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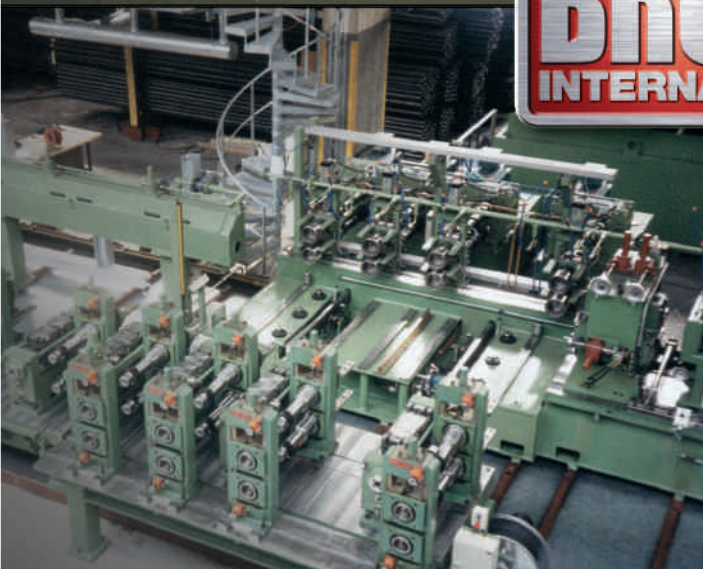
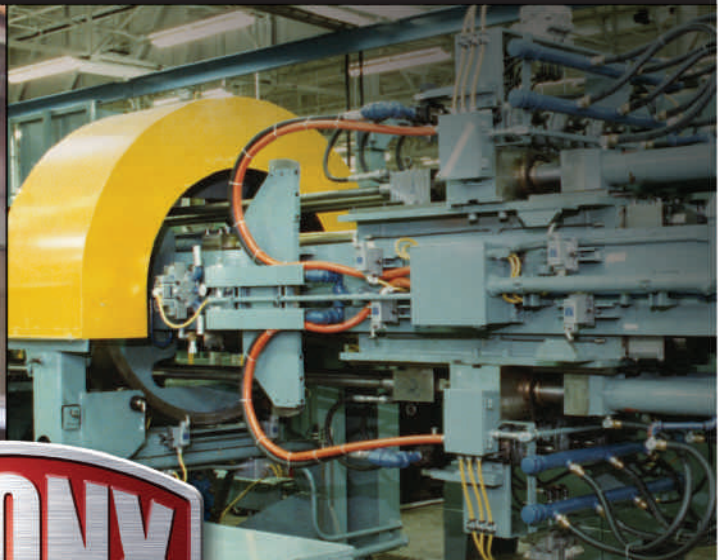
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# TUBE & PIPE TECHNOLOGY



May 2007 | Vol 20 No 3 | US\$28

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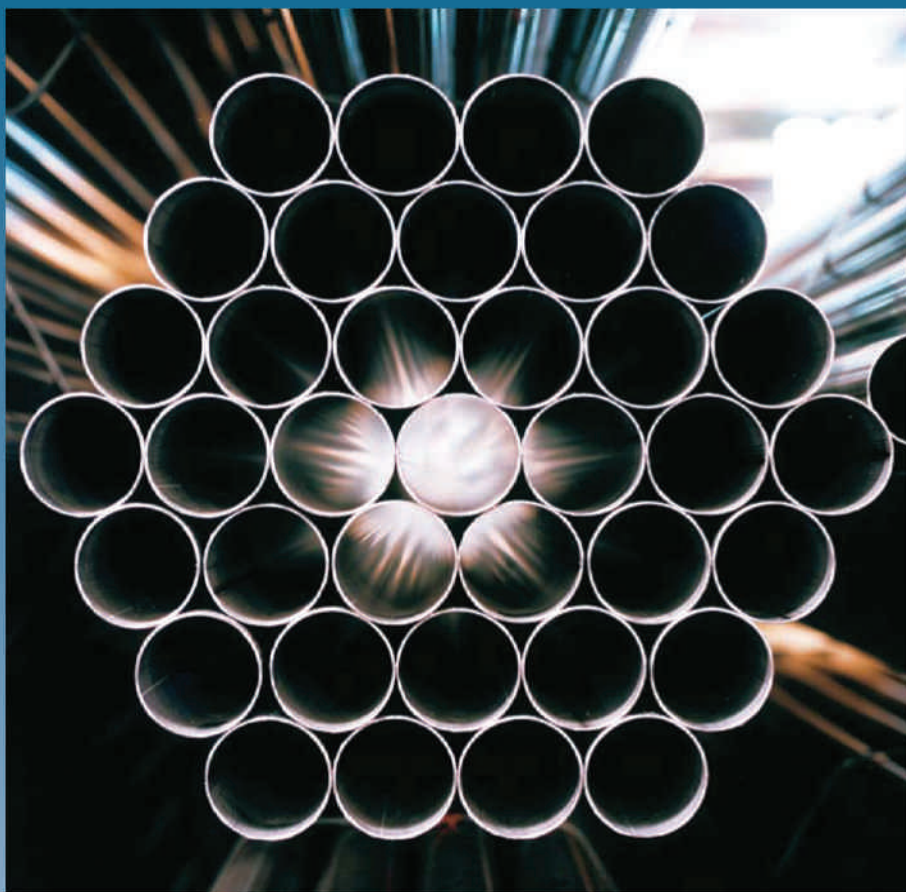


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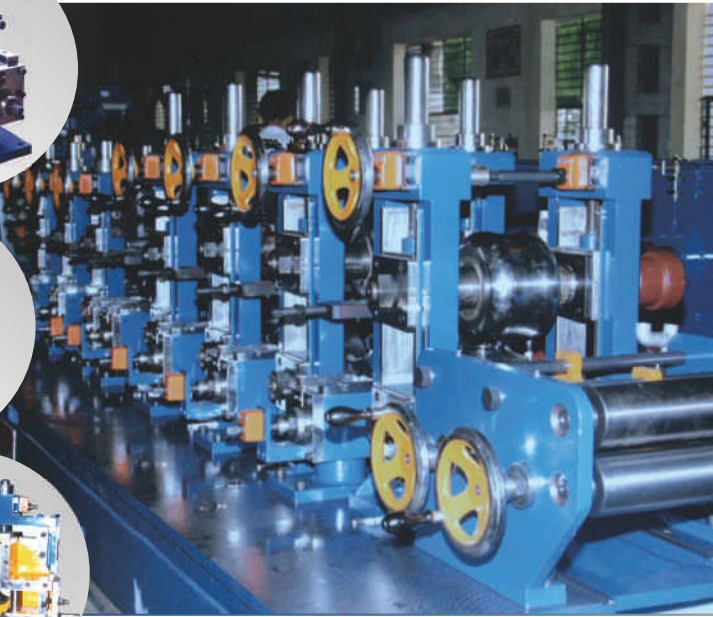


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- Automatic Bundling Machine
- HR/CR Slitting Lines
- Roll Forming Lines
- Rolls For Tube Mill & Roll Forming Lines
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- Special Equipment As Per Customer Design
- Erection / Revamping Services

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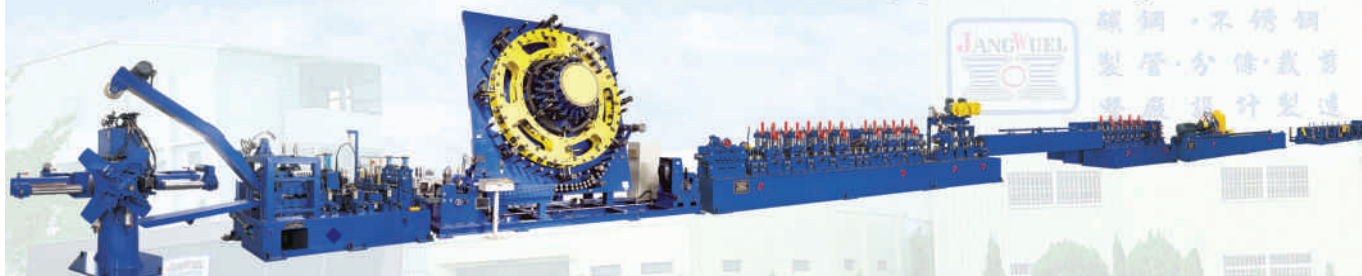
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# Contents

## Fuelling – the debate

My brother-in-law recently made the rather expensive mistake of topping up his diesel car with some petrol for a trip down to London (and back). Such a simple but expensive mistake is not uncommon – apparently he joins an estimated 120,000 UK drivers (say the AA), and surely a whole lot more worldwide. In the USA, the problem is less frequent due to a different nozzle system.

Such mistakes only serve to remind us of the increasing number of choices for refuelling our cars. As the automobile industry has changed dramatically – driven by environmental, competitive and economic factors – so our fuel choices are set to increase, with hydrogen, ethanol, E85 and other biodiesel variants all contenders.

With automobile production still in overdrive, greener and smaller cars with less flash are appealing to consumers. In 2008, Honda will begin low volume production of its new FCX Concept hydrogen fuel-cell car, in addition to a new-style diesel car. And the growing popularity of ethanol (either sugar cane or cellulosic) in the USA indicates a newly favoured fuel to reduce the dependence on Russian and Middle East oil.

This change in technology is reflected by the turmoil in the global automobile industry. US and west European manufacturers are facing stiff competition from China's play of imitation, Japan's advanced technology, and the rise of cheap east European manufacturing.

And, of course, the innovation of our tube and pipe world is playing an increasingly important role in the design and production of new automobile components (see the bending feature from pages 106-153). All that is required now is for some bright spark to invent a foolproof method of putting the right fuel in our cars!



### Rich Sears

Editor • Email: richard@intras.co.uk

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100	From The Americas
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## TUBE & PIPE TECHNOLOGY

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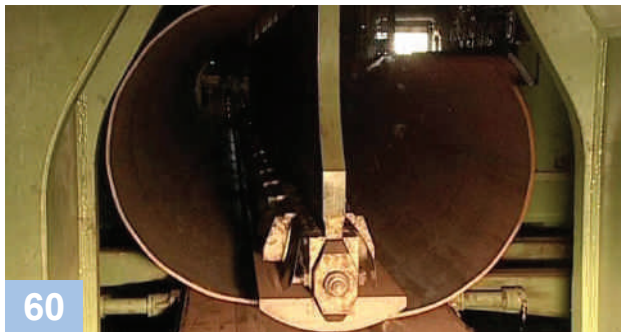
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**64 Tube Russia 2007:  
Show Issue**

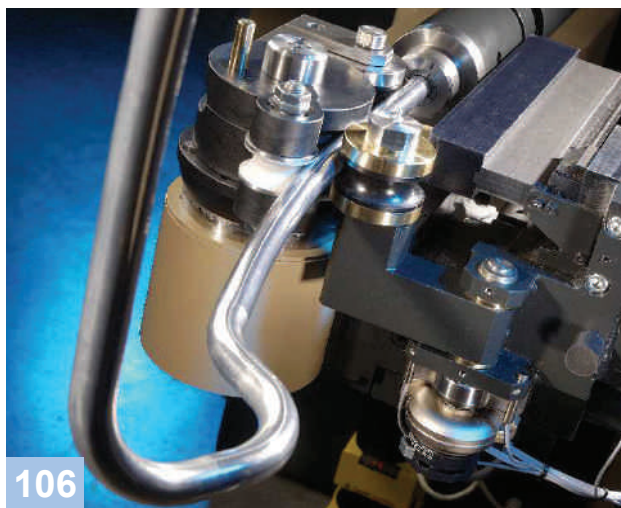
Tube Russia will welcome around 300 exhibitors to celebrate its fifth anniversary from 28-31 May. Russia now commands a powerful position on the international stage, with Russian industry having flourished with this newfound influence and prosperity. The metals and pipe sector have never looked so healthy, with a tight-knit network of producers looking to upgrade using international technology. Combined with Metallurgy-Litmash, Aluminium/Non-Ferrous and wire Russia, Tube Russia 2007 will provide an excellent insight into a complex and often difficult market.



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**60 Viewpoint:  
Review of the Russian  
Tube Industry and Future  
Development Prospects**

By Mr Alexander Deyneko, director,  
The Development Fund of the Tube  
Industry of Russia (FRTP)



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**106 Bending, Hydroforming &  
End-forming Technology**

The role of bending and forming companies has always been to spearhead and facilitate development and engineering brilliance. With green issues currently riding high on the agenda of leading manufacturers of vehicles for land, sea and air, this technology has never been more in demand. To develop and manufacture innovative projects, designers and engineers rely on the versatility provided by bending and forming expertise. Here we highlight this technology with examples including spinformed tube, electric benders for hydroforming tasks, advanced double wall bending, and variable radii rolling combined with mandrel bending.

**Technical Article**

**154 New trends for tube and profile  
separation concepts by shear  
and cold rotary saw**

By Ing Jan Attl, Attl a spol sro, Prague, Czech Republic



## Interpipe and Danieli collaborate on new large-scale electric steel mill

Leading steel company Interpipe has awarded a major new contract to Italian company Danieli to build a state-of-the-art electric steel making facility.

Upon completion, the facility is expected to be the largest of its kind in Ukraine and western Europe. The contract was signed in Kiev at a ceremony attended by Interpipe's founder Mr Viktor Pinchuk and senior management from both Interpipe and Danieli.

The new facility represents an investment in excess of \$610mn, and will have the capability to produce 1.32 million tons of round billets and blooms per annum. This will provide Interpipe's manufacturing mills with high quality steel for the company's pipes and wheels.

With construction due to start in 3-5 months, the site of the new mill will be within the grounds of the company's largest existing mill in Dnepropetrovsk, the Nizhnedneprovsky Tube Rolling Plant (NTRP).

Interpipe is a global producer of steel pipes and wheels, and one of the fastest

growing producers in eastern and central Europe. With sales in excess of \$1.5bn, the company produces 4.3 per cent of the world's seamless pipes and 12.8 per cent of railway wheels.

Commenting on the project, Mr Alexandr Kirichko, managing director of Interpipe said: "This facility really is state-of-the-art. It will allow us to make an eight fold reduction in our gas consumption and a two and half fold reduction in emissions overall. We will be creating 500 new jobs for the local community – and above all, we will be in a position to provide our customers around the world with better products more efficiently."

The new meltshop will feature all the latest Danieli technologies and high-tech equipment available in steelmaking and casting. It will include a 160t twin shell, inert roof-type LF and a double-tank VD equipped with a 4-stages 400kg/h steam ejector vacuum pump. The split-shell FastArc AC EAF will operate based on 100 per cent scrap and will be equipped with the latest technology in chemical energy injection and HIREG electrode digital regulation systems.

One four-strand FastCast bloom caster and one five-strand billet caster will be equipped with the latest generation of tundish and mould design, hydraulic oscillators and all means to enable high-speed casting of Ø 150-470mm quality round billets and blooms.

The meltshop will include all auxiliary plants and equipment, including material handling system, fume dedusting plant and cranes. Danieli Automation will supply all electrical systems and advanced, fully integrated automation system for the entire plant.

➤ **The new facility represents an investment in excess of \$610mn, and will produce 1.32 million tons of round billets and blooms per annum** ◀

Mr Gianpetro Benedetti, chairman and CEO of Danieli, states "At Danieli, we have great expertise in building these 'mini mills' for mining and smelting complexes and are delighted to be awarded this prestigious contract by Interpipe. Danieli will be managing the construction as a turnkey project, including all the technological production, the auxiliary plants and services along with the all of the infrastructure, civil works and support buildings. This facility will be the first of its kind in the Ukraine, which is very exciting for both Danieli and Interpipe."

Mr Viktor Pinchuk, founder of Interpipe added, "The future of Ukrainian industry is not just about modernising existing mills and factories, many of which were built over the last 50 to 100 years – we also need to invest in the new, high technology manufacturing facilities. I am very pleased that through working with partners like Danieli on projects such as this, we are making a significant step forward in the building of a modern industrial infrastructure for Ukraine in the 21<sup>st</sup> century."

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Website: www.danieli.com

**Interpipe – Ukraine**  
Fax: +380 562 389482  
Website: www.interpipegroup.dp.ua

📍 Signing the contract in Kiev: Mr Franco Alzetta (left), executive vice president of Danieli, and (right) Mr Alexandr Kirichko, managing director of Interpipe







## TPA and ITA to host major technical event

The Tube and Pipe Association Intl (TPA), USA, and the International Tube Association (ITA), UK, have announced their first ever collaboration on a world-class conference devoted to updating seamless and welded tubular product technology and processes.

The event, titled Pipe & Tube Houston 07 – 'Seamless and welded technology for global markets', will take place from 9-12 September 2007 at the Woodlands Resort, near Houston, Texas, USA.

The conference organising team comprises the North American management board of the ITA and three TPA councils – the tube and pipe producers council, the tube and pipe fabricators council, and the extrusion, drawing and tube reducing council. This team of organisations will update the tube and pipe communities on current and future practices.



This cooperative event will consist of technical paper presentations, round table discussions, three plant tours, and tabletop exhibitions. This combination of promotional opportunities will ensure prime networking over the three days.

Fields of interest will include welded-seam tubes, seamless tubes, cold drawing and reducing tubes, extrusion, inspection, finishing, OCTG and fittings.

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 Fax: +1 815 484 7750  
 Email: [jen@fmanet.org](mailto:jen@fmanet.org)  
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## DIARY OF TUBE EVENTS

### 2007

#### MAY

- |       |  |   |  |
|-------|--|---|--|
| 10-12 | <b>Shanghai Steel Tube Expo</b><br><i>Shanghai, China</i><br>Exhibition          | ➔ | Website: <a href="http://www.gangguan-expo.com">www.gangguan-expo.com</a>  |
| 28-31 | <b>Tube Russia/Metallurgy/wire Russia</b><br><i>Moscow, Russia</i><br>Exhibition | ➔ | Email: <a href="mailto:wolframC@messe-duesseldorf.de">wolframC@messe-duesseldorf.de</a><br>Website: <a href="http://www.metallurgy-tube-russia.com">www.metallurgy-tube-russia.com</a> |

#### JUNE

- |       |   |   |  |
|-------|---|---|--|
| 03-05 | <b>2nd Steel Tube &amp; Pipe Conference</b><br><i>Düsseldorf, Germany</i><br>Conference                       | ➔ | Email: <a href="mailto:enquiries@metabulletin.com">enquiries@metabulletin.com</a><br>Website: <a href="http://www.metabulletin.com">www.metabulletin.com</a> |
| 18-20 | <b>Nagoya Tube 2007 (ITA)</b><br><i>Nagoya, Japan</i><br>Conference   | ➔ | Email: <a href="mailto:jstp@jstp.or.jp">jstp@jstp.or.jp</a><br>Website: <a href="http://www.jstp.jp/en">www.jstp.jp/en</a>                                   |
| 21-24 | <b>8th Guangzhou Intl Metal &amp; Metallurgy Exhibition</b><br><i>Guangzhou Province, China</i><br>Exhibition | ➔ | Email: <a href="mailto:julang@pub.guangzhou.gd.cn">julang@pub.guangzhou.gd.cn</a><br>Website: <a href="http://www.julang.com.cn">www.julang.com.cn</a>       |

#### JULY

- |       |  |   |  |
|-------|--|---|--|
| 25-27 | <b>2nd International Tube &amp; Pipe Exhibition</b><br><i>Tehran, Iran</i><br>Exhibition | ➔ | Phone: +98 912 189 0956<br>Email: <a href="mailto:ajoop_1357@yahoo.com">ajoop_1357@yahoo.com</a> |
|-------|--|---|--|

#### SEPTEMBER

- |       |   |   |  |
|-------|---|---|--|
| 24-26 | <b>Tube Ukraine (ITA)</b><br><i>Dnepropetrovsk, Ukraine</i><br>Conference | ➔ | Email: <a href="mailto:info@itatube.org">info@itatube.org</a><br>Website: <a href="http://www.tube-ukraine.com">www.tube-ukraine.com</a> |
|-------|---|---|--|

#### OCTOBER

- |       |   |   |  |
|-------|---|---|--|
| 02-04 | <b>Tubotech/Metaltech</b><br><i>São Paulo, Brazil</i><br>Exhibition                             | ➔ | Email: <a href="mailto:cipa@cipanel.com.br">cipa@cipanel.com.br</a><br>Website: <a href="http://www.cipanel.com.br">www.cipanel.com.br</a>         |
| 16-18 | <b>Tube/wire Southeast Asia</b><br><i>Bangkok, Thailand</i><br>Exhibition                       | ➔ | Email: <a href="mailto:tube@mda.com.sg">tube@mda.com.sg</a><br>Website: <a href="http://www.tube-southeastasia.com">www.tube-southeastasia.com</a> |
| 17    | <b>Non-Ferrous Bangkok (ITA Seminar)</b><br><i>Bangkok, Thailand</i><br>Conference              | ➔ | Website: <a href="http://www.itatube.org">www.itatube.org</a>  |
| 17-19 | <b>17th international conference on pipeline protection</b><br><i>Edinburgh, UK, Conference</i> | ➔ | Email: <a href="mailto:conforg5@bhrgroup.com">conforg5@bhrgroup.com</a><br>Website: <a href="http://www.bhrgroup.com">www.bhrgroup.com</a>         |

#### NOVEMBER

- |       |  |   |  |
|-------|--|---|--|
| 11-14 | <b>Fabtech</b><br><i>Chicago, USA</i><br>Exhibition                            | ➔ | Email: <a href="mailto:information@fmafabtech.com">information@fmafabtech.com</a><br>Website: <a href="http://www.fmafabtech.com">www.fmafabtech.com</a>       |
| 13-16 | <b>Tube &amp; Pipe Central Asia</b><br><i>Almaty, Kazakhstan</i><br>Exhibition | ➔ | Email: <a href="mailto:info@expocentralasia.com">info@expocentralasia.com</a><br>Website: <a href="http://www.expocentralasia.com">www.expocentralasia.com</a> |

### 2008

#### FEBRUARY

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## Ukrtruboprom celebrates 15<sup>th</sup> anniversary

The Association of Tube and Pipe Plants of the Ukraine (Ukrtruboprom) celebrated its 15<sup>th</sup> anniversary at the end of January.

Ukrtruboprom was officially registered on 21 January 1992, with 10 tube and pipe plants

ⓘ Mr Leonid Ksaverchuk, general director of Ukrtruboprom



first forming the Association, including the Scientific-Research Tube Institute (VNITI).

Now in 2007, the organisation's membership has grown to include 13 tube plants, plus state enterprises Ya Ye Osada Scientific Research Tube Institute (NITI) and VNITI-TEST Inter-regional Scientific-Engineering Center of Certification of quality systems, tubes, cylinders and other metal products.

Collectively, the organisations members operate production facilities including 40 specialised tube departments. These production facilities offer a range of more than 1,500 tube sizes manufactured from 300 different steel grades and alloys. Standard and special purpose tubes are produced by methods including hot, cold and warm deformation, electro-welding and centrifugal casting.

The tubes are produced for a range of industries including oil and gas, heat and power engineering, capital construction,



ⓘ The staff of Ukrtruboprom at the 15<sup>th</sup> anniversary celebrations

chemicals, agricultural, and municipal construction. 75 per cent of the tube produced is certified according to international standards – API, EN, DIN and ASTM.

More than 150 types of Ukrainian steel seamless and welded tube and pipe are currently exported to more than 118 countries.

**Ukrtruboprom – Ukraine**  
**Fax: +380 56791 1701**  
**Email: trubpr@ptcor.net**

## MRB Schumag opens new technical services division

MRB Schumag, the UK based subsidiary of the Schumag Group, has announced the opening of a new technical services division, managed by Mr Mick Cooper. The company sees strategic growth as being key to long-term success, with the new technical services division forming part of this strategy.

The technical services division will bolster the company's advanced product range that includes the flagship SB2200 spinner block tube drawing machine (1,500m/min) and the innovative SB4F spinner block. The existing range of MRB Schumag machinery for use in the nonferrous industry covers intermediate drawing, inner grooved finishing, and an array of custom, turnkey handling solutions for baskets, coils and finished straight lengths.

To ensure the success of the technical services division, MRB Schumag has recruited three machine installation specialists who will work alongside the existing service department. The company has also experienced internal growth within the engineering design department, following the winning of three major projects in two key developing markets.

MRB Schumag believes that this new technical services department will add value to its product range. Mr David Liddle, the company's sales and marketing manager, says, "Our customers can now benefit from the peace of mind gained in the knowledge that their new machinery has been installed by the OEM in conjunction with all of the necessary requirements thus ensuring optimum performance and longevity."

MRB Schumag now recommends that the installation of new machinery should be carried out by its own specialist department.

**MRB Schumag Ltd – UK**  
**Fax: +44 1388 771340**  
**Email: general@mrbschumag.com**  
**Website: www.mrbschumag.com**



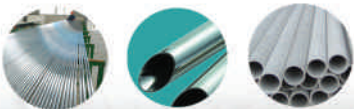
**Specifications:** Stainless steel seamless tubes

**Standard:** ASTM A269/ASTM A213 ASME SA213 DIN17456 JIS G3459 G3463

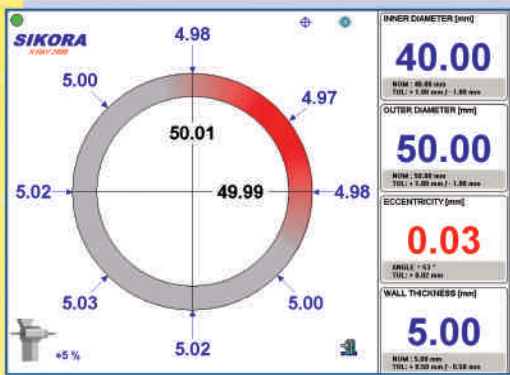
**Sizes:** O.D. 1mm - O.D. 89mm \*  
 W.T. 0.2 mm - W.T. 10mm

**Length:** Standard 6 meters or 20 feet, or customized, extra long tubes upto 26 meters are specially for Heat Exchanger applications.

**Surface finish:** Mill's finish/Polished Surface from 180G to 400G/Bright Annealed



**Address:** Room 1002, building No.13, lane 100, Yin Xiao Road, Shanghai 201204 China  
**Tel:** +86-21-50451844 **Fax:** +86-21-50451464  
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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
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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.



## LASER 2000

Check-out also **SIKORA's** range of diameter gauges, which are available for products of 0,1 to 200 mm.

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## TMK and SMS Group sign strategic partnership agreement

TMK, Russia, has signed an agreement on strategic cooperation with the SMS Group, Germany, which extends to 2015. The strategic partnership will involve the coordination of long-term joint activities to develop and implement SMS Group's equipment for the production of steel and seamless steel pipes at TMK's mills.

TMK is implementing a US\$1.2 billion strategic investment program to be completed by 2010. This program will involve the most advanced technologies

capable of producing 600,000t of pipes per year. Pipes for oil and gas (casing, tubing, drilling pipes) as well as seamless pipes for engineering will be produced in accordance with international standards.

The electric arc furnace for Seversky Pipe Plant will be capable of producing 990,000t of steel per year and will be launched in late 2007. The installation of the furnace will culminate in the creation of a modern steel-producing complex for Seversky Pipe Plant.



TMK's chairman of the board of directors, Mr Dmitry Pumpyanskiy (left), and SMS group president, Mr Heinrich Weiss (right), at the signing of the agreement



and increase the output of hi-tech pipe products.

In 2006, TMK and SMS Group signed agreements for the delivery of a pipe rolling mill with a Premium Quality Finishing (PQF) line for Taganrog Metallurgical Works (Tagmet, part of TMK) and an electric arc furnace for Seversky Pipe Plant (SPP, also a part of TMK).

The new pipe rolling mill will allow Tagmet to increase production capacity, and be launched in the first half of 2008. It will be

TMK and SMS also plan to create a joint venture on the basis of Seversky Pipe Plant that will involve the service and repair of equipment used in the production of steel and seamless pipes.

**TMK – Russia**  
**Fax:** +7 095 775 7601  
**Email:** tmk@tmk-group.com  
**Website:** www.tmk-group.com

**SMS Group – Germany**  
**Fax:** +49 211 881 4386  
**Website:** www.sms-dema.com

## Arcelor Mittal & Bin Jarallah announce Saudi JV for seamless tube mill

Arcelor Mittal has signed a joint venture agreement with the Bin Jarallah Group of companies for the design and construction of a seamless tube mill in Saudi Arabia. Arcelor Mittal will hold a 51 per cent share in the company established for this project, with the Bin Jarallah Group holding the remaining 49 per cent.

This advanced facility will be located in Jubail Industrial City, north of Al Jubail on the Persian Gulf. The mill will have a capacity of 500,000t per year, with about two thirds capacity used for tubes in the oil industry (OCTG). The remainder will be used for linepipe in sizes ranging from 4-14". Semi-products for the mill will be sourced from Arcelor Mittal steel plants.

Mr Sudhir Maheshwari, executive VP, finance and M&A and member of Arcelor Mittal's group executive committee, commented: "This project gives us a strategic opportunity to enter the Middle East's, and in particular Saudi Arabia's, thriving markets. The Al Jubail project will allow us to strengthen our relationship with Saudi Aramco, who will be one of the key customers of the mill."

Construction is planned to commence at the end of 2008, with completion due by the last quarter of 2009.

**Arcelor SA – Luxembourg**  
**Fax:** +352 4792 2675  
**Website:** www.arcelor.com

**Mittal Steel Company NV – The Netherlands**  
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**Website:** www.mittalsteel.com

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## Impressive speaker programme set for 2<sup>nd</sup> Steel Tube and Pipe Conference

Following the success of last year's inaugural event, Metal Bulletin has announced details of the 2<sup>nd</sup> Steel Tube and Pipe Conference, which will take place from 3-5 June at the Hilton hotel in Düsseldorf, Germany. This international conference is dedicated to the commercial aspects of the steel tube and pipe industry.

Incorporating both the welded and seamless steel tube and pipe markets, this comprehensive conference will offer detailed analysis of the OCTG linepipe, construction, automotive and seamless stainless steel tube and pipe markets.


The developed world's insatiable thirst for energy, especially with the emergence of the industrial powerhouses of China and India, has been the major catalyst for the growth in the OCTG and linepipe markets. Increased drilling rates, new linepipe projects and strong energy prices have guaranteed demand and the outlook remains bullish.

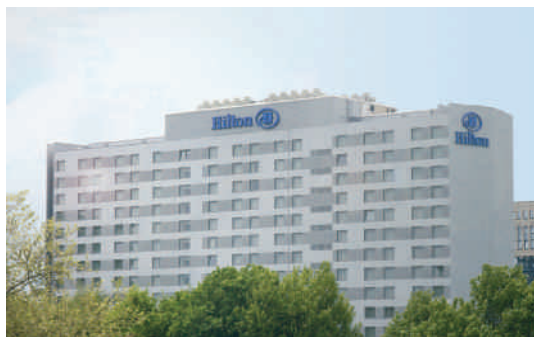
However, rapid expansion of seamless pipe production in China is dampening the prices of products such as non-heat treated OCTG grades on the international market. In the non-

hydrocarbon markets, producers continue to benefit from ongoing strength in the steel markets, although demand is less buoyant than in the energy markets. In the European markets, Turkish, Ukrainian and Chinese producers continue to cause problems with many of the commodity grades of pipe.

During this year's conference, delegates will be able to attend a field trip to Europe's Mülheim an der Ruhr plant. This plant is believed to be the largest single pipe manufacturing plant unit in the world. It has an annual capacity of over 1 million tons, producing approximately 5km a day.



*Tube & Pipe Technology* magazine has been named as a media partner for

 The 2<sup>nd</sup> Steel Tube and Pipe Conference will take place at the Hilton Hotel in Düsseldorf, Germany



### Conference presentations already confirmed include:

- Francois Michalet, director, ESTA, France
- Georges Kirps, general director, Eurometal, France
- Lauri Malkki, managing director sales, Europipe, Germany
- Klaus Heller, director (sales/marketing), Dillinger Hutte GTS, Germany
- Eiichi Yamashita, manager, European office, Nippon Steel Corp, Germany
- Manfred Schreier, MD, MAN Ferrostaal Piping Supply GmbH, Germany
- Wolfgang Hochgatterer, MD, Vai Seuth (Siemens VAI), Germany
- Antonio Marcegaglia, CEO, Marcegaglia, Italy
- Vincenzo Crapanzano, regional manager (Europe), Tenaris, Italy
- Mario Caldonazzo, MD, Arvedi Tubi Acciaio SpA, Italy
- Kulesa Gerhard, VP (sales), Danieli Centro Tube, Italy
- Sanjiv Goel, general manager, pipes and tubes (energy), Arcelor Mittal, The Netherlands
- Sergey Bilan, deputy general director for marketing, TMK Trade House Pipe Metallurgical Company, Russia
- Jose Miguel Soto, commercial director, (Europe), Condesa, Spain
- Alvaro Videgain, president of the board of directors and CEO, Tubacex, Spain
- John Blomberg, president, TMK, Switzerland
- Joachim Schroeder, CEO, Research & Consulting Group AG, Switzerland
- Bulent Demircioglu, chairman, Borusan Mannesmann, Turkey
- Ali Hosseini, CEO, Adpico, UAE
- Andrew Leyland, metals consultant, Metal Bulletin Research (MBR), UK
- James Ley, consultant, Hatch, UK
- Paolo Berbotto, senior consultant, Steel Markets, Heavy Industries Practice, Atkins Management Consultants, UK

 **This international conference is dedicated to the commercial aspects of the steel tube and pipe industry** 

Metal Bulletin's 2<sup>nd</sup> Steel Tube and Pipe Conference. TPT will have an exhibit stand from which our staff will distribute free copies to all conference delegates. To register for the conference and to find out more information, go to the website address detailed below.

**Metal Bulletin Events – UK**  
**Fax:** +44 20 7827 5292  
**Email:** enquiries@metalbulletin.com  
**Website:** www.metalbulletin.com

## Otto Junker assumes majority interest in IUT

Otto Junker GmbH, Germany, has taken over the majority interest in IUT AB, Sweden, thus strengthening its presence in the aluminium market. IUT is the provider of equipment for the artificial ageing of aluminium sections, die heating furnaces and continuous homogenizing furnaces for aluminium extrusion logs.

With this acquisition, the Otto Junker Group has furthered its product strategy for the light metal and steel industries. The IUT product range comprises innovative equipment for the heat treatment of quality components for the automotive and aircraft industries. The company therefore represents a valuable addition to the present range of products of the Otto Junker Group.

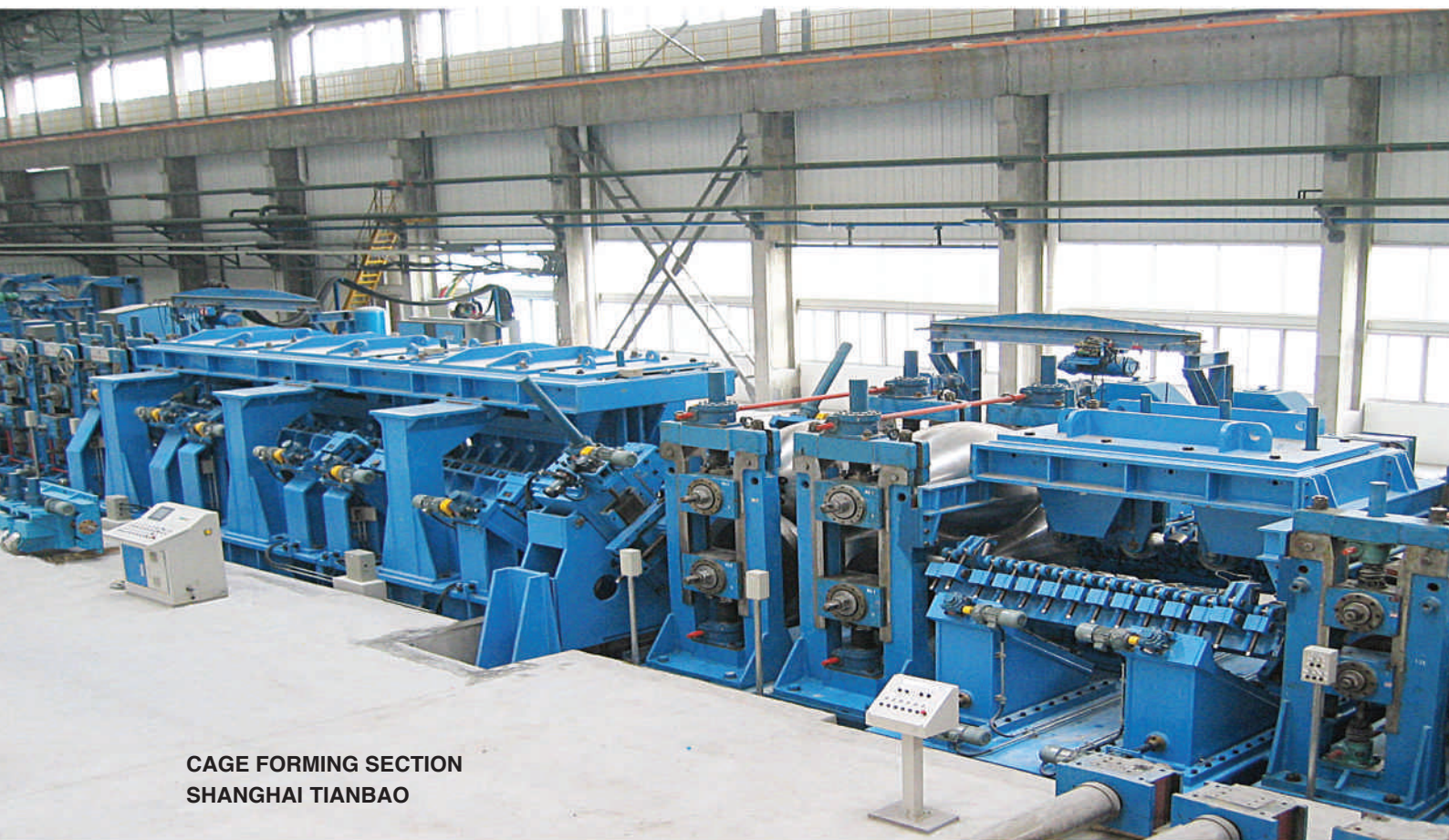
IUT will benefit from the worldwide marketing network of the Otto Junker Group, which includes manufacturing facilities in Germany, UK, China and the Czech Republic. In return, the excellent customer relations and regional contacts of IUT represent a useful addition to the Otto Junker Group.

The strategic combination of Otto Junker in Lammersdorf, Elhaus in Rielasingen, Thermcon Ovens in Geldermalsen and IUT in Gothenburg, gives the Group a strong presence in the individual locations.

**Otto Junker GmbH – Germany**  
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**Email:** info@otto-junker.de  
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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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## Ipsco increases large diameter pipe capacity

Ipsco Inc, USA, will carry out a US\$52.5mn expansion of its Regina large diameter pipe making facility. In combination with other current capacity increases, the company's large diameter spiral pipe capacity is expected to increase by two thirds to 500,000t by early 2008.

The company is a leading low cost producer of energy tubulars and steel plate in North America with an annual liquid steel

making capacity of 4.3 million tons. The company operates four steel mills, eleven pipe mills, nine product finishing facilities and nine scrap processing centres in 25 locations across the United States and Canada.

The Regina expansion will include an additional pipe forming mill and related finishing equipment to increase the capacity and productivity of the existing facility.

The company has also announced the construction of an OCTG heat treatment facility adjacent to its Blytheville, Arkansas pipe mill. The new facility will produce heat treated OCTG in diameters of 2<sup>3</sup>/<sub>8</sub>" up to 5<sup>1</sup>/<sub>2</sub>". Commercial production is expected to begin at the end of 2007, leading to an additional annual OCTG capacity of 100,000t.

This large-scale expansion comes on the back of recent success for Ipsco. The company is a leader in the production of large diameter oil and gas transmission pipe, with technology developed at its Frontier Pipe Research Unit.

In addition to the supply of all major oil and natural gas transmission companies, Ipsco supplied grade 80 linepipe to North America's El Paso Cheyenne Plains Project in 2004, accounting for 306 miles of pipeline.

Ipsco also supplied grade 100 linepipe to the TransCanada Stittsville project in August 2006. Both the steel and pipe for this cutting edge project were produced at the company's facilities. Ipsco has the capability to produce these advanced grades of steel from its mills in Regina (Saskatchewan), Montpelier (Iowa), and Mobile (Alabama).

As a leader in the North American market, Ipsco carefully monitors available gas transmission projects for large diameter pipe and invests where appropriate. The company believes that over the next few years the demand for such pipe will peak, with short term capacity heavily booked.

The company currently has firm commitments for over 300,000t of large diameter linepipe which will require its mills to operate at capacity through to April 2008. Beyond that period Ipsco has firm options on over 500,000t of large diameter linepipe, which would commit part of its presently available capacity up to 2010. If available, the company expects to commit additional capacity from a proven source within the current peak cycle.

Ipsco has also announced a 25 per cent increase in spiral mill capacity through the installation of a coil preparation line, to come on-stream in the second half of 2007. This expansion will add an additional 33 per cent capacity by early 2008, for a combined increase of 67 per cent.

**Ipsco Inc – USA**  
**Fax:** +1 630 810 4600  
**Website:** www.ipsco.com

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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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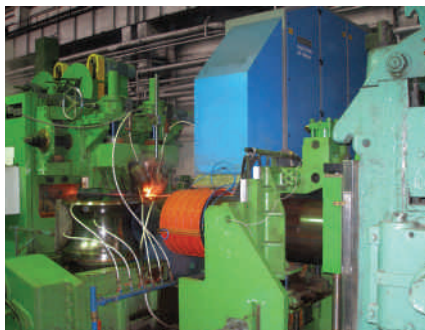


## JSC Novomoskovsk choose Thermatool

JSC Novomoskovsk, a member of the Interpipe Management Group, has recently completed a major capital investment plan to retrofit its existing API mill. This investment has established it as a leading European producer of high quality API pipe, currently up to 530mm (20") in diameter.

Located within the Dnepropetrovsk region of Ukraine, JSC Novomoskovsk is well positioned to satisfy the needs of the region's expanding oil and gas sector. The company has significantly increased

 The new Thermatool VIP 1200kW seam annealing system



its API pipe production capacity following the successful commissioning of a new Thermatool VIP 1,200kW seam annealing system and one of the latest generation CFI 1,200kW HF induction welders.

With over 50 years of process knowledge in the production of API pipe, Thermatool offers features such as fully automatic orbital seam tracking, AutoMatch automatic load impedance matching and the ability to maintain a stable weld frequency of 150kHz over the entire product range. Consequently, Thermatool has become a first choice for API producers with pipe welding and annealing equipment, all from one source.

**Thermatool Corporation – USA**  
**Fax:** +1 203 468 4281  
**Email:** info@ttool.com  
**Website:** www.thermatool.com

**Inductotherm HWT (Thermatool Europe) – UK**  
**Fax:** +44 1256 467 224  
**Email:** info@ihwtech.co.uk  
**Website:** www.inductotherm-hwt.co.uk

## Saudi Kayan signs contracts for new PP and LDPE plants

The Saudi Kayan Petrochemical Company (Saudi Kayan), a branch of the Saudi Basic Industries Corp (SABIC) affiliate, has signed an agreement for the construction of two new polypropylene (PP) and low density polyethylene (LDPE) plants at its complex in Al-Jubail Industrial City.

Currently in the development stage, the Al-Jubail complex is expected to begin production in 2009 with an annual capacity exceeding 4 million tons of chemical products. The two plants ordered by Saudi Kayan are a 350kta PP plant from Samsung Engineering, and a 300kta LDPE plant from Simon Carves Ltd.

When completed the Al-Jubail facility will add a number of specialised chemicals to the Saudi marketplace, produced in the country for the first time. These new chemicals include aminoethanols, choline chloride, ethoxylates, and phenol.

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## Increased turnover for RSA Group


The German machine manufacturer RSA GmbH & Co KG and its English subsidiary RSA Cutting & Deburring Systems Ltd have reported a significant increase in turnover in 2006, to more than €20 million, and also an increase in pre-tax profits.

The driving force behind the growth of the sawing technology has been the European market. New developments that helped

to strengthen market position included cutting tubes and sections with yields up to 8,000 pieces per hour, and the design of automated sawing lines featuring easier operation.

While last year's growth in sales was slightly above the average of the branch, this year the company plans to significantly exceed this year the prediction of the German Association for Machine and Plant Manufacturers (VDMA). The association predicts an increase in production of 4 per cent due to the economic upturn at home and abroad.

Among the new developments is a high performance circular saw designed for tubes with diameters up to 170mm. Band saws are generally used for the sawing of workpieces of this size. RSA's

 RSA business manager Mr Rainer Schmidt sees growth potential for his company in the UK



 RSA's new Rasacut XXL circular saw for tube diameters up to 170mm

Rasacut XXL circular saw provides a technological alternative and, according to the manufacturer, reduces the cutting times, in some cases by 90 per cent. Other advantages include smooth interlinking to a follow up deburring machine, and improved cut surfaces.

**RSA GmbH & Co KG – Germany**  
Fax: +49 2351 995 300  
Email: pr@rsa.de  
Website: www.rsa.de

**RSA Cutting & Deburring Systems Ltd – UK**  
Fax: +44 1952 580 511  
Email: rsa.gb@rsa.de

## AddisonMckee launches Tubemart catalogue for manipulation machinery

AddisonMckee, a leading bending and end-forming specialist, has launched TubeMart™, a brand new division to serve users of mid-range tube manipulation equipment with a single-source for selecting high quality machinery and consumables.

Bringing together a wide choice of hand-picked solutions from many of the world's premier manufacturers into a highly comprehensive catalogue and website, TubeMart will immediately offer a range of over 120 machines for tube bending, cutting, end-forming, notching and polishing.

Built to the highest standards, every product featured in the TubeMart catalogue will also carry an uncompromising quality assurance guarantee – certifying that it has been manufactured to exacting industry standards.

Mr Christian Rogiers, AddisonMckee's director of global marketing, states "Via the introduction of TubeMart, we have revolutionised the way that purchasing of all manner of machines, tooling and consumables is implemented across the tube manipulation sector. We have already established dealer and service facilities across northern Europe and it is our intention to implement a worldwide sales structure with a minimum of 75 dealers globally within the next three years."

**AddisonMckee Ltd – UK**  
Fax: +44 1772 323227  
Email: sales@addisonmckee.co.uk  
Website: www.addisonmckee.com

**AddisonMckee Inc – USA**  
Fax: +1 937 382 4963  
Email: sales@addisonmckee.com


## Rofin-Sinar acquires 80 per cent of m2k-laser

Rofin-Sinar Laser GmbH, Germany, an affiliate of Rofin-Sinar Technologies Inc, has acquired 80 per cent of m2k-laser GmbH, Germany. The remaining 20 per cent of common stock in m2k-laser will remain with Fraunhofer Gesellschaft, Germany, and the company's two founders.

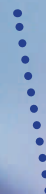
m2k-laser was founded in 2001 as a spin-off of the Fraunhofer Institute of Applied Solid-State Physics in Freiburg, Germany. m2k-laser GmbH develops and manufactures semiconductor lasers based on the III-V compounds GaAs and GaSb for use predominantly in the scientific industry.

The company's main products are high-power tapered diode lasers and tapered amplifiers. Under two separate additional agreements, Rofin-Sinar will pay for access to selected scientific know-how and the use of the existing infrastructure of the Fraunhofer IAF Institute.

**Rofin-Sinar Laser GmbH – Germany**  
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Website: www.rofin.com



Honey, I know you'll do anything  
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## Unison wins major US aircraft order for bending machinery

Unison, UK, has won an order worth over US\$2.5mn, to supply tube-bending machinery to Northrop Grumman Newport News for aircraft carrier production. The largest ever order received by Unison, it was secured in conjunction with the company's USA partner, Horn Machine Tools.

The order comprises three of Unison's Breeze machines, which will bend tubes of up to 6" diameter, together with tooling and spares. With delivery of the three benders currently underway, Unison is expanding the workforce at its Scarborough headquarters to assist with the order.

Each aircraft carrier includes hundred of miles of tubing for the ship's systems, and the machinery will provide the shipbuilder with the means to fabricate the shaped tube parts required. As each section of the aircraft carrier is built, the data for each part in that section will be downloaded automatically from the design database.

Unison's machines have been chosen because of their 'all-electric' nature,

employing electric servomotors to control the bending process. This provides very precise bending under software control, allowing each operation to be configured automatically from downloaded design data. This is ideal for the small batch production environment of shipbuilding, where many component parts are fabricated in very small quantities.

The three machines will also be fitted with a special laser measurement system, to check final dimensions and ensure correct tolerance. This will automatically compensate for any minor variations in the tubing shape.

Commenting on the order, Unison's managing director Alan Pickering said: "An aircraft carrier is just about the most complex product that mankind has ever made. The sheer scale and precision of the engineering operations at Northrop Grumman Newport News is breathtaking, and to have our machinery selected to help with such a task is a tremendous accolade."

**Horn Machine Tools – USA**  
**Fax:** +1 559 431 4431  
**Email:** hmt@sierratel.com  
**Website:** www.hornmachinetools.com

**Unison – UK**  
**Fax:** +44 1723 582379  
**Email:** enquiries@unisonltd.com  
**Website:** www.unisonltd.com

## Unique insight into the Japanese tube industry

Taking place from 18-20 June 2007, Nagoya Tube 2007 will provide a unique opportunity for non-Japanese organisations to establish contacts in the Japanese market, traditionally a difficult market to penetrate. The event is a joint international symposium co-organised by the International Tube Association and the Roll Forming Research Committee of the Japan Society for Technology of Plasticity (JSTP).

Taking place at the Nagoya University in the home city of the Toyota Motor Corporation, the ITA have confirmed twenty-four high quality technical presentations. Delegates will be able to take advantage of a rare chance to promote their company to Japan's tube and pipe industry.

A range of promotional methods will be available including speaking at the symposium, tabletop exhibition and delegate attendance, with all the networking opportunities this entails.

A highlight of the symposium programme will be three unmissable keynote speeches from world-class organisations Toyota Motor Corp, Obayashigumi Corp and Chiyoda Corp. It has taken considerable persistence on the part of the ITA's vice president (Japan), Mr Tsutomo Nakata, to secure speakers from these organisations.

These three major consumers of tube and pipe – Toyota, Obayashigumi and Chiyoda – will present their views on future trends and requirements for tube and pipe products in their respective sectors: automobile, construction and machinery/plant construction. This information is certain to be priceless for the engineers charged with the responsibility of generating the solutions and developments to satisfy these corporations.

**International Tube Association – UK**  
**Fax:** +44 1926 314755  
**Email:** info@itatube.org • **Website:** www.itatube.org

**Japan Society for Technology of Plasticity (JSTP) – Japan**  
**Fax:** +81 3 5733 3730  
**Email:** jstp@jstp.or.jp • **Website:** www.jstp.jp

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## Socotherm establishes new JV in Saudi Arabia

Socotherm Middle East, subsidiary of Socotherm, has established a new joint venture in Dammam, called Socotherm Arabia Ltd, in order to enter the Saudi market. The new JV has been established between Socotherm Middle East with a participation of 56.65 per cent and 14.5 per cent each for three important local industrial partners: the Global Suhaimi Group, the Al Shoaibi Group and the Al Khalaf Group.

Although the new plant will be installed in Dammam by the end of 2007, during the interim period, Socotherm Middle East will support Aramco from their Qatar operation on any critical projects. The coating facility will be a highly advanced plant with a capacity to coat pipe from 6-60" with fusion bond epoxy, 3 layer PE and internal fusion bond epoxy or liquid epoxy, as well as a double joint facility. The plant will serve the local oil and gas market together with the water market.

Saudi Arabia, the world's biggest oil supplier, has announced the plan to increase its

crude oil production capacity by nearly 40 per cent by 2009 with a total investment of US\$80bn. This would consequently increase its crude production capacity to 12.5 million barrels a day from the current figure of 9 million barrels.

*"The Middle East market has been dominated for over 20 years by our North American competitor but after only two years of operation in Qatar, Socotherm Middle East has received over 70 per cent of the Middle East market share outside of Saudi Arabia,"* says Mr Zeno Soave, chairman and CEO of the Socotherm Group.


*"Therefore the managing director of Socotherm Middle East, Mr Bo Crawley, has been charged to carry out this new initiative in Saudi which expects a total investment of approximately US\$50 million,"* concludes Mr Soave.

**Socotherm Group – Italy**  
**Fax: +39 0426 901 055**  
**Email: info@socotherm.com**  
**Website: www.socotherm.com**

## GIMME the best for metals manufacturing in China

The Guangzhou International Metal & Metallurgy Exhibition (GIMME) will take place for the 8<sup>th</sup> time from 21-24 June 2007. Taking place at the Guangzhou International convention and exhibition centre, China, it is reported that 70 per cent of 1,800 exhibition stands have already been booked. Covering 40,000m<sup>2</sup> of exhibit space, 30 per cent of exhibitors have also requested larger exhibit areas.

The event consists of five exhibit areas, including processing equipment (wire, bar,

 GIMME will take place at the Guangzhou International convention and exhibition centre



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**T** A large number of tube and pipe exhibitors will attend GIMME 2007

tube, plate-metal); stainless steel products; fasteners, springs and related equipment; foundries and furnaces (including casting and heat treatment); and sheet metal forging and stamping equipment.

Since its foundation by the Julang Exhibition Company, the event's reputation has grown internationally as an increasing number of companies have established business concerns in the region. The last GIMME attracted 52,378 trade visitors and 618 companies from 26 countries and regions, including Thyssenkrupp, Hyundai, and NDT.

