The international magazine for the tube and pipe industries

# TUBE & PIPE TECHNOLOGY

May 2009 | Vol 22 No 3 | US$33

# More uptime. More output.

**From the welder with a 5-year warranty.**

**The Weldac 1800**
**—for API pipes up to 26" OD.**

All Weldac solid-state welders now come with a 5-year warranty for their inverter modules, driver cards included.

Since its launch the Weldac has become a proven solution; a welder that's boosting productivity at companies worldwide.

Weldac's unrivalled reliability is based on a robust design and robust components. In fact, our IGBT transistor solution makes the Weldac virtually short-circuit proof.

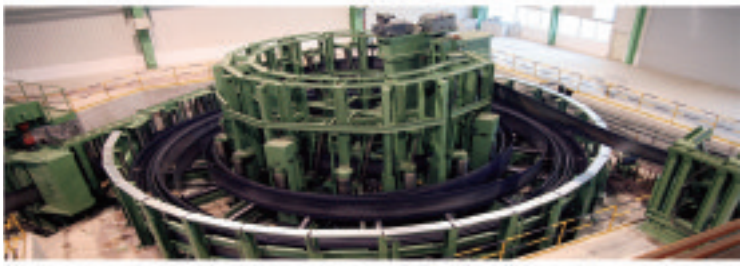
To learn more about Weldac, its proven reliability, and the warranty, just write to us at: sales@no.efdgroup.net

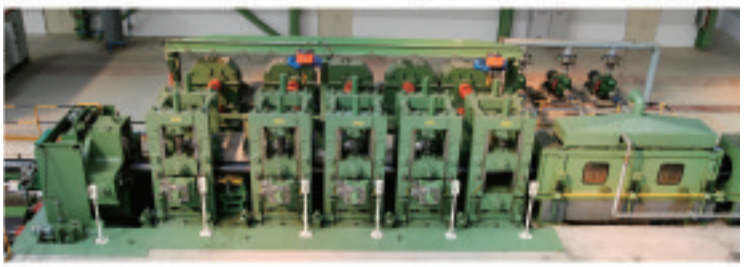
EFD Induction | www.efd-induction.com | Putting the smarter heat to smarter use.

EFD® INDUCTION

# PIPE MILL
## ERW/API 8”-26”Ø

*DPI, Anshan, China/2008*





| | |
|---|---|
| ENTRY SECTION | |
| ACCUMULATOR | |
| CAGE FORMING | |
| WELDING SECTION | |
| SIZING SECTION | |
| END FACING | HYDRO TESTER |

## CAGE FORMING TECHNOLOGY

**OPTIMUM SOLUTION FOR**
**ERW API PIPE MILL 20”/24”/26”Ø**

- PROGRESSIVE FORMING
- UNIFORM WELDING
- QUICK ROLL CHANGE
- LOW TOOLING COST

**MILLTECH** is in the worldwide partnership with **YODER MFG.** specialized in the mfg. of ERW/API Pipe Mill O.D 6”-20” / 8”-26” with Full Cage Forming System.

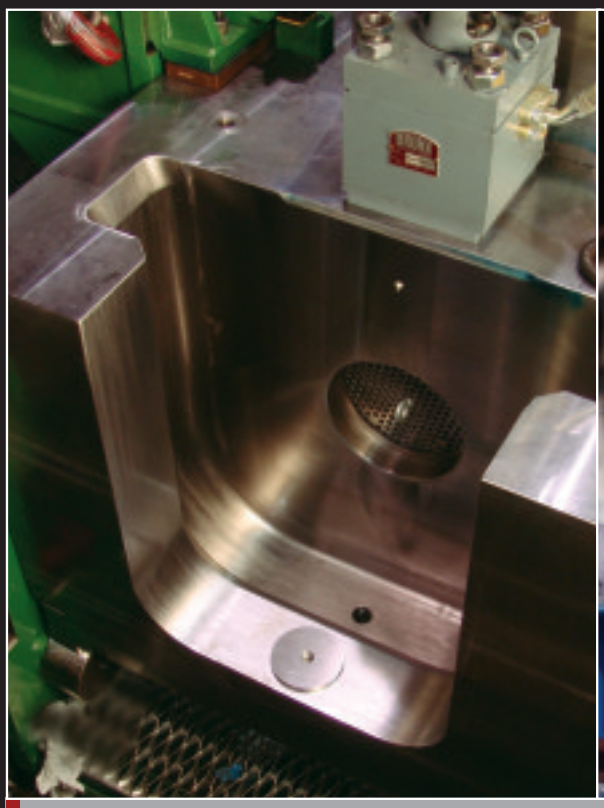
We supply the clients with mill and finishing equipment of latest technology in package as well as technical assistance for operation.

MILLTECH
pm@milltechco.com

YODER

# EDITORIAL INDEX


5th Shanghai Tube Expo ..... 22
AddisonMckee ..... 6
AGR Field Operations ..... 94
Aicon 3D Systems GmbH ..... 115
Anticor Ukraine ..... 14
AWS Schäfer Technologie GmbH ..... 32
Be Ca Engineering Soc Coop ..... 80
Bewo BV ..... 26
BLM Group UK Ltd ..... 16
BLM SpA ..... 16
Caleyron Industries ..... 48
Cartacci Srl ..... 32
Citypipe ..... 22
Combilift Ltd ..... 12
Contrôle Mesure Systèmes ..... 87
Dhatec BV ..... 36
egeplast ..... 39
Elmed Dr Ing Mense GmbH ..... 106
EMS ..... 68
EWI ..... 27
Felss GmbH ..... 66
Formtek Asia-Pacific ..... 24
GE Sensing & Inspection Technologies ..... 94
Gem Tool Corporation ..... 20
Gradient Lens Corporation ..... 110
Guangzhou Julang Exhibition Co Ltd ..... 8
Haven Manufacturing Corporation ..... 86
Hexagon Metrology ..... 20
Imatek Ltd ..... 118
Inductotherm Heating & Welding Technologies ..... 24
Inductotherm HWT Ltd ..... 49
Inex Incorporated ..... 44
Innov-X Systems Inc ..... 107
Inoex GmbH ..... 114
InspecTech Analygas Group ..... 98
International Tube Association ..... 16
ITL Industries Limited ..... 30
Jansen Ltd ..... 62
Kent Corporation ..... 37
Kolsatpol sp zoo ..... 62
KraussMaffei ..... 39
KraussMaffei Berstorff ..... 40
LAP GmbH ..... 84
Paul Leibinger GmbH & Co KG ..... 108
Limab ..... 80
Linde Group ..... 24
Linsinger ..... 35
Lloyd Instruments Ltd ..... 115
Logstor A/S ..... 8
Magnatech Europe BV ..... 48
Magnatech International ..... 24
Magnetic Analysis Corporation ..... 82
Markator® Manfred Borries GmbH ..... 96
Menegon Ennio sas ..... 70
Messe Düsseldorf ..... 18
Metallisation Ltd ..... 58
Middle East Plastic Pipes ..... 22
George A Mitchell Company ..... 26, 58
NDT Technologies Inc ..... 70, 86
Numtec-Interstahl GmbH ..... 102
OES Inc ..... 90
Officine MTM SpA ..... 62
Olympus NDT ..... 109
Op Srl ..... 38
Orbitalum Tools GmbH ..... 8
PaintExpo ..... 22
Pedrazzoli IBP SpA ..... 55
Pipe & Tube Istanbul ..... 22
Pipeline Coating 2009 ..... 22
Pixargus GmbH ..... 104
Precitec KG ..... 30
Prolamsa USA ..... 7
PS China 2009 ..... 22
RathGibson ..... 24
Ravni Technologies ..... 26
Raynar Co Ltd ..... 106
Re-Go Autoparts Ltd ..... 42
Reika GmbH & Co KG ..... 95
Roll-Kraft ..... 34
RSA Cutting & Deburring Systems Ltd ..... 56
RSA Entgrat- u. Trenn-Systeme GmbH & Co KG ..... 56
Salzgitter Hydroforming GmbH & Co KG ..... 64
Scan Systems Corp ..... 103
Scotchman Industries, Inc ..... 40
Seco/Warwick ..... 24
Sica SpA ..... 28
Sikora AG ..... 100
Silkmead Tubular Ltd ..... 43
SMS Elotherm GmbH ..... 45
SMS Engineering Srl ..... 60
SMS GmbH ..... 44
SMS Meer ..... 18
Standard-Metallwerke GmbH ..... 67
Star Pipe A/S ..... 8
Steel-Tech ..... 22
Stexpo 2009 ..... 22
SwissCut SW Wil AG ..... 28
T&H Lemont ..... 57
Tac Technical Instrument Corp ..... 88
Technodigit Sarl ..... 20
Tekla Corporation Oy ..... 27
TeZet Technik AG ..... 113
Thermatool Corporation ..... 49
TMK-Group ..... 17
Tolexpo ..... 18
Tube Clean GmbH ..... 35
Tuboscope ..... 79
Turbex Limited ..... 28
Unison Ltd ..... 42
Universal Finishing Systems ..... 65
UTE Inc ..... 42
Valve World Expo ..... 22
Weil engineering GmbH ..... 55
Wire, Tube and Cable Expo 2009 ..... 22
Zhejiang Feiting Pipe Co Ltd ..... 46
Zumbach Electronic AG ..... 92




We are the leading manufacturer of API Straighteners & Testers for the world's major pipe producers.

Visit www.btwcorp.com /pressreleases to learn more about BTW's latest Tester & Straightener installations.

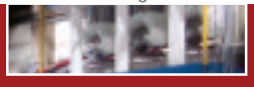
# SIX & TEN ROLL STRAIGHTENERS
# HYDROSTATIC PIPE TESTERS

**We provide the service and technical expertise that is required to meet the stringent API standards of today's global marketplace.** That's why you'll see the Bronx nameplate on straightening and hydrostatic tester machines installed in nearly every corner of the world – over 1,000 straigteners in our storied history. **And over 20 testers in the last five years alone.** History, experience and intellectual market expertise sets us apart. Contact us to meet API specifications for your finishing floor.

Hydrostatic Testers

Pipe End Finishing

6-10 Roll Straighteners



Bar Straighteners

World Headquarters: Bronx International, Inc. P: 330.244.1960
European Office: Bronx International, Inc. P: +44 (0) 870 442 2686 Asia Office: Bronx International Inc. P: +86 8526-2010/11

www.btwcorp.com

BRONX
TAYLOR-WILSON

# Contents

## Moving with the times

Although the automotive industry has experienced a dramatic decline in recent years compared to its heyday, the car still remains central to everyday transport and human existence. The obsession with the automobile has been with us for a long time, and its dominance is unlikely to weaken.

Even in the current global economic crisis, people need to get around and whether that means spare parts for repairs or the latest model sports car, automotive tube will always be in demand. While some of the world's biggest car manufacturers are in dire straits, with General Motors and Chrysler currently fighting plant closures and bankruptcy, suppliers of spare parts have reported a surge in demand.

Other enterprising companies have found opportunity in the current market, such as India's Tata Motors in the launch of its new Nano model. The Nano is Tata's attempt to make an affordable option (circa US$1,900) for millions of poorer Indian drivers, and is expected to be available in Europe by 2011. Other manufacturers are placing emphasis on hybrid and electric vehicles.

The automotive industry is a fair reflection of the general economic problems at present. As always, time moves on and the whole world has to adapt to new circumstances. And it will be those in the best condition and quickest off the mark that prosper. In the mix of well-publicized banking problems and bankruptcies, there are crafty business deals taking place and companies using the recession as a smokescreen for major change.

It is now also time for me to move onto something new as this will be my last leader as editor of *Tube & Pipe Technology*. Working on the magazine and serving the tube and pipe industry has been a valuable and enriching experience over the years. It has given me a truly international outlook and enabled me to transcend the boundaries of working for a domestic UK company.

**Rich Sears**
Editor • Email: richard@intras.co.uk


2 Editorial Index

6 Industry News

26 Technology Update

72 From The Americas

120 Advertisers Index





TUBE & PIPE TECHNOLOGY

*The international magazine for the tube & pipe industries*

| | |
|---|---|
| Editor | • **Rich Sears** |
| Features editor (USA) | • **Dorothy Fabian** |
| Editorial assistant | • **Christian Bradley** |
| Production manager | • **Lisa Benjamin** |
| Design | • **Julie Tomlin** |
| Sales & marketing | • **Catherine Sayers** *English speaking sales*<br>• **Giuliana Benedetto** *Italian sales*<br>• **Hendrike Morriss** *German speaking sales*<br>• **Linda Li** *Chinese sales*<br>• **Jeroo Vandrevala** *Indian sales* |
| Advertising co-ordinators | • **Liz Hughes**<br>**Andrea McIntosh** |
| Subscriptions | • **Liz Hughes** |
| Accounts manager | • **Richard Babbedge** |
| Publisher | • **Caroline Sullens** |
| Founder | • **John C Hogg** |

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

**USA Office (Editorial only):** Intras Limited,
272 First Ave, Apt 12G, New York, NY 10009, USA
**Tel/Fax**: +1 212 614 9266
**Email**: dfabian@rcn.com

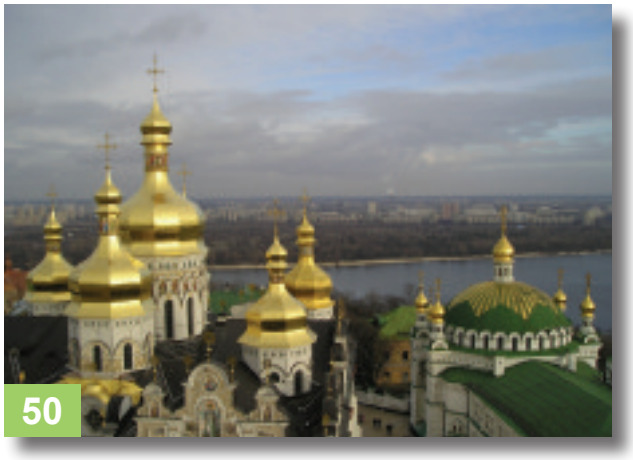
**Indian Office:** Jintras Ltd,
Subarna (Ground Floor) P21/N, Block A
New Alipore, Kolkata 700 053, India
**Tel:** +91 33 2407 0701 • **Fax**: +91 33 2407 0700
**Email**: jeroov@vsnl.com





**US Copies only: *Tube & Pipe Technology* (ISSN No: 0953-2366) is published bi-monthly by INTRAS Ltd and distributed in the US by DSW, 75 Aberdeen Road, Emigsville, PA 17318-0437. Periodicals postage paid at Emigsville, PA. POSTMASTER: send address changes to *Tube & Pipe Technology*, PO Box 437, Emigsville PA 17318-0437.**

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

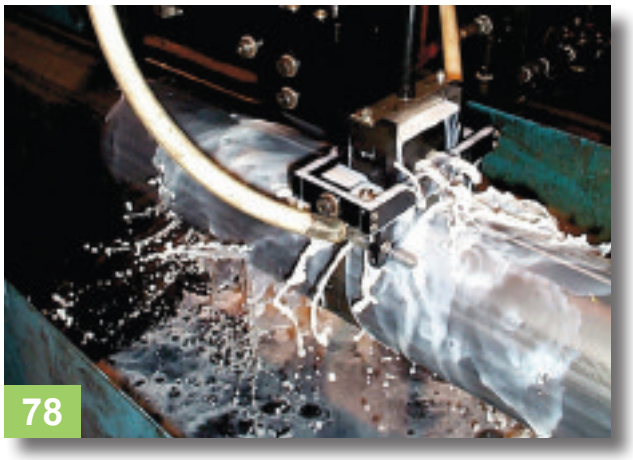



50 **Tubes & Fittings Ukraine 2009: Kiev, Ukraine**

Ukraine finally gained entry into the World Trade Organization in 2008, confirmation of the country's strengthening position as an industrial heavyweight and ambitious business partner. Tube & Fittings Ukraine 2009 aims to reflect this status with an increasingly popular event for the eastern European and CIS markets. Although the economic outlook is currently very challenging, the event aims to give all concerned the chance to lay anchor and build business relations for the future.


54 **Production & Processing of Automotive Tube**

From issues of green technology to high performance sports cars, specialized tubing will always be the key to keeping things moving in the automotive world. The methods and machinery used to produce automotive parts are invaluable to the designers and engineers who invest themselves in their work. As this feature reveals, automotive tubing relies on advanced processes and machinery including complex bending, high-performance sawing, high frequency tube mills, and hydroforming.




78 **Inspection, Measuring, Testing & Marking**

As Albert Einstein once said, *"Anyone who has never made a mistake has never tried anything new."* The expertise of inspection, measuring, testing and marking ensures that the production of tube and pipe can make room for innovation and experimentation, while retaining the standards expected of such products. This freedom is allowed through the mastery of methods such as ultrasonic, eddy current, electromagnetic, hydrostatic, flux leakage, NDT, and laser measurement.

## Technical Article

116 **A study into rollforming of parabolical section**

By Dr Jiying Liu, Mr Yuanguang Li, and Mr Zhengqing Ai, North China University of Technology, Beijing, China

Illustration images used this issue courtesy of Ariel Motor Co, Bigstockphoto.com, GE Sensing & Inspection Technologies, International Tube Association, Jansen Ltd, Magnatech Europe BV, Messe Düsseldorf GmbH, Orbitalum Tools GmbH, and TDS Expo

## AddisonMckee closes UK facility and merges with Eagle Precision

AddisonMckee Ltd, a manufacturer of tube bending and end-forming machinery, has ceased operation at its Preston, UK facility in response to declining market conditions. The company blames the closure of the facility on the global recession, a financial crisis restricting availability of financing, and unparalleled falling consumer demand.

In a further move to reinvigorate its business, the company has also merged with Eagle Precision Technologies, a Canadian manufacturer of muffler solutions. Eagle Precision Technologies has been a world leader in the design and manufacture of tube forming solutions for over 45 years.

*"This transaction will bring together the two largest global names in tube manipulation products and services,"* states Mr Joe Eramo, chief executive officer of AddisonMckee. *"This merger will provide our collective global customer base with the absolute best in technical solutions, while lowering our product costs. In the current economic environment, market consolidations are a reality – with fewer, but larger, future customers."*

As a result of this transaction, the manufacturing of products for both AddisonMckee and Eagle brands will be consolidated into AddisonMckee's facilities in Lebanon (OH), USA, Brantford (Ontario), Canada, and Tianjin, China.

