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TUBE & PIPE

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TECHNOLOGY

July 2007 | Vol 20 No 4 | US\$28

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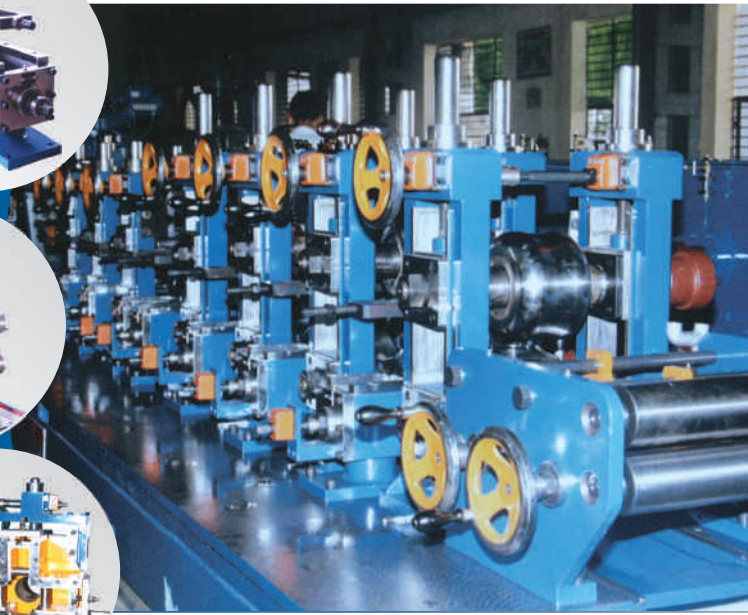
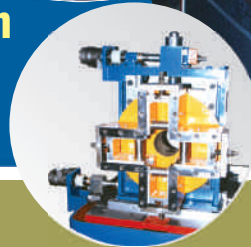
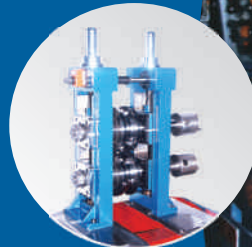
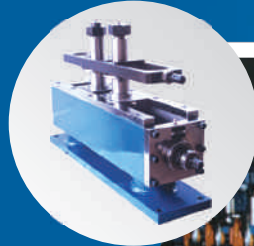
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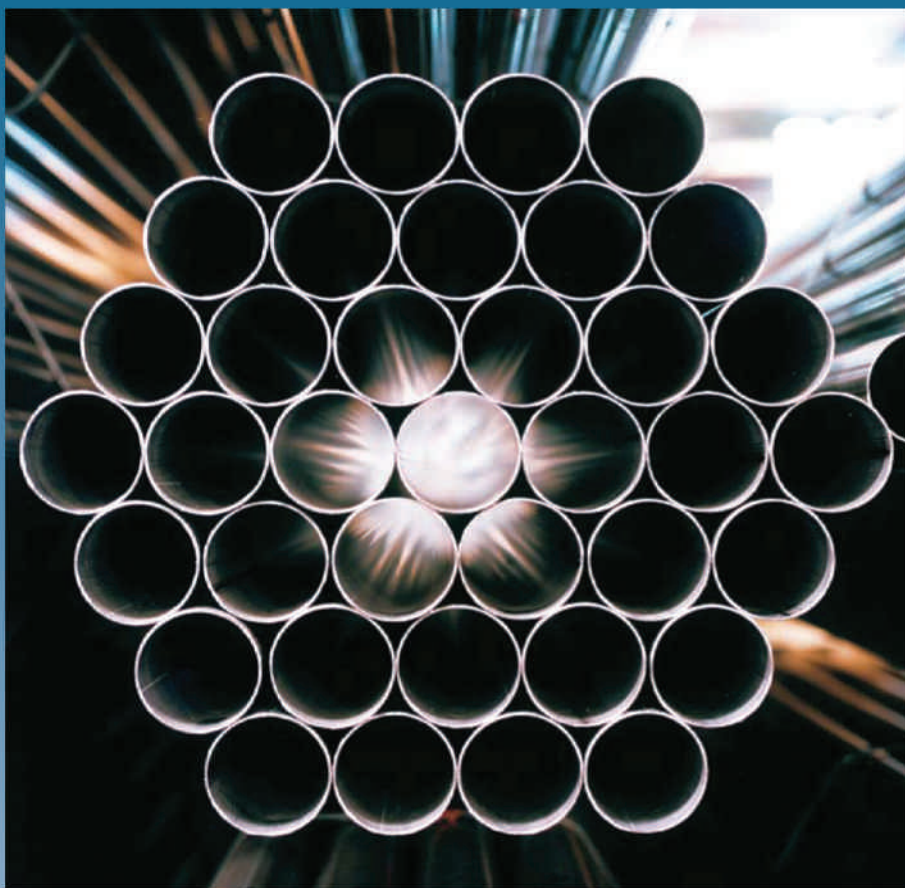
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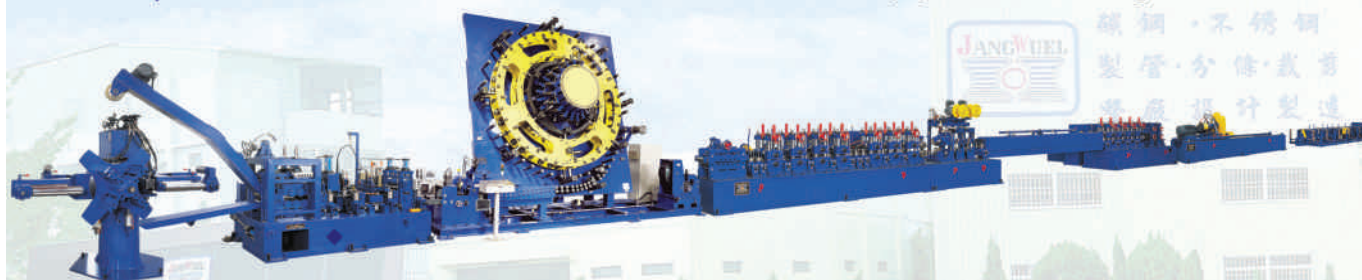
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Contents

Gaining some first-hand experience

Due to office work and the sterile nature of exhibitions – with their pristine halls and stage-managed bustle – it is not always easy to get a true sense of the tube and pipe industry: the dirt, the grind and the risk of danger. In fact, my view of the nuts and bolts of our industry is often restricted to a comfy contemplation from behind a computer screen.

This is why it is always interesting, although downright inconvenient, to experience part of our industry in action. The main road near my home has just been closed for summer so that the 50-year old, 15" gas mains can be renewed, with old metal pipes being replaced by advanced durable plastic polyethylene (PE) pipes. The sight of the road strewn with mud, safety barriers, diggers and rolls of plastic pipe, gives a very real perspective on the ordered chaos of end-use.

Peering into one of the trenches in the road (and hopefully not falling in!), it is possible to view a segment of cut-away metal pipe, soon to make way for the new PE pipe (which they claim will last for eighty years). This is clearly an activity taking place regularly across the world as creaking infrastructures are overhauled and systems upgraded.

And the work near me has obviously been timed very well by the National Grid, as this issue of *Tube & Pipe Technology* carries a feature on 'Plastic & composite tube and pipe' (see page 86-106). This work has given me the opportunity to connect the images and editorial on my computer screen with the first-hand evidence at the end of my road.

Also featured in this issue is the exciting new exhibition in Brazil: Tubotech 2007. Now in its fourth year, Tubotech has grown fast in exhibitor numbers – mirroring the success of the Brazilian economy. This year will be the first time that the exhibition has been co-organised by Grupo Cipa and Messe Düsseldorf, which has led to an increase in international exhibitors. In order to gain even more first-hand experience and meet some readers, I'll be attending Tubotech in October.

Rich Sears

Editor • Email: richard@intras.co.uk



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8

TUBE & PIPE
TECHNOLOGY

Incorporating Tube & Pipe Asia

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Published by: Intras Publications,
46 Holly Walk, Leamington Spa, CV32 4HY, UK
Tel: +44 1926 334137 • Fax: +44 1926 314755
Email: tpt@intras.co.uk
Website: www.read-tpt.com

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40



US Copies only: Tube & Pipe Technology (ISSN No: 0953-2386) is published bi-monthly by INTRAS Ltd and distributed in the US by DSW, 75 Aberdeen Road, Emigsville, PA 17318-0437. Periodicals postage paid at Emigsville, PA. POSTMASTER: send address changes to Tube & Pipe Technology, PO Box 437, Emigsville PA 17318-0437.

Tube & Pipe Technology magazine is available on subscription, or via membership of the International Tube Association – See www.itatube.org for more membership benefits



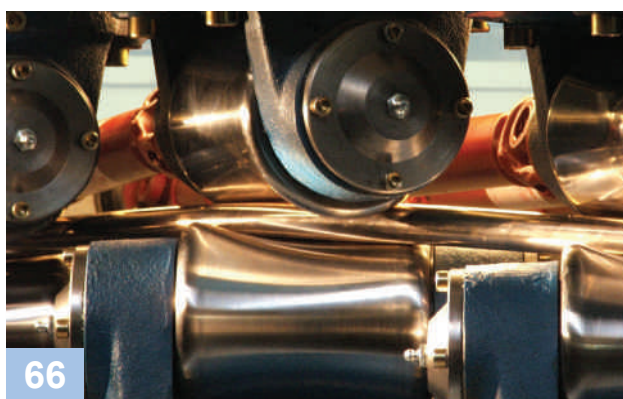
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50

**50 Tubotech 2007:
Show feature**

The increasingly cooperative political and economic strength of South America is gradually placing the power back into the hands of its inhabitants. With one of the fastest growing economies and largest infrastructures in the region, Brazil seems a natural choice to host Tubotech – the continent’s biggest tube and pipe event, currently in its fourth year. And São Paulo, the country’s business capital, is the ideal host city. To be held from 2-4 October 2007, over 130 exhibitors have already confirmed, with many visitors set to attend.



66

**66 Straightening &
Finishing Technology**

‘Straightening things out’ and ‘finishing business’ are stock phrases that can easily be applied to this field of technology. Once a tube or pipe has been manufactured, the pursuit of excellence does not stop there. Straightening and finishing technology performs the art of the end-game, whether it be 6 or 10 straightening machines for heat treatment lines, upset tubes, tapered tubular flagpoles or pipelines – all applications featured in this section



86

**86 Plastic & Composite Tube:
Products & Manufacture**

Plastic tube and pipe has come an awful long way in a short space of time. It is now with us on an unprecedented scale, often the product of choice for infrastructural upgrades and construction projects. With a highly advanced range of properties, PVC, PVDF, PP and HDPE plastic and composite tubing is ideal for a range of applications including heating/sanitary systems and gas/water projects. And these products would not have developed so quickly were it not for the technical excellence of extrusion and thermoforming machinery.

Technical Article

107 FQM™: Danieli’s 3-roll pass retained mandrel mill for high quality seamless tube production

By Mr E Cernuschi, Danieli Centro Tube, Italy



Almaty gathering for the tube and pipe industry

The 2nd Central Asia Tube & Pipe, an exciting event for the Central Asian tube and pipe industry, will take place from 13-16 November 2007 in Almaty, Kazakhstan. The event, last held in 2006, will be staged at the Atakent international exhibition centre located in the heart of Almaty.

➤ **The proliferation of oil and gas projects in the region are key to its economic affluence, and the basis of a rapidly expanding tube and pipe market**

Event organisers, Central Asia International Exhibitions, have already confirmed attendance from around 200 companies. International exhibitors will come from over 15 countries including Italy, Germany, Turkey, Malaysia, India, and China. Exhibitors and visitors will attend from Kazakhstan, Uzbekistan, Kyrgyzstan, Turkmenistan, Tajikistan, and a large attendance from the Siberian region and other parts of Russia.

The 9th largest country in the world and with a population of around 60 million, Kazakhstan is a business centre for the entire region. The country is a member of the five-country Eurasia Economic Community along with Belarus, Russia, Kyrgyzstan and Tajikistan and, together with Russia, has applied for WTO membership.

📍 Central Asia Tube & Pipe 2007 will draw exhibitors and visitors from the Central Asian region



Gem Tool names Mexico distributor

Gem Tool Corporation, USA, has appointed Herramental Monterrey SA and its subsidiary Adek SA DE CV as its exclusive representative in Mexico. These representatives will service the company's line of OD/ID scarfing tools and related tooling.

Herramental Monterrey and Adek specialise in the supply of tube related manufacturing equipment. They have sales offices throughout Mexico, and offer sales and servicing to major producers of tubing.

With 34 years of experience, Gem Tool provides a wide range of industrial cutting tools to the global market including scarfing tools, inserts, indexable tools, end-prep tools and cut-off blades. Gem Tool also offers sharpening services for these products.

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📍 Central Asia Tube & Pipe 2007 will take place at Almaty from 13-16 November

The proliferation of oil and gas supply and projects in the region are key to its economic affluence, and the basis of a rapidly expanding tube and pipe market. Oil and minerals, particularly hydrocarbons, have driven economic growth and attracted significant foreign investment – over US\$16bn since 1993.

This success has been aided by Kazakhstan's vast oil resources, liberal economic policies and recently reformed investment law. In addition to the growth of oil and gas, there is great demand in the region for automobile related products together with auto parts and accessories.

Kazakhstan's exports, which are currently valued at around US\$10.3bn, have grown rapidly and imports are equivalent to 51 per cent of its GDP, which is approximately US\$9.6bn.

Currently the fastest growing economy in the CIS, Kazakhstan's GNP is growing at an annual average of 10 per cent, which is even believed to be faster than Russia. In 2000, Kazakhstan was the first former Soviet republic to repay all of its debts to the International Monetary Fund (IMF).

Central Asia Tube & Pipe will offer those unfamiliar with the market a good chance to gain entry into Kazakhstan and the Central Asian region. The exhibition will focus on a range of products including ferrous and non-ferrous tube and pipe, plastic/composite tube and pipe, fittings, and raw materials.

Technology will be focused on tube manufacturing machinery, processing and finishing plants and machinery, dies and tools, measuring and control technology, and used machinery.

Central Asia International Exhibitions
– Kazakhstan
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Borusan Mannesmann establish pipe mill to serve Iberian Peninsula

Borusan Group, Turkey, has established a Spanish subsidiary, Borusan Mannesmann España SA, with the aim of setting up a pipe mill on the Iberian Peninsula for the production of spirally welded pipes. This move will help cement the company's cooperation in Spain with leading coating specialists Socotherm, Italy.

The pipe mill – expected to have an initial annual capacity of about 50,000t – will be installed adjacent to Socotherm España's Hellin pipe coating facilities in southeast Spain. This partnership is based on the positive forecast of the Iberian pipe market, both for oil and gas and water projects. Working in cooperation, Borusan Group and Socotherm España will supply these markets in Spain, Portugal and Andorra.

Socotherm España SA owns a 3-layer polyolefin external anticorrosion coating plant and an internal flow coating plant, both able to coat large diameters pipes. Socotherm España is currently coating the 270km pipes of the Balearic submarine pipeline, the first 100 per cent Spanish offshore gas line carrying the gas from the Iberian Peninsula to the Balearic Islands.

"The choice of Borusan Mannesmann," says Mr Zeno Soave, chairman of Socotherm España, *"is the confirmation that we took the right decision when we decided to install a pipe coating plant in the southeast of Spain. Through this cooperation, Socotherm España will coat all the pipes manufactured in Hellin optimising its production capacity."*

"We now have the opportunity to expand our pipe business in Spain where we will cooperate with Socotherm – Borusan believes in the future success of cooperation with Socotherm. This investment is sure to contribute to the development of this region," stated Mr Agah Ugur, CEO of Borusan Group.

Borusan will undertake construction of the pipe mill in 2007, with startup due by 2008.

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Fax: +90 212 293 69 60
Website: www.borusanmannesmann.com

DIARY OF TUBE EVENTS

2007

JULY

25-27 2nd International Tube & Pipe Exhibition → Phone: +98 912 189 0956
 Tehran, Iran Exhibition Email: ajoop_1357@yahoo.com

AUGUST

21-23 CIPE – 8th China international pipeline and tube exhibition → Email: chinacipe@chinazhenwei.com.cn
 Beijing, China Exhibition Website: www.china-zhenwei.com.cn

SEPTEMBER

09-12 Pipe & Tube Houston Conference (ITA/TPA) → Email: jen@fmanet.org
 Houston (TX), USA Conference Website: www.pipe-houston.com

17-22 EMO Hannover 2007 → Email: emo@vdw.de
 Hannover, Germany Exhibition (tools) Website: www.emo-hannover.de

24-26 Tube Ukraine (ITA) → Email: info@itatube.org
 Dnepropetrovsk, Ukraine Conference Website: www.tube-ukraine.com

OCTOBER

02-04 Tubotech/Metaltech → Email: cipa@cipanet.com.br
 São Paulo, Brazil Exhibition Website: www.cipanet.com.br

02-04 Rio Pipeline 2007 → Email: press@ibp.org.br
 Rio De Janeiro, Brazil Exhibition Website: www.ibp.org.br

16-18 Tube/wire Southeast Asia → Email: tube@mda.com.sg
 Bangkok, Thailand Exhibition Website: www.tube-southeastasia.com

17 Non-Ferrous Bangkok (ITA Seminar) → Website: www.itatube.org
 Bangkok, Thailand Conference

17-19 17th international conference on pipeline protection → Email: confor5@bhrgroup.com
 Edinburgh, UK, Conference Website: www.bhrgroup.com

24-28 Korea Metal Week → Email: ktfairst@ktfairst.com
 Seoul, Korea Exhibition Website: www.ktfairst.com

NOVEMBER

11-14 Fabtech → Email: information@fmafabtech.com
 Chicago, USA Exhibition Website: www.fmafabtech.com

13-16 Tube & Pipe Central Asia → Email: info@expocentralasia.com
 Almaty, Kazakhstan Exhibition Website: www.expocentralasia.com

2008

FEBRUARY

14-16 Tube India → Email: kueppersS@messeduesseldorf.de
 New Delhi, India Exhibition & Conference Website: www.tube.de

MARCH/APRIL

31-04 Tube Düsseldorf → Email: liedtkeM@messeduesseldorf.de
 Düsseldorf, Germany Exhibition Website: www.tube.de

GIPI signs pipe mill contract with Milltech

Gulf International Pipe Industry LLC (GIPI), Oman, has signed a contract with Milltech, a Korean pipe mill manufacturer, for the supply of turnkey equipment. Milltech will supply a 5th-generation 24"-ERW pipe mill – with casing and fully integrated coating

complex – to be delivered to the industrial zone of Sohar in Oman. The mill will be capable of producing 250,000t per year.

The contract was signed in Thailand by Mr Hamdan al Shaqsy, CEO of GIPI, and

Mr Lee, president of Milltech Ltd. Mr Hamdan al Shaqsy said, "We are very pleased to have achieved this milestone and it shows our commitment to have this project executed and ready for commissioning by end of 2008."

Mr Lee stated that Milltech was very pleased to be selected by GIPI for the critical project, and emphasized its commitment to fully equip GIPI with an advanced pipe system of the highest standard. According to the company, this will be the first ever high pressure steel pipe and casing mill of 24" to be operated in the GCC region.

The shareholders of GIPI are Awtad, a local subsidiary of the UAE-based Islamic Finance Company chaired by Shaikh Ali Hamel al Ghaith of Al Ghaith Holdings, Golden Dunes Investments representing local promoters Gulf Investment Corp (GIC), Posco Steel Services and Sales Company from Korea and Arkan Group LLC, a respected local entity.

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 The signing of the contract in Thailand between Mr Hamdan al Shaqsy, CEO of GIPI, and Mr Lee, president of Milltech



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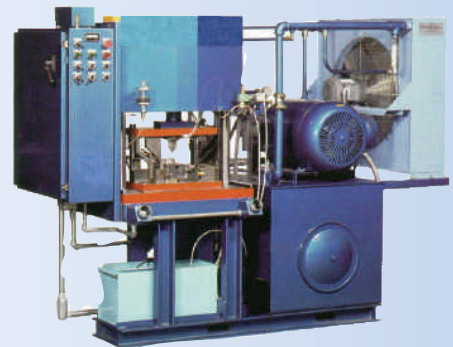
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Vogel Tools' technology headed for prison

Vogel Tool & Die, a division of T-E-S Tube Equipment Inc, has received a US Government contract for a large capacity tube cutoff machine. The Federal Prison System's manufacturing division will use this machine for the cutting of metal tubing used to fabricate furniture and office equipment.

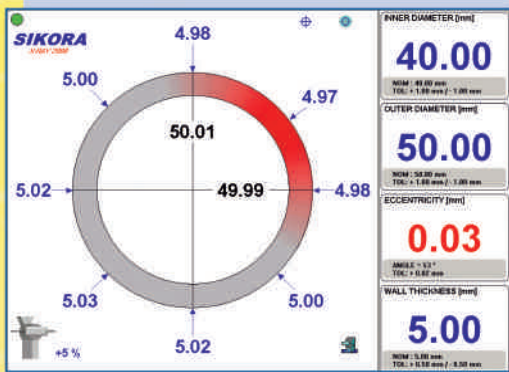
This machine, the largest of Vogel's product line, is designed for round tubing up to 6" OD and square tubing up to 3⁷/₁₆". Vogel's two-blade technique is designed to cut with no deformation, with production of a slug instead of chips. Users benefit from the elimination of subsequent chip-removal operations normally required prior to mandrel bending or piercing.

By incorporating a micro-switch stop assembly, the machine automatically  Sentenced to life in prison: the Vogel cutoff machine cycles when the tube is at the proper location for cutting. Part length accuracy of ±0.005" can be expected on shorter parts. Burr is maintained at 10 per cent or less of the cut tube's wall thickness.



Vogel's cutoff machines do not carry the CE mark, and are not offered for export, but the same two-blade technology is also available for product export in cutoff dies designed for punch press use. By utilising a customer's existing punch press, these cutoff dies can be more economical to purchase and ship.

Vogel Tool & Die – USA
Fax: +1 630 562 1500
Email: lsiegal@vogeltool.com • **Website:** www.vogeltool.com



X-RAY 2000 monitor image



X-RAY 2000

The advantages:

- fast centering of the crosshead directly after starting of the extrusion process
- continuous measurement and control of the extrusion line under consideration of the minimum values
- permanent quality control

Quality control and process optimization:

at the extrusion of single and multi layer plastic tubes and pipes

X-RAY 2000 is an attractive on-line measuring and control system for plastic tubes and hoses.

State of the art X-ray technology provides continuous measurement on the wall thickness, eccentricity, diameter and ovality. With the X-RAY 2000 SIKORA presents an exciting measuring system, which is focused on process optimization by providing:

- quality control and improvement
- reduction of start-up scrap
- reduction of material over-consumption
- increased productivity
- approach as simple as a diameter gauge

The technique of transilluminating the tube or hose with X-Rays in two planes of view provides wall thickness measurements without calibration requirements. Reliable measurements are available for multi-layer products with and without fabric reinforcement layers. This unique technique makes wall thickness measurements an operation as simple as a diameter gauge!

With a relatively low investment a return of investment drastically below 12 month can be achieved.



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Exhibit space near capacity for Tube Southeast Asia

Messe Düsseldorf, organisers of Tube Southeast Asia and wire Southeast Asia 2007, have reported that 90 per cent of available exhibit space has already been booked for the event. They have also

revealed that many companies absent from the last Tube Singapore in 2005, the forerunner to the new show, are due to attend the Bangkok event from 16-18 October 2007.

 The heart of the southeast Asian market: the international tube and pipe industry will converge on Bangkok for the first time in October



A number of industry business leaders have already been vocal in their support of the event and its location serving the Thai and other regional markets.

Mr Phillip Knight, executive secretary of the International Tube Association (ITA), says, "The ITA is delighted to support the move of the former Tube Singapore exhibition to Bangkok under its new title Tube Southeast Asia. As Thailand and its neighbours develop their economies and instigate major infrastructure projects the relevance of being at the centre of this activity is unquestioned. Thailand, for example, is targeting a top ten global position in car manufacture, a market that is extremely important for both the tube and wire industries."


Mr Bob Doran, vice president (sales) of ThermoTool Corp, commented, "One major advantage which ThermoTool sees in the move to Bangkok is that Thailand has a large established tube and pipe production industry which is expanding. The exposure to Thailand's tube and pipe market which the Bangkok location offers, coupled with the usual excellent attendance from the other Southeast Asian countries, will make this a truly valuable show which cannot be missed."

Pipe beveling machines receive international export

DWT GmbH, Germany, is now exporting its leading range of portable pipe beveling machines under the brand name Babcock. Following a takeover of Babcock, the company became the license manufacturer of this technology and recently decided to make it available worldwide.

Boiler manufacturer Babcock originally developed this pipe beveling range based on the first-hand experience of its onsite workers. The machines have a high metal removal rate, are easy to handle and are of a rugged and compact construction. Especially suited to boiler walls, DWT offers very special applications for onsite operations with flexible and low weight machines.




 DWT produced Babcock beveling machines are now available for worldwide export

In practice it has been proven that weld preparation of tube ends substantially influences the quality of the welding junction. For welding applications of tubes with a high wall-thickness and for orbital welding technology the welding engineer currently requires a perfect and effective weld preparation by use of mechanized weld preparation.

To support its new export operations, DWT's 2007 exhibition calendar includes international trade shows in UAE, Turkey, Russia, Bangkok, Kazakhstan, Hungary, Iran and Bulgaria.

DWT – Germany
Fax: +49 201 45099 99
Email: michael.weymann@dwt-gmbh.de
Website: www.dwt-gmbh.de



 The Bangkok International Trade & Exhibition Centre (BITEC), which will play host to Tube Southeast Asia and the Bangkok Non-Ferrous technical conference

During the exhibition, to be held at BITEC (Bangkok International Trade & Exhibition Centre), an international conference will also take place on the 17 October. Co-organised by the ITA and the IWMA (International Wire & Machinery Association), Non-Ferrous Bangkok will comprise a wire session in the morning and a tube session in the afternoon.

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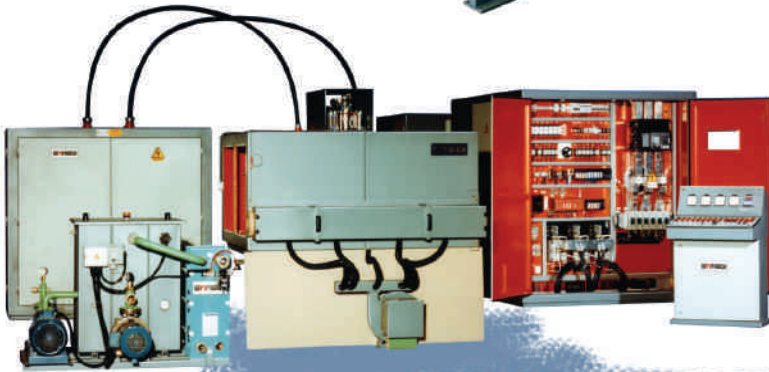
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Rio Pipeline 2007: Brazil's biggest pipeline event

Rio Pipeline 2007, a leading Brazilian pipeline event with growing international recognition, will take place from 2-4 October 2007 in Rio de Janeiro. Last held in 2005, the exhibition and conference is geared towards the technological advances and progress of the South American pipeline market.

The 2007 event will be held at the new convention centre, RioCidadeNova, located in the downtown area of Rio de Janeiro. According to organisers, this is a more accessible location with better transportation links and access to the latest infrastructural resources and technology.

 The iconic Christ the Redeemer statue overlooking Rio de Janeiro, host city to Rio Pipeline 2007



The exhibition will offer an overview of the numerous pipeline projects in the region, such as the ongoing Malhas project, Venezuela-Brazil gas pipeline and Bolivia-Brazil gas pipeline. A politically united Latin America is currently making extensive plans for new oil and gas pipelines spanning the continent. Venezuela and Bolivia – close neighbours of Brazil – are two of the leading South American producers and exporters of gas and oil.

The exhibition will provide a platform for the technology necessary for such pipeline projects. Exhibitors and attendees will be able to share their operational experience and be informed of the latest pipeline projects currently in progress. Machinery and equipment manufacturers will present expertise in operation, construction, engineering, research and development, training and equipment.

The last exhibition in 2005 attracted 107 exhibitors from 19 countries, with around 3,000 visitors. The associated conference welcomed 945 delegates from 19 countries, with the presentation of 242 technical papers. Organisers the Brazilian Institute of Oil and Gas (IPB) expect an even higher attendance for the event in October.

Rio Pipeline 2007 – Brazil
Tel: +55 21 2112 9000
Email: press@ibp.org.br
Website: www.ibp.org.br

New production facility for HDPE-lined pipe

Alkhorayef Industries Co, Saudi Arabia, has established a new factory featuring high density polyethylene (HDPE) lining systems.

The facility uses a patented process to produce carbon steel pipes with an integral HDPE lining, sold under the brand Ultrapipe®. The factory can line spool pipes up to 40m long and 10" in diameter.

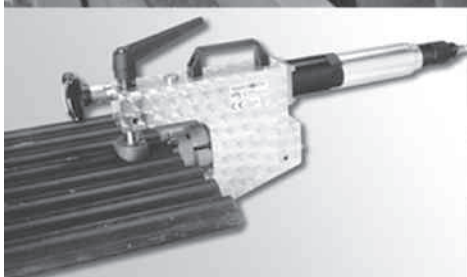
Buried pipes are exposed to external conditions such as hostile soil and the ever-rising saline content in water. Inside the pipeline, factors including abrasion due to suspended particles in the flow stream, corrosion caused mainly by reduced pH value, and chlorination can have a damaging effect on bare pipe walls.

Alkhorayef offers plastic lined products that are designed as a solution to such problems. The steel pipe resists internal and external pressures, and Ultrapipe can withstand water pressure up to 93 Bar, depending on the steel pipe quality.

In addition, HDPE resists corrosion, erosion and scale build-up, and improves flow efficiency.

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MILLTECH & YODER consortium has completed the equipment supply and production start-up in Dec. 2004 for the pipe mill 8" - 25" O.D, which incorporates the latest technology with full cage forming, spiral accumulator, edge miller, milling cut-off and computerized roll positioning system to produce ERW / API pipes for oil and gas transportation and structural for construction.

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New company launched for machine tools/automation sales and service

A new international company, FullStage Technologies GmbH, has been launched for business management consulting and sales and service of machine tools/automation. With locations in Europe (Germany), North America and Asia, the company offers a wide range of products, services and expertise throughout the world.

Currently working with several manufacturers in Asia, the company is experienced in CNC bending technology, metalworking equipment and automation. The company has recently become the

 The German headquarters of FullStage, a new company for tools and automation services



exclusive European distributor for Chiyoda Kogyo Co Ltd, Japan. Predominantly used in the automotive industry, Chiyoda fabrication systems are used extensively throughout North America to bend a variety of tubing applications including brake lines, fill tubes and exhaust pipes.


This year, Chiyoda began offering its high quality systems to the European market, and chose FullStage to act as its agent. In addition to reselling Chiyoda fabrication systems, FullStage offers a critical technical and maintenance service.

FullStage technologies also offers its own FST brand of bending machines which combine quality with extreme affordability. This provides an entire bending machine portfolio, with a wide variety of additional machine options and automation capabilities.

FullStage Technologies GmbH
 – Germany
Fax: +49 8024 60834 29
Email: info@fullstage-tech.com
Website: www.fullstage-tech.com

Popularity and innovation grows for EMO Hannover 2007

The leading international event for machine tools and metalworking – EMO Hannover 2007 – will again open its doors from the 17-22 September 2007. Organisers VDW report that over 1,850 exhibitors from 39 countries (158,000m²) have already signed up for the popular event in Hannover, Germany.

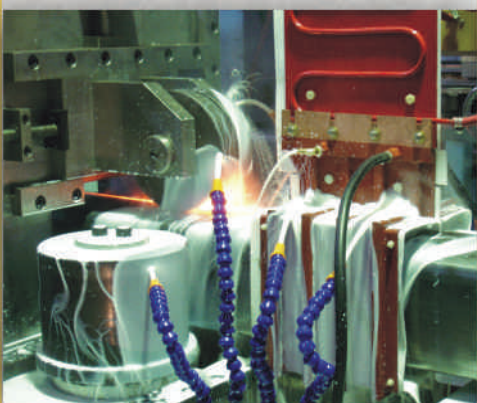
 EMO 2007 will take place at the impressive Hannover fairgrounds



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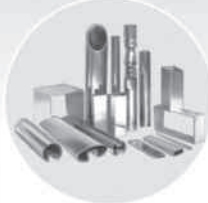
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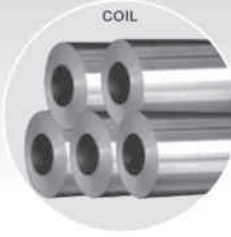
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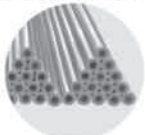
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Industry News



The high demand for machine tools worldwide has secured the attendance of all big-name international manufacturers of production technology. The event features technology including drilling machines, grinding machines, sawing/cutting machines, tube working machines, welding and gas cutting machines, heat treatment and measuring/testing.

A packed exhibitor list includes names such as AddisonMckee Ltd, Apollo srl, Behringer GmbH, Bema GmbH, BLM Group, Chiao Sheng Machinery, GH Induction GmbH,

particular impact upon complete machining procedures, simulation techniques and decentralized automated tool systems. The very latest in these sectors will be on show at EMO.

A conference to be held on 18 September, titled 'Intelligent lightweight design – challenges for future manufacturing solutions', will attract experts from the automotive, aviation and mechanical engineering industries. Together with specialists from production engineering,

they will discuss lightweight design concepts.

A symposium dedicated to analysing the East European market will also take place on 19 September 2007, titled 'Central and Eastern Europe – chances and risks of a growth market'.

VDW – Germany
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Email: emo@vdw.de
Website: www.emo-hannover.de



ITL Industries, OMP srl, Pedrazzoli IBP SpA, Schwarze Robitec GmbH, Soco Machinery Co Ltd, Termomacchine Srl, Tracto-Technik GmbH, transfluid GmbH, and Wafios AG.

A highlight of EMO 2007 will be the focus on new methods for complete machining of state-of-the-art aircraft engines. Engine manufacturer Rolls-Royce is currently planning the production process required to manufacture components for a new aircraft engine. This development will have

 Over 18,500 exhibitors have already booked space at the event in September



Solid State High Frequency Welder

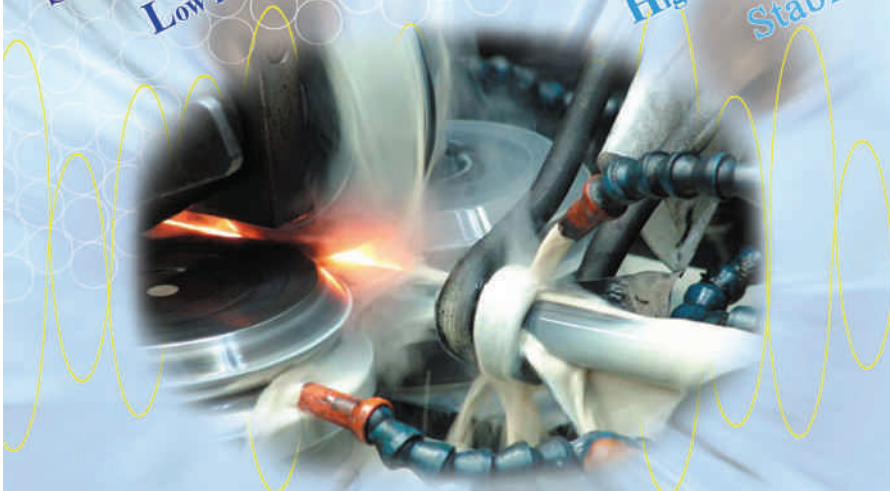
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Specification of Horng Shin Solid-State High Frequency Welder

| Model | Capacity KW | Frequency KHz | Power Voltage |
|----------|-------------|---------------|---------------|
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| HF-W-150 | 150KW | 300-400 KHz | 200V |
| HF-W-200 | 200KW | 300-400 KHz | 200V |
| HF-W-250 | 250KW | 300-400 KHz | 200V |
| HF-W-300 | 300KW | 300-400 KHz | 200V |
| HF-W-400 | 400KW | 150-250 KHz | 200V |
| HF-W-500 | 500KW | 150-250 KHz | 200V |
| HF-W-600 | 600KW | 150-250 KHz | 200V |
| HF-W-800 | 800KW | 150-250 KHz | 200V |



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Trumpf opens new manufacturing facility in Monterrey, Mexico

Trumpf, Germany and USA, has opened a new sales, service, demonstration and production facility in Monterrey, Mexico. The 6,400m² production building will use state-of-the-art Trumpf equipment and manufacturing techniques to produce frames for Trumpf machinery.

