The international magazine for the tube and pipe industries

TUBE & PETTUBE

Tube

Tube

TECHNOLOGY

March 2008 | Vol 21 No 2 | US\$33





X-RAY 2000 monitor image

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#### The advantages:

- fast centering of the crosshead directly after starting of the extrusion process
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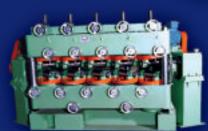


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- ► drawing machines
- **▶** pointing machines
- ▶ run-out systems
- ► saws and cutters
- ► level winders
- ► handling systems











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# **C**ontents

#### The currency of change

Ithough it's not such a long time ago, there have been a lot of changes over the six years A live worked on *Tube & Pipe Technology*. The completion of this biggest ever issue of the magazine - dedicated to Tube 2008 - now means I have edited 33 issues of Tube & Pipe Technology. It may be interesting to review my first issue with fondness, but the main lesson that nostalgia teaches us is the perspective of change and how much we have learnt over time.

Since my maiden issue in November 2002, the face of communication has mutated and, largely due to its international nature, the tube and pipe industry has felt this dynamic impact more than most. There has been a year-on-year increase in the global flow of news, press releases and enquiries received via email by the TPT newsdesk. Globalization and the internet have combined to bring our industry, and the world in general, much closer together.

The growing strength of the euro currency has also been a noteworthy development. Launched in 1999, I remember when the euro icon (€) was relatively new and even printers had trouble printing it. Now signs are that the euro is set to become the world's strongest currency, with the dollar and pound losing major ground. The US Federal Reserve's high risk strategy of slashing interest rates has left US inflation and the weakening dollar on a precipice.

Perhaps it is a good omen that the euro's current period of strength coincides with the strongest European tube and pipe exhibition: Tube 2008. This event has provided a much needed continuity for the tube and pipe industry over the years. And each time I have compiled a Tube Düsseldorf feature, it has always been a challenging and hectic experience.

This issue has been no different; and judging by the volume of adverts and editorial in this bumper issue, it is good to know that the industry still regards Tube & Pipe Technology as a steadfast resource. Thank you for your continued support and interest – I'll see you in Düsseldorf!

#### **Rich Sears**

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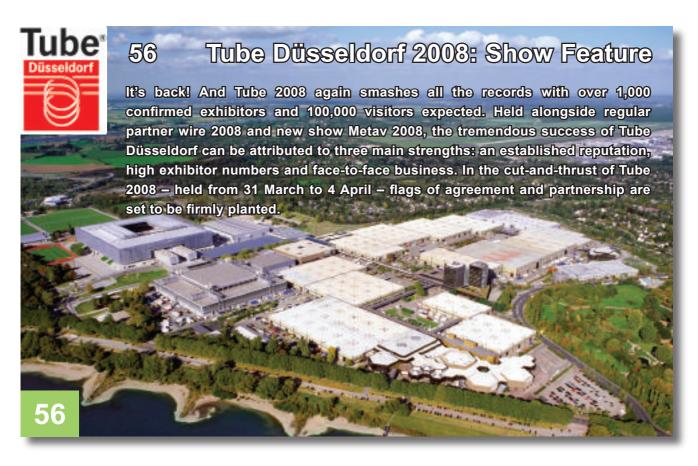
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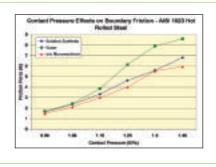
#### 210 Inspection, Measuring, Testing & Marking

Quality is a characteristic not easily achieved or accepted without substantial qualification. Those products and services that lay claim to being the best on the market have only achieved this confidence through operation of the highest levels of inspection, measuring and testing. Those experts that facilitate this proof of excellence provide the very latest technology including ultrasonic inspection, x-ray inspection, eddy current testing, NDT testing, industrial vision, and thermal imaging. And, of course, once quality is verified and assured it must be recorded for full traceability through the most advanced methods of marking available.

#### **Technical Article**

# 242 Friction and lubrication properties of tube forming coolants

Dr Robert D Evans, research scientist, Quaker Chemical Corporation, USA





### **INDUSTRY NEWS**

#### Tubes & Fittings Ukraine 2008 – a new show for a lucrative market

A new show for the buzzing Ukrainian market, Tubes & Fittings Ukraine 2008 will kick off this year in Kiev at the Ukraine's largest exhibition centre, KyivExpoPlaza. The show will be held from 17-20 June, currently a clear month in the packed tube exhibition calendar.

The show will be held at the same time as partnering show, Wires & Fasteners Ukraine. The exhibition – organized by TDS-Expo – has support from the Ministry of the Industrial Policy of Ukraine, Ukrtruboprom Association, Ukrainian Manufacturers and Employers Association, Ukrainian Association 'Ukrelectrocable', Society of Welders of Ukraine, Machine-Building Engineers and Technologists Association of Ukraine.

market is showing incredible potential and is an attractive opportunity for foreign investment. The Ukraine's economic growth in the last 2 years has risen by 5 per cent. The net increase in direct foreign investment in Ukraine has reached US\$6.8 billion, based on the results of 10 months during 2007. This investment is 1.6 times higher than 2006 and 6.4 times higher than 2005.

Ukraine is the third largest producer of steel in the world. Ukrainian tube enterprises have increased ferrous metal tube production by 10.1 per cent since January 2007 (compared to 2006). Ukrainian corrosion-resistant seamless tubes are in large demand across the world markets.

The show comes at a time when the Ukrainian

announced it will stage a conference to support the exhibition

Show sponsor

Ukrtruboprom has

According to results based on 10 months of activity in 2007, 17.5 thousand tons of corrosion-resistant tubes were exported from Ukraine (an increase of 30.2 per cent).

The substantial export of the Ukraine's seamless tube and lack of welded tube production facilities also leads to a big Ukrainian import market. Research shows that import growth activity reached 48.8 per cent (compared to 2006), with major import regions including the EU, CIS, Asia, and the Middle East. Demand is also a key issue, with the 2007 consumption of tubular goods in Ukraine having increased by 15.6 per cent (compared to 2006).

Added to this bright economic and investment outlook, the Ukraine is widely regarded as more accessible, with easier business practices, freight and cost of living than neigbouring Russia.

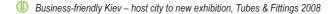
Ms Nataliya Koryaka, the international marketing representative of show sponsors Ukrtruboprom, recently told Tube & Pipe Technology, "There is great interest now in the Ukraine. Many industry representatives told me during last year's Tube Ukraine international ITA conference, they see great potential for development and investment."

Ukrtruboprom has announced it will stage a technical conference to support the exhibition. Held in Kiev from 18-19 June 2008, the conference is titled 'Modern trends in production of welded and seamless tube and pipe: technology and equipment.'

Tube & Pipe Technology and Tube Products International will be the official sponsors of Tubes & Fittings Ukraine. All non-Ukrainian and non-Russian exhibit enquiries should be directed to Intras Ltd.

**TDS-Expo** – Ukraine Fax: +380 44 526 93 76 Email: olga@welding.kiev.ua Website: www.weldexpo.com.ua

Intras Ltd - UK Fax: +44 1926 314755 Email: intras@intras.co.uk Website: www.intras.co.uk





#### ATE: 20 years of induction heating

ATE Applicazioni TermoElettroniche, Italy, has recently celebrated its 20th anniversary and a long service to the tube and pipe industry. The company was founded in 1987 by combining in-depth experience in the fields of industrial electronics, static energy conversion and electric heating for various industrial applications.

Over the years, ATE has become renowned in Italy and abroad as a qualified manufacturer of induction heating systems. This expertise is based upon specialization, innovation, continuous research investment and state-of-the-art technology.

The company has continued to face new development challenges for a range of applications. ATE manufacture induction heating systems including heating plants and thermal treatment technology of wire, bar, tube and steel strip. The company also provides melting furnaces for ferrous and non-ferrous metals and precious alloys, induction heating systems for welding, and induction heating systems for hot assembly.

Applicazioni TermoElettroniche (ATE) – Italy

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





#### **Aluminiumwerk Unna acquires BA Tubes Ltd**

Aluminiumwerk Unna AG, Germany, has acquired the operating business and assets of BA Tubes Ltd, UK, through its 100 per cent owned subsidiary. B ALUnna Tubes Ltd.

This merger will provide substantial support capacity to the traditional plant in Unna, Germany. The UK (Redditch) plant operates three extrusion presses as well as cold drawing, heat treatment and ancillary facilities.

Based on a strong order book of the Unna plant, a certain volume of existing orders will be transferred from the Unna plant to B ALUnna Tubes Ltd. The merged ALUnna Tubes will operate a combined nine extrusion presses and a wide range of equipment used for the subsequent manufacturing of drawn tubes.

This merger will have an immediate impact for many customers of Aluminiumwerk Unna AG. The company will be able to accept additional orders or increased volumes and lead-times will be reduced across the company's product range.

The Unna site will receive a new 4,500m<sup>2</sup> production building, including a modern container packing station and loading dock. This expansion project will be completed by the third guarter of 2008. After completion, the re-engineering of the whole downstream activities of the Unna plant will be possible.

The company has also decided to install a 45MN piercer press at the Unna site. A suitable press has been identified and an agreement to purchase has already been reached. The press will be installed with 11" and 14" container sizes and will cover the product range in strongest demand. Project completion is expected in 2009-2010.

These decisions have been taken by the board of directors with a view to long term growth of the company. It was clear that the continued growth and success of Aluminiumwerk Unna AG had been capacity constrained. These measures are expected to enable the Unna plant to reach an annual capacity of 25,000t and for the group in total to achieve in excess of 30,000t/annum.

Aluminiumwerk Unna AG - Germany

Fax: +49 23 03 206 116 Email: info@alu-unna.de Website: www.alunna.de

#### **DIARY OF TUBE EVENTS**

#### 2008

#### MARCH/APRIL

12-14 **TPJ Symposium** Lake Buena Vista, Florida, USA Conference

Email: audrey@fmanet.org Website: www.tpatube.org

31-04 **Tube Düsseldorf** Düsseldorf, Germany Exhibition



Email: liedtkeM@messe-duesseldorf.de

Website: www.tube.de

Shanghai Steel Tube Expo 10-12



Email: susan-expo@163.com Website: www.gangguan-expo.com

Shanghai, China Exhibition

MAY

27-30 Tube Russia Moscow Russia Exhibition



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

JUNE

Middle East Plastic Pipes 02-04 Dubai, United Arab Emirates **Exhibition** 



Email: sh@amiplastics.com Website: www.amiplastics.com

CityPipe 03-06 Moscow, Russia Exhibition



Email: citypipe@sibico.com Website: www.citypipe.ru

17-20 **Tubes & Fittings Ukraine** Kiev, Ukraine Exhibition



Email: olga@welding.kiev.ua Website: www.weldexpo.com.ua

SEPTEMBER

**Tube China** Shanghai, China Exhibition



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

**OCTOBER** 

Fabtech/AWS Welding Show Las Vegas, USA Exhibition



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

**NOVEMBER** 

18-21 Metal Expo 2008 Moscow, Russia Exhibition



Email: info@metal-expo.ru Website: www.metal-expo.ru

2009

**JANUARY** 

Tekno/Tube Arabia Dubai. United Arab Emirates Exhibition



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

MAY

12-15 Tube/wire Russia 2009 Moscow Russia Exhibition



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

**OCTOBER** 

Tubotech/Metaltech 2009 06-08 São Paulo, Brazil Exhibition



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

**Tube/wire Southeast Asia** Bangkok, Thailand Exhibition



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



## ITA and TPA celebrate successful ioint conference in Houston

For the first time in its history, the International Tube Association has celebrated a successful collaboration in co-organising a conference with the Tube & Pipe Association International (TPA), USA.

The world-class Pipe & Tube Houston 07 conference – devoted to seamless and welded tubular product technology and

Mr Ron Czerski, vice chairman of ITA's North American Board (left) with Mr Gerald Shankel, CEO of the TPA



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stmc@shuztung.com.tw

processes – took place last September with heavy attendance from the ITA's North American membership base.

Located at the Woodlands Resort in Woodlands (near Houston), Texas, the three-day event consisted of nearly forty technical paper presentations, four roundtable discussions, a plant tour at

Tex-Tube Company and RTI Fabrications, and two prime networking receptions. Fields of interest included welded-seam tubes, seamless tubes, cold drawing and reducing tubes, extrusion, inspection, finishing, and oil country tubular goods and fittings.

A major highlight of the conference was the tabletop exhibitions – with over 40 companies participating. Representatives from the ITA noted that this event featured the largest exhibit area they have hosted in North America.

Exhibitors were reported to be pleased with the number of contacts they received during the conference – over 150 attendees visited the tabletops.

The success of this event shows the strength of teaming up the North American management board of the ITA with the TPA's councils of 'Tube and Pipe Producers', 'Tube and Pipe Fabricators', and 'Extrusion, Drawing and Tube Reducing Technology'.

President and CEO of TPA, Mr Gerald Shankel, commented "I was pleased at how our two organisations came together for such a successful event – for the first time in history!"

Mr Paul Russo, 2007 TPA advisory board chairman, states, "This is the first technical conference jointly presented by the TPA and the ITA. It was very well received by the tubing industry. Houston proved to be an excellent venue and I hope both organisations plan to conduct more joint conferences like this in the future."

There are currently preliminary discussions between the two organisations regarding an event in 2009, possibly in Mexico.

International Tube Association – UK Fax: +44 1926 314755 Fmail: info@itatube.org

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

Tube & Pipe Association, International

- USA

Fax: +1 815 484 7701 Website: www.tpatube.org

#### Name change for Czech seamless tube producer

VVT-Vitkovice Valcovna Trub, a Czech producer of thick-wall seamless steel tubes, has changed its company name and logo. The new name – Valcovna Trub Tz as – was chosen as an integral part of creating a corporate group identity. It is the final step of integration into the structure of the group of companies, Trinecke Zelezarny – Moravia Steel.

The company's current annual tube production capacity is 105kt, of which almost 60 per cent is manufactured on the 'big Mannesmann' line, producing tubes of outer diameter 168-406mm. The investment project for revamping and refurbishment of the line will finish in the third quarter of 2008. The second production line – the small Mannesmann – rolls out the tubes with an OD of 60-168mm.

The seamless steel tubes are used in the machinery and automobile industry, building and construction, power engineering and chemical industry as well as in crude oil and gas exploitation. The company's products have been involved in construction of a trade and financial centre in Linz, cavern wells in Germany, sugar mill repairs in Egypt, a government project in Libya, an offshore wind mill in Denmark, and a new power plant project in Chile.

In total, Valcovna Trub achieves 70 per cent of its sales on the international market.

Valcovna Trub Tz as – Czech Republic

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No. of cameras: Measurable parameters:

\_ . .

**Typical accuracy:** 

\*Largest product depending on centering

25, 140, 300 mm\* (1, 5.5, 12 in.) 1...6 (standard 4) length, width, height, diameter, radii, angles +/- 0.01 ... 0.05 mm (+/- .0004 ... .002 in.)



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<sup>\*</sup>Largest product depending on centering



#### Ficep and HGG form exclusive product cooperation

Ficep, Italy, has announced exclusive product cooperation with HGG, the Netherlands, which will involve the joint supply of the Pro Cutter to the worldwide structural steel industry.

Ficep is a leading machine building company supplying the structural steel industry. The company has recently experienced the increased use of tubulars in the structural steel industry.

In addition to the bigger projects of stadiums and bridges, the variety of smaller projects holding tubular structures is increasing every year.

An increasing number of fabricators are being required to undertake complex pipe cutting. This concern led Ficep to seek the expertise of HGG Profiling Equipment, a leading manufacturer in the field of pipe

HGG Profiling Equipment was looking for a way to bring its new generation of pipe cutting machinery, the Pro Cutter, to the market. The two companies decided to join forces to market and sell the Pro Cutter.

The Pro Cutter is customized to the structural steel industry, with all relevant new technologies integrated into this new **HGG** was looking for a way to bring its new generation of pipe cutting machinery, the Pro Cutter. to the market

generation of pipe cutting machinery. In addition, the price has been significantly reduced to make the product accessible to most of the steel fabricators.

Covering an outside diameter range of 50-610mm, the Pro Cutter can process pipe lengths of 12,000mm. It can cut centric/ eccentric slots, chamfers, saddles and multiple saddles. Programming is available through connections to the obvious software systems in the structural steel industry like X-Steel - Tekla structures.

Ficep SpA - Italy Fax: +39 0332 462 459 Email: ficep@ficep.it Website: www.ficep.it

**HGG Profiling Equipment BV -**

The Netherlands Fax: +31 227 50 19 03 Email: info@hgg.nl Website: www.hgg.nl

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The management of Ficep and HGG seal the deal for exclusive cooperation during the Fabtech 2007 show in Chicago, USA



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#### Record breaking attendance for Fabtech 2007

Fabtech International & AWS Welding 2007, which took place last November, surpassed attendance expectations and again gave a continued show of strength as the leading US industry event. Organiser the Fabricators & Manufacturers Association International (FMA), has revealed that the four-day exhibition was a record breaking event, with a substantial 31,354 visitors from 75 countries, which is a 27 per cent increase on the 2005 show in Chicago.

Hailed by many exhibitors as "the best show in years", Fabtech 2007 covered over 481,427ft<sup>2</sup> of net floor space in the north and south halls of McCormick Place, utilized by another record setting 1,004 exhibitors. The event attendance comprised 89.5 per cent domestic visitors, 4.4 per cent from Canada and 6.1 per cent international.

Within the US, the largest draw of attendees came from the states of Illinois, Indiana, Iowa, Michigan, Ohio, Wisconsin, Minnesota, Pennsylvania, Tennessee and California. Of the 6.1 per cent of international visitors, the largest number traveled from Mexico, Columbia, Japan, Brazil, Italy, China, India, Venezuela, France and the UK.

"We have already received so much positive feedback about this year's show from both exhibitors and attendees," said Mr Jerry Shankel, president and CEO of FMA. "There were more than a thousand exhibitors, a 27 per cent increase over 2005, and they have been telling us how pleased they are with the quantity and quality of attendees."

A variety of professionals and staff were represented at the show including 29

per cent corporate executive/top-level management or job shop owners, 19 per cent manufacturing engineers or product design/development, and 14 per cent with manufacturing production job functions.

Attendees came to the show to not only view but purchase a range of forming, fabricating and welding equipment. According to FMA

statistics, 80 per cent of the visitors who attended the show indicated that they are involved in some way in their company's purchasing plans.

Attendees actively sought over 500 new products on display at the show. The 'Innovation theatre' attracted hundreds of attendees for a series of 28 different free presentations on new technology. The event also offered a comprehensive line-up of more than 100 conferences. seminars, professional programs, and other technical sessions.

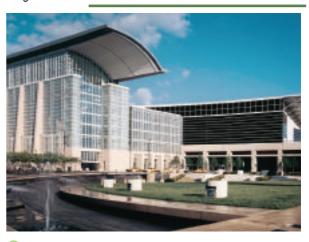
"The education programs drew a record number of participants, with more than a thousand professionals choosing to attend more sessions than in the past," said Mr Mark C Tomlinson, executive director, Society of Manufacturing Engineers. "This clearly shows that the workforce is clamouring for information that will advance personal careers, increase profits for companies and improve productivity."

Fabtech 2008 will take place in Las Vegas from 6-8 October, where it is sure to transfer its incredible success to the west coast region



Hailed by many exhibitors as 
"the best show in years", Fabtech covered over 
481,427ft² of 
net floor space

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Over 31,000 visitors attended Fabtech 2007 at McCormick Place in Chicago

Other show highlights included the new thermal spray pavilion, job fair/workforce development pavilion, laser cutting certificate program, business improvement seminars, and the 2007 professional welders competition. In addition, more than 300 people attended the leadership summit, which addressed the shortage of skilled workers in US manufacturing.

The success of Fabtech & AWS Welding is set to continue in 2008, with the event being held in Las Vegas, Nevada from 6-8 October. Taking place at the Las Vegas Convention Center, over 90 per cent of floor place has already been sold. Tube & Pipe Technology and Tube Products International will be exhibiting at the Las Vegas show.

Fabtech and AWS Welding is cosponsored by the American Welding Society (AWS), Fabricators & Manufacturers Association International (FMA) and Society of Manufacturing Engineers (SME), and supported by industry partner the National Association of Manufacturers (NAM).

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#### Successful market launch for Centravis

Centravis, a new company in stainless steel tube, was officially launched at the end of last year at two of the most prestigious exhibitions held in Europe and CIS countries.

The company was presented to the industry by Mr Ilya Shorokobrod, Centravis sales and marketing director, last November

Mr Ilya Shirokobrod, Centravis sales and marketing director





at the Stainless Steel World exhibition in Maastricht, the Netherlands. Centravis was also revealed to Russian and CIS representatives by Mr Yuriy Atanasov, the CEO of Centravis, at Metal-Expo in Moscow. Russia.

The speakers presented their vision of the current situation in the industry of seamless stainless steel tubes to the international community and gave their detailed appraisal of the challenges put forth by the market to the industry's major players. Along with this, the top management team, new company strategy and progressive business principles were also presented.

Centravis plans to become a global leader in seamless stainless tubes based on European business culture, quality and service. In its presentations, the company detailed the role of those concerned with Centravis: clients, suppliers, financial partners and the general public.

Mr Ilya Shirokobrod, Centravis sales and marketing director, said, "For our clients the new brand is, first of all, the wide range of high-quality tubes at competitive prices, flexible service and modern business thinking, transparent management style with clear client orientation. For our suppliers this is a reliable partner, long-term business growth and excellent quality level of the production, as it was before."



Mr Yuriy Atanasov, Centavis chief executive officer

Mr Yuriy Atanasov, Centavis chief executive officer, stated, "We have been showing permanent growth and stable financial position in the international market for years, along with setting the standards for Ukrainian business. This is why I claim with confidence that for our financial partners the new brand will be an attractive and creditworthy partner with a transparent corporate management structure on investment and bond markets."

All major Centravis clients and partners, industrial experts and analysts attended the presentations in Maastricht and Moscow.

Centravis – Ukraine Fax: +38 56 373 4846 Website: www.centravis.com

#### SMS Demag begins cooperation with Linde AG

SMS Demag AG, a company of the SMS group, Germany, has concluded a cooperation agreement with Linde AG, Germany. The agreement involves the exclusive marketing of the Rebox®-DFI process in continuous annealing furnaces to be newly erected for strip processing lines. Revamping work on the existing plant will continue to be carried out by Linde AG.

The Rebox®-DFI process has been developed by Linde AG and involves the very rapid heating of the strip in the continuous furnace. It is based on Linde AG's considerable experience in the field of combustion of fuels using pure oxygen and the application of this in furnaces employed in the steel industry.

The process is not only characterized by the extremely fast heating of the steel strip but also, to a very large extent, cleaning of the strip surface both of residual oil and solid particles arising from the production process. Strip cleaning upstream of the furnace can thus be greatly simplified or even dispensed with altogether.

The Rebox®-DFI process is already being used successfully in several facilities, including ThyssenKrupp Steel and Outokumpu Stainless.

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#### Sikora profits from longstanding ISO 9001 certification

Just as the ISO 9001 accreditation reaches its 20th anniversary in 2008, the German company Sikora has celebrated 14 years of ISO certification. A worldwide manufacturer of measuring and control devices for the wire, cable and hose markets, Sikora continually aims to satisfy the international industry requirement for first-rate quality management systems.

Since 1993, Sikora has been certified according to DIN EN ISO 9001 and practices outstanding quality management. The company management is committed to the principles of the program and the primary responsibility for daily oversight belongs to the quality control manager, Mr Ulrich Gwinner.

For 14 years, Mr Gwinner has controlled and managed the quality system - with notable success. "With the improvement of our operational sequences we meet legal demands and simultaneously aim at a systematic increase of customer satisfaction," says Mr Gwinner.

Mr Gwinner continuously analyzes the business processes in the different departments of the company in cooperation with the company management and employees.

Through the use of statistical analysis and operational measurements, the potential sources of defects can be identified. With the ISO 9001 certification Sikora confirms to its customers that workflow is subject to clear rules and is constantly monitored.

For the continuous improvement of quality, internal and external employee training is provided numerous times during the year. Of great importance is the company's cooperation activity with machine manufacturers and customers in the various markets to address worldwide performance requirements.

To achieve these aims, the company has undertaken long lasting investment in recent years, with effective delivery and proven quality. With more than 150 employees worldwide, Sikora generated a consolidated turnover of €27mn in 2007.

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

#### **Equipment investment for IGM Trade**

IGM Trade, Macedonia, has recently announced investment in equipment including an additional five lines for pipe and profiles, two slitting lines, a pipe production line (630mm), a galvanizing plant, two cold rolling and slitting lines, and a line for pressure testing and plain ends.

Established in 1992, the company is a quality manufacturer of steel products with an annual production of 120,000t. IGM Trade undertakes continual machinery investment.

IGM Trade produces cold formed hollow section and profiles, and undertakes cutting of steel sheets and strips from hot and cold rolled coils.

With ISO 9001 certification, 90 per cent of the company's products are exported to the EU and Balkans.

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#### ITA delivers on ambitious 2007 technical programme

International Tube Association celebrated an incredible year in 2007 with an extensive programme of technical conferences, with no less than four technical events either organised or co-organised by the ITA. Every two years the ITA holds a major international conference with past events taking place in such illustrious

venues as Prague, Veracruz (Mexico), Bilbao, Toronto, Goa and Beijing.

The first event, co-organised with the Roll Forming Research Committee of the Japan Society for Technology of Plasticity, attracted 180 participants to Nagoya University, Japan in June.

Tube Ukraine 2007, the ITA's major conference of the year, was held at the Palace of Culture Metallurgists in Dnepropetrovsk, Ukraine



In late August 2007 another joint event, Pipe & Tube Houston 07, took place in Houston, Texas with 117 delegates. This unique collaboration - between the ITA and the American Tube based Pipe Association International (TPA) - was reportedly the best conference ever held by the ITA in North America.

ITA's major technical event of

2007 was held in September at the Palace of Culture Metallurgists in the industrial city of Dnepropetrovsk, Ukraine. Titled Tube Ukraine International 2007, the conference attracted a total of 69 papers which were presented in two conference rooms over two days.

Joint organiser of Tube Ukraine International - which attracted 230 delegates - was the Ukrainian tube association, Ukrtruboprom. Complementing the conference were 24 tabletop exhibits, highly informative plant tours and a wonderful social event for all participants. Amongst event sponsors were major tube companies Centravis (formerly UVIS) and Interpipe.

The non-ferrous sector was not forgotten in the ITA's 2007 technical programme, with a conference taking place during the new wire/Tube Southeast Asia exhibition in October. Titled Non Ferrous Bangkok, eleven speakers presented thirteen papers to an audience of around fifty delegates.

International Tube Association - UK

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#### SSC Laser Cutting opens new branch

SSC Laser Cutting, UK, is due to open its first sales branch in February. SSC North East, located in Sunderland, acts as a base for the region, giving the company a stronger presence in the area and extending its coverage across the UK.

The northeast branch will initially be a sales division supported by the manufacturing facility at SSC HQ in Staffordshire. The company plans to install machinery at the northeast site as it progresses, giving the branch its own manufacturing capability.

UK sales director Andy Evans (right) welcomes Colin Hewitt, area sales manager north (left) to the company



The introduction of the northeast division represents the first step in a long-term expansion project developed by the company.

SSC Laser Cutting is a subcontract laser cutting company specialising in flat bed, tube and box section laser cutting on a range of materials including mild steel, stainless steel and aluminium. SSC also provides an in-house CAD service and has press braking and laser quality control scanning facilities.

The company produces components for a wide range of industries including yellow goods, automotive, construction and engineering. Its work ranges from producing small-scale products for individuals and small businesses to acting as a regular supplier to well-established, international organisations.

SSC Laser Cutting – UK Fax: +44 1889 270 242

Email: sales@steelservicecentre.co.uk Website: www.ssclaser.co.uk

#### Novomoskovsk report rapid return on new technology

Leading Ukranian API pipe producers, JSC Novomoskovsk, has reported success from using Thermatool technology. During a plant tour of the Novomoskovsk pipe plant, which took place during last year's Tube Ukraine conference, visitors observed the Thermatool welding technology at work.

Delegates witnessed the impressive results of parent-company Interpipe's major capital investment plan to update its existing API mill. Part of the investment program, Thermatool's CFI 1200kW solidstate HF welder has helped extend API pipe production capability to Ø 530mm (20"), and has substantially reduced costs.

In addition, a new Thermatool VIP 1200kW seam annealing system (induction) has given a rapid payback period, due to a reduction in natural gas consumption.

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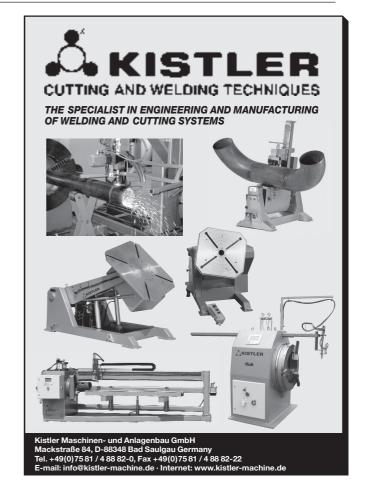
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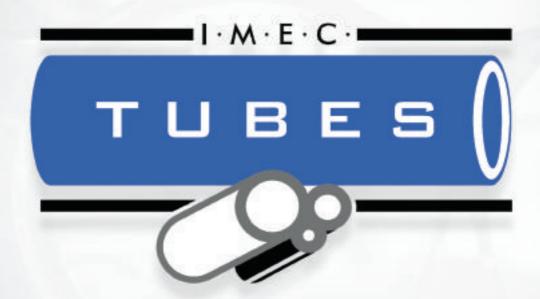
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#### Battenfeld aims for relaunch with insolvency proceedings

Battenfeld Kunststoffmaschinen GmbH, an Austrian manufacturer of plastic injection moulding machines and factory automation machines, has submitted a request to open insolvency proceedings at the regional court in Wiener Neustadt, near Vlenna.

This step has become necessary because the recent change in ownership has endangered the existence of the company.

The move comes as a result of several takeovers and a lack of investment. Once long-term owners SMS Group had pulled out of the plastics technology business, the Battenfeld plant in Meinerzhagen was closed in late 2005.

Adcuram Group AG, an investor group based in Munich, took over the location in Kottingbrunn with 14 worldwide sales and service companies and a sales and service company in Germany.

However, the Adcuram Group AG was not able to consolidate and concentrate production successfully in Kottingbrunn. In

August 2007 the service and spare parts business was spun off as the Battenfeld Kunststoffmaschinen Service GmbH, which even after the sale of Kunststoffmaschinen GmbH is still owned by the Adcuram Group.

The new owner of Battenfeld Kunststoffmaschinen GmbH was OOD Private Equity Ltd, UK, which has so far issued no statement regarding the future of the company. An injection of equity capital, which had been needed for some time, had not been provided by either the former or the present owner. The management has therefore considered itself obliged to take action.

The company's management is making every effort to assist the liquidator appointed by the court in ensuring that the proceedings are dealt with quickly. The company hopes to relaunch on a solid basis, possibly with new investors.

The decisive factors for relaunch will be the success in regaining control over the service

and spare parts service and reducing the production costs by concentrating on the main product areas.

In the short term, the company has reassured that its product porfolio, customers and 630 employees can all continue as normal. Battenfeld's order books are completely full for the next 3 months, and all sales orders will be fulfilled as agreed. The company's preliminary turnover for 2007 is approximately €85mn.

#### Battenfeld Kunststoffmaschinen GmbH

Germany

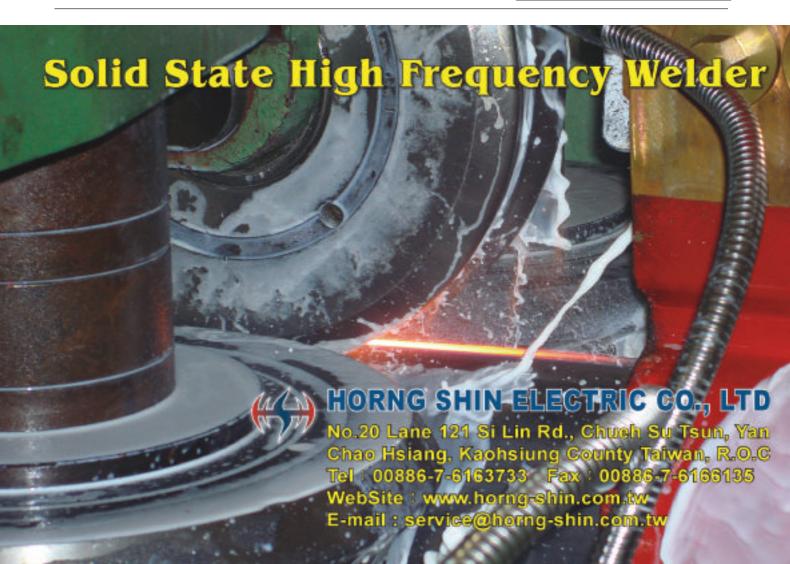
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#### Tube Russia: five years of success

Now a mainstay in the tube exhibition calendar, Tube Russia will take place this year from 27-30 May at the Krasnaya Presnya Expocentr in Moscow. The successful event will be held alongside regular partner-shows Metallurgy-Litmash and Aluminium/Non-Ferrous 2008, and new tool machinery fair Metalloobrabotka.

Since the inaugural event in 2003, Tube Russia has grown into a leading international business and technology platform for the foundry, metallurgy, aluminium and tube industries in the Russian Federation. National pavilions from Germany, Austria and Italy will be represented with joint stands at Metallurgy-Litmash, Tube Russia, and Aluminium/Non-Ferrous 2008.

The event is co-organised by Messe long-term Russian Düsseldorf and partner Metal-Expo. Sponsors include the International Tube Association (ITA), and the German Machinery and Plant Manufacturers Association (VDMA).

Moscow – at the heart of the Russian tube and pipe industry





An exhibition hall plan of Tube Russia 2008

The Krasnaya Presnya venue is one of the most modern locations for trade fairs in the entire CIS. With an exhibition area of 55,000m2, the Expocentr has seven halls and attractive open-air facilities located in grounds of 20 hectares.

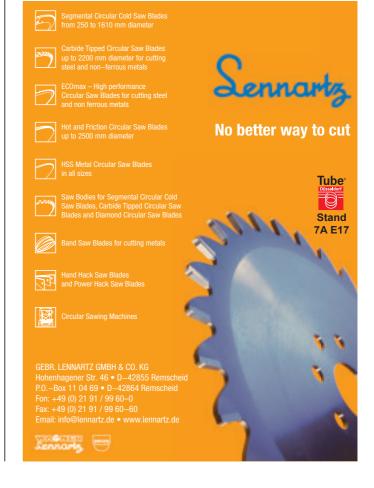
In its fifth year, Tube Russia will again provide the ideal opportunity for exhibitors and visitors to catch up on the fast-paced business in the region.

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#### New valve factory open for business

AVK UK has moved to a new, purpose-built valve manufacturing facility in Staveley, Chesterfield, UK. The 70,000ft² factory incorporates the latest energy-saving technology and a layout tried and tested at similar AVK Group plants in Poland, Australia and China.

As well as continuing to receive products that meet (and often exceed) British, national and international standards, customers can expect improved supply

The ribbon-cutting ceremony with AVK Holdings chief executive officer Mr Niels Kjaer (far left), AVK UK Group chairman Mr Paul Hubbard (second left), and Mr Bryan Sims, managing director of Bryan Donkin Valves (far right)



chain support and immediately accessible technical information, in person or from the new AVK UK website.

Staveley assembles, tests and finishes components manufactured by other AVK Group companies - pressure-tight valve bodies from AVK Polska, other structural parts from AVK Valves (Anhui) in China, and rubber seals from AVK Gummi in Denmark.

The plant's four parallel production cells have the capacity to produce hundreds of valve type and size variants. The facilities are manned by a highly trained, versatile workforce that can easily move from job-tojob and cell-to-cell.

Before receiving a final paint finish, every completed valve is tested for internal and external pressure-tightness, complementing earlier rigorous inspection of each part during its own manufacturing cycle.

AVK UK Ltd - UK Fax: +44 1604 604818

Email: fitzpatrick.k@avkuk.co.uk Website: www.avkuk.co.uk

#### International subsidiary for Mexico's Tubería Laguna

Tubería Laguna SA de CV, Mexico, a manufacturer of ERW carbon steel pipe, has recently opened its first foreign subsidiary, Laguna Tubular Products. Located in the Houston area of the US, this new facility will distribute all Tubería Laguna products.

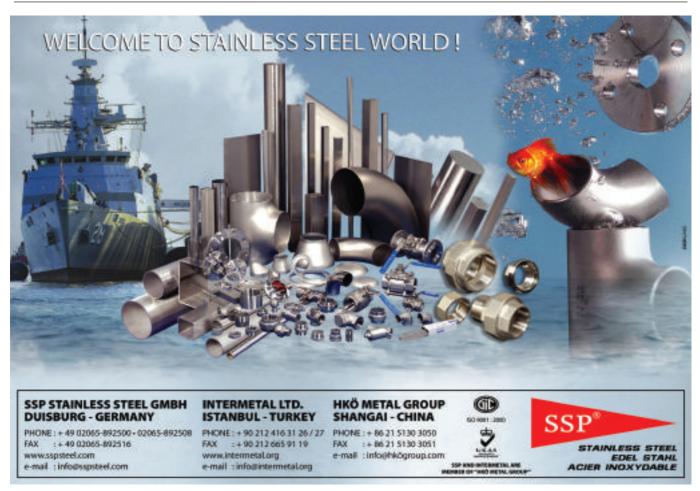
Tubería Laguna plays a key role in Mexico's energy sector. It has supplied the most important ERW pipeline projects for Petroleos Mexicanos (Pemex), including sour gas line pipe. The company is also an Associate Member of the Technical Program of PRCI (Pipeline Research Council International Inc) in the United States.

The company's range includes carbon steel line pipe, OCTG casing and tubing, bridge slot and mill slot casing, and pipe column. The company also offers a FBE and 3-layer pipe coating service. Tubería Laguna has recently achieved API-5CT certification.

Tubería Laguna SA de CV – Mexico

Fax: +52 871 750 1851

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26



Large Diameter SAW Pipe Manufacturing Systems Non Destructive (NDT) Pipe Testing Equipment ERW Pipe Finishing Machinery Coating and Lining Systems









#### Technip and Wieland sign agreement to market heat exchangers

Technip, France, has entered into an agreement with Wieland, Germany, to market innovative enhanced heat transfer solutions for liquefied natural gas (LNG) and ethylene plants.

Developed jointly by Technip and Wieland, these solutions provide improved energy efficiency through an increase in production capacity, a decrease in energy consumption and reduced CO2 emissions.

Their primary application will be large shell and tube heat exchangers for Technip and third party projects. The agreement follows more than 10 years of collaboration to develop Wieland GEWA enhanced tubes for this type of application. The initial idea has grown into a fully industrialized concept with more than 50 state-of-the-art enhanced shell and tube heat exchangers manufactured to date.

This long term collaborative effort has been partially supported by EU funded research and development programs. Both companies also worked with field references

in the petrochemical and LNG industries. As a result, Technip/Wieland heat exchangers have become standard equipment in large capacity LNG and ethylene plants.

As part of the agreement, Technip and Wieland will further provide new solutions Technip's equipment design knowledge and Wieland's expertise in enhanced heat transfer tube technologies.

Technip is a leader in the field of oil, gas and petrochemical engineering, construction and services. The Wieland Group is one of the world's leading manufacturers of semifinished and special products in copper and copper alloys.

**Technip** – France Fax: +33 1 47 78 33 40 Email: lbricq@technip.com Website: www.technip.com

Wieland Group - Germany Fax: +49 731 944 2772 Email: karin.maier@wieland.de Website: www.wieland.com

#### MSA and Allport form Indian JV for pipeline valves

MSA as, Czech Republic, has entered into an agreement with Allport International Pvt Ltd, India, to establish an Indian joint venture - MSA Allport Pvt Ltd. MSA is a European producer of industrial valves integrated within the ChTPZ-KTS company, part of the ChTPZ Group.

MSA and Allport will own the new enterprise in equal shares, and the MSA Allport Pvt Ltd management board will comprise one representative from each company. The activities of the new enterprise will be primarily aimed at carrying out export and import operations on the market of valves and pipe, forgings, castings, and production of different valves and pipe components.

Establishing the new joint venture will allow MSA to reduce product costs due to reduced expenses on input materials and production, and it will considerably increase product competitiveness. Reduction of order delivery period and cost of product transportation to the Asian Region will be a further competitive advantage of MSA Allport Pvt Ltd.



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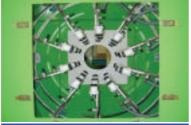
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Commenting on the agreement, Mr Vladimir Khristenko, MSA's supervisory board chairman, noted: "Participation in the joint venture allows us to enter the Asian market, with MSA contributing experience, technology and a trademark known to consumers.

> Part of the ChTPZ Group, MSA is an advanced and modern manufacturer of industrial valves, such as ball, gate, globe, swing check, and special valves for the nuclear power sector. Allport International Pvt Ltd specializes in the purchase, sale, marketing and servicing in such areas as oil, natural gas and petrochemistry.

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Allport International Pvt Ltd - India

Fax: +91 11 26181491

Website: www.allportinternational.com

#### Joint venture established between Linde Group and UAE oil company ADNOC

The Linde Group has set up a joint venture with The Abu Dhabi National Oil Corporation (ADNOC), United Arab Emirates, for the production and long-term supply of industrial gases to customers in Abu Dhabi.

ADNOC Linde Industrial Gases Company Ltd is established under the name 'Elixier' and will have ADNOC (51 per cent of the shares) and Linde (49 percent of the shares) as shareholders.

"ADNOC has access to around 90 per cent of Abu Dhabi's oil and gas reserves, which are considered to be the fourth largest oil and gas reserves in the world," said Dr Aldo Belloni, a member of Linde's executive board.

The first phase of the new Elixier joint venture will be the construction of a US\$65 million air separation plant in the industrial zone of Ruwais, Abu Dhabi. The new air separation plant will supply nitrogen from the end of 2009 to industrial customers in Ruwais and will also produce liquefied nitrogen and oxygen.

ADNOC is also the majority shareholder in the joint venture company Borouge, which produces polyethylene in Ruwais.

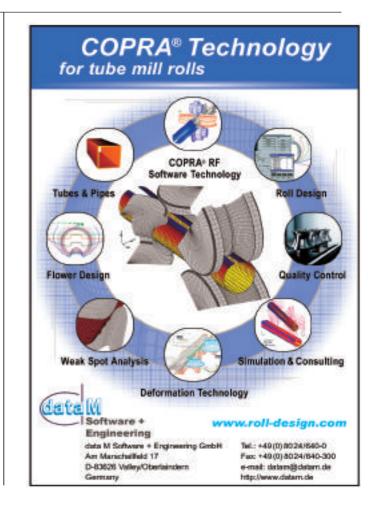
In November 2006, when Borouge was seeking to expand its production facilities, Linde was awarded a major contract to build one of the largest ethylene crackers in the world, with a production capacity of 1,500,000 tons of ethylene per annum.

The huge natural gas reserves in the UAE are being exploited by ADNOC both on and off shore. In addition to export as liquefied natural gas (LNG), they are also being used to meet local energy requirements.

The Linde Group is a world-leading gases and engineering company with around 50,000 employees working in more than 70 countries worldwide.

The Linde Group – Germany Fax: +49 611 770 269 Email: info@linde.com Website: www.linde.com









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### Event News in Brief...



Dedicated to the aluminium and foundry industry, **Metef-Foundeq 2008** (www.metef.com) will be held from 9-12 April 2008, in Montichiari (Brescia), Italy. With 20,000 visitors expected, this year's show will include an area dedicated to

finishing and a non-competitive show for castings and extrusions.



Plastics in Underground Pipes 2008 is a new international conference that will deal with the use of thermoplastic and thermoset materials in buried pipe. Organised by AMI LLS, the event will take place from 22-23 May 2008 at the Westin Galleria hotel in Houston, Texas, USA. Topics will include

pipe installation methods, sewage pipe systems, natural gas pipe, trenchless technology, and the latest advances in polymer materials.



**EMO Hannover 2007** (www.emo-hannover.de) concluded with a very successful six-day show at the tail end of last year. Exhibitors, visitors and organisers confirmed a very busy show with more exhibitors and visitors from a higher number of countries. The next EMO will take place from 5-

10 October 2009 in Milan, Italy.



**PaintExpo** (www.paintexpo.de), a trade fair for industrial coatings technology, will welcome more than 270 exhibitors for its 2<sup>nd</sup> staging. Taking place at the Karlsruhe exhibition centre in Germany, the event will be held from 11-14 March 2008. Covering nearly 80,000ft<sup>2</sup> of net floor space, the

exhibition will highlight liquid painting, powder coating and coil coating.



The Shanghai Tube Expo 2008 (www.gangguan-expo.com) will be held from 10-12 April 2008 at the Shanghai International Exhibition Centre (INTEX Shanghai). The event – organised by the Shanghai Shenshi Convention & exhibition Service Co td – will have a total exhibition

area of over 30,000m<sup>2</sup> and attract more than 600 exhibitors from all around the world. The last show attracted over 400 exhibitors in an exhibit area of 25,000m<sup>2</sup>.



**PS Vietnam 2008** (www.hiecc.com), the international exhibition for fluid, air and gas handling systems, took place from 27-29 February 2008. The 6<sup>th</sup> event of its kind, the show hosted over 100 companies and enabled companies to gain a foothold in the Vietnamese market. PS Vietnam

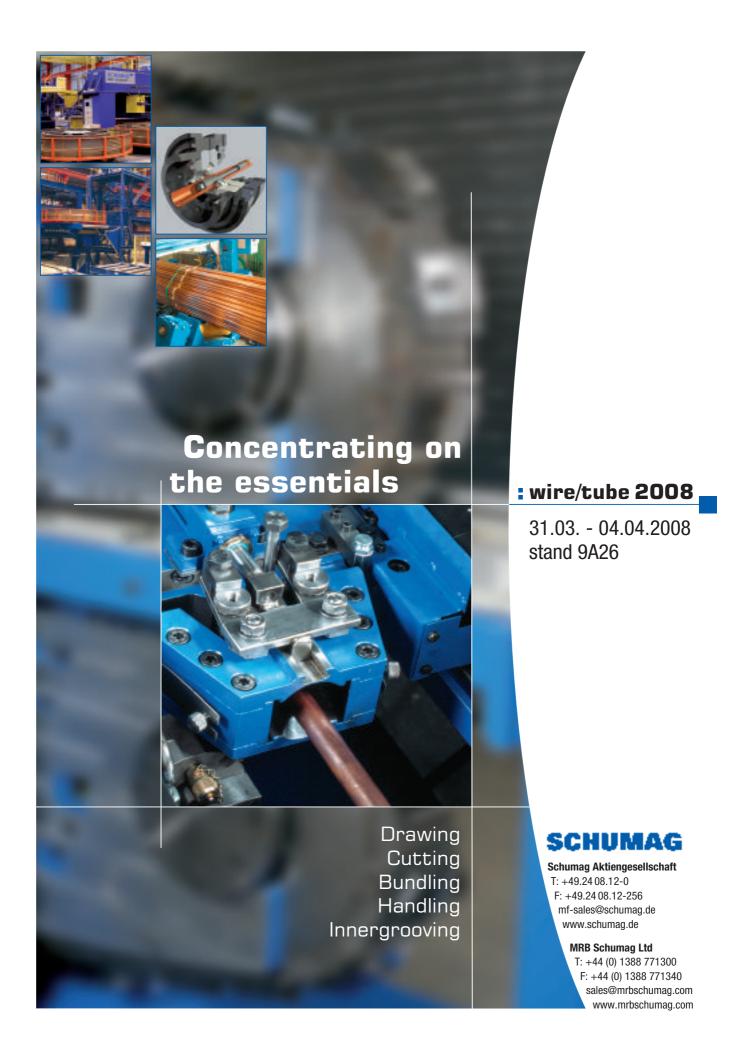
includes sub-shows including Pumps & Systems Vietnam, Valves & Piping Vietnam, Compressors & Systems Vietnam, Fluid Power Vietnam and Control & Instrumentation Vietnam.



The Japan International Welding Show (www. weldingshow.jp) will host the very latest in welding technology from 9-12 April 2008 at the Intex Osaka venue in Osaka, Japan. Organised by the Japan Welding Engineering Society and Sanpo Publications Inc, it will

be the 20th time that the event has taken place. This year's show will focus on achieving great success in the gateway of Asia.

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#### **Business News in Brief...**



Pines Technology (www. pinestechnology.com), USA, has won an order worth over US\$10m to supply tube-bending machinery to

Bharat Heavy Electricals Ltd (BHEL). The company's largest order to date, it involves fourteen Pines CNC 150 and 250 machines used to bend tube and pipe up to Ø 10". The deal was secured in conjunction with the company's Indian partner, MACO, with deliveries due to start in March 2008.



Interpipe (www.interpipe.biz), Ukraine, has commenced the upgrade of its finishing lines at the Interpipe Niko Tube facility. The existing finishing

lines will be replaced with two higher productivity lines equipped with state-ofthe-art NDT units. The first line is scheduled to launch in October 2008, the second one in December 2008. Equipment suppliers selected for the project include Linsinger, Reika, Foerster and Prestar.



International The Tube Association (ITA) has updated its image for 2008 with a new logo, change of design for its ITAN newsletter

and a revamped website. The new logo has been introduced to ensure more impact and project the ITA's image more clearly. The redesigned website - www.itatube.org - has a fresher look and will offer more valuable information with improved navigation.



Sikora. Germany, launched its new website to place special emphasis on a unique corporate design and brand recognition. The

website - www.sikora.com - showcases the company's innovative measuring and control devices for the cable, plastics and tubing sector. The website contains new features such as product videos, a newsletter and an ROI calculator.



Roll-Kraft (www.roll-kraft. com), USA, has installed the latest CNC vertical machining centre in its factory in Mentor, Ohio. More new machinery

is planned at Roll-Kraft for 2008 as the company continually updates the standard of technology on the shop floor.



Salzgitter (www.salzgitter-Corus (www. ag.de) and corusgroup.com) will cooperate in joint product development in the area of metallic coatings

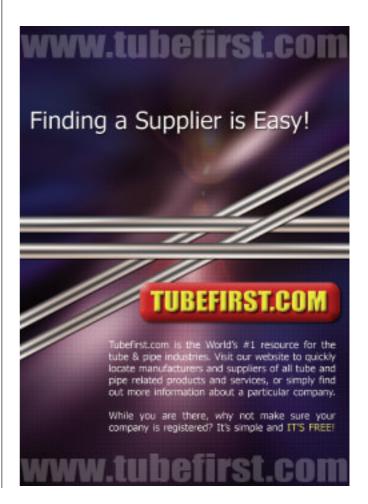
with outstanding corrosion performance. Both companies will share complementary R&D expertise to develop these products.



Kinkelder (www.kinkelder. com), the Netherlands, has created a new customer support program to serve the increasing demand from

tube manufacturing companies for more technical support and higher productivity. This program includes technical training, consulting, and analysis.





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- ⇒ high ROI and short investment recovery period





## **TECHNOLOGY** UPDATE

#### Avoid bending guesswork with 3D programming software

BLM Group has developed 3D graphical programming software that removes the guesswork from tube bending by automatically selecting the correct working parameters to optimise component cycle times. Designed for ease of use, the company's tube bending machines are equipped with a PC-based control (or a Siemens 840DI CNC), and operate using VGP3D software.

VGP3D software is installed as standard on machines such as the all-electric E-Turn right and left hand tube bender. On these machines it automatically selects the bending program parameters that will optimise cycle times while deskilling the setting process.

The minimum control system requirement is a PC with 15" touch screen monitor running the Microsoft Windows operating system, a Pentium 111 processor with 256MB RAM, and an 18GB hard disk for program storage, part details and tool library. Inputting the bend coordinates of a component can be done either at the machine or, via an Ethernet network, from a remote PC.

It is possible to create a part program in VGP3D by entering either XYZ (where X=distance between bends, Y=bend angle and Z=tube rotation/orientation) or Cartesian UVW coordinates. The shortest and most efficient bending cycle is displayed simultaneously on the screen in real-time. This will highlight possible collision risks



O BLM Group's VGP3D software automatically selects the tube bending program parameters to optimise cycle times

and any interference of the bent tube with the machine.

If such a risk is identified, an alternative strategy is proposed on screen (with the new cycle time shown in real time), and can be accepted by the operator with a 'soft touch' on the screen. This collision avoidance route eliminates any likelihood of expensive machine downtime, tool damage and material wastage. Alternatively, the operator can opt to amend the bending program manually, with all data input and selection performed on the touch screen.

Any change to the bending program is initiated by 'dragging and dropping' an icon into the desired position on the screen. This is a simple, visual and intuitive method that makes editing of even complex programs - such as multi-stack bending with bendon-bend, multi-radii, variable radius and left-/right-hand bending - easy, quick and safe.

Oreating a tube bending program is fast and easy with the 3D graphical programming facility provided by VGP3D software



#### Installation of high volume basketless heat treatment system

Can-Eng Furnaces, a designer and manufacturer of industrial heat treating equipment, has installed and commissioned a high volume T-5 basketless heat treatment system (BHTS) for an automobile manufacturer located in the south-eastern United States. The BHTS provides the engine manufacturer with a significant reduction in energy consumption and floor space requirements over conventional roller hearth or batch heat treatment systems.



The basketless heat treatment system from Can-Eng

Can-Eng's incorporates a material handling system that provides for single piece product flow, transferring components through the system without the use of baskets, carriers or trays. WIP inventories are reduced, while the material handling system also provides quality improvements through its individual part handling capability. Product cycle times are also reduced.

system integrates transfer conveyors, robotic automation, aging furnace, post processing cooling, part

identification and a user-friendly advanced control package, to deliver a state-of-the-art cellular processing system.

Other Can-Eng products include T4, T5, T6 and T7 heat treatment systems, modular aluminium heat treating systems, precision air quench systems, primary aluminium processing furnace systems, SCADA systems, process enhancement technology (PET™), continuous steel bar heat treatment systems, continuous mesh belt furnace systems, and a wide range of custom furnace solutions. The company also offers a comprehensive after-market support team delivering system upgrades, technical support and replacement parts.

Can-Eng Furnaces Ltd - Canada

Fax: +1 905 356 1817

Email: furnaces@can-eng.com • Website: www.can-eng.com

#### **TECHNOLOGY UPDATE**



The VGP3D software checks for 'real part feasibility' by creating an environment on screen that takes account of the 'actual' conditions on the nominated CNC tube bender to calculate a cycle time based on the use of virtual tooling.

This feasibility check gives an immediate cost and time saving, because there is no need to design, produce and adjust prototype tooling. It also provides the necessary reassurance without physically running the machine, with the pre-production calculation of the real time cycle time ensuring accurate component costing for quotation purposes.

Even when different tube bending machines are used, there is no need for bend trials, because the software takes account of the allocated machine's 3D dimensions and characteristics when compiling the most efficient bending cycle. Completed bend programs can be saved according to specific search keys, while productionrelated data can be used to monitor machine performance in terms of downtime, set-up time and maintenance requirements.

The VGP3D software caters for all the main tube sections - round, square, rectangular, oval, elliptic and flat-oval - with automatic calculation of tube length. For example, it enables complex tube components to be completed in one cycle on the 12 axes of the E-Turn. This allows the multi-tool stack tube machine to perform, in automatic cycle, a combination of left and right hand bends, conventional (drawn) and variable radius (push) bends, multi-radius bends, tight radius bends, and compound bends (ie with little or no straight between bend).

With all the axis movements set automatically, job changeover can be completed in two to three minutes, which means that short batch work can be managed as efficiently as high volume work. As a further safety check, when a new bend program is selected the E-Turn automatically runs its 'safeguard' cycle. This reduces all speeds and pressures to 20 per cent, to eliminate possible collision damage that might result from inadvertent setting or tooling errors.

**BLM Group UK Ltd** – UK Fax: +44 1525 402 312 Email: sales@blmgroup.uk.com

Website: www.blmgroup.uk.com

BLM SpA - Italy Fax: +39 031 715911 Email: export@blm.it Website: www.blmgroup.com

#### Latest generation spiral pipe mills and related equipment

PRD-Cagil, USA, has commissioned a state-of-the-art offline upgradeable spiral pipe manufacturing facility for Gregorian International, Venezuela. The mill is set for API rated pipe manufacturing and equipped with a PRD-Cagil FRS 5001 series new generation forming unit.

The system will start in an online production capacity but will be upgraded to offline in the future. In addition to the SWP mill, the company has also supplied a hydrostatic pipe tester, end beveling machines, X-ray units and a material handling system.

PRD-Cagil has also supplied a new generation mill to Ameron International, a leading US pipe manufacturer. This SWP machine has PRD-Cagil's latest (3rd generation) metal joiner, which is equipped with an edge milling machine that reduces coil end joining time to 15 minutes.

The SWP machine is equipped with aFRS 5001 series new generation forming unit that will produce pipe 24-144" in diameter, 6-18m in length and wall thickness up to 25mm. Ameron also ordered an edge milling machine and a new forming unit under their upgrade plan. The EMM will be integrated into one of Ameron's previously ordered PRD SWP mills. The new forming unit will replace the forming unit of an old SWP mill.

PRD-Cagil has also supplied an offline upgradeable SWP machine (with double



• PRD supply state-of-the-art spiral pipe mills and other machinery

main drive) to Erciyas Pipe, Turkey. This SWP machine - which uses 360t of forming force at the new generation forming unit - is designed to serve products with an X100 grade of steel. The SWP machine has an uncoiler with pre-tensioning system that eliminates springback for coils with X80 grade or more.

Trinity. USA, has also taken delivery of a new SWP mill. This mill will produce pipe from 16-120" in diameter, 6-16m in length and up to 25mm wall thickness.

PRD-Cagil now supplies new process reporting software for its SWP mills. This software enables the users to monitor online process data as well as the actual process for a certain period.