The Eagle facilities in Brantford, Canada and Shanghai, China will close. The resulting organization will continue to do business under the AddisonMckee name, while the Eagle brand name will be retained for key products. The company has also retained key AddisonMckee UK and Eagle staff in the areas of sales, engineering, parts, and field service.

AddisonMckee was originally founded in 1956 as Addison Tool Company in the UK when it began importing metal cutting saws from Italy. The company gradually added tube-bending machines to its range and, in 1974, the company became the European agent for the very first hi-tech CNC tube bending and measuring machines.

In mid-2005, the Chicago-based private equity group, WHI Capital Partners (WHICP), acquired AddisonMckee Ltd. An affiliate of William Harris Investors, WHICP is a Chicago-based private equity group that invests in middle market, industry-leading companies with *'solid financial fundamentals and proven management teams'*.

***Manufacturing for both AddisonMckee and Eagle brands will be consolidated into AddisonMckee's facilities in the USA, Canada, and China***

Mr John Brown, AddisonMckee's chief executive officer for the last 25 years, recently announced his phased retirement. Mr Brown – who was succeeded by Mr Joe Eramo – will remain in the group as president of European and Asian operations in the interim period.

The closure of the UK facility and merger with Eagle follows on from the company's 2006 expansion into the Chinese market, with a new facility in Tianjin. In the same year, AddisonMckee also built a brand new 78,000ft² facility at their USA-based location, a move designed to provide 66 per cent more manufacturing space, with an additional 85,000ft² for future expansion.

**AddisonMckee** – USA
**Fax**: +1 513 228 7226
**Email**: crogiers@addisonmckee.com
**Website**: www.addisonmckee.com

*AddisonMckee's facility in Tianjin, China – established in 2006 – will take on excess work, following the closure of AddisonMckee's UK facility and merger with Eagle. The company will also make use of its expanded US facility in Lebanon (OH)*

## Prolamsa USA begins production at its first US tubular facility

Prolamsa USA has begun production of mechanical tubing at its first US manufacturing facility, located in Laredo, Texas. The facility, which also includes a cut-to-length line, will produce mechanical tubing from ½" to 2½".

In addition to manufacturing mechanical tubing, the Laredo facility will also stock both mechanical and structural steel (HSS) tubing. A second facility in Laredo will stock metal building shapes and components, such as C- and Z-purlins, angles and channels, and slit red primered coils.

*"These facilities will enable us to provide our US customers faster deliveries, quicker turnaround times and JIT stocking programs,"* said Mr Jean-Marie Diederichs, general manager of Prolamsa USA. *"We're telling our customers that now we can deliver as fast as the speed-limit allows."*

Mr Diederichs went on to explain that Prolamsa's US and Canadian customers have given Prolamsa's products high quality marks, but that delivery from Prolamsa's Escobedo plant in Mexico was sometimes delayed at the border. *"The US manufacturing location will eliminate that problem,"* he said.

*"Even though the economy is struggling right now, there isn't a better time to invest in the US,"* Mr Diederichs said. *"If we invest in new facilities and train our new US workers now, we'll be ready to participate in the rebound and future growth of our economy."*

Prolamsa USA was started in 1996 to handle the marketing and sales activities in the United States and Canada for its parent company Prolamsa, a privately-owned concern that has manufacturing facilities in Mexico.

Prolamsa produces a wide range of high-quality mechanical and structural tubing; UV coated, galvanized and primered tubular products; metal building components and shapes; and parts/components.

**Prolamsa USA** – USA
**Fax**: +1 281 494 0990
**Website**: www.prolamsausa.com

# DIARY OF TUBE EVENTS

## 2009

### MAY

| | | | |
|---|---|---|---|
| **05-07** | **Shanghai Tube Expo**<br>*Shanghai, China*<br>Exhibition | | **Email**: ndpymq@126.com<br>**Website**:www.gangguan-expo.com |
| **12-15** | **Tube/wire Russia 2009**<br>*Moscow, Russia*<br>Exhibition | | **Email**: wolfgramc@messe-duesseldorf.de<br>**Website**: www.metallurgy-tube-russia.com |
| **26-29** | **Citypipe**<br>*Moscow, Russia*<br>Exhibition | | **Email**: citypipe@sibico.com<br>**Website**: www.citypipe.ru |

### JUNE

| | | | |
|---|---|---|---|
| **02-04** | **Fabtech Mexico**<br>*Monterrey, Mexico*<br>Exhibition | | **Email**: info@fmanet.org<br>**Website**: www.fmanet.org |
| **10-12** | **Tubes + Fittings Ukraine**<br>*Kiev, Ukraine*<br>Exhibition | | **Email**: olga@welding.kiev.ua<br>**Website**: www.weldexpo.com.ua |
| **11-12** | **Anticor Ukraine**<br>*Kiev, Ukraine*<br>Conference | | **Email**: koryakan@gmail.com<br>**Website**: www.weldexpo.com.ua |
| **23-26** | **10th Guangzhou exhibition**<br>*Guangzhou, China*<br>Exhibition | | **Email**: meiwen@julang.com.cn<br>**Website**: www.julang.com.cn |

### OCTOBER

| | | | |
|---|---|---|---|
| **06-08** | **Tubotech/Metaltech 2009**<br>*São Paulo, Brazil*<br>Exhibition | | **Email**: cipa@cipanet.com.br<br>**Website**: www.cipanet.com.br |
| **13-15** | **Tube/wire Southeast Asia**<br>*Bangkok, Thailand*<br>Exhibition | | **Email**: tube@mda.com.org<br>**Website**: www.tube-southeastasia.com |

### NOVEMBER

| | | | |
|---|---|---|---|
| **02-03** | **Pipe & Tube Istanbul 09**<br>*Istanbul, Turkey*<br>ITA conference | | **Email**: info@itatube.org<br>**Website**: www.itatube.org |
| **10-13** | **Metal Expo**<br>*Moscow, Russia*<br>Exhibition | | **Email**: yakovenko@metal-expo.ru<br>**Website**: www.metal-expo.ru |
| **13-16** | **Tolexpo 2009**<br>*Paris, France*<br>Exhibition | | **Email**: mbazin@tolexpo.com<br>**Website**: www.tolexpo.com |
| **15-18** | **Fabtech/AWS Welding Show**<br>*Chicago, USA*<br>Exhibition | | **Email**: information@fmafabtech.com<br>**Website**: www.fmafabtech.com |

## 2010

### FEBRUARY

| | | | |
|---|---|---|---|
| **10-12** | **Tube India**<br>*Mumbai, India*<br>Exhibition | | **Email**: schreiberg@messe-duesseldorf.de<br>**Website**:www.tube-india.com |

### APRIL

| | | | |
|---|---|---|---|
| **12-16** | **Tube/wire Düsseldorf**<br>*Düsseldorf, Germany*<br>Exhibition | | **Email**: liedtkeM@messe-duesseldorf.de<br>**Website**: www.tube.de |

## Guangzhou tube and pipe exhibition to celebrate 10th anniversary

The 10th Guangzhou tube and pipe exhibition will take place from 23-26 June 2009 at the Pazhou Complex in Guangzhou, China. This leading Asian event will build on the considerable success of the last nine shows, with the show having increased year-on-year by around 30 per cent.

The exhibition will be co-hosted by Guangzhou Julang Exhibition Co Ltd, China Iron and Steel Association, China Non-Ferrous Metals Industry Association, and the Metallurgical Council of CCPIT. In order to celebrate the 10th anniversary, the organizers will host a celebration party on a luxury yacht against a beautiful backdrop of the Pearl River.

Guangzhou 2009 will showcase a larger exhibit area with support from around 500 renowned exhibitors. Attendance has already been confirmed from leading Chinese steel and pipe corporations including Jiangsu Kylin Tube, Zhejiang Singsheng Steel Pipe, Zhejiang Jiashang Steel Tube, Zhida Steel Pipe, Guangzhou Lianzhong, Wenzhou Yuante Pipe, Hebei Huike Steel Pipe, and Hebei Chenghao Steel.

The Liaocheng Steel Pipe Association of Shandong Province has organized its members as an exhibitor group. In addition, a number of international exhibitors have been confirmed including Ulbrich (USA), Capitole Press SL (Spain), and Matsumoto & Co Inc (Japan).

At the last show in 2008, there were 762 exhibitors and 52,000 visitors from countries including China, Taiwan, Hong Kong, USA, Italy, Germany, UK, Netherlands, Saudi Arabia, Dubai, Japan, South Korea, Singapore, Malaysia, and India.

Representing 30 countries and regions, last year's exhibitors occupied 30,000m$^2$ of floorspace. The international contingency of exhibitors made up 20 per cent of the exhibitor numbers.

In order to stimulate business, the Chinese Government has introduced new measures in 2009 including payment of 40 per cent of the exhibition expenditure for small Chinese companies. Such assistance has ensured that Guangzhou 2009 has already sold 65 per cent of its exhibit space.

A number of industry experts and leaders will discuss a range of topics including tube costs and logistics, export issues concerning European anti-dumping measures, and new modes of marketing. Those industries represented at the show will include petroleum, metallurgy, chemical, mechanical, construction, and water treatment.

**Guangzhou Julang Exhibition** – China
**Fax**: +86 20 38620790
**Email**: meiwen@julang.com.cn
**Website**: www.julang.com.cn

*The Guangzhou tube and pipe exhibition will celebrate its 10th anniversary*

## Sale of Star Pipe to Logstor the *'best solution'*

The Obbekjer Foundation, the owner of Star Pipe A/S, has sold essential parts of the company to the world's leading manufacturer of pre-insulated district heating pipes, Logstor. Star Pipe is involved in the exclusive production of PEH district heating pipe, district cooling pipe and pipe for industrial purposes.

The decision was based on a number of years of negative financial results. The sale, which took place at the beginning of March, will ensure that Star Pipe's customers receive a stable and continued level of quality and service. Logstor is an international group with subsidiary companies in 12 countries.

Star Pipe's chairman, Mr Kaj Thomsen, says, *"We feel confident leaving our customers to a leading supplier of pipe systems, Logstor. In spite of investments of millions we have not succeeded in laying the groundwork for a profitable operation, and in our opinion, a sale to Logstor is the best solution."*

Despite a positive development in turnover, Star Pipe achieved an unsatisfactory result in 2008. The company estimated the chances of achieving operational profit, considering the size of the company, to be extremely difficult for the foreseeable future.

Some production will continue within the next few months, so the stock of raw materials and finished products is reduced to a minimum. Once this has happened, the 35 years of production at Star Pipe's facility in Fredericia, Denmark will cease.

In future Logstor will produce from its own factories, but will retain a number of selected key employees to provide services to Star Pipe's customers. The sale will affect approximately 100 employees at Star Pipe.

The owner of Star Pipe, the non-profit Foundation of the director H Obbekjer and his wife Marie Obbekjer, will now concentrate on consolidating and developing A/S Ribe Jernindustri, a leading manufacturer of radiators in Denmark.

**Logstor A/S** – Denmark
**Fax**: +45 99 66 11 80
**Email**: logstor@logstor.com
**Website**: www.logstor.com

**Star Pipe A/S** – Denmark
**Fax**: +45 76 20 32 67
**Email**: starpipe@starpipe.dk
**Website**: www.starpipe.com

# »By always being one step ahead of our competition, we keep our customers one step ahead of theirs.«

Harry Prunk, CEO SIKORA AG

Do you want to know more?
**www.sikora.net**


## X-RAY 6070 TRIAX

Online triple-axis measuring system for fault detection and ovality measurement for hose and tube extrusion lines

## LASER 2000 T

Online triple-axis diameter and ovality measuring system for hose and tube extrusion lines

**Significant cost reduction**
**Optimized productivity**
**Continuous quality control**

SIKORA
Technology To Perfection

GERMANY • BRAZIL • CHINA • EGYPT • FRANCE • INDIA • ITALY • KOREA • RUSSIA • TURKEY • UKRAINE • USA

## Orbitalum Tools moves into new €4 million premises

Orbitalum Tools GmbH, Germany, has moved into new custom-designed premises in Singen (Hohentwiel) to take advantage of the company's recent expansion.

The handover event took place in January, with managing director Mr Achim Schneider accepting the 'key' from architect Mr Ludwig Schweiger from the city of Rottweil.

The event was accompanied by several high ranking regional politicians and the management of several partners, customers and suppliers, as well as the Orbitalum employees and their families. The employees had already moved into the new headquarters in October 2008, after a construction period of only seven months.

*Orbitalum's new facility was developed on the basis of effective communication, energy efficiency and increased space*

Orbitalum Tools GmbH, formerly known as Georg Fischer GmbH, has been part of ITW (Illinois Tool Works, Chicago) for more than three years.

With a staff of 65 employees, the company is a manufacturer of portable pipe and tube cutting and pipe end preparation machines. This equipment is used in industries including food and beverage, chemical, electronics, power plants, pharmaceutical, pipeline construction and shipbuilding.

The growth achieved by the company over the last few years has justified ITW's investment of approximately €4 million into the new Singen facility. The main objective of the new headquarters is to provide the facilities for modern and effective production and logistics. Various building and energy concepts were evaluated and a future oriented concept was developed together with the assigned architect.

The building has a total size of approximately 4,200m², of which 1,100m² is for the administrative department. It is designed in such a way that additional floors can be added on demand. Short distances between administration, production and shipping serve a quick exchange of information. The set up of the production in cells ensures a perfect setting for an optimized product flow.

Heating is currently provided by the underfloor method to all areas including production and the warehouse. This is presently provided by a gas boiler, but alternative systems such as pellet and solar will be possible in the future. Structural analysis has been undertaken to allow for the installation of solar panels on the roof.

The administrative wing facilitates effective communication among employees due to an open and transparent layout. In addition, a modern cafeteria area bordered by a Feng Shui garden, creates a healthy and enjoyable area. A new and equipped demo room has also been installed at Orbitalum Tools for customer training.

The decision to stay in Singen was made due to the fact that the city has a perfect infrastructure, good relations with the town council, and the majority of employees living there.

**Orbitalum Tools GmbH** – Germany
**Fax**: +49 77 31 792 500
**Email**: achim.schneider@orbitalum.com
**Website**: www.orbitalum.com

*Orbitalum's managing director Mr Achim Schneider accepts the 'key' from architect Mr Ludwig Schweiger*

Horizontal spyral accumulator 1300 x 14mm, 60 m/1', installed on electro welded tube mill in Polland.

ADDA FER
MECCANICA
www.addafer.it

# The future starts here.

## ELECTROWELDED TUBE MILL 6"-14"

Ready delivery!

Visit our web site - www.addafer.it -, you'll find 2nd hand equipment, ready for delivery!

## Combi-CB wins UK FLTA award for innovation

Combilift Ltd, the Irish specialist manufacturer of a range of 4-way forklifts, has added another trophy to its collection by winning the UK Forklift Truck Association's 2009 award for innovation.

Combilift beat seven other finalists to win the innovation category for its Combi-CB model, which was officially launched at the company's 10th anniversary event last September.

The award ceremony took place at the Hilton Birmingham Metropole Hotel on 14 February, where managing director Mr Martin McVicar and technical director Mr Robert Moffett accepted the award.

*Receiving the award: Mr Kevin Lofting, of category sponsor Albury Asset Rentals Ltd, with Mr Martin McVicar and Mr Robert Moffett of Combilift*


The 4-way Combi-CB is the smallest Combilift to date, and was developed specifically for operations handling mixed loads of mainly palletised goods but also long products.

The forklift is an excellent alternative to electric 4-way reach trucks, and helps achieve 100 per cent use of lower storage areas. Very compact dimensions also enable operation in containers for seamless unloading directly from delivery vehicles to the warehouse. The Combi-CB works indoors and out, has a 2.5t capacity and is available with LPG, diesel or electric power.

The UK FLTA summed up the benefits of this new forklift as follows: *"The Combi-CB compact multi-directional counterbalance transfers the four-way principle into a small counterbalance truck for the first time."*

This is the fifth major award that Combilift has won since the company was established.

**Combilift Ltd** – Ireland
**Fax**: +353 47 80501
**Email**: info@combilift.com
**Website**: www.combilift.com

# ERCOLINA GIGA BENDER

## MAKE THE RIGHT INVESTMENT IN HEAVY TUBE & PIPE BENDING


## GIGA BENDER RANGE FROM 2" OD - 50 MM TO 16" OD - 400 MM

**CML International S.p.A.**
Loc. Annunziata snc
03030 Piedimonte San Germano (FR) ITALY
Tel. (+39) 0776 40281 - Fax (+39) 0776 404801
Email info@ercolina.it - Web www.ercolina.com

Overseas

**CML U.S.A. Inc.**
Ph. 563-391-7700 - Fax 563-391-7710
Email info@ercolina-usa.com - Web www.ercolina-usa.com

## Anticor Ukraine 2009: conference for anticorrosion protection

Anticor Ukraine 2009, a global forum for the anticorrosion protection of tube and pipe, will take place from 11-12 June 2009. The conference will be held alongside the Tubes + Fittings Ukraine 2009 show at the KyivExpoPlaza exhibition centre in Kiev.

The new project is co-organized by Ukrtruboprom Association, National Metallurgical Academy of Ukraine, the 'Quality' Research-Testing Centre (Interpipe Corp), and the State Tube Institute. These organizers have titled the conference *'Challenges and state-of-the-art methods of anticorrosion protection of tube and pipe, sheet metal, wire and other metal goods'.*

Anticor Ukraine 2009 will offer a meeting point for producers of different types of coatings, users, scientific-research specialists, engineers, operators, and suppliers. The main themes of the forum will be methods of corrosion monitoring and diagnostics, corrosion resistant steels, alloys and bimetals, and anticorrosion coatings.

*Kiev will host the Anticor Ukraine conference, which will take place at the same time as Tubes + Fittings Ukraine*

The conference will also focus on electro-deposition of metals and alloys, chemical-thermal metallization, diffusion metallization, polymeric and varnish-and-paint coatings, thermal insulation and water-proofing.

Delegates will also have the opportunity to examine modern technologies and materials for the application of protective coatings, and coating quality control instruments. Other areas will include welding, brazing, environmental protection, and R&D.

The two-day programme will include papers from top experts and speakers from the tube and pipe industry and wire and cable industry. The official languages of the forum will be Russian and English.