*Tube & Pipe Technology* will be exhibiting at GIMME 2007, with free distribution of the magazine at the show.

**Guangzhou Julang Exhibition Co Ltd** – China  
**Fax:** +86 20 3862 0781  
**Email:** julang@pub.guangzhou.gd.cn  
**Website:** www.julang.com.cn

## Borouge celebrates five years of production in the UAE

Borouge and Borealis, providers of plastics solutions in the Middle East, Africa, Asia-Pacific and Europe, have celebrated Borouge's 5<sup>th</sup> year of production at its plant in Ruwais, Abu Dhabi.

A total of around 2.3 million tonnes of polyethylene (PE) has already been produced by Borouge. To date, enough PE for pipe applications has been made at Ruwais to stretch a typical 110mm diameter water pipe six times round the world.

The Ruwais complex was the first bimodal PE unit in the Middle East, beginning production in December 2001 and exceeding design capacity within five months.

'Borouge 2', the multi-billion dollar expansion of its production facilities will be operable by 2010. This completion took a step closer with the recent signing of an agreement with Linde Engineering to build a new ethylene cracker. This world-scale project will triple existing production capacity to two million tonnes per annum, including, for the first time, polypropylene.

This increased output will open new markets for Borouge. It is expected to make a strong contribution to the growth

of downstream industries in Abu Dhabi and the wider region.

Mr Harald Hammer, chief executive officer of the Borouge Marketing Company commented: "Five years of production is a major achievement. Our next phase will ensure we continue to better serve our growing Middle East and Asia Pacific markets."

**Borouge – UAE**  
**Fax:** +971 2 631 2999  
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## Programme launch and venue change for Plastic Pressure Pipes 2007

The venue has changed for the Plastic Pressure Pipes 2007 conference, which will take place from 25-27 June 2007, due to a very high number of confirmed delegates. Organisers AMI have moved the venue from the Renaissance Hotel to the Swissotel in Düsseldorf, Germany.

The conference programme has also been announced, with a packed list of high-profile speakers and companies. The conference will start the day after a cocktail reception on 25 June, with AMI giving the opening address on the prospects for pressure pipes, followed by a discussion from Polyplastic on the pipe markets in Russia, Ukraine and Belarus.

There will be a keynote paper on pipe material selection for the gas industry from the Philadelphia Gas Works, while Arkema will outline its experience in using polyamide-11 in North American gas applications. Water pipes will be discussed by several speakers including Borealis on water mains and Basell on polybutene-1. Other papers on the first day will come from Frank & Krah Wickelrohr, Rollepaal, Sica SpA, McElroy Manufacturing, and Agru Kunststofftechnik.

Ulrich Schulte will give the opening address on the last day, with a paper on 50 years of experience in HDPE pipes. Also in this session, Ineos Polyolefins will detail its

PE100 materials with improved stress cracking resistance. Total Petrochemicals Research will also report on its low sagging PE100 for thick wall pressure pipes.

With such a comprehensive program, the conference will provide an excellent opportunity for plastic pipe experts to meet.

### Applied Market Information – UK

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Website: [www.amiplastics.com](http://www.amiplastics.com)

## Cloos Schweisstechnik under new management

Mr Ralf Pulverich has been appointed as the new managing director of Carl Cloos Schweisstechnik GmbH, Germany. Mr Pulverich will be responsible for the financial and logistics divisions of the Cloos group worldwide.



Mr Ralf Pulverich, the new managing director of Carl Cloos Schweisstechnik GmbH

Mr Pulverich, who has many years of experience in mechanical engineering management, will be responsible for the coordination of the Cloos international business with more than 50 agents and subsidiaries in UK, USA, Belgium, Czech Republic, Spain, the Netherlands, Switzerland and China.

With about 500 employees at the headquarters in Haiger, Cloos are one of the international market leaders in arc welding and robot technology. The Cloos product range comprises shielding gas welding machines and welding torches, together with automated special purpose machines and turnkey Romat® robot systems.

### Carl Cloos Schweisstechnik GmbH

– Germany

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## Industry warned to get in early for Tube Düsseldorf

Due to the new 2008 alliance with Metav, those who intend to visit or exhibit at Tube Düsseldorf 2008 have been warned to book up as soon as possible. Both hotel rooms and exhibit space will be at a premium for the event, which takes place from 31 March to 4 April 2008 in Düsseldorf, Germany.

Organisers Messe Düsseldorf GmbH have recently distributed international exhibitor invitations, with details of the new synergy between Tube and wire Düsseldorf and Metav. It is understood that Metav, the international trade fair for manufacturing technology and automation, will occupy 56,000m<sup>2</sup> exhibition space, which makes it both bigger than Tube (31,000m<sup>2</sup>) and wire (50,000m<sup>2</sup>).

Due to the co-staging of Metav, Tube will be relocated away from the usual halls of 2, 4 and 5, and instead be situated in the new halls 8 and 8b (currently under construction), and existing halls 6, 7 and 7a. In order to ensure a good flow of visitors to all the Tube halls, Messe Düsseldorf have decided to open the normally unused site entrance between halls 8 and 8b, giving direct access to Tube from adjacent parking lots.

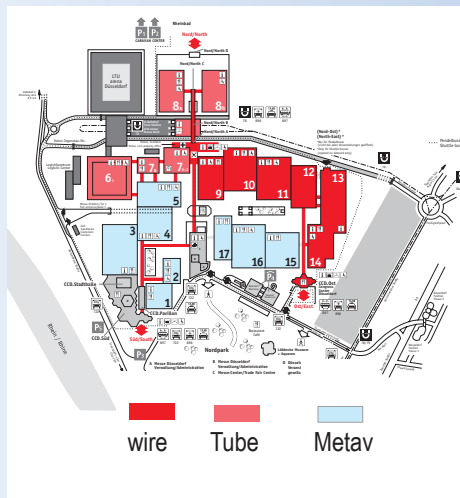
A total of 829 exhibitors participated in the last Tube in 2006. They occupied a net area of 31,653m<sup>2</sup>, with more than 28,000 trade visitors in attendance. It is reported that 98 per cent of visitors are planning to travel to Düsseldorf again in 2008.

In 2008, approximately 830 exhibitors are expected to occupy a net area of 32,000m<sup>2</sup>, with new areas of interest including tube trade, pipelines and logistics. wire Düsseldorf will take place in halls 9 to 14 and the CCD Ost, while Metav will be located in halls 1-5 and 15-17.

Messe Düsseldorf GmbH – Germany


Fax: +49 211 4560 87541

Email: [hartmannp@messe-duesseldorf.de](mailto:hartmannp@messe-duesseldorf.de) • Website: [www.messe-duesseldorf.de](http://www.messe-duesseldorf.de)



The halls for Tube 2008 will be moving to 6, 7, 7a, 8 and 8b (shown in orange/light red)



A large, polished metal roller and slitter knife assembly is shown. The roller is a thick, curved band of metal, and the slitter knife is a complex, multi-faceted metal tool with several sharp edges. Both are highly reflective and appear to be made of high-quality steel.

TRM Rollers and Slitter knives are selectively made of high-quality material. Roll planning and CAD system design can accurately customise customers' existing design. Rollers are produced on CNC machines with performance tools and precision measuring equipment by highly experience skilled staffs to ensure our customers a very fine finish quality.

## Roll-Kraft announces promotions

Roll-Kraft has made a series of promotions at its facilities in Mentor, Ohio, USA. Mr Dave Rostocil has been promoted to the position of director of product applications, with responsibility for design of custom solutions for various applications.

Mr George Salopek is now the director of technical services, and will organise and coordinate machinery and tooling tryout, project management, and the equipment

 Mr George Salopek, Roll-kraft's new director of technical services



assembly departments. In addition, Mr Mike Lewis has been appointed as the tooling development supervisor, and will oversee the testing of tooling at Roll-Kraft and onsite at customer locations.

Mr Matt Hozjan has been promoted to the position of equipment assembly supervisor. He will oversee the assembly operations of the equipment department, as well as training and supervising assembly personnel.

Mr Gary Summerhill has been appointed as the engineering manager of form roll tooling, with management of the department operations and staff. Finally, Mr Adam Kirby has been promoted to the position of NC Soft Foreman.

Each member of staff has shown specific expertise in their various areas, and Roll-Kraft customers will continue to benefit from their experience. Roll-Kraft is a leading manufacturer of tooling and equipment for the tube and pipe and roll forming industries.

**Roll-Kraft – USA**  
**Fax:** +1 440 205 3110  
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## Pervouralsky order electric steelworks from SMS Demag

Pervouralsky New Pipe Works (PNTZ), Russia, has placed an order with SMS Demag, Germany, for the supply of a turnkey electric steelworks with two continuous casting plants. The steelworks will produce the starting material for the existing tube rolling mills of the ChTPZ group, leading to an annual production of 1.1 million tons of steel.

The new steelworks include a 120t electric arc furnace with modern Arccess® technology, a 120t ladle furnace and a VD vacuum tank degasser. The deal also includes a dust extraction plant, laboratory equipment, steam generating system and a supply system for alloying agents.

Two continuous casting machines will cast the steel into round billets and blooms. For this purpose, Concast AG, Switzerland, will supply a five-strand caster designed to cast 660,000t of rounds with diameters of 150-220mm. The second caster will come with three strands to produce 440,000t of rounds.

**SMS Demag – Germany**  
**Fax:** +49 211 881 4386  
**Website:** www.sms-demag.com

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www.pyoe.com.cn/AL/index.htm

## La Barge and Socotherm establish joint venture

Socotherm Americas, a leader in pipe coating and insulation for energy transportation, has finalized a new joint venture with the La Barge Pipe & Steel Co Group, one of the main steel pipes and fittings suppliers in the United States.

The joint venture will be split between Socotherm USA, with a share of 51 per cent, and La Barge with the remaining 49 per cent share. The new company, called Socotherm-La Barge, will comprise a pipe coating and insulation plant to serve the deepwater market in the Gulf of Mexico.

The new plant will be installed in Channel View (Houston) and will be completed this year. It will supply the Gulf of Mexico deepwater market with Socotherm's five layers syntactic polypropylene thermal insulation systems, a modified polypropylene matrix filled with hollow glass micro-spheres (Wetiskote). The plant will also apply 3-layer polyolefin external anticorrosion coatings (Plastykote) on pipes up to Ø 48" for the USA coating market.

Mr Zeno Soave, chairman and CEO of Socotherm, says, "This is the first important action finalized by Socotherm Americas thanks to the funds collected during its IPO of last November. The operation was possible due to the synergies between our subsidiary Socotherm Americas and the American La Barge & Steel Co (led by Pierre Labarge). They have understood the oil companies request for an alternative technology to the Canadian competitor one."

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## Growing order book for Saudi Arabia's Al Othman

Al Othman Industrial Marketing Co (IMCO), Saudi Arabia, is a major supplier of pipes, fittings, valves and related accessories, serving the needs of oil, gas and petrochemical industries in the Gulf Region.

The company's technical team has undertaken intensive training programmes – both national and international – in order to provide full technical support.

IMCO represents several national and international agencies and factories for pipes, fittings and valves, including Tubos Reunidos Seamless Pipes (Spain), Hundai Hysco Welded Pipes (Korea), and Audco Valves (India). As a result, IMCO has been awarded several prestigious orders from local and international companies.

The company has eight branches in the Gulf Area, and is able to meet the requirements of all major petrochemical projects in the Middle East.

### Al Othman Industrial Marketing Co

– Saudi Arabia

Fax: +966 03 847 5256

Email: mail@imco-alothman.com

Website: www.imco-alothman.com

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

**EFD Induction** ([www.efd-induction.com](http://www.efd-induction.com)), Norway, has announced an extended warranty on Weldac inverter modules for the tube and pipe industry. This follows on from the arrival of the company's solid-state Weldac welder. This product is a patented and productivity-boosting solution for utilising robust IGBT transistors for pipes with an OD of ½" to 26".



**Omni-X CZ sro** ([www.omni-x.cz](http://www.omni-x.cz)), Czech Republic, have announced a delay in its production extension, currently being undertaken to increase the amount of machinery and equipment and enable reduced delivery times. The project has been delayed by Czech building regulations and legal red tape. Building work is now expected to reach completion by the middle of 2007.



**Seversky Pipe Plant (SPP)**, part of **TMK** ([www.tmk-group.com](http://www.tmk-group.com)), and **Hubel Limited**, a subsidiary of **Corinth Pipeworks SA** ([www.cpw.gr](http://www.cpw.gr)), have signed a joint venture (JV) named **ZAO TMK-CPW**. Based in Polevskoy town (Sverdlovsk region, Russia), SPP will own 51 per cent of the JV



## Events News in Brief... events news in brief...



Organisers have set the date for the staging of **Metef 2008** ([www.metef.com](http://www.metef.com)), the specialised Italian exhibition for the aluminium industry. The event will be held from 9-12 April 2008 at the Garda Exhibition Centre in Montichiari, Brescia. At the last event in 2006, Metef welcomed 544 exhibiting companies (411 Italian and 133 international) and more than 17,000 visitors. Metef will take place alongside Foundeq Europe, the international fair dedicated to plants, equipment and foundry products.



**Metalriciclo** ([www.metalriciclo.com](http://www.metalriciclo.com)), the international exhibition for recovery and recycling technology for ferrous and non-ferrous metals, will take place for the second time from 13-15 September 2007. Taking place at Garda Exhibition Centre in Montichiari, Brescia, the organisers expect double the numbers compared to the event last year. This event attracted 3,877 visitors and 105 exhibitors in 3,000m<sup>2</sup> of net exhibit space.



**AISTech 2007** ([www.aist.org](http://www.aist.org)), the iron and steel technology conference and exposition, will take place from 7-10 May 2007 at the Indianapolis Convention Centre, Indianapolis, USA. Organisers the Association for Iron & Steel Technology have reported that due to overwhelming demand, the exhibit space has sold out. An additional 15,000ft<sup>2</sup> of exhibit space has been secured to expand the venue.



and Humbel the remaining 49 per cent. JV TMK-CPW is scheduled to start production in mid-2007 with over 200,000t of pipes annually.



**Three Coins Steel Products** (threecoins@eth.net), India, will enter the manufacturing sector, with production of ERW hollow section pipes of up to 300 x 300mm, in various thicknesses. The maximum pipe length will be 12m, although this is yet to be finalised. The company will shortly announce both the total investment in this project, and details of the increase in the company's turnover for the 2<sup>nd</sup> quarter.

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**Trumpf Inc** (www.us.trumpf.com) has named Mr Tim Morris as the general manager of its Laser Technology Center in Plymouth, Michigan, USA. He will report to Dr Holger Schlueter, vice president, laser for Trumpf Inc. Mr Morris joined Trumpf in May 2001 as a product manager, and in July 2004 was appointed technical sales manager of the Laser Technology Center, where he was responsible for developing new markets for the product group.



**TMK's Sevsky Tube** (www.tmkgroup.ru), Russia, have ordered an electric arc furnace meltshop for its Polevskoy works from **SMS Demag** (www.sms-demag.com), Germany. The order, which will provide a production capacity of 1 million tonnes per year, includes an Arccess<sup>®</sup> 135t electric arc furnace. Arccess<sup>®</sup> technology uses electric energy and burner/oxygen injection technology for high productivity and low production cost. The deal comprises of all related equipment and 'Plug & Work' testing prior to commissioning.



In accordance with the EU's Construction Products Directive operation, **Mueller Europe** (www.muellereurope.com) is

planning to stamp all of its copper tubing with the CE mark by mid 2007. The CPD has instructed that all seamless, round copper tubes for water and gas in heating and sanitary applications receive the CE stamp of authority. By 2009/2010, Mueller Europe also plans to include the CE stamp on its copper tubing for drinking water.



**Davis-Standard LLC** (www.davis-standard.com), USA, has recently relocated the Extrusion Systems area of its European business from Erkrath in Germany to the D-S Brookes facility in Birmingham, UK. The Converting Systems business will remain in Erkrath. The move is part of a reorganisation to enable Davis-Standard to focus on its core customer base in Europe and key heritage brands, Betol and Repiquet.



**Borealis** (www.borealisgroup.com), a leading provider of plastic solutions, has appointed Mr Dan Shook as its chief financial officer and member of the executive board. He succeeds Mr Clive Watson who left the company in September 2006. Mr Shook previously spent 12 years at the BOC Group, a producer of industrial gases.



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

Pipe joint and repair specialist **Viking Johnson** ([www.vikingjohnson.com](http://www.vikingjohnson.com)) has opened a Middle East office in Dubai to accommodate growing demand for its products and expertise throughout the region. Headed by international sales manager Mr Steve Lacey, the office will provide 'local' technical support in collaboration with the company's distributors in ten countries. The office can be contacted via telephone on +971 4 887 1558 or fax on +971 4 881 8495.

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**Hayes Tubes Ltd** ([www.hayestubes.co.uk](http://www.hayestubes.co.uk)), UK, has been acquired by **Caparo Precision Tubes Ltd** ([www.caparo.co.uk](http://www.caparo.co.uk)), a subsidiary of the **Caparo Group**. The deal involves Caparo's purchase of a 100 per cent capital share in Hayes. Mr Angad Paul, CEO of Caparo, states "*Hayes is a long established manufacturer of precision tubes and its activities will complement those of Caparo.*" Another subsidiary of Caparo, **Caparo Engineering India Ltd**, also recently acquired **International Auto Ltd**, a specialist in sheet metal.



**Socotherm SpA** ([www.socotherm.com](http://www.socotherm.com)), Italy, has been awarded a contract for the design, assembly and installation of an anti-corrosion pipe plant in India. **Steel Authority of India Ltd (SAIL)** has commissioned the plant for installation at their pipe mill in Rourkela, India. Valued at US\$6.5mn, this will be the first pipe coating facility to be installed by SAIL. Installation is expected to start from the first quarter of 2008, and will lead to the supply of 3-layer polyolefin external anticorrosion coatings (Plastykote®) on pipes from 8-42" diameter.

**Rehau** ([www.rehau.com](http://www.rehau.com)), Germany, have announced plans to extend its production capacity and logistics structures. The company has already invested heavily in 2006 and will invest more than €20mn in its Building Technology Sector in 2007. In March 2007 production of PE-Xa pipes began in the Rehau plant in Bourges, France. In April 2007, greater capacity became available in the German plants Viechtach and Triptis. Outside of Europe, the new plant in Cullman, USA was inaugurated at the start of this year.



**SABIC** ([www.sabic.com](http://www.sabic.com)), Saudi Arabia, has announced a net profit increase of 6 per cent for 2006, rising from SR 19.2 billion in 2005 to SR 20.3 billion in 2006. The highest ever achieved by the company since its inception, these profits are partnered by a 7 per cent increase in total operating profits. This success is reflected by the growth in the company's production output from 46.7 million tons in 2005 to 49.1 million tons last year. The company has recently purchased the base chemicals and polymers business of Huntsman's UK for a purchase price of US\$685mn.



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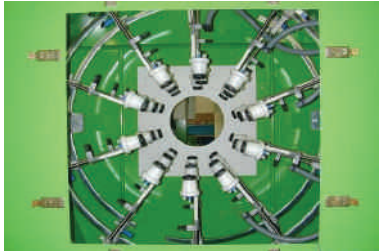


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# Technology Update

## Heavy duty circular sawing machine for cutting tubes in layer

Lazzari is an Italian producer of circular sawing machines for the cutting of steel and non-ferrous metal. The company recently received an order from an Italian customer to modernise the equipment on the finishing line of its pipe mill.

The order specified cutting with circular sawing machines that work in line with the mill, provide enough capacity to cover the output of the mill and achieve a good finished cut. It also required charging and discharging of the tube layers.

To meet these requirements, the technical staff at Lazzari designed a sawing machine with a range of features. These include a machine bed and structure to resist high loads; a clamping system to clamp in front of and behind the saw blade with controlled position and pressure (to eliminate tube vibration); and heavy duty guides for the sawing head for maximum stiffness. A heavy duty gear box is also included with a

special system to automatically compensate for the backlash.

Several anti-dumping devices give guidance to the saw blade, so that vibrations are eliminated, giving a smooth cutting surface and longer tool life. A micro-spraying system ensures optimal blade lubrication, and chips are cleaned from the teeth of the saw blade by brushing devices. Extra cooling of the saw blades allows hot tubes up to 200° to be processed.

The charging device features swivelling arms for loading tubes onto the inlet roller way, while length measuring stoppers ensure tight length tolerances.

Two model VRS 1400 sawing machines were installed in the finishing line, along with an additional two external clamping devices at the in-feed and out-feed side of the sawing machines, to guarantee perfect clamping of the tube layer.



A circular sawing machine from Italy's Lazzari

The complete process is computer controlled: the system recognises the incoming material quality and the sawing machine automatically chooses the correct cutting parameters. The tube layer is cut to the input finish length and fed out of the machine, and the head and tail crop ends are automatically discharged.

**Lazzari SpA – Italy**  
**Fax:** +39 035 4375175  
**Email:** info@lazzarigroup.com  
**Website:** www.lazzarigroup.com

## Inline continuous electrolytic pickling for stainless steel tubing

Condroil, Italy, has launched a new induced current pickling tunnel for stainless steel tubing. The new system allows the completion of various phases of the pickling process, including degreasing, pickling/passivation and rinsing, up to marking and packaging directly on the production line, without any further handling.



An induced current electrolytic process inside the tunnel uses a new formula pickling solution. This solution is made with Descalinox P23, which contains no hydrofluoric acid or nitric acid.

Advantages are reflected both in economy, with savings in raw materials and energy costs, and in the working schedule, where all intermediate handling phases are eliminated. The complete automation of inline operations and the new formula chemicals are expected to improve accident prevention and environmental protection. This is because use of a pickling solution made with Descalinox P23 improves working conditions and reduces the risks related to the handling of solutions during manufacturing and stocking.

**Condroil Impianti Srl – Italy**  
**Fax:** +39 0332 967 598  
**Email:** info@condroil.it  
**Website:** www.condroil.com

Condroil has developed a new induced current pickling tunnel for stainless steel



## Turnkey high performance testing and cutting lines

Reika, Germany, has received a follow-up order for a turnkey NDT system from Europe's largest producer of seamless steel tubes. The whole line will be directly linked to a straightening line with large buffer area and inlet conveyor system. Start-up of the complete line is due to be carried out within 4 weeks.

Before testing on the NDT system, loose scale and chips are removed from the tube after straightening and cutting operations. The tubes are individually transported at high-speed into the multi-testing NDT-section, running continuously at a 180m/min throughput rate.

Reika's turnkey NDT system for seamless steel tubes







In front of the NDT-bench, a rotary wet brushing device can be installed. Two planetary driven steel brushes rotate around the axially transported tube, cleaning the surface from loose scale and dirt.

Due to this prior cleaning process, any pollution into the UT-water circuit can be avoided, and wear of the rotating probes and pollution of the water circuit drastically reduced. Furthermore, the line efficiency and the 'false defects' with second testing can be reduced by 80 per cent.

The high precision concentric driving units and complete transport mechanics can be set-up within 2 minutes. The tube guiding precision is validated by the high testing repeatability during the tube calibration mode.

Control interface to HOST computer systems are available for production reports and line status reports. The line is completed by a bypass repair section with manual grinding and final inspection. It is expected that the line will increase the 2007 mill capacity by approximately 50,000t.

Reika has also received another order for a complete cutting line with two rotary cutting machines for large diameter hot rolled tubes. These high performance rotary cut-off machines can easily match the output of the rolling mill/furnaces with a capacity of approximately 350,000t/a.

Using the machine, which has a low tool cost compared to carbide layer saws, Reika claims that the customer will recoup the investment cost within 2 years, based on consumption cost.

**Reika GmbH & Co KG** – Germany  
Fax: +49 2331 969036  
Email: [info@reika.de](mailto:info@reika.de)  
Website: [www.reika.de](http://www.reika.de)

## Advanced spiral welded pipes from Slovakia

US Steel Košice sro, part of the USX Corporation, is a leading worldwide steel producer with an annual capability of 23 million tons. The company is one of the largest producers of steel flat rolled products in central Europe with an annual capacity of 4.5 million tons.

It is an advanced integrated steel company, involving processes from raw material processing through iron and steel making to final product output. The company



US Steel Košice manufactures spiral welded pipes from Ø 406mm to 1,420mm

principally produces deep-drawing, micro-alloyed and structural flat rolled steels for a large range of industries.

The company also operates a pipe plant for spiral welded pipes, produced from structural and micro-alloyed sheets. Steel sheet with machined edges is formed into a pipe shape and welded from both sides by an automatic submerged welder using an electrical arc, followed by cutting to required lengths with bevelled trims.



Cutting is undertaken to required lengths with bevelled trims

Each pipe passes a series of non-destructive tests: ultrasound and x-ray inspections, pressure testing and a visual inspection both from outside and inside. The diameters of produced pipes range from 406mm to 1,420mm, wall thickness from 5-14.3mm and length from 8-18m. The annual production capability is approximately 60,000t. The pipes are used mainly for gas, crude oil and water distribution lines and other civil engineering and structural purposes.

The process of stamping on spiral welded pipe



## Mill modernisation and manufacture

I<sup>2</sup>S, USA, specialises in the design, manufacture and servicing of rolling equipment for the ferrous and non-ferrous metals industry, with a focus on the metals rolling industry.

The company's equipment can be used by tubemakers and other steel processors to reduce the losses associated with producing over-gauge products. These products are manufactured on process lines that convert coiled metals strips, such as stamping, cold roll-forming, welded tube/pipe production, and other types of continuous metal strip processing lines.

The company's plant contains one of the largest indoor cranes in the northeast USA (125t), and machine tools that allow the company to machine large mill housings in the 100t range. Its CNC machines are linked with its CAD system by Smart CAM, and all engineering is performed on CAD, with over 80 terminals online.

I<sup>2</sup>S has modernised over 100 Sendzimir 20 Hi Cluster Mills, and since 1990 has manufactured 15 new 20 High Cluster Mills. The company has also modernised over 110 2 Hi, 4 Hi and 6 Hi mills, and has independently manufactured another 45 new mills.

The company's mills are used for wide variety of materials, including precious metals, copper and copper alloys, carbon steel, stainless steel, and special high strength super-alloys, and are engineered and customised to meet specific user needs.

**I<sup>2</sup>S** – USA  
Fax: +1 203 284 1819  
Email: [sales@i2s.com](mailto:sales@i2s.com)  
Website: [www.i2s.com](http://www.i2s.com)

The pipes are made from materials with strengths up to X70 according to the specification API Spec 5L. The products are also fully compliant with several European standards.

**US Steel Košice sro** – Slovakia  
Fax: +421 55 675 6498  
Email: [pavolhiznay@sk.usse.com](mailto:pavolhiznay@sk.usse.com)  
Website: [ww.usse.sk](http://ww.usse.sk)



## Automotive forming lines for power steering cylinder blank tubes

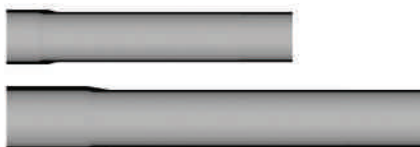
George A Mitchell Company, USA, has been contracted to design and build two complete lines of forming equipment. This equipment will be used to produce variable wall/variable OD cylinder blank tubes for a major parts supplier to the automotive industry. A cylinder blank tube is an integral part of the power steering assembly.

Each of the two lines will be capable of producing more than one million parts per year. The unique manufacturing process is carried out by several forming procedures. Mitchell is considered an industry expert in the field of tube push pointing, tube drawing and tubular extrusion.

The forming equipment is specifically designed for the purpose and shall be tooled for eleven different parts. One forming system includes four forming stations with an automatic tube lift and carry handling mechanism. A 1,000 gallon pumping unit with a total of 170 HP and eleven Vickers pumps powers the equipment hydraulically.



**A Mitchell serial PP-677 multistation tubular extrusion system**



**A cross section of formed cylinder blank tubes**

The extruding stations each utilise specially designed extrusion mandrels and carbide dies, along with linear displacement transducers for programming linear tooling positions. An Allen Bradley PLC along with a human-machine interface operator panel controls the forming cell.

The new forming process makes the current procedure obsolete, which utilises multiple vertical presses. The cost savings in the manufacture of the product is achieved through automatic material handling and overall reduction of cold forming operations.

The starting tube is welded, annealed and prelubricated, with no intermediate lube required in the Mitchell operation. The total percentage area reduction achieved for certain parts is over 68 per cent.

For the past few years, the company has been a leading provider of production equipment for variable wall tubes used in making SUV and truck axles, as well as instrument panel beam tubes and ball bats. New developments are currently underway, with cold forming processes designed for manufacturing utility poles up to 70ft in length and multiple wall furniture leg tubes.

Mitchell is also an industry leader in push pointing technology with more than 44 years of machine design and manufacturing experience, with successful installations in 29 countries throughout the world.

**George A Mitchell Company – USA**  
**Fax:** +1 330 758 7263  
**Email:** sales@mitchellmachinery.com  
**Website:** www.mitchellmachinery.com

## Small diameter thin wall tubes

High Tech Tubes Ltd, UK, supplies high quality, small diameter and thin wall tubes to the aerospace, electronics, instrumentation and medical industries.

The company is an independent manufacturer, specialising in producing non-standard tubes with tight tolerances in aluminium, OFHC and DHP copper, brass, cupro-nickel, nickel/nickel alloys and stainless steel. Outside diameters range from 0.25mm/0.01" to 16mm/0.625".

The company also produces profile tubes, including square, rectangular, hexagonal, elliptical, oval, triangular and half-round sections. Quality assurance is covered by ISO.9001:2000 and the International Aerospace standard AS.9100:2001.

**High Tech Tubes Ltd – UK**  
**Fax:** +44 1932 355 441  
**Email:** sales@hightechtubes.co.uk  
**Website:** www.hightechtubes.com

## Orbital machines for cutting, beveling and welding

Axxair, France, develops and manufactures orbital machines that allow users to cut, bevel and weld tubes with the same machine. The Global Concept covers all orbital operations applied to tubes, enabling users to make a step-by-step investment. The machines can be equipped according to user requirements, with all relevant training and servicing.

For 10 years, the company has offered technology including a large range of cutting machines (with integrated greaser), large diameter capacity per machine, and a single concentric patented clamping system with stainless steel clamps. They also supply a new patented orbital beveling system with carbide tips, and a single range of welding machines for pre-fabrication.

The company's machines are sold worldwide through a network of qualified Axxair partners, who supply to industries including food, pharmaceutical, and cosmetics.

**Axxair – France**  
**Fax:** +33 4 75 57 50 80  
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## United processes: sawing, deburring and checking

German steel and metal distributor, Klöckner & Co, is responsible for the first stage of metal preparation for automotive manufacturers and their component suppliers. The plant produces components of any shape and dimension, including flat, square and round material, tubes, solid bars and sections of different materials. Between 40-50t of processed material leaves the preparation centre daily.

A completely modular sawing centre from machine manufacturer RSA, Germany,


 The Rasacut modular sawing centre from RSA

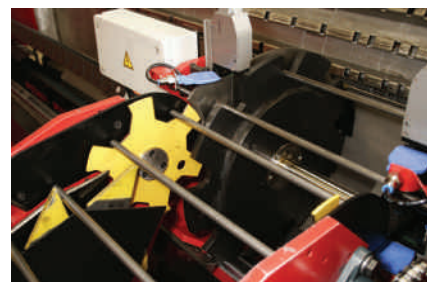
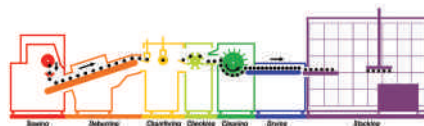



was designed to ensure smooth running of Klöckner's manufacturing flow. For this purpose, the Rasacut sawing centre unites several working steps: sawing, deburring, checking, and commissioning.

To complement the Rasacut, the company also supplied the Rasacheck measuring system to check the length of tubular workpieces, and supervise the process. The 100 per cent measuring of the RSA system avoids the delivery of any defective parts, instead of relying on calculations of probability.

The length measuring system, which is integrated into the sawing centre, automatically ejects every faulty piece on

 The Rasacut sawing centre consists of independent modules which can be freely combined and extended



 The Rasacheck module measures up to 5,000 parts per hour, and automatically ejects faulty parts

the spot. If a freely definable maximum quantity of defective workpieces is produced in sequence, the whole sawing centre shuts down in order to avoid rejections.

The measuring module requires no setting up or adjustment work, and can be linked to any other brand of machine or integrated into any production line. The measuring data can be transmitted to any QA software, or documented and analysed by RSA software. Documentation of measuring data and statistical computations are available on CD, hardcopy, or can be sent to a third party via remote data transmission.

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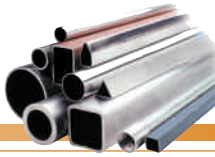
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# Technology Update



Klöckner decided to use the Rasacheck measuring module because of the necessity for master inspection plans, including given frequencies of sample measuring. Without this, every piece would need to be taken out of the process and manually checked on a measuring bench.

**RSA GmbH & Co KG** – Germany  
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**Email:** pr@rsa.de  
**Website:** www.rsa.de

**Klöckner GmbH & Co KG** – Germany  
**Fax:** +49 3304 394 8308  
**Email:** info@kloeckner.de  
**Website:** www.kloeckner.de

## Sanderson TubePerforators now part of the AddisonMckee range

Global tube bending and end-forming technology providers, AddisonMckee, have extended their product range to include the renowned Sanderson series of tube perforators. The models will be branded as AddisonMckee TubePerforators™.



A Sanderson tube perforating machine, now part of the AddisonMckee range

As part of the development process of AddisonMckee Sanderson Tube Perforating Machines, special focus was placed on tool change efficiency, with complete tool change possible in less than 15 minutes. Meeting or exceeding exceptionally stringent industry standards, all models feature easy set-up and programming.

Available in 75mm (3") and 150mm (6") solutions, the TubePerforator models offer a range of features. These include axes servo-controlled for simple prototype

design and quantity production, parts easily designed via a user-friendly HMI system, and simple commands for custom design and placement of perforations.

They also provide an on-screen status bar showing the amount of material removed, percentage flow and percentage of cross section removed. With a unique, fast-cycle rolling action for effortlessly punching 64 holes per revolution, they provide readily available consumable punches.

Mr Christian Rogiers, AddisonMckee's director of global marketing, commented, "The result of some six years of intensive research and development, Sanderson Tube Perforators provide a significant leap forward in technology and represent the next generation in tube perforating procedures."

**AddisonMckee Ltd** – UK  
**Fax:** +44 1772 323227  
**Email:** sales@addisonmckee.co.uk  
**Website:** www.addisonmckee.com

**AddisonMckee Inc** – USA  
**Fax:** +1 937 382 4963  
**Email:** sales@addisonmckee.com

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[www.qualitygroup.in](http://www.qualitygroup.in)

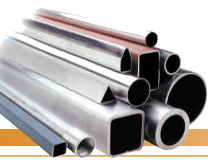
e-mail [contactus@qualitygroup.in](mailto:contactus@qualitygroup.in)

Phone : +91-1662-220249,220250

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 Tel. +31 24 358 65 14  
 Fax +31 24 358 70 79  
[info@wortelboer.ws](mailto:info@wortelboer.ws)



## Pipe welds made bright and shiny

Huntingdon Fusion Techniques Ltd, UK, provides the cost-efficient technology to keep welds clean while welding. This technology can be used in cases where piping or pipelines are fabricated from stainless steels, reactive alloys, nickel alloys, nimonics and titanium.

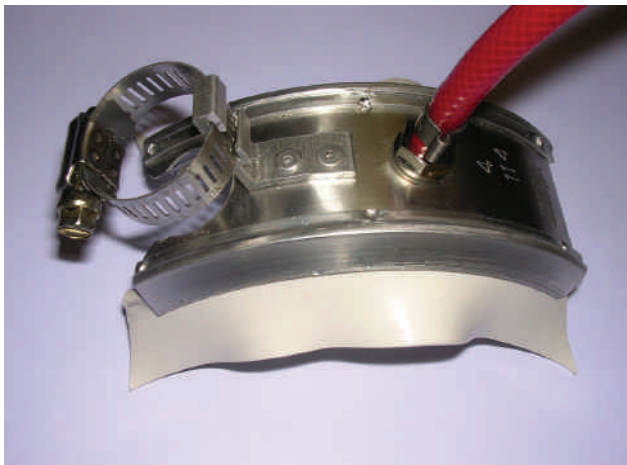
By adding a lightweight component called a 'Trailing Shield' to a TIG/GTAW welding torch

the weld stays under a protective Argon Gas shroud, while the hot, welded joint is cooling. This prevents the heated metal from oxidizing on contact with air. Trailing Shields are available for any diameter of pipe.

Replaceable silicon rubber seals are used on the sides of the Trailing Shields to prevent the protective argon gas from escaping.

Each Trailing Shield is delivered with variable diameter connector so that it can fit any size of TIG/GTAW/PAW welding torch whether for manual or mechanised welding.

**Huntingdon Fusion Techniques Ltd – UK**  
Fax: +44 1554 836837  
Email: [hft@huntingdonfusion.com](mailto:hft@huntingdonfusion.com)  
Website: [www.huntingdonfusion.com](http://www.huntingdonfusion.com)



Huntingdon's Trailing Shields are used to keep welds clean

## Indian piping supplies

Shripal Metal Ltd, India, supplies piping material and other ferrous and non-ferrous construction materials to industries including petrochemicals, fertilisers, refineries, oil and engineering. The company has undertaken a substantial quality assurance initiative, and is a pioneer in the implementation of the bar coding system on material to provide accurate tracking.

The company has actively participated in various national and international exhibitions, including wire & Tube Düsseldorf 2006 in Germany, and Chemcon-Summit 07 – India.

**Shripal Metal Ltd – India**  
Fax: +91 22 2242 8765  
Email: [shripalm@bom2.vsnl.net.in](mailto:shripalm@bom2.vsnl.net.in)  
Website: [www.shripalmetals.com](http://www.shripalmetals.com)

## Automatic feed table for collaring machine

T-Drill, the manufacturer and supplier of tube processing and chipless tube cutting machines, has made a number of improvements and additions to its model S-54 collaring machine.

For branching of manifolds, T-Drill has introduced a new automatic feed table (AFT) that can store up to 99 different branching specifications. It has a positioning efficiency comparable to typical CNC controlled configurations. The new AFT is also equipped with a universal clamping system that reduces tooling costs and set-up times.

Typical uses for the new S-54 with AFT include air-conditioning, floor heating and solar panel manifold applications. The T-Drill collaring method improves the quality of tube joints, and makes brazing operations easy to carry out, since the collar fixes the branch tube in the correct position, allowing brazing without other fixtures.

**T-Drill Oy – Finland**  
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Fax: +1 770 925 3912 • Email: [t-drill@t-drill.com](mailto:t-drill@t-drill.com) • Website: [www.t-drill.com](http://www.t-drill.com)

## Highly productive and fully automatic short tube manufacturing

The production of short tubes with high productivity, flexibility and quality is the focus of weil engineering GmbH, Germany. The company has perfected the design and construction of rollforming and welding machines to produce finished tubes from blanks.

A wide variety of laser, TIG or plasma weld sources can be applied for welding. The WE product range covers tube dimensions from 25mm to 1,000mm in diameter, up to 2,000mm in length and 0.2-3mm in wall thickness. The WE roll forming machines are NC controlled to allow a high shape flexibility. The welding machines incorporate a fully automatic, flexible and accurate clamping system for high product quality and constant repeatability. Automation components are available for all machines allowing a lean production.

Weil engineering GmbH have recently launched their latest development, branded the Ecomaster, a manufacturing cell combining rollforming and welding into one compact unit. The scope of operation for the Ecomaster covers diameters from 80-200mm, tube lengths from 80-500mm and wall thickness from 0.8 to 2mm.

A special feature of the Ecomaster is the multiroller rollforming unit for tube shaping, which allows production of different diameters without any part change.

For any change of diameter, all that is required is the connection of a suitable tool into the welding unit and adjustment of the blank feeding into the rollforming unit. Changeover time for diameter change is only about 18 minutes, and only 5 minutes for the change of tube length.

Upon request, a range of welding sources can be offered, including laser. With the basic model, blanks are fed manually onto the infeed table, which allows an efficient entry into the automated short tube manufacture. With the option of an additional destacker the automation of blank feeding is possible; when feeding from one destacking position, the second destacking position can be refilled.

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Website: [www.weileng.com](http://www.weileng.com)



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## Modular-concept pipe systems

Jacob Pipe Systems, Germany, is a manufacturer of modular-concept pipe systems, including systems for bulk material handling, dust extraction, and exhaust air units for environmental engineering (cooling air/exhaust air).

The company's pipe systems feature diameters from 60mm to 800mm (or larger for customised production), and 1-3mm wall thickness, using primed, galvanised or stainless steel pipes.

 The new earthing bridge from Jacob Pipe Systems



 A mounted earthing bridge

The company has launched a new earthing bridge, designed for the simplified installation of pipe systems for electrical potential equalisation – either initial or retrofit. Installation is securely achieved in a few easy steps and, using the Jacob pull-ring connection, existing systems can be retrofitted without any welding.

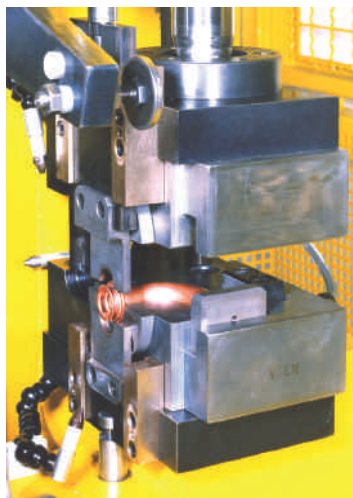
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## Production excellence in tube forming rolls

DB Engineering (P) Ltd is one of India's largest manufacturers and exporters of forming rolls for round tubes, shaped tubes, open sections and trapezoidal mill rolls. They have supplied these rolls to leading manufacturers in India and the Indian sub continent, Middle East, eastern Europe and South Africa.

The company has recently increased its manufacturing capabilities by installing several CNC turning centres. In particular, the company now operates turning centres for larger diameters up to 12" tube diameter. With expert R&D and state-of-the-art CNC machines, DB have complete in-house facilities for roll design using the latest software and tube mill know-how.

DB Engineering (P) Ltd – India  
Fax: +91 11 2638 6453  
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### Tube End Forming Machines

Endforming of parts with the technique of the flow of metal.  
Can be easily integrated into a production line.



**EMS have developed a process of cold tube closing based on a combination of flow turning and axial power push**



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### Tube Cutting Machines

Different processes based on cutting through knives or wheel without chips and internal burrs.







## Carbide-tipped saw cuts cycle times in half

Elmsteel, UK, part of the voestalpine Rotec Group, produces 1.5 to 2 million-plus components each week, the majority of which are made from mild steel tube of varying sizes and dimensions. The company also processes around 1,000 to 1,500 tons of steel bar per annum.

The company have reported great success from using an Adige CM601 CNC precision saw cutting with carbide blade. The CM601 was supplied by BLM Group UK Ltd and installed in March 2006.

*"We have been able to pass on the cost benefits to our customers, especially since*

*The BLM Adige CM601 CNC precision saw has halved cycle times at Elmsteel*

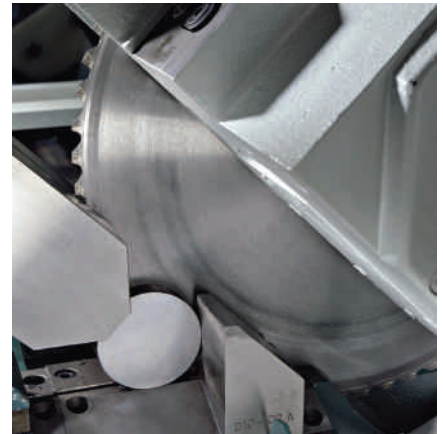


*the new saw has far exceeded what even BLM said it would achieve in terms of shorter cycle times and increased output,"* said Mr Baker, operations manager of Elmsteel, *"A further bonus is that cut length tolerances can be  $\pm 0.05\text{mm}$  or better."*

The 9.2kW cutting head of the CM601 provides cutting speeds from 60 to 140m/min and powers a cutting capacity up to 102mm diameter or 90mm x 90mm square. An advanced loading system ensures that bar is never in 'free fall' and is deposited in the cutting zone without noise or impact and other surface damage.

All the working parameters of the CM601 are set automatically and managed by the CNC, without reliance on operator expertise. With virtually all the setting adjustments also managed by the CNC, a full change-over from one job to another typically takes less than two minutes.

Elmsteel, which specialises in tube manipulation, tube laser cutting, tube end forming, pressing and piercing, operates 24 hours a day, five days a week, and produces



*The carbide-tipped saw blade of the CM601 is ideal for steel bar stock*

components for a variety of automotive applications, from steering systems and chassis sub-frames to engine components, seats and vibration control.

**BLM Group UK Ltd – UK**  
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## Eddy current flaw detectors

Olympus NDT, USA, has introduced Nortec 500, a new series of portable eddy current flaw detectors. Available in three full-featured, lightweight configurations, the flaw detectors include a 6.5" diagonal full VGA colour LCD screen for increased resolution.

Internal balance coils allow the use of absolute probes without the need for external balance coil adapters, and a

built-in preamplifier adds extra gain, when required.

VGA output allows for optional 'heads up display' for hands-free operation, while the optional remote-null adapter adds convenience and assures safety. The Nortec 500 includes PowerLink™ for automatic probe recognition and program set-up, and a USB interface provides rapid information transfer.

ⓘ The Nortec 500D eddy current flaw detector features dual frequency capabilities



The Nortec 500 delivers basic, single frequency eddy current inspection including external outputs. The Nortec 500S adds digital conductivity, coating thickness measurement, and rotating scanner use. The Nortec 500D matches the 500S and includes dual frequency capabilities. The new detectors are packaged in foreign object debris-free cases, and feature a single Li-Ion battery suitable for demanding environments and intense applications.

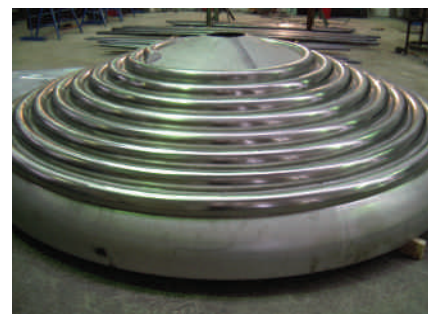
The Nortec 500 series is suited to the requirements of manufacturers

in fields such as aerospace, and weld and surface flaw inspectors in a wide range of non-ferrous application environments.

**Olympus NDT, Inc – USA**  
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## Half pipes and U-pipes

Karl Theis GmbH, Germany, is a medium-sized company supplying the chemical process-equipment-construction, tank construction, power plant construction and pharmaceutical industries.



ⓘ Karl Theis produces pipes for heating and cooling elements

The company produces and processes half pipes for use as heating or cooling elements for large tanks. The company also specialises in the production of U-pipes, which are one of the main components of power plant construction and heat exchanger construction. Also in the Karl Theis range are coiled pipes, tube bends and non-standard designs.

With a production area covering more than 4,000m<sup>2</sup>, the company shapes and welds tubes of almost any ferritic and austenitic material, with dimensions from 6mm to 323.9mm.

**Karl Theis GmbH – Germany**  
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**Website:** www.theis-siegen.de

## Continuous shot-blasting installation for external tube surfaces

Carlo Banfi, Italy, manufacture the ISTR series installation for external tube and pipe shot-blasting for a maximum diameter of 20" (500mm). These installations are equipped with throwing wheels arranged on the upper part of the blasting room.



ⓘ The ISTR series of external shot-blasting installations for tube and pipe

A special conveyor system controls the piece feeding, as well as rotation on its own axis, so that the whole external surface is exposed to the blasting action. For larger diameters (up to 60") the piece movement is achieved by sets of wheels with inclined axis and fixed angles compared to the tube axis.

For medium-large diameters (20" ÷ 80") the throwing wheels are placed below the piece level, so that the distance between the throwing wheel axis and the surface to be processed remains constant according to the tube diameter. The inlet and outlet pre-rooms are equipped with rubber protections that prevent leaks of shot-grit to the outside.

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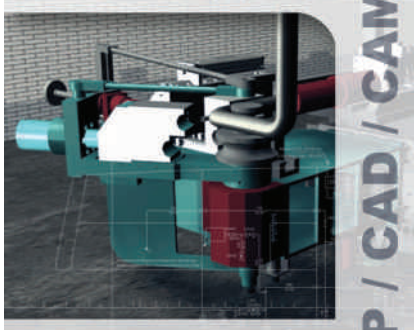

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## Latest order for bright annealing roller hearth furnace

Shahid Bahonar Copper Industries Co, Iran, has awarded a contract to Otto Junker GmbH, Germany, for an indirect gas fired roller hearth furnace for the bright annealing of 15,000 tons per year of level wound coil DHP copper tube. Shahid Bahonar Copper Industries annually produces more than 45,000 tons of copper semi-manufactured products, such as tubes, sheets and coils, for use in second stage industries.

The contracted roller hearth furnace is designed for the purpose of bright annealing copper tube in the form of level wound coils. It will be installed in the company's new

copper tube production plant in Kerman, Iran.

The level wound coils are individually loaded onto trays which are then transported into a stacking device which automatically stacks the trays – up to a maximum of 5 trays per stack. Following the stacking procedure, the ends of the individual coils are connected to the atmosphere distribution system of the Otto Junker CTP system (copper tube purging system).

The stack is then transported to the furnace line via a cross conveyor. On the entry table

## Preventing rust without chemicals

Hydrophath Ltd, UK, manufactures a range of water conditioning systems using Hydrophath technology. This technology works by inducing coaxial electromagnetic fields in the fluids passing through the pipe.

A 'wave' is generated from the unit, which is carried throughout the system, and this charge helps prevent the electromechanical process of corrosion taking place. The negatively charged electrons are drawn towards the outer skin of the pipe (known as the 'skin effect') whilst the heavier positively charged ions are drawn away from the service. The result is that a state of passivity exists within the water.

The company's AquaKlear system also provides the benefit of killing bacteria and algae. It does so by applying a charge to the bacteria, which gets hydrated with a pure water layer. This layer is absorbed into the bacteria by osmosis, creating osmotic pressure which bursts the membrane thus killing the bacteria.

The Jordan Steel Factory outside Amman, Jordan, was concerned about corrosion within the pipework of its cooling system, caused by large quantities of sulphate reducing bacteria, iron oxides and scaling build-up. These factors contributed to an overall reduction in the efficiency of the direct and indirect cooling system at the factory.

The solution was to undertake an eight month trial of Hydrophath's water conditioning

system. An AquaKlear P120 unit was fitted to one of the pipes and a series of test coupons installed throughout the system. Seven carbon steel coupons with nuts and bolts (made from the same material as the pipes) were located throughout the system to measure corrosion, and a further seven stainless steel alloy coupons were affixed with plastic nuts and bolts to measure scale build-up. Plastic was used to eliminate any interference from galvanic action.



Hydrophath's AquaKlear P120 water conditioning system

Following the installation of the AquaKlear P120 system, there was a significant reduction in corrosion at the steel factory. The results indicated a reduction of iron oxide percentages in an eight month period from 60-70 per cent to 49 per cent, which reflected positively on reducing corrosion rates. Scaling percentages also reduced dramatically, leading to the more efficient operation of the direct and indirect factory cooling system.

**Hydrophath (UK) Ltd – UK**  
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**Email:** sales@hydrophath.com  
**Website:** www.hydrophath.com



the coils are automatically purged with protective atmosphere ( $N_2 + H_2$ ). Working on a step continuous basis, the stacks are transported by rollers from one stationary position to the next.

Once a pre-set cycle time has elapsed the stack is driven into the vacuum chamber where a vacuum is created. After a predetermined time, the chamber is then refilled with the process protective atmosphere, and the stack is advanced into the entry vestibule, where it remains for one cycle before going into the furnace.

The high convection furnace is indirectly heated under protective atmosphere, and the complete line from entry vestibule to the end of the cooling zone remains under protective atmosphere 100 per cent of the time. The stack of coils moves through the furnace on a step continuous basis during which time the coils are automatically purged by the CTP system. This serves the purpose of removing any oil from the bores of the tube as it vaporises, which assists in producing the so called 'Super Clean' tube.

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

the material temperature is reduced to a level below that which copper oxidises when it comes into contact with air. The stack is then discharged from the line via the exit vacuum chamber, it is transported to the destacking device, and the coils are removed from the separated trays. A complete materials handling system is included for the conveying, stacking and de-stacking of the work trays.

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**Website:** www.otto-junker.de

**Shahid Bahonar Copper Industries Co – Iran**  
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## Advances in coil storage and management

The new KLP® RollStop System from Lankhorst Mouldings is an efficient, safe and complete coil handling system. An





The KLP® RollStop System for handling coils

ingenious interlocking system of plastic rail and block components can be positioned in any way required.

The KLP® RollStop System can store precious coils in one standard unit. It can also be easily adapted for all coil diameters and widths.

The product combines durability, flexibility and maximum safety, and saves space in the warehouse.

**Lankhorst Mouldings – Netherlands**  
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## Specialist in tube and pipe identification

InfoSight Corporation, USA, is a leading worldwide supplier of tube and pipe identification equipment. The company offers several different identification technologies to the tube and pipe industry.

The company offers a range of weigh, measure and stencil (WMS) equipment. WMS equipment is custom-designed for the customer's application in order to perform a range of operations on tubes. These include weight measurement, length measurement, colour banding, stencil marking, and stamp marking.