Pacific Roller Die Company Inc - USA Fax: +1 510 887 5639 Email: prdsales@prdcompany.com Website: www.prdcompany.com

#### State-of-the-art 25" ERW tube mill line

A complete 25" ERW tube mill line is currently being manufactured by Nakata Mfg Co Ltd, Japan, and is due for delivery to a leading pipe manufacturer in Russia. Nakata, as the sole creator of this facility, is devoted to reaching its targeted start-up date of 2009, from the entry section to finishing/testing section.

The facility is designed for a manufacturing tube mill for API application (API 5L X80) which requires the highest quality. In addition, this facility has an FFX mill system as its core element in combination with a roll box system (common-use roll shaping machine for hollow sections), and an RFS cutter (a tip saw type flying cut-off machine). It will be a state-of-the-art tube mill facility for both round and square pipes utilizing cutting-edge technologies.

Both the FFX mill for a tube/pipe mill and the RFS flying cut-off machine are highlyvalued due to their stable performance, which results in a quick start-up. This leads to a rapid increase of mill line projects - not only for the introduction of new facilities but replacing existing ones as well.

Nakata Mfg Co Ltd - Japan Fax: +81 6 6303 1905

Email: t-naka@nakata-mfg.co.jp • Website: www.nakata-mfg.co.jp



#### Indirect gas fired roller hearth furnace for bright annealing

Halcor SA, Greece, has ordered an Otto Junker indirect gas fired roller hearth furnace for bright annealing 3,250kg/h of level wound coil DHP copper tube. The company, a producer of copper products according to international standards, will make use of the new equipment at its copper tube production plant in Inofyta.

The new Otto Junker roller hearth furnace will be designed for the purpose of bright annealing copper tube in the form of level wound coils and pancake coils. The level wound coils are individually loaded onto trays that are then transported into a stacking device which automatically stacks the trays - up to a maximum of 5 trays per stack.

Following the stacking procedure, the ends of the individual coils are connected to the atmosphere distribution system of the Otto Junker Copper Tube Purging system (CTP system). The stack is then transported to the furnace line via a cross conveyor. On the entry table the coils are automatically purged with protective atmosphere (N2 + H2).

Working on a continuous step basis, the stacks are transported by rollers from one stationary position to the next. After a preset cycle time has elapsed the stack is driven into the vacuum chamber where a vacuum is created. The chamber is then refilled with the process protective atmosphere. The stack is then advanced into the entry vestibule where it remains for one cycle before going into the furnace.

The high convection furnace is indirectly heated under protective atmosphere. The complete line - from entry vestibule to the end of the cooling zone - remains under protective atmosphere 100 per cent of the time. The stack of coils moves through the furnace on a continuous step basis during which time the coils are automatically purged by the Otto Junker CTP system. This removes any lubricant from the bores of the tube as it vaporizes, thus assisting in the production of 'Super Clean' tube.

At the end of the heating-up phase the stack is passed into the cooling section where the



The entry end of an indirect gas fired roller hearth

material temperature is reduced to a level at which the copper will not oxidise when it comes into contact with air. The stack is then discharged from the line via the exit vacuum chamber.

The stack is transported to the destacking device and the coils are removed from the separated trays. The complete materials handling system is included for the conveying, stacking and destacking of work trays.

Otto Junker GmbH - Germany Fax: +49 2473 601 697 Email: mtg@otto-junker.de Website: www.otto-junker-group.de



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#### Indian JV for precision ERW steel tubes

Launched in August 2007, ANS Steel Tubes Ltd is a manufacturer of precision ERW steel tubes. The company began as a result of a joint venture between Neel Metals Products Ltd (India), Sumitomo Corp (Japan) and Nisshin Steels Ltd (Japan).

Neel Metal Products Ltd - part of the JBM group and a leading auto components and assemblies manufacturer - has already been in the tube business since 2004. Sumitomo Corp is a major steel producer in Japan and Nisshin is a leading Japanese tube manufacturer with a presence worldwide.

ANS Steel Tubes Ltd, located near New Delhi, manufactures steel tubes for automotive and engineering applications. With a capacity of 30,000mt/annum, the company is specialized in tubes manufactured from stainless steel, aluminised steel, medium carbon and high tensile grades. Supplying a number of auto OEMs, the company's tubes are used for applications such as exhaust systems, frame tubes, axle tubes, and door impact beams.

The company's size range – produced on two mill lines – is Ø 12-85mm, with a maximum thickness of 4mm. ANS claims to operate tube cutting facilities that are unique to India.

Neel Metal Products Ltd operates a manufacturing facility for ERW and cold drawn welded tubes with an installed capacity of 25,000mt/annum. The size range is Ø 10-60mm with a maximum thickness of 5mm. These tubes are used for shock absorbers, propeller shafts, tie rods, steering columns, frame tubes and boiler tubes. Neel Metals Ltd also manufactures subassemblies and tubular components for auto applications like mufflers, steering columns, and frame sub assemblies.

ANS Steel tubes Ltd - India

Fax: +91 124 4067012 • Email: hyamaguchi@jbm.co.in

Neel Metal Products Ltd - India

Fax: +91 124 2370987

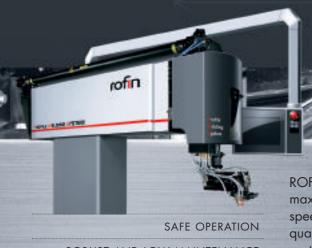
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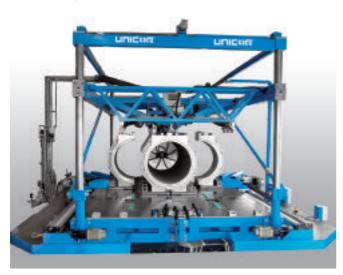
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#### Latest 1,800mm pipe corrugator receives launch

Unicor, Germany, a manufacturer of production lines for corrugated pipes (corrugators), has launched the new UC 1800 corrugator. The machine has been developed for the production of drainage, storm water and sewer pipes up to a diameter of 1,800mm OD.

Machine technology includes the new handling system for positioning the big mould blocks to the millimetre. UC 1800 supports both metric and imperial systems, with vario technology available for large-sized corrugators.



This enables it to use mould blocks different from manufacturers and in different lengths, well as existing tooling of the same diameter. UC 1800 parking station technology for in-line cuff production is also available.

The company has also revealed its new

C The new UC 1800





(Top) the maximum outer diameter is 1,800mm, and (above) the die head

> remote maintenance system, available as an option for the UC 1800.

With this tool, Unicor's service engineers can resolve problems by examining the machine control by internet connection, reducing downtime to a minimum.

**Unicor GmbH** – Germany Fax: +49 9521 956-9121 Website: www.unicor.com

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#### Custom tooling for metal cutting applications

Nap Gladu, USA, is a leading provider to the tooling industry for custom tooling and service for the metal, wood and plastic industries. With over 65 years experience, the company claims to be the largest servicing network in North America with 15 service centres.

Nap Gladu's broad range of product offering will assist in all metal cutting applications such as sawing (plate, tubing, extrusions, bars, billets, rails, structural members), milling, turning, drilling, boring, grooving and threading.

Nap Gladu provide a range of custom tooling for cutting applications



The Nap product offering includes metalworking saw blades, diamond tooling, insert tooling, knife heads and router bits. The Gladu range includes diamond tooling, insert tooling, sawblades and huggers, drill and router bits, and knives/parts.

Nap Gladu's experienced engineering and technical team continues to be on the cutting edge of technology using state-ofthe-art equipment to produce sophisticated tooling.

Nap Gladu - USA Fax: +1 800 457 7458

Email: hmundy@napgladu.com Website: www.napgladu.com

#### Seamless precision tube for automotive fuel system

Zhangjiagang Shengdingyuan Pipe-Making Co Ltd, China, is a professional mill for fabricating cold drawn/cold rolled seamless precision carbon steel tube. The company covers more than 8.000m<sup>2</sup> of manufacturing area with a production output up to 5,000t per year.

manufactured ΑII products are accordance with standards DIN2391 and EN10305. Steel tube is provided with high precision and brightness.

Because the company uses the process of bright heat treatment, the inner and outer tube walls have high cleanliness without an oxidized surface. The tube has excellent mechanical properties, resulting in no leakage under high pressure, no deformation after cooling and no seam after flaring and pressing in different applications.

The products are used for making automobile parts such as fuel piping and power steering piping.

Zhangjiagang Shengdingyuan Pipe-Making Co Ltd - China

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# On course for success: PQF® technology

SMS Meer, Germany, has announced that its PQF® (premium quality finishing) technology will soon be in operation in 10 plants worldwide. Setting new standards, the development marks an innovative leap in the production of seamless tubes.

The typical tunnel design of the first generation of POF® mills



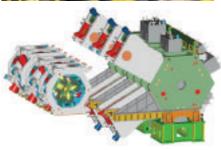


The new process is essentially based on technology employing three hydraulically adjustable rolls. The process was first implemented at the Tianjin Pipe Corp works in China in 2003. Operation in practice soon revealed the advantages of PQF® technology, including seamless tube production with lower material and energy consumption.

The technology provides new possibilities for the rolling of tubes with higher material grades and a wider range of sizes than is possible using conventional methods. Use of the PQF® technology enables users to significantly boost their competitiveness, as well as drastically reduce emissions. As a result, PQF® has established itself as the leading technology for the production of seamless tubes.

To date, SMS Meer has already commissioned (or is in the process of building or planning), ten mills employing PQF® technology. The maximum product size ranges from 65/8" to 18". Around 2 million tonnes of PQF® tubes have already been produced between 2003 and 2007. In 2008 the output of PQF® tubes is expected to reach 4 million tonnes.





The modular design of the new generation

The second generation of PQF® technology has been successfully commissioned, resulting in the new modular PQF® mill. The focus here was on optimising the ease of operation and maintenance, as well as further enhancing the wall thickness precision of the finished seamless tube.

SMS Meer – Germany Fax: +49 2161 350 1862 Email: info@sms-meer.com Website: www.sms-meer.com

# Hardened tool steel mandrels operate better with special lube

Following several months of tests and investigations, Omni-X, Czech Republic, has launched two new consumable tool products for rotary draw tube bending (eg mandrels/wiper dies). The products have been introduced following research instigated by the increasing price of copper, which is the basic element of any aluminium bronze materials suitable for use in consumable tube bending tools.

Many trials and tests have been undertaken due to the search for an alternative material. Most solutions were generally dependant upon carbide, ceramic or different kinds of TiC/TiN coatings. However, although this material performs excellently, the main problem of high tool prices remains.

One of the easiest ways to cut spending on such tools is to use a proper material combination, although these materials must follow a strict set of rules. In addition, a highly important issue is to use the correct lubricant which makes such combinations possible.

Alubronze tools should only be used to bend stainless steel, titanium or other exotic material with a high content of nickel and cromium. All other materials like carbon steel, aluminium, aluminized steel, copper and related alloys should be applied to steel or TSC (hardchrome plated) mandrels and wiper dies.

Taking this evidence into consideration, the company has developed a mandrel made of hardened tool steel with Omni-X Black Chrome surface treatment. Both internal and customer tests have proved that this cost-effective mandrel has a lifecycle twice as long as steel or TSC (steel hard chrome plated) mandrels. These mandrels are mostly used to bend tubes of mild steel.

aluminized steel, copper and associated alloys.

The second invention from Omni-X has been created in cooperation with one of the leading companies in the chemical industry. Due to this cooperation, the company has launched a new lubricant branded Omni-X Lube. This new lube performs excellently on any tube bending application, which means it can be applied to any mandrel or wiper die produced in order to extend its working life.

The advantage of combining these two products is significant. During testing, the company combined Omni-X Black Chrome mandrels with the Omni-X Lube. It was discovered that the mandrels often last more than three times longer than TSC mandrels lubricated with a general lubricant.

Omni-X – Czech Republic Fax: +420 548212804 Email: sales@omni-x.cz Website: www.omni-x.cz



#### High frequency welded pipe mill for API products

T&H Lemont, USA, has recently installed a model WU60-10 high frequency welded pipe mill for high strength API products. The pipe size range of the WU60 mill is from 2-6" OD pipe. The mill is an integral part of a complete welded pipe line to supply API products to North America.

The company is always exploring new technologies and innovations to reduce customer's production costs and improve productivity, not only for the welded tube and pipe industries, but also the rollforming industry. T&H Lemont has provided technologies to produce products such as stainless steel hypodermic needles, communication cables, flexible tubular products, hi-strength welded and roll-formed shapes and large diameter API pipe.

In addition to complete production systems, T&H Lemont provides a variety of components and services to the tube, pipe and rollforming industries. Services include tube and pipe roll design, mill alignment and operational consulting.



A model WU60-10 high frequency welded pipe

Components offered by T&H Lemont include welders, cut-offs, entry equipment, accumulators, pre-punch, post-punch, seam orientation stands, weld boxes, edge conditioner, bead scarfing systems, straightening systems, single point adjustment systems, dedimplers, rolls, blades, jaws, and shafts.

T&H Lemont - USA Fax: +1 708 482 1801 Email: sales@thlemont.com Website: www.thlemont.com

#### TCT blades for tube cutting

Stark Group, Italy, is able to supply different types of TCT blades, depending on the application and the machine conditions. The company can supply custom-made saw blades to the end-user.

Applications include fly-cut machines with one cutting head, double cutting heads or orbital cutting system, and automatic re-cutting machines. Materials to be cut include carbon steel, alloyed steel, stainless steel inox, and non-ferrous materials, with lubrication by spray-oil/emulsion.

TCT throw-away saw blades with PVD coating are available in blade dimensions from Ø 250mm to 730mm, for cutting tubes from Ø ½" to 24", of thickness from 2.5mm to 21mm.

TCT resharpenable saw blades (with or without PVD coating) range from Ø 350mm to 1,250mm, for tubes from Ø 4" to 24", with thicknesses from 4mm to 21mm.

Stark Group - Italy Fax: +39 0432 999552 Email: info@starktools.com Website: www.starktools.com





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Selmers, established in 1966, authority in supply of custom made plants and equipment for onshore and offshore pipe cleaning, coating, handling and jointing.



#### Extended range of aluminium pipe plugs

Huntingdon Fusion Techniques Ltd (HFT Pipestopper™ Division), UK, has extended its product range and introduced four new diameters of aluminium pipe plug to the market.

These plugs, also known as pipe (end) stoppers or test plugs, are primarily used in petrochemistry, water supply and effluent handling, as well as in power stations and the construction business. Aluminium plugs from HFT are suitable for use whenever a pipe or duct needs to be temporarily sealed for a leakage test or for other reasons.

The extended product range now includes plugs with 40mm, 65mm, 90mm and

115mm diameters, so that pipes ranging in diameter from 40mm to 165mm can now be sealed.

The plugs are manufactured using a new process, which ensures higher quality at the same price. The company was able to lower production costs to an extent that enabled the price rises of polymers (rubber seals) during recent months to be offset, allowing a stable price to be maintained and guaranteed.

The plugs are normally supplied with a seal manufactured from natural rubber. For special uses, seals manufactured from various synthetic rubbers can also be supplied, such as nitrile rubber (NBR), chloroprene rubber (CR) and fluorine rubber (FPM). NBR guarantees high oil and petrol resistance, CR offers high ozone and atmospheric weathering protection, while FPM has proven to be extremely heat resistant.

In certain cases, a longer threaded-hollowshank is required, eg when a plug must be inserted further into a pipe, or when the placement of two seals on a shank is required in order to maintain greater pressure.

A further advantage of the HFT aluminium plugs is the existence of a friction free washer made of synthetic material, which allows the plugs to be easily tightened by hand without the aid of additional tools, and makes damage or breakage of the wings nuts almost impossible.

#### **Huntingdon Fusion Techniques Limited** - UK

Fax:+44 1554 836 837

Email: hft@huntingdonfusion.com Website: www.huntingdonfusion.com

#### A range of seamless pipe, square tube and elbows

Wenzhou Baofeng Group, China, manufactures stainless steel pipe, and exports its products across south-east Asia, North America and Europe.

The company's cold drawn stainless steel seamless pipes are available with OD from 6mm to 530mm and thickness from 1mm to 24mm. Baofeng's stainless steel pipe is offered in grades 301, 304, 304L, 316, 316L, 321, 310 and 202. Specifications include GB/T14975-2002, GB/T14976-2002, GB13296-91, ASTM/ASME A213/SA213, ASTM/ASME A312/SA312, ASTM/ASME A269/SA269, JIS3459, JIS3456, DIN17456, DIN17458 and EN10216-5.

Baofeng's cold rolled mirror seamless pipe range is from OD 16mm to 159mm, in grades 301, 304, 304L, 316, 316L, 321, 310 and 202. Specifications include GB/T14975-2002, GB/T14976-2002, GB13296-91, ASTM/ASME A213/SA213, ASTM/ASME A312/SA312, ASTM/ASME A269/SA269, JIS3459, JIS3456, DIN17456, DIN17458 and EN10216-5.

Square tubes are also available from Baofeng, in grades 301, 304, 304L, 316, 316L, 321, 310 and 202. Specifications include GB/T14975-2002, GB/T14976-2002, GB13296-91, ASTM/ASME A213/SA213, ASTM/ASME A312/SA312, ASTM/ASME A269/SA269, JIS3459, JIS3456, DIN17456, DIN17458 and EN10216-5.

The company's elbows are available in a range from 18-1,220mm and wall thickness from 1.5mm to 30mm. Specifications include ANSI B16.9 and GB/T12459 standards, in materials 304, 304L, 316L, 321, 310s and 310.

Wenzhou Baofeng Group - China

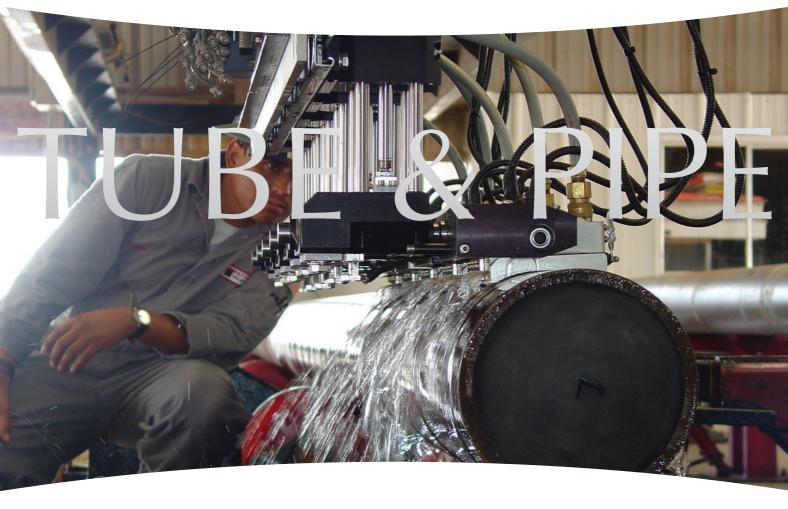
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#### Consortium to co-develop latest strip edge preparation unit

A new edge preparation unit has been developed in order to overcome problems caused by coating materials on strip edges in areas where welding occurs. This equipment will be marketed and manufactured by a group of companies including AG Shepherd (Machinery) Ltd (UK), Universal Tube & Rollform (USA), and D & E Precision Engineering (UK).

The equipment has been designed for use in the preparation of pre-coated steel strip prior to the strip being formed and high frequency welded into tube. The tube is then further processed for use as products such as exhaust pipe for motor cars and trucks (aluminised tube), and as electrical conduit, air coolers, polytunnel and in leisure markets (galvanised tube).

Mild steel strip is normally produced from ingots and billets, and successively hot rolled then cold rolled into coils. These coils are normally 1,500mm to 2,000mm wide and vary in thickness from 0.5mm to 3mm (or more) depending on the application.

Some strip is then further processed by having a surface coating applied.

In the automotive industry, a coating of aluminium is applied (aluminised strip) for exhaust pipe manufacture, with strip thickness ranging from 1.2mm to 2mm. For use in the manufacture of electrical conduit, a zinc coating is used (galvanised

strip), on strip thicknesses from 1.5mm to

Once the strip has been processed into wide sheet coil form, it has to be slit into narrow widths which have to be precise for presentation into the welded tube mill. in order to produce the required diameter of tube. The slitting of the wide sheet coil is performed by two opposing cutters that cut half way through the thickness of the material, which then shears producing the separation.

> This process inevitably propels some of the coating onto the edges of the slit material, and also releases locked-in stresses induced into the strip during its manufacture. It is this issue that creates the problem of producing a satisfactory quality of welded tube suitable for the further processing it has to sustain.

> Welded tube is produced by running the slit strip through a series of forming rolls to create the correct round profile at the point of rolling. It is at this point that the edges of the strip are pressed together between welding rolls. The process produces heat due to the high frequency induction process, raising the temperature of the metal to a point where a satisfactory forged joint can be produced (ie near to the melting point of the steel).

> Because both aluminium and zinc have a lower melting point than steel, these



The new machine is unique because it allows the strip to run freely

coatings will melt (along with any material already trapped on the edges of the strip). Unless this is forged out during the welding process, it will act as an impurity and precipitate failure of the tube during further processing (eg flaring to produce the flange for exhaust pipes).

The new edge preparation unit has been designed to overcome this problem by removing the coating materials from the edges (top and bottom of the strip) in the areas where the welding process will take place. The unit has two pairs of cutters on each side so that, as the strip runs through the unit, both sides of the strip (top, bottom and edge) can be scraped to remove the residual impurities.

Several types of unit have been designed where the cutters are rigidly held, in an attempt to constrain the strip passing through the unit. However, this was not entirely successful, as due to the release of locked-in stresses in the strip, it passes through the unit in a very convoluted form (at a throughput rolling speed of up to 500ft/ min). This system could lead to the thinning or scalloping of the edges of the material, or it missing altogether, making welding more difficult than easy.

The new design differs in that instead of trying to constrain the strip using fixed cutters, it allows the strip to run freely. The cutters follow the convolutions of the strip, allowing a uniform amount of material to be consistently removed from the top, bottom and edges of the strip prior to it entering the tube mill.

In the original design, this was undertaken by spring loading the cutters to apply the pressure. This worked satisfactorily for some two years, giving considerably improved material yields both on the tube mill and during the subsequent processing of the tube. Replacing the spring operation





Using the new edge preparation unit, it is possible to solve problems caused by coating materials on strip edges



#### **TECHNOLOGY UPDATE**

of the cutters with pneumatically operated cutters has provided a greater degree of consistency of the pressure applied. This allows control of the system to be activated from the mill operator's control position.

The edge preparation unit is located at the entry end of the tube mill, prior to the strip edge guide rolls. The unit is a fabricated rigid steel assembly platform, and is firmly mounted on to the tube mill base. The strip running through the assembly is supported by two undriven rollers, one at the front and one at the rear.

On the unit are mounted four sets of cutters on four arms, two sets at the front of the fabrication and two sets at the back. The nitrided tungsten carbide cutters are positioned on either side of the ingoing strip, in sets of two cutters to each arm. This means that the leading set removes the impurities from the bottom and edges of the strip and the trailing sets of cutters removes the impurities from the top and edges of the strip.

The cutter arms are mounted on fulcrum pivots, which enable the cutters to move horizontally and vertically and so follow the strip convolutions. Pressure is applied pneumatically through a series of eight air cylinders which can be individually adjusted. These cylinders are mounted on a single control panel. and pressure gauges are used to record the pressure on each cylinder. Once the pressures are set, the mill operator can operate the cutters from the mill control console by means of an electro-mechanical

A close-up of the new strip edge preparation unit

The rate of throughput of a tube mill can be 5 tons per shift hour, so any improvement in yield as a result of the benefits of the use of the edge preparation unit can be substantial. It is claimed that the improvement in yield on the mill could be as high as 20 per cent. There would also be a significant cost saving on the subsequent processing of the tube into its finished product.

The companies involved in this profect AG Shepherd (Machinery) Ltd

(www.agshepherd.com), Universal Tube & Rollform (www.utube.com) and D & E Precision Engineering (Fax: +44 1922 416900).

Article supplied by Mr Peter Thompson, Warehouse Castle Mill Works. UK

Warehouse Castle Mill Works - UK Fax: +44 121 434 3501

Email: peterthompsonmac@btconnect.com





MARCH 2008



#### New Burrmaster deburring machine

Kent Corporation, USA, manufactures a single end automatic deburring machine, which is part of the Burrmaster range. The new Rotomat uses a wide face brush (up to 180mm wide) that spins downward, while the head also rotates. This double action allows an



Ment's Rotomat automatic deburring machine

operator to quickly and consistently deburr the ends of a part without having to spin the part.

The brush is available with infinite speed control, suitable for processing ferrous or non ferrous material. The machine is also equipped with a Double V quick adjust work rest, which makes change-over quick and easy, and automatically puts the part on centreline with the brush. There are also optional attachments for deburring mitre cut or bent tubes.

Kent Corporation also produces a wide range of double-end automatic deburring machines.

Kent Corporation – USA Fax: +1 440 237 5368

Email: info@continuouscoil.com Website: www.kenttesgo.com

### Corrugated heat exchanger tubes

Established in 1979, Pune Fin Tube Pvt Ltd (PFT), India, is an ISO 9001:2000 company engaged in the manufacture and supply of integrally finned ferrous and non-ferrous tubes. The company's products are utilised in various heat exchanger applications.



Pune Fin now manufacture ferrous and nonferrous corrugated heat exchanger tubes

Recently PFT also commenced the manufacture of ferrous and non-ferrous corrugated heat exchanger tubes. These products are manufactured with a tube diameter from ½" to 1½", with a 0.9mm to 2mm tube thickness. The products can be





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#### **TECHNOLOGY** UPDATE



corrugated with a pitch ranging from 1.5mm to 3mm and a groove depth of 0.5mm to 1.5mm. Cut lengths can be supplied with a maximum length of 20m.

Pune Fin Tube Pvt Ltd - India Fax: +91 20 2546 6980 Email: info@punefintubes.com Website: www.punefintubes.com

#### **Highest productivity** and precision in bush manufacture

Bihler, Germany, a specialist in machine tools, has launched the model RM 40B bushing machine. A high precision and top quality machine, it is perfectly designed for the manufacture of cylindrical, straight bushes and flanged bushes.

Bushes can easily be produced from 6-18mm inner diameter and up to a maximum of 40mm in length, with maximum strip dimensions of 1.5mm x 40mm. The machine speed is infinitely adjustable and varies subject to the type of bush. The speed for flanged bushes (collared bushes), is 250 bushes per minute, and it climbs to 400 bushes per minute for cylindrical, straight bushes.

The RM 40B consists of a compact basic machine, standard accessories and clearly arranged tool components. The basic machine corresponds to the model RM 40K, although the number of drive positions is reduced to twelve.

Accessories include a mechanical gripper feed with hydraulic clamping, BRA-II-75 strip straightener, and a 70kN 12mm stroke two-point eccentric press. There are also two positively-controlled normal slide units (nominal force of 30kN and 25mm stroke). a central mandrel (30kN nominal force and 50mm stroke), a 60kN transverse press with 35mm stroke, and a rotary table drive.

The clearly arranged, innovative RM 40B tooling consists of three components: the basic tooling, two sets of tool fixtures and active parts (tool changeover parts). To achieve the fastest possible tool changeover times (less than 10 minutes), the second set of tool fixtures can be pre-equipped for another bush type. The simple rapid-change tooling system to be handled via switch also adds to extremely short re-tooling times. The top level of standardization for the tool components ensures that they can be used in any part of the world.

For highest process safety, the RM 40B is equipped with the new Bihler VC1-E control. This control system has been designed and provided with an ideal display to handle the machine in an intuitional fashion. A special highlight of this new Bihler control generation is that it can be upgraded for multi-axis applications.

Further highlights of this new generation of Bihler controls are the real-time operating system VX-Works. There is control of the main drive via ethernet based bus system, while four robust, decentralized modules control and monitor the machine systems and tools. There is also an ethernet TCP/IP and FTP interface for teleservicing.

In 2008, Bihler plans the completion of the RM 40B's bigger sister, the GRM 80B, in order to offer the market a powerful machine even for larger bush dimensions.

Bihler - Germany Fax: +49 8368 18 105 Website: www.bihler.de

#### EDM Notch Master

Metal Erosion Machine For Making Pipe Test Calibration Standards

Scan Systems Corporation, through its operating division of EDM SPECIALTIES, manufacturers the family of portable EDM Notch Masters<sup>TM</sup>. Originally designed as the answer to producing flaws on the inside diameter of pipe to meet API 5CT and 5L published specifications, the scope of the equipment has enlarged. Continuous improvements have made the EDM Notch Master™ valuable to any industry that is required to make calibration standards. Not just limited to pipe, the Notch Master™ is used for coiled metal products, forged products, specialty alloy metal products and used in a cross section of industries such a oil & gas, nuclear facilities, and marine.





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www.scansystems.com **Contact: David Steely** 



## Steel tube range from Taiwanese manufacturer

Yieh Corp, part of E-United Group, has headquarters in Kaoshiung, Taiwan, and branches in Guangzhou and Shanghai, China. The company and acts as a global steel marketing representative for E-United Group's steel capabilities. The company can provide its global customers with diverse steel products such as stainless steel, galvanised steel, pre-painted steel and carbon steel, in both flat and long products.

Yieh Corp can supply both seamless and welded stainless steel pipes, based on different standards and sizes. The main steel grades of seamless stainless steel pipes include TP304, P304L, TP316, TP316L, TP321, TP310S, TP347H, TP317L and TP2205. The company's stainless steel tube and pipe are suitable for use in areas

such as oil, chemical, food, nuclear power and other industries.

In addition to stainless steel pipes, the company can supply different types of carbon and alloy steel pipes, with both welded and seamless standards. The steel grades of carbon steel seamless pipes include ASTM A 106/ASME SA 106, ASTM A53/A53M/ASME SA-53, API 5L GR.B/X42/X52/X60/X65, E355 and DIN2391 ST52/ST52.3. The steel grades of alloy steel seamless pipes include ASTM A335 P5, P9, P11, P12, P22, P91, P92, and ASTM A213, T5, T9, T11, T12, T22 and T91.

Yieh Corp – Taiwan Fax: +886 7 615 3000 Email: ec@yieh.com Website: www.yieh.com

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# Latest FQM facility for 635,000t of seamless pipes a year

JSC Seversky Tube Works, Russia, a subsidiary of TMK, will revamp its existing pipe rolling shop with the installation of a new Danieli retained mandrel mill, FQM™ type (Fine Quality Mill). Seversky's pipes are currently produced on two pilger mills.

The new production facility will be used to manufacture approximately 635,000t/year of seamless pipes with an OD range from 168.3mm to 365.1mm. This pipe will have a high quality of inner and outlet surfaces and a high degree of pipe accuracy in terms of wall thickness and diameter.

FQM offers process technology able to produce seamless pipes with high quality features (close wall thickness tolerances and very smooth surfaces), at low production costs. The process offers a high degree of production flexibility, versatility and efficiency.

The revamped hot rolling line will comprise the outlet of the existing piercing mill up to final tube collecting benches in the intermediate storage and the revamping of the existing billet furnaces. All new equipment supplied for the revamping process will be installed in the existing building.

The new FQM – with the relevant mandrel retaining and circulating system – will be installed in the transversal bays, while all equipment after the extracting mill will be located in the new longitudinal bay. The pipe rolling shop will be revamped alongside the existing pilger mills, ensuring that production can continue during installation. Once installation is complete, the older mills will operate during downtime of the FQM mill.

Once the hot rolling line is operational, the feedstock will consist of continuous cast round billets – 290mm and 360mm diameters. Billet cutting into lengths is performed by means of existing cold saws, with carbide tipped blades. The continuous cast round billets are heated to a maximum temperature of approximately 1,280° in two existing rotary hearth type furnaces (also revamped in accordance with the required productivity).

At the outlet of the furnace, the billets are transported through a high pressure water descaler to the piercing mill, where the billets are rolled into shells. The piercing of the billet is performed in an existing piercing mill, while the material is guided during 90° rolling by two vertical guide shoes.

#### **TECHNOLOGY UPDATE**

At the outlet of the piercing mill, a new station carries out antioxidant powder blowing in the bore of the shell. The shell is then quickly transported to the FQM rolling line and inserted into the rolling line shell; a mandrel circulating system will be fitted to cool and lubricate the mandrel (with graphite).

Tube rolling is undertaken on a new Danieli Centro Tube FQM, equipped with 5 three-roll adjustable type-stands (individually driven). The FQM has 5 stands in order to roll long tubes with thin wall thicknesses and good internal quality.

Directly in line with the FQM, an extracting mill will operate with 3 stands (3-roll type), in order to extract the tube from the FQM mandrel. The extracting mill is of Kocks new design. Tube wall thickness and length is measured by a laser-ultrasonic system at the outlet of the extracting mill both for FQM and for sizing mill process control.

At the outlet of the extracting mill, the tubes are transferred to a new intermediate reheating furnace of Danieli combustion design. Some tubes can be normalized in the furnace (with cooling to a temperature of around 500°C), and then reheated to a maximum temperature of approximately 950°C.

The mother tube is elongated to the required finished dimension by means of a Kocks sizing mill, consisting of 14 stands (3-roll type), with three motors per stand. The last 3 stands have radially adjustable rolls to produce tubes in different grades and standards without stand change.

All tubes are placed on the cooling bed, at the end of which the tubes are straightened in a 6-rolls machine. The tubes are then arranged into layers and transferred to the three cold saws, with carbide tipped blades, where they are end cropped and cut into final required lengths. At the outlet of the layer saws the tubes are marked with order and heat numbers and transported to the collecting benches

**Danieli** – Italy **Fax**: +39 02 262451

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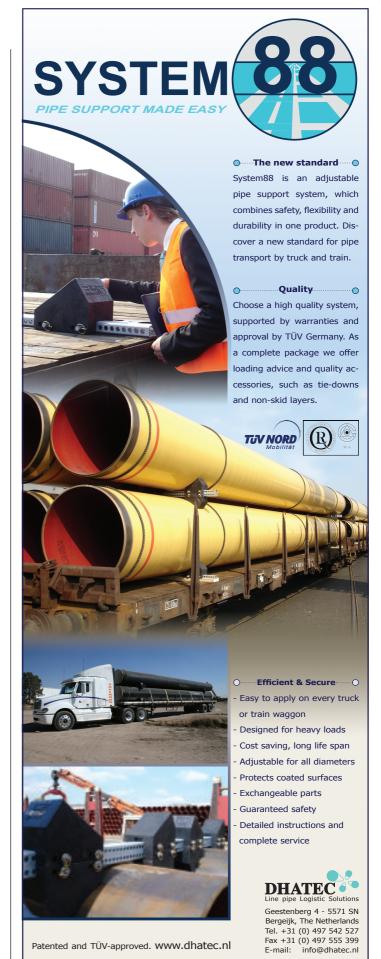
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#### Tool line takes bite out of tube end finishing

For manufactures of tubing products, or those who manufacture products with tubing components, Severance Tool has developed a line of tube end finishing rotary tools that can deburr, form, or chamfer as required by application requirements.

The tools are designed to finish both the inside diameter and outside diameter of tubing ends in a single operation. Many of the tools feature adjustable, two-piece construction to enable work on same size tubing with varying wall thickness ranges.

The Chatterless™ tooth geometry alternates tooth cutting angles to eliminate resonant vibration from the tool and workpiece for smooth finishes.





Severance also offers an exclusive Grayhone™ finish that provides cutting edges ready to work with no break required.

> Among the tools offered is a full line of tube deburring tools available in high-speed steel or carbide construction. These tools are designed for light duty, even though they provide a 30° inside chamfer and a 45° outside chamfer. They can simultaneously break the sharp edges of both the inside and outside diameter, and feature tooth geometry with a shearing cutting action for fast cutting that prevents loading of chips.

> The tools can be reground numerous times for long service and operate in speed ranges of 50-200rpm. The outside ring or member is adjustable, secured by screws. to provide various outside edge break sizes and compensate for different wall thickness within a given tube diameter range.

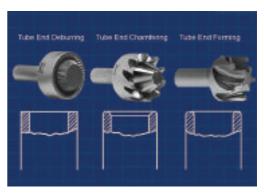
> Tube deburring cutters are also available in standard sizes for tubing from 1/8" OD  $(^{1}/_{16}" \text{ ID})$  up to  $2^{1}/_{4}" \text{ OD } (2" \text{ ID})$ . Tube end chamfering mills provide the same shear cutting action and outside ring adjustable as the deburring cutters. They can also be supplied with Chatterless™ angle geometry

and are designed for heavy duty cutting to machine precise, smooth 45° OD and 30° ID chamfers. Chamfering mills are available in sizes for tube and pipe ranging from  $^{3}/_{16}$ " to  $2^{1}/_{2}$ " OD.

The tube end-forming cutters can machine both the inside diameter and outside diameter radius. This establishes a smooth, rounded end that is ideal for applications where tubing may be exposed. A selection of high-speed steel and carbide tools are available in sizes for tubing ranging from 1/8" to 21/2" OD. Each OD size is

complemented by a range of wall thickness or gauge sizes to accommodate the most popular tubing applications.

For all three types of tube end finishing tools, standard sizes are typically shipped with the same-day service. Severance also provides application-specific design and manufacturing services, including custom size, chamfer angles, and forming characteristics. Single cutting action (inside diameter or outside diameter) chamfering tools are also available, and Severance offers a wide range of tool styles and sizes for deburring holes through tube walls.

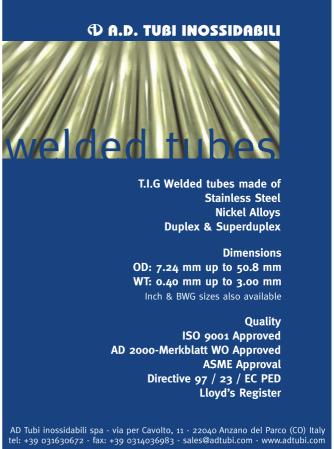


• The new tube end finishing tools from Severance

Other Severance tools include 3N1® combination countersink/drills, Midget Mills® rotary files and burrs, inside and outside deburring and chamfering mills, Micro-Reamers®, electrode dressers. double-end countersinks. Chatterless® countersinks and adjustable stop countersink units, and a variety of hand operated finishing tools.

Severance Tool Industries Inc - USA Fax: +1 989 777 0602 Email: severancetool@aol.com Website: www.severanc.brinkster.net





www.read-tpt.com



# Copper tube manufacturer benefits from Iran's rich resources

QAEM Copper Industries, Iran, manufactures different types of high-quality seamless copper tubes that are used in air conditioning systems, industrial refrigerator, condenser, and heat exchangers. The company's products are also suitable for manufacturing gas heaters and fitting/plumbing installations.

The copper tubes are available in straight lengths, LWC (plain/inner groove) and

pancake rolls. All QAEM's products are manufactured from DHP copper cathode with a purity of 99.97 per cent that means the highest quality. Using copper with a high percentage of purity – obtained due to Iran's rich resource in copper mines – ensures top grade quality and secure finishing.



A section of inner grooved copper tube

U LWC, pancake and inner grooved copper tube



The LWC tubes are supplied in standard OD dimensions of  $^3/_{16}$ " to  $^3/_4$ " (4.76mm to 19.05mm) with wall thickness of 0.3-1.2mm dependent on the outside diameter and coil weight. Straight tubes can also be supplied in standard dimensions of  $^1/_4$ " to  $1^3/_8$ " OD with wall thickness up to 1.4mm. QAEM's copper tubes are produced by cast and roll technology.

The company's test facilities are equipped with modern

equipment such as eddy current testing, optical emission spectrometer, tensile tester, and optical microscope. Using the eddy current test ensures the highest quality for industrial processing.

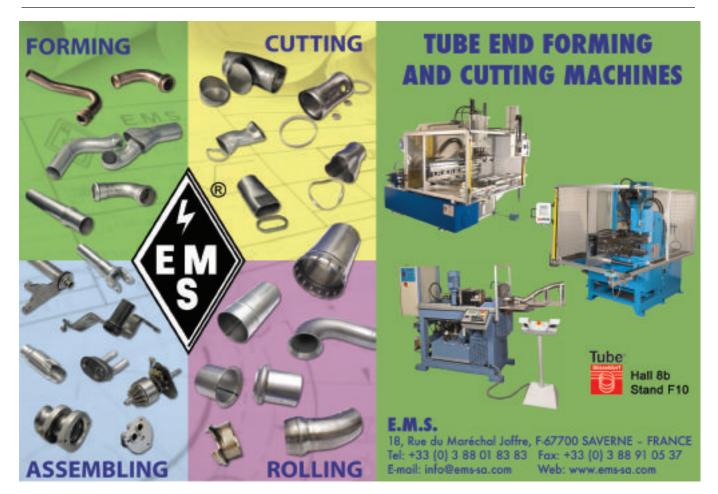
QAEM's latest achievement is the export of high quality copper tubes to a large number of air conditioning manufacturers in Middle Eastern countries.

#### **QAEM Copper Industries Company**

Iran

Fax: +98 311 2220955

**Email**: info@qaemcopper.com **Website**: www.qaemcopper.com





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# It's all about being there...

Covering & Galvanising Equipment

Machinery (including Spinner Blocks)

ng/Descaling & Grinding/Polishing

Please note: Tube & Pipe Technology cannot be held responsible for any omissions or inaccuracies.

#### Machinery & Equipment (A-E)

Bending Machines & Equipment Bevelling & Chamfering Coating, Covering & Galvanising Equip Collers/De-Collers Collaring & Joining Machines Collaring & Drawing Technology Deburring/Descaling & Grinding/Polish Dies, Tooling & Die Shop Equipment Drawing Machinery (including Spinner Drilling, Piercing & Punching Machines Extrusion Equipment Finishing & End Finishing Equipment Finishing & End Finishing Equipment Heat Treatment & Annealing Equipment Inspection, Measuring, Testing & Marki Pointing Equipment	Notis & Noti Fortifing Equipment Second-Hand & Reconditioned Machin Slitting Equipment	Straightening Equipment Threading Machines Tube Mills – Seamless & Welded Meding Fountment (*Including Edge Trim
Abbey International Ltd, UK 6C05		
AddisonMckee, UK 8aD48 • • • • • •		
Aicon 3D Systems, Germany 7aB01		
Ajax Tocco, USA 8bF24 • •		
Alpha Metall GmbH & Co KG, Germany 7.1C46		
Amada Sägetechnik Deutschland, Germany 8aB15		
Aquarese, France 8aF45		
Apollo Srl, Italy 8bG49 ●		
ARLA Maschinentechnik GmbH, Germany 8bG25		
ASMAG GmbH, Austria 7.0B22		•
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Axxair, Francec 6H09		
BeTec GmbH, Germany 8bD17 ●		
Bewo BV, Netherlands 8bE18		
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BLM Group, Italy 8aD18		
Bossi Srl, Italy 6C51 ● ●		
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Bronx/Taylor-Wilson Ltd, UK 6C05		• •
Bültmann GmbH, Germany 8aD01		
BWE Ltd, UK		
Can-Eng Furnaces, Canada 7.1G20		
Cartacci Srl, Italy 7aE20		•
Ceramtec AG, Germany 10G72		
Changshu Walsin Specialty Steel Co Ltd, China 6C21		
Combilift Ltd, Ireland 3G34		
Controle Mesure Systems, France 7aE24		
Corem, Italy 8bG01		
CSM, Italy 6F48		
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DWT GmbH, Germany 7.1D29		
Dynobend bv, Netherlands 8aF48 ●		
EFD Induction, Norway 6C06		
Electronic Heating Equipment, USA 6A04		
Elestar, Italy 8bG01		
Emmedi/SÁET SpA, Italy 8bA12		
EMS SA, France 8bF10 • • •	•	

# SHOW FACTS

#### **DATE**

Monday 31 March -Friday 04 April, 2008

#### **VENUE**

Düsseldorf Trade Fair Centre, Düsseldorf, Germany

#### **SHOW HOURS**

31 March-3 April: 9am-6pm 4 April: 9am-5pm



#### **ORGANISER CONTACTS**

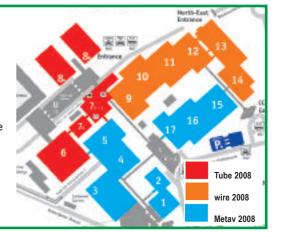
Messe Düsseldorf GmbH Phone: +49 211 4560 447

Email: liedtkeM@messe-duesseldorf.de Website: www.messe-duesseldorf.de

#### **INTERNET RESOURCES**

www.tube.de www.duesseldorf.de www.tripadvisor.com

www.read-tpt.com



on, Measuring, Testing & Marking Equip.

Hand & Reconditioned Machinery

Equipment (\*including Edge Trimming)

End-Forming & Hydroforming Equip

ing, Covering & Galvanising Equipment

ing Machines & Equipment

ing Machinery (including Spinner Blocks)

ng, Piercing & Punching Machines

urring/Descaling & Grinding/Polishing

aring & Joining Machines

a & Sawing Technology

Tooling & Die Shop Equipment

#### **Machinery** & Equipment (E-M)

#### continued on page 60

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Friedr Krollmann GmbH & Co KG, Germany	10A29					•				-									•					
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Lessmann GmbH, Germany	7.1F10																							
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Loeser GmbH, Germany	6C51																							
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Magnetic Analysis Corp, USA	7C36																•							
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Manchester Tool & Die, USA	6F17-5													•										
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# TUBE & P

ection, Measuring, Testing & Marking Equip.

aging Equipment ting Equipment

Freatment & Annealing Equipment

lling Equipment

and-Hand & Reconditioned Machinery

& Roll Forming Equipment

ng Equipment (\*including Edge Trimming)

Mills - Seamless & Welded

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ing, End-Forming & Hydroforming Equip

ning & End Finishing Equipment

& Conveying Equipment

sion Equipment

Preparation Machinery

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Company

#### Machinery & Equipment (M-Y)

Coating, Covering & Galvanising Equipment Bending Machines & Equipment Bevelling & Chamfering Coilers/De-Coilers

Stand

Inspection, Measuring, Testing & Marking Equip. Forming, End-Forming & Hydroforming Equip.

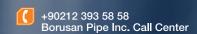
Welding Equipment (\*including Edge Trimming)

Tube Mills - Seamless & Welded

Straightening Equipment

Drawing Machinery (including Spinner Blocks) Deburring/Descaling & Grinding/Polishing Second-Hand & Reconditioned Machinery Heat Treatment & Annealing Equipment Drilling, Piercing & Punching Machines Dies, Tooling & Die Shop Equipment Finishing & End Finishing Equipment Rolls & Roll Forming Equipment Collaring & Joining Machines Cutting & Sawing Technology End Preparation Machinery Entry & Conveying Equipment **Extrusion Equipment** Handling Equipment Packaging Equipment Pointing Equipment

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New Form Tools, Canada	6B13																	
Numalliance, France	8bA28/A30	•																-
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Pines Technology, USA	6F17-4		•															
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Prüftechnik NDT GmbH, Germany	6C35																	
Quaker Chemical, USA	6E29																	
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Re-Bo REBER GmbH, Germany	8bG29					•												
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S+C Bowers & Jones Ltd, UK	8aC34									_								_
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Selmers bv, Netherlands	7.1E39										(							
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Silfax Group, France	8aF45																	
Sistemi Meccanici Industriali Srl, Italy	8bG48																	
Sitindustrie, Italy	6F49																	
Smaco Malaysia Sdn Bhd, Malaysia	6C33		•															
SMS Meer, Germany	7aC21	•	_						H			•						
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Somo Produzione SpA, Italy	7.1E14	•																
SST Forming Roll Inc, USA	7.1D47																	
Star Bend, Italy	8bG30																	
Superior Technologies Europe Ltd, UK	6A04																	
Surface Engineering Srl, Italy	7C07																	
SWWIL, Switzerland	8aB10																	
T-Drill, Finland	8aF38									•								
Tauring SpA – Tauringroup Division, Italy	8aD38																	
Termomacchine Srl, Italy	7.1F52																	
Thermatool IHWT, UK	6A28						•											
Tracto-Technik GmbH, Germany	6H18																	
Tru-Cut Saw, USA	6E18-1																	
Trumpf Laser- und Systemtechnik GmbH, Germany	8aD30																	
TSE GmbH Tube Scarfing Equipment, Germany	8aF46					•												
Tube Tech Machinery Srl, Italy	8aC37					•												
NOV Tuboscope, USA	8aE02																	
Urbano Pensotti Srl, Italy	7C30												Í					
UKF Stainless, UK	6B05																	
Universal Finishing Systems, UK	7.1A02																	
USM Mazzuchelli Srl, Italy	8bD24																	
Ying Lin Machine Industrial Co Ltd, Taiwan	5F15																	
Yu-Nion Machinery Co Ltd, Taiwan	7.1B14					•											•	1
YXRAY GmbH, Germany	5G15												•					



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By our production capacity of international standards which has reached 925.000 tons today, we are forcing the boundaries. With our 4.000 type of products; from natural gas to infrastructure, installation to steel construction, manufacturing industry to automotive, construction to agriculture we are the preference of numerous companies at home and abroad. We owe being one of the premier steel pipe producers in Europe to our 50 year experience, quality approach aiming at perfection and specialization.





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Company

#### Tube & Pipe **Products (A-S)**

Chemical, Oil, Gas, Water Tubes & Pipes/OCTG Castings, Blooms, Shapes & Hollows Automobile/Aircraft Tubing Coated Tubes & Pipes

Stand

Construction Industry Tubes & Pipes/HSS

Ferrous Seamless Tube & Pipe

Extruded Tube & Pipe

Fittings, Flanges & Forging Ferrous Welded Tube & Pipe

General Tubing for Furniture/Household Goods HVAC & Heat Exchanger/Heat Transfer Tube & Pipe General Engineering Tubing

Joints for Tubulars Hydraulic Tubing Irrigation Tubing

Non-Ferrous Seamless Tube & Pipe Medical & Scientific Tubing

Plastic & Composite Tube & Pipe Von-Ferrous Welded Tube & Pipe Power Generation Tubing

Stockists & Distributors

Acciaitubi SpA, Italy	6G09					(												
AD Tubi Inossidabili SpA, Italy	6D28																	
Alcan Decin, Czech Republic	5H01									Ŏ								
Alcobex Metals, India	7D27																	
Alfinox SpA, Italy	6C43																	
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Ambica Steels Ltd, India		_																
Anoop Forgings Pvt Ltd, India	5J11																	
ArcelorMittal Automotive Stainless Tubes Europe, France	6C01		•		•			•										
ArcelorMittal Stainless Tubes Europe, France	5E06																	
Atinox – Tüzün Celik Boru ve Profil San. Tic AS, Turkey	70B36																	
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BeTec GmbH, Germany	8bD17					(												
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Borusan Mannesmann Boru, Turkey	6A39														•			
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Butting, Germany	6A50																	
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Changshu Walsin Specialty Steel Co Ltd, China	6C21					_												
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D'Amore & Lunardi SpA, Italy	5A08					•	•											
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Peter Holzrichter GmbH, Germany	8bA29																	
Huta Batory sp. z.o.o., Poland	7aC18					(												
INOX Tech SpA, Italy	5A05																	
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Jacob Modular Pipework Systems, Germany	6G30																	
Jansen Ltd, Switzerland	6A30																	Ť
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KG Ltd, Bulgaria																		
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Luda Development Ltd, China	5F07			_			_	_										-
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Maxvalue Industries Co Ltd, China	6G35					(												
Meta Copper and Alloys Ltd, India	5E02										(				•			
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Precis Inter Holding JSC, Bulgaria	5F10																	
Proform, France	7aE02																	
Ratnamani Metals & Tubes Ltd, India	8aE19		•				•						•	•				
Rohrbogen AG, Switzerland	6A31																	
Rohrwerk Maxhuette GmbH, Germany	7C35																	
Rotaform GmbH, Germany	8bE29																	
SAFA Industrial Group, Iran	7aB20		•															
Sandvik Materials Technology, Sweden	8aB40																	
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Oil, Gas, Water Tubes & Pipes/OCTG

e/Aircraft Tubing

on Industry Tubes & Pipes/HSS

eamless Tube & Pipe elded Tube & Pipe anges & Forging bing for Furniture/Household Goods

gineering Tubing

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Scientific Tubing

s Welded Tube & Pipe omposite Tube & Pipe

Tube & Pipe Products (S-Z)

		Automobil	ngs, B	ical,	Coated Tub	Constructi	Jed T	Ferrous Se	as We	gs, FI	General En	General Tu	-IVAC & He	anlic	ion Tı	s for	हुं इं	Non-Ferror	erron	Plastic & C	r Gen	ists (	(O
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Sankyo & Co Ltd, Japan	7aE21							•															
Schierle Stahlrohre AG, Germany	6A42																						
Shanghai Jinchang Stainless Steel Tube Mfg Co Ltd, China	6J48																						
Shanghai Want, China	6A45																						
Shree Ganesh Forging Ltd, India	6A02																						
Siekmann GmbH & Co KG, Germany	6H28																						
Sistemi Meccanici Industriali Srl, Italy	8bG48																						
Sitindustrie, Italy	6F49																						
Sosta, Germany	6J41																						
Stahlkontor Hahn, Germany	6C40																						
Tasta Armatura Sp z.o.o., Poland	5D07																						
Tecnofar SpA, Italy	8aD15																						
Thai-German Products Public Company Ltd, Thailand	5H11																						
Thyssen Krupp Tubes, Germany	6C40																						
TMK, Russia	6A20																						
TPS – Technitube Röhrenwerke GmbH, Germany	6F18																						
Tube Solutions, UK	6A12																						
Tubificio di Terni SpA, Italy	6E50																						
UKF Stainless, UK	6B05																						
Umran Steel Pipe Inc, Turkey	6G02																						
USM Mazzucchelli Srl, Italy	8bD24																						
Wiederholt, Germany	6D09																						
Zeleziarne Podbrezova, Slovak Republic	6G21																						
Zhejiang Jiaxing Zhongda Group Co Ltd, China	7.1F01																						

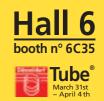
# Keeping an eye on your tube quality?



#### PRÜFTECHNIK – your specialist in nondestructive testing

- Eddy current testing systems
- AC flux leakage testing systems
- Hot rod testing systems
- Turnkey solutions





#### **Miscellaneous**

		Agents	Cleaning	Compor Coating	Compute Systems	Consult	Counting	Oils & L	Pipeline Protectic Products	Powder Coverin	Tumkey
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3R Solutions, Germany	EN03					•					
Aquarese, France	8aF45										
Bewo BV, Netherlands	8Be18										
E Braude (London) Ltd, UK	11E32										
Condat, France	10D56										
data M Software + Engineering, Germany	6A18										
ETEC Gesellschaft für Technische Keramik mbH, Germany	8aD13										
Euromaquina SA, Spain	7aB23										
Gallium Industries Ltd, India	7aE01										
GE Inspection Technologies, Germany	6E39										
Haeusler AG Duggingen, Germany	8bF29										
Jetclean GmbH, Germany	8bF37										
Lessmann GmbH, Germany	7.1F10										
Nakata Manufacturing Co Ltd, Japan	8bG09										
Numalliance, France	8bA28/A30										
OMNI-X CZ sro, Czech Republic	8aB46										
Pines Technology, USA	6F17-4										
Quaker Chemical, USA	6E29			•		•		•		•	
Re-Bo REBER GmbH, Germany	8bG29										
Reika GmbH & Co KG, Germany	7aD03										
RSA GmbH & Co KG, Germany	8bE28										
Superior Technologies Europe Ltd, UK	6A04										
Tecnofar SpA, Italy	8aD15										
TeZet, Switzerland	8aB30										
Timcal Graphite & Carbon, Switzerland	8bA03										
Tracto-Technik GmbH, Germany	6H18										
TSE GmbH Tube Scarfing Equipment, Germany	8aF46					•					
Tube Clean GmbH, Switzerland	7.1F02										
USM Mazzuchelli Srl, Italy	8bD24										



Manufacturer of Welding and Machining Equipment



tancy Services

Lubricants

Operations

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MF series
Cutting and beveling
workbench machines
from 60 mm to 406 mm O.D.
(self centering clamping system)



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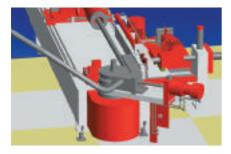






3R Software Solutions is a partner to many manufacturers of bending machines. The company's software is used extensively in German shipyards such as Blohm + Voss, NSWE, and Aker Warnow, as well as in the automotive and plant construction industries.

The company's Kolli bending simulation, now in its seventh generation, has become a benchmark for collision testing software and can be customised to meet most user demands.



3R's Kolli bending simulation software

Interfaces to the most common third party programs are available, including Tribon, AutoCAD, Inventor, Medusa and UniGraphics, while interfaces to other software can be implemented if required.

Rather than forcing the user to select from a list of pre-created models. Kolli 7 includes editor modules for tools, machines and materials. These allow users to create three-dimensional models of the exact machines and tools used in their pipe shop.

Special and multi-layered tools can be created in minutes, and modifications and extra features of machines can be included when the model of the machine is created.

The material editor makes it possible to take the special properties of different metals into consideration, such as differences in elasticity (springback values).

Isometric display of the tube created by the bending data allows for easy visualisation, and the program independently looks for alternative solutions if a collision occurs during simulation.

Using other 3R programs, like the RoniBase database program or the RoniCAD construction program, the user can create an integrated software framework. Because every program accesses the same database, there are no compatibility problems, since every program uses the same data.

Therefore clients will be capable of streamlining and controlling the entire fabrication process, from planning and construction to quality control. Progress of individual jobs can be checked at any point, so that the operator is always aware of the production status of every

The features of Kolli, RAMP, RoniCAD and other 3R Software Solutions programs are customised for the user, making the programs both easy to learn and comfortable to operate.

Website: www.3-r.de

#### Abbey International Ltd 6C05

Abbev International designs manufactures a wide range of welded pipe and tube mills, and advanced quick-change systems for new mills and retrofitting.