"A new production building built in the Apodaca Technology Park is a testament

to the long history and bright future of Monterrey in the Mexican metal industry," says Mr Claudio Schutz, general manager of Trumpf Mexico. *"The project shows Trumpf's long-term commitment to the local growth and success of customers in Mexico."*

The company has invested more than US\$10mn in the advanced manufacturing

facility and sales and application centre, which is open to Mexican fabricators and manufacturers for tours and technology demonstrations.

"We plan to share our knowledge and expertise with the local fabricating industry with the hope that they too will benefit from the productivity and competitiveness created by our technology," adds Mr Schutz. *"High-end technology is an economic multiplier that creates new business opportunities and jobs – not only for our company but also for other companies in the region."*

"This new facility in Mexico strengthens our position in North America. The production facility also gives our Mexican customers the confidence that we are here and will remain here in the long term," explains Mr Peter Leibinger, vice chairman of the Trumpf Group managing board and head of the Trumpf's laser and electronic division.

Trumpf Inc – USA
Fax: +1 860 255 6424
Email: catherine.flynn@us.trumpf.com
Website: www.us.trumpf.com

 The Trumpf manufacturing facility in Monterrey, Mexico



US and South Korean alliance results in United Spiral Pipe LLC

United States Steel Corp has entered into a joint venture with Posco and SeAH Steel Corp, South Korea. Launched under the name of United Spiral Pipe LLC, the JV will result in a manufacturing facility with an annual production of 300,000 net tons of spiral welded tubular products (24-64" OD).

US Steel and Posco will each hold a 35 per cent stake in the joint venture, with the remaining 30 per cent ownership interest being held by SeAH. The new US\$93mn spiral welded facility, expected to begin production in 2008, will be located adjacent to the USS-Posco Industries (UPI) facilities in Pittsburg, California.

The new US\$93mn spiral welded facility... will be located adjacent to the USS-Posco Industries facilities in Pittsburg

Both US Steel and Posco will supply high-quality hot roll coil for the spiral-welded mill, with the joint venture responsible for marketing the finished products

Due to this project, US Steel expects to gain an entry point into the North American large-diameter linepipe market. This market is widely regarded as experiencing strong growth due to a number of recent natural gas construction projects.

"Posco has been a valued partner at UPI for more than 20 years, and we look forward to expanding our relationship with Posco through this new joint venture," said US Steel chairman and chief executive officer Mr John P Surma.

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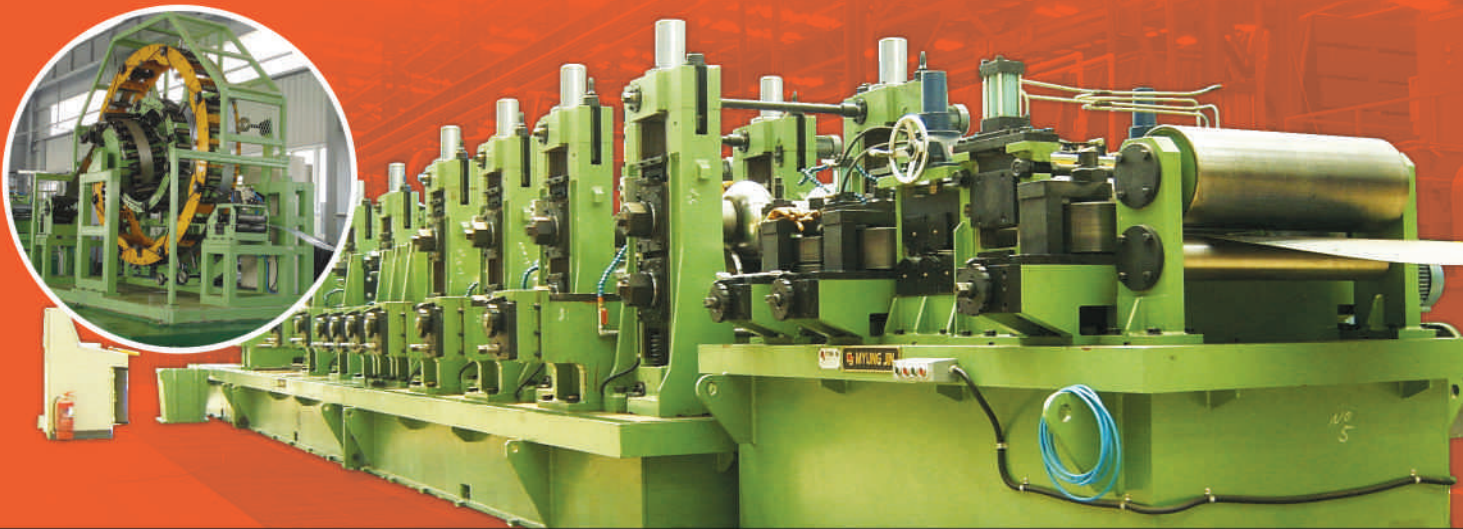
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Growth takes Hydratight to larger facilities in Houston

Due to continuing expansion and growth of its business in the region, and particularly in the Gulf of Mexico, Hydratight has outgrown its old offices and workshops in Houston, USA, and has moved its operations to new,

larger premises based in the south-east of the city.

The company's local DL Ricci rentals services will also operate from the new

 Hydratight's new premises in Houston



facility, bringing all Hydratight's services and operations in the region under one roof. Hydratight is a leader in bolted joint and pipeline technology, serving the oil and gas and power generation sectors amongst others.

Ms Kathleen Baker, Hydratight's leader for its Gulf of Mexico business, said "The move to this new facility marks an important day for us in Texas. We have put a great deal of effort into growing our business in this region. Our parent company, Actuant, has shown its faith in our strategy."

The company's business leader for America, Mr Bob Boychuk, added "The team in Houston has done a wonderful job in firstly building and then in supporting a strong customer base. We have come a very long way in the two years since the acquisition of Hydratight by Actuant. And now we have a brand new facility to make our home."

Hydratight – USA
Fax: +1 713 860 4201
Email: houston@hydratightsweeney.com
Website: www.hydratight.com



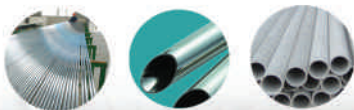
Specifications: Stainless steel seamless tubes

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Superior Technologies Europe appoints 3-S as agent for Turkey

Superior Technologies Europe Ltd, UK, has announced the appointment of 3-S Engineering Consulting Industry and Trade Ltd as its exclusive agent for the Turkish market.

3-S is a well established and connected company in the Turkish tube and pipe manufacturing industry and already supplies other products and services including lubricants and packaging products. Adding ST-Europe's range of HF welding consumables will enhance its services and increase ST-Europe's presence in the Turkish market.

3-S is a well established and connected company in the Turkish tube and pipe manufacturing industry

ST-Europe Ltd was formed in 2004 as a specialist supplier of HF welding consumables serving the global tube and pipe industry. With more than 18 years technical experience in the tube industry, the company offers its customers a wide range of services and products including the EHE range of impedors, coils, ferrites, casings and other HF welding consumables.

The company also operates a European sales and service office for Superior Technologies Inc, the world leader in inline galvanizing and OD coating systems.

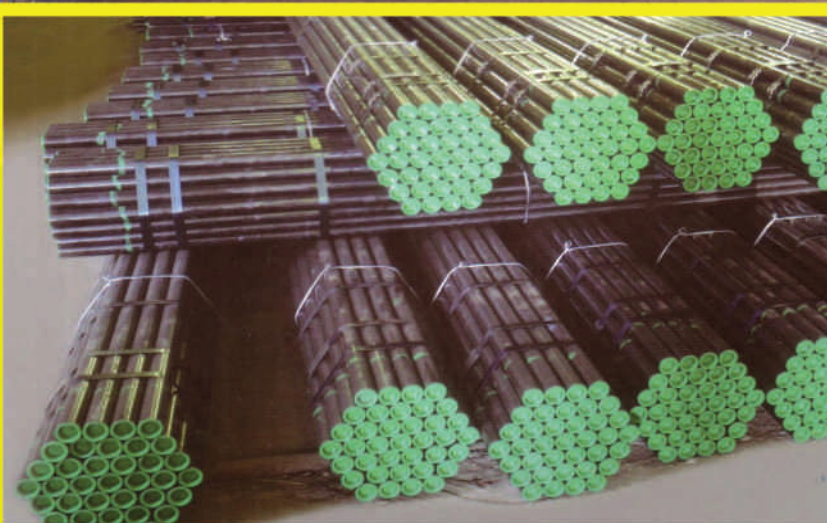
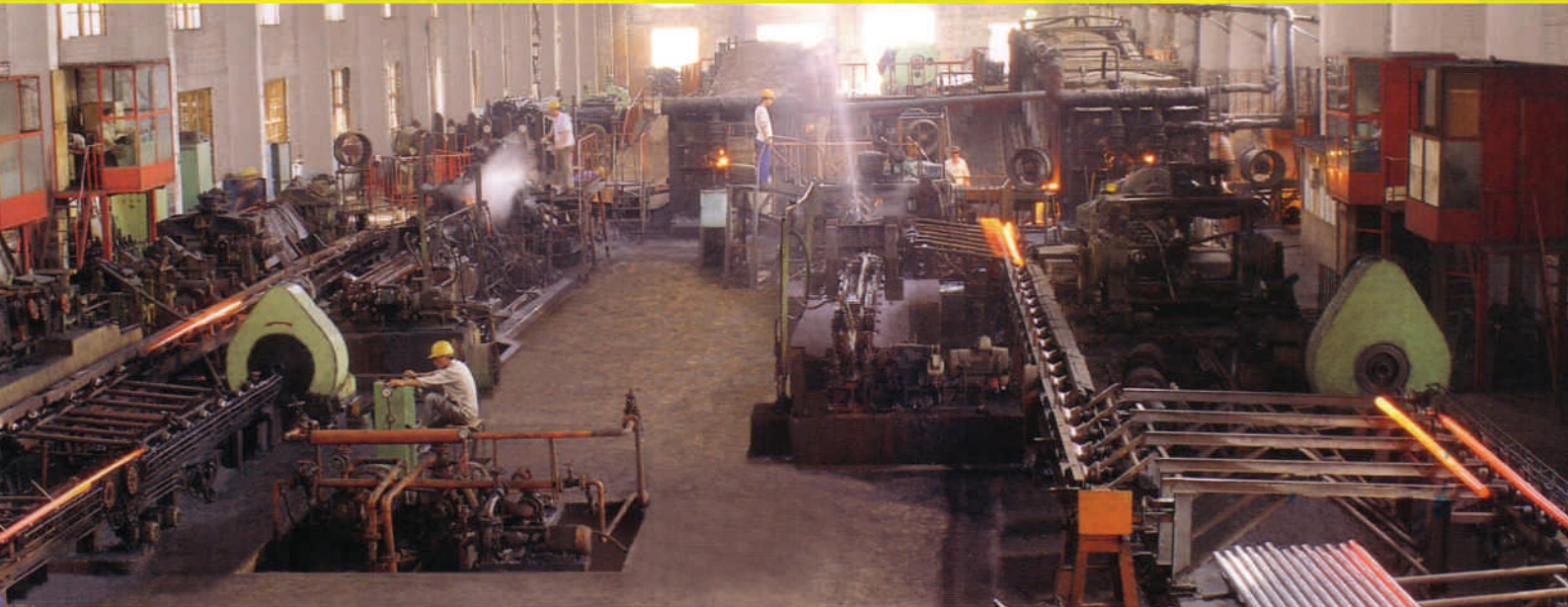
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Fax: +44 1252 848 624
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Email: sales@beijingmaster.com china-steelpipe@163.com

URL: www.china-steelpipe.com

Vallourec and Sumitomo strengthen partnership with projects in China and Brazil

Vallourec, France, and Sumitomo, Japan, have announced a planned collaboration involving China-based VAM Changzhou. Created by Vallourec in September 2006, VAM Changzhou is specialised in the threading of seamless steel tubing and casing for oil and gas OCTG products.

Sumitomo Metals Industries Ltd and Sumitomo Corp intend to purchase a joint 49 per cent stake in the overseas holding company controlling VAM Changzhou. Expected to deliver its first connections by mid-2007, VAM Changzhou will have a predicted threading capacity of 50,000t per year. These connections will be sold to the Chinese market.

This move follows on from Vallourec and Sumitomo's recent announcement of a joint venture in Brazil. The two companies will establish a new state-of-the-art integrated steel works and premium seamless pipe mill in the State of Minas Gerais. With production expected to begin in 2010, this new plant will have an annual seamless pipe production capacity of 600,000t, with equal

division of production capacity between the two companies.

The new Brazilian tube mill will be primarily dedicated to the production of seamless OCTG products. It will produce tubes with diameters ranging from 168.3mm to 406.4mm and will include heat treatment capacity as well as threading lines.

Equating to a total joint investment of approximately US\$1.6bn, Vallourec will hold a majority interest in the joint venture. Vallourec currently operates two rolling mills in Brazil, which are fully integrated with two blast furnaces. The joint venture is expected to increase Vallourec's global seamless pipe capacity by approximately 10 per cent.

V & M – France
Fax: +33 1 49 09 39 90
Website: www.vallourec.com

Sumitomo Metals – Japan
Fax: +81 6 6223 0305
Website: www.sumitomometals.co.jp

Global expansion and product development for RathGibson

RathGibson, USA, a leader in stainless steel, nickel and titanium precision engineered tube and pipe, has announced considerable global expansion and product success. "We are constantly seeking ways to maintain the highest quality in our products as well as our services," said Mr Harley Kaplan, president and CEO of RathGibson.

Over the past two years the company has supplied markets including the Middle East, Africa, China and southeast Asia with precision welded tubing, delivered according to the most comprehensive testing and quality control procedures available. These products have been provided for applications including high purity, nickel alloy heat exchangers, subsea umbilical, titanium desalination, and down-hole pressure tubing.

The inspection and testing performed by RathGibson leads to products that are claimed to exceed established industry standards and specifications. The test

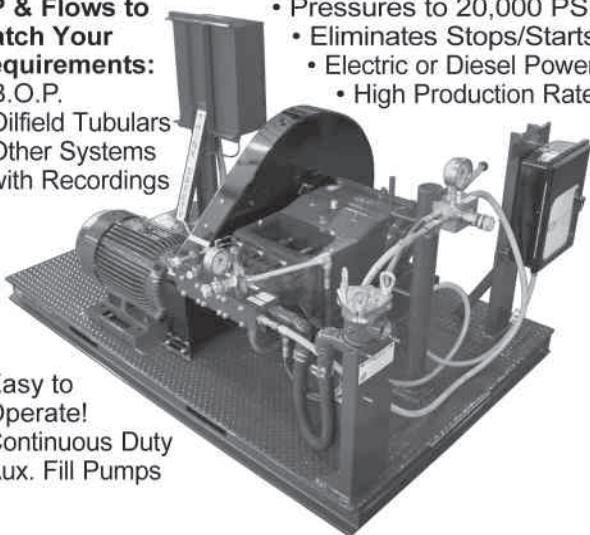
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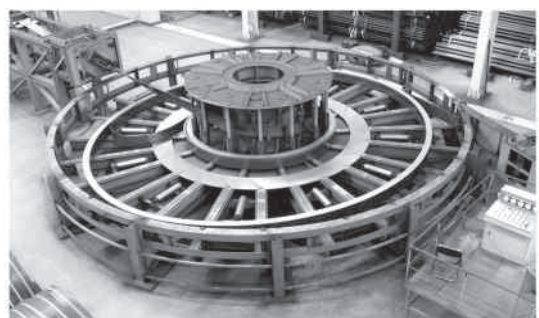
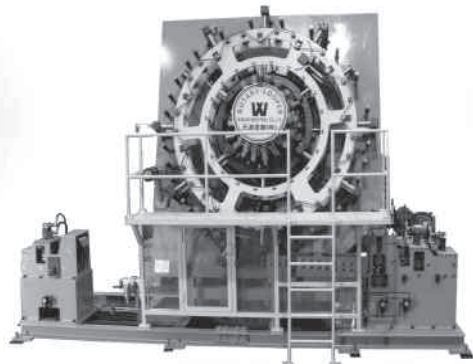
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i A reel with 30,000ft of RathGibson zinc clad, lean duplex subsea umbilical tubing destined for installation off the west coast of Africa

procedures include destructive testing such as tensile strength, Rockwell hardness, and hydrostatic testing. Metallurgical testing is also employed to check processes such as reverse bend, flattening, reverse flattening, and flange. Other procedures include corrosion testing, nondestructive testing (ie dual frequency eddy current, ultrasonic testing, and air), and underwater testing (digital radiography and film-based X-ray).

RathGibson serves markets including chemical, petrochemical,

general commercial, food, beverage, pharmaceutical, medical, energy and oil/gas. In 2006, RathGibson acquired speciality stainless steel and nickel tubing supplier, Greenville Tube.

RathGibson – USA
Fax: +1 608 754 0889
Website: www.rathgibson.com

Pipeline protection at the heart of Edinburgh conference

The 17th international conference on pipeline protection will be held at the Roxburghe Hotel in Edinburgh, UK, from 17-19 October 2007. The conference, now in its fourth decade, aims to bring together experts in pipeline technology to face the challenges of major operational obstacles.

In addition to the regular key issues, the conference will focus on pipeline integrity as a major theme. Safety and security are paramount for suppliers and operators alike, and in some countries certification is already demanded as proof of standard.

Other topics will include internal drag reduce coatings, pipeline monitoring, surface preparation, external and internal coatings, offshore issues, operation of large diameter water pipelines, and rehabilitation/remediation.

The Pipeline Protection Conference will offer an unrivalled European gathering, including the world's leading owners, financiers, suppliers, constructors and operators of pipelines. The conference will be of great value to end-users, coatings manufacturers, consultants, researchers and designers.

The chairman of the event will be Dr M Braestrup of Ramboll (Denmark), with UK members including Mr J Harwood of BSR Pipeline Services Ltd (Corus), Mr R John of Tyco Electronics UK Ltd, and Mr D N Mortimore of Selmers BV. Confirmed international members already include Ms C Verhoeven of Dhatec (The Netherlands), Mr M Roche of Total (France), Dr G L Rigosi of Basell Polyolefins (Italy), and Mr A Kehr of 3M (USA).

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Kemppi sponsors Etihad Aldar Spyker F1 team

Finnish welding equipment manufacturer, Kemppi OY, has entered into a sponsorship agreement with the Etihad Aldar Spyker F1 Team for the 2007 season.

The sponsorship agreement will see the Kemppi brand logo carried on the racing team's distinctive orange and tungsten

Mr John Frost, director of sales and marketing (UK), said, "The Etihad Aldar Spyker team's distinctive colours tie in perfectly with Kemppi's own orange and black branding. F1 racing globally touches all our markets providing us with a perfect vehicle to promote orange welding power."



 Kemppi will sponsor the Etihad Aldar Spyker F1 Team for 2007

F8-V11 cars, on the team's website, supporting vehicles and printed materials.

Kemppi is also supplying the team with four of its latest Mastertig MLS™ 2300 AC/DC, digitally controlled single phase 230V inverter power sources for both MMA and TIG AC/DC welding. These will be used by the F1 racing and test teams at Grand Prix circuits around the world, as well as at their R & D and fabrication workshops in Silverstone, UK.

useful for installation and repair work both on-site and in fabrication shops.

Kemppi Oy – Finland
Fax: +358 3 899 428
Email: export@kemppi.com
Website: www.kemppi.com

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

The Mastertig MLS™ 2300 AC/DC is a very compact and powerful welder, and offers a high power to weight ratio. The equipment is rated 230A at 40 per cent duty cycle and 170A at 100 per cent duty cycle giving it enough power to weld 5mm aluminium.

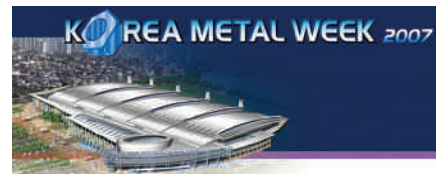
It is designed for high quality aluminium welding and can be used both from a mains supply or a generator, making it

Broad metals technology at Korea Metal Week

Korea Metal Week, the principal exhibition for the Korean metal and machinery industry, will return to Seoul from 24-28 October 2007.

Held alongside Korea Machinery Fair 2007 and Tool Tech 2007, the event brings together five well established exhibitions: the 11th Cable, Tube & Pipe Korea, the 11th Fastener & Wire Korea, the 10th Foundry, Forging & Furnace Korea, the 6th Die Casting Korea, and the 4th Machine Parts & Mold Manufacturing Korea.

The event will attract suppliers, manufacturers and traders from across the world. The 2005 event attracted over 80,000 visitors, with similar numbers expected for this year's event. The exhibition will be staged in halls 1-5 of Kintex (Korea International Exhibition Centre), which can accommodate 53,541m² of exhibit space.



 The event will take place at Kintex in Seoul

A seminar program will be held concurrently with Korea Metal Week. This seminar will welcome experts from all corners of the metal industry, with presentations on the latest technological developments and new products.

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A close-up photograph of a woman with dark hair and blue eyes, smiling warmly at a baby. The baby's face is in the foreground, slightly out of focus. The woman is lying down, and the background is a soft, light blue color.

Honey, I know you'll do anything
to help your customers,
but does it have to be right now?



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US Steel to acquire Lone Star Technologies

United States Steel Corp has announced it is to acquire Lone Star Technologies Inc, USA, a leading manufacturer of welded oilfield tubular goods. The agreement was unanimously approved by the boards of directors of both US Steel and Lone Star.

US Steel expects that the acquisition of Lone Star will strengthen its position as a premier producer of tubular products for the energy sector and will create North America's largest tubular producer.

The transaction is designed to broaden US Steel's energy product offerings by

combining its predominantly seamless tubular business with Lone Star's complementary welded tubular business.

Following the transaction, US Steel will have an annual North American tubular capability of approximately 2.8 million tons. US Steel expects this acquisition to lead to an annual pre-tax operating yield in excess of US\$100mn by the end of 2008.

Mr John P Surma, chairman and CEO of US Steel, commented, "This transaction represents a compelling strategic opportunity for US Steel to strengthen our position as a supplier to the robust oil and natural gas sector."

Mr Rhys Best, chairman and CEO of Lone Star stated, "Our complementary strengths will better position Lone Star to pursue significant new growth opportunities for the benefit of our customers, distributors and end users."

United States Steel Corp – USA
 Fax: +1 412 433 5016
 Website: www.uss.com

Event News in Brief... event news in brief...



A conference dedicated to the Middle East's steel industry took place from 12-14 May 2007, at Dubai's Fairmont Hotel, UAE. Titled 'Steel Wonder of the World' (www.ourmetals.com), the conference was organised by Our Metals and Russian partners, Rusmet. The conference welcomed producers and traders of steel, stainless steel, and tube and pipe, with a platform for Russian and Middle East companies.



The 2nd Iranian international tube & profile exhibition (email: ajoop_1357@yahoo.com) will be staged from 25-27 July 2007 in Tehran, Iran. Last year's show met with notable interest from companies wishing to make inroads into the Iranian market. Products on display will include tube, pipe and profiles (stainless steel, steel, aluminium, PVC and UPVC), and a host of machinery such as cutting, bending, forming and welding equipment.

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The FMA's **5th annual North American hydroforming conference & exhibition** (www.fmanet.org) will be held from 19-21 September 2007 in Nashville, Tennessee, USA. Organised by the Fabricators & Manufacturers Association International, the program is co-sponsored by the Tube & Pipe Association International (TPA), and the Society of Manufacturing Engineers (SME). Topics will include applications, problems, and solutions for hydroforming and other emerging forming and fabricating processes.



The Tianjin Zhenwei Exhibition Co Ltd (www.chinacipe.com.cn) will hold the **8th China international pipeline and tube material exhibition (CIPE)** on 21-23 August 2007. The exhibition will take place at the Tianjin Binhai International Exhibition Centre in Beijing, China. Exhibits will include metal and plastic tube and pipe, petroleum and OCTG linepipe, and pipe manufacturing machinery.



The **Pipeline 2007** event (www.pipelineconnection.com) will take place from 26-28 November 2007 in Abu Dhabi, United Arab Emirates. Organised by Pipeline Connection, the conference will examine the major issues affecting the future development and implementation of both onshore and offshore oil, gas and water pipeline projects. A full exhibition will run alongside the conference. The deadline for paper submissions is 26 July 2007.



Metallurgy Ukraine 2007 (www.messe-duesseldorf.de), the international trade fair for metallurgical plants and rolling mills, thermo-process engineering and foundry machinery, will welcome the metals industry to the Expodonbass fairgrounds in Donetsk, Ukraine from 4-7 September. According to organisers Messe Düsseldorf, metallurgy makes up around 52 per cent of the Ukrainian industry structure. Topics will include plants and rolling mills, foundry machinery, sheet metal and tubes, and welding/cutting.

Business News in Brief... business news in brief...



Tata Metaliks Ltd (www.tatametaliks.com) are to develop a new ductile iron pipe manufacturing facility (110,000t/a) in Kharagpur, India. Expected to begin production in 2009, the new plant is a joint venture with leading Japanese manufacturers, **Kubota Corp** (www.kubota.co.jp) and **Metal One Corp** (www.mtlo.co.jp).



TMK (www.tmkgroup.ru) and **Rosneft** (www.rosneft.com) have agreed a joint venture in order to develop a long-term strategic partnership. Under the terms of the initial three-year partnership, TMK and Rosneft will cooperate in the design and production of new types of pipes. These pipes will be supplied by TMK to Rosneft for use in the oil and gas industry, both in the medium and long term.

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Business Briefs Cont... business briefs cont...



Roll-Kraft (www.roll-kraft.com), USA, has ordered a new high-speed, high-precision machining centre. This vertical milling machine will be installed at the company's headquarters plant in the 3rd quarter of 2007. The new machine will have the latest innovations for easier and safer operation and will increase production capacity. Roll-Kraft currently has 36 CNC machines on the shop floor.



Socotherm Americas, a subsidiary of **Socotherm** (www.socotherm.com), Italy, has been awarded a new onshore contract in Venezuela for the connection of pipelines for the vehicle natural gas (VNG) network of Petroleos de Venezuela (PDVSA). The US\$2.4mn contract will involve the application of a special 3-layer HDP anticorrosion coating (Plastikote®) on almost 420km of 4.5" diameter pipes, supplied by the Tenaris pipe mill in Campana.



Trumpf (www.trumpf.de), Germany, will further expand its headquarters in Ditzingen, with completion set for mid-2009. The size of the core factory will increase by one-third, in addition to the construction of a new development centre for machine tools and expansion of the existing laser factory.



Van Leeuwen Wheeler (www.vanleeuwen.com) has announced plans for a major expansion at its Middlesbrough, UK warehouse. This development will see this warehouse becoming a distribution hub for VLW's UK operations. It will result in a 40 per cent increase in its warehousing capacity and include increased cutting capacity and expanded product ranges.



Jetcam International (www.jetcam.com) and **Finn-Power Oy** (www.finn-power.com) have announced a global agreement, whereby Jetcam Expert CAD/CAM software will be offered with Finn-Power CNC punching and laser machines.



The go-ahead has been given for **Essar Vietnam Steel Corp's** new hot strip mill plant, the result of a joint venture between **Essar**

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Steel Vietnam Holdings Private Ltd (www.essar.com), **Vietnam Steel Corp** (VSC) and **Vietnam General Rubber Corporation** (GERUCO). The hot strip mill will have an initial capacity of 2 million tons per annum of hot rolled coils, sheets and skin passed coils. Half of the mill's output will be used for the production of steel pipe and structural sections.



Eagle Precision Tech Ltd, USA, a leader in tube bending and forming solutions, has launched a new customer website: www.eaglept.com.

The new content is underpinned by a new navigation structure, which provides easy access to any area of the site.



MRB Schumag (www.mrb-schumag.com), UK, have announced the retirement of Mr Roger Stone from the company after 50 years of service. Mr Stone began his working life in sales and engineering at Barron & Crowther, which was later acquired by

TW Ward of Sheffield (owners of Marshall Richards), and then merged into MRB Schumag in 1992. In 1996, Mr Stone transferred from the sales department back to the drawing office. Over his career, he built up substantial experience in wire and tube drawing machinery.



Borealis (www.borealisgroup.com) has introduced lean manufacturing into its facilities in Bamble, Norway.

The company also plans to phase out its R&D activities in Norway, with emphasis moving to Austria, Finland and Sweden. The company also intends to move its business management currently situated in Mechelen, Belgium, to its head office in Vienna, Austria.



Ameritherm Inc (www.ameritherm.com) has given Mr Steve Enes, global supply chain and manufacturing manager, the responsibility of

managing the entire **Ambrell** supply chain and assembly processes both in the United

States and United Kingdom. The company believes this will lead to improved work flow at its subsidiary, **Cheltenham Induction Heating**.



The tube and pipe industry has been warned to be on its guard against a misleading exhibitors directory service.

Austrian based **FairGuide** (www.fairguide.com) is mass mailing exhibitors at forthcoming tube and pipe events, offering a 'free' listing in their exhibitors' directory. However, if the accompanying form is signed and submitted, it will legally bind the signing company to a €1,171 charge.

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Technology Update

New bearingless floating flange roll design

Roll-Kraft, USA, has developed a new product design that will remedy the problem of surface markings that show up during the production process. Markings can be caused for many reasons, but are usually the result of poor roll design on a mill that is out of alignment.

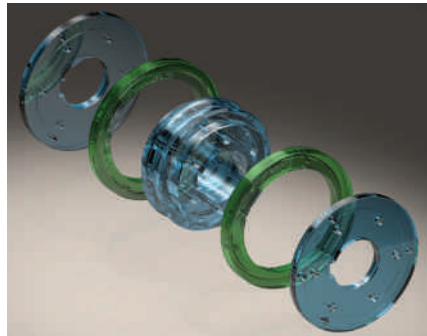
The company has designed a method to eliminate marking caused by speed differences between the throat diameter and overall roll diameters.



i Floating assembly – exploded lower right (floater only)

The new bearingless floating flange roll design, developed by engineers

i Floating assembly – exploded lower right outside



at Roll-Kraft, is claimed to significantly improve the appearance of tube, pipe and rollformed products. This will lead to better product performance and success.

This design advancement works very well in a variety of applications: large diameter tube sizes, heavy gauges, specialty materials, and, of course, cold-roll materials.

Roll-Kraft – USA
Fax: +1 440 205 3110
Website: www.roll-kraft.com

Strip accumulator added to advanced tube mill line

Myung Jin Machinery, Korea, is the manufacturer of an advanced tube mill (ERW 1-24") and a host of related equipment. The company has launched the latest strip accumulator, which has been developed with a range of features.

The accumulator incorporates an innovative mechanism to pull the skelp (strip) from its inside, ensuring that the skelp is not crumpled as the accumulator winds. Operator safety is also ensured as there is a safety device to stop the operation if skelp (strip) inside the accumulator runs out before the welding process is complete.



i The strip accumulator from Myung Lin

The accumulator is easy to use as it retains the stored amount until the strip on the uncoiler is finished. Stopping the process is simple because once loaded, the accumulator processes strip at the same speed as tube mills.

With virtually no noise and dust, changing strip size is also straightforward as the width of the side guide can be adjusted.

Myung Jin Machinery – Korea
Fax: +82 31 499 4538
Email: mjm@mjmill.co.kr • **Website:** www.mjmill.com

Tube bending machines for Boeing helicopter manufacture

Unison, UK, has shipped an all-electric tube-bending machine to the rotorcraft manufacturing facility of Boeing Integrated Defense Systems in Philadelphia, USA. It is the first all-electric tube bending machine to be installed at this Boeing facility.

The new Breeze 20 machine is capable of making precision bends on high performance alloy and aluminium tubes with diameters of up to 1" (25mm). It will be used to fabricate hydraulic and fuel line components required during the manufacture and service of Chinook and V-22 Osprey helicopters.

The machine features a 'long nose', which allows tubular shapes with complex bends, and very short distances between bends, to be automatically fabricated. Instead of hydraulic force, the Breeze 20 uses servomotors to control the bending process.



i The new Breeze 20 machine will be used to fabricate hydraulic and fuel line components for Boeing helicopters

All-electric actuation provides significant advantages related to manufacturing precision, repeatability and energy consumption. Each of the tools employed is software controlled, to enable smooth bends and optimal flow performance.

After setup, operating parameters can also be stored, allowing machines to be quickly reconfigured for another part or batch, without creating any scrap. Furthermore, as the actuation elements of the machine only need energy when a bend is being made, total power consumption is greatly reduced.

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Laser cutting systems boost shopping trolley production

Following the installation of a BLM LT712D laser tube cutting system, shopping-trolley manufacturer Wanzl have reported a substantial increase in productivity. Established in 1918, Wanzl is a leading producer of supermarket shopping trolleys and has a daily output of over 7,000 trolleys, manufactured at its facilities in Kirchheim, Germany. The trolleys are manufactured from around 7.5 million metres of tube a year.

The company also manufactures significant numbers of luggage trolleys, and in 2003 supplied 11,000 to Charles de Gaulle airport in Paris, the largest order ever placed by an international airport. Wanzl operates two manufacturing facilities in Germany (Leipheim and Kirchheim), where it has gained great benefits from the incorporation of BLM Adige laser tube cutting systems into its production process.

Wanzl installed the first BLM Adige laser cutting system five years ago at its Kirchheim factory. According to the company, this LT652 system paid for itself within two years and in December 2005 a second BLM Adige laser tube cutting system came on stream.

"We have never had any problems with our laser machines as we spend time doing necessary preventative maintenance. Given that we are working to full capacity, it is important to maintain a high level of machine efficiency," says Mr Anton Boxler,

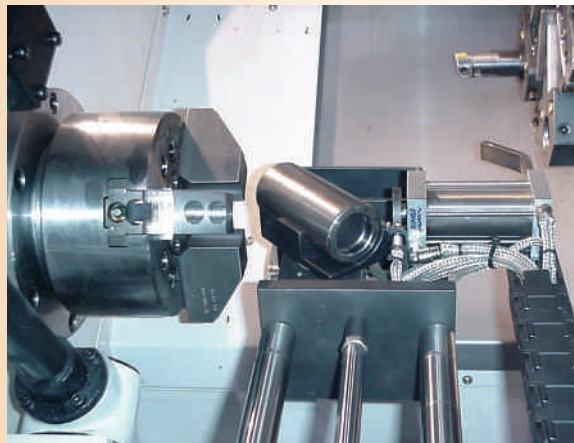
 Shopping in style – BLM laser cutting systems are an integral part of Wanzl's shopping trolley production process



Loading/unloading with 180° part rotation capability

Toellner Systems, USA, has announced a breakthrough in new technology for automated part loading and unloading. The company is a leader in automated loading/unloading of CNC lathes, machining centres, grinders, shaft cut-off, multi-spindle chucks, and thread rolling.

The new technology can rotate selected parts 180° and reload them for Op 20 machining. When combined with this technology, load rates as low as 5 seconds provides immediate throughput increases of up to 50 per cent.



 Part loading and unloading technology with 180° part rotation

Materials such as steel, aluminium, cast iron, forgings, titanium, powdered metal, brass, copper, plastics, graphite, composites, ceramic, rubber, wood, and most metals can be easily adapted to these systems.

The machine is capable of handling a variety of shapes and lengths. The part loading system can be easily adapted to production machines.

Toellner Systems Inc – USA

Fax: +1 715 424 4527

Email: info@toellner.com • **Website:** www.toellner.com

Wanzl's production director and company secretary.

Following the installation of a LT712D, which is equipped with a 2kW laser and is some 30 per cent more productive than the LT652, Wanzl began working a three-shift system with the two computer-controlled machines supervised on each shift by one operator.

"The level of finish quality from the welding of the tube has only been made possible by laser cutting," explains Mr Boxler, *"We quickly began to favour laser cutting when designing our products and this has produced savings on component wastage, on welding and, importantly, on the number of parts requiring rework – plus a massive improvement in quality. In other words, the tubes are more accurate and repeatable, so the manufacturing path has become simpler and more rational. This has allowed us to make some of our products in kit form for self-assembly."*

In recent times Wanzl has assembled a team of laser cutting specialists and technicians, who are extremely enthusiastic and highly motivated.

"When we discuss new products 'laser man' is always around the table," says Mr Boxler, *"identifying opportunities for the most effective methods of production, right up until the end of the project."*

"We cut up to 440,000 tubes and profiles a year in batches from 1 to 500 pieces and we have never had any problems with the aluminium and stainless steel we are cutting. This has helped Wanzl to implement just-in-time production and to reduce stock and work-in-progress to a minimum."