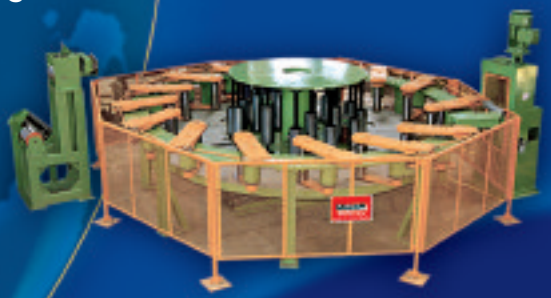
**Anticor Ukraine** – Ukraine
**Fax**: +380 56 744 25 26
**Email**: koryakan@gmail.com
**Website**: www.weldexpo.com.ua

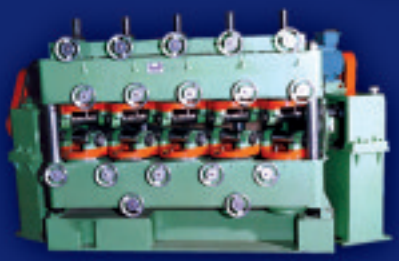
# GALLIUM

OVER 500 MACHINES INSTALLED IN 36 COUNTRIES

## Complete Solutions for Tube & Pipe Industry

- Automatic Strip Entry Sections with Shear & Welders and Accumulators
- High Speed Modern Tube Mills upto 220 mm OD
- Varieties of Flying Cutoff Machines
- Complete range of Tube Finishing Machines like
  - Tube End Facing Machines
  - Tube Straightening Machines
  - Tube Threading Machines
  - Tube Push Pointing Machines
  - Single/Triple Tube Draw Benches
  - Single/Triple Tube Hydro Testing Machines
  - Tube Bundling Machines
- Rolls for Tube Mills and Roll Forming Lines






**GALLIUM INDUSTRIES LTD.**

Plot No. 117, Sector-59, Faridabad-121004, INDIA

Ph.: +91-129-2309933, 2309934, 4150117 Fax: +91-129-2309619

Email: mktg@galliumindia.com, galium@sify.com, gallium@del2.vsnl.net.in

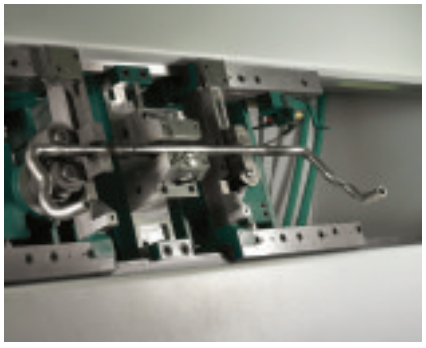
http://www.galliumindia.com

## BLM Group acquires Officina Meccanica Montorfano

BLM SpA, Italy, a leading manufacturer of tube bending and end forming machines and systems, has purchased Officina Meccanica Montorfano Sas.

The takeover of Montorfano, effective from 13 January 2009, allows BLM to complement its technology in the tube-bending field with highly productive machines for the bending of wire, small diameter bar and tube, strip/profiles, and armoured heating elements.

*An automotive stabilising bar, bent using BLM technology*



For more than 40 years Montorfano has specialised in the manufacture of multi-head machines for wire bending. The company's first patent for this type of machine was granted in 1965, while its first three-axis CNC machine was introduced in 1979.

The company currently offers a range of 18 standard machines capable of bending wire and bar from 1mm to 33mm diameter.

These machines are widely used in the automotive and construction industries, and in the production of household appliances, indoor and outdoor furnishings, bathroom accessories, and equipment for shops and stores.

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

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

## ITA's AGM and 30th anniversary reception

The International Tube Association will hold the 30th annual general meeting in its history at 12.45pm on 20 May 2009. A significant AGM for the Association's 30th year, it will take place at the Manor Hotel in Meriden, UK.

The ITA will mark its important landmark in a number of ways during 2009 beginning with a special buffet reception immediately following the AGM. The ITA hopes that as many members as possible will attend the AGM and join with fellow members for the free buffet lunch immediately after the formalities have been concluded.

Other events to commemorate the anniversary are planned at the Tube Russia, Tubotech and Tube Southeast Asia exhibitions. Later in the year, the ITA will also celebrate at the Pipe & Tube Istanbul 09 technical conference in Turkey.

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

## TMK's strategic investment programme leads to success

TMK, Russia, has implemented a long-term strategic investment programme aimed at modernisation of its production facilities and services planned for the period of 2005-2012.

Last year TMK installed a 3-roll bending mill, made by Haeusler, with a total capacity of 650,000t of longitudinally welded large diameter pipes per year. The company also took on a premium quality-finishing mill, made by SMS Meer, with a total capacity of 600,000t per year of seamless pipe including OCTG with premium connections.

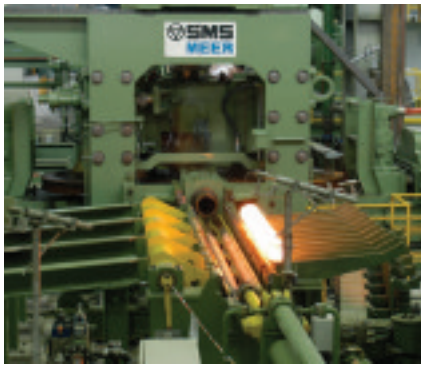
During March this year, TMK shipped 5,000t of 1,420mm longitudinal welded pipes with 26.4mm wall thickness and K60 grade with internal and external anticorrosion coatings to Gazprom. The pipes will be used in the construction of Bovanenkovo-Ukhta gas pipeline.

The company's 3-roll bending mill can produce LSAW with diameters of between 530mm to 1,420mm, wall thickness of up to 42mm and grades of up to X100, which is in line with Gazprom and Transneft standards for new pipelines, including Nord Stream, Eastern Siberia – Pacific Ocean and others.

In March, TMK supplied its customers with 19,000t of pipes produced on its PQF mill, including seamless OCTG with premium connections. The PQF mill can be used to make pipes with OD from 73-273mm, wall thickness up to 25mm, and a geometry that twice surpasses API requirements.

In addition to the PQF mill, 200,000t of additional heat treatment and threading capacity has been brought online to produce OCTG with premium-threaded connections.

*The SMS Meer PQF mill in operation at TMK*




TMK successfully certified 'TMK FMT' premium connection at Oil States Industries' structural test laboratory in Aberdeen, UK.

The TMK FMT premium connection was tested for Salym Petroleum Development BV, a joint venture between a subsidiary of Sibir Energy and Shell Salym Development BV, a member of the Royal Dutch/Shell group of companies.

The certification testing, including tension and compression tests, was performed on 88.9mm OD TMK FMT premium tubing with a wall thickness of 7.34mm and N80 steel grade.

**TMK-Group** – Russia
**Fax**: +7 495 775 7601
**Email**: tmk@tmk-group.com
**Website**: www.tmk-group.com

## SMS Meer acquires majority shares in PWS GmbH

The SMS Group, Germany, has acquired a majority shareholding in PWS Automatisierungs- und Elektrotechnik GmbH, Germany. This deal has expanded the product range of SMS Meer to include plants for the production of spiral-welded pipes using the online and offline process.

In addition to machines for the production of spiral-welded pipes, the PWS product range also includes pipe end finishing machines, hydrostatic pipe testers and the corresponding machine groups. The automation of these and other key machines, together with the integration of the periphery and handling equipment for the complete plant, will also form part of the product range and services offered by PWS.

Dr Joachim Schönbeck, president and CEO of SMS Meer, comments, *"With this acquisition we are expanding our spectrum and can thus serve customers even better as a full-line provider."*

PWS will continue to operate as an independent unit within SMS Meer. The sole shareholders to date, Adalbert Pfeiffer and Michael Stark, will remain managing directors of the company and co-owners of PWS.

Michael Stark, managing director of PWS GmbH, says, *"We see great synergy potential in the merger with SMS Meer. The global presence of the company and its market position as technology leader offer us attractive and sustainable growth opportunities."*

**SMS Meer** – Germany
**Fax**: +49 216 1350 1667
**Email**: info@sms-meer.com
**Website**: www.sms-meer.com

## Strong early interest in Tube 2010

The recent launch of exhibitor services for Tube 2010 and wire 2010 has been met with a strong response from the industry, irrespective of the recent global economic crisis. This response supports the reality that no oil or gas is able to flow from the producing countries to Europe without pipe and accessories. In addition, no economic sector is able to function without wire and cable, or other tube products.

The two leading international trade fairs of their respective industries, Tube and wire will take place in Düsseldorf from 12-16 April 2010. In January 2009, the check-in brochures were sent out to previous and potential new exhibitors. They contain a link for immediate online registration, which provides companies with a quick and straightforward registration option.

wire 2010 will be held in its traditional home – halls 9-12 and 15-17. However, there will be a new hall allocation for Tube in 2010, with exhibitors showcasing products and services in halls 1 to 7.0 and hall 7a (for the first time). New additions to the exhibits of Tube will be the areas of plastic tube and profiles. After its successful debut in 2008, the area of pipeline technology (OCTG technology) will again be included in the schedule.

The first registrations started to arrive at Messe Düsseldorf's project departments only a few days after the 2010 brochures were mailed out. The placement negotiations will commence in May.

**Messe Düsseldorf** – Germany
**Fax**: +49 211 4560 87 447
**Email**: liedtkem@messe-duesseldorf.de • **Website**: www.tube.de

## Tolexpo gears up for third successful event

Tolexpo 2009, an international exhibition for sheet metal, coil, tube and section equipment, will take place from 13-16 November 2009 in Paris, France. Over 250 exhibitors and 11,000 visitors are expected in an exhibit area of 18,000m$^2$.

The success of Tolexpo 2007 confirmed the importance of a show in France dedicated to production technology for sheet, tube, coil and section. The exhibitor numbers rose from 137 in 2005 to 220 in 2007, occupying almost 16,000m$^2$ in hall 5B of the Paris-Nord Villepinte exhibition centre.

The 2007 event attracted over 9,000 visitors including over 15 per cent from abroad (compared with 9.7 per cent in 2005).

The event will be held at the same time as Midest, a leading international industrial subcontracting event.

**Tolexpo** – France
**Fax**: 33 1 55 62 07 91
**Email**: mbazin@tolexpo.com
**Website**: www.tolexpo.com

# TUBE MILL(ERW)
## (1"-24")(API/ASTM)

- Reference : Over 170
- Tube Mill : From Entry to Run-out Table
- Finishing Equipment : End facing & Chamfering M/C, Straightening M/C, Hydrostatic tester, E/T Conveyor, Autopacking System
- Painting Line

## Auto packing M/C

Full Automation

## Tube Painting M/C

Factory space save by tube dry elevator

Other products : Slitting & Shear line, Cold roll forming


**Myung Jin Machinery**

A worldwide leading manufacturer, specialized in tube manufacturing plants. since 1988

Tel : +82-31-498-4530~2 Fax : +82-31-499-4538 Mobile : +82-10-9065-9475

E-mail : mjm@mjmmill.co.kr/mjmbkseo@naver.com Web : http://www.mjmmill.com

## Hexagon acquires French 3D software company

Hexagon has announced the acquisition of Technodigit Sarl (Lyon, France), the developer of 3DReshaper® software. This software package takes 3D data from scanning devices and allows point cloud processing, surface reconstruction and geometric shape extraction.

The 3DReshaper application is a fully featured 3D package. It offers powerful features like the ability to import point clouds of unlimited size, mesh shaping and editing and 3D surface comparison for inspection. Users can take advantage of the wide variety of capabilities that 3DReshaper offers.

*Technodigit is the developer of 3DReshaper® software*

*"The acquisition of Technodigit will enhance our existing portfolio of software solutions. Customers in the aerospace, medical, dental, surveying, automotive, power generation and die and mould markets are demanding the variety of capabilities that Technodigit's software will bring,"* says Mr Ola Rollén, president and CEO of Hexagon AB.

The acquisition is effective immediately, and the Technodigit development team will join the Hexagon Metrology software development group, which employs more than 100 in-house developers worldwide.

**Hexagon Metrology** – Switzerland
**Fax**: +41 62 737 68 68
**Email**: press@hexagonmetrology.com
**Website**: www.hexagonmetrology.com

**Technodigit Sarl** – France
**Fax**: +33 4 74 06 71 49
**Email**: contact@technodigit.com
**Website**: www.technodigit.com

## Gem Tool completes move to new facility

Gem Tool Corp, USA, a leading tube cutting tool manufacturer, has recently completed its move to a new location in Oak Creek (WI), USA. With larger facilities, Gem Tool has increased the capacity to provide a quicker customer service.

With over 35 years of experience, Gem Tool provides a wide range of HSS, carbide and diamond industrial cutting tools to the global market. This range includes scarfing rings, inserts, ferrites, impeders, end-prep tools and cutoff blades. The company also offers sharpening services for these products.

**Gem Tool Corporation** – USA
**Fax**: +1 414 762 0615
**Website**: www.gemtoolcorp.com

中油天宝
TIPO GROUP

# SHANGHAI ZHONGYOU TIPO STEEL PIPE CO., LTD.


**HTTP: // www.shtipo.com**
**E-mail: jamesyan@shtipo.com**
**tangpeng_peter@shtipo.com**
**tipo@shtipo.com**
**T E L: 0086-21-51331100-1147/1148/1828/1807**
**F A X: 0086-21-51331138**

## ERW Pipe

Size: Φ8 5/8″–24″.
(Φ219mm–630mm)
Thickness: 0.188″–0.750″.
(4.8mm–20mm)
Standard:
API 5L B, X42–X80; EN 10217. ( Line Pipe)
ASTM A53; ASTM A252; ASTM A500;
JIS3466; EN 10210. (Structural Pipe)

## OCTG

Grade: H40–N80.
Size: Φ2 3/8″–20".
Thickness: 0.167"–0.635".
Threading Type: BTC, STC, LTC,
Special type per requested.
Length: ERW R1/R2/R3, SeamlessR1/R2/R3.
Standards: API 5CT/API 5B.

## Coating

| Type | | Size |
|---|---|---|
| External Coating | 3LPE | Φ6 5/8"–48" (Φ168.3–1220mm) |
| | 3LPP | |
| | 2LPE | |
| | 2LPP | |
| | Single Layer FBE | |
| | Double Layers FBE | |
| Internal Coating | Liquid Double Layers Epoxy | |

# Event News in Brief...

event news in brief...

**Middle East Plastic Pipes** (www.amiplastics) will take place from 1-3 June 2009 at the JW Marriott Hotel, Dubai, United Arab Emirates. The conference brings together leading pipe producers, specialists and civil engineers from the MENA region. Based on incredible architectural growth in the region, the conference will examine the relation of new product industries using PVC pipes.

The 3rd **PaintExpo** (www.paintexpo.de), an international trade fair for industrial coatings technology, will take place in Karlsruhe, Germany from 13-16 April 2010. The event has already attracted over 110 exhibiting companies, 12 months before the event opens its doors. At the last show in 2008, nearly 6,000 specialist visitors from 43 countries took part.

**PS China 2009** (www.psseries.com/china) will be staged from 17-19 September 2009 at Shanghaimart in Shanghai, China. The exhibition will showcase the latest in tube and pipe, valves and fittings, and pumps and systems. PS China is targeted at markets including agriculture, automotive, manufacturing, shipbuilding, oil and gas, and petrochemical.

The **Wire, Tube and Cable Expo 2009** (WTC '09), took place with success from the 14-17 May 2009 at India's premier venue, the Chennai Trade Centre, in Chennai, India. WTC '09 was held in conjunction with the 5th International Machinetools Expo (IMEX '09), a leading machinery event.

The first **Valve World Expo** (www.valveworldexpo.com) to be held in Düsseldorf in 2010 has already received bookings for 80 per cent of the exhibition area in halls 3 and 4 of the Messe Düsseldorf showgrounds. The organizers have already registered 220 companies from 28 countries for the event to be held from 30 November to 2 December 2010. This success validates the changeover from Maastricht to Düsseldorf, a popular city for trade fairs.

**Stexpo 2009** (www.stexpo.com.cn), the 6th China (Beijing) international steel tube industry expo, will take place from 13-15 August 2009 at Beijing's China international exhibition centre. In the region of 500 exhibitors and 30,000 visitors are expected. The event will feature exhibits including large-diameter pipeline, seamless steel tube, industrial welded pipe, and valves/fittings. Machinery on display will include pipe welding units, hot dip galvanizing lines, and SAW mills.

**Pipeline Coating 2009** (www.amiplastics.com) was staged with all round success from 26-28 January 2009 in Vienna, Austria. The conference attracted a wide range of companies from pipe coaters to engineers and operators, with 24 countries represented from Argentina to Russia. Presentations came from companies including Bredero Shaw, Shawcor, Total, Petrobas, Dow Hyperlast, Borealis, Eupec, Arkema, and Dhatec.

Progress is going well for **Pipe & Tube Istanbul 09**, the International Tube Association's next biennial technical conference, organised jointly with Ihlas Fuar. The event will take place at the WOW Hotel and Convention Centre in Istanbul from 2-3 November 2009. Sessions will be conducted in two very well appointed conference rooms, with simultaneous Turkish, Russian and English translation.

**Citypipe** (www.citypipe.ru), the 4th international exhibition for municipal piping systems, will be held from 26-29 May 2009 at the Crocus Expo centre in Moscow, Russia. Exhibits will include tube and pipe, pipe manufacturing equipment, valves and fittings, pipeline laying and repair, pipeline inspection and trenchless technology.

