, and especially China, as well as in South America and the Gulf region. In Europe, Schuler received its largest-ever service order. At €258mn, sales were 16 per cent below the corresponding prior-year figure. As expected, sales suffered from falling orders in the previous year. Due to this decline in revenue, earnings before interest, taxes and amortisation (EBITA) of €17.5mn fell short of the prior-year figure of €26.4 million. The group profit for the period, however, rose from €10.7mn to €11.3mn thanks to lower interest expenses and taxes.

At the end of the quarter, Schuler's net financial status improved to €307.8mn. Equity rose by 4.2 per cent to €286.3mn.

"Over the past few years, Schuler has worked hard to establish a strong market position and solid financial basis. We must now continue along this successful path," stated Mr Klebert with reference to the company's key financial figures.

The company has also confirmed its guidance for the fiscal year 2014. Schuler continues to expect total sales of around €1.1bn in 2014 with an EBITA margin of 6 to 7 per cent. "The high order backlog of around €1.1bn provides a solid basis for our 2014 sales and earnings forecast," concluded Mr Klebert. At the end of March 2014, the group employed 5,494 people.

Schuler AG – Germany
Website: www.schulergroup.com

Bewo expands JHP collaboration

BEWO Cutting Systems intends to expand its collaboration with JHP Engineering Services in the UK.

During the last few years Bewo has sold many sawing lines, mainly outside Europe. The company has signed a new contract for cooperation for the sales of new equipment, and service and distribution of spare parts on the UK market.

With this expansion Bewo gives a new impulse to its market approach in the UK, together with Justin Paddick of JHP. Bewo and JHP will also be able to respond to the recent increase in demand and the service expectations of the UK market. JHP Engineering Services and Bewo have been collaborating for decades. This collaboration has now been expanded. Where Mr Paddick previously provided service to Bewo cutting lines, he now is a 'qualified sales and service partner'. UK-based companies interested in new Bewo cutting lines can now contact JHP.

With the expanded collaboration, Bewo and JHP cover the whole of England, Wales and Northern Ireland, and provide specialised service engineers. Marcel Veenstra, sales and service manager at Bewo, said, "We are confident that the combination of the high quality service of JHP and the powerful brand of Bewo together with our large installed base will be distinctive and will be able to give the UK market what it deserves."

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Website: www.bewo.nl

JHP Engineering Services – UK
Website:
www.jhpengineeringservices.co.uk

Three-roll RSB technology

BEIMAN Special Steel Co, part of the Dongbei Special Steel Group, has concluded a contract with Friedrich Kocks GmbH & Co KG for the delivery, assembly and commissioning of a reducing and sizing block (RSB) combined with the equipment and process for temperature-controlled rolling (LTR).

After positive results and experience with the operation of the 3-roll RSB in the combined wire rod and bar mill at Dalian Special Steel, a second company belonging to the Dongbei Special Steel Group decided to expand and modernise its bar mill by implementing the 3-roll RSB technology.

After completing the modernisation, the mill will produce 504,000t/a bars in SBQ quality within the dimension range of 16 to 100mm Ø. The new 370mm RSB in heavy-duty design, which will be equipped with four stand positions, will be designed for temperature-controlled rolling at low temperatures.

The RSB will be operated as finishing block in the existing bar mill downstream of the 2-high roughing and intermediate mill consisting of 20 stands. The 3-roll block is able to roll any finished size of the whole product range as straight length onto the cooling bed out of a few entry cross-sections from the roughing and intermediate mill. The rolling configuration program Bamicon calculates optimum adjusting values for motor speed, rolls and guides as well as gear stages depending on the requested finished product.

The LTR process with closed-loop control and corresponding equipment for the whole mill line is also included in the order. Kocks is in charge of the process know-how as well as engineering and hardware.

For the first time, the Kocks Microstructure Simulator (KMS) will be applied as a supplement to the LTR process. Kocks developed KMS as a new software program for process simulation in long product mills particularly designed for the 3-roll technology. It simulates the temperature development of the rolled product, calculates the quality and quantity of the micro-structural development, and predicts the mechanical properties of the rolled cross-sections.

The scope of supply includes quick automatic stand change system, stand and roll workshop with quick roll change, CAPAS computer-aided system for precise adjustment of rolls and guides in the stand, and the remote control of passes and guides of the 3-roll stands in the mill line. The total package is completed by supervision of assembly, commissioning and training of customer personnel.

Commissioning of the modernised bar mill with the Kocks 3-roll RSB is planned for the end of 2014/beginning of 2015.

Friedrich Kocks GmbH & Co KG –
Germany
Fax: +49 2103 51249
Email: marketing@kocks.de
Website: www.kocks.de

Production running like clockwork

LMF Maschinenteile GmbH has ordered the new HBE Dynamic bandsaw model from saw specialist Behringer. The experience gained by the gear component supply company provides an insight into the functionality of the new machine in everyday industrial application.

"I can't afford my machine outfit to leave me in the lurch. Production outage would be a disaster, and I would have a hard time explaining delivery delays to my customers," said LMF chief executive Rudi Laber. He equates the reliability of his production facilities with his own reliability towards LMS customers. "For a medium-sized enterprise with just five employees, reliability is everything. We supply companies from wide ranging fields – conveying technology, mechanical engineering, packaging technology and automatic parking systems – with gears and sprockets, CNC turned parts and timing belt pulleys."

The company provides consistent quality, from one-off units and small production runs, to full series manufacturing. In the raw material machining production hall, there are two bandsawing machines from Behringer: a twelve-year-old HBP 360A, which Mr Laber says has never caused a single problem; and the new HBE261 A Dynamic with full enclosure.

LMF invested in the new machine for two reasons. The company was experiencing increasing demand for round material offcuts in the diameter range from 30 to 165mm, which had to be sawn specifically to order. "At the same time, any servicing work being performed on the existing machine meant that we were completely without an alternative bandsaw, which is unacceptable," said Mr Laber.

Behringer GmbH – Germany
Fax: +49 7266 207 500
Email: info@behringer.net
Website: www.behringer.net

BE261A Dynamic

OMS wins innovation award

OIL and gas pipe measurement specialist Optical Metrology Services (OMS) has won the 2014 Queen's Award for Enterprise in the Innovation category for its SmartFit™ service, a system for managing pipe preparation and fit-up in readiness for welding prior to pipe laying.

Used in the oil and gas industries, SmartFit ensures accurate fitment of pipes prior to welding and laying in trenches, preventing environmentally damaging leaks.

OMS also developed bespoke laser measuring equipment and methodologies with supporting software, for optimising pipe fit-up. The service reduces costs through faster pipe laying and improves quality by eliminating mismatched pipe ends.

OMS staff outside the company's UK offices

Hugh Davies, client solutions director at OMS, commented, "Everyone at OMS is honoured to receive this award because innovation has always been a priority here and a cornerstone of this company's growth and financial success over the years. Innovation is something that the UK excels at and so the competition for the Queen's Award must have been intense."

In oil and gas pipeline projects, the welding of fatigue-sensitive SCR (steel catenary risers) and flowline pipes to tight specifications is critical.

Counterboring the pipes might not be a viable method of controlling pipe geometry due to cost considerations or to limitations on pipe wall thickness. In order to prevent bottlenecks during welding and to minimise project delays and risks, oil industry owners, pipelay contractors and welders need to capture, record and analyse pipe end geometry quickly and accurately. This measurement data can help to ensure that pipes delivered into the bead stall will fit together within the welding specification requirements.

Optical Metrology Services Ltd – UK
Email: info@omsmeasure.com
Website: www.omsmeasure.com

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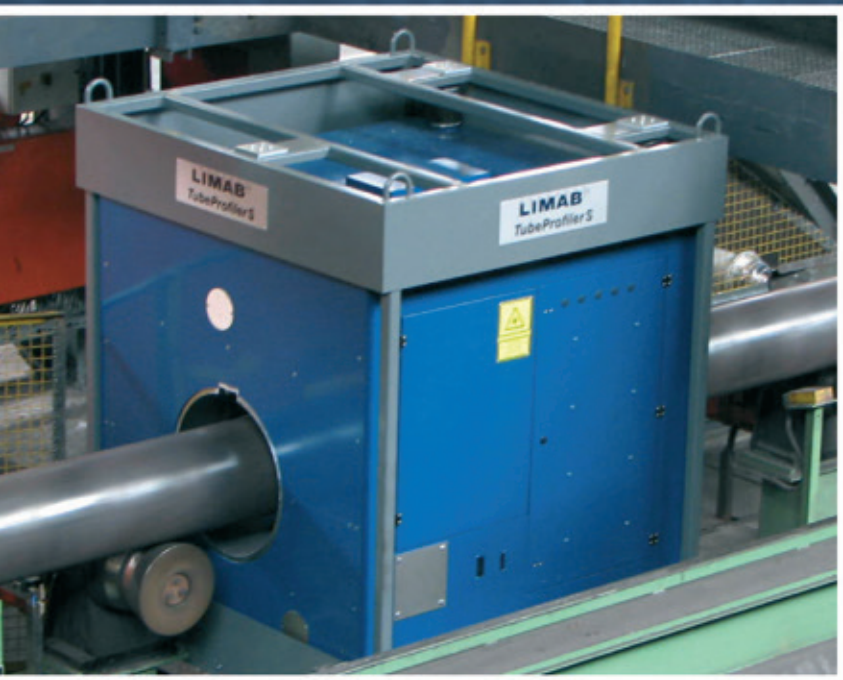
LIMAB's well proven measurement system for seamless and welded tubes. We measure full cross section shape with no blind spots. Our system provides real time profile measurement which results in a faster mill set up.



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A compact measurement system capable of measuring local, end and total straightness, in addition to diameter, ovality and length.

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KraussMaffei driving company growth in China

TO celebrate the trade show Chinaplas 2014 in Shanghai, China, the KraussMaffei Group has inaugurated the second production hall at its manufacturing plant in Haiyan, China. Around 400 customers and business partners attended the event. As part of the expansion of the plant, the production space has been doubled and now covers 22,000m². This continues the company's expansion strategy in China, where it sees considerable growth potential for its KraussMaffei, KraussMaffei Berstorff and Netstal brands.

"By doubling our production capacity to 22,000m², we are accommodating the increasing demand from China and Asia for products that are manufactured locally yet drawing on our considerable European expertise and meeting our high standards of quality," commented Jan Siebert, CEO of the KraussMaffei Group.

Following several years of successfully producing KraussMaffei Berstorff extrusion machinery and KraussMaffei reaction process machinery in China, KraussMaffei MX-series injection moulding machines have been produced in the expanded manufacturing plant since 2013. To strengthen the local injection moulding portfolio, Netstal has opened a new demonstration and training centre, which is also available for customers to visit. It is home to a fully electric Netstal Elion machine with a clamping force of 2,200kN.

KraussMaffei Group – Germany
Website: www.kraussmaffeigroup.com

Changes on the SMS board

DR Joachim Schönbeck, longstanding CEO of SMS Meer GmbH and, since July 2013, spokesman of the managing board of SMS Holding GmbH, left the SMS Group on 31 March 2014. His successor as spokesman of the board of management of SMS Holding is Burkhard Dahmen, chairman of the managing board of SMS Siemag AG.

Marcel Fasswald, managing director of SMS India, has been appointed a further member of the managing board of SMS Meer GmbH as of 1 April. Dr Heinrich Weiss, president of the supervisory board of SMS Holding, said, "I wish to thank Dr Schönbeck for his successful work and commitment to the SMS group and for his many years of loyal cooperation. I am sorry to see him go and at the same time pleased that he will continue to support us in a consulting role."

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

50 years and counting at Konecranes

TERRY Heddon, a crane service technician with lifting equipment manufacturer Konecranes, has been presented with a 50-year long service award.

In recognition of his achievement in attaining such a career milestone, and as part of Konecranes' long service award scheme, Mr Heddon was presented with a watch, framed certificate and personalised letter from Konecranes president and CEO Pekka Lundmark.

Based at the company's centralised service district facility in Thornbury, South Gloucestershire, UK, Mr Heddon helps support on-going national service contracts. Having started his career in the early 1960s, serving his time as a fitter/machinist, he has spent almost his entire working life working with cranes and lifting equipment.

Terry Heddon (left) receives his 50-year long service award from Konecranes district manager Mark Goringe

Presenting Mr Heddon with his award, district manager Mark Goringe said, "Not only is Terry a much liked and larger than life figure amongst our team here in the South West, he is widely respected by all who know him and who have had the pleasure of working with him at Konecranes. His knowledge relating to cranes and lifting equipment, particularly of a mechanical nature, is second to none. This is matched by his extensive experience, not to mention his infectious enthusiasm in rectifying and resolving problems for customers as quickly and efficiently as possible."

Konecranes – UK
Website: www.konecranes.co.uk

Guill Tool appoints sales representative manager

WITH more than 30 years of extrusion technology and industrial management experience in the plastics industry, Thomas D Baldock is now the sales representative manager for Guill Tool & Engineering.

Guill president Glen Guillemette commented, "Thomas Baldock brings invaluable business experience to Guill in our continuous pursuit of the latest extrusion tooling technology for our customers around the globe who demand the most advanced extrusion tooling on the market today."

Mr Baldock was previously sales manager at Parkinson Technologies, vice president of extrusion coating sales at Polytype Converting, and director of sales and marketing for Circonix. He also held various sales and technical positions with the Black Clawson Company. He received both a business and technical degree from the Rochester Institute of Technology and the State University of New York. A member of the Society of Plastics Engineering (SPE), Mr Baldock also belongs to the Technical Association of the Pulp & Paper Industry (TAPPI). He has published technical articles in various trade magazines and presented papers at key industrial technical conferences.

Guill designs and manufactures complete extrusion die assemblies, utilising the latest CAD/FEA/CFD software, computerised CNC machining and EDM equipment. The company's product line includes tips, dies, clamps, flanges, air wipes, forming rolls, swing gates, die stands and carts, breaker plates, special equipment, and sizing dies.

Guill Tool & Engineering has been ISO-registered since 1995, and states that it was the first major extrusion tooling company worldwide to meet those international standards.

The company designs and manufactures custom extrusion tooling for all types of applications, including wire, cable, fibre optics, medical tube, wood composites, automotive tube, plastics compounding, custom applications, rubber, profile, industrial pipe, hose and tube, blow moulding, and food and packaging.

Thomas D Baldock, sales representative manager for Guill Tool & Engineering

Guill Tool & Engineering Co, Inc – USA
Fax: +1 401 823 5310
Email: sales@guill.com
Website: www.guill.com

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Special design for automotive industry and for the normal & structure pipes

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Cold saws
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Arc Energy gains ASME U2 approval

WELD overlay cladding and fabrication specialist Arc Energy Resources has obtained an ASME U2 Stamp. The company states that it is now the only weld overlay cladding specialist in the UK with ISO 3834-2 certification from the European Federation for Welding, Joining and Cutting (EWF) and certified for welding and fabrication to ASME VIII Division 2.

The new certification complements Arc Energy's long-standing ASME VIII Division 1 Stamp for the manufacture of unfired pressure vessels and components. The ASME U2 Stamp supports the company's specialised weld overlay cladding service, as the company can offer a comprehensive service that incorporates all aspects of welding and fabrication to code. Arc Energy is one of only seven companies in the UK with the certification, and of the six other companies approved to ASME VIII Division 2, four are existing clients of Arc Energy Resources. This approval is expected to help nurture the good working relationships between the various organisations.

ASME U and U2 Stamp holders who require welded or clad components for inclusion into their vessels or equipment can only obtain such items from other companies with the relevant stamp. Because of this, in the short period since obtaining certification Arc Energy has produced a number of U2 parts for items such as pig launching and retrieval systems, enclosures and doors, blind flanges and nozzles. The company is also capable of producing complete vessels.

The more stringent Division 2 code is required for vessels where systems are running at higher pressures. Division 1 vessels are usually designed to work at pressures up to 3,000 psi, while the additional demands of Division 2 allow for design to pressures as high as 10,000 psi. Typically, both types are used by Arc Energy Resources customers in the oil and gas and related industries.

When producing Division 2 vessels, Arc Energy becomes responsible for verifying the customer's design brief, and responsibility extends to verification of all potential load cases including seismic, wind, snow and other issues, as well as the effect of thermal stress and cyclic loading.

Explaining the work involved in gaining the certification, technical and quality director Neil Cook said that during months of preparation, authorised inspectors from Arc Energy's chosen authorisation inspection agency visited the factory to ensure that the company's procedures and processes were strictly to code. During the audit, Arc Energy successfully demonstrated design and production of a complete test pressure vessel.

Arc Energy Resources – UK
Fax: +44 1453 823623
Email: sales@arcenergy.co.uk
Website: www.arcenergy.co.uk

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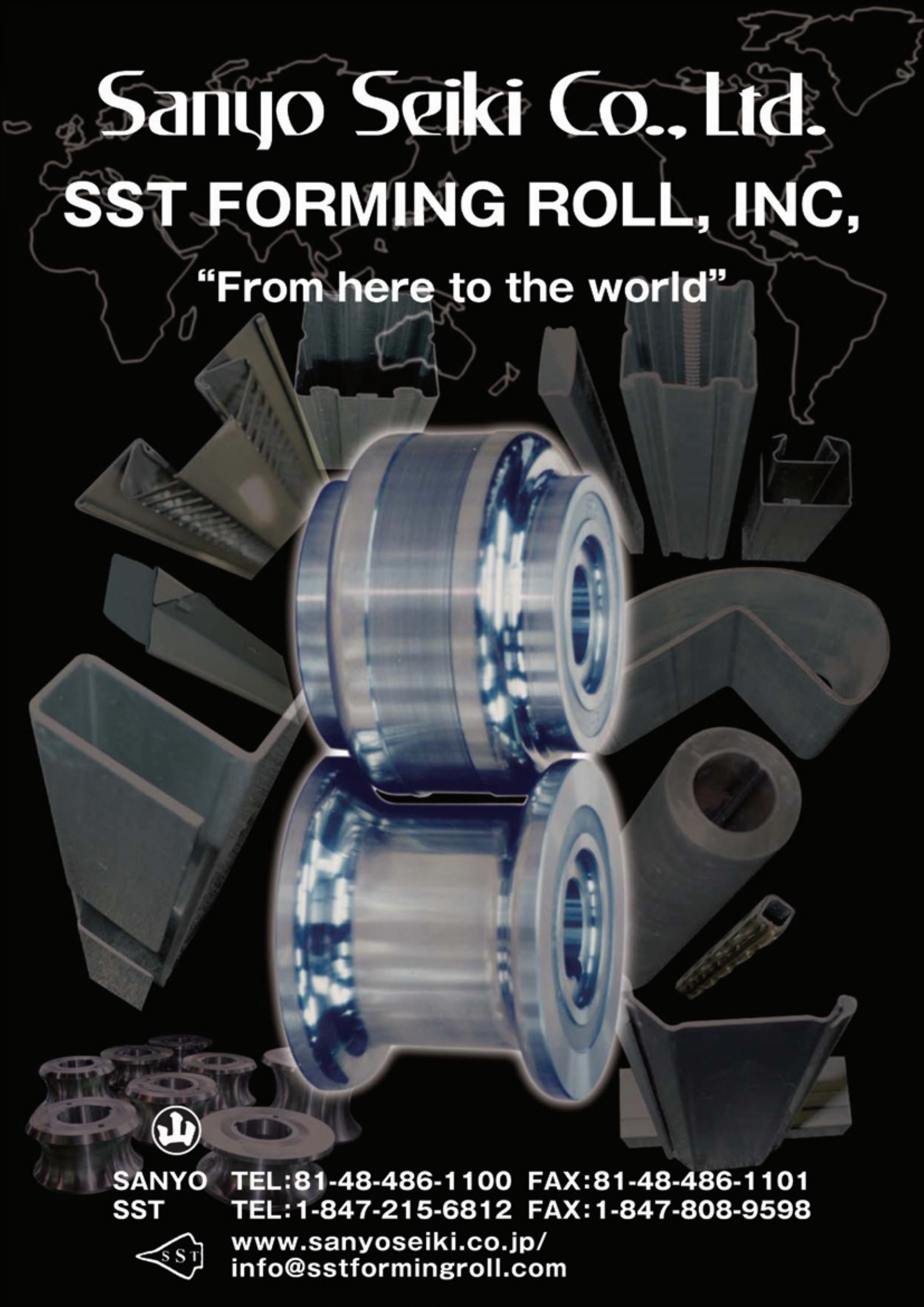

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www.sanyoseiki.co.jp/
info@sstformingroll.com

Lincoln Electric opens welding training centre

LINCOLN Electric has joined forces with Waukesha County Technical College (WCTC) to open a new welding demonstration and training facility, the first of its kind in Wisconsin, USA.

Officially known as the Lincoln Electric Southeastern Wisconsin Training Center at Waukesha County Technical College, the Pewaukee, Wisconsin-based school is owned and operated by WCTC and sponsored by Lincoln Electric.

The centre has been completely revamped and outfitted with the latest Lincoln Electric welding, cutting and fume control equipment and technology.

The 4,000ft^2 welding lab features 55 new Lincoln Electric welding stations, bringing the college's total welding lab space to approximately 8,000ft^2 with 93 welding stations.

The Lincoln Electric agreement serves a dual role:

For WCTC, this public/private partnership supports and enhances the college's existing welding programme and provides graduates with the welding skills for today's job market requirements.

For Lincoln Electric, the centre provides a venue for the manufacturer to conduct customer seminars and training for new products, cost reduction, productivity/process improvements, automation and engineering design, as well as for continuing education for existing customers and distributors.

WCTC School of Applied Technologies dean Mike Shiels said the agreement allows welding students to train on the newest, state-of-the-art equipment. There are currently 250 students enrolled in WCTC's welding programmes.

"Partnering with Lincoln Electric allows WCTC to continue to grow and expand our welding programmes and meet the needs of local industry," he said.

"The new training centre is a win-win for Waukesha County Technical College, its students and Lincoln Electric," stated Bob Dempsey, district sales manager, Lincoln Electric.

"The college benefits from a full complement of updated equipment addressing every commonly used arc welding process, as well as a comprehensive fume control system. Working with the latest high technology equipment, the students are better prepared for employment in a number of industries. We are also excited to introduce our industrial customers to the facility for product demonstrations, and more importantly, to do our part to build awareness among prospective employers for the WCTC programme and its fabrication graduates."

The new training centre is located at the College's Pewaukee campus, 800 Main St, Pewaukee.

For more information about WCTC welding programmes or Lincoln Electric, visit www.wctc.edu or www.lincolnelectric.com.

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

Headquartered in Cleveland, Ohio, USA. Lincoln has 48 manufacturing locations, including operations and joint ventures in 19 countries and a worldwide network of distributors and sales offices covering more than 160 countries.

Waukesha County Technical College, a leader in workforce development, prepares learners for success within the region and global economy.

The college offers more than 130 areas of study including associate degree, technical diploma, apprenticeship and short-term certificate programmes. Customised training for employers is also available.

Lincoln Electric – USA
Website:
www.lincolnelectric.com

Bevelling tools product manager appointed

SAAR-Hartmetall USA, a subsidiary of the Germany-based parent company Saar-Hartmetall GmbH, has announced the addition of Kurt Zahn to its staff as product manager, bevelling tools.

In his new role, Mr Zahn will be responsible for growing market share of the line of bevelling tools that the company currently offers, and providing support to customers in the metal fabricating and tube and pipe industries that require bevels for weld preparation.

Saar-Hartmetall USA offers a full line of tube scarfing tools, peeling tools, bevelling tools, and a variety of cutting tools used in metal fabrication and the tube and pipe industry. Mr Zahn will focus primarily on promoting and selling the Gerima line of bevelling tools used for creating bevels and radii on plate metal and tube and pipe products.

Prior to joining Saar-Hartmetall USA, Mr Zahn spent over 25 years in machine tool sales in the metalworking and related industries. He will be travelling extensively as part of his effort to build sales and brand recognition of the Gerima line of products.