WMS systems can capture length and weight automatically and mark tubes with the required in-plant or customer message data including weight and length. Length range tolerance and weight tolerance checking are automatically performed,

with reject pipes automatically marked accordingly. These systems can be supplied in varying designs from simple in-line to lateral transfer walking beam.

Stencil Jibs are custom-designed to perform stencil marking on moving tubes in the customer's conveyor or on static tubes in the customer's tube station. InfoSight can supply the standard I-Dent® marking technology or third party ink jet or drop-on-demand markers per customer's preference.

In addition, the company provide Infodent® Stamper Jibs that are custom designed to perform dot matrix indentation stamp marking on static tubes in the customer's tube station. Colourband Jibs are also available, and designed to perform sprayed colourband marking on tubes in the customer's spin roll station.



InfoSight use highly advanced marking technology to place barcodes on tube and pipe

Marking of text and special binary bar codes on the tube OD is applied by I-Dent® dot matrix stencil technology for automatic in-plant tracking of tubes. InfoSight also offers the Opticode® bar code reader to read these bar codes from long distances.

Both OD and ID laser marking of text, logos and industry-standard bar codes is applied to tube OD or ID using Infomark® technology – using a CO<sub>2</sub> laser to laser-mark a white paint pattern applied to the tube surface.

## Latest cutting systems for auto components

Reika, Germany, has delivered another four complete cutting systems for DOM tubes to the largest tube producer in central America. The machines are to be installed in the customer's value-added production centres for tubular automotive components.

**No energy-intensive washing and drying operations are necessary due to the clean and dry cutting process**

The lines are of the new 'Compact' series, with high performance outputs for automotive suppliers, and tube-machining cells consisting of a rotary cut-off unit and a chamfering/facing unit. The rotary cutting heads can either be equipped with standard carbide inserts or with chip-less cutting disks, reducing the tool cost per piece.

As the cutting operation is dry, the parted tubes can easily be transferred into the facing and chamfering unit. Subsequent measuring stations for length, roundness, straightness or customer-specific measuring applications can be integrated with SPC-capability and evaluation. The energy consumption of the new lines is low, as no energy-intensive washing and drying operations are necessary due to the clean and dry cutting process.

Multi-machine operation can be achieved because of the automatic packaging systems on the exit side of the machines. The gantry-type packaging systems are integrated in the machine controls and can be easily programmed according to the necessary box size and the required packaging pattern.



Reika's 'Compact' series of tube-machining cells

The market for hot rolled tubes is booming, in particular for OCTG applications, and Reika has reported high demand for its new machines and turnkey lines for straightening, cutting and bevelling. The company will participate in September's International Tube Ukraine Conference in Dnipropetrovsk, where it will present new developments in tube finishing lines for seamless pipes.

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**InfoSight Corporation – USA**  
Fax: +1 740 642 3777  
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## Machine parts available in quantities from one to a million

Eagle Stainless Tube & Fabrication, USA, is a supplier of off-the-shelf stainless steel products and fabricated stainless steel components. The company offers an entire range of miniature to large precision-machined parts, with diameters from 0.04" to 1.50".

Eagle can provide intricate geometrics such as threads, slots, and external/internal hexes, from an extensive inventory of materials including stainless steel, aluminium, titanium, Monel, Inconel, and brass. Machined parts manufactured by Eagle are suitable for a broad spectrum of aerospace and electronics applications, as well as for implantables, surgical tools, and quick disconnects for the medical industry.

The company can manufacture prototype parts using its rapid prototyping system, in quantities as small as one piece. The company also employs a bar-coding system that reports actual run time on customers' parts.

**Eagle Stainless Tube & Fabrication Inc – USA**  
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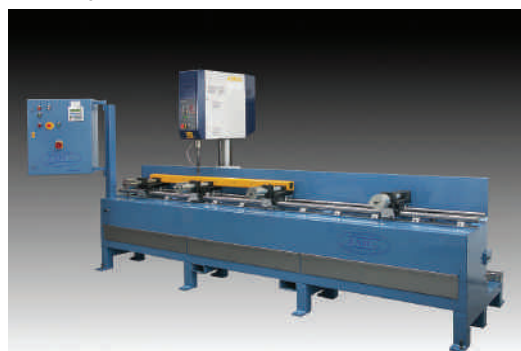


## Advanced workpiece drilling solutions

Applications requiring fast and accurate drilling of holes in a workpiece are becoming increasingly common. Conventional manual or semi-automatic drilling machines require drilling holes to be marked by hand, which is both time consuming and prone to error. Nevertheless, drilling by hand is still common, since automatic working is often uneconomical, due to high investment costs for X-axis length of more than 1,000mm.

J Neu GmbH, Germany, manufactures drilling apparatus with X-axis length up to 6,000mm and above. Using the apparatus, the tube is clamped and moved through the drilling machine. This provides advantages including protection of the surface of the workpiece, machining directly at both ends without difficulty, and the reduction of required floor space, since machine length is halved in comparison to pushing operation machines.

J Neu systems clamp the workpiece in place, while moving the drilling machine



The base of the drilling apparatus is a stable welding construction of hollow sections, providing stiffness and low-vibration. After welding, the bed is milled at the assembly zone for the linear guide, gear rack and material clamping, which guarantees the necessary tolerances.

The welded and milled slide that carries the drilling unit is connected to the machine bed by two linear guides for movement in the X-direction.



The Alzmetall AB26 drilling unit

An additional pair of linear guides is mounted on the slide to carry out Y-axis movements of the drilling unit. By combination of the two possible movements, the coordinates for the drilling positions can be precisely determined.

The drilling unit for the standard version is an Alzmetall AB26 SV with electromagnetic clutch. A microsyringing device is supplied as standard, and full CNC drilling units with turret head are available on request.

**J Neu GmbH – Germany**  
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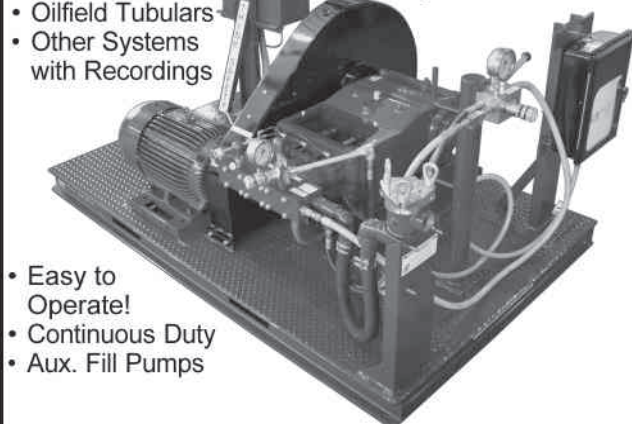
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## Latest welding and deburring equipment from Kent

Kent, USA, has introduced a new coil end welder designed for TIG mills. The new welder is designed to be affordable for TIG mills and other lines that run at slower speeds and do not change coils as often.

Using the machine, a precision manual shear is used to cut the coil ends, and then powered wedge clamps hold the strip ends while an automatic TIG weld is carried out. The weld is undertaken on a bias to ensure a better pass through the tooling. The bias weld also keeps the welded edges from coming together at the weld area in the mill.

The company has also introduced a new Burrmaster deburring machine to automatically deburr one end of a part, used

 Kent's new coil end welder



 The Burrmaster deburring machine for 5" OD tube parts

for ferrous/non-ferrous material up to 5" OD. The Rotomat utilizes a 12" diameter by 6" wide brush that spins downwards at 2,000rpm, with the entire brush head rotating on its axis at 60rpm.

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## CNC cutting machines for non-flat metals

HGG Profiling Equipment BV, the Netherlands, is a manufacturer of CNC cutting machines, specialising in cutting equipment for non-flat metals, eg H-, I- and angle beam, in addition to pipe, tube and square hollow section.

By adding components to a standard concept, HGG produces machines suitable for companies in steel construction, piping, offshore construction and the petrochemical industry. Over the last 20 years, the company has supplied pipe cutting machines that cover a diameter range from 28mm to 6,000mm.

All HGG machines can be supplied with a CAD-CAM system, with connections available for AutoCAD, Pro-Engineer, X-Steel and Solid Designer. The company can also tailor-make other CAD-CAM or post-processing systems.

The company's newly developed products are first installed in one of its subcontracting companies, in order to gain practical experience with the products, and to improve them.

**HGG Profiling Equipment BV – The Netherlands**  
Fax: +33 0227 501 903 • Email: info@hgg.nl • Website: www.hgg.nl

## Three new ranges of general purpose safety eyewear

Jackson Products Ltd, UK, has launched three new ranges of CE approved safety eyewear for industrial use. The spectacles in all three ranges have been designed primarily as general purpose industrial safety spectacles for use when metal working, grinding, cutting, bevelling and drilling, and as general safety eyewear in the operation of machinery.


The Element™ series are lightweight, single lens spectacles with a sleek modern appearance and a moulded nose bridge designed to give maximum comfort and fit to the wearer. The spectacles have a 9.5 base curve contour appearance, offer UV protection, and are available with a clear, smoke or amber lens.



 The new Element safety eyewear from Jackson Products

A full wrap around lens with side shield protection, the Oracle™ series has soft tip temples and a pliable nosepiece for the wearer to adjust for maximum comfort and fit. The base curve is 8.5 and the spectacles




 The Oracle range features a full wrap around lens

provide 99.9 per cent UV protection. The series is available with either a clear or amber lens.

The Nemesis™ series is designed with a sleek, sporty single lens appearance and made of a lightweight construction, with soft touch temples for wrap around protection. It is available with clear, amber, or smoked mirror, and IR/UV shade 3 or shade 5 lens. Nemesis spectacles can also be branded for individual companies, for large quantity usage.



 Nemesis series can be branded for individual companies

All spectacles in the new ranges meet DIN EN 166 EC health and protection directive on Personal Protective Equipment 89/686/EEC and American National Standards Institute ANSI Z87.1+ high impact standards and requirements.

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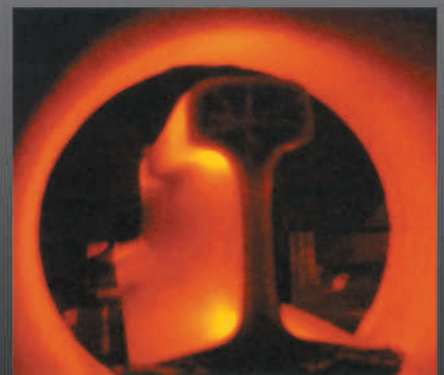
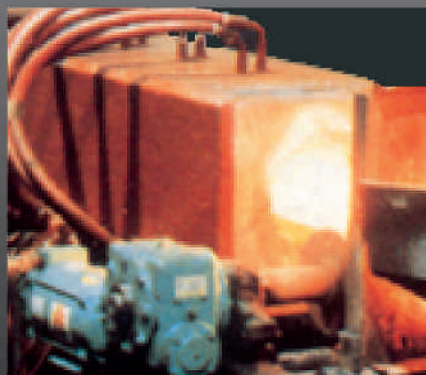
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<b>March/April 2005</b> Vol. 18 No 2	<b>Featuring:</b> • Production of heat transfer tubing, refrigeration & HVAC welding technology <b>Technical Article:</b> • Welding of heavy wall, small diameter tubing
<b>May/June 2005</b> Vol. 18 No 3	<b>Exhibition:</b> • Tube Russia 2005 <b>Featuring:</b> • Developments in recognised quality standards • Straightening, cutting & end-finishing technology <b>Technical Articles:</b> • Making HF welded tube for demanding applications • CDW/DOM precision steel tubes • Repeatability of sizes at the draw bench • Simple but powerful – specialised plazma robotic cutting system
<b>July/August 2005</b> Vol. 18 No 4	<b>Exhibition:</b> • Tubotech 2005, Brazil <b>Featuring:</b> • Drilling, piercing & punching • Tube bending, forming & fabricating <b>Technical Articles:</b> • Laser vision guidance for automated welding and NDT of tubes and pipes • Pulse SAW principle and pulse form feature
<b>Sept/October 2005</b> Vol. 18 No 5	<b>Exhibitions:</b> • Tube Singapore 2005 • Fabtech Chicago/AWS Welding Show 2005 <b>Featuring:</b> • Hollow structural sections, (HSS) & structural tubes • Teaching the next generation of architects about HSS <b>Technical Article:</b> • Welding frequency in production of thick-walled HFI pipe
<b>Nov/Dec 2005</b> Vol. 18 No 6	<b>Featuring:</b> • Design & production software for tube & pipe • Coating & covering technology • Plastic & composite tube & pipe <b>Technical Articles:</b> • Cold pilger mills – machines for highly specialised tube forming processes • AC degaussing of spirally double submerged arc welded pipe

## 2006

Jan/Feb 2006.....Vol. 19 No 1

March/April 2006.....Vol. 19 No 2



**Exhibition:**  
• Tube Düsseldorf 2006 (preview)  
**Featuring:**  
• Equipment & processes for the treatment of tubes  
• Inspection, measuring, testing & marking  
**Technical Articles:**  
• Minimising residual stress level in cold drawn welded tubes (CDW/DOM)

**Exhibition:** Tube Düsseldorf 2006  
**Featuring:**  
• Developments in welding technology  
**Technical Articles:**  
• Rotary sizing of tube and pipe on the mill  
• Seam annealing of HF welded API pipe

May/June 2006.....Vol. 19 No 3

July/August 2006.....Vol. 19 No 4



**Exhibition:** Tube Russia 2006  
**Featuring:**  
• Viewpoint: China's steel pipe report for the 10th five-year plan  
• Tube bending, endforming & hydroforming  
**Technical Articles:**  
• Optimisation of seam annealing process with the help of 2D simulations  
• High chromium rolls for steel pipe and shaped steel

**Featuring:**  
• Focus on tube mills & rollforming lines  
• Fittings, couplings, valves & tubular joints  
**Technical Articles:**  
• Stripper condenser tube-to-tubesheet welding for the urea process  
• Methods and equipment for pre-weld pipe end and edge preparation

Sept/Oct 2006.....Vol. 19 No 5

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**Exhibition:**  
• Tube China 2006  
• Fabtech/AWS welding show 2006  
**Featuring:**  
• Tube cutting, bevelling & end-finishing  
• Fabtech/AWS welding show 2006: Atlanta, USA  
**Technical Articles:**  
• Microwave diffusion technology (MDT) in metals manufacturing  
• Optimised shearing of stainless steel tubing

**Featuring:**  
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## Specialist manufacturer of pipeline equipment

CRC-Evans is a leading manufacturer of equipment and a supplier of services to the pipeline industry. The equipment ranges from pipe bending machines to pipe handling and support equipment, and from pipe facing and bevelling machines to internal line-up clamps. The company also build double jointing systems for use on land and offshore.

A highlight of the company's range is automatic welding systems for land and offshore pipeline construction. This equipment line includes single- or dual-torch welding systems, internal welding machines, copper backup clamps and precision pipe facing machines.

These systems have been designed, tested, used and continuously upgraded for more than 35 years in every type of environment. CRC-Evans have extensive experience in welding X-80, X-100 and X-120 pipes, as well as 13-Chrome, duplex, super duplex and clad pipes.

The company provides a basic gas-metal-arc automatic welding system designed

to make quality girth welds while delivering high production rates. It can accommodate pipe sizes from 4-60" and wall thickness in excess of 1" (25mm).

The system consists of three major components. Pipe facing machines produce a narrow groove compound bevel to assure near perfect joint fit-up for every weld.

The combination internal welder/line-up clamp travels inside the pipe to align and clamp joint ends together, and then automatically welds the root bead from the inside. External welding machines make the outer girth weld. Travelling on steel bands fixed to the pipe, the machines accurately complete the weld in a series of passes. The company also offers flux-core and pulsed gas-metal-arc systems.

In addition to the company's extensive onshore experience, the company has



CRC-Evans offer a range of automatic welding systems for land and offshore pipeline construction

designed and built state-of-the-art automatic welding equipment. These offshore systems allow the user to maximize productivity from a limited number of welding stations. This boosts the speed of operations, maintains the highest level of quality, and enables the pipeline to be built on schedule.

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## Onsite orbital welding advantages for stainless steel plants

Idroinox Impianti Srl, Italy, constructs, assembles, and installs stainless steel processing plants. The company was one of the first in Europe to take its orbital welding equipment out of the plant and into customer locations in order to complete the installation of its specialised equipment.

This played an important part in enabling manufacturers to develop the portable commodity products used in modern automatic welding.

### Orbital welding on-site

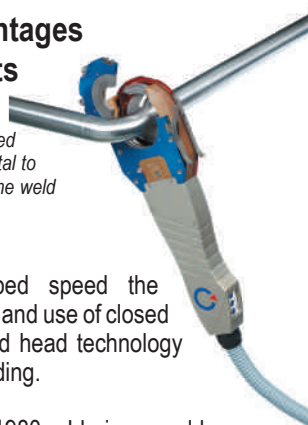


Well-prepared tubes are vital to guarantee the weld result

It also helped speed the development and use of closed chamber weld head technology in orbital welding.

In the mid-1980s Idroinox welders, who were installing some of the company's processing equipment in the United States, saw for the first time a closed chamber welding torch made by Astro Arc, a small Californian company that supplied the official welding torch used at NASA and in the aerospace industry. Idroinox was already in talks with Polysoude, France, to purchase its first orbital welding equipment, when Polysoude purchased Astro Arc.

Idroinox was soon convinced of the benefits of welding stainless steel tube and pipe using orbital welding, to fabricate and assemble its complete preparation rooms.



Rather than compromise the quality of its work with a bad weld in the field, the company began taking its orbital welding equipment on installation trips to customer locations.

While orbital welding systems were proven products at the time, it was companies like Idroinox that provided vendors with the feedback to make reliable, efficient portable power supplies that would withstand the varying environments in the field. Not only did Idroinox make many suggestions, but the company field force tested many ideas and prototypical equipment. This led to valuable feedback regarding factors such as the position of the head in enclosed areas, and the chilling system.

In its field installation activity in various countries, Idroinox encounters many different welding standards. For example, its welders must be certified by the Italian Institute of Welding in accordance with its ASME 9 code.

With the European Union's attempts at standardisation, this issue will grow less complicated, but Idroinox also undertakes work in non-EU countries, such as



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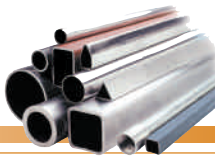


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- \*High frequency Mos-fet welding machine
- \*Hand tools





🔧 Closed welding 'K-Series' head, adapted to titanium applications in the aerospace industry

Switzerland, USA, Africa, Japan, Syria, and Venezuela. Each country has its own method of certifying weld procedure and quality, and there are many additional details to track when carrying out field installations in other countries.

There are other complications, such as in the food and beverage industry, where some beverages can be quite caustic. The repeatability and smoothness of the weld on the interior of the tubes are the primary reasons for using orbital welding. The end-user must be convinced that no unevenness exists that might cause corrosion to begin and eventually rust through.

The training of Idroinox welders presents another issue, concerning Italy's labour laws. In addition to a full workload at the

🔧 The portable orbital power source used by Idroinox

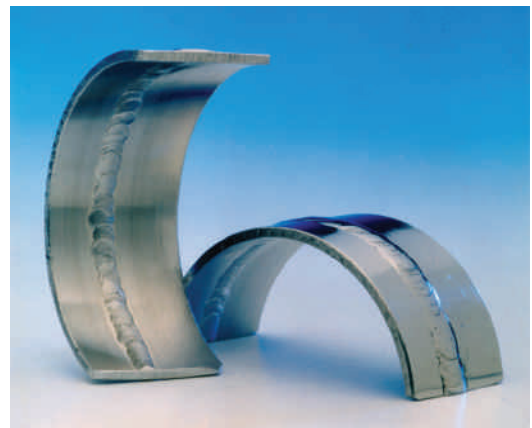


plant, the company has four teams in the field: three in the food industry and one in pharmaceutical. The changing needs for experienced programmers has resulted in a creative solution: the company has found that many experienced welders do not want to adapt to Idroinox's mode of operation, so it has turned to young people, often with no welding experience, and trains them according to its needs, first in manual, then in automatic welding.

In-house training results in three types of welder. Group 1 is for welders only qualified for manual welding. Group 2 is for welders qualified for automatic welding, but not for modifying the combination of the various automatic welding parameters. Group 3 is for welders qualified to establish new programs and procedures for the orbital welding systems.

All of the welders are expected to recognise good and bad welds. The company has 7-8 welders who work primarily on manual welding activities, but can operate orbital welding systems, and are able to recognise good welds, but make no changes to the pre-established welding parameters. Making an automatic weld with proven qualified parameters is extremely easy.

Welding operators from Group 2 perform automatic orbital welding, and are allowed to change only those parameters considered non-essential – ones that can be modified without requiring the qualification of a new welding procedure – allowing them to compensate for variations in the work-piece preparation. Visual checks are made, and a sample is sent to be X-rayed. This procedure ensures that the chosen and qualified parameters stay within defined limits, in order to avoid any kind of quality risks.



🔧 Smooth interior weld seam quality

When welders have proven their ability, Idroinox sponsors them for certification with the Italian Institute of Welding under ASME 9. Approximately 12 of Idroinox's 20 welders are certified to establish new weld procedures for the automated, orbital welding systems.

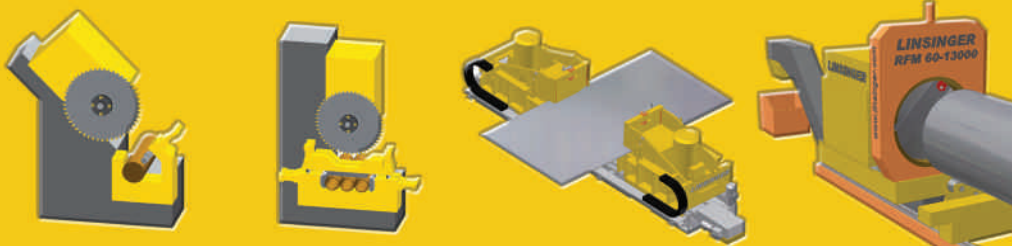
The orbital welding machine is essential, but the production procedures (eg how the parts are prepared for the weld, and how the machine is used) are even more important. Cutting the tubes, cleaning them, the methods and procedures used in the setup, are all critical: automated orbital welding is therefore a complete manufacturing process.

Article supplied by Mr Dick Herzfeld, with input from Mr Stefano Vitale, operations manager, Idroinox Impianti

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## New diesel welder generator

The new Mosa TS 400 PS/EL diesel driven welder generator is now available from industrial equipment supplier, Wilkinson Star Limited. Wilkinson is the sole UK representative for Mosa engine driven welding and generating sets.

The TS400 PS/EL is a heavy-duty water-cooled welder generator with the capability of welding and gouging. It features AC 3 phase 16kVA/400V, single phase

12kVA/230V and 6kVA, 110V output to run a range of tools and specialist equipment.

The generator has been designed for a wide variety of applications, including pipelines producing X-ray quality welds, maintenance and installation work in quarries, ports, mines and petrochemical plants as well as general on-site welding and maintenance.

The generator has a continuous current range from 20A to 400A, 70V open circuit voltage (OCV) and a 400A duty cycle at 60 per cent using 2-8mm electrodes. The electronic welding control over two ranges (starting at 20A) provides control of the welding output for both root welding and capping applications. A switch on the front panel is used to select between basic or cellulose electrodes, and 400/230/110V auxiliary power while welding.

Power is provided by a latest generation Perkins 404 C-22G EU emissions-compliant diesel engine, operating at 1,500rpm with a maximum output of 20.3kW. It has a 60 litre capacity fuel tank providing 15 hours of running time. The canopy is lockable and

fully EC noise-compliant. Optional equipment includes a remote welding control with 20m cable, 15m and 20m 70mm<sup>2</sup> welding cables, and site tow and road tow running gear.

**Wilkinson Star Limited – UK**

**Fax:** +1 161 727 8297

**Email:** wilkinsonstar.sales@wilkinsonstar.com

**Website:** www.wilkinsonstar.com



**i** The Mosa TS 400 PS/EL welder generator, now available from Wilkinson Star Ltd

## Buigstaal increases quality standard

Buigstaal Tube Bending Alkmaar BV, Netherlands, has increased its quality standard to ISO9001:2000.

The company, part of the van der Wel Machinery & Constructions group, was recently approved and certified by Bureau Veritas Certification.

The company is a producer of tubular components, and supplies a range of industries and manufacturers of industrial compressors and hoisting and lifting equipment. The industries served include automotive (heavy goods vehicles, buses and military vehicles), boiler making,

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## New additions to OmniScan range

Olympus NDT, USA, has added two new manual phased array inspection modules to its OmniScan MX series. The 16:16M and 16:64M flaw detectors have been introduced as a low-cost, entry-level solution for manual phased array inspection.

The new modules for manual testing provide the same advantages of phased array imaging, while keeping all the benefits of a proven product. The modules use real-time phased array imaging, combine phased array and conventional UT, and feature a simple, user-friendly interface. As an additional benefit, the modules can be upgraded as inspection needs increase.

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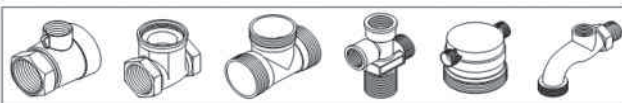
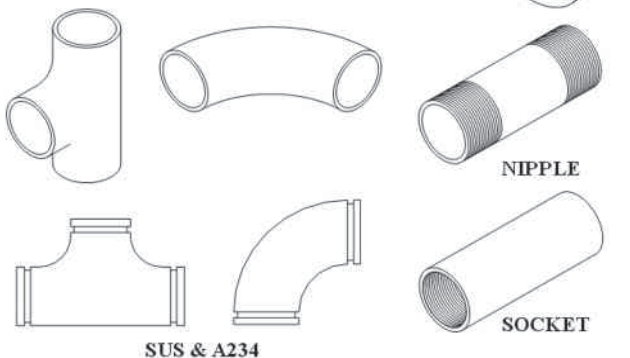
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## Russia explores an OPEC-like gas cartel with Qatar

In January, the supreme leader of Iran, Ayatollah Ali Khamenei, suggested that his country and Russia team up to form a gas cartel. Russian President Vladimir Putin addressed the concept at his wide-ranging annual news conference on February 1.

"We will think about it," Mr Putin said. And he did – very promptly, it seems.

In the Middle East a scant two weeks later, President Putin discussed the possibility of an OPEC-like natural gas cartel with leaders in Qatar, which commands the world's third-largest natural gas reserves and is global leader in the production of liquefied natural gas (LNG). Apparently encouraged by what he heard, Mr Putin lost little time in turning an idea into something more. On his return to Moscow he said he would dispatch a team of experts to the Qatari capital, Doha, in April to explore a gas alliance.

Such a prospect is bracing to contemplate. Russia has the world's largest reserves of natural gas, with an estimated 1,680 trillion cubic feet of gas buried deep beneath the vast tundra and taiga of Siberia. It is also feasible, at least in concept. LNG lends itself well to a gas cartel because it can be shipped and traded in much the same way as oil.

What a Russian-Qatari cartel might mean for European nations reliant on Russian gas is uncertain. In January, European leaders reacted warily after executives from Russia's state-owned gas monopoly, Gazprom, met with Algerian leaders to discuss joint strategies for marketing gas to Europe and the possible formation of an alliance of gas exporters. Algeria supplies Europe with 10 per cent of its natural gas.

➤ **Natural gas consumption in the US is projected to jump by nearly half in 20 years**

In the *Chicago Tribune*, foreign correspondent Alex Rodriguez reflected on what might spring to the minds of American energy officials. He wrote, "Right now, such a cartel would not affect the United States, which

relies on domestic sources and on imports from Canada and the Caribbean for its natural gas. However, natural gas consumption in the US is projected to jump by nearly half in 20 years, and the US is expected to look to LNG to fill the gap." (*'Russia Pursues Gas Cartel'*, March 9).



Tyco Thermal Controls

## Inter Pipeline partnership set to become largest oil sands shipper in Canada

The Inter Pipeline Fund has agreed to buy the Corridor pipeline system in Alberta from energy shipping giant Kinder Morgan Inc (Houston, Texas) for US\$233 million, to become the largest gatherer of bitumen from the province's oil sands. The Corridor system transports bitumen, a tar-like heavy oil, in dilute form from the Athabasca oil sands project near Fort McMurray to a Shell Canada Ltd processing plant near Edmonton. Athabasca is a joint venture of Shell, Western Oil Sands Inc (also Canadian), and Chevron, USA.

According to *Canadian Press* (March 6), Corridor currently transports about 280,000 barrels of oil equivalent (boe) per day and is set to expand that to 465,000 boe by 2012. The company, which began commercial operations in May 2003, commands about 1,000km of pipeline and more than two million barrels of storage.

Calgary-based Inter Pipeline – which ships oil, stores liquid gas, and operates natural gas processing businesses – has energy infrastructure assets in Western Canada, the UK, Germany, and Ireland. The fund is also operator and 85 per cent owner of the Cold Lake oil sands pipeline system in east-central Alberta, which ships 330,000 boe under long-term contracts with Canadian customers Imperial Oil, EnCana, and Canadian Natural Resources Ltd.

Corridor's seller, Kinder Morgan (Houston, Texas), is one of the largest energy companies in North America, with approximately 43,000 miles of pipelines that transport primarily natural gas, crude oil and petroleum products; plus some 150 terminals for storage and handling. In Canada, the company is constructing its first major merchant terminal in Edmonton and has in hand several other pipeline and terminal projects.

## Angola's Sonangol sees an investment bonanza just ahead

Angola is expecting US\$50 billion in investments in its oil industry over the next six years, according to the head of the state-owned oil company Sonangol. Chairman Manuel Vicente made this prediction on March 7 despite the collapse of two major international energy deals and the possibility of renewed political tension in the country.

Sonangol has ended talks with China's Sinopec on plans for a US\$3 billion Chinese investment in an oil refinery in Angola. Chinese companies have played a major role in the oil-driven reconstruction boom that Angola has enjoyed since it emerged from a 27-year civil war in 2002. It has since become China's biggest supplier of crude.

Mr Vicente asserted that Angolan companies would be encouraged to take advantage of growth in the industry, which is fueling an economic boom in sub-Saharan Africa's second largest oil producer after Nigeria. Now a member of the Organization of the Petroleum Exporting Countries (OPEC), Angola is pumping more than one million barrels per day (bpd), and production is projected to reach at least two million bpd by 2008 as new fields come onstream.

But in another blow to the Angolan vision of substantial oil investment, US oil major Exxon Mobil Corp has transferred its minority stake in a planned multibillion-dollar liquefied natural gas (LNG) plant to Sonangol.

# Oil & Gas News

## Highly profitable Exxon plans to raise output by a million barrels a day

Due to oil prices which averaged more than US\$65 a barrel last year, oil companies have posted record earnings – notably ExxonMobil (Irving, Texas), which earned a record US \$39.5 billion in 2006. For the second year in a row, the world's biggest publicly traded oil company reported the largest profit of any US corporation.

Accordingly, Exxon's chairman and chief executive, Rex W Tillerson, told an analysts' meeting March 7 in New York that Exxon will be increasing its investment in oil and natural gas projects. In 2006, Exxon's spending on exploration and development projects was US\$19.9 billion, 12 per cent higher than in 2005. The company expects that figure to average more than US\$20 billion from 2008 to 2011.

Mr Tillerson said Exxon expects to add one million barrels a day of oil and gas to its current production as the company launches more than 20 projects over the next three years. These include liquefied natural gas projects in Qatar, deepwater fields in Angola and the Gulf of Mexico, and oil fields in the North Sea.

Like much of the rest of the industry, Exxon is facing sharply higher costs because of increased energy prices and a more active oil and gas sector. The energy consultancy Cambridge Energy Research Associates (Cambridge, Massachusetts) estimates that the cost of finding and pumping oil has gone up more than 50 per cent since 2004. Exxon, a famously efficient operator, said its capital expenses have risen more than 30 per cent since 2002.

## Elsewhere in oil and gas . . .

■ As of next year, Russia will no longer predicate the national budget solely on oil and gas revenues. According to the news agency *Interfax*, Finance Minister Alexei Kudrin told reporters in Moscow on March 9 that his agency would submit amendments to the nation's budget code sometime in the ensuing two weeks. Mr Kudrin said, "This means that revenue will be separated according to oil and gas and non-oil and gas starting in 2008 (and that) oil and gas transfers will be set in percentages against GDP (gross domestic product) and will remain for a long period, for 20 years at least, at a constant size."

On the same day that Mr Kudrin spoke it was posted on the government website that Russia's state debt had dropped to 9 per cent of GDP by the end of 2006. In his budget message for the period 2008-2010, President Vladimir Putin noted that the state debt, including outlays for its servicing, exceeded 100 per cent of GDP at the end of 1999.

■ On February 27 the cabinet of the government of Iraq approved a draft of a law that would set guidelines for nationwide distribution of oil revenues and allow for foreign investment in the immense Iraqi oil industry. The announcement reflected agreement among the country's various blocs on one of Iraq's most divisive issues. The draft law allows the central government to distribute oil revenues to the provinces or regions based on population, which could allay the economic concerns of minority groups.



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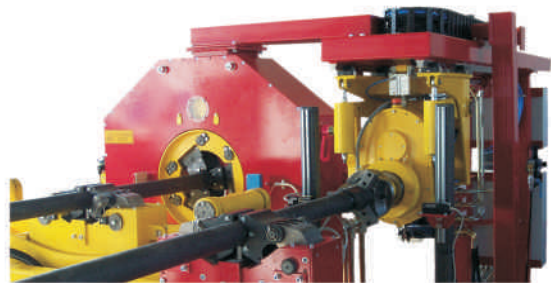


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The law also grants regional oil companies or governments the power to sign contracts with foreign companies for exploration and development of fields, opening the door for investment by overseas companies in a country whose oil reserves rank among the world's largest. Iraqi officials say dozens of major foreign companies, including some based in Russia, the US, and China, have expressed strong interest in developing fields. The national oil law would allow regions to enter into production-sharing agreements with foreign companies.

- To help secure its fuel supplies China plans to begin filling the tanks at its third strategic oil reserve, in Shandong Province in the east, by mid-year. As reported by the central media agency *Xinhua*, Petroleum and Chemical Corp (Sinopec) is completing the Huangdao base in Shandong, where capacity is expected to reach 19 million barrels. China in 2004 began building four oil reserves, two of them now operational in Zhejiang Province. The others are in Liaoning Province, in the northeast (not yet completed) and Shandong. Some US\$775 million has been invested to secure oil reserves of 10 million tons at the four sites.

China imported 138.8 million tons of crude oil in 2006, up 16.9 per cent from 2005. Imports that year accounted for 47 per cent of the country's consumption. Industry observers have warned that, within a year or two, China will likely need to import more than 50 per cent of its petroleum needs.

- Japan and India, the world's fourth- and fifth-biggest energy users, reportedly plan talks that may lead to joint investment

in oil and gas projects. The two countries face increasing competition from China to secure future global oil supplies. India imports about 75 per cent of its oil needs, while Japan depends on imports for almost all its oil requirements. According to *Bloomberg News* (March 8), the Japanese government wants companies such as Inpex Holdings Inc, the nation's biggest oil explorer, to help boost production from Japan's overseas assets from 15 per cent to 40 per cent of imports by 2030, as per national energy policy. Inpex needs to find new projects after last year giving up a controlling stake in the Azadegan oil field in Iran, that country's largest discovery in 30 years.

- After two rough decades for the refining industry, the market for refineries strengthened as margins improved. But now some major oil companies, including BP and Chevron, are shedding refineries, an indication that they think the palmy two-year interlude is coming to an end. Royal Dutch Shell, which had already announced it would sell its three French refineries and another one in the Dominican Republic, has decided to sell its Los Angeles refinery and related assets to Tesoro Corp (San Antonio, Texas) for \$1.63 billion plus the value of oil inventory. Tesoro, a Fortune 500 company, is an independent refiner and marketer of petroleum products, operating six refineries in the West of the US with a combined rated crude oil capacity of nearly 560,000 barrels per day.

- *India Times* (March 9) reported that Reliance Industries Ltd, the oil and petrochemicals giant, has combined its overseas oil and gas projects into a separate wholly-owned company based in Dubai and is considering a tie-in with ONGC Videsh Ltd, also

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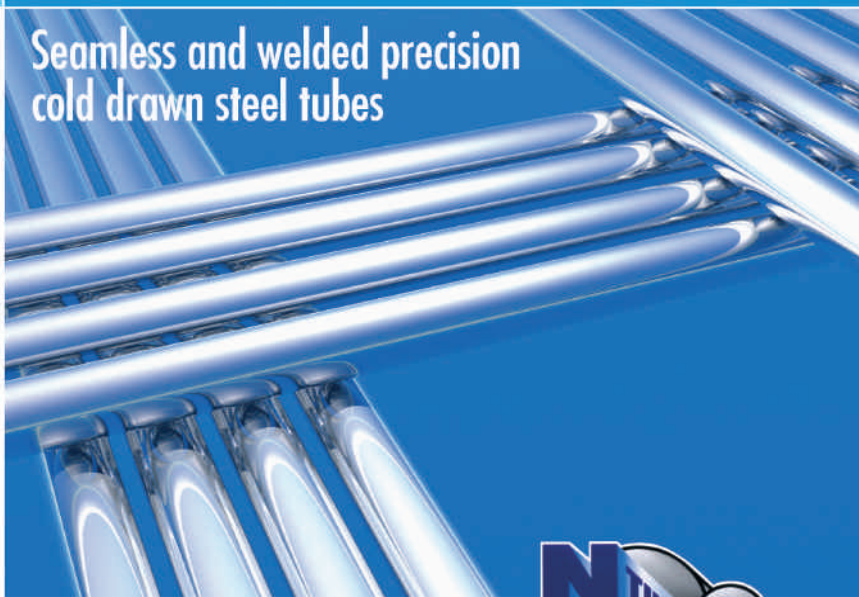
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Indian, to jointly bid for oil and gas development opportunities abroad. Interests in an oil discovery in Yemen and in an offshore exploration block in Oman – plus exploration projects in northern Iraq, East Timor, and Colombia – will be transferred to the new company: Reliance Exploration and Production DMCC. Reliance has also signed a technical evaluation agreement with Columbia's hydrocarbon regulator, and entered into a cooperation agreement with the Colombian national oil company Ecopetrol for joint projects in that South American country.

■ Production at the giant Cantarell oil field in Mexico will fall by 15 per cent this year, according to Jesús Reyes Heróles, director general of the state-owned oil monopoly Petróleos Mexicanos. Mr Reyes Heróles said other projects would help make up for the shortfall at Cantarell, which last year accounted for about 55 per cent of Pemex's production of 3.26 million barrels a day despite a 13.1 per cent drop in output for the year. A former Mexican energy minister who took over at Pemex in December, Mr Reyes Heróles said that the company needed additional investment of US\$8 billion to US\$10 billion a year. Pemex's sales surpassed US\$100 billion in 2006 but it paid US\$79 billion in taxes, accounting for almost 40 per cent of the federal budget of Mexico.

■ The Italian oil and gas group Eni said it has signed a contract to become operator of the OPL 135 exploration license in Nigeria as it aims to expand its presence in Africa's largest oil-producing country. Eni told *Reuters* in Milan (March 9) that it had finalized a production sharing contract with Nigerian national oil company NNPC for the Eni unit Nigerian Agip Oil Company (NAOC) to become operator of and 48 per cent stakeholder in OPL 135.

The license to explore the area in the northeast of the Niger Delta, close to the Kwale/Okpai treatment plants operated by Eni, will last 25 years. Recovered hydrocarbons will be piped to Kwale/Okpai for processing and from there put into the NAOC joint-venture network. That facility is fueled by gas from oilfields operated by NAOC under the 'zero flaring' project, which aims to eliminate gas flaring on Nigeria's oil patch by the end of 2009. ■

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Progress Through Co-operation

# Viewpoint: Review of the Russian tube industry and future development prospects

By Mr Alexander Deyneko, director, The Development Fund of the Tube Industry of Russia (FRTP)



## Introduction

Today's Russian tube manufacturing industry is a cohesive and dominant force, featuring three of the largest Russian companies: Tube Metallurgical Company (TMK), United Metallurgical Company (OMK), and the ChTPZ Group. This nucleus is solidly supported by the ESTAR group of companies, the Izhora Tube plant and other manufacturers of tube products within regional markets.

This regional group of medium producers includes Agrisovgsz, JSC Almet'yevsk Pipe Plant, Borskiy Pipe Plant, West-Siberian Metallurgical Works, Korolev Pipe Plant, Magnitogorsk Iron & Steel Works (MMK), Novolipetsk Steel (NLMK), Novgorodskiy Pipe Plant, Profil-Akras, Ryazanskiy Pipe Plant, SeverStal, Stroy-Profil, Trubostal, Uralskiy Pipe Plant, Filit Moscow Tube Works and Svobodny Sokol. These companies mainly supply products for water and gas supply, together with shaped and general purpose welded tubes.

## TMK: Russia's biggest producer and exporter of tube products

Founded in 2001, the Tube Metallurgical Company (TMK) is the largest producer and exporter of tube products in Russia. In 2005, the enterprises of TMK's tube network provided 42 per cent of Russian tube products. TMK production facilities unite four leading enterprises of the Russian tube industry – Volzhsky Pipe

Plant, Seversky Tube Works, Sinarsky Pipe Works, and Taganrog Metallurgical Works, with two Romanian enterprises – TMK-Artrom tube plant and TMK-Resita metallurgical complex.

Practically the entire size range of TMK's tube products is manufactured by these enterprises. This range is utilised in industries including oil and gas, chemical and petrochemical, power engineering, machine building, construction/housing, shipbuilding, aeronautical, space exploration, and agriculture.

TMK's main type of tube and pipe products are seamless oil and gas threaded tubes (OCTG), seamless linear tubes, seamless and welded tubes for industrial purposes, and large diameter pipeline pipes.

These products are certified according to the international standards API, ASTM, EN/DIN. All TMK plants operate a quality system certified according to the requirements of ISO 9001 and API SpecQ1 standards.

## OMK: specialist in pipeline construction

The United Metallurgical Company (OMK) tube network comprises Vyksa Steel Works – one of the largest Russian tube manufacturers, Almet'yevsk Pipe Plant – the leading tube producer in the Middle Volga region, and JSC Trubodetal, a producer of pipeline connections.

The tubes produced at these enterprises are utilised for construction of Russian pipelines such as the North-European gas pipeline and Eastern Siberia-Pacific Ocean oil pipeline.

The modern scientific and technical developments of the Russian and international tube industry are used to bolster these enterprises with equipment and technology. In 2005, OMK undertook construction of a foundry-rolling complex for the supply of tube production lines (up to 530mm) using the rolled metal of Vyksa metallurgical and Aljmet'yevsk tube plants.

## ChTPZ Group: a leader in metallurgical products

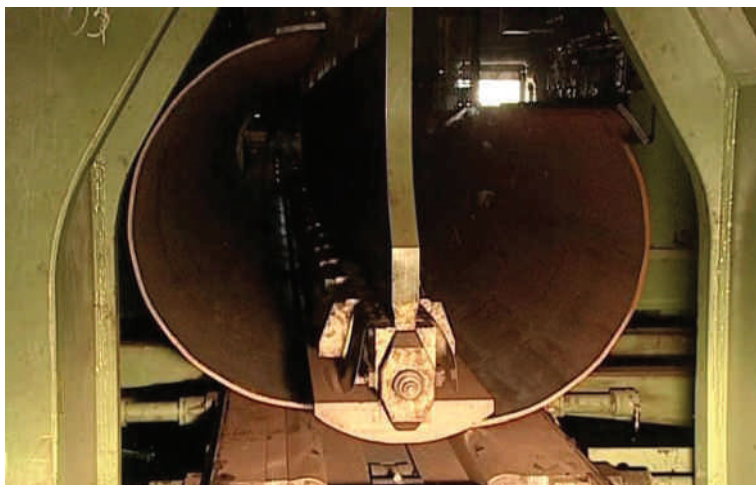
The ChTPZ Group was established in 2002 and is currently one of the leading industrial groups of the Russian metallurgical industry.

The main consumers of the enterprise's products are the largest oil and gas and energy complexes of Russia, machine building enterprises, ferrous industry, construction industry and agriculture industry. The manufactured products are exported to more than 20 countries.

The ChTPZ Group's ferrous metallurgy division undertakes tube manufacturing at two plants – Chelyabinsk tube rolling and Pervouralsk Novotrubny. Manufacturing is carried out on a vertically-integrated production line, which covers everything from scrap metal storage to production of tube billets and selling of finished products to consumers.



» **This consolidation of the assets of the biggest Russian tube companies has resulted in a top ten entry for ESTAR in the listing of world producers**
«



ⓘ One broad aim of the Russian tube industry is developing technology for an increased product range of diameter and wall thickness

## ESTAR: a top ten world producer

The managing company ESTAR, established in July 2005, comprises the Novosibirskiy Metallurgical Works, Zlatousovskiy Metallurgical Works, Nitvenskiy Metallurgical Works, Volgogradskiy Small Diameter Pipe Plant, Engelskiy Pipe Plant, Stalnoy profil, Estar, and Lomprom.

This consolidation of the assets of the biggest Russian tube companies has resulted in a top ten entry for ESTAR in the listing of world producers. Consequently, ESTAR has gained a competitive edge over other global producers on the international market. The volume of exports has trebled during the last 5 years, with the geography of exports also expanding from 15 to 68 countries.

Tube research departments have recently been established at a number of the leading Russian metallurgical companies, such as SeverStal, Magnitogors Iron & Steel Works and others, whose products had traditionally been geared towards regional requirements

## Advancing technology and product quality through R&D

The development strategy of the Russian tube industry is designed to increase the share of hi-tech, science-intensive, competitive products in overall tube production. This target of innovation forms the manufacturing and technical policy of all companies.

A number of issues lie at the heart of these developments, including special steel grades for pipeline components, the expansion of product diameter and wall thickness range, and the introduction of inside smooth and outside protective coating for safety during product storage and transportation. Also of great concern

is the development of new technologies and scientific-technical documentation, and machinery design for production of new pipe-bend and flange size ranges.

The new method of ballast tube production (concrete solidification) in polyethylene jacket has recently been undertaken at the Moscow Experimental Pipeprocurement Plant, designed for use in construction of oil and gas pipelines. Two shops – ‘summer’ and ‘winter’ – have been established at the plant for ballasting steel tubes, with the technology of ballasting having been perfected and commercial production of the ballast tubes already underway.

Considerable research has been conducted in order to study tube properties with ballast coating, resulting in developments and patents. This research includes the testing of tube specimens for compression and shift of the ballast coating relative to the tube body, shift of the jacket relative to the concrete, and several combinations of sealing of tube couplings with ballast coating.

Following the German Lloyd audit of November 2005, the Certificate of Qualification of Producer was issued to Moscow Experimental Pipeprocurement Plant, with DNV standard certification almost complete. The products of Moscow Experimental Pipeprocurement Plant have since been successfully used for construction of an underwater section of the Varandeyk oil-loading terminal.

This leading technology enables Russian tube producers to convert the advanced system of tube products into the construction and service support of pipeline systems.

## Strategic long term agreements for better efficiency

Another priority of the Russian tube industry is the conclusion of strategic long term agreements with big metallurgical companies, particularly the suppliers of strip and tube billets.

For instance, within the framework of TMK’s agreements with TMK, the new steel grades for tube production have been mastered at Magnitogorsk Iron and Steel Works. The long term agreements for quality improvements and sheet metal product supply have been concluded between OMK, SeverStal, Magnitogorsk and UralSteel.

The partnership established between the ChTPZ Group and EvrazHolding Ltd has enabled the efficient regulation of the volume delivery of tube billets. This agreement was made in order to avoid potential difficulties in the supply of these products to the enterprises of the Group, as well as to reduce delivery costs and improve the logistics as a whole.

Such agreements are profitable for enterprises that belong to metallurgical holdings as they reduce the dependence of the plants on the instability of the metal product export market. This leads to new opportunities and the creation of considerable areas of consumption within the home market.

These strict partnership agreements are therefore designed to guarantee advance prices and accurate volumes of high-quality metal deliveries with relevant physical-mechanical properties.



⚡ Maintaining a consistent policy throughout the entire supply chain, the conclusion of long-term cooperation agreements with the biggest consumers of tube products is also vital. In doing so, the companies can secure the correct operational characteristics at an acceptable price. The tube companies in return receive the guaranteed volumes of distribution of their products within the home market.

## Russia's 2020 energy development strategy

The quality improvement and increasing competitiveness of products has been achieved within the program framework of Russia's 2020 energy development strategy.

The expansion at Vyksa Metallurgical Works and the introduction of new equipment at Izhora tube plant has led to state-of-the-art capabilities for the production of 3.2 million tons of competitive large diameter pipes per year. This will ensure an additional production increase of up to 4.4 million tons per year in 2008. There have been further quality improvement plans at Vyksa Metallurgical Works, with the production of tubes according to the international standards for underwater pipelines DNV.

Several investment projects have also been completed at metallurgical complexes. Special manufacturing equipment for the improvement of liquid steel quality has been installed at SeverStal, NTMK, and Magnitogorsk Iron and Steel Works. The reconstruction of ingot continuous casting machines has also been achieved. A new slab casting machine with a capacity of 1.8 million tons was put into operation at NTMK.

Metallurgists have thus achieved a radical improvement of liquid steel quality. Casting

➤ **The Fund's top priority is to protect Russia's tube market from the conditions of unprincipled competition from foreign producers** ◀



technology is now highly advanced for the production of the required size billets and strip, with adherence to the strictest standard requirements for production of high quality large diameter pipes.

The specialists of Russia's tube industry have faced the challenge of solving the technical issues of tube products for fuel and energy applications. A great deal of volatility has been caused by the absence of a reliable construction schedule for the ground-based and underwater components of the North-European Gas Pipeline, East Siberian – Pacific Ocean, and Shtokman field.

However, the consumption of large diameter pipes is sure to increase in the coming years. This is why in 2006 several leading Russian metallurgical and tube companies began the large-scale construction of '5000' rolling mills. These continuous mills with PQF technology are intended for the production of highly precise seamless tubes.

🔗 *Smoking out the competition: the Russian tube industry has benefitted from a unified approach, combining R&D and technical improvements with strategic agreements and protectionism*

## Protective and proactive role of the Fund

The Development Fund of the Tube Industry of Russia, a non-profit organisation, was established in 1999 by nine tube enterprises, among them Taganrog and Vyksa metallurgical plants, Volzhsky, Seversky, Sinarsky and Pervouralsk tube plants, and Chelyabinsk tube rolling plant.

The Fund's objectives are to represent the interests of tube enterprises in the state authorities, non-government organisations, and professional associations. The fund also aims to coordinate the activity of the metallurgical and tube divisions of the industry to increase product competitiveness. Furthermore, the Fund operates to improve and develop market relations within the Russian network of mining and smelting.

In particular, the Fund operates to provide the conditions for consolidation of all enterprises' manufacturing, financial, technical and intellectual potential. The Fund's endeavours are directed at the creation of a corporate management structure according to world standards.

The Fund's top priority is to protect Russia's tube market from the conditions of unprincipled competition from foreign producers, with the necessary regulation of access into the Russian market.

The Fund participates in the definition of regulations according to the Federal statute 'About the technical regulation'. This involves joint meetings of Russia's tube sector and fuel/energy industry representatives, with an agenda to identify and consolidate cooperative measures across the board. The representatives of the fuel and energy organisations (the main consumers of tube products) are the members of the Fund's working group.

The Development Fund is a member of the Chamber of commerce of the Russian Federation and the International Metallurgical Guild. The Fund takes an active part in the work of corporate authorities as well as the Russian manufacturers' and employers' guild, and specialised scientific-research institutes.

**The Development Fund of the Tube Industry of Russia (FRTP) – Russia**  
Tel/fax: +7 495 955 00 72/73  
Email: frtp@frtp.ru  
Website: www.frtp.ru





# Olympus NDT Offers Integrated Solutions for Tube & Pipe Inspections

Full-body coverage including end-of-tube algorithm

Weld inspection

Defects

- ✓ Longitudinal
- ✓ Transverse
- ✓ Oblique ( $\pm 11^\circ$ ,  $\pm 22^\circ$ ,  $\pm 45^\circ$ ,  $\pm 67^\circ$ ,  $\pm 78^\circ$ )

Lamination

Detection algorithms:

- ✓ remaining walls
- ✓ round-bottom grooves

OmniScan® iX

- 2, 4, or 8 channels
- High-resolution touchscreen display
- Strip charts
- 16 real-time alarms
- 16 real-time analog outputs
- Multiple scan mode including helix

## Phased Array Ultrasound Full-Body Inspection for Rotating Pipes



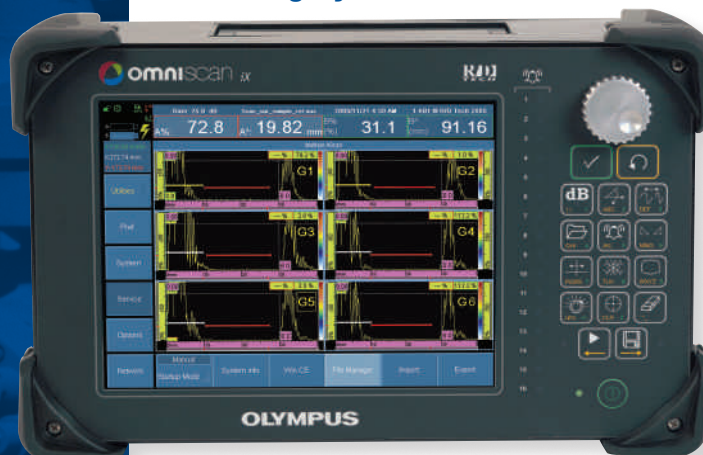
Phased array ultrasound provides flexibility and complete control of all parameters with regard to inspection and product requirements including:

- programmable optimization of the beam relative to the targeted defects,
- adaptability of the beam coverage and inspection overlap to specific requirements,
- programmable optimization of the focal length and spot size for wall thickness and geometry measurements, and
- programmable beam steering to maximize detection of both surface breaking and non-surface breaking defects.