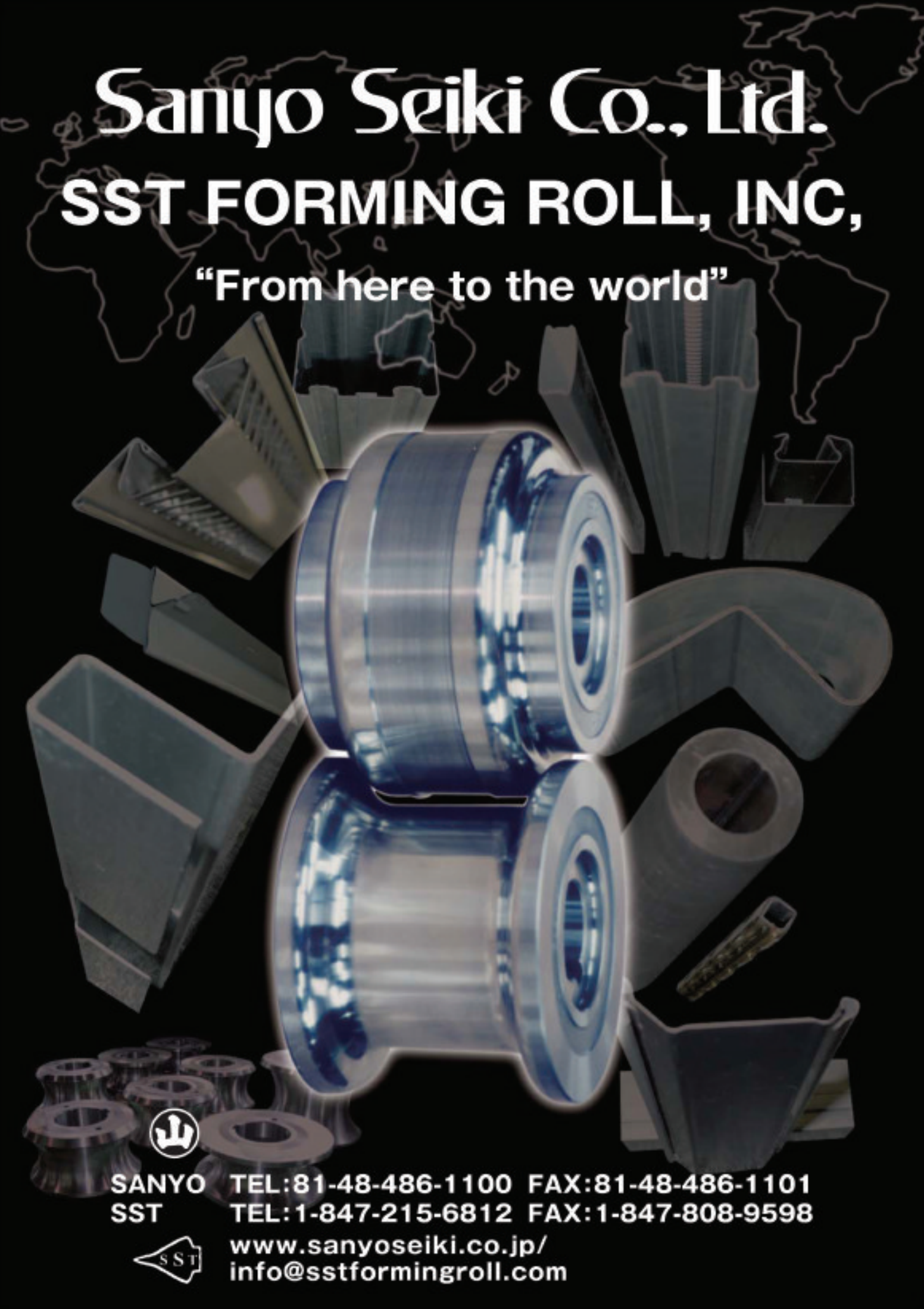
The **5th Shanghai Tube Expo** (www.gangguan-expo.com) will be staged at the Intex Shanghai showgrounds in Shanghai, China, from the 5-7 May 2009. Shanghai Tube Expo is one of the largest exhibitions of its kind not only in China, but also in the Asia-Pacific region. The exhibition is targeted at equipment and tube products for industries including petroleum, automobile, petrochemical, shipbuilding, power station, and construction.

**Steel-Tech** (www.thermalexpo.com/steeltech-about.htm) will take place from 18-20 May 2009 at the Expo Centre Sharjah in Sharjah, Untied Arab Emirates. Steel-Tech will form part of Thermal Industry Middle East and will be a key component of the show together with an industry conference.

# Sanyo Seiki Co., Ltd.

# SST FORMING ROLL, INC,

"From here to the world"




SANYO TEL:81-48-486-1100 FAX:81-48-486-1101
SST TEL:1-847-215-6812 FAX:1-847-808-9598
www.sanyoseiki.co.jp/
info@sstformingroll.com

# Business News in Brief...

**Magnatech International** (www.magnatech-int.com) is expanding its operations with the construction of a new 16,400ft² facility in Dronten, The Netherlands. The facility will be used as a distribution centre for Magnatech's line of orbital pipe welding systems. Construction began in December 2008 with expected completion in late summer 2009.

**RathGibson** (www.rathgibson.com), USA, has appointed Mr Kirk Thorne as vice president of sales and marketing. With headquarters located close to Chicago, the company is a leading global manufacturer of welded, welded and drawn, and seamless stainless steel, nickel, and titanium tubing for a range of industries. Before joining RathGibson, Mr Thorne worked for Lennox International.

The **Linde Group** has announced an increase of Group sales for 2008 of 8.4 per cent and operating profit increase of 10.3 per cent (after adjustment for the exchange rate). Without adjustment for exchange rate effects, the company's sales rose by 2.9 per cent to €12.663 billion compared with the prior year figure of €12.306 billion. On the basis of reported figures, the Group operating profit of €2.555 billion was 5.4 per cent higher than the figure for 2007 of €2.424 billion.

**Inductotherm Heating & Welding Technologies** (IHWT) has launched a new website at www.inductotherm-hwt.co.uk. The company comprises Thermatool Europe and three divisions of Inductoheat Europe, previously known as Radyne Ltd, Inductoheat Banyard Ltd and Newelco Ltd. The new site covers a wide range of processes and applications relevant to the tube and pipe sector, such as the entire range of Thermatool solid-state HF welders, the Banyard vertical steel induction (VSI) system and Radyne's pipe heating and coating systems.

**Seco/Warwick** (www.secowarwick.com), USA, has promoted Mr Keith Boeckenhauer to the position of president of Seco/Warwick Corporation. Mr Boeckenhauer will be responsible for the company's operating activities and future growth strategies. He is a member of the board of directors and serves as the aluminium global product leader coordinating Seco/Warwick Group's aluminium teams in the USA, Poland, Russia, China and India.

**Formtek Asia-Pacific** (www.formtek.com) has been awarded ISO9001:2000 certification for its quality management system in the area of design and manufacture of metal forming equipment. This achievement supplements the track record of Formtek Asia-Pacific for its continuing focus on quality and reliability in manufacturing metal forming products. Formtek produces quality products to the highest standards all over the world.

# The leading producers of rolls and accessories for the tube industry.


## Ultimate technology is our answer.

Total automation and quality in the production cycle
Full process control • For whatever size and quantity needed.

EUROLLS

And the future is on.

Eurolls SpA • Via Malignani, 14 • 33040 Attimis (UD) Italy • Phone +39 0432 796511 Fax +39 0432 796501 • www.eurolls.com

## Simultaneous cutting of four tubes

Bewo Cutting Systems BV, the Netherlands, has introduced the SCF-90 Quatro cutting system that offers innovative technology and improved performance. With 75 years of experience, the company was recently acquired by Nivora Holding BV.

The SCF-90 Quatro features complete and automated fast changeover, with extremely high output figures and a new state-of-the-art centralised control system. The newly designed full CNC length control feeding system enables the user to cut up to 4 or even 5 tubes at a time, with capability to handle round, square or rectangular tubes.

The SCF 90 Quatro has been fully designed and developed in-house by Bewo's highly skilled and experienced engineering department. The working space has been screened entirely, resulting in minimum sound levels.

The transparent protective hoods can easily be opened if the total line has been entirely shut down. This machine adheres to all CE security certification rules.


*The SCF-90 Quatro cutting system*

The Bewo 'Prisma' jaw system allows four point clamping on round, square and rectangular tubes, together with simultaneous clamping of multiple tubes. A load cell and camera system takes care of a continuous and reliable production process.

Additional links such as brush deburring, measuring, tube washing and different tube packaging systems can be fully integrated into the machine control. A complete SCF-90 Quatro cutting line, including deburring, measuring, washing and stacking can handle an output up to 6,000 pieces per hour.

The new Bewo SCF-90 Quatro cutting line offers optimal flexibility, to enable the suppliers of added valued fixed lengths to stay competitive in the market.

**Bewo BV** – The Netherlands
**Fax**: +31 13 4680 201
**Email**: info@bewo.nl
**Website**: www.bewo.nl

## Tube straightening and cutting machines

Ravni Technologies, France, is the manufacturer of a complete range of tube straightening and cutting machines for coils with a diameter range of 1 to 24mm. The tube processed using this machinery is steel, stainless steel, copper, and coated tube.

The standard line includes a single or double motorized decoiler that is synchronized with the machine. A feeding station with caterpillars enables a feeding speed of up to 180m/min and a chipless cut-off unit.

*The MDC10-Tucm tube straightening machine from Ravni*

An independent encoder measures the length – the tolerance level is ±0.3mm over one metre. The components of the line are designed for easy use. All machine functions can be found on the user-friendly control panel, which monitors and displays the different stages of the production process in detail.

As with all the company's machine models, the MDC10-Tucm is designed for fast tool changeover. The straightening rollers, settled on a rotating table, are adjustable and equipped with digital indicators to recover the appropriate regulations for every diameter.

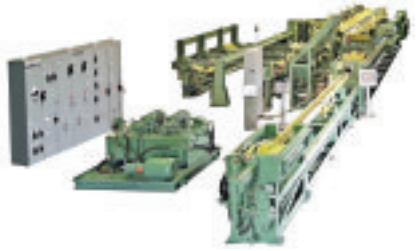
A digitized tube chipless cut-off unit can set the speed and depth of penetration of the wheel into the tube according to the thickness. The advantages of this new technology are traceability and control of the process.

Ravni Technologies can provide worldwide installation, training and set-up of the machine.

**Ravni Technologies** – France
**Fax**: +33 477 905865
**Email**: info@ravni.com • **Website**: www.ravni.com

## Variable wall tube drawing line for drill pipes

George A Mitchell Company, USA, has recently delivered a highly sophisticated 225,000lb capacity variable wall tube drawing machine complete with a 250,000lb three die tube push pointer and unique tube handling system to a major tubular parts manufacturer in North America.



*Mitchell variable wall tube drawing line, including 250,000lb three die tube push pointer, 225,000lb variable wall tube drawing machine and special tube handling system*

The line was designed primarily to produce variable wall core drill blank tubes in multiple lengths. Core drills are used in mineral exploration. The line is scheduled to be in full production in 2009.

With so much emphasis on weight savings and enhanced material properties, variable wall tubes allow more core drills to be transported to the work site per transport load than the previous style of core drills. Furthermore, the weight savings linked to variable wall tubes also allow deeper drilling depths. In addition, the cold working of the material via the drawing process enhances the body strength of the core drills.

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

## Increasing weld penetration depth of GTAW and TIG

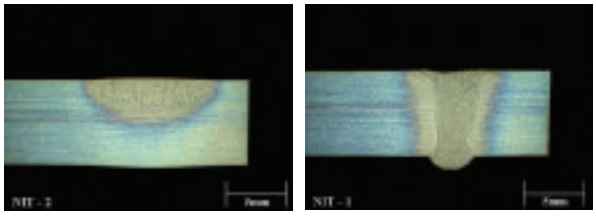
EWI is a leading engineering and technology organization in North America dedicated to the research and development of materials joining and welding. The company provides materials joining assistance, contract research, consulting services, training, and further support to companies across a broad range of industries.

The company has developed patented compounds called EWI FastTIG™ which increases the weld penetration depth of gas tungsten arc welds (GTAW or TIG) by as much as 300 per cent. This method also produces consistent weld penetration regardless of heat-to-heat variations in the base metal composition.

In most applications, EWI FastTIG reduced welding time by as much as 50 per cent. For example, a typical application with stainless steel and nickel alloys that are welded manually in five passes require only one or two passes using EWI FastTIG. Welding times for these applications can be reduced from approximately 23 minutes for the manual procedure to 3 minutes for a single-pass GTAW procedure using the compound.

The mechanical properties, weldability, corrosion resistance, and safe use of welds made with EWI FastTIG has been extensively tested and proven safe for use in a wide range of applications.

*Weld macrographs, the left made without EWI FastTIG™ and the right made with EWI FastTIG*



*An EWI FastTIG compound kit*

EWI FastTIG has been developed for corresponding base materials such as SS-7 for stainless steels (eg types 304, 316, 347, 409, 410), NI-139 for nickel-based alloys (eg alloys 600, 625, 690, 718, 800), and CS-325 for carbon and low-alloy steels (eg A36, SA-178C, 2 ¼ Cr-1Mo, X80).

**EWI** – USA
**Fax**: +1 614 688 5001
**Email**: skhurana@ewi.org
**Website**: www.ewi.org

## Standardized software solution for tubular profiles

Tekla and HGG have cooperated on developing a standardized software solution for the steel tube industry. As a result, Tekla Structures 15 has been launched to help produce the required control data for NC (numerically controlled) machinery in standard open XML format.

Tekla Structures is able to provide for all 3D tubular structures from design and detailing to automatic fabrication. Up until now, data transfer with tubular sections had been possible but required several manual operations and editing of data to complete the process.

By completing the 3D building information model (BIM) with a wide range of tubular connections it is now possible to export information to tube profiling machines by using open XML as the new industry standard.

Tekla and HGG integrated a solution for modelling and manufacture of tubular steel structures. Features include a full range of components in Tekla Structures to cover the needs for modelling tubular structures. The new component types are offshore saddle (AWS) and offshore chamfer, saddle and hole, mitre and hole, chamfer and slotted hole.

There is an integrated export of complete manufacturing information from the model directly to 3D tube profiling production. The software uses an XML format-based industry standard for transferring data that is open to any tube profiling machine company or design software supplier. In addition, there is a visualization module for 3D representations of cutting shapes on tubular structures.

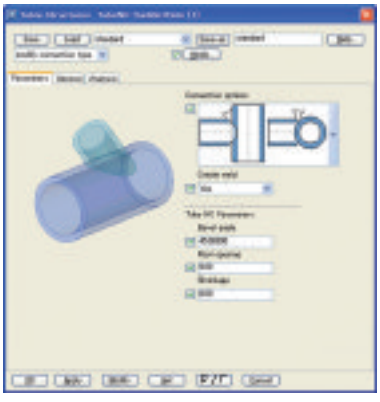
All information about tubular sections can be managed and kept up-to-date in the structural building information model so that all data for fabrication can be extracted from one source. This does not require any manual input or editing anymore. Even complex tubular connections can be handled automatically.

In more detail, the objective has been to enable input of required parameters, such as root opening, shrinkage, bevel, and profile type, into Tekla Structures. The new NC application creates the required control data file in XML format from these parameters, and HGG calculation module generates contour information from this file to be used as input when visualizing weld preparations in the Tekla Structures 3D environment.

The NC application will be distributed as part of the standard installation of Tekla Structures 15 Steel Detailing configuration.

**Tekla Corporation Oy** – Finland
**Fax**: +358 30 661 1500
**Email**: ig@hgg.nl
**Website**: www.tekla.com

*Screenshots of the new standardized Tekla Structures 15 software*



## Complete automation of pipe extrusion lines

Italian polyolefin pipe producer Wavin has invested in complete automation for extrusion lines, by adding two pipe packaging machines and one picking machine to one of its lines. The packaging machines (Multipack model) and the handling machine (Multipallet model) are produced by Sica, Italy.

Wavin has installed packaging and handling machines from Italy's Sica

Wavin's decision to invest in complete line automation arose from the need to reduce production costs and increase efficiency and line productivity.

Sica Multipack machines create individual pipe packs composed of various layers of pipes, deposited in plastic separator cradles, and then tied together by plastic straps. The system was specially developed for installation in lines producing pipes between 50 and 160mm in diameter and from 500 to 3,000mm in length (plus bell end).

The company's Multipallet machine for pipe handling picks incoming packs, rotates them if necessary, and places them on trolleys in predetermined layouts. The machine also picks separator boards from dedicated magazines and places them between layers, to increase the stability of the stack.

The new machines have enabled complete automation of the company's extrusion line

The system is able to process packs varying in width between 290 and 620mm, with a maximum height of 400mm. Maximum productivity declared by Sica for pick up of a single pack and its positioning on the cart is 35 seconds for each pack.

With the introduction of the new system, the operator can achieve complete automation of pipe extrusion lines, with cost reduction, increased process reliability and optimised working conditions.

**Sica SpA** – Italy
**Fax**: +39 0544 81340
**Email**: info@sica-italy.com
**Website**: www.sica-italy.com

## Ultrasonic cleaning system with compact footprint

Cleaning machines for washing and rinsing components in several stages often have their rectangular process tanks positioned end to end in a line. The Versa+ ultrasonic cleaning machine is different, in that the Finnish manufacturer, FinnSonic, has swivelled the tanks through 90° so that they are side by side. The installed equipment is therefore significantly shorter, saving space on the shop floor.

Available through UK agent, Turbex, the modular, expandable machine can have any number of tanks, which can be either 40 or 80 litres in capacity. Typical cleaning processes include ultrasonic or immersed jet cleaning, single or multiple water rinsing and hot air drying. Particle filtration and oil separation can be included, according to customer requirement.

A FinnSonic Versa+ four-stage, automatic cleaning line

Designed for small-scale washing and degreasing applications, the automated process is said to result in uniform cleaning of components. Manual configurations can also be specified.

The Versa+ is well suited to use in the electronics and semiconductor industries, PVD (physical vapour deposition) and other coating applications, and cleaning watch parts, lead frames and x-ray tubes.

Each tank is operated from a panel linked to a central PLC system, which provides ease of use and also allows retrofitting of handling automation, available for 10kg or 20kg basket weights. Manual handling by pneumatic assist lift is available for baskets weighing up to 30kg.

**Turbex Limited** – UK
**Fax**: +44 1420 542264
**Email**: john.huntingdon@turbex.co.uk
**Website**: www.turbex.co.uk

## Circular saw blade closes the gap

Swiss company SW Wil has developed a new kind of HSS based circular saw blade, named the PowerBlade 65. Using an HSS vapour blade it is possible to cut up to 380 N/mm$^2$ with a moderate cutting speed.