Saar-Hartmetall USA is the exclusive distributor in the USA of Gerima bevelling tools and machines. The handheld tools and stationary machines provide a bevelled edge typically used for weld prep, or edge rounding used prior to coating or painting. From a sales office and warehouse in Covington, Kentucky, USA, Saar-Hartmetall USA provides products and replacement parts to customers in North America.

Kurt Zahn, product manager, bevelling tools, at Saar-Hartmetall USA

Saar-Hartmetall USA LLC – USA
Fax: +1 859 331 8771
Email: contact@shmusa.com
Website: www.shmusa.com

Benteler awards contract to Mair Research

BENTELER Steel/Tube has ordered complete tube finishing equipment from Mair Research for its new seamless tube plant located in Louisiana, USA.

The investment allows Benteler to cater its prime API and ASTM tube products to an expanding market in the US.

The finishing equipment processes the cold products and comprises finishing lines suitable to cover all required finishing operations.

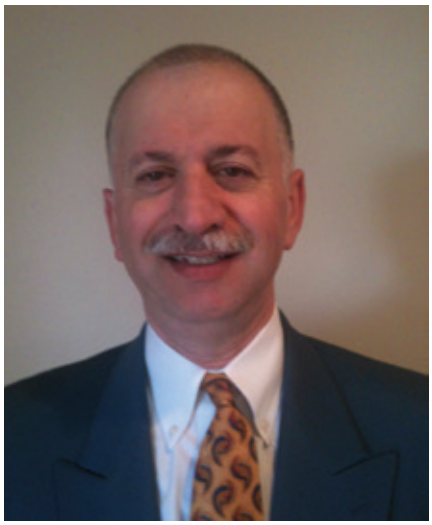
All three lines operate off line and are designed to cover the complete Benteler production range.

All the equipment included in the scope is being manufactured and assembled in Mair Research works in Schio, Italy. Preshipment tests will take place before dispatch.

Delivery is foreseen commencing mid 2014 and startup of the first line is 2015.

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

Winton Machine welcomes executive-level director of international sales and marketing



Rajab Aghasharif

WINTON Machine welcomed Rajab Aghasharif as director of international sales and marketing.

George Winton, president of the company, said: "We are very excited to welcome Rajab to our team at Winton. His extensive experience in the tube fabrication industry will have a significant impact on Winton Machine's expansion plans. In the past few years we have seen an increase in overseas interests in our products and Rajab will be instrumental in growing these markets."

Mr Aghasharif previously worked as director of sales and marketing for Pines Technology and prior to that position was President/CEO of IBP and represented major overseas manufacturers such as Pedrazzoli, Bema, Osuga, AMI and Tauring in North America and Mexico.

He was also director of sales and marketing with PHI, and prior to that was with H&H Tooling division of Teledyne Pines in Denver, Colorado, USA as general manager. He comes to Winton Machine with 30 years of experience in related fields.

Mr Rajab stated: "When I first started my career as a young man, I learned that it wasn't enough to just do your job; you had to have a keen interest in it, and an immense passion for it to fulfil your dreams."

Winton Machine – USA
Website: www.wintonmachine.com

Roll Mag!c

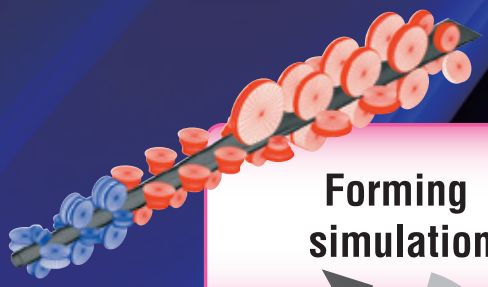
★Welded steel tube mill

NAKATA's High Level Design

powered by the sophisticated CAE system of roll design and mechanical design based on own FEM technique.

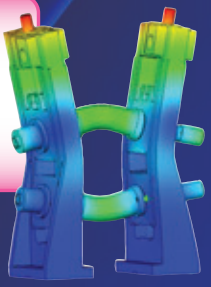
CAE system

Machine design with rational robustness and strength in combination of forming simulation and structured analysis.



Forming simulation

Stress & rigidity analysis

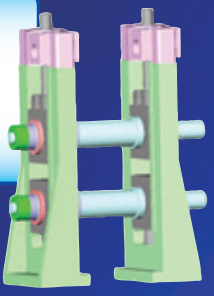


Forming load / torque

Mill specification

Automatic roll designing

Machine design



Roll shape / position

Roll drawing

Machine drawing

NAKATA MFG. CO., LTD.

3-7-6 Tagawa, Yodogawa-ku, Osaka, 532-0027, Japan tel. +81-6-6303-1900 fax. +81-6-6303-1905

http://www.nakata-mfg.com

Cimcool president to retire

AFTER a total of 34 years of service to Milacron, Bob McKee, president of Cimcool® Fluid Technology, has announced his intention to retire later this year. He will work closely with his successor, Jack Teat, to ensure a seamless leadership transition.

Bob McKee

Jack Teat

Commenting on his decision to retire, Mr McKee said, "For more than three decades, I have had the pleasure to work for an outstanding company with remarkable employees. As I begin this new and exciting chapter of my life, I leave with the confidence that my successor will continue to uphold the high standards and excellent service we provide to our customers."

Mr McKee joined Milacron in 1977 as a development engineer on the grinding wheel side of what then was known as the products division (grinding wheels and cutting fluids). He moved through a series of increasingly responsible managerial positions in product development, account service, operations, marketing and general management. In the early 1990s, he held senior management positions within the abrasives industry. He returned in 1995 as president of Talbot Holdings (tooling technology subsidiary) and advanced to president of Cimcool Fluid Technology, a position he has held for the last 12 years for Milacron. Mr McKee is a chemical engineer and also holds an MBA from Xavier University.

Jack Teat joins Milacron from within the chemical industry, where he most recently served as chief operating officer for Dover Chemical Corporation. He has more than 30 years of industry experience, including 20 years at the former Great Lakes Chemical Company.

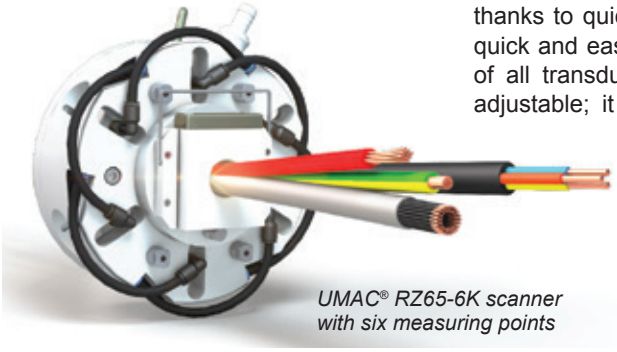
Mr Teat holds a BS in Chemistry from The University of North Carolina, a Masters in Management from Purdue University, and an MBA from Budapest University of Economic Science.

Cimcool Fluid Technology – USA
Fax: +1 513 458 8298
Website: www.cimcool.com

Ultrasonic measuring systems

ZUMBACH's UMAC® RZ65 ultrasonic eccentricity and wall thickness scanners for cable insulations, tubes and hoses allow maintenance costs to be reduced.

Thanks to a new design, the transducers can be synchronously adjusted within seconds to the best possible measuring position. The scanners cover an outside diameter range up to 65mm (2.5").



UMAC® RZ65-6K scanner with six measuring points

They represent a smart and simple solution for fully non-contact, in-line eccentricity and wall thickness measurement.

Some of the benefits include: quick centring thanks to the eccentricity measurement and adjustment, regardless of the materials' temperature; completely automated process monitoring and quality control; easy product change within a few seconds, thanks to quickly removable segments; quick and easy symmetrical positioning of all transducers, which are centrally adjustable; it is available for four and six point measurement; large measuring range with the same scanner; no readjustments, no tools, no change of transducers; fully non-contact, uncritical centring; no wear on parts; and it is 100 per cent made of non-corrosive materials for maintenance-free long-life operation under water.

All ultrasonic UMAC® systems offer flexible mounting options including inside cooling troughs and spray tanks or in a separate installation tank provided by Zumbach.

Using additional components, such as proven WALLMASTER data acquisition, processing and display systems, ODAC® or MSD diameter and ovality gauges, KW lump and neckdown fault detectors, a UMAC® WALLMASTER system can be extended for any purpose. These systems provide flawless SQC/SPC reports of the final product.

Zumbach Electronic AG – Switzerland
Email: sales@zumbach.ch
Website: www.zumbach.com

Innovative developments in orbital cutting

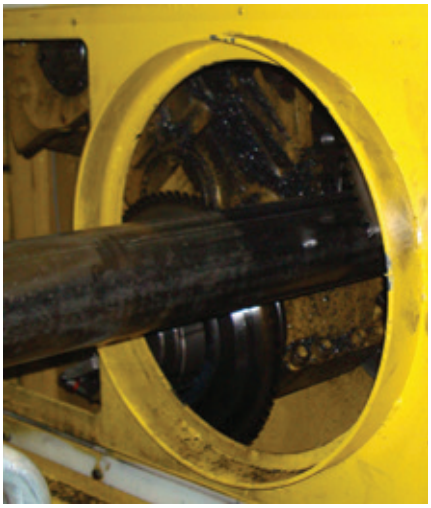
RECENTLY the welded tube market has increasingly favoured the use of orbital cutting because this technology offers several benefits, according to Moreschi, Italy.

The first benefit of orbital cutting is the possibility of increasing the velocity of the line with consequent enhancement of production thanks to the usage of two or four tools instead of one. The second benefit is the longer life of the blades due to the reduced dimensions of the tool and to the greater rigidity. The third point concerns the better finishing that is obtained even through the reduction of the vibrations (in this case the choice between several variables during the phase of design can make the difference). The fourth benefit is the reduction of waste produced.

In spite of the advantages above there are also some difficulties during the phase of cut such as the high velocity of revolution of the blades and the mechanical stress.

The system of orbital cutting that is innovative, even for the manufacturers of machines, should be studied in close collaboration and at the same time with the development of the tool. In fact the blade that is used for this type of cut is subjected to a system of forces that are different from the traditional cut. To solve these problems Moreschi has developed a high performance and specific product in collaboration with the main manufacturers of cutting machines and with the biggest tube manufacturers.

It has designed a new tool designed to cope with the different geometries of



sharpening and to the different type of teeth in addition to a new coating that is specially studied to increase the life of the tool and to reduce friction between blade and tube.

The company's technicians have been working with customers during the phase of design of the blade and during the tests, providing technical assistance and advice.

After the initial purchase the cooperation continues between the customer and Moreschi.

Thanks to this teamwork the Moreschi blades reach performances of cut of 16m^2.

Very good results have been obtained not only with new blades but even after the resharpening. For many years Moreschi has offered an accurate after sales service of maintenance and resharpening of the blades, not only in Italy, but for customers from other European countries.

Moreschi Srl – Italy
Fax: +39 0346 51351
Email: info@moreschi.eu
Website: www.moreschi.eu

Advanced tube bending technology

UNISON has won a major tube bending machinery order from British Airways, for use in its Heathrow-based aircraft maintenance, repair and overhaul (MRO) facility.

The order calls for Unison to supply a unique turnkey solution for fabricating precision tubular parts, based on two bending machines that are widely used in the aerospace industry. One machine is a semi-manual bender with CNC control, the other is a fully CNC all-electric model. Unison will also be providing all associated tooling, together with a portable coordinate measuring machine and advanced program generation software.

To maximise operational efficiency, British Airways maintains its fleet of aircraft in-house. The loss of revenue resulting from the grounding of a modern aircraft can be astronomical, making fast-turnaround MRO capabilities vital to economic performance.

Unison's tube bending solution will meet the long-term needs of this critical repair and maintenance workshop. British Airways has embarked on a major upgrade to its fleet of long-haul aircraft, which is set to include the addition of Boeing 787 Dreamliners and Airbus A380 superjumbos over the next ten years.

The introduction of these latest-generation aircraft poses numerous new challenges for the airline's repair and maintenance personnel.

One area that is receiving particular attention is the fabrication of replacement rigid hydraulic tubes. The central hydraulic systems of Boeing 787 and Airbus A380 aircraft operate at 5,000 psi – most commercial aircraft have 3,000psi systems – to allow use of smaller and lighter hydraulic components. Much of the interconnecting hydraulic pipework is manufactured from specialist aerospace materials such as titanium alloy, using thick tube walls to accommodate the high working pressures; a 25mm hydraulic tube for an aileron actuator, for example, would typically have a wall thickness of 2.5mm.

Fabricating replacement high pressure hydraulic tubes from these materials economically – without generating expensive scrap – and to the very high quality and safety standards demanded by the aerospace industry requires precision bending and measurement equipment, backed by application-specific knowledge.

Following the decision to upgrade the tube fabrication capabilities of its repair and maintenance workshop, British Airways therefore sought a tube bending machine company with proven expertise in the aerospace sector.

Unison was an obvious contender; the company's all-electric tube bending technology is used by a number of leading aerospace manufacturers, including Boeing and Airbus, to produce parts for engines and airframes. In fact, Unison machines are already used to produce hydraulic fluid lines for both the 787 Dreamliner and A380.

For the British Airways application, Unison configured a complete turnkey MRO package for tubular components, to provide quick and cost-effective repair of fluid lines on aircraft by reverse-engineering OEM parts and then re-creating them in the workshop.

The package covers tube sizes from a few millimetres up to 40mm in diameter and accommodates the variety of materials used in this application, including stainless steel and titanium alloy.

Unison – UK
Website: www.unisonltd.com

Automatic plants

SINCE its establishment in 1960 Somo Produzione has specialised in the production of sheet metal working machines.

In recent years the company has focused further on the construction of automatic plants for the manufacture of specific products.

For steel pole industries, Somo produces fully automatic bending units (press brakes) as well as turnkey plants for the production of poles and towers. Applications include round poles for street lighting, telecommunication towers, and high masts for low and medium energy supply.

Welded large pipe industries are supplied with pre-bending machines, automatic bending units (press brakes), calibration presses and tack welding machines, for use in oil and gas and LNG substations.

Large press brakes for general purposes are dedicated mainly to metal-forming service centres, earth moving industries, auto and crane industries.

Somo Produzione SpA – Italy
Fax: +39 02 9356 1457
Email: info@somoproduzione.com
Website: www.somoproduzione.com

Circular saw blades

50 years' experience in metal cutting circular saw blade production, along with constant technical cooperation with pipe producers and machine manufacturers, enables Stark to offer the high performance Olympic line, fully dedicated to tube cutting applications.

The range includes three kinds of blades: HSS circular saw blades; throw-away TCT saw blades; and resharpenable TCT saw blades.

The HSS circular saw blade is an alternative to TCT saw blades for tube cutting. Thanks to its special steel and PVD coating, it can be used at the same peripheral speed of TCT circular saw blades. The feed rates in the central area of tube crossing are claimed to be 40 per cent higher than feed rates of TCT saw blades, and so the blade cuts thin tubes 20 per cent faster than TCT saws. It is suitable for carbon steel, alloyed steel with high tensile strength, stainless steel, inox and non-ferrous materials.

Circular saw blades from Stark

In recent years, tube processing technology has changed greatly. Steel's higher tensile strength values, greater tube thickness, and faster production line speed are often required by customers. Stark's Olympic throw-away TCT circular saw blade is an answer to higher customer expectations in tube cutting.

The new range includes Olympic 100, suitable for hard material, cutting with low vibrations; and Olympic 200, suitable for stainless steel cutting.

Stark Olympic also includes a range of TCT circular saw blades suitable for orbital cutting machines. For cutting tubes with large dimensions, customers are increasingly using orbital cutting heads equipped with two to four blades.

Stark developed a new PVD-coated resharpenable blade with special tooth shape, with the aim of reducing the effort during cutting and to reach a longer tool life. According to the section and the material to be cut, Stark can supply different toothing geometries, specially developed to obtain the highest cutting performance.

Stark SpA – Italy
Fax: +39 0432 999097
Email: info@starktools.com
Website: www.starktools.com

Plastic compounds and resins

A SCHULMAN is an international supplier of plastic compounds and resins. The company's speciality powders and engineered plastics products offer solutions that allow customers to meet the specific regulatory requirements of the tube industry, such as the Waste Electrical and Electronic Equipment (WEEE) directive and the Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

The company has developed a comprehensive product portfolio with expertise in the wire and tube market.

At the 2014 wire and Tube trade fairs, A Schulman exhibited products that included Cotene™ and Icorene™ thermoplastic coating powders, which are free of Bisphenol A (BPA), volatile organic compounds (VOC) and isocyanates.

The company also exhibited engineered plastics products for tube extrusion applications, such as Schulamid impact-resistant and zinc chloride-resistant polyamide grades.

Schulamid FR is REACH and WEEE compliant and has halogen-free flame-retardant polyamide grades. Schulablend offers UV-resistant ASA/PA blends with a matte surface finish, and Polyfort provides polyolefin compounds with chemical resistance. Products from the Schulamid range related to fluid system connectors provide fibre reinforced polyamide grades with high chemical and zinc-chloride resistance.

New Schulaketon products offer reinforced aliphatic polyketones that can replace long-chain polyamide compounds for high-duress tube connectors, as well as non-reinforced polyketones that can substitute high-performance thermoplastics for tube and wire applications.

A Schulman, Inc – USA
Website: www.aschulman.com

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High-pressure resin transfer moulding from KraussMaffei

'LIGHTWEIGHT design' is changing automotive manufacturing with increasing speed. Components that were traditionally manufactured from steel or aluminium are giving way to fibre-reinforced plastic parts: sidewall panels, base pans, entire roofs, front-end carriers, carbon design parts and more.

KraussMaffei is playing a role in ensuring that these parts can also be mass-produced economically. The Chinese automotive supplier NBHX is now also taking advantage of the opportunity to manufacture fibre-reinforced plastic components with cycle times of just three minutes.

The RimStar Compact 8/4 RTM and RimStar Compact 8/8 RTM metering machines

NBHX expects that lightweight construction will see above-average growth, and has therefore invested in the high-pressure RTM technology from KraussMaffei. A high-pressure RimStar Compact 8/4 RTM machine was commissioned for manufacturing epoxy resin parts, and a second RimStar Compact 8/8 RTM machine was commissioned for manufacturing parts with a polyurethane matrix. Added to these are an MX mould carrier with a mould fixing area of 3,000 x 2,000mm and a clamping force of 600 tonnes, and a prototype mould.

The general manager of NBHX's R&D department, Dr-Ing Karsten Brast, attaches strategic importance to the investment in the new machines and systems from KraussMaffei: "Based on the feedback from several customers, we are confident that, with the HP-RTM technology, we are on the right path. We have already noticed great interest in lightweight components from OEMs and expect to start to use these in series production, step by step."

The HP-RTM process allows fibre content of up to 70 per cent, and enables the use of polyurethane, epoxy resin or base polyamide as a matrix material.

To make the production of fibre-composite components for the automotive sector suitable for series production, KraussMaffei has carried out work in many areas, for mould carriers, in mixing and dosing technology, and in energy-efficient pumps.

Erich Fries, head of the composites and surfaces business unit, commented, "To shorten the cycle times in the RTM process and to increase the quality of the parts, we have developed new self-cleaning, high-pressure RTM mixing heads to ensure excellent mixing of the matrix components and short response times. One important advantage for the customers is the development of a precise metered addition of release agents directly via the mixing head, which means that the manual release agent procedure is no longer required."

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

Tool equipment manufacturing from India

ATLAS Knives (DB Engg) was formed 60 years ago and has evolved to become one of India's largest tool equipment manufacturers. It currently has a staff of over 600 people with specialists in the field of manufacturing, metallurgy, engineering and management. The company's product portfolio includes a wide range of knives and tools for the metal, paper, printing, packaging, plastic, wood, rubber and recycling industries.

The company is headquartered in New Delhi, India and has five manufacturing units, which cover an area of over 150,000ft^2.

The company boasts an ISO certified heat treatment plant with over 25 furnaces and an in-house cryogenic facility along with a state-of-the art CNC manufacturing setup.

The design team at Atlas has extensive production experience in the tube mill industry, which helps ensure that it meets all customer requirements from design all the way through to production.

The company uses special custom software for the designing of rolls for both closed and open section profiles, and has over 27 years of experience in the manufacturing of rolls.

Atlas Knives is capable of manufacturing rolls for tube sizes ranging from 0.5" to 12". Only high quality forged bars are used in the manufacturing of rolls.

This combined with a great emphasis on quality standards and assurance and a design team with over 25 years of experience has helped establish the Atlas Knives brand all over the world, with the company currently exporting to over 65 countries worldwide.

DB Engineering – India
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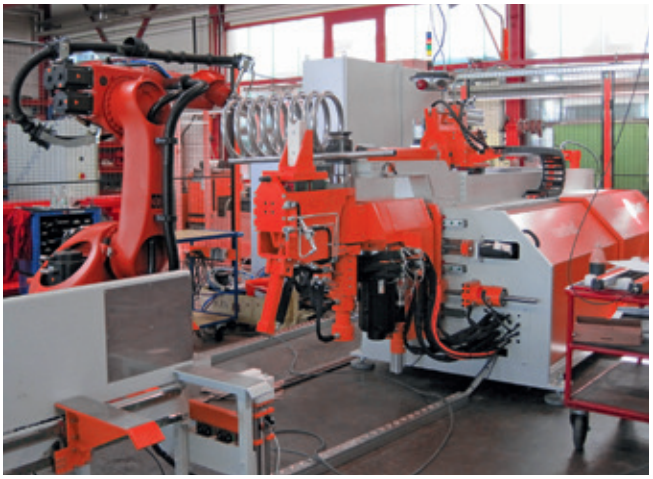
Information : http://www.kusakabe.com Contact : sales@kusakabe.com

Out of the curve with no loss of cross-section

WHEREVER boilers let warm water flow or heat exchangers do their energy-efficient work, pipe coils are needed as system components. Before the coiled pipes are ready to use, the outlets have to be machined, precisely and with no loss of cross-sectional area. For this challenge, transfluid Maschinenbau GmbH has put its right-hand/left-hand bending machines to use in a specially developed system.

The coiled material is first placed into a measuring device by a robot. Here, the exact diameter and length of the pipe coil is entered to define the orientation and position of the outlets. The machine then positions the component in accordance with the measured data, and bends the pipe ends with an ovality of less than 5 per cent.



Using specially developed transfluid technology, even extremely thin-walled pipe can be processed reliably

The outlets are precisely positioned, and can be installed directly in the boiler.

After bending, the pipe coil is moved into a fully automated processing system that cuts the pipe ends without burrs, and axially forms a cone.

A frontal sealing surface for flat-sealing elements is also attached as a conical thread cut.

This combination makes it possible for the customer for this special transfluid system to seal both frontally and on the threads.

Another advantage of the process is that the processing of extremely thin-walled pipe is supported, and all processes are completed without burrs. This ensures clean fabrication and efficiency in the production process.

transfluid Maschinenbau GmbH – Germany
Fax: +49 2972 971511
Email: info@transfluid.de
Website: www.transfluid.de

Cleaning system for pipework, heat exchangers and boiler tubes

INITIALLY designed for the cleaning of mill spouts within the flour milling sector, the Rotaflex™ cleaning system has proved effective in the cleaning of pipe work, heat exchanger tubes and boiler tubes.

"The Rotaflex is a sturdy, portable cleaning system that, due to the various attachments available, is able to clean various tube sizes on equipment within many different industrial sectors," said Chris Wright, sales administrator for the Rotaflex.

The Rotaflex cleaning system

Rotaflex is easy for one person to operate, making it suitable for companies with limited maintenance budgets. The system features a new electronic controller that provides the required 3-phase, variable-speed power supply, and makes the Rotaflex easier to handle and move around.

The flexible driveshaft has also been improved, with the addition of a blue, food-grade covering. The flexi-drive is claimed to be so robust that a truck can drive over it.

For longer tubes or pipes there is also a heavy-duty, chassis-based version of Rotaflex that can power a 20m flexi-drive. New Rotaflex machines are usually ordered with an 8m or 12m flexi-drive and a set of cleaning brushes of the customer's choice.

The flexibility and robust nature of the Rotaflex makes regular duct cleaning an easy activity to include in maintenance schedules. Boiler tube cleaning can reduce fuel consumption and increase boiler efficiency. The variety of accessories available for the Rotaflex mean that boiler tube cleaning can be carried out quickly and effectively.