BLM Group UK Ltd – UK

Fax: +44 1525 402 312

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Website: www.blmgroup.uk.com

Wanzl Metallwarenfabrik GmbH

– Germany

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Website: www.wanzl.com



The compact WMS: weigh, measure and stencil OCTG pipe

For OCTG pipe producers and finishers, WMS technology (weigh, measure and stencil) is invaluable to the production and storage of individual pipe identity and tally information. Modern WMS systems also include extensions to update business databases with pipe information as pipes are processed.

Technology & Services Inc, USA, has been producing such systems since 1990. The core technologies involved are weighing, length measurement, and stenciling of pipe identity onto the pipe surface. The compact WMS puts all of these functions into a roll-down table 'plug-in'. The goal of a properly integrated WMS is to rapidly process each individual pipe introduced with total accuracy.

T&S is now also able to offer a roll-down scale for capturing pipe weight in motion, as it rolls down across a short table section. This development has made it possible to fit all the components of a WMS into a conventional table as small as 8ft.

In this concept, the processing of each pipe in a particular batch is handled automatically. This is undertaken via a WMS supervisory computer (providing HMI and connectivity to other systems) and a local programmable logic controller (PLC

– routine pipe handling functions). A single overhead beam spans the pipe processing area, with axes supporting length capture and stenciling operations. This beam is sized to allow pipe to pass underneath, with an end mounting arrangement.

Pipes are introduced into the system from the right, one at a time. This is undertaken by a conveyor kick mechanism for conveyor-fed systems, or by a pipe selector in roll-down systems. A set of pipes stops in conjunction with a suitable 'V' notch in the table installed at the length capture station. These stops catch incoming pipe, and ensure that they are stable in the notch before measuring.

The length measuring system (LMS) is then activated, and the length is quickly determined. Current API requirements require this length to be accurate to $\pm 0.1\text{ft}$ (one tenth of a foot), which is achieved by the WMS length measurement system. This action is accomplished by lowering and then moving two sensors along the longitudinal axis of the pipe until the location of both ends is detected. Each axis starts from the locations registered for the last pipe inserted, so motion is limited to the variability in the batch.

The length thus determined is immediately passed to the WMS supervisory computer, and retained for further processing. If a problem (ie length out of range) occurs then the system operator is notified, and methods for rapid recovery are invoked.

Assuming the stencil station is clear, the pipe is then indexed out of the LMS notch and rolls across the scale. Here, the weight is captured and immediately sent to the WMS supervisory computer, where it can be tested against weight limits set for the batch.

A second set of pipe stops, again in conjunction with a suitable 'V' notch in the table, is installed at the stenciling station. The pipe lands in this notch after crossing the scale. Here, weight

per unit length testing is accomplished, and the pipe is stenciled with its particulars.

Since the leading end of the pipe was already registered in the length capture station, the stenciling head is immediately moved to this point (plus a programmable offset), where it is lowered and the stencil applied.

In organising all this activity, the WMS supervisory computer will consequently hold all details regarding the processed pipe. This pipe data includes the weight, length and message stenciled, along with any number of other details (grade, OD, wall, Wt/Ft, order numbers etc). This data can be added to a local tally and made available to the business database.

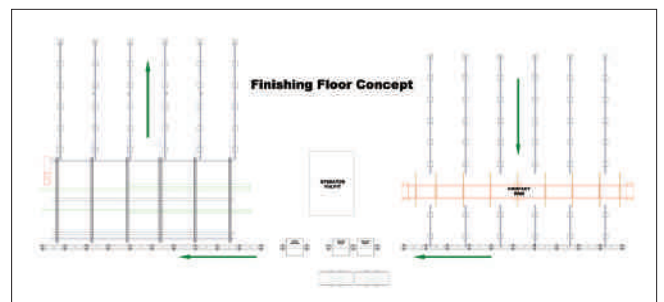


Figure 3: The compact WMS is typically configured in this layout, with associated coating and pipe handling equipment

The compact WMS is typically placed in a layout as shown in figure 3, with associated coating and pipe handling equipment. Shown are an inbound pipe table allowing pipe to be forked onto a roll-down section feeding the compact WMS. This configuration also includes the compact WMS, a short exit table feeding a coating conveyor, induction heating for preparing the pipe surface for coating, a coating applicator, exit conveyor section, chain drive exit dry down table, and a roll down table section (for storing finished pipe).

T&S can provide a compact WMS as shown in figure 3. Tubing producers usually require a different unit from producers of casing or large pipe, because the underlying structures are sized to their particular product mix.

There are a variety of stencil applicators on the market. T&S offers the Taskwriter™ and Zanas® stencilers for air-atomized or DOD applications. The company can also supply a large range of data handling systems.

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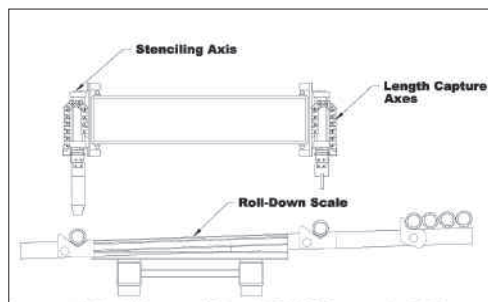


Figure 1: Conceptual view of a compact WMS system (weigh/measure/stencil)

Figure 2: This system is capable of processing pipe from 1.90" OD to 5" OD, handling lengths from 15-48ft, with a max weight of 1,500lbs. The Compact WMS shown can process pipe at a rate of 5 pipe per minute





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Range of fittings, valves and couplings

(JPE) Yean Hern Enterprise Co Ltd, Taiwan, was established in 1982 in Kaohsiung, while Kun Shan Yean Hern Pipe Valve Co Ltd was established in 1998 in Kunshan, China.

The company's main products are instrument tube fittings (SUS 316/304, brass), and quick couplings (SUS-316/SUS-304 carbon steel/copper). Yean Hern also provide instrument valves, with a range including ball, needle, check, and valve manifolds. The company also supply pressure reducing regulators.

In addition to manufacturing, the company designs, installs and markets the products both domestically and overseas.



Yean Hern supply a range of fittings, valves and couplings

Yean Hern Enterprise Co Ltd – Taiwan

Fax: +886 7 7438472

Email: Penelope@jpeyh.com • **Website:** www.yeanhern.com

Kun Shan Yean Hern Pipe Valve Co Ltd – China

Fax: +86 512 57489668

Email: yeanhern@vip.163.com

Work cell integrates forming technologies for extra safety

AddisonMckee, UK and USA, has developed an automated production efficiency cell, branded ProdiMate™, that integrates forming technologies, such as tube bending, endforming, press die and basic handling operations.

It can undertake repetitive operations that require consistency and accuracy, and eliminate the need for manual involvement in production environments to improve operator safety.

Mr Christian Rogiers, AddisonMckee's director of global marketing, comments, "We have long been aware that certain repetitive functions within the tube manipulation environment are often better suited to automation than manual labour. By offering the ProdiMate™ production cell, we are enabling manufacturers to free up their operatives for more profitable use, while ensuring mundane processes are carried out consistently, time and time again."

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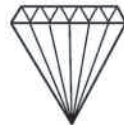
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➤ AddisonMckee's ProdiMate™ automation cell links together forming processes

“Designed for integrating tube forming technologies, such as tube bending, endforming, press die and basic handling operations, the ProdiMate™ cell maximizes machine uptime and minimises supervision. Most importantly, it can negate operator involvement in processes such as tube cutting or ram forming where safety can be an issue. With its competitive pricing, we anticipate this latest AddisonMckee technology will prove an attractive option to those production environments where repetitive actions form a considerable part of the tube manipulation process.”

Easy to set up and operate, AddisonMckee envisage that its ProdiMate™ automation cell will quickly become established as the ultimate operator replacement for repetitive and high accuracy operations.

Enabling processes to be linked together, ProdiMate's innovative technologies then permit manufacturing functions to be combined with an automated inspection process.

For example, the ProdiMate™ can be designed to first bend the tube, then form its ends, punch holes or notches, and then gauge the manipulated component to ensure it meets the required specifications.

AddisonMckee Ltd – UK
 Fax: +44 1772 323227
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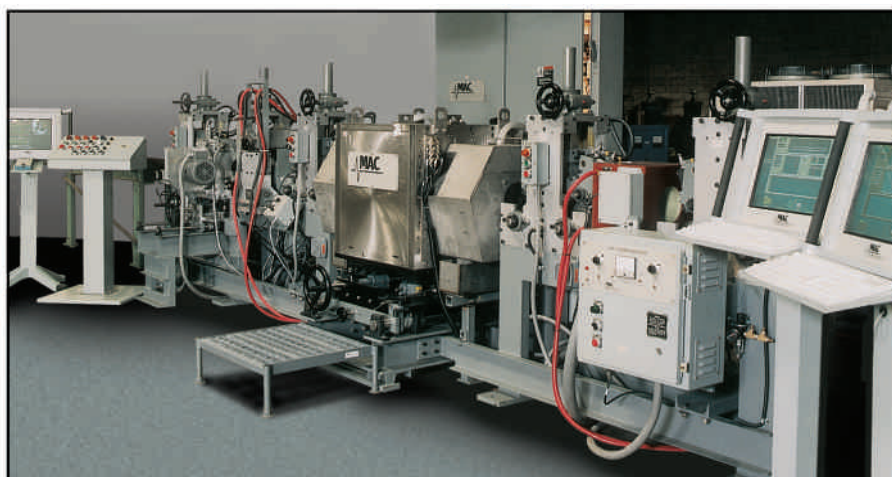
Copper and copper alloy tube products from Russia

JSC Kirov Non-Ferrous Metal Processing Plant, Russia, is a manufacturer of copper and copper alloy rolled products. The company exports products to Europe, south east Asia, United Kingdom, China and Vietnam.

The company's product range includes sheets, strips, tubes, rods, anodes, and plates of copper, brass and bronze, with

new products and alloys in development. All products are manufactured according to the ISO 9001:2000 international standard.

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Heating solutions for corrosive liquids

Braude, UK, 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. This is often the case 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 self-priming chemical service pumps, suitable for use with highly corrosive solutions such as hydrochloric, hydrofluoric and sulphuric acids – with flow rates up to 35m³/hr.

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Fax: +44 1252 875281
Email: sales@braude.co.uk
Website: www.braude.co.uk

Meeting precise requirements for DOM mechanical tubing

Due to the increased requirements of manufacturing on higher-value precision engineered components, tube and pipe specialist distributor Van Leeuwen Wheeler is predicting a resurgence in the usage of DOM mechanical precision tubing.

DOM mechanical is made from high quality flat rolled steel which is formed, electric welded and fully normalised with the inside and outside welding flash removed during the process. The inherent precision is achieved when the tube is cold drawn over a mandrel (hence DOM) which converts the as-welded tube into a uniform precision product with substantially improved tolerances, surface finish, tensile strength, increased hardness and good machinability.



Mr Trevor Desmond of Van Leeuwen Wheeler predicts the resurgence of DOM Mechanical to meet the needs of precision engineered components

Van Leeuwen Wheeler's mechanical tube specialist Mr Trevor Desmond says: "With much of the traditional UK high volume manufacturing moving to countries with lower manufacturing cost bases, our own manufacturing industry is much more focused on added-value precision engineered products. These place far higher demands on the dimensional accuracy of the feedstock and this is where DOM mechanical really scores. In comparison to conventional seamless tube, DOM mechanical offers accuracy in terms of concentricity and straightness. We are definitely starting to see a migration of business from cold drawn to DOM mechanical."

Van Leeuwen Wheeler offers a full range of DOM mechanical in both imperial and metric sizes from 6mm to 200mm in various grades and thicknesses, including heat treated materials for bending applications. Random off-the-shelf sizes can be supplied, while the company also offers a specialist cut-to-length service.

Van Leeuwen Wheeler Ltd – UK
Fax: +44 1384 487619
Email: sales@vanleeuwen.co.uk
Website: www.vanleeuwen.com

Latest digital flaw detector for good signal to noise testing

Sonatest has launched the Powerscan 450P digital flaw detector, the next in the family of new generation digital flaw detectors from Sonatest Ltd. Powerscan 450P is designed to meet the needs of high penetration and good signal to noise testing requirements.



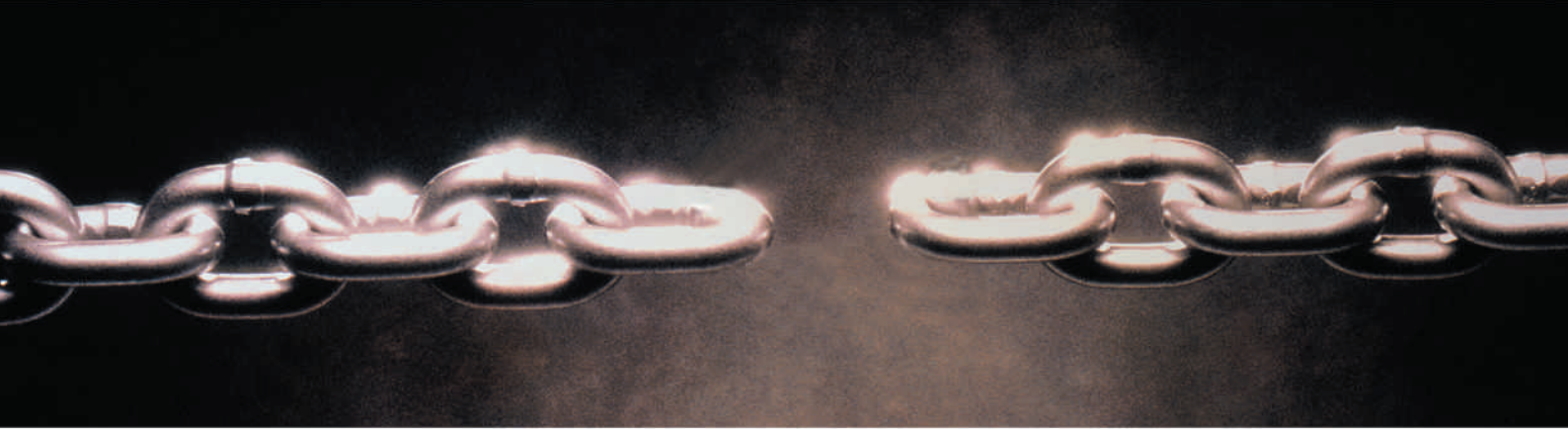
The new Powerscan 450P digital flaw detector

It has already received approval from Serco Assurance in the UK for rail axle testing and has been accepted by a world leading forging company for critical inspection. Evolving from the very successful Powerscan 400, this model has been enhanced with a new 450 volt square wave pulser, improved low frequency filter bands for 0.25MHz transducers and standard AVG & DAC software.

Additional benefits are the new user interface, full screen expand mode and a lower PRF setting. The 'single shot' acquisition processing enhances screen update speed on low PRF, resulting in improved hand scanning response. The unit is housed in a high strength lightweight plastic enclosure and uses lightweight batteries to significantly reduce weight over the Powerscan 400.

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Pipeline system integrator opts for digital welding technology

As part of the construction of a 700km pipeline for transporting natural gas from Indonesia to Thailand, system integrator CRC Evans, USA, opted for the latest technology from Austrian welding systems manufacturer, Fronius. The company will, for the first time for an offshore project, equip six workstations with digital welding technology.

For this project, CRC ordered Fronius digital welding technology for two workstations on each of three ships. The outer diameter of the X70 high-strength steel 24m pipe sections is 42" (106 cm), and their walls are 23.85mm thick. Using four TransPuls Synergic 3200 Pipe systems, the first station welds the root and the hot pass in the first cycle, followed by the first two cover layers.

For the first weld layer, a copper weld pool ensures perfect root formation. At the same time, the eight systems in the second workstation weld the third to sixth filler layers in two cycles. The four torches at the first workstation are arranged in two pairs, one behind the other (dual single). Starting from the apex of the pipe, they each weld 180° arches, ie from position PA left and right down to position PE.

Eight TransPuls Synergic 3200 pipe welding systems simultaneously produce two cover layers on one pipe joint



Digital welding technology from Fronius

In the second station the torches of the eight welding systems are also configured 'dual single', although here they weld a quarter-circle instead of a semi-circle. Fronius has perfected its welding programs as a result of its experience in the narrow-gap welding of pipelines. This also applies to the synchronisation of the two arcs working in each weld pool.

Quality plays a key role in pipeline construction as rework is expensive and time-consuming. Production costs in offshore pipeline construction are approximately US\$300,000 per day. The 36 TransPuls Synergic 3200 pipe welding systems – with stable, practically spatter-free arcs – contribute to the high productivity required in the PTT 3rd Transmission offshore project. They produce high quality seams with a failure rate of just 1.5 per cent.

Fronius International GmbH – Austria
Fax: +43 7242 241 2670
Website: www.fronius.com

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Process piping specialist finds increased productivity

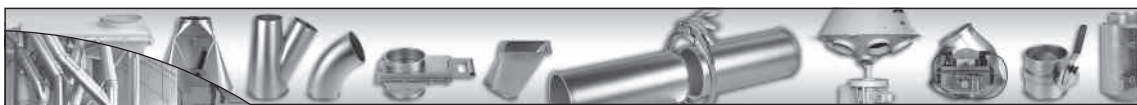
Bryan Mechanical, USA, is a mechanical contractor specialising in process piping for applications such as HVAC, condensers, refrigeration and plumbing. The company has worked on applications ranging from chemical plants to Heinz Field, the Pittsburgh Steelers stadium.

To cut carbon steel and stainless steel pipe, the company uses a model 12A machine from Continental Pipe & Tube Cut-off Machines, USA, which cuts 3½" to 12¾" diameter tube and pipe.

Bryan Mechanical performs an average of 50 cuts per day, although this has increased at times to 100 cuts, of varying lengths. The company has found that using a Continental machine takes 1/10th of the time of its previous flame-cut method of cutting larger diameter pipe, with the added benefit that the pipe is bevelled on both sides in one cut, with no wasted material.

Mr Mick Fonas, shop foreman at Bryan Mechanical, commented on the ease of use of the Continental machine: "I train first year apprentices on it, and after about a week they stop asking me questions. As long as they can measure properly, they can be cutting nearly immediately. In seven years of using the machine, only once have we had a problem – a shaft broke. We got technical input from Continental on how to fix it, and they sent a part so that it arrived the next day."

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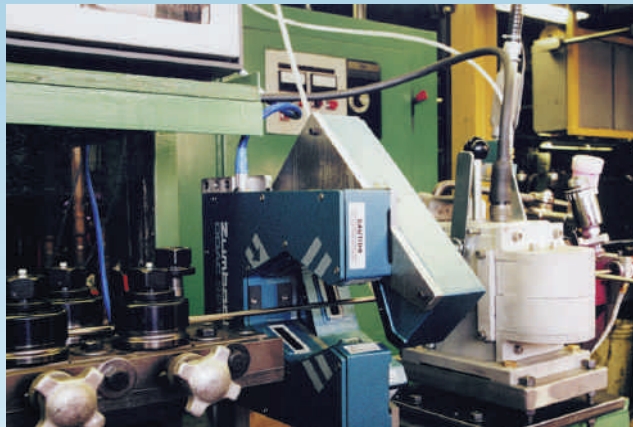
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New Euro format auto darkening welding filters

Jackson Products Ltd, the UK subsidiary of US-based Jackson Products Inc, has launched a new Euro format auto darkening welding filter. Branded Triple ADF, it has a 90mm x 110mm window.

The new filter has been designed to meet the requirements of European welders utilising Jackson Products' own ADF (auto darkening filter) technology. As the arc is struck, it takes 1/12,000 seconds – one

of the fastest switching speeds available for ultimate welder safety – to switch from clear to dark.

The filter gives the welder all-round flexibility, ensuring eye safety for a wide range of luminescent arc applications.

Operated by 2xAAA batteries, it has two independent sensors on the front of the filter, which can be either on the

top or bottom depending on how the welder chooses to install the filter in the helmet.

The filter controls are on the inside of the helmet for safety purposes, and have easy to read functions.

The welder can choose between 3 filtering selections: weld, grind or torch. In welding mode, the welder can adjust dark shade between 9 and 13, adjust sensitivity, and adjust the delay between 0.1 and 1 second. Torch mode can be selected for cutting steel, indicated by an amber light, which uses a shade 5 filter. Thirdly, grinding mode is indicated by a green light.

If the user forgets to switch off the filter at the end of an assignment, the filter automatically powers down after 20 minutes. Meanwhile, a flashing red light warns the user when the batteries need to be changed.

⚡ Jackson's new filter features two independent sensors

⚡ The filter can be set to one of three modes: weld, grind or torch



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Technology Update



Smoother production: comprehensive range of UV coatings

Quaker, USA, has developed a new range of Quakercoat® UV coatings for the growing demands of the steel tube and pipe industry.

The company's UV chemistry has been formulated for use as a basic clear coat and full hide black coat.

Custom colour formulations are available in various semi-transparent black, red-oxide, semi-gloss clear coat, and a metallic gold or grey. Clear coatings can also be adjusted to semi-gloss or matte finish.

These UV coatings contain no VOCs, which allows users to reduce their emissions to meet local, district, and national requirements for emissions.

The near instantaneous cure response reduces product handling issues and improves just-in-time delivery requirements. This type of cure response leads to excellent flow and appearance, making a 60° gloss level of 95+ achievable.

Other surface properties include excellent scuff and scratch resistance, ranging from F-2H pencil hardness. The UV coatings also have excellent weathering ability and are formulated to achieve high levels of salt spray resistance.

High film builds, ranging from 0.5 to 2.0 dry mils, are easily achieved. All Quakercoat UV coatings are ready to use, and have no pot life. They can be applied easily with airless, conventional air spray, flood and wipe, or a vacuum coater. The UV coatings allow for immediate outdoor storage in wet conditions and are typically waterproof.

The Quakercoat 060 series is a flexible and durable coating available in clear or smoked versions. This high performance coating has excellent salt spray and immersion resistance with 100 per cent adhesion when applied to properly prepared hot rolled or cold rolled steel. Quakercoat 060 is very effective on seamless tubes providing improved consistency, better appearance, and reduced handling damage.

The Quakercoat 035 series is a high performance coating with excellent salt spray and immersion resistance with

100 per cent adhesion when applied to commercially clean cold rolled steel, hot rolled, or pre galvanized steel. It is most frequently used in welded tube operations.

The company also offer the Quakercoat 047 series, ideal for bending operations up to and including a 45° curving of the pipe. According to the company, these coatings provide enough flexibility to achieve a 3-4 T-bend before failure.

Recommended for straight/non-mechanical pipe, the Quakercoat 028 series provides 90+ adhesion levels for coating and curing to commercially acceptable levels.

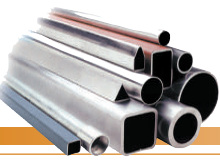
However, this product is not recommended in operations that require flexibility.

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Complete retrofit of a forming press in three weeks

Gräbener, Germany, have undertaken a complete retrofit of a forming press within just three weeks. The company carried out this task at Erndtebrücker Eisenwerk GmbH & Co KG (EEW), a company that has been using a pipe forming press for just over 10 years.

A similar Gräbener pipe forming press installed at EEW's Korean subsidiary has proven to be considerably quicker with more precise bending results. Due to the booming nature of the pipe market, a swift retrofit was essential to the operational stability of the plant.

 The pipe forming press installed at EEW's Korean subsidiary



The retrofit involved installation of the deflection compensation and reworking of the lower tool, installation of the plate and pipe handling system, complete retrofit to the hydraulics concept and a completely new electric system and control. Each pipe duct, connection to the cylinders, and the entire piping was engineered and drawn by means of Catia V5 (3D CAD program) and pre-installed at the Gräbener works.

The construction, installation and start-up of the new system had to be planned. Prior to this, segments of the old press also had to be dismantled. Gräbener's time limit for the dismantling and cleaning of the remaining machine parts and foundation was one week, with two weeks for installation and start-up. The usual period for the installation and start-up of pipe forming presses is four to five weeks.




 The forming press installed at EEW by Gräbener in three weeks

The entire retrofit was carried out between December 2006 and January 2007. The first pipe left the 'new' machine on January 05, 2007.

Gräbener Maschinentechnik GmbH & Co KG – Germany
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Website: www.graebener-group.com

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Reduced consumption costs with economical marking systems

Leibinger, Germany, manufactures the JET2SE range of ink-jet printers, which are used in a range of industries, including automotive and pharmaceutical, for the labelling of packaging, and the marking of metal, plastics, glass and coated surfaces.

The company has developed ECOSolv, a new solvent recovery system capable of reducing the consumption



 The JET2SE range of ink-jet printers

of solvents in printing by up to 50 per cent. ECOSolv is designed to complement the features of the Leibinger JET2SE range.

Leibinger ink-jet printers use the continuous ink-jet principle for fast, non-contact printing.

The JET2SE series also features a unique nozzle seal, which ensures an 'instant start' at the push of a button, even after long standstill periods.

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Specialised power source for Cobramatic push-pull systems

MK Products, USA, has launched the CobraMig® 400P, a pulsed MIG welding power source that works with the Cobramatic wire feed push-pull technology. Exclusive CobraMig 400P software algorithms allow for hard wire and aluminium welding when using the Cobramatic wire feed cabinet (Model 150-006).

Wave pulse functions of the CobraMig 400P enable TIG-like welds on aluminium. Wave pulse utilises superimposed low frequency pulse for hard and soft aluminium, which has been proven to reduce porosity and crack susceptibility. The frequency of wave is adjustable from 0.5 to 30Hz.

Wire feed speed, amperage and arc voltage are commanded by the wire speed potentiometer in the push-pull welding gun,

while wave pulse and arc control are easily adjusted via the CobraMig 400P operation panel.



The new CobraMig 400P pulsed MIG welding power source from MK Products

The CobraMig 400P is rated at 60 per cent duty cycle in Standard DC and 50 per cent in Pulse DC at 400 Amps maximum. Automatic three-phase voltage sensing allows for either 208/230VAC or 460VAC at 50/60Hz input. Air or liquid cooled Cobra guns can be connected and used on the Cobramatic cabinet.

MK Products also manufactures MK Orbital™ tube welding systems for exotic alloys and Aircrafter™ table-top rotary positioners.

MK Products – USA
Fax: +1 949 472 1428
Email: sales@mkproducts.com
Website: www.mkproducts.com

Purging system saves time and gas in large pipe and vessel welding

Large pipes and vessels can be purged of air quickly and easily – with reported savings of up to 90 per cent in purge gas requirements – using the Argweld® Quick Purge from Huntingdon Fusion Techniques, UK. According to the company, the system will typically purge a 914mm diameter pipe to below 0.1 per cent oxygen in less than ten minutes, with faster purging for smaller pipes.

Savings in time and purge gas consumption are achieved by reducing the volume purged. Two inflatable dams are positioned inside the pipe, restricting the length of the purged section to approximately 75mm on each side of the weld. At the same time, a sleeve joining the dams occupies most of the pipe's diameter, so that only the space between the outer surface of the sleeve and the inner surface of the pipe needs to be purged.

When the Argweld Quick Purge has been positioned inside the pipe, by using pull tags, it is inflated by the inert gas supply so

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AMK120-2 (replaces ITK120-2)
YD1202 (replaces BW1184J2)
YD1212 (replaces BW1185J2)
RS3500CJ

• **Technical Assistance** - We offer FREE seminars focused on RF heating. Contact us for details on the next seminar in your area. Our engineering team is ready to help you.

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that each end dam forms a seal. Once the dams are fully inflated, the pressure opens a valve to allow the inert gas to enter the space between the sleeve and the pipe and displace the air.

Welding can begin as soon as the oxygen level is low enough. The flow of inert gas is maintained throughout the welding operation, to purge any oxygen released by the increasing temperature, and is continued until the completed weld has cooled to below oxidation temperature. The purge gas supply is then cut off and the system deflates to allow its removal from the pipe.

Heat-resistant material protects the Argweld Quick Purge from high temperatures close to the weld. A weld purge monitor to indicate oxygen level can be connected to the Argweld Quick Purge systems, which are available in sizes for pipes between 200mm and 1,800mm in diameter. Other designs of pipe purging systems are available for pipe diameters from 50mm to 200mm.

Argweld Quick Purge devices have been used by Bechtel for the Sabine Pass liquid natural gas 30" diameter pipeline in the USA, and by Ledwood Construction welding

a similar pipeline for the South Hook Project in Wales.

Huntingdon Fusion Techniques Ltd – UK
Fax: +44 1554 836 837
Email: geralddevans@huntingdonfusion.com
Website: www.huntingdonfusion.com

Digital computed radiography replaces film radiography

Computerised Information Technology Ltd (CIT), UK, has launched its filmless, high definition, digital computed radiography technology, suitable for NDT inspections, replacing conventional film radiography.

CIT's digital computed radiography (CR) is an electronic system that enables radiographic images of products under examination to be generated and displayed on radiographic monitors. The image is captured directly on a phosphorous CR plate and scanning transmits the image on the viewing monitor. No intermediate steps or film processing are required to capture the image, and images are then archived on CD/DVD media.

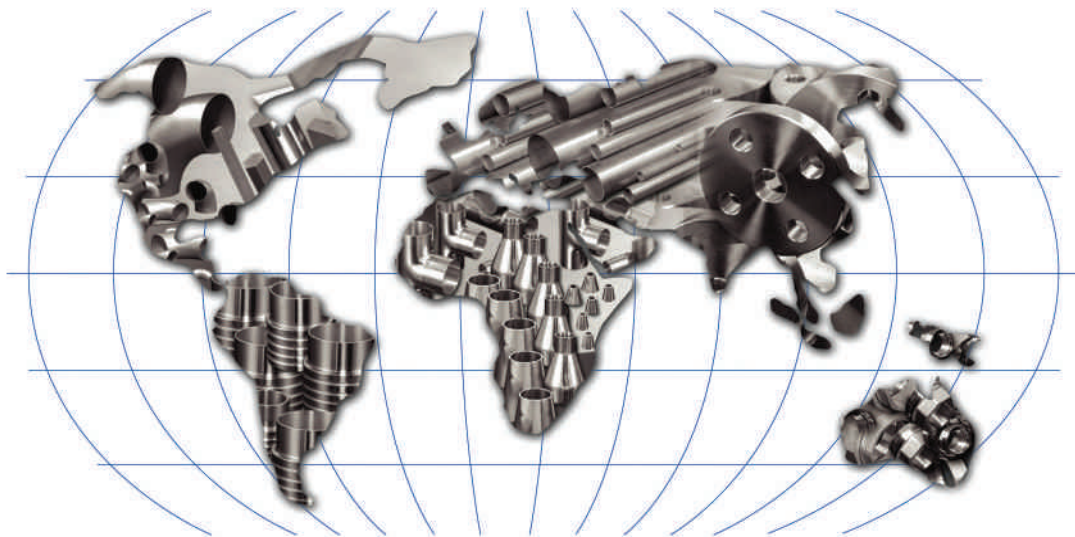
Digital CR can inspect products that have welds or castings in metallic and non-metallic components for flaws that match the fine grain film radiography. With the acceptance of CEN and ASME standards, users in all areas of industry are replacing the conventional method of NDT film radiography with the digital CR technology.

Key advantages are the elimination of film and processing costs, process simplification, electronic archival and project time scale reduction. CIT's technology also complies with ISO12000 and environmental green policy requirements.

Other benefits include the elimination of wet chemistry, flexible imaging plates to suit various NDT inspection requirements, reduced radiation controlled area, reduced source strength, and reduced exposure time – up to 80 per cent for gamma source and up to 40 per cent for X-ray source.

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Multimetals Limited, India, is a manufacturer of seamless extruded drawn copper and copper alloy tubes, including 90/10 and 70/30 cupro nickel tubes conforming to various international standards. The company caters to industries such as heat exchangers, nuclear and thermal power plants, shipbuilding and repairs, petroleum refineries, sugar plants, defence establishments, and air conditioning and refrigeration.

The company are part of a technical collaboration with M/s Hitachi Cable Ltd, Japan, a leading company in air conditioning and refrigeration copper tube technology.

The company, which exports to all developed countries, has won 11 export excellence awards since 1993-94. PVC coated tubes are the latest product to be added to the company's manufacturing range.

In addition to its standard product range, Multimetals has started manufacturing other copper-based alloy semis, with chemical, mechanical, metallurgical and physical properties based on user requirements.

These alloys include aluminium bronze, manganese bronze, naval brass, free cutting brass, forging brass, high tensile brass, riveting brass, silicon brass, high conductivity tough pitch copper, tellurium copper and cadmium copper. They are supplied in the form of hollows, sections, profiles and rods. The alloys provide a combination of strength, anti-corrosion properties and oxidation resistance.

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Fax: +91 744 248 1821
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Ready-to-use multi-port tubes in aluminium

Tan-V-Tech Aluminium, India, is a manufacturer of aluminium drawn profiles, tubes, sections, rods, strips, coils and profile rods, and a specialist in non-ferrous drawing.

The company, which has recently doubled its production capacity, supplies drawn

aluminium profile rods, tubes, sections, and bent or swaged components to automobile industries and textile mills in India.

Tolerances are ± 0.02 on both OD and ID, and products feature a reduced weight of section compared to extruded sections, with no eccentricity or ovality.

Tan-V-Tech's production range is from 1mm to 100mm OD, with thickness ranging from 0.10mm to 17mm. The company can also develop special sizes and profiles, according to user requirements, to enable proper cutting, chamfering, threading and punching to be performed. Tubes and sections in small cut lengths can also be supplied.

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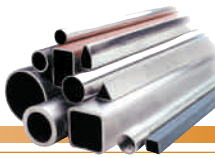
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Two-channel UT B-scan corrosion mapping kit

Olympus NDT, USA, provider of non-destructive testing (NDT) technologies, has launched its latest OmniScan-based NDT solution. An OmniScan two-channel ultrasound B-scan corrosion mapping kit, it includes the OmniScan MX UT instrument, the manual Remote Scan B-scan position encoder, TomoView Lite software, and a dual-UT probe.


Features include bi-directional, uni-directional and manual scan modes. Simultaneous A-scan and B-scan views are offered, together with high scanning resolution, fast scanning rate, and an automatic visual alarm.

The modular OmniScan MX platform can host a number of acquisition modules

offering technologies such as conventional UT, phased array UT, conventional eddy current, and eddy current array. The new corrosion mapping kit is available immediately from Olympus NDT's offices and sales representatives worldwide.

Olympus NDT – USA
Fax: +1 781 419 3980
Email: info@olympusNDT.com
Website: www.olympusNDT.com

The kit provides inspectors with easy-to-read cross-sectional images of material thinning due to internal corrosion in pipe or tank walls. Thickness measurements can be made as spot checks or one-line scans on ferrous steel structures, plates, pipes, and more.

 The OmniScan MX is part of the new corrosion mapping kit from Olympus




New chipless cut-off system

T-Drill, USA, has launched the TCJ-50 tube cut-off system. This product extends the company's chipless rotary cut-off technology into a small, bench mounted system designed for short production runs from straight tube.

The TCJ-50 is capable of cutting copper, steel, aluminium and stainless steel tube from 3/8" to 2 1/8" diameters without any tool changes. The tube being cut remains stationary and enclosed, and the cut produces no flying chips and no fragments like traditional chop saws. The system is suitable for prototype shops, mechanical contractors, and any application requiring JIT capability.



 T-Drill's TCJ-50 tube cut-off system

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Progress Through Co-operation



Orbital welding increases longevity for underwater umbilicals

Nexans Norway, part of the Nexans worldwide group of cable manufactures, specialises in the production of sub-sea power cables and umbilicals, and has already delivered approximately one hundred umbilicals.

Modern umbilical cables are not simply thousands of metres of assorted wires within a waterproof outer wrapping or container. The umbilicals, manufactured by Nexans at its Halden plant, normally contain between three and twenty super duplex tubes which contain various fluids. Each tube is fabricated in up to 20km or more.

 A Nexans production line




All tubes and other elements (power and fibre) in the umbilical are laid up, armoured and finally protected by a PE-sheeting. The umbilical itself varies in size from 75mm to 300mm OD.

There is no room for planned obsolescence. Once buried underwater, sometimes as deep as 2,000m, these umbilicals are difficult to repair. The quality must be impeccable and both the customer and the manufacturer must have the utmost confidence in the manufacturing process.

Nexans begins its process with 12m to 40m lengths of super duplex tubing, welding them into lengths up to 20,000m or more, the capacity of its enormous reels. The umbilicals are used to control sub-sea offshore equipment from a platform, production ships or directly from onshore.