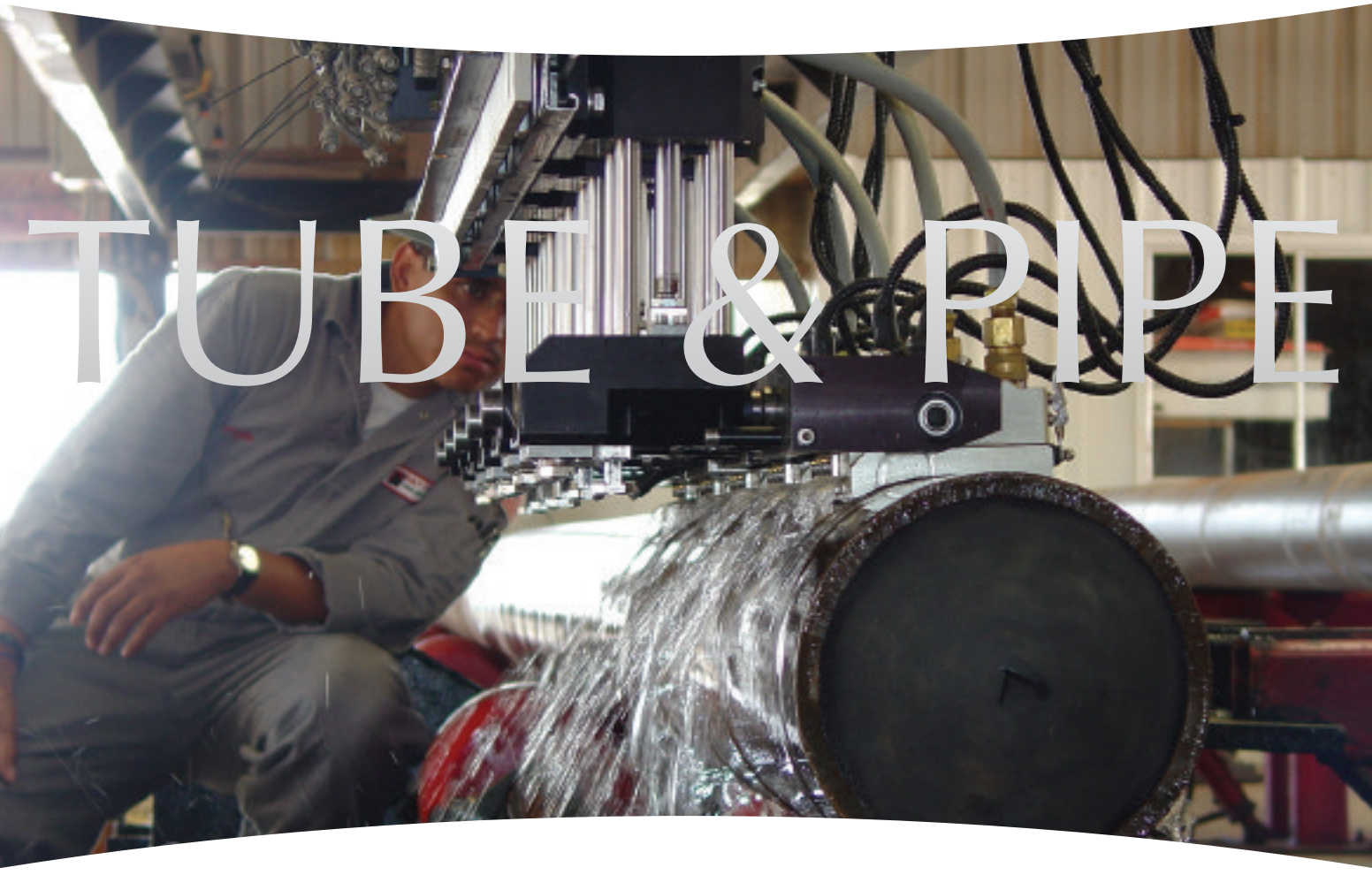
With a standard HSS blade and a common AlTiN PVD coating it is possible to cut up to 450 N/mm$^2$ with a reasonable lifetime and cutting speed. TCT saw blades are normally used above 650 N/mm$^2$.

For the gap between 450 and 650 N/mm$^2$ there has previously been no circular saw blade available offering an optimum solution for cutting tubes and bars in this range. SW Wil has introduced a complete new HSS saw blade with a special HSS body and a coating system featuring a higher oxidation resistance than others on the market. The company states that the PowerBlade 65 sets a new standard in the line between 450 and 650 N/mm$^2$.

**SwissCut SW Wil AG** – Switzerland
**Fax**: +41 71 911 49 32
**Email**: swwil@sw-wil.com
**Website**: www.sw-wil.com

OLYMPUS®

Your Vision, Our Future




# INTEGRATED NONDESTRUCTIVE TESTING SOLUTIONS

## Phased Array Ultrasound

### Full-Body Inspection for Rotating Pipes

Phased array ultrasound offers fast and comprehensive inspection of both surface breaking and non-surface breaking defects. Phased array provides flexibility and control of all inspection parameters.

## EPOCH™ 1000 Series

### Advanced Ultrasonic Flaw Detectors with Phased Array Imaging

**Advanced Conventional UT**

- Full VGA sunlight readable display
- Improved A-scan interpretation
- EN12668-1 compliant
- High-speed scanning (6 kHz PRF)
- IP66 environmental rating
- Digital High Dynamic Range Receiver

**Phased Array Imaging Package**

- Increased inspection efficiency
- Intuitive interface and setup
- No compromise to conventional UT
- Higher confidence in conventional inspections
- Fast switching from UT to PA mode
- Single set-up to view A-scans at multiple angles


For worldwide representation **visit www.olympus-ims.com • info@olympusNDT.com**

## Fine cutting system with new features

The fine cutting system with integrated camera monitoring, from Precitec, Germany, can be used for high-precision applications that require laser performances of up to 500W. Clearance widths of approximately 10µm can be achieved with a high quality beam.

One new feature of the fine cutting system is its adjustable coaxial LED lighting with external power input, providing optimal illumination even during operation.

It also has an optically optimised monitoring system for online monitoring by camera. Documentation is also possible, as camera data can be recorded and saved on a data storage medium.

The TCP can be readjusted in the X/Y direction (repeatable operation) after an optics change, and can thus be retained. The time required for readjustment after a nozzle, lens or protective window change can be significantly shortened by fading-in electronic cross-hairs. The system's design has been minimised, reducing its weight, and it can be operated with disk, fibre optic and Nd:YAG lasers.

The fine cutting system can also be used for cutting stents – very small, grid-shaped internal vascular expanders in tubular form, which widen vasoconstrictions in the coronary vessels.

*The size of a cut stent in comparison to an ant*

**Precitec KG** – Germany
**Fax**: +49 7225 684 900
**Email**: precitec@precitec.de
**Website**: www.precitec.de

*The Fine Cutting System enables the cutting of very small clearance widths*

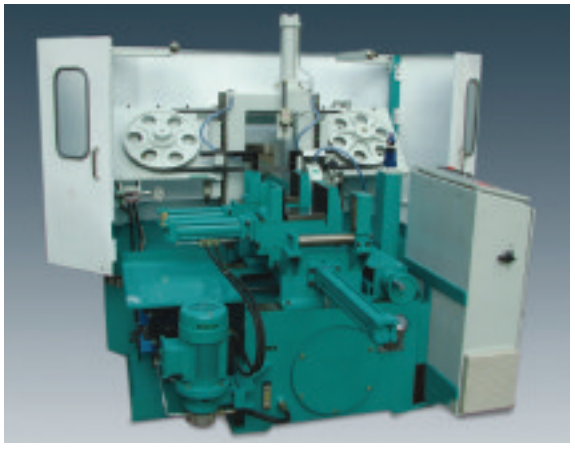
## Latest solution for metal cutting band saws

ITL Industries Ltd, India, is the manufacturer of a new range of metal cutting band saw machines. These machines use linear motion guides and bearing blocks instead of conventional hard chrome plated columns and bushes for sliding of the cutting arm. This enables smooth and jerk-free movements of the cutting arm resulting in better accuracy and productivity.

The machine has also been redesigned giving it the look of a CNC machine. The user-friendly machine has less exposed areas, and is designed for accommodating a variety of jobs. The standard machine is available with a linear motion guide for the vertical movement of the cutting arm and linear motion. The guide can be used for feeding of jobs with better accuracy of cut length.

The newly designed linear motion guides have a number of special features. Anti friction LMG guides (linear motion bearings) provide smooth up-down movements of the cutting head. This results in high blade life and perfect cutting performance. An electronic automatic feed regulation mechanism adjusts the feed without operator involvement depending upon material composition, hardness and cross-section.

*The new metal cutting band saw machine uses linear motion guides and bearing blocks*



A floating shuttle vice is guided in dovetail slides for self-alignment depending upon workpiece straightness or surface roughness. There are bar stock slides on the main vice that do not have any resistance as the shuttle vice adjusts automatically. A wider shuttle vice helps better gripping of bar stock while indexing.

High-pressure coolant jets are provided for high cutting rates. A compact and well-designed steel enclosure prevents coolant splash or spillage, thus saving cutting oil.

Auto cycle sequencing with PLC ensures smooth running, while a piece counter and length multiplier also operates through PLC. Infinitely variable blade speed is possible via the control panel through a variable frequency drive for optimum productivity and tool life.

The machine also includes an electrically driven swarf conveyor with container. In addition, there is a hydraulic band tensioning arrangement with continuous stretching of the blade during cutting for taper free cuts. A hydraulic vice and shuttle system is fitted for automatic clamping through full stroke double acting hydraulic cylinders.

**ITL Industries Limited** – India
**Fax**: +91 731 272 1110
**Email**: itlindia@sancharnet.in
**Website**: www.itl.co.in

MTM
TUBE MILLS



MTM complete tube mills

# Turnkey Projects

## Our expertise at your service.

MTM provides you with complete tube mills, from coil handling to tube bundling, supporting you from the feasibility analysis to the successful running

**MTM: the right tools to enhance your success.**

Officine MTM SpA
via Carpaccio, 36 | 30038 Spinea Venezia | Italy
tel +39 041 5089611 | fax +39 041 999611
www.mtmtubemills.com
sales@mtmtubemills.com

The Leading Manufacturer of High-Technology Tube Production Equipment

## Advanced generation of induction bending machines for heavy pipes

AWS Schäfer Technologie GmbH, Germany, is the manufacturer of machines and equipment for the mechanical forming of pipe for power stations, shipbuilding, and oil and gas production industry. The company's new series of SRMBI induction bending machines are designed for pipe bending of high-performance and high-strength materials.

Induction bending involves the heating of a pipe made from austenitic or ferritic steel by the means of a medium frequency inductor, to a temperature at which the yield strength of the material to be formed is greatly reduced, allowing the pre-determined geometry of the pipe to be formed.

The objective of the bending process is to produce pipe bend sections which maintain absolute minimal wall thinning on the exterior of the bend, as well as producing a cross sectional form with acceptable ovality tolerances, and producing the desired geometrical form with respect to radii and angular requirements. Requirements for bent pipes, in particular in the energy producing industry, are becoming increasingly stringent.

When producing steam lines, super-heaters and manifolds, the majority of power plant manufacturers have already initiated the replacement of conventional materials such as P22 with high performance materials like P92 or Alloy 600. Due to their chemical composition (high quality chrome/nickel/molybdenum alloys), pipes made from high-performance materials have a higher long-time rupture strength, pressure resistance and corrosion resistance, and can be used under operational conditions of up to 750°C, with minimal loss of their mechanical properties.

In pipe production, the high mechanical properties and strength of the new materials have a high material saving potential. As a result, the wall thickness of a P92 pipe can be reduced by 60 per cent compared to pipe made from conventional materials.

The manipulation and forming of pipe made from high-performance material with high material strength, at the same time having reduced wall thickness, is a new challenge for experienced plant and machine manufacturers. AWS Schäfer's new SRMBI models offer a solution with powerful hydraulic drives, and produce bends with high precision and quality, whether pipe from high-strength, high-performance materials or low allowed steels are being employed.

The machines can perform three-dimensional bends, as well as bends with tight radii of 1.4 x D, with wall thinning of maximum 12.5 per cent the original material thickness at the exterior of the bend.

Bends forms of up to 182° at tight bending R/D ratios and ovality tolerances, which do not require re-work with additional equipment, offer a time and cost saving in comparison with conventional machines.

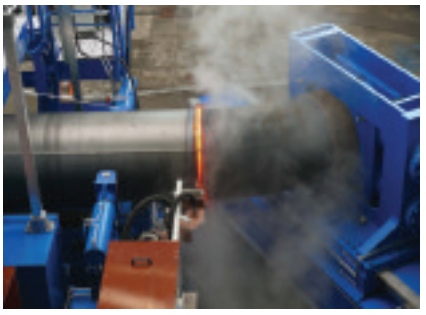
Depending on the pipe diameter, radii to be bent, and material and thickness, various trapezoidal forces occur throughout the bending process that are capable of causing changes to take place in machine position. The can result in deviations from the desired bending geometry.

The new machines are equipped as standard with a newly designed braking technique, developed in-house by AWS Schäfer. In combination with the robust structure with hydraulic feeding force, which can be set with variable speed, position and force, the SRMBI series ensures perfect positioning precision, with the correct feeding force at the required speed, even when working on the heaviest of pipe work pieces.

The machine design enables precise bending of the most popular pipe dimensions (diameters from 50 to 1,660mm, and wall thicknesses from 3 to 120mm), making the machines suitable for use in many different industrial fields.

The bending process is controlled by special software that allows the operator to pre-select a geometry and to easily and quickly program bending parameters using a touch screen. A video screen at the control desk allows the entire bending process to be easily monitored at all times. This provides additional security for the operator through the complete bending process.

*AWS Schäfer's SRMBI can accurately bend even the heaviest of pipes*



*Induction bending involves heating the pipe by a medium frequency inductor*

An integrated printer allows the printing of all-important bending parameters at any time. The use of laser optical pyrometers, which scan a given section of the pipe during bending, registering continual, accurate temperature measurement of the heat zone, ensures precise optimal bending temperatures.

**AWS Schäfer Technologie GmbH** – Germany
**Fax**: +49 2739 8700 310
**Email**: info@aws-schaefer.de
**Website**: www.aws-schaefer.de

## Automatic bundling lines with high productivity

Cartacci Srl, Italy, the supplier of complete cold drawing and straightening machine lines, has produced two new automatic bundling and finishing lines for tubes.

One of the two new automatic bundling lines was designed for tubes with diameter of 125mm for a customer in Germany, and the other for tubes with diameter of 272mm for a Russian customer located in Voljskiy.

Cartacci offers equipment that provides high productivity through reduced operator intervention and an entirely computer-based working system. The new bundling lines were designed to have reduced maintenance costs, and were customised to the specific requirements of each manufacturer.

**Cartacci Srl** – Italy
**Fax**: +39 035 290514
**Email**: info@cartacci.com
**Website**: www.cartacci.com

# CIRCULAR SAW AND BAND SAW BLADES FOR METAL





ABS
UTENSILI

VIA MERCATELLI, 8 - LOC. S.ANNA - 31058 SUSEGANA (TV) - TEL. 0438.482032 - FAX 0438.482076
www.absutensili.com - e-mail:info@absutensili.com

## Launch of new portable hemming unit

Hemming units are essentially portable roll forming machines that form 180° hems on the edges of a flat strip of metal. Hems are primarily found on lighter gauge material to either strengthen the profile and/or improve safety, when handling.

Roll-Kraft, USA, has launched a new model of hemming unit that can be designed and built to suit almost any hem requirement.

Typically, the hems are formed before the metal strip is introduced into the rollforming mill or another forming process. Most hems are small (to reduce the amount of material required) and can be formed in four stations.

Hemming units can be configured in numerous ways. These configurations include non-driven (pull-through), driven (with overriding clutch or continuous drive), mounted directly onto the existing roll former base, freestanding (fabricated base), variable product widths for 'quick change' (see figure 2), single or double hem, and custom applications.

Roll-Kraft hemming units are constructed using fabricated plate steel housing assemblies, spur gear train (see figure 3), hardened tooling spindles (overhung), adjustable top spindles with micrometer dials, built-in material entry guide (see figure 1), hardened tool steel rollers, and optional 'quick change' width adjustment with digital indicators (see figure 3).

*Figure 1 – Hemming unit (driven) with integrated entry guides*

*Figure 2 – Adjustable width hemming unit with digital indicators*

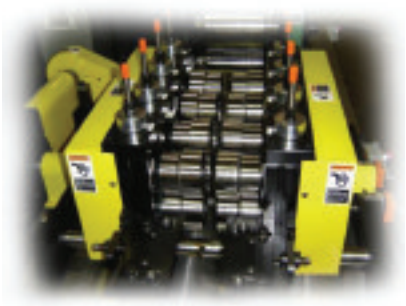


*Figure 3 – Powered hemming unit with spur gears*

Another advantage of integrating a Roll-Kraft hemming unit into a rollforming system is to save money. There are numerous occasions when an existing rollforming mill does not have enough forming stations to produce a particular hemmed cross-section. Instead of purchasing a new mill or mill extension, a Roll-Kraft hemming unit

can be an affordable solution. In addition, the portability of these units allows them to be moved from mill to mill, when multiple hemmed profiles are produced.

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

## Sawing and milling machines for tube and pipe

Linsinger manufactures sawing and milling machines for the tube and pipe industry. For large pipes, the company produces plate edge milling machines for welding edge preparation and pipe bevelling machines for pipe end bevelling on both ends simultaneously (up to tube Ø 60").

Linsinger products for ERW lines include strip edge milling machines for longitudinal seam tubes (HF-lines up to 24") and multi-cut tube cut-off machines for longitudinal edge tube lines (up to tube Ø 600mm).

The company also produces strip edge milling machines for spiral steel tube lines (coil up to 2,000mm width, 1" sheet thickness). In addition, the company supplies carbide circular sawing lines for steel billets (up to Ø 630mm), single tubes (up to Ø 630mm), multiple tube layers (up to 1,250mm width) and seamless pipes. Also available are carbide circular sawing lines for steel billets (up to Ø 630mm) for forging mills.

**Linsinger** – Austria
**Fax**: +43 7613 8840 38
**Email**: maschinenbau@linsinger.com
**Website**: www.linsinger.com

## Tube and hose cleaning technology

Tube Clean GmbH, Switzerland, has launched the Bison 4000, a technology to clean tube, pipe and hose. The Bison 4000 offers advantages in operator friendliness and productivity, and can be operated either manually or in a fully automated production line. In automated mode a firing rate within 1.7 seconds can be achieved.

The system is based on a modular concept. Various hoppers can be loaded with special formulated PU-foam projectiles to clean the internal diameter of tubes, hoses and pipes sized from 2.5 to 32mm. The system can be operated either as a dry, wet, or wet and dry process.

Known solvents are injected into the cleaning projectiles, and a Siemens control unit regulates the automatic process. Operating steps such as volume control of solvent and number of projectiles are performed via touch screen. Component changes take less than two minutes.