"The Rotaflex has been used to unblock heat exchanger tubes at a chocolate factory, clean condenser tubes at a power station in Turkey and as part of a regular duct cleaning routine for an international fast food chain," said Mr Wright. The Rotaflex is manufactured by Tube Tech International in the UK.

Tube Tech International Ltd – UK
Email: info@tubetech.com
Website: www.tubetech.com

Induction welding from EFD

EFD Induction is one of the world's largest induction heating companies, and is particularly strong in the global tube and pipe welding and seam normalising industries.

The company's Weldac induction welders are used worldwide by some of the best regarded names in tube and pipe manufacturing. Part of the reason for the Weldac's success is EFD Induction's patented switching pattern technology. This innovation lets the Weldac use extremely rugged and reliable IGBT transistors that are virtually short circuit-proof.

Another reason for the Weldac's popularity is its use of continuous electronic load matching. This feature enables the Weldac to operate at full power output across a wide range of tube sizes, ensuring maximum welding speed for each size. The inclusion of a diode rectifier with a constant power factor of 0.95 at all power levels results in there being no reactive power cost, and no need for compensating capacitors.

Other key benefits include an efficiency of 85-87 per cent from input at the rectifier to output at the coil, and a robust cooling water system that operates without the need for costly de-ionized water. EFD Induction has facilities around the world, including several production plants in China and India. After-sales support is comprehensive, and includes everything from operator training to coils and parts supply programmes.

The Weldac from EFD Induction

In 2012 EFD Induction acquired Electronic Heating Equipment, Inc, a leading impeder supplier for the tube and pipe industry. The acquisition means that EFD Induction offers truly integrated welding and seam normalising systems – solutions proven to deliver maximum uptime and throughput.

EFD Induction – Norway
Website: www.efd-induction.com

Control, recording and PDF reporting

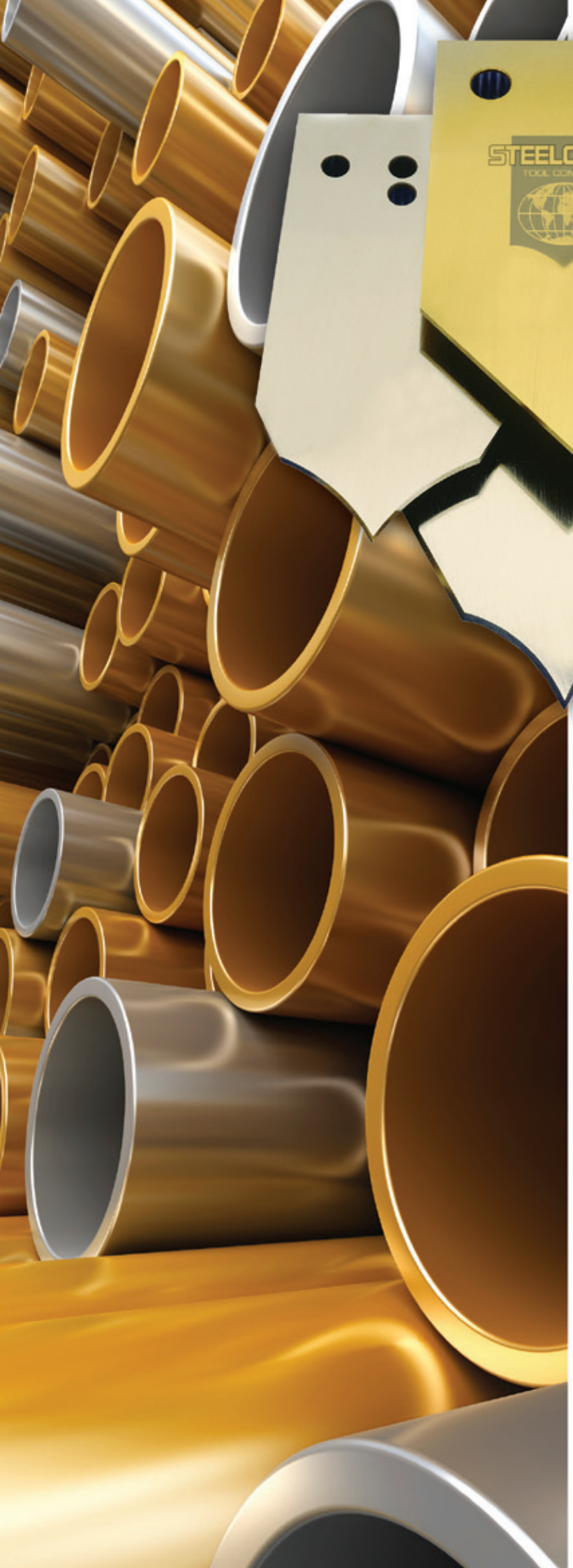
RITMO SpA has introduced a new data logging system, named The Inspector, that controls, records and generates a PDF report of the entire welding process. The Inspector is an 'open system' that can be used with Ritmo machines or others. The large graphic display allows an easy reading of welding reports.

The Inspector is installed in a hard case made of PP, with protection degree IP 67. It is sold with a bag that contains the data logging and the battery charger with international adapters.

The standard package includes The Inspector, transport bag, battery, charger and international adapters. Transducer connection cables are available on request; the cable and the transducer may vary according to the welder model.

Technical features include preloaded major welding standards (ISO, DVS and others); memory of 1,000 cycles; USB port for welding reports in PDF; integrated GPS; firmware upgradable via USB; battery operated (24 hours of operational work); 24V DC power supply; and an outside temperature range of -10°C to 40°C.

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



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Success story: corporate cooperation

Technological cooperation between Sikora and Maillefer for 100 per cent quality control

CUSTOMER demands significantly determine which new technologies are pushed by Sikora with high priority. Two years ago, the company Maillefer raised urgent questions about the possibilities for the development of a system for the detection and sorting of contaminations in plastic pellets.

This technology was originally planned for the inspection of XLPE pellets used for the production of medium, high and extra-high voltage cables, as well as for underground and submarine cables. Also in other markets, such as the plastic processing industries or the hose and tube industry, the purity of raw material is a crucial quality aspect. In the field of medical engineering, increasing quality demands concerning the reliability of medical products are reported, for example regarding hoses for endoscopy or ureteral catheters.

If contaminations enter the production process, the risk of quality losses of the end product may be the result. This can lead to health hazards for the client, as well as damage to the company's image. Therefore the production of highly pure material, and the continuous inspection of the granule used for the production process before it enters the end product, is of crucial importance.

In order to catch possible impurities in the pellets before they get into the product, manufacturers use screens that are positioned directly in the melt flow after the extruder, before the crosshead. However, these screens can become clogged by contaminants after a certain run time, and the melt pressure in the extruder may increase significantly. Finally, the production has to be stopped in order to change the screens. An approach to increasing productivity is to omit the screens. This requires appropriate methods to detect and sort out contaminated pellets at an early stage.

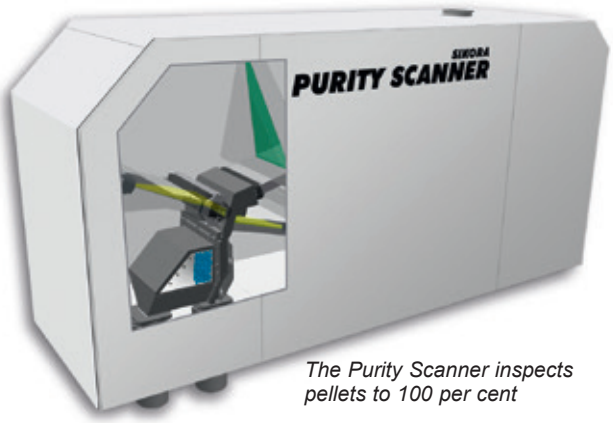
A solution to this problem is a system that inspects the pellets for purity before they get into the extrusion process. Currently installed devices use optical measuring principles that randomly inspect pellets for contaminations. Since this is a sample check only, the material is not 100 per cent controlled.

With optics, only the outside of the pellet can be inspected, while impurities inside the pellets remain undetected. Moreover, the inspection of the raw material with existing devices is not done under clean room conditions, so new impurities can emerge from the ambient air or as a result of the conveyor belt used.

"We have a close cooperation with Sikora for more than 20 years now, which brought us technologies such as the CSS 2 for the monitoring of the purity of the PE melt, or the Ultratemp 6000, a system for the continuous measurement of the melt temperature," explained Timo Mäkelä, process specialist for MV and HV products at Maillefer. "It was a matter of course that we addressed Sikora concerning the development of an inspection and sorting system. For Maillefer, it was important to develop a system which inspects 100 per cent of the pellets and which sorts out reject material reliably."

The list of requirements mainly included the following eight points:

- Material throughput of 500kg/h
- Detection of metallic and organic contaminations
- 100 per cent detection of small contaminations ≥50µm



The Purity Scanner inspects pellets to 100 per cent

From left: board member Dr Christian Frank and head of R&D Dr Siegmar Lampe (both Sikora AG), and MV/HV process specialist Timo Mäkelä (Maillefer)

- Detection of contaminations on and inside the pellet
- Transport of the pellets without conveyor belt, as a conveyor belt may cause additional contaminations
- Flow of material inside the devices under clean room conditions
- Reliable sorting of contaminated pellets
- Assuring purity of raw material of all potential suppliers

In initial experiments, various sensors were tested in order to ensure a reliable detection of contaminations with a size of 50µm. It soon became clear that Sikora had the know-how to develop the appropriate technology to meet Maillefer's requirements. With the newly developed Purity Scanner, metallic and organic contaminations not only on the surface, but also inside the pellet, can be detected. The system applies for pellets as they are used at the production of hoses and tubes in the medical, automotive, aircraft or cable industry.

With the intelligent combination of X-ray and optical technologies, a system was developed that inspects 100 per cent of the pellets for purity before they enter the production process. Rejected pellets are sorted out reliably.

The transport of the pellets is carried out via a vibrating ramp. This transport system is hermetically sealed with the result that no external impurities get into the material flow.

"The Purity Scanner is the result of hard work and cooperation between Maillefer and Sikora," said Mr Mäkelä. "With this system, the quality and reliability of the products can significantly be increased. This also improves the safety and usability for the end user."

Sikora AG – Germany
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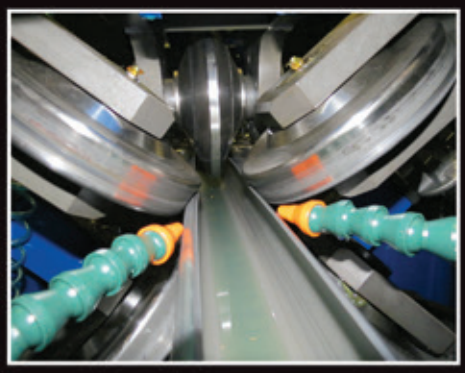

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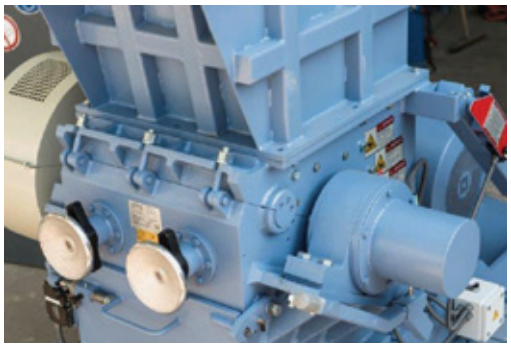
Heavy-duty granulating in one step

HERBOLD Meckesheim GmbH has overhauled the construction design of the SMS series, to allow the machines to cope with the most demanding heavy-duty applications in a single step.

The machines are manufactured with rotor widths ranging from 600 to 2,000mm and with drive capacities between 45 and 315 kW. The knife design is segmental, ensuring a quick and easy exchange of the cutting tools.

Typical applications are heavy, thick-walled semi-finished products in PE, PP, POM and PA, pipes with high wall thicknesses and large purgings.

Thick-walled materials are not the only materials that are quite difficult to recycle; the same applies to aramid fibres (commonly used for manufacturing bullet-proof vests), carbon fibres and composite materials, labelled as 'difficult to grind'.



SMS 45/60 heavy-duty model

Among the different applications, one consideration is contaminated plastic waste that is highly abrasive, and if the machine is operated with blunt knives, this means a high strain for the rotor and the housing. Cracks and fractures have to be avoided during a harsh, non-stop operation.

There is often not enough space to install a two-step solution. Another aspect is the limited capacity of a preliminary size-reduction unit. The quality of the ground material is often deteriorated if a shredder has been used first.

The thin-walled flakes do not have good flow properties and no good bulk density. A one-step size-reduction solution allows small batch sizes with an important cleansing process.

A rotor that has been forged as one single piece ensures stability. Welding seams cannot break since they do not exist. The rotor knives cannot shift since they have been fixed at a stopper. This design is also an advantage for cleaning operations, as there are no 'dead spots' where material rests can deposit.

Herbold Meckesheim GmbH – Germany
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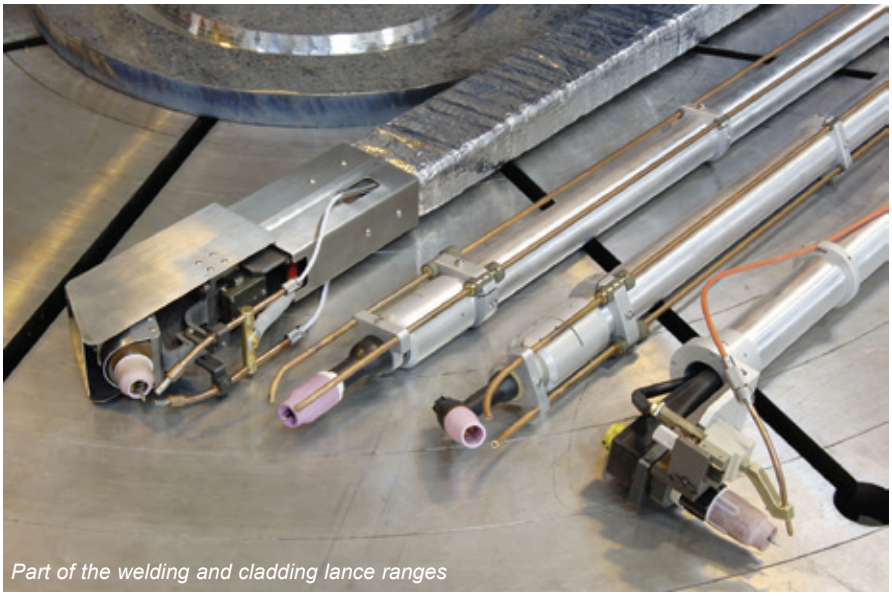
A perfect standard solution for specific demands

IN the field of welding, every application has different technical requirements. Each welding torch manufacturer has to find the best solution to meet customers' requirements according to the alloy to be welded, the bevel and the type of the root, and the working conditions: the perfect weld without any porosity, without traces of discoloration or residues, thus avoiding further expensive interventions or even the scrapping of the work piece.

Polysoude has taken this problem into account: a problem which costs a large amount of time in terms of research and development. One would have thought that an additional amount of shielding gas could guarantee an excellent result, but the result would only be a modification of the behaviour of the gas streams. Due to the empirical experience, this company is now recognised as a specialist in this field for many industrial applications. Over time a great variety of specific torches have been developed, for automated or mechanised TIG welding and for cladding solutions.

Different ranges of torches have been designed and manufactured for both of these technologies, and validated every time in terms of performance rates for duty cycle, temperature resistance, shielding protection and camera transmission. In this way, Polysoude has created a complete catalogue for welding torches based on twelve different basic designs, which will be completed by the welding lances that perfectly suit the customer's applications in terms of capacity and length.



Part of the welding and cladding lance ranges

The final certification of this range of welding torches does not only rely on the experience, since for every torch, additional tests have been developed in order to optimise the final result. Jean-Pierre Barthoux, head of technological department, explains: "While developing a new type of torch, it has always been very difficult to examine the behaviour of the different gases because of high luminosity and heat near to torch. Video transmissions helped us to understand the welding operation, but we lost a huge amount of time in order to obtain the perfect result for every new application."

Each torch has been examined with specific tests in order to analyse the various gas flows and forms. This optical test by striae scope (also called Schlieren's test, after the name of the inventor) reveals the density of the flows, or more precisely the refractive index by deviation of the light. The deviation is analysed with the help of compressed whirlwind, differences in temperature or chemical composition. With the introduction of this technology, the engineers of Polysoude are now able to foresee gas behaviour and its influence on the final welding result.

Polysoude – France
Website: www.polysoude.com

Inside tube scarfing systems

ERNST Blissenbach GmbH develops solutions for the removal of the internal weld in HF longitudinally welded tubes. Customers' needs are met through core competences in development, systems and service.

BLISSart® custom tools provide a high degree of know-how, precision, intelligent technology, durability, integrative broadening of potential and an effective increase in production output. "Maximum continuity is of the utmost importance to us," said Ernst Blissenbach, the owner and managing director, referring not only to the close cooperation with long-standing customers but also to his relationship with his employees and social stability. "We are all part of our economy and should create jobs, stabilise the economy, demonstrate commitment to our region and society and prove our innovative drive on a daily basis."

Mr Blissenbach continued, "Our technological innovations constitute an intelligent symbiosis between intensive tool and process research and the indispensable Blissenbach advantage. We communicate with our customers to fine-tune our product development to their tube production, and come up with new ideas and solutions for advanced inside tube scarfing processes."

Ernst Blissenbach GmbH – Germany
Email: info@blissenbach.de
Website: www.blissenbach.de

Ultimate Straightening

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The Bronx Six Roll Straightener features a unique design that allows for enhanced efficiency, superior quality and safety. Through their experience and technical knowledge, our engineers have worked to create technologies that you can rely on for minimized set-up time, improved accuracy without surface blemishes on thin walled tubes, enhanced rigidity and consistency straightness/roundness. Engineered for safety, the Bronx Six Roll Straightener's drives are located in the back of the machine and the machine's operator has a complete view of the straightening process from the operating console. Quality, service, and reliability; Trust Fives. Contact us: fivesbronx-sales@fivesgroup.com

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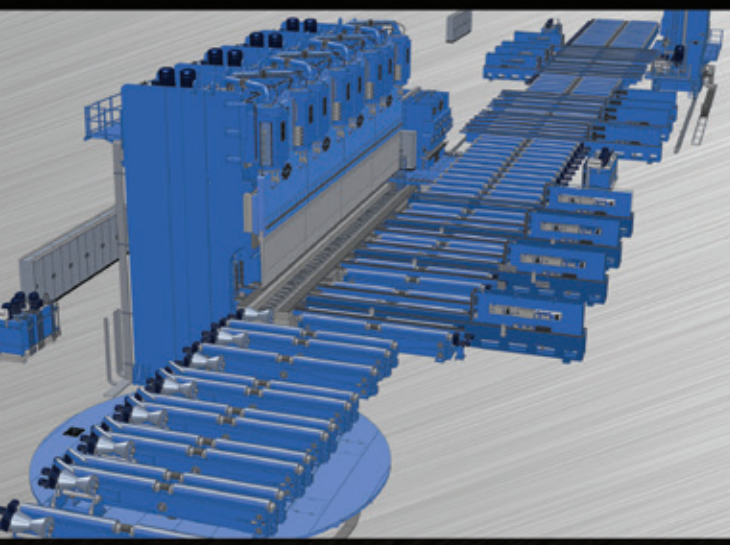
SOMO

AUTOMATIC PLANTS FOR LARGE PIPES



- PRE-BENDING
- BENDING
- CALIBRATION
- TACK WELDING

www.somoproduzione.com

Lifting table for tube bending machines from Germany

LANG Tube Tec has launched the new 80CNC-EMR, described as the world's first fully electrically-powered automatic bending machine to use a lifting table that creates vertical shift of collet rotation and mandrel retract at the same time.

The integrated booster for applying additional pressure on the pipe while it is being bent is also driven on the lifting table during the same stage of work. Other features of the CNC-E series include the drive-click system for storing motor parameters, and the entirely new control with intuitive graphic user interface and torque-controlled tube clamping.

"The new machine concept will enable our customers to break entirely new ground in regard to machine rigidity and machining quality," said head of sales Sabine Neff.

"It will also help considerably reduce set-up times, which will in turn increase productivity."

The technological advances mean that it is suited to the automotive and commercial vehicle sectors, as well as in the fields of aerospace and shipbuilding.

Lang Tube Tec states that, compared with the otherwise conventional methods where collet rotation and mandrel retract shifting are effected separately, its innovation realises the benefits of greater rigidity, 100 per cent synchronicity of both units' movement and the advantage that the high booster forces may be applied directly and centrally. "Our new concept means that we're able to prevent the high levels of torque from affecting the sensitive ball bearing spindles," explained service and project manager Björn Brunner.

The lifting table concept also offers benefits over conventional machining processes where the bending head is moved vertically. Even with increasing machine sizes, users will still be able to position the tubes at the ergonomically optimised operating height of 1,150mm and carry out tool changes without straining their backs. Both minimise set-up times and ensure that the machine can be taken quickly into operation so that jobs can be completed quickly. The new machine control with the Siemens Simotion CNC also stands for the speedy and safe execution of work flows because all axes are moved simultaneously.

The user interface is so intuitive that the Lang Tube Tec's CNC-E series may even be operated by people without previous CNC training. Because the clamping and feeding forces are torque-controlled, the machine automatically compensates for fluctuations in tube batches.

A high-performance simulation program allows the tubes' bending properties to be checked in advance so that any necessary corrections may be made before they are worked. It also allows binary-coded 3D models to be imported to prevent any input errors.

The tools and bending programs used with the 80CNC-EMR may be programmed quickly.

All parameters are stored in the memory, so the machine is always ready for use and does not have to be run-in beforehand. The bending tools may be changed particularly quickly; the pressure die is simply hung into the T-grooves, the clamp dies slid into the circular guide, and the tie rods may be swivelled after the locking pins have been released. The concept may be adapted to existing tool systems.

The fact that maintenance-intensive gas-pressure springs are no longer needed to support the bending head and ball-bearing spindles means that the 80CNC-EMR reduces maintenance requirements, while the machine's entirely new enclosure and the concept that uses a separate switch cabinet also allow optimum access for maintenance.

Lang Tube Tec GmbH – Germany
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Email: info@lang-tubetec.com
Website: www.lang-tubetec.com

One-stop-shop for induction tube technologies

SMS Elotherm is the full-line supplier of complete production plants for longitudinal products. Within the group, SMS Elotherm stands for benchmark induction technologies – welding, annealing and heat treatment of tubular products.

EloWeld™ tube welding plants set standards in terms of the dimensional range, the wall thicknesses and the material variety and they are capable of processing steel and stainless steel, aluminum, brass, copper and zinc.

Owing to an improved starting material and an increased weld seam quality, the properties of longitudinally welded and heat-treated tubes are comparable with those of seamless tubes and take their place in many areas.

During longitudinal seam welding an endless strip is formed to a tube in a continuous rolling process. The opposite strip edges are heated via an inductor up to the melting point by means of a high-frequency alternating current and then joined by upsetting rolls. In this way, the high-quality weld generated does not need any additional material.

EloSeam™ for induction seam annealing of longitudinally welded tubes reliably ensures a uniform structure in the area of the weld seam. The microstructure created in ferritic steels during welding is thus normalised. The result: high-quality tubes with homogeneous material properties.

Thanks to the modular structure of EloSeam™, the annealing section can be designed and dimensioned exactly to the requirements of the tube plant. This ensures thorough heating.

The induction TemperLine™ from Elotherm for quenching and tempering of tubes consist of an induction heating section with subsequent quenching facility followed by a tempering section for the setting of the desired hardening parameters. The quench and temper lines of Elotherm are above all convincing by their high efficiency, precision and flexibility compared to conventional furnaces. Within minutes the quench and temper lines can be adjusted to new dimensions, steel grades or special features such as tubes with upset ends. Even if lengths and diameters are different, the production rate (tons per hour) is significantly higher with induction technology than with conventional furnace technology. Thanks to the highly precise induction processes of Elotherm, a very high homogeneity is achieved with regard to the hardness, the mechanical properties and the microstructure when quenching and tempering is performed.