Abbey International manufactures welded pipe and tube mills

The company also offers a large selection of chain and hydraulic draw benches up to 450,000kg pull and up to 60m long. Abbey International is the exclusive distributor of Abbey Etna pipe mill equipment.

Website: www.abbeyintl.com

#### Ad Tubi Inossidabili 6D28

Ad Tubi Inossidabili SpA produces welded tube made of stainless steel, duplex steel, superduplex steel, and exotic alloys. The product range covers TIG welded round section tubes, with a dimensional range from 7.24mm to 50.8mm, and WT from 0.4mm to 3mm.

The company is highly specialized in the production of tube for heat exchangers, with special lengths/tolerances, in bright annealed executions. This type of product represents an average of 65 per cent of the company's complete output.

The company possesses ISO 9001:2000 and AD2000W0 certifications with TUV and Llovd's Register approval. Due to a fully controlled production system, certified production process and a fully equipped laboratory, Ad Tubi offers its customers a state-of-the-art product.

The company is currently undergoing a very interesting expansion project, focused on the building of a new factory that will be ready by mid-2008. It will allow the company to increase the quantity of material produced and also the range of dimensions offered, due to the introduction of new welding lines.

The new factory will be equipped with new modern machines, while continuous technological research and development will assure the highest quality standard. The installation of photovoltaic panels will be carried out for the production of electric energy to meet environmental requirements.

Website: www.adtubi.com



Meccanica Adda Fer supplies overhauled machinery and new plants, mainly for the production of electro welded tube. In addition to its main office, the company has a new branch in Mapello with a warehouse of more than 4,000m² and a large showroom for overhauled and new plants, and a Serbian commercial office providing service to the Balkan countries.





View of the flying cut-off

The company offers assistance during the project phase and during installation. Adda Fer also provides after-sale service and supply of spare parts and assistance. The company's development projects include large investments in Italy and abroad, in order to increase its production capacity and to open new business areas.

Meccanica Adda Fer overhauls secondhand machines or machines with deficient production, completely revamping them and equipping them with advanced automated and electronic systems.

The construction of new plants is the main activity of the company in terms of turnover, including machines for coil working and electro welded tube production.

Lines for the production of electro welded tube include complete profile lines for tube diameters from 1" to 16", machines for the finishing and testing of tube, and automatic packing plants for tube. Lines for the working of steel coils include slitting lines with a thickness up to 14mm, and cut to length lines.



The 8" tube line's forming stands

Recent plants include a new establishment for the production of tubes of diameter up to 8". For this project, the company supplied a slitting line (1,650mm x 8mm), a complete 8" tube line with inline normalisation system and automatic packing machine, a plant for the finishing and marking of tube, and a plant for hydraulic testing of tubes up to 13m.

Website: www.addafer.it

#### AddisonMckee 8aD48

Tube bending and end-forming technology specialist, AddisonMckee, designs, manufactures and supplies precision tube manipulation machinery, and provides solutions for increasingly complex aviation, furniture automotive, and shipbuilding tube bending requirements.

At Tube 2008, the company will launch two new hybrid (electrically and hydraulically powered) Databend models, as well as Addicheck, the company's newly developed non-contact tube measuring device. It is also intended that a Powerbend PB42 with tooling stack and optional push-bend will be on display.



1 Addisonmckee's Powerbend PB42 CNC tube bending machine

One of the new Databend models to be introduced, the DB89CBE, provides a multistack tooling, single-radius, cost-economic option for those customers not requiring the considerable 9-axis adjustability of AddisonMckee's DB75 ESRB.

The other new bender, DB20ESRD, further strengthens the company's product range for customers bending smaller diameter tubing typically for use in vehicle brake systems and air-conditioning.

The new Addicheck model embraces AddisonMckee's latest software technology for non-contact tube measurement, and benefits from the development expertise that was used to create the Addata 'G' Plus measuring solution. It provides levels of capability and functionality more suited to mid-market tube manipulation organisations.

The Addicheck offers extremely simple operatation and a competitive, non-contact probe measuring solution. It affords greater accuracy over contact tube probe inspection machines.

Website: www.addisonmckee.com

#### Aguzzi Srl 5B16

F.lli Aguzzi Srl is a manufacturer of steel piping, water pipelines and steel penstocks. The company, which operates various plants in Italy and abroad, started its production of large diameter steel tubes with a spiral cold-forming and welding plant (by double submerged arc).

The production also includes longitudinal welded tubes and related special components and fittings, including bends, branches, flanges, joints and heavy welded items. Spirally welded, large diameter steel tubes are available from 600mm to over 3,200mm in diameter, and from 5.6mm to 22mm in thickness. The company also produces plate-formed, longitudinally welded steel tubes, special pieces and components for higher pressure applications with thickness over 22mm.

The company also operates automatic end-preparation lines that provide bevelling for butt jointing or roll formed headings for spherical or cylindrical lap or socket joints. The lines also enable preparation and protective coating of the tubes by internal lining and external coating protection. Pipes can be delivered at the standard 13.5m length, or other lengths as required.

The company is active in many sectors, covering (water) pipelines, hydraulic power penstocks, foundation and consolidation works (on- or off-shore), large vessels, and heavy structures.

F.Ili Aguzzi Srl is a partner to many civil works contractors. Its offering spans the provision and erection of construction plants, including all necessary machinery and ancillaries, supervision at the start-up of production, full construction by qualified staff, and field assembly via welding and relevant non-destructive controls.

Website: www.fratelliaguzzi.it

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www.read-tpt.com



#### Aicon 3D Systems GmbH Germany 7aB01

Aicon 3D Systems is a provider of optical camera based 3D measurement systems. The company develops and distributes systems for the business areas of inspection and testing as well as car safety and tube inspection. The majority of Aicon's clients operate in the automotive and aerospace markets.

During the last 12 months, the company has refined its TubeInspect optical 3D tube measuring system in order to make it ready

Aicon's TubeInspect optical 3D tube measuring system



for new measuring tasks. With the release of software version 4.0, the system can now capture the segment of freeform tubes, in addition to its existing capabilities for the geometry inspection of conventionally bent tubes with constant diameters and the setup and correction of the corresponding bending machines.

By applying version 4.0, which will be delivered with the TubeInspect systems from January 2008, freeform geometries can be metrologically acquired, making it possible to inspect serial parts within seconds. For documentation of measuring results, the user can create templates that TubeInspect will fill with data.

Due to the intuitive user guidance and the brand new wizard for measuring of master tubes, users new to the field of optical metrology will be able to carry out measurements easily.

Version 4.0 will be delivered with all TubeInspect systems, from the TubeInspect measuring cell and the smaller TubeInspect S, to TubeInspect HD.

Website: www.aicon3d.com

#### Ajax Tocco Magnethermic 8bF24

Ajax Tocco Magnethermic Corp is one of the world's leading manufacturers of induction melting and heating equipment, with worldwide operations in nine countries.

Along with serving industries such as steel, automotive, forging and foundry, Ajax Tocco has a global commitment to the tube and pipe industry. As a result, Ajax Tocco has designed and installed induction-heating systems that are processing up to 120t of high quality pipe and casing per hour with consistent quality and ovality.

According to the company, this induction heating equipment provides a reliable and flexible supply of heat, with outstanding control. The Ajax Tocco converters facilitate this flexibility with a patented, wide operating window. This allows a larger range of sizes to be processed in one induction coil size without the need for capacitor or voltage switching.

Converting the barrel furnaces to induction heating for stretch reducing enables the

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The Heating a pipe using the machinery from Ajax

use of existing handling equipment and the advantage of fast, controllable, energy saving induction heating. The results can lead to dramatic savings in space, reduced energy consumption, improved quality and the benefit of recipe control.

Ajax Tocco is at the forefront of API pipe production for the oil and gas industry. Because casing drill pipe and line drill pipe reliability is crucial, the company believe it is a highly dependable source of supply systems to harden and temper pipe, casing and couplings to full API specifications.

An industry expert for tube and pipe heating, Ajax Tocco specialise in seam annealing, solution annealing, bright annealing, coating, bending and forming.

Website: www.ajaxtocco.com



Alcan Decin Extrusions sro, a member of Alcan EPBU Europe, is the producer of aluminium extruded products, including bars, profiles, and tube. The company is a key player in the European aluminium tube market.

Alcan offer drawn and extruded seamless and porthole aluminium tubes for automotive, industry, transport and interior applications.

Website: www.alcan.com

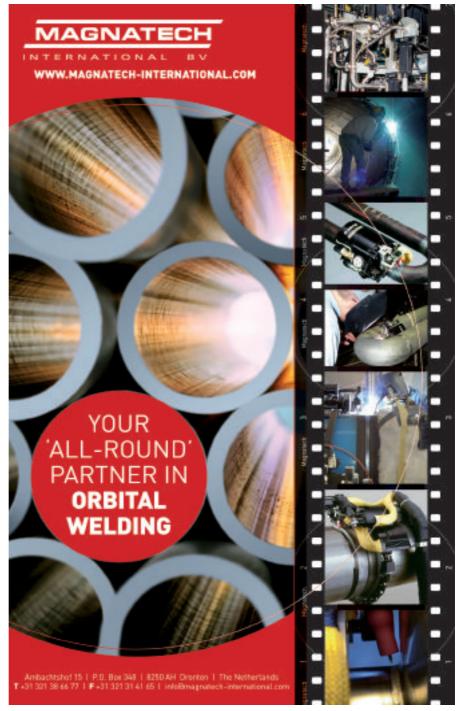
#### **Alcobex Metals Ltd** India 7D27

Alcobex Metals Ltd is an ISO 9001-2000 certified company engaged in the manufacture of copper and copper based alloy using hot extruded and cold drawn methods. With 40 years experience, Alcobex serves the power industry, refineries, offshore, shipbuilding, component manufacturers.

A key player in the world market for heat exchanger and condenser tubes, the company also offers solids and profiles in various alloys ranging from Ø 6-159mm and lengths up to 18m.

Alloys include 90/10 copper nickel, 70/30 copper nickel, cunifer 66/30/2/2, aluminium brass, admiralty brass, aluminium bronze, silicon bronze, phosphorus bronze, copper DHP/ETP, and copper chrome zirconium.

Email: export@alcobex.com



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Alfinox SpA is a producer of stainless steel tubes with HF and TIG welded tubes in lengths of 6m. These products can be supplied complete with brushed, polished and mirror finishing. Other dimensions with lengths between 4-12m can be produced according to specific requests.

The company manufactures these tubes on a computerised system, with quality certification according to ISO 9001 and TUV.

Website: www.alfinox.com



Alpha Metall develops and manufactures tube production equipment such as mechanical and hydraulic tube inside deburring systems for ID 14mm to 610mm.

Other equipment produced by the company includes strip edge shaving machines for aluminised and galvanised strips, and bead chippers to reduce the long deburred outside bead of tube to small chips, ideal for better stocking beside the tube mill.

The company also offers rotoscarf with oscillating blades (adaptable frequency and amplitude), to remove the outside tube bead (eg tubes for the furniture industry). Using the rotoscarf, there is no stop during the shift to exchange the OD scarfing inserts.

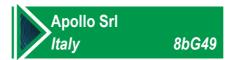
Alpha Metall also manufactures tungsten carbide cutting rings (standard, un-/coated, special design for special steel), ferrite cores for high performance HF welding, and epoxy tubes for impeders.

Website: www.alpha-metall.com



Anoop manufactures and distributes products including flanges and fittings - carbon and stainless steel - and stub ends. The range of flanges is produced in accordance with DIN standards, while table and screwed flanges are as per British and Australian standards.

Website: www.anoopforgings.com



Apollo Srl has been producing punching machines for tube, tubular sections and profiles for over 30 years. The company's Twin machines are produced in different lengths, and can be supplied with tubing loading/unloading storage. A modern double-gripper manipulator loads the pipe to be punched and then unloads it into a specific basket.

The Twin is capable of punching four slots at the same time and working two pipes simultaneously, thus doubling productivity. It is equipped with two opposed heads and can be supplied with a third vertical

Apollo Srl's Twin Semplificata



head. The machine can be equipped with tools that provide high tubing sliding speed without scratching, and can work semioval or rectangular tubes without blisters. Working accuracy is ±0.2mm from the first to the last hole.

The Twin Semplificata punching line is supplied with fewer accessories than other machines, but has the same build characteristics and can be equipped with the same tools as the classic Twin line.

Apollo Srl's Modular punching machine is available in different versions, from one to three punching heads, and is equipped with a quick punch changeover.

The machine is designed for punching material of an average size and with limited thickness, and its power does not exceed 8t. The machine consists of a closed-ring structure aimed at quaranteeing punches.



PMV is available in 30T and 50T versions

and long-lasting dies which are equipped with rapid tool changeover.

Another recently launched machine is PMV, available in two tonnages: 30t and 50t. This vertical single-punch model is suitable for punching pipes and bars, and can punch traversal holes or slots on one side only.

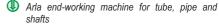
Apollo also produces PMV and Modular in the bench versions, the latter with one or two heads, suitable for small and medium productions. The piece loading/unloading operation is carried out manually.

Website: www.apollosrl.com



Arla Maschinentechnik GmbH, Germany, builds CNC controlled end-working machines for single-sided or double-sided end-working. The flexible endworking of tube and pipe is crucial for the production process.

The company's machines are based on a solid frame with one or two precise machining units, and include unique concentric work-holding technology. The Arla end-working machine can replace













two separate CNC lathes, operated independently on every side of the workpiece.

The principal difference is that this endworking concept incorporates a fixed workpiece and revolving tools. All machining units are directly driven by servomotors and are therefore very stiff and designed for high torques.

applications include Typical turnina. tapping, threading, chamfering, boring, drilling, milling, deburring, slotting, and other operations where additional slide units are necessary for multi-axis machining. In order to produce complex contours, facing heads can also be implemented in dedicated machining units.

Arla's clamping systems are available as independent units. According to the model size the maximum outer diameter is 5-410mm, which is compatible with a maximum pipe size of 16" or less. The high clamping force is between 10 and 175kN.

The workholding systems are actuated manually, pneumatically, or hydraulically. With reference to the workpiece design, changeable jaw sets are used to reduce the diameter accordingly, without readjusting the centre for every change of diameter. A further option means that workpieces can be clamped and held in a special release position for radial and axial adjustment.

Website: www.arla.de



Arvind Anticor Ltd is a manufacturer of acid pickling tanks made from corrosion resistant polypropylene thermoplastic. The acid pickling tanks are designed according to size and weight of load such as pipe, tube, bar, rod and structural steel.

Anticor PP tanks are used for pickling, degreasing, electroplating, rinsing, fluxing, anodising, passivation, pre- and posttreatment and metal surface treatment.

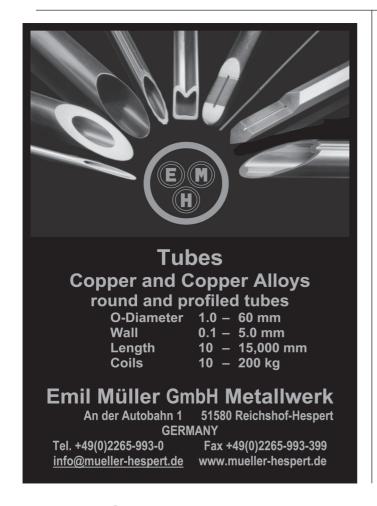
The tanks are housed in a steel structure frame for mechanical reinforcement. covered with fibreglass, and are designed to maximise the benefits of advanced materials over conventional alternatives such as brick lining and fibreglass lining.

Benefits include impact resistance. corrosion resistance, mobility, minimal weight, leak proofing, environmentally friendly and fume free, increased longevity and zero maintenance. Anticor Tanks are designed, manufactured and tested to DVS 2205 (German Welding Association) for safety and longevity, and are manufactured with certified life and chemical resistance.

Weld joints are tested as per German Welding Association DVS 2203. Welding quality is confirmed by a three point bend test. A specimen seam is subjected to a test of tensile and impact resistance. Leakage testing is carried out prior to dispatch by hydro, vacuum and spark test.

Anticor pickling tanks are supplied with accessories such as nozzles, heating/ cooling coils, integral suction ducting for fume exhaust, integral slope for drain, lifting arrangement and top lid cover.

Website: www.picklingplant.com





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Founded in 1984, Asmag is a respected worldwide plant supplier for the non-ferrous metal industry, steel industry and aluminium industry. The company is specialized in the development and production of high performance machines and production plants for the semi-finished product industry.

The production range includes run out systems, pointing machines, drawing machines, straightening machines, level winders, saws and cutters, and handling systems.

Numerous large-scale projects have been achieved worldwide with the plant construction capabilities of Asmag, whose engineering, automation and production departments are making continuous progress.

Asmag's delivery and service program comprises complete plant design. development and construction

fully automatic machines as well as modernisation of existing plants.

Website: www.asmag.at



ATI Srl produces stainless steel TIG and laser welded tubes ranging from 6mm to 168.3mm in diameter, and from 0.4mm to 6mm in thickness.

The company's products, which have been inspected and certified by international institutions including Llovd's, TÜV, Norske Veritas and Bureau Veritas, can be offered with a wide selection of finishes, from brushed and pickled to re-drawn, inside polished and annealed.

ATI round tubes are supplied to industries such as food, pharmaceutics, chemical, petrol-chemical, automotive, decoration, heating and plumbing.

Website: www.ati-tube.com



The Atomat Group - which includes six companies located in four countries - is specialised in products for steel and copper rolling as well as for the tube industry.

In particular, the Group produces and manufactures CNC machines for steel rolling such as notching and marking machines, grinding machines, turning lathes, and combined turning-notching machines.

Atomat also supply steel and carbide rolls for tubes as well as for hot and cold rolling of steel, copper and aluminium wire and

Renowned for its carbide rolls. Atomat manages the entire production cycle, from sintering of carbides (produced by an Atomat company via the sophisticated Sinter HIP process), to the finishing of products.

Website: www.atomat.com





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# Attl a Spol sro Czech Republic 8bC50

Attl a Spol has been in the metals business since 1920. The company produces mills for longitudinally welded tubes and profiles, using components of its own design.



Attl a Spol's tube mill

Of particular interest are the company's vertical accumulators, flying shear and flying cold saw, HF welders and bundling machines.

Website: www.attl.cz



Axxair offers expertise in orbital cutting, bevelling and welding of tubes, based on two industrial patents — one for its concentric clamping system and the other for carbide tip bevelling. The company also excels in orbital prefabrication welding.

Following successful 'V' orbital bevelling, the company is taking the advanced technology further, with bevelling in 'J', a suitable preparation step for orbital welding of tubes (thicker than 3mm). This includes a new SASL-200 generator equipped with touch display, computer assisted programming, AVC option and oscillation.

Axxair recently created two subsidiaries and three offices abroad.

Website: www.axxair.com

# Banyard (Inductoheat) *UK* 6A28

Geared to producers of seamless stainless steel tubing, Banyard will exhibit a display featuring the Banyard VSI (vertical steel induction) billet heating system. This equipment is designed for the precision heating of large diameter stainless steel tubes or billets prior to extrusion.

With the VSI system, varying billet lengths are automatically processed to a very precise level of temperature uniformity inside a vertical, multi-tapped induction coil. This is powered by a well proven Inductotherm VIP power unit.

Website: www.inductoheat.co.uk



Bema offers the new CNC end-forming machine, branded SER 6 x 'n' CNC (universal version 'BVR') with CT 1300 universal feeder. The machine – able to automatically end-form both sides of the tube – is equipped with a vertical clamping device, rotating units and chip container.

With a maximum 6t operating power, the machine is designed for tubes with a maximum Ø 90mm. A device with N working stations (minimal 8), the hydraulic/ electric machine is completely automatic on 3 axes. Different heads can be used, together with a connection to an automatic feeder and/or robot.

The end-forming machine can be interfaced with Bema's new Reverse 25 DS Elektra CNC bending machine. This fully digital and automatic machine has 12 axes for bending pieces with formed tube ends. The patented all-electric bending machine has an integrated feeder and unloader, with 2 bending-heads. It is equipped with a numerical control module 'ipc rainbow'.

The machine operates with right/left bending in the same cycle without the need to remove the tube. To help reduce setup time, the Reverse 25 DS has a number of 'N' tools permanently mounted on the machine (minimum of 6).

Website: www.bemagroup.it

# Bewo UK 8bE18

Bewo has recently launched its new SCF 90 Quatro automatic circular saw tube re-cutting machine, which is capable of re-cutting tubes at up to 6,000 pieces per hour.

The SCF 90 Quatro can cut up to four tubes at once (depending on diameter), using a high speed, servo drive controlled tube feeding carriage to transport a pack of tubes at up to 13ft/sec, to the required recutting length.

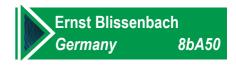


Bewo's SCF 90 Quatro can cut four tubes at a

Unlike conventional tube re-cutting solutions, the SCF does not require the use of target stops to define the required cut length. Instead, the servo drive CNC carriage allows the re-cutting list to be preprogrammed, via a full colour, graphical operator display.

The saw is part of a complete production cell including integrated brush deburring, non-contact tube length measuring and a 4 axis robotic pick and place tube packing system.

Website: www.bewo.co.uk



Blissenbach manufactures the new impeder 'safe coat' system. This system ensures that the crucial part of the impeder (the epoxy glass impeder casing), is better protected against the heat and hot spatter from the weld zone.

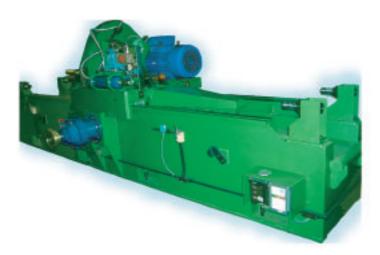
Due to the growing demand of return flow impeder systems (which are mainly used for small tubes or high carbon materials),





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Blissenbach's new return flow impeder systems

it was important to look into a solution that increases the lifetime of the impeder casing. The objective being to make it resistant to the molten particles that cannot be flushed away - a problem that is not experienced when using through flow impeders.

Improved impeder casing has been achieved by applying a special coating to the surface of the casing. Since the introduction of this new product, users have reported reduced downtime by an average of around 30 per cent. The new safe coat impeders are available for all sizes as well as for through flow or return flow systems.

Blissenbach also offers an entire return flow system without any cooling inside the tube. In addition, recirculation inside the IDscarfer mandrel itself makes sure that the tool body does not get overheated.

Blissenbach has launched the next smallest generation of mechanical ID-scarfer systems that includes an impeder for tube 10.5mm to 12mm ID.

Website: www.blissenbach.de

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#### **Borusan Mannesmann** Turkev 6A39

Celebrating its 50th anniversary this year, Borusan Mannesmann Boru is a leading company in the Turkish steel pipe sector. The company provides products for construction, automotive, installation, white goods, natural gas and furniture sectors.

Borusan Mannesmann Boru products include natural gas pipes, concrete pump pipes, oil pipes, and grooved pipes.

in 2001, were united under the main partnership and management of Borusan Mannesmann Boru Inc.

Borusan Mannesmann Boru exports its spiral-welded line pipes to Algeria, Kazakhstan, USA and Canada, and to more than 100 other countries. The company has successfully accomplished major projects in Algeria, and is strengthening its position in the region with new projects.

The company will solely provide the pipe supply of a new line that will increase the



Borusan Mannesmann Boru is a leading company in the Turkish pipe sector

The company also offer spiral welded linepipes for infrastructure projects such as water, natural gas and oil transmission lines, industrial pipes and profiles, boiler pipes, construction pipes and profiles (Borusan-Pro) and Borusan SRM pipes. The range also includes PPRC pipes and fittings, PVC-U pipes and fittings for water pipes, and pipes for general purposes.

performs production The company activities at its factories in Turkey and provides production for the European automotive sector at the Vobarno factory in Italy.

In 2006, the company established a new factory in Spain designed to cater to the North African, Middle East and European markets. In parallel with this, all overseas companies, including the cold-drawn pipe facilities in Italy purchased by Borusan amount of natural gas carried to east and south-east regions of Georgia, USA. The pipeline, scheduled to be completed in mid-2010 with a total length of 312km, will have a yearly capacity of 34 million m<sup>3</sup>.

Website: www.borusanmannesmann.com



large-scale European Bosal is manufacturer of tubes, with specially equipped factories in Belgium, France, the UK and South Africa. The company supplies round, oval, rectangular, square or any other shape of tube.

These tubes can be supplied as TIG-welded and thin-walled (0.3mm up to 1.2mm), or high frequency welded and thicker-walled (0.8mm up to 3mm), produced in cold reduced, hot rolled, galvanised/aluminised steel, plain or perforated tube.

With ISO and TS 16949 certification, the company manufactures its products on advanced tube mills, using the most upto-date decoiling, forming, welding, cutting and packaging methods.

Website: www.bosal.com/tube

#### Precision Aluminium Tube, Rod, Profile & Tube In Coil Form

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**ENGINEERS** 



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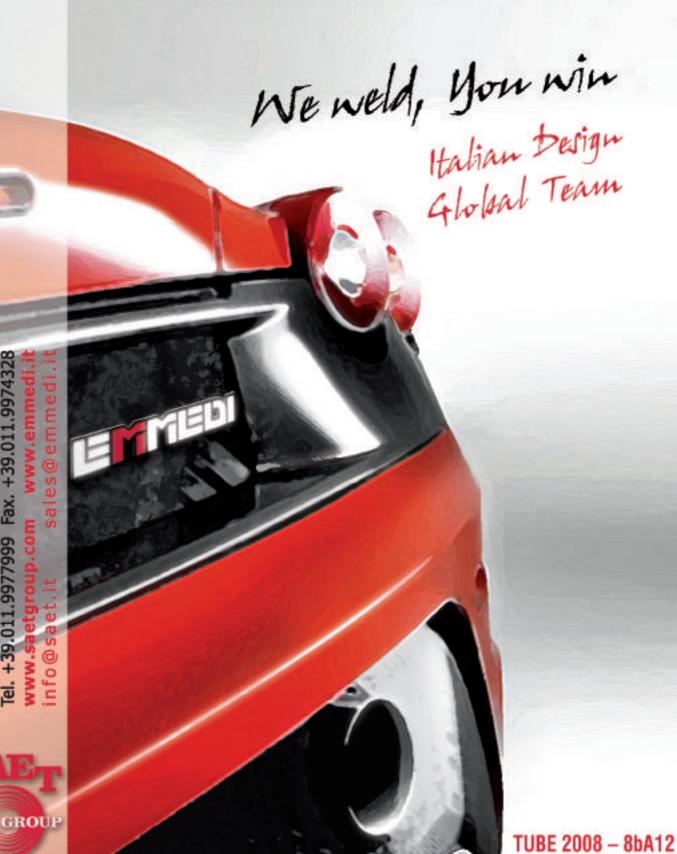
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Bossi Srl manufactures machines for metal surface finishing, and has more than 40 years of experience in the field. At Tube 2008, the company will introduce its updated range of machines for use in tube mills with TIG, laser and HF welding systems. They are used for working stainless steel round, square and rectangular tubes.

Bossi's inside bead control machines are used for removing the internal weld bead of tubes used in the alimentary and pharmaceutical field (for TIG and laser welding lines). They also provide machines for removing the external weld bead of tubes (for TIG and laser welding lines), and machines for tube external brushing (for TIG, laser and HF welding lines).

The company's brand new product is the planetary brushing machine model PL 250/118 Fast 3 for laser lines, which is able to work at a maximum tube feeding speed of 15m/min. It takes up the same space as a normal brushing machine for TIG lines.

Bossi will also present the new development of grinding and polishing machines to be used off-line.

Website: www.bossi-srl.com



With over 50 years in the industry, Braude is a specialist manufacturer of non-corrodable heating and cooling equipment for the highly corrosive liquids found typically in pickling, plating, anodising and other chemical processing operations. The company's expertise is in heating aggressive and corrosive solutions that conventional equipment cannot withstand.

All products are manufactured from high integrity chemically inert fluoropolymers (ie Teflon™), and have been designed to ensure long life in aggressive solutions. They are all manufactured to the highest quality standards: Braude is an ISO 9001 registered company

Braude manufactures the Nautilus range of tank heaters and Jet Stream external

heating and cooling systems. These systems are particularly suitable for larger scale pickling and processing operations.

The Nautilus tank heater consists of a fluoropolymer element mounted on a strong polymer frame for good chemical resistance. The heater is immersed at a suitable location within the process tank and easily connected to the heating source by means of sturdy flexible connections.

The Jet Stream is a complete system comprising a non-corrodable fluoropolymer heating/cooling element, external tank, recirculation pumps and controllers for temperature and system operation. It is ideal for arduous heavy industrial pickling and process applications where the heat exchanger requires protection from damage by the workload, as found for example in the steel, tube, wire and galvanising industries.

Both systems are suitable for use with steam, hot water and, in some cases, thermal fluid. The element can also be used with chilled water for cooling applications. Each heat exchanger is made to suit the tank in which it will be installed and the company calculate the size of each unit based on information supplied by the end user.

Other Braude products include the Polaris non-corrodable electric immersion tank heaters, and the Thermaster, Levelmaster and Tankmaster range of temperature and liquid level controllers sealed to IP65.

Braude also produces a range of selfpriming chemical service pumps, suitable for use with highly corrosive solutions such as hydrochloric, hydrofluoric and sulphuric acids – with flow rates up to 35m3/hr.

Website: www.braude.co.uk



Bronx/Taylor-Wilson provides technology to the metals finishing equipment industry. The company's innovations in cross roll straighteners, hydrostatic pipe testers and end-finishing machines have led to over 1,000 installations, including more than fifty new installations in the last few years.



A 10-roll straightening installation from Bronx/ Taylor-Wilson

The company's team of design engineers, sales executives and support staff with offices in Asia, Europe and the US are able to provide both new and retrofit finishing solutions.

Website: www.btwcorp.com



Buhlmann is a global supplier of tube, pipe and other materials, with a wide range of product stock and comprehensive service network.

The company's whole product range conforms to relevant standards (ie ASTM/DIN/EN). It includes alloy and carbon steel tube and pipe, seamless and welded stainless steel tube and pipe, and flanges in carbon, alloy and stainless steel.

The company can also provide long and short radius elbows, tees, reducers and caps – seamless and welded – in carbon, alloy and stainless steel.

The Buhlmann Group specializes in providing complete solutions for pipeline construction. As an industry partner, the company can supply plant contractors and companies in various sectors, including the energy, chemical, petrochemical, shipbuilding and mechanical engineering industries.

Website: www.buhlmann.de





Buigstaal Tube Bending Alkmaar is the manufacturer of small tube production batches (up to a 100 parts), delivered to customers all over the world. The products are ready made for assembly at the customer's production line according to user specification.

The company has recently installed two new bending machines - a CNC 50 MR and a CNC 80 MR TB. Both machines have the capability to bend up to 1D radius and multiple radii in one product at a high speed.

Buigstaal performs drilling, milling, forming and welding operations on the tubular products, in addition to bending radii from 3mm to 168mm tube diameter. Buigstaal can arrange surface treatment of the products and packing and transport to workshops all over the world.

The company produces a wide range of products from stainless steel pigtails for petrochemical plants and bent tubes used in nuclear installations, to motor piping for buses and tubular components used for machine building.

Website: www.buigstaal.nl

#### **Bültmann GmbH** Germany 8aD01

Bültmann manufactures tube production delivery lines that are characterised by an automatic working mode. The company has recently delivered two tube production lines to steel tube manufacturers, with start-up of the lines due soon.

Using these production lines, one operator is responsible for tube separation, pointing, drawing, chipless cutting and straightening. Another operator controls the sawing, chamfering and testing (including eddy current testing and ultrasound testing).

The production line is completed by an automatic bundling and strapping line.

Website: www.bueltmann.com

## **Burr Oak Tool & Gauge** 7.1D01

Burr Oak Tool and Gauge Co Inc has 60 years of experience in machine production for the heat transfer industry, with a range including presses, dies, tube benders, coil form, tube expanders, cutoff machines, and a new line of brazing machines.

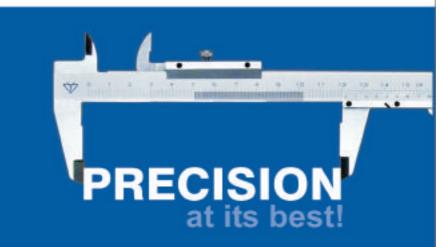
With dedication to design excellence, Burr Oak supplies high-quality machine

tools for the production of evaporator and condenser coils in the air conditioning and heat transfer industry. As a result of years of development, the company can provide machines that are flexible, accurate, and robust enough to withstand the most rigorous production requirements.

Safety, speed and durability are backed up by a team of professionals dedicated to producing machines built to last with upgradeable components.

Website: www.burroak.com





We are KLT Automotive and Tubular Products Limited, India's pioneer precision engineering company. And for us precision is all about meeting the highest standards of quality and innovation. Be it in the way we manufacture or the way we service. Which is why, all our products are technology driven-from Precision Tubes for automotives to Energy Applications and Hydroforming Components. Because when it comes to technology, we ensure you are never left far behind.

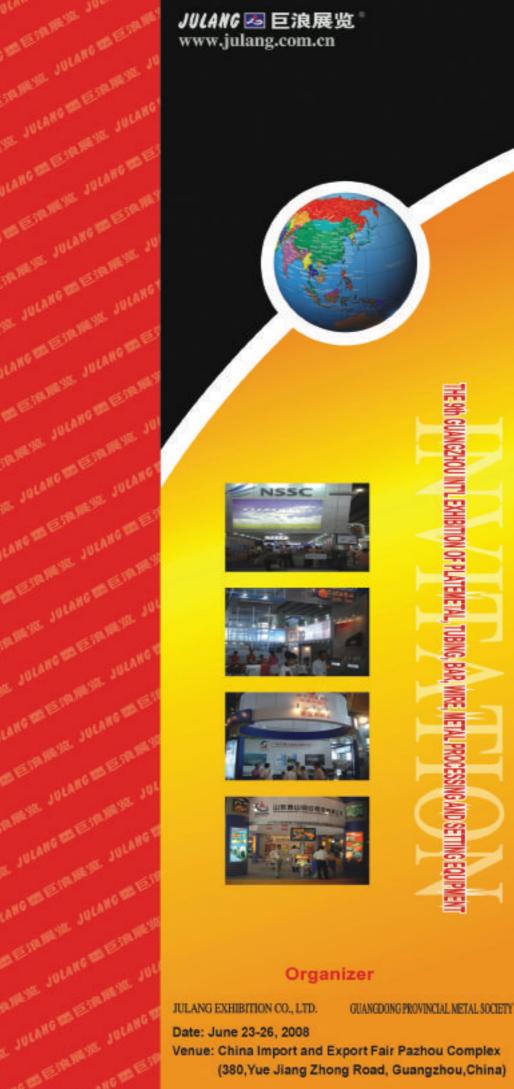
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BWE Ltd are the manufacturers of Conform™ and Conklad™ continuous extrusions machines for tube, cable, sections and other products. The company has recently secured contracts for a range of small to large machines for copper applications in Europe, the Far East and the Middle East.

BWE Shanghai Ltd was established in 1995 and has been very successful in manufacturing cold pressure welders. In 2002, BWE Shanghai Ltd opened its new modern factory in Pu Dong, China and has since supplied a number of Conform machines to the Chinese domestic market.

The company now offers Conform machines built by BWE Shanghai Ltd to world markets at reduced prices. These machines will be manufactured and assembled in China, under the supervision of BWE UK specialists. All machines will be subject to final inspection and CE certification in the UK. Standard design features include a planetary gearbox to ensure long bearing life.

Initially, BWE will begin to offer their popular Conform 315 machine for small copper and aluminium applications. Other machines in the BWE range will follow in the future. BWE's new and unique developments - such as the successful induction heated tooling system - will be available as options.

Website: www.bwe.co.uk



Can-Eng Furnaces is a designer and manufacturer of industrial heat treating equipment. At Tube 2008, the company will showcase its latest developments in heat treating technology for the thermal processing of tubes, pipes and long products.

The company's continuous steel long product heat treatment systems have fully integrated hardening, quenching and tempering for high volume and continuous production up to 36,000kg/hr of long



Can-Eng's continuous heat treatment system

products. Its spray quenching systems maintain bar straightness and provide for uniform metallurgical and mechanical properties.

Can-Eng's car bottom furnaces are suitable for a variety of thermal treatments, including stress relieving, annealing, heating for hot work, austenitising and normalising. The designs operate up to 1,300°C, with optimum circulation of hot gases and easy clean out.

Can-Eng's walking beam furnace lines heat treat up to 10,000kg/hr of both symmetrical and non-symmetrical parts. The company's roller hearth furnaces are workhorses for heat treating a wide variety of materials.

Website: www.can-eng.com





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Weather Resistant WRS - IS:4923 Corrosion resistant



CIRCULAR - IS:1161

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For technical details, log on to www.tatatubes.com or e-mail: tatastructura@tatasteel.com or call: +919231018655



# Cartacci Srl

7aE20

Since 1967, Cartacci Tube Machinery Srl has installed more than 500 systems of draw benches and straightening equipment for cold and hot tubes.

Recent draw benches designed and built by Cartacci to reduce the manual intervention of operators have ensured higher productivity and security. The has introduced company partially automatic draw benches and draw benches with elevated drawing force. The company's most developed draw bench has a maximum drawing force of 300t.

Cartacci's continuous marketing research has led to production of straightener for upset tubes. Operation of these straighteners is based upon sophisticated logical and advanced technological

Straightener model RDT 10V4





 Cartacci builds draw benches with drawing forces of up to 300t

solutions. The fast opening/closing of every roll mechanism allows for an efficient passage of each upset configuration, with the maximum straightening capability on every length of tube.

The company has opened a new branch, Cartacci Handling & Research Srl, to offer automatic bundling lines which can be installed in-line with production plants such as grinding lines, drawing benches, roll mill and straightening machines, or with finishing processes such as chamfering, reeling, thread cutting and all processing involving manual bundling.

The main purpose of the new systems is to provide better productivity, higher product quality and greater safety in the use of the machines.

Website: www.cartacci.com

## **ChTPZ** Russia

7aB21

ChTPZ Group is one of the leading Russian industrial holdings, with 22 per cent control of the Russian tube and pipe

The Group's enterprises produce a full range of pipes required by oil and gas companies. The ChTPZ Group corporate strategy is designed to meet various needs of Russian and international oil and gas companies.

The ChTPZ Group includes JSC Chelyabinsk Tube-Rolling Plant, **JSC** Pervouralsky Novotrubny Works, **JSC** Chelyabinsk Zinc Plant, pipeline bending producer CJSC ChTPZ-Integrated Pipe Systems, steel trader MeTriS, and scrap recycler CJSC ChTPZ-Meta. In addition, Arkley Capital Srl, Luxemburg, is an asset manager for ChTPZ Group.

Established in 1942, Chelyabinsk Tube Rolling Plant (www.chtpz.ru) is one of the largest Russian steel tube and pipe manufacturers.

Chelyabinsk Tube Rolling Plant currently produces over 2,600 sizes of tube and pipe to meet the requirements of domestic and international clients. Chelyabinsk operates a quality assurance program and is in possession of all major licenses for international standards.



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DWT GmbH, Germany info@dwt-gmbh.de www.dwt-gmbh.de



CARTACCI Srl, has been operating for more than 40 years in the manufacture of automatic straightening machines and draw benches for cold tubes.

We keep abreast of the worldwide producers of steel, brass, aluminium and precious metals tubes, with our own engineering, continuous innovation and upgrading experience.

Our goal is to succeed in understanding the specific requirements of each manufacturer, finding the best solutions with a high performance, which are customizing on the client's specific demands.

Go to www.cartacci.com and we will meet up all your expectations!

Via Comonte, 33 - 24068 - Seriate (Bergamo) - Italy /Tel.: +39 035 294371 / Fax: +39 035 290514 / e-mail: cartacci@cartacci.com







The production of tubular goods at Pervouralsky Novotrubny Works (www. pntz.com) started in 1934. Since then, the facilities have developed into one of the most technically advanced in Russia. The facility now produces over 25,000 sizes of tube and pipe from 240 grades of carbon, alloy and stainless steel.

The production program includes diameters up to 219mm, which is one of the most diverse diameter ranges in Russia. Quality management systems implemented at the Works are in compliance with API Q1 and ISO 9001.

CJSC Trade House Uraltrubostal is an exclusive agent of JSC Chelyabinsk Tube-Rolling Plant and JSC Pervouralsky Novotrubny Works. Uraltubotstal provides a wide range of trade operations for tubular products worldwide.

With a trade network located in 26 cities, the Trade House works with companies representing different sectors including oil and gas, machinery-building, metallurgy and construction.

Website: www.chtpz-group.ru

#### Contrôle Mesure Systemes France 7aE24

Contrôle Mesure Systemes (CMS) is a leading manufacturer of NDT equipment, with specialization in eddy current, flux leakage and ultrasound testing.

CMS is an expert in the inspection fields of tube, bar, wire and special profiles. They offer surface defect detection by eddy current and sub-surface defects by ultrasound.

CMS has the ability to supply complete system revamps, or just new accessories. A sister company of CMS provides the knowledge to provide drawing or full mechanical systems, for EC, MFL and UT. All equipment is in compliance with the strictest standards including API, DIN, ASMT, and GOST. A worldwide network of agents enables the distribution of CMS equipment in more than 25 countries.

CMS is also able to offer fully customized systems, multi-channels, and multifrequencies with heavy specifications.

Website: www.cmseddyscan.com

## Combilift Ireland

3G34

Combilift will display the versatile capabilities of its wide range of forklift models, designed for safe and space saving handling of long and bulky loads.

The Combilift is essentially three machines in one, working as a counterbalance, sideloader, and narrow-aisle forklift. It works both inside and outside on semi-rough terrain, while harsh weather conditions such as snow do not hamper operations.

Sideways travel enables the trucks to work in aisle widths of just 2m, which allows maximum use to be made of all available storage space. Many customers also choose to install guide rails alongside racking, which helps to speed up storing and picking while preventing product damage.

Fully synchronised 4-way steering ensures manoeuvrability and flexibility of use. The Combilift can be deployed from the initial stages of offloading raw materials, during the manufacturing process, through to the









### You'll see the difference in your tube and pipe products and in your bottom line.

Quaker is the only tube and pipe industry supplier with systemwide expertise and a comprehensive portfolio of processing chemicals. We take an integrated, "front to back" approach to helping you solve your business and manufacturing challenges. To help you gain a global competitive advantage, Quaker offers:

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- Unrivaled global technology and process knowledge to facilitate easier startups and ensure consistent quality standards.
- A proven, systems approach for continual process and productivity improvement.

Our portfolio includes coatings, corrosion preventives, coolants, lubricants and low-VOC products that meet tough environmental and safety regulations.

Find out how to get a competitive edge with Quaker Chemical. Anywhere and everywhere in the world.

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handling, storage and despatch of finished products.

Since the introduction of the original IC powered Combilift some years ago, the company has, on average, launched a new model each year. Capacities range from 2.5t to 14t, with a choice of diesel, LPG and the more recently introduced electric power options.

The wide variety of lift capacities, mast heights, platform dimensions and range of available attachments means that each Combilift is effectively purposebuilt to provide a customised handling solution.

Website: www.combilift.com



Condat will display its extensive range of lubricants covering all industrial needs in the fields of rod wire, cold rolling, wire drawing, drawing of bars and tubes, and cold heading.

Products include Vicafil® lubricants for wire drawing applications, Steelskin® specific high tech dry lubricants, Lubrinox® specialised oil range for stainless steel applications, and Steagel® grease and paste for all applications. Other products include the Condatub special range for steel tube and bar applications, Galvasmooth® range for



Oils and powders from Condat

galvanising wires (for hot dip processes), the Condaclean range of cleaners for all applications, and Extrugliss® dual purpose oil range for cold heading applications.

The company will present its 'Pellet' dry lubricant technology, a dust-free lubricant range which provides low soap consumption.

Condat will also display its latest lubricant developments that comply with the most recent European legislations and constraints (Reach), and the first environmentally friendly alternative to zinc phosphate coatings for cold heading with its Vicafil and Extrugliss product lines.

Website: www.condat.fr



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Network: To service our customer we have more than 30 representative worldwide talking care of our business interest.

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SOLID & PROFILE





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Couth Butzbach GmbH is a specialist manufacturer of tools for direct part marking. These marking tools are used for conventional marking, such as hand stamps or punching dies. They can also be used with a semi-automatic installation of such tools in unroll machines or presses for the marking of pipes.

If marking is carried out from one pipe to the next with constantly changing text, it can only be controlled by dot marking machines. The related controller will controls the marking of numbers, letters, logos and data matrix code. These dot marking machines can achieve marking speeds of up to 16 characters per second and penetration depths of up to 0.8mm.







#### HIGH QUALITY BELT GRINDING AND POLISHING MACHINES FOR ROUND AND SHAPED TUBES/BARS







IN-LINE PLANETARY BRUSHING MACHINE, WITH 2 BRUSHES, MOD. PL 250/118 FAST 3 FOR LASER LINES Max. tube feeding speed 15 mt/min. High performances in reduced overall dimensions

#### The most advanced solutions for finishing tubes and bars surface, including:

#### off-line machines

- Flat belt grinding and polishing machines for square/rect, tubes and bars, max. speed 30 mt/min.
- Belt grinding and polishing machines for round tubes and bars, max. speed 15 mt/min.
- Longitudinal brushing/polishing machines for round and shaped tubes

#### in-line machines

- Inside bead control machines for TIG and LASER lines
- External tube weld grinding machines for TIG and LASER lines
- Brushing planetary machines for TIG, H.F. and LASER lines
- Brushing machines for square/rect, tubes for TIG, H.F. and LASER lines

[Net]







The dot marking devices are available as mobile or column system or as a mounting system for integration into production lines. The company also produces special dot marking machines for marking (eg cylindrical products) with temperatures up to 900°C – ideal for pipe manufacturing.

Website: www.couth-butzbach.com



CSM Tube will present its latest products concerning heat treated stainless steel tubes for heat exchanger and water boiler applications.

With many years of experience in the field, the company has developed a process to weld and bright heat treat tubes externally and internally, in the complete absence of any level of oxidation. This ensures CSM Tube is a trusted supplier to the larger manufacturers of beer and soft drink coolers. where perfect cleanliness and total absence of oxidation are essential requirements.

With over 17 million metres of tube supplied during the past year in more than 50 countries. CSM Tube is a leading manufacturer and supplier of stainless steel tube in as-welded and heat treated conditions, in coils and lengths up to 14m.

CSM Machinery (also part of the CSM Group) also supplies different configurations of process lines for coiled tubes, including uncoiling, straightening, OD calibration, cutto-length and end finishing.

Website: www.csmmachinery.com



Dana Trade has more than 15 years of experience in steel trading throughout Europe, the Far East and the Middle East. The company's main products include black welded steel pipes and hollow sections, tube and pipe for scaffolds and construction, pipes for furniture/household goods, and ferrous seamless tube and pipe.

Website: www.danatrade.com

#### **Data M Software** Germany 6A18

At Tube 2008, data M will present the new version of its finite element simulation solution for the roll form process - branded Copra® FEA RF 2009.

Copra® FEA RF enables the user to understand the roll form process, trace reoccurring problems and undertake target-oriented optimisation. Roll form technology is constantly developing so it is essential to add new possibilities into the FEA software.

Copra® RF 2009 comes with a new package and many additional possibilities for the simulation of roll formed tubes and sections. The new version comes closer to reality than any other simulation or analysis software. In addition to the improvement of FE Analysis software, Data M has also enhanced its the design package Copra® RF.

One of the extra features is the handling and transfer of cage forming methods and interfacing to 3D CAD/CAM Systems, Inventor and SolidWorks.







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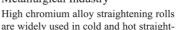
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### SiFang China

Shandong Province SiFang Technical Development Co., Ltd

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





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





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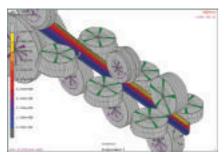
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Up to version 2007, Copra® FEA RF worked without friction and rolls were not rotating. This has advantages for the estimation of the quality of the design itself, but it did not take into account design elements like a step up of the root diameter, and longitudinal elongation or hole deflection of the strip caused by different speeds. With Copra® FEA RF 2009 it is now possible to automatically build an FEA model with rotating rolls and friction.

Using the software, it is possible to easily input the machine's speed settings, which

Figure of model with friction/rotating rolls. This model includes driven rolls at specific rotational speed (purple arrowed), idler rotating rolls, driven by speed of the sheet (green striped), deactivating of welding addition and welding, and drawing die (with friction) for improved forming process



include driven/non-driven axis, rotational speed (for driven axis), gear ratio, and frictional behaviour. Also possible is the investigation of the elongation of the tube during forming and calibration (eg due to step-up of roll diameter). It also possible to investigate the difference in behaviour between driven top and bottom roll or driven only bottom roll.

The software is used to show the pulling and/or braking behaviour of driven stations. The simulation displays if the profile will 'get stuck', whether there are any defects, and the braking behaviour of non-driven stations. Furthermore, it investigates the line speed as a function of the rotational speed and friction settings, rotational speed of the non-driven axis, and the driving torque of the driven axis.

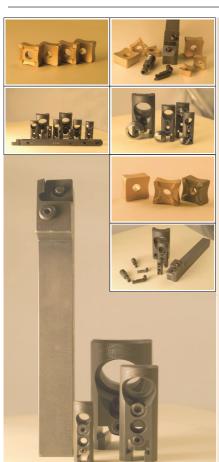
Calculating a simulation with rotating rolls and friction is especially interesting for thin wall tubing. It makes a difference if one station is pushing too much and the continuous tension is not guaranteed over the complete line.

Investigation of pressure distribution is also possible (eg for breakdown or idler stations), especially in the fin stations and calibration stations. This is carried out by the use of contact pressure by arrows. The weld process can also be calculated for unsymmetrical sections and use of more than one processor. Unsymmetrical welding can also be calculated with or without taking into account the weld addition. A restart is now possible during the simulation of the calibration stations (eg in round-to-shape), and also when started from the round tube.

This version includes an IGES and DXF interface to export the results of a simulation to, for instance, Inventor or AutoCAD. The complete 3D deformed sheet is exported. The design of a cage can be undertaken very easily, with results automatically prepared for simulation. In addition to optimising tube forming quality, the simulation helps to optimize other factors (eg downhill and cage-mill-settings).

data M will also present an interface for SolidWorks. It allows the transfer of a roll design directly into SolidWorks where it can be completed (eg by adding the stations, tool holders for accessory rolls or similar extra equipment).

Website: www.datam.de







Design, production and customer service: the best choice for scarfing inserts and tools.

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www.read-tpt.com



#### DB Engineering (P) Ltd India 7.1D39

DB Engineering manufactures forming rolls under the Atlas brand, together with tube cut-off blades and alfa shears. The company's roll manufacturing shops use state-of-the-art manufacturing equipment, including CNC machining and turning centres, bore, OD and profile grinding machines, and finishing and polishing machines.

The heat treatment shops have atmospherecontrolled furnaces with automatic controls and recording of heat treatment processes, and a metallurgical lab.



Atlas tube cut-off blades and alfa shears

DB Engineering has comprehensive inhouse design facilities, including special computer software that aids the building of designs to user requirements. The company's inspection facilities include the testing of steel, computer simulation of designs to locate stress and wear areas in production, and the checking of accuracy and consistency of profiles, surface finishes and dimensional tolerances.

Website: www.skberi.com



Delmas is a European manufacturer of precision welded steel tubes with very small diameters. The company's technology allows it to adapt production to specific requirements, such as tight diameter tolerances, tubes cut in fixed lengths, and deburred and annealed tubes with very bright surfaces.

Delmas offers precise outside and inside calibrated tube. Products range from 3mm to 15mm OD, and from 0.5mm to 2mm wall thickness.

Website: www.delmas-tubes.com



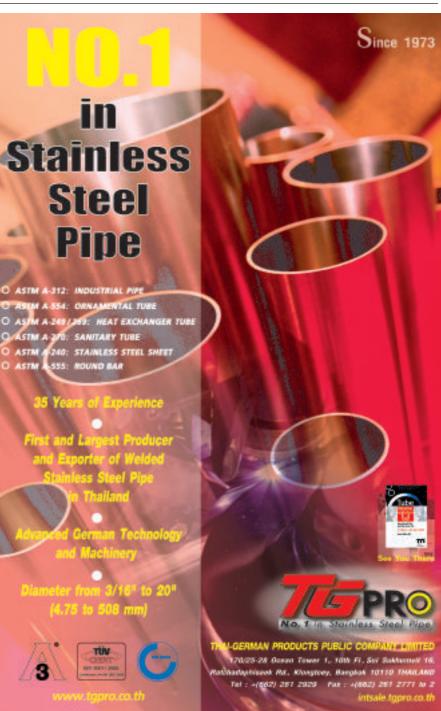
Die Quip will exhibit its range of tube drawing equipment, designed to improve the quality and consistency of tube drawing tooling and reduce tooling inventories, while increasing the life and productivity of tooling.

The rigid design of the company's grinding equipment ensures accuracy and

consistency of die geometry, from one die to the next. Together with rigid autofeed, Die Quip's powerful electric spindles provide the ability to remove wear, increase dies to larger sizes and function with large diameter dies.

The company has four sizes of internal grinders - with manual or semi-automatic operation - designed to meet any production requirements. Die Quip's plug grinder enables the easy production of semi or full floating mandrels as small as 0.25mm. The company's polishing tools









Today Borsen is not only a distributor of steel pipes, valves and fittings but also a leading manufacturer of TIG welded stainless steel pipes in Turkey.

All manufacturing units have the highest technology in combination with QS according to EN ISO 9001:2000 and EN ISO 14001:2000. The tubes are produced in the grades 304, 304L, 316L, Dublex and Superdublex. Outside diameter range: 19 mm - 76.1 mm. Wall thickness: 0.5 - 4 mm. Length: 3 m to 12 m.









### Borşen Boru Sanayi ve Ticaret Ltd. Şti.

Headquarters / Factory

Dudullu Organize Sanayi Bölgesi 3. Cadde No: 20 Ümraniye - İSTANBUL / TURKEY Tel: +90. 216. 466 37 05 • +90. 216. 590 04 04 Fax: +90. 216. 420 65 53 • +90. 216. 415 13 80





A Die Quip grinder

allow a machine grind finish in order to eliminate hand polishing, thus increasing die production and productivity of the die.

Website: www.diequip.com



DWT has been the license manufacturer of portable pipe bevelling machines under the brand name Babcock for over six years. This range was originally developed by boiler manufacturer Babcock based on the onsite knowledge of its workers.

Designed to improve the welding process, the rugged and compact machines have a high metal removal rate and are easy to handle. Especially designed for boiler walls, DWT offers very special applications for onsite operations with flexible and low weight machines.

In practice it has been proven that weld preparation of tube ends considerably influences the quality of the welding junction. For welding applications of tubes with a high wall-thickness and for orbital

The model MF6i-50 portable pipe bevelling



welding technology, the welding engineer currently requires a perfect and effective weld preparation by use of mechanized weld preparation.

DWT has introduced the new machine, model MF6i-50, which can be used for onsite machining of pipe diameters up to 711mm ID. The lightweight machine is driven by pneumatic motors that are controllable by a single operator. The machines have a high metal removal rate, are easy to handle and are constructed in a rugged and compact way.

Website: www.dwt-gmbh.de



Mandrel bending specialist, Dynobend, has introduced the combi-bending machine. This CNC bending machine, equipped with servo drives, combines the advantages of rolling with variable radii and the mandrel bending technique.





IMS Measuring Systems are designed for on-line, non-contact Operation in the Measurements of:

- Single Wall
- Mean Wall
- Eccentricity
- Length
- Tube Inside Shape
- Diameter
- Ovality
- Thick Ends

# **Competence** in **Tube Measurement**



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The patented Dynobend bending tools (horizontally divided/vertically clamped) can be used to bend fixed radii from approximately 1.2 x D to 3 x D. The rollers can also be used to roll larger radii. In combination with the compact bending head, users have the means to bend many different types of products. Many kinds of tools can be used together with the fixed tools, eg the multi-ball mandrel, wiper die and pressure die.

The machines are constructed using standard modules. The complete line of combi-bending machines consists of the CB12, CB25, CB40, CB60, CB76 and the CB90. All machines are equipped with a booster, modem and network connection.

By using the correct tools, rectangular tubes and all kinds of profiles can be bent, with different types of materials presenting no problems. When the machine is used for mass production, it can easily be extended by adding a bunker, loading systems, weld seam detection and unloading systems, allowing the bending machine to play a central role in the production unit.

Website: www.dynobend.com

#### **EFD Induction as** Norway 6C06

EFD Induction is a leading supplier of industrial heat solutions based on induction technology. The company has introduced a patented solid-state concept that promises to significantly boost tube-welding output, with higher efficiency, quality and more uptime.

Weldac solid-state welders come with a 5-year warranty for their inverter modules. driver cards included. Since its launch, the Weldac system has become a proven solution, boosting welding productivity at companies worldwide. Weldac's reliability is based on a robust design and robust components. The IGBT transistor solution makes the Weldac virtually short-circuit proof, with practically no ripple.

Weldac is one of five product families from EFD Induction. Together, these product families enable the performance of virtually any industrial heating task.

Website: www.efd-induction.com



Electronic Heating Equipment will be jointly exhibiting at Tube 2008 with Superior Technologies Europe. The company has been designing and manufacturing impeders, work coils and associated HF welding consumables for almost 30 years.

At Tube 2008, the two companies will display samples of their extensive range of impeders, inductors, ferrites, impeder casings and impeder support systems.

They will also offer technical advice on welding applications. Information and brochures will also be available for Canticut ID scarfing systems and AquaFix pipe repair and descaling products.

Personnel on the combined stand will be able to communicate in English, German, Russian, French and Spanish.

Website: www.impeder.com









Elestar produces, markets and installs industrial plants for metal induction heating. The company offer high frequency longitudinal welding plants for tube obtained from cold and hot rolled steel strips.

A highlight of the Elestar range are the medium frequency bright annealing plants that allow the heating of TIG welded tubes (BA) at a temperature of 1,100°C, followed by a cooling process that brings the final temperature down to 50-100°C. The whole inline process is run in a protective atmosphere (hydrogen).