Full body inspection achieves 2 dB repeatability at up to 2 m/s. Weld inspection is performed with a concentric waterpath and a beam optimized in the depth direction allowing discrimination between ID and OD defects and detection of all defects including penetrators.

## OmniScan® iX

Prove-Up and High-Speed Ultrasonic Inspection of Internal Defects and Weld Integrity



The new R/D Tech OmniScan iX industrial flaw detector is designed for high-speed pipe and tube inspection. This compact instrument is housed in a rugged bench-top casing and is also available in a rack-mount version for easy integration into inline production testing systems.

## API 5UE Software Option

The EPOCH LT handheld ultrasonic flaw detector allows defect sizing according to API Recommended Practice 5UE.



# Tube Russia 2007: still going strong on its fifth anniversary



It was only nine years ago that Russia was a nation in more than US\$40 billion of international debt, with a new Russia having stuttered in its early stages. But now, in 2007, largely due to its massive oil and gas revenue, Russia has finally repaid this debt and returned to a position of renewed economic vigour. In 2006, Russia's GDP grew by 6.6 per cent, while the Russian standard of living has also improved.

With this fiscal fruition has come the renewed confidence to stamp its mark on international politics and business. No longer must the Russian government bite its political lip, as its financial might and natural energy resources have reasserted its influence at centre stage. This has also resulted in more power for Russia's big business – particularly commodity-based industries such as mining, steel, and energy.

➤ **No longer must the Russian government bite its political lip, as Russia's financial might and natural energy resources have reasserted its influence**

Next March marks the end of Mr Vladimir Putin's second term in office, with elections for a successor due to take place. Favourites for new president include Mr Sergei Ivanov, the defence minister and deputy prime minister, and Mr Dmitri Medvedev, Russia's other first deputy prime minister.

◀ An outside bet is Mr Vladimir Yakunin, the head of railways and a close friend of Mr Putin. But whoever secures the job is likely to remain faithful to existing policy, with some even predicting the return of Mr Putin as president in 2012 – a constitutionally viable option.

Celebrating its 5<sup>th</sup> anniversary this year, Tube Russia has gone from strength-to-strength over its short history, much like the Russian economy itself. Taking place from 28-31 May, Tube Russia will again be joined by regular partners Metallurgy-Litmash and Aluminium/Non-Ferrous, together with odd-year partner wire Russia.

As shown by the article from Mr Alexander Deyneko of the Development Fund of the Tube Industry of Russia (pages 60-62), the Russian tube and pipe network is very tight-knit and currently in a buoyant state. Although it may be difficult for international companies to gain a foothold in the Russian market, once efforts are successful they can be highly lucrative.

The joint event will welcome over 500 confirmed international and Russian/CIS exhibitors, meaning that the exhibition should be a fantastic networking opportunity for all within the tube, pipe and metals industry. Over the coming pages, *Tube & Pipe Technology* will preview a selection of the exhibitors and technology on display.

## ◆ SHOW FACTS ◆

### DATE

Monday, 28 May –  
Thursday, 31 May, 2007

### VENUE

Krasnaya Presnya Fairgrounds,  
Moscow, Russia

### SHOW HOURS

Daily: 10am-6pm

### ORGANISER CONTACT

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### INTERNET RESOURCES

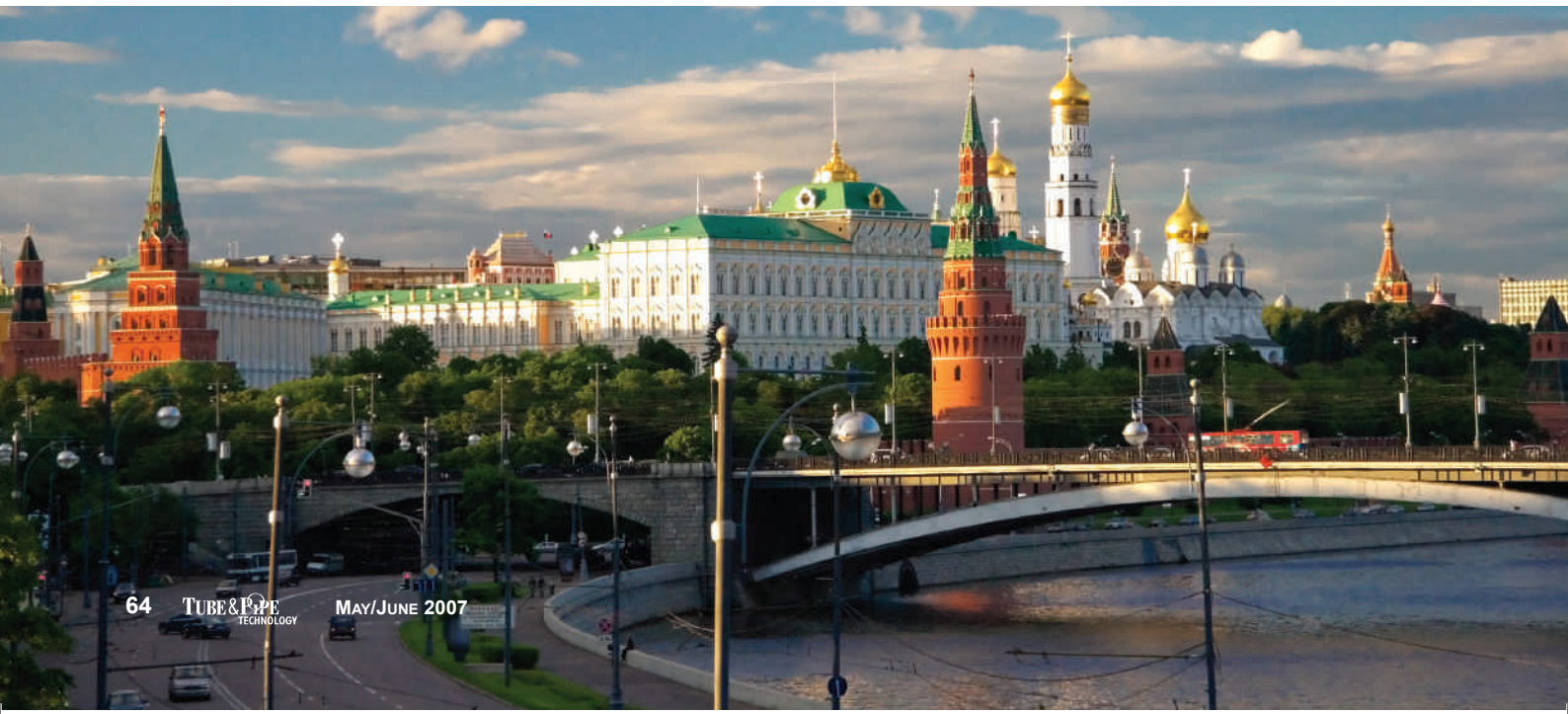
[www.metallurgy-tube-russia.com](http://www.metallurgy-tube-russia.com)

[www.waytorussia.com](http://www.waytorussia.com)

[www.moscow-city.ru/?lang\\_char\\_id=en](http://www.moscow-city.ru/?lang_char_id=en)

[www.menu.ru](http://www.menu.ru)

[www.tripadvisor.com](http://www.tripadvisor.com)





# Tube Russia Exhibitors – Forum Hall and Hall 1

3R software solutions .....Germany.....	G13	Hauhinco GmbH & Co KG .....Germany.....	G05	Promplast Industry .....Russia.....	B53
Abbey International .....UK.....	B35	Heid GmbH .....Austria.....	D43	Radyne Inductoheat Europe Ltd ...UK.....	A08
ADE Srl .....Italy.....	B38	Heinrich Georg GmbH .....Germany.....	D43	Reika GmbH & Co KG .....Germany.....	F13
Agtos GmbH .....Germany.....	D29	Hengyang Steel Tube Group .....China.....	H11	Rinus/CyberTech .....Russia.....	C59
Ajax Tocco Magnethermic Corp ...USA.....	A07	Huzhou Xinyahua Co Ltd .....China.....	G06	Robopres Srl .....Italy.....	C43
Alumonte GmbH .....Austria.....	D41	Ideal-Werk GmbH & Co KG .....Germany.....	1-D17	Rösler GmbH .....Germany.....	D27
Arkaim .....Russia.....	B51	Idra srl .....Italy.....	C49	RTS Srl .....Italy.....	B36
Attl a spol sro .....Czech Republic.....	H20	IECI di Inverardi Mauro .....Italy.....	C47	RusHenk .....Russia.....	A22
Automation Service Srl .....Italy.....	H12	IMF Srl Impianti		Safak Makina Yedek Parca .....Turkey.....	G20
BMI Fours Industriels .....France.....	D26	Macchine Fonderia .....Italy.....	C33	Schmetz GmbH .....Germany.....	D26
Inductoheat Banyard .....UK.....	A08	IMS Messsysteme GmbH .....Germany.....	E10	Schumag AG .....Germany.....	1-B17
Baraldi Lubrificanti Srl .....Italy.....	C39	INCO SA .....Spain.....	A19	Seco/Warwick Ltd .....Poland.....	B45
Officina Meccanica		Inductotherm Group Europe Ltd ...UK.....	A08	Shandong Yanshan Co Ltd .....China.....	G08
Belloi & Romagnoli Srl .....Italy.....	B56	Interresource .....Russia.....	B09	Shanghai Huaerde Co Ltd .....China.....	G14
Bema Impianti Srl .....Italy.....	D05	Intras Ltd .....UK.....	B33	Shanghai Jiayi .....China.....	H01
Birlik Makina San ve Tic Ltd STI ...Turkey.....	D16	Ipsen International GmbH .....Germany.....	G01	Shanghai Shangshang Ltd .....China.....	H02
H Böhl GmbH .....Germany.....	D43	Irobi Srl .....Italy.....	C06	Shanghai Tianbao Co Ltd .....China.....	D10
Borli Impianti Srl .....Italy.....	B50	International Tube		Sider Progetti Snc .....Italy.....	B42
Braun GmbH & Co KG .....Austria.....	D37	Association (ITA) .....UK.....	B33	Siderex Spanish Association	
Bronx/Taylor-Wilson .....USA.....	B35	WZ Jetta Steel Co Ltd .....China.....	E02	of Steelworks .....Spain.....	TBA
BS SAS .....Italy.....	A18	Jiangsu Changying Co Ltd .....China.....	H05	Siemens Vai GmbH .....Austria.....	C42
Bültmann GmbH .....Germany.....	D25	Jiangsu Juxing .....China.....	H13	Sinico SpA .....Italy.....	F01
Can-Eng Furnaces Ltd .....Canada.....	F02	Jiangsu Zhenda		SIT SpA .....Italy.....	C07
Cartacci Srl Tube Machinery .....Italy.....	D05	Steel Tube Group .....China.....	B08	SKET Handel GmbH .....Germany.....	E13
CCS Services SA .....Switzerland.....	E05	Jinan Steel International		SMS Demag AG .....Germany.....	D32
Changzhou Wujin Co Ltd .....China.....	H09	Trade Co Ltd .....China.....	H06	SMS Elotherm GmbH .....Germany.....	D32
Coiltec GmbH .....Germany.....	F10	Otto Junker GmbH .....Germany.....	E08	SMS Meer GmbH .....Germany.....	D32
Consarc Engineering Ltd .....UK.....	A08	Keller GmbH & Co KG .....Germany.....	D29	Sogemi Engineering SpA .....Italy.....	B54
Control Mesure Systemes .....France.....	1-H17	Klingspor Sp z oo .....Poland.....	B39	SST Forming Roll Inc .....USA.....	C09
Costampress Srl .....Italy.....	B40	Josef Krenn GmbH .....Austria.....	D35	Stark GmbH & Co .....Germany.....	F12
Dalgakiran Basincli		Friedr Krollmann GmbH & Co .....Germany.....	1-C29	Superior Technologies	
Hava Makinalari .....Turkey.....	A11	Künkel-Wagner GmbH .....Germany.....	F09	Europe Ltd .....UK.....	A17
Dalian Field Co Ltd .....China.....	G02	Kurtz GmbH .....Germany.....	E12	Surface Engineering Srl .....Italy.....	A14
Danfoss .....Russia.....	H17	Kwan Hing Metal Mfg Co Ltd .....Hong Kong.....	E04	Sytco AG .....Switzerland.....	D05
Danieli SpA .....Italy.....	D22	Laempe-Mössner GmbH .....Germany.....	D31	Taiyuan Heavy Industry Co Ltd .....China.....	F05
Danobat Lealde Scoop .....Spain.....	D05	LAP GmbH Laser Applikationen ...Germany.....	F07	Taiyuan Yangguangyuan Co Ltd ...China.....	G03
data M Software +		Liezen und Giesserei GmbH .....Austria.....	C40	T-Drill Oy .....Finland.....	A05
Engineering GmbH .....Germany.....	E20	Linn High Therm GmbH .....Germany.....	D28	Tecnar Automation Ltd .....Canada.....	B49
DMC Tech Corporation .....Russia.....	B15	Linsinger Maschinenbau GmbH ...Austria.....	C28	Thermatool IWHT .....UK.....	A08
Düick GmbH .....Germany.....	G04	Loeser GmbH .....Germany.....	F13	Tianjin Pipe Corp .....China.....	G12
Eagle Precision Technologies .....Canada.....	B07	M & D Gertner GmbH .....Austria.....	D43	TPS-Technitube GmbH .....Germany.....	F15
EBner GmbH .....Austria.....	1-G05	Magnetic Analysis Corp .....USA.....	D18	TT Engineering Srl .....Italy.....	A12A
EFD Induction AS .....Norway.....	A03	Mahler GmbH .....Germany.....	D26	Tube & Pipe Technology	
EHP Wägetechnik GmbH .....Germany.....	G09	Maicopresse SpA .....Italy.....	C06	Magazine .....UK.....	B33
Gustav Eirich GmbH & Co KG .....Germany.....	D30	Maillefer SA .....Switzerland.....	1-E01	Tuboscope National Oilwell Varco .USA.....	A12
Elmaksan Co Ltd .....Turkey.....	E03	Mair Research SpA .....Italy.....	D43	Tyromet Handels GmbH .....Austria.....	C34
Elterma SA .....Poland.....	B45	Marmacor .....Turkey.....	H19	US Steel Kosice sro .....Slovakia.....	A20
Eltro GmbH .....Germany.....	H16	Metallurgical Council of CCPIT .....China.....	TBA	Vega Engineering &	
Eurolls SpA .....Italy.....	1-C33	Mewag Maschinenfabrik AG .....Switzerland.....	F04	Trading Co Ltd .....Taiwan.....	D05
Euromac Srl .....Italy.....	B48	Microtech Srl .....Italy.....	B12	Vesuvius becker +	
Faccin Srl .....Italy.....	A13	MoFoPress Snc .....Italy.....	C45	piscantor GmbH.....Germany.....	E14
Fata Srl .....Italy.....	B46	Officine MTM SpA .....Italy.....	B34	Voestalpine Austria Draht GmbH...Austria.....	E06
Foseco LLC .....Russia.....	A16	MWE GmbH .....Germany.....	E09	voestalpine Krems GmbH .....Austria.....	E06
Foundry Ecocer Srl .....Italy.....	B44	Neotechnik GmbH .....Germany.....	G11	Wafios .....Germany.....	1-E04
Framag GmbH .....Austria.....	C30	Newelco Inductotherm HWT Ltd ...UK.....	A08	Heinrich Wagner GmbH .....Germany.....	D31
Oskar Frech GmbH + Co KG .....Germany.....	E11	Nexans GmbH & Co KG.....Germany.....	1-B21	W + K IndustrieTechnik	
Friedrich Giessereitechnik .....Germany.....	D29	Nuova OMP Srl .....Italy.....	C41	GmbH & Co KG .....Germany.....	F08
Gemco Engineers BV .....Netherlands.....	A09	Olimpia 80 Srl .....Italy.....	B43	Wenzhou Kingyang Co Ltd .....China.....	G07
Gertner Service GmbH .....Germany.....	D43	Oto Mills SpA .....Italy.....	A10	WKÖ .....Austria.....	C32
GH-Electrotermia SA .....Spain.....	A15	Pangborn Europe SpA .....Italy.....	C37	Wollin GmbH .....Germany.....	D29
Giesserei Verlag GmbH .....Germany.....	G09	Petrofer Chemie HR		Paul Wurth GmbH .....Germany.....	D23
Gohigh Group		Fischer GmbH & Co KG .....Germany.....	E18	Yean Hern Enterprise Co Ltd .....Taiwan.....	D20
International Co Ltd .....China.....	H03	PMC-Colinet .....Belgium.....	A07	ZDAS as .....Czech Republic.....	D43
Gostol-TST doo Tolmin .....Slovenia.....	D14	Precimeter Control AB .....Sweden.....	D12	Zelezarny Veseli AS .....Czech Republic.....	H14
Gräbener GmbH & Co KG .....Germany.....	F11	Primafond Srl .....Italy.....	B52	Zhangjiagang Sanlin Co Ltd .....China.....	G10
Guss-Ex Sp z oo .....Poland.....	D24	Peter Prinzing GmbH .....Germany.....	E16	Zhejiang Conform Co Ltd .....China.....	G01
Haginger GmbH & Co KG .....Austria.....	D39	Promat GmbH (Rep Office).....Russia.....	E01	Zumbach Electronic AG.....Switzerland.....	H06

Please note: exhibitor list correct at time of going to press –  
for updates please contact **Messe Düsseldorf (details above opposite)**

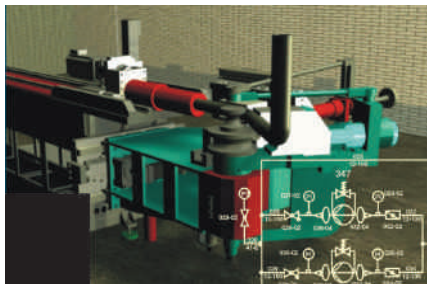


## EXHIBITOR PROFILES

### 3R Software Solutions Germany Stand FO-G13

With over 30 years' experience, 3R software solutions provides an extended range of software systems to assist, plan and advance tube construction and production. Typical applications involve standard tubes, but the software can also be adapted for hydraulic and pneumatic tubes in chemical, naval, vehicle and aircraft construction.

Construction activities are carried out using the 3R software systems. It is also possible to take on data from other systems, including ACAD, Bravo, CATIA, NupasCadmatic, Tribon M2/M3, Unigraphics and Medusa. Furthermore, geometrical data from other 2D and 3D systems can be imported via DXF format. The company promotes a strong integration between construction, workshop and assembly and thus an effective control of material flow.



3R Software develops software solutions for tube construction and production

The configurable software works with tried and tested intuitive user interfaces, enabling fast and problem-free integration into the workshop. Expert functions assist a fully automated production of spools and the management of different related activities.

The software operates with freely configurable and mainly user-specific control data from elements such as tubes, flanges, and bends. The calculation of speed and output, taking both method and machinery into account, makes the system suitable for the construction of complex projects.

For work preparation, the system can flexibly calculate the work that will arise.

The system provides initial calculations based on a tube machinery run, followed by in-depth analysis of the time allocation for each work element, so that work-load planning can be made in advance. By transferring control data directly to the machinery, it is possible to avoid mistakes in data transmission.

For bending machines, simulation software also uses a simple interface with the possibility of ensuring efficiency in production during the construction of tube bending systems.

Website: [www.3r-solutions.com](http://www.3r-solutions.com)

### Ajax Tocco Magnethermic USA Stand FO-A07

Ajax Tocco Magnethermic Corp is one of the world's leading manufacturers of induction melting and heating equipment, with worldwide operations in nine countries. Along with serving industries such as steel, automotive, forging and foundry, Ajax Tocco has a global commitment to the pipe and tube industry.

As a result, Ajax Tocco has designed and installed induction-heating systems that are processing up to 120t of high quality pipe and casing per hour with consistent quality and ovality.

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

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

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



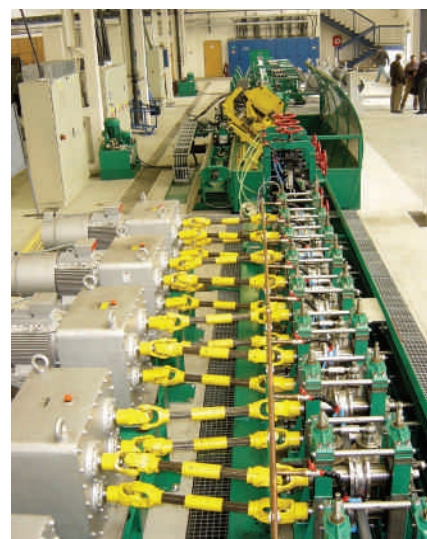
Heating a pipe using the machinery from Ajax Tocco

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

Website: [www.ajaxtocco.com](http://www.ajaxtocco.com)

### Attl a Spol sro Czech Republic Stand FO-H20

Attl a spol sro, established in 1920, produces mills for longitudinally welded tube and profiles, using components of its own design.



Attl a Spol will present its range of tube mills and other tube production equipment

The company's product range includes vertical accumulators, flying shear and flying cold saw, sophisticated HF welders and bundling machines.

Website: [www.attl.cz](http://www.attl.cz)



**Birlik Makina**  
Turkey *Stand FO-D16*

Birlik Makina, Turkey, has over 16 years' experience in the design, manufacture, and installation of complete systems for the production of welded tube.



A mill for the production of welded tube

The company also supplies profile lines, solid state HF welders, cold saws, slitting lines and cut to length lines.

Using the latest technology, Birlik Makina provides turnkey production plant,

revamping of existing systems, training of mill personnel, and after-sales service.

**Website:** [www.tunaexim.com](http://www.tunaexim.com)

**Bronx/Taylor-Wilson Ltd**  
UK *Stand FO-B35*

Bronx/Taylor-Wilson provides metal finishing equipment solutions with a product portfolio that includes tube straightening machines in 6 and 10 roll versions, hydrostatic pipe testing machines, rotary cut-off and end facing equipment, bar section and profile straighteners, material handling and other ancillary finishing equipment.

The company's equipment utilises the latest revision of the highly proven Compass computer aided setting system, which uses the latest industrial electronic technology to predict optimised roll settings based on operator input.

The system provides the user with a consistently high quality product and



Bronx/Taylor-Wilson's tube straightening machine is available in 6 and 10 roll configurations

throughput capacity, and size changeover times are reduced to under three minutes.

Bronx International also has within its group Abbey International, a leader in tube and pipe mill technology. The combined entities have completed over 3,800 installations in over 60 countries and possess one of the broadest and deepest ranges of ERW mills, hydrostatic pipe testers and straightening machines available.

**Website:** [www.btwcorp.com](http://www.btwcorp.com)

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Tel: 07968 490051

**Combilift – Customised Handling Solutions**

**BS Sas**  
Italy

Stand FO-A18

Established in 1963, Italy's BS Sas manufactures a range including punching units, presses and shearing units. The company has launched the advanced BS P80 punching machine, manufactured to satisfy the requirement of automatic punching of tubes (round, square, rectangular) as well as different types of profiles.

CNC controlled, the punching machine can carry out a range of processes including blind or through holes, achieved by changing the stroke of the punch into the control panel. It can also undertake punching of round, square, and rectangular holes, as well as slot punching.



The BS P80 punching machine

Tools can be changed easily, in a very short time, while the BS P80 can be quickly set to solve a large range of punching problems.

Website: [www.bsunitpunch.it](http://www.bsunitpunch.it)

**Bültmann GmbH**  
Germany

Stand FO-D25

Bültmann is the manufacturer of special machines for semi-finished products, with a range that includes drawing centres (tube, rod and section), tube pointing equipment, straightening machines (tube, rod and section), and other production facilities.

The Bültmann automatic production line for steel tubes enables manufacture of 4m long automotive tube every two seconds. The operation of the line is carried out by three persons only.

The Bültmann tube production line comprises automatic tube separation (also suitable for curved tubes), pointing equipment, quadruple tube drawing



Bültmann's automatic production line for steel tubes

machine with maximum 90m/min drawing speed (with toothed rack drive), and a 10-roll tube straightening machine with a maximum 200m/min return speed.

The production line also includes sawing equipment with four saws, double chamfering equipment, visual tube testing, eddy current testing equipment, and tube bundling and strapping equipment.

Website: [www.bueltmann.com](http://www.bueltmann.com)

**Can-Eng Furnaces Ltd**  
Canada

Stand FO-F02

Can-Eng Furnaces Ltd is a leading designer and manufacturer of industrial heat treatment equipment. Since 1964, these rugged furnaces have served commercial and captive heat treaters, stamping and fastener companies, automotive component producers, the iron and steel industries, aluminium foundries, agricultural, construction and appliance manufacturers.

The company's product line includes continuous steel tube heat treatment systems, continuous mesh belt furnace systems, batch integral quench furnace systems, nonferrous heat treatment systems (T4, T5, T6, T7), nonferrous basketless heat treating systems, Scada system process enhancement technology (PET™) and a wide array of custom furnace solutions.

Applicable for API drill tube applications, the Can-Eng walking beam furnace systems have fully integrated hardening, quenching and tempering for high volume and continuous production up to 10,000kg per hour of long products. Its unique quenching system maintains straightness and provides extremely uniform metallurgical and

mechanical properties. Can-Eng's furnaces operate up to 1,100°C, have optimum circulation of hot gases and allow for easy scale clean out.

Website: [www.can-eng.com](http://www.can-eng.com)

**Contrôle Mesure Systèmes**  
France

Stand 1-H17

Contrôle Mesure Systèmes provides eddy current inspection technology for tube, bar, wire, and profiles, suitable for online and off-line testing. The equipment range, designed to meet quality standards such as API, ASTM, and DIN, includes the Zet@Master portable instrument and the Eddyscan 30X system for on and off-line inspection.

The company has also launched the Zet@premium and the Zet@Micro for simpler applications that do not need the strength of the Zet@Master.

One of the smallest instruments on the market, the Zet@Master offers unique features including multi-channels, multi-frequencies, and frequency range from 10Hz to 10MHz.

The Zet@Master has a supervision system that allows control of all peripheral devices, sorting management and reporting. These reports give defect location, type, number of good and bad parts, together with different rates in a virtually unlimited number of parameter sets.

Remote control of the Zet@Master is possible via the internet, offering the possibility to supervise or support from any location.

Website: [www.cmseddyscan.com](http://www.cmseddyscan.com)

**data M Software GmbH**  
Germany

Stand FO-E20

data M develops software to help engineers optimise tube properties and understand the strains a tube undergoes as it is manufactured and later fabricated.

This knowledge can help engineers to lessen the amount of material necessary and also reduce or eliminate annealing, thus bringing down energy and material costs.





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solution for  
copper tube**



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Innergrooving

**Wire Russia 2007  
Metallurgy-Litmash  
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Non-Ferrous 2007**

28. – 31.05.2007  
stand 01 - B17

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mf-sales@schumag.de

www.schumag.de

**MRB Schumag Ltd**

T: +44 (0) 1388 771300

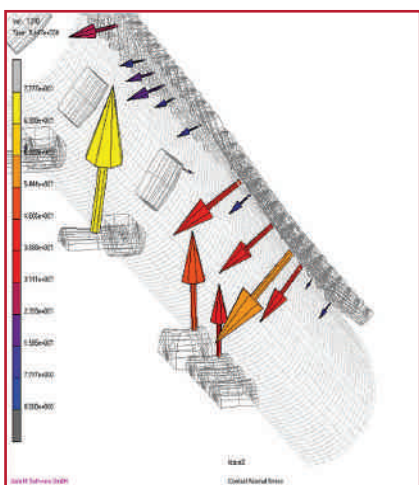
F: +44 (0) 1388 771340

sales@mrbschumag.com

www.mrbschumag.com

← The company will present its new version of roll design and process simulation software, branded Copra® RF and Copra® FEA RF, which offers enhanced features for the design of roll tooling and the simulation/verification of the forming process.

Ⓢ A new feature of Copra® is the possibility to design and model any type of rolling cage using the software – often referred to as the straight edge forming method. Using this new feature, the respective rolls are not just modelled but also transferred to Copra's finite element package and simulated respectively



Copra® RF, for example, now supports the automatic design and analysis of 4-roll fin passes and 5-roll welding passes and avoids users' manual interaction in these specific cases. It also allows for the design of cage forming/linear forming tooling.

In the production of extremely thin walled welded tubes the coil is often drawn to shape rather than rollformed. With the latest version of Copra® RF, it is also possible to integrate the drawing dies within a roll forming tool set. This allows the analysis of the complete forming process and the prediction and optimisation the final tube's properties.

Website: [www.datam.de](http://www.datam.de)

including eastern and western Europe, Asia, America and the CIS.

The range includes hot-formed seamless carbon steel pipes, seamless steel pipes for oil refinery, electrically-welded steel pipes, water and gas steel pipes, cold-formed seamless carbon steel pipes, precision steel pipes, and seamless steel pipes for boiler equipment and conduits.

With modern technology and equipment, the company is able to ensure quality products due to the use of testing systems corresponding to GOST as well as other international standards such as DIN.

Website: [www.dtz.dp.ua](http://www.dtz.dp.ua)

**Dnepropetrovsk Tube Works**  
Ukraine Stand TBC

Dnepropetrovsk Tube Works produces over 3,000 different tube types with a diameter range of 6-169mm, including hot formed pipes, ERW pipes and cold-formed pipes. These products are supplied to markets

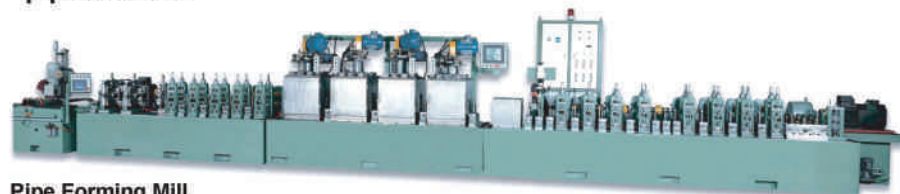
**Ebner**  
Austria Stand 1-G05

Ebner is a leading manufacturer of heat treatment facilities for the steel, copper, and aluminium semi-finished product industries. At Tube Russia, the company will present its cutting-edge range of batch-type

**VEGA ENGINEERING & TRADING CO., LTD.**

Tel : +886-3-3466578  
Fax : +886-3-3466579  
E-mail : [sales@vegaet.com.tw](mailto:sales@vegaet.com.tw)  
Address : 10F-4, NO.888 King-Kuo RD.,  
Tao-Yuan City Taiwan  
<http://www.vegaet.com.tw>

**VEGA specializes in offering whole-plant planning and equipments for stainless-steel and carbon steel tubes. We can provide services for whole-plant establishment plans, turn-key projects, production process improvement plans for tubes of specification as ASTM A-270 sanitary tube, ASTM A-312 industrial pipe, ASTM A-249 heat exchanger tube, JIS G-3468 large diameter pipe and etc.**



**Pipe Forming Mill**  
Pipe O.D Range 1/2"~24"



**Bright Annealing**



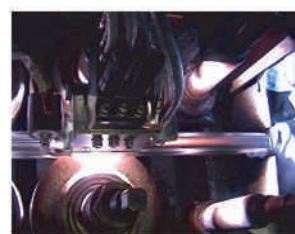
**24" Pipe Mill And Annealing**



**Laser Welding**



**HF Welding For SS Tube**



**Tri-Cathode Welding**



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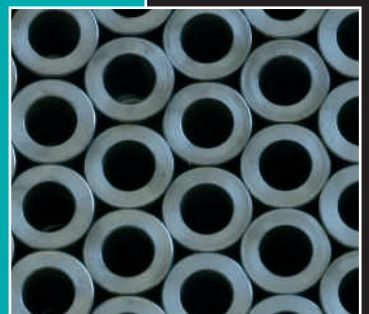
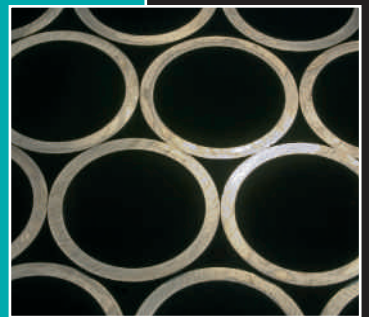
3-5 June 2007

Hilton Dusseldorf, Dusseldorf, Germany

Focus on strategy, markets and outlook

#### Key speakers include:

- Lauri Malkki, Managing Director Sales, EUROPIPE, Germany
- Antonio Marcegaglia, Chief Executive Officer, Marcegaglia, Italy
- Klaus Heller, Director, Sales & Marketing, Dillinger Hutte GTS, Germany
- Vincenzo Crapanzano, Regional Manager Europe, Tenaris, Italy
- Sanjiv Goel, General Manager, Pipes and Tubes (Energy), Arcelor Mittal, The Netherlands
- Eiichi Yamashita, Manager, European Office, Nippon Steel Corporation, Germany
- John Blomberg, President, TMK Global AG, Switzerland
- Bulent Demircioglu, Chairman, Borusan Mannesmann, Turkey
- Jose Miguel Soto, Commercial Director, Europe, Condesa, Spain
- Mario Caldonazzo, Managing Director, Arvedi Tubi Acciaio S.p.A., Italy
- Alvaro Videgain, President of the Board of Directors and Chief Executive Officer, TUBACEX, Spain
- Ali Hosseini, Chief Executive Officer, ADPICO, UAE
- Manfred Schreier, Managing Director, MAN Ferrostaal Piping Supply GmbH, Germany
- Sergey Bilan, Deputy General Director for Marketing, TMK Trade House Pipe Metallurgical Company, Russia
- Andrew Leyland, Metals Consultant, Metal Bulletin Research (MBR), United Kingdom
- James Ley, Consultant, Hatch, United Kingdom
- Francois Michalet, Director, ESTA, France
- Georges Kirps, General Director, Eurometal, France
- Joachim Schroeder, Chief Executive Officer, Research & Consulting Group AG, Switzerland
- Paolo Berbotto, Senior Consultant, Steel Markets, Heavy Industries Practice, Atkins Management Consultants, United Kingdom
- Wolfgang Hochgatterer, Managing Director, VAI SEUTHE (Siemens VAI), Germany
- Kulesa Gerhard, Sales Vice President, Danieli Centro Tube, Italy





← furnaces for annealing lines and continuous annealing lines.

In the area of gas jet cooling technology for steel tubes, the company has recently modified a 15-year-old Ebner roller-hearth furnace for boiler pipe production at Zeleziarne Podbrezova in Slovakia.

This furnace is used for heat treating seamless-drawn steel tube at anneal temperatures of up to 1,070°C, with a cooling rate of 300K/min in process atmosphere.

In addition to modernising the combustion system in Zeleziarne's furnace and installing new hearth rollers, Ebner installed a 2m-long quenching zone with an atmosphere jet cooling and automation system. The cooling gradient of 300K/min can successfully achieve an austempered bainite microstructure throughout the 6mm tube wall thickness without tube deformation.

Ebner has also supplied the latest Hicon/H2® roller-hearth automatic furnace for Poongsan Corp in Korea, one of the world's largest producers of copper semi-finished products.

An annealing facility for level-wound copper tube coils has been installed at Poongsan's Ulsan works to meet increased quality specifications. With a throughput of 3t/h, the temperature scatter throughout the charge is just +1.5°C by the end of the soaking zone.

The gas-tight design of the furnace and cooling section ensures low oxygen content in the process atmosphere (2 per cent hydrogen, balance nitrogen), and prevents discoloration of coils. The cold/hot tube purging system guarantees the lowest level of contamination inside the tube, especially on 'inner grooved' tubes.

A roller-hearth furnace, to process tubes in straight lengths and in coil-form, has also been installed at Buntmetall Amstetten. Using the furnace, charge material is annealed in process atmospheres at a throughput of 2,000kg/h, with a maximum furnace chamber temperature of 850°C.

The furnace can accommodate maximum tube lengths of 11m, with operation in semi-continuous or continuous mode. The jet cooler section of the cooler was newly developed specially for CuNi tubing.

**Website:** [www.ebner.cc](http://www.ebner.cc)

**EFD Induction AS**  
Norway Stand FO-A03

EFD Induction develops, commercialises and supplies complete industrial heating processes, including power sources, mechanical handling equipment and control systems based on the latest IT technology. EFD Induction has emerged as a pioneer in finding new induction heating applications and solutions.



① The solid-state Weldac welder from EFD

The Weldac G2 is the company's family of high-output solid-state welders. It is available with output power of 150-2,000kW and with 100, 200 and 300kHz nominal frequencies. The Weldac uses rugged IGBT transistors, which due to EFD's patented switching pattern, can now be used in high-frequency applications, such as tube welding. IGBT transistors are virtually short-circuit proof, making the Weldac very reliable and robust equipment that gives more uptime and output.

Apart from capitalising on the strengths of standardised IGBT transistors across the entire frequency range, the Weldac G2 system also provides continuous electronic load matching. Continuous electronic load matching secures full power output across a wide range of tube sizes, ensuring maximum welding speeds for each size.

The Weldac eliminates the need for costly compensation capacitors by using diode rectifiers that result in a high, constant power factor (0.95) at all power levels. Test-verified efficiency from input at the rectifier to output at the coil is 85-87 per cent. Cooling water consumption is low, with no need for expensive de-ionized water.

**Website:** [www.efd-induction.com](http://www.efd-induction.com)

**Elmaksan Ltd**  
Turkey Stand FO-E03

Founded in 1983, Elmaksan Ltd is one of the leading Turkish companies in the design and production of profile machines, slitting machines and cut-to-length lines. The company's slitting lines can be used on a range of materials including ferrous metals, cold and hot carbon steel, stainless steel, copper, brass, galvanised and other types of metal alloys.

With the company's pipe and profile lines, the user can manufacture products with different diameters. Easily changeable equipment is used on these lines in order to reach the fastest manufacturing speed. A flying saw with high performance can also be incorporated into pipe and profile lines, according to user requirements.

Elmaksan's cut-to-length lines are designed as manual or automatic, and are intended to undertake sensitive packaging using sheet and plastics. The company's machines are manufactured with the latest versions of CAD (Auto-CAD), CAM (solid CAM, master CAM, mechanical Cobra design, Microstation) and other types of design and construction programmes.

All departments, from engineering to production, are linked to provide an interactive manufacturing process and use CNC lathing machines to reduce faults to a minimum.

**Website:** [www.elmaksan.net](http://www.elmaksan.net)

**EMS**  
France Stand B51

EMS, France, designs and builds special tube end-forming and cutting machines, which use techniques such as extrusion, expanding, reduction, pushing, and segment head/mandrel forming.

These machines are based on the highest quality hydraulic and electrical components. The company's cutting machines are used to recut bent tubes and to cut or recut hydroformed tubes.

The company's CT models cut without material tearing or chips, using a combination of two knives – one vertical to pre-cut the tube, and one horizontal →



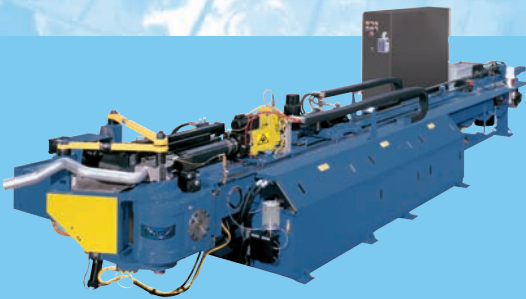
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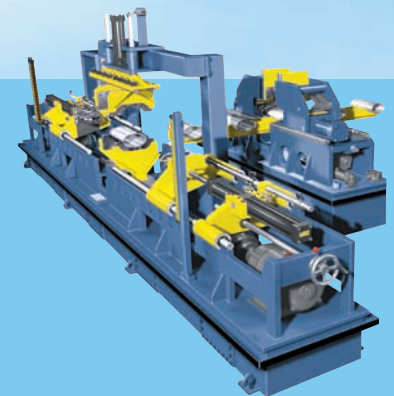
The Eagle brand has always been recognized across the world for unrivalled quality. In fact, we are so confident in the quality of our products that we now offer a 5 year warranty on all new equipment providing you with the very best level of coverage in the industry.



TUBE BENDERS



ENDFORMERS



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Fax: +1 (519) 756-0195  
Email: sales@eaglept.com

**North America Parts and Service**  
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Fax: +52-442-225-5021  
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to make the main cut. Machines in the CTR range use a rotating head, and recut without burrs from inside to outside.



EMS manufactures tube end-forming and cutting machines

EMS tube end-forming and cutting machines are reputed for their robustness and reliability, and are designed in accordance with user specifications.

Website: [www.ems-sa.com](http://www.ems-sa.com)

bending rolls, section bending rolls, and dishing/flanging lines for large dome ends.

The company's ASI and HCU initial pinch machines with urethane rolls for high production are suitable for light plates. For heavier thicknesses the range includes a traditional 3-roll machine, a 3-roll machine with variable axis design, and the 4 HEL 4-roll series.

Frame roll presses for ships and special machines complete the range of machines for roll plates with thicknesses from under 1mm to over 150mm, and with working lengths exceeding 18m.

The RCMI range, available with bending capacities up to 1,700cm<sup>3</sup>, are designed for medium to heavy duty profile bending.

The Giotto series of rotating table forming machines solve problems in the field of high precision ring and flange rolling, with high production requirements, while the



Faccin offers a range of plate and section bending rolls, and dishing/flanging lines

Taurus beam bending series features a top bending capacity of 18,000cm<sup>3</sup>.

The Faccin dished end production line includes rotary shears (CB) and dishing presses (PPM), together with automatic manipulators (MA). It enables the dishing of heads up to 10m in diameter with a thickness of 80mm. The company's range of automatic flangers (BF) covers capacities ranging from 10mm to over 40mm.

Website: [www.faccin.com](http://www.faccin.com)

**Faccin Srl**  
Italy

Stand FO-D08

Faccin specialises in the design, engineering and manufacture of plate

**CON.T.R.A.S.T.**

[www.contrastsale.com](http://www.contrastsale.com)

[info@contrastsale.com](mailto:info@contrastsale.com)



Impeder core for high frequency welding of tubes



Fiberglass pipes for impeder core



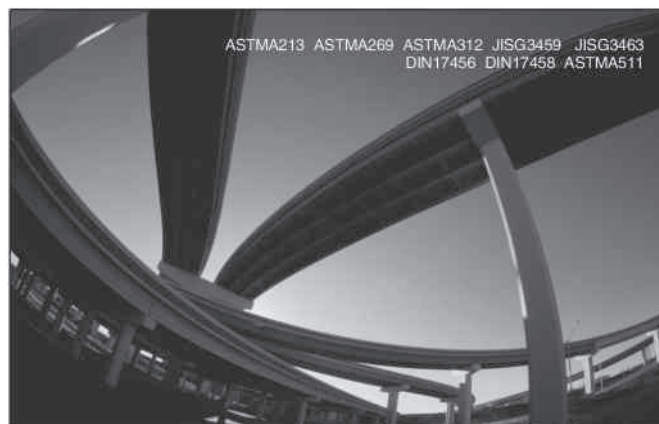
Tungsten carbide insert for outside tube scarfing



HSS-DMo5 saw blades & friction circular saw blades

**CON.T.R.A.S.T.**

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ASTMA213 ASTMA269 ASTMA312 JISG3459 JISG3463  
DIN17456 DIN17458 ASTMA511



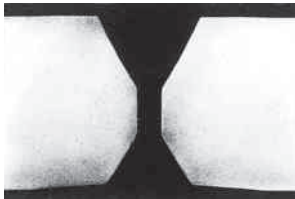
**NANBO**  
NANBO STEEL

Zhejiang Nanbo Steel Industry Co., Ltd.  
Add: industrial Zone, Qiyi Village, Lanjin Bridge Shacheng Town,  
Longwan District, Wenzhou City,  
Tel: +86-577-86052988 86051988  
Fax: +86-577-86050988  
E-mail: [wznanbo@alibaba.com.cn](mailto:wznanbo@alibaba.com.cn) [master@nanbo-steel.com](mailto:master@nanbo-steel.com)

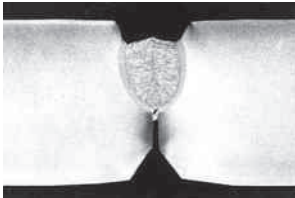
[www.nanbo-steel.com](http://www.nanbo-steel.com)

## Two Stage Production

## Spiral Pipe Mills



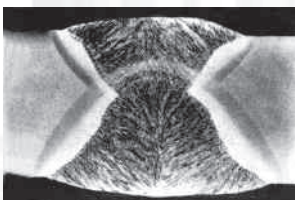
Preparation of strip edges



Continuous tack-welding seam



Continuous submerged-arc  
inside welding



Complete submerged-arc inside  
and outside welding seam



We plan, design, manufacture and assemble your pipe mill for highest quality submerged-arc welded longitudinal or spiral pipes with all the components for the pipe finishing line and hand over to you a turnkey plant. Just contact us.

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**GH Group**  
Spain

**Stand FO-A15**

GH Group, the induction heating specialist, has supplied over 3,500 induction heating installations in 50 different countries.

These systems are used for multiple applications including tube welding, tube end stress relief, tube heating for forming and tube heat treatment.

The GH Group offers an entire range of modern high frequency power supplies and equipment for induction heating

Ⓢ GH Group provides a range of high frequency power supplies and induction heating equipment



applications, from MF IGBT inverters to HF Mosfet inverters.

In the area of tube induction welding, which often requires frequencies up to 500kHz, the natural, most reliable and efficient component is the Mosfet transistor. This technology is provided by the GH Group's latest developments in variable frequency and automatic load adjustment.

The company has launched Transithermic® generator solid-state welders, which can weld any tube specifications allowing for any tube diameter, thickness and material. These machines provide flexibility and economy through reductions in downtime and scrap material.

The network of the GH Group is arranged for locality near international customers, with facilities in Germany, China, France, Brazil, Spain, South Korea, India, Argentina and Mexico.

The company's repeat customers for solid state welders include Arcelor-Mittal, Prestar Steel, Tenaris Group and Aceralia.

Website: [www.ghe.es](http://www.ghe.es)

**Graebener GmbH & Co KG**  
Germany

**Stand FO-F11**

Graebener Maschinentechnik GmbH & Co KG, a member of the Graebener Group, offers a specialised machine range for three areas: milling technology, tube/bar processing technology and forming technology.



Ⓢ A JCO pipe forming press from Graebener

Together with its partners and group companies, Graebener has a comprehensive capability in designing and building complete pipe mills.

**USED TUBE FLANGE AUTOMATIC WELDING MACHINE**

Can be seen operating for positioning and welding flanges on tubes at lengths from 1000 to 6200 mm.

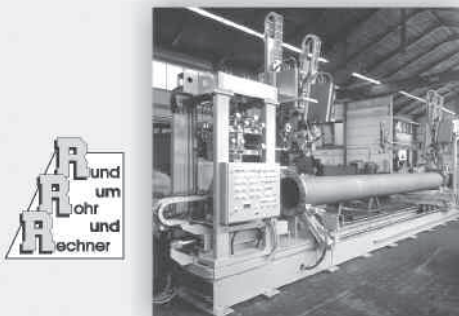
Automatic groove of tube lengths.

Manual flangehole positioning.

Same time welding with four heads.

Connecting:

380V. / 140Amp. air pressure 6.5 bar, welding (CO2) or mixed gases.



**RUND um ROHR und RECHNER**  
Planing and erecting of tube workshops  
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**TUF-LOK™**  
**PIPE COUPLINGS**  
**Ring Grip Series 688 & 698**

The Tuf-Lok ring grip pipe coupling is a rugged, heavy duty, self-aligning and self-grounded pipe coupling with a high end pull. It can be used for almost any application where pipe ends need to be connected. The Tuf-Lok coupling installs quickly and aligns pipe ends with little effort.

**Features**

- High pressure rated
- Full vacuum rated
- Usable on thin or thick wall pipe
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- Low cost
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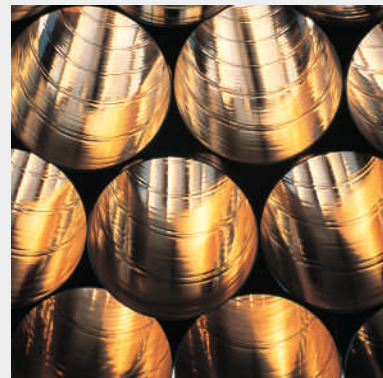
# Tube India

## International 2008

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**Pragati Maidan, New Delhi/INDIA**

Concurrent Show:



**Metallurgy India 2008**

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In India:

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Pocket H & J, Sarita Vihar  
New Delhi 110 076/India

Ms. Leena Dugh  
Tel.: +91 (0) 11 2697 1745/1056  
Fax: +91 (0) 11 2697 1746





← The company's machine range includes bending and post bending presses, tack welding machines and calibration presses for large SAW pipes, 3 and 4 roll bending machines, straightening presses, end bevelling machines, and hydrotesters.

**Website:** [www.graebener-group.com](http://www.graebener-group.com)

**Hagering GmbH & Co KG**  
Austria Stand FO-D39

Hagering GmbH & Co KG are the manufacturers of drawing machines for drawing tube, rod and profiles in copper, brass, aluminium and super conductors. For the drawing of super conductors, the company has developed a new, special handling system.

In the planning of the company's drawing plants, particular attention was paid to ergonomic and easy working conditions. The draw operator has a vantage point to view the separation, plugs and drawing die and thus control the tubes before they arrive at the collecting stanchions.

The charging device, usually the loading drum, is equipped with perfectly operated drivers. This ensures that the piercing stem is supported for easy lining of the tubes, requiring no operator intervention.

The plugs are rotating, and the operator can thus control the whole surface of the plug. The piercing stems are supported directly in front of the die, so there is no danger of the plug falling into the dies. The die frame is supplied with a drawing block, with availability of a second drawing block if desired. In this case one drawing block can be supplied with dies, with the second used for drawing.

Ⓜ Hagering's complete 1,600kN tube drawing plant including handling and swaging machine



Ⓜ A 3,000kN tube-drawing bench

A semi-automatic handling system can be used to manipulate the drawing block. Meanwhile, the whole working process can be controlled from the operation desk.

If short drawing lengths are desired, the drive of the straight drawing machine is undertaken with hydraulic cylinder or spindle. If long drawing lengths are desired, the drive is undertaken with chain or gear rack. The drive with gear rack has the important advantage that the push is dampened because of the big mass of the gear rack. Therefore, drawing is carried out with less vibration and noise.

**Website:** [www.hagering.com](http://www.hagering.com)



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We are specialized in producing 316L, 304 and 321 seamless stainless steel pipes with high precision, seamless stainless steel acid industry pipes, seamless stainless steel straight tap water pipes, seamless capillary pipes with high precision, seamless stainless steel pipes for elbow pipe fittings and sanitation seamless stainless steel pipes, which are popular with the same lines.