After the induction heat treatment, for example, a tolerance range of ±1 HRC (Rockwell C) over the entire material length is available.

SMS Elotherm equipment sets standards in sustainable energy efficiency due to innovative power sources for adapting to ever-changing production conditions.

SMS Elotherm GmbH – Germany
Email: a.zentner@sms-elotherm.com
Website: www.sms-elotherm.com

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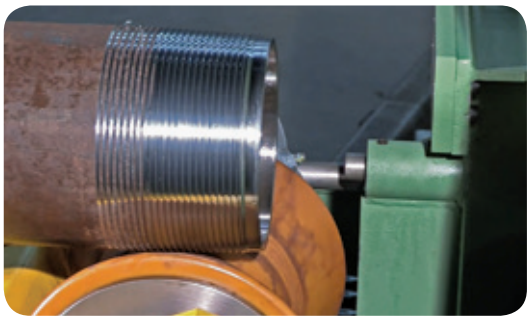

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Fast phased array system

THE FAAST_II system is a UT phased array technology fitting with high-speed testing applications and high in-line productivity, able to replace more than ten conventional phased array systems working in parallel. Its linear pulsing generator allows the transmission of a large quantity of ultrasonic beams, at different allocated angles, in one single spray. Tube ends and full body inspections on line comply with strict API standards for OCTG: longitudinal, transversal and all oblique notches (½" long and 5 per cent depth) orientated every 5° step of the 360°, ie 72 oblique, ID and OD, with 2D Matrix array probe; lamination (square ½" at 10 per cent and 90 per cent, FBH 3.2mm diameter) and WT with 1D Linear array probes. The calibration process is quick and easy, with no mechanical positioning of the phased array probes according to tube diameter and thickness range.

Socomate International – France
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Website: www.socomate.com

Automatic profile measurement of glowing wires, bar steel and tubes

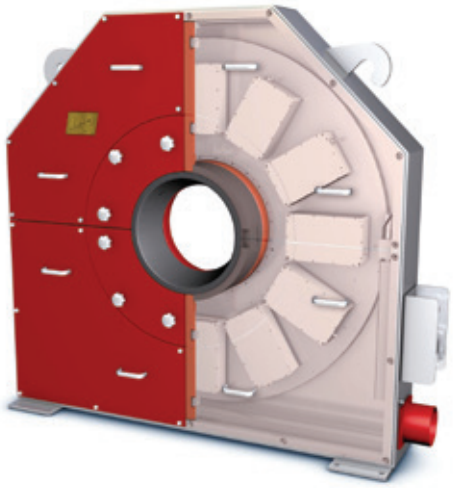
USING the RDMS profile measurement system from LAP, steel industry plants can measure the contours of glowing wires, bar steel and tubes in the production process completely automatically. Software warns in real-time about imminent tolerance infringements even before the product quality suffers.

Users can specifically optimise the capability of the individual structures locally and avoid costly rework. The RDMS profile measurement system can also be integrated in existing lines where space is limited.

To maximise production efficiency, many manufacturers are migrating to measuring wires, steel bars and tubes not only at the end of the production process but between each production step, allowing them to assign tolerance errors directly to the respective systems and adjust these optimally.

"The profile of common bar steel geometries can be measured with the RDMS profile measurement system, including rounds, squares, flats and hexagons," explained Frank Lohmann, senior sales manager steel industry at LAP. "Stationary sensors measure over several axes during the rolling. Not only diameters of wire, bar steel and tubes – they also provide precise measured values about roll offset and breakout, eccentricity, ovality and tension and pressure influences."

Up to six Metis measuring systems can be integrated in the round measuring frame of the RDMS, which the product passes through. They each consist of a transmitter and a receiver. The laser beam of a diode laser in the transmitter falls onto a rotating polygon mirror. A precision lens converts the deflected laser beam into a parallel running beam that passes through the measuring range cyclically.



Up to six Metis measuring systems can be integrated in the round measuring frame of the RDMS

The glowing steel shades the opposite receiver when it passes through the maximum 500mm wide measuring field. The time interval can be converted into dimension values. Each pair of devices provides an authentic cross section profile from different viewing angles, even at high rolling speeds.

The LAP software evaluates the measurements in real-time. "With comprehensive trend analyses and statistics functions, they can indicate on a monitor to the local employees in good time when tolerance infringements are approaching," said Mr Lohmann. "They can then optimise the rolling process directly and specifically, and thus reduce rework."

As employees can dispense with sample cutting thanks to the RDMS profile measurement system, the start-up times for product changes can be significantly shortened.

As a standard feature, various movement modes can be selected using the software, from the stationary RDMS to the constantly swivelling RDMS Swing, to the cyclically swivelling RDMS Mixed Mode.

LAP provides software enhancements specially for ribbed steel and for products rolled using triple plate technology.

The results of several measurement systems can be visualised in one software application for 100 per cent quality control. From the furnace to the cooling bed, the user can install a measurement system after each production step, providing an overview of the complete production process.

All measured data can be stored in the IT system, or optionally in an open SQL database, where data can then be further processed statistically. LAP is also planning a closed control loop for the future, so that rolling lines can be automatically controlled in real-time using the measured data.

The RDMS profile measurement system can also be integrated in existing process control systems and material tracking systems using standard interfaces and Ethernet. The measuring frame itself is very narrow, as the system does not require any complex rotating mechanism, and can be integrated in existing lines where space is limited.

LAP GmbH Laser Applikationen – Germany
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Website: www.lap-laser.com

Bending machine for large diameter pipes

CBC Srl produces a wide range of machines and tools for bending, threading, cutting and welding pipes, and for pressfitting systems.

The company's pipe benders include the UNI76, a powerful and accurate machine for bending large diameter pipes.

The optimal and constant bending radii do not deform the bent pipes. The machine is suited to the bending requirements of users working in the nautical, oil-hydraulic, industrial and plant engineering sectors.

The general features of the UNI76 are spheroidal graphite cast iron body placed on a metal steel base; self-braking, asynchronous, two-speed-motor (voltage and tension on request); digital, electronic unit equipped with microprocessor for setting and controlling the desired bending angle (50 bending programs can be stored and for each program nine sequential bending angles are memorisable); (24V) low tension control panel; auto return at end of stroke; and maximum bending angle of 180°.

The maximum bending capacity changes according to the type of pipe to be worked. For example: the maximum Ø is 76mm (2½" gas) for AISI 304/316 stainless steel pipes, hard copper pipes, furniture pipes, and aluminium pipes; the maximum Ø is 88.9mm (3" gas) for UNI5745 gas pipes.

CBC's UNI76 bending machine

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Website: www.cbc.it

Tube, pipe and rollform machinery

UNIVERSAL Tube offers a complete TurnKey System from the initial design to start-up. Located under one roof with Universal Controls Group, a rapidly growing controls supplier, this unique relationship enables it to offer a wide array of cost efficient services: extensive inventory available of quality used and reconditioned machinery; line upgrades and repower systems; custom engineering services; full import and export services; cash for surplus machinery; new drive systems, new components and new accessories; home of the U-Trak length control systems for flying cut-offs; and home of the HavenTrak flying shear tube cut-off.

The 125,000ft^2 warehouse is fully stocked and ready for a hands-on inspection of the equipment required.

It offers many different types of tube mills or rollformers to fit specific needs.

Fax or email a drawing of the shape you need to fabricate, and the experienced team will get to work assembling a complete line quotation to produce the part you need. The company can help increase accuracy and productivity while keeping investment low.

Visit www.utubeonline.com to browse photos and specifications of the current inventory. Click on Universal Controls Group to see the latest in mill controls, die accelerators and length control systems.

Visit Universal Tube & Rollform at Fabtech Atlanta on booth #C628.

Universal Tube & Rollform Equipment Corporation – USA
Email: sales@utubeonline.com
Website: www.utubeonline.com

High-volume production hydroforming press system

INTERLAKEN Technology, a manufacturer of production press equipment for hydroforming, elevated temperature forming, and hot stamping systems, has introduced a new four-column hydroforming press system for running high-volume production while reducing cycle time. The new hydroforming press system is offered in clamp forces from 250 to 5,000 tons.

Interlaken's hydroforming press system

Hydroformed parts are stronger and weigh less due to structural integrity and fewer welds or add-on pieces. Time is saved by eliminating secondary operations, reducing scrap, lowering material and manufacturing costs, and increasing design flexibility. With superior control over forces and motions, Interlaken's Hydroforming Press is claimed to provide a greater overall quality of formed parts.

The multi-channel closed loop control system is easily programmed to handle various sizes and materials. It also offers dynamic mode switching, which enables the user to switch between a variety of feedbacks such as force, position, internal pressure and other system variables.

For over 34 years, Interlaken Technology Corporation has been designing and manufacturing servo-controlled equipment with sophisticated controls and monitoring software. The company offers an extensive warranty and solid service and technical support.

Interlaken Technology – USA
Fax: +1 952 856 4221
Email: sales@interlaken.com
Website: www.interlaken.com

Schuler's largest-ever servo transfer press

ELEVEN metres above ground, 15m long, 8m wide and almost 1,000 metric tons in weight: automotive supplier Craemer started production on the largest servo transfer press Schuler has ever built. The specialist for metal forming, plastics processing and tool making is using the line with its 8m-long and 2.5m-deep press bed for the manufacturing of structural parts.

The press bed needs to be so large as the parts are transported through several stations during the forming process. In the past, Craemer had to use two presses in line, which were linked by a total of three automation systems. The fact that the same process is now handled by just one machine enhances the overall reliability of the line, especially as parts no longer have to be passed from one press to the next.

Within the new line, parts are transported by a tri-axis high-performance transfer system supplied by Schuler Automation with a span of over 10m. Its low vibration ensures fast and reliable part transfer. A prerequisite for this reliability is the integrated active vibration dampening (AVD) system developed by Schuler Automation. Each of the motors delivers over 500kW of power to generate a total press force of 25,000kN.

The servo press took nine days to transport from Schuler's plant, via ship, two special cranes and three trucks with 16-axle trailers. Once at the Craemer facility, the press bed was first lowered into the 6m-deep cellar of the specially constructed hall. This was followed by the 3½m-high slide and 4m-high crown, before all three components were fixed in place by four tie rods. It took Schuler's experts around four months to complete the construction. The huge press is the fifth line with ServoDirect technology used by the Craemer Group.

Lifting gear is used to add each component

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Fax: +49 71 61 66233
Website: www.schulergroup.com

Paul Craemer GmbH – Germany
Fax: +49 5245 43170
Website: www.craemer.com

Line pipe coating to improve field joint bonds

BREDERO Shaw has introduced the new SureBond™ onshore pipe coating, developed to match or exceed the performance of three-layer coating products.

Formulated with a proprietary molecular structure, SureBond is claimed to provide better pipe protection and superior bonding with all field joints. It eliminates the often-problematic adhesive layer, while providing strong, virtually permanent protection of the anti-corrosion layer. The SureBond product line performs across a wide temperature range, from -70°C to 100°C, with low temperature bending and thermal cycling performance, a known limitation of three-layer systems.

The new SureBond onshore pipe coating

"SureBond opens up an important new category of line pipe coating," said Cedric Oudinot, global product line manager at Bredero Shaw. "It offers significant benefits for operators – and it's competitively priced, so they get a superior solution without having to pay more."

Bredero Shaw, a division of ShawCor, provides specialised coating systems and related services for corrosion protection, insulation and weight coating applications on land and marine pipelines, including highly engineered corrosion and insulation systems for deepwater applications.

Bredero Shaw – USA
Fax: +1 281 886 2353
Email: solutions@brederoshaw.com
Website: www.brederoshaw.com

Large-sized gear reducers

GALBIATI Group, a company recognised on both a national and a global level, designs and develops state-of-the-art solutions in a wide variety of fields.

Since 1962, Galbiati Group has specialised in the design, production and revamping of large-sized components and finished products, gear reducers and speed multipliers for all those sectors that require advanced mechanical parts and/or machinery. The industrial applications vary from iron and steel to cement and grinding, and from energy to cableway.

The Galbiati Group's gear reducers for iron and steel applications are tailored to the customer's specifications and are large with an extremely strong and sturdy structure. The power take off shafts often turn at a rate of less than 100 rpm and are powered by single or multiple electric motors even of several thousand kW. These turn the ladles of the cast iron-steel converters of the cylinders of the stands, the hot and cold shears, the coilers and uncoilers; they connect electric motors of various types that lift and lower, drill, compress, evacuate and move in each direction most of the mechanical parts of iron and steel units (slabs, bars, sheets, coils of various widths and thicknesses, long products of various profiles, round bars for reinforced concrete and wrought and laminated parts of various types and sizes).

Gear reducer for drawing tubes in production at the facility in Marcegaglia, Boltiere, Italy

Of the "special" products that it designs and makes, Galbiati has recently created an entire unit comprising a large-sized gear reducer for the facility at Marcegaglia, Boltiere, Italy, which specialises in the production of precision cold drawn tubes for the automobile sector and for hydraulic and mechanical applications.

The gear reducer for drawing tubes designed for the customer, Marcegaglia SpA, inclusive of chain driving pinion and weighing a total of 63 tons, has an output rotation rate of 2 rpm and is powered by a 220kW electric motor.

Main technical data: chain capacity 230 tons; primary diameter of chain driving pinion 740mm; motor power 220kW; and output rotation rate 2 rpm.

Galbiati Group – Italy
Website: www.galbiatigroup.it

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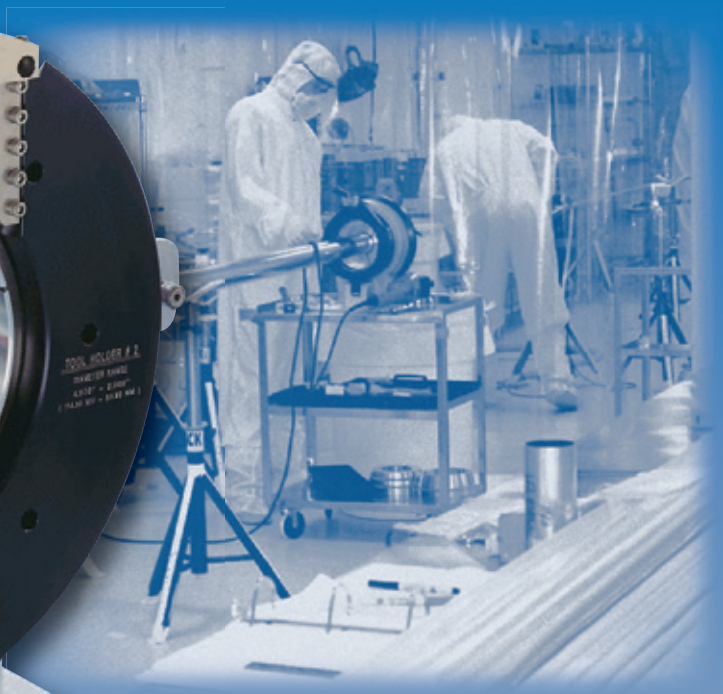

- Rapid set up, cycle times, and weld-ready finish boosts productivity
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- Tool bit severing produces a superior weld-ready, burr-free finish
- The full contact OD collet eliminates damage to thin wall tubes

Tri Tool's SeverMaster tube severing equipment was designed to deliver a weld-ready finish for thin wall tubing applications. With four models that cover the range of 0.250 to 16.00 inch OD tube, the 500 Series is the preferred solution for stainless steel tube fabrication.

Tri Tool can assist you with custom designed severing solutions including fully remote configurations for hazardous environments.

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Tube and pipe coating

APPLICAZIONI TermoElettroniche (ATE) is a designer and manufacturer of induction heating equipment and plants with related control and supervisory systems.

The company states that the large number of ATE installations and equipment in operation around the world is proof of the reliability of the technical solutions adopted and customer satisfaction with the quality of the finished product.

Continuous heating for coatings of tube and pipe encompasses a wide range of applications including paint, bonding, powdered coatings and galvanising. Efficient non-contact heating results in energy savings and shorter line lengths than gas or infrared.

ATE builds induction systems for many applications with power levels available from a few kilowatts to 500kW and more.

Applications include annealing heat-treatment of stainless steel and titanium pipes; hardening and tempering of carbon steel pipes; preheating of carbon steel pipes; seam annealing of carbon steel pipes; and stress relieving of end steel pipes.

ATE Applicazioni TermoElettroniche Srl – Italy
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Tri Tool announces new high production CNC counterbore service for the offshore market

TRI Tool has introduced a new high production counterboring service for the offshore market. To meet the demand for deep counterbore machining of steel catenary risers and critical pipeline needs in the Gulf of Mexico, Tri Tool has designed and manufactured a new high speed system with safety as a top priority. Tri Tool Services will operate the equipment, which will be mobilised for on-site service from the company's new Houston location.

"Safety was paramount in the design of this system and eliminating the need for any manual pipe handling significantly reduces risk," stated Mark Marshall, VP of engineering, operations and production. "Our engineers, as usual, designed to our highest quality standards and developed patentable features that will ensure that this service will produce the most consistent and precise results."

The new CNC high speed deep counterbore service features the latest, patent pending machining technology. Tri Tool delivers deep counterbore precision, rapid cycle times and superior surface finishes, using the safest pipe handling system available. Safety is optimised in this system with incoming and outgoing mechanised pipe handling racks that require no manual pipe handling. Cycle times are optimised with automated pipe end alignment, rapid machining by dual, seven axis CNC machines equipped with real time monitoring and the latest in safety features. The equipment will be manned by Tri Tool's experienced and highly skilled technicians who are certified in its operation.

"We are excited to introduce our new OEM technology, the extremely precise, highly productive CNC counterboring and safe pipe handling system to enhance our other pipeline service offerings that include: laser dimensioning, OD turning, coating removal and automated weld profiling," said Pat Flippen, VP of services at Tri Tool. "It is one of many examples of our engineering department's design/build expertise that allows us to provide our customers with the premium result they have come to expect from Tri Tool."

Tri Tool Inc – USA
Fax: +1 916 288 6160
Website: www.tritool.com

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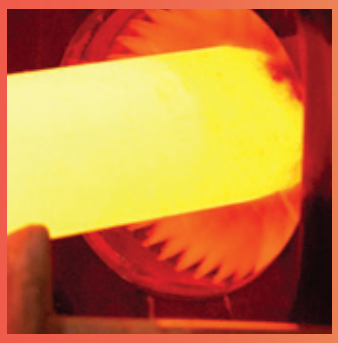

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Ultrasonic testing bench

PROVEA, a specialist in designing and manufacturing machines for tube producers, has developed and manufactured a new ultrasonic testing bench. This turnkey system involved Provea for the mechanical part and Metalscan-Tecnatom for the ultrasonic probes.

The new bench has been designed in order to comply with high quality standards. The main feature of the system is its roto-translation capacity: the tubes have a helical movement thanks to motorised pinch rolls, in order to control the entire tube surface with only a short uncontrolled area on the tubes' ends.

The new equipment allows several types of defect detection: axial and skewed cracks, transversal cracks, delamination and smooth defect. An ultrasonic thickness measurement system is also configured. Four phased array probes are integrated into two very specific ultrasonic tanks. The target was to control a tube range with OD from 35 to 270mm, length of 3 to 12m, and wall thickness of 2.5 to 42mm, in stainless steel (though many other materials are usable).

Overall, inspection treats internal and external notches (longitudinal, transversal, oblique 30° and 45°, 0.5mm width, 3 per cent of the wall thickness depth, length down to 6.3mm); flat bottom holes (5mm diameter, 50 per cent of the wall thickness depth); smooth defect (5 per cent of the wall thickness depth, 5mm length, 5mm width); and wall thickness reduction (12.5 per cent of the nominal wall thickness, axial or circumferential, length 12.7mm, width 6.3mm). The signal to noise ratio (SNR) is greater than 4:1 (or 12dB).

One of the most important technical developments is the partial immersion tanks designed for the project. They will enable the PA probes to come in contact with the tube without any water getting inside the tube (no plugging necessary). The mechanical design ensures a constant, accurately set and regular focal distance during the process. As this kind of tube might not be perfectly straight, immersion tanks go up and down in order to be at the required distance from the tube's surface.

Other technical features that entered into the project scope include minimal untested length, marking system, water complete closed looped management, parallel firing phased array UT, specific supervisor for acoustic results, inspection data reporting (defect mapping), PLC management designed on demand, automatic sorting after tests (and automatic re-controlling for doubtful tubes), and multiple control modes (L/T/WT/LAM/smooth defect combinations).

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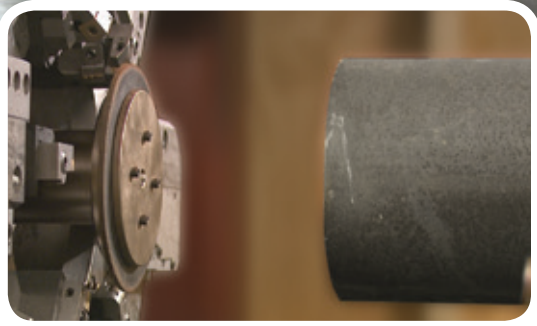

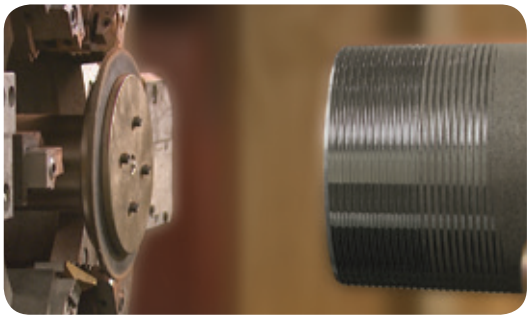

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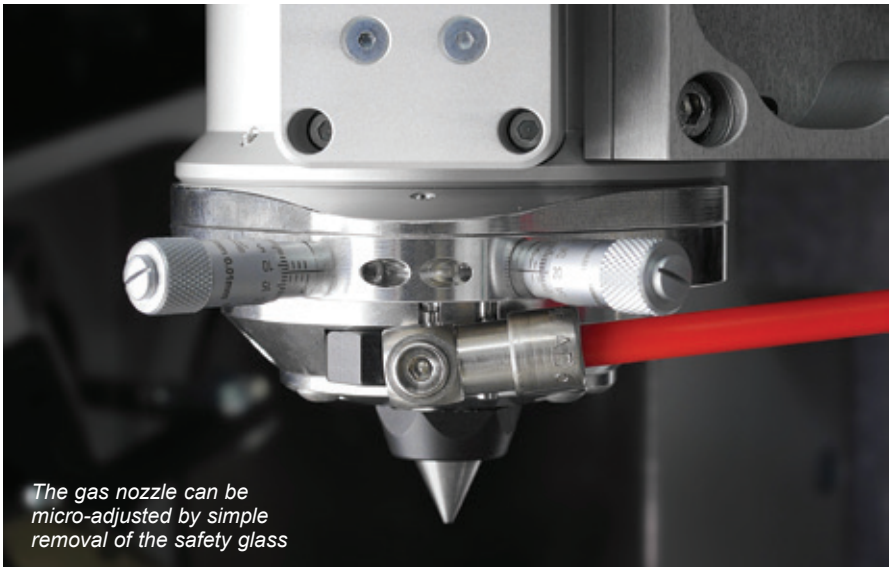
Improved precision laser cutting system

WITH several hundred installations worldwide, Rofin's StarCut Tube 4-axis precision laser cutting system is a popular option for high-precision processing of tube material for medical implants and instruments, and various other tube and sheet material applications in the automotive and aerospace industry.



The gas nozzle can be micro-adjusted by simple removal of the safety glass

Rofin has revised the current 5th StarCut Tube generation and added several improvements.

The new high-precision cutting head, BAK-MC, features excellent optical properties, and allows the micro-adjustment of the assist gas nozzle in the x/y plane without changing the beam guidance.

With the integrated drawer, changing the protective glass is simple, and requires no dismantling.