Elestar is also able to supply all accessories used to complement the application for induction heating plants. Elestar products enable the welding or heating of a wide range of tubes in aluminium, ferritic and austenitic stainless steel, copper and brass.

Website: www.elestar.it

### **Elmaksan** Turkev 6C11

With over 25 years of experience, Elmaksan is the manufacturer of an extensive machinery range including pipe and profile lines, cut-to-length lines, slitting lines, multi blanking lines, trapeze lines, open profile lines, slitting knives and spacers.

The company also offers coil process equipment, automatic packing machines, levelers, rotary shears, multiple cutting units and associated spare parts. Each of these lines can be modified to meet specific production needs of each user.

Elmaksan offers pipe and profile lines and other tube production machinery



Elmaksan operates two large facilities, one located in Istanbul (5,000m²) and another in Kocaeli (22,000m²), staffed by over 150 people. More than 80 per cent of the total volume of production is exported abroad to 40 different countries all over the world.

With a constantly expanding product range, the company's machinery is designed, manufactured and supplied according to the highest quality standards.

Website: www.elmaksan.net



Emmedi produces high frequency inline induction welders for the production of metal pipes, medium and high frequency equipment for heat-treatment, and seam and full body annealing systems.

The company's heating equipment is suitable for inline double wall tube brazing





(for car brake circuits), special inline bright annealing systems (for stainless steel tubes), and pipe polyethylene coating.

The company's systems are tailor-made according to the specific requirements of the end user. The company has installed more than 1,000 systems worldwide, and has been certified to the ISO 9001 standard since June 2000.

Website: www.emmedi.it



EMS manufactures end-forming, cutting, spinning and hydroforming machines for tube and pipe of different profiles and materials. Using EMS machines, it is possible to combine endforming operations with cutting, machining and deburring, to increase efficiency and accuracy.

EMS end-formers cover a wide range of applications, including automotive, furniture, heating, air conditioning, construction and scaffolding, and aerospace technology. Machines are available with manual feeding or fully automatic loading/unloading systems.



EMS produces end-forming, cutting, spinning and hydroforming machines

The company has also developed complete automatic production lines that include bendina. hydrocutting. forming, deburring and washing.

Tube 2008, the company will present its new CNC Formtronic

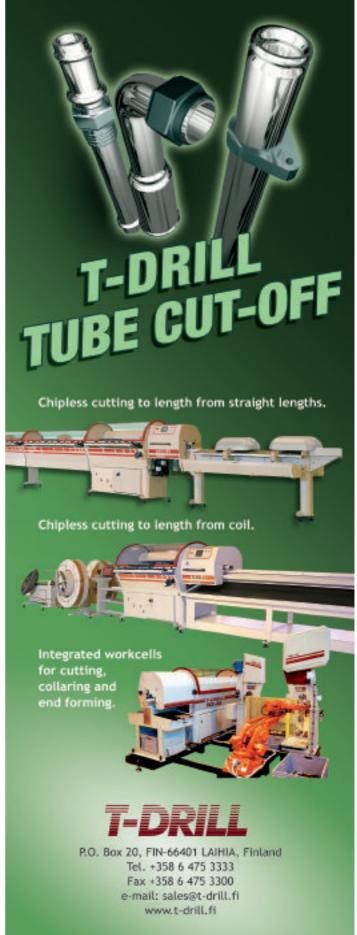
end-former, a fully electric end-forming machine with 200kN of forming power, 300kN of clamping force and velocity of 200mm/ sec. Formtronic machines can be equipped with a horizontal or vertical tool changing system, featuring eight positions where different tools can be mounted, for end-forming, rolling, cutting or machining.

Website: www.ems-sa.com



Erne Fittings is a manufacturer and supplier of butt-welding fittings such as elbows, tees and reducers from 1/2" (20mm) to 36" (914mm). With external diameter and wall thicknesses up to 50mm, the range is made of alloyed, unalloyed, stainless steels and exotic materials.

Production takes place in the company's four plants in Austria, Germany and Saudi Arabia, where special demands for short



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# DANIELI INMOVaction



DANIELI CENTRO TUBE AND DANIELI W+K INDUSTRIE TECHNIK RELIABLE EQUIPMENT AND PROCESS KNOW-HOW COVERING ALL TUBE AND PIPE PRODUCTION TECHNOLOGIES

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Erne Fittings' logistics centre provides the company with information on stock levels, scheduled production dates and prices

production times are accommodated. The company offers a high degree of product availability and the ability to deliver on urgent demands.

The company is a flexible and competent partner for both stockists and project specialists, and offers services on the basis of individual, customised system solutions, with high flexibility in design, material and availability. Erne products are used worldwide in power stations, oil and gas fields, pipelines, refineries, chemical plants, ships and other areas of industry.

Website: www.ernefittings.com

## **Eurolls SpA** Italv

8aE20

Eurolls SpA designs and manufactures rolls made of steel and sintered materials. The company's production covers rolls for tube mills up to 24".

The company's customers are located all over the world, and the company has production capacity of an average 4,000 rolls per month.

Eurolls subsidiaries, including Eurolls de Mexico, Eurolls do Brasil, and Iber Eurolls in Spain, are fully equipped for wire and tube rolls production and regrinding. The company can also provide training for customers' personnel, and advice on tube mill refurbishing.

The company has also introduced into its production programme equipment for roll polishing, full in-house heat treatment facilities and sintering plant, allowing Eurolls to control the entire process.

Website: www.eurolls.com

## Euromáquina Spain

7aB23

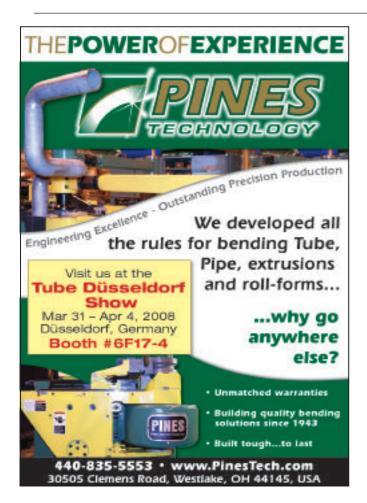
Euromáguina supplies second-hand equipment, with a complete brand of high quality used equipment for the tube and bar industries. This range includes tube mills, automatic bundlers, HF welders, flying saws, tube finishing equipment (chamfering, threading, hydrotesting. straightening), slitting lines, peeling and straightening machines for bars.

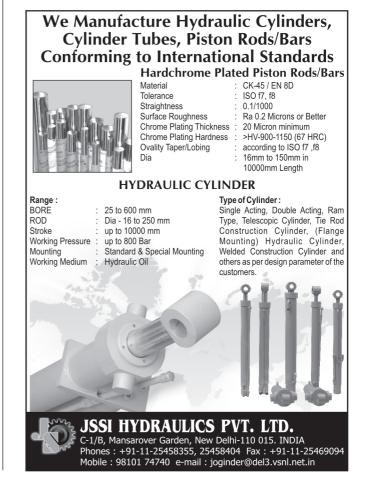
The company also offer full services and turnkey projects, such as dismantling, engineering of new civil works, revamping of old equipment, installation, start-up and training in production.

As agents of leading manufacturers, Euromáquina is continually updated on new technology and can obtain all necessary spares.

Euromáguina can also combine new and revamped 2<sup>nd</sup> hand machines in one line.

Website: www.euromaguina.com





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# Design & Manufacture of Whole-Plant Equipment for Tube Making, Coil Slitting & Cutting









## Jang Wuel Steel Machinery Co., Ltd. www.jangwuel.com

No.186 Leou Chy Dong Rd., Pu Shing Hsiang, Chang Hwa Hsien, Taiwan, R.O.C.

Tel: +886-4-8291101 Fax: +886-4-8296551 E-mail: jang.wuel@msa.hinet.net jang-wuel@hotmail.com

- Stainless Steel Tube Mill
- Carbon Steel Tube Mill
- Slitting Line
- Cut To Length Line
- Tube Polishing Machine
- Straightening Machine
- End Facing & Cutting Line
- Hydrostatic Testing Line
- Cold drawing Machine
- Forming Roller

Founded in 1982, we are a manufacturer specializing in producing stainless steel and carbon steel welded pipe forming machines, coil slitting/ cutting lines and peripheral equipment in Taiwan.

We have already sold more than 1,000 sets of such tube mill lines in Taiwan and globally. Apart from machinery designing and manufacture, we also have years of experience in manufacturing pipes in mainland China.

Backed by ample experience, our technicians can provide the optimal technical advice to solve various problems and help clients to achieve highly efficient production via transferring expertise and technology.

Plus we can help new buyers to set up turnkey equipment as well as install machinery for the earliest production start-up according to planned capacity.



Four-cathode torch



PLC Control system





Inside bead remover



Quick change system





EZTM JSC designs and manufactures equipment for the production of steel seamless hot-rolled, welded and cold-rolled tube.

The company's range also includes equipment for bar, balls, rings, profiles, oil film bearings, hot and cold blast valves, rolls for hot and cold rolling, and other

A breakdown mill from EZTM's extensive range of tube machinery



equipment for the metallurgical, mining, oil and gas, and cement industries.

EZTM JSC carries out supervision and adjustment of equipment at a customer's location, personnel training and delivery of spare parts.

Website: www.eztm.ru



Induction bending specialist, Fabricom GTI, has the advanced technological and machine operating capabilities required to produce pipe spools with bends in multiple planes from a single length of straight pipe.

This advanced bending technique is the result of experience gained throughout more than 30 years of manufacturing and development work, and is of particular value in onshore and offshore oil and gas pipeline systems, as well as specific applications in the chemical, petrochemical and energy sectors.



Fabricom GTI can create bends in multiple planes from a single length of straight pipe

Some of the key benefits of producing weldless pipe spools from straight pipes are that it reduces the amount of welding required, and as such the associated costs and risks. By reducing the number of welds in the system, plant integrity and safety are increased, while the amount of in-service inspection required is reduced.

Fabricom GTI operates six induction bending machines with diameters of up to 64", all of which offer a high degree of flexibility in terms of bend radius, bend angle and bend plane. Being computer controlled, they are able to achieve close tolerances.





The company is able to work with all types of material, including seamless or welded pipes in carbon steel and stainless steel, as well as the most sophisticated alloy steels.

After bending, especially of heavy wall materials or special alloy steels, it may be necessary to restore the mechanical properties using heat treatment.

Such treatments include stress relieving heat treatment, normalising heat treatment, normalising and tempering heat treatment, quenching heat treatment, and quenching and tempering heat treatment. In order to be able to perform such heat treatment, the company has five furnaces, all of which can be heated to 1.200°C.

Fabricom GTI also has a quench tank at its facilities in Belgium, in order to be able to meet the strict requirements set by the oil and gas industry with regards to corrosion resistance and superior material hardness. Following heat treatment, bends can be cooled down immediately in order to obtain the right resistance and hardness.

Website: www.fabricom-gti.com



8bA25

Faccin Srl designs, engineers. manufactures and sells plate bending rolls, section bending rolls, dishing and flanging lines for large dome ends.

The company's range of plate rolls offers state-of-the-art solutions to demanding problems associated with plate rolling. For light plates, initial pinch machines are available - series ASI or HCU models with urethane rolls for high production.

Faccin's HAV three roll machine



For heavier thicknesses, the range includes a traditional 3-roll machine, a 3-roll machine with variable axis design, and the 4 HEL four roll series. Ship frame roll presses and special machines complete the range of equipment to roll plates with thicknesses varying from less than 1mm to over 150mm, with over 18m working lengths.

Profile bending in the medium to heavy duty capacity can be performed using the range of RCMI models, available with bending capacities up to 1,700cm3. The Giotto series rotating table forming machines solve problems in the field of high precision ring and flange rolling, with high production requirements, while the Taurus beam bending series completes the range, with a top bending capacity of 18,000cm<sup>3</sup>.

The Faccin dished end production line includes rotary shears (CB) and dishing presses (PPM), together with automatic manipulators (MA). It allows the dishing of heads up to 10m diameter and 80mm in thickness. A wide choice of automatic flangers (BF) is available, with capacities ranging from 10mm to over 40mm.

Website: www.faccin.com

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#### Rohrwerk Maxhütte GmbH

Germany

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# High Performance Tooling for the Tube Industry



Visit us at the Tube 2008 31<sup>st</sup> March - 04<sup>th</sup> April 2008 Düsseldorf/Germany Hall 8a, Stand C34



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S+C MÄRKER supplies the complete range of extrusion tooling such as container mantles, liners, liner holders, stems, mandrels and dies etc. For this tooling a comprehensive stock of high-quality hot work tool steels is available. The scope of supply is completed by an excellent customer service including development and re-lining of extrusion containers in the re-lining centre of S+C MÄRKER.

In cooperation with its sister company S+C Bowers & Jones, S+C MÄRKER also supplies high precision rolls for tube and cold rolled section producers.

These rolls are manufactured to high accuracy, wear resistance and toughness. S+C Bowers & Jones can assist its customers in questions of design and manufacture of parts, equipment and machines. Further core competences are refurbishment, repairs, upgrades, modifications and inspections of mills.

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www.bowersjones.com





Felss Burger specialises in comprehensive customer-specific solutions in the field of cold forming of tubular components. The company's main focus is on end working and bending processes.

On the company's machines and transfer lines, different forming processes can be combined with machining and cutting-off processes. Application examples from various fields give a view of the diversity of the workpiece range.

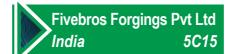
Website: www.felss-burger.com



Ferimpex Steel Inc supplies stainless steel as finished goods to the international market, such as sheets, bars (round bars, squares, flat bars, hexagonal bars), pipes, profiles and fittings.

The company provides the best quality, fastest delivery and efficient service. The company has built long-term partnerships with manufacturers from China and the Far East, enabling it to supply the international and domestic markets.

Website: www.ferimpeks.com



Fivebros is a manufacturer of high quality forgings. The company's main export markets are the EU, USA and the Gulf region. The company's quality systems are certified to ISO 9001:200, PED 97/23/EC and AD Merkblatt W0.

The company is approved by all major inspection agencies such as Lloyds and TUV.

Website: www.fivebrosforgings.com

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industry.

Example:



Institut Dr Foerster Reutlingen is a leading manufacturer of non-destructive eddy current and magnetic flux leakage test systems. The company manufacture the Defectomat® generation of eddy current testers, which works with encircling through-type coils, and Circograph®, which has rotating sensors.

The company will also give the inaugural presentation of its new ultrasonic test systems based on EMAT-technology. These include Circoson® F for the detection of internal defects with hot rolled bars. This is a supplement to the Circoflux® AC magnetic flux leakage test system used for the detection of surface defects.

Circoson® WT is designed for wall thickness measurement with hot rolled seamless tubes as a supplement to Foerster's Rotomat® and Transomat® systems based on the DC magnetic flux leakage method.

Website: www.foerstergroup.de

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## **Fontijne Grotnes BV** The Netherlands 8bG26

At Tube 2008, Fontijne Grotnes will promote its newly developed straightening system for mechanical expanders. This machine controls the straightness of pipes in all directions, where other systems only control straightness in the plane of the weld-seam.

Tolerances for ovality and straightness of pipes are becoming increasingly important to the later laying of pipes in the field. This also applies when pipe sections are cut in

(1) A pipe expander including new straightener, expander heads, draw bar for larger diameters and several tools



the field as the pipes are sized over their full length.

Straightness and ovality are influenced by the use of higher material grades and the forming and welding processes prior to expanding. Stresses inside the material are therefore released during the expanding process and cause bending of the pipes in all directions. The new straightening machine avoids these problems and instead ensures constant mill production for size and mechanical properties.

The new straightening system guarantees straight pipes within 1/2-API and DNVstandards. It is designed in such a way that it can also be mounted on existing expanders. The grease system in the expander heads was also improved to withstand the consequences of using higher material grades. This process is completed by the company's equipment for pre- and post-washing installations.

Fontijne Grotnes BV has been supplying expanding equipment since the 1960s, when it introduced a mechanical expander for LSAW-pipes.

Website: www.fontijnegrotnes.com



Forster manufactures welded and colddrawn precision steel tubes following userspecific requirements, according to EN 10305-2, EN 10305-3 and EN 10305-5.

circumstances where expensive seamless or cold drawn tubes (EN 10305-1 or EN 10305-2) are used, Forster can in many cases offer more cost-efficient welded alternatives (EN 10305-3).

The Forster precision steel tubes range is OD 12-76mm with wall thickness from 0.8-6mm, and for cold drawn products from OD 8-76mm with wall thickness from 0.8-6mm.

Website: www.forster-rohre.ch

GmbH & Co. KG

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Tube 2008: Stand 6A03

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# **Automatic Pipe Galvanizing**

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#### **Galvanizing Equipment with**

- Fume Control automated single-pipe-transport Pickling Line
- Efficient Dipping/ Extracting/ Cleaning System for better **Coating Thickness Control**
- Acid Recovery and Flux Preparation









Galaxie Corporation specialises in the buying and selling of used tube and pipe mills, steel processing equipment, slitting lines, rolling mills, and coil processing equipment components or complete plants.

The company, which has built relationships with hundreds of repeat customers over the last 15 years, has a complete inventory to fulfil steel processing equipment needs.

Website: www.galaxiecorp.com



Gallium is an ISO 9001:2000 approved company with 20 years of experience in design and construction of advanced tube mills and finishing machines. The company's product range is well

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PIPE FITTINGS AND VALVES - FLANGES ETC.

established in the tube industry and includes high-speed forming cold saw cut-offs, automatic bundling machines, multi-tube high pressure hydrotesters and universal forming mills.

The company's wide range of tube mills offers the latest features including quick change mechanisms, helical gear boxes for distribution of high efficiency power, oscillating type OD based cutting tools, inline straighteners (19 roll), and SG cast stands for excellent damping properties. An online stretch-reducing mill is available for small diameter tubes.

Gallium can also supply double mandrel uncoilers, shear and welders, horizontal accumulators, end facing machines, tube push pointers, draw benches and tube straightening machines.

The company has supplied equipment to 29 countries including USA, UK, Japan, Australia, Brazil, Iran, Egypt, Malaysia, China, Taiwan, Thailand, Oman, Jordan, Zimbabwe, Pakistan and many others.

Website: www.galliumindia.com



Tool Corporation manufactures Gem HSS, diamond and carbide cutting tools and inserts. The company supplies to the aerospace, automotive, and consumer products industries.

The company's standard line of tooling includes ID and OD scarfing inserts, end-prep heads, and cut-off blades. All of the company's carbide products are made in the USA. The company



A selection of Gem Tool's product range



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Hall 07 Booth 70B21

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also offers sharpening services for its products, and has a range of extended tool-life coatings.

Gem Tool also manufactures PCD and PCBN tooling for a wide range of applications. Super-abrasive tipped inserts in standard or irregular shapes can be made quickly, and re-lapping services can also be provided. In addtion, the company manufacture PCD tipped boring tools to user specifications.

Website: www.gemtoolcorp.com

technology is provided by GH Group's latest developments in variable frequency and automatic load adjustment.

The company has launched Transithermic™ generator solid-state welders, which can weld any tube specifications, allowing for any tube diameter, thickness and material. These machines provide flexibility and economy through reductions in downtime and scrap material.

Website: www.ghe.es



Good Luck Steel Tubes Ltd is a leading manufacturer of GI/black, MS and ERW pipe, tube, hollow sections, CR coils and sheets. The company adheres to various national and international specifications, and has a combined production of approximately 100,000mt/annum. With ISO:9002 certification, Good Luck has





GH Group is a supplier of induction heating equipment and installations, with main offices in Spain (GH Electrotermia SA) and affiliates near international customers in Germany, France, Mexico, Argentina, Brazil, India, China and Korea.

The group is dedicated to providing superior induction heating equipment and solutions to the world market, with more than 4,000 references in 50 countries.

For the tube and pipe sector, GH provides complete solutions in induction welding, annealing and seam annealing, hardening and tempering, tube end stress relief, heating before forming, tube coating, and other customer processes.

The group offers an entire range of modern, high frequency power supplies and equipment for induction heating applications, from MF IGBT inverters to HF Mosfet inverters.

In the area of tube induction welding, which often requires frequencies up to 500kHz, the natural, most reliable and efficient component is the Mosfet transistor. This

GH provides solutions for induction welding







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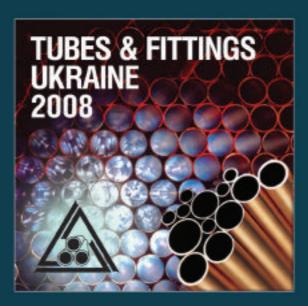




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 $\bigcirc$ 

been awarded a status of a two star trading house for export excellence by the Indian government.

The ERW pipe range is from 15-250mm, with the tube mill capability of galvanizing up to 12" pipe and lengths of 7m. Good Luck also has considerable expertise in manufacturing manipulated/fabricated pipes for end use in fencing and cattle enclosures. The manipulated pipes and hollow section products are accepted all over Europe and Australia.

The company has also developed in-house facilities and infrastructure for manufacturing of tubular poles, transmission and lattice towers.

Website: www.goodlucksteel.com



Guild International designs and manufactures coil end joiners and horizontal strip accumulators, with brand names including ZipWelders™, Supercoils™ and Superloops™. The company also has complete entry equipment in their product line, including single and double uncoilers, outboard coil retainers, speed funnels and flatteners.

The company will present its range of coil end joining technology along with information and brochures for its complete product line. Guild coil end joiners together with their strip accumulators can eliminate downtime during coil changeover.

Guild personnel will be available to discuss ways to speed up the coil changeover process to completely eliminate downtime.

Website: www.guildint.com



Jiangsu Guoqiang Ind Co Ltd has a main product range comprising of ERW pipe, GI pipe, guard rail and HR coil. The company has an annual capacity of 600,000t zinc-plated products and a very large range of rolling steel strips.

With its products supplied to both the domestic and international markets, Jiangsu Guoqiang operates a 1,300m² production area, with more than 2,000 employees.

Website: www.jsgq.cn



8bF29

Haeusler AG is the designer and supplier of a specialised 3-roll bender for undertaking the most economical method of plate forming to produce LSAW pipes (longitudinal submerged arc welded).

Long distance pipelines are mainly produced in the range of 24-64", with a wall thickness of 0.250-1.500" and pipe length of 40ft. The bender also covers the lower range of pipes between 16-24" (with medium and heavy wall). The company is the supplier of turnkey pipe mills as well as single machines for modernisation of existing pipe mills.

Website: www.haeusler.ch



Founded in 1984, Haitima is a leading manufacturer of valves and fittings in Taiwan. Products include ball valves, gate valves, globe check valves, and butterfly valves, together with pipe fittings, quick couplings and sanitary fittings, seamless steel pipes, welded pipes, ERW pipes, and other accessories (such as expansion joints and flanges).



Haitima Corp manufactures a range of valves and fiftings

The company operates under a Quality Assurance System, which has awarded it the ISO 9001, API 607 approval, CRN, DVGW and PED module D1 certificate.

Website: www.haitima.com.tw







Handle manufactures stainless steel tubes and cannulas, available in a diameter range of OD 0.25mm to 8mm, and ID 0.07mm to 0.60mm. Capillary tubes are used in several industrial fields, mainly for temperature control and regulation, and also in micromechanical industries.

The company produces a complete range of stainless steel hypodermic cannulas to manufacture various types of single use needles and catheters, with dimensions OD 0.25mm (31G) to 2.12mm (14G).

Website: www.handle.fr



With over 40 years of experience, Hart by is a distributor of heat and corrosion resistant materials, supplying nickel, monel, incoloy, hastelloy and titanium alloys globally to the chemical, petrochemical and offshore industries.

The company supplies complete packages of pipe, flanges/forgings, plate, bar and fittings to fabrication companies, contractors and engineering companies, and also directly to the oil and gas industries.

Hart keeps extensive stocks of material in order to fulfil orders, and also holds long term agreements with major nickel and titanium manufacturers for the provision of larger quantities and longer-distance deliveries.

Website: www.hartbv.nl



Since its establishment in 1987, Hasemann Maschinen has specialised in the world-wide purchase and supply of high quality used machinery for the processing and treatment of steel and non-ferrous products

such as semi-finished bright steel bars, tubes and wires.

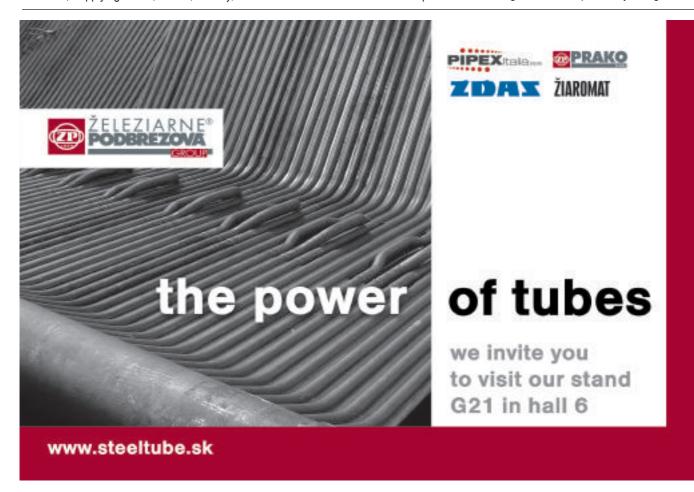
The company's founder, Mr Dieter Hasemann, has over 35 years' experience in the business. Since the beginning of 2007, the company has been run by Ms Andrea Hasemann (responsible for office administration), and Mr Ingo Dierkes, an experienced export manager who has been with the company for five years and handles purchasing and sales of second hand machinery.

Mr Dieter Hasemann is still associated with the company in an advisory function. All three will be present at the company's stand at Tube 2008.

Website: www.hasemann-maschinen.de



HGG Profiling Equipment BV, the Netherlands, is a manufacturer of CNC cutting machines, specifically designed for





equipment for non-flat metals (eg H-, I- and angle beam), in addition to tube, pipe and square hollow section.

By adding components to a standard concept, the HGG produces machines suitable for companies in steel construction, piping, offshore construction and the petrochemical industry.

Over the last 20 years, the company has supplied pipe cutting machines that cover a diameter range from 28mm to 6,000mm.

All HGG machines can be supplied with a CAD-CAM system, with connections available for AutoCAD, Pro-Engineer, X-Steel and Solid Designer. The company can also tailor-make other CAD-CAM or post-processing systems.

The company's newly developed products are tested in one of HGG's subcontracting companies, in order to gain practical experience with the products, and to improve them.

Website: www.hgg.nl

## Hisen Enterprises Co Ltd Taiwan 7.1G41

Hisen Enterprises Co Ltd is a manufacturer of transistor generators for pipe welding and heat treatment and high frequency machines. The new transistor generator has been developed using Hisen's latest technology that incorporates new-type transistor devices.

According to the company, it has drastically reduced the size of conventional transistor generators and caters to the diversified applications of tube welding and heat treating.

The features of this new generator include a frequency range of 500Hz to 440kHz at an output range of 2-1,000kW, a power factor of 0.95, and power conversion of 90 per cent efficiency.

In cases of short heating times, it provides increased output power to solve problems. Because transistors are used instead of vacuum tubes, the level of

input power can be reduced by over 22 per cent and cooling water can be saved by up to 50 per cent.

The comprehensive solid-state and low-voltage system forms a compact design that reduces the required installation space.

A reduction to one-third of the space required by other conventional vacuum tube oscillator models has thus been achieved. The water cooling circulation system (optional) helps to address concerns with water temperature levels and helps prevent problems.

In addition to Hisen's transistor generator, the company also provides quality high frequency machines such as high frequency pipe welding machines (transistor generator and vacuum tube), high frequency induction heaters (transistor generator and vacuum tube), high frequency preheaters for the semiconductor and melamine industry, and high frequency PVC welders.

Website: www.hisen.com.tw

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#### **Guangzhou Hongda** China 7D36

Founded in 1988, Guangzhou Hongda Steel Co Ltd is a specialist manufacturer of steel tube and pipe. The company's main product is stainless steel tubes, while the company is also able to produce a range of other pipes, particularly seamless carbon steel pipes.

The production range for stainless steel tube is OD from 4-325mm and wall thickness from 0.5-15mm. The available size for seamless carbon steel is up to 18".

Website: www.hongda-steeltube.com



Ilta Inox, founded in 1963, produces welded stainless steel tubes. The company focuses its main production on demanding industrial sectors such as power generation, chemical, pharmaceutical and the food industry.

Around 80 per cent of the company's production is exported. The company has a large number of welding lines equipped with qualified laser welding technology. The production range was recently extended up to 711mm diameter. The company's modern heat treatment systems (up to 219.1mm diameter) and numerous finishing lines allow it to meet stringent market demands.

Ilta Inox products are certified by international testing organisations, and the company has obtained the ISO 14001 environmental certification.

The production range includes outside diameters from 10mm to 711mm, with from 0.8mm to 6.35mm. Production standards include ASTM/ASME A249, A269, A312, A554, A778, A789, A790, DIN 17455, 17457, 11850, NFA 49147, 49247, 49249, 49647, and EN 10217-7, 10296-2 and 10312. The company uses the following steel grades: TP 304, 304L, 316, 316L, 321, 316TI, 316SL, 310S, 31801, 32304, 309, EN 4301, 4306, 4307, 4401, 4404, 4521, 4571, 4432, 4435, 4845, 4462, 4362 and 4828.

Website: www.arvedi.it

# **IMEC Tubes**

8bG17

IMEC Tubes develops and produces tube processing lines, using more than a decade's experience to offer turnkey solutions for tube finishing, handling and bundling.

The company analyses specific production requirements and develops custom-built layouts, offering new series of patented machines to provide safe and efficient solutions.

In addition to scarfing, rolling, brushing, end-facing, storage, bundling, coiling and quality control (air-water and eddy current), one of the company's latest designs is the patented permanent magnetic inside bead system, which will be exhibited at Tube 2008. The system does not need a generator or tow-bars, and activates and de-energises magnets using an electric





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IMEC Tubes produces custom-built solutions for tube finishing, handling and bundling

input. This assures operator safety, avoiding problems with the magnetic field, and allows the rolling on small ID tubes.

Website: www.imec-tubes.com



Induction offers solutions for all operational fields of induction heating. The company has constructed and set up more than 1.000 installations in 46 countries over the period of 20 years.

company's core products generators for induction heating for the metal tube and pipe industry. The company has developed an electronic power circuit that allows efficiency and reliability under all conditions, particularly for pipe heating applications.

Major operating fields include frequency generators for all induction heating applications, standard heaters for hot forging heat treatments, continuous heating for hot rolling, integrated heating systems for electric motors, hot driving and brazing, furnaces for melting of precious and nonferrous metals, furnaces for melting of steel and non-ferrous metals, and special applications.

The company uses an entirely digital electronic system capable of controlling all types of components (SCR, IGBT), and all types of circuits (serial, parallel). Using DSP control, it allows perfect frequency control of oscillation of the load, with distortionfree results. It allows optimised functioning the generator by eliminating all electromechanical devices (remote control switches and relays). It therefore operates entirely on the basis of static components. The air-gap recovery device becomes more efficient and manageable, and there is less danger in the start-up and restart of the generator loaded with cold pieces and in any other loading situation.

Website: www.induction.it



Visitors to the Inductotherm Group stand will have the opportunity to discuss tube heating and welding requirements with applications specialists representing the Thermatool, Radyne and Banyard brands.

Thermatool specialises in providing solutions to tube and pipe producers worldwide. With an installed base of more than 1,000 solid-state HF welders, the company has more than 50 years





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freeform bent tubes can be measured and corrected for the bender with "MicroScan"laser and generated in TeZetCAD -tube specialised software considered as "state of the art"









will be shown on Tube 2008 on the Wafios booth 8A B30 and on the Tracto-Technik booth 6 H18 on Control Stuttgart on booth 3-3223 TeZet Technik AG, +41 56 2493760 Ocostr. 20 - CH 5330 Zurzach e-mail:tezet\_leistritz@compuserve.com www.tezet.com

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experience in the continuous high-speed production of quality tube and pipe from 8mm to 24" in diameter.

> The latest range of Thermatool CFI solidstate HF welders, offering weld power from 50kW to 1,500kW, will be shown on the stand, alongside the latest VIP seam normalising, full body heating and spiral seam annealing systems. Thermatool can provide tube and pipe producers with total systems capability.

> Radyne specialises in providing rugged. high technology solutions to producers and installation contractors of API pipe, offering a range of induction heat treatment and coating systems to the oil and gas sector. Applications served include pre-heat and post-weld heat treatment of field joints/ girth welds, line pipe coating systems and turnkey containerised systems.

> Producers of seamless stainless steel tubing will be able to see a display featuring the Banyard VSI (vertical steel induction) billet heating system.

Website: www.inductothermgroup.com

## InoxTech SpA Italv

super duplex), and nickel alloys.

Inox Tech manufactures 12m long pipes in wall thickness up to 60mm. These pipes are produced in austenitic stainless steel (303, 304L, 316), ferritic austenitic (duplex,

5A05



Inox Tech provide a range of heavy wall pipe from Ø 6-80°

The company's standard product range covers diameters from 6-80" and wall thicknesses from 6-60mm.

The products are manufactured in accordance with ASTM, DIN, and NFA quality standards and are approved by an ISO:9002 quality system.

Website: www.inoxtech.com

### **International Tube Assoc** 6A03

The International Tube Association (ITA) is the world's largest association of tube and pipe engineers and its presence will be geared towards offering assistance to tube and pipe professionals.

The ITA's specific show benefits include a free Tube Düsseldorf entry voucher, free members' lunch, free hospitality (ie drinks and snacks service), two meeting rooms (for 8/10 persons), an exhibitor badge service, and an overnight security service.

There will be a fully manned office on the ITA stand with phone (metered charge), fax (€1 per page), photocopier (€0.20 per sheet), and two PC's with internet/email connection and printer. Multilingual staff will be on hand to support members, with







languages including German, French, Spanish, Russian, Ukrainian, Dutch, Chinese, and English.

The ITA stand will be manned by a rota of officers and members of the executive committee, including Mr John Metcalfe and Mr John Powell. The stand – managed by executive secretary Mr Phillip Knight - can be contacted via onsite phone/fax (+49 211 947 2133) and email (itatube46@yahoo. co.uk).

Existing members can ensure they are taking full advantage of the enhanced range of membership benefits. They will be able to collect details of ITA benefits including reduced delegate fees for ITA conferences, free promotional opportunities in the ITAN newsletter, and free visitor entry and hospitality at selected exhibitions.

Members can also gain access to copies of ITA technical conference papers, and large discounts for company promotion on www.tubefirst.com (the comprehensive online material, product and equipment database). In addition, all members receive a free annual subscription to the officially endorsed magazine, Tube & Pipe Technology.

Website: www.itatube.org

Visit Tube & Pipe **Technology Magazine** 

**Tube 2008: Stand 6A03** 

www.alpha-metall.de

**Jang Wuel Co Ltd** 8aF47-01 Taiwan

Jang Wuel, the manufacturer of a range of tube mills and other machinery, has introduced a newly developed quick-change system for tube mills.

Using this system, the company claims there is no need to dismantle the universal joints, as it is designed to use a hydraulic unit and link device to allow the universal joints to depart from the forming stands.

The operator is only required to use the hoist hanging from the forming stand above the machine bed, then exchange a new size of forming stand, and reverse operate to connect the universal joints and forming stands.

When connecting the universal joints and forming stands, the height adjustment of the roller is operated by air cylinder and not by hand. It begins running soon after the

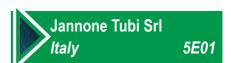
Jang Wuel will exhibit their faster quick change system for tube mills



roller size exchange, with no need for stepby-step adjustment.

The quick-change system is designed for time saving in roller changing operations. with higher quality and reduction of power.

Website: www.jangwuel.com



Jannone Tubi Srl is a leading distributor of carbon, alloy, stainless, seamless and welded steel pipes. These products - which adhere to API, ASTM/ASME and UNI-EN standards – are supplied to industries including petrochemical, gas and water distribution.

The company is an official distributor of Tenaris/Dalmine products for the centrl and southern region of Italy. In addition, Jannone has been appointed as official supplier of important customers such as oil refineries and petrochemical plants.

Website: www.jannonearm.com

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Jansen specialises in the development, manufacture and sale of welded precision steel tubes (Ø 8-115mm) and specially shaped steel tubes.

The company manufactures standard products as well as customised tubes using many different procedures, and operates a special process development division, with construction and state-of-the-art tool construction facilities.

The company uses special steel grades, with the capability for cold rolled, cold drawn or form rolled products. A highly capable laboratory supports all the processes

Jansen specially shaped steel tube



involved, from material analysis to product control. Jansen also has a comprehensive, fully-integrated quality management system, with accreditation in accordance with QS 9001, ISO/TS 16949 and ISO 14001.

Jansen can deliver small batch orders, especially in the field of drawn tubes and specially shaped steel tubes. The tubes find a vast array of applications, from automobiles to Z-frames.

Website: www.jansen.com



Jetclean GmbH specialises in equipment for the internal cleaning of tubes and hoses. Products include the ptcsystem, where the cleanliness of tubes is essential (eg in hydraulic applications and the automotive and chemical industry).

It is particularly important in a hydraulic system that tubes and hoses are kept free of solid particles that can harm the system.



The ptcsystem from Jetclean

Powered by compressed air, a rubber foam cleaning projectile is shot through the tubes to be cleaned.

Depending on the application, the cleaning projectiles are available in different qualities. No cleaning solvents are used, which makes the ptcsystem a non-polluting and ergonomic alternative to traditional cleaning methods.

In addition to the hand-held standard ptcsystem, a semi-automatic variant is also available, suitable for the needs of batch production. This PLC-equipped machine is capable of up to 30 cleaning cycles per minute and can be filled with up to 1,500 projectiles (depending on their size).

As an alternative to manual cleaning or machines with flexible shafts, Jetclean





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This ensure a line of machines with the most reliable performance, purchasing costs and managing costs.

Exclusive patented Star Bend design allows the machine to be entirely modular in the maximum range of updating and to interface with any other bending machine; they allow to interact with measurement centre laser 2, by work station remoting or by modem with tele assistance.

A Star Bend machine is one of the most modern, innovative and advantageous solutions to any bending problem.

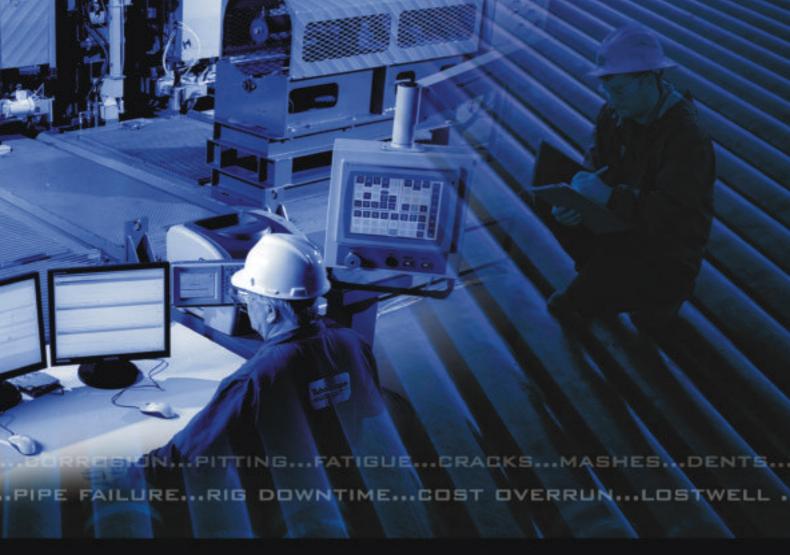












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www.tuboscope.com







The Ferret cleaning machine

for the formula of th cleaning of smoke tubes in steam boilers. Powered by compressed air, the machine travels through the tube to be cleaned, stopping at the end of the tube. A short pull on the air line causes the machine to travel in the opposite direction.

Website: www.jetclean-gmbh.de



Zhejiang Jiuli Stainless Steel Pipe Co Ltd is a manufacturer of stainless steel tube and pipe in China. Founded in 1987, the company has a product range including seamless tube from 6-273mm OD and welded from 9.53mm to 2,540mm OD.

Jiuli manufactures seamless tube from 6-273mm OD and welded from 9.53mm to 2,540mm OD



The quality management system at Jiuli is approved according to ISO 9001 by IQNet and CQM. In addition, the company has the work approval of GL, DNV, BV, ABS, CCS, and holds PED and AD-W0 certificates from TUV. Jiuli are currently applying for ISO-14000 and LR qualification, which all equates to high product quality.

The company's tube and pipe products have been supplied to an increasing number of international projects for worldwide companies, such as BP, Exxonmobil, and Aker Kvaerner. In the past two years the company has been endorsed by renowned boiler manufacturers, and currently supplies boiler tubing to them on a regular basis.

Website: www.jiuli.com



The Joint Perforating Company Limited (JPC) will co-exhibit with UKF Stainless Limited. JPC specialises in the manufacture of perforated tube in a variety of materials.



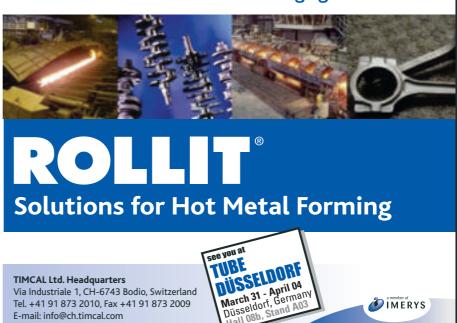
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#### HSS & HSS-E metal cutting circular saw blades:

- For power-driven machines of all brands worldwide
- According to DIN
- With surface freatment/coatings
- Custom made (from diameter 10-600 mm)
- For gang sawing work (used in sets)

#### Solid carbide circular saw blades (VHM):

- Similar to DIN
- Custom mode
- With suface coatings
- For gang sawing work (used in sets)

Tungsten carbide Tipped saw blades (TCT)

Friction saw blades

Segmental saw blades

Circular knives

Services

including stainless steel (ferritic and austenitic), titanium, mild steel and aluminised zinc coated steel, all of which are generally available from stock.

Sizes begin at 32mm OD, with capability to produce up to 80mm OD in both metric and imperial measurements. Wall thicknesses are available up to 2mm, and component lengths range from 100mm to 1,000mm. Shorter and longer lengths may be available upon request.

The company's main customers are first tier suppliers of exhaust and filter systems, and the company is close to achieving TS16949.

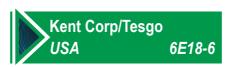
Website: www.jpc-ltd.co.uk



Julia Utensili Srl is a manufacturer of HSS circular saws for the tube processing industry. These circular saws are produced in high-speed steel with either 5 per cent molybdenum or 5 per cent cobalt, according to the strictest run-out tolerances. The aim is to achieve the highest cutting output irrespective of steel grade hardnesses 500, 800, 1,000 and 1,400N/mm<sup>2</sup>.

The standard blade range is Ø 160-620mm with thicknesses ranging from 1-5mm in variable increments and with different tooth forms. These consist of the popular 'Bw' (alternate), special BR (chipbreaker) and VBR (variable). An ever-growing number of special thin kerf blades are also available to meet the innovative requirements of the tube processing industry. These blades like all standard saws - are readily available with different surface finishes (HP-Grind and Vapo) or special PVD coatings (TiN, TiCN, TiAIN, CrN).

Website: www.julia.it



Kent Corp offers a range that includes vertical and horizontal strip accumulators, coil end welders, tube and pipe entry

systems, and tube/bar end deburring machines. The company also offers tube dedimpling machines, tube reshaping turksheads, and tube bundling systems, OD scarfing inserts, inline gauge control, and tube OD scarf choppers.

Website: www.continuouscoil.com



KG is a Bulgarian company specialised in the manufacture of stainless steel tubes. The company produces stainless steel tube according to EN-10312 standard (or other standards by request). The tube is manufactured in materials including AISI - 304, 304L, 309, 316, 316L, 316 Ti, 321, and 430.

The company employs the TIG welding method in its manufacturing process. The sizes vary from Ø 6mm to 21.3mm and from Ø 25.4mm to Ø 95mm, with wall thickness from 1-4mm. KG's organisation, management and control is governed







KG offers an extensive range of stainless steel

n ISO9001:2000 certified quality management system.

The company continually updates to the latest technologies in order to offer the best product solutions. The basis of KG's progress is entrepreneurial initiative, market flexibility and a professional approach.

Website: www.stainless-steel-tubes.com



8aF49

Koerner is an expert in pickling technology with a leading brand of KVK-pickling tanks that are being increasingly used to replace old pickling facilities in the tube and pipe industry. The company has recently received a high number of orders from several well known Ukrainian tube and pipe manufacturers, including Avisma, Uvis and Yutist who are all situated in the Nikopol area.

The company also provides turnkey pickling lines for the tube industry that are fully encapsulated, preventing acid fumes. This pickling system in combination with an efficient fume treatment concept, gives full guarantee for a safe and clean

Delivery of pickling tanks (titanium tubes) - the tank dimension is 20m with integrated heating and fume suction channels





Delivery of pickling tanks for stainless steel tubes - the tank dimension is 22m long with integrated fume extraction channels

pickling process in compliance with all environmental regulations of the European Union.

The pickling process is fully automated without any personnel working in the pickling area. The pickling activities are fully integrated in the automatic tube production.

This encapsulated pickling concept, the KVK-system, will be presented at Tube 2008. Koerner technicians will be available to talk about all pickling matters.

Website: www.koerner.at



### Zibo Wel-Fit Metal **Products Co Ltd**

#### **Product Range**

Elbows - LR SR 45 90 Return Bends - LR SR 180 Tees - Straight & Reducing Reducers - Con & Eccentric Stub Ends - MSS TYPE-A& B Stub Ends - ASME Long **End Caps** Sch5S - XXS 1/2" ~60", 3/4"X1/2" ~ 60"X36"

#### **Specifications**

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











Inspections

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

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#### Friedr Krollmann 10A29 Germany

Friedr Krollmann is a manufacturer of pointing machines and handling equipment of all types and sizes for wire, bars, rods. sections and tubes. The production programme covers roll pointing machines, threading and pointing machines, point milling machines, swaging machines, tube pointing machines, chamfering equipment, pay-off and straightening devices. In addition, the company provides feeding and charging devices, loading systems, cutting

U Swaging machine type HM-1v (4/R) with pneumatic operated clamping and feeding



and sawing units, scrap bundling machines and special purpose machines.

Website: www.krollmann.de



Kusakabe is a world-class innovative manufacturer and supplier of tube and pipe mills and associated equipment. The company has tube and pipe mills and associated equipment operating in more than 23 countries.

The company will exhibit a range including a 12" rotary sizing mill, a Klearcut milling type flying cut off model (with samples of cut pipe), and a Universal pipe forming mill with cassette type sizing. Also on display will be a model QHQ (quick change high quality) tube mill.

Kusakabe will also present its rotary disc cutoff technology with samples of cut tube on display. The rotary sizing mill involves



Musakabe will exhibit from its range of tube and pipe mills and associated equipment

technology that replaces the conventional sizing method. It is being adopted by innovative tube and pipe manufacturers to reduce cost and improve product quality in both precision and surface finish.

A rotary sizing mill is ideally suited to TIG. laser and precision mills as well as large pipe mills. Offline applications of this technology also exist. A single stand of a 12" rotary sizing mill for a large pipe mill will be on display. This will enable visitors to closely examine this new technology.

Total engineering of the tube and pipe manufacturing process is Kusakabe's



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expertise. The knowledge and experience that has been developed over the past 45 years provides world class and innovative pipe manufacturing equipment and technologies from the strip entry to the packing machine and everything in-between. The models on display will provide an opportunity for visitors to witness the technology involved.

Kusakabe is continually developing new ideas and concepts to address the challenges faced by the tube and pipe manufacturer.

Website: www.kusakabe.com



Kuznia Jawor SA offers a production range including steel flanges, die forgings for the automotive industry and die forging based components. The steel flanges are supplied with connections according to EN 1092-1, DIN, NFE, ASME/ANSI, and special

machining. The flange pressure scope is PN6 to PN40 and 150 up to 300lb, with diameters of DN 10 to DN 300.

The flanges are manufactured from steel grades S235JRG2/Rst37-2, C22.8, P250GH, P245GH, BF42 15Mo3/16Mo3, A105, C21, A350, LF2, BF48, 1.4541, 1.4571, 1.4306/304L, and 1.4404/316L. Kuznia Jawor is certified according to ISO 9001:2000, PED 97/23/EG (DGRL), TUV, GL, LRS, and UDT.

Website: wwww.kuznia.com.pl



At Tube 2008, LAP will display a robot-controlled measurement for the inner and outer contour of tube ends with diameters above 100mm. Using laser triangulation sensors, the system measures the complete inner and outer profile as well as the wall thickness in one 360° revolution of the sensor arm. The system can be used in longitudinal and transverse tube transport.

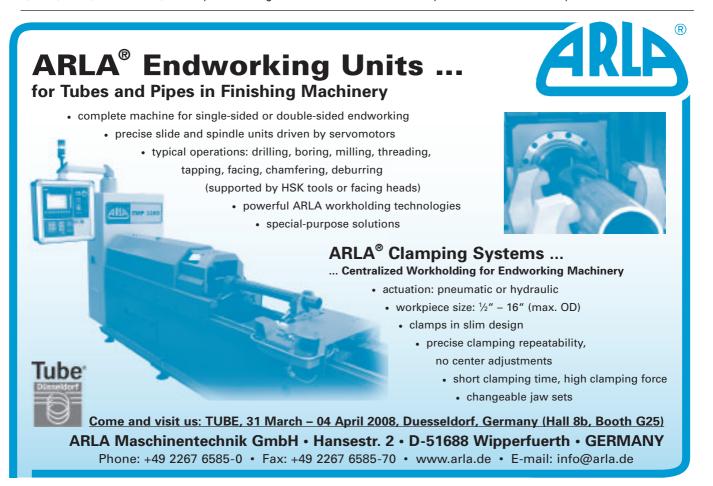
The company is a supplier of laser-based systems for high-precision measurements of geometric dimensions, such as position, width, thickness, length, diameter and flatness. The company excels in providing ultra-precise measurement results under the harshest operating conditions.

LAP will also show its redesigned RDMS software for contour measurements of tube and wire. The new software responds to the growing trend of integrating RDMS systems deeper into the production processes – even as cross-plant configurations for use within networked systems.

Due to their compact design and high flexibility, RDMS systems have become established as a reliable technology for inline contour measurements of tube, bar and wire rod. More than one hundred RDMS systems have already been installed in rolling mills.

For the first time, LAP will also present the new RDMS-40 profile measuring system for inline contour measurements. This equipment has been specially developed for wire rod in diameters below 40mm and for mills operating at speeds of up to 120m/s.

Website: www.lap-laser.com





#### Lennartz GmbH & Co KG Germany 7aE17

Gebr Lennartz GmbH & Co KG is a manufacturer of high performance circular saw blades. These blades are used for the cutting of carbon steel, alloy steel and stainless steel materials, as well as non-ferrous metals.

To further advance carbide technology, the company recently supplied a new project for a customer replacing a special milling machine with cutting inserts (changed three times per shift). A head cut-off machine was installed for cutting welded pipe up to 24", with uncoated and resharpenable carbide tipped circular saw blades used on the new machine.

Previously, the maximum lifetime of 2.25m<sup>2</sup> per blade was achieved but only with a maximum 60 per cent of the resharpened blade. Problems were encountered when the wall thickness was between 15mm and 20mm, with lifetime only reaching 50 per cent. The company required more cuts of thick-wall pipes as well as increased saw blade lifetime.

The blades were modified, including the number of teeth, tooth geometry, grade of carbide, and special coating. This resulted in a throw-away blade that guarantees stable working conditions. The average lifetime of the blades is now 10m2 per piece, while the number of required new blades was reduced to 40 per cent.

This cutting example included 20" x 15.5mm pipe dimension, 11m/min line speed, and a Lennartz saw blade of 300mm Ø x 44 Z (4 pieces in one operation).

Website: www.lennartz.de



Linsinger manufactures sawing and milling machines for the tube and pipe industry. For large pipes, the company produces plate edge milling machines for welding edge preparation and pipe bevelling machines for pipe end bevelling on both ends simultaneously (up to tube Ø 60").

Linsinger products for ERW lines include strip edge milling machines for longitudinal seam tubes (HF-lines up to 24") and multicut tube cut-off machines for longitudinal edge tube lines (up to tube Ø 600mm).

The company also produces strip edge milling machines for spiral steel tube lines (coil up to 2,000mm width, 1" sheet thickness). In addition, the company supplies carbide circular sawing lines for steel billets (up to Ø 630mm), single tubes (up to Ø 630mm), multiple tube layers (up to 1,250mm width) and seamless pipes. Also available are carbide circular sawing lines for steel billets (up to Ø 630mm) for forging mills.



Linsinger's KSA 1600 carbide circular saw

Linsinger produces the necessary carbide saw blades and miller only for Linsinger machines. In Europe, the company also offers a full re-sharpening and repair service.

Website: www.linsinger.com



Loeco is involved in the engineering, manufacture and supply of industrial plants. The company places emphasis on environmental precautions and automation for high-speed production and protective zinc-coating of top-quality tube and pipe.

Loeco's state-of-the-art automatic pipe pickling and galvanising plant has started production at Tata Steel Tubes Division in Jamshedpur, India. Following modernisation of the first galvanising bath at Tata Steel, Loeco has now supplied a second galvanising bath, equipped with a doubledip and extracting system. Loeco has also integrated a new pickling line with automatic one-by-one transport of the pipes through degreasing, acid, flux and drying/preheating, to feed the two galvanising baths.

Tata Steel's new galvanising plant has been designed for round pipes from 1/2" to 4", as well as square and rectangular profiles. The plant has a production capacity of 100,000t/year. Acid and zinc fume suction and cleaning are integrated in the plant, as well as a flux preparation.

In recent years, Loeco has also modernised older pipe-galvanising plants by installing new handling systems on existing furnaces. The fully automatic system has pipe dipping screws, pipe positioning and lifting device, and comes with a pipe extracting machine for excess-zinc-blowing and water quenching/blowing.

Website: www.loeco.de



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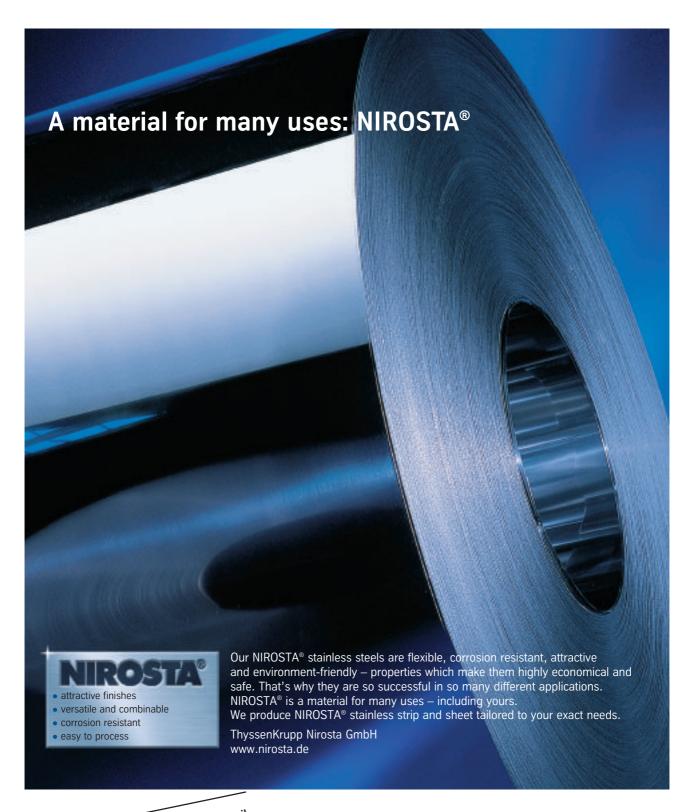
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# ThyssenKrupp Nirosta

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6C51

Loeser GmbH is a major producer of premium quality belt grinding, polishing, brushing and deburring machinery for all types of materials. The company has recently announced a collaboration with Bossi to increase its product range and service in Italy.

New grinding technology enables quick combination of rough stock removal, tolerance and fine finishing with quick change abrasive belts. It also enables major time advantages compared to stone grinding or turning.



1 Loeser manufacture a range of premium quality belt grinding, polishing, brushing and deburring machinery

The machines can be equipped with a number of stations in different combinations - open or closed and fully modular - that are easy to upgrade with additional stations.

Loeser also provides height speed grinding machines for modern industry applications for tube and bar. In addition, the company supplies combined lines for grinding and mirror polishing which consist of belt grinding and wheel polishing blocks.

A centreless grinding and microfinish RPS+SF model is available for finishing of pistons, bars and axles with high frequency

The company's range includes centreless grinding machines



microfinish, enabling achievement of super fine consistent finish quality to 0.004 µm Ra.

Applications include surface improvements prior to plating, descaling, deburring, superfinishing and finishing for surface checking by ultrasonic. Also possible is surface defect removal, decorative grinding and polishing, microfinish surface, satin chrome finishing, finishina. improved corrosion resistance, removal of coatings, inside and ouside brushing. The equipment is suitable for bead control machines, tube weld lines, longitudinal brushing and polishing.

Website: www.loeser.com

## **Luda Development Ltd** Hong Kong

With 20 years of experience, Luda Development Ltd is one of the largest exporters of pipeline products in southeast China. The company is a leading global distributor of pipeline products, including flanges, fittings and pipes, with its own manufacturing lines in China.

The company's head office is located in Hong Kong with factories in Asia, Africa and Europe. The company's quality systems











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are in accordance with ISO 9001:2000, certified by RWTUV, AD 2000-Merkblatt W0/TRD 100 (directive 97/23/EC) and other international standards.