**Capillary stainless steel pipes**

Od: 1/8" —3/4"  
Material: TP304, TP321, TP316L, TP304L  
International standard:  
ASTM A312/A312M  
ASTM A269



**Seamless stainless steel "o" pipes**

Od: 1/8" —3/4"  
Material: tp304, tp321, tp316l, tp304l  
International standard:  
Astm a269/a269m

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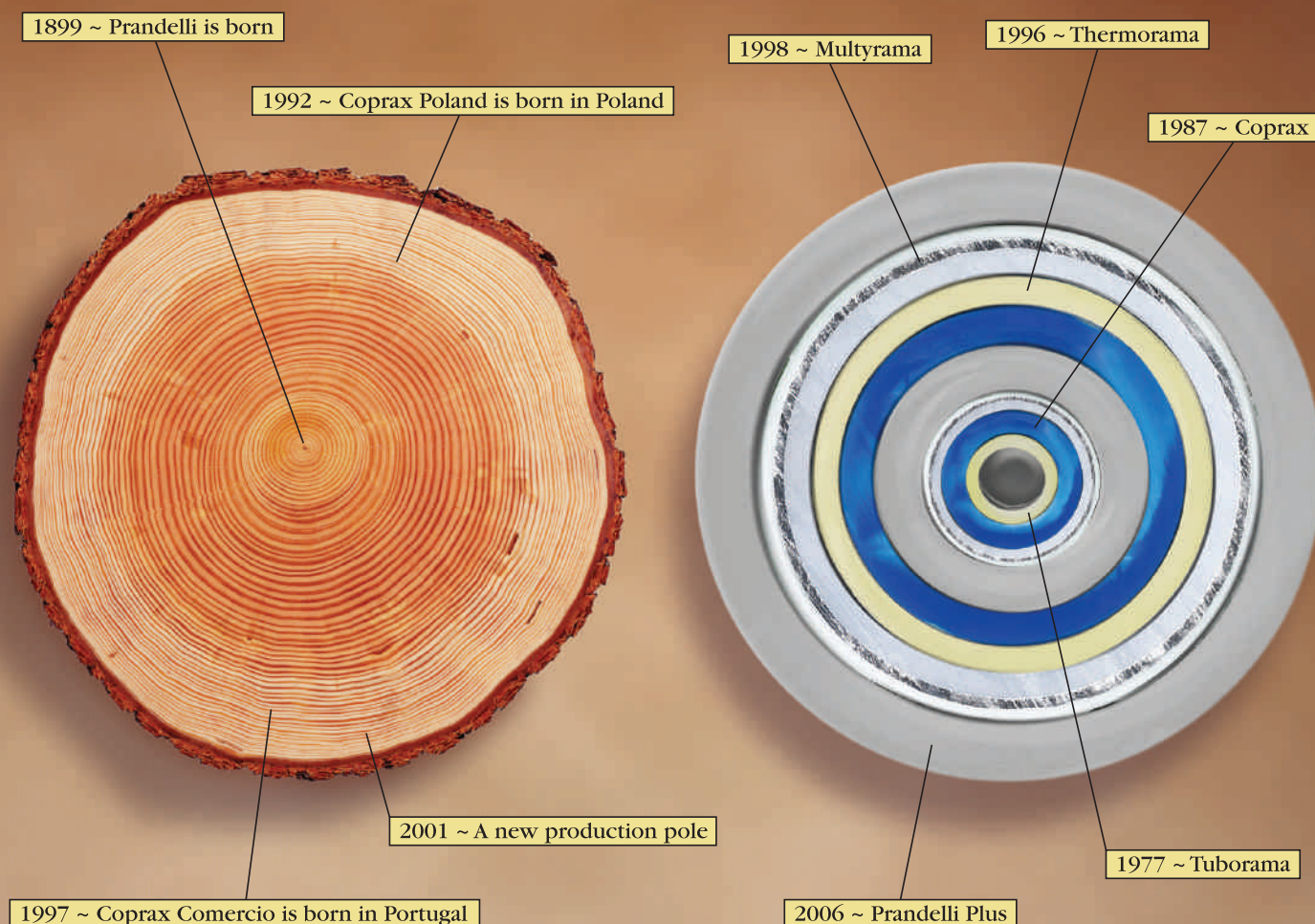


**Randolph Tool Co. Inc.**

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PH. (330) 877-4923 FX. (330) 877-4924  
Website: [www.RandolphTool.com](http://www.RandolphTool.com) E-mail: [info@RandolphTool.com](mailto:info@RandolphTool.com)



# Our quality has strong roots.



A strong tradition, and the ability to constantly innovate. These have been for more than 100 years our force points, with advanced installations, an efficient and dynamic organisation, a consolidated know-how, and computerized control systems. The reason why this is due is that history renders our technology bigger.





**Inductotherm HWT**  
UK/USA Stand FO-A08

Visitors to the Inductotherm Group Europe stand will have the opportunity to discuss their heating and welding requirements with applications specialists representing the Thermatool, Radyne, Newelco and Banyard brands.

Thermatool specialises in innovative and cost effective solutions for tube and pipe producers throughout the world. With the largest installed base of more than 900 solid-state HF welders worldwide, Thermatool has over 50 years of experience in the continuous high-speed production of quality tube and pipe from 8mm to 24" diameter. The new range of Thermatool VIP seam normalising and full body annealing systems provide added systems capability to producers of high quality API grade oil and gas pipe.

Radyne offers producers and installation contractors of API pipe an unrivalled range of induction heat treatment and coating systems, including pre- and post-weld girth joint heat treatment and coating technology.

Designed for both onshore and offshore applications, Radyne Merlin and SwirlCoat systems have been engineered to satisfy even the harshest and most demanding of installations.

The InductoForge modular billet heater from Newelco offers a new and totally different approach to forging with higher efficiency and lower total running costs.

The Banyard zero friction billet heater will be of interest to producers of the highest quality aluminium extrusions, as will the Banyard range of Taper and Booster heaters which deliver improved temperature control and increased capacity.

Website: [www.inductotherm-hwt.co.uk](http://www.inductotherm-hwt.co.uk)

**International Tube Association**  
UK Stand FO-B33

The International Tube Association (ITA) is the world's largest association of tube and pipe engineers and its presence will be geared towards offering every assistance to tube and pipe professionals.

An emphasis will be placed on the membership benefits available, including support services at the major tube shows worldwide and the educational opportunities provided through technical conferences and seminars.



Existing members can ensure they are taking full advantage of the enhanced range of membership benefits. Non-members will be able to meet ITA staff to learn all about what the Association can do for them. They can also collect details of the ITA benefits including reduced delegate fees for ITA conferences, free promotional opportunities in the ITAN newsletter, free visitor entry and free hospitality at selected exhibitions, access to copies of ITA technical conference papers, and large discounts for company promotion on [www.tubefirst.com](http://www.tubefirst.com) (the comprehensive online material, product and equipment database).

In addition, all members receive a free annual subscription to the officially endorsed magazine, *Tube & Pipe Technology*.

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**ADVANTAGES:**  
The machine is capable of forming two different shapes of roof tiles by using the same tooling (traditional shape and three dimensional shape). The surface of the finished product remains scratch-proof and permanently painted.

Length of step: 150-600mm  
Length tolerance: ±0.5mm  
Depth of each step: 10-30mm (optional)

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Visitors to the ITA stand will also find information about the ITA's technical conferences such as Tube Ukraine International 2007 ([www.tube-ukraine.com](http://www.tube-ukraine.com)), titled 'Modern Production Trends for Tubes & Pipes – Welded, Seamless & Non-Ferrous', which will be held in Dnepropetrovsk, 24-26 September 2007.

Other events are scheduled in Nagoya ([www.nagoya-tube.com](http://www.nagoya-tube.com)), Japan in June and Bangkok in October 2007.

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

**Website:** [www.itatube.org](http://www.itatube.org)

**Friedr Krollmann GmbH & Co**  
Germany Stand 1-C29

Friedr Krollmann is a manufacturer of pointing machines and handling equipment of all type and sizes for wire, bars, rods, sections and tubes.

The company's production programme covers roll pointing machines, threading and pointing machines, point milling machines, swaging machines, tube pointing machines, chamfering equipment, pay-off and straightening devices.

In addition, the company provides a range of feeding and charging devices, loading systems, cutting and sawing units, scrap



**①** Friedr Krollmann produces a range of machines for wire, bars, rods and tubes

bundling machines, and special purpose machines.

**Website:** [www.krollmann.de](http://www.krollmann.de)

**LAP Laser GmbH**  
Germany Stand FO-F07

LAP will present its redesigned RDMS software for contour measurements of long products. The new software responds to the growing trend of integrating RDMS systems deeper into the production processes – even as cross-plant configurations.

Due to a compact design and the fact that they dispense with movable sensors, RDMS systems have become established as reliable technology for inline contour measurements of tube, bar and wire rod. They are currently an indispensable element in long product rolling, with over 100 systems having been installed in rolling mills worldwide.

The new software supports the integration of contour measurements into process

control and facilitates their increasing use within networked systems. The software has also been further enhanced in terms of user friendliness.

All screens can now be configured for each individual user so that only relevant data is displayed. For example, rolling mill operators may wish to display the results of contour measurements as circle or line diagrams. Quality assurance personnel may need more comprehensive information – possibly from various production steps – as well as statistics for evaluation purposes.

Data from several RDMS systems can be easily interlinked. Thus it is possible to view the contours of tubes upstream and downstream of individual production steps on the same screen and instantly recognise the effect of a particular process step on the contour. Furthermore, data from different process steps can be compared easily.

With the new screen design, LAP is moving away from pull-down menus towards touch screens that enable intuitive HMI configuration, giving special importance to ergonomics and user friendliness.

LAP's long products range is completed by another new development, the RDMS-40 for tube, bar and wire rod in diameters below 40mm rounds. It now offers solutions for all diameters up to 500mm.

At Tube Russia, LAP will also showcase a wide range of systems for inline measurements of geometric dimensions at all production stages, from billet or slab casting through to the finished coil or sheet.

**Website:** [www.lap-laser.com](http://www.lap-laser.com)

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# TUBE & PIPE TECHNOLOGY

**The industry's premier magazine for tube, pipe & hollow producers and users**

**Liezen und Gießerei GmbH**  
Austria Stand FO-C40

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, extrusions and plate.

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 HK 550 E30 sawing machine from MFL

At Tube Russia, MFL will present the sawing machine, branded HK 550 E30, which has 30kW of driving power. This machine is designed for cutting round workpieces and tube with a diameter from 30-160mm and squared workpieces with a maximum dimension of 145mm in a single cut operation. The sawing machine can be equipped with a maximum saw blade diameter of 550mm.

MFL also supplies the HK 2200 E160 type of sawing machine for workpiece diameters up to 800mm. In addition, MFL supplies edge milling machines for the edge preparation of welded tubes. The movable milling head holds the latest state-of-the-art carbide tips. Using this machinery, a precise and smooth surface is achievable in spite of high milling parameters and short cycle times.

MFL is an experienced supplier of the chip removal process and delivers turnkey plants as well as single machines for the modernisation or increased performance of tube production.

Website: [www.mfl.at](http://www.mfl.at)

**Linsinger Maschinenbau**  
Austria Stand FO-C28

Linsinger Maschinenbau, Austria, is the manufacturer of an advanced range of sawing and milling machines.

The company supply equipment for large pipe that includes plate edge milling machines for welding edge preparation, and pipe bevelling machines for bevelling both ends simultaneously on pipe up to Ø 60".

For spiral pipe, the company supplies strip edge milling machines for spiral steel tube lines using coil up to 2,000mm width and 1" sheet thickness.

For ERW-lines, Linsinger manufactures strip edge milling machines for longitudinal seam tubes (HF-lines up to 24"), and multi-cut tube cut-off machines for longitudinal edge tube lines (up to Ø 600mm tube).

In the area of seamless pipes, Linsinger Maschinenbau offers carbide circular sawing lines for steel billets and single tubes (up to Ø 630mm), and multiple tube layers (up to 1,250mm width). The company also produces carbide circular saw blades for forging mills (steel billets up to Ø 630mm).

Linsinger produces the necessary carbide saw blades and miller only for Linsinger machines. In Europe, the company also offers a full re-sharpening and repair service.

Website: [www.linsinger.com](http://www.linsinger.com)

**Magnetic Analysis Corp**  
USA Stand FO-D18

Magnetic Analysis Corporation (MAC), USA, manufactures non-destructive test equipment and systems to inspect tube and bar.

The company's latest Echomac® FD-4 ultrasonic inspection instrumentation will be featured on the company's stand at Tube Russia, alongside encircling coil eddy current testers such as the MAC 175 or MAC 400.

Information will also be available on the latest Rotoflux® flux leakage system

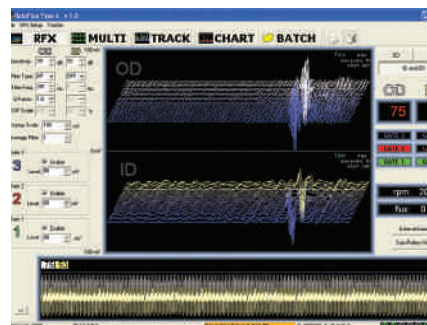
recently delivered to a customer in Kazakhstan.

The FD-4, the latest in MAC's Echomac line of ultrasonic test instrumentation and control electronics, is a significantly enhanced product designed for flaw detection, and measurement of wall thickness and outside diameter in tube and pipe applications. It is suited for use in both new installations and retrofit applications using existing transducers.

The FD-4 features 32 test channels in a single system, and operates on a Windows XP platform.

With the new OD measurement capability, the FD-4 can report OD and ID dimensions and ovality, in addition to wall thickness, eccentricity, and wall variation. The equipment also includes full network support.

The 16" capacity Rotoflux includes multiplex electronics consisting of 24 channels from 24 separate test probes.



Rotoflux signal from a natural ID crack on a 13" (330mm) diameter cast iron pipe

The new test screen display simultaneously shows all OD and ID channels, while a strip chart display shows the maximum ID and OD signals from any of the 24 channels.

Thresholds for ID and OD can be set independently, and each channel can be viewed separately onscreen with zoom-in capability. The heavy-duty mechanics include a built-in calibration station, parallel to the test line, with its own pinch stands and conveyor.

The slide and elevate platform allows the rotary test head to be easily moved away from the test line for calibration tests or maintenance, and a jib crane can be incorporated for handling the calibration standard.

Website: [www.mac-ndt.com](http://www.mac-ndt.com)



**Mair Research SpA**  
Italy Stand FO-D43

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.

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 offers tube packaging lines to automatically pack tubes in square, rectangular or hexagonal bundles. Packaging can be carried out 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](http://www.mair-research.com)

**Mewag Maschnefabrik AG**  
Switzerland Stand FO-F04

Mewag is a manufacturer of bending machines including the Megalus and Gigalus brands. These machines offer a modular design, one or two heads, and automatic right to left bending, with an unlimited number of tools.

With up to 13 axes, the bending machines are fully-electric and capable of producing both simple and complex geometries. They operate with a high accuracy and speed, while high-speed servo drives are used for all axes. An electrically adjustable bending arm and sliding rail feed pressure ensures that bend pressure is programmable and the formation of wrinkles is controlled.

In addition to the standard programming, Mewag's sub-program technology also allows an additional CNC code to be inserted before or after each bending set. This ensures all axis movements and auxiliary functions can be programmed.

Website: [www.mewag.com](http://www.mewag.com)

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**Nexans GmbH & Co KG**  
Germany *Stand 1-B21*

Nexans provides a range of production lines and technology, with machinery and products for applications in cable (micro tubes for optical ground wires, high voltage cable, high frequency cable, submarine cable), and pipe production (micro tubes for the medical industry, composite tubes for warm water distribution and corrugated flexible metal tubes), as well as a pipe systems for liquefied gases.

Development, design and production of special machinery for cable and pipe manufacturing have long been a tradition of Nexans. The starting point for this important business line was the development of the universal welding machine Uniwema® more than five decades ago. Since then, a whole family of machines for a great variety of products was created on the basis of this technology.

Nexans is the worldwide leader in the cable industry. The Group brings an extensive range of advanced copper and optical fibre cable solutions to the infrastructure,

industry and building markets. Nexans cables and cabling systems can be found in areas from telecommunications and energy networks, to aeronautics, aerospace, automobile, railways, building, petrochemical, and medical applications.

**Website:** [www.nexans.de](http://www.nexans.de)

**Olimpia 80 srl**  
Italy *Stand FO-B43*


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/offline tube finishing. 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.

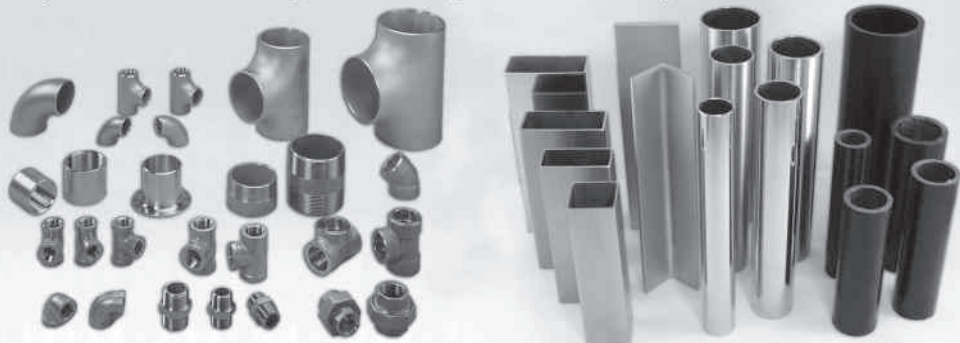


 *Olimpia 80 manufactures a complete range of mills for the production of welded tubes*

Personnel on the stand at Tube Russia will be Mr Travini Vittorio, president, Mr Tarana Gianluca, sales manager, and Mr Yuri Subacev, Moscow representative.

**Website:** [www.olimpia80.com](http://www.olimpia80.com)

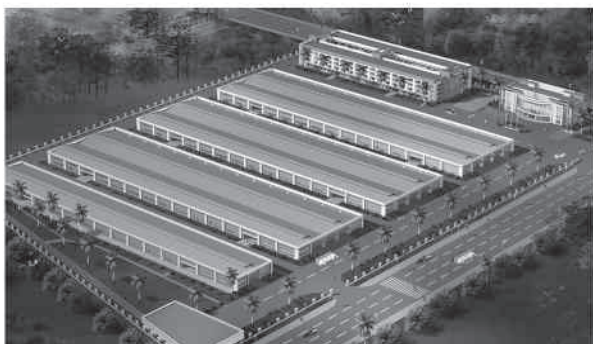
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**Oto Mills SpA**  
Italy *Stand FO-A10*

Oto Mills develops new tube mill products in the range from 10-220mm, and offers a full catalogue of solutions for carbon and stainless steel applications.

Among the company's most recent innovations is a line of high precision tube mills designed to meet the rigorous specifications of quality automotive tubing applications.

A new generation of cold saw cut-offs provides an extremely clean tube end, and tight and consistent length tolerances

 The Oto 1276 RTC rapid tool change tube mill



at high speeds. In the final stage of development is a state-of-the-art automatic entry system handling up to 51" wide strip.

Website: [www.otomills.com](http://www.otomills.com)

**Otto Junker GmbH**  
Germany *Stand FO-E08*

Established in 1924, Otto Junker is a leading manufacturer of foundry equipment, heat treatment equipment and high-grade steel foundries. The company's product range for cast iron, steel, aluminium and copper based alloys covers the full process chain.

The melting equipment range includes foundry systems (both induction-type and fuel-fired), while heat treatment systems include pre-heating, annealing, homogenising, quenching/tempering, artificial ageing, handling and finishing technology.

The group's heat treatment equipment and machinery is suitable for aluminium rolling



 An Otto Junker roller hearth furnace

mills, copper mills, and aluminium and copper extrusions plants.

Website: [www.otto-junker-group.com](http://www.otto-junker-group.com)

**PMC-Colinet Inc**  
USA *Stand FO-A07*

Formed from the partnership between PMC Industries (USA) and MP Colinet (Belgium), PMC-Colinet will display its range of advanced tube finishing equipment and state-of-the-art solutions. The company manufactures tool rotating and product



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[www.tube.cz](http://www.tube.cz)



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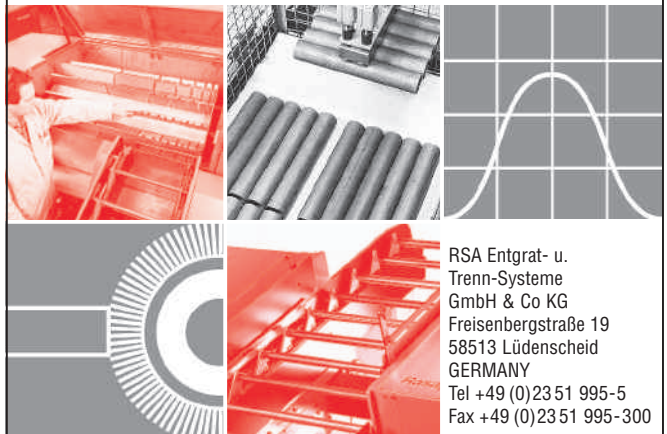
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rotating equipment, and tube and coupling finishing machines for the OCTG, premium and commercial tubular markets.

PMC-Colinet also manufactures ancillary pipe processing machines including coupling starter/screw-on (buck-on) units, which the company claims are the fastest and most accurate in the industry. With single source end-finishing capability, PMC-Colinet designs and manufactures material handling equipment and the durable and perishable tooling used on these machines.



Model MPM-C7 coupling finishing machine (60.3-177.8mm)

The PMC-Colinet stand will display the latest advancement in thread generating technology, the X2 – tool forward design. X2 eliminates most size changeovers and improves machine flexibility for premium joint manufacture. The company's stand will also feature the design improvements of its product rotating equipment and the balance of tool rotating machines.

Website: [www.pmc-colinet.com](http://www.pmc-colinet.com)

**Reika GmbH & Co KG**  
Germany Stand FO-F13

Reika is specialised in the development and manufacture of machines and lines for tube mills, the tubular products industry, bar manufacturers and bar processing.



Reika's range of machinery includes computer controlled finishing lines

A worldwide leader in turnkey processing systems, Reika is a mid-sized company with 100 years of experience.

The company's range includes cut-off machines/centres, finishing lines, chamfering lines, straighteners, special machines and testing lines. Reika's machinery can be used with seamless, drawn or welded tubes in carbon steel, stainless steel and non-ferrous metal.

Website: [www.reika.de](http://www.reika.de)

**Schumag Group**  
Germany/UK Stand 1-B17

The Schumag Group, consisting of Schumag AG and MRB Schumag, manufactures machines and equipment for the cold-forming of steel, solid non-ferrous metals and copper tube. The high level of quality and system productivity, together with the innovative strength of both organisations, have elevated the Schumag

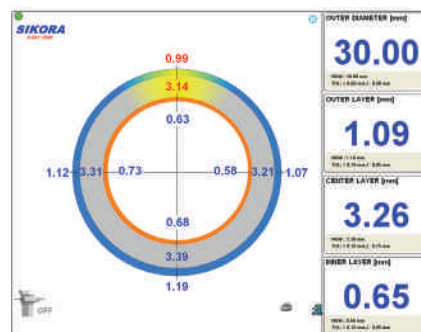
Group into one of the world's leading manufacturers.

The Group's range includes combined drawing machines, straight through drawing machines, spinner blocks, level winders, inner-grooving machines, bundling machines, basket handling systems, tube and bar finishing lines and all related ancillary equipment.

Website: [www.mrbschumag.com](http://www.mrbschumag.com)

**Sikora AG**  
Germany Stand FO-B15

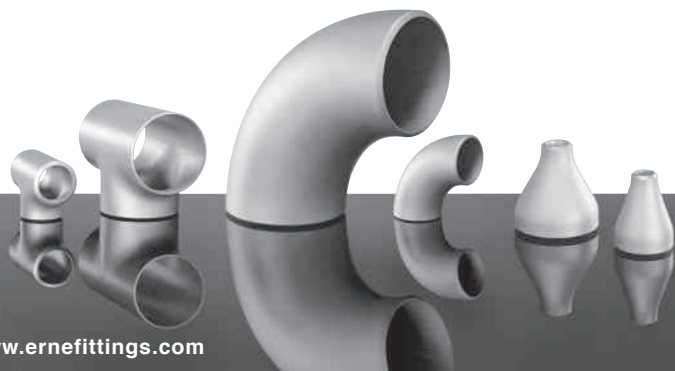
For continuous online quality control of tube and hose, Sikora provides state-of-the-art devices for diameter, wall thickness, eccentricity and ovality measurement, and detection of lumps and neck-downs directly on the extrusion line.



A sample X-Ray 2000 monitor image

The company's X-ray and laser technology removes the need for calibration, and the use of very fast digital signal processors eliminates the effects of vibrations and environmental influences, ensuring accuracy and long-term stable measurement data.

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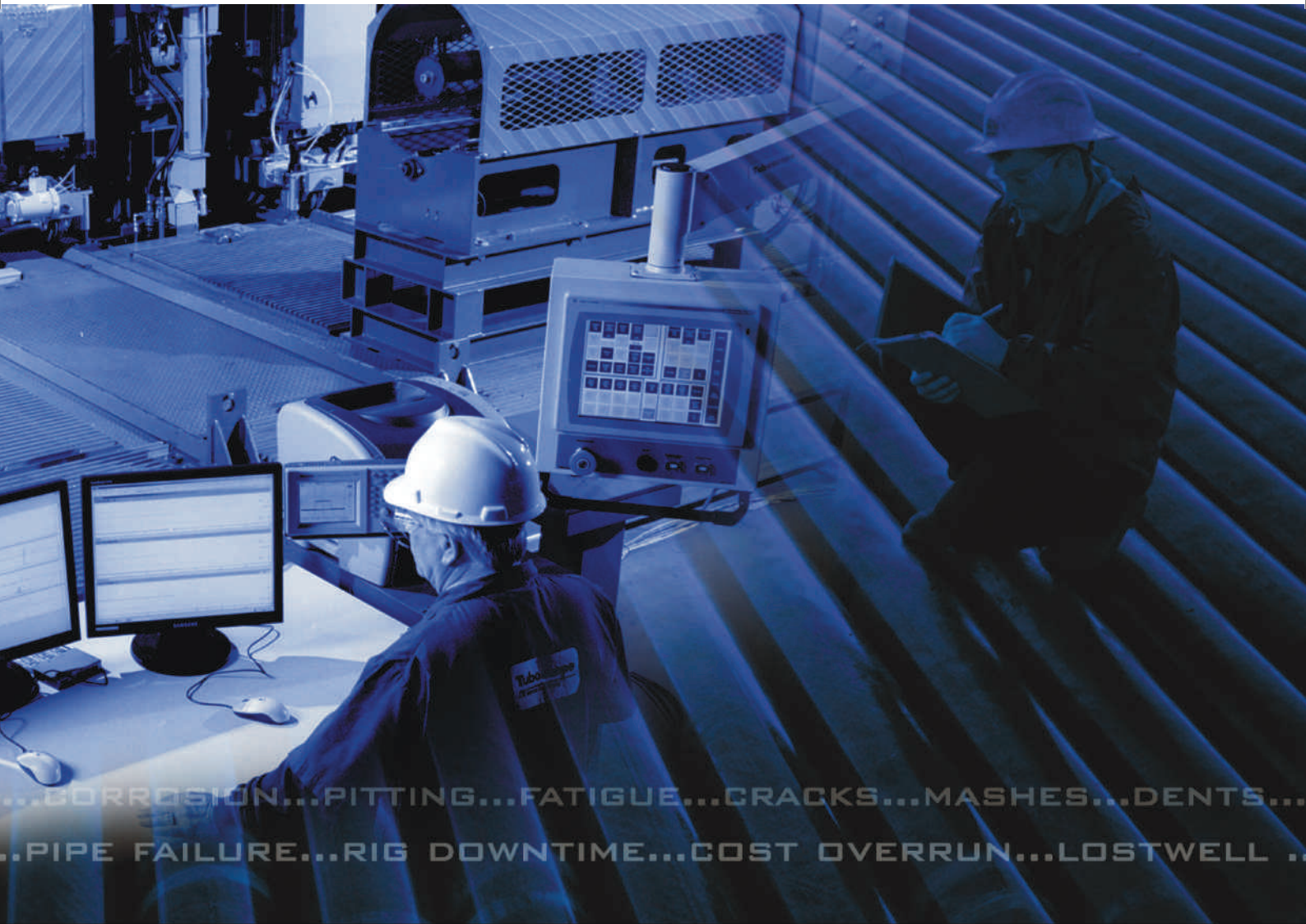
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- Riser Services
- Sucker Rod Services
- Vendor Surveillance Services
- Rig Component Services
- Leak Detection Services

## TUBULAR COATING SERVICES

- Internal Coating (Tube-Kote®)
- External Coating (Tubo-Wrap™, Synergy™)
- Specialty Coating (TK®-Liner, Thru-Kote® Systems)

Avoid problems by using equipment and services backed by a company with the most recognizable name in the industry. Tuboscope NOV looks beyond the surface for problems that are not so apparent - *microscopic cracks, wall thickness reductions, manufacturing and processing defects* – all capable of affecting the integrity of your tubulars. Tuboscope NOV equipment and services for coating, inspection and tubular maintenance use the most advanced technology to extend the lifespan of tubulars. Look beyond the surface now, because you can't afford problems later.

[www.tuboscope.com](http://www.tuboscope.com)

[www.nov.com](http://www.nov.com)

**Tuboscope**® 

← Sikora's X-ray 2000 is an X-ray based measuring system for use on tube and hose extrusion lines, using high resolution X-ray sensitive line sensors to take continuous X-ray pictures of the product.

Powerful signal processors calculate the measured values directly from the X-ray picture and provide thickness, centricity and diameter information within fractions

Ⓢ Sikora's X-Ray 2000 stand-alone measuring head



of a second. The technology provides measurements directly at the production process, and enables fast centring, automatic control, and optimised production.

The system is as easy to operate as a diameter gauge, and can be integrated into any tube or hose extrusion line. The X-ray 2000 is designed as a stand-alone gauge head, which allows direct connection to a SPC via RS485 serial interface or Profibus. For retrofits, or for lines without SPC, the X-Ray 2000 is available with the Ecocontrol 2000 processor/display unit.

The X-Ray 2000 can be installed between extruder and cooling trough, between two cooling trough sections, or after the cooling trough, with safety ensured in any position.

Website: [www.sikora.com](http://www.sikora.com)

**Sinico SpA**  
Italy

Stand FO-F01

Sinico SpA specialises in the design and manufacture of automatic rotary transfer cut-off and end-finishing machines, suitable



Ⓢ Sinico's Top 1000 CNC automatic cutting and bar end-working machine

for producing medium and large series of metal parts from tubes, bars, coils, forgings and blanks.

The company's machines can handle any metal material (steel, stainless steel, aluminium, copper, brass, titanium, Inconel, etc), and all operations are carried out in one chucking.

The main features of Sinico's latest generation of machines include quick setup and automatic positioning of units, optimised cutting process, connection with LAN and WAN, and self-diagnostics with built-in graphics.

User information, maintenance data and functional diagrams are viewable on PC, and there is an option to install




## Stainless Steel Pipe & Tube & Bar



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**FAX: 0086-21-68197937**  
**WWW.MMMCL.COM**  
**Email: ysteel\_4888@126.com**

Worldwide sell stainless steel seamless or welded pipes & tubes and stainless steel bars.  
 Executive standards: EN 10216, DIN 17458, ASTM A 312, ASTM A 213, ASTM A 269, ASTM A409  
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 Seamless outside Diameter: 1/4"-25"; Seamless Thickness: 0.025"-1.25".  
 Welded outside Diameter: 1/4"-60"; Welded Thickness: 0.025"-1.25".

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- CASING PIPE OD: 8"-20" WT: 6.71mm/24pound-16.13mm/109pound
- LOW PRESSURE PIPE FOR FLUID OD: 8"-24" WT: 4mm-16mm
- TUBE & PIPE (BLACK AND GALVANIZED) OD: 1/8"-8" WT: 0.8mm-12.5mm

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**HOT ROLLED SEAMLESS STEEL PIPE**

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- LOW PRESSURE PIPE FOR FLUID OD: 1/4"-16" WT: 4mm-40mm
- STRUCTURAL AND MECHANICAL OD: 1/4"-16" WT: 4mm-40mm

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← SPC (Statistical Process Control) and messenger (email/SMS) systems in case of machine alarm, as well as remote servicing via web cam.

Parts can be produced within a length range of 10-640mm, with diameters from 3-120mm for tubes and from 3-80mm for bars. The standard stock length of loaded bars is from 3,000mm to 6,500mm, while a maximum of 12,000mm can be accommodated upon request.

**Website:** [www.sinico.com](http://www.sinico.com)

**SMS Meer GmbH**  
Germany **Stand FO-D32**

The merger between SMS Schloemann-Siemag AG and the metallurgical plant division of Mannesmann Demag AG in 1999 to form SMS Demag AG created a world leader in the construction of plants for the steel, aluminium and copper industries with a complete process chain extending from crude iron production right through steelmaking, continuous casting, rolling mill

and tubemaking technologies, to processing and finishing lines for hot and cold strip.

Within the structure of SMS Demag AG, SMS Meer was established from the former 'Tube and Copper Plants' business unit of Mannesmann Demag Metallurgy. In 2001, the 'Long Product Rolling Mills Division' was integrated into SMS Meer. As part of a reorganisation in 2003, SMS Meer became part of the 'Tube, Long Product and Forging Technology' business area of the Group.

The product range of SMS Meer essentially consists of: manufacturing plants and automated finishing systems for seamless and welded steel tubes (diameters from 4-1,800mm), hydraulic presses such as open-die forging presses and powder presses, and casting and rolling plants for sections, wire rod and bar steel.

This is in addition to casting and rolling plants for extrusion billets, strips, wire rod, anodes and tubes made from non-ferrous and precious metals, plants for the production and further processing of aluminium billets and slabs as well as plants for the recycling of aluminium.

**Website:** [www.sms-meer.com](http://www.sms-meer.com)

**Superior Technologies Europe**  
UK **Stand FO-A17**

Formed in 2004, Superior Technologies Europe is a specialist supplier of high frequency (HF) welding consumables serving the global tube and pipe industry.

With more than 15 years' technical experience in the tube industry, the company offers a wide range of professional services and products ranging from inline galvanizing and tube coating systems to HF consumables and maintenance.

Ⓢ *Inline galvanizing and coating systems from Superior*



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T&R specializes in roll divisions of the various cold roll forming mills. We supply many kinds of rolls for ERW(Electric Resistance Welding) lines, tig welding lines and light-gauge materials. Especially, on the basis of our abundant experience and design know-how, we supply high-quality rolls that meet the differing specifications for various purposes and materials, in order to promote your quality and productivity.

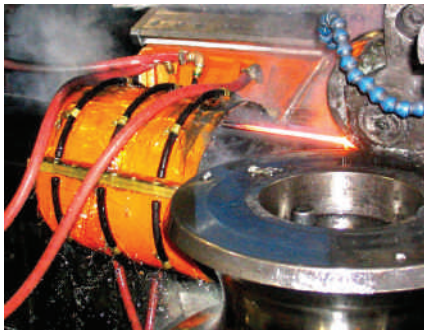


**T&R TECHNIC & RESEARCH PRECISION CO.**

132-32, Ocheon-ri, Yeonil-eup, Nam-gu, Pohang, Gyeongbuk, Korea  
Tel: 82-54-286-1861~2 / Fax: 82-54-286-1860 / <http://www.tuberoll.com> / e-mail: [jhpark@tuberoll.com](mailto:jhpark@tuberoll.com)

At Tube Russia 2007, the company will present its extensive range of HF welding consumables including impedors and induction coils from EHE Inc. This range also contains impedor casing materials, TDK ferrite rods and ferrite/impedor testers. Superior Technologies Europe will also be looking for a potential agent to expand its business in the Russian market.

From its UK office, STE operates the sales and service support for Superior Technologies Inc, USA, a world leader for inline galvanizing and coating systems for tubular products. This process is one of the most efficient and flexible manufacturing methods for galvanizing tubulars and will produce products of the highest corrosion protection and highest quality surface finish.



① Superior Technologies provides high frequency (HF) welding consumables, including impedors and coils

Available in English, German and Russian, the company's website gives comprehensive information on the complete range of products and services as well as advice on many aspects relating to HF welding.

**Website:** [www.st-europe.co.uk](http://www.st-europe.co.uk)

## Surface Engineering Italy Stand FO-A13

Surface Engineering is a supplier of machinery and automation for surface finishing of products such as tube, bar and profile with a range of dimensions. The company is renowned for grinding and polishing solutions for stainless steel tube.

In addition, the company offers one of the widest ranges of finishing machines available on the market. These machines can be installed inline on production mills or as stand-alone production systems complete with automation and ancillary equipment.

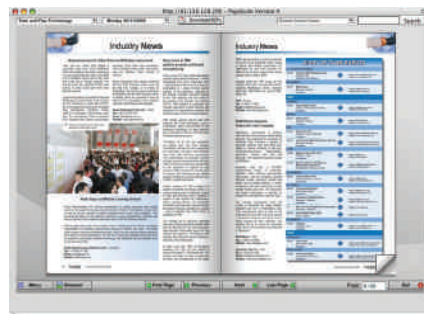
At Tube Russia, Surface Engineering will present the new models for round tubes grinding and polishing, with a modular system suitable for any production needs.

**Website:** [www.surfaceengineering.it](http://www.surfaceengineering.it)

## Tube & Pipe Technology UK Stand FO-B33

*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.



① Graphic of the new e-zine

The magazine has a worldwide circulation of over 12,000, distributed to managers, buyers, technologists, engineers and specifiers in over 100 countries. Working in partnership with the International Tube Association (ITA), *Tube & Pipe Technology* is sent out to all ITA members.

The magazine is now also available as an online e-zine, with selected content available free to all and the entire digital version available on subscription. Readers of the e-zine can click on hyperlinks, while advertisers can incorporate video-movies into their adverts.

Visitors to Tube Russia can pick up a free copy of *Tube & Pipe Technology*, together with subscription and advertising details.

**Website:** [www.read-tpt.com](http://www.read-tpt.com)

www.alfinox.it

The company offers a complete range of stainless steel tubes in AISI 304 / 316L with round, square and rectangular sections in order to satisfy the most specific needs of our customers. Production lines with the latest generation HF welding, advanced production and information technologies, together with the use of highly qualified staff make Alfinox S.p.A. a recognized and appreciated enterprise all over Europe.

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info@alfinox.com - www.alfinox.com



**Tubefirst.com**  
UK

Stand FO-B33

Tubefirst.com brings together the successful trio of TubeShows.com, TubeMarket.net, and Tubefirst.com, to provide its visitors with a one-stop information site for the tube and pipe industry.

This website acts as a comprehensive guide for the industry professional – from the latest piece of machinery, to technicians seeking employment or details of the next international exhibition.

Tubefirst.com also centralises the industry's essential news and information. News items from *Tube & Pipe Technology* magazine, the ITA Newsletter as well as editorial submitted directly by registered users are available to view on the website.

Also for 2007 is an exciting new networking forum, where users can log on and make online posts on tube and pipe production issues, ask technical questions, request materials and products, and partake in discussion about industry matters.

The website also offers the function as an online database of manufacturers and suppliers – with specific product and company name search facilities – for the tube and pipe industry, listing all aspects of tube and pipe materials and products, as well as production and processing machinery.

A third vital function of this super-site is to provide a central place on the internet where visitors can view a calendar of all the forthcoming international tube and pipe industry events, with quick links to an event's respective website.

Tubefirst.com also provides a free classified advertisement service for the tube and pipe industry. Visitors to the site can write and post their own advertisements, with divisions into separate sections for the sale of tube and pipe products and machinery, job vacancies, agents and consultants.

Visitors to Tube Russia will be able to register free-of-charge with this essential website.

**Website:** [www.tubefirst.com](http://www.tubefirst.com)

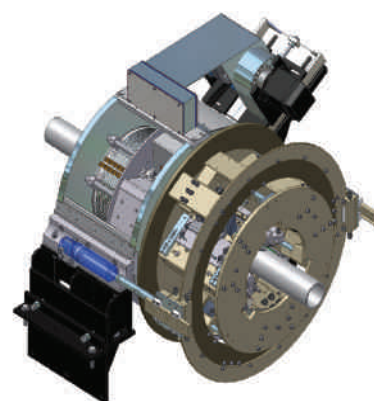
**Tuboscope**  
USA

Stand FO-A12

Tuboscope, a leading worldwide manufacturer of high speed, non-destructive testing equipment, offers the latest in full-body rotary ultrasonic wall thickness measurement – the TruWall® – for high line speed applications, and the RW-MS™ series for mid-speed applications.

Designed for inline installation, the TruWall® system provides fast and accurate wall

 RW-MS™ rotary UT wall thickness unit



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the tube  
processing  
technology

thickness measurement for both statistical control and conformance to industry specifications.

It can be installed as either a stand-alone unit, or in combination with electromagnetic inspection units (Tuboscope's Amalog® and Sonoscope®).

In the same manner as the TruWall®, the RW-MS™ series identifies wall variations in tubulars through the rotation of multiple UT inspection arrays around the outside surface of linearly conveyed tubulars.

Designed for off-line, mid-speed applications, Tuboscope's RW-MS™ is offered as either a stand-alone unit or incorporated with Tuboscope's EMI (electromagnetic induction) inspection systems.

Both the TruWall® and the RW-MS™ help address API and other industry specifications for up to 100 per cent surface coverage wall thickness measurement.

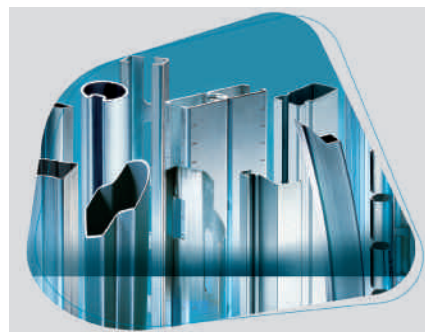
Website: [www.varco.com](http://www.varco.com)

**voestalpine Kreams GmbH**  
Germany Stand FO-E06

voestalpine Kreams GmbH, a company of the voestalpine Group, is a European market leader in the field of tailored tubes and sections.

With high performance rollforming machines the company produces tailored tubes and sections from steel strips using the continuous, cold forming process.

Areas of application include the construction industry, bus manufacture, cabin construction, door and portal manufacturing, storage technology and commercial vehicle construction. Tailored tubes and sections are available in every possible cross-section.



voestalpine Kreams will present its range of tailored tubes and sections

voestalpine Kreams supplies ready-to-install components for customised further processing. Using flexible logistics and an extremely well equipped machine pool, further-processing is provided, which cuts customer production costs. voestalpine Kreams is a technology leader in the fields of bending and end-cutting, with computer-simulation and engineering expertise employed to guarantee optimum results.

The company's system profiles offer many advantages in door and portal manufacturing. These systems guarantee high durability even under the most challenging conditions.

VA-Form represents an excellent safeguard against break-ins and offers certificated protection against smoke and bullet penetration. VA-Fire was specially developed for fire safety requirements. In combination with high-tech internal features, it provides a safeguard for life.

Website: [www.voestalpine.com](http://www.voestalpine.com)

**Имеем удовольствие представить вам наше предприятие и гамму предлагаемой нами продукции**

EMS – предприятие, специализирующееся в разработке и сборке станков по обработке концов труб различных форм из различных металлов. Наши станки предлагают возможность реализации различных заданных концов труб от простых сужений или расширений до более сложных, таких как: конусных, купольных, форм с утолщением, с бортиком и других еще более сложных. Обработка концов труб осуществляется в полном автоматическом режиме с возможностью обработки как на станках простых моделей с ручной подачей и сбросом готовых изделий, так и на станках моделей с автоматической подачей на погрузчик с наклонной поверхностью, вибратором или лопаточном загрузчиком.

EMS предлагает более объемные решения производственного цикла с созданием производственных линий, включающих такие операции, как расливание, шлифование, гибку, различные слесарные операции, монтаж, обработку концов труб в сочетании с операциями контроля качества и прочности. Наши станки в основном используются в автомобильной индустрии (выхлопные трубы, карданный вал, тормозная система, амортизаторы и т.д.), в санитарно-техническом секторе и в конструкции строительных лесов. Фасонные трубы часто и с большим успехом заменяют сортовой прокат. Опираясь на многолетний опыт обработки труб, разработаны 2 типа станков по разрезке труб:

**Ножевая разрезка труб**

Эти станки предназначены для разрезки гнутых труб (например, выхлопных труб автомобилей), а также для разрезки гидроформированных труб. Для разрезки гидроформированных труб EMS предлагает 2 типа станков:

**1 – станки типа CTR**

Режущее устройство в форме ножевой насадки функционирует в режиме вращения со смещением. Производится также компактная модель станка для использования в производственных линиях.

**2 – станки типа СТ 76**

Ножи функционируют в поочередном режиме: нож для разметки и главный нож. Этот станок может быть оснащен устройством для произведения 2-3 операций разрезки одновременно.

**Разрезка труб ножевой насадкой**

Разрезка труб осуществляется ротативной круговой насадкой. Достигнутый нами опыт в данной области позволяет предложить нашим клиентам технику гидроформовки, комплексные решения резки и фасонирования (расширение или сужение с учетом соблюдения диаметра, необходимого для гидроформовки, дополнительная деформация на гидроформированных трубах).

**Техника гидроформовки**

Гидроформовка позволяет получать трубы заданной формы путем гидравлического внутреннего давления в пресс-форме. Эта техника дает возможность производить более комплексную обработку полостных структур, в частности, из алюминиевых сплавов – легких и прочных. Детали, полученные в результате гидроформовки, являются более дешевыми, чем обработанные другими способами. EMS предлагает целую гамму гидроформовочных прессов, которые благодаря своей целостной конструкции с закрытым корпусом с боковой подачей дают возможность его установки в цеху, не прибегая к каким-то дополнительным мерам.

**EMS предлагает следующие комплексные решения:**

- Станки, оснащенные инструментарием, полностью готовые для введения в производственный цикл.
- Запуск станка на рабочем месте и его техническое обслуживание осуществляется нашим компетентным и поливалентным техническим персоналом.

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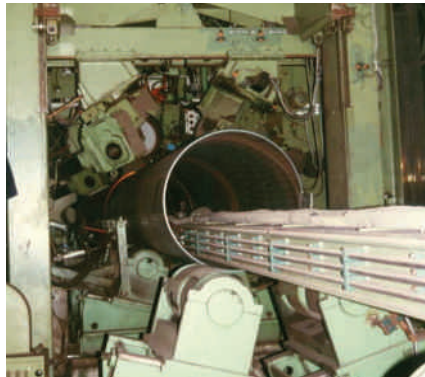


**W + K Industrie Technik**  
Germany Stand FO-F08

W + K Industrie Technik manufactures and supplies a new generation of spiral pipe mills which operate via the two-stage process. Spiral pipes are currently used by most international oil and gas companies in all highly-stressed supply pipelines.

The quality and economic efficiency of the spiral pipe manufacturing process – especially using W + K's two stage process – is a result of a harmonised combination of machine and process technology.

Ⓜ W + K spiral pipe mills operate via the two-stage process



Ⓜ The SAW stands on the spiral pipe mill

In the first stage of the process, the raw material is formed into a pipe body and provisionally welded at high speeds (up to 12m/min). In the second stage, the pipes are finally welded on separate stands where the inside and outside seams are welded simultaneously by means of submerged-arc multi wire welding.

W + K's high level of development is represented by this new generation of spiral pipe mills. Particular features of the patented system are straightness of pipe, very tight tolerances for pipe diameter and ovality, and constant outside diameter over the

whole pipe length. With complete plants and individual machines, the company ensures a quality assurance, high quality raw materials and advanced production technology.

The delivery programme of W + K comprises equipment for pipe diameters up to 64" OD for line pipes (API spec 5 L), and up to 100" OD for water pipes (AWWA C 200 spec).

Website: [www.wk-industries.com](http://www.wk-industries.com)

**Wafios AG**  
Germany Stand 1-E04

Wafios, Germany, is the expert manufacturer of bending machines including the B10, BMR and BMZ series of tube benders, together with the flexible metal tube machine MS 100.

All Wafios bending machines are supplied with advanced CNC controls, Windows-based touchscreen programming and simple but revolutionary tool design. Based on the company's long-standing expertise in wire bending machines, Wafios tube bending machines are now fully established as leading-edge machines in this field.

**AGTOS**

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Yean Hern Enterprise Co Ltd was established in 1982 in Kaohsiung, Taiwan, and Kun Shan Yean Hern Pipe Valve Co Ltd was established in 1998 in Kunshan, China. The company's product range includes instrument tube fittings, instrument valves (ball valves, needle valves, check valves, and valve manifolds), quick couplings, and regulators.

In addition to manufacturing these products, the company also designs and installs them. Products are supplied both within China and to international companies.

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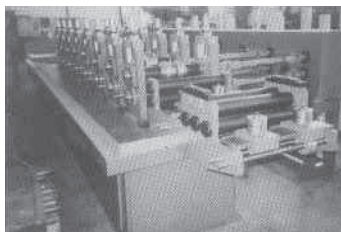
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## From the AMERICAS

### US Foreign policy

#### Russia's President Putin sounds a note heard at the White House

*"The Bush administration has decided to reach out more often and more intensively to Russia at a time when the leadership in Moscow is harshly criticizing American policy and some scholars say the United States has not sufficiently tended to an important relationship."* ('US Moves to Soothe Growing Russian Resentment,' March 6)

This assertion, by Washington reporters Thom Shanker and Helene Cooper of the New York Times, reflects the belated awakening by President George W Bush to the fact that President Vladimir V Putin is seriously dissatisfied with him. While Mr Putin is not alone in holding that view, recent remarks of his have been unusually pointed and direct.

On February 10, in Munich, the Russian leader used a keynote address at a security conference to accuse the US of overstepping itself to impose its will on the world through the unilateral application of military power. Specific grievances were American plans to base elements of a missile defense system in Eastern Europe, and Washington's support for expanding the North Atlantic Treaty Organization. Taken together, these policies have induced unease and indignation in a Russia newly flush with petrodollars.

Initially it was believed by American political analysts that the speech was intended for Russian domestic consumption. But many Russia experts in the US came to believe that Mr Putin was speaking to the United States and its NATO allies.

*"We weren't paying attention,"* Russia scholar Michael A. McFaul, a professor at Stanford University (Palo Alto, California), told the Times. *"We were distracted, busy, with other problems in the world, in particular Iraq. The administration is now put in a position of playing defense."*

Senior Bush administration officials, acknowledging the utility of franker dialogue with Russia on American foreign policy and national security plans, now seek fuller engagement with Russian leaders. By calling for private discussions they hope to demonstrate that the United States is exerting itself to promote the relationship.

### Latin America

#### Venezuela spends on its neighbours to counter US influence

President Hugo Chávez of Venezuela recently announced that his government would build an oil refinery in Nicaragua. Venezuela has also pledged to provide Ecuador with \$1 billion in credit, a very significant cushion if, as threatened, that country's government should default on foreign debt payments. And, together with President Mahmoud Ahmadinejad of Iran, Mr Chávez has announced a \$2 billion international investment fund for Latin America.

Why this very conspicuous open-handedness on the part of the Venezuelan president? Writing in the Washington Post, Juan Forero and Peter S Goodman explain: *"[Mr] Chávez has long pledged to buck Washington-backed economic policies in Latin America. Now, two months after winning reelection and consolidating his hold on the country with new powers to rule by decree, he is strengthening economic ties in the region in a bid"* to curb the reach of the US government in the region. ('Chávez Builds His Sphere of Influence,' February 23)

Long neglected by US President George W Bush, whose foreign-affairs focus lies elsewhere, Latin America is already broadly disillusioned with its big neighbour to the North. But the Post writers say that economists and other observers of Venezuela's affairs believe that, for Mr Chávez, the goal is *"nothing less than to kill the so-called Washington consensus"*: the economic recommendations of the International Monetary Fund (IMF) and the US Treasury which push governments to limit spending, raise interest rates, and open their economies to foreign trade and investment.

While the amount of Venezuelan aid to neighbours is hard to quantify, it would appear that the country puts its money where its president's mouth is. Venezuela's central bank recorded billions spent on foreign bonds and other investments in the first nine months of 2006, dwarfing the amount the United States offers in assistance to all of Latin America.

As for Mr Chávez's vision of a Latin America independent of the US, the Venezuelan model, predicated on a break with all multinational institutions with Washington ties, has plainly gathered steam in some countries. Last year, Argentina paid off the last of the \$10 billion it owed the IMF. It was aided by Venezuela, which had bought \$2.5 billion in Argentine debt. Also in 2006, after spending nearly two decades under the strictures of an IMF program, Bolivia let its agreement with the fund end. Meanwhile, Venezuela has committed more than \$140 million in loans and grants while pledging to invest as much as \$1.5 billion in Bolivia's gas industry in coming years.

Bolivian leaders said Venezuelan aid comes with fewer strings attached. *"In the case of the United States, we're locked into specific areas – aid for roads, aid for health, aid for electricity,"* vice president Álvaro García Linera told the Post in an interview in his office in La Paz. The Venezuelan aid *"allows [Bolivia] greater flexibility to choose projects with more productive impact, especially those ventures that include a state presence."*

- While President Chávez of Venezuela frequently takes his anti-Washington show on the road in Latin America, some of the region's most important economies – Mexico, Brazil, Chile, Colombia, and Peru – maintain solid relations with multilateral lenders and continue to follow market-oriented principles, such as welcoming foreign investment, limiting government spending and attacking inflation. And the Washington Post article cited above notes that it is by no means certain that the Venezuelan president is well regarded by the people he visits, even if their governments are happy to accept his aid.

According to a recent survey of 20,200 people in 18 Latin American countries by Latinobarómetro, a Chilean polling firm, most of those polled lumped Mr Chávez with US President Bush and Cuba's Fidel Castro as bad leaders. They cited Brazil's Luiz Inacio Lula da Silva and Chile's Michelle Bachelet as the best.



**Of related interest . . .**

➤ President Hugo Chávez's tightening control of the Venezuelan economy is having the doubtless unintended effect of promoting the flight of many of his wealthy countrymen to the United States, particularly Florida. According to the latest US Census, between 2000 – a year after Mr Chávez took office – and 2005, the number of Venezuelans living in the US doubled to about 160,000. Nearly half live in Florida. Venezuelans have had a long-time interest in Florida investment property, but the latest buyers are seeking houses and business properties that will help them earn the green card, the traditional preliminary to naturalized citizenship.

And the Venezuelan influx is intensifying. According to the latest Department of Homeland Security statistics, in 2005, 10,645 Venezuelans received green cards allowing them to live in the US, almost double the total for 2004. By way of comparison, Colombia, with nearly twice Venezuela's roughly 27 million residents, sent the same number that year. And of the thousands of Venezuelans who came to the US in 2005 on business and tourism visas, at least some are presumed to have stayed.

➤ Latin Americans are not the only ones spotting value in American real estate. South Koreans spent \$780 million on overseas real estate in 2006, 34 times more than in the previous year and almost half of it (48 per cent) in the United States. Canada drew 23 per cent and China 5.9 per cent of the outlay, according to the Central Bank of Korea.