Offering a width of 600mm, the enlarged working chamber provides enough room for long parts and/or customer-specific handlings. A drawer allows the removal of finished parts at any time during production, even during wet-cutting. If 600mm is not enough, for instance for hypo-tube cutting, an automatic part removal system can be added.

Rofin-Baasel Lasertech GmbH & Co KG – Germany
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Email: sales@baasel.de
Website: www.rofin.com

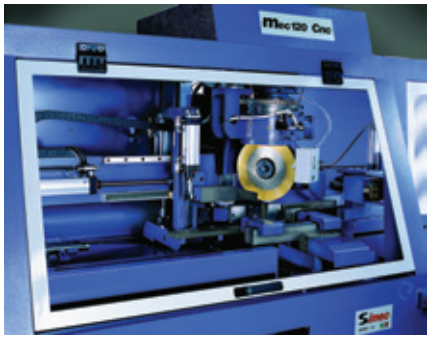
CNC machine for circular saw blades

SIMEC offers fully automatic CNC machines designed to utilise circular saw blades of the DMO5 type and all their derivatives.

This machine can cut to any pre-programmed angle of ±60° and has the ability to cut intersecting angles on the end of a wide selection of material types.

With the 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 perfect 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.simecsrl.it

Hi-lo gap measurement tools

TWO hand tools for measuring hi-lo gaps in steel catenary risers (SCRs) and other fatigue-sensitive pipes are now available from oil and gas pipe measurement specialist Optical Metrology Services (OMS). The tools are easy to use and are claimed to provide greater accuracy and repeatability than traditional hi-lo gap measuring methods.

Every weld is critical to the successful creation of a pipeline. When welded, SCR pipes are required to have a very small (typically less than 0.5mm) internal mismatch in geometry or hi-lo gap. In the past, a variety of inaccurate and poorly repeatable methods have been used to measure the hi-lo gap, which also normally require a two-step process.

To solve these inaccuracy problems, OMS has designed and manufactured two new hand tools – the Pipe Checker 'open gap' hi-lo tool and the Pipe Checker 'closed gap' hi-lo tool. These tools are accurate, repeatable and fast to use, with a digital gauge to measure the hi-lo mismatch in a single operation.

The open gap tool is designed to measure the internal hi-lo of an open gap bevelled pipe joint. The closed gap tool is developed for use with automatically welded pipe. Both tools are part of a range of Pipe Checker devices from OMS that offer accuracy and repeatability to quality assurance in pipeline welding.

The Pipe Checker closed gap hi-lo tool is used to measure the hi-lo at the bottom of the J prepped pipes. The measurement is taken in one step that is both accurate and repeatable, avoiding any human errors.

The use of standard digital gauges means that the tool is simple to use and familiar to inspectors.

The calibration/verification stand enables the user to set and calibrate the tool before use and thereafter to check that the tool is still within calibration limits.

OMS's Pipe Checker closed gap hi-lo tool

The closed gap tool is available in two variants: magnetic and non-magnetic. With the magnetic version, adjustments and reading values can be carried out without holding the tool. Both devices are supplied with an LED light, which ensures that operators can check that the blade tips are in contact with the bevel in the correct place.

The open gap hi-lo tool is designed to replace manually read Vernier systems that are difficult to read and rely on the experience of the operator. Open gap welds are normally aligned with external line-up clamps, so the tool has to fit into a relatively small space.

To operate the tool, the user pushes the blades into the gap between the pipes and turns the blades through 90°. The head is then pulled up and the blades make contact on either side of the gap, to measure the hi-lo difference. As the head is constrained by the plunger slide, the system is repeatable, accurate and not subject to operator bias.

A range of optional extras are available including data logging software, which takes data directly from the gauge into a PC or laptop, making data collection easier and faster. Bluetooth versions of the tools are also available.

Optical Metrology Services Ltd – UK
Email: info@omsmeasure.com
Website: www.omsmeasure.com

Producing and recycling heavy-wall weld coupons

THE new CouponMASTER weld coupon machine from Tri Tool is a new solution for union halls, colleges and trade schools where high numbers of weld coupons are utilised in training and certification programmes for welders qualifying with heavy wall pipe.

Whether producing weld test coupons by cutting and bevelling factory length piping, or purchasing pre-cut and bevelled weld test coupons, the CouponMASTER rapidly pays for itself by effectively reusing and recycling post-welded training and weld test coupons.

"Tri Tool has a long history with the UA. We are known to provide high quality cutting and bevelling equipment with great customer service, so when the request came for a better solution to the coupon recycling problem, we were happy to help," said Pat Flippen, VP of services at Tri Tool, who has been a UA member for 34 years. With the average pre-cut and pre-bevelled 2" diameter (NPS) weld test coupon being 4" long, the CouponMASTER tube cutting machine can perform at least four reclamation cycles (considering a 0.125" HAZ removal tolerance) for post-welded coupons. With routine high volume coupon requirements for arc time practice, combined with code related welder qualification testing, the CouponMASTER will produce significant long-term cost savings.

Tony Taylor, training director at UA Local 404, Amarillo, Texas, an experienced, satisfied customer summed it up best: "The tool is working great. It has helped us tremendously."

Available in electric or air motor versions, the CouponMASTER is built around Tri Tool's rugged and dependable Model 208B BevelMASTER® pipe bevelling machine for maximum performance, precision and durability, and incorporates a strong, integral base stand for bench top mounting.

The CouponMASTER comes complete with all required wrenches, a 37.5° Durabit® 5 bevelling bit, mounting blocks for 1.63" to 8.63" IDs, and both a 1.63" to 8.63" along with a 1.503" (2" XX super coupon) mandrel for the widest cutting range of any coupon machine available.

The tube cutting machine machine features easy set-up and operation, and rapid size change-over for reliable, repeatable results, and is backed by Tri Tool's dedicated customer support.

Tri Tool Inc – USA
Fax: +1 916 288 6160
Website: www.tritool.com

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Guild International offers complete entry systems for your tube and pipe production lines and can be customized to accommodate your particular needs. Our entry systems may include an uncoiler, coil retainer, speed funnel, shearwelder, and/or accumulator. Call for more information today.

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www.guildint.com

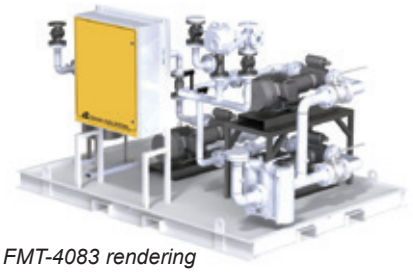
+1.440.232.5887 USA

Piping design of mechanical equipment and compact systems

CAD Partner GmbH is a developer, manufacturer and training provider of Smap3D software solutions, which are used in conjunction with CAD systems in an integrated and consistent design and management process.

Cougar Fuel Systems, a producer of fuel systems for the emergency supply of critical facilities, uses Smap3D P & ID and Smap3D Piping in combination with the SolidWorks CAD system for the drafting and construction of pipelines. The Smap3D solution provides an integrated design process from 2D to 3D flow chart diagram based on central pipe class definitions. Automatic program connections (no export/import) enable the sharing of information and data from one process step to another.

Cougar was looking for an opportunity to optimise workflows in such a way that various demanding design processes could be integrated and coordinated. The goal was to shorten overall production time while improving quality.



FMT-4083 rendering
Photo credit: Cougar Fuel Systems, Inc

The basic requirement was the connection to the existing SolidWorks CAD system. The software also needed to be operated by less experienced staff. The components and pipes constructed in 2D P & ID needed to be reused without effort or intermediate steps in the 3D CAD environment. Another requirement involved a filter function with which the suppliers and parts lists can be processed, so that an assessment of the parts used can be made at an earlier date.

Daniel Leos, product development and marketing at Cougar Fuel Systems, commented on the result: “In the few weeks in which I have been using Smap3D Piping, I have noticed a significant time savings in drawing the racks that we produce. The pipe classes and PartFinder modules from Smap3D allow me to easily add the correct pipes and supply parts to my database in order to obtain a complete and thorough 3D production drawing.”

Mr Leos noted other benefits, such as improved communication with customers, suppliers, service providers and colleagues through P & ID PDF and the use of lists and reports for early orders and changes. In particular, the to-do list supports structured work and helps users to construct 3D models quickly and accurately with the information from the 2D P & ID.

CAD Partner GmbH – Germany
Fax: +49 9404 5209
Email: info@cadpartner.de
Website: www.smap3d.com

Stainless steel strips

HISAR Metal Industries, India, was established in 1991 to produce high precision, ultra-thin stainless steel strips. Located in the state of Haryana, 160km from New Delhi, Hisar is popularly known as the ‘Stainless Steel City of India’.

Using state-of-art technology and high precision imported machinery, Hisar Metal Industries is able to manufacture ultra-thin (up to 0.05mm), high-precision stainless steel strips with dimensional accuracy, flatness and smooth surface finish.

Hisar Metal Industries Ltd – India
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Email: info@hisarmetal.com
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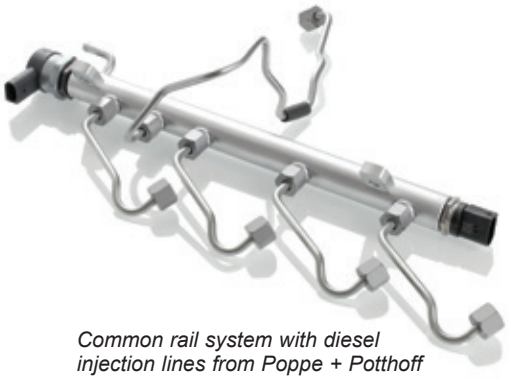
High-pressure tubes – 3,000 bar and above

THE Poppe + Potthoff Group provides a range of products and services in high-pressure technology. The company's seamless precision steel tubes are used in hydraulic units, pressure test benches and injection systems for diesel engines. The company states that, thanks to a special manufacturing method, its high-pressure lines are considered to be very safe.



Common rail system with diesel injection lines from Poppe + Potthoff

Diesel injection technology has accompanied the family-run business, which was founded in 1928, for more than 40 years. With high-carbon steels E 355, PP 600 and the newly developed PP 1000, three high-strength standard materials are available for high-performance lines. The autofrettage systems and test benches specifically developed by the engineering company Poppe + Potthoff Maschinenbau GmbH ensure the fatigue strength of the high-pressure lines.

The company's technology centre, close to the precision steel tube mill in Werther, Germany, develops customer-specific solutions, such as double-walled common rail systems for ships. Prototypes can be made in just a few days and validated as in series production.

In addition, an integrated manufacturing plant was constructed in Ajka, Hungary, in 2013. High-strength tubes are drawn here and processed into components under one roof. The flexible processes that are optimised throughout meet the highest requirements of cleanliness in accordance with 0ppm targets. Common rails and diesel injection lines are manufactured in series for system pressures up to 3,000 bar and beyond.

Poppe + Potthoff GmbH – Germany
Fax: +49 5203 91 66100
Website: www.poppe-potthoff.com

Extrusion lines for pipes

AMUT manufactures line configurations to extrude pipes, offering solutions for several materials and diameters.

The range of production includes PVC pipe lines with diameter of 16-1,200mm for rigid pipes and 8-63mm for flexible pipes; PE pipe lines (mono and multi-layer) with diameter of 16-1,600mm; and special pipes (multi-layer) such as PE-X, PA (fuel pipe), PP with glass fibre reinforced inner layer (hot water), flexible PVC braided/reinforced hoses, irrigation, foam core, corrugated, bi-oriented and automotive pipes.

Focused on the needs of its customers, Amut mainly develops tailored lines and special equipment. For example, the company delivered in Vietnam an extrusion line for the production of PE100 pipes with an external diameter of 1,000mm. A new compact extrusion die and an extruder capable of reaching an hourly capacity of 1,200kg were designed and manufactured for this purpose. The die is provided with 16-spiral distributors to ensure wall thickness uniformity on the whole pipe, while the extruder is based on a bimetallic barrel and wear-proof coated screw.

For the automotive industry, Amut offers lines to produce multi-layer PA pipes (up to five layers), which are largely used to convey fuels or hydraulic oils. These PA pipes feature good flexibility, reduced water absorption, and high resistance to low temperatures, humidity, cracking and abrasion.

Amut manufactures a number of extruded tube solutions

Through a continuous thickness control and diameter adjusting system, Amut lines ensure the quality of pipes, even when frequently changing product features and dimensions, at constant production working conditions.

Amut extrusion lines are supplied with gravimetric dosing units to keep the layer thickness constant and to control the size and weight of the pipes. Plasticising units, barrels and screws are all made of special alloys to ensure resistance to abrasion and corrosion, and their particular geometries are essential to obtain high production rates and homogeneous quality of the melt, at low energy consumption.

The limited friction of the extruded material in the sizers allows control of the tension acting on the pipe, to achieve high extrusion speed, such as 60-70m/min in the case of five-layer pipe extrusion.

Amut SpA – Italy
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Socket fusion tool for PP installations

MCELROY, a manufacturer of thermoplastic pipe fusion machines, has launched its latest socket fusion tool for polypropylene pipe installations. The Spider 125 with Universal Clamping is suitable for installations using 63 to 125mm PP pipe in overhead, vertical and tight workspaces.

The new universal clamping feature allows the latest Spider 125 model to accommodate any size of pipe or coupling, eliminating the need for inserts. The original Spider 125 is designed with a chain-clamping system, and it is supplied with a variety of insert sizes for pipes and fittings.

"We are pleased to bring this new feature to the Spider 125 which will continue to give operators the tools they need to perform socket fusions on challenging jobsites," said McElroy president Chip McElroy. "Our fusion products are becoming recognised as the best complement to polypropylene pipe installations which are being used more and more in today's best and most advanced indoor piping systems."

At 15lb, the Spider 125 with Universal Clamping is a lightweight, compact device with a worm gear drive and parallel link system that brings pipes and fittings together evenly and under control. A single technician can align, heat, fuse and cool the pipe, and because the Spider is non-back drivable, constant pressure is maintained throughout the process.

The Spider 125 with Universal Clamping is supplied with its own carrying case: a full assortment of heaters and heater adapters in the 63 to 125mm range are available. PP fused pipe systems are used in many residential, commercial and industrial applications, including potable water, chilled water, grey water, heating and cooling systems, hydronics, geothermal and compressed air systems, rainwater collection and irrigation, chemical transport and fire suppression systems.

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

Design and construct of tube cutting machines

PANAMAC designs and constructs systems for tube cutting and machining, and is located in North-Eastern Italy.

Panamac continuously develops new technological solutions and aims to perfect those that already exist.

The cutting systems Panamac designs and constructs are highly adaptable and offer excellent overall reliability. They are also free from oleodynamic drives resulting in low noise level operation and low running costs.

Panamac orbital cutting units embody a number of advantages with respect to traditional systems, including silent running, rapid operation, perfectly flat, perpendicular cuts and an excellent finish.

The company has obtained the patent on the 'competely mechanical' cut system and with this step forward it has obtained important results on the cut quality and an improvement of the work conditions inside the factory as well as benefits for the environment.

Its innovative cutting system transfers pieces of tube to the correct working station on a rotary table and can handle tubes up to a diameter of 70mm in this way. When using a more linear transfer system pieces up to a diameter of 300mm can be cut.

Panamac's TR machine

With this system users obtain a modular and compact solution that permits them to carry out simultaneous operations (tube cutting, both ends machined simultaneously, blowing and unloading of work pieces).

The operations carried out by the end finishing unit are, for example, chamfering, flattening, threading, boring, marking, etc, according to the client's request.

All the lines Panamac produces are equipped with touch-screens that are extremely user friendly and equipped with function keys and a large screen. Additionally, the wide viewing angle lets users read the displayed pages from an angle.

This instrument enables the operator to view diagnostic messages, warnings or operator instructions in real time and simultaneously edit operating parameters simply and directly. The front panel is water resistant and is electrically protected in compliance with IP65F standards.

Panamac – Italy
Email: info@panamac.it
Website: www.panamac.it

Wear resistant chains for the steel industry

INCREASING demands on the availability and wear resistance of chains in various applications of the steel industry require modern concepts in the design and realisation of the employed products.

Corresponding solutions and products are being offered by KettenWulf Betriebs GmbH.

The company's product range of conveyor and drive chains covers applications from pig iron preparation, steel production and onward processing up to the transport of the finished products.

Requirements on availability and wear resistance are the key points for KettenWulf's concept of efficient products under consideration of the cost structure. Besides the fatigue strength, the wear resistance in the chain joint plays a major role in the life time cycle of a chain.

The consideration of the geometry of the individual chain components – dimensioning of link plates, bushes, pins and rollers – as well as the adherence to bearing pressure limits between bushes and pins, bushes and rollers and to the bearing stress at the sidebar pitch holes are basic requirements.

While the breaking load and the fatigue strength are mainly determined by the geometry and the strength values of the link plates and pins, the wear resistance of a chain is influenced by a combination of geometry, grade of materials, heat treatment and a final surface finishing of the individual chain joint components.

The material selection is the crucial factor for a successful chain concept.

Besides the classic carbon steel C15, a number of alloyed and high alloyed case hardened steels, heat treatable steels with different alloying additions or fine-grained steels may be considered depending on the profile of the existing technical requirement.

An additional heat treatment is a further step towards a highly wear resistant surface. Depending on the material grades, heat treatments of the product such as quenching and tempering, case hardening or induction hardening are carried out in KettenWulf's own heat treatment facility.

Along with a ductile core structure, a highly wear-resistant surface with a hardness of HRC 56-62 with depths of 0.6-6mm is achieved at a core strength of up to 1,200N/mm².

When used in the warm area the reduction of the surface hardness in dependence on the ambient temperature and the chain temperature needs to be considered.

A change of the geometry of the individual components may compensate such reductions.

The final finishing process of the surface and the manual initial lubrication of the chain joints produce an additional constant against premature wear.

To ensure a homogeneous chain concept, the fatigue strength and the breaking load have to be considered besides the wear resistance.

The selection of the material grade and the production of the pitch holes are of vital importance for the reliability of a chain.

Besides a quality steel having a tensile strength of minimum 700N/mm² there is a wide selection of very efficient heat treatable and fine-grained steels that may be used, including an additional heat treatment of the basic material depending on the chain application.

The evaluation of different shapes of pitch holes for reduction of stress concentration at respective surface qualities has led to a maximum bearing contact area of the press fitment between pin and chain link plate forming a further contribution to a fatigue resistant connection respectively a successful chain execution.

To ensure the homogeneity of two or multiple chain strands running parallel to each other, the individual chain strands may be matched and marked according to the length measurement results of each individual strand in addition to the wall thickness deviation measurement of each bush.

A well-balanced concept under consideration of all chain and conveying equipment parameters contribute to operational safety and corresponding operational lifetime.

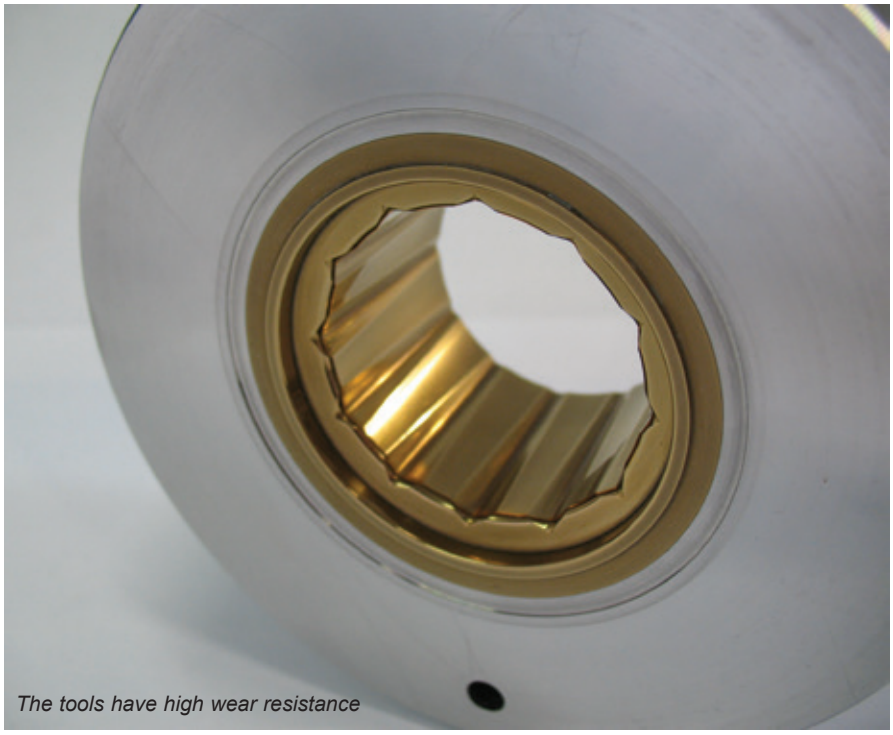
KettenWulf Betriebs GmbH – Germany
Fax: +49 2973 801 2296
Email: service@kettenwulf.com
Website: www.kettenwulf.com

Increased tool life

THERE are increasing demands in the manufacture of tubes and wires: faster processing times and higher temperatures put additional strain on the applied tools and components, and increase maintenance costs.

Durit Hartmetall GmbH has been producing tools made of tungsten carbide for drawing tubes, rods, profiles and wires for many years. These include drawing rings, dies and mandrels, mandrels as rolling and profiling tools, drawing jaws, and straightening and infeed tools, as well as shaving steels for welding seams.

The tools are characterised by contour precision and high wear resistance. The company's experts have developed more than 50 different carbide grades in its in-house research department and in cooperation with universities. Additionally, coatings based on flame-spraying or PVD are offered.



The tools have high wear resistance

Upon customer request, shaving steels for welding seams, for instance, can be supplied with the Galaxy® PVD coating.

Durit Hartmetall GmbH – Germany
Fax: +49 202 55 10925
Email: info@durit.de
Website: www.durit.de

Oil, gas and structural pipe mill equipment

KUSAKABE Electric & Machinery, based in Japan, is a pipe and tube mill manufacturer that is continually developing, innovating and improving the design and manufacture of pipe and tube mills for the international market.

From API, oil, gas and structural to automotive and general engineering applications, Kusakabe can supply the whole mill or individual pieces of equipment to meet production requirements.

All of the equipment is designed and built in Japan to exacting Japanese standards and workmanship.

The forming section of the oil, gas and structural mills is made up of an entry guide, the Universal Forming section followed by the patented Cassette style fin pass section.

The Universal Forming section includes the breakdown passes and all the forming up to the fin pass stands.

Size changes are fully automatic and controlled by the motorised roll positioning equipment in conjunction with an HMI (Human Machine Interface) screen with its menus and recipes.

The positioning of the rolls is driven to the predetermined optimum position for each product.

The forming section using universal tooling requires no rolls to be changed: the position of the rolls are adjusted to suit all the diameters to be made.

The Kusakabe Universal Forming is designed so that the strip is easily visible as it makes its way through the forming process. This makes it easy for operators and engineers to see what is happening in the forming process. The forming flower used to shape the pipe minimises the work hardening while providing the ideal edge presentation for HF welding.

Kusakabe Electric & Machinery Co Ltd – Japan
Email: sales@kusakabe.com
Website: www.kusakabe.com

Manual and automatic end forming machine

SMS Engineering manufactures manual or automatic rigs for end forming, flattening, swaging, calibrating, drawing and flanging steel, copper, aluminium and brass tube.

The machine is equipped with manual loading and unloading but upon request an automatic loader and unloader can also be supplied.

Max tube working is Ø30mm, and max wall thickness is 1.5mm.

The machine can work tubes that are round, square, rectangular, oval or most other shapes and it is equipped with a hydraulic power pack, electrical cabinet, protection and safety as required by CE regulations.

Extra options include air/oil exchanger, lighting guard application, nebuliser lubrication on the tooling each time the cycle stars, and extra working stroke.

Simultaneous working is possible at both ends of the tube using one or two tools on each head. The fully automatic machine is equipped with bundle loader, overhead manipulator and complementary operations.