The company is currently producing the Ormen Lange 1 umbilical for Norsk Hydro, which will reach 120km from shore in Norway to the sub-sea field, and will contain seven super duplex tubes. The umbilical, one of two, will contain approximately



 PC transistorised power source with numeric control

37,000 welds, and will supply hydraulic fluid, electrical power and control signals (via integrated fibre optics) from the onshore gas processing facility at Nyhamna on the west coast of Norway to the sub-sea production systems.

Ormen Lange is the largest gas field under development on the Norwegian continental shelf, and is located 100km off the northwest coast of Norway at a water depth of 850 to 1,100m. The gas from this field is transported to shore for processing and



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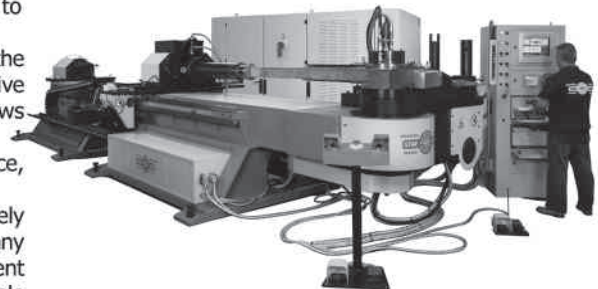
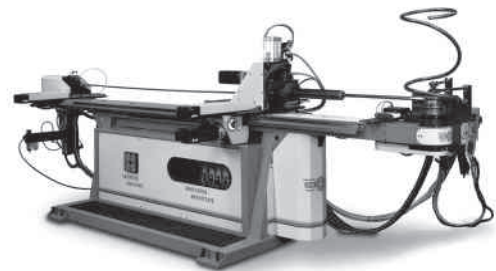
Available in thirteen different size configurations, from the simplest model one axis up to the more complete model 6/8 axis CNC, able to bend seven sizes of tubes from Ø 6x1 to Ø130x8 mm.

This new system, managed by brushless motors, controlled by the latest generation of digital drivers and by the proprietary and exclusive "bending cycles" management software operating in Windows environment.

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Technology Update

further to the United Kingdom in a sub-sea pipe called Lange-Led. This gas will cover approximately 20 per cent of the UK's gas consumption.

During the past decade, Nexans has developed a new generation of umbilicals for controlling sub-sea systems that carry energy, telecommunications, fluids, methane, fibre-optics, and chemicals via super duplex tubes. In the Norwegian 'Snow White' project for Statoil, a single 146km umbilical of this design transfers all wellhead control functions to shore, eliminating costly platform facilities. In another current project, umbilicals are being installed in the Gulf of Mexico beyond 2,000m water depths.

Nexans Norway started manufacturing umbilical cables in 1991. From the beginning, orbital welding was recognised as the only way to manufacture these lengthy tube assemblies, and to obtain perfect welds in a repetitive and precise manner.

In a welding plant which is approximately 150m in length, nearly 120m of plant floor are devoted to the production process for the three orbital welding lines. Bundles of super duplex tubes with IDs from 1/2" to 2 1/2", in lengths of 12m to 40m, are brought into the factory, unwrapped, and lifted to a sorting station on a dispensing platform at one end of the factory. Tubes are dispensed automatically to each of the welding stations which is manned by one operator.

The three orbital welding stations each employ Polysoude PC systems. The welding station equipment is on tracks, and can be moved to accommodate welding tube lengths from 14m to 40m. Polysoude orbital welding equipment has been used for umbilical production by Nexans since 1994. In 2005, 1.6 million metres of tubing were welded, using 75,000 welds.

Nexans uses open weld heads having AVC and oscillation features with wire feed (cold wire TIG). The cycle time from the beginning of setup to the beginning of the next setup at a weld station is dependent upon the tube diameter. A diameter of 3/4" may take one minute to weld (diameters referenced are always ID, since various ODs are used.)

As the welded tube advances out of a weld station, each weld is X-rayed. If a defect is revealed, the weld is cut out and re-welded. The welded lengths are then collected on a large reel, with an outside diameter of approximately 4m. Each reel can hold more than 20,000m of 1/2" tubing.

The tubes on the reel are then filled with water and pressure tested, usually with 1.5x normal working pressure, in a special pressure testing room.

In the umbilical lay-up machine there may be as many as a dozen large reels containing stainless steel tubing with various IDs and ODs. The actual lay-up point is placed approximately 12m above the large rotating turntable. Each reel feeds its contents upwards to the lay-up standing point where the super duplex tubes are spiralled around a larger centre tube, forming the interior of an umbilical cable. The cable can then go to the armouring operation first, or be wrapped in a plastic material to hold it together, prior to the PE sheet extruding operation.



Full function welding head, Type MU

When contents of one of the tube-feeding reels comes to an end, the lay-up process halts while the empty reel is replaced. A welder will then use the Polysoude orbital welding equipment to weld the new reel's tube to the end of the previous reel's tube.

This welding is performed on a platform approximately 10m above the plant floor. A special extension cable has been constructed by Polysoude to permit the welding machine to remain on the floor below. When the welding is complete, the lay-up process continues.

The umbilical is produced to an outside turntable measuring more than 35m across, with a capacity more than 7,000t. The completed umbilicals are loaded onto ships at the plant's quay-side.

Article supplied with input from Mr Truls Nordahl, welding coordinator, Nexans Norway AS

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New hydraulic presses with variable force

AddisonMckee has introduced a new range of C-frame hydraulic press solutions, available in 25, 50, 75 and 100t variants. Models, which can be tailored to specific requirements, feature heavy-duty steel weldments and a guidance system designed to ensure precision and reliability.

AddisonMckee's models can deliver full pressing force at any point through the range of the ram stroke, and advanced controllability. The company recognised that one of the key considerations when choosing a hydraulic press is the amount of force necessary to perform the function required. The models were designed to offer variable force and reduced setup time.

The new range was introduced as a result of requests from customers seeking a high quality hydraulic press solution capable of integrating with their existing manufacturing facilities.

Suited to most stamping, punching, blanking, drawing and bending



i AddisonMckee's new hydraulic presses are available in models ranging from 25 to 100 tons

applications, AddisonMckee C-Frame models feature precision-guide ram, removable bolsters, light curtain and the

convenience of single hand start. Rapid advance, pressure and distance reversal features are included in the machine design, while the quick set adjustable ram stroke offers adjustable force of 25 to 100 per cent.

Water and oil cooling is provided, along with AddisonMckee HMI for machine setup and alarms.

Available options include imperial or metric versions, tee slots in upper/lower bolster, U-slot or hole in bed/bolster, slug pan, air/oil cooler, ram speed control and a comprehensive package for auxiliary devices.

The company also provides tube measuring solutions, tube perforation, piercing and louvring technologies, hydraulic press machinery, muffler assembly solutions, plant automation and complete workcell integration.

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C O S P O N S O R E D B Y



Tubotech 2007: *there's an awful lot of tube in Brazil*

On a visit to London in May, the president of the Central Bank of Brazil, Henrique Meirelles, sat for a searching interview with *Veja*, the leading Brazilian news weekly. After drawing from the nation's top banker a detailed account of the fiscal status of the country after four years of his stewardship – a period marked by a drop in inflation from 20 to 4 per cent a year – the interviewer brought things to a close with this delightful exchange:

Veja: What are the pressures now?

Mr Meirelles: Pressures ensuing from an absurd, almost irrational delirium.

The Brazilian economy grew... 4.9 per cent in 2004 and 2.3 per cent in 2005. This is more than creditable: it is enviable

The thought of a delirious populace nearly 200 million strong, in the land of the samba, is very bracing. But the statistics suggest that optimism is amply justified. Because Brazilians – who account for roughly half the population of Latin America – are now living (and buying, and investing) with much lower interest rates. The assertion by the chief of the state bank that the taming of inflation 'is great for the country' is well founded.

Brazil produces more than \$1 trillion in goods and services yearly, far outpacing any other country in Latin America. The latest available official data show that the Brazilian economy grew approximately 4.9 per cent in 2004 and 2.3 per cent in 2005. By the standards of the region this is more than creditable: it is enviable.

That growth was achieved together with booming exports, healthy external accounts, decreasing unemployment, and reductions in the debt-to-GDP (gross domestic product) ratio. The web portal GlobalEdge gives President Luiz Inácio Lula da Silva and his economic team full marks for having implemented 'prudent fiscal and monetary policies and pursued necessary microeconomic reforms'.

This makes cheering news for those heading to Tubotech 2007, which will take place from 2-4 October 2007 at the Rodovia dos Imigrantes Expo Centre in São Paulo. Over 128 exhibitors have already been confirmed for the event, with visitor numbers set to reflect the buoyancy of a growing economy and successful industry.

"There's an awful lot of coffee in Brazil," Frank Sinatra informed the smaller world of 1946. There still is – but the Brazil of 2007 offers much, much more. And in Messe Düsseldorf, members of the tube and pipe industry and its related specialities have a seasoned guide to those resources.

SHOW FACTS

DATE

Tuesday 02 October –
Thursday, 04 October, 2007

VENUE

Rodovia dos Imigrantes Expo Centre,
São Paulo, Brazil

SHOW HOURS

2pm-9pm

ORGANISER CONTACTS

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International Tube Association

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Website: www.itatube.org

INTERNET RESOURCES

www.tripadvisor.com



TUBOTECH EXHIBITORS: 2-4 OCTOBER 2007

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|---|---------|---|---------|
| ABIMAQ Association | Brazil | Losinox Ltda | Brazil |
| ABITAM Association | Brazil | Luda Development Ltd | China |
| Acos Caporal Indústria e Comercio Ltda | Brazil | Mahalaxmi Seamless | India |
| Acotubo Industria e Comercio Ltda | Brazil | Mair Research | Italy |
| AddisonMckee Ltd | UK | Manchester Tubos e Perfilados S/A | Brazil |
| Afigraf Comercio e Industria Ltda | Brazil | Marcegaglia do Brasil Ltda | Brazil |
| Alcobex Metalls | India | Marcoflan Indústria e Comercio Ltda | Brazil |
| Alianza Exportadora Ltd | Brazil | Maxvalue Industries Co Ltd | China |
| Alvenius Equipamentos Tubulares Ltda | Brazil | Meincol Distribuidora de Acos Ltda | Brazil |
| Anticorrosiva do Brasil Ltda | Brazil | Metal Machines Brasil Ltda – Metasil | Brazil |
| Apolo Tubos e Equipamentos S/A | Brazil | Metalblast Equipamentos e Maquinas Ltda | Brazil |
| Araya do Brasil Industrial Ltda | Brazil | Metaltrend Equipamentos Industriais Ltda | Brazil |
| Asthi Indústria e Comercio de Mangueiras Ltda | Brazil | Metalúrgica Danisa Indústria e Comercio Ltda | Brazil |
| Ata Solucoes EM Vibracoes Ltda | Brazil | Metalúrgica Golin S/A | Brazil |
| Banco de Olhos de São Paulo | Brazil | Metalúrgica Tubos de Presicao Ltda | Brazil |
| Luigi Bandera | Italy | Nacional Tubos Industrial Ltda | Brazil |
| Bema Brasil Ltda | Brazil | NDT Technologies Inc | Canada |
| Beneficio de Ferros Ltda | Brazil | Olimpia 80 Srl | Italy |
| BLM Group do Brasil | Brazil | Omega Tubos Comercial Ltda | Brazil |
| Bossi Srl | Italy | ORT Italia SpA | Italy |
| BSA Tuberunner | UK | P Martins Representacao e Assessoria Ltda | Brazil |
| Carbinox Industria e Comercio Ltda | Brazil | Penta Laboratories do Brasil | Brazil |
| Cemil Tubos e Conexoes Ltd | Brazil | Perfipar S/A Manufaturados de Aco | Brazil |
| Chandler Indústria e Comercio Ltda | Brazil | Persico Pizzamiglio S/A | Brazil |
| Changzhou Wujin Stainless Steel Pipe Co Ltd | China | Pferd – Ruggerberg do Brasil Ltda | Brazil |
| Cipa Ltda | Brazil | Polifitema Industria e Comercio Ltda | Brazil |
| Comafal – Comercial e Industrial de Ferro e Aco Ltda | Brazil | Polimeter Comercio e Representacao Ltda | Brazil |
| Comega Indústria Tubos de Aco e Perfilados Ltda | Brazil | Politron Ltda | Brazil |
| Comercial Mercotubos Atibaia Ltda | Brazil | Primus Processamento de Tubos S/A (Protubo) | Brazil |
| Conecval Conexoes e Válvulas Ltda | Brazil | Promau Srl | Brazil |
| Confab Industrial S/A | Brazil | Roentgen Comercio Representacoes Ltda | Brazil |
| Conflan Industrial Ltda | Brazil | Rosenberger GmbH | Germany |
| Dagan Comercio de Metais Ltda | Brazil | Saint Gobain Canalizacao Ltda | Brazil |
| DB Engineering | India | Sanko-Sider | Brazil |
| Dragtec Tubos de Aco helicoidal Ltd | Brazil | Scanner Importacao e Exportacao Ltda | Brazil |
| Durit Brasil S/A | Brazil | Schierle Stahlrohre KG | Germany |
| Dutex Tubos Inox Ltda | Brazil | Schulz America Latina Importacao e Exportacao Ltd | Brazil |
| Editora De Pesquisa Industrial Ltda | Brazil | Shanghai Want Industry Ltd | China |
| Editora Suprimentos & Servicos Ltda | Brazil | Siderinox Comercio e Industria Ltd | Brazil |
| Empresa Brasileira de Solda Electrica S/A (EBSE) | Brazil | Sinico SpA | Italy |
| Engemasa Engenharia e Materiais Ltda | Brazil | Sonda Import Ltda | Brazil |
| Etage Indústria e Comercio Ltda | Brazil | Soufer Industrial Ltda | Brazil |
| Eurolls do Brasil Ltda | Brazil | Star Tecnologia Industria e Comercio Ltda | Brazil |
| Farex Comercio de Maquinas Ltda | Brazil | Steel Cifa International Cie Ltda | Brazil |
| Flacon Coexoes de Aco Ltda | Brazil | Strada Representacoes Comerciais Ltda | Brazil |
| Futuro Trading Ltda | Brazil | Taglio Tecnologia Ltda | Brazil |
| Gallium Industries Ltd | India | Tecnotextil Industrias e Comercio de Cintas Ltda | Brazil |
| GH Inducao do Brasil Ltda | Brazil | Termomacchine Srl | Italy |
| Grips Marketing e Negocios Ltda | Brazil | Ti do Brasil Importacao e Exportacao Ltda | Brazil |
| H Mech Tubos e Conexoes Ltd | Brazil | TMK | Russia |
| Hagane Facas e Serras Industriais Ltda | Brazil | Tube & Pipe Technology Magazine | UK |
| HangZhou Sanp Machinery Co Ltd | China | Tubexpress Ltda | Brazil |
| HCI Hidraulica Conexoes industriais Ltda | Brazil | Tubos Ipiranga Importacao e Exportacao Ltda | Brazil |
| Imefer Industrial e Mercantil de Ferragens Ltda | Brazil | Tubos Oliveira Ltda | Brazil |
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| IMV Indústria e Comercio de Válvulas Industriais Ltda | Brazil | Tuper S/A | Brazil |
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| Inoxplasma Comercio de Metais Ltda | Brazil | Wiest Tubos de Aco | Brazil |
| Intrelcaf Indústria e Comercio de Trefilados Ltda | Brazil | Xi'an Raina Industry Co Ltd | China |
| Isotref Tubos e Acos Ltda | Brazil | Yee Young Industrial Co Ltd | Taiwan |
| International Tube Association (ITA) | UK | Zamprognia S/A Imp Com Industrias | Brazil |
| JAG Industria de Maquinas e Equipamentos Ltd | Brazil | Zhejiang Jinggong Valve | China |
| Jiangsu Guoqiangu | China | Zhejiang Jiuli SS Pipe | China |
| Lamarck Comercio de Válvulas e Conexoes Ltda | Brazil | Zhucheng Valve & Pipe Fitting Co Ltd | China |
| Maschinenfabrik Liezen und Giesserei GmbH | Austria | | |

Please note: exhibitor list correct at time of going to press – for updates please contact Messe Düsseldorf

EXHIBITOR PROFILES

Alcobex Metals Ltd India

Alcobex Metals Ltd is an ISO 9001-2000 certified company engaged in the manufacture of copper and copper based alloy through the hot extruded and cold drawn methods. 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 of up to 18m.

With over 40 years experience, Alcobex serves the power industry, refineries, desalination plants, offshore, ship building, sugar industry and component manufacturers.

The main alloys in the range are 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.

Website: www.alcobex.com

Luigi Bandera SpA Italy

Established in 1974, Bandera is a world-leading manufacturer of extrusion lines for plastic products, including pipes, film and thermoplastic foils/sheets.

The company has recently completed the supply to a Russian producer of a turnkey line for three-layer coating of steel pipes (ie epoxy primer, tie resin, polyethylene), with a diameter range of 1¼" to 21" and a length of up to 12m.

The Bandera pipe coating process takes place via sleeve technology, which consists of a special co-extrusion die head that achieves a uniform distribution of the coating layers over the circumference of the pipes.

The line has a production capacity of up to 300m²/h, an effective rate due to the



 Bandera's new turnkey line for three-layer coating of steel pipes

relatively small diameters of the pipes undergoing the coating process.

Bandera has developed an automatic device for both axis-pipe and axis-die head alignment. A number of sensors, assembled at the inlet of the co-extrusion die head, detect the exact pipe position. These sensors are interfaced with two different handling systems that allow the extrusion die head to continuously adjust its position along the X and Y axes.

The line is of significant size (160m x 30m), and presents numerous relevant technical features. A special washing and rinsing unit cleans the pipes prior to their entrance into the gas furnace, to be fully dried, before proceeding to the sand blaster.

Innovative, automatic and fully independent tape wrapping units wrap the pipe heads with adhesive tape, in order to ease the pipe brushing process that will take place downstream. Downstream of the take-off unit, the pipe is heated by a specific induction furnace (170-220°C) and subsequently goes through the 'primer cabin'.

Inside the primer cabin a uniform layer of epoxy varnish is distributed over its surface, in order to increase the adhesion of coating materials to be applied by the extrusion die head.

A number of cooling tanks are positioned immediately downstream of the extrusion area, fed by a specific raw material charging, drying and dosing system. These cooling tanks have the function of decreasing the temperature of the pipe down to about 50°C. Since this process involves significant water volumes, a closed cycle system is used.

The water in this system is filtered and cooled by a chilling unit before being recycled. This technology is derived from

substantial experience, as it is not enough for the chiller to be properly sized. It is essential to know the ideal quantity, as well as the inclination of the spray nozzles required to cool the pipes.

The thickness control device, which affords the possibility of effecting accurate adjustments to the extrusion die head, optimizes the process.

A special cutting unit facilitates the operators in carrying out the separation of the pipes downstream of the extrusion area.

New brushing cabins allow the removal of the coating material from the pipe heads more quickly and precisely, as compared to the procedure adopted in the past.

Bandera has also introduced an additional machine into the line, adding technical value to it and consequently increasing its technological level. This additional machine is the automatic pipe-packing device that, through the use of a handling unit, affords the possibility of placing the pipes in hexagonal bundles, preparing them for transportation.

New, high temperature and wear-resistant technopolymers are used along the whole line for the manufacturing of the roll gangs. These are the conveyors that carry out pipe handling among the various machines in the line.

An electronic control system is used to help operate this line, and Bandera have also developed software for pipe coating lines.

Website: www.luigibandera.com

Bossi Srl Italy

With over 40 years of experience in the production of machines for metal surface finishing, Bossi Srl offers a wide range of solutions for grinding, satin-finishing, polishing and deburring.

Bossi's products include centreless grinding/polishing machines for round



① Model RSP 400/3000/2U-200 + orbital brushing unit is ideal for making deburring operations on blanked pieces

tubes/bars, longitudinal brushing/polishing machines for round or shaped tubes, flat grinding/polishing machines for square/rectangular tubes and bars, tube internal polishing machines and tube wrapping machines.

The company also produce machines to be used in-line on tube-mills, including brushing planetary machines and brushing machines for square/rectangular tubes for TIG, HF and laser lines. Also available are machines for removing the tube external or internal weld bead for TIG and laser lines.

Website: www.bossi-srl.com

DB Engineering (P) Ltd India

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, together with finishing/polishing machines.

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

② Atlas tube cut-off blades and alfa shears



DB Engineering has comprehensive in-house design facilities, including special computer software that aids the building of designs according to specific 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

Futuro Trading Ltd Brazil

In partnership with leading international manufacturers, Futuro Trading Ltd supplies equipment to both the Brazilian and international tube and pipe industries. With 20 years experience, the company offers a product range including impellers, ferrites, rolls, impeller casings, induction welding coils, OD scarfing tools, ID scarfing tools, circular saws, and cut-off blades.

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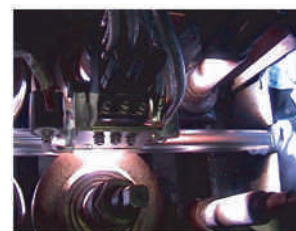
24" Pipe Mill And Annealing



Laser Welding



HF Welding For SS Tube



Tri-Cathode Welding



① A Futuro impedor and ferrite tester

← Futuro Trading recently introduced a new impedor and ferrite tester which allows testing of the relative permeability in ferrites and impedors.

The company are representatives of MTM Machinery, Italy (tube production equipment), Emmedi, Italy (induction welding equipment), Julia Utensili, Italy (circular saws for metal cutting) and Kent Corporation, USA (portable shear and end-welder, uncoilers).

Website: www.futurotrading.com.br

Gallium Industries Ltd India

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 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



① Gallium's online automatic bundling machine

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, Brazil, Iran, China, Thailand and many others.

Website: www.galliumindia.com

Jiangsu Guoqiang Ind Co Ltd China

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 substantial volume of rolling steel strips.

With 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.jsqg.cn

International Tube Association UK

The International Tube Association (ITA) – the world's largest association of tube and pipe engineers – will offer assistance at Tubotech to tube and pipe professionals. The ITA will provide information on the membership benefits available, including support services at the major tube shows and the educational opportunities provided through technical conferences.



International Tube Association

At the show, existing members can take advantage of the enhanced range of member benefits available, while non-members can find out about joining. ITA benefits include reduced delegate fees for conferences, free promotional opportunities in the ITAN newsletter, free visitor entry and hospitality at selected exhibitions, access to copies of ITA technical conference papers, and large discounts for using www.tubefirst.com. All members also receive an annual subscription to the officially endorsed magazine, *Tube & Pipe Technology*.

Visitors to the ITA stand will also find information about the ITA's technical events such as *Non-Ferrous Bangkok*, to be held on 17 October 2007. In addition, there is a conference planned to take place during Tube India 2008 in New Delhi.

ITA members will benefit from various facilities at Tubotech 2007, including telephone and fax services, Internet and email point, meeting area and interpreter services.

Website: www.itatube.org

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Tel: +91 22 2768 1193, 2763 2024, 2763 2026 Fax: +91 22 2767 0267 url: www.shreeganeshforgings.com email: shreeganeshforgings@vsnl.com

Jiuli China

Zhejiang Jiuli Stainless Steel Pipe Co Ltd is a leading manufacturer of stainless steel pipes and tubes in China. Founded in 1987, the company has a product range including seamless tube from 6-273mm OD and welded tube 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 also been endorsed by renowned boiler manufacturers and currently supplies boiler tubing to them on regular basis.



Jiuli manufactures seamless tube from 6-273mm OD and welded from 9.53mm to 2,540mm OD

From 2004, Jiuli began the construction of a 3,500t hot extrusion project for seamless stainless steel pipes to provide higher quality product. The hot extrusion plant – established to make Jiuli more competitive on the international scene – is now ready for production.

In April 2006, Jiuli was awarded with the supply of 1,500 metric tons of welded pipes for a pulp and paper project in south China.

Website: www.jiuli.com

Liezen und Gießerei GmbH Austria

Maschinenfabrik Liezen und Gießerei (MFL) is a manufacturer of sawing and milling machines, supplying producers of precision and seamless pipes worldwide. These plants are designed for the sawing of stainless steel, iron and aluminium in the form of solid materials, pipe, extrusion and plate.



MFL's HK 1200 L-132 sawing machine

These custom-made solutions are used for specific applications such as tube or profile layers, billets or plate sawing plants.

Each of MFL's machines is designed to use carbide tipped saw blades, which guarantee high capacity, low costs and a long service life. The sawing machines are controlled by the Siemens S7.

The company also supplies edge milling machines for processing edges of welded tubes. The latest development is a mobile rail milling machine for milling worn underground railway track without demounting.

MFL is an expert in the field of machining and supplies both turnkey plants and individual machines for modernizing and increasing the capacity of pipe production units.

Website: www.mfl.at

Mahalaxmi Seamless Ltd India

Mahalaxmi Seamless Ltd is a leading manufacturer of cold drawn steel seamless tubes (carbon and alloy). The company supplies its products for applications including heat exchangers, automotive and hydraulic.

Heat exchanger tubes are available in a range of grades. The company manufactures its hydraulic tubes in accordance with DIN 1630/2391-C-St 30,35,37.4,45,52,52.4, while fuel injection tubes are supplied as per DIN 2391 and ISO 8535. Mechanical tubes match the requirements of ASTM SA 519, IS 3601, and IS 3074.

The dimensional range of products is from 4mm to 101.6mm OD and 0.71mm to 7mm WT. The company's production capacity is 10,000 metric tonnes or 5 million metres per annum.

Website: www.mahalaxmitubes.com

Mair Research SpA Italy

Mair Research SpA manufactures a wide range of tube finishing and processing lines, supplied to tubemakers and end-users. The company can facilitate hydrotesting of ERW and seamless tubes with a diameter of 4-10". Mair's hydrotesters can handle tubes with single, double and triple head for API line pipe, casing and tubing.

A range of technology is available for working tube ends, including cutting, end finishing and threading. The company's multi-head cutting machines are designed for high quantities of cut pieces by utilising multiple cutting heads. The sawing machine range provides the simultaneous cut of steel tubes in round, square or rectangular shape.

Tube end facing machines are designed and manufactured for inclusion inline with a tube mill or finishing line. With quick tool changeover, the machines have very high end facing levels. The end facing lines automatically provide the end facing and the inside/outside chamfering operations, with no adjustment required for length change.





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← Mair's tube threading machines provide the fully automatic threading operations on both tube ends. Such lines can be placed inside tube finishing lines or be used as offline equipment. They are equipped with an automatic bundle loader for tubes on entry and a collecting system for threaded tubes on exit.

The company also offer tube packaging lines to automatically pack tubes in square, rectangular or hexagonal bundles, either at the exit of the tube mill or as an offline machine. Wrapping, strapping, weighing and labelling are integrated operations for bundles on packaging lines.

Website: www.mair-research.com

Meincol Steel Distributors Brazil

Meincol Steel Distributors specialise in the production of welded carbon steel tubes processed with the latest metal-forming, cutting and welding technologies (ERW).

The company is situated in Caxias do Sul, Rio Grande do Sul and is strategically positioned for distribution to markets in Mercosur, south and southeast Brazil.

The company's modern industrial site has capacity for processing 340,000t of steel per year, featuring 6 tube-forming lines from 3/8" to 10", in thicknesses from 0.60mm to 9.5mm. These products comply with the widest industrial, structural and conduction requirements and standards. The range includes rounded, square, rectangular or special sections, in hot- or cold-rolled, descaled, and galvanized materials.

The company has just launched an exclusive line in the square and rectangular tube market, with large diameters and thicknesses of up to 8mm. These tubes are formed inline to replace welded profiles and seamless tubes in the construction, agricultural and highway tools and other segments.

Meincol is a modern company focused on quality and quick delivery of products and

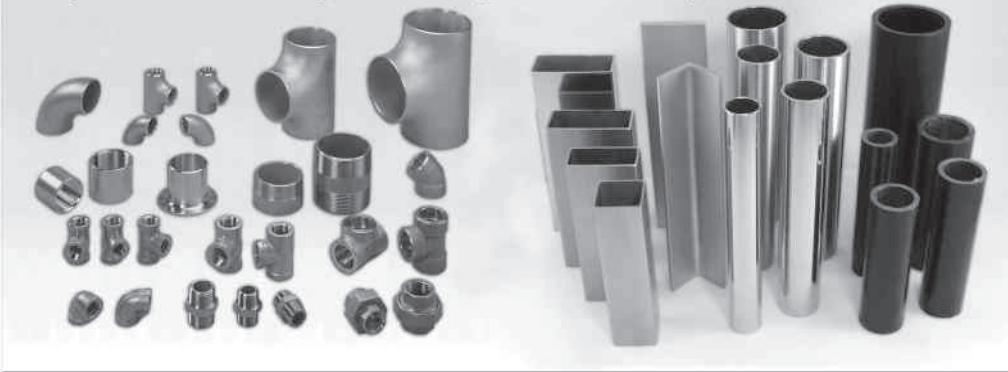


Meincol is a Brazilian specialist in welded carbon steel tubes

services. It currently operates 2 premises in Caxias do Sul (the industrial plant and its headquarters and retail unit), and a distribution centre in Guarulhos/SP (35,000m²). The company features among the most important processors and service providers in the steel market in Brazil.

Website: www.meincol.com.br

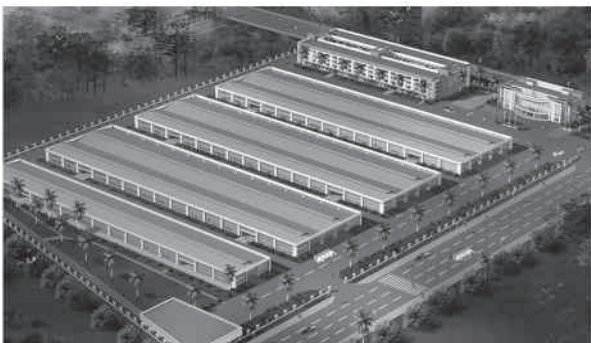
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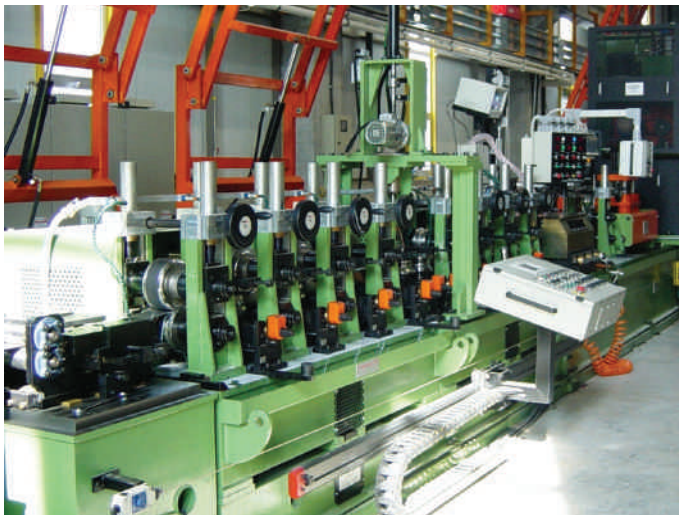
Shanghai :
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Olimpia 80 srl
Italy

Olimpia 80 Engineering is a leading company in the design and construction of complete mills for the production of welded tubes. With substantial experience, the company offers both individual equipment and complete lines, suitable for TIG, laser and HF welding.

The machinery is designed for material including stainless steel, carbon steel, titanium, copper and other non-ferrous materials. The company also offers a wide range of equipment for strip handling, tube cutting, inline bright annealing and inline and offline tube finishing.



i Olimpia 80 manufacture a complete range of mills for the production of welded tubes

One of the latest projects developed by Olimpia 80 is the revolutionary satin and mirror polishing machine for round tubes.

Olimpia 80 can also supply turnkey systems, develop personalised solutions and provide complete after-sale technical services and personnel training. Stand personnel will include Mr Travini Vittorio (president), Mr Tarana Gianluca (sales manager), and Mr Jose Marcio (Brazilian agent).

Website: www.olimpia80.com

Polimeter Ltda/Magnetic Analysis
Brazil/USA

Polimeter Comercio e Representacoes Ltda, exclusive representative for Magnetic Analysis Corp in Brazil and Chile, will feature nondestructive test instruments and systems for inline and offline inspection of welded and seamless tube.

The new MAC®-X eddy current NDT inspection system will be a key feature on the booth. Starting with this MAC-X core instrumentation, users can select the exact combination of elements for their application. Rotary test probes, encircling test coils, pencil probes and other test sensor configurations and mechanics can be integrated with the MAC-X.



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← A range of cabinetry, monitors and other options are also available. Depending upon the requirements, instrumentation can have up to six test channels. This Windows® XP based instrument provides vivid real time signal display graphics, with superior signal to noise ratios.

Polimeter will also provide information on the entire range of Magnetic Analysis test systems including the Echomac® FD-4 ultrasonic instrumentation and UT rotaries, as well as the Rotoflux® flux leakage systems for testing large diameter, heavy wall pipe for the oil and gas industry.

Magnetic Analysis Corporation has over 75 years of experience as a leader in non-destructive testing. The company claims to have developed the first American-made system using electromagnetic principles for the detection of flaws in steel bar products. Today, MAC systems for inspecting tube and pipe are being used throughout the world and at major tube plants in Brazil.

Polimeter Ltda – Brazil
Website: www.polimeter.com.br

Magnetic Analysis Corporation – USA
Website: www.mac-ndt.com

Shanghai Want Industry Ltd China

Shanghai Want is a leading Chinese manufacturer of seamless stainless steel pipe, fittings and flanges. The company has over 15 years of experience in worldwide markets and has multi-lingual, multi-national staff.

The company's products meet standards including ASTM, DIN, JIS, and GB, with certification according to ISO-9001 and FED from DNV Norway.

Shanghai Want offers a substantial product range that includes seamless stainless steel pipe from 1/2-24". Also available are butt-weld pipe fittings – including elbows, tees, reducers, stub ends and caps – in a seamless range from 1/2-28", and a welded range from 1/2-58". Products are available in 304, 304L, 316, 316L, 321, 310, Ti, Monel, and AL.

The company also provides forged flanges from 1/2-36", and bends from 1/2-36".

Website: www.asiapipefitting.com

Star Tecnologia Ind Com Ltda Brazil

Star Tecnologia provides engineering solutions and products for the Brazilian and South American tube and pipe markets. The company's range includes new tooling for tube mill lines, welding rolls, impellers, ferrites, casings (fibreglass, silglass and ferroglass), and carbide inserts for inside and outside scarfing.

The company also manufactures tool holders, inside scarfing tools, coil for induction HF and others products. Furthermore, Star Tecnologia offers services including consultancy for tube and profile companies, technical training, and regrinding tools for tube mill lines.