Website: www.ludahk.com



Magnetic Analysis Corp will exhibit the new MultiMac™ eddy current tester at its stand at Tube 2008. The Windows® based multimode MultiMac operates with encircling/ sector test coils to detect short surface defects, and/or with rotary test probes to detect long, seam type surface defects. The new multi-mode capability incorporates the best features of MAC's individual encircling coil and rotary probe instruments in one unit.

MAC's Echomac<sup>®</sup> ultrasonic FD-4 electronics with rotary transducers will also be exhibited. The FD-4, with up to 32 independent test channels, is suitable for any combination of longitudinal and transverse flaw and thickness detection. Information will also be available on the Rotoflux® flux leakage system for inspecting pipe up to 16" (406mm) diameter, to meet API and other specifications.

The new MultiMac includes up to eight test channels, and a wide selection of test parameters and special circuits to enhance signal-to-noise ratio. Building on the successful Echohunter® software graphics, the instrument's test screen displays one channel, and the multi-screen provides a simultaneous display of one to eight channels. The test screen provides all the information needed to set up and operate MultiMac. Both screens display simultaneous polar and linear modes and all test parameters, including thresholds.

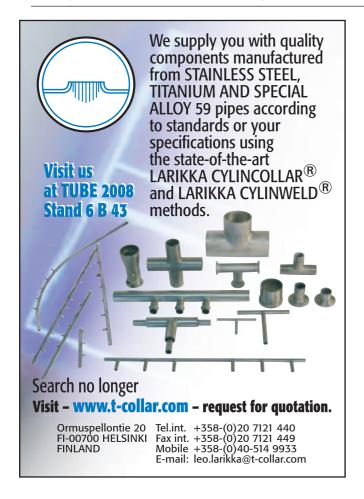
Each channel on the MultiMac can be individually configured with different frequencies and different channel modes. For example, 'differential' mode is used to detect short weld-line defects, while 'absolute' mode is appropriate for long, continuous surface flaws and open welds. A choice of three thresholds per channel - all phase, sector or chord - can be mapped

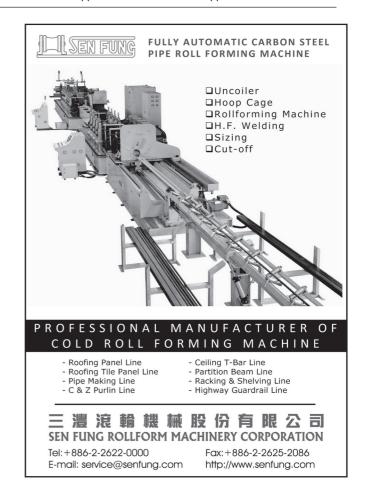


Magnetic Analysis Corp's MultiMac eddy current

to any of eight outputs, independently configurable for time or distance delay and normal reject or latched mode.

With these features, MultiMac can be used to test a wide variety of non-magnetic products, or inspect magnetic material by using direct current saturation systems. A special configuration of channels, based on flux leakage phenomenon, provides detection of very small subsurface steel inclusions in copper or aluminium rod.







Test speeds for the MultiMac can range from one fpm up to several thousand fpm. MultiMac offers end-suppression circuitry with optional optical sensor to prevent false signals from leading and trailing ends.

MultiMac offers enhanced recording capability and remote access through inplant networks or the internet. Featuring user-configurable reports, data output can include customer and product information, defect location, time, amplitude, and phase. Reports can be stored locally on a network server or on a flash memory device using the USB port.

The Windows-based system is operated by keyboard and mouse, and the all-inclusive model, designed for demanding plant environments, consists of a sealed, heavy-duty cabinet with a built-in 17" monitor, air conditioner and pull-out keyboard. Smaller models can be supplied with the pull-out keyboard, an air conditioner and separate, optional monitor.

Website: www.mac-ndt.com

and cable technology.

Maillefer SA Switzerland 10D21

Maillefer will present its extrusion solutions for plastic tube and pipe, together with wire

The company will present its portfolio of manufacturing solutions serving the heating and plumbing pipe, gas and water pipe, flexible/carcass pipe, automotive fuel tube,

On display will be aluminium forming and welding components that are integrated into the complete composite pipe manufacturing solutions. The multi-layer pipe produced is typically used in floor heating systems.

The latest MXC80 extruder

and medical tube applications.



Improved cooling is a key feature of the latest MXC extruders. The processing window is ever larger, due to generation three axial air cooling.

Cooling capacity has grown by over 30 per cent to include materials like EDPM and EPR, areas otherwise covered by liquid cooled machines.

The MXC will be paired with a completely new Cinegran system for material feed measurement and control. Visitors can learn how the system uses optical technology to provide immediate feedback on volume input. It is very reactive, even during start-up phases and speed transitions.

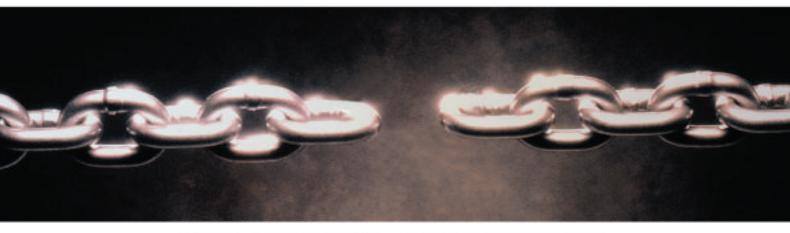
During the week long exhibition, technical presentations will be made on request at the Maillefer stand.

A list of topics to be presented by the specialists will be available at the welcome desk.

Website: www.mailleferextrusion.com



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## **Manchester Tool and Die** 6F17-5

Established in 1960, Manchester Tool and Die Inc (USA) specialises in the design and production of tube end-forming equipment, with strong emphasis on customisation, automation industry-standard and durability.

The company is experienced in equipment manufacturing and design for tube grooving, expansion, reduction and partadditions to end-forms. MTD maintains a heavy emphasis on continuing product improvements, field research and launching new machine designs.

Website: www.manchestertoolanddie.com

**Markator Manfred Borries** Germany 5K34

Markator are experts in non-forgeable, durable and economic marking of industrial parts. In operation for over 20 years, the company develops and manufactures highquality systems for pin and scribe marking.

Marking technology for tube and pipe applications



The company also offers hand-held and machinery marking tools to specifically match individual and exclusive customer requirements.

Markator's complete quality philosophy plays a fundamental role in every part of the marking process. All areas are covered, from the initial project consulting and customer-related development process to the completed marking system.

The company has a dedicated professional service team, composed of highly trained and qualified employees.

Website: www.markator.de



On the market since 1961, Maus Italia F Agostino & C is an ISO-9001 certified leader in the production of a complete range of tools and equipment for heat exchangers and boiler assembly and maintenance.

With comprehensive R&D capabilities at modern and efficient headquarters, the company has in-depth knowledge of the technology for manufacturing shell and tube heat exchangers.

The complete product range from Maus consists of a large number of expander models, tools and special machines. The range therefore covers most user requirements, from the smallest tube expander to a complete CNC automatic working centre, and the simplest tube cutter to the family of tube bundle extractors.



Maus offers a large range of heat exchanger and boiler assembly equipment

Tube expansion equipment includes tube expanders, torque controlled air rolling motors, electric rolling motors, CNC automatic centres, a hydraulic rolling expansion machine (by hydraulic motors), and a hydraulic expanding machine (by water). For tube facing, the company supplies facing tools and machines and CNC automatic working centres.

The Maus range also includes equipment for tube-to-tubesheet welding, comprising orbital welding machines and automatic CNC centres.

Other equipment includes hydraulic bundle inserters, testing guns and instruments, internal tube cutters, bundle saw machines, bundle extractors, hydraulic pullers (automatic and semi-automatic), and cleaning equipment.

Website: www.mausitalia.it

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#### **Maxvalue Industries Co** China 6G35

Maxvalue Industries specialises in the manufacture and export of fittings, flanges, valves and other pipeline products in China.



A selection of Maxvalue products

The company is BVQI ISO 9001 certified, and its products have gained TV PED certificates.

Website: www.maxvalue.net

#### Meta Copper and Alloys India 5E02

Meta Copper and Alloys Ltd manufactures and supplies copper and copper allov strips, sheets, foils, billets, tubes and rods. The company's plant has complete inhouse facilities, from melting to finishing.

The company also manufactures copper and copper alloy round billets for the extrusion and forging industry. Its billet casting unit includes induction melting furnaces and sophisticated semi-continuous casting equipment to cast billets of copper and copper-based alloys, coupled with ultrasonic flaw detector for strict supervision of quality.

For precise alloying, the company has commissioned a fully equipped laboratory, featuring a computer controlled spectroanalyser and wet analysis facility. The alloys range includes copper billets in grades of ETP/DHP copper, tellurium copper, sulphur copper, silver bearing copper, cadmium copper, chromium copper, manganese copper, as well as HT brass, aluminium brass, naval, admiralty and other brasses.

The company's product range also includes binary brasses, 90/10 cupro-nickel, 70/30 cupro-nickel (in 4-133mm OD and 0.3mm to 10mm wall thickness for tubes), and 90/10 cupro-nickel. In addition, it includes aluminium bronze. Pb bronze. Mn bronze. Al silicon bronze, chromium Cu, MBA2, Pb brass, and nickel silver for solid and hollow rods in 4-200mm OD and hollows up to 180mm ID.

Website: www.metacopper.com

#### Metals International Ltd China 7.2A10-02

Metals International Ltd specialises in ERW line/casing pipe, longitudinal/spiral welded pipe, black/galvanised tube, seamless tubing and piping, and seamless/welded stainless tube and pipe. The range also includes flanges, pipe fittings and other steel products such as steel billets, HR/CR sheet/coil, deformed bars, wire rods and H-beam.

The company's products are in compliance with quality control in accordance with API-5L, API-5CT, ASTM, ASME, BS, EN, DIN, JIS, ISO, GOST and NFA quality standards.

Website: www.klsteel.com



Metal Servis is a trader of stainless steel pipe, fittings, flanges, plates and sections/ bars. The company supplies products for projects in oil/gas pipelines, shipyards, petrochemical plants, refineries, power plants and water treatment industries. It also produces stainless steel elbows and tees (1" to 8").

Website: www.metalservis.com.tr



Mewag is a manufacturer of bending machines including the Megalus and Gigalus brands. These machines offer a modular design, one or two heads, and automatic right to left bending, with an unlimited number of tools.



With up to 13 axes, the bending machines are fully-electric and capable of producing both simple and complex geometries. They operate with a high accuracy and speed, while high-speed servo drives are used for all axes. An electrically adjustable bending arm and sliding rail feed pressure ensures that bend pressure is programmable and the formation of wrinkles is controlled.

In addition to the standard programming, Mewag's sub-program technology also allows an additional CNC code to be inserted before or after each bending set. This ensures all axis movements and auxiliary functions can be programmed.

Website: www.mewag.com



MFL is a leading manufacturer of high powered cold circular sawing plants, with worldwide supply of equipment based on a standard design. The company's customers are mostly from the European and Asian markets, comprising precision and seamless tube manufacturers.

These plants are designed for sawing of stainless steel, ferrous and non-ferrous material in the form of billet, tube, profile and plate. The custom-made solutions are used for specific applications such as tube or profile layers, billets or plate sawing plants. Each machine is intended to utilise carbide tipped saw blades, which guarantee an accurate and high capacity by lower costs and long tool life.

MFL supplies sawing machines for round materials and tubes from 30mm up to 800mm in diameter. The saw blade diameter, which is used for cutting of 800mm in diameter, is 2,200mm. The largest square dimension that can be cut with MFL sawing machines is 720mm.

MFL has developed and sold a layer-sawing machine with a 1.5m layer width, which is used for cutting tubes, I- and U-beams, sheet pilings and angles. This substantial layer width is claimed to be a unique development on the international market.

In addition, MFL supplies sawing machines for cutting of aluminium plates. Recently



A model HK 1200 L-132 sawing machine

delivered to a Russian customer, the aluminium plate sawing machine is able to cut aluminium plates with an incoming length of 16,000mm and width of 2,600mm at the plates length and cross side. The fully automatic sawing machine is equipped with 3 sawing stations (1 cross sawing station and 2 length sawing stations).



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#### **TRADE FAIR 2008**

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■ AUTOMATIC DETERMINATION & CONSIDERATION of all geometric tube qualities

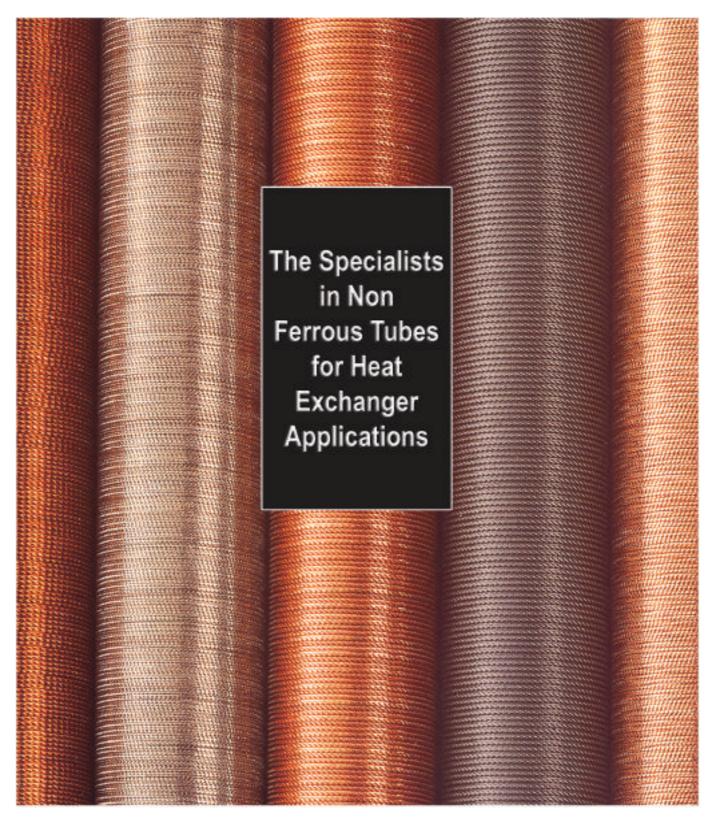


## TUBE BENDING MACHINES TUBE MEASURING SYSTEMS

RASI engineering GmbH Wilhelmstraße 100

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E-mail info@rasi.de Internet www.rasi.de





# Wolverine Tube Europe BV A Wolverine Tube Inc. Company





Edge milling technology from MFL

For manufacturers of railway rails, MFL offers combined rail sawing and drilling machines. This kind of machine cuts and simultaneously drills a hole into the rail.

> MFL is an experienced supplier for the chip removal process and delivers turnkey plants as well as single machines for the modernisation or increased performance of tube production.

Website: www.mfl.at

Photographs of various push pointing machines will be on display. A video presentation will also be given to illustrate the design characteristics of tube push pointers and special forming machines.

Website: www.mitchellmachinery.com



With over 30 years' experience, MTM SpA is internationally renowned for its experience in designing high-quality tube mills and related equipment and tooling. The company will present its programme of machinery especially designed to produce precision tubing of high tensile alloys.

The company will introduce the Comby, its new orbital flying cut-off machine. This is a state-of-the-art solution for cutting heavy section tube, either round or shaped, in carbon and stainless steel, by quick and effective cold saw process.

The range covered by the Comby series is from 63mm to 219mm OD and from 3mm up to 12.7mm wall thickness.

The Comby orbital flying cut-off machine's carriage is accelerated by a reliable rack and pinion system (AC or DC driven), while the cutting process is made by two combined electrical axes as with millingmachines.

The cold saw can be operated either by HSS or TCT blades, as with the whole range of MTM flying cut-off machines. There is no gap between the two blades, due to a reduced blade diameter. The Comby models allow high productivity and low running costs whenever burr-free cutting is necessary.

The first Comby units are already operating with excellent results.

Website: www.mtmmachinery.com



Multimetals Limited is a manufacturer and exporter of seamless extruded drawn copper and copper alloy tubes. The company supplies applications including heat exchangers, nuclear and thermal





An expert in tube push-pointing equipment, George A Mitchell will present examples of various sizes of pointed tube ends and samples of formed tubular parts for the automotive and sporting goods industries. Sample pointed tubes will include a range of metals such as carbon, alloy, and stainless steels, hard and soft copper. cupronickel, brass, and aluminium.

Multi 50K pointers – part of the George A Mitchell









power plants, shipbuilding and repairs, petroleum refineries, sugar plants, defence establishments, and air conditioning and refrigeration.

> The product range includes tube and pipe manufactured from copper, capillary, cupronickel, admiralty brass, aluminium brass and other brasses, together with bare, low fin and U-bend tubes. Other products include copper-alloy rods, profiles and alloys such as aluminium and manganese bronze, naval brass, cadmium and tellurium copper.

> The company, which exports to all developed countries, has won 11 Indian export excellence awards in the last 13 years.

Website: www.multimetals.in



New-Form Tools has developed speciality blades and cutting systems for high tensile and high strength materials including stainless steels and exotic metal tubing. The titanium coated shear blades are impact resistant and wear resistant.

Those that have struggled with sawing and shearing can now depend on consistent saw quality cuts in varying size and wall thickness. Unpredictability in blade life can be avoided as these products guarantee long life and high quality cuts far beyond that of regular sawing and shearing of high strength steel tubing.

Examples from users of these shear blades show that 5,000-11,000 cuts are possible in difficult high strength tubing with 61/2" diameter and 0.179 wall thickness.

New-Form has developed a patented quick change blade/jaw system



Historically, these tube cutting figures were unpredictable even with 100-800 cuts. These results have been verified at one customer in the mid-USA, saving in excess of US\$1mn on their tube mill from the actual scrap steel tube produced.

The cost of new blades and sharpening has therefore been reduced by more than 400 per cent. Total cost reductions in one tube mill line approached US\$1.4mn per annum.

In addition to these cost saving advances, New-Form Tools has developed a patented quick change blade/jaw system that dramatically reduces downtime in tube shearing. The New-Form quick change tool systems can now be adapted to fit most existing tube-shear cutting machines and can transform production lines into higher profit work centres. Tool package changes that would total up to 60 minutes have been reduced to as little as 60 seconds.

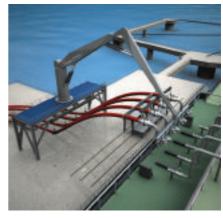
Website: www.newformtools.com



Nexans Deutschland Industries GmbH & Co KG develops and designs the Uniwema® 650 welding machine, which is used to manufacture corrugated stainless steel pipes up to an OD of 650mm and a wall thickness of 3mm. Prior to this recent development, the Uniwema machine had been limited to an OD of 400mm.

New solutions for today's onshore and offshore LNG (liquefied natural gas) transfer and terminal applications are provided by flexible stainless steel pipes that are vacuum-insulated with an outer diameter of up to 16". This product is important to the environmental and safety aspects that play the most important role in the increasingly sensitive LNG market.

The well-proven technology of the split clamp caterpillar capstan, in combination with Uniwema corrugation technology, will be used for this world's largest continuous forming, welding and corrugating machine. Nexans is therefore in a position to deliver any corrugated pipe system up to an ID of 600mm with any length. This depends on transportation restrictions, which usually specify a typical length of pipe section from 55m to 350m.



The Uniwema® 650 welding machine is designed for LNG stainless steel pipe

The drive system of the split clamp caterpillar capstan is based on a hydraulic system, with the electrically driven corrugation unit synchronised to the capstan speed. The welding is performed through the company's patented and ASME approved Polyarc process.

The unique Uniwema technology is claimed to be the only technology capable of continuously producing 16" and 20" flexible metal pipes. Onshore and offshore LNG terminals are vital as they prevent excessgas burning of natural gas.

Website: www.nexans.de



Olimpia 80 Engineering designs and constructs complete mills for the production of welded tubes. The company offers both individual pieces of equipment and complete lines, suitable for any TIG, laser and HF welding, and for materials such as stainless steel, carbon steel, titanium, copper and other non-ferrous materials.

The company can also provide a wide range of equipment for strip handling, tube cutting, inline bright annealing, and inline or offline tube finishing. One of the company's latest developments is a satin and mirror polishing machine for round, square or rectangular tubes.

Olimpia 80 can also supply turnkey systems, find personalised solutions, and provide complete aftersales technical services and personnel training.

Website: www.olimpia80.com

### FORGING AS YOU LIKE...



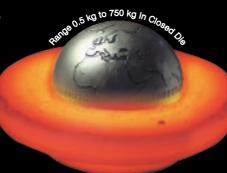






#### **Applications**

Oil & Gas Sector Pulp & Paper Industry **Petro Chemicals** Refineries **Transmission Lines** Marine Engineering



#### **Quality Approvals**

ISO 9001:2000

PED

**ADWO** 

CRN

**PDO** 







**BS Flanges** 



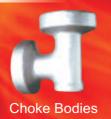
**ANSI Flanges** 



Valve Bodies



Stub-ends



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Omni-X CZ sro, the producer of bending tools for any model of bending machine, has recently extended its production range.

The company is now able to produce stackable tooling for tubes up to 100mm OD and compound (bend-in-bend) toolings, in addition to standard tooling (up to 168mm OD). The company states that this

Omni-X will exhibit its extended range of bending tools



range is available at affordable prices with fast delivery for any sized mandrels and wiper dies.

Website: www.omni-x.cz



OMP srl is a leading company for cutting machines and complete cutting lines for tubes and metal. A highlight of OMP's range is the Euromatic 370 CNC, a fully automatic cutting machine (also with hydraulic operation). The machine operates via a step-by-step feeding shuttle driven by a spherical recirculation screw and a 1,500mm stroke, together with feeding speed of 800mm/sec.

The Euromatic 370's clamping system operates by a double vice self-centring and vertical clamping cylinder. With a Siemens™ TP 270B touch screen, there is a selection of eight different cut types and compact flash card memory for more than 500 types of cut. There is also memorisation of all parameters, including feeding shuttle, head



The Euromatic 370 CNC cutting machine

down stroke speed, blade rotation speed, vice opening and collet opening.

The cutting head has automatic rotation of  $\pm 60^{\circ}$ , with head movement both up and down (via a brushless motor). A vertically sliding cutting head operates on hardened and ground prismatic guides, with an automatic unloading system (depending on cutting program selected).

The maximum blade diameter is 370mm, while power comes from a 2-speed motor (standard speed 12.5-25rpm/25-50rpm or 50-100rpm). The machine can be fitted with an optional saw blade offering stepless variable speed (20/130).

Website: www.omp-group.it







YangZhou Lontrin Steel Tube Co., Ltd, established in November, 2003, is a professional manufacturer in seamless carbon steel pipes and alloy steel pipes. The annual production capacity is 250,000 tons, in which 150,000 tons are carbon steel pipes and 100,000 tons are alloy steel pipes. The size range is Φ14-Φ325mm x 1.5-25mm,and the standards include ASTM, JIS, DIN, BS and EN. The products are widely used in the fields of electric power, boilers, petroleum, chemical, ship building, geology exploration and etc, of which 70% are exported to more than 40 country markets.

Lontrin located in the YanJiang developing zone Jiangdu City, Jiangsu province, P.R.China, and surrounded by Ning-Qi Railway, Yangzhou Port, Jiangdu Port, Jing-Hu Highway, and Ning-Tong Highway, with good scenery and convenient transportation Our company, with the policy "pursue the perfect, to be the best", insists on the quality guideline "quality oriented, customer first, constant innovation and amelioration" and has got the certificates of ISO 9001, API 5CT, API 5L, PED, CCS and other shipping classifications.

Lontrin Steel Tube will invest 1 billion RMB in the second project, introducing the production line for the big outside diameter alloy steel tubes, the range of OD is 426mm to 1200mm. It is estimated that the production capacity is 100,000 tons and this project will be finished in the year 2008.

Our company plans to build the production base and stock warehouse by the year 2010. The production base will reach the amount of 350,000 tons of high quality seamless steel tubes of the specification  $\Phi$ 10 to  $\Phi$ 1200mm and the stock warehouse will have the capacity of 200,000 tons each year.

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Oto Mills is involved in the design and construction of machines for producing top quality tube at very high production rates. The company has more than 20 years' experience in the design, manufacture, and installation of tube mills. With a full catalogue of solutions for carbon and stainless steel applications, the tube mill products range is from 10-220mm.

The Oto Mills capability includes complete systems for the production of welded tube and/or profiles, turnkey production plants, revamping of existing systems, training of mill personnel, after-sales service, and electronic/automation technology.



Oto Mills is a complete supplier of tube mills

Among the company's most recent innovations is a line of high precision tube mill designed to meet the rigorous specifications of quality automotive tubing applications.

Website: www.otomills.com



Pedrazzoli IBP SpA is a world-leader in the manufacture of machines and installations for working tube and metal sections. On the basis of fifty years' experience in this field, Pedrazzoli now offers a complete range of high technology products to cut, bend, swage, end-form and chamfer tubes and metal sections.

The company has launched its latest model called the Stern 160 IMS, a workstation for end-forming and machining for tubes up to maximum diameter of 165mm.

This machine is based on 12 different tools for an increased number of working options. Using the machine, it is possible to achieve a finished part from one machine in a single work cycle, instead of achieving it in successive steps by working on different machines.

The Stern 160 IMS has three controlled axes and a double vice closing system that guarantees excellent clamping even in the case of particularly large diameter tubes. Because of its ease of use, it does not require a highly trained operator; moreover, tool change is extremely easy and rapid.

Like other Pedrazzoli end-forming machines, the Stern 160 IMS has IMS control. This software is particularly user friendly, making it





The Stern 160 IMS work station for end-forming and machining of tubes

possible to programme the machine very quickly and easily. This is the case even for the most complicated parts.

Website: www.pedrazzoli.it

#### Friedrich Petig GmbH 11D57 Germany

Friedrich Petig GmbH's range of section and tube stamping machines includes Cleff, DaimlerChrysler, Heras, Hansa Merten, Rautakari and Syspal. The machines feature particularly robust and user-specific manufacturing. In the manufacturing of shelf, shop building and fencing systems, a key condition is the use of deformation-free tubes, which cannot always be guaranteed. Since the introduction of the mandrel expansion die, hollow sections and tubes have been stamped without this otherwise inevitable deformation.

Petig will present their combined section and tube stamping machine for open Csections and a multitude of different tube sections. The maximum section lengths that can be stamped are 6,000mm. The press design is a double C-frame (portal construction) with a stamping force of 2 x 800kN.

Petig's combined section and tube stamping machine for open C-sections



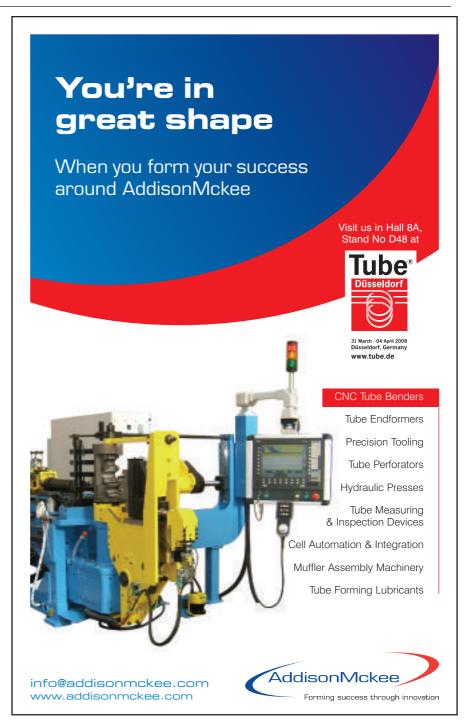
For stamping purposes, the two sections to be processed on a machine are manually placed on the roller feed table and then pushed into the collet chuck on the feed measuring carriage (VMW). The collet chucks close automatically when the sensor is reached.

During stamping the sections are cycled by the machine, whereby groups of 8 holes are always stamped (square, slotted and round holes). It is also possible to carry out other operations simultaneously, such as lowering and beading.

For automatic linear advance, Petig uses a robust and precise toothed belt system with a repeatability of ±0.15mm. With this system, tubes and sections up to a length of 7,000mm can be machined without rechecking. Once the sections have been stamped, the feed measuring carriage (VMW) travels back to its starting position.

The sections remaining in the stamping tool are transported away linearly with pneumatic grippers. The column-guided hole-stamping tools are made of hardened and ground high-performance tool steel.







Petig can also supply stamps or stamp groups that can be connected or disconnected during stamping.

> For the conversion from a section stamping machine to tube stamping machine it is necessary to install a mandrel expansion die. The die is mounted on a support, which corresponds with the length of the tube, and which also includes the expanding mechanism.

> The conversion can be carried out in just a few minutes.

Website: www.petig.com



PMC-Colinet will display its range of advanced tube finishing equipment and state-of-the-art solutions.

The company has recently fulfilled a number of multi-million dollar contracts in Kazakhstan and PR China, and hopes to secure many more at Tube 2008. The company is formed from the partnership of technology and resources of PMC Industries (USA) and MP Colinet (Belgium).

The company manufactures tool rotating and product rotating, and tube/coupling finishing machines for the OCTG, premium and commercial tubular markets. In PMC-Colinet addition. manufactures ancillary pipe processing machines, including coupling starter/screw-on (buckon) units, which the company claims are the fastest and most accurate in the industry.

PMC-Colinet's model 471M pipe end finisher (114.3mm to 339.7mm OD)





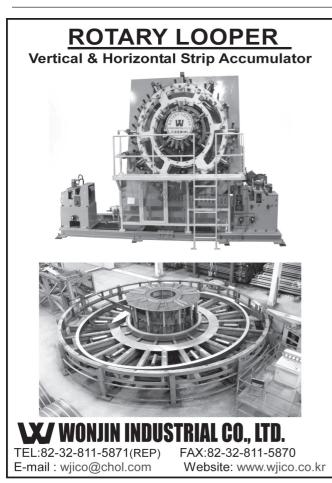
Model MPM-C7 coupling finishing machine (60.3mm to 177.8mm)

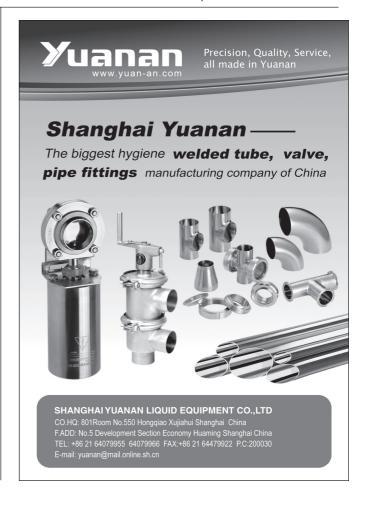
With single source end-finishing capability, PMC-Colinet designs and manufactures material handling equipment and the durable and perishable tooling used on these machines.

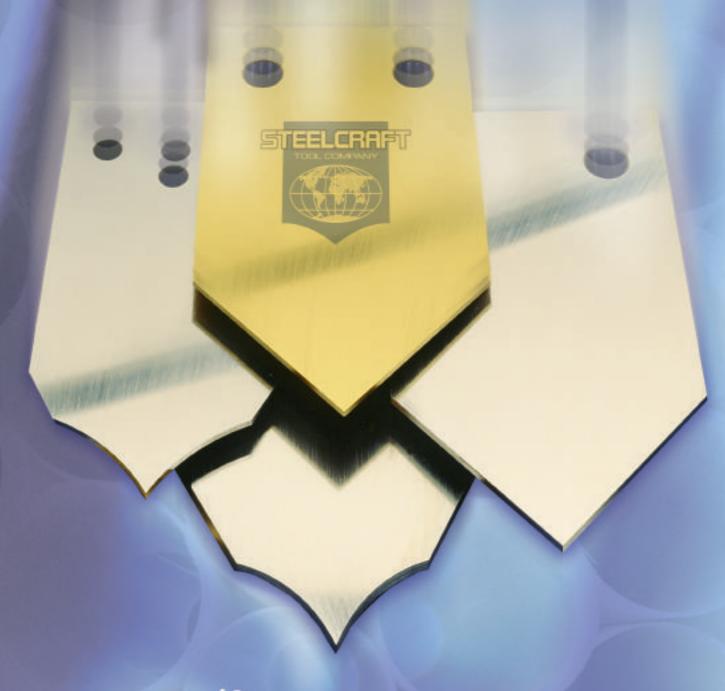
The PMC-Colinet stand will display the latest advancement in thread generating technology, the X2 - tool forward design. X2 eliminates most size changeovers and improves machine flexibility for premium joint manufacture.

The company's stand will also feature design improvements of its product rotating equipment and the balance of tool rotating machines.

Website: www.pmc-colinet.com







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Pouchard offers a permanent stock of 15,000 tons of carbon steel tube and associated product, and 5,000 references. Sizes range from 7mm to 700mm in diameter of round, square or rectangular tube and chromed plated bars. These are typically used by the mechanical, hydraulic, heat, construction and piping industries, and are immediately available from stock.

Drawing and surface treatments have advanced significantly over the years, and cold drawing has become a sophisticated process. Tubes of varying sizes and shapes can now be produced to precise specifications with a wide range of mechanical properties, tolerances and surfaces. With a choice of finishing options (eg heat treatment, surface treatment, cut-tolength, hammering out, and mouth openings, etc) the final product can be produced.

The company has developed a process for cutting, machining and boring tubes,

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mail:cntube@hotmail.com mobile:0086-13235771371

thereby supplying products that are closer to their destined use. This is achieved with the latest manufacturing methods for high quality and productivity.

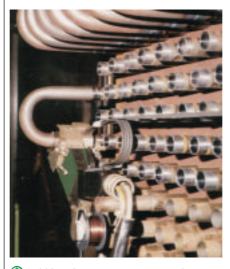
Website: www.pouchard.fr



Celebrating its 20th anniversary this year, Prai specialises in the design and manufacture of orbital welding systems. All Prai tube-to-tubesheet and tube-to-tube welding equipment is based on the in-depth experience gained from a range of project applications.

Modular design, ease-of-use and efficient maintenance features guarantee excellent handling and reliability. Prai's orbital TIG welding equipment covers all requirements of tube-to-tubesheet welding.

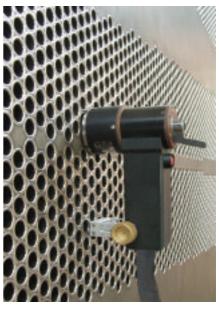
This includes welding of protruding, recessed or flush tubes, internal bore welding (with or without wire), box header welding, UREA reactors, titanium heat exchangers, and multipass welding with AVC.



M34 for TIG welding tube-to-tube with filler wire

In addition, the equipment can be used for tube-to-tube orbital welding up to 4.5" diameter (with or without filler wire), even with AVC and torch oscillation, together with closed chamber welding heads for high purity welding.

The company has recently developed MIG/ MAG tube-to-tubesheet welding equipment that includes all the advantages of the



P24 equipment for tube-to-tubesheet welding

MIG/MAG procedure. This guarantees the highest quality and maximum welding speed particularly appreciated in the boiler industry.

Website: www.praisrl.it

#### **Precis Inter Holding JSC** Bulgaria

Precis Inter Holding JSC is a company with 20 years' experience in the manufacture of rolled and welded steel, pre-galvanised and aluminium tubes, conduit sections, open profiles and manipulated tube products. The company provides quality assurance through Lloyds British EN ISO 9001-2000 accreditation. This certification is backed through the operation of a fully functional ERP system that controls all aspects of the organisation.

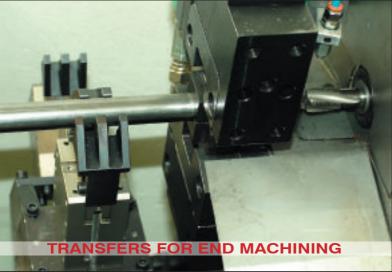
Seam welded steel tubes are available from cold rolled, hot rolled and hot rolled pickled material. The production range is from 8mm to 100mm diameter and 0.5mm to 3.6mm wall thickness. Cut-to-length and special packing is also available. Steel tubes are in compliance with EN 10305-3 and EN 10305-5.

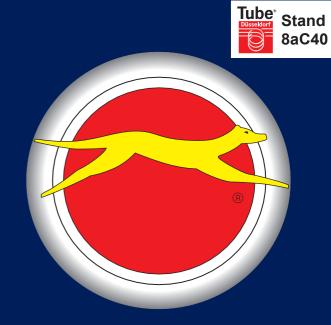
Seam welded aluminium tubes - that comply with EN 1592 - are available in a mill bright finish. Tubes are available from 8mm to over 66mm diameter and wall thickness from 0.65mm to 3mm. A wide range of alloys and temper conditions are













### PEDRAZZOLI

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e-mail: ibpexp@pedrazzoli.it
www.pedrazzoli-ibp.com







also available. Cut-to-length and special packing is available, as is an in-house tube manipulation and fabrication service.

> Pre-galvanised steel tubes are also available from DX51D+Z, A, N, Z100 to Z275 material which conforms to EN 10142/00. The tubes are in compliance with EN 10305-3 and EN 10305-5.

Website: www.precis-inter.com



Prestar is a manufacturer of pipe transportation lines, straightening machines and other equipment.

The company has recently supplied a pipe transportation line to a Ukrainian customer. This installation and operational start-up of the stainless steel pipe transportation line follows on from the implementation of a boiler pipe transportation line together with equipment for cutting pipe ends. This contract also includes the technology for



Prestar manufactures a range of pipe transportation lines, together with other equipment

non-destructive pipe end-testing by the application of the magnetic powder method.

This line is designed to transport stainless steel pipe with diameters from 12-60mm and a length from 14-26m. It ensures the transport between individual technological operations like straightening, grinding, nondestructive testing station, pipe end cutting and storage.

Prestar also manufactures 10-roll straightening machines which are capable 140m/min straightening speed, and straightening with 0.1mm/m accuracy after the straightening.

Production is focused on the construction and manufacture of pipe transportation lines, together with equipment for pipe treatment. The range includes various types of conveyors, straightening machines, sawing machines, grinding machines, pointing and chamfering units, packing machines, and separating units.

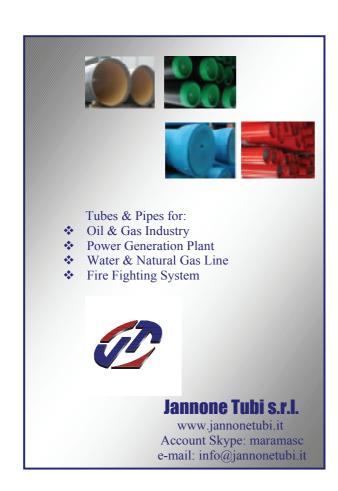
The equipment and automated production lines are designed according to specific requirements, and are optimised according production line productivity. The company's main customers are central and eastern European pipe producers.

Website: www.prestar.cz



Profilmec Group is specialised in the manufacture of high-frequency electrowelded cold rolled precision steel tube and profiles. The company's facilities comprises a total surface of over 450,000m<sup>2</sup>, of which 140.000m<sup>2</sup> is undercover. The company's







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Fig. shows a 7" / 18 kit-lbs machine with open style backup and on the right side mounted external pre-tightening station.

Repeatable precision at short cycle times, tailor suited to your requirements with engineered periphery, such as:

automated coupling handling automated coupling doping external coupling pre-tightener with totally free-floating suspension, for simultaneously pre-tightening and power make-up. Torque Process Control, Windows based "TPCPro-AT" Short End Drift Tester

#### Pipe Size and Torque Ranges (samples)

max. OD	kft-lbs	kNm
7.000*	30	40
9.625*	37	50
13.375"	80	108
16.000"	80	108
26.000"	74	100

For more information, please send an e-mail to: bucking.unit@eu.weatherford.com

> or send a fax to: +49 511 77 02 275



global production is approximately 3,000,000t, which equates to about 1,450t/day.

Materials used include hot rolled pickled steel (standard and special), cold rolled steel (standard and special), aluminised steel, hot galvanised steel, and aluminium. The product range includes diameters from 8mm to 120mm and wall thicknesses from 0.5mm to 3mm

All products can be supplied with special finishing and packaging, while pipes can be supplied in cut-to-length pieces. Product surfaces can be customised on the basis of the final application. Tailor-made tubes can be supplied based on expertise in cutting, bending, funnelling, welding, painting, and galvanic treatment.

Profilmec Group is equipped with technologically advanced plants and machinery. Product applications include automotive, cycle and motorcycle, furniture, toys and household articles, radiators and buildings.

All five of the Group's tube manufacturing facilities have a combined total of 35 mills. In addition to the wide equipment range for pipe production, the Group's equipment also includes steel cold-rolling mills.

Nearly all Profilmec facilities are certified in compliance with UNI EN ISO 9001:2000 and with ISO/TS 16949, a specific standard for the automotive industry.

Website: www.profilmec.it



Established in 1980, Protem is a manufacturer of prep welding equipment. The company has a wide range of standard machines for preparing pipe ends from  $\frac{1}{8}$ " (2mm) up to 76" (2m).

Protem manufactures high-speed and heavy-duty PFMs to quickly end prep pipe from 6-60" (HSB series). These PFMs are able to clamp the pipe from the inside. In addition, due to the heavy wall thickness and reduced inside diameters often experienced, Protem offers the new OHSB generation of PFMs that grab the tube from the outside.



The OHSB design allows bevelling with internal wheel trackers even with a small inside diameter. This new generation of machine can also bevel extremely heavy walls up to 70mm in a few minutes. This concept is all hydraulically controlled.

CTA cutting and bevelling machine

Protem also has a range of stationary machines. The

Protem CTA machine can cut and bevel two ends simultaneously in a few seconds, with up to 1" wall. This machine is all mechanically driven to avoid the electrical worries that can occur in some countries.

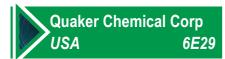




US620 HSB high-speed bevelled

The Protem BB bench bevellers can bevel pipes from 3" to 48" with only 3 machines. The BB can machine any end welding preparation in a few minutes.

Website: www.protem.fr



Quaker Chemical Corp is a worldwide developer, producer and marketer of custom-formulated tube and pipe process fluids and coatings.

The Quaker team is capable of providing custom formulated fluids for all processing operations in welded and seamless tube and pipe mills, and delivers in-depth process expertise to help maximise productivity.

The company's product lines include rollforming and sizing coolants (Quakercool series), cleaning and surface preparation (Quakerclean series), drawing and forming compounds (Quakerdraw series), sawing and threading lubricants (Quakercool series), and hydrostatic testing fluid (Quakercool series).

In addition, Quaker provides speciality fire resistant hydraulic fluids (Quintolubric series), high temperature greases (Dynachem series), high temperature lubricants for sizing, extractor and upset operations (Quakerol series), corrosion preventives (Ferrocote series), and Quakercoat UV curable coatings (water and solvent borne).

Quaker is also a provider of in-depth expertise application process engineering support.

Website: www.quakcerchem.com

#### Inoxidables de Rábade 6D26

Inoxidables de Rábade operates a wide manufacturing program of welded stainless steel tubes, used in industrial sectors such as food processing, chemical, pharmaceutical, building, machinery, and equipment.

The reliability of the company's products is sustained by constant technological improvements in the manufacture of welded stainless steel tubes and quality control of the production process.

Website: www.inoxidablesderabade.com



Radyne specialises in innovative and cost effective solutions for producers and installation contractors of API pipe. The







#### Swiss saw blades for cutting tubes and bars

Our range: HSS Blades

700mm (Blank / Vapour / Coated)

Segmental Blades

ø 400 – ø 1800mm

Carbide Tipped Blades ø 250 – ø 2 000mm (Ferrous / Non-Ferrous)

Friction Blades

ø 300- ø 2 000mm (Cold/Hot)



We have state of the art solutions to all your cutting problems.



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Local agents in: Germany, Macedonia, Finland, Italy, Spain, Russia, South Africa, USA. Mexico. Korea, Thailand, Australia





company offers a range of induction heat treatment and coating systems to the oil and gas sector.

Applications served include pre-heat and post-weld heat treatment of field joints/ girth welds, linepipe coating systems and turnkey containerised systems.

Visitors to the Radyne stand will have an opportunity to discuss in detail their applications, both offshore and onshore. They will also have the chance to see the latest Radyne Merlin and SwirlCoat systems, which have been engineered to satisfy even the harshest and most demanding of installations.

Website: www.inductoheat.co.uk



Reika offers a range of straightening machines, tube finishing systems and tube cutting machines. Last year the company received €20mn in sales with a range of orders from seamless tube mills and automotive/tube processing companies.

The company's 2008 production schedule is sold out due to big orders from Vallourec & Mannesmann, Mittal, Interpipe, Benteler, and Tubos Reunidos. An increasing number of seamless tube mills are taking advantage of automatic material flow for cold finishing lines with overall material tracking and optimisation.

The tube optimising software in tube finishing lines can reduce the material scrap by up to 3 per cent. In addition, the new straightening lines enable precise



Reika's straightening, finishing and cutting machines are currently in popular demand

straightening of the tubes up to the ends, which increases the yield of the tube mills.

Individual automatic tube treatment is made very easy via integrated NDT testing lines, which are interfaced in the material flow and data communication prior to the cut-off line. The bad ends and necessary production/fixed length can be optimised and cut according to the results from the testing section. The variable tube positioning allows individual tube handling and saves material.

Tool costs for cutting can be saved due to the constant cutting process of the rotary cut-off machines, which are much more efficient in comparison to carbide saws with interrupted cut and long blade change times.

Reika will present the new high-speed cutting centres based on reliable standard components, branded Compact. The machinery is capable of an output up to 2,000 parts/hour in accurate length tolerance, to automotive industry standards.

Statistical process control is integrated in the Siemens CNC. The rotary tool head can be equipped either with chipless disc cutter or standard carbide inserts, reducing tool costs. The tubes are handled by gripper units, while all axes are electromechanically driven.

Website: www.reika.de

#### **Rotaform GmbH** Germany 8bE29

Parts and components manufacturer. Rotaform GmbH, will exhibit the latest developments and trends from different industries, and will present the versatile technique of cold forming with a whole range of forming possibilities.

Weight-saving due to the use of tubular workpieces is in high demand in applications such as automotive, aviation, optics, medical technology, heating and air conditioning, electrical and domestic equipment.

In addition to the cold forming method, other processes like turning and punching are used for production.

With stages including surface refining. heat treatment, joint operations and completes the assembly, Rotaform component. The company is equipped to manufacture forming parts in small and large batches.

Website: www.rotaform.net



RSA will introduce its range of machines for sawing, deburring, chamfering, measuring, cleaning and stacking.

The company offers six different sawing lines for a wide range of workpieces. The efficiency of sawing machines



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#### **FABRICOM GTI**

#### at the forefront of induction bending technology

As Europe's leading manufacturer of induction bends, Fabricom GTI has the advanced technological and machine operating capabilities required to produce bends for the most advanced onshore and offshore oil and gas pipeline systems as well as specific applications in the chemical, petrochemical and energy sectors. Its leading position is the result of experience gained throughout more than 30 years of manufacturing and development work.

#### **EQUIPMENT AND CAPABILITIES**

Fabricom GTI operates 6 induction bending machines capable of bending diameters of up to 64" (1600 mm) all of which offer a high degree of flexibility in terms of bend radius, bend angle and bend plane, and which, being computer controlled, are able to achieve close tolerances.

Fabricom GTI is able to work with all types of material and has 5 furnaces which can be heated up to 1200°C.

#### **OPTIMISATION OF MATERIAL PROPERTIES**

In order to allow us to meet the strict requirements set by the Oil & Gas industry with regard to material properties, Fabricom GTI also has a quench tank at its facilities in Belgium.



Fabricom GTI Industrieweg 16 1850 Grimbergen BELGIUM

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www.fabricom-gti.com



can depend on an optimal adaptation to the manufacturing process and the simplification of other processes.

RSA has already developed six series of sawing machines for different requirements. with more to follow. One of RSA's recent customers has purchased a Rasacut OC fully automatic sawing centre to replace the semi-automatic time-consuming production of interrupted perforated tubes.

Rasacut OC cuts the tubes, with prior measurement and control of the correct hole spacing for the perforation in the

Multicut saw for short length tubes of 30 up to 100mm fixed length



tubes. The machine cuts out and ejects sections with faulty spacing. The integrated automatic deburring, cleaning and drying of the cut fixed lengths also leads to lower process costs.

Another of RSA's customers has found a standard series Rasacut SC to considerably reduce set-up times, resulting in cost savings across three-shift operation. The multicut saw Rasacut MC, being developed for component suppliers to the automotive industry, cuts 5,000+ pieces per hour.

It also achieves further integrated actions such as deburring, measuring, cleaning, stacking and packing, without a reduction of the high output of the saw.

The volume cut saw of the same type series even makes possible yields of up to 8,000 pieces per hour, if additional further processing steps are omitted.

RSA has met the demand of a scaffolding manufacturer for a precise cut and a high output of tubes up to a length of 4,500mm with a saw line which automatically singles bundle lengths of 13,000mm. It cuts them fast and precisely, and simultaneously



Circular saw for tubes and solid bars up to 170mm diameter

deburs the inner and outer edges at both tube ends.

For tubes and solid bars up to 170mm diameter - previously a domain of band saws - RSA has developed the new circular saw Rasacut XXL. Those who have already been using the Rasacut XXL during recent months confirm that, depending on the workpiece, the cutting time is up to 90 per cent below that of up-to-date band saws.

Added to this is an improved cut quality with regard to perpendicularity and surface roughness.

Website: www.rsa.de

#### "Our source of continuous Learning and Improvement is our customers"

TPI is India's largest manufacturer of welded Precision Tubes with a capacity of 1,75,000 Tonnes per annum. TPI has integrated its operations to provide a wide range of tubes for automotive applications, energy equipments (boilers & air heaters), construction and textile industry. With a team of application specialist and a strong research & design center coupled with robust processes evolved over a period of fifty years, TPI is truly an end to end solution provider of tubes.

#### Wide Range of products across applications

6 mm - 158 mm Outer Diameter Wall Thickness 0.6 mm - 8 mm Strength levels 300 MPA - 1800 MPA

Tailor made Profiles as per customer requirement

#### **Innovative Tubular Component**

TPI offers Innovative Tubular Component solutions reducing 20-50 % weight without compromising performance, with strength ranging upto 1800 MPA

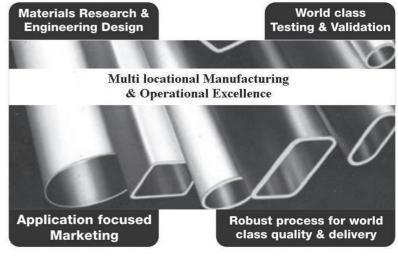
#### **Global Reach**

With five manufacturing facilities including one in China and a sales and service support across the world, we are uniquely placed to produce and service globally.

#### Globally approved Vendor

TPI is a globally approved vendor to Auto OEMs, Teir 1 & Tier 2 Auto ancillaries.

Our key customers Suzuki, M&M, Delphi, John Deere, Suspa, Tenneco, TML, HHML, BAL, Hyundai, ThyssenKrupp Presta, TRW, ZF, Visteon, **Arvin Meritor, Gabriel** 





#### ube Products of India

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Salzgitter Hydroforming is a specialist for the series production and development of hydroformed components. Due to the excellent utilisation of the material's forming potential, hydroforming technology offers the possibility of manufacturing sophisticated one-piece components.

This process also meets requirements such as high stiffness and low wall thickness. Hence, the parts allow for the idea of a lightweight concept. The outstanding repeat accuracy of this forming method guarantees a high quality standard.

Since 1 January 2008, Salzgitter Hydroforming has combined the expertise of two production sites and offers an even wider range of products and services. Some main fields of application are parts for exhaust systems, chassis and car body and heat technology.

Another important cornerstone is the company's development service, that includes feasibility studies and tool design as well as the manufacturing of prototypes. The integration of all relevant up and downstream operations into the process chain and the use of eight hydroforming presses gives Salzgitter Hydroforming a leading position in the European market.

Website: www.salzgitter-ag.de



Sandvik Materials Technology is a producer of high technology stainless steels, special alloy materials and advanced valueadded products. The company is a co-operation partner within the field of materials technology, which means that products and materials are developed in close cooperation with customers. Sandvik Materials Technology comprises five product areas: tube, strip, wire, Kanthal and process systems.

The tube product area specialises in seamless and welded tubes, fittings and flanges, and is a world leader in tubular products made from stainless steels and special alloys. Key markets include the chemical, petrochemical, oil and gas, power, electronics and many other industries where corrosion resistance, mechanical properties and reliability of operation is critical. The product area also markets complementary sheet and plate.

Also included in the tube product area are stainless steels for machining. Sandvik has pioneered their development, working alongside sister company, Sandvik Coromant, a leader in machining tools. This cooperation gives a unique possibility to offer materials and tools with an optimum compatibility.

Other tube products are alloys of nickel, titanium and zirconium for advanced applications, such as nuclear power and aerospace.

Website: www.smt.sandvik.com





#### Schmidt + Clemens 8aC34 Germany

The tooling and engineering business of the Schmidt + Clemens Group is based on more than 125 years of experience in the production of special steels for demanding applications. In the field of metal extrusion S+C Märker offers in-depth metallurgical consultation based on the specific manufacturing situation.

The company supplies a complete range of extrusion tooling such as container mantles, liners, liner holders, stems, mandrels, and dies. For this tooling a comprehensive stock of high quality hot work tool steels is available. This scope of supply is completed by an excellent customer service including development and re-lining of extrusion containers in a re-lining centre.

In cooperation with S+C Märker's sister company, S+C Bowers & Jones, the company supplies high precision rolls for tube and cold rolled section producers. All these rolls are manufactured to high accuracy and require a high wear resistance and toughness.



New turk's head roll unit made by S+C Bowers &

Depending on the welding process, the S+C Group is able to supply rolls made from different materials including cold work tool steels, hot work tool steels and aluminium bronze. The Schmidt + Clemens Group supplies a full range of high precision roll products. The company's complete in-house service for rolls includes extensive technical advice, design and development.

In addition to the manufacture of roll tooling, S+C Bowers & Jones is able to assist customers in other areas, including the design and manufacture of roll forming lines, mill parts and equipment, design and manufacture of special purpose machines, mill refurbishment and repairs, mill upgrades and modifications, and mill and tooling inspection and status reports.

S+C Märker GmbH - Germany Website: www.sc-maerker.de

S+C Bowers & Jones Ltd - UK Website: www.bowersiones.com



MRB Schumag manufactures high-speed inner grooving lines, and the SB4F spinner block. To cater for specific user needs, the company has developed a modular concept for inner grooving.

Users can completely customise machines to meet production needs,



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#### **FOR SALE**

#### **TUBE & PIPE MILLS:**

Complete Stainless Tube Mill Plant 21/2" Stainless Tube Mill Line (4 Mills Available)

Thickness: 2mm-.4mm (.080-018) Tube O.D: 15.8mm-60.5mm (5/8" - 21/2")

#### 2" x .095 Yoder W Style Tube Mill with Kent Floop

.472" – 2.00" Tube Diamete .095" Max Wall Thickness Line Speed: 500 FPM

Uncoiler, Kent Floop (1990), Thermatool 300 KW HF Welder, Turks head, Cut Off (Alpha), Mair Packaging Line & Bundling System (1990), Tooling for rounds, squares and rectangles, Siemens Digital Drive

#### 2 1/2" x .090 AEF Tube Mill Line/ Solid State Welder

1/2" - 21/2" Diameter Tubing .095" Max Wall Thickness Line Speed: 350 FPM

Accumulator, Welder, 1997 Thermatool 200 KW Solid State Welder, Cut Off (Alpha), Tooling for rounds, squares and rectangles. Simens Digital Drives (2 Mills available)

Come see us at the Tube & Wire show in Dusseldorf! **Booth: Hall 8A/F18** 

#### 6" x .300" McKay API Pipe Mill, Rebuilt Mill

Four (4) Breakdown Passes, Three (3) Fin Passes, Seam Guide Unit, 300 KW Thermatool, High Frequency Welder, Seam Annealer, Inductoheat 450KW, Three (3) Sizing Passes, Straightening Unit, Rotary Cut Off Wean United, I.D. Scarf, New Tooling. Complete Mill.

#### 12 3/4" O.D. Yoder ERW Pipe Welding Mill

ERW Pipe 65/8", 85/8",  $10^3/4$ " and  $12^3/4$ " O.D. Wall Thickness: 0.196" to 0.375" Length: 40 ft. 71/2" Arbors

Five Main Forming Stands, Three Pre-finishing Stands, Three Finishing Stands

#### 5 Stand McKay 700 Series Squaring Mill

This Mill will convert round pipe into square or rectangle pipe examples are: 15/8" Round to 11/2" x 1" Rectangle 1.900" Round to 2" x 1" Rectangle

2<sup>3</sup>/<sub>8</sub>" Round to 2<sup>1</sup>/<sub>4</sub>" x 1<sup>3</sup>/<sub>8</sub>" Rectangle 1<sup>5</sup>/<sub>8</sub>" Round to 1<sup>1</sup>/<sub>4</sub>" Square 23/8" Round to 2" Square

HP, 1-Squaring Turkshead

Tube Size Range: 7/8" - 21/2" Wall Thickness: .072" - .220" 5-Driven Stands w/Horizontal and Vertical Pass in One Stand, Spindle Dia.: 41/2" (114.3mm), Motor & Drive: 1-200

#### 42" x 11/4" API U-ing and O-ing **Pipe Mill Presses**

DMC Upgrades: 1994

External Diameter: 20" - 42" Wall Thickness: 11/4

Grades: API 5LX Grades 42,52,60,65,70,80

"U" Press - USI Clearing 3000 tons, "O" Press - USI Clearing - 30000 tons, Cutting and beveling unit for steel plates

41/2" x .200" Mannesmann/DMC Tube Mill

(.200") - 1.4mm (.055"), Shaft Size: 85mm (3.35")

Tube O.D: 113.5mm (4.5") - 48.6mm (1.90"), Wall: 5.08mm

Double End Uncoiler, Five Roll Flattener, Forming Mill, 50 KW

DC Drive, 200 KW HF Welder, Sizing Mill, 60KW DC Drive, Flying Cut Off, Friction Saw, Tooling

#### 2" x .125 ITALIANA Tube Mill

Tube Dia: .500 - 2.000. Wall Thickness: .125" - .035". Line Speed: 330 FPM, Kent Floop Accumulator, Universal Drive, 2 – 75 HP DC Drives, 150 KW EMMEDI High Frequency Welder, BETA RAM Double cut Cut Off (1987), Eddy Current Tester, Solid State Electrics, Tooling

#### 5" x .250" Rafter RT-3500 Tube Mill Line

Year: 1999, Tube Size: 1.5"-5", Thickness: .120"-.250", Line Speed: 300 FPM, Design: Rafted, Double End Uncoiler, Shear & End Welder, Accumulator, Seven (7) Forming Stands, Thermatool VT300HF Welder, Four (4) Sizing Stands, Double Sided Truck Heads, Flying Cut-Off Saw, Run-Out Table.