The automatic machine

SMS Engineering Srl – Italy
Email: commerciale@sms-italy.it
Website: www.sms-italy.it

Tube CHINA

The 6th All China International Tube and Pipe Industry trade fair

24-27 September 2014

Venue

Shanghai New International Expo Centre (SNIEC), Shanghai, China

Organisers

MC-CCPIT: Metallurgical Council of the China Council for the Promotion of International Trade
www.mc-ccpit.com

Messe Düsseldorf (Shanghai) Co Ltd
www.mds.cn

Opening times

24-26 September: 09.00-16.30
27 September: 09.00-16.00

Tube China 2014 in Shanghai is designed to assist the effort to explore the extraordinary opportunities offered by the blazing Chinese economy – second-largest worldwide and showing no signs of let-up.

China has emerged as the leading destination for manufacturing investment and purchasing by multinational companies in a range of businesses such as the aviation sector which is due to grow 300% by 2030.

www.tubechina.net

Oil and gas

China's potential in shale gas promises cleaner air and greater energy independence, but development has a long way to go

Seeking to curb its reliance on coal and wean itself from dependence on energy imports, China has set goals of producing 6.5 billion cubic metres (m^3) of shale gas next year and 60 billion to 100 billion m^3 a year by 2020.

Recently, Eric Yep of the *Wall Street Journal* reported that, in the view of energy executives, much remains to be done if these ambitious production targets are to be met. Here, condensed and lightly edited, are some highlights of Mr Yep's "quick rundown" on the status of Chinese shale gas development. ("China's Long Road to a Shale Gas Boom," 26 March).

› Only two players have made progress on the ground so far. Leading the pack is state-run China Petroleum & Chemical Corp, or Sinopec, which in late March said that its first commercial shale gas field – in the Fuling district of Chongqing – is running "ahead of schedule."

In second place is Royal Dutch Shell PLC, which has partnered with China National Petroleum Corporation. Shell is producing some tight gas in Changbei, Shaanxi province, and is implementing a drilling programme in the Sichuan basin, but trails Sinopec in drilling and production.

› Fewer than 100 shale gas wells have been drilled in China, compared with around 40,000 wells in the US, whose shale gas boom China hopes to replicate. Sinopec is the only national Chinese oil company mandated to fast-track shale gas production. PetroChina remains focused elsewhere, with less than 1 per cent of its total budget devoted to shale gas drilling, according to energy consultants Wood Mackenzie (Edinburgh).

› The availability of water is key to the hydraulic fracturing ("fracking") drilling technique used to access natural gas trapped in shale rock formations. Newer fracking techniques have been able to reduce water consumption, but in several parts of China obtaining water for shale gas drilling will remain a challenge.

› China's recent decisions to boost private-sector participation and implement reforms are expected to help the shale gas industry, although much more needs to be done. According to a recent report from Eurasia Group, additional moves by the national oil companies to open the upstream and downstream to private capital will also expedite the timeline for shale production "even if the government remains unlikely to meet its highly ambitious 2015 and 2020 targets."

Despite the challenges, Mr Yep emphasised that – given the sheer size of the estimated reserves of shale gas in China – development remains a huge prospect for energy companies. He quoted New York-based Bernstein Research: "Relative to US shale gas plays, the [reserves] of the Sichuan and Tarim basins are potentially enormous and, if successful, could rival the Marcellus in terms of absolute scale."

› The reference is, of course, to the Marcellus shale gas formation that stretches across West Virginia, Ohio, Maryland, Pennsylvania, New York, and into Canada. Probably the second-largest natural gas find in the world, the formation has a total area of around 95,000 square miles and ranges in depth from 4,000 to 8,000 feet. It is estimated to contain more than 410 trillion cubic feet of natural gas – enough to supply the energy needs of US consumers for hundreds of years.

Ambitious Australian LNG producers ratchet up pressure for labour reforms that would enhance their competitiveness

The government of Prime Minister Tony Abbott of Australia has a two-year window to reform the nation's industrial relations system or risk forfeit of A$180 billion in projects and 150,000 new jobs by 2030, the Australian Petroleum Production and Exploration Association (APPEA) says. The non-profit industry group represents companies which explore and produce oil and gas in Australia.

As reported by James Massola – a political correspondent in the Canberra bureau of the *Sydney Morning Herald*, who travelled to Western Australia as guest of the APPEA – there are seven major liquefied natural gas (LNG) projects worth about A$200 billion under construction in Australia. But the APPEA says the future of the next A$180 billion wave of projects hinges on cutting project costs, reducing union power, and promoting flexibility.

APPEA chief executive David Byers told the *Herald* that Australia was on track to overtake Qatar as the largest LNG exporter in the world in the next decade, but that its ability to capture that second wave of LNG investment was at serious risk from rising competition in the LNG marketplace. He said, "If we are able to remain globally competitive . . . we have to reduce the cost of doing business in this country." ("Oil and Gas Industry Pushes Tony Abbott's Government," 6 April)

Mr Byers said that the former Labour government's Fair Work Act was a brake on productivity and had encouraged high costs and labour strikes in Australia. Among other demands, the APPEA wants the Abbott government to end testing for foreigners holding 457 visas (a sponsorship programme under which employers bring in skilled overseas workers for temporary jobs in Australia); to bar unions that are not party to a labour agreement from entering work sites; and to impose bigger fines for unlawful strikes.

As noted by the *Herald*'s Mr Massola, despite growing calls for more ambitious workplace reforms the Abbott government has taken a cautious approach, showing no inclination to go beyond its pre-election promises. These included a review of the Fair Work Act and the restoration of the Australian Building and Construction Commission – an independent

statutory monitoring authority that was abolished in May 2012. Its revival has stalled in the Australian Senate.

Chevron Australia managing director Roy Krzywosinski told Mr Massola that his company, which is lead operator in the A$54 billion Gorgon LNG project and A$29 billion Wheatstone LNG projects in Western Australia, wants structural changes to industrial relations laws.

"All of us – industry, government, buyers, sellers and unions – have a shared mutual interest [in reform]," he told Mr Massola. "We need bipartisan support now to address Australia's high-cost environment to secure its next wave of LNG investment."

The APPEA has estimated the cost to Australian companies of delivering LNG to Japan – their biggest market – at up to 30 per cent higher than for rival producers in Canada and Mozambique.

When natural gas leaking from New York's complex and corroded infrastructure finds an ignition source, results can be deadly

"It is a danger hidden beneath the streets of New York City, unseen and rarely noticed: 6,302 miles of pipes transporting natural gas." ("Beneath Cities, a Decaying Tangle of Gas Pipes," the *New York Times*, 23 March)

Manhattan-based Consolidated Edison, one of the largest investor-owned energy companies in the US, owns the pipes that serviced two buildings in East Harlem levelled by an explosion in March, killing eight people. A *Times* analysis of records collected by the federal Department of Transportation for 2012 shows that Con Ed had the highest rate of leaks in the country among natural gas operators whose networks totalled at least 100 miles.

According to the *Times* reporters Patrick McGeehan, Russ Buettner and David W Chen, leaks like the one believed to have led to the explosion in East Harlem are "startlingly common." Federal records show that they number in the thousands every year. The chief culprit, say experts, is the perilous state of New York City's underground network, one of the oldest in the country.

The *Times* team detailed "a glaring example of America's crumbling infrastructure." In 2012 alone, Con Edison and National Grid, the other distributor of natural gas in New York, reported 9,906 leaks in their combined systems, which serve the city and suburban Westchester County. More than half were considered hazardous, federal records show.

'Vintage' pipes of iron or bare steel

There are more than 1.2 million miles of gas main pipes in the United States. Last year, gas distributors nationwide reported an average of 12 leaks per 100 miles of those pipes.

As reported in the *Times*, communities across the country have been struggling to replace thousands of miles of these old, metal pipes with pipes made of plastic or specially coated steel that are less prone to leakage.

New York City presents an especially daunting challenge. Nearly half of the gas mains operated by Con Edison and National Grid were installed before 1940, according to federal records consulted by the *Times*. More than half of these are made of cast iron, wrought iron or unprotected steel – materials that are vulnerable to corrosion and cracking, especially in cold weather.

Con Edison estimates that replacement of all of the old mains in its network right now would cost as much as $10 billion. Despite the high cost and logistical hurdles, alarmed regulators at the state's Public Service Commission have ordered the company to significantly step up its replacement schedule, from 50 miles of pipe a year to 70 by 2016, in the city and in Westchester. Even at that rate, according to the *Times* analysis it would still take nearly three decades for the utility to finish swapping out what regulators have identified as the most leak-prone pipes.

Federal records show the New York City utilities have been able to cut into their leak numbers as they have replaced mains. National Grid, in particular, has made improvements. Its rate of leaks per 100 miles of gas mains still ranks among the highest in the country, but it is significantly better than Con Edison's.

New York has experienced problems with its aging underground pipe system

Con Ed has made progress too. William Akley, its senior vice president for maintenance and construction, told the *Times* that the utility has doubled the pace of its replacement programme, Still, he said, it will take as long as 25 years to get rid of all of the "vintage" pipes, made of iron or bare steel, in the system.

The reporters noted that the company faces unique challenges. In Manhattan, "the heart of its territory," the rules on when and how Con Ed can disrupt traffic are much more restrictive than elsewhere. As a result, the utility says it can cost as much as $2,000 a foot, or well over $10 million a mile, to replace a gas main.

Felim McTague, a Con Ed construction manager, said it was taking about two weeks per block to upgrade the gas mains in the rapidly gentrifying meatpacking district of Manhattan.

A crew of seven has to thread the new pipe – coated steel at the intersections, plastic in between – through a maze of steam pipes, phone lines, TV cables, and sewer and water mains. Every night, the *Times* was told, workers have to cover the hole in the street with thick steel plates that can bear city traffic.

Said Mr McTague, plausibly, "It's a tedious process."

Elsewhere in the US, a rupture in a major pipeline in San Bruno, California, in 2010 caused an explosion that killed eight people. In 2011, a leak from an 83-year-old cast-iron main in Allentown, Pennsylvania, caused a blast that killed five people.

"It's like Russian roulette," said Robert B Jackson, a professor of environment and energy at Stanford University (Palo Alto, California) who has studied gas leaks in Washington, DC, and Boston.

"The chances are, you are going to be lucky," he told the *Times*. "But once in a while you're going to be unlucky."

Aerospace

Under a deal brokered by US Secretary of State John Kerry in November 2013, Iran agreed to curtail its nuclear activities for six months in exchange for sanctions relief from nations including Britain, China and the United States.

Tehran had reportedly argued that the sanctions imposed after the 1979 hostage crisis prevented the upgrade of the Iranian commercial air fleet, endangering passengers.

Now, the US Treasury Department has granted Boeing Co a licence to export certain aircraft parts to Iran. The Chicago-based plane manufacturer said on 4 April that the authorisation is solely for components necessary to the safe operation of planes it sold to Iran before 1979. Iran Air is still flying Boeing passenger planes bought before that year.

Another American company – General Electric Co (Fairfield, Connecticut) – said that it had received permission from Washington to overhaul 18 engines sold to Iran in the late 1970s. That work will be carried out by GE in the US or at facilities of the German firm MTU Aero Engines (Munich).
If the moratorium should lead to a permanent lifting of sanctions, Iran would be a likely customer for hundreds of new commercial planes. But until such time, no discussion on prospective sales of aircraft is permitted.

Global sales of business jets, which dropped during the financial crisis, have been in a slow recovery, and will account for $250bn in sales from 2013 to 2023, according to the business and general aviation division of Honeywell International (Morristown, New Jersey). In its most recent ten-year forecast, Honeywell said that bigger, faster, more expensive long-range jets would by 2024 account for 70 per cent of new expenditures worldwide on business jets.

Throughout Asia, Honeywell said, over the last five years the total number of business jets has grown about 12 per cent annually. Large-cabin, long-range jets accounted for 77 per cent of sales over that period.

Figures from the Washington-based General Aviation Manufacturers Association (GAMA) show marked global shifts underway in the market for business jets of all sizes and types.

In 2007, the US and Canada accounted for 58.3 per cent of the 1,136 business jets delivered worldwide. That dropped to 49.7 per cent in 2012, then rose slightly, to 52.4 per cent, last year – when shipments totalled 678.

But GAMA noted significant growth in the Asia-Pacific region, which accounted for 11.9 per cent of shipments of business jets in 2013, up from 4.2 per cent in 2007. In Latin America, the share grew to 11.1 per cent in 2013 from 7.5 per cent in 2007.

Boeing has signed a deal that allows exports of parts to Iran

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The Middle East and Africa accounted for 9 per cent of shipments last year, up from 5.2 per cent in 2007.

Europe's share fell to 16.6 per cent in 2013 from 24.9 per cent in 2007. Possible contributing factors include the availability of high-speed rail service on medium-length routes.

In the Asia-Pacific region, transport ministers from 21 countries are working to ease the way for business aviation, which is often hampered by strict bureaucratic rules and – in many cases – by military control of national airspace.

Steel

Steel demand is poised for recovery in the euro zone and the US, but weakening demand in China will postpone the rewards

The World Steel Association ("worldsteel"), which on 9 April released its outlook for steel demand, sees a global weakening in demand through the end of 2014.

What demand there is will be driven by recovery in developed markets – mainly the European Union and the United States – even as a slowdown in China, the world's second-largest economy, will keep steel pricing under pressure.

The Brussels-based international trade body for the iron and steel industry expects global steel demand to increase by 3.1 per cent in 2014 and again by 3.3 per cent in 2015, as compared with growth of 3.6 per cent in 2013.

Steel demand in China is expected to grow just 3 per cent this year (down from 6.1 per cent in 2013), and to decelerate to 2.7 per cent in 2015 as the Chinese continue re-balancing their economy to favour consumption over investment.

The picture is brighter in the euro zone and the US: worldsteel expects steel demand in the EU to grow by 3.1 per cent in 2014 and 3 per cent in 2015; and, in the US, by 4 per cent this year and 3.7 per cent in 2015. But the slowdown in China has meant that companies like AK Steel (West Chester, Ohio) and US Steel (Pittsburgh) have not been able to turn the likely recovery to account.

American steel companies also are experiencing continued pressure from cheap imports, especially from China. As well as the severe North American winter, Nucor (Charlotte, North Carolina) cited the negative impact of imports on pricing and margins at its bar and sheet mills as a factor in the company's disappointing first-quarter results. And prospects seem dim for a tapering-off in the Chinese material any time soon.

As noted by Varun Chandan Arora of the investment letter *Motley Fool* (11 April), Chinese stimulus measures in the form of infrastructure investment could boost domestic demand for steel, putting the brakes on exports. But Beijing shows no such inclination, despite clear signs that the Chinese economy is slowing down. Even after the release of weak trade data for March, showing a drop in both imports and exports, China's premier Li Keqiang ruled out all but a few inconsequential "mini-stimulus" measures.

Elsewhere in steel . . .

The American Iron and Steel Institute (AISI) on 26 March hailed a decision by a World Trade Organization (WTO) dispute settlement panel upholding a US challenge to China's restrictions on exports of rare earth elements, tungsten and molybdenum. Joined by Japan and the European Union, the US in 2012 called the Chinese export quotas into question after they were cut by about 40 per cent.

AISI president and CEO Thomas J Gibson said of the WTO decision, "[It] illustrates that China cannot continue to manipulate the global trading system by promoting its own industry to the detriment of US and other global manufacturers. These metals include critical raw materials for steelmaking, and the export restrictions clearly favour Chinese producers already dealing with a massive overcapacity in steelmaking."

Tungsten and molybdenum are strengthening elements in a number of steel products. Rare earths, used in automobiles and wind turbines, are mined almost exclusively in China.

Trade

Seeking tighter ties with the European Union, China finds EU business groups more receptive than national governments

"Mr Xi's call will be seen as a bid to build a rival to a mooted EU-US pact and other significant trade negotiations now under way around the world, the vast majority of which have left China on the sidelines."

Mr Xi is, of course, Chinese President Xi Jinping, whose call was for the European Union and China to actively explore a broad trade agreement. This would, he said in a speech in Bruges on 1 April, make the pair "the twin engines for global economic growth."

As reported in the *Financial Times* (London), Mr Xi was in Belgium in the course of an 11-day "charm offensive" that included visits to France, Germany and the Netherlands likewise intended to promote his country's trade ties with the European Union. US President Barack Obama, on a similar mission, had made a much briefer trip to Europe in the previous week. ("China Courts EU on Bilateral Trade Agreement," 1 April)

In terms of effort expended, Mr Xi – who promoted a goal of annual bilateral trade of $1 trillion by 2020 – was the more earnest suitor. But his reminder to the Europeans that, together, they and the Chinese "make up one-third of the

global economy" left them lukewarm. A joint statement issued after high-level meetings in Brussels pledged both sides only to "willingness to envisage" a broader trade deal "once the conditions are right."

The US and the EU last year launched talks toward a Transatlantic Trade and Investment Partnership, joining a series of US-led endeavours including a 12-country Pacific Rim pact. As noted by *FT* reporters Shawn Donnan and Andrew Byrne, all are part of a US – and to a lesser extent EU – push to get out ahead of China "in writing the rules of global trade for the 21st Century and move beyond a multilateral stalemate" in the World Trade Organization (WTO).

Although David Cameron, the British prime minister, has supported a move towards a broader China-EU pact, most EU member states remain wary. Business groups are more receptive than governments, which tend to remain mindful of the EU's trade deficit with China.

Mr Xi did not depart Europe empty-handed altogether. In what Messrs Donnan and Byrne termed "a significant victory for Beijing," he won the endorsement of the EU for the Chinese bid to join WTO negotiations on a global trade in services agreement built upon the General Agreement on Trade in Services (GATS) reached in 1995. China has tried to join those negotiations in Geneva but encountered resistance from the US and other participants.

The GATS, which was inspired by essentially the same objectives as its counterpart the General Agreement on Tariffs and Trade (GATT), has since January 2000 been the subject of multilateral trade negotiations. As construed by the WTO, services are the largest and most dynamic component of both developed and developing country economies: "important in their own right, they also serve as crucial inputs into the production of most goods."

Of related interest . . .

It would be wrong to assume that all is smooth sailing for the US in trade matters. On the eve of another trade-related trip by the American president – to Japan in late April – the US accused Japan of blocking progress on the Trans-Pacific Partnership by not allowing open access to its markets for certain products. The trade deal among the US and 12 Pacific Rim countries is widely regarded as central to Mr Obama's "pivot to Asia" and a centrepiece of his trade agenda.

But negotiations stalled in December over provisions that would make it easier for US businesses to sell their products in Japan.

Most notably, the two nations disagree on what would constitute a level playing field for the "Big Three" US carmakers – General Motors, Ford and Chrysler – in competition with Toyota, Nissan and other Japanese producers in their home market.

Dorothy Fabian, Features Editor (USA)

Finishing and end finishing

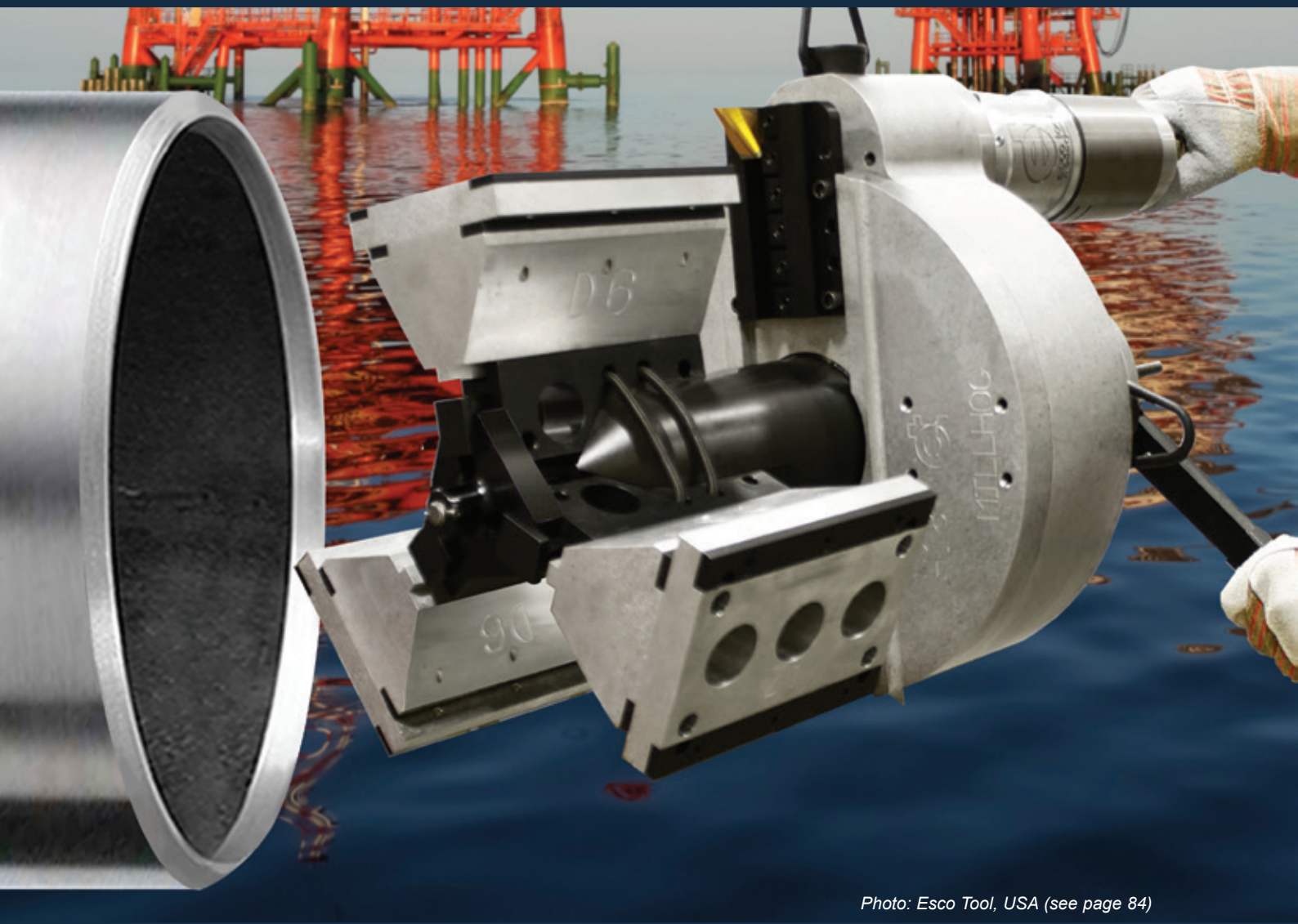


Photo: Esco Tool, USA (see page 84)

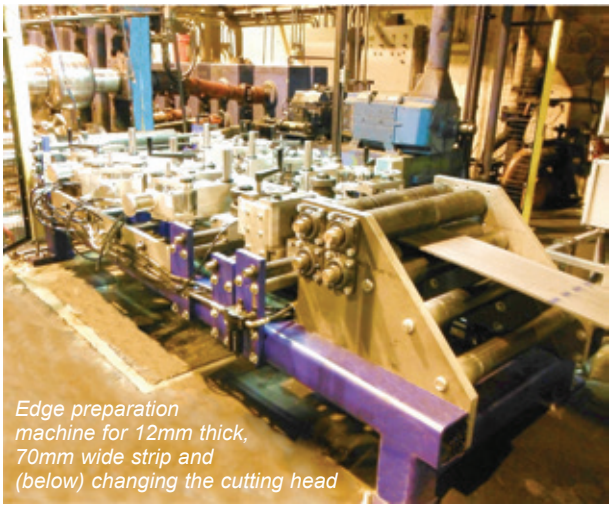
Virtually any tube or pipe end-finishing requirement – flaring, double flaring, beading, squaring, flanging, deburring – can be handled by a standard machine. Precision tooling enables a single finishing unit to accept $^{1}/_{8}$" light-wall tubing and heavy 8" pipe.

Variations in materials formability are accommodated by adjustable production speeds. Tube or pipe ends are readily prepared for joining with other machinery, tubular sections, T-joints or valves.

These assurances may be taken for granted because they are granted – by industry professionals who believe that a workpiece may be called a tube only when it has been expertly finished.

The products and services reviewed in this section of Tube & Pipe Technology are representative of that ideal.