**Matters of trade**

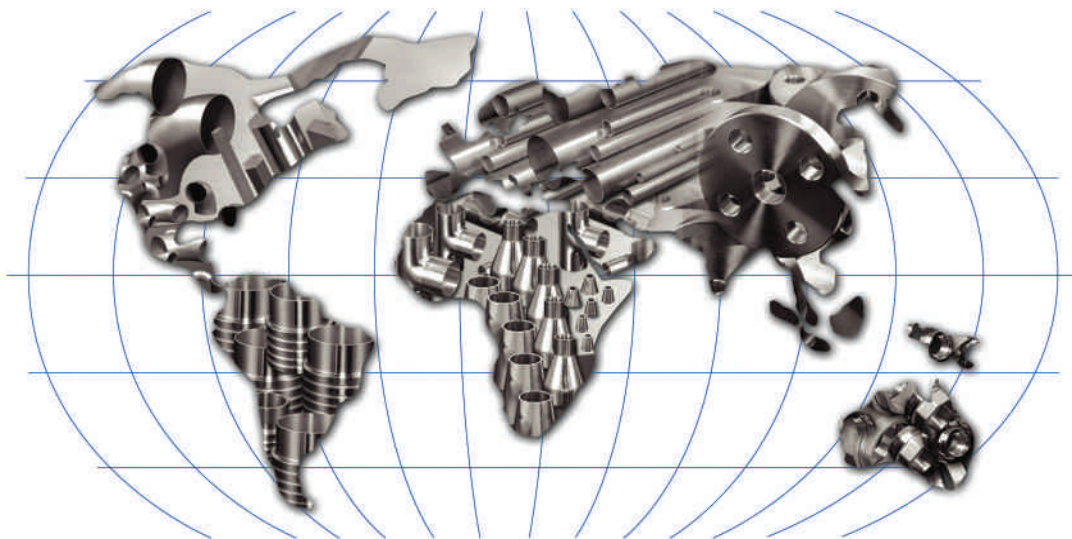
**A US administration with few trade-pact successes tries sweet talk with Congress**

The Democrats who last autumn prevailed over Congressional candidates from President George W Bush's Republican party had campaigned against Mr Bush's trade policies, and trade deals promoted by the administration seemed doomed in the new Congress. But in early March the administration and Republican lawmakers were making a fairly obvious effort to gain Democratic support for three pending trade deals: with Panama, Peru, and Colombia.

*"There's no question that there's been a change on the Republican side,"* Rep Charles B Rangel, the New York Democrat who is chairman of the House Ways and Means Committee, said on March 5. *"They refused to talk about these things before, and now they're talking."*

The sudden White House softening is readily explained by the eagerness of a lame-duck president for even the smallest foreign policy success. US efforts to reach a free-trade agreement with South America's two biggest economic powers, Brazil and Argentina, are stalled, and Washington's efforts to influence economic policies through the International Monetary Fund and its sister organisation, the World Bank, have diminished.

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## From the AMERICAS

But it is not clear that the newly collegial Republicans will find Democrats responsive. Mr Rangel said that they remained highly skeptical about signs of Republican flexibility on trade issues and that he had not seen anything "acceptable to a broad number of members" on his side.

He added, "The question will be whether, at the end of the day, things really have changed. So far, the answer would be no."

### Steel

## Russia's Evraz completes acquisition of Oregon Steel Mills

Evraz Group SA, the biggest steelmaker in Russia, announced completion of its purchase of Oregon Steel Mills Inc by means of a "short-form merger" of the Portland-based steel maker with Evraz's wholly owned subsidiary Oscar Acquisition Merger Sub Inc. The transaction followed on a January 12 announcement of the acceptance of an all-cash offer by Oscar to purchase all outstanding shares of Oregon Steel common stock. Payment has been made for all tendered shares.

Alexander Frolov, chairman and chief executive officer of Evraz, was ambitious as well as ebullient in assessing the prospective fortunes of the combined company in the market for rails. He said, "We welcome Oregon Steel's employees into the Evraz family, and look forward to jointly building a world-class company with efficient

operations, diverse revenue streams, and high margins. From day one, the combined company is a global leader in the important rails market, with a strong presence in the two largest railway countries."

Mr Frolov said that the Russian-American combination could expect to benefit from "vertical integration synergies" as well as improved margins from access to lucrative downstream markets and a reliable source of Russian slabs to support an already low US cost base.


The forward-looking program shifts the emphasis away from what it was in November 2006, when Evraz, partly owned by billionaire Roman Abramovich, agreed to buy Oregon Steel for \$2.3 billion. Then, the big news was that this would, if it materialized, be the biggest-ever purchase in the US by a Russian company. The aggressive Evraz bid for all of the American steel maker was frankly intended to secure a foothold in the US and – almost incidentally, it seemed – to create the world's largest producer of rail tracks and wheels.

But, even that early in the process, it was not lost on industry observers that the purchase would raise Evraz to tenth place among world steel makers, ahead of Germany's ThyssenKrupp AG. Bloomberg News observed that Russian steel producers and their counterparts in India and Brazil, bolstered by rising stock values, were looking to enhance crude-steel processing in North America and Europe to make such higher-value products as pipe and tube for the oil and gas industry.

- Al Breach, chief strategist with UBS AG in Moscow, told Bloomberg in November that the Evraz-Oregon Steel



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transaction "shows corporate Russia is at its healthiest yet". Emerging economies now account for 6 of the 10 biggest steelmaking nations. China alone makes almost a third of the world's steel. Mittal Steel Co, the world's largest producer, started with an Indonesian steel plant. Arcelor SA proposed merging with OAO Severstal, Evraz's Russian rival, before agreeing to be bought by Mittal in the industry's biggest-ever combination. In this broader context, New York-based Bloomberg saw in the Evraz takeover of Oregon Steel another indication of the "emerging muscle" of steel makers from outside the developed countries.

## Elsewhere in steel . . .

➤ Arcelor Mittal, the European steel producer, has been ordered by US antitrust regulators to sell a tinplate mill in Maryland instead of one in West Virginia. The Justice Department said Mittal must sell the Sparrows Point mill, near Baltimore, because that business can stand alone as a producer. The company's plant in Weirton, West Virginia, would need to find a new supply of the steel slabs used to make tinplate, hence the exemption. Mittal, which is based in Rotterdam, had planned to sell the Weirton mill to satisfy US antitrust concerns after its \$38.3 billion acquisition of Arcelor, of Luxembourg, last year.

## Oil and gas

### Chevron chief calls for a US energy policy

Chevron Corp (San Ramon, California) is the second-largest American oil company, engaged in every aspect of the global oil and gas industry. The successor to Standard Oil of California, it earned \$17 billion in 2006. But oil is becoming harder to find and more expensive to produce. David J O'Reilly, Chevron's chairman and chief executive, spoke recently with Jad Mouwad of the New York Times about the challenges facing big American oil and gas companies, deploring the lack of a national energy policy. Following are excerpts from the interview. ('Big profits, big worries in oil fields,' March 3).

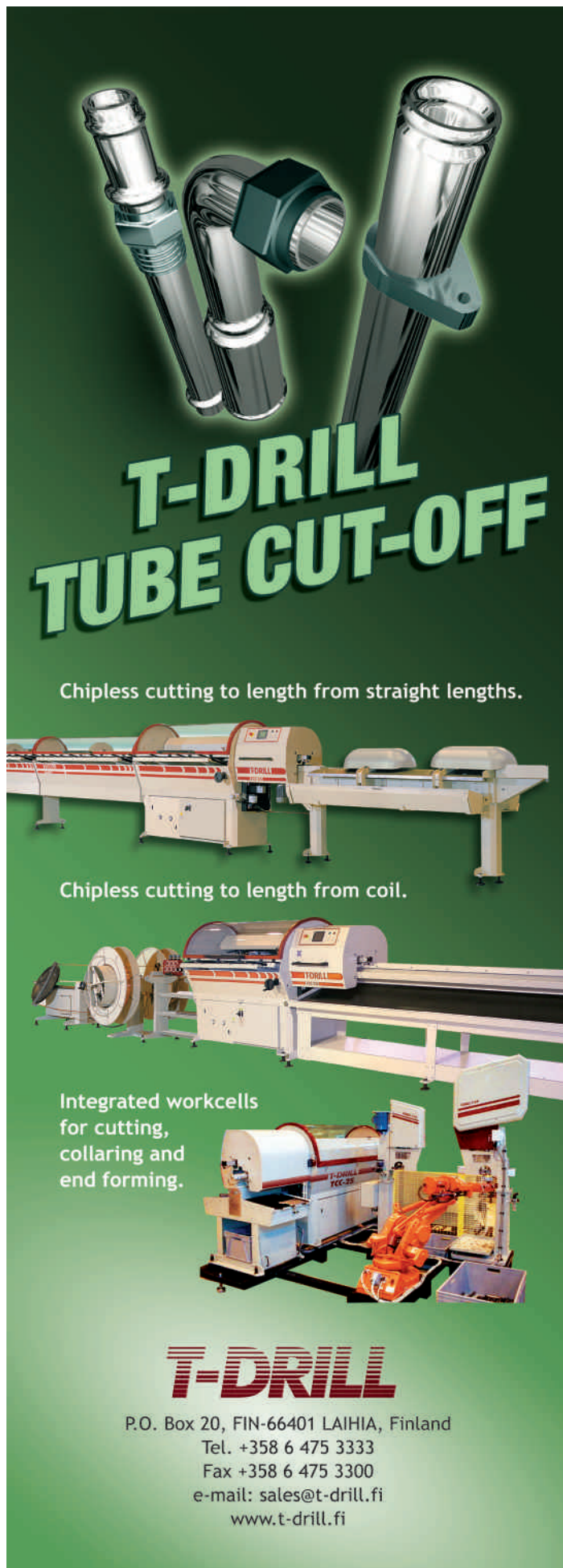
**Mouwad:** *Is there enough oil out there to meet the world's growing demand for energy?*

**O'Reilly:** I think yes, certainly in the foreseeable future. But it is not in easy-to-get-to places or easy-to-recover places. Technology allows us to go farther and find oil in places we never thought we could. It's not so much the molecules, it's the access, either through technology or through the permission.

In the US, one of the issues is offshore access. The Europeans have a much more progressive attitude toward this. The Norwegians produce oil offshore, the British do, the Dutch do, the Danish do. They all produce oil offshore. And yet we in the US don't seem to be able to come to terms with doing this effectively. There are many areas of our offshore that have not yet been explored.

**Q:** *How do you break into the debate on energy policy in the United States? It seems so entrenched.*

**A:** We don't have an energy policy. We have discussions about different people's views and their answers. One of the things



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Chevron has been pounding on for a couple of years now is the need for an energy policy that looks at energy conservation holistically. There are a lot of ways of answering the questions. There are multiple answers. There doesn't have to be a fight about this. It is too important.

**Q:** *There is also this notion of energy security that has crept into the debate and the notion that there is a competition for resources from which the United States needs to insulate itself.*

**A:** I think that's the wrong answer. It's a very simplistic answer. When we are importing two-thirds of the oil we use, and a lot of the gas we use, the best energy security is when the globe is secure. And I mean that broadly, as well as in an energy way. If you have any one of the major players on the demand or supply side feeling threatened or isolated, it's a bad thing for the globe. We are interdependent. We have gone way past the point of independence in anything.

**Q:** *Do you sense a retreat in the US role in the energy world? After all, this was an industry that was invented by Americans.*

**A:** The US industry, at times, has played a bigger role. But the reality is that what you're seeing happening in the oil industry is probably very similar to what you see happening in other elements of the global economy. Companies like ours are bigger than we were 10 years ago, and much bigger than we were 50 years ago. But we're a smaller piece of the total global energy pie because the pie has grown so much bigger and there are so many more participants in it.

## Anadarko Petroleum revives lawsuit to avoid Gulf of Mexico royalties

As a solution to America's energy problems, offshore drilling may be problematic. One of the biggest oil producers in the Gulf of Mexico is suing the US government for the overturn of regulations that compel companies drilling in publicly owned waters to pay full royalties on oil and gas they produce during times of high energy prices. The lawsuit against the Interior Department by Anadarko Petroleum (Houston, Texas) could, if successful, allow energy companies to avoid as much as \$60 billion in royalties due the government over the next two decades.

Anadarko, which earned \$4.8 billion in profit last year on sales of \$10.2 billion, argues that Congress offered oil companies special incentives to undertake deepwater drilling, effectively exempting them from the standard 12 per cent to 16 per cent royalty on much of their production in the Gulf of Mexico. The Interior Department, which leases out millions of acres in the Gulf, maintains that the incentives were never intended to apply when oil prices climbed above about \$34 a barrel.

The lawsuit was filed in early 2006 by Kerr-McGee Oil and Gas Corp (Oklahoma City), which Anadarko acquired later in the year for \$21 billion. But Anadarko held off on the suit to enter court-supervised mediation talks with the Interior Department. On March 1, a federal judge in Louisiana declared that the mediation talks had failed and ordered both sides to start filing arguments in late May.



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The failure of the mediation effort is a blow to the Bush administration. The government already stands to lose \$10 billion in royalties deriving from a technical error on a number of oil leases signed during the Clinton administration.

## US government report on unpaid oil royalties is a broad indictment of lapses in oversight

As vexed as it is, the developing battle over oil royalties as outlined above is not as bad as it gets. An eight-month investigation by the Department of the Interior concluded late last year found widespread problems in the government's own program for ensuring that companies pay the royalties they owe on oil and gas pumped on federal land and coastal waters. In a scathing report to Congress, the department's inspector general, Earl E Devaney, asserted weaknesses in oversight that Interior officials acknowledge could cost the American government billions over the next five years.

The report, delivered on December 6, refuted claims by top Interior officials that the department is aggressively pursuing underpayments and outright cheating by companies that drill on property owned by the American public. It also supports complaints by critics, from auditors within the agency to lawmakers of both the Republican party of President George W Bush and the opposition Democratic party, who say that enforcement has become superficial, inclined to error, and overly deferential to oil companies.

These are among the inspector general's findings on the monitoring of oil leases:

- Since 2000, the number of audits has declined by 22 per cent and the number of auditors has been reduced by 15 per cent, even though soaring energy prices have doubled the total amount of money at stake, to about \$10 billion a year
- Although the Interior Department says it has 'reviewed' about 72 per cent of all revenues from federal leases, it actually examined only 9 per cent of all properties and 20 per cent of all companies
- The department's 'compliance review' system, a computerised form of fact-checking that has increasingly replaced audits, essentially relies on the word of the oil companies being monitored. Officials conducting such reviews do not ask companies to produce their actual records
- Government data is incomplete and often inaccurate, making it almost impossible for enforcement officials to develop strategies for selecting companies for special scrutiny.

The report is the result of an investigation that began in March 2006 in response to questions posed by the Senate Energy Committee after Edmund L Andrews of the New York Times reported that royalties for natural gas had climbed far more slowly than market prices, and that both federal and state auditors were complaining that the new system was inadequate.

## Company news . . .

➤ Ford Motor Co on March 2 signed a collective bargaining agreement with the union representing its Russian employees, thus averting a strike. The Detroit automaker agreed to raise wages

14 per cent to 20 per cent and to guarantee that jobs will not be lost in outsourcing to subcontractors, according to Aleksei V Etmanov, the union president. Russia has done very well by Ford, which made 60,000 of its Focus models there last year. It plans to produce 75,000 this year.

➤ Tenaris, the Luxembourg-based global supplier of pipe for the oil and gas industry, has agreed to buy Hydril Co (Houston, Texas) for \$2.16 billion to expand in valves and pressure control products. The Hydril deal will be Tenaris's second purchase in the US since June 2006, when it bought OCTG maker Maverick Tube Corp (Chesterfield, Missouri). Tenaris, which is controlled by the Argentine conglomerate Techint, is paying a premium of about 17 per cent to Hydril's February 12 share price.

➤ The Carlyle Group, the Washington DC-based global private equity firm, announced that John Maneely Co, parent company of Wheatland Tube Co and Atlas Tube Inc, has signed a definitive agreement to acquire Sharon Tube Co (Sharon, Pennsylvania). Sharon is to be integrated into the Wheatland Tube division of John Maneely.

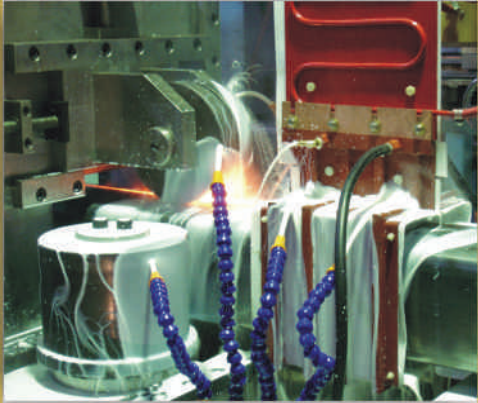
John Maneely was acquired by Carlyle in March 2006 and merged with Atlas Tube, a Canadian manufacturer of structural tubing, in December. The latest merger will make Carlyle the parent of the largest North American maker of steel tubing, with sales in excess of \$2 billion, the companies say.

Dorothy Fabian, features editor (USA)

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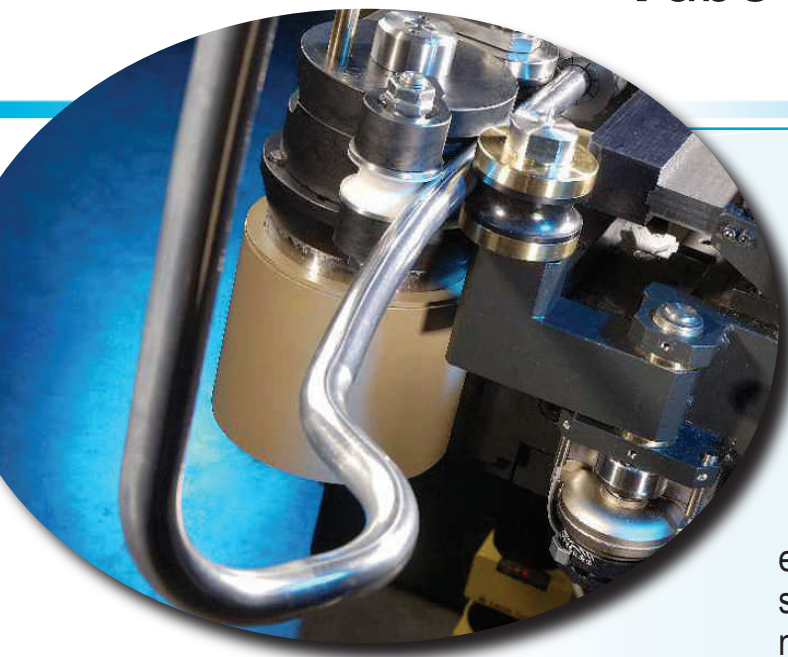
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# Tube Bending, Hydroforming & End-Forming



**B**ending and forming stands in the same relation to tube processing as formation does to character-building. As the workpiece is shaped to its purpose, so goes its utility, serviceability – indeed its reason for being.

A length of tubing or pipe that has been formed for a critical application in a punishing environment must exhibit superior qualities of strength, toughness, and resistance to enemies natural, chemical, and man-made. In an athlete or soldier this is known as fortitude.

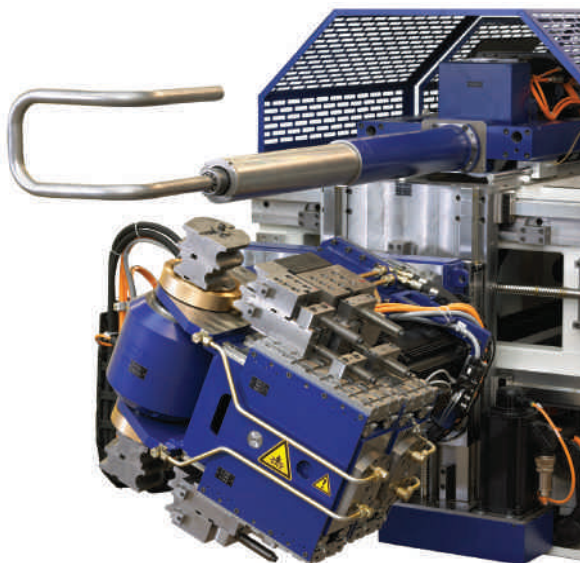
The providers of the equipment and services reviewed here are well aware of the importance of their specialty. They moreover know that, even as forming adds value, it must carefully preserve the integrity of the product with which they are entrusted. The editors of *Tube & Pipe Technology* are pleased to present a showcase of respected names in a very exacting department of tube making.

## Flexible bending solutions with Megalus and Gigus

The flexibility and versatility of Mewag's Megalus and Gigus series of benders provides benefits including a modular design and the implementation of one or two heads. The bending direction can be

automatically changed from right to left within the cycle by means of an unlimited number of tools. This saves time due to a reduced retooling period and ensures efficiency and repeat accuracy not possible with manual operation.

 The bending head of the fully-electric Megalus 50



With up to 13 axes, these bending machines are fully-electric and capable of producing both simple and complex geometries. Operable with highly competitive accuracy and speed, high-speed servo drives are used for all axes.

Surface quality is of serious concern to Mewag, and due to damage to delicate materials – caused by extreme clamping forces – Mewag offers an electrically adjustable bending arm and sliding rail feed pressure on its machines. With this technology, pressure for each bend is programmable and the formation of wrinkles is controlled.

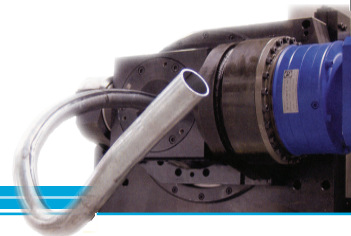
In the area of creaseless bending, Mewag have enabled the mandrel position of fully electric machines to be programmed for each bend, thus reducing the risk of flattening and wrinkling. This counteracts the limitation of hydraulic pipe benders that only have one position for the mandrel return point, which causes constant velocity pull back and resultant surface defects.

The major issue when programming complex parts for bending is the speed at which the program can be created. All machine functions need to be freely programmable in order to optimise production times.

In addition to the standard programming, Mewag's sub-program technology also allows an additional CNC code to be inserted before or after each bending set. This ensures all axis movements and auxiliary functions can be programmed. Using this sub-program technology, any bending sequence can be programmed.

**Mewag Maschinefabrik AG** – Switzerland  
**Fax:** +41 34 437 75 76  
**Email:** [mewag@mewag.com](mailto:mewag@mewag.com)  
**Website:** [www.mewag.com](http://www.mewag.com)

# Tube Bending, Hydroforming & End-Forming



## Hydroforming and the all-electric tube bender

Hydroforming is a cost-effective way of shaping malleable metals such as steel into lightweight, structurally stiff and strong parts by injecting fluid at high pressures into a tube to form the material into a die cavity. One of the largest hydroforming applications is in the automotive industry where producing a consistent part shape to the hydroforming die is essential.

The first step in producing hydroformed shapes is bending a tube to a net shape to fit the die prior to hydroforming. This step of the process requires exact bending procedures and accurate machine operation to minimize scrap and fit the die correctly.

Any variations in the bent part shape may produce part pinching in the die and subsequently scrap. In addition to the accuracy requirements of the hydroforming procedure, the bending machine cycle time must be minimized.

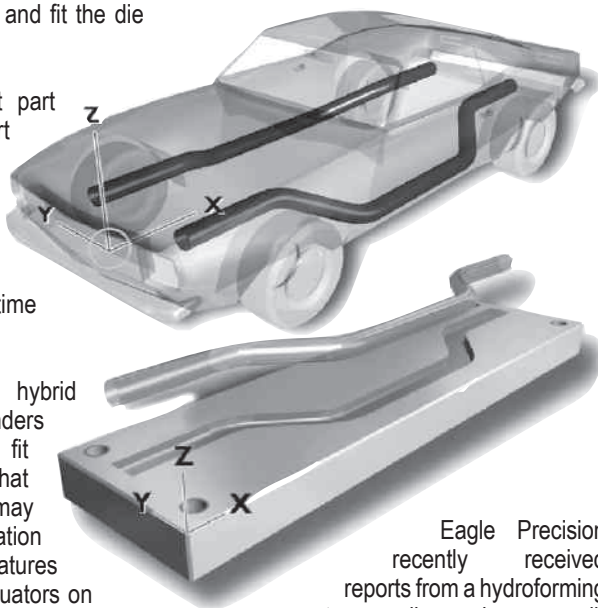
Traditional hydraulic or hybrid (electric and hydraulic) benders can produce bent tubes to fit dies. However, any axis that is hydraulically actuated may experience process variation until hydraulic oil temperatures stabilise. In addition, the actuators on hydraulic or hybrid benders are typically only two-position and therefore cycle times cannot be minimized.

Eagle Precision Technologies Ltd has introduced a family of all electric benders that addresses the specific needs of the hydroforming world. These concerns are essentially high-speed, accuracy,

reliability and cycle time. The company's range of all electric benders have been designed according to essential criteria including high efficiency, clearance and robustness.

Using the machine, the mechanical ball screw designs used for the slides can be synchronised via the flexible EPT BendPro G2 control. Slide motions can therefore be overlapped to further minimize cycle time.

 *The automotive industry requires consistent part shape for hydroformed products*



Eagle Precision recently received reports from a hydroforming parts supplier using an all-electric Eagle bending machine, model EPT90EPS (3.5" OD capacity). The parts supplier revealed a cycle time of 19 seconds for a 3.25" OD X 0.070" wall X 5" CLR 5 bent part. This statistic equates to 4 seconds per bend compared to 5 seconds per bend as seen on competing hydraulic or hybrid products.

 *An all electric bender from Eagle Precision Technologies*



With 35 years of experience, Eagle Precision Technologies is a world leader in the manufacturing of CNC tube benders, tube end-finishing equipment, custom machine building, muffler manufacturing equipment and tooling.


**Eagle Precision Technologies – USA**  
**Fax:** +1 519 756 0195  
**Email:** jwarren@eaglept.com  
**Website:** www.eaglept.com

## Soco's latest machine with 1D bending and thickness control

A new model of CNC tube bender has been launched by Soco, branded the SB-65X6A-3S-PT with cutoff, which incorporates the ultimate combination of automation and high production features in one package. It offers advantages including 1D bending and thickness control.

This machine includes 8 electric programmable axes, coupled with a unique, patented Soco DBS system. Designed for minimal tube deformation after bending, the DBS system provides double blade shearing and vertical/horizontal cutting.



 *Soco's new CNC tube bender – SB-65X6A-3S-PT with cutoff*

Features include a centreline radius (CLR) of 1 X OD bending in stainless. With 12 to 15 per cent wall thinning ratios (WTR), the machine can help meet the strictest safety demands of muffler and exhaust system suppliers. A cutoff during and after bending, together with continuous bending from one long part, ensures no waste between parts.

A special collet boosting device is included to allow 1D and low WTR even for short lengths and last bends. In addition, multi stacks and multi radius is available for bending even the most complex parts with '0' straight lengths between bends.

**Soco Machinery Co Ltd – Taiwan**  
**Fax:** +886 4 23592386  
**Email:** patrick@soco.com.tw  
**Website:** www.soco.com.tw

## Continual innovation of mandrel bending

Dynobend, Netherlands, has launched its latest development: the combi-bending machine. The complete line of combi-bending machines consist of the CB12, CB25, CB40, CB60, CB76 and the CB90. Equipped with servo drives, this CNC bending machine combines the advantages of rolling with variable radii and the popular mandrel bending technique.

The patented Dynobend bending tools, which are horizontally divided and vertically

clamped, can be used to bend fixed radii from approximately  $1.2 \times D$  to  $3 \times D$ . The rollers can also be used to roll larger radii. In combination with the compact bending head, there is a capability to bend many different types of products.

All kinds of tools can be used together with the fixed tools, eg multi-ball mandrel, wiper die and pressure die. All machines are equipped with a booster, modem and network connection. By using the correct tools, in addition to tubes it is possible to bend rectangular tubes and other profiles. Furthermore, different types of materials do not present a problem.

The machine can easily be extended for mass production by adding a bunker, loading systems, weld seam detection, and unloading systems. The bending machine

Combining variable radii rolling with mandrel bending – the Dyno CB25



The compact bending head fitted to the combi-bend range

therefore plays a central role in the production unit. This enables large savings to be made in relation to handling and operator costs.

**Dynobend BV – The Netherlands**  
**Fax:** +31 53 8507731  
**Email:** info@dynobend.com  
**Website:** www.dynobend.com

## Spinformed hollow tube technology replaces end-cone welding

Formitt Metal Labs, a division of Hess Industries Inc, offers development, prototyping and production runs that utilise patented technologies to form tube ends, while eliminating welding of end-cones. The division was created specifically to support product development for a variety of industries.

The company uses spinforming, flowforming and assembly technologies to create hollow tube symmetrical and asymmetrical shapes, fabrications, and assemblies. The method accommodates tubing in both ferrous and non-ferrous metals, including stainless and high alloy steels.

By eliminating the need to weld end-cones to a tube, spinforming technology enhances overall component quality, reliability and cost. The company's hollow tube fabricated assemblies can include the insertion of filtration elements, heat exchange components, catalytic elements, or others.

Formitt metal tube spinforming technologies are currently being used in the automotive, HVAC, filtration, marine and other industries.

**Formitt Metal Labs – USA**  
**Fax:** +1 269 683 1775  
**Website:** www.formitt.com

**Hess Industries, Inc – USA**  
**Fax:** +1 269 683 1775  
**Email:** sheffer.rick@hessindustries.com  
**Website:** www.hessindustries.com

## Latest star in the electronic bending range

Star Bend, Italy, produce electronic bending machines without bending hydraulic transmission. The range includes thirteen different size configurations, from the simplest one axis model up to the complete model 6/8 axis CNC, which can bend seven sizes of tubes from  $\varnothing 6 \times 1 \text{mm}$  to  $\varnothing 130 \times 8 \text{mm}$ .

This new system, managed by brushless motors, is controlled by the latest generation of digital drivers and uses the proprietary and exclusive 'bending cycles' management software operating in a Windows environment. This ensures a line of machines with the most reliable performance, purchasing costs and managing costs.



Star Bend's latest bending model, the Star 450 CN6

Exclusive patented Star Bend design allows the machine to be entirely modular with the maximum capability for updates. It is able to interface with any other bending machine, and can interact with the laser 2 measurement centre laser 2. This interaction is undertaken by remote workstation or modem with tele assistance.

**Star Bend – Italy**  
**Fax:** +39 030 3583309  
**Email:** info@starbend.it  
**Website:** www.starbend.it



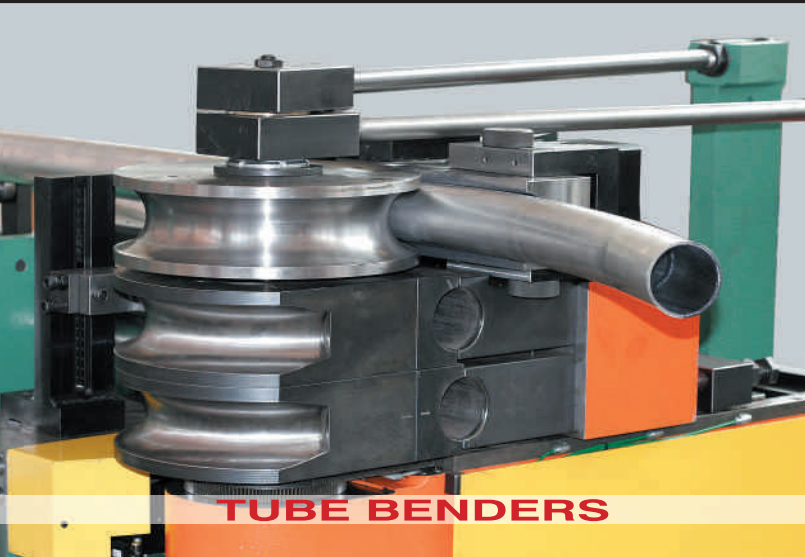
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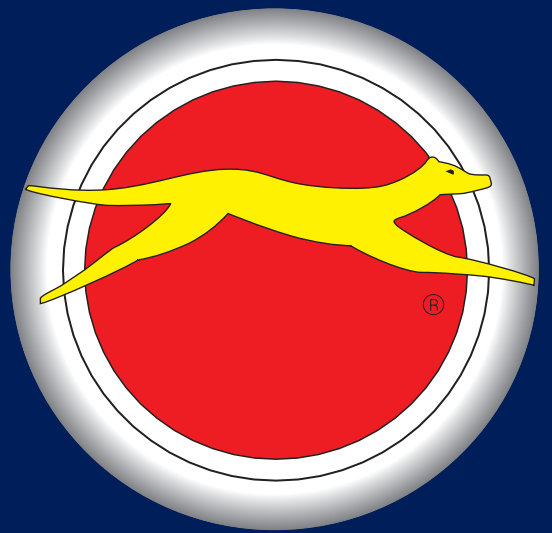
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# Tube Bending, Hydroforming & End-Forming

## Advances in double wall tube bending

Techniques for manufacturing double wall tubing have been around for a long time, yet they are not widely practiced and shops experienced in the manufacture of double wall tubing are uncommon. Wolfbend LLC, USA, is the manufacturer of a patented lightweight system that enables bending of tube-within-tube.

Most traditional double wall tube methods rely on a medium that fills the gap between tubes to provide support during bending, which is then removed afterwards. Commonly used mediums are hot wax, sand, small metal shot, and metal alloys such as Cerrobend that melt in boiling water. The processes for all these materials are similar.

Hot wax is the most commonly used method in aerospace. A typical hot wax process starts with cutting inner and outer tubes to rough length and applying corrosion protection such as iridite or alodine inside and outside both tubes. Long thin phenolic spacers are cut to size and epoxied onto the inner tube with a template to ensure that they are not in bend areas. After a four-hour cure the inner tube/spacer assembly is slid into the outer tube and capped off at one end.

Molten wax is poured into the gap filling 2ft sections at a time, with a two hour cooling between pours to allow for contraction. Bends of 5° or more are X-ray inspected from 2 directions. The tube assembly is then uncapped and hung vertically in a hot

water bath or oven for 2½ hours to remove the wax.

Tubes 6ft and longer are flipped over and processed a second time. Pressurized steam is then blown through the assembly to remove most of the remaining wax. After degreasing and cleaning, tube ends are trimmed to length and fittings are installed.

The hot wax method has drawbacks, primarily due to the characteristics of the wax. With long tube assemblies, the wax can cool before reaching the bottom. Resultant air pockets can lead to lack of support and bend failures. To help compensate for this, a minimum working gap is typically ¼" (ie a 1.00 OD inner tube requires a 1.50 OD outer).

Bending applies varied forces and wax is by no means a perfect medium. It behaves fairly well in compression but tends to squeeze out which can influence tube ovality. In tension wax can separate leading to inadequate support and bend failure. Proper function also depends on the wax being completely cooled before bending.

The added weight of the wax usually requires the bender to be slowed down due to increased swinging weight and momentum. 100 per cent removal of the wax is very difficult to achieve and verify, which is a contamination risk in aerospace applications such as fuel lines. There are also potential burn risks in the pouring and removal steps, particularly when using steam.

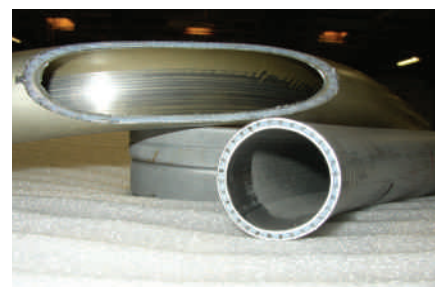
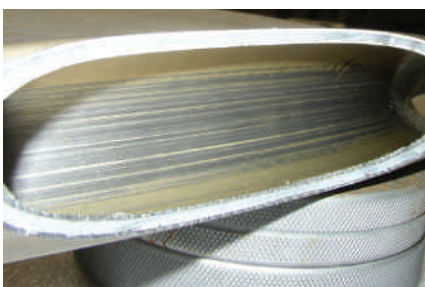
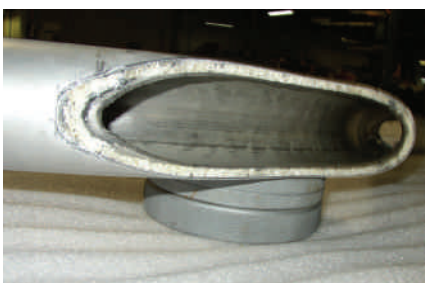
Scrap rates can be as high as 50 per cent depending on material, bend radii, and complexity of the tube assembly. The process is slow and labour intensive with an average two-day processing time. This can be hard on delivery schedules when unpredictable scrap rates necessitate repeated runs.

**Bending applies varied forces and wax is by no means a perfect medium. It tends to squeeze out which can influence tube ovality**

Wolfbend™ is a relatively new double wall manufacturing method. It relies on a bending sleeve that fills the gap between tubes but remains in place after bending to support the tubes. For aerospace applications, where weight is critical, the sleeve is only used in the bends and straight sections remain empty. Metallic grounding spacers are used at both ends of the assembly to keep tube ends concentric and provide an electrical bonding path.

A typical Wolfbend process starts with cutting inner tube rough length, outer tube final length, and applying iridite or alodine inside and outside both tubes.

⬇ (Below left, middle and right) Cutaways and end view showing the effects of using hot wax as a filler medium for double wall tube bending  
(Bottom left, middle and right) Cutaways and end view showing the effects of using the Wolfbend method for double wall tube bending

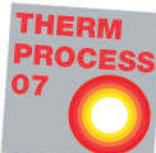




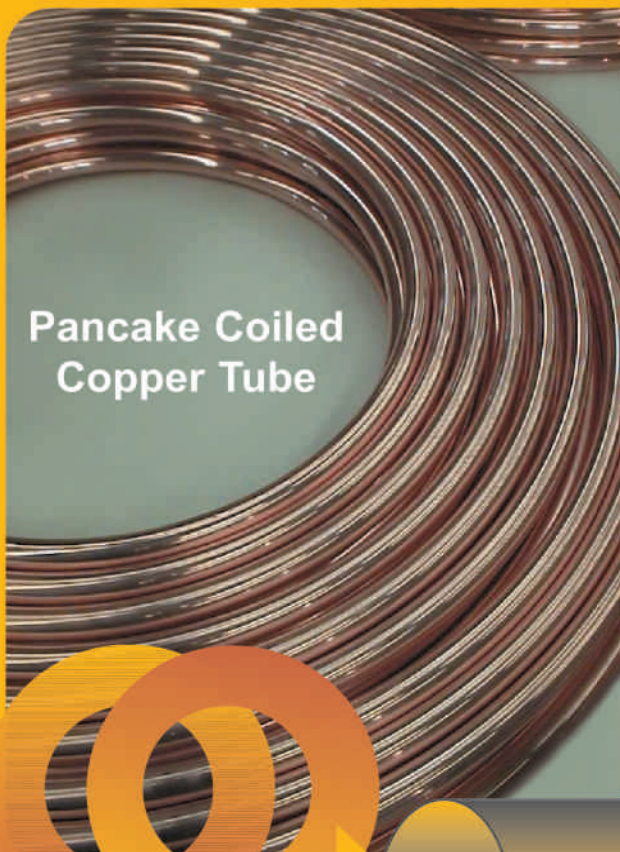


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Bending sleeves are cut to size and placed into the tube assembly along with grounding spacers using a proprietary set-up method. Following the bending process, tubes are visually inspected for defects. They are then degreased and cleaned, the inner tube ends are trimmed to length and fittings are installed.

Results with Wolfbend are much more consistent than for hot wax and scrap rates are closer to single wall tubing, primarily because the physical characteristics of the bending sleeve are better suited to the purpose. The sleeve is a proprietary Teflon formulation that is very good in compression and also stretches and cold flows well in tension.

Combined with the self lubricating properties of Teflon, this leads to good tube wall flow and consistent bend support. Typical design gap is 1/8", ie a 1.00 OD inner tube requires a 1.25 OD outer, and smaller gaps can also be bent. Bend defects such as wrinkles and ovality tend to mirror between tubes, simplifying inspection and eliminating the need for X-ray. The processing time for Wolfbend is typically a few hours.

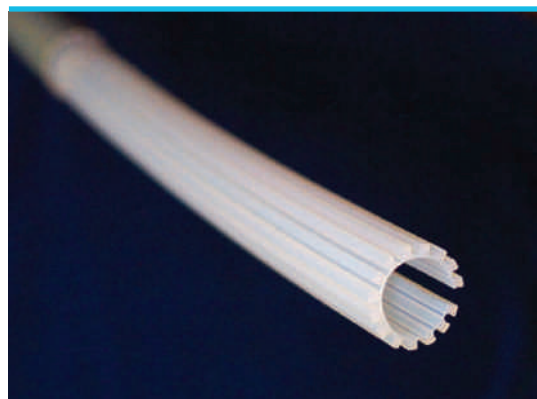
Aero Arc Inc, USA, manufactures double wall tubing for the Boeing 717 and C17 using the hot wax process and for Bombardier Regional Jets using Wolfbend.

Mr Rick Rohrberg, vice president of Engineering at Aero Arc, says, "The Wolfbend bending sleeve is much better than hot wax because it's fast, easy to use, and works well. The phenolic spacers used with hot wax are only in straight sections and fit loosely which can allow the tubes to resonate. The Wolfbend sleeve is secured tightly by bending and gives support in the bends where it's needed. The Wolfbend™ grounding spacers are also a great feature. The hot wax method requires the tubes to be independently grounded with straps at installation. With Wolfbend the grounding is incorporated and it really simplifies things."

Aero Arc Inc, based in California, is an aerospace component manufacturer specialising in tube bending, sheet metal, machining, and welding since 1982. Aero Arc also manufactures PMA licensed tube and duct assemblies for MD/Boeing aircraft.



**The sleeve is a proprietary Teflon formulation that is very good in compression and also stretches and cold flows well in tension**



**Wolfbend technology uses a bending sleeve that fills the gap between tubes but remains in place after bending**

Wolfbend™ was developed for aircraft fuel lines but it has already found new applications meeting SFAR 88 safety requirements for wiring conduits in fuel tanks. Its design, safety and manufacturing advancements may find application outside aerospace in industries such as petrochemical and pharmaceutical process piping, heat exchangers, and submarine and ship systems.

Davis Aircraft Products Co Inc is the exclusive Wolfbend marketing licensee and it is currently used under sublicense by Bombardier, Cessna, Mitsubishi Heavy Industries, Aerospace Industrial Development Corporation (Taiwan), Aero Arc (Torrance, California), BHW Components Ltd (Lancashire, UK), GE Elano Canada, and OSM Partners LLC (Savannah, Georgia).

This article was supplied by Mr Rick Rohrberg, vice president of Engineering at Aero Arc Inc, and Mr Larry Wolf, president of Wolfbend LLC.

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**Email:** ddavis@davisaircraftproducts.com

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## Advanced bending technology for automotive and aerospace applications

Silfax, France, is a worldwide designer and manufacturer of tube and pipe forming and bending machines. With over 15 years of experience, the company provides a full range of products from standard to customised systems.

These machines are valued in the automotive, aerospace, appliance and general industries. In particular, they are used in the production of tubular

components for exhaust, brake, air conditioning and fuel injection applications.

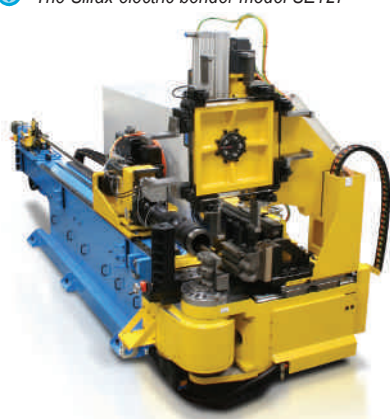
The company manufactures machines and systems for tube forming with 3 to 37 axes. The Silfax range includes machines to bend tube and pipe from  $\varnothing$  4.75mm up to 228mm.

These patented bending and forming machines are often integrated into automated cells. In addition, the company provides machines for tube and pipe fabrication, from prototype parts to production cells.

The machines are designed to meet the specifications of the automotive market (ground connections, structural parts, engine compartment pipe, fuel injection pipe, air conditioning pipe, ABS brake pipe, and exhaust pipe etc), and the aerospace market (structural or fluid transfer pipes).



 The Silfax electric bender model SE127



 Particularly used for automotive and aerospace parts, Silfax bending machines can be integrated into automated cells

The company combines its specialised knowledge with that of software experts SEEB and Ulmo. The machines are designed using sophisticated development tools, including CAD and simulation tools.

**Silfax – France**  
**Fax:** +33 4 72 31 06 19  
**Email:** info@silfax.com  
**Website:** www.silfax.com



## Yangzhou Long Chuan Steel Tube CO.,LTD

Yangzhou Longchuan Steel Tube Co., Ltd., located in the developing zone along the river in Yangzhou,

Our company plans to invest 700,000,000 RMB and occupy an area of 600,000 square meters for Production Base and Transportation Centre by three stages. The Production Base will reach the amount of 250,000 tons of high quality seamless steel tubes of the specification  $\varnothing$ 10~ $\varnothing$ 426 $\times$ 1~40mm, and the Transportation Centre will have the capacity of 300,000 tons each year. Totally, our company will reach the goal of 550,000 tons in production and 4 billion RMB in sales. All can be achieved by the year of 2010.

It has developed into a professional manufacturer of producing and selling high quality seamless carbon and alloy steel tubes and pipes, which are mainly used in boilers of the electric station, petrochemical and shipbuilding industry.



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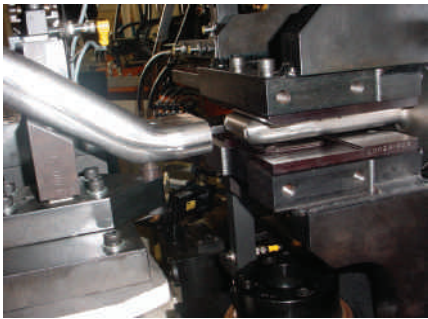
# Tube Bending, Hydroforming & End-Forming

## Critical manufacturing of hydroformed components

Presses and tooling alone do not satisfy the increasing demand for hydroformed components in today's automotive manufacturing industry.

Prior to downstream processing, nearly every hydroformed component requires critical preliminary or secondary operations such as pre-bending, trimming, shearing, end-forming, piercing, poke yoke inspection and palletizing.

 A hydroformed tube being loaded over a mandrel in a tool that will pierce a radius for later use to weld the bushing at the end of the part. Following punching, the part is driven off of the mandrel and slugs and scrap are shed into a collection system



Wayne Trail Technologies, USA, provides innovative equipment and automation solutions to help complete the tubular hydroform process. The company offers a tubular hydroform solution from stand-alone machines to turnkey system integration and overall line control.

The company supplies to a variety of market segments, including metal stamping and forming, tube bending and fabricating, robotics, welding and fixturing, and laser welding and cutting systems.

**Wayne Trail Technologies – USA**  
**Fax:** +1 937 295 2642  
**Email:** [info@waynetrail.com](mailto:info@waynetrail.com)  
**Website:** [www.waynetrail.com](http://www.waynetrail.com)

## Forming both ends of the exhaust market

Ava-Matic, UK, has been manufacturing its range of tube end-forming machines for over 20 years. This range is supplied for applications including exhausts, for both ends of the spectrum from mass

production to the bespoke requirements of many Formula 1 teams. The company has recently received an order for eight machines from a large European manufacturer.

The footprint is extremely compact on both Ava-Matic's single and twin head machines, meaning that the design is especially suitable to form part of a production cell.

With a capacity for up to 160mm diameter tube, the machines have extreme efficiency for their size. These features have made the machines ideal for use in all types of applications including the furniture, dairy/ brewery and tube fitting industry.

The machine includes a semi-automatic mode that allows the operator to expand or reduce the tube in a series of steps (pulses) to reduce splitting and maintain consistent close tolerance accuracy. All controls have been designed for ease-of-use and rapid setup, with completion of tool changeover in less than a minute.

**Ava-Matic – UK**  
**Fax:** +44 1527 518526  
**Email:** [info@avamatic.co.uk](mailto:info@avamatic.co.uk)  
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## Analysis and simulation software for hydroforming

AutoForm Hydroforming is a software solution for the rapid analysis and simulation of the entire hydroforming process. It is used by part designers, process engineers and tool/die makers to evaluate hydroforming tool designs and process layouts.

Based on AutoForm's clear and logical methodology, the user is guided step-by-

step from the import of CAD geometry until the generation of the completed tools.

The highly intuitive software provides handling of single and multiple parts and automatic cross-sectional part analysis. It also enables rapid die and process design, including automatic filleting of sharp edges, automatic and manual part tipping, automatic creation of the addendum and



Image AutoForm

 AutoForm Hydroforming is expert software for analysis and simulation

inner fills, and generation of the separation surface.

Other features include export of complete surface data, generation of the bending line, automatic tooling concepts for tryout simulations, high accuracy of bending and hydroforming simulations, and fast design of multiple tooling concepts. Automatic design and positioning of all required bending tools and steps can be undertaken prior to hydroforming. This means that the time-consuming manual definition of bending tools and of the bending process in a CAD system is no longer necessary.

There is also support of complex semi-finished products such as conical tubes and profiles, as well as tailor-welded tubes with varying wall thickness and/or material properties. These features lead to improved part quality, increased process reliability, reduced tooling costs and shorter development time.

AutoForm Engineering GmbH develops and markets specialized die face design and simulation software for the automotive and sheet metal forming industries.

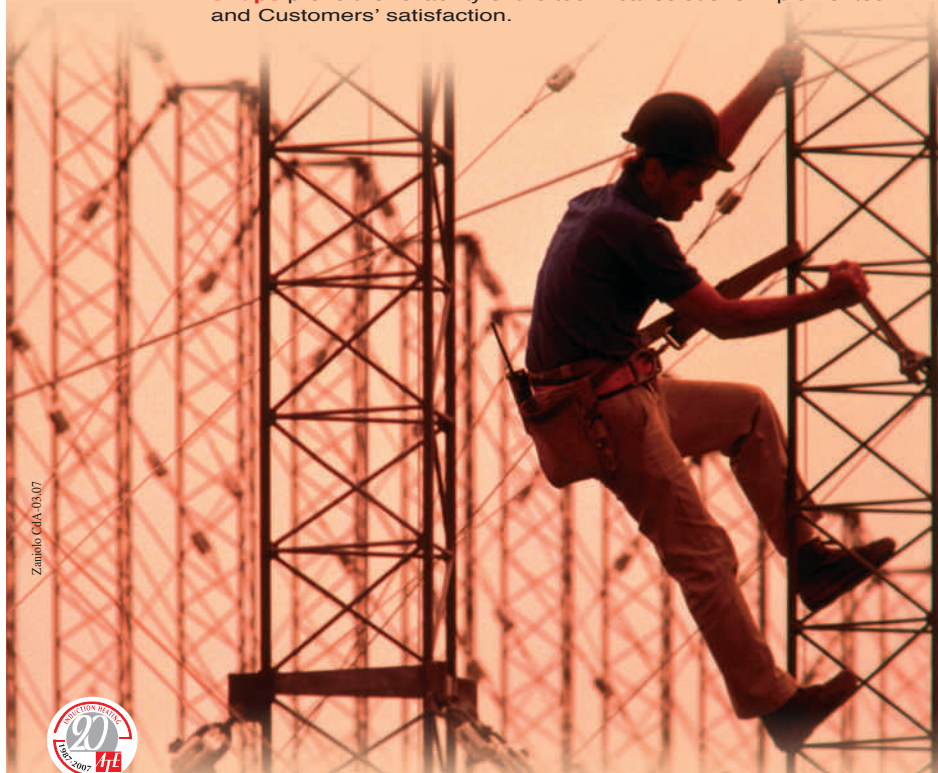
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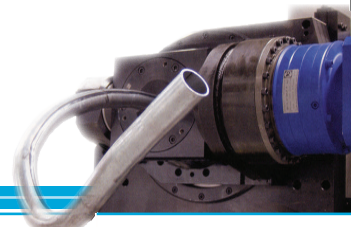
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**INDUCTION HEATING TECHNOLOGY**





# Tube Bending, Hydroforming & End-Forming



## Optical tube measurement for bending machines

Aicon 3D Systems, Germany, is a provider of optical camera based 3D measurement systems. The company develops and distributes systems for inspection and testing for industries including automotive and aerospace.

The company's TubelInspect optical 3D tube measurement system allows for high-precision measurement of tube geometries. It determines setup and correction data and transmits them to bending machines.

The system, which can entirely replace mechanical gauges, ensures efficient quality control in tube manufacturing.


Once the measuring process is started, TubelInspect runs fully automatically, with results displayed in seconds, both graphically and numerically. In addition to manual operation, the system is ready for operation in a robot cell, where it is able to conduct automated 100 per cent control.

 Aicon's TubelInspect provides high-precision tube measurement



Aicon has also launched the TubelInspect S version, aimed at companies that only need to control short tubes. Designed to measure tubes of up to 1,200mm in one step, TubelInspect S is suitable for use in the inspection of cooling, gas, or hydraulic tubes with flexible parts.



 Interior view of the TubelInspect system

TubelInspect S features all of the measuring functions available with the larger TubelInspect model.

**Aicon 3D Systems GmbH – Germany**  
**Fax: +49 531 58 000 60**  
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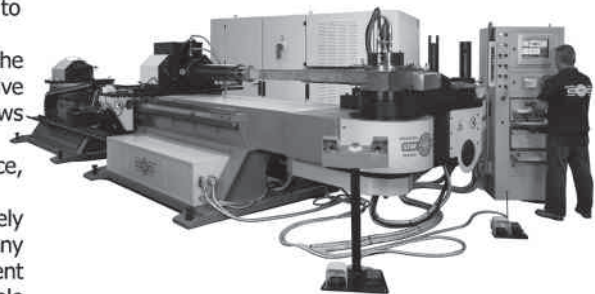
Available in thirteen different size configurations, from the simplest model one axis up to the more complete model 6/8 axis CNC, able to bend seven sizes of tubes from  $\varnothing$  6x1 to  $\varnothing$  130x8 mm.

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.