#### 1600mm x 12mm API Spiral Pipe Plant

Product: 15<sup>3</sup>/<sub>4</sub>" - 64" OD (400 - 1626mm), <sup>3</sup>/<sub>16</sub>" - <sup>1</sup>/<sub>2</sub>" Wall, (4.8" – 12.7mm), Length 12.5ml, Features: Pipe Forming and Welding Machine, Chamfering Machine, X-Ray Inspection Line, Polietheness External Coating Line, Hydraulic Pressure Testing Line, Electrical Controls

#### **SLITTING LINES:**

#### 72" x .250 x 40.000# Cincinnati **Loop Slitting Line**

Thickness: .250" x .024", L-Type Coil Car, Mandrel Uncoiler, Peeler, Driven Slitter Head (2 Heads), 8" Arbor, 150 HP DC, Cross Over Pit Table, Drag Board Tension Stand, Cincinnati Recoiler, 125 HP 850/1700 RPM, 4 Speed Gear Box, 4-Arm Exit Turnstile

#### 60" x ½" x 50,000# Wean/ **Pro Eco Slitting Line**

3 Coil Storage Entry, Coil Car, Cone Uncoiler, Peeler/Hold Down, Crop Shear, New Pro-Eco Coil Breaker, New in 2002, 10" Diameter Arbor, 250HP DC Drive, New Gearbox, New in 2002, Pit Cross Over Table, 2 New Pro-Eco Dual Pad Tension Stand, New Pro-Eco Exit Threading Table, New Pro-Eco Exit Crop Shear, Recoiler, 250HP DC Drive, New Pro-Eco Overarm Separator, Exit Coil Car, All Pro-Eco equipment is brand new and has never been used

Complete Inventory of Used Steel Processing & Tube making Machinery: Slitting Lines, Tube & Pipe Mills, Tube Finishing, Rolling Mills, Cut-To-Length Lines, and all other related machinery

We Are Always In The Market To Purchase Your Surplus Equipment. We Will Purchase A Single Component Or An Entire Plant.



including pay-off/take-up modules and vee groove technology, to straightening roll configurations and sample collection functions. Using this concept allows for flexible, interchangeable modules in an inner-grooving line which can be readily modified throughout its service life.

MRB Schumag's SB4F advanced spinner block is the result of years of research and development. Whatever product mix is required, the machine can be designed specifically with this in mind, having the ability to respond to sudden changes or long term trends in product mix requirements.

SB4F is suitable for both high-efficiency, high piece-weight cast and roll plants and low-volume, wide-ranging product scenarios.

The company's machines can be upgraded for increased piece-weight and efficiency demands. Modifications to basket sizes, for example, are an increasingly popular way to upgrade machine specifications.

Website: www.mrbschumag.com

#### **Selmers BV** The Netherlands 7.1E39

Selmers specialises in the manufacture of plants and equipment for internal and external pipe coating, pipe cleaning and pipe handling. The company has grown into a renowned supplier of comprehensive coating systems, especially of custom made equipment for onshore and offshore pipe coating and pipe handling facilities.

The company's product range comprises an extensive multi-layer and internal lining pipe coating plant programme, with abrasive blasting equipment, ovens, chromate and acid wash units, liquid and powder epoxy equipment, and in-house made extruders.

Selmers also features an offshore programme aimed at pipe handling/firing line equipment for pipe lay barges, fieldjoint blasting and coating systems (eg fi hot mastic, FBE, 3-layer PE) and multi-jointing facilities for pipe spool bases (eg rollers, line-up systems, pipe pushers).



Selmers supplies plants and equipment for internal and external pipe coating, cleaning and handling

Selmers also offers concrete weight and cement mortar coating equipment, rebar powder coating lines, in-situ equipment, containerised configurations, and quality control equipment.

The company's latest product is a selfpropelled coating removal and re-lining machine for in-situ pipeline rehabilitation.

The Selmers product range is compliant with all necessary international standards, and supported by a highly qualified engineering department (utilising CAD/Inventor) and a









state-of-the-art quality management system. Equipment is offered with full project support from design, engineering, construction and manufacturing to installation, commissioning and aftersales.

> All design and engineering work is done in-house, with short communication lines and optimum interfacing for individual equipment parts. This enables Selmers to produce reliable and efficient pipe coating plants at a competitive price.

Website: www.selmers.nl



Shanghai Want Industry Co Ltd (WTPF) is a private-owned company and export-oriented manufacturer of stainless steel tube, pipe and fittings. With a skilled staff of 242, the company supplies to markets including oil and gas, power plant, chemical industry, petro-chemicals, food and pharmaceuticals, shipbuilding, pumps, paper making and other engineering construction fields.



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**Power When You Want It,** Service When you Need It! The Shanghai Want range consists of highquality stainless steel butt-weld pipefitting and seamless stainless steel tube and pipe. The company's production capacity is approximately 300t of fittings and 400t of tube and pipe per month.

Website: www.asiapipefitting.com



Shree Ganesh Forgings Ltd, established in 1982, is a manufacturer of forgings/flanges and pipe fitting components, all compliant with international standards. The company supplies Indian and international industries including oil and gas, petrochemical, pharmaceutical, dairy, brewery, nuclear, defence and automobile.

With a total current installed capacity of 25,000 MT per annum, the company can supply a wide range of forgings weighing from 0.5kg (1.1lb) to 1,000kg (2,200lb). The company is equipped with all necessary technical facilities such as design and estimation, die and tool making, cutting, heat treatment, grinding shop/finishing, testing and laboratory, and machining and CNC machining.

The company's product range contains flanges including weld neck, slip-on, blind, threaded, lap-joint, and automotive forgings. These products conform to international standards including ASMEB 16.5-2003, EN 1759 - 1:2004. DIN. AS 2129:2000. API 6A-2004, NFE 29-203-1989, BS 4504, BS 10:1962, JIS flanges EN 1092 - 1:2005, and ASMEB 16.11 screwed and socket weld fittings.

Shree Ganesh has a comprehensive range of product certification from authorities including ISO-9001:2000, AD-2000 MerkblattWO and pressure equipment directive, Canadian Registration Number (CRN) OB 1054.95 (for all 13 Canadian provinces), together with Syncrude, Suncor, EIL, IBR, PDO, Oman Oil, Qatar Petroleum, BARC, and ONGC. SGF has also been awarded the 'Certificate of excellence' by the Engineering Export Promotion Council of India for a successive number of years starting from 1990, including a trophy in 2002-03.

The company is undertaking ongoing expansion at its Mumbai plant and is also

substantially increasing its capacity. This has involved the addition of automated forging press lines of 4,000t and 2,500t, together with a fully automated CNC robotic line. The company also plans to set up a manufacturing facility for other piping components.

Website: www.shreeganeshforgings.com



Sikora AG, Germany, is an expert in the field of measurement, control and test equipment. The company manufactures the Laser 2000 series of measurement and control equipment for all kinds of tube and hose.

The smallest gauge head in the range, the Laser 2010 XY, offers XY-diameter measurement for product diameters from 0.1mm to 10mm. The progressive CCDtechnique, in combination with impulse-driven laser diodes and powerful processors, allow short exposure times of 0.2µsec, providing precise, non-contact measurement.



Sikora's Laser 2010 T, Laser 2025 T and Laser 2050 T triple-axis gauge heads

Product vibrations have no influence on measurement, and the gauge head does not include any optical elements. The small, powerful gauge head is suitable for use at virtually any point on the production line.

The Laser 2000 series features highly durable laser diodes, and avoids maintenance due to a measurement principle requiring no moving parts. The mean time between failures - the average time after which a device shows a repairable defect - is claimed to be 15 years.

Several of the laser systems (Laser 2030 XY to Laser 2300 XY) feature a swivelling gauge head that can fold upwards from the



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### **Rotary Sizing Mill**

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- Even and low residual stress
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- Eliminate roll marks
- Improved surface finish
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#### OUR PRODUCT LINE UP

- Uncoiler, Leveler, Shear and Welder
- Horizontal looper, Vertical looper
- Forming mill with various kinds of quick-change systems
- SQ stand, OB and IB cutter
- Sizing mill, Modular Sizing mill
- Milling cutoff, Double press cutoff, Rotary Disc cutoff
- Piling machine, Bundling machine, Facing machine

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**Tube2008** 

Hall

Stand



working area, protecting the gauge head from dirt and water drops falling into the measuring area.

> For the online-acquisition of tube and hose profiles, the Laser 2000 Profil defines distinctive positions of a profile in the measuring field, from the functional equations of tangential laser diodes. This device is suitable for the measurement of round or oval profiles, even if the profiles are arranged in an inclined position. The design of the gauge head is downwards/open, providing protection against dirt or water.

> Interfaces such as RS 485, Profibus DP, Canbus, ethernet or analogue interfaces are integrated in the gauge head, for integration into extrusion lines that are controlled by a production line processor. All gauge heads of the Laser 2000 series have an RS 232-C interface for PC or notebook connection.

> For extrusion lines without production line processors, Sikora produces processor controlled display and controlling systems, including Ecocontrol 1000/2000 and Remote 2000. The Ecocontrol 1000/2000 indicates, apart from the numerical and graphical presentation of the measured

values, an automatic control of the diameter or wall thickness of the product. It collects precise statistics and trend values, saves data and records the measured values. The Remote 2000 is a processor-based system suitable for panel mounting or for installation on the gauge head support.

Sikora also produces x-ray based measurement devices, for products with up to three layers. Diameter, wall thickness, eccentricity and ovality can be logged and recorded. The system quickly and precisely controls the expulsion of the extruders or the velocity of the production line.

Website: www.sikora.com



The Silfax Group is an expert in the field of fully electric tube bending and endforming machines. The company will exhibit a range of machinery, including the new SE 45 LR bending machine, S316 bending machine, and SFER electric end-forming machine.



The SFER electrical end forming machine

The latest Silfax machine is the SE 45 LR bender, a 10-axes machine for tube diameters of 45mm steel (th 3). With the latest components, the new generation machine has high productivity and precision and repeatability of axes. The ecological machine comes complete with left and right bending, multi-height and multi-radius on several levels and two tools, pushed carriage for rolling, and ergonomic height of loading.

Other features include user-friendly software, electronic crank for programming by training, force or position programming, memorised adjustment tools, fast tool change and integration of a loading/ unloading system.









The S316 bending machine has 3 axes and is designed for tube diameters from 4-116mm steel (th 2) or 20mm aluminium (th 2).

> The compact machine has the latest generation components and offers a range of advantages including high productivity, precision and repeatability of the axes, reduced maintenance, remote maintenance service, multi-height work, ergonomic height of loading, and userfriendly software. The machine is very ecological with low installed power, low power consumption, low acoustic level, and no pollutant emission.

> Silfax will also present the SFER (rotative model) electrical end forming machine, which is available with a power of 5t, 8t and 12t. Features include numerical tube reference setting, 2-8 steps, diameter up to 50mm, up to 3 rolling heads, precision and repeatability, high productivity and rhythm, easy lot integration, software and self diagnosis. This machine is suitable for production from one unit to a thousand parts.

Website: www.silfax.com



Sinico SpA specialises in the design and manufacture of automatic rotary transfer cut-off and end-finishing machines, suitable for producing medium and large series of metal parts from tubes, bars, coils, forgings and blanks.

The company's machines can handle any metal material (eg steel, stainless steel, aluminium, copper, brass, titanium, and Inconel), and all operations are carried out in one chucking. The main features of the latest generation of Sinico machines include guick set-up and automatic positioning of units, optimised cutting process, connection with LAN (local area network) and WAN (wide area network), and self-diagnostics with built-in graphics.

User information, maintenance and functional diagrams are viewable on PC, and there is an option to install SPC (Statistical Process Control) and messenger (email/SMS) systems in case of machine alarm, as well as remote servicing via web cam.



Sinico's Top 1000 CNC automatic cut-off and end-finishing machine

Parts can be produced within a length range of 10mm to 640mm, with diameters from 3mm to 120mm for tubes and from 3mm to 80mm for bars. The standard stock length of loaded bars is from 3,000mm to 6,500mm, while a maximum of 12,000mm can be accommodated upon request.

Website: www.sinico.com

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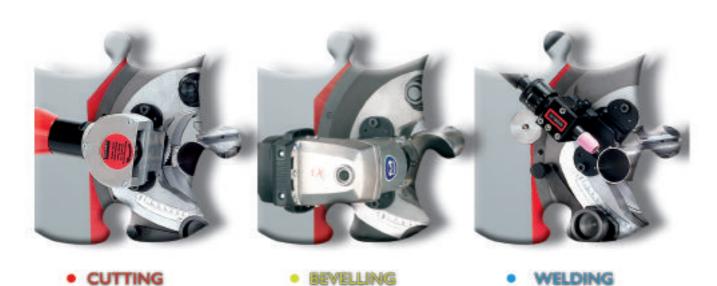
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5TAND 6H09







SIT Società Italiana Tecnospazzole is an Italian manufacturer of brushes for industrial applications. The company produces a complete range of brushes for the treatment of steel, stainless steel and non ferrous metal pipes, tubes, sheets and coils.

SIT manufactures wire brushes used in the treatment of tube and pipe

Cylindrical brushes with crimped steel or stainless steel wires are used for deburring and cleaning pipes.

Weld cleaning can be achieved by using circular or cup brushes with crimped wires or twisted knots wires, while twisted knot wire brushes can remove the three layers coating from the edge of pipes for oil and gas pipeline. In addition, abrasive nylon filaments and sintetic filaments are used for surface finishing and polishing.

Website: www.sitecn.com

plant for the Chinese and Far Eastern markets.

The company has in-depth knowledge of bright annealed copper alloy tubes with a thin, uniform and dull iridescent film on the inside and outside surface (ie ASTM). Such film protects the tubes, thus assuring a long life for products such as heat exchangers. Sitindustrie can also supply a wide range of mechanical components, and stainless steel structures for the construction industry.

Website: www.sitindustrie.com





Sitindustrie is a supplier of stainless steel and copper alloy tube, pipe, fittings and complete packages, serving industries including oil and gas, food and dairy, and marine/thermal seawater desalination.

At the start of 2006, the company established Sitindustrie Tubes & Pipes (Foshan) in China – a new manufacturing



Celebrating its 30th anniversary this year, Sistemi Meccanici Industriali (SMI) is a specialist in CNC machines and tools for the manufacturing of tube elements in copper, aluminium, stainless steel, cupronickel and bundy. Founded in 1978 as FCF, the company produced its first heat exchanger machines in 1985 and SMI was consequently founded in 1990.





### VEGA ENGINEERING & TRADING CO., LTD.

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VEGA specializes in offering whole-plant planning and equipments for stainless-steel and carbon steel tubes. We can provide services for whole-plant establishment plans, turn-key projects, production process improvement plans for tubes of specification as ASTM A-270 sanitary tube, ASTM A-312 industrial pipe, ASTM A-249 heat exchanger tube, JIS G-3468 large diameter pipe and etc.



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- Hot Dip Galvanizing

Robor has been designing and manufacturing a broad range of specialised steel, tube and pipe products for more than 70 years.

robor







SMI's core business is directed at applications including heat exchangers, air conditioning components, automotive components, HVAC products, and products for small electrical appliances, refrigerators and cookers.

SMI's Group is currently establishing itself in the field of alternative energy sources and has designed and manufactured a series of automatic machines for the solar panel industry.



 SMI supplies machines and tools for tube production

The company's ISO 9001 certified production operation consists components manufacturing, quality control and testing, painting, assembly and equipment installation. SMI can offer a host of base version machines (cutters, benders, drilling machines, expanders and end closing machines), and a wide and flexible range of accessories, all guaranteed and tested.

Website: www.smisrl.it



SMS Meer will showcase its products and services in plant construction, ranging from integrated solutions, including mechanical, electrical and automation systems, to high-performance individual machines and economical modernisations.

The company offers tailor-made service solutions, ensuring added value of plants throughout their life cycle.

Visitors to the company's stand will have the opportunity to take part in discussions and multimedia presentations, to obtain an insight into plants and process technologies from the areas of pipe and tube plants and wire rod mills.

Highlights will include the JCOE® process with the JCO® pipe forming press. This constitutes the main forming aggregate for the production of longitudinally welded large-diameter pipes with lengths of up to 18.5m and high-strength material grades up to X100/X120. Pipes are currently being manufactured for the Baltic Pipeline using this flexible forming process.

In the area of seamless tube production, the plant maker will be displaying its PQF® technology (Premium Quality Finishing). Since the introduction of this technology in 2003, SMS Meer has sold ten PQF plants worldwide. The plants are characterised by high product quality and yield. With the new generation of PQF plants of modular design, serviceability and wall thickness tolerances can be enhanced.

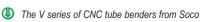
Visitors will also find information about the restructured Service Central Department of SMS Meer.

Website: www.sms-meer.com

#### Soco Machinery Co Ltd Taiwan 8aB02

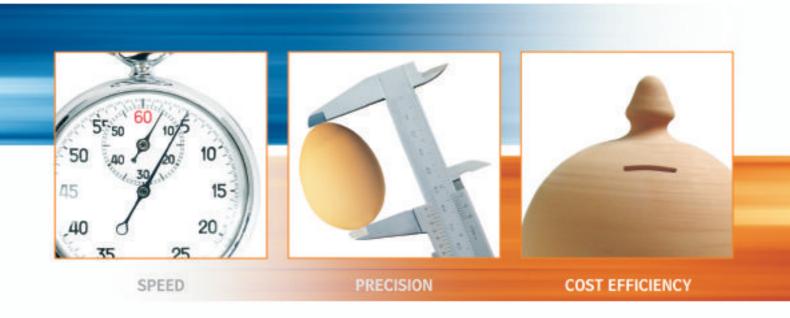
An expert in tube bending technology, Soco Machinery will display the V series of CNC tube benders that combine draw, roll and 1D bending technology. This combination allows two different fixed radiuses and multiple large roll bending radiuses in a single part, as well as a programmable carriage boost for CLR = 1D Bending. Coupled with individual pressure die systems, they assist in each draw-bending stack, bringing superior performance and flexibility.

The technology can create a part that has multiple draw bending radiuses (R1 & R2), while creating a larger radius through





### **Outstanding productivity**



### The essence of our philosophy





the roll bending process. Coupled with a controllable carriage booster, it allows bending radiuses as small as 1 X OD.

> Soco's unique DGT technology (Direct Gear Transmission) is a worldwide patented bending system that brings efficient and stable bending. It offers the highest accuracy and repeatability in draw and roll bending.

Website: www.soco.com.tw



Sofratest specialises in the manufacture of NDT (non-destructive testing) equipment for longitudinal and spiral welded pipes. The company has pioneered developments in computer based solutions for NDT, including ultrasounds and electromagnetic techniques.

The company's main standard products are automatic ultrasonic and eddy current systems for weld and parent material inspection of ERW and SAW process.



Sofratest's NDT testing of the SAW process

Sofratest also offers multi-channel control (up to 32) for high-speed inspection of the plate before forming. This advanced technology can be supplied both for turnkey systems and automated inspection systems with full traceability.

Website: www.sofratest.com



With 30 years of experience in bending deforming application solutions, Star Bend supplies a patented series of

all-electric tube bending machines with hydraulic clamping. The range is available in 13 different automation levels, from the most simple model (CNB) up to the most complete (CN6), with 8 machining capacities and a tube bending range from Ø 4-150mm (wall thickness from 0.5-12mm).

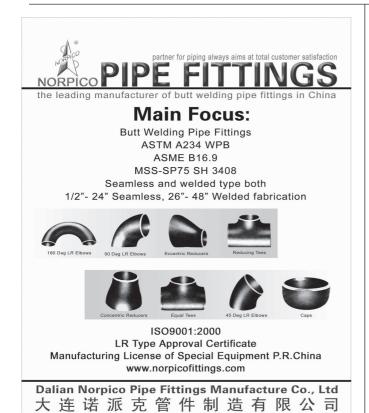


Star Bend's CN3 all-electric tube bender

The new CN6 system is managed by innovative brushless motors, driven by the latest generation of digital drivers and management software controlling the bending cycles in a Windows environment.

According to Star Bend, its line of machines has excellent reliability, performance, purchase cost and operating costs.

Website: www.starbendsrl.com







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## The NEW BEWO SCF-90 Cutting Lines More speed, Less costs



BEWO's SCF-90 tube cutting cells offer the market an optimized combination of output and flexibility. The latest versions of the new SCF-90 lines follow BEWO's constant design and engineering innovations and offer the ability to reduce the costs per cut. The SCF-90 Quatro version cuts up to 4 profiles simultaneously and the SCF-90 Single version is by far the most versatile machine in its class.



The SCF-90 lines can be extended with various ancillary functions such as deburring and cleaning, or the new -non contact-optical measuring system SCC-90.



Further developments include the new SCP-90 Pick & Place stacking system which ensures the cut to length tubes are collected in the required form, without reducing production rates.





Meet these new additions, in combination with BEWO's new chamfering system, which make the fully automatic sawing process complete, at the TUBE & WIRE 2008 exhibition in Düsseldorf: Hal 8, stand BE18.

#### www.bewo.nl

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The Netherlands
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#### **Superior Technologies** 6A04

Superior Technologies Europe (STE) will be jointly exhibiting at Tube 2008 with Electronic Heating Equipment (EHE). The company supports EHE as its specialised distributor for Europe and the Middle East/North Africa.

The two companies will display samples of their extensive range of impeders, inductors, ferrites, impeder casings and impeder support systems. They will also offer technical advice on welding applications. Information and brochures will also be available for Canticut ID scarfing systems and AquaFix pipe repair and descaling products.

From its UK office, STE also operates sales/ service support for Superior Technologies Inc, an expert in galvanising and coating systems for tubular products. This process is a low cost, flexible manufacturing method for galvanising tubulars, and results in products with high corrosion protection and quality surface finish.

Website: www.st-europe.co.uk

#### **Suraj Stainless Ltd** India 7.0D24

Suraj Stainless Ltd, an ISO-9001 certified company, is a producer and exporter of stainless steel welded and seamless tube, pipe and 'U' tubes in various sizes, specifications and grades. The company supplies its quality products to more than 70 countries all over the world.

products are designed equipment such as heat exchangers, heaters, condensers, heating elements, instrumentation and other applications. The Suraj manufacturing unit has a complete range of production and testing facilities.

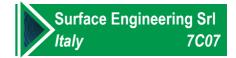
The company's product range covers an outside diameter from 6mm to 219.08mm, with wall thickness from 0.6mm to 10mm in standard length up to 30m. The Suraj manufacturing programme includes the production of tube and pipe in austenitic stainless steel and duplex stainless steel.

accreditation has obtained Surai certificates, such as ISO-9001, AD-2000 Merkblatt W0 and Pressure Equipment

Directive [PED] 97/23/EC. In addition, the Government of India recognises Suraj as one of the leading export houses with an award for export excellence. The company has received certificates in recognition of achieving the highest exports in 2001-2002 and 2006-2007.

The company is on the approved list of most reputed international and Indian third party inspection authorities, such as EIL, Lloyds, Bureau Veritas, TUV, DNV, and SGS.

Website: www.surajgroup.com

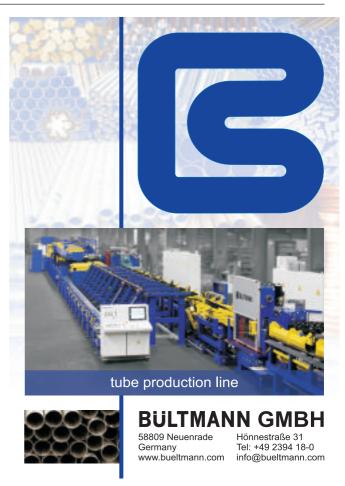


Surface Engineering is a manufacturer of metal finishing machines and automation for metal products, particularly long products such as tubes and bars.

The company's production range includes machinery for finishing such as belt grinding, mirror polishing/satin finishing, and special solutions for super mirror polishing, inside







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HSS SAW BLADES for tube cutting.

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polishing of dairy tubes and packing of finished products.

The company has developed a special set of machines for inline finishing, such as welding bead rolling or grinding and inline brushing directly on tube and bar mills. Turnkey lines can be supplied for grinding and polishing of round and flat long products, complete with automatic handling and advanced management system.

Among the company's customers are tube mills, stainless steel distributors, service centres, and furniture manufacturers.

Website: www.surfaceengineering.it



The T-Drill process was developed about 40 years ago and became an industry standard in the HVAC, solar panel, heat pumps and automotive industry. This unique method gives a competitive edge for many plumbers using the tee-forming process in their business.

Among the many that have taken advantage of the T-Drill process are manufacturers in industries such as ship building, food processing, water treatment, pulp and paper processing. This process is used for making butt-welded branches in stainless steel, CuNi and even titanium pipe.

The T-Drill process eliminates several welded joints, costly inventories of fittings and gives smooth flow characteristics. The same benefits can be found in T-Drill flanging machines that eliminate welded flanges and reduce installation time by 40 per cent.

The company will present its new T-110 Cu collaring machine at Tube 2008. Also on display will be the new model S-54 with automatic feed table for making manifolds, which are closed with the latest evolution of the SPF-55 flat spinner. The TEC-150 will also be demonstrated with stainless steel.

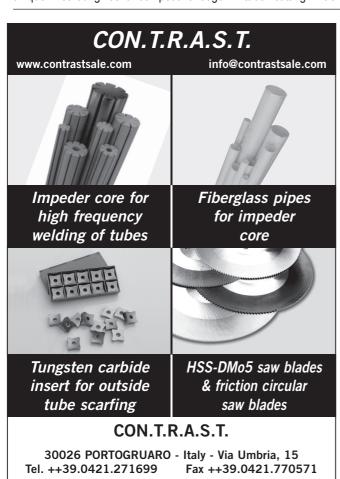
The manufacturer of innovative tube and pipe processing machinery is also known for state-of-the-art chipless rotary tube cutting machines and high speed



T-Drill will present its T-110 Cu collaring machine

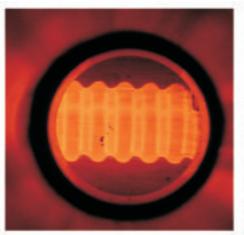
in-line end-forming machines. The endforming machines can meet the current requirements of end-formed parts, with the process carried out in a few seconds. The TCC-25 will be exhibited at the show, which has an output rate as high as 4,000 cuts per hour. A bench mounted TCJ-50 for smaller job shops will also be on display.

Website: www.t-drill.fi



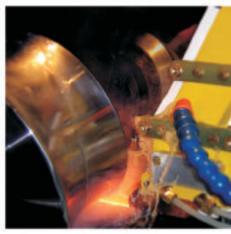














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### Tasta Armatura Sp zoo Poland 5D07

Tasta Armatura is a manufacturer of fittings and flanges for steel pipelines used in the gas, chemical, shipbuilding, heating and trading sectors. The company delivers products directly to customers from a central warehouse in Stalowa Wola or one its departmental warehouses in Poland.

The company currently stocks the following grades of material: P355NL1 and P355NL2 (L360NB), P265GH (St45.8), P235GH (St35.8), and S235 (St37.0), with other grades available to order.

Products manufactured include elbows (DIN 2605, EN 10253-1), reducers (DIN 2616, EN 10253), caps (DIN 2617, DIN 28013), and flat and neck flanges (EN 1092-1, DIN 2633-2636). The company also keeps stock of pipeline components such as sockets, screwed nipples, tees and products according to ASME and GOST standards.

Website: www.tasta.com.pl

### Thai-German Products Thailand 5H11

Thai-German Products PCL (TG-PRO) is one of the largest Thai manufacturers of high quality stainless steel tube, pipe and sheet. With over 30 years of experience, TG-Pro claims to be the only company in Thailand that uses automatic lines together with laser welding technology.

With ISO 9001:2000 certification, the TG-Pro range includes industrial pipe (ASTM A-312) for chemical and petrochemical applications, pulp and paper industry, and condensers in fossil-fired and nuclear power stations (OD up to 20"). The company also supplies boiler, super heater, heat exchanger and condenser tubes (ASTM A-249), based on a unique thin-wall stainless steel tube production technique.

General service tube (ASTM A-269) is provided for various industries, especially the heater industry. In addition, sanitary tube (ASTM A-270) is supplied for the dairy, food and beverage, pharmaceutical and other industries. Requiring a high level of cleanliness, the company's perfect welding



Thai German manufactures a range of stainless steel tube, pipe and sheet

and polishing enables the inside wall to be as smooth as seamless tube. This prevents contamination and microorganisms from being stuck inside.

Ornamental Tube (ASTM A-554) is used for the construction industry – both interior and exterior decoration – and has a glossy surface suited to any building. This can be used for producing the handrails of subway stations and sky-trains, balconies, terraces, doors and gates, kitchens and furniture.

Website: www.tgpro.co.th

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OD and ID Argweld® Trailing shields working together allow for a simultaneous top and back purge on a stainless steel vessel.







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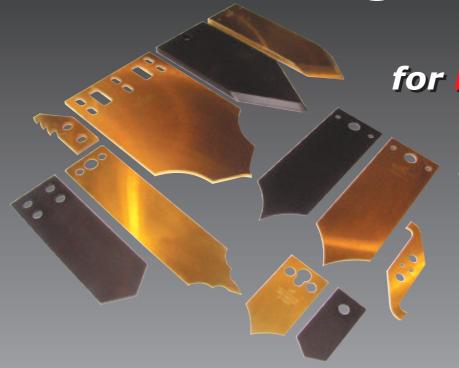


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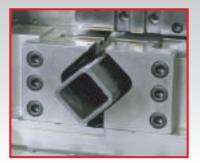
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Thermatool specialises in providing innovative and cost effective solutions to tube and pipe producers worldwide. With an installed base of more than 1,000 solidstate HF welders, Thermatool has more than 50 years' experience in the continuous high-speed production of quality tube and pipe from 8mm to 24" in diameter.

Visitors to the company's stand will see the latest range of Thermatool CFI solid-state HF welders, which offer weld power from 50kW up to 1,500kW. Alongside the welders will be the latest VIP seam normalising, full body heating and spiral seam annealing systems, providing total systems capability.

Thermatool's **HAZControl** technology enables welding frequency to be varied at the operator's console in 1kHz increments from 150 to 400kHz. The combined effects of weld power, frequency, vee length, impeder function and wall thickness are displayed on the operator's console in a way that is both easy to read and simple to operate.

This development provides the mill operator with the knowledge of their exact position in the weld process window. Consequently, the operator can accurately and repeatedly achieve the optimum weld HAZ. Once this is determined, it can be electronically stored and later retrieved.

The latest die-set will also be on the stand, designed to operate at the heart of the Alpha range of high-speed flying shears for precision cutting of stainless steel tube and high tensile materials.

Website: www.thermatool.com



Part of the HMF Group, Timcal Graphite & Carbon is a specialist in the manufacture of high-grade graphite and carbon powders. The company also has expertise in the development and end-user application of lubricants and scale treatment agents for hot metal forming processes.

These activities fall into three categories: products, application equipment and technical services, collectively forming Timcal Rollit® technologies. Designed for mandrel bar lubrication, the Timcal Rollit® DS and DP product lines are designed to withstand high pressures, temperatures and friction during the rolling process. Offering other ecological benefits, mandrel bar lubricants are based on high-grade Timcal graphite, selected organic and inorganic additives and water. They can be supplied in either powder or liquid form.

The Timcal Rollit® EZ product line is used for treating scale in shell interiors and/or for lubricating shell. The product is supplied in powder form, based on mixtures of Timcal graphite and special organic and inorganic salts.

The Timcal Rollit® DF range comprises forging lubricants, used to improve metal flow and yield in the forging industry, increase tool life and quality, and reduce rejects. These forging lubricants are based on the high grade Timcal graphite and ecologically safe inorganic and/or organic additives and water.

Website: www.timcal.com



TIS produces high-quality stainless steel pipe for use in sectors that demand pipes of superior mechanical and aesthetic quality. All work is performed using hightech, cutting-edge systems with the support of environment-friendly equipment.

TIS is able to certify end product quality because only select raw materials are used. The company produces its pipes from topquality, certified cold- and hot-laminate sheet from European steelworks. Tight tolerance limits and strict adherence to measurement parameters mean that TIS products provide technical quality, reliability and mechanical performance.



Stainless steel pipe from TIS

Tungsten inert gas welding and the application of exclusive production systems eliminate virtually any alteration in the raw materials and ensure external and internal pipe cleanliness. All production lines are equipped with induced current (eddy current) equipment to detect pipe defects. TIS pipes are enhanced by external satin finish and high-quality polishing using a range of grits.

TIS established collaborative has relationships with sector leaders, recognised both at home and on a European-wide level. The company continues to expand its production and sales capabilities, increasing its efforts towards research into new technological solutions.

Website: www.tubi-tis.it

## **Machinery International Corp**

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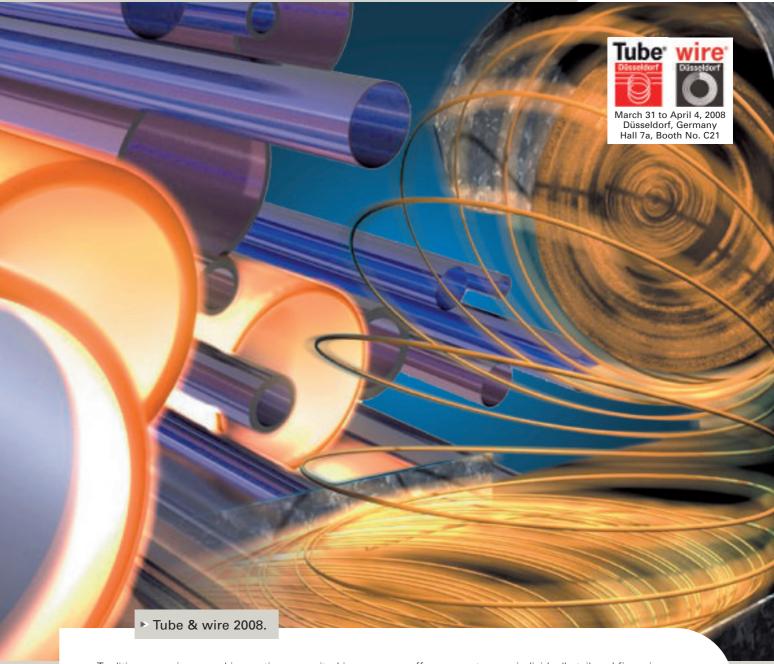
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# Your technology partner for tube and wire





Tradition, experience and innovation are united in our long company history. We have subsidiaries and representative offices on every continent.

SMS Meer develops and builds plants for the tube, steel, NF metal and forging industries. Apart from the supply and commissioning of the machines, we also offer our customers individually tailored financing concepts.

Our package of services to support the plant operation ranges from technological advice through training, inspection and maintenance right up to the full-service contract.

#### SMS MEER GMBH

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TMK is a producer of pipes used in the oil drilling sector, the chemical and petroleum industry, energy and construction companies, machine-building factories and auto manufacturers.

The company is an umbrella organisation for four Russian pipe manufacturers: the Volzhsky Pipe Factory, the Seversky Pipe Company, the Sinarsky Pipe Factory and the Taganirogsky Metallurgical Factory. TMK also operates two companies in Romania – the Artrom Pipe Factory and the Resita Metallurgical Factory.

TMK is an integrated holding company that also includes a trading house for Russian and CIS sales, TMK Global AG for international exports, and the TMK-Transportation company. TMK's head office is in Moscow, with affiliate offices located in Switzerland, the USA, Azerbaijan, China, Kazakhstan and Germany.



TMK's annual production capacity is 3.7 million tons of pipe

The company's yearly production capacity is circa 3.7 million tons of pipe. Its products meet international standards including API, ASTM and EN\DIN, with quality control systems approved by ISO 9001 and API Spec Q1 standards.

Website: www.tmk-group.com



Tube & Pipe Technology Magazine is the international trade magazine for the tube and pipe industries, published six times

a year in the English language. Covering the production, processing and utilisation of tube and pipe, each issue provides coverage of essential industry news, personnel changes and technology and product updates.

The magazine includes regular topical columns such as 'From the Americas' – an economic and industry report on North and South America, a variety of technical features, and in-depth articles highlighting the latest scientific information and manufacturing solutions.

The magazine has a worldwide circulation of over 12,000, distributed to managers, buyers, technologists, engineers and specifiers in over 100 countries. Working in partnership with the International Tube Association (ITA), *Tube & Pipe Technology* is sent out to all ITA members.

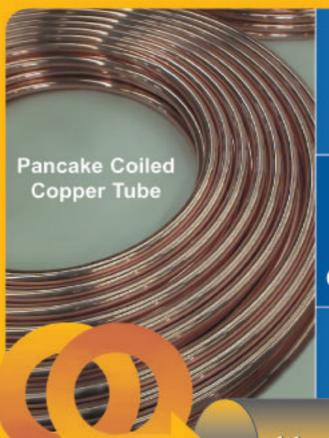
Tube & Pipe Technology is also available as an online e-zine, which reaches even more worldwide readers, with selected content available free to all and the entire digital version available on subscription. Readers of the e-zine can click on hyperlinks to be sent directly to websites, while advertisers





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are able to incorporate video-movies into their adverts.

Visitors to Tube Düsseldorf 2008 can pick up a free copy of the latest edition at the *Tube & Pipe Technology* stand, together with information on subscription, advertising and the new e-zine. Also available will be the first issue of *Tube Products International*, the new magazine for the world of tube and pipe products and materials, read by producers, buyers and end-users.

Website: www.read-tpt.com



Tracto-Technik will show innovative working machines and efficient software solutions for tube and pipe. The company's product range includes not only CNC, semi-automatic and 1-axis-controlled tube bending machines, but also tube end working machines, assembly machines for hydraulic tubing, tube measuring systems, software solutions and complete work cell integration.



The Tubotron 170 allows fully automatic bending for an OD of 170mm

The CNC controlled tube bending machines of the Tubotron line are suited both to series production and flexible single production of tube bending parts. In recent months the working possibilities of this line were distinctly extended by the development of the Tubotron 120 and Tubotron 170, which allows fully automatic bending of tube and pipe up to an outside diameter of 170mm.

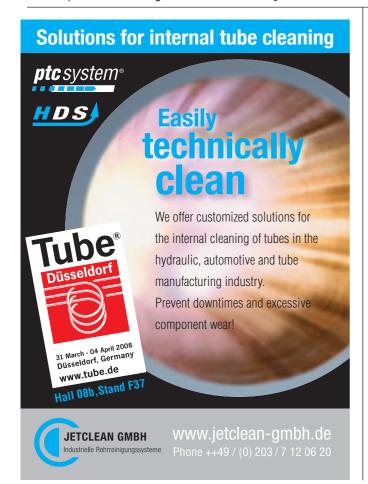
Even the semi-automatic and 1-axiscontrolled tube benders were increased by the Tubobend 120. Both machine lines feature a solid design, high-quality components and the latest control techniques, providing precise bending with the highest possible repeat accuracy and long service life. For applications within the field of hydraulic tubing the Tubomat 642 (648) is an optimum 'all-in-one' solution. The Tubomat combines all the working functions needed for hydraulic tubing from sawing over deburring and bending up to flaring, cuttingring assembly or chamfering in just one mobile and flexible machine.

This extremely robust and reliable machine is ideal for tube up to 42mm OD (respectively 48mm) and is easy to operate. The tube end working possibilities of the Tuboform line cover expanding, reducing and end sizing, as well as three-dimensional forming of various geometries to the tube ends.

Precise measuring of tube figures as well as add-on pieces (eg flanges) is provided by means of the different Tuboscan measuring systems in connection with TT's tube measuring software.

Depending on the tube shape to be measured, these systems can be equipped with tactile probes, a touch-less infrared tube measuring fork or a line laser sensor.

Website: www.tracto-technik.de



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#### Tru-Cut Saw Inc 6E18-1

Tru-Cut Saw Inc manufactures the 'Aggressor' range of thin kerf, carbide tipped saw blades for cutting tube, pipe and solid ferrous materials in flying cutoff and re-cutting applications. Available with carbide and cermet inserts, the multilayered coated blades cut at up to 1,200 SFM and offer performance gains over high-speed steel and friction saws.

Test data on a 350mm x 2.8mm x 100 tooth blade (running at 250rpm) showed a 3.7 second cut time. It was able to cut six square metres of 52100 bearing steel. A hooked chip breaker on the face of carbide or cermet inserts allows faster chip removal and more aggressive cutting speeds.

The company has its own PVD coating chamber, which allows for the tight control of coating quality and uniformity. This makes possible adjustments for individual user applications.

In addition to its Aggressor line of blades, Tru-Cut offers a full range of saw blades and services, including custom and standard carbide tipped saws up to 3m, segmental saws and friction saws, and high speed steel saws from 100-600mm (M2 premium nitrite and M35 Cobalt). The capability also includes solid carbide saws available from stock, repair and regrinding services, and PVD coated drills, taps and milling cutters.



Tru-Cut Aggressor saw blades range from 200 to 600mm in diameter

Each saw blade sent in for repair is inspected for broken teeth, cracks, excessive wear and other visible defects. The blades are straightened to industry standard tolerances (or better), and are inspected after each repair operation is completed. All critical dimensions and tooth angles are checked, and only blades that pass inspection will be shipped.

Website: www.trucutsaw.com

#### **Trumpf Group** Germany 8aF29

The Trumpf Group ranks among the leading manufacturing companies worldwide. The three following business divisions are combined under a holding company: Machine Tools/Power Tools, Laser Technology/ Electronics and Medical Technology.

The company's core business is machine tools for flexible sheet metal processing including punching and forming, laser processing and bending. In the field of industrial lasers and laser systems, the company is a technological leader in the world market.



Trumpf's TruLaser Tube 500

The Group is represented in almost every European country, in North and South America as well as in Asia. Trumpf is a hightech company that specialises in production and medical technology.

Website: www.trumpf.com



TSE GmbH (Tube Scarfing Equipment) is an international operating company offering high quality turnkey solutions in tube weld bead scarfing. The company works with a network of representatives worldwide to offer the best services.

The company designs, manufactures, sells, and installs equipment for the inside and outside weld bead scarfing (deburring) of longitudinally welded steel tubes. The equipment is designed for small diameter tube (12mm), large diameter tube (600mm), aluminium coated tube, heavy wall tube, inox tubes, and tubes to be cold drawn. For all these tubes, the company offers complete ID weld bead scarfing (deburring) systems.



TSE are specialists in tube weld bead scarfing

TSE offers comprehensive solutions for ID and OD scarfing, strip conditioning, and bead chopper applications. Other products include cutting rings, inserts/holders for OD scarfing, induction coils, impeders, ferrite cores, epoxyglass and silglass covers.

TSE will present new products including special coating for epoxyglass covers, double lower leg scarfing tools, bead rolling tools, notching rolls for obtaining small chips, big diameter ferrite cores, ready to use through flow impeders and return flow impeders.

Website: www.tube-scarfing.com



Tube Products of India is a manufacturer of precision CDW/DOM and ERW steel tubes. The company is certified to TS 16949, ISO 9001, OHSAS 18001 and 140001 (BVQI).

The company's range includes ERW tube available from 15.88mm to 127mm OD and 0.70mm to 6.25mm wall thickness. CDW tube is available from 10mm to 101mm OD and 0.9 to 5.5mm wall thickness.

Products are supplied to the automotive industry for a range of uses, including steering columns, side impact beams, drive/ propeller shafts, axle tube, gearshift lever, spacer tubes and seat frames. They are also provided for hydraulic cylinder/SSID tubes, and other non-automotive tubing.

Website: www.tubeindia.com



#### **Tube Tech Machinery** 8aC37

Tube Tech Machinery is specialised in the design and production of 3D laser cutting machines for tube, pipe and sheet metal. The company will exhibit the FL 600 3D cutting machine that provides precision, quality and productivity tube working for diameters ranging from 80-610mm.

The tri-dimensional system allows the user to operate on any point in a sphere space, while the movement along 5 interpolated axis, with precision ball screws and linear motors, ensures high dynamics and excellent performance.

FL 600 3D is equipped with a double tube loading system. One system is a bundle loader, which allows the automatic loading of tubes with round, square and rectangular section, with a loading capacity of 10,000kg. The other system operates via a chain, which enables the loading of open section profiles. It is composed of V shaped supports: the chains move at variable speed, according to the tube diameter and weight, and slide on bearings to prevent noise and wear.



The FL 600 3D laser cutting machine from Tube Tech Machinery

The movement of the piece along the working axis is guaranteed by four self-centring mandrels, activated by synchronised hydraulic cylinders.

A tempered and rectified precision helical toothed rack activates the advance, operated by brushless motor and precision reducer with slack recovery system. The mandrels are designed to allow the machining of different diameters and sections, with no change of tools.

An integrated floating system compensates for uneven piece straightness during machining. enables precision

machining even on particularly irregular tubes, preventing dangerous mechanical stress on the mandrels.

The plant is governed and automatically controlled by two CNC controls: one for the handling area and the other for the laser working area (Sphera). A third CNC control manages and supervises the laser source. The three computers are set to interact with one another and do not need human operation. Automatic operations are carried out for profile loading, dimensional control, 3D laser machining and discharge of the machined parts.

The FL 600 3D has 30 controlled axes and can accommodate a maximum tube length of 24,000mm. It holds a maximum round section size of Ø 610mm, a maximum square section size of 400x400mm, a maximum rectangular/oval size of 500x300mm, and a maximum IPE section size of 550mm. The maximum section size loading from the bundle is Ø 254mm. Other specifications include a laser resonator power of up to 4.000W, a mandrel linear speed of 45m/min. and axis acceleration of 13m/sec2.

Website: www.tubetechmachinery.com



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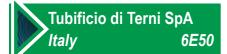


Tube forming mill



OLIMPIA 80 s.r.l. Engineering





Tubificio di Terni SpA specialises in the production of electro-welded stainless steel tubes. The high standard of the company's product derives from a careful selection of raw materials and the application of innovative manufacturing technology.

Tubificio's parent company, ThyssenKrupp Acciai Speciali Terni, is the sole supplier of raw materials, while the company has a special agreement with Nisshin Steel, the Japanese tube manufacturer, to work together in order to achieve a highly reliable end product.

The company offers a comprehensive range of tube aimed at meeting the needs of the automotive industry (exhaust pipes). Tubificio also provides general tube for structural and ornamental use, including round, square and rectangular shapes with brushed, satin and mirror polished finish.

The final product is manufactured in different stainless steel qualities (both ferritic and austenitic) and available in a wide range of dimensions (thickness, diameter and length). Tubificio can supply the tubes in standard commercial lengths or directly cut-to-measure according to specific production requirements.

Website: www.thyssenkrupp.com



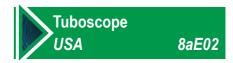
Tubificio Lombardo Srl has been successfully producing ERW tubes (EN 10305-3/Ex DIN 2394) for 15 years. The company now also operates a new production line for SSAW pipes from 12-64". The company operates an 11,000m<sup>2</sup> covered warehouse, with an extensive stock of pipes and coils providing the possibility to deliver either large quantities or small quantities of pipe in a very short time.

The SSAW pipes are produced by steel strip forming to pipe shape, followed by automatic double-side submerged arc welding (SAW). The tubes are manufactured in the diameter range of

323.9mm to 1,625.6mm, in wall thickness from 4-12.5mm, and lengths from 6 to 14m. The pipes meet the standard norms such as EN 10224, UNI 6363 and DIN 1626, and are used for potable water lines, hot water lines, sewage lines, engineering structural purposes, and piling.

The company can also supply any type of surface protection available on the market such us polyethylene, cement, and bitumen. Test and product inspections follow standards defined by norms or in agreement with the client.

Website: www.tubilomb.it



Tuboscope, a worldwide manufacturer of high speed, non-destructive testing equipment, offers welded pipe and tube manufacturers and processors several solutions for weld seam inspection. Designed for inline and offline applications, Tuboscope's WeldSonic C, Truscope and







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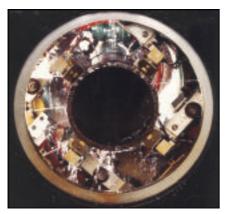
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Truscope provides complete full-body ultrasonic inspection

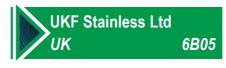
ERW Amalog systems provide flexibility for the customer to select the right technique to meet relevant specifications.

Designed to be installed inline after the welder, or offline after heat treatment and hydro-testing, the WeldSonic C enables multi-channel ultrasonic (UT) inspection of the weld seam and HAZ (heat-affected zone). For complete full-body ultrasonic inspection applications, the Truscope® system provides fast and accurate flaw detection and wall thickness measurement for both statistical control and conformance to industry specifications.

The company also offers the ERW Amalog system for full-body electromagnetic induction (EMI) inspection, with longitudinal defect detection of both the weld seam and the pipe or tube body.

The WeldSonic C, Truscope and ERW Amalog all incorporate Tuboscope's latest developments in digital signal processing, graphical presentation and connectivity to the user's host computer system.

Website: www.varco.com



UKF is a UK-based stockholder of welded stainless steel tube. In August 2007, the company invested in a purpose built factory to house all of the company's manufacturing activities. This facility - close to the existing head office - was due to be fully operationally by early 2008.

The move will create a sizeable amount of room for expansion at UKF's head office, which will be devoted solely to storage and distribution. Plans are also in hand to revolutionise the storage system combined with a new bespoke MRP system. The new manufacturing site will allow a consolidation of the company's resources of manpower, skills and machinery. This will ensure that the company continues with its policy of continuous improvement.

UKF will be co-exhibiting with associate company JPC (The Joint Perforating Co Limited), which specialises in the production of perforated tube and tubular components.

Website: www.ukfstainless.co.uk



Urbano Pensotti srl operates in the used industrial plants sector, and offers a complete research and brokerage service, technical plant refurbishment, expert delivery and assistance during installation.



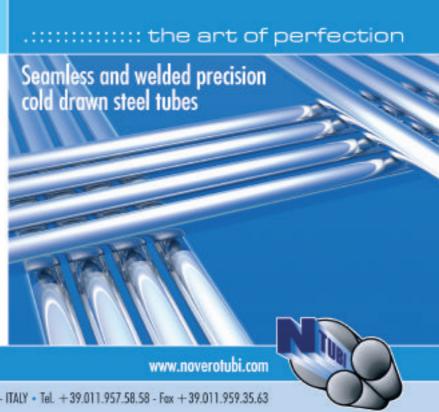
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Urbano Pensotti supplies used and reconditioned industrial plants

The range of used machinery includes second-hand plants and reconditioned lines for steel processing, slitting lines, tube production lines, cut-to-length lines for coils, hot and cold rolling mills, straightening machinery and lines for production of electrowelded net mesh.

> The company is able to supply used industrial plants that are revised with the most modern technologies, in order to satisfy the needs of a global market demanding technical reliability and suitable costs. Supply is available both for the Italian and international markets.

> The company's selection of used plants is based on a range of factors such as machine age, number of spare parts, compatibility with the customer's activity, and the possibility to upgrade the plant with advanced technology.

Website: www.urbanopensotti.com



USM will exhibit a substantial range of top quality consumables as well as machinery and devices for steel tube manufacture. This product range includes the TDK ferrite cores officially and solely distributed in Europe by USM and all related items for impeder preparation, such as fibreglass casings of the lastest generation.

The company will also present a complete list of standard assembly impeders - return flow and through flow types - and copper inductors. USM also manufactures custom made impeders and inductors.

The company is a large stock holder of carbide and ceramic inserts for outside tube scarfing, together with standard and

custom made tool-holders and spares. USM will present the newest grade of Steelcraft USA quillotine blades, for which it is the European partner. In addition to these blades, the company can provide a wide range of circular saw blades (HSS and Cr-V steel) as well as bi-metallic band saw blades.

USM will also take the occasion to present new machinery that protects against tube rust/oxidation. For inline installation, the steel entry shaving unit is used for pre-galvanised steel tubes, while the bead chopper system reduces the volume of outside scarfing bead to 1/20. The company provides many other devices and technical solutions to solve the main problems faced daily by tubemakers.

USM will promote its position of European distributor for Dee Tee India. In this capacity, the company supplies custom made steel slitting knives, spacers and separators.

A new agreement between USM and Metallindustria will also be made official during the exhibition. Due to this new agreement, the company will be present on the European market for the supply of wear resistant bronze alloy welding rolls and clamps for circular saw blades.

A complete list of mechanical and hydraulic inside scarfing tools, together with carbide rings, will be available from stock.

Website: www.usm.it



Valcovna Trub Tz as is a producer of thickwall seamless steel tubes. The company uses Mannesmann technology for hot rolling of seamless steel tubes (pilger mill) to produce outer diameters from 60.3mm to 406.4mm and wall thickness from 6.3mm to 65mm. These products are made from carbon as well as alloy steel, with an annual capacity of over 100,000 thousand tons.

Mannesmann technology ensures that the material is deeply and perfectly worked during the production process. This gives the final product unique mechanical and physical characteristics, suitable for usage in highly demanding conditions. The main material input is round, continually cast steel.

Valcovna Trub's parent company is Trinecke Zelezarny, the sole supplier of



The tube products are available in outer diameters from 60.3mm to 406.4mm and wall thickness from 6.3mm to 65mm

steel in diameters over 300mm as a part of the integrated production process. The Slovak company Zeleziarne Podbrezova, a long-term and reliable partner to Valcovna Trub, is the main supplier of round billets of smaller sizes. Due for completion in the second half of 2008, the company is currently revamping and refurbishing its main production line, with an investment budgeted in hundreds of millions of CZK.

The tubes are mainly used in highly demanding conditions, eg piping systems (steam pipelines) for nuclear and classic power plants or heat exchangers. These products are also used for oil, gas and water exploitation and distribution (API certified), geology, building and construction, machinery and the automotive industry.

All products of Trinecke Zelezarny and Valcovna Trub Tz (and all other subsidiaries) are distributed to customers worldwide via the sales network of the jointstock company Moravia Steel.

Website: www.tube.cz



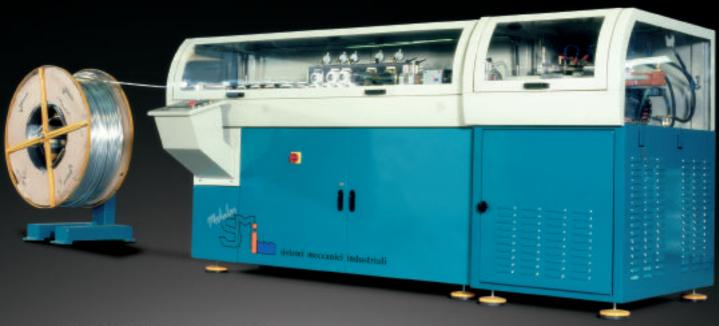
CJSC Tube Works Vsmpo-Avisma, a producer of titanium alloy tubes, is the daughter company of Russia's JSC Corporation Vsmpo-Avisma, which supplies the company's billets. During 2003-2007, there was a four-fold increase of Vsmpo-Avisma's production of cold-finished tubes.

company's annual production capability includes 350t of cold-finished titanium tubes, with a diameter range of 6-130mm and 0.5-9mm width thickness. In cooperation with CJSC Nikopol Tube Company, the company manufactures 200t



192

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Vsmpo-Avisma offers a number of specialised tube products

of hot-finished titanium tubes (114-325mm OD and 7-30mm WT).

The success of the company has been bolstered by company reorganisation and R&D for new technologies in titanium tube production. For example, the company now offers octahedral and ribbed tubes, a special kind of thin tubes for accordion boots, and long-length tube production.

CJSC Tube Works Vsmpo-Avisma has all the necessary equipment for conducting tests to ensure all products meet requirements of international and national standards.

Website: www.tw-vsmpoavisma.dp.ua

## Wiederholt GmbH Germany 6D09

Wiederholt GmbH is a leading manufacturer of super high tolerance precision steel tubing (SHT-PST).

The company processes over 100,000t of steel a year, 80 per cent of which goes into all sectors of the automotive industry as either long length tubing or tubular based components.

Tubular components are manufactured in Wiederholt's multi-component robotic arm manufacturing (McRAM) cells. These unique in-house developed, manufacturing facilities ensure that best cost practices are fully absorbed into innovative product design that is centered around world-class production capabilities.

For over twenty years Wiederholt's emission control department has been developing and manufacturing specialist exhaust parts for the automotive industry. Wiederholt offers customers a cost effective, full-service product offering from



 Wiederholt manufactures super high tolerance precision steel tubing using McRAM robotic cells

design through to full scale manufacturing in the sensitive area of emission control.

Wiederholt has other speciality departments covering the areas of engine development, active and passive suspension systems, drive train and safety. Within these departments numerous projects are currently underway, providing customers with innovative solutions based on Wiederholt's core competence in SHT-PST manufacture.

Wiederholt GmbH is certified for quality to ISO 16949 and environmental protection to ISO 14001.

Website: www.wiederholt.com

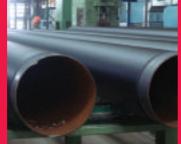
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#### **Wolverine Tube Europe** The Netherlands 8aB01

Wolverine Tube Europe (WTE) will be exhibiting a wide range of surface enhanced heat exchanger tubes, produced in its US facilities and plant in Esposende, Portugal.

WTE is a leader in the field of plain surface non-ferrous metal condenser tubes such as aluminium brass, admiralty brass, aluminium bronze and copper nickels. The company holds an extensive stock in its new premises in Apeldoorn in the Netherlands, with excellent logistic services.