Precision edge preparation skiving machines



Edge preparation machine for 12mm thick, 70mm wide strip and (below) changing the cutting head

HEAVY-duty high metal removal edge finishing machines developed by Barnes Advanced Technology use vibratory energy to aid cutting, reducing mill pull through force, and allowing high metal removal at all cutting speeds from zero up, reducing scrap. Finish is claimed to be superior to milling, with easy bevelling or special shapes, instantly adjustable while running.

Various pipe and tube edge preparation machines are available, covering thicknesses from 1 to 16mm and widths from 25 to 2,500mm, with cutting from zero to 300m/min or higher. The process improves welding and seam strength with any type of tube and pipe material.

Vibrating the tools axially at up to 300 hertz peels off deep precise cuts of metal using the new cutting physics. The metal immediately ahead of the tool hardens and separates from the main material, leaving a smooth cleavage separation that is microscopically polished by the tool passing over it. Accuracy of cut and finish quality are improved, and swarf ejects as severed segments because of the imprinted shockwave cleavage planes, instead of the usual naturally cut, hard-to-handle continuous spirals.

Production-enhancing features include smooth cuts, accurate at any line speed; precisely adjustable depth of cut, settable while running; variable bevel angle for accurate abutting, as required; variable cutting rake angle for total cutting stability; and indexable tools, resharpenable many times. Adjustment of one station does not affect downstream cutting, and cutters are automatically aligned with the material edge.

The machines are usually provided with auto centring, with heavy rolls arranged to guide the material prior to mill entry. A swarf wiper removes any swarf clinging to the material. Tool units swing out for easy replacement of the tool inserts, which are of cobalt-bonded micrograin tungsten carbide. Inserts are heavy duty, 50mm square, 12mm thick, with a 45° bevel on the cutting edge.

Heavy air driven swing arms engage the material edge with tool steel rolls, and precision wedge type screw jacks set tools to the exact cutting depth, with results indicated on the width sensors. Material width sensors at input and output accurately measure material removal, and mill entry sizing. Bevel angle is also directly indicated within 0.1° accuracy.

The vibratory energy is provided by air powered impacting vibrators, inducing ultrasonic shockwaves directly into the tools and the material about to be shaved off. Variations of the basic technology are useful for other special metal cutting operations such as grooving of strip. However, for these, magnetostrictive vibrators using sinusoidal shaped waveforms are preferred.

Special versions are under development for producing tapered tubes such as poles, with the angle of bevel changing automatically with length to ensure correct seam abutting. The cutters follow the edges automatically as the tapered strip is traversed through the cutting heads. These machines can be adapted to any size or shape of product.

Barnes Advanced Technology, Inc – Canada
Fax: +1 905 478 1421
Email: abarnes@sympatico.ca
Website: www.barnesadvanced-tech.com

Welding and finishing lines

THE Asmag Group is a supplier of machinery and equipment for the steel and non-ferrous metal industry. It combines two enterprises: Asmag, whose core business is the design and manufacture of drawing, straightening, testing, cutting, chamfering, stacking and bundling machines; and Seuthe, with its core business of design and manufacture of tube welding and section mills.

The ASMAG Group manufactures its machines and installations in its own workshops in Austria and Germany. At each location the engineering, automation, manufacturing and assembly are under a single roof, resulting in high manufacturing quality, flexibility and improved service and support.

Asmag GmbH – Austria
Fax: +43 7616 880188
Email: sales@asmag.at
Website: www.asmag.at

Double end machining centre from Haven Manufacturing

A NORTH American automotive shock absorber manufacturer required a machine to perform chamfering, end face, counter bore and OD reduction simultaneously, and Haven Manufacturing came up with a solution to this rare problem.

The era of the traditional double end chamfering machines is almost non-existent, according to Haven Manufacturing. Double end chamfer has evolved into increasingly sophisticated machines that have to meet very stringent OEM specifications, whether for automotive, aerospace or furniture.

Haven states that its ability to adapt to changing customer requirements has sustained its reputation as a flexible and creative design and manufacturing company. For this application, the customer required a machine that performed the traditional chamfer and end face, but also a counter bore on one end of the shock absorber tube and a diameter reduction on the opposite end, all done within the same workstation.

The solution required a combination of servo-controlled feeds and speeds to maximise the production cycle and to minimise the size and amount of offal. Removing this much material, chips can become a major issue, so chip size control was critical. Incorporating chip-breaking technology through servo programming gave the machine this capability.

For part handling, an overhead pick-and-place system was used to transfer the tubes into and out of three positions: staging, workstation and chip blowout. Precision ground linear support and servo motion control allows for minimal setup time and a statistically repeatable performance. The ability of this machine to complete all machining operations in one step ensures that the part will meet all geometric dimensional tolerances.

This was the third machine of this type that Haven has built. The company says that it understands the stringent requirements the automotive industry demands, and has the knowledge, flexibility and design experience to produce the desired solution.

Haven Manufacturing Corp – USA
Fax: +1 912 264 9001
Email: sales@havencut.com
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End preps for offshore piping systems

AN upgraded welding end prep tool for machining high temperature, high pressure pipe used on severe-duty offshore piping systems and shale pumping stations is being introduced by Esco Tool.

Esco's Millhog Dictator bevelling machine

The Millhog® Dictator bevelling machine is a portable ID clamping pipe milling machine designed for dry-cutting high-temperature, high-pressure pipe from 4.5" ID to 18" OD.

Suited to stainless steel and Super Duplex piping systems, the tool features a new 3 HP air motor designed for high performance in environments that have dirty air and high moisture content.

The air motor is easy to clean and maintain by just removing one screw to access the rotor and vane assembly, instead of removing the motor from the tool. The Millhog Dictator bevelling end prep tool develops 4,100ftlb of torque at the cutter blade and pulls a continuous thick chip without cutting oils.

The blades are TiN coated and dissipate heat away from the pipe's surface, and produce a clean, consistent thick chip without cutting oils that eliminates the need for hand grinding or using complex clamshell tools.

The simple-to-operate Millhog Dictator features extra wide ID clamps with steel contact points that quickly expand and rigidly mount the machine to the pipe. These durable clamps are quickly changed, and only eight sets are required for the complete range.

The Esco Tool Company was founded in 1954 and developed the first portable end prep tool for the Triton nuclear submarine programme.

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

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www.mds.cn

Messe Düsseldorf Shanghai

Belt grinding of heavy bars and tubes from India

GRIND Master offers a trolley-type machine for belt grinding and finishing of large diameter and heavy bars and tubes. The machine has heavy-duty roller supports to take up the tube/bar to be ground. It also provides the rotational drive to the job being ground.

The floating belt grinding heads operating from the top are specially designed to take care of bend and ovality in tubes. These heads are mounted on a long trolley, which is rigid in construction. The machine has very easy settings to ensure quick change over from one job size to another. Tubes/bars from 60mm to 300mm diameter can be ground.

Grind Master – India
Email: sales@grindmaster.co.in
Website: www.grindmaster.co.in

Twin cutting and workpiece finishing from Rattunde

RATTUNDE Corporation, a manufacturer of finished length tube and solid bar production, has introduced the ACS® + CFMtwin machine, the latest in the company's range of tube production systems. Equipped with a specially designed twin machining head that fits onto the standard head, the new machine can cut two tube or bar sections simultaneously, and then machine both ends of both workpieces, also simultaneously.

The new machine can produce up to 5,000 finished pieces per hour, and the option also exists for single tube or bar production on the same machine.

The ACS + CFMtwin machine, when in twin mode, can process two workpieces of 10 to 41.5mm OD each into finished lengths from 10 to 1,500mm. As an example: 21mm OD x 3.5mm wall x 45mm length cut from a 6.5m mill length of stock material, based on carbon steel. When the twin head is removed, the standard machining head can process a single workpiece up to 105mm OD.

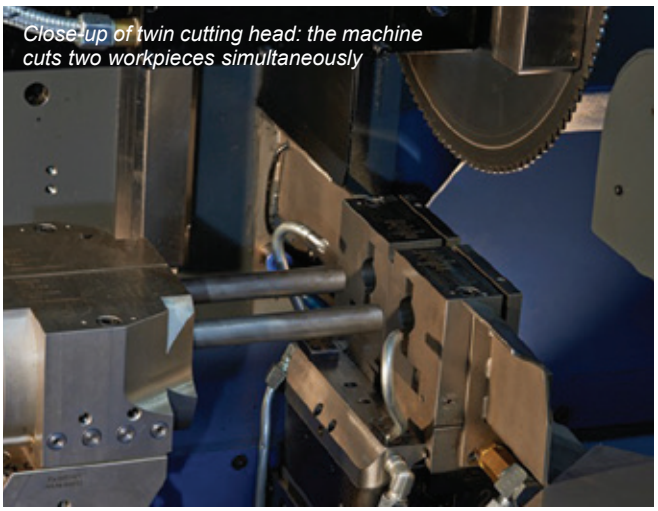
In addition to the twin workpiece processing, the new Rattunde machine offers the OEM or production house all the capabilities found on Rattunde's ACS family of tube and bar production systems, including secondary brush de-burring, end machining (chamfering and facing), inspection, washing, drying and robotic packaging. The entire machine and all auxiliary workstations are motion-controlled by CNC from a single operator station for maximum efficiency. The ACS + CFMtwin is built on the same platform as the existing Rattunde ACS + CFM and ACS + CFMcurve systems.

Other standard features on the new machine include data management on all workpiece parameters (approximately 10,000 workpieces), data logging of every part produced for full part traceability, material lead and end edge detection for minimised crop cut and tag end. All operating limits are set from the control panel, with continuous tool break monitoring for the saw blade and all cutting tools.

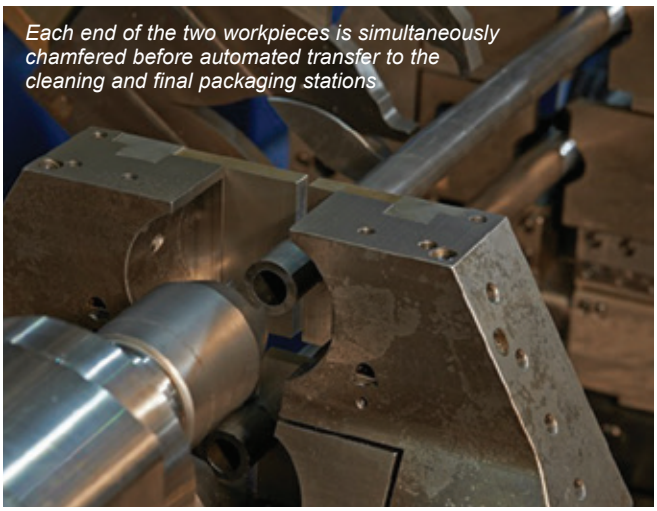
Even when processing in twin mode, the set-up time for a new job can be under 15 minutes, according to Rattunde engineering.

Because the machine offers essentially double the production in the same machine footprint, up to 40 per cent energy savings have been documented on a 25mm OD x 3mm wall x 42mm long piece from a stock length of 6m in a typical batch count of 45,000.

Rattunde Corp – USA
Fax: +1 616 940 2771
Email: company@rattunde-corp.com
Website: www.rattunde-corp.com

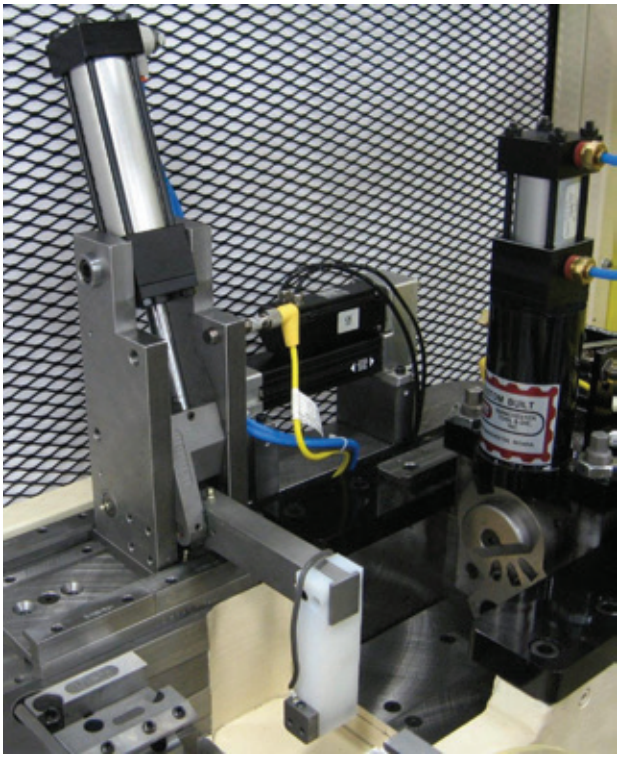


Close-up of twin cutting head: the machine cuts two workpieces simultaneously



Each end of the two workpieces is simultaneously chamfered before automated transfer to the cleaning and final packaging stations

Tube end forming equipment



MANCHESTER Tool & Die supplies tube end forming, grooving and crimping machines and tooling to a variety of industries, with machines ranging from $^{3}/_{16}$" to 3" OD capacities. Standard and custom-built machines and parts can be manufactured to meet customer applications.

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

Manchester Tool & Die recently introduced a servo positioning flag stop system, designed to aid set-up personnel in quickly adjusting tube out through the machine's HMI (human machine interface). The system provides consistent adjustments resulting in quicker set-up times. The servo positioning system is available for newer M71 and M82 machines that are equipped with HMIs.

Manchester Tool & Die, Inc – USA
Email: brblocher@mtdbkb.com
Website: www.manchestertoolanddie.com

Surface improvement technologies for bars and pipes

LOESER GmbH is a major producer of grinding, polishing and deburring machinery and a global leader in technology required to produce super high quality surface finishes.

From very simple one-station machines to completely automated multiple station systems, Loeser custom engineers the system to each customer's exact requirements.

Headquartered in Speyer, Germany, Loeser has been in operation since 1934 producing machines and complete systems for over 75 years. Loeser has persistently continued to further develop and refine existing fundamental technologies.

Loeser pressure controlled grinding technology allows for heavy stock removal, tolerance grinding and fine finishing. Quick abrasive belt changing offers a major time advantage compared to stone grinding or turning. Loeser machines can be equipped with multiple stations in different combinations, completely enclosed or open style. Systems are fully modular and easy to upgrade with additional stations to grow with future requirements.

Loeser prides itself in innovation using the latest technology in machine controls and mechanical components. This keeps Loeser on the cutting edge of developing process advancements, and allows it to offer much more than just the construction of a machine. Loeser actually invents customers' solutions.

Working closely with major abrasive belt manufacturers and their latest technology keeps Loeser ahead of the competition.

Loeser offers technologies for centreless stainless tube mirror polishing/buffing. In addition to standard belt grinding and polishing machines for round and flat parts, Loeser provides creative solutions for micro finishing up to 0.004µm Ra.

Loeser prides itself in innovation using the latest technology in machine controls and mechanical components. Loeser's product line has been expanded with new solutions for extremely high stock removal, continuous through feed induction hardening and continuous through feed chrome plating.

Pressure controlled grinding and polishing combined with new Loeser innovations make it the only producer of surface finish technology systems capable of offering all of the following solutions: through feed induction hardening; through feed belt grinding and finest polishing before plating; through feed continuous chrome plating; through feed polishing post chrome; and through feed wax buffing for added corrosion resistance.

Careful and accurate evaluation of each customer's specific requirements is Loeser's highest priority. The accumulated knowledge from many years of process development and innovative thinking is key.

This is absolutely critical in order to construct large, complex automated systems. A complete Loeser system can be installed and running at a customer's plant in a remarkably short amount of time. Loeser's customers benefit from decades of experience in developing thousands of grinding processes.

Loeser GmbH – Germany
Fax: +49 6232 31 4850
Email: info@loeser.com
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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。

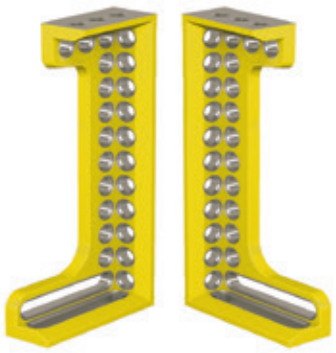
铸铁直角夹具

创新型焊接夹头、磁铁、钳子和BuildPro™焊接工作台制造商Strong Hand Tools推出BuildPro可锻铸铁直角夹具。这种四面重型直角夹具在三个表面上有26个安装孔，与BuildPro的模块化焊接工作台固定时可以无限选择。

新型直角夹具很紧凑而且易于操纵，外形纤细且节省空间。26个安装孔可用来停止、定位、夹紧或成90°直角夹架。超长安装槽允许可调安装，并很容易容纳两个安装螺栓，使安装更稳定。

BuildPro夹具可以插入直角夹具两壁或顶面的安装孔内，成垂直或水平夹紧。BuildPro可锻铸铁直角夹具由向左和向右两种。

BuildPro模块化焊接工作台有一个台面，上面是在精密地面钢板上呈2"格栅状的⅝"的数控加工孔，可以在台面的任何一点固定。



来自Strong Hand Tools的BuildPro铸铁直角夹具

Strong Hand Tools – 美国
电子邮件: sales@stronghandtools.com
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Tru-Cut Saw纳米复合涂层锯片

TRU-CUT Saw开发出一种新型纳米复合PVD涂层，大大提高了黑色及有色金属圆锯片寿命。

这种名为ViTA-Nano的新涂层是Tru-Cut的ICO表面涂层部门开发的。该涂层是由钛、铝、铝钛合金、铬以及硅合成的。与多层涂层每种材料是连续沉积的不同，使用ViTA-Nano涂层，PVD涂装室中所有阴极材料立即发挥作用——这样涂层粘着力更强、更硬。与AlTiN涂层相比，涂有这种材料的锯片运行至少快30%到50%，而且废料减少，生产率提高。

Tru-Cut Saw & ICO表面涂层销售副总裁Richard Otter表示："ViTA-Nano锯片非常适合飞锯机、再切机以及高产锯床。使用ViTA-Nano涂层锯切时，用户将立即享受到更长的刀片寿命带来的好处。"

切割硬化钢、铸铁、铝和超级合金时，ViTA-Nano锯片远比AlTiN锯片好。锯片能承受的温度增加33%，而且寿命更长，因为锯片边缘得到保护，会更长时间不受（降低刀具寿命）钢堆积的影响。Tru-Cut推荐用ViTA-Nano锯片进行干式切割，以进一步降低冷却剂成本。

Tru-Cut Saw生产各种切割用锯片，从简单的手动切断机到高产飞切机。这些锯片设计用于各种黑色和有色金属切割。大小为200毫米到3米。Tru-Cut是美国唯一一家有自己的PVD涂层室的锯机制造商。

公司还销售Tru-Cut 16"（400毫米）干切式金属锯，用于切割管状、实心、角形和其他型材。Tru-Cut Saw的ICO表面涂层部门还为各种新、旧锯片、刀具以及易损件提供PVD涂层以及重涂服务。Tru-Cut&ICO配有一流的涂膜室以及涂层转盘，可提供标准的和特殊的表面处理。标准涂层有：CrN、TiN、TiCN、AlTiN-ML、AlTiN-XL、AlTiCrN和TiAlCN Phoenix。特殊的和特定工具涂层可根据客户的具体要求定制。涂膜室能处理外径1,250毫米x 700毫米的部件。

Tru-Cut Saw Inc – 美国
网址: www.trucutsaw.com
www.icosurfacecoatings.com

凹凸检测仪消除了探伤的杂散光

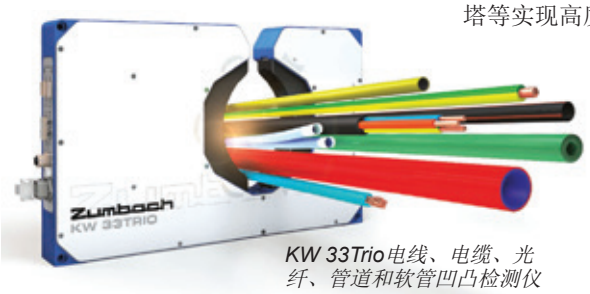
ZUMBACH推出KW Trio三轴凹凸检测仪，用于挤出生产线、光纤拉丝塔，重绕工艺以及其他。

周期后脉冲光源和自动环境光反射使检测仪不会透射杂散光。线速度或彩虹色光不会影响测量结果，即使是最小的微米级表面缺陷也可以检测出来。在做绝缘、护套、上釉、拉丝以及其他加工过程中，表面缺陷如凹凸等必须立即检测出来。

Zumbach开发了消除影响探伤的杂散光的新概念，使挤出生产线、光纤拉丝塔等实现高质量生产。

电子测量原理结合一套复杂的光学解决方案成为缺陷检测可靠性和性能新标准。

测量结果不受杂散光、速度和振动的影响，复杂的光学解决方案可以使最小缺陷探伤高度仅0.01毫米，最小长度仅0.2到0.3毫米。



KW 33Trio电线、电缆、光纤、管道和软管凹凸检测仪

其他功能包括全数字信号处理（DSP）、智能缺陷分析和分类微处理器、带照明的移动操作和显示装置、详细的错误记录、主机连接接口、紧凑的设计、灵活的安装理念以及理论上无限的使用寿命。

有时缺陷仅覆盖产品周围有限的角度范围，如凸起、凹陷或气泡，这通常使用双轴检测仪（X/Y）。

但使用KW Trio型三轴检测仪可靠性可达到三倍。因为KW Trio能够减少盲点。

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管道定径机工具更换自动化

ADDISONMCKEE开发了自动化工具装卸解决方案，使航空管道制造客户工具转换速度更快、更安全。目前客户使用的是管道直径2到6"的AddisonMckee IDOD管道定径机。这些大型定径机适用的成套工具重达300磅，因此使用桥式起重系统进行装、卸会很麻烦且费时。

区域销售经理Don Miller表示：“我们的客户安全意识非常高，而且在不断寻求更快更安全的工具装卸方法。初始项目讨论集中在我们的FM-SIO机器设计上，一些成套工具在旋转传送架内，可旋转进行工具更换。该项目包括一个高科技拾取和放置系统，使用高架起重更换成套工具，无需人工搬运。预定程序的管道从部件到部件之间的工具更换用时约90秒。”

工具安全地存储在能容纳十套内径/外径夹具的托架系统。HG150-IDOD控制系统与工具更换系统连接，利用工具标识将工具储存在已编程存储槽内，可以为已选择操作检索适当的成套工具。

一旦操作者调出已储存的定径程序，机器会获取并安装相关的成套工具并自动调整到预编程参数。

工具标识设备使用安装在工具架上的RFID标签系统以及在每个工具存储位置的RFID读取器来确认工具回到了合适的位置 。高架起重系统利用电动伺服系统为工具收回、安装以及储存提供精确的控制和定位。为了提供一个安全的工作场所，自动化单元设置了周边防护装置、连锁门以及安全扫描仪。

HG150-IDOD机器配有AddisonMckee专利申请中的Hydra-Green液压动力装置以及控制电路，以提高安全性，降低耗电量、操作声级以及液压油用量。该机器还有DigiView控制系统，一种先进的数字控制系统，可以控制机器序列，包括速度、步循环以及多击功能。

来自AddisonMckee的HG150IDOD

工具吊架

AddisonMckee – 美国
网址: www.addisonmckee.com

管子外圆磨削: 湿磨或干磨?