This ensure a line of machines with the most reliable performance, purchasing costs and managing costs.

Exclusive patented Star Bend design allows the machine to be entirely modular in the maximum range of updating and to interface with any other bending machine; they allow to interact with measurement centre laser 2, by work station remoting or by modem with tele assistance.

A Star Bend machine is one of the most modern, innovative and advantageous solutions to any bending problem.



## Mastering the art of tube bending

Pedrazzoli's Bend Master 90 MRV IMS is an automatic tube bender with 6 controlled axis designed to guarantee high productivity, best quality and long life. It can make multi-radius bends on tubes up to a maximum diameter of 90mm and thickness of 5mm with fixed radius and variable radius in the same working cycle, as well as mandrel and compression bends.

The programmable thrust during the fixed and variable bending ensures very short

straight segments, thus improving bend quality and simplifying the tooling required. Bend Master 90 can be setup for right or left bending, or right and left simultaneously due to a particular tooling set. This unique advantage makes it highly flexible and able to produce components that would otherwise need to be manufactured in a higher number of parts.

The Bend Master 90 MRV IMS is particularly versatile and suitable both for

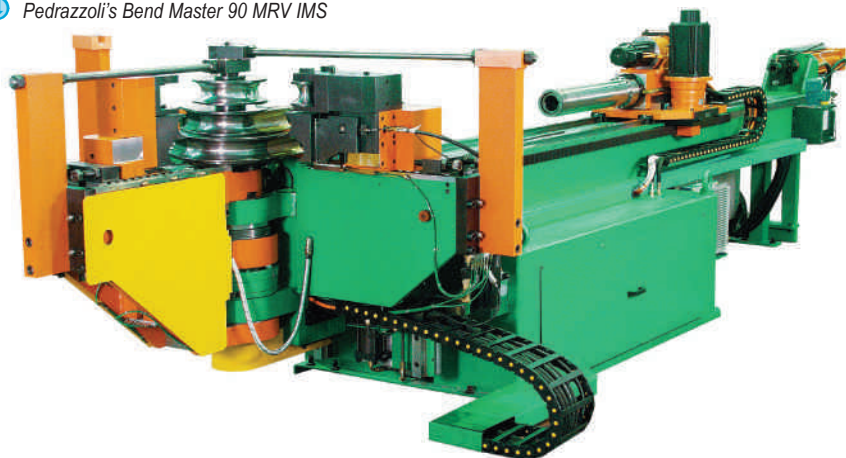
the production of large and small series, due to the fast setup of the tooling and the IMS control. Application fields include automotive, aeronautic, street furniture and ship building.

The IMS (Intelligent Motion System) software, developed in-house, has an intuitive and easy-to-use interface, allowing an operator with no programming knowledge to easily program the machine cycle. The 3D representation of the finished piece and simulation of the working cycle warns the operator of potential collisions and presents shape bending feasibility.

There is a range of programming possibilities, especially for those with a particular ISO code. In addition, the machine can be used with many acquisition systems (ie measuring centres and drawing programs like Autocad, Pro Engineer, Solid Edge, and many others), to assist users with their own drawing system.

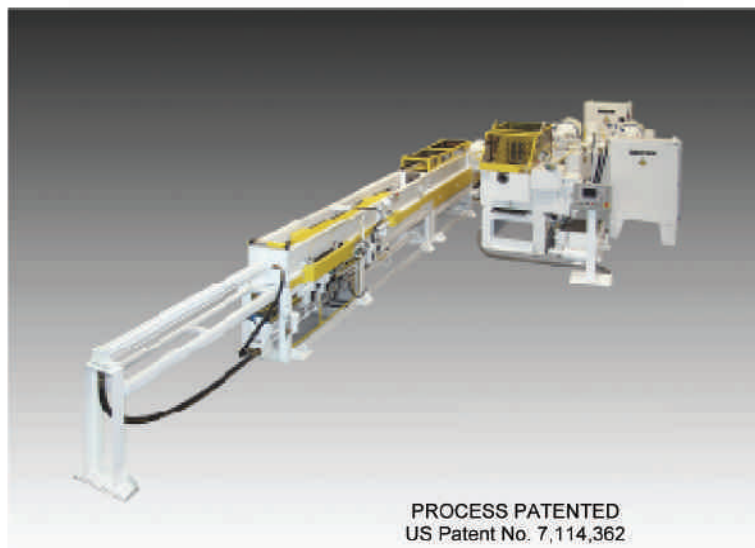
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 Pedrazzoli's Bend Master 90 MRV IMS



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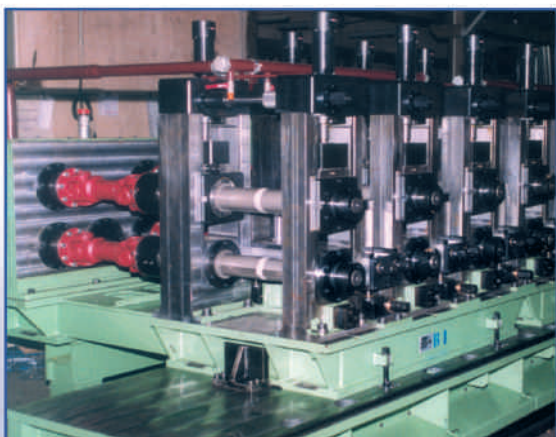
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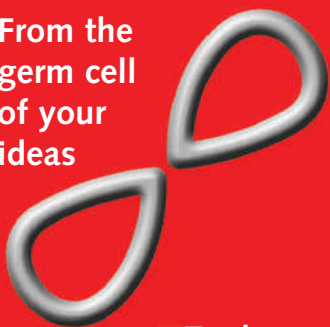
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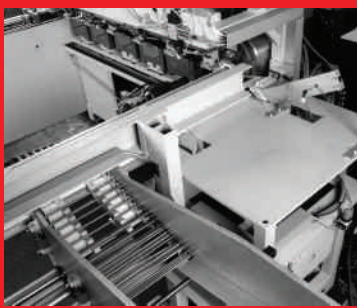
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## Tube Bending, Hydroforming & End-Forming

### Hydraulic tubing machinery range with bending capability

OP Srl, Italy, supplies a wide range of processing machines designed to manufacture rigid tubing for hydraulic systems. The operation and life of hydraulic system components is not only dependent upon component quality but also that of the assembly system and machining process.

Accurate pre-assembly of the fitting cutting ring and the 37° flaring of the steel pipe is paramount to the safety of any system using DIN 2353 and SAE J 514 fittings joints.

Incorrect assembly of the spinner and inaccurate flaring of the pipe might jeopardise the system and, in extreme cases, cause injury to property and persons.

To avoid this, OP offers various Unispeed series equipment models. Easy-to-use and portable, the machines offer a wide range of tools for machining carbon steel pipe and stainless steel pipe from Ø 6-42mm, with thickness up to 4mm.

The OP range includes practical bending machines that are ideal for bending stainless steel and carbon steel pipes up to a minimum thickness of 4mm and maximum diameter of 42mm.



The complete Junior model for processing hydraulic tubing

The company also provides the S series of deburring machines for post-cutting removal of burrs to leave the pipe edge clean and smooth. These machines prevent burrs from entering the hydraulic system, thus avoiding damage to pumps, valves and other components.

OP offers a series of multi-functional and mobile units, including Center Junior and Mini Center.

These machines combine all separate tools, providing the operators with all they need in a single unit for the finest work results.

**OP Srl – Italy**  
**Fax:** +39 030 358 0838  
**Email:** tiraboschi.valentina@op-srl.it  
**Website:** www.op-srl.it

### Specialists in induction bends

Fabricom GTI, Belgium, is a specialist in induction bends with the capabilities required to produce bends for the most advanced onshore and offshore oil and gas pipeline systems. The company also provides technology for specific applications in the chemical, petrochemical and energy sectors.

In addition to offering high quality standards, induction bending also offers features such as the bending of single-length pipe-spools in multiple planes, which reduces the number of butt welds in the piping system. The company can also offer the complete pre-fabrication of high pressure piping systems such as those used in power stations.

Fabricom GTI operates six induction bending machines with diameters of up to 64", all of which offer a high degree of flexibility in terms of bend radius, bend angle and bend plane. As the machines are computer controlled, close tolerances can be achieved.



Fabricom GTI operates six induction bending machines

The company recently installed a quench tank at its facilities in Belgium, in order to be able to meet the strict requirements set by the oil and gas industry with regard to material properties. Following heat treatment, stainless and duplex steel bends can now be cooled down immediately, in order to obtain the right corrosion resistance.

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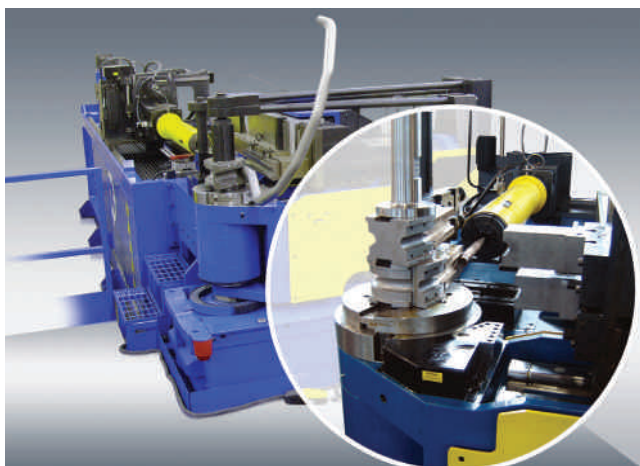
## Latest all-electric 100mm tube bender from Unison

Unison, UK, has added a 100mm/4" diameter, multi-stack CNC tube-bender to its all-electric machine range. Called Breeze-100, the machine is optimized for high-precision applications, and includes unique operating software. The company claims that the machine virtually eliminates the high costs normally associated with machine configuration for precision small-batch and just-in-time parts production.

Mr Alan Pickering, managing director of Unison, says, "This latest machine extends the benefits of all-electric machines to new applications including automotive and aerospace manufacturing, and shipbuilding."

Breeze-100 offers programmable control over the rotary draw bending process

 Unison's Breeze-100, a new all-electric 100mm/4" tube bender





components, and thus can cold-bend the most demanding materials with total precision, such as 100mm/4" titanium tubing. Bends of up to 180° can be made, with a high degree of repeatability of  $\pm 0.05$ mm of distance between bends, and  $\pm 0.05^\circ$  of bend angle, plane of bend or rotation. This ensures good control of fluid flow around tight bend radii and compatibility with the hydroforming tools used in some volume manufacturing processes.

A key element of the new machine is the Unibend Control Software, which now includes advanced features such as an automatic setup routine. This automatically senses and clamps a tube, ready for bending – thus reducing initial setup time.

Users have complete control over the bend operation, and can modify the standard bend speed, clamping pressure, pressure die position and force, and mandrel positioning parameters that are applied to achieve the ideal bend.

The machine includes a webcam, which Unison can remotely access over the internet. In combination with a software 'black

 **Breeze-100 can cold-bend the most demanding materials with total precision, such as 100mm/4" titanium tubing** 

box', which automatically stores the last 500 instructions entered by the operator, Unison can help users to optimize their processes, as well as provide remote maintenance.

Tube bending operations may be programmed in three ways. They can be automatically generated by transferring data from CAD software, with interfaces for all popular packages. A simple programming template is also available, allowing users to create a program by entering the distance between bends, the angle of bend required, and rotation of the tube. A further option is copy or reverse engineering, by using a tube measuring system to recreate the coordinates from a sample or prototype.

The Breeze-100 uses servomotors to control the bend process, including clamp, pressure die, mandrel and follower. This all-electric actuation provides significant benefits related to energy consumption, repeatability, and noise reduction. As the actuation elements of the machine require energy only when a bend is being made, total consumption is greatly reduced.

In a measured comparison made by one of Unison's users, consumption showed a ten-fold reduction. Further energy is saved as Breeze machines can be switched off when unused – avoiding the practice of leaving hydraulic machines on when idle to maintain oil temperature and consistency.

The new machine can be supplied to interface with a manufacturer's existing tools, or as a turnkey system complete with tooling. Unison also offers a range of complementary equipment, allowing the machine to be provided as a complete automated cell, including downstream equipment such as end-forming.

**Unison – UK**  
**Fax:** +44 1723 582379  
**Email:** enquiries@unisonltd.com  
**Website:** www.unisonltd.com

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## Forming/rolling machine for corrugated tubes

The MPF rolling machine, from ORT Italia, is designed for corrugated tubes with a stationary workpiece and rotating head. The machine has one rolling head with three rotating corrugating tools, and is designed for a maximum corrugation length of 1,000mm and a tube diameter range from 6-20mm.

The MPF is designed for a fast and easy set-up and changeover, typically 10-15 minutes. Machine operation and part programming is undertaken via the machine PLC with touch screen control panel.

Programming is user friendly and easy to learn, with minimal time required to create complete programs for corrugating operations. Automatic loading and unloading equipment is also available for tube lengths up to 1,000mm.

Established in 1964, ORT Italia is a leading manufacturer of tube rolling and forming equipment, with over 4,000 installations worldwide.

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<b>July/August 2005</b> Vol. 18 No 4	<b>Exhibition:</b> • Tubotech 2005, Brazil <b>Featuring:</b> • Drilling, piercing & punching • Tube bending, forming & fabricating <b>Technical Articles:</b> • Laser vision guidance for automated welding and NDT of tubes and pipes • Pulse SAW principle and pulse form feature
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<b>Nov/Dec 2005</b> Vol. 18 No 6	<b>Featuring:</b> • Design & production software for tube & pipe • Coating & covering technology • Plastic & composite tube & pipe <b>Technical Articles:</b> • Cold pilger mills – machines for highly specialised tube forming processes • AC degaussing of spirally double submerged arc welded pipe

## 2006

Jan/Feb 2006..... Vol. 19 No 1

March/April 2006..... Vol. 19 No 2



**Exhibition:** • Tube Düsseldorf 2006 (preview)  
**Featuring:** • Equipment & processes for the treatment of tubes  
• Inspection, measuring, testing & marking  
**Technical Articles:** • Minimising residual stress level in cold drawn welded tubes (CDW/DOM)

**Exhibition:** Tube Düsseldorf 2006  
**Featuring:** • Developments in welding technology  
**Technical Articles:** • Rotary sizing of tube and pipe on the mill  
• Seam annealing of HF welded API pipe

May/June 2006..... Vol. 19 No 3

July/August 2006..... Vol. 19 No 4



**Exhibition:** Tube Russia 2006  
**Featuring:** • Viewpoint: China's steel pipe report for the 10th five-year plan  
• Tube bending, endforming & hydroforming  
**Technical Articles:** • Optimisation of seam annealing process with the help of 2D simulations  
• High chromium rolls for steel pipe and shaped steel

**Featuring:** • Focus on tube mills & rollforming lines  
• Fittings, couplings, valves & tubular joints  
**Technical Articles:** • Stripper condenser tube-to-tubesheet welding for the urea process  
• Methods and equipment for pre-weld pipe end and edge preparation

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**Exhibition:** • Tube China 2006  
• Fabtech/AWS welding show 2006  
**Featuring:** • Tube cutting, bevelling & end-finishing  
• Fabtech/AWS welding show 2006: Atlanta, USA  
**Technical Articles:** • Microwave diffusion technology (MDT) in metals manufacturing  
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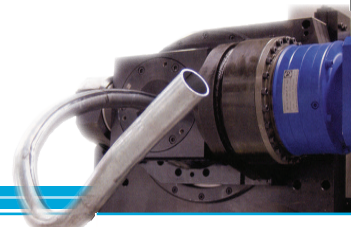
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# Tube Bending, Hydroforming & End-Forming



## New bending process monitor to protect equipment

OES Inc, Canada, has launched a new process variation monitoring system for mandrel bending applications. The PVM2000-MB mandrel bend monitor provides dynamic in-process monitoring of the bending process to detect excessive tension or compression on the mandrel rod that can cause excess wear or equipment damage.

Detection of excessive pull force on the mandrel rod during the bend cycle indicates process variation that may lead to mandrel failure. This can result from loss of lubrication, weld seam imperfections, galling of the mandrel, wiper die wear, or the poor adjustment of the mandrel position. The system can also detect excessive compression force during mandrel advancement to prevent bending the mandrel rod if there is an insertion jam.



**i** The PVM2000-MB mandrel bend monitor

Mr Michael Reeve, VP of market development for OES, commented, "The initial design of this system was for detection of mandrel failure. The new PVM2000-MB goes well beyond that by detecting process variations that can lead to equipment problems. Users of the monitor find that it makes them aware of potential problems before they occur."

The PVM2000-MB provides two levels of alert to process variations, and offers both audible and visual alarm options to indicate fault conditions to the machine operator. By integrating the fail output to machine control, the bend cycle can be stopped before damage occurs.

A touch screen interface provides monitoring, configuration and threshold adjustment. Assisted by the BendView companion software, each bend can be logged onto a computer for analysis and traceability.

**OES Inc – Canada**  
**Fax:** +1 519 652 3795  
**Email:** oes@oes-inc.com  
**Website:** www.oes-inc.com

## Broad product range for tube manipulation

Kent Corporation, USA, offers a product line that includes equipment for liquid hydro and mechanical bellows forming machines, metal hose and end-finishing equipment, pipe expanders, tube/pipe swagers, tube/pipe benders, and hydraulic presses.

The company serves applications including mechanical bellows forming, automotive tubular products, heavy wall

pipe bending, and forming for electrical power plants. They also provide for precision weld joint expanding, air-conditioning systems, heat exchangers, plumbing connections, metal furniture, and sports equipment.

**Kent Corp – USA**  
**Fax:** +1 440 582 9654  
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## Tube Bending, Hydroforming & End-Forming



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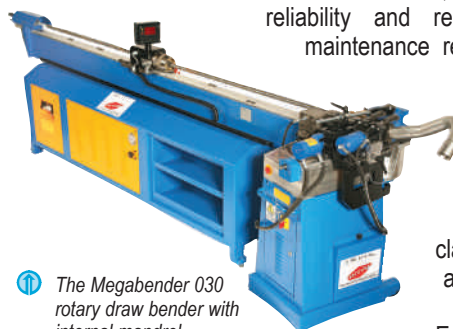
### Rotary draw bender with internal mandrel

CML USA supplies a wide range of Ercolina pipe benders, tube benders and tooling for round or square tube, including the Megabender® 030 rotary draw bender with internal mandrel.

Ercolina's patented mandrel system adapts easily to the Megabender 030 without modification, to produce high quality bends on tube and hollow profiles when non-mandrel systems are no longer effective.

Depending on the material, wall thickness and distance between bends, the Ercolina mandrel system can accommodate centreline bend radii as small as 1.5 times the external diameter, on tube diameters ranging from 3/8" to 3".

Mandrel bend systems incorporate six separate tools to effectively support the profile during the bending process. The six tools are the centre former, pressure die, clamping die, wiper die, collet and internal mandrel, and are specific to material type and dimension.



The Megabender 030 rotary draw bender with internal mandrel

Traditional mandrel machines require high volume production to be cost effective. The Ercolina system is an inexpensive alternative to high volume systems, making it suitable for prototype or production runs requiring up to 1,000 bends per day.

The Megabender's main drive unit is electromechanical, which improves reliability and reduces the cost and maintenance requirements associated with more expensive completely hydraulic systems. The simple hydraulic system operates only the clamp die, pressure die and mandrel extractor.

Ercolina's standard micro-processor controls clamping, mandrel movement, bending speed, bending angle and material spring back compensation functions for true NC semi-automatic three axis operation. Newly redesigned mandrel tables are available in 5, 10 or 20ft lengths, to accommodate most applications.

**CML USA Ercolina – USA**  
**Fax:** +1 563 391 7710  
**Email:** info@ercolina-usa.com  
**Website:** www.ercolina-usa.com

### High performance tube bending tooling range

Omni-X Inc, USA and Czech Republic, is the manufacturer of high precision and performance tube bending tooling for the aerospace, automotive, shipyard, HVAC, furniture and bathroom accessory industries. The range includes bending and end forming tools for any size, make and model of tube bender and endformer on the market.

Bend dies, clamp dies and pressure dies are developed using the latest software and over 80 years of combined experience in the tube bending industry. The company's engineering department is capable of designing both simple and complex compounds and stackable multi-radius bend dies in minutes. Quick change design minimizes downtime between tool changes, grip sections for all applications (serrated, knurled, smooth, grit-blast) and mandrel-less tooling.

Mandrels and wipers for any shape and size are available using a variety of

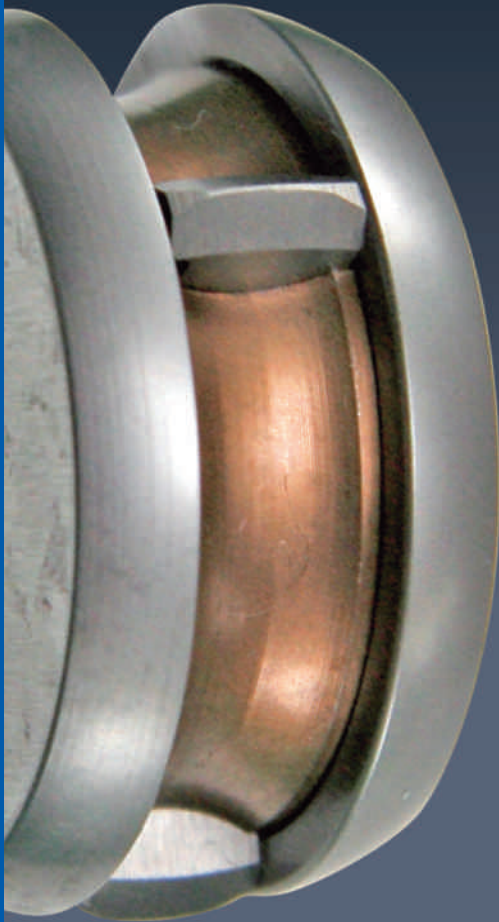
materials and coatings, including round, square, rectangle, oval and extrusion. The most popular mandrel sizes and components (shanks, balls and links) are stocked in Ampco bronze and chrome, ready for immediate shipping. Customer tailored stocking programs are available for mandrels, squareback and disposable inserted wipers.

End forming and finishing tools consist of custom and off-the-shelf applications for E/R and ID/OD tools, ram form dies, flare dies and flare centres, bead dies, heads, arbors and tips.

**Omni-X Inc – USA**  
**Fax:** +1 303 789 4755  
**Email:** mstelbasky@omnibend.com  
**Website:** www.omnibend.com

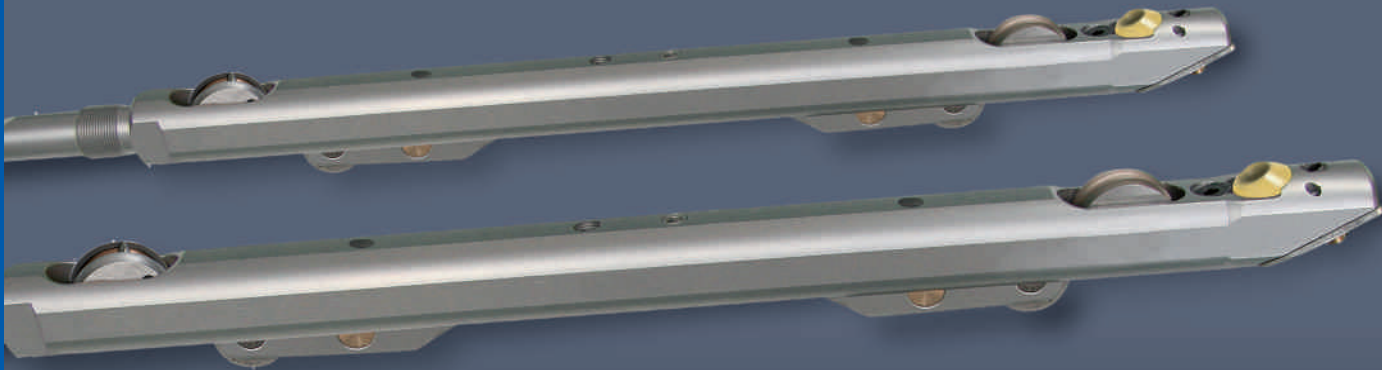
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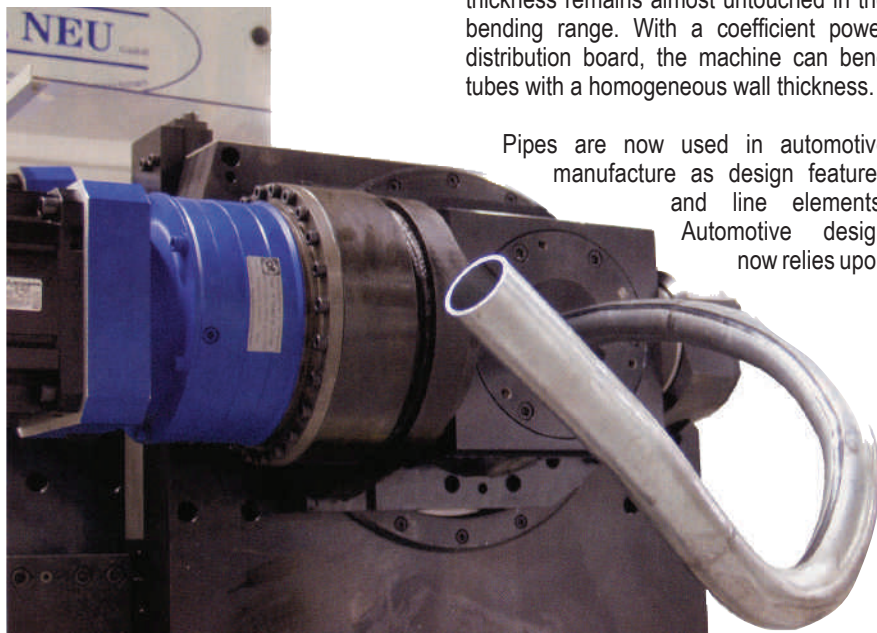


# [www.blissenbach.com](http://www.blissenbach.com)

## Versatile 3D tube bending without tool change

The Nissin Freeformbender from Neu Machinery, Germany, enables 3D tube and profile bending of different radii without tool changes. Based on patented tooling and CNC-control, products can be bent on different planes with continuous radii and no straights in-between.

 The Nissin Freeformbender can bend different radii without tool changes




An alternative to conventional mandrel bending, this technology reduces cycle times as every forward movement of the feeder bar continually supplies the workpiece.

Several test results have shown this bending principle to be ideal for follow-on hydroforming processes, as the wall thickness remains almost untouched in the bending range. With a coefficient power distribution board, the machine can bend tubes with a homogeneous wall thickness.

Pipes are now used in automotive manufacture as design features and line elements. Automotive design now relies upon




 High precision mandrel bending of thin-walled pipes is possible with the Nissin Freeformbender

increasingly tight spaces, even closer radii and the thinnest possible material for lighter products. The Nissin Freeformbender can also undertake high precision mandrel bending of thin-walled pipes up to a diameter of 90mm. The smallest radius that can be produced is close to 2DR up to infinity.

The machine has recently been improved due to the close cooperation of J Neu with a renowned German car manufacturer who used the first benders in their production. This partnership has led to advanced bending of flat oval tubes and profiles in addition to round pipes.



 A recent collaboration with a German car manufacturer has led to improvements in bending of flat oval tubes

The Easy Programming Software has various functions such as preview, mirroring, and rotation. These functions are combined with the option of a measuring arm so that bent parts can be compared and corrected automatically. The MS Windows based PC can be connected to LAN and uses all features of modern computers.

## High performance lubricants from tube-bending expert

AddisonMckee has developed a range of environmentally friendly, non-solvent based gels that offer benefits over traditional tube gel compounds. Initially available in AmGel™ (tube bending) and AmForm™ (tube cutting and forming) variants, the product range has been developed in association with Gramos Applied Chemicals, and will be expanded to include AmCut™ (tube cutting) and AmWash™ (tube degreasing) formulations.

AmGel is mainly water-based, and is available in 'standard', 'plus' and 'ultimate' grades. The products are non-drip and can be easily applied by brush, wipe or mandrel lubrication. They have the viscosity of a gel solution and have been developed to provide a reliable lubrication barrier for the majority of light, medium and extremely heavy-duty tube manipulation applications.

One considerable benefit of using AmGel is that bent tubes and components can progress to MIG, TIG, resistance weld and other processes without the need for washing. At the end of the manufacturing process, the oil-free gel can then be removed by washing in a mildly alkaline, water-based solution, thus removing the need for costly, potentially caustic, cleaning solutions.

The AmForm range is purpose-developed to provide superior lubrication during general forming and cutting operations, and includes traditional oil-based formulations along with high-capability synthetic products. Formulated to meet a range of specific tube forming and cutting requirements, AmForm lubricants can be applied by brush, swab, roller, flood, spray or misting.

**AddisonMckee Ltd – UK**

**Fax: +44 1772 323 227**

**Email: [info@addisonmckee.com](mailto:info@addisonmckee.com) • Website: [www.addisonmckee.com](http://www.addisonmckee.com)**

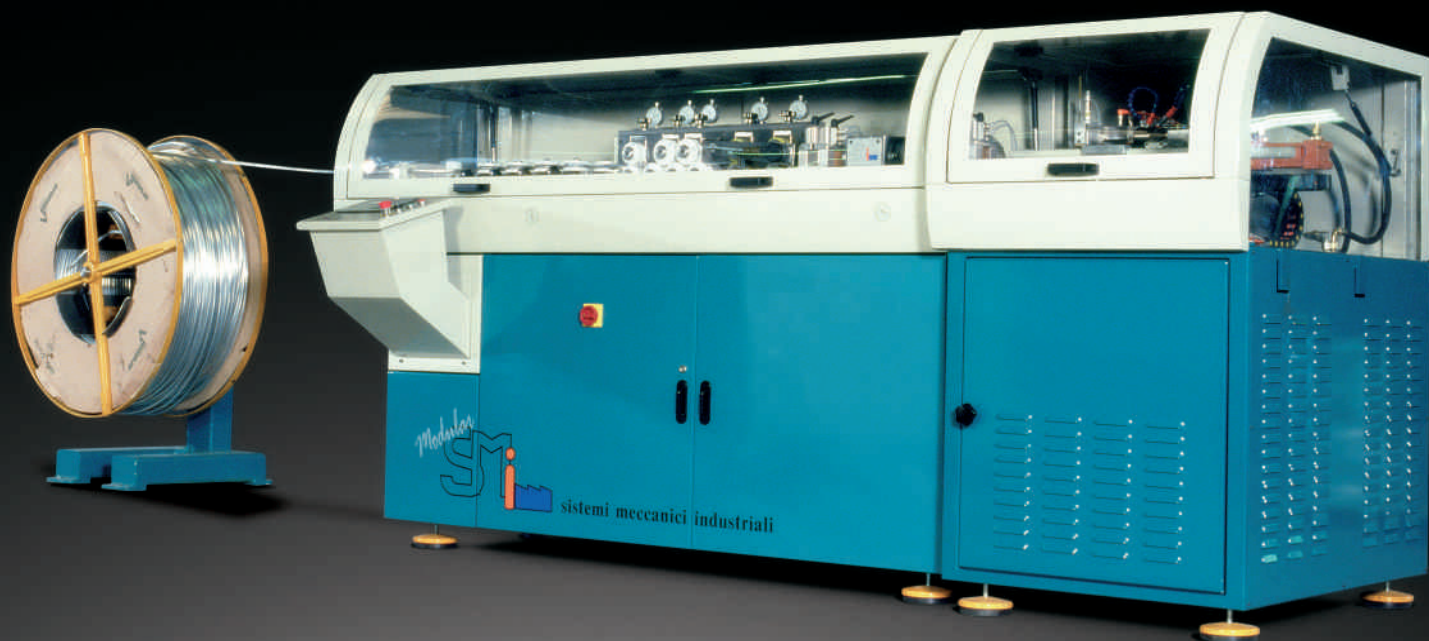
**J Neu GmbH – Germany**

**Fax: +49 6359 924257**

**Email: [info@neu-gmbh.de](mailto:info@neu-gmbh.de)**

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# Cutting and forming lines



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www.smisrl.it - info@smisrl.it

## Servo controlled roll bending of parts

The Eagle Bending Machines/BPR Curvatrici BA CNC series offers substantial precision and control using a unique set of servo roll bending controls. The models BA20, BA35, and BA50 are capable of producing variable radius bends as large as required down to a 4-5D degree bend range that overlaps non-mandrel rotary compression bending.

 Eagle Bending Machines offers a range of servo controlled roll bending machines



The BA CNC series of servo controlled roll bending machines can be used by manufacturers who currently utilise CNC rotary bending equipment. One set of tube or pipe rolls can be used on the machines to cover an infinite radius range. Multiple bends and bend-planes are possible with this economical method, which compares very well against multi-axis controlled rotary compression benders.

Complex parts with multiple radii can be easily programmed in just a few lines with the machine. Shortcut function key commands are conveniently displayed for quick reference at the top of each function screen. Programming is made even easier via the 'DXF' key, which converts a dxf file into a program. Automated Pro Bending BPR Direct Radius Software selects the optimal machine speed for the quickest production time for the given part.

The handy 'figures' function screen contains a large assortment of standard shapes. For instance, to create a 'U' shape, 'arch 1' can be selected. The procedure involves the input of radius and length of the straight, followed by sequencing of the load whereby


the operation is complete. The BA direct radius program automatically blends the straight and the radius and generates a graphic representation. Running existing programs can be just as simple.

When selecting programs, the name and graphic representation are displayed at the same time for quick reference. The operator is only required to select a part type and operate the 'load' control, whereby production will be set up.


The Eagle Bending Machines/BPR Curvatrici BA CNC series servo controlled roll bending machines are capable of precisely compensating for material differences that more basic types of CNC roll bending machines cannot match.

Typical setup time for repeat work averages 5 minutes for tooling and program changeover. Cycle times range from 10 seconds to 45 seconds per part depending upon the degree of complexity.


**Eagle Bending Machines – USA**  
**Fax:** +1 251 937 4742  
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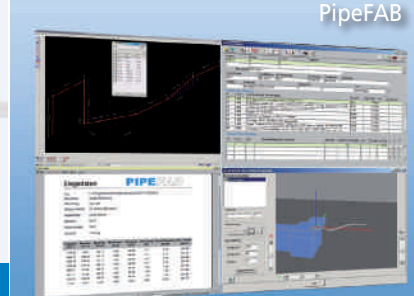


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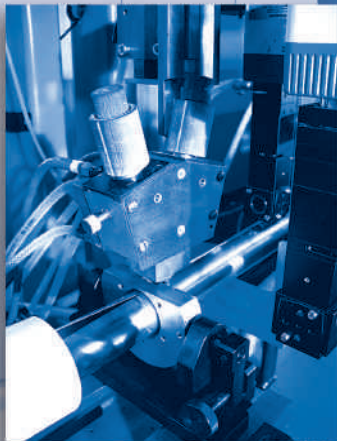
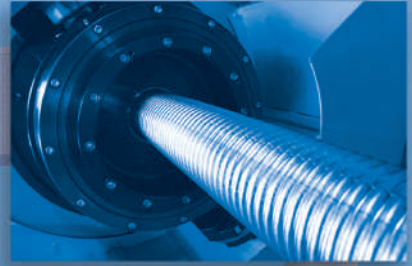


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# Tube Bending, Hydroforming & End-Forming

## Tre C bending models now with increased power

Tre C Srl, Italy, provides innovative and easy-to-use solutions, and its bending machines are used in various sectors, including the metalworking industry, car production, light and heavy steel structural work, and shipbuilding.

The company has a range of forty models of bending machine, both electro-mechanic

and hydraulic, operated by numerical controls, and constructed to ensure maximum solidity, stability and reliability. This range has been supplemented by the launch of two new lines featuring increased power: Arcall CR240 and CR230M.

In common with the company's other hydraulic machines, the CR240 and

CR230M are activated by computerised command consoles available in various versions. The most highly developed of these – the CNC233 – consists of an industrial PC with 12" TFT colour monitor, designed for online communication.

The CNC233 manages the programming of up to 36 different radii on the same bar and automatically controls over 100 roller rotation speeds. It performs very narrow bending radii and complex geometry such as ellipses, polygons and bending by points.

With over 500 automatic positioning speeds both for entry into and exit from the bending roller, it guarantees a high level of precision in the connections between straight part and bends, or between one radius and another in the case of multi-radius bending.

**Tre C Srl – Italy**  
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 Tre C's Arcall CR148IM bending machine with CNC233 command console



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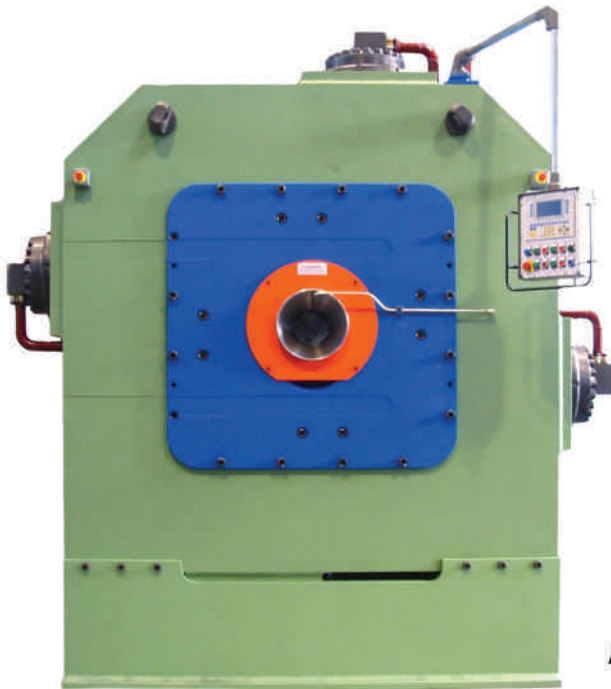
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## Automatic Squeeze Pointers

The new control board PLC S7-300 fitted on Politecnica Italia's complete range of Afonat automatic squeeze pointer machine is described by the company as "an extremely powerful unit". This is thanks to its high computing capacity, wide operation range, multipack MPI interface and Sinec-rack connecting. The fast instruction processing enables very rapid cycles to be achieved and the PLC S7-300 is provided with analog and digital input / output to control the machine completely. The terminal VT screen enables the production phases to be set or simply viewed. ESA VT-310W can send data to modify the production process or visualize information coming from it. This can be given in the form of an alarm, information message or binary datum. The VT is connected to the PLC by a loop. The VTWIN programme allows the desired application to be created to operate with the VT. Through this it is possible to set every parameter for the complete usage of the machine (including measures, speed rates, time counter and recipes), says the company.



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## CNC and mechanical tube forming machines

OMCG SpA, Italy, is the manufacturer of a wide range of CNC and mechanical forming machines to process metal tube, wire and strip. Available with a choice of 3 to 32 axes, the machines cover a tube (coils) dimension range of up to 12.7mm OD and strip range with a width up to 100mm.

This range of machines utilises a new eccentric forming head and up to a 3 tool stack forming mandrel. The machines, based on the feed and form principle, can

produce most parts using the same tooling. Advanced software programs are used for component design and obtain a variety of forms, with simulation of manufacturing collision between the raw material and the bending head.

The software simulates all different dimensions of the machine, and simultaneously predicts the variation of one or all of the part bends in order to quickly achieve the correct tolerance. In only 30



Model CNC61 forming machine with 3 axes and 2 bending radii for the processing of tubing up to Ø 6.35mm OD

minutes it is possible to design the part and get it produced and completed within tolerance.

Other operations can be combined including forming, stamping, assembly, cold heading upsetting, welding, threading, chamfering and grooving.

Auxiliary units include a 20t press, motorised decoiler (with 2,000kg capacity), chamfering unit for both ends, threading unit, butt welding unit, frontal unit for head and collar, grooving unit and dual or tri-flipper straightening system.

**OMCG SpA – Italy**  
**Fax:** +39 0341 604247  
**Email:** omcg@omcg.com  
**Website:** www.omcg.com


## Fast and accurate tube and pipe bending

Jancy Engineering Inc, USA, manufactures the JB2400 hydraulic bender for pipe and round/square tubing. Constructed from durable steel, the machine has a 2" schedule 40 pipe capacity and 1-8" CLR (centreline radius).


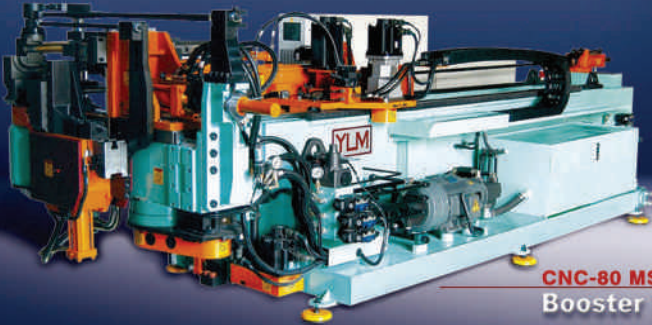
With a 35-second cycle time for 180° bends, the machine operates via a 3HP Baldor motor with either 110v/220v single phase or 440v three phase. An auto stop feature enables repeatable parts production and decreased scrap.

With no complicated electronic programming or tools required to change forming and pressure dies, the JB2400 bender produces fast and precise bends while reducing material waste/usage.

**Jancy Engineering, Inc – USA**  
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# Pipe Mills

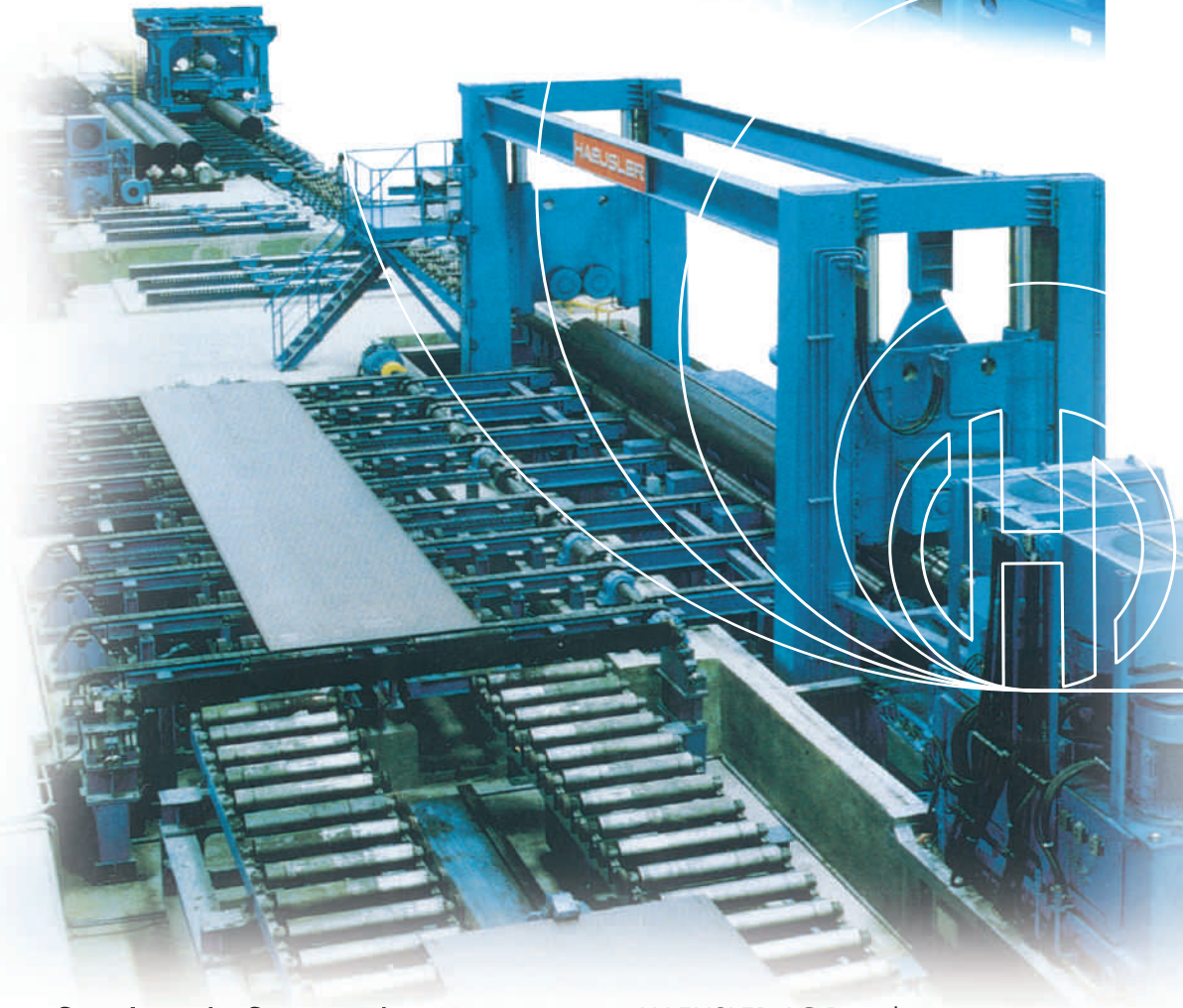
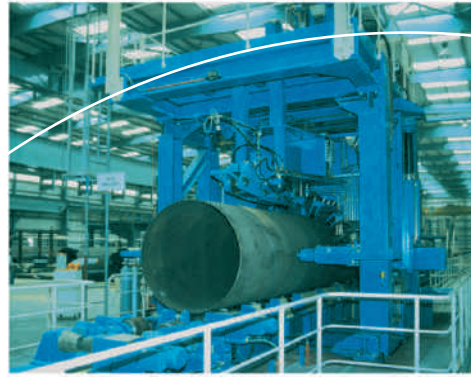
## Трубопрокатные станы

Компания Haeusler планирует широкий спектр оборудования для металлообработки начиная с обработки кромки листа и заканчивая всевозможным оборудованием для проверки трубопроводов (напр. опрессовки, ультразвуковой дефектоскопии, рентгена).

Метод RB(E) соответствует стандарту API-5L и другим международным стандартам.

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## Versatile range of rotary swaging machines

Fenn Technologies, USA, manufacture a range of rotary swaging machines in all sizes, from the NF series for the medical industry, to the massive model 8F for reducing high strength steels and alloys for up to 153mm diameter tube. The powerful model 8F swagers can reduce thick wall


tubing so that the outer diameter can fit into its inner diameter, thus forming continuous tubing for railing or street light poles.

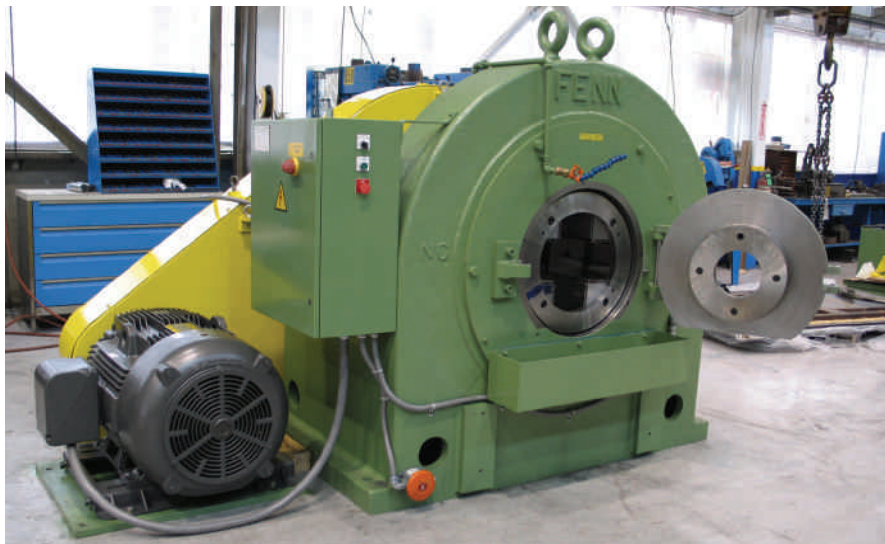
The company also manufactures hydroformer (die closing) rotary swagers that are used widely in the aircraft and

marine industries. Hydroformers can undertake centre reductions on tubes to form ornamental designs and architectural shapes. In addition, Fenn's stationary die swagers can form irregular shapes for the commercial tool industry and speciality tube.

For forming continuous tapers in tube up to 610mm in length, the company offers long die swagers for use in the furniture and sports equipment fields. These long die swagers are also used by high performance bike manufacturers to swage titanium tube for forming precise taper angles on frames.

Refrigeration and appliance manufacturers swage copper tubing to form filters with dome reduced ends. The company's swagers are also utilised for critical operations in the aerospace and defence industries, together with the jewelry and musical instrument trade. Other applications that take advantage of Fenn swaging technology are heater elements and thermocouples (to reduce stainless tube filled with MGO).

 Fenn offer a wide range of rotary swaging machines from the NF series to the massive model 8F for up to Ø 153mm tube



**Fenn Technologies – USA**  
**Fax:** +1 860 667 4667  
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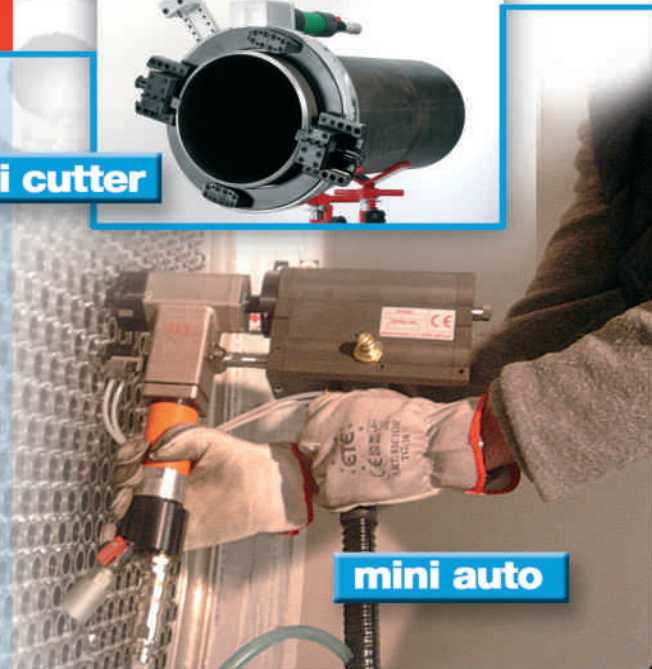
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## Sturdy bender for Ø 76mm tube capacity

The Memoli ETM76 is a bending machine with a maximum capacity of Ø 76mm tube with 3mm thickness. The machine operates via a motorized central hub, with hub rotary movement enabled by two trapezoidal drive belts driven by a self-braking electric motor.

A sturdy, precise and fast machine, the ETM76 is completely operated and aided by a fully incorporated microprocessor.

 The Memoli ETM76 pipe bending machine



This allows the storage of up to 40 different programmes, each of them with a 5-stop sequence in the bending operation. The minimum bending radius is 3 times the diameter of the tube, with variance according to the tube wall thickness and material.

With an approximate weight of 260kg, the ETM76 has a maximum bending capacity of 76 x 3mm (2.5" gas x 0.157") for boiler tube, 70 x 5mm (2.8 x 0.203") for hydraulic steel, 76 x 6mm (3 x 0.236") for aluminium, 45mm (1.8") for round bar (mild steel), and 50 x 50 x 5mm (2 x 2" x 0.203") for square tube (mild steel).

**Memoli sas** – Italy  
**Fax:** +39 039 64 8437  
**Email:** [memoli@tin.it](mailto:memoli@tin.it)  
**Website:** [www.memoli.it](http://www.memoli.it)

## BendPro software upgrade now available

Eagle Precision Technologies Limited, Canada, is a provider of tube bending and forming solutions, including CNC tube

benders, tube end-finishing equipment, custom machine building, muffler manufacturing equipment and tooling.

The company has just launched a new software control package – BendPro G2. The software provides a compact and powerful bending machine control solution, through an easy to use interface. BendPro is designed to give the highest possible production yields, and the company claims that automotive users can experience an average cycle time reduction of 20-25 per cent.

Mr Dennis Hewko, president and CEO of Eagle Precision Technologies, commented, "We are continually looking at ways to improve our total solution offering. The provision of the BendPro G2 software provides users of both Eagle and competing equipment the opportunity to upgrade to a completely new control solution. This new solution can potentially deliver significant cost savings through cycle time reduction."

**Eagle Precision Technologies Ltd**  
– Canada

**Fax:** +1 519 756 0195  
**Email:** [sales@eaglept.com](mailto:sales@eaglept.com)  
**Website:** [www.eaglept.com](http://www.eaglept.com)

## Teamwork the name of the game for tube manipulation specialist

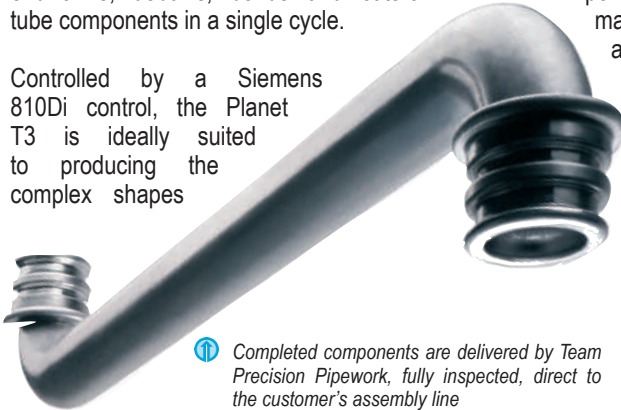
The 15 machines supplied to Team Precision Pipework by BLM Group UK Ltd are designed for bending and end-forming straight length tubing and coil material. Working from coil, for example, a BLM Planet T3 planetary five-axis CNC tube bending machine – installed recently as part of a four-machine order – straightens, end-forms, deburrs, bends and cuts-off tube components in a single cycle.