Website: www.startecnologia.com.br

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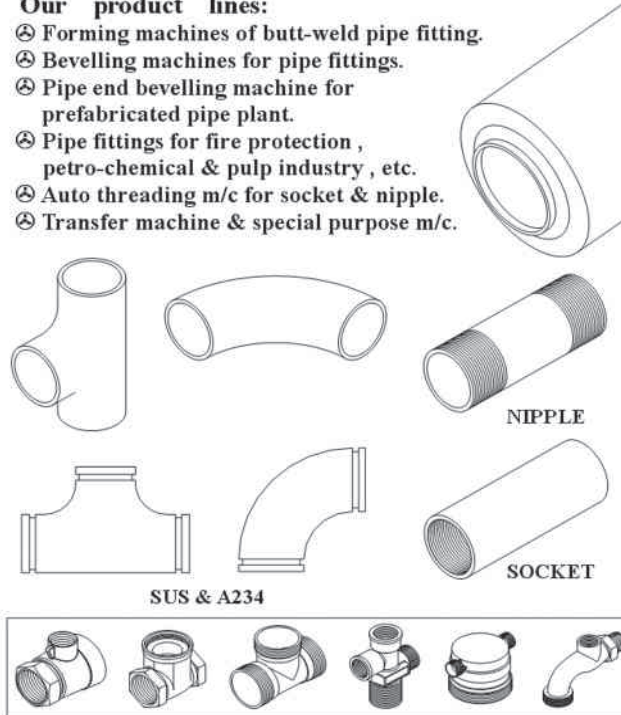
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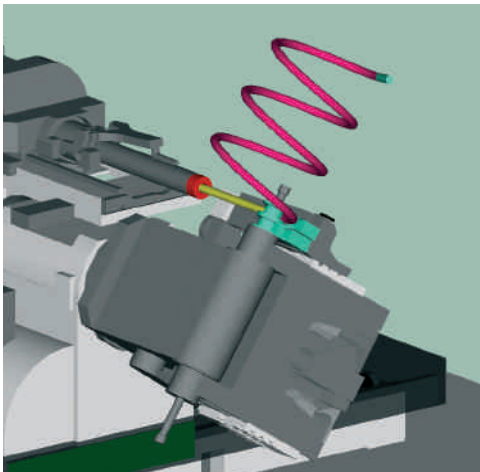
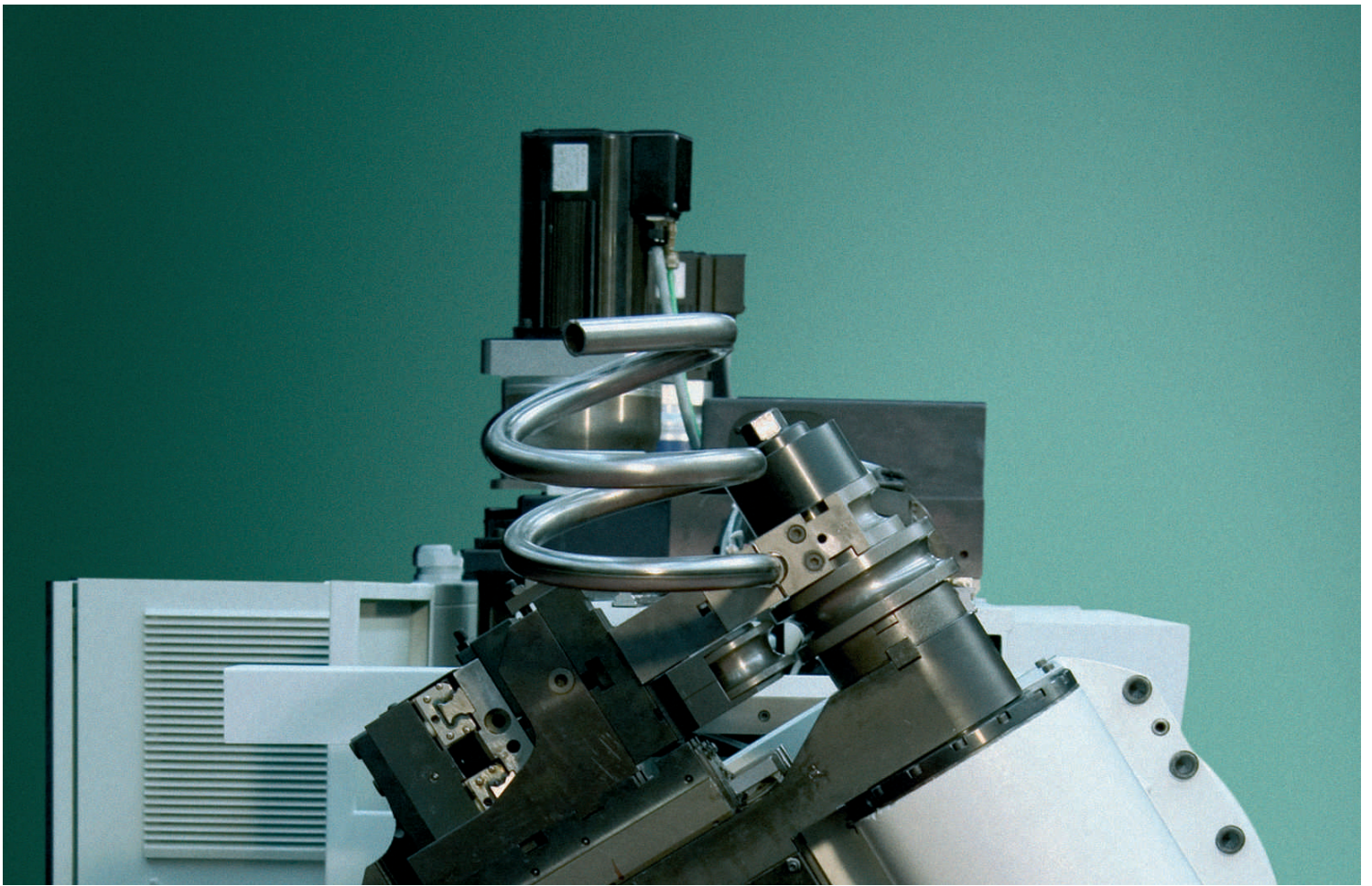
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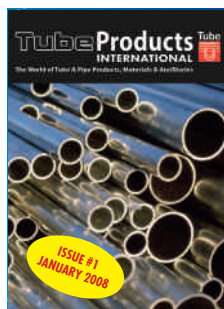
Tube & Pipe Technology is the international trade magazine for the tube and pipe industries, published six times a year in the English language. Covering the production, processing and utilisation of tube and pipe, each issue provides coverage of essential industry news, personnel changes and technology 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 also circulated to all ITA members.

Tube & Pipe Technology is now 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 are able to incorporate video-movies into their adverts.

Visitors to Tubotech 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.



Information will also be available on *Tube Products INTERNATIONAL*, the new magazine for the world of tube and pipe products and materials, read by producers, buyers and end-users.

Information will also be available on *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

Vsmo-Avisma Tube Works Ukraine

CJSC Tube Works Vsmo-Avisma is a major producer of titanium alloy tubes. The Tube Works is supplied with billets by its parent company, JSC Corporation Vsmo-Avisma (Russia), one of the world's largest producers of semi-products and finished titanium products. During 2003-2006, there was a fourfold increase in the company's output of cold-finished tubes.

The company's annual production of cold-finished titanium tubes is 350t, with a diameter range of 6-130mm and wall thickness of 0.5-9mm. In cooperation with CJSC Nikopol Tube Company, the company also produces 200t of hot-finished titanium tubes, available in sizes of 114-325mm OD and 7-30mm wall thickness.

Vsmo-Avisma engineers are constantly developing new technologies for titanium tube production and new types of products. For example, new products and processes include octahedral and ribbed tubes, a special kind of thin tube for accordion



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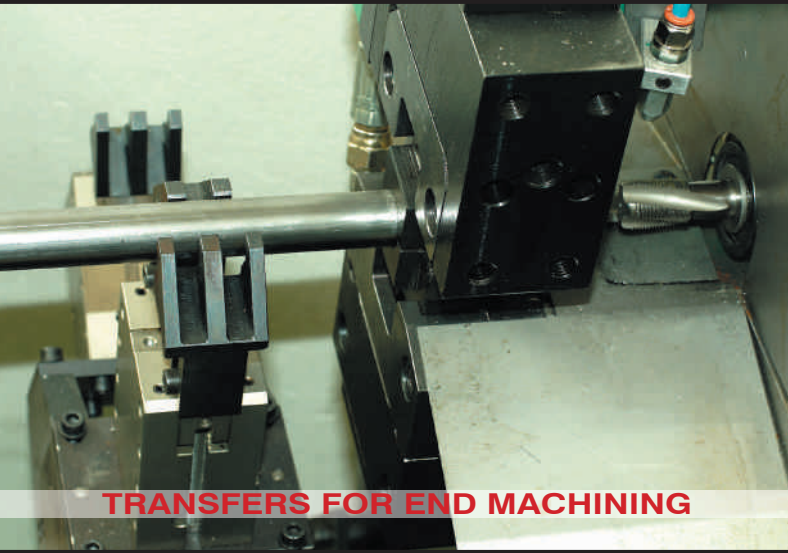
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Material: 304, 304L, 310S, 316, 316L, 321, 317L, 347 Etc.
Seamless outside Diameter: 1/4" - 26"; Seamless Thickness: 0.025" - 1.25".
Welded outside Diameter: 1/4" - 60"; Welded Thickness: 0.025" - 1.25".



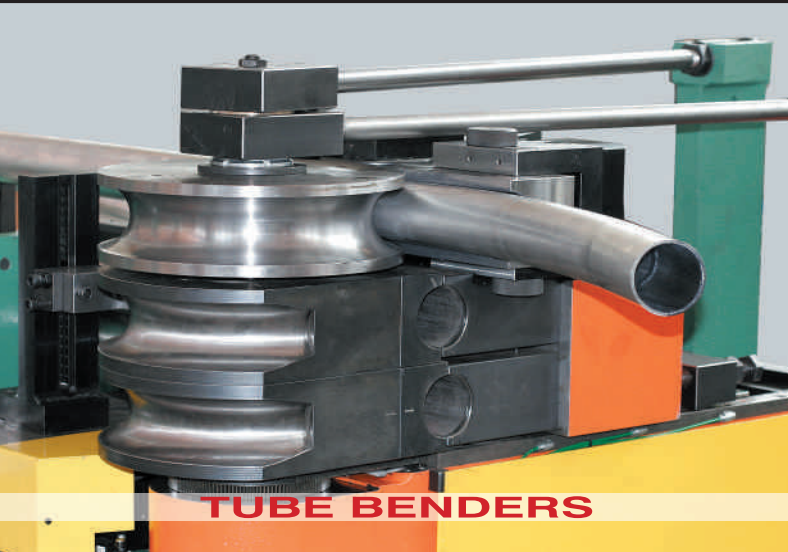
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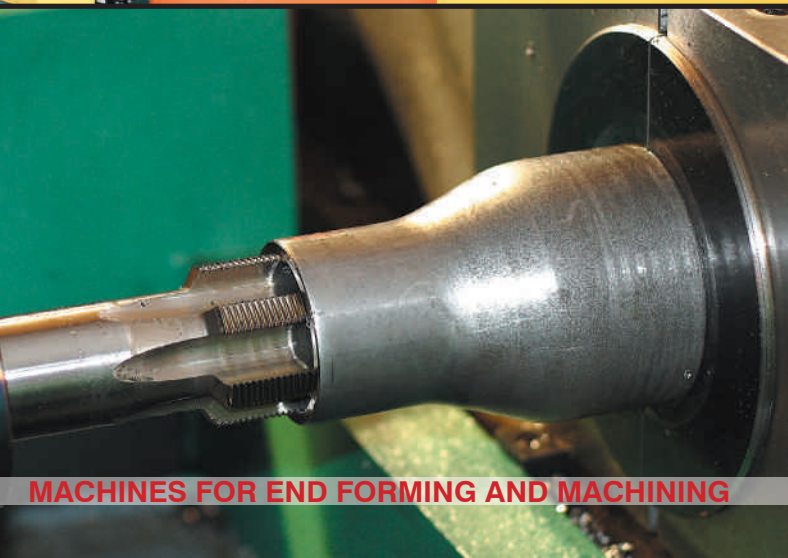
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DEBURRING SYSTEMS



The Vsmo-Avisma range includes both cold-finished and hot-finished titanium alloy tubes

boots, and long-length tube production. All products are manufactured according to international and national standards, with comprehensive inspection and testing.

The company's titanium tubes are widely used in aircraft manufacture, with enterprises including Antonov Aeronautical Scientific/Technical Complex, Kyiv State Aviation Company (Aviant), and Voronezh Open Joint Stock Aircraft Building Society. In shipbuilding, the company's products are used by Sevastopol Marine Plant, JSC Baltiyskiy Zavod, JSC Shipbuilding Northern Shipyard Works, FGUP Admiralty Shipyards. Other customers include the Northern machine-building enterprise and Machine-building enterprise Zvyozdochka.

However, application of titanium tubes produced by Vsmo-Avisma is not restricted to aircraft and marine machinery. Other industries include chemical, pulp/paper and food industries, mechanical engineering, sports and recreation, power engineering and pharmaceutical. Of particular advantage are the unique anticorrosion properties of titanium alloys.

Website: www.tw-vsmoavisma.dp.ua

Wiest Steel Tubes Brazil

With 60 years of experience, Wiest Steel Tubes manufacture a complete range of welded plain steel tubes, coated steel pipes, components, exhausts and piping solutions. The facility has an installed production capacity of over 50,000t of steel per year.

Located in the Brazilian state of Santa Catarina, the company produces a full range of tubes, available in round, square and rectangular dimensions, together with drilled and special pipe. Wiest also offers carbon steel pipes – welded using electrical resistance – for boilers, thermal exchange pipes, electro-duct pipes and conduction pipes. They can also be supplied with the exclusive coating process Protect Plus.



Wiest manufactures a complete range of welded plain steel tubes

These products are used for applications including boilers, auto parts, machinery and equipment, transportation/storage, leisure/sports, transformers, construction, and furniture.

Wiest Steel Tubes has the strong aim of developing new products with special raw materials in order to bring innovative piping solutions to the market.

Website: www.wiest.com.br

Zhejiang Jinggong China

With over 20 years of experience, Zhejiang Jinggong Valve Factory manufactures a wide range of high quality valves. The company has design capabilities for general-purpose and non-standard valves, and uses CAD and CIMS for design and manufacture.

Zhejiang Jinggong offers a range with a nominal diameter from DN10-1, 200mm (3/8"-48"), and nominal pressure 1.0-42MPa (125-2500lb). Valve materials include A105, 304, 316, 304L, 316L, WCB, CF8, CF3, CF8M, CF3M, Cr5Mo, hastelloy, monel and other wearable materials. The valve drive units include gear driven, worm-gear driven, electric, pneumatic and hydraulic.

Website: www.zjgg.net

Zhucheng Valve & Fitting Ltd China

Zhucheng Valve & Pipe Fitting Co Ltd is the manufacturer of valves, flanges and pipe fittings, primarily used in the petrochemical industry. Manufactured at ISO9001-2000 certified factories, this range of valves and pipe fittings meets standards including API and CE.

In recent years the company have built up a steady relationship with many reputable firms in the Americas, Europe and the Middle East.

Website: www.zc-pipefitting.com



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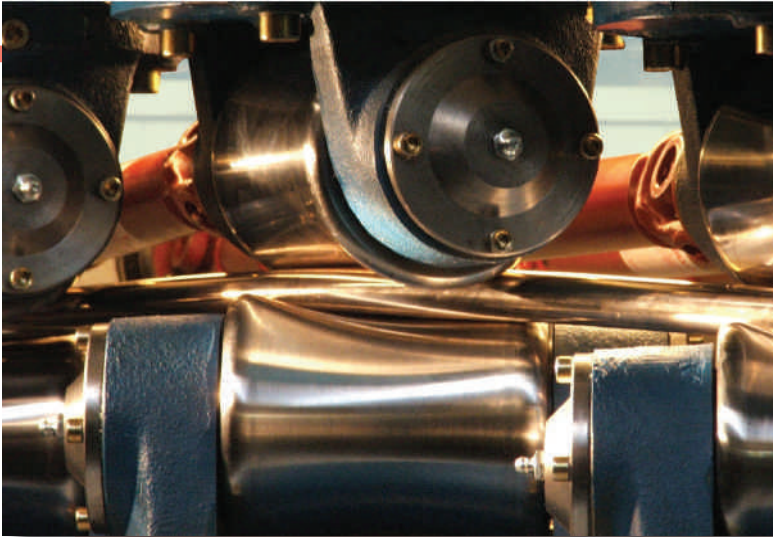
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Straightening & Finishing Technology



According to the prolific commentator Anonymous, it's not over till it's over. Thus last-minute losses are a fact of life. The horse stumbles. The front-runner fades. A defender comes out of nowhere to clear off the line. In tube and pipe production, straightening and finishing operate at that stage. They do not make the product, but they can break it.

Suppliers of straightening and finishing technology to tube makers must have a highly cultivated sense of 'just right'. Too much pressure, tension, torque, speed, angulation,

or force, and material turns to scrap; too little, and the procedure has to be repeated. Now, as ever, time is money. It is also – in an impatient world in which a reputation can be indelibly marked by a late shipment – productivity and profitability.

At a certain point in time, a hands-on designer realises that a belt-width smaller than the one in a 'straight only' polisher/grinder allows the sanding belt to follow around a curve. The unit, already dual-purpose, gains capability to accept straight, curved, and bent tubes of any ferrous metal. In its next generation it will offer capability for grinding, cleaning, smoothing, and polishing conical, oval, and other complex parts, in many more materials.

This review discloses that kind of progression in straightening and finishing: a steady expansion of the province of 'the new normal' from specialists at a make-or-break station in tube production.

Specialised tube straightening machines for heat treatment lines

Reika, Germany, has achieved a great deal of success with its new generation of multi-roll straightening machines.

Several machines have been sold to leading German and East European tube mills working in various diameter ranges.

⚠ Reika's tube straightening technology for ERW tubes up to 24"

The machines are available for all kinds of seamless and ERW tubes up to 24".

The company has also developed special straightening machines for hot tubes being processed in heat treatment lines. In particular, OCTG pipes with high yield strength require this hot straightening operation.

The machines are designed with state-of-the-art 3D CAD systems and offer finite element optimised frames and high rigidity. The straightening machines can be supplied with individual drives for roll wear compensation and dynamic process control.

Machines are set automatically with execution of proven mathematical and empirical algorithms, leading to short setup times and repeatable straightness qualities. This new

straightening machine generation is based on in-depth experience and a continuous exchange with tube mills.

Common problems such as hooked ends and tube end deformation are avoided due to the special roll profiles and a combination of hydraulic clamping and cylinder systems. The yield of the mill and the material scrap losses can therefore be efficiently reduced.

The high accuracy in straightness is achieved by a special combination of bending and ovalisation of the tubes between the rolls. The tubes are plasticised in a multi-stress combination with a wide contact zone in between the rolls. The hydraulic locking elements of the roll columns are concentric and wear-free, therefore the angular and vertical adjustment of the rolls is precise and repeatable.

Reika GmbH & Co KG – Germany
Fax: +49 2331 969 036
Email: info@reika.de
Website: www.reika.de





Rafted sizing and powered squaring mill


Addison Machine Engineering Inc, USA, has introduced the PSU-8000 rafted sizing/powered squaring mill. The mill provides two features that simplify changeover and setup and provide greater operator safety.

The outboard roll stand base has a built-in air bearing, making it possible for one person to easily remove the stand during roll changeover. In addition, the single point adjusters on each roll simultaneously position both front and rear side rolls, and individually position the driven rolls at the top and bottom. All roll adjustments are made from safe and convenient access points on the front of the unit with digital position indicators providing precise roll position to 0.001".

The powered sizing/squaring section is suitable for sizing round tube diameters of 3" to 7.625". It can also reshape rounds into square tube up to 6" x 6" and rectangular tube up to 2" x 10".

The PSU-8000 can be integrated into an existing tube mill or operated offline as an independent process. When operated as a separate process, the PSU-8000 is suitable for producing small quantity orders without interfering with the tube mill rolling schedule.



 The PSU-8000 rafted sizing/powered squaring mill

Addison Machine Engineering designs, manufactures and reconditions tube, pipe, rollform and steel mill roll tooling (including single and two-piece straightener rolls) and mill components, as well as complete tube and pipe mills and rollformers.

Other services include equipment rebuilding and retrofitting, operator training, mill alignment and technical consulting.

Addison Machine Engineering Inc – USA
Fax: +1 608 524 6099
Email: jeff@ameinc.com
Website: www.ameinc.com

Fast and precise pipe conditioning

Protém, Germany, a manufacturer of a broad range of tube cutting and pipe bevelling machines, has developed the CTA-series for processing pipes with diameters ranging from 2" to 36", based on any established steel grade.

The machines in the new range were specially designed for industrial application, and can be integrated into a complete production line to meet specific requirements.

Cutting and bevelling can be carried out simultaneously. Programmable tube lengths are possible, with control panel adjustment of tube diameters for identical bevels.

The rotation speed of the bevelling tool bits can be adjusted with a frequency inverter

according to specific diameters, wall thickness and steel grades.

The machines are equipped with two precise, concentrically acting clamping systems, enabling different manufacturing processes to be accomplished simultaneously.

Clamping is performed automatically due to pneumatic pressure monitoring, while either two or four tool holders enable different processing possibilities. Transparent windows on each side, controlled by sensors, allow the operator to monitor the working procedure.

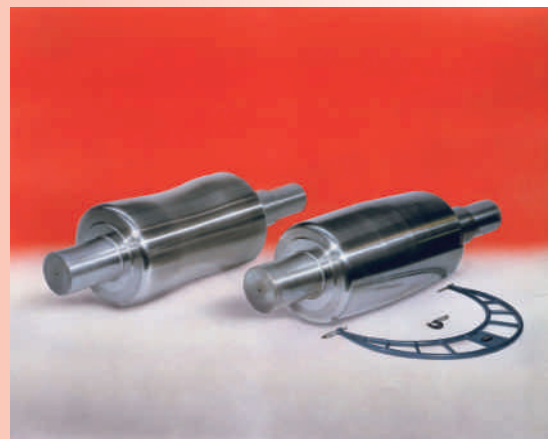
Protém GmbH – Germany
Fax: +49 7247 94 68 62
Email: info@protem-gmbh.de
Website: www.protem-gmbh.de

High performance rolls for straightening lines

The cold straightening process can be applied to many products including longitudinally welded or seamless tube and steel bar, sections and rails. The rolls used in the straightening processes must possess high hardness and wear resistance characteristics whilst also offering the lowest possible tendency to pick up.

Rolls manufactured from forged Märker® cold work tool steels are highly suited to these applications. The breaking rolls are of a one-piece design and made from pre-heat treated and stress relieved Märker® Zesek. In order to improve the resistance of these rolls, they can be surface hardened in a special hardening process (depth of hardness: approximately 10-15mm). This enables the production of rolls with a hard wearing surface and tough core.


For some applications, composite rolls are offered as a two-part design. In this instance, the working part of the roll is the shell manufactured in Märker® Zesek, fitted to a shaft constructed from tough heat treatable steels.



The Schmidt + Clemens Group supplies a full range of high precision roll products for many applications from its manufacturing plants in

Germany and the UK. The complete in-house service includes in-depth technical advice on rolls, roll refurbishment, manufacture of rolls to samples, design (rolls for production of tubes and cold rolled sections) and development.

S+C Märker GmbH – Germany
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 Straightening rolls manufactured in Märker® Zesek tool steel



Large tube borer boosts production

Keetons, UK, has recently installed and completed startup of a new tube boring machine. With a 1,200mm diameter chuck, it is the largest of the company's 4 tube boring machines.

The machine is able to bore thick walled tubular components from 2-10m in length, with bores from 60mm to over 600mm diameter. The machine also has a 500mm diameter hollow spindle to handle extra long jobs.

Delivery of this machine follows numerous other developments including the introduction of a second 8m honing machine.



i The boring of 475mm x 9m thick walled tubes used for the international energy market

One of the company's deep hole boring machines used for boring solid bars and forgings has also met with success.

The machine can bore jobs up to 6.5m long, but has a 4m-bed extension planned to increase the number of machines with capacity of over 10m.

Keetons has been producing and processing thick walled tubular components from seamless tube and solid bar for over

80 years. Despite recently increasing capacity and although boring jobs over 1,000mm long are normally undertaken, the company can also machine smaller items.

The company's smallest borer can handle bores of 20-70mm diameter from solid bar in lengths of up to 4m.

Keetons – UK
Fax: +44 114 243 5348
Email: enquiries@keetons.com
Website: www.keetons.com

Complete finishing centre brings advanced tube production

OAO Pervouralsky Novotrubny Works, part of the ChTPZ Group, Russia, has placed an order with SMS Meer for the supply of a complete finishing centre for its existing pipe plant.

The finishing centre is designed for an annual capacity of 75,000 to 90,000t and consists of a tubing/casing line, testing line, upsetting line and heat treatment unit.

The whole complex is coordinated and controlled by a superordinate computer system. Tubes in the size range from 60.3 to 177.8mm can be finished on the tubing/casing line.

The line essentially comprises four pipe threading machines, a two-head hydrostatic pipe tester with a maximum pressure of 150MPa, two drifter units for checking the pipe inside diameter, and the automatic measuring system (weighing,

length measurement, testing and marking). Also included in the line is a magnetic bundler for stacking pipes in hexagonal bundles.

On the upsetting line, tubing and drill pipes in the size range from 60.3 to 127mm are upset at the pipe ends.

The scope of supply includes an upsetting press with an upsetting force of 2,500kN, with upline induction heater and the necessary inspection and testing stations.

The testing line is used to inspect the quality of the heat treated and non-heat treated pipes.

Longitudinal and transverse flaw tests are performed in accordance with international standards. Upset and plain-end pipes in the size range from 60.3 to 219.1mm are heat treated on the heat treatment line.

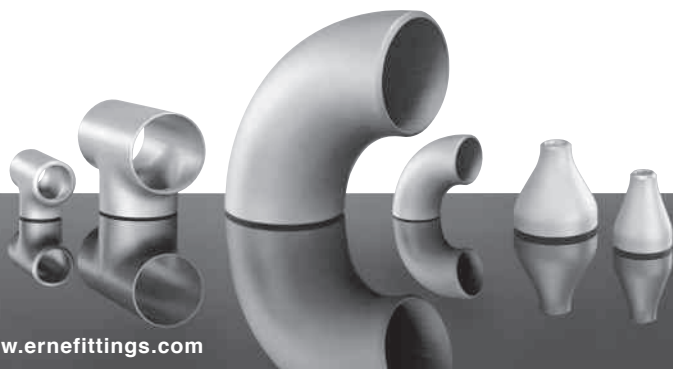
The scope of supply includes a hardening furnace and an annealing furnace (supplied by an Italian subsidiary of SMS Meer), quenching facilities with the associated water management system, a hot straightener with the necessary contraflow cooling beds, and the interconnecting transport facilities.

With this new finishing centre, the Pervouralsky Novotrubny Works pipe mill is now in a position to produce pipes of the highest grades and qualities.

Commissioning of the whole finishing centres is scheduled for the end of 2008.

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Straightening & Finishing Technology


Automatic straightening machines for 'upset' tubes

Cartacci Srl, Italy, has been operating for more than 40 years in the manufacture of automatic straightening machines. The company is now also a part of parent company, the Paccani Group.

The experience accumulated during these years and the continuous technological improvements now form the basic principles of the automatic 10-roll straightening machine.

The most important developments in the design and manufacture of the company's machines have been introduced during the last 10 years.

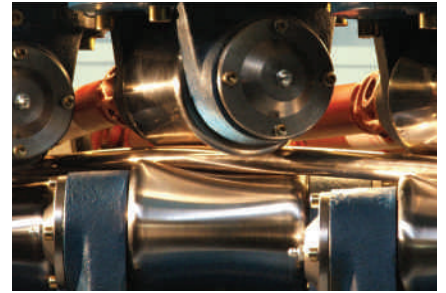
Featuring advanced technical characteristics, the machine can automatically calculate the setting parameters for the straightening process. This setting is memorised by the machine in order to allow the operator to easily recall it for the next production run.


 Cartacci's automatic 10 roll straightening machine with five different settings



The presence of 10 rolls also allows for an extremely versatile setup. It is possible to achieve five different settings, each corresponding to the particular target quality in order to achieve specific tube characteristics.

The other important innovation of Cartacci is the introduction of a new family of straightening



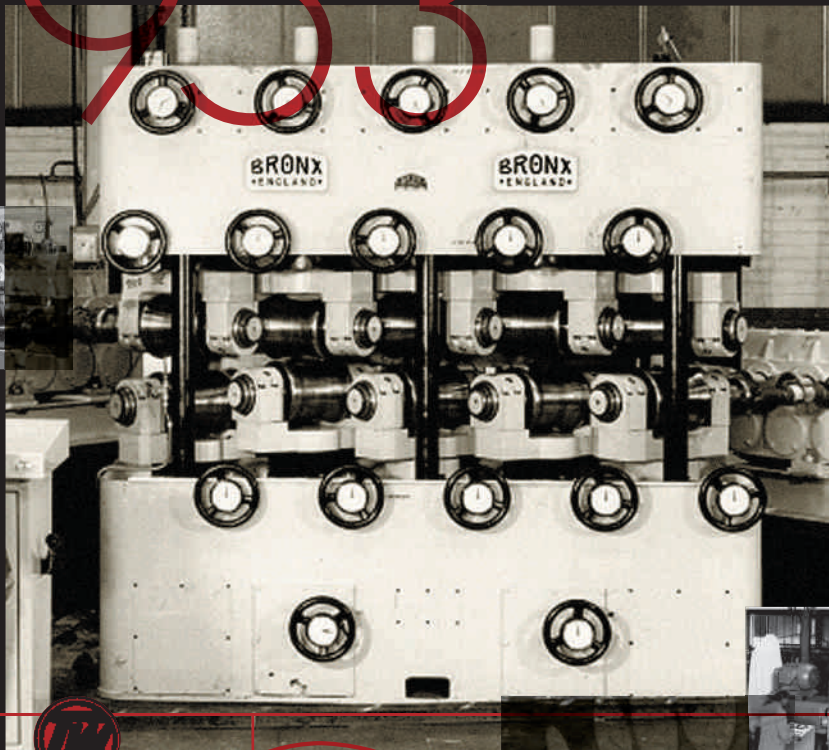
 The company has launched a range of straightening machines for 'upset' tubes

machines, designed for 'upset' tubes. Operation of these machines is based upon sophisticated logic and advanced technological 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 Cartacci straightening machines have found a good use in many sectors, with adaptability for tubes in steel, zincked steel, brass, aluminium, and gold. The machine can also accommodate tubes at 650°C,

1953



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Straightening & Finishing Technology



handled immediately after exit from the furnace.

The straightening machines made by Cartacci Srl combine sturdiness with precision setting. This is a perfect balance between the mechanical and electronic design, ensuring Cartacci's straightening machines satisfy a range of high performance applications.

Cartacci Srl – Italy
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Website: www.cartacci.com

Finishing, facing and chamfering technology

IMEC Tubes srl, Italy, is a specialist in machinery for tube finishing, facing and chamfering. These machines can be used for polishing and brushing round, rectangular and square tubes, together with final tube bundling and packaging.

A highlight of the company's machinery range is the IMEC 150 SBM, designed

for the brushing and surface finishing of square and rectangular profiles. This machine requires less cleaning, intervention and substitution of spare parts.

All mechanical parts of the machine are outside its working area. Every moving part is assembled over sliding systems with a caged ball, while extra motion sensors ensure the machine stops immediately upon incorrect user operation.

The brushing machine is equipped with four brushing heads, and driven by a compact asynchronous motor. The machine can accommodate brush dimensions with a maximum external diameter of 420mm and width of 170mm.

This motor operates with a number of revolutions between 0-2,000rpm, and a reduction gear that brings them closer and further away from the tube.

The machine structure enables easy brush substitution due to an ergonomic, easy access positioning. The adjustable roller



 The IMEC 150 SBM for tube brushing and surface finishing

system can suit every square size between 20 x 20mm to 150 x 150mm.

The switchboard control has a connection with flexible wire for easy removal during machine maintenance.

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Understanding 6 and 10 roll rotary tube straightening machines

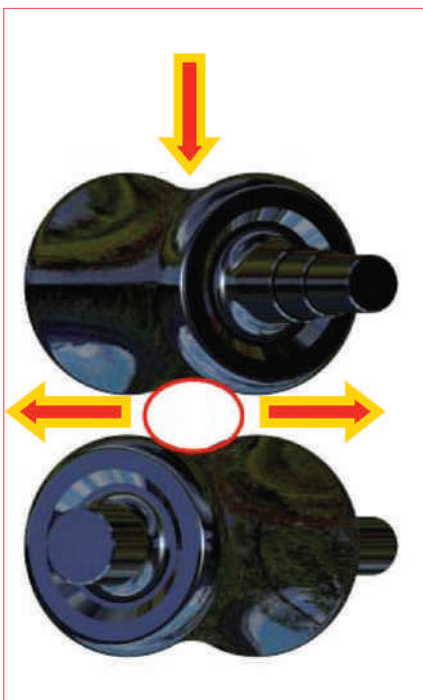
Rotary straightening machines configured with 3 pairs of vertical opposed rolls, all rolls driven, have been the tube industry standard for several decades. The 6-roll setting process remains complex and often the least understood process in a tube making plant. This has been further complicated by the introduction of machines with 10 rolls.

Rotary tube straightening machines are termed 'rotary' due to the tube revolving as it passes through the machine. In the early days these machines were designed with a number of roll configurations. However, the 6-roll machine became the standard for modern tube straightening.

This machine features 3 pairs of vertically opposed rolls, all rolls being driven. The tube is fed into the machine, after which the rolls grip the tube and rotate it while feeding through the rolls until the whole length has been straightened. While passing through the machine, the tube is subjected to two specific straightening forces: pressure straightening and bend (or offset) straightening.

During pressure straightening, each pair of rolls can be adjusted so that the gap between them is slightly smaller than the outside diameter of the tube.

ⓘ As a tube is passed through the roll pairs, it is subjected to pressure which leads to a degree of straightening



As the tube passes through this restricted gap, it is subjected to pressure. If this pressure is sufficient, it will cause the tube walls to be strained past their elastic limit thereby causing some straightening of the tube. If this ability to squeeze the tube is used correctly, the tube will be 'rounded up' thus removing some or all of its ovality. Ovality correction is an important ability of multi-roll rotary straightening machinery.

In the process of bend or offset straightening on the machine, one or more pairs of rolls can be adjusted to cause the tube to follow a curved path through the machine. Bending (or offsetting) the tube in this manner is the main straightening action performed.

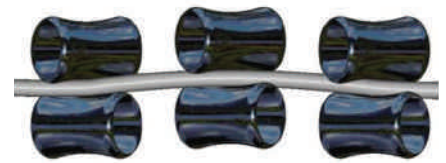


ⓘ In offset straightening, one or more pairs of rolls can be adjusted to cause the tube to follow a curved path

The amount of bend must be carefully controlled so that it is sufficient to take the tube past its elastic limit to achieve straightness, but without resulting in excessive work hardening of the tube material. As the revolving tube passes through the machine it is subject to pressure and bend straightening along its full length and in all axes.

As mentioned, there have been a number of machine roll configurations over the history of rotary straightening. Although some staggered roll machines are still in operation, the tube industry has standardised in order to use vertical opposed pairs of rolls with all rolls being driven. Machines with 3 pairs of rolls (ie 6-roll machines) have been in production for several decades.

In the late 1970s the first machines with 5 pairs of rolls were introduced, specifically where very high levels of straightness were required. Six roll machines require a high level of operator understanding to set the machine and achieve good straightening results.



ⓘ Roll configuration: the 6 roll machine

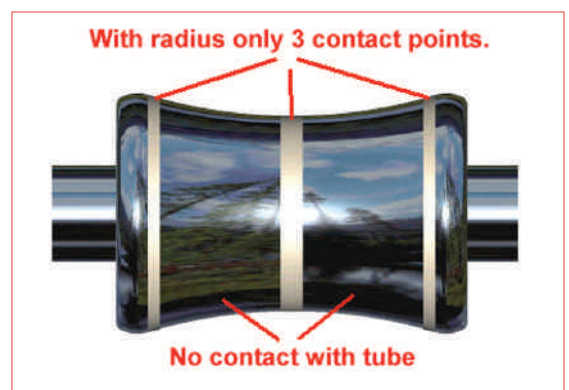
Ten roll machines are inevitably more complex to set and only a few were installed until computer-setting systems were developed in the 1980s. A 6-roll machine has a single bending moment, in comparison with its 10-roll counterpart that has two bending moments.

All straightening machines use specially developed and carefully contoured hardened steel rolls. The profile is hyperbolic and is produced by a three dimensional process. The roll profile is specifically designed to enable a range of tube diameters to be accommodated within a single machine. The full range of tube diameters is accommodated by adjusting the angular position of the roll and the gaps between each pair of rolls.

Rolls with worn profiles will not perform correctly and cause poor straightness and marks on the tube. However, rolls can be reprofiled several times during their life. It is important to understand that this generated profile is not a radius to prevent the tube from making contact with the roll along the profile. The machine can only perform well if the rolls are in good condition and have the correct profile.

It is important to recognise roll problems, as the roll profiles must be in good condition for correct machine operation. If the profile is worn, the tube will be marked and good line contact will not be achievable. Once the profile has worn 'off centre', it will mark the tube and further rapid wear will occur.

ⓘ Hyperbolic straightening rolls: the contact pattern on a simple radius is displayed



Straightening & Finishing Technology



ⓘ Roll configuration: the 10 roll machine

It is important to always keep rolls in sets with matching diameters. The amount of roll wear should also be checked on a monthly basis and logged. A simple procedure is to measure and monitor the diameter of the roll at the centre of the profile. When the difference in the diameter reaches the OEM's advised maximum deviation, the rolls should be reprofiled to bring them back to standard.

The majority of rolls are manufactured from high chrome, high carbon tool steel that is through hardened to values usually between 58 and 64 Rockwell C. Rolls can often be reprofiled until the diameter at the centre is down to about 80 per cent of the original size.

The 10-roll machine, currently experiencing increased demand, can reduce tube ovality to very small tolerances and straightness of 1:2500. There has been a quiet revolution taking place in the steadily increasing demand for tube with very high straightness requirements. Year upon year, tubing customers are demanding higher tolerances of tube straightness and also tube ovality.