Website: www.wolverine-tube.com



Th Wortelboer BV is a manufacturer of cutting, beveling and polishing machinery. The company's latest product is the TPP air driven polishing machine for conditioning welding preparations. Tube, pipe and plate edges can be prepared for welding quickly and safely.

The two flap wheels of the TPP can easily be adjusted according to the thickness

The TPP air driven polishing machine



of the material. The inevitable wear of the flap wheels, which decreases the wheel diameter, can simply be corrected.

The new TPP 5090 conditioning machine is a registered design. The distance between the wheels can be adjusted without the help of tools. In this way the polishing pressure can be adjusted to the material thickness.

Polishing pressure can be influenced by slightly tilting the machine in the grinding direction. The replaceable flap wheels are available in diameters 60mm, 50mm, 40mm and 30mm. The polishing widths are 20mm and 30mm.

The grit size of the wheels is 40, 60, 80 or 120. The standard flap wheels are of aluminium oxide construction. Zirconium wheels can be supplied for special applications. The TPP 5090 comes in a heavy-duty case with all the necessary tools and storage for flap wheels.

Website: www.wortelboer.ws



Yee Young is an ISO 9001:2000 approved company with over 20 years of experience as a tube and rod manufacturer.

The company offers all kinds of hydraulic/ pneumatic cylinder honed tubes, chromium plated piston rod, linear motion shift and all kinds of fluid power transmission products.

The company offers the guarantee that its steel tube, pipe and rod is manufactured



Yee Young produces hydraulic/pneumatic cylinder honed tubes and chromium plated piston rod

and delivered according to the highest quality standards.

Website: www.fluid-power.com.tw

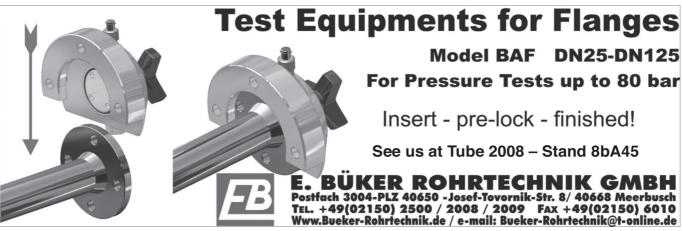


Yu-Nion Machinery Co Ltd is a tube and pipe machinery manufacturer. The company's high quality machinery and equipment is designed for the tube and pipe industry and steel processing industries.

The Yu-Nion range includes tube mills for ERW carbon steel/stainless steel pipe, slitting lines, cut-to-length, hot rolling mills, and forming machines. The company can also provide finishing lines and complete plant equipment.

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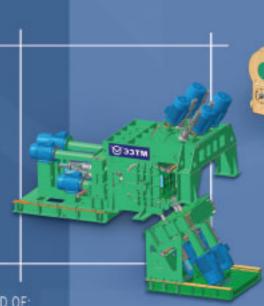
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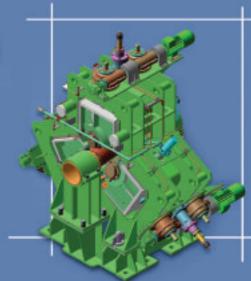




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The production range of elbows is from 1/2" up to 24", and reducers from 3/4" up to 4". The flange dimension range is from NW 15 (20/80mm) to NW 200 (219/320mm). All these products are produced from carbon and alloy steel and are manufactured according to world standards. Tubes are intended for usage in power, automotive and mechanical engineering.

Zeleziarne Podbrezová – Slovakia Website: www.steeltube.sk

**ZP Prako** – Slovakia Website: www.zpprako.sk

> **Zhejiang Jiaxing Zhongda** China 7.1F01

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#### **Spotlight on China**

## The action: US imposes duties on some steel pipe from China

On 4 January, the Commerce Department set preliminary antidumping duties ranging up to 51.34 per cent on certain steel pipe from China that it said was being sold in the US at below-market prices. These duties come on top of the anti-subsidy duties imposed by the Commerce Department in November 2007, when it determined that the government of China was illegally subsidizing Chinese pipe makers.

Circular welded carbon quality steel pipe used in plumbing applications, HVAC and sprinkler systems, fencing, and construction is the latest Chinese commodity found by Commerce to be either subsidized or sold at less than fair value in the United States. Imports of the product, also known as standard and structural pipe, increased by 143 per cent from 2004 to 2006, and were valued at an estimated \$332 million in 2006, the department said.

A number of individual Chinese manufacturers face a preliminary anti-dumping duty of 25.67 per cent. Others face a China-wide rate of 51.34 per cent. US Customs will be instructed to collect a cash deposit or bond based on those rates, upon entry of the goods into the country.

The Commerce Department will announce its final decision on the anti-dumping duties in May. The International Trade Commission, a US government agency, must then make a final determination that American producers are harmed by the imports for the duties to formally take effect. That vote is scheduled to take place by early July.

# The rationale: China has cost the US industry both jobs and revenue

The duties imposed by the Commerce Department on imports of some steel pipe from China had been requested by the United Steelworkers union and the Ad Hoc Coalition, comprised of a half-dozen pipe manufacturers: Allied Tube & Conduit, Ipsco Tubulars Inc, Northwest Pipe Co, Sharon Tube Co, Western Tube & Conduit Corp, and Wheatland Tube Company.

The Chinese imports that prompted their petition were said to have surged from 10,000 tons in 2002 to more than 750,000 tons in 2007 – a 6,900 per cent increase. The petitioners blamed the surge for the loss of 500 American jobs, approximately 25 per cent of the total workforce employed in this segment of the domestic pipe industry. Predictably, on 4 January the petitioners applauded the preliminary finding announced by the Commerce Department. Some typical comments:

Armand Lauzon, chief executive officer of John Maneely Co (parent company of Wheatland Tube and Sharon Tube): "This important decision sends a strong message to Chinese producers that they cannot dump their excess production in our market. This has cost the [US] industry both jobs and revenue."

Rick Filetti, president of Allied Tube & Conduit: "Surging imports from China at prices below our raw material costs have had a significant adverse impact on our employees and on our company's profitability."

Leo W Gerard, president of the United Steelworkers: "We have seen significant layoffs in the pipe and tube industry as a result of skyrocketing China imports. Chinese producers sell at prices that vastly undercut US companies meaning lost sales, lost jobs, and closed facilities. The ripple effects are enormous, as thousands of steel jobs have also been lost in the mills that supply steel to the pipe and tube producers, particularly in the Ohio Valley."

The government position on the import duties was summed up by David Spooner, the Commerce Department assistant secretary for import administration: "Price discrimination hurts American manufacturers. The [Bush] Administration is committed to aggressively enforcing America's trade remedy laws in order to achieve strong and fair relationships with our trading partners."

## The Chinese perspective: Weifang East Steel Pipe factory

Late last year, a reporter for the New York Times offered a rare glimpse into the workings of a newly privatized Chinese steel pipe factory – and into the thinking of its owners. Steven R Weisman visited the formerly state-owned and insolvent Weifang East Steel Pipe factory in China's northern coastal plains. It was acquired by workers who, "inspired by the spirit of capitalism consuming modern China", borrowed from banks to buy the company, install new equipment, and produce higher-quality steel pipe, much of it for export ('A Battle Fought in the Factories' 11 December).

Today, Weifang East is again in crisis. This time the workers' anger is aimed not at prior management but at the United States, which has now imposed punishing new tariffs on Chinese steel pipe imports. Mr Weisman reported that hundreds of plant workers have been idled, and more layoffs are in the offing. "We have followed market principles and been faithful to our American customers", he was told by Wu Jingsheng, the Weifang plant's general manager. "Our workers don't know why they are being treated this way."

Mr Weisman wrote from Weifang, "At a time of heightened American anxiety over the effects of globalization, the factory here illuminates how esoteric trade disputes, where the facts are often ambiguous, usually boil down to little more than American jobs versus Chinese jobs."

The Chinese deny Bush administration charges that China unfairly and illegally subsidizes its exports to undercut American producers. According to Mr Weisman they see instead "an unfair assault on China's use of Western business models to modernize, provide jobs, and take its rightful place in the world."

As construed in the Times article, the case of the plant in Weifang is both particular and general – a single producer within the vast steel making enterprise set in motion by China's outsize need for steel. To meet its construction needs, the country has become the world's largest producer and consumer of steel and steel products. Only since 2001 has it been a net exporter of steel.



Exports of Chinese steel pipe accounted for less than \$1 billion of the \$232 billion US trade deficit with China in 2006. But in only two years China has doubled its share of pipe sold in the United States to more than a quarter of the market. Over the same period, several American steel pipe factories have shut down, throwing hundreds of people out of work.

 American producers maintain that newly privatized Weifang East nonetheless benefits from past subsidies for land, utilities, and other costs, and current subsidies for raw steel. David M Spooner, the US Commerce Department official quoted above, said, "We're extremely concerned that the Chinese steel industry is not market driven but driven by subsidization."

China argues that it is not subsidizing steel and that the current surge in exports is only temporary as the country shuts down its polluting, inefficient factories. The Times's Mr Weisman quoted from a recent speech given in Hong Kong by Chen Haoran, the recently retired chairman of a government-sponsored trade association: "China's steel industry is not export-oriented. It is not imposing and will not impose any threat on the supply-demand balance in the world market."

The Chinese resent the Bush administration's increasing resort to litigation, whether by supporting petitions from American manufacturers for duties on steel pipe and other Chinese goods, or by taking China before the World Trade Organization. Mr Weisman notes the acknowledgement of US officials that Chinese leaders see the imposition or threat of duties, or litigation at the WTO, as an act of bad faith.

"They think if you sue them, you've insulted them," an American negotiator told the Times, speaking anonymously in the interests of candour.

Is the attempt to harmonize the concerns of the two sides to the steel pipe controversy doomed in advance by a basic cultural clash? The idea receives some support from someone who knows something of diplomacy: Pascal Lamy, director general of the WTO. "The US litigates at lunch, dinner, breakfast, and so on," Mr Lamy, himself a businessman and a former European Commissioner for Trade, said in a recent interview. "In China, when you litigate, it means that your relationship is [gravely] deteriorated."

Meanwhile, steel pipe factory workers in the American Midwest and in China's northern coastal plain are off the payroll, in a world eager for the products of their hands. Mr Weisman observed,

"At [Weifang], workers being laid off say they will have to switch to lower-paid jobs selling vegetables, driving motorcycle taxis, or in construction. At the plant, their average wage is \$4,000 a year."

#### Of related interest . . .

Acting apparently in response to pressure from the US and the European Union, China on 27 December said that it had introduced export tariffs on some steel products and raised the tariffs on others. According to a statement by the Ministry of Finance, a new export rate has been set for stainless steel sheet (10 per cent to 15 per cent) and for cold-rolled sheet and steel tubes (15 per cent). Tariffs on the export of steel wire and rod went from 10 per cent to 15 per cent, and on semi-finished steel products and pig iron from 15 per cent to 25 per cent.

China, which makes one-third of the world's steel, cited an intention to curb its trade surplus and cut energy consumption and pollution. Chinese exports of steel products rose 55 per cent for the first 11 months of 2007, to 57.86 million tons. Still, customs data showed November shipments falling 11 per cent below the total for November 2006, to 4.1 million tons – the lowest level in 14 months.



#### The Detroit Auto Show

## Chinese auto makers take up the challenge of winning over skeptical American buyers

The event officially known as the North American International Auto Show, held every January, is neither the world's biggest nor the one with the heaviest attendance. But the location of the Detroit Auto Show at the heart of the US automotive industry assures its prominence; and, this time, auto makers from China were intent on capturing their full share of the attention.

In Detroit for the Chicago Tribune, reporter Rick Popely saw plenty of indications that the Chinese manufacturers had come to the show with high hopes that it is their turn to enter the US market, the world's largest. Changfeng and BYD, along with manufacturers Geely and Zhongxing and Li Shi Guang Ming Auto Design Co, are among those gearing up for the assault (*'Chinese Auto Companies Looking to Break into US Market'* 17 January).











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Mr Popely made the rounds of the show in the company of analyst Rebecca Lindland, an associate director of Global Insight, the industrial forecasting group. While alert to aesthetic and finishing flaws – as in a convertible with a McDonald's motif of bright yellow paint and red interior – Ms Lindland was not dismissive of the cars displayed by the Chinese producers.

"They learn very quickly, and they keep getting better and better," she told the Tribune, noting that some of the vehicles look ready for American customers. "They have great aspirations for the US. I just don't think they'll get there overnight."

Mr Popely ventured the guess that Zhongxing, or ZX, could be "the first in the door". The company planned to begin sales in Mexico within three months and to be in the US by 2009. Whether that will be possible is not altogether clear, even to ZX. The company was showing a compact pickup and SUV, both with all-wheel-drive and a 2.7-liter 4-cylinder engine. But Thomas Del Franco, chief operating officer of ZX North America, was not sure that the cars would satisfy US quality demands and safety regulations by the end of the year.

"Everything we do needs to be buttoned up," Mr Del Franco said.

Quality is no small matter, as the Chinese will know from Hyundai's American experience. Offering a starting price of \$4,995, the South Korean manufacturer sold 169,000 cars in 1986, its first year in the US. But the cars were a disappointment on the road, and in 1998 the company sold only 90,000 in the US Hyundai saved its US endeavour, but at the cost of major upgrades and a 10-year warranty. Last year, it achieved a record 467,000 American sales.

Even with US car sales having sunk to a 10-year low of 16.15 million last year, the American market is nearly twice as big as China's, and Chinese auto makers will be striving hard to overcome the challenges to their establishing themselves in the US. To succeed, in addition to meeting safety and emissions requirements, they will have to satisfy an increasingly demanding buyer – one primed to expect a 'loaded' vehicle.

"That is not a simple task, and it means [Chinese cars] are going to be more expensive than you might think," David Cole, chairman of the Center for Automotive Research, told the Chicago Tribune. "The real competition for a cheap new car is a relatively new used car with more features."

There are, Mr Cole said, "a lot of people who will go for the used car."

#### Of related interest . . .

BMW said on 13 January that it saw no sign of a slowdown in the United States and expected to sell at least as many cars there this year as last. In Detroit for the North American International Auto Show, BMW chief executive Norbert Reithofer told journalists that the German company would be taking on more employees in the US. In 2007 the world's biggest premium car maker made 170,000 cars at its Spartanburg plant in South Carolina, but only with the addition of temporary workers. Now, the rated capacity of the plant is to be raised from 140,000 to 240,000 cars by 2010.

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#### Metals

The British mining company Anglo American is in exclusive negotiations to pay \$5.5 billion for control of iron ore projects owned by the Brazilian mining concern MMX Mineração Metálicos, the companies said on 18 January. Anglo American is to buy the 63.6 per cent stake in MMX held by a Brazilian businessman and thus secure control of the company's Minas-Rio and Amapa ore mines in Brazil, the companies said. Anglo American said that a new company broken off from MMX would own MMX's current 51 per cent interest in Minas-Rio and 70 per cent interest in Amapa. Anglo American would also pay royalties to MMX, beginning in 2025 for the Minas-Rio project, beginning in 2023 for

The Evraz Group, Russia's largest steel maker by domestic volume, on 11 December announced its second acquisition for 2007 in the US - the purchase of Delaware-based Claymont Steel Holdings for \$564.8 million. Through its subsidiary Claymont Steel Inc, the American company is a leading manufacturer of custom discrete steel plate, producing some 400,000 tons per year. Claymont commands about 20 per cent of that market in the US east of the Rocky Mountains.

Recent per-ton price increases include:

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V&M Tubes (Houston, Texas) Seamless standard and linepipe 2" through \$24" - \$75

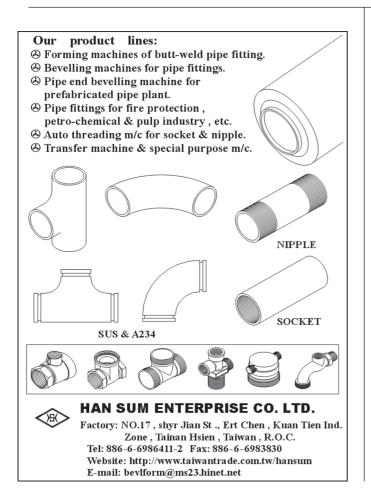


#### Oil and gas

#### Brazil's Tupi oil field is the second-biggest find in 30 years

A huge underwater oil field discovered late last year in Brazil is the world's biggest oil find since the 12-billion-barrel Kashagan field was discovered in Kazakhstan in 2000. The new deepwater find, Tupi, is estimated to hold the equivalent of five billion to eight billion barrels of light crude oil; it increases Brazil's 12.2 billion barrels of proven reserves to some 17.2 billion, and immediately alters the lineup of oil-rich nations.

The Tupi discovery, which Brazil's president Luiz Inácio Lula da Silva took as proof that "God is Brazilian", moves Brazil ahead of Canada (with reserves of 17.1 billion barrels) and Mexico (12.9 billion). On a global scale derived from the BP Statistical Review of World Energy, Brazil would rank between China and Nigeria. Regionally, South America's largest country now dramatically outshines Venezuela (80 billion barrels of proven reserves).







A project of Tupi proportions of course galvanizes the world's largest oil companies. Historically, the country has been more hospitable to foreign investment than its neighbours Bolivia and Venezuela – which recently have nationalized parts of their energy industries – and multinational oil companies have, by invitation, been active in exploration offshore of Brazil for years.

But Shell, Chevron, and Exxon Mobil have little to show for that effort, and for the billions of dollars they have put into it. Moreover, while Brazil has not clarified its intentions as to development, it has signaled that it may be inclined to go it alone on Tupi. When the discovery was announced, in November, the government immediately removed 41 oil exploration blocks out of 312 up for sale later in the month to reevaluate their potential. All blocks in the Campos, Santos and Espirito Santo basins – the three most important in Brazil – were pulled from the auction.

"This allows us to reevaluate our resources without breaking any existing contracts," Dilma Rousseff, President Lula da Silva's cabinet chief, told Bloomberg News at a press conference in Rio de Janeiro (9 November). "When we are better aware of the potential, we will consider offering [the blocks] at auction again."

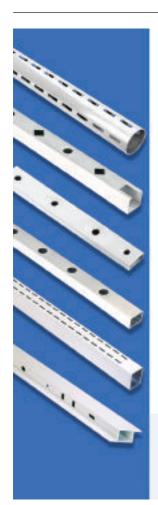
Even if Petrobras (Petroleo Brasileiro SA, Brazil's state-controlled oil company) does accept assistance from other major oil majors, the first commercial quantities of Tupi oil cannot be expected for at least seven years. If they do eventuate, it may help reduce US dependence on Venezuela, a principal but unpredictable source of US oil imports.

"[Tupi] punches a bit of a hole in Venezuela's bubble," John Parry, an analyst at John S Herold Inc (Norwalk, Connecticut), told Bloomberg. "This certainly becomes a challenge to Venezuela, which is looking to get a Latin American coalition of countries together because Venezuela saw itself as the head honcho with the most reserves."

## A new concern for Washington: China's plan for a natural gas pipeline through Burma

Citing little-noticed regional news reports from December, the New York Sun said in January that China is aiming to help satisfy its growing energy needs with a natural gas pipeline in Burma – "an effort that will complicate American attempts to change the regime in Rangoon." To date, Thailand has been the only significant buyer of Burma's offshore gas. Now, staff reporter Joseph Goldstein wrote, the pipeline proposed to draw gas reserves off Burma's west coast to China is gaining momentum, and it could open as early as 2010.

The Sun, a conservative paper, framed the piece with reference to the human-rights record of Burma's ruling junta, the State Peace and Development Council. If Burma becomes a significant contributor to the region's energy supply, and a valued supplier to China, Rangoon's resistance to Washington's influence can only be expected to harden. But even apart from that aspect, the development of Burma's offshore reserves of natural gas – taken together with a tightening China-Burma bond – would be







momentous for the United States ('Communist China Aims for a Pipeline in Burma' 15 January).

"Crude oil coming in through Burma is very significant," an expatriate Burmese, now working in Alaska as a consultant on a natural gas project, told the Sun. "The Chinese are always thinking about oil security, and a pipeline across Burma puts Burma in a very important strategy position."

Mr Goldstein filled in the picture. Currently the supertankers that carry crude oil to China ply a roundabout course through congested shipping lanes. By enabling tankers to unload crude in the Bay of Bengal near Burma's Western coast, the proposed pipeline would dramatically shorten that journey. Besides cutting down on shipping costs, the short-cut would reduce China's reliance on the Straits of Malacca, which narrow to 1.5 miles between Malaysia from Sumatra. About 80 per cent of China's oil imports pass through this lane, which is easily closed and frequented by American warships.

To develop the scenario, according to news reports consulted by the Sun there has been talk of a refinery being built in China's southwestern Yunnan province. The projected Burma pipeline would likely be coupled with one that delivers Middle Eastern crude to Yunnan province. It is a bracing prospect, not only for the US but also for every other country sensitive to major shifts in oil and gas availability.



#### Manufacturing

## Complex niche products from American factories find favor overseas

American manufacturers in growing numbers are compensating for slower sales at home by building up their overseas sales. Between 2005 and 2006, US sales in overseas markets grew 12.7 per cent. As last year drew to a close, US government officials estimated that, overall, such sales were up 17 per cent from 2006.

Writing in the Washington Post, Michael A Fletcher noted that global business – once considered the culprit in the loss of US manufacturing jobs – is "shaping up as a bulwark against what some analysts fear is a looming recession." There were even predictions that the export boom could enable the United States to cut its huge trade deficit. In the meantime, the overseas sales

are a factor in allowing the economy to continue growing despite the steep downturn in the housing industry (*'Tide Is Shifting on US Exports.'* 26 December).

Mr Fletcher emphasized that the items in demand with international customers are the complex niche products for which American origin signals reliability. Erin Ennis, vice president of the US-China Business Council, told him, "These are the kinds of things for which the US continues to hold a lead in know-how."

The Post article cited the transformation wrought at one company, Richards Industries (Cincinnati, Ohio), which makes precision industrial valves.

When Bruce Broxterman, now the company's president, made his first visit to a trade fair in China in the late 1980's, he noted a general lack of developed infrastructure that convinced him of the "vast potential" represented by China. Two decades on, the suppliers of that infrastructure are buying Richards valves.

Now, exports account for almost one-third of Richards's revenue – more than double the export total 10 years ago. And, in another five years, the firm expects sales to foreign firms to account for fully half of its business. The shift has, understandably, modified attitudes toward globalization among the firm's 125 employees.

"The breakneck development transforming such places as China and India mean more business opportunities for Richards," Mr Fletcher wrote. "The firm's sophisticated valves, outfitted with special controls at the plant, are critical to processes at places including refineries and petrochemical plants, which turn out products from fuel to plastics."

 Reflecting the view of the Bush administration and the president's Republican party, Commerce Secretary Carlos M Gutierrez said "Businesses are getting behind exports, and we [the US] are becoming a major, major exporter. We've got to keep that going."

But the Washington Post noted that, on the Democratic side, free-trade agreements and other efforts aimed at liberalizing international trade have come under fire. Earlier in December, Congress did approve a relatively small free-trade agreement with Peru. But larger deals with Panama, Colombia, and South Korea are in abeyance because of concerns that they would cost US jobs.

Dorothy Fabian, Features Editor (USA)



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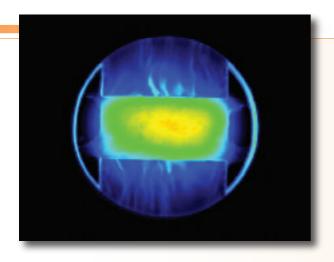
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## Inspection, Measuring, Testing & Marking



/ ith its exterior and interior surfaces, a tube makes an apt illustration for the concept of certification, under which the specialities reviewed here may be grouped. A tube is a workhorse long after the workpiece comes off the assembly line and leaves the plant. Certification assures the buyer, installer and user of the tube that what is unseen is not unknown.

Consider one particularly hardworking specimen: the reformer tube, also known as the catalyst tube. Subject to contact with corrosives and to sudden and severe pressure changes, this tube is one of the highest-cost components in chemical plants in terms of both capital investment and maintenance. With a

typical installation of several hundred tubes, replacement represents a considerable expense. Unplanned failures can be a major source of plant unavailability.

Inspection, testing, measuring, and marking are the guarantors that a reformer tube begins its life in service ready for the rigours of that life. But that is not the end of it, at least not for inspection and testing. The website PatentStorm makes available patent number 7046346, issued in May 2006 to the inventor Phillip D Bondurant. In the useful way of patents, the unwieldy title tells the whole story: Method for processing in situ inspection of reformer tube data.

It seems that, in a world and an industry as preoccupied with serviceability as ours, not even a highly sophisticated tube can call its life its own. Not, certainly, so long as customers for quality tubing rely on the certification specialties under review here to do the sweet work of reassurance.

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Physical or electrical parameters are also covered such as expansion, capacitance, and dielectric strength.

Zumbach technology is used successfully in the plastic industry for the extrusion of pipe, tubing, and profiles for plumbing,

> medical, automotive. and construction products. It is also used in the steel and metal industry on hot rolling mills and in cold processes for steel and other metals.

Due to extensive research and development activities. Zumbach offer importechnologies such as laser/optics, ultrasonics. x-rav.

high-voltage technology, computer hardware and software. The company offer Odac® for highly accurate diameter and ovality measurement with 1-axis, 2-axis and 3-axis laser scanners. Another leading Zumbach product is Umac® ultrasonic wall thickness scanners for non-contact measurement of coating thickness.

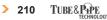
Zumbach's Odex® allows measurement and control of eccentricity/concentricity, diameter and wall measurement on extrusion lines with only one gauge.

Also available from Zumbach are Steelmaster non-contact oscillating and static measuring systems for hot steel applications, full circumferential detection technology of surface faults (KW Trio, Simac®), and ultrasonic measuring and control systems for wall thickness with cutting edge digital technology (Wallmaster - Umac® CI).

**Zumbach Electronic AG** – Switzerland Fax: +41 32 356 0430 Email: sales@zumbach.ch Website: www.zumbach.com

Zumbach offers a complete program of online measuring and control instruments





#### Inspection, Measuring, Testing & Marking



#### Long product thermal imaging with high-resolution infrared camera

Increasing the number of pixels on the focal plane array of a thermal imaging camera significantly allows the user to find smaller problems at greater distances. This is especially important from a health and safety standpoint if the user is studying the thermal performance of steel coming out of a furnace. For the same reason, the ability to control the camera from a laptop via Firewire is invaluable.

It was for these important factors - in combination with video capture at up to 50 frames a second - that led Corus to select the ThermaCam® SC640 from Flir Systems, UK.

Corus, a manufacturer of steel and aluminium products, operates four divisions - strip products, long products, distribution/ building systems, and aluminium. The new ThermaCam SC640 was purchased by the long product rolling department of Corus R & D. Corus R&D is responsible for improving the process of reheating, rolling and finishing of long products.

Temperature is naturally a key factor during the rolling process. If the material is too cold the loads and torques generated during rolling are increased which can damage the expensive capital equipment being used. Furthermore the temperature at the end of the rolling process has a significant effect on the final properties of the steel.

Another part of the process where temperature needs to be measured against time is cooling of the steel. Various acceleration techniques are employed for this purpose such as forced air or spray

The S640 ThermaCAM® IR camera from FLIR

cooling. These reduce the temperature of the steel in optimum time to achieve the desired material properties.

"We are using our new ThermaCam SC640 to measure the temperature of the rolled steel at any point from furnace dropout when it is roughly 1,300°C to the final cold product." explained development engineer, Mr Chris Oswin. "In the steel industry there are a lot of potential dangers and the higher resolution of this camera allows us to take images further away. The image quality lets us pick-out the temperature of particular parts of the sections as they are cooled."

The ability of the ThermaCam SC640 to hold a constant resolution across a wide temperature range is especially important as the R&D team needs to track the cooling of a steel product from 1.300°C to ambient. Whereas a standard 320 x 240 focal plane array has 76,800 pixels, the ThermaCam® SC640 has 307,200.

This feature enables dynamic events in the Corus long products R&D to be seen in greater detail. The camera's larger field-ofview has proved useful to the team when comparing the cooling of multiple sections in close proximity to one another.

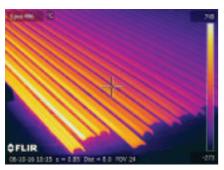
Up to 8x digital zoom on the ThermaCam® SC640 also enhances the study of smaller targets. The operator can pan around the LCD display after zooming to examine all areas of the image, not just the centre.

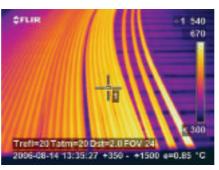
The camera has high-powered germanium lenses, designed to take full advantage of the high-resolution focal plane array sensor. A full range of lenses is available including a 12°, 25°, 45° and a 50 micron microscope lens.

Flir Systems Ltd - UK Fax: +44 1732 843707 Email: sales@flir.uk.com

Website: www.flirthermography.co.uk

Thermal images illustrate temperature of the rolled steel at the Corus plant





#### Marking steel and non-ferrous metal tubes

Couth Butzbach GmbH, Germany, is a specialist manufacturer of tools for direct part marking. These marking tools are used for conventional marking, such as hand stamps or punching dies. They can also be used with a semi-automatic installation of such tools in unroll machines or presses for the marking of pipes.

If marking is carried out from one pipe to the next with constantly changing text, it can only be controlled by dot marking machines. The related controller will control the marking of numbers, letters, logos and data matrix code. These dot marking machines can achieve marking speeds of up to 16 characters per second and penetration depths of up to 0.8mm.

The dot marking devices are available as mobile or column system or as a mounting system for integration into production lines. The company also produces special dot marking machines for marking, eg cylindrical products with temperatures up to 900°C especially for the pipe manufacturing industry.

Couth Butzbach GmbH - Germany Fax: +49 212 881795 80 Email: sales@couth-butzbach.de Website: www.couth-butzbach.com





#### Multimac™ multi-mode eddy current tester

eddy current tester. The Windows® based MultiMac operates with encircling/sector test coils to detect short surface defects, and/or with rotary test probes to detect long, seam type surface defects. The new multi-mode capability incorporates all of the best features of MAC's individual encircling coil and rotary probe instruments.

The new MultiMac includes up to eight test channels, and a wide selection of test

The MultiMac™ multi-mode eddy current tester



parameters and special circuits to enhance signal-to-noise ratio. Building on the successful Echohunter® software graphics, the instrument's test screen displays one channel, and the multi-screen provides a simultaneous display of 1 to 8 channels.

The test screen provides all the information needed to set up and operate MultiMac. Both screens display simultaneous polar and linear modes and all test parameters, including thresholds.

> Each channel on the MultiMac can be individually configured with different frequencies and different channel modes. For example, 'differential' mode is used to detect short weld-line defects, while 'absolute' mode is appropriate for long, continuous surface flaws and open welds.

> A choice of three thresholds per channel - all phase, sector, or chord - can be mapped to any of eight outputs, independently configurable for time or distance delay and normal reject or latched mode.

> With these features, MultiMac can be used to test a wide variety of non-magnetic products, or inspect

magnetic material by using direct current saturation systems. A special configuration of channels, based on flux leakage phenomenon, provides detection of very small subsurface steel inclusions in copper or aluminium rod.

Test speeds for the MultiMac can range from one fpm up to several thousand fpm. MultiMac offers end-suppression circuitry with optional optical sensor to prevent false signals from leading and trailing ends.

The MultiMac offers enhanced recording capability and remote access through inplant networks or the internet. Featuring user-configurable reports, data output can include customer and product information, defect location, time, amplitude, and phase. Reports can be stored locally on a network server or on a flash memory device using the USB port.

Operator interface for the Windows-based system is by use of a keyboard and mouse. The all-inclusive model, designed for demanding plant environments, consists of a sealed, heavy-duty cabinet with a builtin 17" monitor, air conditioner and pull-out keyboard. Other smaller models can be supplied with the pull-out keyboard, an air conditioner and separate, optional monitor.

Magnetic Analysis Corp - USA Fax: +1 914 699 9837 Email: info@mac-ndt.com Website: www.mac-ndt.com

#### Sound way to detect holes and blockages

Phoenix Inspection Systems, UK, has launched a unique device that uses sonic waves to detect holes, blockages or foreign bodies in up to 500m of tubing at inspection rates of 800 tubes an hour.

The AR5000 inspection device from Phoenix



The AR 5000 is a more powerful, longrange version of the company's Acoustic Ranger, which has proved popular with process plant operators around the world. The device emits a sonic wave which

travels along the inside of a tube, following it around bends and spirals.

The latest version was developed following request by German-based Linde Engineering for an inspection technique use on its LNG plants containing spiral-wound heat exchangers, which liquefy natural gas for easy transportation by tanker.

Phoenix managing director Mr Karl Quirk says, "The Acoustic Ranger has proved popular with the energy and petrochemical sectors for checking pressure vessels and relief valves and process industries for detecting holes and blockages in the line. Operators often tell us it has saved them many thousands of pounds and is a vital tool for achieving compliance with pressure systems regulations."

"The AR 5000 not only has a much longer range but also better resolution and sensitivity than previous versions. It offers potential for wider use on systems ranging from large-scale heat exchangers to general pipework, small-bore circuits and fibre optic conduits."

The AR 5000 has a USB link and can be plugged into any computer running the AR5000 software.

Phoenix Inspection Systems – UK Fax: +44 1925 838 788 Email: sales@phoenixisl.co.uk Website: www.phoenixisl.co.uk

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#### Improved tube measuring accuracy for bending applications

AddisonMckee, a leader in tube-bending and end-forming technology, has developed a range of non-contact tube measuring Branded AddiCheck. machines. machines are designed to obtain data for tube bending machinery and provide vital information for inspection purposes.

Widely accepted as a revolutionary noncontact tube measuring and inspection

The AddiCheck non-contact tube measuring



system, AddisonMckee's AdData 'G' Plus technology has long been recognized as an effective solution for virtually every industry involved in the manufacture of tubular components.

**Embracing** AddisonMckee's latest software technology for non-contact tube measurement, the company's recently introduced AddiCheck model offers levels of capability and functionality more suited to mid-market tube manipulation organizations. Through the introduction of the AddiCheck, AddisonMckee now offers a highly competitive, non-contact probe measuring solution that affords greater accuracy and is extremely simple to operate.

AddiCheck consists of a portable workbench, an optical probe attached to a newly designed 5-axis digitally encoded measuring arm, a laptop computer running simple software, and an optional printer. The equipment is designed to interface directly with AddisonMckee's range of modern DataBend and PowerBend CNC tube bending machines.

AddiCheck will also the provide necessary co-ordinates data to set up non-CNC machines. AddiCheck offers

simple in-process verification correction capabilities, while AdData provides enhanced, more sophisticated measurement and component development capabilities.

In addition to non-contact tube measuring technologies, AddisonMckee also offers VeriGauge, a brand new range of inprocess and final-inspection bend-check gauges.

Available in 'L' and/or full contour 'Uchannel' formats. these CAD/CAMdesigned and CNC-machined models are ISO 9001:2000-certified and constructed from REN modeling board for extreme durability.

Finally, as part of AddisonMckee's production cell automation integration capabilities, automated tube bending cells are offered with 'pin stamp' marking to ensure proper identification, including part number, serial number and other data as determined by customer requirement.

AddisonMckee - USA **Fax**: +1 513 228 7226

Email: crogiers@addisonmckee.com Website: www.addisonmckee.com

Addison Mckee Ltd - UK Fax: + 44 1772 323227

Email: sales@addisonmckee.co.uk

#### Inline contour measurement of tube and wire

www.read-tpt.com

LAP is the supplier of laser-based systems for high-precision measurements of geometric dimensions, such as position, width, thickness, length, diameter and flatness. The company excels in providing

LAP offers a wide range of RDMS-systems for dimensional measurement of tube



ultra-precise measurement results under the harshest operating conditions. Hundreds of LAP systems are tried and tested every day in most demanding industrial environments.

The company has launched a robotcontrolled measurement for the inner and outer contour of tube ends with diameters

> Using laser triangulation sensors, the system measures the complete inner and outer profile as well as the wall thickness in

> > one 360° revolution of the sensor arm. The system can be used in longitudinal and transverse tube transport.

LAP also introduced

redesigned RDMS software for contour measurements of tube and wire. The new LAP software responds to the growing trend of integrating RDMS systems deeper into the production processes - even as cross-plant configurations for use within networked systems.

Due to their compact design and high flexibility, RDMS systems have become widely established as a reliable technology for inline contour measurements of tube, bar and wire rod. They are currently highly regarded in long product rolling. More than one hundred RDMS systems have already been installed in rolling mills all over the world.

Among the customers of the company, which today employs more than 90 people, are leading steel producers, including Baosteel, Posco, ThyssenKrupp Steel and Vallourec & Mannesmann.

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#### Tube and pipe testing with industrial vision

Industrial vision has become an accepted part of quality control procedures in many different industries. Since the production of tube and pipe or other cylindrical products must comply with increasing quality standards, vision is finding application in this industry.

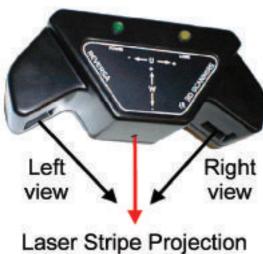
Higher production rates and increasing production complexity - combined with ever-stricter quality criteria - require thorough, objective, and automated testing in production and quality control. To meet these specific requirements, industrial image processing provides optimum ways of automating control procedures and testing processes.

The basic construction of an industrial vision system remains the same, typically consisting of an illumination system and video camera or set of cameras linked to computers, which can automatically and non-destructively inspect, identify and guide without human intervention.

In the last 10 years, industrial vision has matured as a technique in every area, including camera technology, computer processing power, software and illumination techniques.

Technological developments have enhanced the entire vision process, from image acquisition, to processing and measurement, bringing increases in speed, resolution, complexity and the accuracy of the measurements that can be made. A technique has now been developed that can cope with modern production line speeds, and with a robustness not available ten years ago.

Figure 1: principles of laser stripe imaging



One of the challenges for automated inspection of tube and pipe is the ability to make 3D measurements, both for inspection of weld integrity and general inspection of the curved surfaces of the tube. 3D measurements can be performed using an illumination method known as laser striping.

Projecting a stripe of laser light at an

angle on to a surface will produce a straight line on a flat surface or a curved one on a curved surface. when viewed from another direction at an alternative angle (figure 1).

With such lighting, a fast camera can measure the height, length and width of objects as they pass by on a conveyor, using a process known as triangulation. As the name suggests, the calculations are made trigonometrically.

Used as an inspection tool, vision systems can provide a 'pass/fail' indicator based on the measurements made, but a much more powerful capability is offered when the data is fed back into to production control system - for example, to adjust the pressure of rollers in a tube mill.

Inspection of welds can give measurements on weld width, height and undercut etc. However, there is more to 3D measurements than just depth. 3D measurements can give information on shape, proportions, volume, surface finish and surface curvature. It is also possible to carry out 3D difference analysis where

> a curved surface is compared to a reference surface in order to identify isolated quality faults.

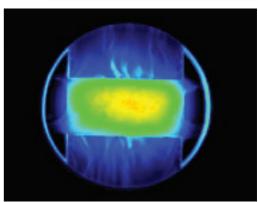
> Measurements on complete cylindrical surfaces generally require the use of at least 3 cameras, which requires accurate positioning of the cameras and synchronization of the image acquisition. This is followed by combination of the images to generate the complete surface.

> A new development by a partner in the Dynavis project, funded by the Sixth Framework Programme of the European Commission, has resulted in a new optical sensor for easy 360° surface



The optical system provides simultaneous acquisition of the outside from four views shifted 90° to each other





Tiqure 2: measurement of transient thermal transfers in heated Inconel wall

inspection for cylindrical objects such as tube and pipe. It consists of a single RGB area camera, a specially designed optical system and a coaxial illumination unit adapted for the application.

This system produces one image by inspecting the test piece either in free fall or during a horizontal motion, provided that the object is long enough. The optical system provides simultaneous acquisition of the outside from four views shifted 90° to each other. Combining all four views creates a complete 360° view of the cylindrical surface.

This solution also provides contactless monitoring of dimensional accuracy of length and diameter, size, position, colour and surface condition, and for the presence of printed labels, dirt and anything else that is visible on the surface. Over ten different types of defect can be monitored simultaneously and in real time.

An interesting development in recent years has been the emergence of alternative imaging methods such as infrared and xrays for industrial imaging applications. Infrared imaging has useful applications for tube and pipe by allowing the study of thermal transfers in pipe walls under high flow, high pressure and high temperature conditions.



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For example, in a typical gas cooled atomic energy reactor the temperature of the fluid lies between 100 and 350°C and the temperature of pipe walls varies between 20 and 800°C. Thermal transfer phenomena on pipe wall surfaces determines the performance and long-term behaviour of the reactor. In order to design and build more efficient, reliable and safe reactors it is therefore essential to be able to precisely measure pipe wall temperatures.

Using an IR camera sensitive to radiation in the 3-5 micron range of the spectrum, it is possible to set up experiments to simulate and study the behaviour of hot fluids in pipe. This can measure pipe wall temperatures, heat exchange coefficients and characterise boiling processes, as well as transient thermal transfers in the wall (2000°C/s).

The UK industrial Vision Association (UKIVA) is a not-for-profit organisation, whose prime objective is promoting the use of vision by the manufacturing industry. The UKIVA website (www.ukiva.org) contains details of full members who offer a wide range of machine vision components and who can offer expert advice about the construction of machine vision systems, and members from academia, involved in the latest vision research.



Figure 3: Single camera tube inspection system

Information and application examples included in this article have been supplied by UKIVA members Cedip Infrared Systems Ltd (www.cedip-infrared.com) (now part of Flir Systems), and Lambda Photometrics Ltd (www.lambdaphoto.co.uk).

In addition, input also came from research members Cranfield University Applied Mathematics & Computing Group (www.cranfield.ac.uk) and The European Association of Innovating SMEs (EurExcel) (www.eurexcel.eu).

This article was supplied by Mr Don Braggins, UK Industrial Vision Association.

UK Industrial Vision Association – UK Fax: +44 1763 261961
Email: don@ukiva.org
Website: www.ukiva.org

#### Gauges for in-line dimensional measurement

BA-Messtechnik (formerly Bruno Richter) is one of the leading manufacturers of gauges for inline dimensional measurement in the steel and metal industries. With over 40 years of experience in measuring techniques, the company is one of the pioneers in the field of laser application for contactless dimensional inspection of tube and pipe.

The company's gauges are utilized in worldwide service for hot and cold mills. The company's solutions range from the static one-axis shadow gauge (with display) up to the oscillating and rotating gauges with the latest data processing and statistic process control.

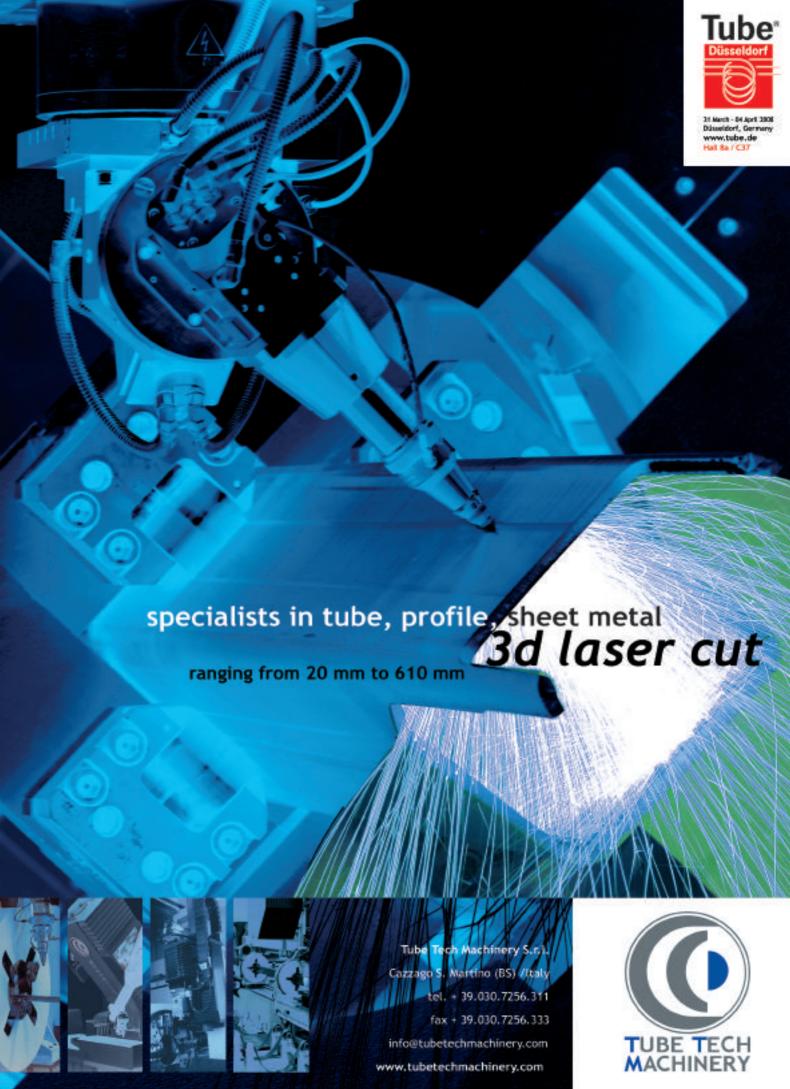
For each application, the company offers optimum customer specific configuration. BA-Messtechnik can measure all kinds of materials including steel, nonferrous metals, and plastic in all shapes such as round, square and hollow structural sections.

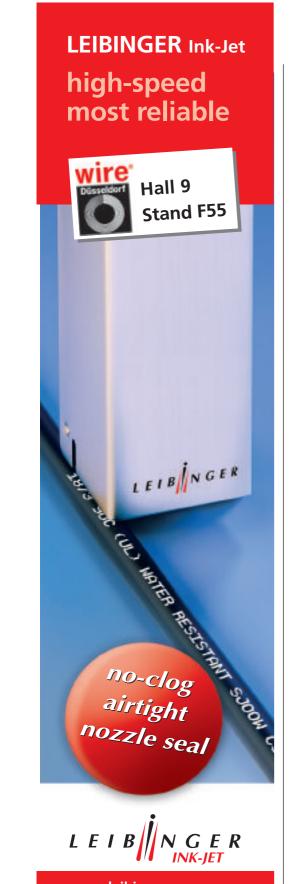
Special features of the diameter gauges (brand DO) are easy maintenance, low running costs, high reliability in service, and long service life. The gauges can be combined with state-of-the-art software for accurate measuring of the diameter, ovality and shape of the tube and pipe and even the straightness. The gauges can accomodate product diameter from 0.01 up to 64".

The optical width measurement gauges can establish the width of sheet metals and stripes used for welded pipes. The thickness of stripe and sheet metal can be measured by the laser-triangulation inline gauges.

**BA-Messtechnik** – Germany **Fax**: +49 9542 77 334 28

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#### Specialized machines for permanent product embossing

ASD GmbH, Germany, is the specialized manufacturer of stamping and embossing machines for marking a variety of steel and metal parts. The company offers a new generation of ULU-standard-universal machines that claims to cover around 90 per cent of user requirements.

These machines have additional functional units and parts, allowing the machine to provide extra fields of application and optimal adaptation of the machine(s) to product sizes.

A highlight of the ASD capability is the innovative roll-on embossing machine range - branded ULU 80/170 - which is universal, longitudinal and circumferential. This machine provides a range of functions for state-of-the-art embossing and marking technology.

The ULU 80/170 offers longitudinal (continuous) roll-on embossing for strips, coils, metal sheet, pipe (plastic/metal), thin-wall pipe, and sections of all kinds (eg round, square, hexagon, oval, flat, formed).

Embossing is carried out along the longitudinal axis, with specified distances, to an accuracy of approximately 0.1mm. Full and variable feed-through speeds are possible, up to approximately 200m/min. The machines can also be used for round (circumferential) roll-on embossing of short and long pipes, fittings and form bent pipes.

The roll-on embossing machines are universal, enabling marking of a variety

ASD's high performance, continuous flow coil stamping machine



of cylindrical parts on the circumference, multiform, and in one or more lines, or with reductions. Marking can also be carried out on coils and long metal sheets in varying widths on cut-to-length machines.

The machine enables fully automatic feeding and conveying of large throughputs. This can be applied to marking on the circumference in single or more lines, eg for fittings, sockets, hose casings, ferrules and threaded bushes and other mass-produced short round parts and thin-wall products.

The feeding devices can be modified and adjusted accordingly. Each feeding and unloading stroke of a/m mass-produced parts occurs without any compressed air consumption (presently the most expensive energy source).

These four capabilities (longitudinal, circumferential, universal and automatic) equate to four machines in one. They lead to high flexibility and variety, resulting in numerous and versatile possibilities of application.

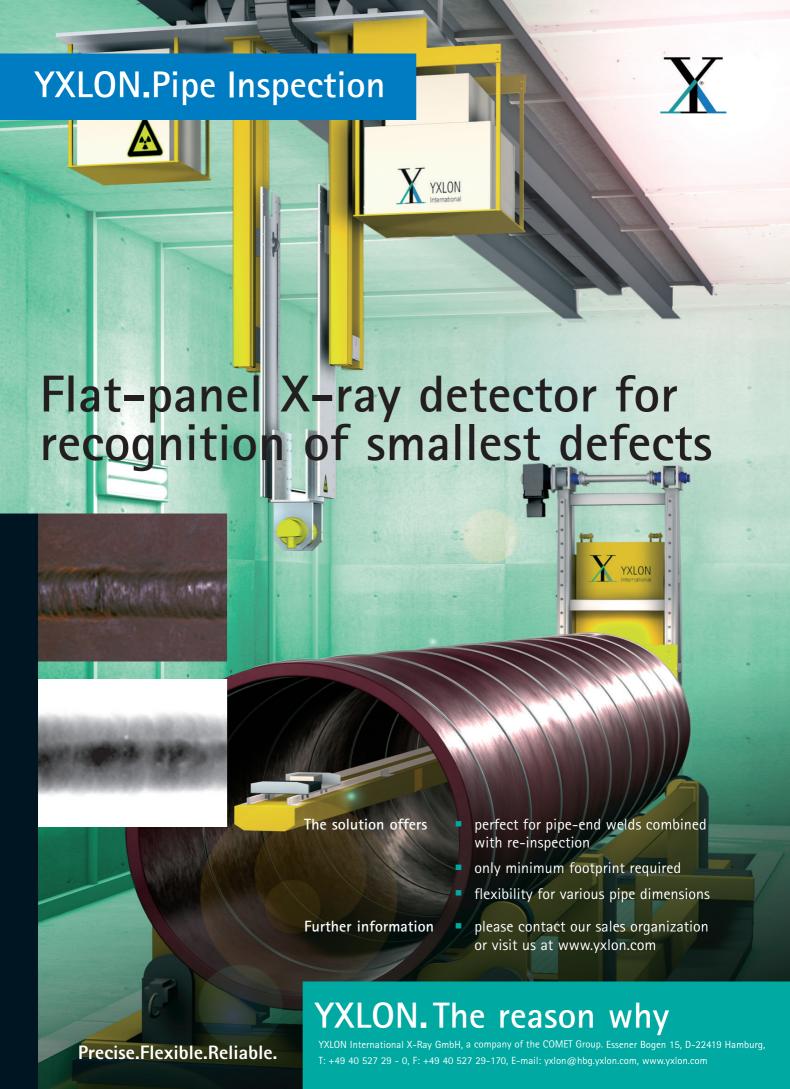
This enables rapid set up and accommodation of products up to Ø 80/170mm. With a modular extension, the machine can even be used for circumferential marking of flange rings and pipe sections up to around Ø 1,000mm.

With rapid change of embossing types, two sizes are available as standard machines. enabling optimal adaptation to different products. The machines have many configurations, ensuring versatile modular systems with an upwards compatible design.

Accessories include special embossing types for thin-wall pipes, flexible pin designs, and various cleaning devices. Round profiles can also be marked longitudinally and on the circumference while in the same position, by using a conveying device with a rapid 90° pivot.

Universal machines (ULUs) of a larger size can also be supplied. In addition to the universal machine, other standard machines are available. The company also has indepth knowledge of feeding, conveying, handling and automation of parts.

ASD GmbH - Germany Fax: +49 211 65 64 68 Email: info@asd-gmbh.de Website: www.asd-gmbh.de





#### New installations of LUT wall thickness gauges

Tecnar, Canada, has completed the commissioning of three of its laser ultrasonic thickness gauges (LUT) in China and Germany. With these installations, the LUT gauge is fast becoming a standard for online wall high thickness measurement at temperatures in harsh environments.

The LUT gauge is a non-contact ultrasonic thickness gauge for hot tube and pipe. The gauge combines the accuracy of ultrasonic thickness measurement with the flexibility of laser optical devices.

Until recently, only contact ultrasonic sensors could be used for high accuracy wall thickness measurements. Such sensors could not be use online because of the high temperature and fast motions of the tube/pipe.

The LUT eliminates such problems and provides real-time wall thickness profiles, temperature profiles and length of each tube/pipe produced. Unlike the radiation method, the measurement accuracy of the LUT gauge is also not affected by bouncing motions of the tube/pipe.

With the simple graphics displays of the LUT, production problems can be quickly identified and corrected. The investment in an LUT gauge gives drastically improved pipe quality and, what is essential for any investment, results in reduced production costs. The return on investment is extremely good and amortisation time is approximately one year.

Ingenieurbuero Gurski-Schramm & Partner is the worldwide exclusive representative of Tecnar's LUT gauge.

**Tecnar Automation** – Canada Fax: +1 450 461 0808 Email: mchoquet@tecnar.com Website: www.tecnar.com

Ingenieurbüro Gurski-Schramm & Partner - Germany

Fax: +49 203 37809 26 Email: info@gurski.biz Website: www.gurski.biz

#### Mobile measurement with remote control

Switzerland. TeZet. has launched TeZetCAD for Windows Mobile, which can measure objects that are awkward, large or difficult to access. In such situations, it is not always possible to take a cordless measuring device and laptop to capture the measured xyz points.

TeZetCAD-Mobile, available with standard Tezet functions such as xyz point capture and 3D visualization, runs simultaneously on devices such as mobile phones, pocket PC's, and handheld computers. Both TeZetCAD applications communicate

U IGES file with tubes designed in half shells converted into xyz bending data



### Weigh-Measure-Stencil System (WMS System)



InfoSight WMS systems are usually custom-designed to fit the user's pipe flow geometry and passline height. In-line Systems, Lateral Transfer Systems, and "Hybrid" systems (Hybrids use a combination of both In-Line and Lateral Transfer subsystems), are possible. In-line Systems are designed to fit into an in-line pipe conveyor. Lateral transfer systems include pipe handling and are designed

to receive a pipe at a "pickup" station, and then process the pipe laterally through length, weight, colorband, stamp, and stencil operations,

and then discharge the pipe to a "drop-off" station.

#### F E A T U R E S

- Fully integrated weighing, measuring, and marking system
- The WMS System typically performs:
  - Weight Measurement
  - Length Measurement
  - Pipe-by-Pipe Production Report printout, with time, length, weight, and message data record
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- Stamping, dot matrix (optional)

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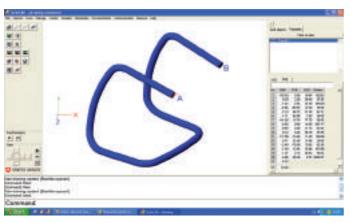
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#### Inspection, Measuring, Testing & Marking



Freeform bent tube measured with a laser, automatically generating xyz and

via wireless LAN or Bluetooth, so that measuring functions can be accomplished from both stations.

The measuring stick probe captures the xyz coordinates and sends them via optical control sensors to the base station. The actual processing of the measuring points happens on the base station, but is shown simultaneously on the screen of the mobile part. Although Windows-Mobile technology is not brand new, its use for measuring tube is.

The technology can be used for virtual laying of tube lines at large volume objects and quality control measurements of existing tubes. Application areas include ship engines, pipe laying in a ship body, power plants, aircraft constructions, oil platforms, and large vehicles.

The captured measuring points provide the basis for further software processing in TeZetCAD, specialised tube measuring software. With over one hundred useful features and measurements, the software can be used for tube, profiles, hoses and geometric parts.

Non-contact measurement is also possible using an infrared fork with an additional laser pointer to facilitate the measurement of thin or flexible tubes. TeZetCAD can measure and correct freeform bent tubes, which means enormous savings in time and material - especially in the setup phase of the bender.

A very special feature is the 'design tool' which enables the user to manipulate existing tubes on-screen, with changing data tables shown simultaneously. This feature is used when tube lengths or bends require adjustment. It is also useful when specially defined distances between different tubes are not allowed to be smaller or larger than the given data. It provides a 3D view that allows visual evaluation.

Bending data cannot be generated without xyz coordinates, meaning that IGES files for data transfer are increasingly important. Therefore, TeZet has developed its own IGES converter to convert half shells from CAD software into traditional tube to generate missing xyz coordinates and the necessary bending data.

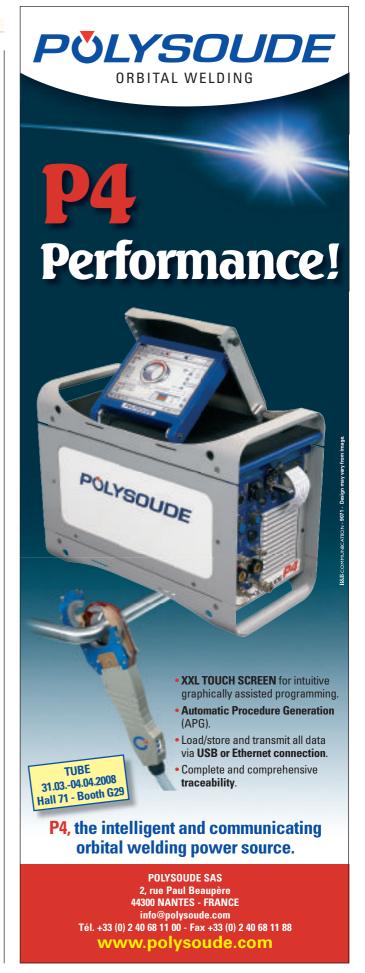
The great advantage of TeZetCAD software is that it is adapted to different measuring devices, from the smaller MicroScribe to larger coordinate measuring arms such as Romer, Cimcore, and Faro. It is also suitable for cordless measuring devices such as 3D Creator.