Controlled by a Siemens 810Di control, the Planet T3 is ideally suited to producing the complex shapes

typical of small diameter automotive air conditioning, fuel or hydraulic pipes. Components are bent using either conventional draw bending or compression bending, depending on the complexity of the form.

Based in Wales, UK, Team Precision Pipework manufactures bespoke manipulated tubing products according to virtually any specification in copper, aluminium, steel or stainless steel in sizes ranging from 6-65mm diameter.

The company's recently extended 45,000ft<sup>2</sup> factory is dedicated solely to tube manipulation. This expertise means that Team's US parent company can now

  
Completed components are delivered by Team Precision Pipework, fully inspected, direct to the customer's assembly line



The working area of the BLM Dynamo MR200E five-axis CNC tube bending machine, recently installed in Team Precision Pipework's South Wales factory

deliver cost-effective tubing solutions for a wide variety of applications, in addition to the manufacture of valves, gauges, backflow protection devices and other related products.

Along with the Planet T3, Team's latest order includes a BLM AST Tubeform ELE 'all-electric' CNC end forming machine with five ramforming and two rotary forming stations. Other machines in the order were a BLM coil-fed swarfless cutting machine with inline end forming unit, and a BLM Dynamo MR200E five-axis CNC tube bending machine with integral load/unload facility.

This facility eliminates wasteful non-production time, an important consideration for a business serving customers on a just-in-time basis. The machine's loader and bender accepts pre-end formed tube lengths, resulting in components that are complete and ready for assembly or packing.

BLM's innovative VPG 3D programming software provides 'real time' bend simulation, automatically selecting the shortest and most efficient bending cycle. The VPG software also carries out a feasibility check that highlights any possibility of collision

**BLM Group UK Ltd – UK**  
Fax: +44 1525 402 312  
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**BLM SpA – Italy**  
Fax: +39 031 715911  
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## Tube bending machines for larger dimensions

transfluid Maschinenbau GmbH, Germany, has extended its product range for large tube bending machines from 170mm up to 220mm and 273mm. The company's machines are used in applications and industries including shipyards, plant construction, chemical industries, profile manufacturers and exhausts.

One example of the company's work is a tube bending machine constructed for a Spanish ship subcontractor. This machine can bend tubes up to 220mm x 12mm with a smallest radius of 1xD.

The machine is modified with a special boosting system in the pressure die area, which can boost tubes with a power of 150kN. Pressure, direction and speed are adjustable via hydraulic servo-axis.

The machine can bend radii up to 1,250mm, and the weight of the machine body (without tools) is 52,000kg. The machine is operated via touchscreen panel, while tube administration is carried out using isometric software and collision testing, providing exact bending data and high repeatability. A complete tool change can be completed in 20 minutes.

**transfluid Maschinenbau GmbH – Germany**  
Fax: +49 2972 971 511  
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The tube bending machine constructed by transfluid Maschinenbau for a Spanish ship subcontractor

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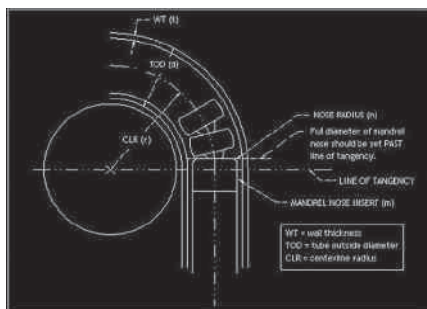


## Set-up secrets for mandrel bending

Bend Tooling Inc, USA, is a manufacturer of die sets, mandrels, and wipers for rotary-drawing tube-bending. The draw bending method produces high-quality tube bends and, unlike compression or ram bending, the draw method fixes the line of tangency in space. This allows tooling to be fixtured at the point of bend where the tubing material becomes plasticised as it is drawn through the line of tangency.

The mandrel is of central importance in controlling the flow of this plasticised material before it sets into a bend. In fact, the draw method is so closely associated

⚙️ Tooling is fixed at the point of bend where the tubing material becomes plasticised



with the use of a mandrel, it is often called 'mandrel bending'.

The key to maximising the performance of the mandrel is the 'forward-mandrel' set-up. The three factors to consider are the diameter of the mandrel nose ( $n$ ), the radius of the nose ( $m$ ), and the position of the nose relative to the line of tangency ( $S$ ).

These values are calculated using a formula comprising of mandrel nose diameter  $\{n = t - (w \times 2.21)\}$ , mandrel nose radius [if  $F < 50$  then  $m = n \times 0.1$ , else  $m = n \times 0.02$ , where  $F = t / w$ ], and set-up position of mandrel nose  $\{S = \sqrt{(r + (t / 2) - w)^2 - (r + (n / 2))^2} + m\}$ .

Bend Tooling's website features a 'Four-step setup procedure' section, with further information on how to optimise mandrel setup. The website also features 'The bend tooling encyclopedia', with definitions of the terms used in this article.

**Bend Tooling Inc – USA**  
**Fax:** +1 616 454 9958  
**Email:** info@bendtooling.com  
**Website:** www.bendtooling.com

## Forming and bending equipment for the US market

KGK International Corp, USA, was established in 1981 to import quality machine tools from Japan to the US and Canadian markets. In addition to the Okuma range of machine tools, KGK International supplies Nissin's precision 3D tube bending machine and Nihon Spindle spinforming and flowforming machines.

The Nissin 3D tube bender ensures highly improved productivity with a bending radius of over  $360^\circ$ . Available in three models, the machine offers large radius bending from  $5/16"$  to  $2\ 3/8"$  diameter.

The machine is operated by placing a tube through the die without a special mold or die change. Radius and bending directions can easily be input on the user-friendly controller. The bending section is securely guided by the die so that accurate roundness can be obtained on the cross section.

**KGK International Corp – USA**  
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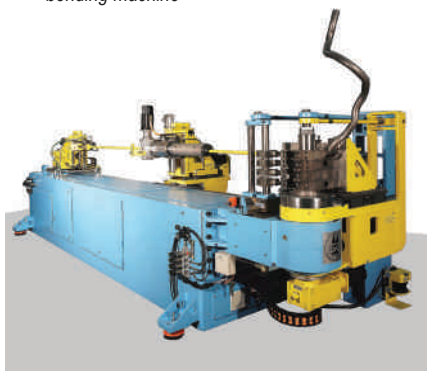
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### Schwarze-Robitec bending technology increases Buigstaal capacity

To cope with the growing market demand, Dutch-company Buigstaal Tube Bending Alkmaar has significantly increased its capacity with the purchase of a new Schwarze-Robitec CNC 80 TB MR tube-bending machine. With this new CNC 80, Buigstaal aims to increase its capacity by 50 per cent in this tube size range.

The Schwarze-Robitec bending machine operates by the transport bending

 The Schwarze-Robitec CNC 80 TB MR tube-bending machine



principle, which increases the bending performance and improves the accuracy of the product dimensions. The machine bends tubes up to 88.9mm diameter and has the capability of multi radius bending. With delivery in May 2007, the machine is due to be fully operational by July 2007.

Part of the Van der Wel Group, Buigstaal offers just bent tubes up to complex assembled tube products for the automotive, defence, energy and industrial markets.

At the end of 2006, the company received an ISO 9001:2000 certificate from Bureau Veritas.

#### Buigstaal Tube Bending Alkmaar BV

- The Netherlands

Email: [info@buigstaal.nl](mailto:info@buigstaal.nl)

Website: [www.buigstaaltubebending.nl](http://www.buigstaaltubebending.nl)

#### Schwarze-Robitec - Germany

Fax: +49 221 89008 91

Email: [sales@sch-r.com](mailto:sales@sch-r.com)

Website: [www.sch-r.com](http://www.sch-r.com)

### Large family of mandrel tube bending machines

transfluid, Germany, has launched the DB650ST-SPS mandrel tube bender, part of a family of ten mandrel tube bending machines. These machines all feature the same three axis 'SPS' user friendly numerical control. Bending capabilities start from tube sizes as small as 6mm and range up to 220mm OD.

Consistent accuracy is possible with the automatic bending and digitally controlled positioning of rotation and length. All models are designed with a special recessed tool shaft to accommodate small bend radii.

The transfluid DB650ST-SPS is a semi-automatic mandrel tube bending machine complete with an upgrade for CNC-style operation. It offers forward, back and rotational motorised positioning to remove the need for mechanical stops.

All 3-axis data is input using a touch screen control, with instant retrieval of stored programme data by part or job number. With a hydraulic pressure die, hydraulic



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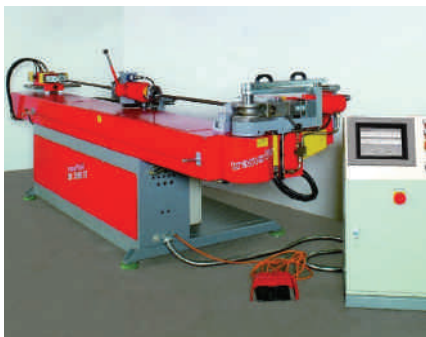
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**T**ransfluid's DB650ST-SPS mandrel tube bender

clamping is possible on the offset plane of the bend facility. The machine also includes auto tool resetting, controlled mandrel withdrawal and a laser scanner light guard.

All transfluid tooling is of the unique pre-set drop-in tooling style, which requires little or no setting.

**Transfluid – Germany**  
**Fax:** +49 2972 97 15 11  
**Website:** [www.transfluid.de](http://www.transfluid.de)

**TurnKey37 Ltd – UK**  
**Fax:** +44 1782 641020  
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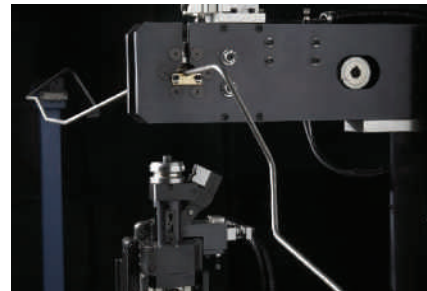
## Wider Soco bending machine range now available

Soco, Taiwan, has made several new additions to its range of tube bending machines. The SB38x6A-MRV bender is a 6 axis machine that enables push bending for large radius bends. It also includes a boost bending facility for bends down to 1D whilst minimizing wall thinning.

Designed for the furniture industry, the TM series double-headed machine has been updated by Soco with the development of the TB38 machine. Single tube bending can be achieved for up to 38mm diameter tube or double tube bending on tube of 25mm diameter or below. This makes for very fast turnaround with 4 bends per cycle for the high production environment associated with the furniture market.

Soco has recently implemented collision software to enable full part simulation prior to any metal being bent. Along with the standard 3D graphics package, this enables the user to easily create new programs without risk of collision damage.

Also recently launched by Soco is an automated tube bender for the automatic production of brake or hydraulic lines for



**T** Soco's new automated tube bender for the production of brake or hydraulic lines

automotive and industrial use. The high-speed machine offers a solution for the demanding automotive sector.

Langbow Ltd is the UK agent for Soco products and machinery.

**Soco Machinery Co Ltd – Taiwan**  
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**Email:** [patrick@soco.com.tw](mailto:patrick@soco.com.tw)  
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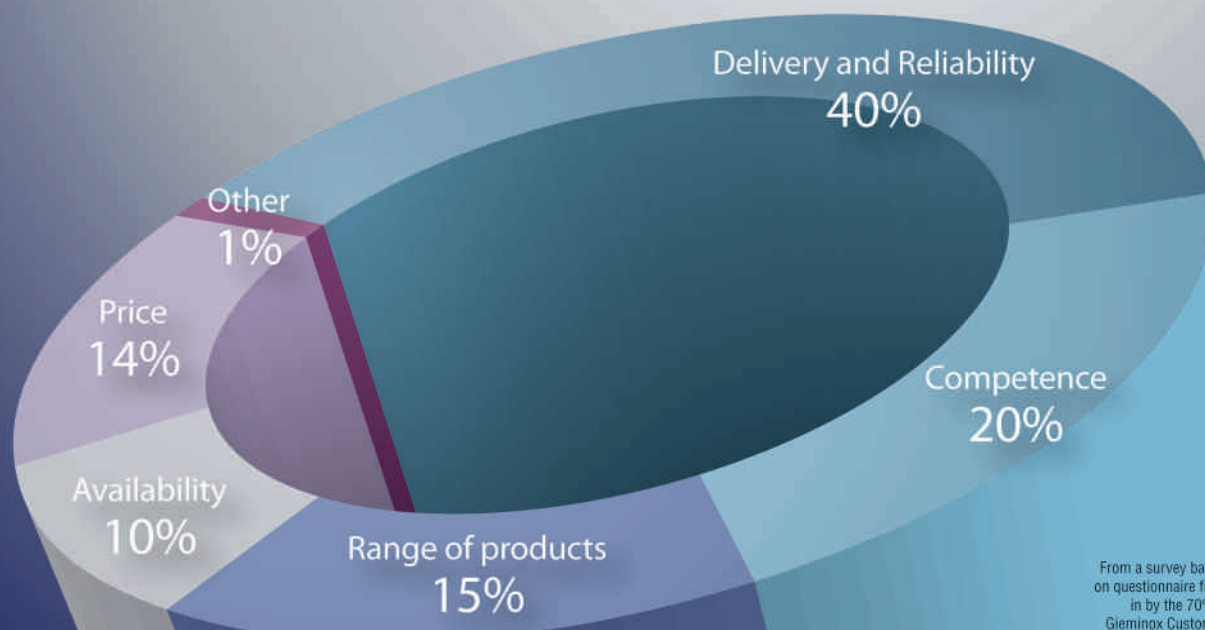
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Stub ends: outside diameter from 3" to 48" as per MSS and ANSI standards.  
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### Efficient production of tube figures with complex manufacturing cell

Tracto-Technik GmbH & Co KG, Germany, has recently delivered a complete manufacturing cell for tube bending part fabrication to a German manufacturer of packing systems. The Tracto-Technik product range includes 1-axis controlled, semi-automatic and fully automatic CNC controlled tube bending machines as well as tube end forming machines, tube measuring and inspection systems and software solutions for tube fabrication.

This latest manufacturing cell consists of a CNC bending machine and several handling systems, which are optimally coupled and coordinated in terms of control. The basic material (welded steel tubes) is taken out of a large tube rack, separated and precisely aligned in its longitudinal axis.

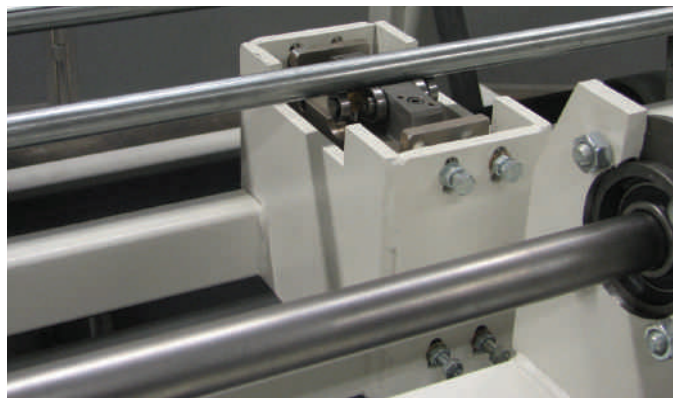


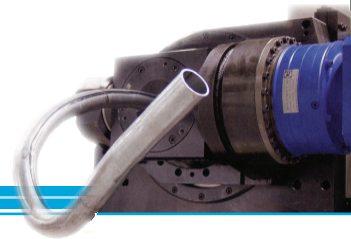
ⓘ The manufacturing cell includes devices for tube storage, separation, welding seam recognition and tube alignment, feeding and unloading devices and the core of the cell, the Tubotron 30 MR CNC tube bending machine

Because the position of the welding seam is significant for the bending result, the next working step is carried out by a fully automatic welding seam recognition device with automatic adjustment of the rotational position of the tube. The tube is positioned in the requested angle with the help of this device and fed into the tube bending machine.

The CNC bending machine Tubotron 30 MR with multi-radii bending head is the core of the manufacturing cell. A robust construction with high-quality components and the latest Siemens control technique are

ⓘ The welding seam recognition device is the basis for the correct alignment of the steel tube before bending





① All integrated manufacturing cell components are operated via a Simatic panel PC with touch screen and menu-driven user-guidance

the main machine features guaranteeing a long service life even with multi-shift operation.

The machine is able to safely and precisely bend tubes up to OD 30mm, with a maximum bending radius of 200mm. The Tubotron 30 has a maximum tube feed of 1,600mm/s, while the maximum bending speed is 150°/s. The machine also operates with a positioning accuracy of  $\pm 0.05^\circ$  (mm).

All functions are automated, and the axis speed can be programmed arbitrarily. The tube bending machine has an exposed, compact bending head that leaves a maximum free bending space. The hydraulic long-necked collet chuck, with bent tube re-feeding feature, can be positioned safely within the sliding piece area, ie before the last bow.

After bending, the steel tube frame is taken out by a gripper and transported to the deposit table while the next tube is already available for feeding into the bending machine. This manufacturing cell enables the customer to produce complex tube bending parts almost automatically (ie without operator) at minimal lead time and maximum machine and repeat accuracy.

Due to the sophisticated combination of robustness, rapidity, precision and reliability a maximum rationalization and automation of the tube fabrication process is achieved.


**Tracto-Technik GmbH & Co KG**  
 – Germany  
**Fax:** +49 2725 9540 33  
**Email:** tubomat@tracto-technik.de  
**Website:** www.tracto-technik.de

## Bending machine simulation with machine-independent software

3R Software Solutions, Germany, have developed a piece of machine-independent software for the simulation of bending processes, branded Kolli. It examines whether individual pipes can be fabricated on a bending machine and supports the operators by calculating the necessary data.

When linked to a CAD system, entire pipe systems can be checked with the software.

Only the machine type that is to be used for bending is defined. It is also possible for Kolli to be integrated into the 3R software framework.

Kolli can provide solutions for potential collisions. One approach is to extend the straight part between two bows, which will be cut out after bending. This can lead to just one weld which is less effort than two welds, the result of using an elbow. 

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# Tube Bending, Hydroforming & End-Forming

⚡ The application is also able to check whether a certain part can be produced by simply reverting the steps and thereby starting the bending process from the other end. If the user selects a bending machine with dies of the

same radius and diameter on different layers or stacks, Kolli automatically considers these as alternatives. Collisions can also be avoided by correction feeds, with further possibilities examined by Kolli.

Ⓜ The visual simulation of the bending process



The latest version of this software is Kolli7, which operates with a unitized structure. All editing functions are designed as independent



Ⓜ The visual graphics of Kolli-V7, from 3R Software Solutions

applications to capture an individual workshop environment.

This includes the construction of a user's own bending machine with a 3D-machine-editor, design of toolsets with a 3D-tool-editor, and collecting material data with a material-manager.

The entire bending process can be visualized in the simulation, with details reviewed by pausing the animation and zooming into critical areas. In certain situations where large batches of pipes require bending, the application can be used to perform the entire simulation and calculation.

The calculation focuses on the correction of the length of pipes and the computation of the right bending parameters.

These parameters include the extended bending angle for spring-back correction and the shortened straight parts between the bows as correction of the stretching. The application can also calculate the relative and absolute flange positions in cases of bending with two flanges.

3R Software Solutions cooperates closely with the various manufacturers of bending/forming benches. This ensures that Kolli import and export interfaces are created for the well-known design systems and the most common bending machines.

The different SPS-systems can be directly fed with bending and forming data with pipes manufactured sequentially.

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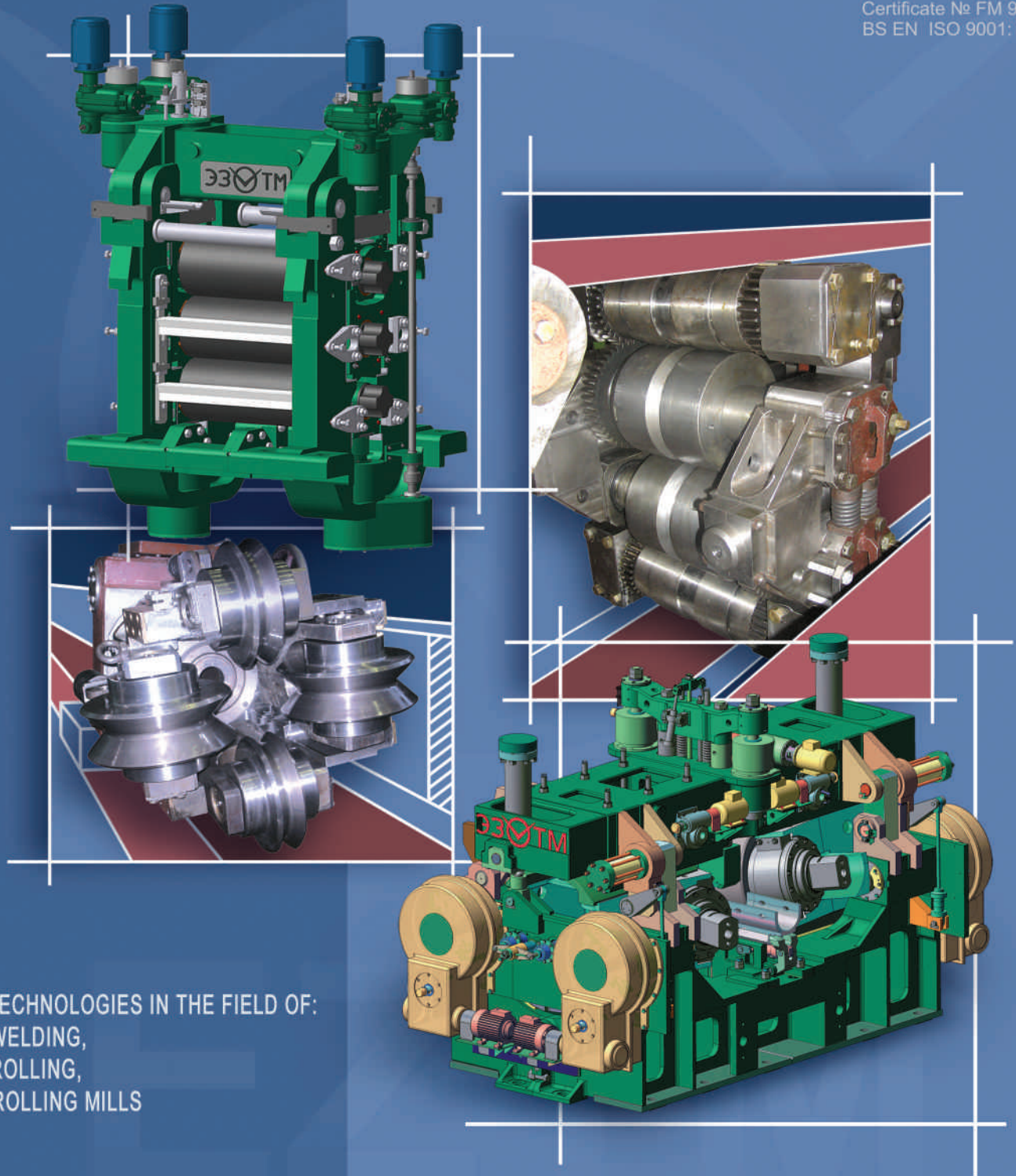


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## Increasing popularity leads to new PowerBend models

AddisonMckee has extended its PowerBend range of high-performance, lower cost tube bending models to include solutions for bending tube of up to 42mm diameter and 150mm diameter.

ⓘ AddisonMckee's PowerBend range has been expanded to include bending of 42mm and 150mm diameter tube

AddisonMckee's director of global marketing, Mr Christian Rogiers, states, "Since launch, PowerBend models have proved exceptionally popular with smaller, mid-market organisations."

The hydraulically-powered mandrel tube benders are capable of bending carbon steel tube from 50mm diameter to 150mm diameter, and models in the PowerBend range offer maximum bend angle and CLR of 193°.

Machine beds and tanks are of one integral assembly, with the hydraulic valves and filter externally mounted for easy access. Electrical connections to the valves are of the plug-in type with position

indicators. The bend head, adjusted laterally for CLR setting by means of a lead screw, is bed mounted on slideways.

Mounted on heavy-duty taper roller bearings, the main spindle carries the bend arm, while rotation is by hydraulic cylinder connected to the spindle by chains. The angular position feedback to the servo is by encoder, through instrumentation grade gearing from the main spindle.

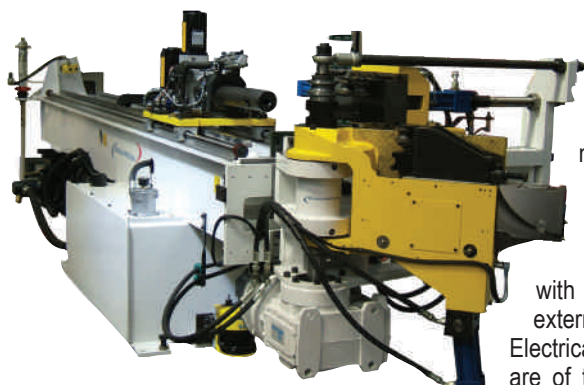
The bend die is located on the bend arm on double drive keys, and is retained by a single nut if a tool spindle is used, or bolted directly to the tooling platform for small CLR bending. The clamp die-mounting slide is hydraulically powered with toggle mechanism for maximum gripping pressure, and operated in a rise and fall motion to clear the tube on subsequent Y-axis feeds.

The reaction arm carries the follower slide, which takes the pressure die, and is infinitely variable for speed via valve adjustment. The drop-in pressure die has simple screw adjustment for easy alignment with the bend die. A rigid mounting post with three axis adjustment ensures good quality bends and long die life.

On all models, the tube carriage (Y axis) moves along the machine bed on low friction bearings. Linear motion is by AC motor drive, with position feedback by absolute encoder. The collet is carriage mounted, with rotary motion (B axis) provided by AC motor, with absolute encoder position feedback for precision and repeatability. The master collet is designed to accept segments for the required tube diameters, and clamping is by hydraulic cylinder actuated mechanism.

Fitted as standard with hydraulic actuation, the mandrel unit includes one 22mm diameter quick-change rod. Anticipated mandrel retraction is standard for high bend quality.

Programming of all PowerBend models is provided by an Allen-Bradley alphanumeric keypad. Features available include tool monitoring to prevent collision, inch/imperial data input, 1,000 program storage, maximum 16 bends per program capability. It also offers Y, B, C axis data input and automatic release of the tube prior to final bend to prevent follower die/collet collision.



## Latest CNC tube benders with push bending

Crippa SpA, Italy, has launched a new series of CNC tube benders. These machines feature 5-servo axes standard, with an option to have 9 servo axes for a fully electric bender.

The CA563 is capable of bending 63mm x 3.2mm mild steel and 60mm x 2.5mm stainless steel, while the CA576 has a capacity of 76mm x 2.5mm mild steel and 70mm x 2.5mm stainless steel.

These machines are designed for either manual loading or full integration within a work cell. The benders also feature push bending and the ability to calendar bend tubes that require a large or varying radius. All machines have the ability to use multiple bend dies for different radii or compound clamps.



ⓘ Crippa have launched a new series of CNC benders

Programming the benders is easy using the UII interactive graphic software from Crippa. The software features Cartesian or Polar coordinate entry and simple tooling dimension screens. Simulation of parts is undertaken in the software to check feasibility and cycle time.

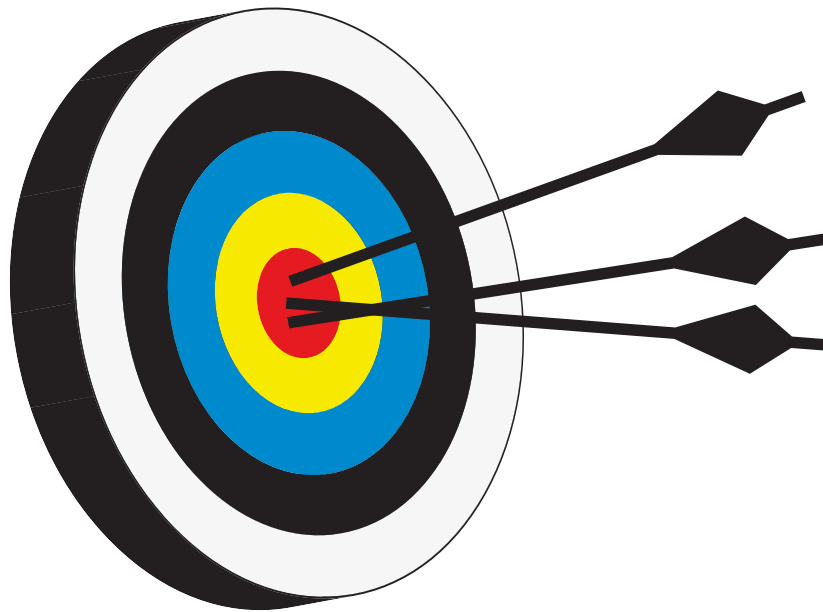
Crippa SpA has also revealed the International Technology Group Inc as its exclusive representative for the United States and Canada. ITG Tube is dedicated to the service and sale of Crippa SpA tube process equipment.

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# New trends for tube and profile separation concepts by shear and cold rotary saw

By Ing Jan Attl, Attl a spol sro, Prague, Czech Republic

## Background

Attl a spol sro was established in 1921 by two brothers, Karel and Alois Attl. The factory successfully designed and produced small forming machines for both the domestic market, the European export market, South America and Palestine. The company was nationalized in 1951 and returned again into the ownership of the Attl brothers, this time Jan and Karel, after the Velvet Revolution in Czechoslovakia in 1989.

Since 1992 the company has been designing and manufacturing production mills for open profiles and has grown to specialise in mills for longitudinally welded tubes and profiles. Attl a spol sro can supply a tube mill from a single source, which is a special capability in Europe. The company has developed its own knowledge-base for the decisive components of a mill. These are:

- Vertical strip accumulator
- Calibration of profiles and tubes
- Forming and calibrating sections of the mill
- HF welding generator
- Flying shears cutoff in combination with flying cold rotary saw
- Bundling machine for profiles and tubes at the exit of the mill

Attl a spol sro invests considerable effort in the development and design of these above individual components, as their standard decides the productivity, life and overall parameters of a mill.

In the mills produced by Attl, it is possible to cater for practically all types of longitudinal welding of profiles and tubes, such as:

- HF generator – own design
- TIG; Plasma
- Laser – Trumpf; Rofin

In the following article, the details will be presented for one of the most important components of the mill – the flying cutoff machine for profiles and tubes.

## Introduction

Since 1996, Attl a spol sro has, in addition to the process of dividing by flying saw, facilitated 14 different applications of dividing tubes and profiles by shear. It is the findings, suggestions and conclusions based on this experience that will be detailed here. It is the aim of this article to be clear and conclusive.

Next to a HF welding generator, the efficiency of the flying cutoff machine has a decisive influence on the capacity of the whole production mill. However, here we will not evaluate the ability to divide tubes or profiles in regards to the production speed and tolerances of the cut length. These aspects have been sufficiently mastered and will not be addressed here.

This article will focus on the issues involved in comparing the individual types of dividing the tubes and profiles, by rotary saw

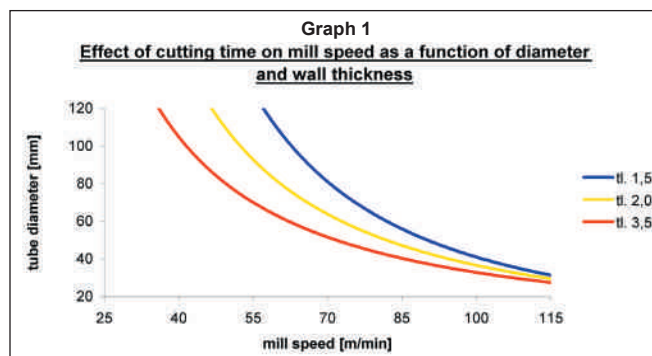
versus shearing. Issues include quality of the shear plane, dividing time, financial concerns regarding production times, energy savings and last but not least, ecology.

## Evaluation of cutting profiles with cold rotary saw

Cutting by cold rotary saw is currently the most commonly used method to divide profiles and tubes, since it leaves a high quality cutoff face, while affording sensible production speeds. Commonly used peripheral (cutting) speed is in the region of 120-300m/min.

The usable speed depends on the type of blade and material of the product being cut. Lower cutting speeds are desirable in order to obtain a longer blade life, while higher speeds are often employed to utilise the maximum production speed of the mill, when the minimum cutting time is needed.

In this analysis, the extreme cases of the process will not be addressed as often presented by other manufacturers. This article is primarily interested in the standard applications of flying cutoff from various manufacturers, which cover 60-80 per cent of commonly employed production mills in various parts of the world.



Graph 1 shows cutting times expressed as possible production speeds for a mill equipped with flying cold rotary saw. The values in graph 1 have been compared with values achievable in the actual production by several factories in the Czech Republic, Slovak Republic and Germany.

It is evident that using a cold rotary saw limits production capacity of a mill with increasing diameter and wall thickness of a tube.

Information has been used from a leading Czech tube producer about the life of the rotary saws and production costs attributable to the component of a flying saw cutoff module. After taking an average of the data it is possible to say that for a production line with the capacity of 26,000t/year (tube and profiles from ST 37 material), 120 replacement rotary saws are likely to be required. Each blade costs in the region of €150 and can be re-sharpened twenty times.

The total cost of the cutting blades including the sharpening can be estimated between €38k and €45k per year.

## Evaluation of flying shear cutoff

Cutoff by shearing the tube/profile is only used in about 10 per cent of production mills. The most established company producing shearing machines is Thermatool, while Italian and Japanese companies are on the periphery of this sector.

As mentioned, Attl a spol has been involved with this technology since 1996, and the company's products have established a high level of design quality. This is especially the case when it comes to quality of cut, blade geometry, blade durability and theoretical understanding of the applied principles.

In Attl's line of flying shears, the company has focused on production mills with a maximum production speed of 160m/min, since this parameter applies to 70-80 per cent of the current production mills. For shear cutting of square and rectangular profiles Attl have used one axis type of cut, where the shearing unit can be adjusted  $\pm 12^\circ$  against the diagonal of the rectangle.

When cutting tubes, Attl selects the two axes type of cut, although a totally different movement of the blades is used compared with current producers of cutoff machines.

Attl decided not to select the option of converting the pressing tool as other machinery makers have. Instead, the company has found a new way based upon a rotation of the tools against pins and a large area sliding seat, resulting in a small pressure per unit of area. This approach has brought with it longevity of contact planes and the whole cutting unit in general. The life of the cutting unit before a



**Figure 1:** A detail of a sawing unit KS 76x3.4 with flying saw cutoff – ALDAS

middle maintenance repair of the sliding planes is 2.5 to 3.5 million cycles

The tool life of the main cutting blade is standard. Using TiN blade coating, the main blade life in-between sharpening can be estimated as 15 to 30 thousand cycles. The life of the slitting blade in Attl machines is well above average. Common life of Alpha Cut blades of this type is usually 10 to 15 thousand cycles.

Due to a special design of Attl's slitting blade, the company has achieved a life of 120-180 thousand cuts. The life of the cutting jaws in-between grinding is 80-110 thousand cuts and it is possible

Evaluation of parameters for both dividing technologies		
<b>Hot blade saw</b>	Minimal use	No future, very bad quality of the cut surface
<b>Cold rotary saw machine</b>	<b>Range of diameters and wall thicknesses</b>	<b>Remarks</b>
	Ø 10-38mm thickness 1.2-2.5mm	Very good quality; production speed not effected
	Ø 16-63.5mm thickness 1.2-3.5mm	Very good quality suitable for mill speeds to 80m/min
	Ø 38-102mm thickness 1.5-5mm	Good quality; limited production speeds
	Ø 76-138mm thickness 1.5-5mm	Classic concept of cold rotary saw strongly reduces mill output. Possible solution: Duo; Kvatro
For cutting rectangles using cold rotary saw, similar guidelines apply.		
<b>Shearing modules</b>	<b>Range of tube diameters</b>	<b>Remarks</b>
<b>Module SJ 38</b>	Ø 10-38mm thickness 1.5-2.5mm	Good quality. Speed of the cutting unit does not restrict output of the production line. Possibility of cutting so called service lengths 1-3m with mill speeds to 60m/min.
<b>Module SJ 63 (76)</b>	Ø 16-63.3mm thickness 1.5-3.4mm	Quality sufficient. Speed of the cutting unit does not restrict output of the production line. Possibility of cutting service lengths lengths 1-3m with mill speeds to 60m/min.
<b>Module SJ 89</b>	Ø 38-89mm thickness 1.5-4mm	Quality sufficient. Speed of the cutting unit does not restrict output of the production line. Possibility of cutting service lengths 1-3m with mill speeds to 60m/min.
The shear cutting of tubes with diameters larger than 89mm is not recommended for reasons of high technical costs. The problem can be effectively solved by using ALDA S 138 or ALDA S 200 Kvatro cold rotary saw.		

to regrind the jaws twenty times. When considering production volumes, this represents approximately 20-25 thousand tons of profile production.

Using a similar analysis as the previous section dealing with the cold rotary saw, Attl have calculated tool costs (main blade, slitting blade, cutting jaws) for a production of 26,000 tons of tubes/profiles per year as follows:

- Main blades €1,500
- Pre-cut blades €1,100
- Cutting jaws €1,200
- Total €3,800

**The cost of €3,800 is about ten times less than that of cutting tubes and profiles using a rotary saw.**

One of the most important parameters concerning the cutting of profiles/tubes is the quality of the cut surface. In this respect, Attl's experience and that of its customers is quite conclusive.

### Cutting of square and rectangle profiles

For these types of profiles, all the aforementioned SJ shear modules are used. The cut is in one axis. Profiles from 10 x 10mm to 80 x 80mm and wall thickness 1-4mm can be sheared. The quality of cut surface is very good and comparable to that of the cold rotary saw method.

The times of the cut are 0.6-1 second, enabling the use of the full mill speed. Thus this type of technology is very effective and economically advantageous.

### Comparison and economic evaluation of flying shear cutoff versus rotary saw

- A) Production costs
- B) Energy requirement
- C) Waste, ecology
- D) Increased production as a result of using shear cutoff technology

#### A) Production costs

This can include purchase costs of the tools and their maintenance, replacement and sharpening, which are necessary for an annual mill production of around 26,000t.

As mentioned above, production costs attributable to the use of flying cold rotary saw cutoff are in the region of €38k to €45k per year.

Also above are the costs attributable to the use of flying shear cutoff, namely €3,800 per year. This section is concluded in table 1:

	Blade and jaws	Rotary saw blade	Difference per year
Purchase, maintenance per year (€)	€3,800	€38,000	€34,200
Tool expense saving per year		€34,000	

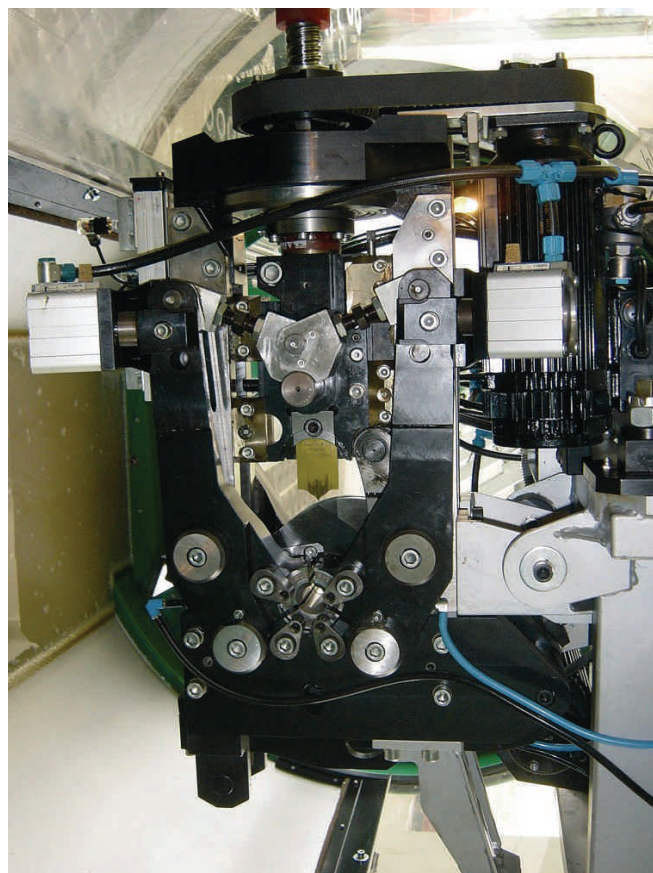


Figure 2: Detail of a flying shear cutoff unit SJ 38x2.4, with blades driven by SEW servomotor

The above information points to savings directly attributable to the tooling costs in the region of €34,000 in favour of the shear cutoff method.

#### B) Energy requirement (savings)

The energy necessary to cut profiles by flying saw, including the motion of the cart, is around 140kW/hour. In comparison, energy spent by the flying shears, including the motion of the cart, is approximately 104kW/hour.

Savings from using the shear method as opposed to sawing is  $140 - 104 = 36 \text{ kW/h}$ .  $36 \times €0.14 = €5.04$ . Based on  $€5.04 \times 4,200 \text{ hours}$ , the result would be €21,000 per year.

Energy savings of €21,000 per year is quite significant.

#### C) Waste, ecology

Increasing importance is currently being given to minimising or removing the negative effects on the environment by waste products. In the case of a saw, the waste effects are considerable and can be expressed in terms of costs for the removal of the solid metal saw waste and dust. Both methods produce approximately 19.6t of waste material per year.

Considering the type and shape of the sawing waste, it can be said that about one third of the total amount (ie 6,532kg), consists of larger metal particles and saw dust. The rest of the waste is in the form of dust particles in the air, which have to be sucked away and removed through filters; these costs are hard to evaluate.



**Figure 3:** Flying saw cutoff ALDA S 76x3.4-100, with AUT 7000 bundling machine shown in the background

The current costs of disposing of the solid saw waste are €0.4/kg. Thus, to dispose of the 6,500kg of waste costs €2,600 per year.

Waste from a shear cut is solid and can be sold for €0.1/kg. Therefore by using this technology, instead of the assumed costs of waste removal, a profit of €1,950/year can be achieved.

The overall benefit to the producer is €4,560 per year.

#### D) Increase in production as a result of using shear cutoff

Additional savings result from the increased production as shown by the following two examples. Let us assume an annual production of 26,000t/year.

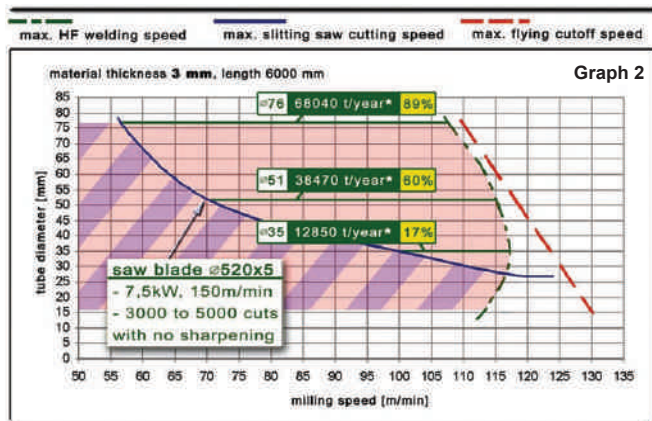
Analysis of production data shows an increase in production when using shear cutoff by 43 hours, as a result of shorter necessary stoppages for cutting tool maintenance.

Increase of profit as a result of less stoppages per year:

$42 \times 60 = (2,580\text{min}) \times (60\text{m/min}) \times (2.8\text{kg/bm}) = 154,800\text{kg/year}$ . Assuming a profit of €0.06/kg, increase of profit per year is €10,000. It can therefore be assumed, and actual production experience confirms this, that a forming line producing a profile 60 x 40 x 3mm will increase productivity by 20-30 per cent (assuming sufficient HF welder capacity) when the mill speed increases (graph 2).

Using the assumed production of 26,000t/year the increase in speed will bring approximately 6,500t more production. At the above profit of €0.06/kg, using shear cutoff instead of a cold saw, will result in extra profit of €390,000 per year.

**If this theoretical profit is reduced by a coefficient of 0.6 to accommodate a realistic assortment of other profiles, it results in an extra profit of €235,000.**



Now it is clear, that from the point of view of A), its increase in profit is almost negligible when compared with B).

From the economical point of view, dividing by shear is definitely more profitable, in this case by €235,000/year.

Therefore, calculations can be made regarding the payback period on investment in case of installing a flying shear cutoff machine ALDA 76 X 3 – 100.

The total saving per year is:

$A + B + C + D = 34,000 + 21,000 + 4,500 + 235,000 = €294,500/\text{year}$ .

Investment in buying the machine:	€150,000
Investment in buying the necessary tools:	€15,000
Installation and the original set up:	€8,000
Total costs :	€173,000
Yearly savings:	€294,500
Thus the return is $173,000 : 294,000 = 0.6$ year	

The return on investment based on the above analysis is just 0.6 a year (8 months), without even evaluating the additional positive effects on hygiene of work, ecology and internal costs.

Please note: All the above data has been compiled from information offered by companies Attl a spol sro, JAKL Karvina as, Steel Profil sro and Ocelprofil sro.

### Recommendations for both dividing technologies for tube/profiles by flying cutoff

After twelve years of experience in this field, the findings can be used to recommend an optimum type of dividing tubes and profiles with respect to the types of profiles and tubes, the maximum possible capacity of a production mill and the quality of the cut face required. We have divided the choice of machines produced by the Attl a spol sro into five groups as follows:

#### Flying cold saw ALDA S 38 x 2.5 -140

Parameters	Values	Units
Tube diameter max/min	38/10	mm
Square profile max	30 x 30	mm
Rectangle profile max	50 x 10	mm
Wall thickness max/min	2.5 ÷ 0.8	mm
Material	S 185; S 235 JRH; S 235 JR; 1.4301; 1.4571	
Mill speed max	140 (160)	m/min
Rotary saw diameter	400	mm
Number of cutting cycles for L= 6m	22	1/ min
Life of rotary blade between sharpening (est)	100 ÷ 160	t
Power input	120	kW

Comments: This is a proven type of flying cold saw with extra high rigidity of the saw unit and proportional control of feed motion by hydraulic cylinder. Using this saw for cutting the above small diameters does not offer substantial economic benefits.

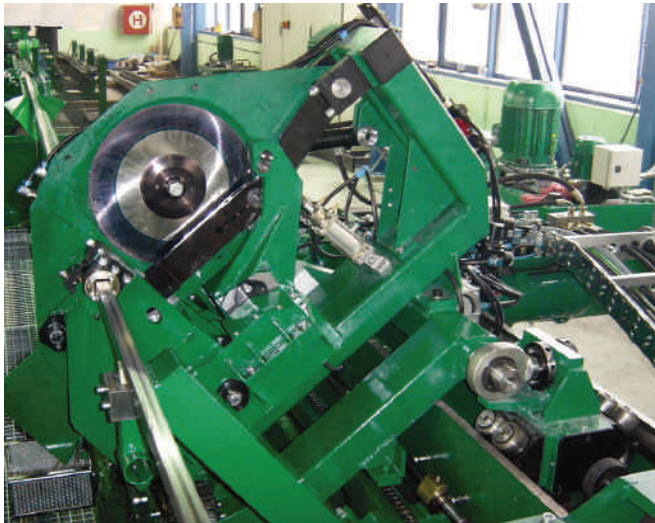


Figure 4: Detail of the ALDA S 38x2.5-120 sawing unit

#### Flying cutoff ALDA 63 (76) x 3.5 – 100 Combi

Parameters	Cold saw	Shear	Units
Tube diameter max/min	63.5 (76)/19	---	mm
Square profile max	50 x 50 (60 x 60)	50 x 50 (60 x 60)	mm
Rectangle profile max.	80 x 20	70 x 30	mm
Wall thickness max/min	3.5 ÷ 1.0	3.5 ÷ 1.2	mm
Material	S 185; S 235 JRH; S 235 JR; 1.4301; 1.4571		
Mill speed max	90	120	m/min
Rotary saw diameter	500	---	mm
Number of cutting cycles for L=6m	15	20	1/min
Life of blades between sharpening (est)	100 ÷ 150	120 ÷ 250	t
Power input	120	140	kW

Comments: Conceptually, this is a very successful type of flying cutoff that enables a change between cutting by saw or shear within 10 ÷ 15 minutes. In recent years, the combination of dividing tubes by saw and profiles by shear has proven the most effective. It is possible to supply the machine with only the cold saw or only the shear.

Figure 5: ALDA SJ 63x2.6-100



#### Flying cutoff ALDA 102 x 4 – 100 Combi

Parameters	Cold saw	Shear	Units
Tube diameter max/min	102/38	---	mm
Square profile max	80 x 80	80 x 80	mm
Rectangle profile max	120 x 40	100 x 60	mm
Wall thickness max/min	4.0 ÷ 1.0	4.0 ÷ 1.6	mm
Material	S 185; S 235 JRH; S 235 JR; 1.4301; 1.4571		
Mill speed max	60 ÷ 80	100	m/min
Rotary saw diameter	600	---	mm
Number of cutting cycles for L=6m	12 ÷ 14	17	1/min
Life of blades between sharpening (est)	80 ÷ 100	100 ÷ 200	t
Power input	160	180	kW

Comments: The Design Combi offers a choice of dividing by saw or shear. A change is possible within 20 ÷ 30 minutes.

#### Flying cold saw ALDAS 138 x 5 – 80

Parameters	Values	Units
Tube diameter max/min	138/76	mm
Square profile max	100 x 100	mm
Rectangle profile max	150 x 50	mm
Wall thickness max/min	6 ÷ 1.5	mm
Material	S 185; S 235 JRH; S 235 JR; 1.4301; 1.4571	
Mill speed max	80	m/min
Rotary saw diameter	650	mm
Number of cutting cycles for L= 6m	12	1/min
Life of rotary blade between sharpening (est)	80 ÷ 100	t
Power input	160	kW

Comments: This is the largest size of flying cold saw using one rotary saw blade. It is currently in the design stage.

Figure 6: Flying saw cutoff ALDAS 200x6-40-Kvatro







Figure 7: A fish eye view of an Attl mill for tubes to 104x4mm

### Flying cold saw ALDA S 200 x 6 – 40 Kvatro

Parameters	Values	Units
Tube diameter max/min	200/138	mm
Square profile max	150 x 150	mm
Rectangle profile max	200 x 100	mm
Wall thickness max/min	6 ÷ 1.2	mm
Material	S 185; S 235 JRH; S 235 JR; 1.4301; 1.4571	
Mill speed max	50	m/min
Rotary saw diameter	4 x 250	mm
Number of cutting cycles for L= 6m	8	1/min
Life of rotary blade between sharpening (est)	80 ÷ 100	t
Power input	180	kW

Comments: The concept of four saw arbors means, that during 65 per cent of the time it takes to make a cut, four rotary saw blades are working together and there are eight contact places. This is the reason why, for example a s/s tube Ø 200 x 2mm takes only 4.8 seconds to cut, which is about 1/10 of the time needed to make the same cut using a belt saw. Aldas Kvatro was used successfully also with s/s tubes.

### Conclusions

This analysis clearly shows that in order to make the current and new production mills the most effective, it is advantageous to install a dividing machine able to switch between the flying saw method and flying shear cutoff method, which is a combination machine.

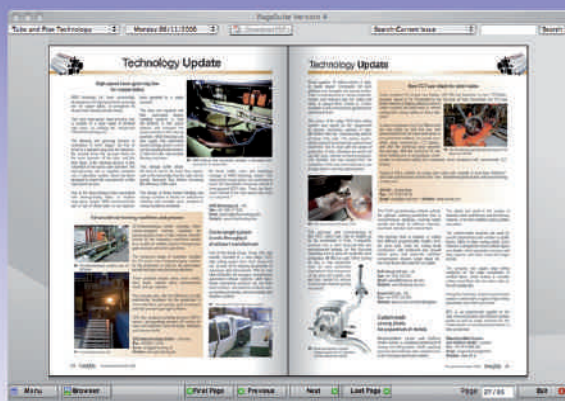
The concept and its advantages become apparent in production lines for tubes Ø 38-102mm and other derived square/rectangular profiles. The use of a combination dividing machine, providing there is a sufficient reserve capacity of HF welding generator, can increase mill production by 25-30 per cent and return investment within a year.

As already mentioned, the production program of Attl a spol sro includes entire tube mills. However, it is worth pointing out the quality of Attl a spol's CNC bundling machine for the full range of tubes and profiles in lengths from 4-12m, installable as the final module of a production mill.

Attl a spol sro have designed and installed a new type of vertical strip accumulator in three production facilities. This is a good alternative to the expensive and energy thirsty horizontal accumulator.

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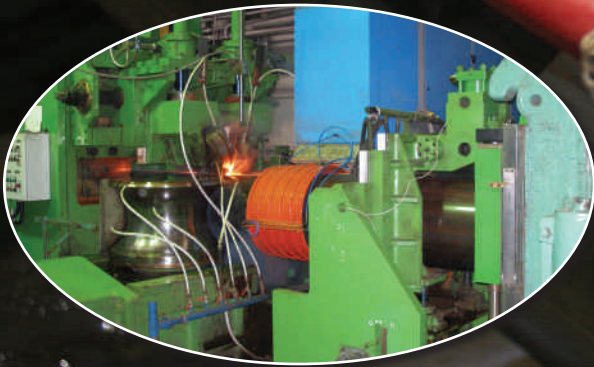
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