干式磨削不锈钢管道会产生锈蚀。这不仅是美观问题；也增加了腐蚀风险。然后还需要一个耗时的过程来重新处理。

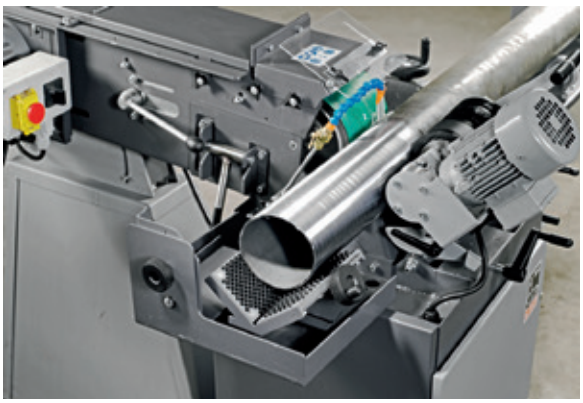
干式磨削产生的热量引起锈蚀。热量引发材料氧化，然后变成明显的锈污。

I相反，湿式磨削可实现良好的磨削结果，无需耗时的返工。湿磨法是直接向加工材料涂抹冷却润滑剂，这样磨削过程中就不会或很少产生热量，也不会出现锈蚀。推荐从粗磨到表面精加工都使用湿式磨削。

尽管湿磨或冷磨效果很好，较小规模的公司却不愿意投资冷磨。但这种投资却是值得的，即使是对小规模加工来说。除了高加工质量节省成本外，湿磨对磨带也很好，可延长其使用寿命。

对于技工来说，湿磨能提高工作安全和舒适度。切屑包在冷却剂里，这样车间粉尘污染很低。封闭的冷却剂回路减少冷却剂消耗，环保处理更容易。

冷磨设备对不锈钢加工车间是值得考虑的，尤其是栏杆生产、设备或储罐建造以及传统的金属加工。模块化带磨系统，如Grit的Fein以Fein品牌名提供的，可提供替代采购整个湿磨系统。他们允许添加冷却润滑模块，而且需要时可以无工具安装。



一个冷却润滑剂模块添加到无心磨削模块上，冷却润滑剂直接涂在工件上

Fein公司开发和生产金属加工、内部配备以及汽车领域应用解决方案，而且是工业电动工具和手动行业专家。公司有800多个活跃的工业产权，包括500项专利和专利申请。公司通过全球19家国际子公司和50多个代表销售产品。

Fein Industrial Power Tools UK Ltd – 英国
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sales@fein-uk.co.uk
网址: www.fein-uk.co.uk

BEHL调试轧槽精整机

总部位于（印度）新德里的BHARAT Heavy Electricals Limited （BHEL）公司调试了SMS Meer集团供应的KR I 30/38 CNC新型轧槽精整机。使用这台新机器以及由SMS Meer升级的顶管机组，将来张力减径机的轧钢机架可配备最新的轧辊孔型技术。

SMS Meer提供的轧槽精整机能够全自动化加工轧槽。可加工直径300毫米到380毫米的轧辊。

该机器配备了测量系统，可自动测量机架和轧辊。

轧辊加工是在机架最前端进行的，因此可以加工出所有孔型设计。SMS Meer的技术能够在一个道次里完成边缘半径精整。

夹紧系统里的陶瓷刀具意味着可实现良好的铣削条件 以及短的更换时间。以极高的精度在两个道次里自动完成轧辊加工。整个过程不到30分钟。

系统快速的重新编程使轧槽形状更换变得很容易。该机器还可以与工件数据库以及控制系统连接，如SMS Meer的CARTA®技术系统（计算机辅助轧制技术应用程序）。

SMS Meer – 德国
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网址: www.sms-meer.com

钣金加工线

FASPAR SpA是意大利米兰一家机器制造商。之前公司生产的是压力机，自1977年开始生产整条钣金加工线。

Faspar公司生产区占地4000平方米，主要产品包括 表面精加工线、纵剪线、平整线、矫直线、定长切割线（带旋转、飞切和机械剪切）、给料、冲压/冲孔线、压力矫平和拉伸矫平线以及夹芯板生产线。

可加工材料包括低碳钢/碳钢、镀锌钢、涂漆钢、不锈钢、铝、钛、铜或白铁皮。

Faspar的定制产品服务于钢铁服务中心、汽车工业、家电工业和面板制造商。公司是国际集团们的供应商，包括 ThyssenKrupp Group、Sassoli Group、 Sandvik、 Metecno Group、 Ugine & Alz (Arcelor Group)、Acesita集团以及全球其他重要的服务中心。


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复杂组件涂层

先进的表面涂层技术专家HARDIDE Coatings公司开发了一种新型表面工程技术用来保护组件内、外表面磨损、腐蚀和酸性腐蚀。公司利用先进的硬质合金涂层为不断增加的部件寿命带来的挑战提供工程解决方案。

该涂层采用低温化学蒸汽沉积(CVD)可施加到各种金属基底和复杂形状上。这对管道行业来说是一个重大的发展，因为这种涂层对关键部件和小直径管道的小部分区域使用大有好处。

尤其是对于系统可能发生腐蚀的高危险区，这会减少管道、弯头、泵、阀门、隔板以及套管寿命。使用Hardide涂层能增加关键组成件的寿命。

CVD涂层从气象逐渐结晶形成保形涂层涂敷在内、外表面和复杂形状上。CVD在温度约500°C的真空室反应器内发生。这些涂层是金属钨矩阵填充大小约1到10纳米的分散硬质合金纳米粒子。分散的硬质合金纳米粒子为材料提供可以控制和定制的增强硬度，定制硬度范围为1,100 到1,600Hv，有些Hardide涂料能达到3,500Hv。耐磨性比硬铬强12倍，比铬镍铁合金要好500倍。

纳米结构材料以韧性、抗裂纹和抗冲击性著称。比如，Hardide-T已被证明能无任何损坏地承受3,000微应变变形；这种变形会使其他厚硬涂层开裂或剥落。

其他主要特点包括抗酸性（包括硫化氢）和无孔隙度。这种高度移动反应产品在生长时填补了涂层中气孔和缺陷。以理论和实际之间的差异来衡量的孔隙度还不到0.04%，因为涂层完全覆盖了基材，无任何小于1微米厚的气孔。与喷涂硬质合金不同，Hardide不使用会受到酸影响的钴。这对处理酸性油来说非常重要。

各种Hardide涂层变体能解决严重磨损、腐蚀或擦伤问题。应用范围从上面到井下，包括泥浆泵、计量器、控制和截流阀、离心和轴向泵，以及弯头、内衬、弯管接头和法兰。

这些涂层还可以用于水力压裂和钻井工具，包括泥浆驱动液压部件、转子、定子和钻井工具驱动部件。其他成功应用包括生物燃料应用中的喷射泵和燃烧管。

Hardide Coatings Ltd – 英国
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API管材焊接和精整线

ASMAG集团是钢铁和有色金属加工机械和设备供应商。该集团有两家公司：一家是Asmag，其主要业务是设计和制造拉拔机、矫直机、试验设备、切割机、倒角机、堆垛机以及打捆机。另一家是Seuthe，其主要业务是设计和制造管道焊接和型钢轧机。

2013年，沙特阿拉伯石油和天然气钢管生产商安装了一台轧机来加强8" API管子的生产。充分发展的笼式成型技术(CTA)以及专用的多头锯床设计说服公司选择了Seuthe轧机。交付的笼式成型轧机能够生产直径60.3到219.1毫米的管子，只有一个通用成型轧辊组，可以自动调整轧辊。

同样在2013年，Asmag集团向德国,钢管制造商提供了两套高精度API管钢管焊接线以及精整线。该API管子精线包括一台矫直机、一套切割和倒角装置以及试验线，用于7"以内的管子加工。该生产线的亮点是全自动高精度十辊矫直机。在经过几次新的进展，整条线转换时间成为行业内最短的。

管子矫直机

有了这些装置作为参考，Asmag集团已经显示了其在提供符合API标准的机械和全集成生产线方面的专业技术，从薄板卷到等待销售的管道打捆。

Asmag集团在自己的奥地利和德国车间制造机械和装置。在每个地方都是工程、自动化、制造和组装都是在一个屋檐下进行的，这样制造质量非常高，能灵活且更好地服务和支持。

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完美的能力优化解决方案

UPCAST®-SGTube出现之后，出现一个能够同时铸造棒材和管材的混合系统就指日可待了。

UPCAST®-Hybrid技术是建立在使用同一台设备同时铸造两种产品基础上的。这是通过修改UPCAST®-SGTube铸造机和卷取机某些产品特定部分来简化转换而实现的。产品混合的灵活性使混合系统成为那些多元化产品系列公司真正具有成本效益的解决方案。

混合配制可能有两个分开的铸造熔炉。然而在任何给定的时间里，只有一个用于铸造，而另一个等待备用。这种配置允许两种不同类型的熔化物持续可用——例如用于棒材的无氧铜和用于管材的磷脱氧铜。

通常一次只能有一种产品类型，但混合系统机器在使用同一种熔化物时可以同时铸造棒材和管材。

这种混合解决方案对那些同时对棒材和管材有一定产能需求的公司来说是非常好的——不需要两条单独的线，最坏情况下也可以保证其中一条整年是被完全利用的。

有了UPCAST®-Hybrid线，可以优化两种产品之间的全能生产或有时仅仅一个产品的全能生产。

该技术是我们的专家们在公司的试验工厂坚持UPCAST®研发工作的结果。公司决定始终处于该领域开发的最顶端，并不断寻求改进、新产品和应用，满足客户和市场不断变化的需求。

生产线从来都不是短期投资，但客户一直小心地计划未来几年的资本支出。UPCAST®连铸线每周七天能连续可靠地运行。但没有一个快速、可靠以及连续的UPCAST® Customer Service耗材和备件客户服务也是不可能的。相反可能意味着生产时间损失为客户带来重大的损失。我们会继续为你服务——不断地服务。UPCAST® Quality也将继续成为市场上最好的一个。请到俄罗斯管材展7-5 B14展台参观我们的展出。

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高性能金属切削液

Quaker Chemical提供QUAKERCOOL® 730 TP系列金属切削液，一种用于管道行业的高性能合成微乳液。这类产品在一些高要求加工和磨削应用如车螺纹中表现出色。该产品能有效地抵制微生物生长，而且不含氯化化合物、甲醛释放剂、硼、单乙醇胺和仲胺。

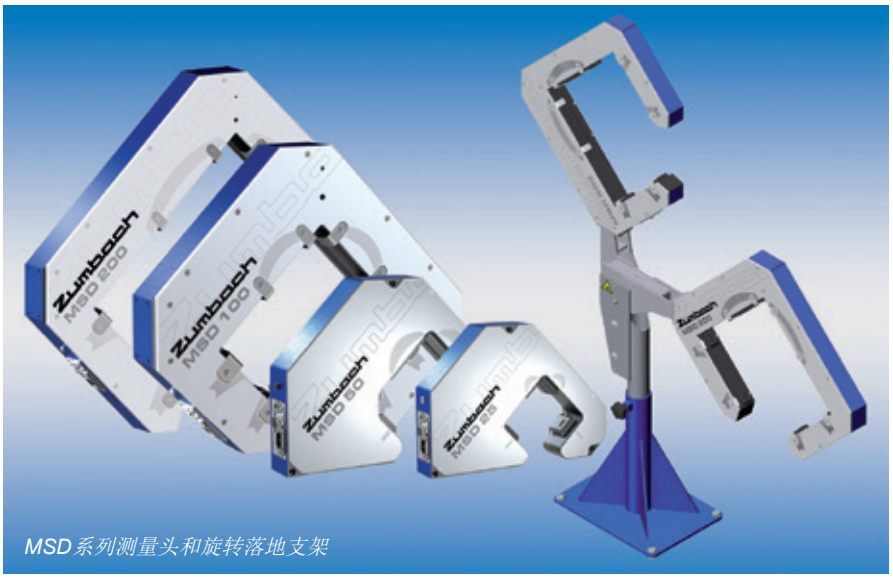
QUAKERCOOL® 730 TP具有性能和易用性等多种好处。基于专有合成酯的微乳液，可提供先进的润滑技术、为黑色金属表面提供极好的短期防腐、以及低集中注意下实现极好的刀具寿命。该材料极易清洗，无粘性残留，而且浓缩液和混合液气味都很好，操作者完全可以接受。

Quaker工艺工程师专家可以提供使用QUAKERCOOL® 730 TP的过程建议，包括监控浓度控制、液体维护以及工艺选择。

总之要实现最佳使用，冷却剂浓度的良好控制对金属加工操作以及确保工艺流体化学和生物稳定性来说是非常重要的。适当的浓度也有助于保持最低的操作成本，包括工具和化学物质。此外是金属切割后的清洗和保护。Quaker的QUAKERCLEAN®（清洁剂）和FERROCOTE®（防腐剂）产品增强了工艺兼容性。QUAKERCOOL® 730 TP也可以与QUAKERCOAT®系列管道涂料兼容。

Quaker Chemical – 美国
网址: www.quakerchem.com

挤压过程中多轴同步测量



MSD系列测量头和旋转落地支架

和MSD直径测量仪一起，Zumbach推出一系列新的测量头，用于在线直径和椭圆度测量和控制。这条新的产品线补充了ODAC®系列高精度直径激光测量头。

MSD测量仪实现了高效率，用于塑料、橡胶和电缆行业管子、软管和电缆挤压。57年的在线和离线测量和控制技术经验使该产品拥有最新的技术和功能，以及Zumbach的精度和可靠性。线性传感器技术(专利申请中)能够构造出非常紧凑且精确的测量头。

外径200毫米内的产品都可测量。新产品线的双色LED光源 允许在每个轴同步扫描(XY*)以及可靠的测量，即使产品在振动。集成的外来光线过滤器可防止测量误差产生。

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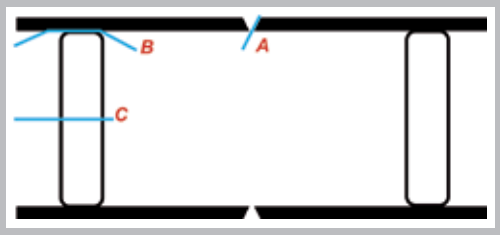
Tube and pipe welding

By Dr MJ Fletcher, Delta Consultants. Huntingdon Fusion Techniques

High quality welds in pipes and tubes can only be assured if the weld underbead is protected from oxidation. The various techniques available through which protection can be given are referred to as purging.



The pre-purge process

A pre-purge is used to displace air present in the pipework system or dam volume. Numerous factors control the pre-purge time such as pipe diameter, purge volume and maximum permitted oxygen level.

A common misconception is that increasing the purge flow rate will reduce the purge time. This is fallacious. Increase in flow rate increases turbulence and results in unwanted mixing of purge gas and air and can actually extend the purge time. As a general rule, the pre-purge flow rate and time should allow for about five volume changes in the pipe system or dam volume, but a typical gas flow rate will be in the region of 20 l/min.

Weld joints that require a root gap or which exhibit bad end matching, both of which characteristics provide an unwanted leak path for the purge gas, can be sealed on the outside by taping. (See references)

Oxygen and moisture levels in the purge gas should be checked using a “Weld Purge Monitor®” and/or appropriate equipment with checking taking place at the outlet point. Where dam inserts are being used, the outlet point needs to be extended with a flexible pipe to a convenient access position. If this is impractical, a system which has the purge inlet and outlet in the same dam unit should be used.

While 0.1% (100ppm) residual oxygen is a suitable working level for materials such as stainless steels and duplex steels, the level needs to be lower in the biopharm, food, dairy and semiconductor sectors who are are now asking for 0.05% (50ppm) or less.

When welding the more sensitive alloys based on titanium, zirconium and other reactive metals, the residual oxygen levels need to be in the region of 0.01% (10ppm) or less.

The weld purge process

Once the quality of the gas in the dammed volume has reached the required level, gas flow can be reduced to about 5 l/min for the welding operation. On a more practical level, it should just be possible to feel the gas flow from the exit point. Excessive flow can cause the internal pressure in the pipe to rise and create concavity in the weld root geometry and in more extreme cases can cause complete ejection of the molten weld pool.

On joints which are not fully sealed to restrict leakage, a higher flow rate will be necessary to avoid contamination. Towards the end of the weld run however, as the joint becomes permanently sealed, the gas flow rate will need to be reduced to avoid over-pressurisation.

Weld purge techniques

There are six principal methods available for pipe purging: screwed up paper, or other foreign objects, open pipe operation, water soluble discs, expandable mechanical plugs, flexible discs and inflatable systems.

Screwed up paper or other foreign objects
Generally, the simple and low-cost solutions may well serve to offer limited protection, but they are far from being totally reliable. It’s hard to believe that the use of screwed-up newspaper or cardboard discs to block the pipe on each side of the joint and rely on this as an effective seal is still considered by some to be adequate.

Even if they don’t burst into flames during the welding cycle, the problem of removal after completion of the joint is rarely considered.

Furthermore, it is equally unbelievable that one could obtain an adequate purge level, or even hold one if achieved, to match today’s quality control standards.

Open pipe operation
For small diameter tubes, say up to 10mm, the use of continuous inert gas flow without seals is not uncommon. Air is replaced by incoming inert gas. However it overlooks the possibility of turbulence and thus entrapment of oxygen.

Continuous gas flow can also be costly, with the costs of inert gas having increased so much over recent years. Because it is desirable to block a short distance either side of the weld, to add greater control to the purge monitoring process and the ultimate profile of the weld, it is better to use professionally made systems where possible.

PurgElite® Tube and Pipe Weld Purging Systems
Following the success of QuickPurge®, HFT® developed a complementary product range, PurgElite®, that incudes the smallest integrated purge system currently available. Systems are available to accommodate diameters between 25 and 300mm

From 1" upwards, there are now inflatable systems available under the PurgElite® Trademark.

Expandable mechanical pipe plugs can be very effective and cheap. These are widely used for pipe pressure testing, and volume production means that cost is low. The sealing area is large and the time involved in preparation is relatively small.

Plugs are available covering diameters from 12mm (½") up to 1,200mm (48") and whilst the smaller plugs are available with nylon bodies, aluminium and steel are used above 150mm. The larger and therefore heavier versions may thus be difficult to insert and remove if the joint line is more than 500mm from the access point.

Soluble barriers cut to pipe size and glued to the internal diameter provide some degree of protection and the discs can be removed by flushing with water after use.

The bond to the pipe may be prone to leakage and dams have been known to blow out because of an enthusiastic operator increasing the gas flow. In addition, the time and skill involved in preparation can be considerable.

Water soluble film is generally preferable to paper. The soluble film adhesive is easier to apply all round the pipe interior and gives excellent adhesion.

Paper contains a high proportion of water and this can vaporise during welding, putting the weld at risk from contamination.

The Argweld® ranges of soluble film purge products and expandable pipe plugs are British made and available off-the-shelf.

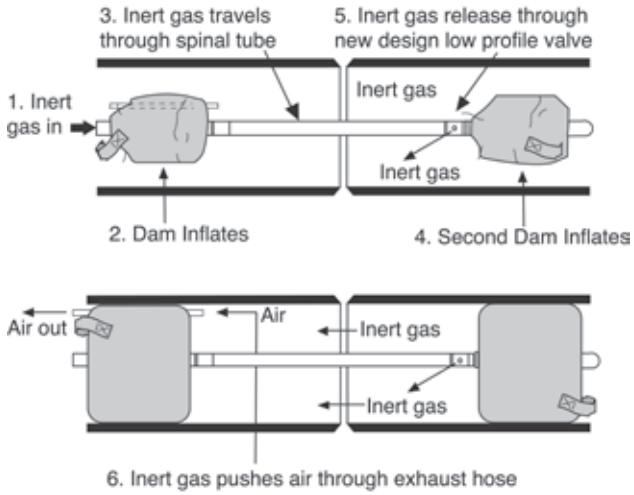
Film kits are suitable for low volume weld production where time is not of the essence and access to joints is readily available.

Paper and engineering plastic versions are available but paper versions may not be suitable for site work because of their fragility.

Time, dexterity and patience are required during application and the film dams can only be inserted as far away from the pipe access as an engineer can reach.

Flexible 'floppy' discs connected by a flexible tube can be deployed quickly, and removal after welding is easy since the assembly can be withdrawn past the weld. Reliability is suspect, however, because disc to pipe sealing depends upon a very small contact area. Some have a semi-rigid connecting tube and this may be unsuitable where the system needs to be used either side of a sharp pipe bend. The working range of these systems is also very low.

Inflatable seals represent the only totally reliable purging systems.



Contemporary equipment has been designed to provide fully integrated control of purge pressure. Inert gas use is minimal and they are compatible with site use where multiple welds of the same diameter need to be made quickly and efficiently.

Recent innovative work by HFT® designers of the PurgElite® and QuickPurge® II systems has led to the introduction of several further advances in equipment production.

- PurgeGate™ has been added to all QuickPurge® systems. This patented device prevents inflatable purging systems from being over-pressurised even when operators try to increase pressure to increase the flow of weld purge gas.

- RootGlo® illuminating tape is now fixed around 360° of the centreline of the QuickPurge® system. Inside the dark pipe, the centring band glows brightly to give welders the opportunity to see all aspects of the purge device alignment and the quality of the weld root as it is being welded.

  The tape continues to glow for 12 hours before it needs to be returned to daylight for recharging.

- IntaCal® is a ready calibrated gas release system to inflate the dams safely and to purge the interspace between them.

IntaCal® removes the need for expensive and complicated valve systems that need presetting before each weld. This time-consuming process is now eliminated, as is the previous problem of incorrectly setting valves, which frequently led to bursting dams.

- Weld Purge Monitors®: the exhaust gases are fed directly from the matching 6mm red hose to the weld purge monitor® 6mm red hose. Using the leaktight 6mm quick fit connection eliminates the leak paths caused by other systems that need to adapt their large size exhaust hoses to the small size of the Weld Purge Monitor® hose.

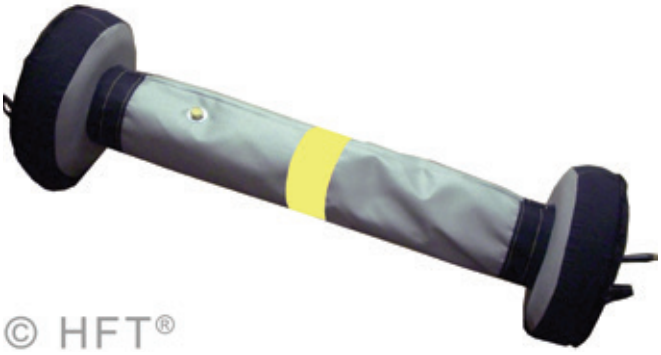
  Weld Purge Monitors® can be set to alert the user automatically when the required oxygen level has been reached.

Process costs

Providing precise data on cost comparisons between the different purging techniques is difficult, not least because the pipe diameter and wall thickness have a profound influence on the cost.

Furthermore it is impractical to use some types of water soluble dams in sealed pipes or in pipes and tubes with diameters much below 100mm.

QuickPurge® II Pipe Purging System
QuickPurge® systems designed by HFT® are for use on pipe diameters from 125 to 2,400mm. Rugged construction allows repeat use under site conditions. QuickPurge® II pays for itself in one weld



HotPurge™
For chrome steel pipe joints such as CMV,P91,P92 etc. Suitable for staying in place at 700°C and 300°C for pre-heating, weld purging and post-weld heat treatment

An illustration of costs can be provided by examining the differences between soluble film (claimed to be cheap) and engineered inflatable systems.

Type of purge system	Number of welds	Cost for 30mm pipe diameter US$	Cost for 750mm pipe diameter US$
Pre-cut soluble Paper	1	17	170
	50	16	160
Commercial weld purge system	1	270	700
	50	5	14

It is clear from the table that, where several welds have to be made on similar pipe diameters, there can be genuine cost savings when using inflatable pipe purging systems as the sealing medium. Add this to the technical advantages of reliable sealing and ease of use and the inflatable purge system concept can be seen to offer significant attractions.

Argweld® manufacturers complement their range with fully integrated inflatable pipe purge systems designed to meet the requirements of on-site reliability and these have become the global standard favoured by all manufacturing industry.

Both QuickPurge® and PurgElite® products exploit the latest engineering developments in abrasion resistant fabrics and low profile gas control valves.

They are compatible with standards laid down by the nuclear industry.

HotPurge™ inflatable pipe purge systems are also available for use with chrome steel pipe welding. HotPurge™ uses materials that are capable of resisting temperatures up to 700°C for 24 hours, so they can be left in place throughout the whole pre-heat, weld and post-heat treat cycles.

References

See “Weld Purging Best Practices – A guide to weld purging”. Published by Huntingdon Fusion Techniques HFT®, www.huntingdonfusion.com

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