TeZet Technik AG - Switzerland

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#### **TubeInspect optical tube measuring system**

The Swedish automotive supplier Ekenäs Mekaniska in Vetlanda has recently purchased Aicon's optical tube measuring system TubeInspect, the first system of its kind in Scandinavia. Ekenäs Mekaniska AB is specialized in manufacturing components from tubes and profiles in steel, stainless steel, copper and aluminium.

Aicon's optical tube measuring system TubeInspect

Aicon 3D Systems is one of the world leading providers of optical camera based 3D measurement systems. Aicon develops and distributes systems for the business areas of inspection and testing as well as car safety and tube inspection.

Aicon's TubeInspect is used for efficient

assurance in quality tube manufacturing. The system has an advantage as it entirely replaces mechanical gauges. The measuring system just requires that the tube to be measured is placed in the measuring cell.

With the help of 16 high resolution digital TubeInspect cameras, measures the tube's geometry accurately within a few seconds, checks its gauge fit and provides online corrections to bending

machines. For short fuel pipes, the measuring results are available after three seconds; the inspection of a complex brake pipe can be conducted in less than 60 seconds.

So far, Ekenäs Mekaniska has utilized a manually operated CMM to conduct the measurements of bent tubes. However, this method proved to be extremely timeconsuming. Moreover, the results did not entirely meet the requirements with respect to reliability and repeatability.

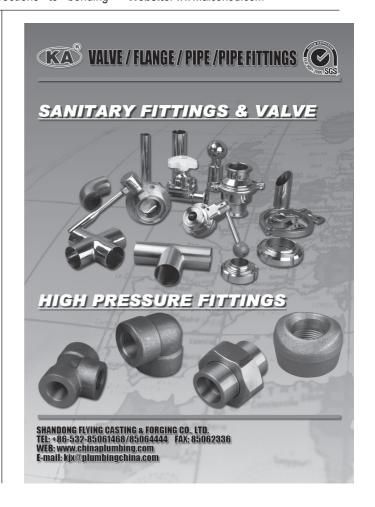
Mr Mikael Karlsson, responsible for production engineering, explains: "When starting the series production of a new product, we have to measure 30 to 50 tubes in a sequence."

"While this has taken us five to six hours with our CMM, we only need one hour or less now. This implies an enormous saving of time, allowing us to be a lot more flexible with respect to customer demands."

Aicon 3D Systems GmbH - Germany Fax: +49 531 58 000 60 Email: info@aicon.de Website: www.aicon3d.com













#### **High-speed turnkey testing lines**

Reika, Germany, has received followup orders of turnkey NDT system from Europe's largest producers of seamless steel tubes. The lines will be directly linked to straightening lines with large buffer area and inlet conveyor systems.

The testing lines are equipped with electromagnetic and ultrasonic testing systems, with typical testing brands being Geit and Foerster although other brands

Reika's turnkey non-destructive testing system



can be integrated in the existing standard interfaces.

Depending on the demand of the tube mill, the adequate electronic devices can be chosen and integrated into the workflow. Before testing, tubes are internally extracted from loose scale after straightening and from chips, remaining after cutting. The tubes are transported individually with high-speed into the multi-testing NDT-section.

The lines run with a throughput rate of up to 5m/s for eddy current testing. The testing mode can be selected for continuous end-to-end testing in cases of ultrasonic testing, therefore the length of the untested ends is minimized. In front of the NDT-bench, a rotary wet brushing device can be installed.

Two planetary driven steel brushes rotate around the axially transported tube, cleaning the surface from loose scale and dirt. Due to this prior cleaning process,

any pollution into the UT-water circuit can be ignored. Wear of the rotating probes and pollution of the water circuit are drastically reduced, while the line efficiency and 'false defects' with second testing can be reduced by 80 per cent.

The concentric driving units and complete transport mechanics can be set up within 2 minutes. The tube guiding precision of the constant centre drivers is proved by the high testing repeatability during the tube calibration mode. Tube eccentricity and orientation of the tube in the probe can be overlooked because the distance of the testing probe and the outer tube surface is almost constant along the circumference.

Control interface to host computer systems are available for production and line status reports. The lines can be supplied with bypass repair sections including manual grinding and final inspection. The lines will efficiently increase mill capacities in 2008 and improve quality assurance.

Reika GmbH & Co KG – Germany

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# Latest version of Kolli bending simulation software

One of the major concerns in pipeline construction is to create tubes that meet the specific requirements for their purpose, but that can be fabricated with the available machinery. This is where a reliable and accurate bending simulation is required, so tube bending can be correctly verified on a specific machine.

Kolli bending simulation software, from 3R software, is now available in its seventh generation. Kolli 7 is a powerful tool that is already used with great success by most German shipyards and many suppliers in the automotive and plant construction industry. It is the result of more than thirty

years of experience, and has quickly established itself as a benchmark for bending software.

Like its predecessor Kolli 5, Kolli 7 is compatible with most current design and construction software, such as Tribon, Medusa, UniGraphics, AutoCAD and Inventor, or can be used as part of the 3R software framework. Interfaces to other programs can be implemented if necessary.

Bending values can be imported from the design software, or entered directly, either as Cartesian coordinates or as traction,

rotation and angle values. An isometric display of the tube allows for quick visual confirmation of the design, so that input errors can be immediately spotted and corrected.

If a design is not bendable, the program will a u t o matically look for possible solutions, such as extension and retraction, alternate rotation, or reverse order of bending.

What sets Kolli 7 apart from other programs is its versatility. It comes bundled with material, machine, and tool editors. These allow clients to create 3D versions of their own machines and tools, taking any special feature into consideration.

The machine editor creates a model of the machine based on measurements taken on site. This means that a machine that has been modified can still be used, since each model for the program is based on the actual machine, rather than on general manufacturer specifications. The model can be accurate to the millimeter, and even minute details can be included if desired.

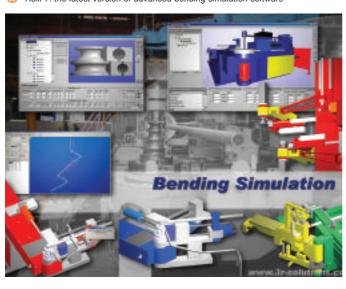
The wide variety of potential tools, often differing only by millimeters, make it impossible to create an exhaustive list to choose from, even if multilevel and specialized tools are not taken into consideration. Therefore the Kolli 7 tool editor allows users to create models of only those tools that are actually used.

Dimensions for the tool components can be edited and modified at any time, and are visually displayed immediately. Multilevel and specialized tools can be created in minutes, both for left and right bending machines.

This easy and comfortable system also makes it possible to create hypothetical tools, and to test the feasibility of particular designs.

Finally, the material editor can be used to modify calculated bending values, taking

(I) Kolli 7: the latest version of advanced bending simulation software





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#### Inspection, Measuring, Testing & Marking



the specific bending traits (springback, overbending) of the material into consideration. This means even greater accuracy.

Kolli 7 is a program that will meet all user requirements, because it can be optimized for a specific system. It uses machines and tools to test designs, ensuring the greatest possible accuracy.

It enables testing of possible modifications before they are made, and implements actual modifications after they are made.

In combination with other 3R software. such as the design program Roni-CAD or the production control Ramp, an entire production process can be streamlined.

This gives ensure total awareness and information control for every step of fabrication, from the planning and design stage all the way to quality control.

3R Software Solutions - Germany

Fax: +49 2381 688 273 Email: g.schulze@3-r.de Website: www.3-r.de

#### New patent: strain monitoring for part quality analysis

OES Inc, Canada, has been granted a new patent - 'Strain monitoring for part quality analysis - US patent No 7,216,519' - that supports OES technology developed for process variation monitoring systems in industrial force forming applications.

"A significant part of our business derives from our process monitoring systems deployed in auto parts manufacturing applications," says Mr Michael Reeve, VP of market development at OES Inc. "These industrial applications include tube end forming and hose crimping in fluid handling assemblies and bend monitoring of exhaust pipe production."

The patent covers the use of a strain sensor attached to the manufacturing equipment that provides a relative indication of the forces associated with creating a part. This is coupled with an intelligent control system that can analyze this input for repeatability and stability.

The inventive arrangement provides the ability to detect and provide an alert to even minute variations in the process that can indicate production of a defective part or deterioration in the process that eventually results in quality problems.

These process variation issues are often not discernible in post-manufacturing inspection, which is why many companies in the auto parts industry are looking for improved objective monitoring systems, such as the process variation monitoring systems from OES.

OES is an experienced leader with inprocess quality monitoring technologies. The company develops and deploys many extremely effective 'in-process test and monitoring' solutions for a wide range of applications, including wire crimping, tube end-forming, crimp forming, riveting, and other pressing and forming applications.

OES Inc - Canada Fax: +1 519 652 3795

Email: sthomson@oes-inc.com

Website: www.oes-qualityassurance.com





#### Made in Germany - YXRAY GmbH

One of the major European manufacturers for welded stainless steel pipes from coil, **SOSTA GmbH & Co. KG**, highlights the clear added value system - concept by YXRAY GmbH.

Due to SOSTA's investment in modern forming, welding and quality testing techniques, they can meet the most stringent market demands in terms of price, quality and delivery times.

Non-destructive testing procedures for example ultrasonic testing, eddy current or hydrostatic testing are underlined by the state of the art multifunctional X-ray system engineered and manufactured by YXRAY.

Mr. Olaf Ziesmann (Works Manager, SOSTA) likes to highlight the efficient system - concept from YXRAY in terms of added value to their business. (*Translated interview*)

YXRAY: Mr. Ziesmann, what is your direct commercial added value with the new multifunctional X-ray system?

O. Ziesmann: "With opening our new X-ray system from YXRAY GmbH we build the conditions for a maximum efficient shift work pan "24 / 7". Now we do 100% X-ray tests in-house without any external service providers.

We have since the opening beginning 2007 already savings of 500.000 € compare to 2006.

The "digital radiography" becomes more and more accepted from well known engineering partners so that additional saving in time and costs compare to

"film radiography" are clear visible."

YXRAY: Mr. Ziesmann, what's about time saving with the new integrated circumferential welding seam test,

compare to the conventional method?

O. Ziesmann: "We save close to 50% compare to manual testing

with panoramic x-ray tube and films"

YXRAY: From your point of view, how reliable is the

multifunctional X-ray system?

O. Ziesmann: "The X-ray system works with high reliability 24h, 7

days a week since the beginning:"

YXRAY: Many Thanks, Mr. Ziesmann!



Sosta GmbH & Co. KG · Germany · Windrose 1-2 · 06420 Könnern Fon +49 34691 2910 · Fax +49 34691 21080 · www.sosta.com



YXRAY's innovative concept of the multifunctional X-ray system comprises the flexible combination of traditional radiography (X-ray film) and the digital radioscopy (detector) on the one hand, the significant possibility of testing longitudinal welded pipes as well as circular weld seams on the other hand.

This ultramodern pipe testing system will meet customer expectations in terms of full flexibility and archiving management.

The system control follows industrial standards, which allows cost and time effective upgrades and updates. An optional easy to use remode service architectures combined with a service data management gives a maximum on reliability.



Considering the customer's individual requirements on the NDT sector YXRAY's management board and engineers are focused on 100 % customer's satisfaction. This leads into a cost effective individual engineering and consultancy work.

YXRAY's network of high qualified engineers and experienced specialists enables the development of X-ray testing systems and the improvement of innovative ultrasonic testing systems in traditional high quality.

With up to 30 years of experiences within the NDT market in the fields of X-ray and ultrasonic testing systems YXRAY will offer you service oriented "Full Package NDT Solutions". YXRAY GmbH is very excited on your request.



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# Customized Pipe Testing Systems



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#### Premium measuring technology ensures production efficiency

Sikora, Germany, is the manufacturer of state-of-the-art laser and x-ray technologies targeted towards product optimization, production efficiency and material savings.

For more than 30 years Sikora has been manufacturing premium measuring and control systems for the wire and cable industry. In addition, the company's expansion into the hose and tube sector brings to its new partners a high level of innovation, product quality and service.

Sikora's product range encompasses a number of successful seriesproduction models of

U Laser 2000 XY series

- quality and efficiency at

a new level of perfection

All different models of the X-Ray 2000 series have the potential to meet the most stringent quality standards. It is a measuring system designed for the reduction of

X-Ray 2000 series. This innovative

x-ray technology is an extremely precise

production costs through minimization of start-up-scrap and reduction of material consumption.

measuring device.

Outstanding innovations of the device are

high accuracy, easy handling and a continuous online quality control of products with up to 3 layers. X-Ray 2000 is suitable for all hoses and tubes from 3mm to 300mm and has proven its reliability at the measurement of composite types. pressure hoses various applications in automotive applications.

The display and control device of the X-Ray 2000 series is Ecocontrol 2000, a powerful processor system, which permanently shows all measuring values and ensures highest quality standards. It correctly controls the extruder output or the line speed.



Increased productivity with the pioneering

A length- or time-related diagram is offered for the measured dimensions and a display of the statistical distribution curve of the measurements. The quality supervisor receives all necessary information for the task, including SPC-data of the minimum value, maximum value, the mean, standard deviation, Cp, and Cpk values.

Sikora also offers the well-proven Laser 2000 series, consisting of precise XY and 3-axis gauge heads, suitable for the application of all kinds of hose and tube extrusion lines. It offers a continuous online quality control for the sovereign measurement of the outer diameter of a product during production.

There are different gauge head models adapted to individual demands for products with a diameter from 0.05 to 300mm. High quality measurements are possible with the sophisticated combination of a laser diode (as light source) with a CCD-line sensor. The outer diameter is automatically calculated from the shadow image.

All Laser 2000 gauge heads provide 500 measurements per second and ensure an exposure time of 0.25µsec (highest). This precision is possible even if the product is vibrating or moving as typically seen during the production process.

As no moving parts and optical components are integrated into the systems, wearing maintenance procedures eliminated. Due to advanced technology, standard calibration is also unnecessary.

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

#### NDT equipment for longitudinal or spiral welded pipes

Sofratest is specialised in the manufacture of NDT (non-destructive testing) equipment for longitudinal and spiral welded pipes. The company has pioneered developments

in computer based solutions for NDT, including ultrasound and electromagnetic techniques.

The company's main standard products are automatic ultrasonic and eddy current systems for weld and parent material inspection of ERW and SAW process. They also offer multi-channel control (up to 32) for high-speed inspection of the plate before forming.

This advanced technology can be supplied both for turnkey systems and automated inspection systems

① Off-line SAW spiral weld examination (up to 3)

with full traceability, according to a number of high standards.

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20-60 mm ø brass hollow profiles They are produced with a 1250 MT extrusion press direct with 164,5 t piercer.

50-55 mm ø copper pipes They are produced with a 1600 MT direct extrusion press featuring a 152 t piercer.

20-70 mm ø copper and brass pipes 12-60 mm ø copper and brass hollow profiles They are produced with a 1840 MT extrusion press direct with 200 t piercer.

4-80 mm ø brass solid bars with a 3000 MT indirect extrusion press.

05-100 mm ø copper and brass solid bars They are produced with a 3500 MN indirect extrusion press.

60-397 mm ø pipes in bronze alloys 20-150 mm ø bars in bronze alloys They are produced with a 5500 MT direct/indirect extrusion press featuring a 1125 t piercer.

5-120~mm ø solid bars in brass alloy produced with a 5500 MT indirect extrusion press.

5-140 mm ø brass solid bars They are produced with a 6000 MT indirect extrusion press.

These are only a few examples of the different types of presses that Presezzi Extrusion has built for its customers.





02/08

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Get in touch with us, we will be very proud to become your partner!





#### Advanced multi-functional ultrasonic systems

AGR, USA, is the manufacturer of compact, reliable and advanced multi-functional ultrasonic systems and advanced user friendly software. This equipment derives from the company's substantial experience within the NDT, electronics and software industries.

The company offers the TD range of leading-edge ultrasonic instruments that include the TD Handy-Scan®, TD Focus-Scan® and the remarkably successful miniature TD Pocket-Scan® system.

The company's latest product release is the TD Handy-Scan, produced due to the demand for relatively inexpensive, highly portable ultrasonic instruments. These instruments combine phased array, ToFD and pulse echo into one convenient package that satisfies the growing use of multifunctional UT systems for routine detection and analysis.

Field technicians are often expected to perform inspections using several UT modes and it is common for inspections to include, for example, phased array, ToFD and even conventional manual pulse echo to complement each other.

Switching between UT modes is achieved simply by selecting the appropriate mode in the software and may be applied individually or simultaneously if required. The improved Windows® XP based software is common to all AGR Field Operations instruments. This ensures that existing users will be quite at home in the Handy-Scan environment and new users will find operation easy to master.

The user-friendly software – coupled with convenient replaceable battery and ultra-compact, lightweight construction – brings a new dimension of portable functionality to field technicians without relinquishing any data quality. The TD Handy-Scan can be used to perform a wide range of code compliant inspections as well as bespoke procedures for special applications.

AGR Field Operations – USA Fax: +1 281 759 5060 Email: utsales@agr.com Website: www.agr.com

# Machines for pressure testing and cleaning

Lantz Teknik AB, Sweden, are experienced in pressure testing, leak testing and cleaning technology. The company manufactures a range of machinery, including a highly advanced machine for pressure testing and cleaning.

When washing a tube, it is important to achieve a pressure drop in the test object and not in the machine. Therefore, Lantz has developed a system of sandwich valves and pressure transformers to best maximize the system.

The company use servo hydraulics to generate the test pressure, which is more expensive than pneumatic intensifiers but offers significant advantages.

Lantz also produce crimp and assembly machines for automotive fluid transfer systems.

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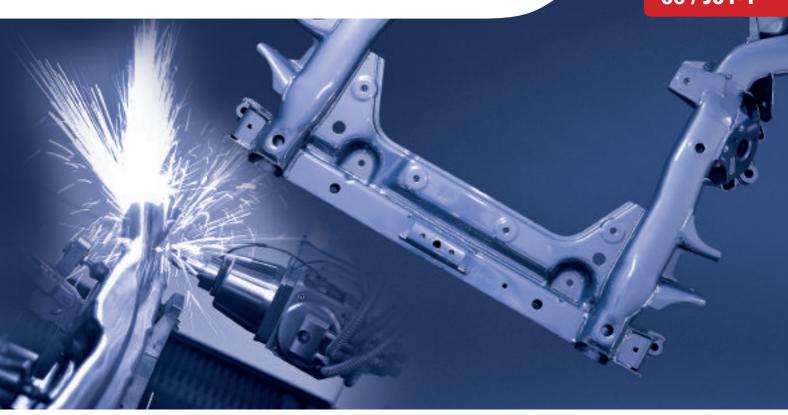


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#### Latest multi-functional ultrasonic systems

Prüftechnik NDT, Germany, manufactures the touchscreen operated Eddychek® 5 tester that offers fast and accurate detection of defects in welded tube, seamless tube, wire, bar and non-round profiles in all kinds of ferrous and nonferrous metals.

In combination with this tester, the company provides sensors and transducers in a wide range of shapes and sizes, magnetization and demagnetization units, encoders and markers, and also entire turnkey testing tables. For the detection of longitudinal defects on wire, bar and seamless tubing, Prüftechnik NDT offers rotating systems in three different sizes.

The advanced version of Eddychek 5 features two testing channels with a



The Eddychek® 5 tester is used for fast and

effective testing of welded tube

TUBE STRAIGHTENING AND **CUTTING MACHINES** 

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large selection of parameters for close adaptation to the testing situation, and precise defect evaluation using sector and circular masks. It enables automatic marking of defects and sorting of faulty parts.

A user-friendly menu-guided software with online help in a large number of languages makes operation of the tester easy.

It can be readily integrated into existing company networks and incorporated in central production control systems. Test results can be archived either on Eddychek® 5 itself, or on a PC or server.

Eddychek 5 advanced comes with additional statistics and recording software. The Eddychek 5 Viewer is supplied for visualizing statistics, defect location reports and the data logger is used for recording test signals and viewing previous test signals.

With a wide range of testing equipment, Prüftechnik has over 30 years of experience in eddy current inspection systems for the semi-finished products industry. Thousands of the company's Eddychek® and Novaflux systems are in use worldwide.

Applications include the testing of tube, weld seams, bar, wire, thick-walled tube, and cold heading. Eddy current testing meets an extensive range of international standards including ASTM, API, BS, JIS, ETTC, ENEL, DIN, and SEP.

Prüftechnik NDT GmbH - Germany Fax: +49 89 967990

Email: info@pruftechnik.com Website: www.pruftechnik.com

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#### Automated non-destructive inspection systems

NDT Systems & Services AG, Germany, is a concerned with the development and provision of advanced non-destructive testing systems and services for ferrous and non-ferrous metals. The company has vast experience in automated inspection systems for the steel and pipeline industry. Special emphasis is placed upon the development and application of state-of-the-art ultrasound technologies.

The business operates three units: NDT Systems, NDT Services and NDT Engineering. Automated inspection plants engineered by NDT Systems are used in the steel, rail and automotive industry. The diversified range of stationary systems includes ultrasonic plants for the online and offline inspection of heavy plate, plate and strip material.

The product line also includes couplant-free ultrasonic systems for the inspection of hot- and cold-rolled strip. EMAT technology, for instance, is applied to inspect the laser welds used to produce tailored blanks from individual flat sheets of different grades and thickness.

The NDT Services business unit provides global pipeline inspection services. Its full range of services includes geometry inspection, metal loss and crack inspections, defect assessments and fit-for-purpose investigations. NDT Services operates a full range of state-of-the-art in-line inspection tools utilizing ultrasound technology and delivering unparalleled accuracy and resolution.

The design of the tools allows their use for the detection and quantitative sizing of metal loss as well as for crack detection and sizing (or both in combination). The use of ultrasound enables direct wall thickness measurement. In addition to the detection and sizing of internal and external metal loss features, ultrasound enables the inspection for laminations, inclusions, narrow axially extended corrosion as well as features in the HAZ and weld zone.

Inspection capabilities for cracks include reliable detection of fatigue cracks, stress corrosion cracking and cracks in the long seam weld. The technologies offered for pipeline inspection also include magnetic flux leakage tools, caliper and mapping tools.

The NDT Engineering business unit bundles the research and development, engineering and manufacturing resources

of NDT. The highly specialized know-how includes all aspects of electronic design, mechanical design, development of all related firmware and software for the range of automated inspection systems offered.

In 2007, NDT Systems & Services AG established a subsidiary company based in Wilmington, Delaware, USA. This new subsidiary serves the automated non-

destructive testing requirements of the North American market for the metal, rail, and automotive industries. The newly-formed North American subsidiary will also be resourced to support the pipeline inspection activities of the company's cooperating partner, Tuboscope Pipeline Services.

NDT Systems & Services AG – Germany

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#### More effective pipe corrosion mapping

Radiodetection, UK, has announced the launch of the PCM+ (Pipeline Current Mapper) that offers even more flexibility and accuracy for corrosion analysis. The solution fully integrates PCM and location technology into one product and is an improvement on the previously available technology.

Combined with its new high performance transmitter, the PCM+ accurately and easily locates and maps the pipeline for up to 19 miles. It provides simultaneous measurement of PCM current (ACCA) and voltage gradient (ACVG), even in areas where there is contact with other metallic structures, interference, or congestion.

The solution eliminates the need for the pipeline technician to perform direct connection 'current spans' and manual calculations to determine CP currents along the pipeline. This reduces false indications and minimizes unnecessary excavations. Any current leakage fault in the pipeline coating can be further narrowed down to within 3ft by use of an A frame.

Radiodetection offers the PCM+ (Pipeline Current Mapper)



PCM+ can perform a current map measurement in 3 seconds and each time the PCM+ maps, it stores and displays the information on the receiver.

It offers a seamless update of logged current map information via Bluetooth to either a PDA (to integrate with GPS data) or a PC for post mapping analysis.

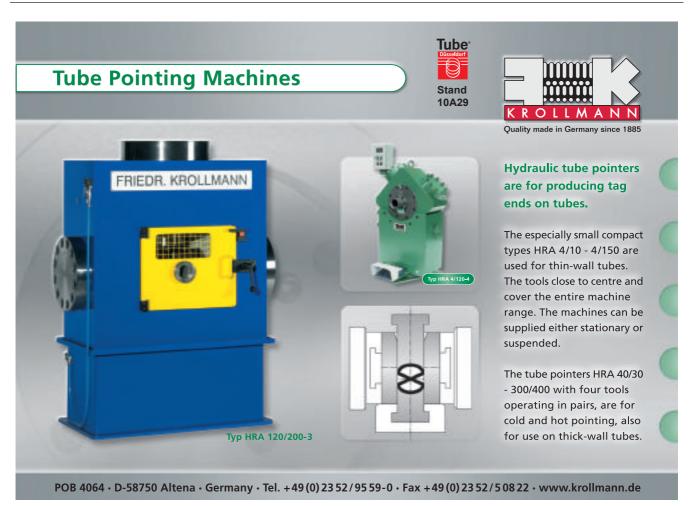
Cutting edge technology within the new PCM+ ensures the fastest possible processing of data. Improved precision pinpointing results from the combination of exceptionally fast sound and bar graph response, with a sharp cut off either side of the locate position.

The pipe technician also gains complete control from automatic signal attenuation (ASA), adaptive ground compensation (AGC) and identification of pickup/discharge from 3rd party CP systems.

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Website: www.radiodetection.com



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#### Quality control testing of stainless steel tubes

Innov-X Systems, USA, is a specialist in the x-ray fluorescence (XRF) industry. The company's systems perform fast, accurate chemical analysis to identify, differentiate and quantify most materials by elemental composition.

The company has installed two systems for online QC testing of stainless steel tubes at Sandvik Materials Technology, USA, a manufacturer of products in advanced stainless materials, special alloys, metallic and ceramic resistance materials, as well as process plants.

The Fox-IQ online XRF analyser is automated elemental analysis system, providing fast, positive material identification.

Designed for high-throughput alloy sorting and quality control, the new system will make a significant impact on tube and pipe manufacture in Sandvik's production line by providing reliable, nondestructive alloy analysis.

The Fox-IQ is controlled by an industryhardened PC for start/stop, data acquisition, decision making and communication to external devices. It is engineered for constant operation in industrial environments. The system's FastID mode provides alloy grade and chemistry in as little as 5 seconds.

Mr Russ Jones, general manager of Sandvik Materials Technology, commented, "The installation of the inline Innov-X system has allowed us to reduce the test cycle time by more than 50 per cent when compared to the previous system. The result is increased production throughput. In addition, the Fox-IQ has been very stable, and our inspectors find it easy to setup and operate."

Sandvik has total control over the entire production process from steel melt to the finished product.

The company's tubes are typically used within industries such as chemical and petrochemical, oil and gas, power generation, fertiliser, pulp and paper and mechanical.

Innov-X Systems Inc - USA Fax: +1 781 938 0128 Email: info@innov-xsys.com Website: www.innov-xsys.com

#### **Durable marking of industrial parts**

Markator are experts in non-forgeable, durable and economic marking of industrial parts. In operation for over 20 years, the company develops and manufactures highquality systems for pin and scribe marking.

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Qingdao supply weighing, measuring and marking equipment



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# Friction and lubrication properties of tube forming coolants

Dr Robert D Evans, research scientist, Quaker Chemical Corporation, USA

#### **Abstract**

In the tube forming process, variations in tangential velocities across the roll give rise to differential speeds and conditions of sliding friction between the roll and the strip. If not controlled, such friction can be a basic cause of surface marking, enhanced roll wear, and increased heat generation. This paper will discuss the lubrication properties of tube forming coolants and the application of a laboratory tribometer for studying the sliding friction that occurs during the forming process.

#### Introduction

A factor of critical importance in the electric resistance weld (ERW) tube forming process is the friction that occurs at the interface between the tool and the workpiece. Friction influences roll wear, quality of the tube surface produced, metal flow, power required, the amount of heat generated in the process, as well as the resultant cleanliness of the tube produced.

The friction at the tool-workpiece interface is influenced by numerous factors. However, the lubricant used and the ability of the lubricating fluid to minimize friction under sliding conditions, is of pivotal importance with regard to friction in the tube forming process and the quality of the operation.<sup>1-4</sup>

The forming process in welded tube and pipe production involves transverse bending of a flat metal sheet as it passes through a series of rolls typically comprised of initial forming or breakdown rolls, idler vertical closing rolls, and fin pass rolls. Each of these

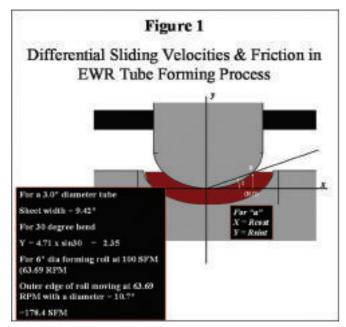
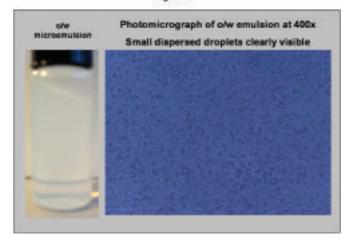


Figure 2



different profiles are required to produce the final tube or pipe.<sup>5</sup> In this process, while each pair of rolls turns at a constant rotational speed, the tangential speed along the roll surface varies due to the difference in rotation radii (see figure 1).

This difference in speeds creates a sliding friction between the strip and the forming rolls and is the basic cause of surface damage on both the tube and rolls. To ensure the use of the proper lubricating fluid for a given tube forming process, it is important to understand the lubricating properties of the coolant, the friction properties of the workpiece, and to be able to test and measure the friction that can occur.

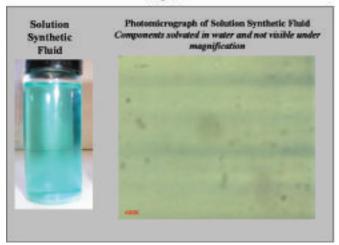
#### **Tube forming coolants**

Water based lubricating fluids (coolants) used in the ERW tube forming process function by providing lubrication and cooling to the operation, as well as serving to clean the tube and forming roll surfaces and facilitate removal of debris such as dirt and metal fines. Such fluids are also often relied upon to provide the rust protection necessary during storage and shipment of the formed tube.

There are two primary types of water based fluids currently used in ERW tube forming processes. These being oil-in-water microemulsions and solution synthetic fluids. Oil-in-water microemulsions are typically clear or translucent to opaque isotropic mixtures of water insoluble additives and lubricants, water and surfactants. When viewed under high magnification the droplets suspended in the water phase, while small, can often clearly be seen (figure 2). Oil-in-water microemulsion type coolants are known to provide higher levels of lubrication, rust protection and good waste treat-ability properties.

Solution synthetic fluids are typically comprised of: a) 15-35 per cent emulsifiers, rust inhibitors, dispersants, boundary lubricants and

#### Figure 3



extreme pressure lubricants, b) 10-25 per cent polymeric water soluble lubricants and c) 40-50 per cent water. When mixed with 92 to 96 per cent water, such fluids give a stable clear solution. Since all or the majority of the components of a clear solution synthetic fluid are solvated by the water phase, no observable droplets are seen when viewed under magnification at 400x (figure 3). Solution synthetic coolants are known to provide high levels of cooling and cleanliness to the forming operation.

## Figure 4 **Reciprocating Friction Tests For Coolant** Lubrication & Tube Cleanliness Flat: AISI 1023 Hot Rolled Steel, AISI 1010 CRS, Hot zed 1010 CRS, High Strength Dua Steel 304 Sta Pin: AISI 52100 Steel

Flooded Coolant (5% in distilled water)

Sliding Velocity: 200 cm/min

Pin Load: 34N - 94N

Cycles: 18

Friction and lubrication in tube forming

The friction conditions at the sheet/roll interface greatly influences metal flow, formation of surface defects in the formed tube. as well as the stresses acting on the forming rolls. In the tube forming process, the lubricity of the tube forming fluid is the single most important factor influencing the interfacial friction. Thus, it

Figure 5 ry Friction - 1010 CRS - St 52100 Water Solution Synthetic O/W Microemulsion is a critical parameter impacting the stresses, forming loads and energy required. Therefore, it is important to acquire an understanding and measure of the lubrication properties of fluids to enable a predictive assessment of their performance for a given

#### **Reciprocating friction test**

To measure the lubrication properties of tube forming coolants under sliding boundary lubrication conditions, a reciprocating friction and wear tester of the pin on flat type is utilized (figure 4). In this test, a 52100 steel pin (Ø 4.76mm) oscillates against a stationary flat in an arc of 127mm radius, with a nominally circular contact.

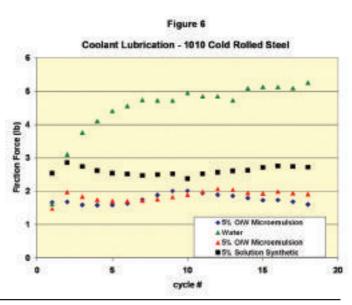
The flat is 76.2mm length x 15.8mm width x 0.566mm thick, and is prepared using standard ferrous metals used in the production of ERW tubing. For the study conducted, the flats were prepared from AISI 1010 cold rolled steel, hot dipped galvanized 1010 cold rolled steel, AISI 1023 hot rolled steel, 304 stainless steel, and a high strength dual phase steel.

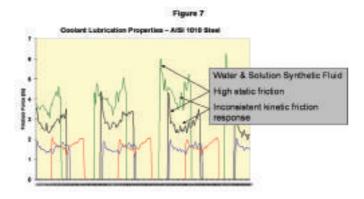
A pin load of 73.04N is applied, and a sliding speed of 200cm/min is maintained for eighteen cycles. Through the test, the frictional force is measured, and following the test, the condition of the ball and flat are examined for wear and cleanliness.

#### Coolant lubrication on AISI 1010 steel

The boundary lubrication properties of two oil-in-water microemulsions and one solution synthetic type coolant were studied on AISI 1010 cold rolled steel. The comparative lubrication properties of these two types of fluids was assessed. Also examined was the benefit of using a lubricating water based fluid over that obtained using pure water.

Figures 5 and 6 below show the friction results obtained. It can be seen that both types of lubricating coolants, microemulsion and solution synthetic, offer significant friction reducing properties over that provided by water alone. In addition, the oil-in-water microemulsion fluids provided superior lubrication to that of the solution synthetic fluid. This was expected as while it is known





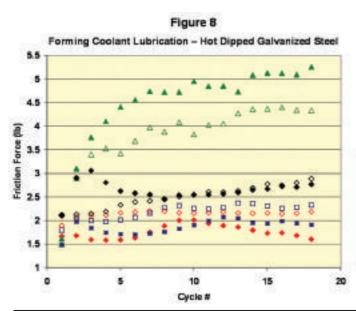
that solution synthetic fluids provide high levels of cooling and cleanliness in the lubrication of many metals, they do not offer lubrication properties like that obtained when using microemulsion type fluids.

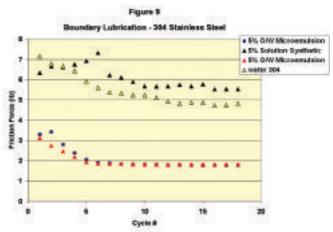
In assessing fluid properties for use in the ERW process, it was felt that not only the magnitude of the frictional differences between fluids is important, but equally important is the consistency in the friction signal over a single cycle. In examining the friction response for the two microemulsion fluids (figure 7), it is seen that relatively consistent friction occurs over the transition from zero cm/min velocity (at the ends of the cycles) to full velocity of 200cm/min (in the middle of each cycle). Thus the static friction component for these two coolants is low and comparable to that of the kinetic friction measured as the pin slides across the flat.

Conversely, the solution synthetic fluid as well as pure water both show friction spikes at the ends of the cycles (high static friction response), and also show lower consistency in the kinetic friction measured. Such behaviour might give rise to greater incidence of quality issues such as stick-slip marks, and stripe defects in the tube forming process.

#### Lubrication of hot dipped galvanized steel

The friction under dry lubrication conditions for sliding of a zinc surface over a steel surface is known to be considerably lower





than that for a steel on steel contact. Thus it would be expected that the friction measured with coolant lubrication of the hot dipped galvanized steel flats would be lower than that obtained with the uncoated 1010 steel.

The results obtained (figure 8) shows that a decrease in friction occurs with use of the lower lubricating fluids (water and solution synthetic fluid), while little change in friction is seen with the emulsion fluids. Thus suggesting that in the forming of galvanized tubing, the inherent lubricating properties of the galvanized strip can compensate for the lower lubricating properties of solution synthetic type fluids, thus enabling their effective use.

#### Lubrication of stainless steel

While the methods of forming stainless steel tubing are the same as those used for carbon steel, the significantly higher strain hardening properties and the high strength of austenitic stainless steels requires higher forming forces. The higher strain also adds considerable demand on the mill equipment, as well as the lubricating fluid used.

The sliding friction measured for the four water based fluids on 304 stainless steel are shown above in figure 9. As seen, while the microemulsion type coolants provide reasonably effective lubrication sufficient to maintain low frictional forces, the true solution synthetic as well as pure water both provide minimal levels of lubrication for this substrate.

The differences in the lubrication properties of the emulsions and solution synthetic fluids on this metal is also clearly seen in the appearance of the wear track on the stainless steel flat following the test. The wear track for the microemulsion fluid looks uniform, smooth with no observable signs of metal adhesion or tearing.

 5% O/W Microemulsion HD galv. 5% O/W Microemulsion HD galv △ Water HD galv ♦ 5% Solution Synthetic HD galv 5% O/W Microemulsion Uncoated ▲ Water Uncoated ◆ 5% Solution Synthetic Uncoated ■ 5% O/W Microemulsion Uncoated

The wear track for the flat lubricated with the solution synthetic fluid shows clear areas of metal tearing and adhesion due to metalmetal contact and elevated temperatures (figure 10).

Figure 10 304 Stainless Steel Wear Tracks Following Boundary Friction Test Significant roughness, and siens of adhesion and metatearing in wear track Solution Synthetic O/W Microemulsion

#### Lubrication on AISI 1023 hot rolled steel

Hot-rolled steel strip provides good low temperature toughness and weldability, making it a suitable starting material for high strength electric resistance welded pipe. The contact pressures used for testing of this metal ranged from 0.96 GPa to 1.36 GPa. Increasing pressures were used to assess the capabilities of the coolants to withstand increasing pressures that might occur during forming of thicker gauge tube or under more severe forming or bending conditions.

Figure 11 shows the friction measured with increasing contact pressure for the three fluids studied. It is seen that while water provides comparable friction properties to the two forming coolants at lower pressures, its ability to maintain low friction diminishes at higher pressures, with a rough surface with considerable dirt and residue formed (figure 12)

Of equal importance to a coolants capability for maintaining low frictional forces is its ability to maintain uniform, consistent friction in the operation. Consistent friction between the sheet and roll surfaces is a critical element for maintaining uniform tension in the forming process and for preventing tube defects often caused by non-uniform tension, such as non-uniform wall thickness, camber or wedge, as well as poor weld quality.7

In the friction tests performed using AISI 1023 hot rolled steel, the deviation measured in the friction forces within a cycle provides a

Figure 11

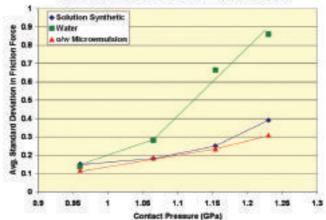
Contact Pressure Effects on Boundary Friction - AISI 1023 Hot Rolled Steel · Solution Synthesis p/w liferpemula; Force ( Friction 3 2 0.96 1.23 1.36 Contact Pressure (GPs)

Figure 12 Photomicrographs 20x Wear Tracks - AISI 1023 Hot Rolled Steel -Following Friction Test



useful measure of the consistency in the friction maintained. Figure 13 shows the averaged standard deviations measured for the fluids at contact pressures from 0.93 to 1.23 GPa. While at the lowest pressure, the three fluids, including pure water, yield comparable consistency in the friction response measured, they quickly separate as contact pressures increase.

Deviation in Friction Force - AISI 1023 Hot Rolled Steel



#### Lubrication and performance on high strength dual phase steel

Dual phase steel, which consists of a ferrite matrix containing islands of martensite, is a metal that has high tensile strength with excellent elongation properties and develops good yield strength upon moderate deformation.

Such steel offers high strength with good formability properties and finds use in production of lighter weight tubing components for automotive applications. Being of higher strength, it is important to provide effective lubrication in the ERW tube forming process of this metal.

The friction measured for the three fluids over the pressure range of 0.97 to 1.23 GPa again shows the utility offered by water based lubricating fluids, as well as the better lubrication properties obtained by use of microemulsion type fluids (figure 14). Along with the measured forces, the differences in lubrication provided by these fluids is also seen in the condition of the steel flat wear track following the test (figure 15).

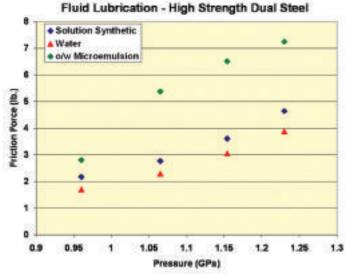
#### **Summary**

For effective control and minimization of friction generated in an ERW tube forming process, it is important to have an understanding of the role and performance capabilities of the forming fluid, as well as an understanding of the lubrication demands of the workpiece material. Using a ball on flat tribometer, the friction reducing properties of the major types of tube forming coolants can be measured, and the severity of the operation with different sheet materials can be assessed.

A summary of the friction forces measured for the three fluids tested on the five different workpiece materials, is shown in figure 16. From the results obtained it can be concluded that:

- 1/ On all workpiece materials, reduced friction and better surface quality can be achieved when using a lubricating water based forming coolant in place of water alone as coolant.
- With all workpiece materials, clear advantages are obtained in friction reduction and surface quality when using a microemulsion type forming coolant, as opposed to a solution synthetic fluid.
- 3/ For the softer metals such as 1010 CRS, galvanized steel, and 1023 hot rolled steel, the differences between the two types of water based coolants is smaller. Therefore, for these metals the better cooling, and cleanliness obtained with solution synthetic fluids may make them the better selection for use.
- 4/ For harder metals such as the high strength dual phase steel and especially the stainless steel, the higher lubricating microemulsion type fluid offers significantly better friction reducing properties. It would clearly be the best type of coolant selected for use on such metals.

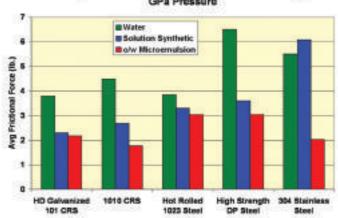
Figure 14



# Figure 15 Photomicrographs 20x Wear Tracks – High Strength Dual



Figure 18
Summary - Friction on Various Workpiece Surfaces @ 1.15
GPa Pressure



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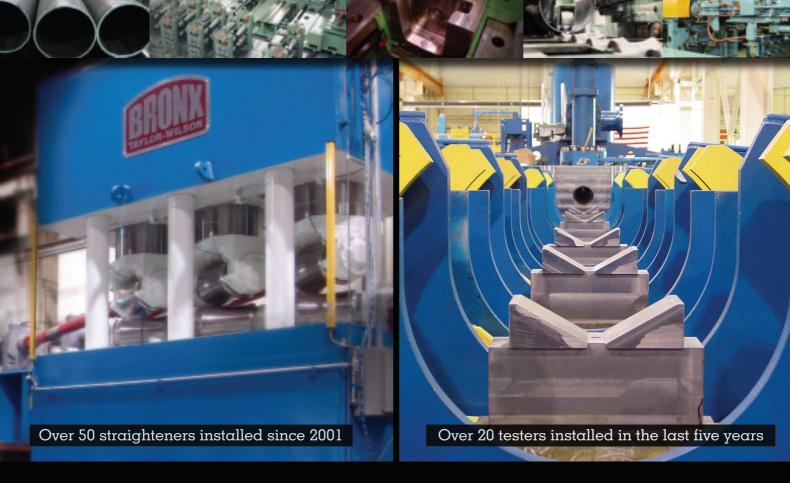
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EWU Entgrattechnik	197 174 199 157 115	Orbimatic GmbH	138 175 217 109	Uniweld Maschinenbau GmbH & Co KG         33           Urbano Pensotti Srl         12           USM – Utensili Speciali Monza         16           Válcovna Trub TZ a.s.         23           Vega Engineering & Trading Co Ltd         16           Weatherford Oil Tool GmbH         15	2 8 1 4 8 4
EWU Entgrattechnik	197 174 199 157 115	Orbimatic GmbH		Uniweld Maschinenbau GmbH & Co KG         33           Urbano Pensotti Srl         12           USM – Utensili Speciali Monza         16           Válcovna Trub TZ a.s.         23           Vega Engineering & Trading Co Ltd         16           Weatherford Oil Tool GmbH         15           Wenzhou Chisin Valve Co Ltd         13	2 8 1 4 8 4 9
EWU Entgrattechnik	197 174 199 157 115 235 160	Orbimatic GmbH		Uniweld Maschinenbau GmbH & Co KG         33           Urbano Pensotti Srl         12           USM – Utensili Speciali Monza         16           Válcovna Trub TZ a.s.         23           Vega Engineering & Trading Co Ltd         16           Weatherford Oil Tool GmbH         15	2 8 1 4 8 4 9
EWU Entgrattechnik "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH. Galaxie Corporation	197 174 199 157 115 235 160	Orbimatic GmbH		Uniweld Maschinenbau GmbH & Co KG         33           Urbano Pensotti Srl         12           USM – Utensili Speciali Monza         16           Válcovna Trub TZ a.s.         23           Vega Engineering & Trading Co Ltd         16           Weatherford Oil Tool GmbH         15           Wenzhou Chisin Valve Co Ltd         13	2 8 1 4 8 4 9 4
EWU Entgrattechnik "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH. Galaxie Corporation Gallium Industries Ltd.	197 174 199 157 115 235 160 1	Orbimatic GmbH	138 175 217 109 151 228 102 194-195 223	Uniweld Maschinenbau GmbH & Co KG         33           Urbano Pensotti Srl         12           USM – Utensili Speciali Monza         16           Válcovna Trub TZ a.s.         23           Vega Engineering & Trading Co Ltd         16           Weatherford Oil Tool GmbH         15           Wenzhou Chisin Valve Co Ltd         13           WIKUS-Sagenfabrik Wilhelm H Kullmann GmbH & Co KG         5           Winner Stainless Steel Tube Co Ltd         14           Wolverine Tube Europe b.v.         14	2 8 1 4 8 4 9 4 8 0
EWU Entgrattechnik "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH Galaxie Corporation Gallium Industries Ltd Gieminox Srl	197 174 199 157 115 235 160 1 200 133	Orbimatic GmbH		Uniweld Maschinenbau GmbH & Co KG	2 8 1 4 8 4 9 4 8 0
EWU Entgrattechnik  "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH Galaxie Corporation Gallium Industries Ltd. Gieminox Srl. Good Luck Steel Tubes Ltd. Guangzhou Julang Exhibition Design Co Ltd	197 174 199 157 115 235 160 1 200 133 82	Orbimatic GmbH Ott & Huegel GmbH Oto Mills SpA Ozimeks Ltd Pedrazzoli IBP SpA Friedrich Petig GmbH Pines Manufacturing Inc PMC Colinet Inc Polysoude SAS PRD Company Inc Presezzi Extrusion Srl		Uniweld Maschinenbau GmbH & Co KG         33           Urbano Pensotti Srl         12           USM – Utensili Speciali Monza         16           Válcovna Trub TZ a.s.         23           Vega Engineering & Trading Co Ltd         16           Weatherford Oil Tool GmbH         15           Wenzhou Chisin Valve Co Ltd         13           WIKUS-Sagenfabrik Wilhelm H Kullmann GmbH & Co KG         5           Winner Stainless Steel Tube Co Ltd         14           Wolverine Tube Europe b.v.         14	2 8 1 4 8 4 9 4 8 0 8
EWU Entgrattechnik "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH. Galaxie Corporation Gallium Industries Ltd. Gieminox Srl. Good Luck Steel Tubes Ltd. Guangzhou Julang Exhibition Design Co Ltd Guild International	197 174 199 157 115 235 160 1 200 133 82 136	Orbimatic GmbH Ott & Huegel GmbH Oto Mills SpA Ozimeks Ltd Pedrazzoli IBP SpA Friedrich Petig GmbH Pines Manufacturing Inc PMC Colinet Inc. Polysoude SAS PRD Company Inc Presezzi Extrusion Srl Protem SA	138 175 217 109 151 228 102 194-195 223 27 233 64	Uniweld Maschinenbau GmbH & Co KG         33           Urbano Pensotti Srl         12           USM – Utensili Speciali Monza         16           Válcovna Trub TZ a.s.         23           Vega Engineering & Trading Co Ltd         16           Weatherford Oil Tool GmbH         15           Wenzhou Chisin Valve Co Ltd         13           WIKUS-Sagenfabrik Wilhelm H Kullmann GmbH & Co KG         5           Winner Stainless Steel Tube Co Ltd         14           Wolverine Tube Europe b.v.         14           Wonjin Industrial Co Ltd         14	281484948089
EWU Entgrattechnik "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH. Galaxie Corporation Gallium Industries Ltd. Gieminox Srl. Good Luck Steel Tubes Ltd. Guangzhou Julang Exhibition Design Co Ltd Guild International Haeusler AG.	197 174 199 157 115 235 160 1 200 133 82 136 226	Orbimatic GmbH	138 175 217 109 151 228 102 194-195 223 27 233 64 Insert 48/49	Uniweld Maschinenbau GmbH & Co KG	2814849480895
EWU Entgrattechnik  "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH Galaxie Corporation Gallium Industries Ltd Gieminox Srl Good Luck Steel Tubes Ltd. Guangzhou Julang Exhibition Design Co Ltd Guild International Haeusler AG Han Sum Enterprise Co Ltd	197 174 199 157 115 235 160 1 200 133 82 136 226 206	Orbimatic GmbH	138 175 217 109 151 228 102 194-195 223 27 233 64 Insert 48/49 63	Uniweld Maschinenbau GmbH & Co KG	28148494808957
EWU Entgrattechnik  "EZTM" Joint Stock Company. Fabricom GTI Major Projects Faccin Srl. Finow Automotive GmbH. Galaxie Corporation Gallium Industries Ltd. Gieminox Srl. Good Luck Steel Tubes Ltd Guangzhou Julang Exhibition Design Co Ltd Guild International Haeusler AG. Han Sum Enterprise Co Ltd. Hasemann Maschinen GmbH.	197 174 199 157 115 235 160 1 200 133 82 136 226 206	Orbimatic GmbH	138 175 217 109 151 228 102 194-195 223 27 233 64 Insert 48/49	Uniweld Maschinenbau GmbH & Co KG	281484948089577
EWU Entgrattechnik  "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH Galaxie Corporation Gallium Industries Ltd Gieminox Srl Good Luck Steel Tubes Ltd Guangzhou Julang Exhibition Design Co Ltd Guild International Haeusler AG Han Sum Enterprise Co Ltd Hasemann Maschinen GmbH Heavy Metals & Tubes Ltd	197 174 199 157 115 235 160 1 200 133 82 136 226 206 20 159	Orbimatic GmbH Ott & Huegel GmbH Ott Mills SpA Ozimeks Ltd Pedrazzoli IBP SpA Friedrich Petig GmbH Pines Manufacturing Inc PMC Colinet Inc Polysoude SAS PRD Company Inc Presezzi Extrusion Srl Profilmec Group – Ispadue SpA Profilmec Group – Ispadue SpA Pruftechnik NDT GmbH Quaker Chemical Corp. Quality Stainless Pvt Ltd	138 175 217 109 151 228 102 194-195 223 27 233 64 Insert 48/49 63 87	Uniweld Maschinenbau GmbH & Co KG         33           Urbano Pensotti Srl         12           USM – Utensili Speciali Monza         16           Válcovna Trub TZ a.s.         23           Vega Engineering & Trading Co Ltd         16           Weatherford Oil Tool GmbH         15           Wenzhou Chisin Valve Co Ltd         13           WIKUS-Sagenfabrik Wilhelm H Kullmann GmbH & Co KG         5           Winner Stainless Steel Tube Co Ltd         14           Wolverine Tube Europe b.v.         14           Wortelboer B.V.         4           YangZhou Lontrin Steel Tube Co Ltd         14           Yang Hsiang Precision Machinery Co Ltd         23           Ying Lin Machine Industrial Co Ltd         22           YLON Int. X-Ray GmbH         22	2814849480895771
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EWU Entgrattechnik "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH. Galaxie Corporation Gallium Industries Ltd. Gieminox Srl. Good Luck Steel Tubes Ltd. Guangzhou Julang Exhibition Design Co Ltd Guild International Haeusler AG Han Sum Enterprise Co Ltd. Hasemann Maschinen GmbH Heavy Metals & Tubes Ltd. Hilton Metal Forging Ltd. Hisar Metal Industries Ltd Hisen Enterprises Co Ltd	197 174 199 157 115 235 160 200 133 82 136 226 206 206 20 159 143 50	Orbimatic GmbH Ott & Huegel GmbH Oto Mills SpA Ozimeks Ltd Pedrazzoli IBP SpA Friedrich Petig GmbH Pines Manufacturing Inc PMC Colinet Inc POlysoude SAS PRD Company Inc Presezzi Extrusion Srl Protem SA Profilmec Group – Ispadue SpA Pruftechnik NDT GmbH Quaker Chemical Corp Quality Stainless Pvt Ltd Radyne Ltd Rafter Equipment Corp Randolph Tool Co Inc	138 175 217 109 151 228 102 194-195 223 27 233 64 Insert 48/49 63 87 107 117 224	Uniweld Maschinenbau GmbH & Co KG	2814849480895771141
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EWU Entgrattechnik "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH. Galaxie Corporation Gallium Industries Ltd. Gieminox Srl Good Luck Steel Tubes Ltd. Guangzhou Julang Exhibition Design Co Ltd. Guild International. Haeusler AG Han Sum Enterprise Co Ltd. Hasemann Maschinen GmbH. Heavy Metals & Tubes Ltd. Hilton Metal Forging Ltd. Hisar Metal Industries Ltd. Hisen Enterprises Co Ltd. Peter Holzrichter GmbH. Horng Shin Electric Co Ltd.	197 174 199 157 115 235 160 200 133 82 136 226 226 206 206 159 143 50 100	Orbimatic GmbH Ott & Huegel GmbH Ott Mills SpA Ozimeks Ltd Pedrazzoli IBP SpA Friedrich Petig GmbH Pines Manufacturing Inc PMC Colinet Inc POlysoude SAS PRD Company Inc Presezzi Extrusion Srl Profilmec Group – Ispadue SpA Profilmec Group – Ispadue SpA Pruftechnik NDT GmbH Quaker Chemical Corp. Quality Stainless Pvt Ltd Radyne Ltd Rafter Equipment Corp Randolph Tool Co Inc RASI Maschinenbau GmbH Ravni Technologies	138 175 217 109 151 228 102 194-195 223 27 233 64 Insert 48/49 63 87 107 117 224 165 139	Uniweld Maschinenbau GmbH & Co KG	281484948089577114162
EWU Entgrattechnik "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH. Galaxie Corporation Gallium Industries Ltd. Gieminox Srl	197 174 199 157 115 235 160 133 82 136 226 226 226 226 159 143 50 159 143 178	Orbimatic GmbH Ott & Huegel GmbH Ott Mills SpA Ozimeks Ltd Pedrazzoli IBP SpA Friedrich Petig GmbH Pines Manufacturing Inc PMC Colinet Inc POLYSoude SAS PRD Company Inc Presezzi Extrusion Srl Profilmec Group – Ispadue SpA Profilmec Group – Ispadue SpA Pruftechnik NDT GmbH Quaker Chemical Corp Quality Stainless Pvt Ltd Radyne Ltd Rafter Equipment Corp. Randolph Tool Co Inc RASI Maschinenbau GmbH Ravni Technologies Re-Bo REBER GmbH	138 175 217 109 151 228 102 194-195 223 27 233 64 Insert 48/49 63 87 107 117 224 165 139 236	Uniweld Maschinenbau GmbH & Co KG	2814849480895771141628
EWU Entgrattechnik "EZTM" Joint Stock Company Fabricom GTI Major Projects Faccin Srl Finow Automotive GmbH. Galaxie Corporation Gallium Industries Ltd. Gieminox Srl Good Luck Steel Tubes Ltd. Guangzhou Julang Exhibition Design Co Ltd. Guild International. Haeusler AG Han Sum Enterprise Co Ltd. Hasemann Maschinen GmbH. Heavy Metals & Tubes Ltd. Hilton Metal Forging Ltd. Hisar Metal Industries Ltd. Hisen Enterprises Co Ltd. Peter Holzrichter GmbH. Horng Shin Electric Co Ltd.	197 174 199 157 115 235 160 	Orbimatic GmbH Ott & Huegel GmbH Ott Mills SpA Ozimeks Ltd Pedrazzoli IBP SpA Friedrich Petig GmbH Pines Manufacturing Inc PMC Colinet Inc POlysoude SAS PRD Company Inc Presezzi Extrusion Srl Profilmec Group – Ispadue SpA Profilmec Group – Ispadue SpA Pruftechnik NDT GmbH Quaker Chemical Corp. Quality Stainless Pvt Ltd Radyne Ltd Rafter Equipment Corp Randolph Tool Co Inc RASI Maschinenbau GmbH Ravni Technologies	138 175 217 109 151 228 102 194-195 223 27 233 64 Insert 48/49 63 87 107 117 224 165 139 236 125	Uniweld Maschinenbau GmbH & Co KG	28148494808957711416286



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