**Tube Clean GmbH** – Switzerland
**Fax**: +41 43 843 10 99
**Email**: info@compritubeclean.com • **Website**: www.compritubeclean.com

## Professional pipe coupling for external coating

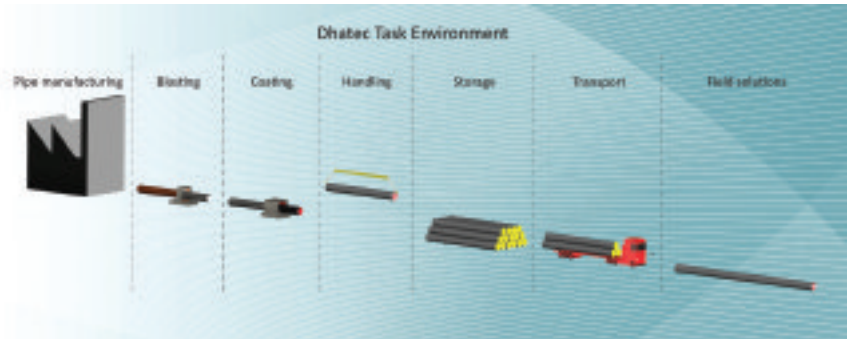
Dhatec, Netherlands, has been working on an R&D programme for the past five years, focussing on how to keep line pipes in optimal condition during and after manufacturing.

During each segment of the logistic trail, there is a risk of damaging both the pipe and its coating layer.

As a result of the R&D programme, particular problems can be isolated and professional solutions found. In many cases these new solutions do not only safeguard the quality of the pipe and coating, but also improve the process itself in terms of efficiency and safety.

One of the new developments is the premium pipe coupling. A coupling is used to line up pipes and protect the bevelled pipe-end during external coating. This allows coating plants to achieve the optimal end quality of the coating application and enhances stability and efficiency of the coating process.

*Dhatec's Task Environment, the logistic process of a line pipe*




During research on the issues that pipe coating companies worldwide are dealing with, it became clear that there was a need for a professional coupling. Line pipes are seldom straight or exactly round. Many coating plants deal with stability problems during the process or air seals underneath the coating layer as a result of radial pipe movement. Even severe variations in FBE coating thickness occur because the distance from the pipe to the spraying nozzle in the coating cabin varies due to pipe movements.

Each coating process is different and experience and fine tuning are needed to achieve the best results. However, in many cases results can be improved if the right coupling is applied. By connecting pipes with a coupling, the distance between the coating cabin and the first pipe supporting roll afterwards can be increased.

Directly after the cabin, the freshly applied coating is still weak due to the high temperature. Each time the pipe weld, spirally or longitudinally, of the rotating pipe hits the first support roll, the coating can dent or damage. By increasing the distance,

*The standard coupling during coating*

the coating is allowed to cool down more before hitting the first support roll, avoiding loss in quality.

Secondly, by using a coupling, radial movement of pipes when the weld hits the support roll, is reduced. An equally spread coating application free of air voids is ensured. Normally this is achieved by lowering the line speed, but a coupling also solves the problem and production can run at full capacity.

Dhatec has developed three main models: standard coupling, advanced coupling and premium coupling. The basic demands for the design were: reducing radial pipe movements to almost zero; strong, shock-resistant construction; adjustable for a wide wall thickness range; bridge thermal expansion of the pipe in an induction oven (220°C); small contact surface with the pipe, to minimise heat loss; room for cooling water to flow through the pipe; and fast and easy application or removal.

*Advanced coupling inside a pipe-end*

*Premium coupling with movable centring rolls*

An important feature is that the coupling is placed in only one pipe-end. This means that the coupling has a clamping side and a centring side. When two pipes run together, the upcoming pipe-end is automatically caught and lined up by conical centring rolls.

The standard coupling has a three-point clamping system that consists of two fixed support feet and one adjustable clamping foot. The adjustable foot bridges thermal expansion and ensures strong clamping inside the pipe. In tests and later experience the Standard Model performed well with smaller diameters up to Ø 30" and under normal circumstances.

The following circumstances demand better performance of the coupling: large diameters (higher pipe-weights); thin wall thicknesses (risk of deformation); oval pipes; curved pipes; worn out or uneven support rolls; high velocities of rotation; and high friction forces between pipes.

To improve performance in these harsher circumstances, the advanced coupling was developed. This coupling has a five point clamping system instead of three, and all five clamping feet move simultaneously. This ensures perfect centring, stronger clamping and less deformation of the pipe. For an even stronger fixing inside the pipe-end, the clamping feet can be covered with a heat isolating material that also increases the friction factor between the clamping feet and the pipe surface.

On the centring side of the advanced coupling, there is a pre-centring ring with extra rolls that take the first blows when the pipes are running towards each other. Because of the extra ring the construction of the coupling is much stronger and the extra rolls can handle larger radial movements of the pipes.

*Centring and clamping side of a premium coupling*

Technically the advanced coupling performs well, but there is one disadvantage. For different wall thicknesses the clamping side can be adjusted very easily, but on the centring side the rolls need to be exchanged or re-positioned. This is not only time consuming, but there is also an extra risk of human error. The wrong rolls can be mounted on the coupling, or rolls can be mounted in the wrong position.

To solve this issue the premium coupling was developed. This coupling is equipped with a new clamping system that centres both the clamping side and the centring side of the coupling at the same time. When force is applied on the central screw, five clamping feet and centring rolls automatically expand and force themselves against the inner pipe wall.

The premium coupling can clamp on only 25mm of pipe surface, taking into account the cutback of an internal flowcoat. The coupling combines all advantages in one solution and is the result of experience with many different coating processes worldwide.

**Dhatec BV** – The Netherlands
**Fax**: +31 497 55 53 99
**Email**: info@dhatec.nl
**Website**: www.dhatec.nl

## Coil end weld planisher

Kent Corporation, USA, has developed a new coil end weld planisher. The new machine has a fixed upper planisher roll that is hydraulically driven on two linear bearings. The lower anvil is adjusted up and down by a precision screw and wedge assembly.

A machine mounted dial indicator allows for the anvil to be positioned to the exact material thickness. This prevents over planishing and eliminates the need to adjust pressure for each thickness. The planisher will flatten TIG welds back to original metal thickness so they can easily pass through roll form, tube and progressive die lines. This also allows for strip processors to sell the weld in their final product.

**Kent Corporation** – USA
**Fax**: +1 440 237 5368 • **Email**: info@continuouscoil.com • **Website**: www.continuouscoil.com

## Orbital flaring at 90° and 37° in one machine

Unispeed USFL 90/37 is a new machine for 37° and 90° orbital flaring of hydraulic rigid pipe ends with ISO 8434-2 and ISO 8434-3 fitting systems.

The new Unispeed USFL 90/37

The machine is practical and easy to use, and requires only one tool change to carry out the flaring operations. This enables processing time to be reduced to a minimum, as it is carried out easily without the need for additional equipment.

90° flaring

37° flaring

The machine uses a cold orbital forming process to create a flat and smooth sealing surface at 90° and 37° with a suitable rugosity for the O-ring seal. This avoids the formation of processing signs which can occasionally occur with common axial deformation processes.

The system is compliant with the pipe flaring requirements regulated by SAE and ISO standards. The various possibilities of adjustment and configuration of USFL 90/37 allow any flaring diameter and thickness to be obtained. The semi-automatic processing cycle allows the flaring process to be very fast, reducing costs and avoiding welding or soldering the clamping ring to the pipe end.

The final cycle lay-up ensures optimal flaring and finishing results.

**Op Srl** – Italia
**Fax**: +39 030 3580838
**Email**: info@op-srl.it
**Website**: www.op-srl.it

## Production of 3-layer telecommunications pipe

egeplast, Germany, is an independent producer of polyethylene pipe, and claims to have the most advanced PE pipe production plant in Europe. In late 2007, egeplast began producing 3-layer telecommunications pipe on its new KraussMaffei Berstorff extrusion line. The line is an example of how very high production speeds and output can be successfully combined with very tight space constraints.

egeplast uses the new line to produce 3-layer HDPE and PP pipe from 32 to 63mm diameter. A KME 90-36 single-screw extruder produces the middle layer, while two KME 60-36 single-screw extruders produce the inner and outer layers respectively. The layers are joined in a KM3L RKW 73 3-layer pipehead.

A small coextruder, mounted above the line to save space, supplies the material for the marking stripe. The motor and gearing for the melt pump and upstream screen changer are also mounted above the line, to make optimal use of available space.

The extrusion line has two operator consoles, from either of which the whole line can be controlled. One of the consoles could, for example, be placed at the end of the line, up to 50 metres away.

This enables the operator to control the line from the most practical location. With speeds up to 40 metres per minute, the line meets egeplast's expectation of very high output.

egeplast has also optimised its production processes in other ways. More than ten of the company's extrusion lines are fitted with QuickSwitch, a system for pipe dimension change on-the-fly, which was developed in a close partnership between Krauss Maffei Berstorff and egeplast. QuickSwitch is a unique production system for fast pipe dimension change without stopping production.

*A KraussMaffei Berstorff extruder combination for high-performance extrusion of multi-layer PE pipe*

KraussMaffei manufactures machines and systems for plastics and rubber processing. The group markets its products under the KraussMaffei, KraussMaffei Berstorff and Netstal brands. The KraussMaffei brand covers the whole spectrum of injection and reaction moulding technology, while the KraussMaffei Berstorff brand represents extrusion solutions.

The injection moulding machines of Netstal, the company's Swiss subsidiary, are designed to meet the highest requirements imposed on process implementation, parts quality and production performance, and are mainly used to make sophisticated technical and thin-walled plastic parts.

The group offers a wide range of solutions, including specialised and fully integrated turnkey systems.

Worldwide, KraussMaffei operates a network of 140 subsidiaries and sales agencies, and deploys over 570 service technicians, ensuring fast response and closeness to customers.

**egeplast** – Germany
**Fax**: +49 2575 9710 110
**Email**: info@egeplast.de
**Website**: www.egeplast.eu

**KraussMaffei** – Germany
**Fax**: +49 89 8899 3092
**Website**: www.kraussmaffei.com

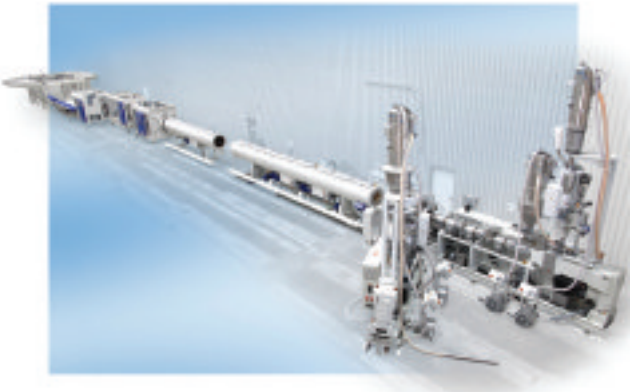
## Russian turnkey project for complete pipe extrusion

KraussMaffei Berstorff, Germany, has recently supplied a turnkey pipe extrusion line to a Russian producer of compact and foamed PVC pipe. This project included all of the material and media supply systems.

Korund, located in Dzerzhinsk in the province of Nizhny Novgorod, is one of the oldest chemical companies in Russia and also one of the largest Russian producers of PVC pipe. Korund had only previously operated two pipe extrusion lines. In late 2008, KraussMaffei Berstorff supplied two more lines.

The lines and all associated equipment was supplied by KraussMaffei Berstorff in a turnkey project started at the end of 2007. *"Originally, Korund asked for an quote for just the two pipe lines,"* recalls Michael Hofhus, regional sales manager for Eastern Europe at Krauss Maffei Berstorff. *"But they were very interested in our offer to supply the complete production infrastructure as well – they made the necessary changes to their specification and eventually awarded us the contract for this turnkey project."*

KraussMaffei Berstorff supplied Korund with one line to produce PVC compact pipe and one for foamcore pipe, complete with all the infrastructure – including the mixer, grinder for regrind, pressurized air and cooling water supply systems. Both lines are headed by KMD 90-36/R twin-screw extruders.



*KraussMaffei Berstorff supplied this complete extrusion line for PVC foam-core pipe*

The foamcore line uses a KMD 90-36/R and a KMD 75-36/R twin-screw extruder plus the completely reengineered KM 3 LRK 43 multilayer pipehead.

The cooperation with Korund has demonstrated KraussMaffei Berstorff's striking ability to work successfully across international frontiers. The fact that another cooperation with this customer is already under discussion indicates that both partners were more than satisfied with the way this project went.

**KraussMaffei Berstorff** – Germany
**Fax**: +49 89 8899 3092
**Email**: matthias.andreesen@kraussmaffei.com
**Website**: www.krauss-maffei.de

## Fully automatic roller feed saw

The CPO 315 roller feed automatic cold saw from Scotchman Industries, USA, is a fully automatic cold saw that provides uninterrupted cutting on tubing, solids, and extrusions, and supplies high quality cuts.

The machine is suitable for high volume and long length applications that require very accurate and clean cuts. The CPO 315 RFA is equipped with either a supply table or a full bundle loading attachment. Either system allows the saw to automatically load, trim, cut and sort lengths up to 120" (60" is standard) and hold ±0.006" lengths of material up to 3" in diameter.

With optional equipment, the user can feed directly into a deburring machine or acquire form jaws that can handle thin wall applications without distortion. The CPO 315 RFA saws are available in ferrous and non-ferrous models.

**Scotchman Industries, Inc** – USA
**Fax**: +1 800 843 5545
**Email**: info@scotchman.com
**Website**: www.scotchman.com

*The CPO 315 RFA-ST roller feed automatic cold saw*


OTO MILLS
all you need!
www.otomills.com

## End-former accelerates refurbishment process for automotive parts specialist

Unison has developed an all-electric end-former machine for automating refurbishment of automotive steering rack mechanisms. The machine uses programmable servomotors to drive the end-forming dies into position. The company claims that the machine provides a more flexible and efficient means of handling the process than traditional manual and hydraulic methods, which involve changing dies between different forming operations.

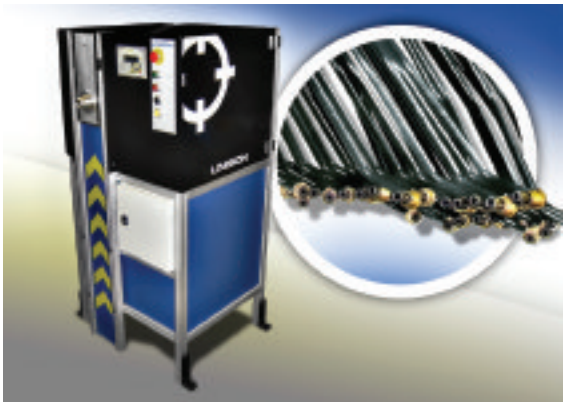
Re-Go Autoparts, a specialist steering component remanufacturing company, has taken delivery of the first machine, and reports that the entire end-forming process has been reduced from 2-3 minutes to less than 10 seconds – a productivity improvement of around 1,500 per cent. The company remanufactures high quality components for automotive power steering systems, under the Lenco trade name.

The company is a recent convert to the versatility of all-electric tube bending technology. Following purchase of a new tube bending system, it subsequently invested in a multi-stack version of one of Unison's 16mm Breeze tube bending machines. This machine is used to produce a variety of small complex parts, such as hydraulic brake pipes and power steering tubes.

According to Gary Martin, one of Re-Go Autoparts' directors, "*The machine's programmability enables us to accommodate small production batches without incurring the delays associated with changing tool sets on traditional tube bending machines, and its accuracy and repeatability help ensure product quality.*"

Unison's new end-former machine is a fully integrated three-axis system, housed in a compact standalone cabinet. It provides software-controlled four-stage end forming, by automatically flaring, compressing and reducing the ends of the steel tube, ranging from 6 to 10mm, used in vehicle steering racks.

The motive power for the machine's main drive is provided by a Baldor servomotor. The four stages and clamp are actuated by SMC pneumatic cylinders, all connected to a Baldor MintDrive intelligent drive with a built-in motion controller. Overall machine control is handled by a PLC, with all user input commands and operational status feedback provided by a Baldor HMI panel.



*Unison's new all-electric end-former machine*

The all-electric end-former machine offers numerous advantages over conventional hydraulic end formers – it is quick and easy to set up, and is more energy efficient, quieter and faster. The machine's use of closed-loop servomotor control ensures end forming accuracy and repeatability.

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

**Re-Go Autoparts Ltd** – UK
**Fax**: +44 1892 837648
**Email**: lenco@regoautoparts.co.uk
**Website**: http://regoautoparts.com

## Multiple part tube bending via robot, electro servo bend axis and hopper

UTE Inc, a manufacturer of rotary draw bending machines and automated bender workcells, has been making servo electric CNC benders since the early 1990s. The company's servo electric benders now extend through the 90mm range of tube sizes, with hydraulic bend axis utilised through 150mm.

UTE has won a contract from a major HVAC customer to develop a unique combination of a 5 axis robot, an electric bend axis from one of its CNC benders, and a specially designed hopper holding hundreds of pieces of tubing. The 5-axis robot has specially designed grippers for the 5 axis robot that enable it to pick up from one to

seven pieces of cut tube from the hopper. It can then insert these into a multiple hit end-former, drilling stations, or similar process.

UTE designed multiple, ellipsoidally grooved bend, clamp and pressure dies to eliminate the mandrel on a 1½ x diameter CLR (centreline radius), which usually requires a ball mandrel and a wiper die.

The UTE-designed gravity fed hopper (with agitator) keeps the tubes aligned where they can drop down a chute in multiples to a load position. The 5-axis robot can pick them up and place them in the bend tooling and let go of the tubing. The bend dies then close and the electric servo bend head takes over, bending to the programmed bend angle.

After a bend has been made, the robot reaches back into the tooling, recaptures the bent tubing, rotates the tubes for the plane of bend (POB), and then feeds the tube forward for distance between bends (DBB). This is repeated as many times as needed to finish the part.

The 5-axis robot can then either discharge the tubing, or perform another operation within an expanded work cell before rotating back to pick up another one to seven pieces.

Production can be anywhere from 500 to 2,500 pcs/hr, depending on number of bends involved. The tube shape and geometry must lend itself to bending multiples at the same time, ie bends must be in the same plane in order to be loaded and bent in multiples. Electric servo bend heads and robots hold tight positioning tolerances and part repeatability is enhanced.

**UTE Inc** – USA
**Fax**: +1 423 282 8236
**Email**: sales@universaltool.com
**Website**: www.universaltool.com

## Tube bending and forming machines

Silkmead Tubular Ltd, UK, is the manufacturer of CNC and mechanically controlled tube bending and forming machines. With 40 years of experience in tube manipulation, the company's machines have gained popularity in industries including the aircraft industry, automotive (motor racing), and military (UK Ministry of Defence).