Although the first 10-roll machine was introduced in the mid 1970s, it was not until computer machine setting systems were introduced in around 1989 that such machines became easier to set up. At that time, tube makers producing quality tube in stainless steel and other noble alloys took up the opportunity to produce straighter and rounder tube.

Beginning in the late 1980s, carbon steel tube users also started to install highly

ⓘ The roll shown below has a worn profile, with wear having occurred on one side of the profile. This indicates that the rolls were not correctly aligned in the machine



automated tube cutting machines.

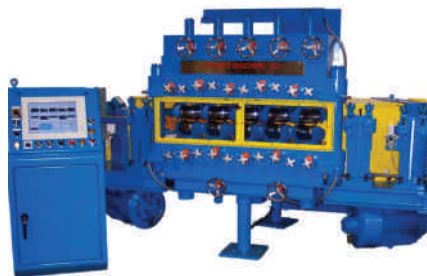
High production quantities destined for automotive and domestic product manufacturers required the installation of auto

tube loaders and feeding units. This higher production equipment will not successfully load or feed anything other than exceedingly straight tube.

A good example of this change lies within the tubular steel furniture industry. Lower grades of welded tube have fed this industry for countless years. Provided the tube looked basically straight it met the purpose and was acceptable to furniture makers.



ⓘ Computer setting systems have enabled the growth of the 10 roll straightening machine



Tapered tubular flagpoles – a difficult straightening application

Most flagpoles and lamp stands are made from tubular aluminium or steel, gradually tapered from base to top, to reduce weight and lower wind forces.

These tapered tubular products need to be straight. Normal parallel tubes are usually rotary straightened by machines that cannot straighten tapered tubes, as extremely complex changes in the roll position settings must take place to rotary straighten a tapering tubular product.

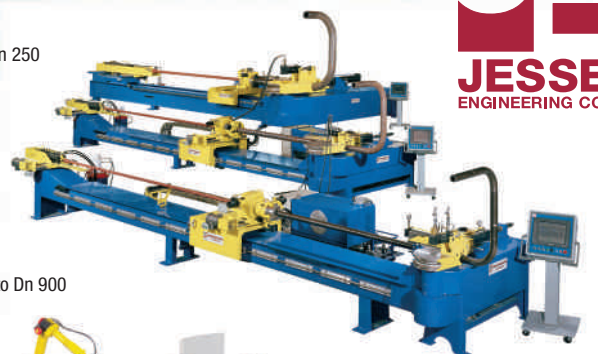
Turner (see opposite) has launched a new machine for straightening both parallel and tapered tubes. The machine can track tapered tubes at speeds of up to 150 FPM (45 MPM) using AC vector drives for roll positioning and laser gauges to measure tube position.

Enhanced computer software controls the entire straightening process. As the tube progresses through the machine, the roll screws down positions, straightening offset amount. All roll angles are automatically and continuously adjusted to constantly track and straighten the tapering tube.

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After the introduction of high-speed CNC tube bending machines the demands of the industry changed. Furniture makers now demanded very good straightness so that the loading and feeding stations could feed the tube into the CNC bender at high speed and without any misfeed or tube jams.

Although 6-roll straightening machines have their niche, today, the 10-roll machine is now the standard. Automotive prop shaft tubing, steel or aluminium is the preserve of the 10-roll, computer controlled straightening machine. With 5 pairs of

vertically opposed rolls, the outgoing tube is corrected to less than 0.001" TIR (0.025mm) with exacting straightness.

The difficulty in setting 10-roll machines initiated the development of computer setting systems in the late 1980s. These systems store all the required data to reset the machine for a specific tube.

This stored data is used to control motorised roll positioning equipment to reset the machine for a new size of tube in less than a minute. The majority of 6 and 10 roll machines are now shipped with these systems.

Small batch production with many size changes per shift is now possible with consistent quality. In addition to providing better tube straightness and ovality, the 10-roll machine produces a considerable increase in straightening consistency.

This increase in consistency is clear when processing badly bent tubes. It is a function of the additional number of plastic cyclic deflections that occur within this type of machine.

The 10-roll machine is clearly more flexible, being able to apply a large bending moment at the first pair of deflecting rolls, which is then linearly reduced to apply a finishing action at the last pair of deflecting rolls.

The leading end and trailing tube ends are straightened more effectively due to the ability of the machine to apply additional pressure straightening between 5 pairs (10 roll) rather than 3 pairs (6 roll) of rolls.

Turner Machine Company Inc – USA
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Email:
 turnermachine@turnermachineco.com
Website: www.turnermachineco.com

Computer setting systems ensure more accurate roll positioning



Computer setting systems provide more accurate roll positioning and ensure that each operator sets the machine with recorded and well-established roll positions.

Tube quality is maintained from batch to batch due to setting the rolls to the same positions that were used to run the machine when that specific tube size was last produced.

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Straightening solutions with 6, 10 and 14 rolls

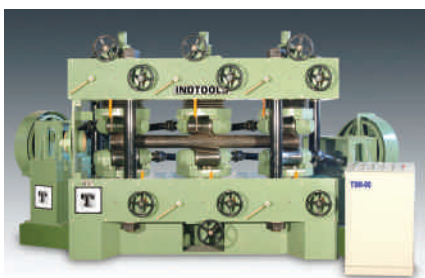
ITL, India, is the manufacturer of tube straightening machines, with solutions to straightening problems for both domestic and international markets. Available as 6, 10 and 14 roll versions, these tube straightening machines are designed and manufactured for ferrous and non-ferrous materials.

The straightening machines offer a range of features including accuracies of 1 in 1,000, 1 in 3,000 and 1 in 5,000 respectively for 6, 10 and 14 rolls. The straighteners are available in a wide range from 3mm to 203mm, with single speed, dual speed and stepless speed variations. A high speed of 120m per minute is easily achievable. The straightening is undertaken without any marking on the tube ID or OD, ensuring a very good finish and imparting skin hardness to the tube.



ITL's straightening machines are supplied with 6, 10 (above) and 14 rolls

The machines ensure a good finish with excellent skin hardness to the tube



The tube straightening machines are constructed with a fully stress relieved, fabricated frame. Work rolls are made from HcHcR steel, which is hardened for longer life.

Rolls are mounted with anti-friction spherical roller bearing technology and the entire roller mechanism is independent of all other components. The machines are operated by easily visible dial type indicators with simple initial machine setting.

The company also supplies a range of tube mills and related entry-level equipment and finishing products for ferrous and non-ferrous tube and pipe. These tube mills are supplied for a tube size range of 20-266mm OD, thickness of 0.8 mm to 12mm, and length of 4,000mm to 12,000mm.

ITL is also a manufacturer of band saw machinery that provides the highest cutting


accuracies. The company also offers entry-level equipment, rotary swaging machines, tube pointing machines, and end-finishing equipment (end facing and chamfering).

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Proven top-class range of straightening and finishing equipment

Bronx/Taylor-Wilson (BTW), USA, is a renowned manufacturer of finishing equipment solutions. The company's product portfolio includes tube, pipe, bar and section straighteners, hydrostatic pipe testing machines, rotary cut-off and end facing equipment, collapse testing machines, material handling equipment and other ancillary finishing equipment. The company has installed over 1,000 straighteners worldwide, with supply to over 30 major API pipe producers in the last three years alone.

Bronx straightening machines are based on high quality technology whether it is processing cold or hot pipes at over 600°C, thin or thick walled tubes of over 50mm, or low and high yield strength alloys of over 1,000MPa. This equipment provides extremely effective capacity, productivity and tolerance for finished goods.

The company's straighteners are provided as 6 or 10-roll versions depending on user specification. The 10-roll machines have vertical adjustment on all top rolls and numbers 2, 3 and 4 bottom rolls. This allows the straightening machine to apply a more gentle deflection to the tube by deflecting or bending the material over 3 or 4 roll centre distances instead of 2 as with the 6 roll machine.

This arrangement permits numerous variations in the straightening path allowing the optimum straightening load to be applied at the required positions for any particular pipe depending on its incoming quality and properties.

This design also offers the operator greater control over the straightening process

 A 10-roll pipe straightener from Bronx/Taylor-Wilson



and minimises the effect on the physical and mechanical properties of the material caused by straightening. One of the major advantages for utilising the 10-roll machine is the increased ability to 'round up' the tube, vastly improving any ovality that may be present.

The straightening equipment utilises the Compass computer aided setting system, which is being continually developed to incorporate the latest advances in industrial electronic technology. The Compass system works by recommending optimum roll settings based on operator input of tube size parameters.

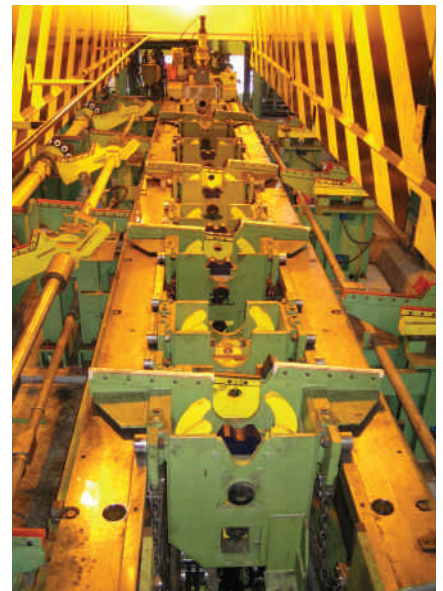
Straightening is a skilled operation and the success of Compass is based on a combination of theory and best practice from a database of stored actual settings.


The system provides the user with consistently high quality product and throughput capacity with the added benefit that setup times for a size change have been reduced to less than 3 minutes.

Bronx/Taylor-Wilson claims to have been the first company to design, build and install a fully automatic, in-line hydrostatic pipe tester. In its development of each model, the company is constantly looking to improve cycle time, increase up time and reduce maintenance costs.

The machine allows the end user to hydrostatically test pipe within a 6ft length differential in fully automatic mode. A built-in automated measuring system can be incorporated into the alignment station, allowing the actual pipe length to be transferred to downstream applications.

The company is specialised in the design and construction of high-speed, high-pressure hydrostatic pipe testing installations. The BTW design has tested pipe with stable pressures of 35 bars (500psi) to over 1,750 bars (25,000psi). Through a specifically designed intensification system, the test pressure holds constant and stable, and breaks quickly to allow the next pipe to be tested. This intensification system allows for fast and accurate test pressure build times.



 Bronx supplies a range of high-speed, high-pressure hydrostatic pipe testing installations

BTW hydrostatic pipe testers have been designed to meet some of the most rigorous testing requirements in the world. The company has processed 14 different hydrostatic pipe testing installations in the past three years. Machines have been designed to handle end loads of up to 2,000,000lb and test pressures of over 25,000psi.

Single headed machines have been designed to test up to 3 pipes per minute at 10,000psi test pressure. During operation the machines allow the operator a safe environment on the test platform, and ensure the safety of surrounding employees with a fully enclosed test hood.

Bronx/Taylor-Wilson also offers a wide variety of sealing applications depending on the end condition of the pipe to be tested. For plain end pipes with finished ends, a traditional u-cup seal can be utilised.

However, due to the high demand for test threaded and coupled pipe, as well as saw cut rough ends, BTW has refined the design of the collapsing seal. It now allows significant clearance of the pipe OD, resulting in longer seal life.

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From the AMERICAS

Oil and Gas

US and other oil majors face uncertainty in Venezuela

On May 1, in a boisterous May Day ceremony, the government of Venezuela assumed control of the country's last privately run oil fields; but questions remain about the status and role of the six international companies involved. President Hugo Chávez has demonstrated that he has the will and power to wrest Venezuela's oil from what he considers US-led corporate exploitation. But does he command the means and the expertise to develop and operate the world's single largest known petroleum deposit?

ConocoPhillips of the US had resisted signing an agreement in principle to yield control, but it, too, conceded in the end. Now, together with the others – ExxonMobil and Chevron Corp, of the US; BP plc, UK; Total Sa, of France; and Statoil asa, of Norway – Conoco enters a period of uncertainty over the conditions under which the foreign companies would be permitted to stay on as minority partners in a completely nationalized Venezuelan oil industry.

Not yet fully explored, the Orinoco River basin of Venezuela holds a potential 1.2 trillion barrels of extra-heavy crude in reserves that could surpass those even of Saudi Arabia. While Mr Chávez knows that Venezuela's state oil company Petroleos de Venezuela (PDVSA) is not up to the task of transforming that tar-like crude into marketable oil, he has said that state-run oil companies from Asia could step in for the Westerners.

But industry experts doubt the ability of newcomers to take over from companies that have been active in Venezuela for decades. For their part, pulling out would be costly for the oil companies whose projects are now worth an estimated \$30 billion. The socialist government of Mr Chávez has indicated a willingness to reimburse them only to the extent of their investment – some \$17 billion – with partial payment in oil and, perhaps, tax amnesty.

It would appear that the angry host and the unloved guests would do well to come to terms. Meanwhile, the uncertainty could affect production. Multinationals active elsewhere in Venezuela, a leading supplier of oil to the US, entered state-controlled joint ventures last year. Venezuela's output has since declined by close to 4 per cent, or 100,000 barrels a day.

The foreign companies were given until June 26 to negotiate contracts under which they will stay and help develop the Orinoco operations, in which PDVSA is taking a minimum 60 per cent stake.

Elsewhere in oil and gas

➤ The US oil and energy company Dominion (formerly Dominion Resources) announced April 30 that it had agreed to sell its offshore natural gas and oil operations to Eni Petroleum Co Inc, a subsidiary of the Italian energy company Eni, for around \$4.76 billion. These include some 967 billion cubic feet equivalent (cfe) of proven natural gas and oil reserves, both shelf and deepwater, in the Gulf of Mexico. Average daily production for 2006 was approximately 503 million cfe. The sale is part of a broader initiative by Dominion

(Richmond, Virginia) to shed most of its North American oil and gas exploration and production assets, worth as much as \$15 billion, to focus on its pipeline and electric utilities businesses.

➤ The Norwegian oil giant Statoil said April 27 that it would make an all-cash offer of around US\$2 billion for North American Oil Sands Corp, of Canada. The Calgary-based company operates an area of almost 700 square miles of oil sands leases, containing an estimated 2.2 billion barrels in recoverable oil reserves, in the Athabasca region of Alberta. As reported by *Dow Jones Newswires*, the Leismer project – a pilot production program at the site – is in the final phase of gaining regulatory approvals. The deposit could yield 10,000 barrels of produced bitumen a day, with first production expected in late 2009 or early 2010.

➤ According to an April 24 regulatory filing, the Brazilian iron and steel company MMX Mineração e Metálicos plans to sell a large stake in one of its mining projects to the British mining company Anglo American. The preliminary agreement stipulates that Anglo American will acquire 49 per cent of the MMX unit Sistema Minas-Rio for \$1.15 billion. Sistema Minas-Rio is the company's most ambitious mining project, with total investments of more than \$2.4 billion. These include development of the Minas mine in Minas Gerais state, a slurry pipeline, and port facilities. Anglo American will pay \$704 million for the 30 per cent stake in Sistema Minas-Rio held by an MMX affiliate, Centennial Asset Mining Fund.

Steel

Canada's Ipsco is to be acquired by Swedish steel maker SSAB

Ipsco, a leading Canadian producer of oil country tubular goods, has agreed to be acquired by the Swedish steel maker SSAB Svenska Stal for \$7.7 billion in cash, the two companies said on May 4.

As noted by Ian Austen of the *New York Times*, the transaction, if approved by Ipsco shareholders, will leave just two major steelmakers in Canada under domestic control: Stelco, recently emerged from a bankruptcy reorganisation; and Algoma Steel, which has been seeking a buyer.

Speculation about a potential takeover of Ipsco (Regina, Saskatchewan), which maintains executive offices in Lisle, Illinois, started only shortly before the announcement of the purchase. After a Russian newspaper reported that the company was in talks with the Evraz Group, a Russian steel maker, Ipsco disclosed that it was in negotiations with another company – presumably SSAB.

Both Ipsco and SSAB are prominent in the high-strength plate steel business. While SSAB now sells relatively little steel in North America, in combination with Ipsco it would become the continent's largest plate steel provider and the second-largest provider of steel pipe to oil and gas companies, after United States Steel.

Energy companies buy up to 57 per cent of Ipsco's total production by volume. Ipsco's president and chief executive, David S Sutherland, told Mr Austen that Ipsco has recently focused on expanding its energy-related business to include specialised steels



for offshore oil rig construction as well as alternative energy sources like wind turbines.

"We like energy," Mr Sutherland told the *Times*.

- Of related interest, also on May 4 it was reported that Norilsk Nickel of Russia had made an all-cash bid of US\$4.8 billion for the Canadian nickel and gold producer LionOre Mining International, topping the \$4.1 billion bid by Xstrata, of Switzerland. Analysts said they expected Xstrata, based in Zug, to respond with a new bid. LionOre, based in Toronto, has operations in Australia, Botswana, and South Africa. Moscow-based Norilsk is one of the world's largest producers of nickel and palladium.

India's Essar Group is buying Minnesota Steel, Algoma Steel

On April 19, Essar Global Ltd – which earlier in the week announced a \$1.63-billion takeover of Canada's Algoma Steel – said it had also agreed to acquire privately owned Minnesota Steel Industries and invest \$1.65 billion to build an integrated steel plant in Nashauk, northwest of Duluth. The site in the Mesabi Iron range has abundant taconite reserves in an open-pit mine, and according to Minnesota Steel management this would be the first vertically integrated 'mine mouth' steel plant in North America.

Construction is due to start in the third quarter, with the first phase scheduled to be commissioned in 2009. Raw steel capacity of

2.5 million tons per year of slabs is projected for the first phase. There was no official notice that the US and Canadian operations would be combined, although *Metal Producing & Process* (Penton Media) reported that one Essar official acknowledged that possibility. Algoma Steel, in Ontario, will have a raw steel capacity of about 3 million tpy when capital improvements, now underway, are completed.

Metal Producing & Process also reported that a number of equipment contracts have been let for the Minnesota plant. HYL Technologies (Mexico) will supply a 1.8-million tpy DRI (direct rendering infrastructure) module, while Danieli & C SpA (Italy) will provide a 1.6-million tpy electric melt shop and thick-slab and thin/soft-reduction slab casters. Algoma Steel is similarly equipped, but is fed by blast furnaces rather than a DRI plant.

The Minnesota and Algoma deals will give Essar Global, the international division of the Essar Group conglomerate, a significant presence in North America. Essar already employs more than 3,000 people in the US, of a global workforce of 20,000. Essar Global chairman Shashi Ruia stated, "Minnesota Steel is exciting as it gives us a cornerstone in the North American market. From this we will further expand our global steel business."

Essar produces more than 4 million tpy of steel in India, and is expanding in such low-cost markets as Vietnam and Trinidad & Tobago. Indian firms are prominent in a consolidation trend in the steel industry, driven by surging demand from fast-expanding economies – China's in particular.



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With its Lone Star purchase, US Steel aims to become leading North American provider

United States Steel Corp plans to buy Lone Star Technologies, the Dallas, Texas-based maker of welded pipe for oilfield applications, to create North America's largest producer of tubular steel. The Pittsburgh-based steel giant said that it intends to combine its largely seamless tubular business with Lone Star's welded tubular operation, broadening the USS line of products for the energy industry.

On completion of the \$2.1 billion cash purchase, at a premium of about 39 per cent over Lone Star's closing share price on March 29, US Steel will be able to produce about 2.8 million tons of tubular steel per year in North America, the company said. John P Surma, US Steel's chief executive, said the transaction represented 'a compelling strategic opportunity' that significantly expands the company's tubular product offerings, production capacity, and geographic footprint.

The deal was expected to close by the end of the third quarter. US Steel is looking for a prompt benefit in the form of higher profit in 2007, excluding certain accounting adjustments related to inventory.

US Steel also enlist two Korean partners to enhance its position at home

To build a presence in what it sees as a rapidly growing large-diameter linepipe market in North America, US Steel Corp

announced on April 4 that it would form a joint venture for a new spiral-weld facility with two South Korean companies. These companies are Posco, the leading steel producer in that republic, and SeAH Steel Corp, a tubular products manufacturer. The site is adjacent to existing USS-Posco Industries (UPI) facilities in Pittsburg, California – not to be confused with US Steel's headquarters city of Pittsburgh, Pennsylvania.

The joint venture – United Spiral Pipe LLC – will design, engineer and build of mills capable of producing 300,000 net tons per year of spiral-welded tubular products in the range 24" to 64" in diameter. High-quality hot rolled coil will be supplied to the mill by both US Steel and Posco, with the newly formed company responsible for marketing the output.

US Steel and Posco will each hold a 35 per cent interest; SeAH, 30 per cent. Investment will total approximately \$93 million, with profits to be shared by the partners proportional to their stakes. The facility is expected to begin production in 2008.

For Posco, the spiral-weld venture represents a new phase in its relationship with US Steel. Through UPI, the two companies have been partners for more than 20 years. US Steel chairman and chief executive officer John P Surma said that the newcomer, SeAH, will contribute its expertise in producing and marketing spiral welded tubular products.

- On April 24, US Steel reported that first-quarter profit rose 6.6 per cent on strong growth in its European operations. Flat-rolled and tubular segments declined, but results for the

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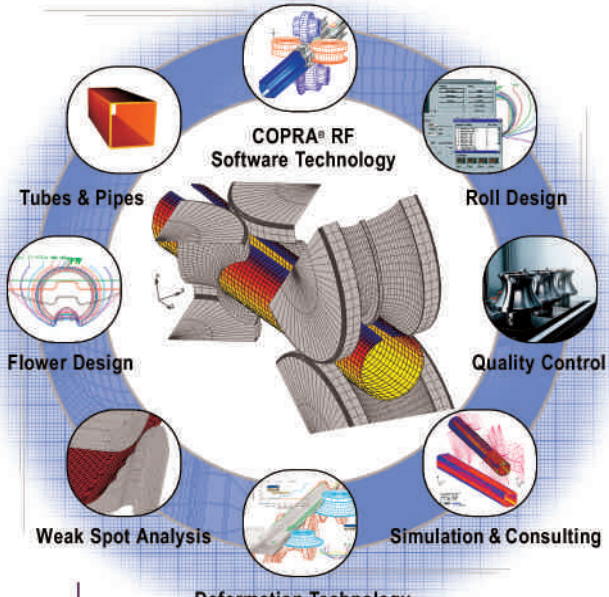
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European segment jumped 65 per cent. In comparison with the same period of 2006, the steel maker said earnings grew to \$273 million from \$256 million; revenue increased to \$3.76 billion, from \$3.73 billion; and income from operations fell to \$346 million, from \$369 million.

Elsewhere in steel . . .

➤ On April 5 Canadian producer Stelco Inc announced the transfer of all hot strip processing to its Lake Erie mill. This followed completion of an expansion there that will raise annual capacity from 3 million tons of steel to 3.7 million tons. The \$270 million modernization project has already raised production at Lake Erie, which reached a record of over 280,000 tons in March. Stelco's next step will be the shutdown of the 56" hot strip mill at its Hamilton Steel plant, which has been operating since the 1940's. The Hamilton, Ontario-based steelmaker is working to transform itself into a low-cost producer.

➤ The United Steelworkers, based in Pittsburgh, announced April 18 that its membership was seeking a merger with two large British unions, Amicus and Transport & General Workers, in a move that would form the first transatlantic labour group. The three unions would merge within a year, with the combined union expected to have more than 2.6 million members. The president of the United Steelworkers, Leo W. Gerard, told a labor convention in Ottawa, "One of our tasks as trade unions is to defend working people and to advance workers' conditions, but that's increasingly difficult within the confines of national boundaries. It seems we're no longer capable of fully confronting and negotiating with these global companies unless we ourselves are organised globally."

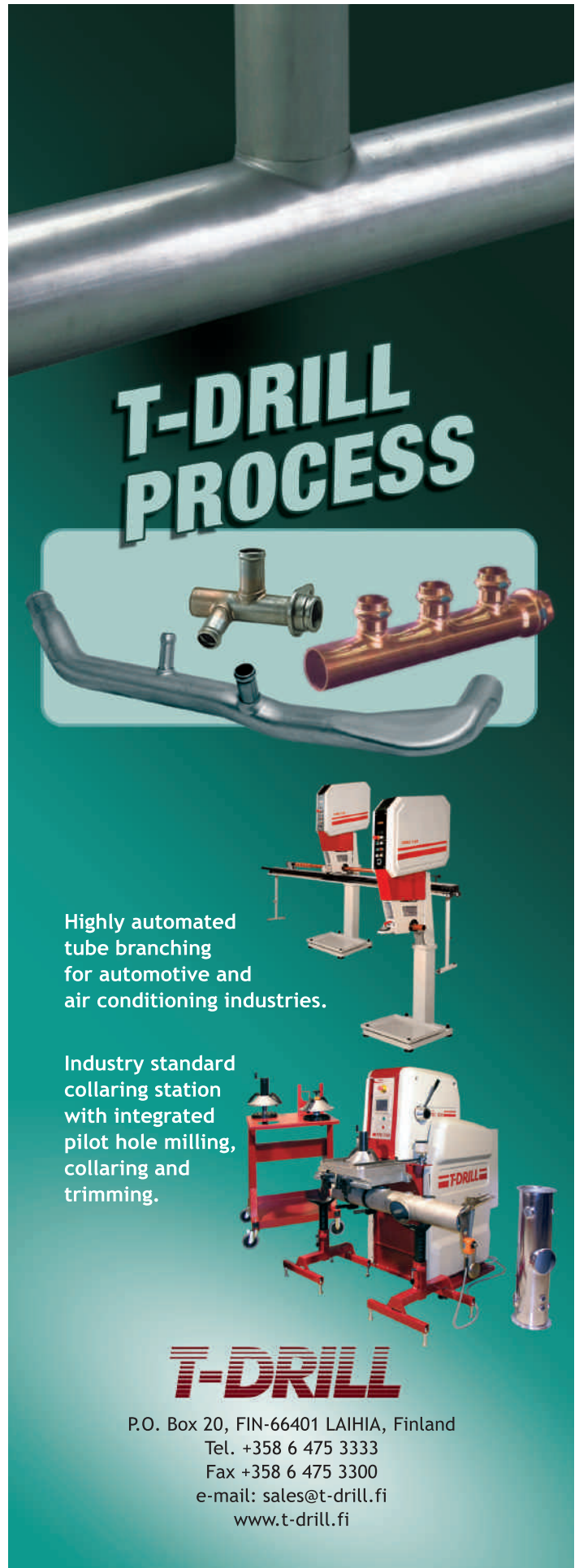
Aluminium

Alcoa foresees years of growth for the industry

If its unsolicited \$27 billion offer for its rival Alcan, of Canada, is successful, New York-based Alcoa Inc will have ended its brief tenure as the world's No 2 aluminium maker. And it will probably have assured itself the top position in the industry for some time to come. On the basis of its 2006 results, the two companies in combination would have a value of \$33 billion and sales of \$54 billion. Between them, they produced 7.8 million metric tons of aluminium last year.

The transaction will likely not move quickly. Any takeover by a foreign company would be politically sensitive in Canada, particularly in the province of Quebec where Alcan has its headquarters, in Montreal. Moreover the merger will almost certainly draw intense antitrust scrutiny. In the meantime, the US company has been busy on other fronts.

Record aerospace industry demand and higher metal prices helped lift first-quarter profits at Alcoa by nearly 9 per cent. Net income grew to \$662 million in the January-March period, highest in company history, compared with \$608 million a year earlier. Revenue jumped 11 per cent to \$7.9 billion, from \$7.1 billion in first-quarter 2006, supported by higher metal prices and sales to the aerospace, industrial products, and building and construction markets.



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2006

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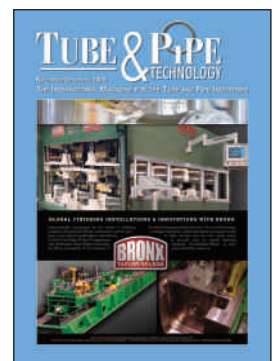
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Alcoa is building on that momentum. On May 2 it announced that expansion in aluminium manufacturing capacity were completed at Alcoa mills in four countries, representing a 50 per cent greater capability in aerospace structural metallics and solutions.

And additions to heat-treated sheet and plate capacity were announced for Davenport, Iowa; Kitts Green, UK; Fusina, Italy; and Belaya Kalitva, Russia.

Plans for Alcoa's power and propulsion systems include expansion of turbine airfoil casting capacity in Whitehall, Michigan; additional turbine airfoil core capacity in Morristown, Tennessee; expansion of airfoil post-cast operations in Acuna, Mexico; and a new airfoil post-cast operation in Szekesfehervar, Hungary.

The company also told aerospace analysts and journalists that it plans to bring five additional single-crystal casting furnaces online over the next two quarters.

Alcoa chairman Alain Belda sees market conditions as justifying the company's confidence. In April, Mr Belda told reporters and analysts that he believes worldwide aluminium consumption will rise by 7.7 per cent this year, and continue to grow over the next 15 years.

Among his other projections: North America's aluminium consumption should level off this year; in China, aluminium production and consumption both will grow by about 23 per cent, exceeding earlier projections by Alcoa; in Europe, aluminium growth will be solid; and in India, growth will be good.

Automotive

Some 480lbs of a car's metal content will be 'up for grabs' to the benefit of aluminium makers

In other news of Alcoa Inc, the president of its auto and truck structures unit said that aluminium makers can expect to benefit from the push to cut automotive carbon emissions. Misha Riveros-Jacobson told participants at the spring meeting of the Aluminium Association, held in Nashville, Tennessee, that the striving of US auto makers for lighter weight and greater efficiency creates opportunities for aluminium makers to add more of the light metal to cars.

Ms Riveros-Jacobson pointed to a recent study conducted by auto industry research firm Ducker Worldwide that projected light-vehicle weight will come down 2 per cent – from just above 4,100lbs in 2005 to about 4,000lbs in 2015. Over the same period, she said, an estimated 12 per cent (480lbs) of the average vehicle will be altered in its composition in order to meet the stricter emissions standards.

"What that means is that, over the next eight to 10 years, about 480 pounds inside of every average vehicle will be up for grabs," the Alcoa official told conferees in Nashville on April 27.

In 2006, aluminium surpassed iron as number-two material in a vehicle, behind steel. Over the last 30 years, aluminium increased

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its share of metal content in North American autos from 80lbs in 1973 to 327lbs last year.

Despite talk of a DaimlerChrysler split, Chrysler plans two new plants for Michigan

The Chrysler Group on April 18 said it would invest \$1.43 billion to build two plants in Michigan to make parts for Chrysler and Mercedes vehicles. The axle and engine plants would be the largest components of a Chrysler plan for southeast Michigan that includes modernizing two assembly plants in suburban Detroit.

The timing of the announcement was notable. Even as Chrysler's chief executive, Thomas W. LaSorda, said that construction on the new plants would begin soon, the company's German-American parent, DaimlerChrysler, was possibly on the verge of splitting up. While discussions with potential bidders for Chrysler were said to be moving slowly, DaimlerChrysler pointedly said a sale was among the options it was keeping open.

Another curiosity is the support for the new factories – an engine plant southwest of Detroit and an axle plant northeast of the city – by the United Automobile Workers.

The plants are expected to employ about 1,815 fewer union members than the aging (one was built in 1917) and inefficient facilities they will replace.

If the union support reflects a new pragmatism in the labour movement in the US, the project suggests a possibly unfounded optimism among Chrysler management, struggling to bring the company back from \$1.5 billion in losses last year. A new owner could cancel the plans for the plants.

One person whose response is unambiguously positive, despite the net loss of jobs, is Michigan's governor, Jennifer M Granholm. She noted that Chrysler's plans for the two new plants would mean the largest investment in the state by a single company since she was elected five years ago.

In brief . . .

- The Canadian auto parts maker Magna International (Aurora, Ontario) was reported on May 2 to be in talks with auto unions in Canada and the US about adding Magna's huge workforce to their ranks. After Delphi (Troy, Michigan), Magna is the largest auto parts maker in North America, and offers wages and benefits comparable to those in unionized factories. But the family-owned company – whose 50,350 manufacturing employees in Canada, US, and Mexico also assemble cars for several European manufacturers – has permitted unions in only a few of its plants. The agreement under consideration would reportedly combine the Canadian Auto Workers with the United Automobile Workers, of the US, and cover all their workers in both countries.

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Immigration

Quota on US visas for high-tech guest workers is filled in a day

The federal agency Citizenship and Immigration Services began accepting petitions for skilled-worker visas for the fiscal year starting October 1, and by mid-afternoon of April 2 had received about 150,000 applications.

Because Congress has mandated a limit on the coveted H-1B visas to 65,000 annually, the agency halted the application process and said it would employ randomized computer selection to fill the quota from among the applications in hand. The rejects would be returned and filing fees refunded.

There are a few ways around the cap on the coveted visas for foreign workers with high-technology skills or in specialty occupations. It is not imposed on petitions for extensions by current H-1B holders, and an additional 20,000 visas are open to applicants who hold advanced degrees from American academic institutions.

But many American employers of scientists, engineers, computer programmers, and other workers with analytical or technical expertise consider the exclusions derisory and the cap itself a harmful anachronism. Bill Gates, whose Microsoft Corp alone has an estimated 15,000 employees in the US holding work visas

or permanent-resident green cards, is a very vocal advocate for reform of the visa system in favour of highly educated foreign professionals.

Although they are a hard sell to lawmakers answerable to constituents worried about the loss of American jobs, Mr Gates's views may be gaining traction.

Compete America, the Washington-based 'coalition for a competitive workforce', includes among its 200 members Microsoft, the National Association of Manufacturers, and the US Chamber of Commerce. It came out fighting on April 2, date of the 'unprecedented announcement' that the 2008 allotment of H-1B visas was met on the very first day applications were accepted.

Robert E Hoffman, a vice president of the business software company Oracle and co-chairman of Compete America, said in a statement, "Our broken visa policies for highly educated foreign professionals are not only counterproductive – they are anticompetitive and detrimental to America's long-term economic competitiveness."

Dorothy Fabian, Features Editor (USA)

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Plastic & Composite Tube: Products & Manufacture



There was a time, and not so very long ago, when the word 'plastic' did not appear in a publication such as *Tube & Pipe Technology*. Old-timers will recall an early problem with the dubious new material: *was the preferred adjective 'plastic' or 'plastics'?*

It seemed unlikely that the subject of such effete reflections would find a place in an industry with its roots in iron and steel. Moreover, the new technology was promising the moon. Makers of tube and pipe know how to greet large claims for untested new products: with profound skepticism.

But the proof was not long in coming, and it was solid. Applications incorporating the new plastics enabled tube and pipe producers to promise value-added performance. These producers were also able to deliver efficient heat exchange characteristics, cross-contamination resistance, robustness to a wide range of chemicals and temperatures from $-40\frac{1}{4}^{\circ}\text{C}$ to $120\frac{1}{4}^{\circ}\text{C}$, and much more.

The inert nature of PVDF, PP, and HDPE thermoplastics ushered the producers to places – particularly in the chemical, pharmaceutical, and electronics industries – well outside their traditional territory. In fact, the use of plastics and composites in tube and pipe manufacture has come very close to giving them the moon.

Today, there are no sceptics in the industry.

Testing of plastic-metal multilayer pipe systems

Consisting of plastic and metal, multilayer pipe systems offer advantages of high resistance to internal pressure (especially at high temperatures), innovative and economical fitting technologies and easy mounting.

In general, multilayer pipes and fittings of different systems cannot be interchanged due to the large number of design varieties. Therefore it is important to test pipe and fitting systems very thoroughly before installation, especially as metal and plastic have different thermal coefficients of expansion. If the temperature differs substantially, as for example in drinking water installations, tightness and durability of these systems can be crucial properties.

SKZ is an accredited institute for testing according to DIN EN ISO/IEC 17025 and an accredited inspection body according to DIN EN ISO/IEC 17020.

The company provides mechanical testing devices required for certification and quality

assurance of pipe systems meeting national and international specifications.

SKZ operates as a testing laboratory and inspection body for systems used in drinking water installation on behalf of DVGW in Bonn, Germany. In the field of floor heating systems SKZ cooperates with the certifier DIN Certo of Berlin, Germany. In addition, SKZ is its own certifier for products marked with the reputable SKZ-sign.

Typical tests on multilayer pipe systems executed by SKZ are long-term hydrostatic pressure tests at different temperatures, together with dip thermal cycling tests. Here adhesion from plastic medium pipe and aluminium pipe is tested after a long-term thermal cyclic load.