The company's EvBend CNC 1000 machine is computer controlled, operator powered, and easily programmed from co-ordinates or 'taught' from a sample. Features include 3-axis precision bending of tubes up to 30mm in diameter, data management storage, left or right hand bending and modular construction. The machine has no hydraulics but some pneumatics (with no electrics on the Evbend 200 model).

*The EvBend CNC 100 from Silkmead*

**Silkmead Tubular Ltd** – UK
**Fax**: +44 1582 609930 • **Email**: alexb@silkmead.co.uk • **Website**: www.silkmead.co.uk

## X-Melt® electric steel plant successfully commissioned at Severskij Tube

SMS Demag, a company of the SMS group, Germany, has successfully commissioned an X-Melt® electric steel plant with an annual capacity of 1 million tonnes of steel at the Polevskoy location for OAO Severskij Tube (TMK Group), Russia.

The SMS Demag supply scope comprised an Arccess® 135-t electric arc furnace, scrapyard plant and equipment, gas cleaning plant, an additive supply system and injection systems for lime, carbon and filter dust.

The Arccess® furnace is characterized by the optimized use of electrical power and of burner/oxygen-injector technology, with high productivity and low production costs.

The SMS Demag supply scope also included the complete electrical equipment, along with the higher-level process sequence control (level 1) and the technological process model (level 2) for the furnace operations.

Prior to commissioning, SMS Demag tested the automation system by means of the proven 'plug and work' procedure.

Following the already successful commissioning of the ladle furnace and the continuous bloom caster, Severskij Tube has continued to implement its extensive investment programme.

The TMK Group is one of Russia's largest producers of pipe steel grades for the oil, gas and civil engineering industry. Its main production locations are Volsky, Taganrog and Severskij.

The new electric steel plant in Severskij is completely replacing the Siemens-Martin steelworks and is satisfying the stringent requirements of environmental legislation.

X-Melt® is an SMS Demag trademark from the Steelmaking Division. It is the brand name for plants and technologies that set standards for the economical production of high-quality liquid steel.

**SMS GmbH** – Germany
**Fax**: +49 211 881 4386
**Email**: thilo.sagermann@sms-group.com
**Website**: www.sms-group.com



## Silicon/silicon carbide composite radiant tubes

Inex Incorporated, USA, is the manufacturer of silicon/silicon carbide composite radiant tubes. The company has recently installed additional equipment to produce double the production rate in order to serve the growing worldwide demand.

With 25 years of experience in straight open-ended tubes, the company now also offers SER tubes (closed ended and flanged), U-tubes and segmented tubes.

Inex's most recent product innovation is internally finned tubes. The fins cause turbulence, which eliminates laminar gas flow and enhances heat transfer. The turbulence also improves combustion, which in turn reduces emissions and improves efficiency. The fins themselves provide increased surface area to capture the heat in the combustion gas stream.

With 23,500 tubes installed all over the world, the company prides itself on its excellent customer service.

**Inex Incorporated** – USA
**Fax**: +1 716 537 3218
**Email**: inex@inexinc.net
**Website**: www.inexinc.net

## Inductive heating plant in operation at Rohrwerk Maxhütte

The inductive heating plant at Rohrwerk Maxhütte GmbH, supplied by SMS Elotherm, went into full-scale production in summer 2008. The order to supply this facility for the preheating and reheating of shells had been placed with SMS Elotherm in summer 2007.

The preheating system comprises a medium-frequency supply system with a capacity of 3,600kW at a frequency of 2,000Hz. It feeds two inductors that are tandem-arranged between the roller tables ahead of a gas-fired furnace.

After running through the inductive preheating system, the shells undergo further heating in the gas-fired furnace. On this, they are heated over their full length inside the downstream inductive reheating system.

Rohrwerk Maxhütte had requested that the insufficient performance of the gas-fired furnace be increased while limiting the temperature load on the furnace during the process, and that the temperature differences over the shell length be eliminated.

There are two systems provided for inductive reheating, each equipped with one inductor having a capacity of 1,800kW at 1,000Hz. Inductive reheating ensures an optimal and equalized temperature over the full length of the shells.

Profibus facilities connect the converters with the PLC control and the visualization system as well as the entire process. Temperature control of the plant is implemented via temperature cameras and speed signals that are issued by the laser measuring instruments and a measuring device.

SMS Elotherm's excellent references in the field of heating plants markedly contributed to receipt of the order. The customer had the opportunity to inspect latest plants and equipment, for instance the new seamless tube plant supplied by SMS Meer to Byelorussian Steel Works (BMZ) in Belarus. Also in operation at BMZ are inductive stirring facilities as well as an inductive heating plant from SMS Elotherm.

*Inductive heating plant with a capacity of 2 x 1,800kW for reheating shells (Rohrwerk Maxhütte photo)*

**SMS Elotherm GmbH** – Germany
**Fax**: +49 2191 891 726
**Email**: m.oelmann@sms-elotherm.de
**Website**: www.sms-elotherm.com

## Special range of pipe flanges and fittings

Zhejiang Feiting Pipe Co Ltd, China, is a specialized manufacturer of pipe flanges and fittings from stainless steel, alloy, low temperature carbon steel and common carbon steel.

The company has an annual output of 12,000t of pipe fittings and 4,000t of flanges.

The company's products include butt-welding pipe fittings, forged pipe fittings, and forged flanges, manufactured according to the standards of ASME/ANSI, MSS, API, DIN, BS, JIS, and GB. These products are widely used in industries including petroleum, petrochemical, natural gas, chemical, nuclear industry, and shipbuilding.

*Zhejiang Feiting Pipe Co Ltd provides a range of pipe flanges and fittings*

The BW fittings are available as elbow (45°, 90°, 180°, 1D-10D), tee, reducer, cap, lateral, true 'Y', and stub end. The dimensions are ½" to 104" and a width thickness of 4mm to 80mm.

Steel flanges are available as WN flange, SO flange, LJ flange, SW flange, BL flange, tongue face flange, and loose plate flange. In addition, other products include orifice flange, reducing flange, and threaded flanges. Dimensions are available as ½" to 60" and pressure rates of 150lb to 2,500lb.

Forged fittings are available in SW elbow (45°, 90°), threaded elbow, coupling, plug, nipple, and union. They are offered in a dimension range of ½" to 3" and a pressure rate of 3,000lb to 9,000lb.

The company also provides seamless bends (45°, 90°, 180°, 3D-10D), and welded bends (ERW, EFW) in a dimension range of 8-48" and width thickness of 4mm to 40mm. other products include SMLS steel pipe (SS,CS), and welded steel pipe (ERW,EFW).

**Zhejiang Feiting Pipe Co Ltd** – China
**Fax**: +86 577 6560 0817
**Email**: sales@chinafeiting.com
**Website**: www.chinafeiting.com

# Sometimes it's good to plan ahead ...

**Exhibiting at wire/Tube Düsseldorf?**
Book your catalogue entry now and save 5% (limited offer)!

wire® Düsseldorf | Tube® Düsseldorf

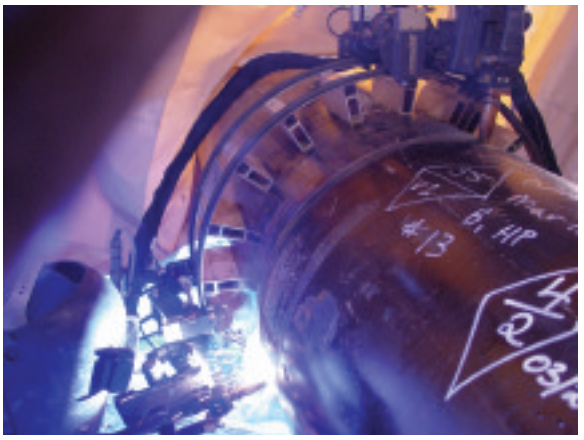
http://wire.media-entries.com | http://tube.media-entries.com

## New digital GMAW/FCAW orbital pipe welder

Magnatech, USA, has introduced a new completely digital GMAW/FCAW orbital pipe welder, based on the successful Pipeliner brand. The new model was developed with the knowledge gained during many years of field experience with the original Pipeliner II. The Pipeliner II system, using the forgiving flux core arc welding process (FCAW), has gained wide acceptance by pipeline contractors. Unlike systems on the market using the solid wire gas metal arc welding (GMAW) process, the Pipeliner II has repeatedly demonstrated that it can meet both API 1104 and ASME code standards.

Contractors throughout Europe, as well as Saudi Arabia, Qatar, Oman, Thailand, and the United Arab Emirates, have used the system for critical gas, oil and water pipeline projects requiring higher strength steels, such as X-70, X-80 and above.

Previous models used a floor-mounted push-only feeder, or mounted a smaller wire feeder and spool directly on the weld head. The new model utilizes a push-pull feeder for positive electrode delivery, while allowing use of standard 15kg wire spools.



*Magnatech's new completely digital GMAW/FCAW orbital pipe welder*

The FCAW process allows heavier wall pipe to be welded (not possible with mechanized system using GMAW) as it does not require a special narrow gap joint geometry. The weld head is adaptable to pipes for 6-60".

The digital model allows programming by position (degrees of rotation). A hand-held control pendant allows the operator to make changes in all parameters during welding to meet field fit-up conditions. Supervising managers can also password limit changes to each function and also limit the total magnitude of any change. For example, a change in weave width would be allowed, but only to a maximum of ±10 per cent of the programmed value.

The new system is sealed to IP23 rating for waterproof and dust proof operation on the pipeline right-of-way. This system is equally suitable for use on pressure and process piping as well as structural projects. The Pipeliner FCAW process is 12-18 times faster than stick electrode welding.

**Magnatech Europe BV** – The Netherlands
**Fax**: +31 321 31 4165
**Email**: info@magnatech-europe.com
**Website**: www.magnatech-europe.com

## Slitting saws and circular knives

Caleyron Industries manufactures solid carbide and HSS slitting saws and circular knives from 20mm to 300mm diameter. These up-market tools can be used to cut hard materials.

Clean cut surfaces and close tolerances are obtained due to a mirror finish and a perfect geometry of the saws. These blades allow higher cutting speed and feed rates as well high output. The tool life of these saws is significantly increased.

*Caleyron offers a range of HSS slitting saws and circular knives*

**Caleyron Industries** – France
**Fax**: +33 4 77 35 24 64
**Email**: caleyron.ind@caleyron.fr
**Website**: www.caleyron.com

## Three Thermatool CFI welders installed in record time

Thermatool has delivered and installed three of its latest generation CFI solid-state HF welders to Cayirova Boru, a leading Turkish producer of high quality tube and pipe. Due to the nature of this major strategic investment, there was a vital need to place all three welders intro operation with speed and efficiency.

Due to the current global economic situation, it is even more critical at the moment for tube and pipe producers to get a quick return on major investments.

*One of the CFI solid-state HF welders installed at Cayirova Boru*

Thermatool CFI series solid-state HF welders offer the highest efficiency and lowest operating costs. In addition, they are designed to require minimal onsite engineering input during installation. This means more time is available for the Thermatool commissioning engineer to provide onsite training and valuable process support.

Cayirova Boru had carried out the installation to a very high standard with everything perfectly in place for the arrival of the Thermatool commissioning engineer onsite.

According to Mr Ersan Ergan, general manager of Cayirova Boru, *"The first welder was up and running at 5.00pm after only one hour at the end of the first day with the next two welders fully operational by 2.30pm the second day."*

**Inductotherm HWT Ltd** – UK/USA
**Fax**: +44 1256 467224
**Email**: dgardiner@ihwtech.co.uk
**Website**: www.inductotherm-hwt.co.uk

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

# A Clearer Picture of

The Ukraine is currently undergoing a period of reevaluation of its role within Eastern Europe and on the international stage. This phase follows on from the Ukraine's entry into the World Trade Organization in 2008.

A tricky balancing act, the country is currently consolidating its position as a steady business zone and industrial heavyweight, balancing on its political see-saw between the EU and NATO on one side, and good relations with Russia on another.

Due to a large Russian-speaking population, particularly in the industrial heartlands of the east, the Ukraine is always going to have close ties with Russia. The two countries share a common bond of history, character and business. The paradox between Ukraine's actions and mentality often leads to contrasting social and political decisions.

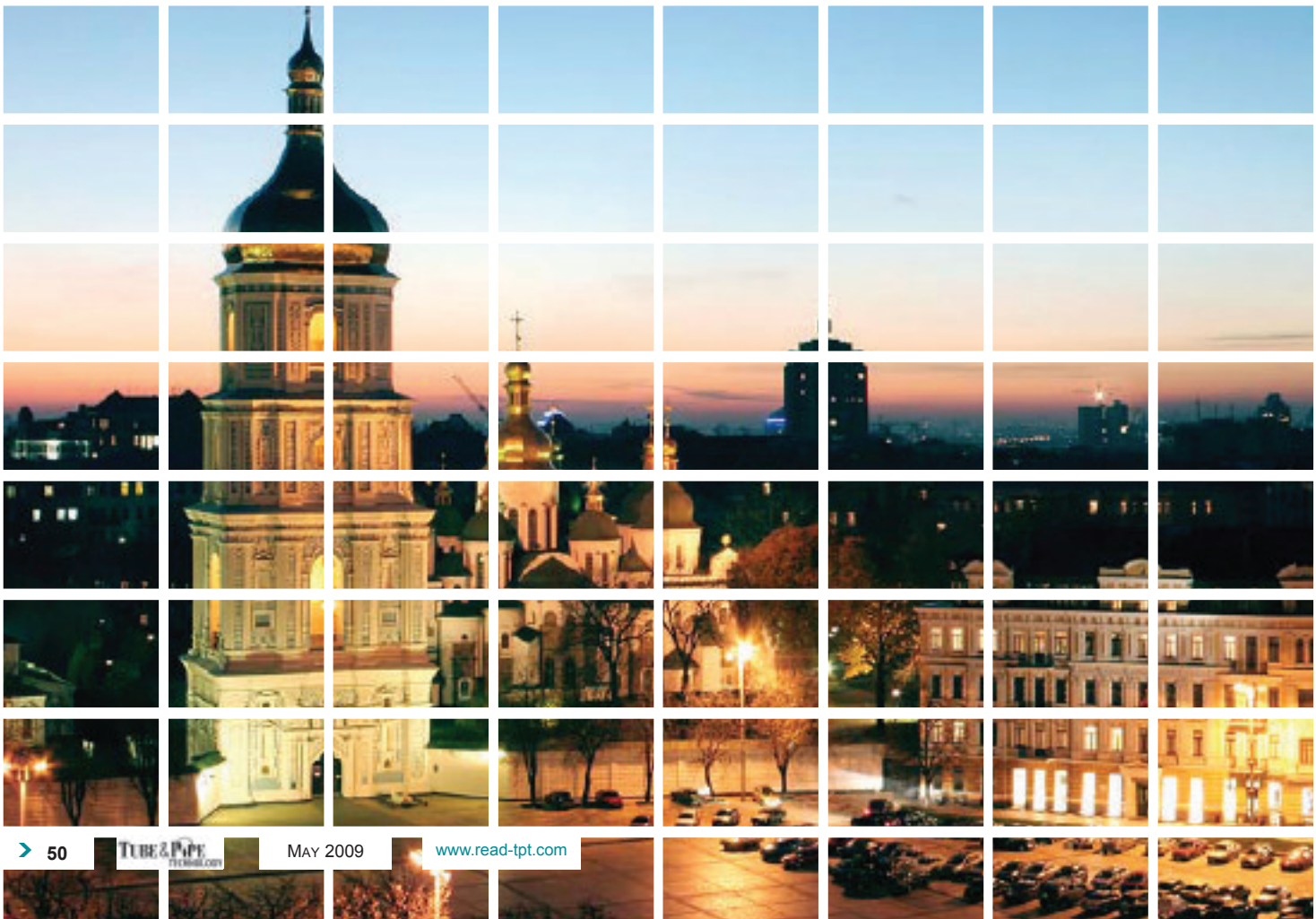
The Ukrainian gas transmission network is a main supplier of gas from Russia to the European Union. Due to its unique position, the country has become the most important transit country for Russian gas.

This situation has led to a number of high-profile spats between the two countries over energy prices and gas transit – the most recent in January – and it has become clear to both countries that differences should be settled behind closed doors.

> ***A boost is expected with the Ukraine's staging of the European football championship in 2012***

The current economic crisis has had a big impact on the Ukraine's industry and brought home the need for closer cooperation and support from all of its partners.

Industry accounts for 31.7 per cent of the Ukraine's GDP (which grew by an estimated 2.1 per cent in 2008), with steel and metals a central part of this output. Some of the country's largest



# the Ukrainian Market

industrial companies are also manufacturers of tube and pipe, including Interpipe, Centravis and Ilyich Steel & Iron Works.

An economic boost is expected with the Ukraine's staging of the European football championship in 2012. This will involve the construction and renovation of stadiums, airports, railway stations, hotels, transportation, and sport infrastructures in Kiev, Dnepropetrovsk, Donetsk, Lvov, Odessa and Kharkov. The European Bank of Reconstruction and Development has expressed readiness to finance the preparation of infrastructural objectives for Euro 2012.

In a move to encourage extra foreign investment, the Ukrainian parliament has introduced a law that allows foreign investors to freely take away profits. The largest investors are traditionally Germany, Cyprus, Italy, Russia, the Netherlands, Austria, and UK.

Taking place in the shadow of tough times, Tubes & Fittings Ukraine 2009 will act as a timely reminder of the need for industrial regeneration and increased business activity.

The event will be held on 10-12 June 2009 at KyivExpoPlaza in Kiev, Ukraine, alongside partner show Wires & Fasteners Ukraine 2009. The exhibition should build on the success of last year's event that welcomed over 150 companies and 6,500 visitors.