Within 15 minutes, the pipe is loaded with cold water at 20°C and with hot water at 93°C at 10 bar internal pressure. This cycle is repeated 5,000 times, which takes about 105 days. Following this process, the minimum adhesive strength is tested



Aluminium layer peeled off plastic medium pipe

during a so-called separation test (see picture above).

Süddeutsches Kunststoff-Zentrum (SKZ) – Germany
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Latest single-screw extruder for PP/PE 100 pipe production

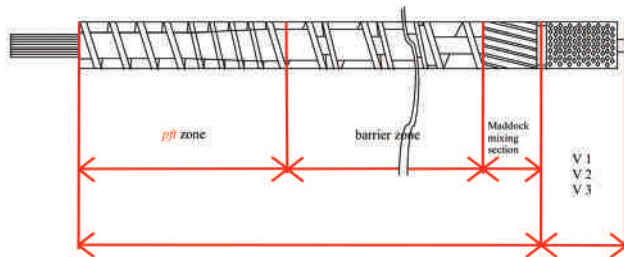
Cincinnati Extrusion GmbH, Austria, have launched the Monos high-performance extruder series. This extruder generation is designed to meet current market demands for high throughput rates and optimal melt homogeneity, regardless of the materials, granulates and fillers being processed.

Using these modern single-screw pipe extruders, gas and water transport pipes are produced from PE 100 and PE 80 material, smooth and corrugated pipes

Figure 1: The Monos high performance single screw extruder



Figure 2 (bottom): Linear ratio between melt throughput and screw speed for various types of PE granulate (with and without chalk content)
Figure 3 (below): Modular screw concept for the Monos 37D series



from PP-H, PP-B and PP-R, and corrugated wastewater pipes from and all types of PE 80.

Another top priority for this technology is maximum melt throughput in relation to screw diameter. Additional required attributes are optimal melt temperature and homogeneity.

With virtually any die concept and also using mixed in filler materials – even at back pressures of up to 400 bar – the specific melt throughput rate remains stable over the entire screw speed range of this machine.

Cincinnati has developed a modular screw concept for the new 37 D version to allow for the processing of all available types of PE and PP as well as compounds, reclaims, regrinds and colour masterbatches. The modular screw concept also ensures manageable provision of spare parts.

The most common approach in reducing unit costs is in the area of material expenses. By using a type of polymer with a higher E-module, it is possible to produce

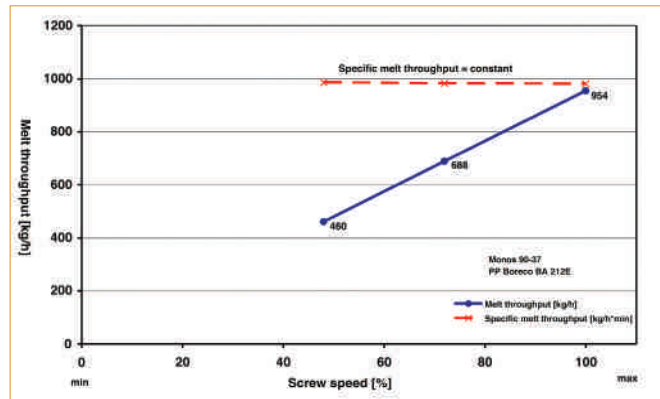


Figure 5: Consistency in specific melt throughput during 'stiff' PP processing

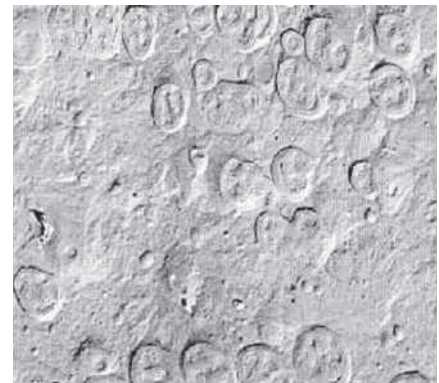


Figure 4: High crystallinity matrix of 'stiff' PP, Borealis BA 212E

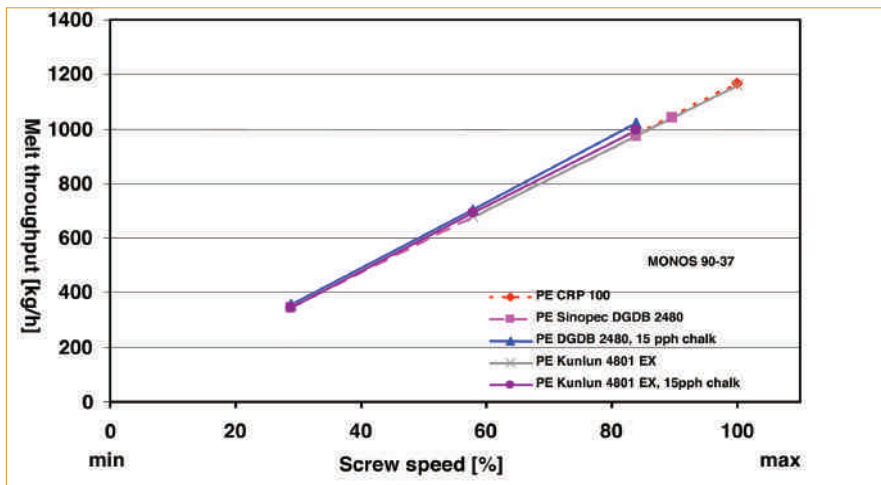
thinner pipe with the same mechanical properties. 'Stiff' PP is such a material, which also gives pipes a high-quality appearance. Due to its attributes, it can be assumed that 'stiff' PP will be in great demand in the future.

However, processing 'stiff' PP – with its high crystallinity at high melt throughput rates – presents a new challenge to extrusion equipment manufacturers.


Due to its substantially higher E-module, the screws must be specially designed with a completely different geometry. The torque of the drive and the driving motors must have sufficient power reserves, especially for the start-up process.

Another frequently applied method to reduce material costs is adding fillers, such as chalk, talcum, barium sulfate or fibreglass. Currently, compounds with up to 50 parts of filler content are being used, where processors must take care that the required quality standards for the finished pipe can still be met.


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New 'Yellow Jacket' vertical extruders for coextrusion

Wayne Machine & Die Company, USA, has launched a new Yellow Jacket vertical extruder series. This series is unlike typical vertical extruders with inline gearboxes that have all the weight of the mechanical section on one side of the post.

Instead, the motor is positioned on the opposite side of the extrusion processing section, resulting in a more balanced weight distribution. This helps to prevent 'tip overs' – a major safety problem with vertical extruders.

The design also allows the use of double reduction helical gearboxes with shaved ground and hardened gears. These are an alternative to the often inefficient soft gear worm or enveloping worm-type gearboxes that are typically found on direct drive vertical extruders.

The helical gearbox enables delivery of more power to the screw, less wasted energy converted into heat from friction,

and less abrasive gear wear than is found in worm drives.

Processors are able to run engineering and highly filled resins in coextrusion applications, which require high levels of screw torque. The extruders also process PE, PVC, EVOH, PP, TPR, silicone, rubber, food and most thermoplastics. A high temperature/anticorrosive package is also available for Teflon FEP, Saran, ETFE, PFA and liquid crystal polymers.


The new single-post series is available in 1/2", 5/8", 3/4", 1", 1 1/4", and 1 1/2" sizes, while the double post machines are designed for 2" and 2.5" sizes. The units feature timing belts for easy speed range changeovers, AC flux vector drive, auto-tune temperature controls, bimetallic barrels and optional remote stations.

Suitable for coextrusion of sheet, tubing, profile, rod, blown film, cast film, fibre,

Pipe for heating and sanitary systems

The Prandelli Plus system, from Prandelli SpA, Italy, consists of a PE-Xb/AL/PE-Xb composite pipe and dezincification-resistant brass connectors. Connections are made using an axial sliding operation.

During the manufacture of Prandelli Plus pipe the inner core is covered lengthwise with butt-welded aluminium foil. The fluid runs through this inner core, with full compliance with PE-X pipe standards. The

 The Prandelli Plus system uses PE-Xb/AL/PE-Xb composite pipe and brass connectors



aluminium is then covered with a further layer of cross-linked polyethylene (PE-Xb).

Due to the size of the pipe, the finished product has high mechanical and thermal resistance, making it suitable for both heating and sanitary systems, the latter often being under stress. Important characteristics of Prandelli Plus pipe include corrosion proofing, smooth and even surface, thermal conductivity, low noise, and a barrier to oxygen.

Prandelli Plus has been designed to safely withstand any stress that may occur within hydraulic, heating and sanitary systems. The tube can be classified as PN16, meaning it can withstand a pressure of 16 bar at a temperature of 20°C for a continuous operation period of 50 years.

The tube can work constantly at a running temperature of 60-70°C. It can withstand temperatures of up to 80°C and malfunction temperatures of the hot water generator or control systems of up to 95°C. For applications in panel heating systems, the maximum temperature is 90°C and the malfunction temperature is 100°C, as provided for by the specific UNI EN ISO 15875-1 regulations.

Prandelli SpA – Italy
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Email: prandelli@prandelli.com
Website: www.prandelli.com



Wayne Machine's new vertical extruder series features balanced weight distribution

monofilament, and wire insulation applications, the extruders have a narrow footprint and can be adjusted via hand-wheel from 0° to 90° tilt.

Wayne Machine & Die Company – USA
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 Email: info@waynemachine.com
 Website: www.waynemachine.com

Novel scanners for wall thickness measurement

Zumbach Electronics, Switzerland, has introduced new ultrasonic wall thickness scanners, branded the Umac® Z50 and Umac® Z100. Due to a completely new design (patent pending), the transducers can be synchronously adjusted to the best possible measuring position within seconds.

The scanners cover an outside diameter range from 5-100mm (0.2 to 4"), depending on the model. They represent a smart and simple solution for fully non-contact, inline wall thickness measurement of tube, hose and cable jackets. In combination with the proven Wallmaster data acquisition, processing and display system from Zumbach, a full process control can also be accomplished.

There are many advantages and numerous benefits of the new ultrasonic scanners. These include easy product change within a few seconds, due to a quickly removable segment, and quick and symmetrical positioning of all centrally adjustable transducers.

The scanners are available for 4 and 6 point measurement, with a large



The Umac® Z50 scanner from Zumbach

measuring range using the same scanner. No readjustments, tools, or change of transducers are required. Fully non-contact and with uncritical centring, the compact scanners are made from 100 per cent non-corrosive materials.

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Division: Coil processing equipment

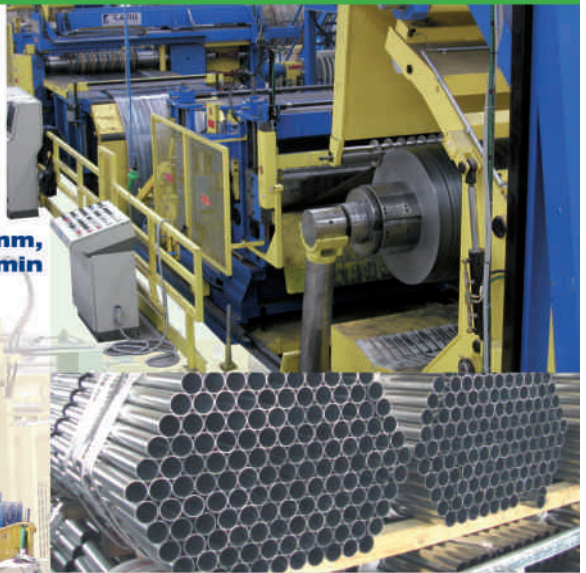
- Slitting lines
- Packing lines
- Entry and exit units for continuous lines
- Cut to length lines
- Stacking system
- Leveller, 4-H and 6-H
- Revamping of single units or lines

Division: Coil handling and feed equipment

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- Pneumatic feeders · Roller strip lubrications
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 e-mail: info@camu.it



Higher filler content saves costs in PVC pipe production

Manufacturers can significantly reduce feedstock costs for PVC pipe by increasing filler content. The engineering challenge is to guarantee a stable process and consistently good product quality, even for highly filled pipe.

Krauss-Maffei, Germany, manufactures 36D twin-screw extruders that have proved successful in processing highly-

⚙️ *The twin-screw extruders in Krauss-Maffei's 36D series are engineered specifically for processing PVC*



filled formulations. For PVC wastewater pipe, filler content of up to 65 parts (approximately 40 per cent) chalk (CaCO_3) is feasible. Highly filled pipes with diameters between 50mm and 500mm are used for transporting wastewater.

To facilitate processing of highly filled formulations, the extruders have special material feed, weighing and metering systems. The PVC dryblend and the CaCO_3 are transported from the storage container to the hopper of the gravimetric metering unit with the help of a spiral feed screw.

The hopper is fitted with shakers and agitators to prevent bridging. In addition, all metering unit surfaces in contact with the material have a special coating to guarantee unimpeded material flow. From the metering unit, the

material is transported via an agitator and a special twin-screw feed into the stuffing unit above the extruder feed throat.

The parallel twin-screw extruders in Krauss-Maffei's 36D range are designed for optimal processing of PVC. They are capable of combining very high output with maximum protection for the mechanical properties of the product. The 36D extruders have internally heated screws and air-cooled barrels. They are offered in four sizes: KMD 75-36, KMD 90-36, KMD 114-36 and KMD 133-36.

The rheological design of Krauss-Maffei's spider-type pipeheads ensures a homogenous melt and ensures perfect fusing of the melt downstream of the spider legs.

Hakan Plastik AS, Turkey, specialises in manufacturing highly-filled PVC pipe. The company already operates five Krauss-Maffei extrusion lines for this application, and has ordered two more lines which went into operation earlier this year.

Krauss-Maffei Kunststofftechnik GmbH
– Germany
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Website: www.krauss-maffei.de

Loose aluminium flanges for PE/PVC plastic pipes

Fonderia Fazzini Srl, Italy, produces loose aluminium flanges for PE and PVC plastic pipes, branded FF-PL and FF-PV. Loose aluminium flanges are an alternative to those made from other materials as they benefit from aluminium characteristics including light, hard, corrosion resistance, and cost efficiency.

The inside diameter of these flanges is qualified for plastic pipes according to UNI-DIN standard. The mating dimensions are in accordance with the EN 1092-1 PN10/16 standard. The aluminium flanges can be supplied blank, sand-blasted or coated, and are manufactured from EN AC-47000 aluminium alloy.

With 40 years of experience in aluminium flanges, the company produces a wide range, not only for plastic pipes, but also for steel pipes.



⚙️ *The loose aluminium flanges for use with PE/PVC plastic pipes*

Fonderia Fazzini Srl – Italy
Fax: +39 0331 263025
Email: info@fonderiafazzini.it
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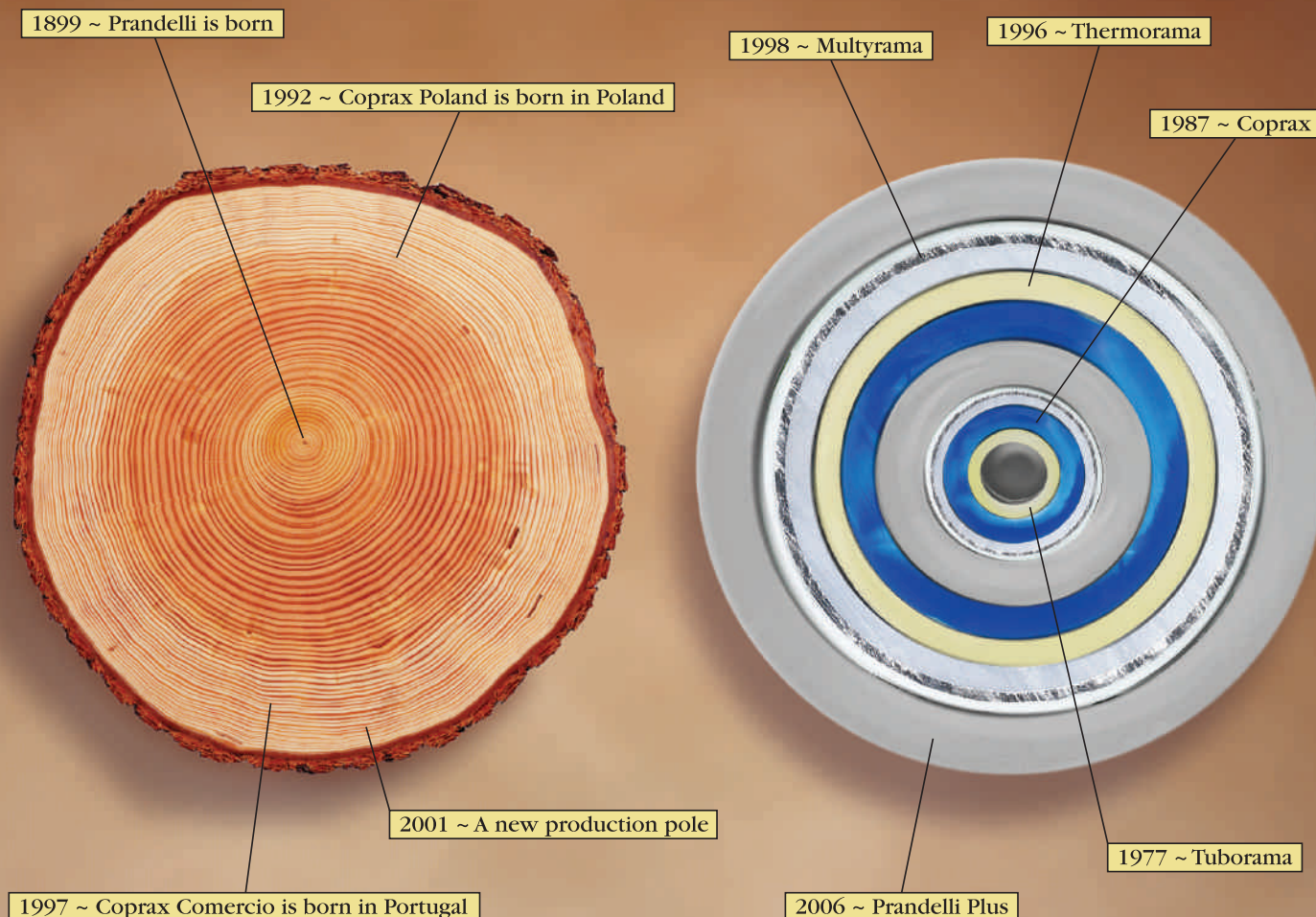
Major industry study into plastic pressure piping

Hillinger+Partner, Germany, has announced the completion of a 1,000+ page market study, titled *Plastic Pressure Piping Products (PPPP) – World Market*. The study, which is available in both German and English language versions, contains deep analysis, and quantitative and qualitative descriptions of the world market of valves, fittings, pipes, flow measuring and control, and plastics including ABS, PB, PE, PP, PFA, PVC, and PVDF.

The study contains 500 images and illustrations, 220 pages of concise tables, and clear definitions with more than 100 market segments and target groups. Also included are 100 double-sided competitor profiles with turnovers, employees, essential information about the company, and strengths and weaknesses, and a listing of more than 3,700 main customers along with their purchasing potential.

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High-precision manufacturing of multi-layer pipes

As a response to increasing resin prices and the demand for more functional pipes, Battenfeld Extrusionstechnik, Germany, has developed an innovative side-fed multi-layer die. The die allows the processing of materials with high residence time and temperatures, even at low mass flow rates,

and ensures an accurate wall thickness distribution.

In-demand plastic pipe attributes, such as acoustic insulation, oxygen barrier, and special optical, mechanical or thermal properties, can be achieved in multi-layer products consisting of special materials that fulfil different functions.

Developed using CFD-based flow simulation, Battenfeld Extrusionstechnik's new side-fed die allows – by non-central melt injection – a quick and optimal melt distribution into a circular ring geometry for further distribution.

A geometry of twin centre sleeves preceded by a coathanger manifold ensures symmetrical distribution of pressure inside the die. This causes the majority of mechanical forces generated to cancel each other out, and ensures automatic centring of the mandrel.

The design includes the option of modular, consecutive connection of several distributors, and thus a facility for thermal isolation of each individual layer of melt from the other layers. To further optimise melt homogeneity, the side-fed distributor is followed by a brake-up plate, the geometry of which has also been optimised using 3D flow simulation.

⚡ The new twin centre sleeves (with break-up plate) from Battenfeld Extrusionstechnik



Such materials, however, are often highly sensitive to thermal and mechanical stress and, compared with basic materials, require special process parameters. With conventional die concepts, such as spiral mandrel dies, these materials can be processed only with difficulty, if at all.

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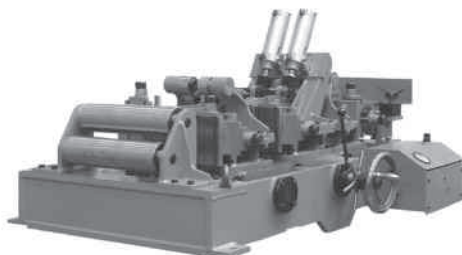
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Dedicated team for Chinese plastic pipe market

Basell, Germany, a specialist in polyolefin technology, production and marketing, has set up a team of sales and marketing staff in its Chinese locations, dedicated to addressing the polyolefin requests of the expanding plastic pipe industry in that country.

 Basell value-based polyolefin solutions used in pipe applications



Located at the company's Shanghai, Beijing and Guangzhou sales offices, the team will serve Chinese customers who select Basell's high-performance, energy-saving and reliable polypropylene and polyethylene resins for their pipe applications.

"China is probably the fastest growing market for plastic pipes in the world," said Mr Michael Vogt, business development manager, pipe – Asia, who will head up the Asia team from Basell's Hong Kong office. *"We see significant potential, as demand for plastic pipe in the country is expected to grow from 680 million metres in 2005 to a projected 1.1 billion metres in 2010, an annual increase of 10.5 per cent."*

The company's Hostalen PE 80 and PE 100 grades are suitable for applications such as drinking water and gas pressure pipes. Pipes produced using these grades are known for their impact/stiffness balance, corrosion resistance and resistance to stress cracking.

Basell's Hostalen PP copolymers include Hostalen PP H2483, a PP-HM (high

modulus) resin that shows an improved stiffness/toughness balance compared to standard PP copolymers.

For heating and plumbing applications, the company produces Hostalen PP-R (polypropylene random copolymers), which combines outstanding creep strength with good impact resistance.

Basell is also celebrating its 35th anniversary of supplying Lupolen resins for PE-X (cross-linked polyethylene) applications. In 1968, inventor Thomas Engel patented a process that used Lupolen 5261 Z to create the first cross-linked PE pipe, and the first commercial application of PE-X – underfloor heating pipes – took place in 1972.

One of the first peroxide cross-linked PE-X pipes produced using Lupolen 5261 Z is still in service today, and continues to undergo creep tests at 95°C, to evaluate the progressive deformation of the pipes under pressure at elevated temperatures.

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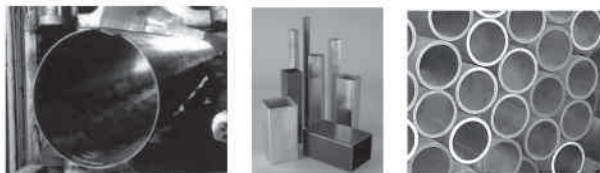
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CPE bellling machines for PP and HDPE thermoforming technology

In recent years, plastic pipes for sewage operations have undergone significant developments in materials, geometric configuration of the pipe wall, and joining systems. In terms of material, polypropylene ensures optimal chemical and mechanical performance.


A noteworthy development in the pipe wall's geometrical configuration, double wall pipes are available with a corrugated external wall. Many joining systems are available, including collars, socket with ring seal seat, and smooth socket with seal positioned in a pipe wall groove.

 The CPE bellling machine from Sica

Sica have developed its range of CPE bellling machines to incorporate the best thermoforming technology for PP and HDPE. The new model processes pipes with an external diameter of up to 800mm, and can achieve structured wall pipes with a nominal internal diameter of up to 600mm.

The machine forms the socket directly on the corrugated wall, with both technical and economic advantages. The socket is as rigid as the pipe wall, while socketed pipes of different lengths can be produced simultaneously.



 Double wall pipes are available with a corrugated external wall

The production process is simpler and faster because the pipe has no wall discontinuities – thereby eliminating phases of deceleration and thickening in the extrusion process and wall formation. Using the machine, pipe cutting does not generate scrap or chips, with the additional benefit of material savings as the socket forming zone does not require thickening.

The bellling machine processes pipes with lengths from 1-6m and on request, up to 12m. It works in an extrusion line or offline to produce pipes of different lengths socketed at both ends.

The incorporated automation facilitates the machine configuration on pipe diameter change, while an electric hoist can also be installed to assist with installation of bellling tools.


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Fibreglass: the new generation of pipeline construction

Fiberpipe GmbH, Germany, is the manufacturer of fibreglass pipes that are flexible to install and easy to handle. They are constructed from robust material and meet specifications for resistance to chemicals, even at high pressure.

Fiberpipe pipes and fittings are ISO-dimensioned for compatibility with all pipe systems, with made-to-measure special components. The company not only supplies all materials, but also carries out installation and provides full engineering and technical support.

 Fiberpipe supplies pipes made from fibreglass



 Fiberpipe products are lightweight, easy to shape and to cut to size, keeping transport and installation costs low

Fiberpipe was established in 2003, and found rapid success as an increasing number of businesses have discovered the long-term advantages of fibreglass. In the last 12 months the company's turnover has increased by 40 per cent. Fiberpipe products are manufactured and supplied from locations including USA and Turkey.

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New DIN standards for water pressure pipes recognise PP-RCT

During 2006, the German standards for polypropylene (PP) pressure pipes were revised. The designations PP-H100, PP-B80 and PP-R80 were withdrawn, as they did not reflect the required behaviour at elevated temperatures, and were changed to PP-H, PP-B and PP-R.

In addition, PP-RCT was officially recognised as a category under the new German standards DIN8077 and DIN8078 for PP pressure pipes. The creation of a new PP-RCT class means that these

diameter gives pipes a higher hydraulic capacity, benefitting systems distributing large volumes of water, such as in high-rise buildings. The capacity increase can also serve to overcome the problem of low water pressure from a supply network.

Thinner wall pipes also allow for higher extrusion speed with reduced material usage, while a higher percentage of smaller pipes leads to smaller insulation and fittings, and faster installation times. The reduction in weight which can be



↑ PP-RCT pipes benefit from a wider internal diameter

solutions can now be tested according to a widely accepted quality standard.

According to EN ISO 1043 designations, PP-RCT is a PP random copolymer with special crystalline structure. This structure gives improved pressure resistance, particularly at elevated temperatures, offering more than a 50 per cent improvement in long-term strength at 70°C over 50 years compared to standard PP-R materials.

As a result, pipes based on this material can be produced with thinner walls and larger internal pipe diameters, delivering a range of benefits to the plumbing and construction industries. A wider internal

achieved with PP-RCT also eases transportation and handling for the plumbing industry.

Borealis, Austria, claims to be the first company to offer this new solution, marketed under the trade name Beta-PPR, to pipe and fitting producers who are looking for clearly identified and specified resins. Beta-PPR is produced according to the highest industry standards and satisfies all key European drinking water regulations.

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- For gang sawing work (used in sets)

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- Similar to DIN
- Custom made
- With surface coatings
- For gang sawing work (used in sets)

Tungsten carbide Tipped saw blades (TCT)

- Friction saw blades
- Segmental saw blades
- Circular knives
- Services

Increased safety for pipe systems for potable water

The quality requirements for drinking water are defined in various international standards. It has become common practice to disinfect potable water in order to eliminate possible health risks. Disinfection with chlorine has been proven as reliable and cost-effective, and has therefore become the most common treatment.

However, an important consideration is how the chlorination might affect the service life of pipe systems. A project has been initiated

 Chlorine has become a common treatment for disinfecting drinking water

to research the long-term effects of chlorine on plastic pipe systems.

This project is being organised by two professional institutions renowned for testing methods for plastics: the Süddeutsche Kunststoff-Zentrum (SKZ), Germany, an independent testing and research institute for plastics and plastics products, and IPT Institut für Prüftechnik Gerätebau GmbH & Co KG, a developer and manufacturer of test equipment for the plastic pipe industry.

IPT's specialists are designing and manufacturing suitable state-of-the-art equipment to provide the project with a test unit that will produce reliable results. Using this equipment, a sustained pressure test on pipe systems can be performed over a range of temperatures using chlorinated medium.

During the entire test duration the pH level and free-chlorine concentration of the test fluid is measured and regulated to

the predetermined parameters, while data is continuously monitored, collected and documented by means of a data logging system.

SKZ is contributing its expertise in the area of pipe systems for potable water supply and house installations. The company has many years' experience in testing, supervising and certifying products and companies in the plastic industry. With the newly developed IPT unit, important knowledge will be gained regarding the long-term behaviour of these systems under the influence of complex chemical and physical conditions.

The project will be supported directly by the German Federal Ministry of Economics and Technology (BMWi).

Süddeutsches Kunststoff-Zentrum (SKZ) – Germany
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Email: j.wuest@skz.de
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 **INTRAS**
PUBLICATIONS



Extrusion system for large-wall tube and pipe

Guill Tool & Engineering, USA, has extended its new 200 Series extrusion system to handle sizes of up to 20" in diameter and up to 2" wall size thicknesses. The new 200 series is a self-contained extrusion system weighing as much as 7,000lbs.

The system has a patent pending mounted track and cart for easy handling and maintenance. The cart system can tilt the die on-the-fly in order to compensate for the catenary (sagging) effect caused by gravity as the extrusion product exits the equipment.



i New Guill Tool Series 200 inline tube dies and heads are designed for complex large diameter applications

Cable, tube or pipe manufacturers that require large diameter and multi-layer jacketing will also benefit from the new rapid advanced material flow of the 200 extrusion head and the support system, without the rigging or support equipment usually required by conventional systems on the market today.

With Guill's precision engineering, the 200 Series ensures thinner walls and closer tolerances. This is important for larger tubing sizes, where waste or scrap may account for thousands of dollars in lost revenue. Engineering for the closest tubing tolerances results in huge material savings for all users, according to Guill production officials.

The company also manufactures tips, dies, and breaker plates.

Guill Tool & Engineering Co Inc – USA
Fax: +1 401 823 5310
E-mail: sales@guilltool.com
Website: www.guilltool.com

Proven performance for sanitary pressure pipes

Sabic Europe, The Netherlands, is a supplier of pipe grades in bimodal HDPE and various PP grades. The company's Vestolen P 9421 is a PP random copolymer (PPR) grade used in applications such as hot and cold water supply. This grade of pressure pipes has been in use for over 30 years, which is claimed to be longer than any other PPR pipe grade.

Vestolen P 9421 is available in a variety of colours and contains a finely tuned stabilisation package proven to be fully effective against thermo-oxidative

degradation. Pipes produced from the grade meet the requirements of the commonly used ISO EN 15874 and ISO 3213 standards.

Vestolen P 9421 is easy to handle and process using conventional extruders and injection moulding machines. It is also environmentally friendly and corrosion-free.

Sabic Europe – The Netherlands
Fax: +31 46 7220000
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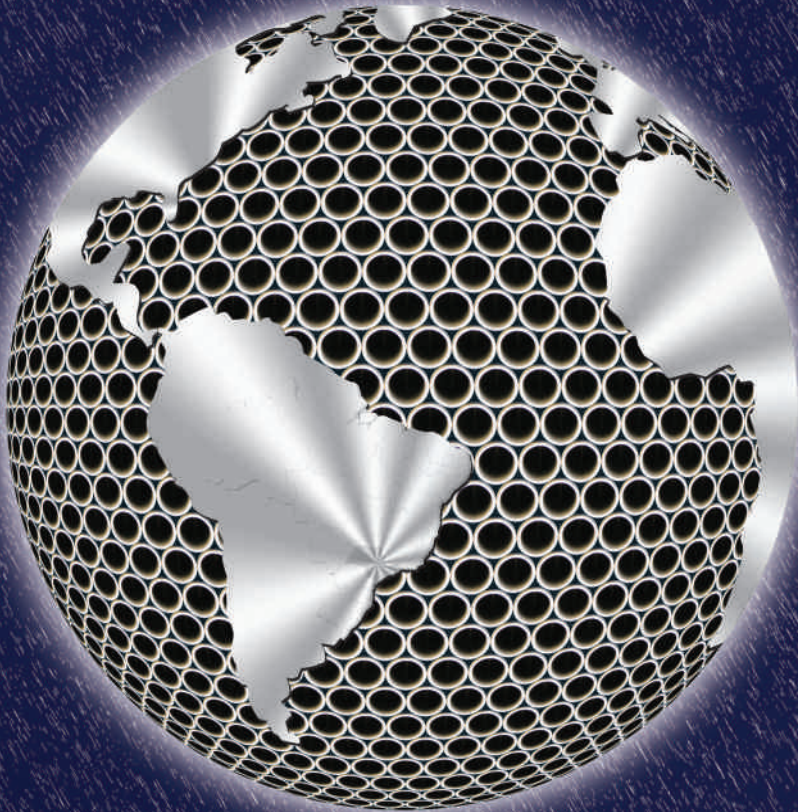
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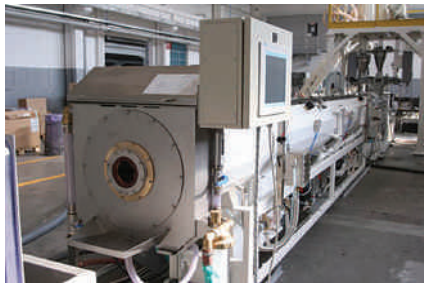
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Support

Plastic & Composite Tube: Products & Manufacture

Thermoplastic extrusion lines for PP copolymer and PPHD pipes

Bandera, Italy, has supplied thermoplastic pipe extrusion lines to two German manufacturers. The complete extrusion line will be used by one of the manufacturers for the production of PP copolymer and PPHD pipes for use in flue ducting. This flue ducting is used for combustion and discharge fumes of the condensate deriving from gas boilers (in place of pipes made from stainless steel or other traditional materials).



 The line includes a vacuum calibrating system

The output of this line is 210kg/h – significant considering that the line processes thin pipes, cut in minimum 500mm long bars. The line consists of a TR 65 AFTH L/D 1:32 extruder equipped with a thermo-regulated feed-throat. A four-component gravimetric dosing unit enables the exact repetition of process recipes and keeps pipe weight/metre constant, ensuring very narrow dimensional tolerances.

Capable of producing pipes within a diameter range of 32-160mm, the line features a special vacuum calibrating system. It also has an ultrasound thickness control system equipped with eight fixed sensors to check the thickness of the pipes produced. The four belt haul-off unit is designed with an increased belt contact surface, to ensure that the thin pipes avoid any deformation.

A planetary cut-off unit equipped with a knife, without any residual swarf and with automatically synchronised speed, allows the user to obtain minimum length pipe bars, even at the highest extrusion speed. The high-performance bellling machine can form three sockets per time, on the basis of the different diameters, and includes a system for automatic ring seal fitting in the different sockets.

An operator panel allows the control of process parameters. These include the gravimetric system, line flow, weight/metre, and extruder running parameters (screw velocity, temperatures, melt pressure etc).

 Bandera's TR 65 AFT-H extruder



It also calibrates tank parameters (vacuum control, water temperature etc), monitors the ultrasound thickness control system, and also synchronises line velocity with extrusion speed. It is equipped with a modem for tele-assistance.

**Costruzioni Meccaniche Luigi
Bandera SpA – Italy**
Fax: +39 0331 680 206
Email: lbandera@lbandera.com
Website: www.luigibandera.com

Product launch for low noise push-fit piping system

Designed to bring silent operations to internal drainage, Wavin Plastics has launched Osma SiTech – a new low noise push-fit soil system. An easy-fix push-fit system, SiTech is made from a mineral-filled polypropylene, which has the effect of increasing pipe density.

Higher pipe density means that it only needs to be encased in 25mm of mineral wool wrap where contact between the pipe and the building structure cannot be avoided. Consequently, it cuts down on installation time, wrapping and tooling costs and can be installed by professional plumbers rather than specialist fitters. Specialist fitters are often required for cast iron and HDPE systems.

OSMA SiTech has been independently tested for sound reduction performance and helps to achieve the higher acoustic performance standards in buildings as required by the UK's Building Regulations Part E 2003. The OSMA SiTech system is available with acoustic fittings and pipe in the standard 110mm size.

Wavin Plastics – UK
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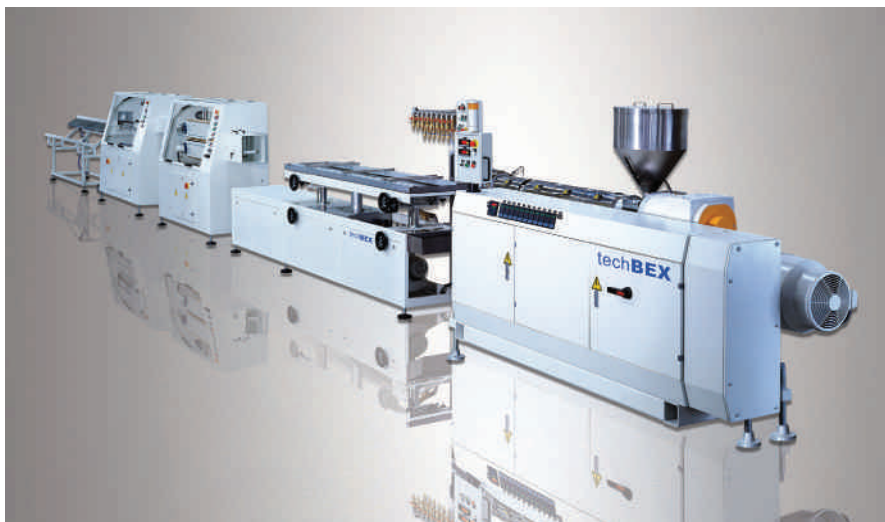


Extrusion line specialist with complete lines for plastic pipe

Battenfeld Extrusionstechnik GmbH, Germany, is an extrusion line specialist offering complete lines for the pipe, profile, film and sheet industries. Its product range includes two universal compact lines for the profile industry: the miniBEX for small technical profiles and the winBEX for window main profiles.

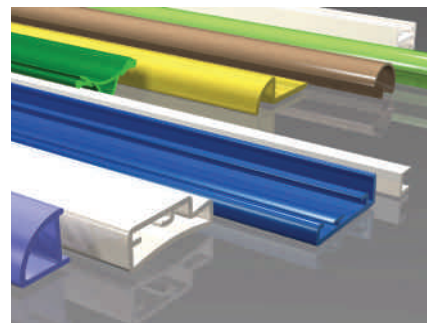
The company has extended its range by launching techBEX, a standardised

📌 *The techBEX standard line for technical profiles*



turnkey line for small profiles. More than 30 techBEX lines were sold within six months of launch, including some to new European and Asian customers. The lines are manufactured and assembled in the Chinese city of Shunde.

techBEX lines are available with either the BCE 1-45-25 D single-screw extruder for an output of 40kg/h, or the BCE 1-60-25 D extruder for a performance of approximately



📌 *Small profiles manufactured on a techBEX line*

60kg/h. The downstream equipment package includes a calibrating table, a belt haul-off, a flying knife cutter, a servo saw and a tip table.

Battenfeld Extrusionstechnik GmbH
– Germany

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Email: welcome@bex.battenfeld.com

Website: www.bex.battenfeld.com

Process optimisation on tube and hose extrusion lines

There is an increasing demand for a reliable measurement of wall thickness on tube and hose extrusion lines. The aim is to reduce material over-consumption, together with a reduction of start-up scrap and rejected products. Continuous measurement of the relevant data during extrusion is a very important factor.

Focused on process optimization, the Sikora X-Ray 2000 is designed for use on tube and hose extrusion lines. For this application an interesting X-ray system is available, where the product is transilluminated by X-ray. ➡➡➡

📌 *Sikora's X-Ray 2300 measuring equipment for tube and hose extrusion*



Increased worldwide demand for large-sized corrugators

Unicor GmbH Corp, Germany, is the manufacturer of machines for the production of corrugated pipes, known as corrugators. Following an order delivery to Australia in March 2007, the company is now represented in the large-sized pipe range on all five continents.

The company completed a successful start-up of several production lines, including UC 500 and UC 1200. These corrugators are designed to enable the fastest pipe production and lowest machine failure.

There is a growing demand in Australia for high-quality drainage and sewage water systems, with machines designed to meet such requirements. Countries of the southern hemisphere particularly suffer from the effect of water evaporation on the surface or draining in the wrong places following long periods of drought. This effect is caused by the application of open wastewater disposal lines (sewage lines) by trench systems – still a very common problem.

The change to closed wastewater disposal lines (sewage lines) by the use of corrugated plastic pipes therefore increases demands of the highest output from pipe producers. In order to face this timely and environmental technological urgency, an increasing number of users have selected this range of corrugators.

Unicor GmbH – Germany

Fax: +49 9521 956 195

Email: ralbert@unicor.de

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New sap for the machinery industry thanks to **A KEY PARTNERSHIP**

Nuova linfa al mercato della meccanica grazie a una **PARTNERSHIP DI PRESTIGIO**

With the new partnership between **Officine MTM SpA and Atomat SpA**, the machinery industry draws new sap for the design and manufacture of innovative equipment for precision welded pipes production.

MTM and ATOMAT, two worldwide leaders in manufacturing equipment and rolls for welded pipe production.

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a key partnership **RESPECTS THE MUTUAL TALENTS AND CAPABILITIES**

This new cooperation respects the mutual talents and capabilities of each company while capitalizing on the unique technical know-how and manufacturing synergies of MTM and Atomat. It's believed that for all our customers, this partnership will ensure increased technological, organizational and commercial advantages and above all, the most competitive products and services.

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For this technology, mechanical scanners are no longer required. The picture of the product is directly projected onto a high-resolution line sensor, and measuring values are continuously available within fractions of a second. With the X-ray measuring system, users can achieve a continuous measurement and control of the extrusion line under consideration of the minimum values.

The system is easy to integrate into every extrusion line for tube and hose. The measuring axes are arranged under 0° and 90°, which also permits the measurement of eccentricity and wall thickness.

The equipment is built as a stand-alone gauge head as this is well-established technology from the gauges of Sikora's

Inline 2000 series. This concept permits the connection of the system directly to a line computer or PLC via all type of interfaces. The system also includes the function of a diagnostic interface and is compatible to the Ecocontrol 2000 processor/display system.

With the measuring values available immediately at the start-up of the line and with continuous measurement, this X-ray based measuring system becomes an invaluable tool. It is essential for tube and hose extrusion lines, where economical aspects and quality control are important, in addition to tight tolerances.

Sikora AG – Germany
Fax: +49 421 489 0090
Email: sales@sikora.net
Website: www.sikora.com

Patented bi-stable reel composite tube for pipeline applications

RolaTube Technology, UK, has introduced a globally patented bi-stable reel composite (BRC) that can be repeatedly rolled and unrolled from flat spool to rigid tube. In principle, bi-stable composite reel products are fully capable of replacing and/or reinforcing all retractable and fixed tubular structures such as masts, poles and pipes, resulting in unlimited potential applications.

The company has also identified the commercial potential of thermoplastic elastomers (TPEs), high tech plastics that contain rubber-like properties. RolaTube was provided with invaluable research support from the London Manufacturing Advisory Service (MAS), a DTI initiative supported by the London Development Agency.

RolaTube can be used for pipelines and pipeline rehabilitation. The company has manufactured and successfully tested prototype designs of flat-reeled composite pressure pipes and linings for the oil and gas industry. The commercial product, when shipped as a reel, and deployed,

RolaTube is a newly developed bi-stable reel composite (BRC) that can be repeatedly rolled and unrolled from flat spool to rigid tube



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welded and installed on site, can potentially save up to 90 per cent of transportation costs compared with extruded pipes.

Bistable pipelines are equally useful in replacing and repairing low-pressure aqueous and non-aqueous applications.

RolaTube Technology Limited – UK
 Fax: +44 20 8968 8881
 Email: sales@rolatube.com
 Website: www.rolatube.com

Polypropylene pipes for smooth-flowing sewer project

Borealis, a plastics solutions specialist, has supplied plastics processor Rehau with BorECO™ BA 212E, a highly developed polypropylene (PP) for pipe systems.

Rehau was faced with the challenge of installing a smooth-flowing sewerage system in the residential area of Traiskirchen, Austria, during the winter season, and benefited from BorECO's features, which include low weight, high stiffness, durability and good impact resistance even at low temperatures.



i The low weight of pipes made from BorECO PP allows fast and cost-efficient pipe laying

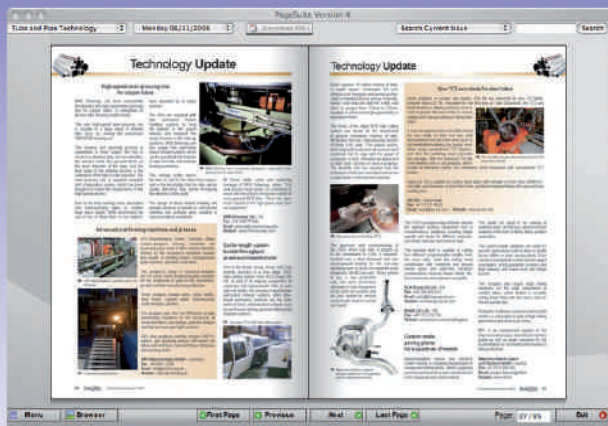
Mr Guido Kania, Rehau's senior manager (research and development), commented, "The wintry weather during installation plus the cold conditions facing the pipes once underground meant that a heavy duty solid wall pipe with high ring stiffness and good cold climate performance had to be used. In combination with the community's demands for a sewer pipe system with good corrosion resistance and long-term performance, we felt that Borealis' BorECO

was the ideal material to produce our Awadukt PP sewer pipe system."

The low weight of pipes made from BorECO PP compared to traditional concrete pipes allowed the construction company fast and cost-efficient pipe laying in the trench, even for large pipes with thick walls. Smooth installation at the trench was assisted by the high ring stiffness and jointing flexibility of the finished pipes. Rehau used a safety-



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 BorECO provides good cold climate performance



lock pushfit system to ensure both quick installation and long-term performance.

Borealis claims that BorECO's corrosion, abrasion and chemical resistance can provide pipes with long-term durability of at least 100 years, ensuring protection of the environment by preventing leaks.

Borealis AG – Austria
Fax: +43 122 400 333
Email: info@borealisgroup.com
Website: www.borealisgroup.com

Manila Water switches to PE pipe

Manila Water's decision to switch from PVCu to PE as its preferred pipe material has brought about a change in the products it sources from pipe joint and repair specialist, Viking Johnson.

The Philippines water company's latest annual supply contract specifies AquaFast couplings and flange adaptors in place of the MaxiFit range it previously used.



 Viking Johnson's AquaFast range is designed for use with both polyethylene and PVCu pipe

AquaFast couplings and adaptors are designed for both polyethylene and PVCu pipe connections, including PE/PVC transitions. The MaxiFit is a wide tolerance range suitable for use with PVCu, steel, ductile iron, cast iron and asbestos cement pipe materials.

AquaFast flange adaptors feature progressive gripping and sealing technology, and are used for connections to valves and other flanged fittings. No specialist tooling is required and the fittings can be installed in all weathers and site conditions.

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Editorial deadline: 17 July

FQM™: Danieli's 3-roll pass retained mandrel mill for high quality seamless tube production

By Mr E Cernuschi, Danieli Centro Tube, Italy

1. Background

The activities of Danieli in the field of the pipe plant market dates back to the early 1980s, through involvement as a sub-supplier or partner in important contracts for both seamless and welded pipe projects. However, the involvement of Danieli remained marginal until 2003, when the decision was taken to enter new markets.

This move was intended to both increase revenues and serve customers better with a more global range of products. In particular, the decision to begin the design and manufacture of seamless pipe plants has been confirmed by the considerable growth in the energy sector, due to increased global oil and gas consumption.

Together with the know-how and technology exclusively supplied by Kocks for finish rolling, Danieli Centro Tube can provide the whole technical package – including mechanical, electrical, automation, and reheating systems. This leads to advantages such as smoother coordination through all stages of the project.

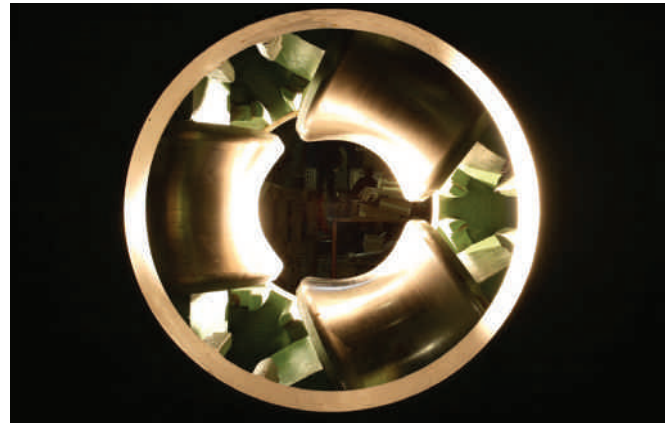
Danieli Centro Tube provides the process technology and mechanical design of the machines; Danieli Centro Combustion provides heating systems; Danieli Automation develops process automation and related electrical systems; and Danieli Centro Maskin contributes with auxiliary machines.

As a result, three large projects are already in progress, while a fourth order has recently been awarded.

2. Seamless tube production overview

Over the last 30 years, the state-of-the-art Retained Mandrel Mill (RMM) process has been the most advantageous method for high quality seamless tube manufacture. It holds an extremely competitive position when compared with other processes in corresponding conditions.

🔦 **Figure 1:** Danieli's FQM™ (Fine Quality Mill) can produce superior quality seamless pipes



🔦 **Figure 2:** With a 3-roll pass design, the Danieli FQM™ process is based on the continuous rolling principle

A universal process, it is highly suitable for all pipe dimensions and steels grades. RMM is also a flexible approach, suitable for high and low tonnage production, with an exceptional capacity to meet a variety of market requirements. With comparatively low cost investment, it provides additional capacity in producing high quality products, both for size tolerances and surface quality.

The first generation of the retained mandrel mill, based on 2-roll pass design type technology, is now operating worldwide under the highest possible performance. Meanwhile, the new 3-roll pass design version has made a steady entrance into the market. FQM™ (Fine Quality Mill) is Danieli's enhanced and progressively modified version of the first generation.

3. FQM™ at a glance – overview

The Danieli FQM™ offers process technology able to produce seamless pipes with high quality features (close wall thickness tolerances and very smooth surfaces), at low production cost.

The FQM process is based on the continuous rolling principle, with rolling passes on a cylindrical mandrel that moves at a constant controlled speed during the whole rolling phase. Rolling mandrel speed is calculated according to the deformation scheme and is less than the outlet tube speed from the first stand.

The material therefore moves faster than the mandrel; consequently friction forces between the material and the mandrel are in the rolling direction versus a longitudinal material flow. The elimination of the transversal metal flow in the roll gap direction and the inline extraction of the tube from the mandrel (immediately after rolling), allow the use of a very close pass design.

Moreover, the process offers a high degree of production flexibility, versatility and efficiency fully supported by process control features like automatic gap control and wall thickness in-line measurements.



Figure 3: The 3-roll FQM mill (above) provides a more uniform deformation in the pass than was previously experienced with the 2-roll RMM process

From the point of view of the material deformation, the differences between the 2-roll RMM and the 3-roll FQM™ are significant. The smaller difference of the peripheral speeds between the groove bottom and the flange of the rolls leads to a more uniform deformation in the pass of an FQM. It is more uniform both in the steady phase and in the transient phases (biting and release).

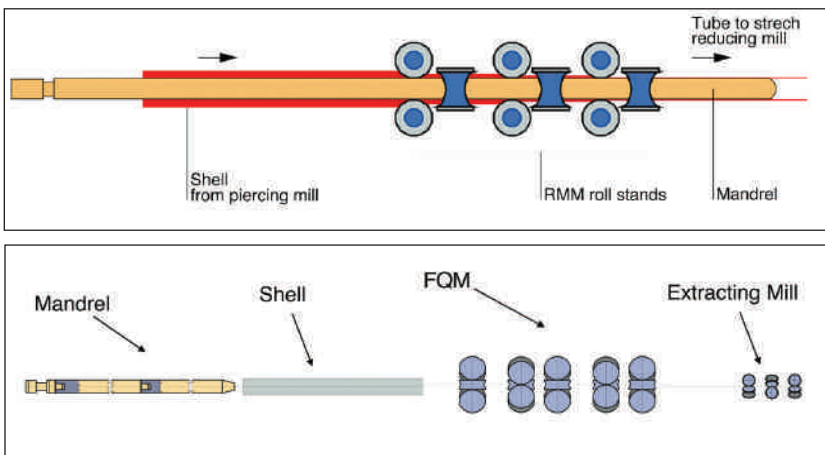
This benefit results in:

- Less redundant transversal material flow
- Lower specific average and, particularly, peak pressures on the mandrel and on the rolls
- Higher degree of stability of the mandrel in the pass

The effect of this technological improvement results in a range of benefits.

Figure 4 (below): FQM – hot rolling is performed on a retained mandrel through a sequence on rolls driven stands

Figure 5 (bottom): The FQM is an adjustable 3-roll stand longitudinal rolling mill, which uses the retained mandrel technology typical of the 2-roll RMM, in combination with 3-roll pass design. The working cycle is similar to the RMM process cycle



3.1 Higher product quality

- Pipes with thinner wall thickness (higher diameter-to-wall thickness ratio)
- Closer wall thickness tolerances
- Better diameter tolerances
- Higher pipe surface smoothness

3.2 Larger product range

- Steel grades – with critical hot workability – can be rolled
- Increased flexibility

3.3 Lower Production cost

- Higher yield
- Reduced tooling wearing
- Lower tooling inventory cost
- Higher efficiency in production and in automatic process control

To expand upon these advantages of FQM™, it is worth explaining the major process features influencing each improvement.

Tubes with higher D/t (diameter to wall thickness) ratios can be rolled. The substantially higher uniform deformation, with lower average and peak pressures, allow the rolling of tubes with thinner wall thicknesses in relationship to the diameter.

Wall thickness tolerances are also considerably improved. The process tolerances are improved because the 3-roll arrangement ensures a considerably more uniform deformation, due to the lower differences in peripheral roll velocity and the closer roll pass design that can be used. The 3-roll arrangement also provides better stability and centring of the mandrel in the pass.

The 3-roll pass also possesses a more favourable geometry. This leads to a substantial reduction of wall deviations that result from the operation of closing and opening the roll pass on the same mandrel to produce several wall thicknesses. Tube end wall thickness can also be notably reduced by AGC in order to compensate for the end thickening, which takes place when stretch is applied in the subsequent stretch-reducing mill.

The technology also achieves better OD accuracy of inline finished tube. Higher temperature uniformity across the section and along the mother tube permits closer tolerances on sizing of the tube outside diameter.

Achieving a smoother tube surface is also possible, as the 3-roll pass rolling reduces slippage on the tube surface. This eliminates any trace of a mark on the outside surface. The inner surface quality, already excellent in the RMM process, is also improved.

These benefits mean that more sophisticated steel grades can be successfully rolled. This advantage is possible because of the higher compressive circumferential stress conditions of the 3-roll pass.

Process flexibility is increased, meaning that small lots of tubes can be processed in a wide range of

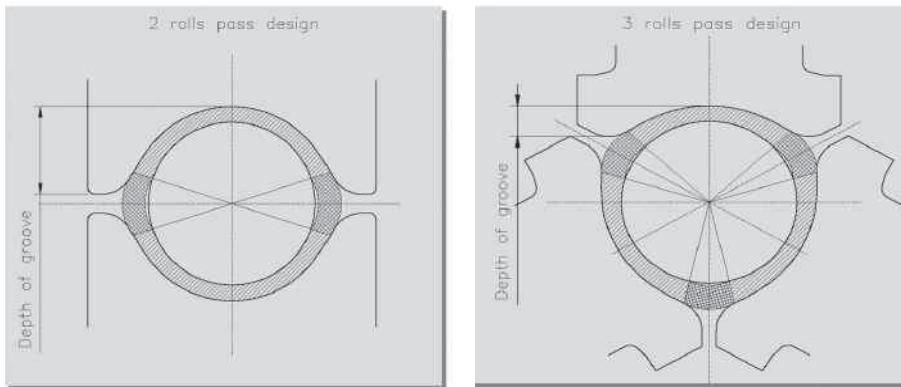


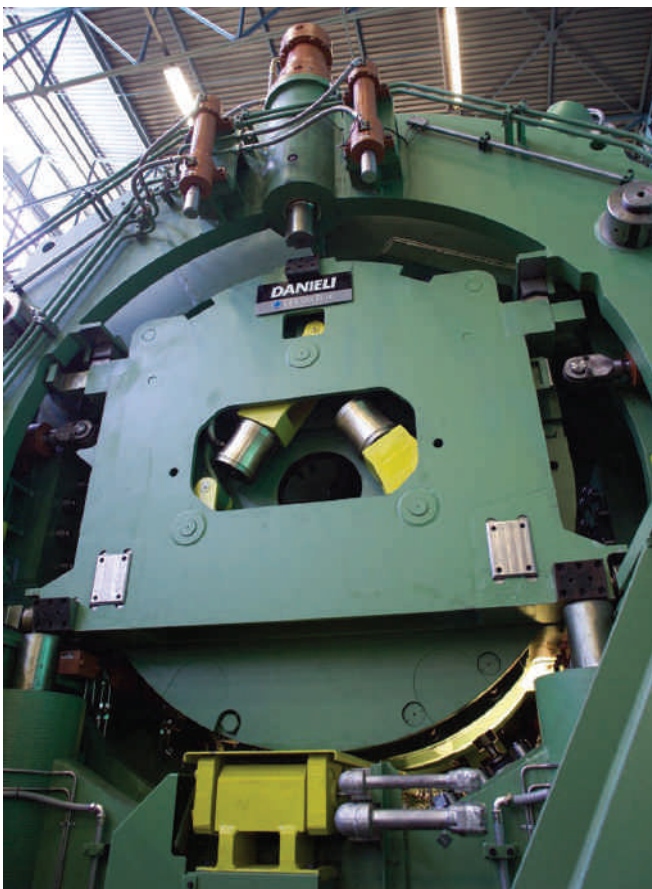
Figure 6: Advantages of the FQM process: comparison between 2-roll RMM (left) and 3-roll FQM (right)

sizes and steel grades. There is also a better yield, with improved quality in the shape of the tube end leading to a reduction in cropping.

Because of a wider wall thickness range capability on the same mandrel, the total number of mandrels required to cover the complete size range is reduced. Consequently, there is a reduced mandrel inventory and less frequent mandrel size changeover. There is also a significantly reduced consumption of mandrels and rolls because of lower average and peak pressures.

There is a higher degree of stability of the material flow during rolling, which reduces accidents and the losses for cobbles. This increase in efficiency leads to better productivity and yield.

Figure 7: A mandrel supporting stand from the FQM container



4. Technical profile of the FQM™ retained mandrel mill

The FQM™ mill is mainly comprised of rolling units and cartridges – each one with 3 driven rolls – supported by chocks and mounted in a shifting slide inside the cartridge. Each cartridge is comprised of two cast shells. The design of the cartridge allows the radial extraction of the shifting slides, containing chocks and rolls, without the necessity to open the cartridges into two halves.

Due to the geometry of the mill the required adjustment to roll position before or after profile redressing can be undertaken directly with the hydraulic capsule. The hydraulic capsules are mounted outside the container and engaged/disengaged to the roll during the roll changeover procedure.

The mandrel supporting units are installed inside the container. These units guarantee optimum operation, by means of three self-centring rolls, with adjustable positioning in accordance to mandrel size, and oil-hydraulically operated for opening/closing the mandrel centring and support during rolling.

The number and position of mandrel supporting stands depends on the mill configuration. For example, on a 5-stand mill the mandrel supporting stands are installed at the inlet and outlet of the first rolling unit, between the third and the fourth rolling unit and at the outlet of the last rolling unit.

The roll cartridges and the mandrel supporting units are inserted in a fixed and rigid cylindrical container and sit on side supports inside the container. Due to his geometry the container is designed to react uniformly to the three separating forces acting in radial direction.

For the roll changeover all the rolling units and the mandrel supporting units are pushed along the rolling axis toward the mill exit. The changeover is performed with a side-shifting type car.

5. FQM™ process control

Seamless tube plants are configured as distinct technological areas in which different jobs can take place at the same time. Each technological area has its own process control system that is integrated with the others via level 3 automation. The following goals can be achieved with this process control system:

- Enhanced dimensional quality of the final product
- Improved operator independence for better production quality
- Improved consistency of production quality
- Maximised yield of the plant
- Simplified start-up for new production configurations

A suitable integration and process automation system is essential to match the high quality performance and results gained from 3-roll pass design. The Danieli automation system is supported by 'fast' data collection of the main process variables. During the rolling process all data is gathered from level 1 and used for process tracking, process tuning and input for level 2 models.

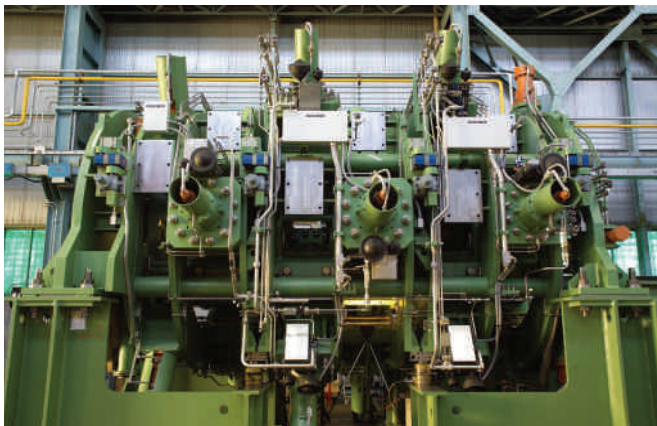
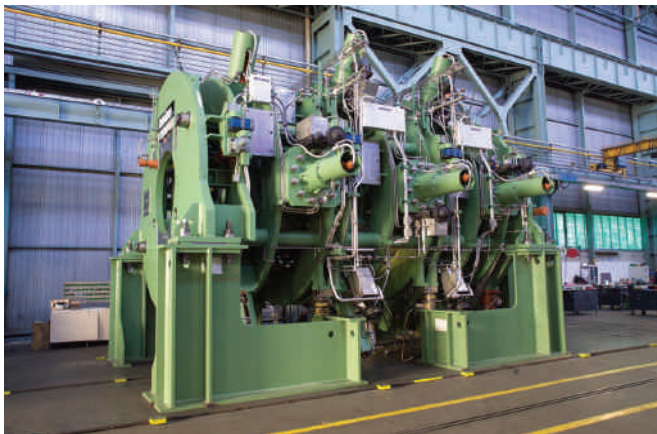


Figure 8 and 9: A side view of a 5-stand FQM (top and above)

5.1 Major system features

Master speed control enables the coordinated increase and decrease of motor speed references. This speed control is carried out by always ensuring comparative balance of the set drive speeds during the rolling process.

An essential element of the system is wall thickness measurement; gauging of the thickness of the rolled material is provided and the set of the proper roll gap opening performed. The process control system analyses the data produced by the wall thickness gauge located at the extractor stand exit. Based on the results, the mill mathematical model updates the speed and gap parameter set points to improve the quality of the rolled pipes.

Impact drop compensation acts to minimise the length of pipe rolled at speeds that are different from pre-set values by using auto-adaptive parameters, relying on real-time calculation algorithms.

The core of the process control is the installation of hydraulic capsules, which are fully managed by the system. On each roll cartridge three independent hydraulic capsules are mounted, one per roll. The main function of the control system of the hydraulic capsules, controlled by servo-valves, is to move the stand rolls.

The position of the cylinders and pressure of the chambers are measured in real time by dedicated transducers and used by a dedicated high-speed control system, capable of controlling and maintaining the set position.

5.2 Control system functions

- Synchronised position control maintains the symmetry between rolls and the rolling centreline, to avoid damages to chocks and bearings
- Separation force measurement computes the average and differential values of the rolling forces using the pressure transducers installed on the hydraulic capsules
- Capsule position control regulates the position of the rolls by comparing position pre-set and position feedback and set-up for roll changeover
- During rolling, automatic variation of the roll positioning takes place in accordance with a calculated rule, in order to compensate the temperature disuniformity over the tube length
- Impact compensation increases the gap between the rolls during the entrance of the shell into each stand, thus reducing excessive thickness on the tube head end. The impact peak compensation on mechanical components limits the stress on the roll bearings and reduces the mandrel and rolls consumption
- A general damage prevention system (automatic roll emergency opening), based on automatic gap increase, limits the overload and enables the tube end to be rolled. There is also an emergency capsules control to avoid strong deformation of the pipe and consequent damage to mechanical parts, mandrel and rolls

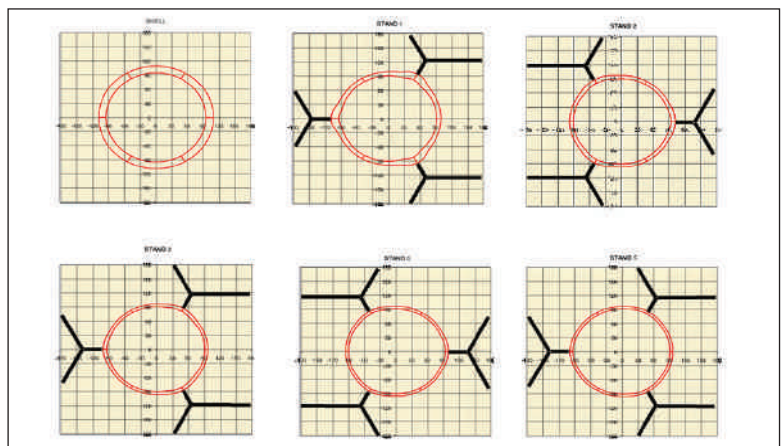
6. FQM™ integration in the rolling line

A typical material flow, together with the process control installed, is a central part of the system. The billet, cut into multiple lengths of the rolling length, are re-heated to 1,280°C in the re-heating furnace, rotary hearth type or walking beam type.

After the re-heating, the piercing of the billet is undertaken in a cross rolling mill to form a round hollow shell. The cross rolling mill mainly consists of two opposite and equi-rotating rolls, suitably shaped in order to rotate and advance the billet against a plug. The external deformation of the material is contained by means of lateral rotating disks or fixed shoes (at 90° in respect to the rolls). The internal plug determines the internal material deformation.

The cone shape and divergent orientation of the work rolls require no abrupt change of ovality and twist direction of the material during rolling. They help achieve the following benefits:

Figure 10: Material flow during rolling in a 5-stand FQM



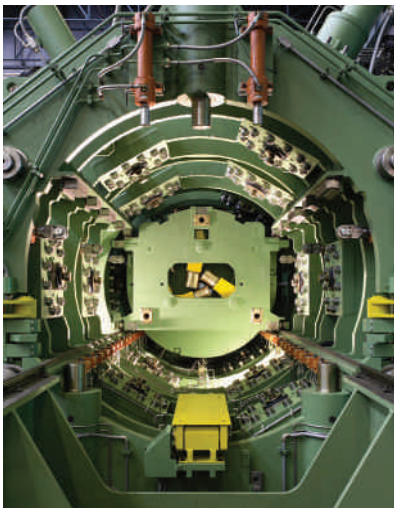


Figure 11 (above left): Into the heart of the FQM process; Figure 12 (above right): a diagram displaying the FQM's automatic mandrel cycle

- Minimise the surface strain due to the torsion and circumferential shear deformation
- Suppress the 'forging' effect (by increasing roll velocity the shell is pulled in the direction of rolling)
- Improves the shell OD surface (due to the speed match between roll and shell)

The cone-type cross roll piercing characteristics are:

- High elongation
- High expansion levels
- Capacity to pierce a wide range of steel grades
- High concentricity and wall uniformity
- Excellent inner and outer surface quality

After the piercing of the billet, the shell is rolled in the FQM™ and the finishing of the tubes into the required final sizes is performed in a sizing or a stretch-reducing block. It is here that the reduction of

Figure 13: A complete view of a five-stand FQM™ (Fine Quality Mill) for a 350,000t/y 7" seamless pipe mill (Buttrio, Italy)



the outer diameter takes place with a simultaneous wall thickness variation.

The change of the wall thickness depends on the longitudinal tension (stretching) acting on the tube during reduction. The mill is equipped with a series of closely spaced three-roll stands (in accordance with the required OD reduction). The three rolls, individually driven and with adjustable roll stands, are used in the last stand position.

The Kocks sizing or stretch reducing blocks are the state-of-the-art in 3-roll technology for tube rolling, with stands featuring three input drive shafts, and radially adjustable or non-adjustable rolls with quick roll change. Restrictions normally experienced with conventional stretch reducing mills are completely eliminated and overcome in the Kocks design. This leads to the following improvements:

- Higher rolling forces and torque
- Shorter stand spacing
- Quick roll changing (30 min per stand)
- Radial adjustment of rolls
- No special roll lathe is required
- Investment is considerably reduced

7. Conclusion

FQM™ is the core of the seamless pipe production process selected by Danieli. The innovative features of the mill are fully integrated in the deformation path of the complete rolling line, either for new installation or for revamping of an existing installation.

The best result is achieved when a complete new rolling line, from the billet re-heating furnace, usually rotating hearth type, to cooling bed is installed, allowing Danieli to balance the deformation path among the piercing mill, the RMM and the sizing/stretch reducing mill.

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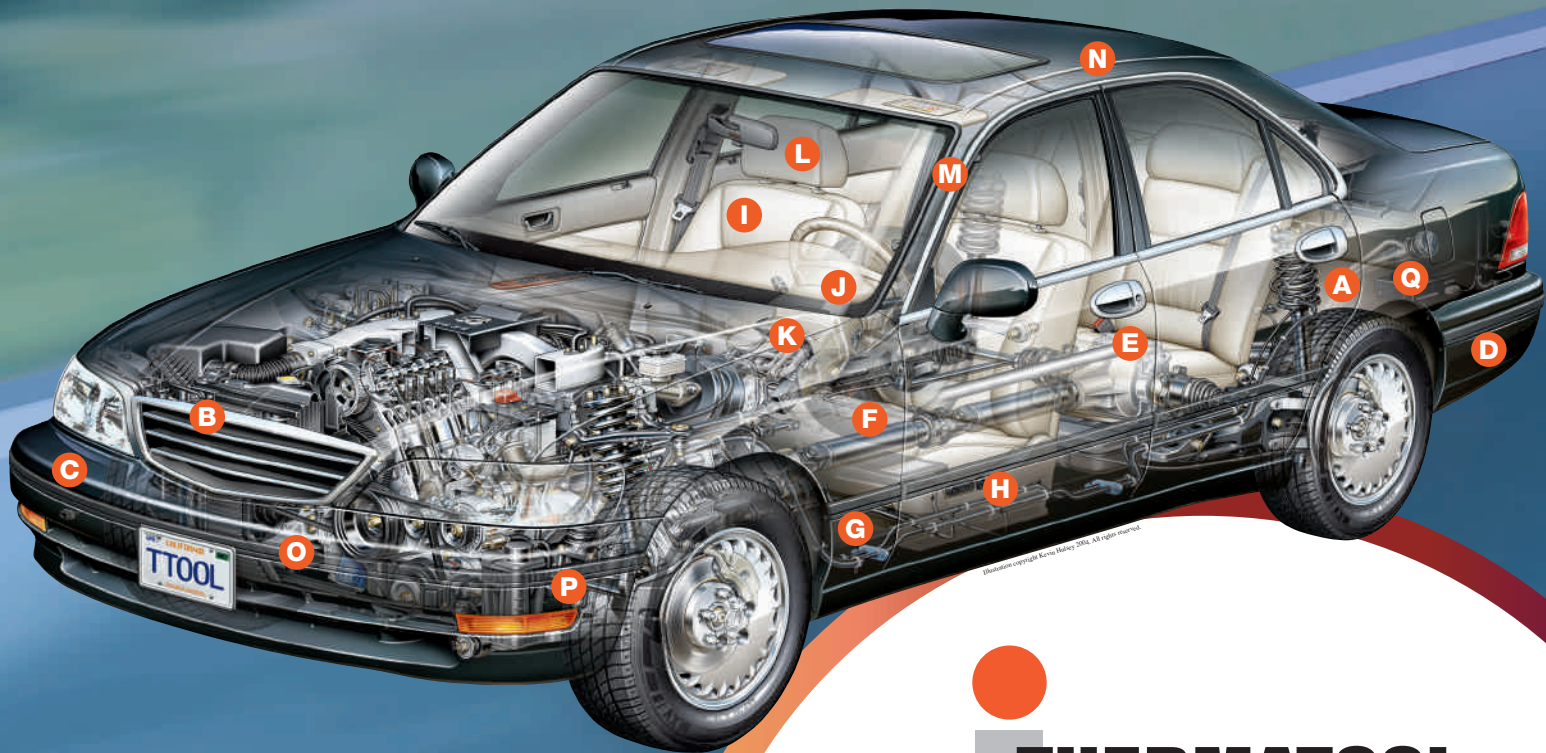
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