## SHOW FACTS

### EVENT

**Tubes & Fittings Ukraine 2009**

### DATES

**10-12 June 2009**

### VENUE

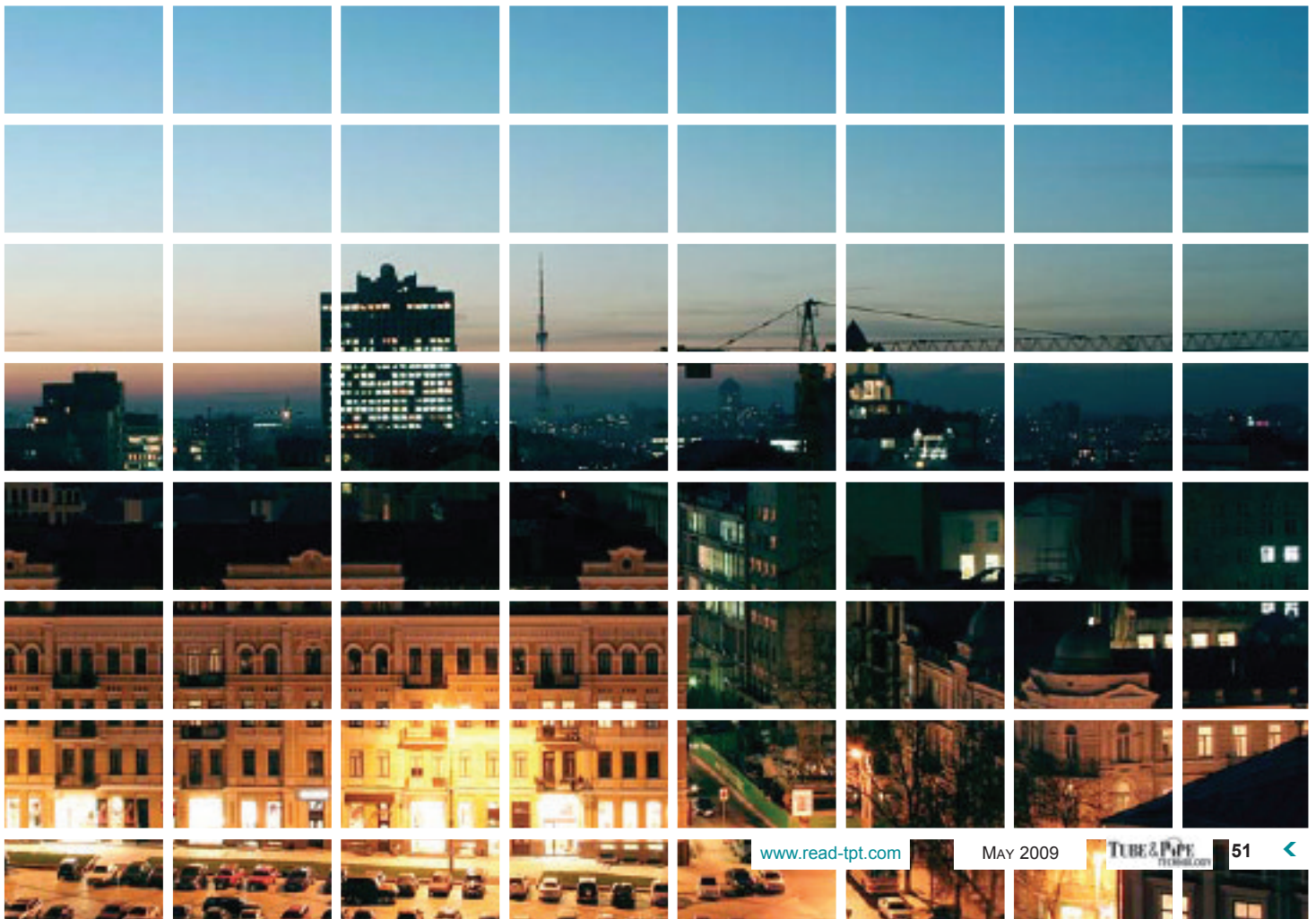
**KyivExpoPlaza, Kiev, Ukraine**

### ORGANISER CONTACTS

**TDS Expo (Ukraine & CIS) – Ukraine**
**Phone: +380 44 526 9376**
**Email: olga@welding.kiev.ua**
**Website: www.weldexpo.com.ua**

### INTERNET RESOURCES

**www.ukraine.com**
**www.kiev.info**
**www.tripadvisor.com**



# Whatever Tube Product You Need . . .


## Find it Here.

www.read-tpi.com  Contact us on +44 1926 334137

**METALS • PLASTICS • COMPOSITES**

Circulated to over 70 countries worldwide and on the internet 24/7


# Exhibitor Listing

Abplanalp ..... Ukraine
Akma PKF ..... Ukraine
Alta as ..... Czech Republic
Anyksciu Varies ..... Lithuania
Arcsel ..... Ukraine
Aspekt PE ..... Moldova
Association of the Technologists and Machine Builders of Ukraine ..... Ukraine
Auria M Ltd ..... Hungary
Bibus Metals ..... Ukraine
Binzel Abicor ..... Germany
Bropol Brody ..... Ukraine
BWE Ltd ..... UK
Centrospaw ..... Ukraine
Colormet Institute ..... Russia
Communar State Corp ..... Ukraine
CPU-Czech Surface Treatment ..... Czech Republic
Dalian Field Heavy Machinery Co Ltd ..... China
DEWeld (Dealer of EWM) ..... Ukraine
Dneprotechservice Scientific Firm ..... Ukraine
Doerken MKS-Systeme GmbH ..... Germany
Donmet Autogenous Equipment Plant ..... Ukraine
DP 'Test' ..... Ukraine
Engineering-Industrial Group ..... Ukraine
ESAB ..... Sweden
EST+ as ..... Czech Republic
Esteves Group ..... Poland
*Eurowire* Magazine ..... UK
Everstar sro ..... Czech Republic
Factor TH ..... Ukraine
Fakoor International Tehran Engineering Co ..... Iran
Fronius-Ukraine ..... Austria/Ukraine
Frunze Works JSC ..... Ukraine
Galatek as ..... Czech Republic
Galvanochrom Ltd ..... Russia
Guangzhou Hongda Steel Tube ..... China
H A Schlatter AG ..... Switzerland
Hydropress Ltd ..... Ukraine
IMEAS SpA ..... Italy
Industrial Ware Union ..... Ukraine
Innovator Sp Zoo ..... Poland
Intech NPP ..... Ukraine
Interchim-BTW (Bohler Thyssen Welding) ..... Ukraine
IPG Zhitomyr ..... Ukraine
*Iran Wire Industries* Magazine ..... Iran
ItalInox ..... Ukraine
ItalPartner Group ..... Ukraine
IVIS Steel Tube plant ..... Ukraine
Kakhovka Electric Welding Equipment Plant ..... Ukraine
Lasany Industries ..... Pakistan
Lecom as ..... Czech Republic
Liag Technik Service ..... Ukraine
Lincoln Electric Europe ..... Netherlands
Losynoostrov Electrode Plant ..... Russia
Menam Stainless Wire Public Co Ltd ..... Thailand
Metals of Ukraine ..... Ukraine
Metinvest ..... Ukraine
Metiz Service ..... Ukraine
Mezhgosmetiz ..... Russia
MGM ..... Czech Republic
MKT Ltd ..... Ukraine
MMK-Metiz Ware Works ..... Russia
Navko-Tech ..... Ukraine
New Technologies Group Ltd ..... Ukraine
NITI GP ..... Ukraine
Nordgalvanotechnik ..... Ukraine
Oteco CZ spol sro ..... Czech Republic
Paton Electric Welding Institute ..... Ukraine
Pecol ..... Portugal
Physical-Chemical Institute of Environmental and Human Protection ..... Ukraine
Pilot Plant of Welding Equipment of the PWI ..... Ukraine
Plasmotron ..... Ukraine
Polysoude ..... France/Russia
Polystar Ltd ..... Ukraine
Roditor & Philadelphia Srl ..... Italy
RUSO ..... Ukraine
Selco srl ..... Italy
Electric Machine-Building Plant 'Firm Selma' ..... Ukraine
Seproz – Scientific-Technology Center for Provision of Quality and Certification ..... Ukraine
Sharptools Group ..... India
Simferopol Motor Plant – SIMZ ..... Ukraine
Skako Comessa A/S ..... Ukraine
Sonis Ltd ..... Russia
Speranza Company ..... Ukraine
Spetstechmachine ..... Ukraine
Stan-Complect ..... Ukraine
State Tube Institute ..... Ukraine
STC 'Paton Welding Institute' ..... Ukraine
Stema/Pedax ..... Denmark
Techmash Khmelnitskiy ..... Ukraine
Techmash Odessa ..... Ukraine
Technolog ..... Ukraine
Tepris Ltd ..... Ukraine
Tetra Ltd ..... Ukraine
TM Spetsmash ..... Ukraine
Trade House Welding ..... Ukraine
*Tube & Pipe Technology* Magazine ..... UK
*Tube Products International* Magazine ..... UK
Tube Works ..... Ukraine
Ukrainian Society of NDT and Technical Diagnostics ..... Ukraine
Ukrainian Welding Company ..... Ukraine
Uktruboprom Association ..... Ukraine
Ultracon ..... Ukraine
Ultracon-Service ..... Ukraine
Vanad 2000 ..... Czech Republic
Vari Tek Ltd ..... Ukraine
Vistec (Dialer of Kemppi OY) ..... Ukraine
Volochisk-Metiz ..... Ukraine
Walker Magnet ..... Czech Republic
Weber CoMechanics ..... Russia
Weldotherm ..... Germany/Ukraine
Wilhelm Severt Maschinenbau GmbH ..... Germany
*Wire & Cable Asia* Magazine ..... UK
Zont (Autogenmash) ..... Ukraine

**Exhibitor list correct at time of going to press.**
**Please contact TDI Expo for updates via olga@welding.kiev.ua**

# Production & Processing of Automotive Tube

Even as it virtually abolishes the concept *'under the hood'*, the high-performance Atom sports car designed by Britain's Ariel Motor Co epitomizes tubing for automotive applications. The car which has been called *'driving nirvana'* has very little bodywork. Its exposed chassis, fashioned of large-diameter steel tube welded by the bronze and tungsten inert gas (TIG) process, gives the vehicle a skeletal look that declares *'supercar'*.

While it scarcely seems to allow for internal apparatus, this machine named for the fundamental building block in nature does have it, and it is as tube-intensive as the car's exoskeletal profile. The Atom has an internal combustion engine; a six-speed manual gearbox; a hydraulic clutch; and steering, suspension, and braking systems – none of them in the least exotic to a garage mechanic qualified for four-cylinder work.

For as long as fuel-powered automobiles must be activated, steered, turned, stopped – that is, for as long as they are driven – even a car built for acceleration from zero to 60mph in under four seconds will be dependent on its delivery systems.

*With a steel tubular chassis, the Atom is the epitome of innovative usage of automotive tube*
*(photo courtesy of Ariel Motor Co – www.arielmotor.co.uk)*

From the wide tubing that encloses a rack-and-pinion gearset to the narrow tubing for pneumatic and hydraulic fluid transport, the products of tube making are essential to the automotive enterprise.

They have been from the beginning. And they will be when the Ariel Atom, now in its third incarnation, reaches, say, its tenth.

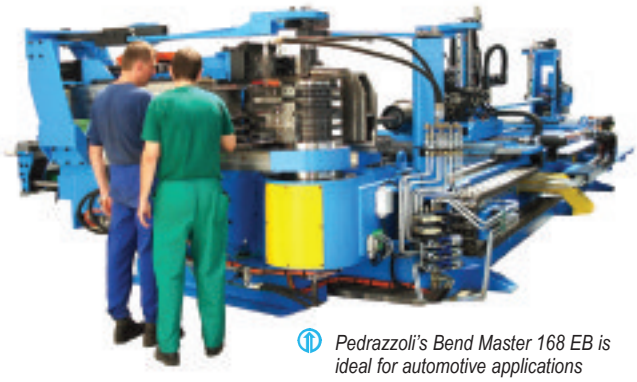
## Complex bending for automotive applications

Pedrazzoli Tube Technology (PTT) Ltd, UK, a new division of Italy's Pedrazzoli IBP SpA, is the manufacturer of tube bending machines with specialist models for automotive and aircraft applications. The range now features the new models EB20, EB76 and EB120/150, which are based on the highly acclaimed Ebwin control.

In the area of large dimension tube bending and the automotive field, Pedrazzoli offers the Bend Master 120EB and the Bend Master 168 EB. These models are specifically designed for the sectors where modern rolled sections are increasingly complex.

The new all-electric machines have multiple (triple) stacks for compound draw bending with one rollforming module (for variable radii in 3D forms). This is coupled with a powerful electric boost capable of continuous collet boosting of over 380KN. This feature has proved to be extremely versatile in the production of frame sections that are advanced in design. It allows for accuracy and repeatability with far tighter tolerance bends than the generally accepted industry standard.

Existing rollforming machinery available today utilizes the bend axis to form the rolled radii, this being a simple solution and one that works well for simple run of mill products. The only other option being hydroforming, but it requires a far higher investment as well as a high cost of any design change.



*Pedrazzoli's Bend Master 168 EB is ideal for automotive applications*

The new effective Pedrazzoli system achieves new levels of technology. It includes a sophisticated twisting head assembly, that allows effective use of three interpolated rolling axes and combined bending on a different plane. This is particularly useful in those areas where complex shapes and reduced radii are required. All axes are in true interpolation mode, even mandrel positioning, which is an important factor in repeatable production.

The finite positioning of these axes has proved to be very critical in repeatable production. The rollforming software has a built-in learning function that absorbs results and self educates for continual honing of success results (ie working to remedy the nature of material during bending).

The Ebwin control system and software is developed in-house by the company's R&D department and is equipped with a user-friendly operator interface with touchscreen.

It is also possible to supply the machines with the IMS2 new generation control for compatibility with existing Pedrazzoli IMS machines in their workshops.

The establishment of Pedrazzoli Tube Technology (PTT) Ltd took place following Pedrazzoli IBP SpA acquiring the intellectual rights of Eurobend Ltd.

**Pedrazzoli IBP SpA** – Italy
**Fax**: +39 0424 509049
**Email**: elunardon@pedrazzoli.it
**Website**: www.pedrazzoli-ibp.com

## Short, thin-walled tube production without tool change

Weil engineering, Germany, has introduced a revolutionary clamping concept for thin-walled tubes. The roll-forming and laser welding machines enable tube production without tool change, cycle time loss, and any additional costs.

The new Flexistar production cell can change the diameter automatically without an increase in cycle time after each rolling and welding process. There is program control within the machine parameters, and any diameter or tube length can be rolled and welded down to a lot size of 1. This totally eliminates all tool costs and changeover times.

The automatic diameter adjustment for rolling and welding is the core of the unit.

The tube is guided with the help of outside positioned, flexible clamping rails underneath a fixed welding source, which continuously welds. With this unique process, there is complete automation of production from blank to the finished welded tube.

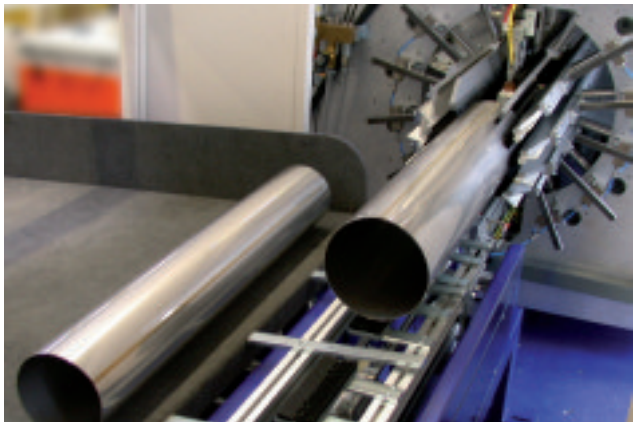
The current machine concept is designed for diameters of 2-16", with lengths between 10-90", and metal gauges of 0.008" to 0.100". Tubes can now be continuously produced with a total cycle time of less than 20 seconds.

Typical applications are tubes for exhaust systems, catalytic systems, double/triple-walled tubes (such as metal bellows), and chimney tubes.

Weil engineering is the leader in manufacturing laser welding systems. The company has an extensive network of numerous sales representatives around the world and a subsidiary, Weil Engineering North America LLC, USA.

**Weil engineering GmbH** – Germany
**Fax**: +49 7631 18 09 49
**Email**: info@weil-engineering.de
**Website**: www.weil-engineering.de

*The Flexistar production cell for thin-walled tubes*



## Latest saw specifically designed for small diameters

RSA, a German sawing technology specialist, has launched the Rasacut XS, a high-performance circular saw for tube diameters from 6 to 25mm. The machine was developed as a response to recent technological developments in the field of circular saws that have generally been aimed at high output of the 10-100mm diameter range.

The minimisation of variants in the automotive industry is leading to larger batches for the production of semi-finished products made from tube, hollow sections and solid bars. However, quality demands are also increasing. A machine concept aimed at a wide spectrum of workpieces can cope only to some extent with demands made by highly specific parts, eg line systems in the automotive sector, where extremely strict requirements are applied concerning the degree of purity and precision of the tubes. However, the large quantities allow comparatively low piece costs.

Multi-cut or bundle cut saws are generally used for the production of large batches in the diameter range up to 25mm. However, aimed at an improvement in quality and lowering of piece costs, the new RSA development counts on the single cut. The fully automatic processing cycle – even for large fixed lengths of 2,000mm or longer – presents an essential advantage.

*The newly developed Rasacut XS for tube diameters from 6 to 25mm*

When working with bundle cut saws, tubes are manually bundled. The workpieces are counted, fixed with an adhesive tape and inserted into a prismatic guide that feeds the tube bundle to the saw. With the Rasacut XS, tubes are automatically singled and fed. This method also allows one person to operate several saws.

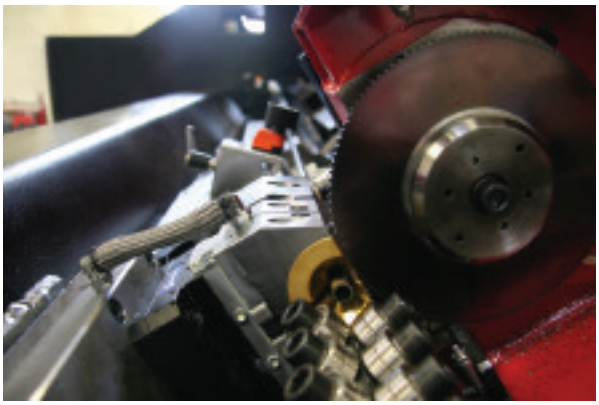
The new RSA system is beneficial during further processing of tubes after cutting. In case of bundle cut saws, fixed lengths can fall apart after cutting – the so-called 'mikado effect'. The feeding of the tubular sections to another processing step, such as deburring, requires further logistics – either an automatic singling machine or the manual feeding of a magazine.

The Rasacut XS can be modularly expanded into a processing centre, combining in one line the processes of sawing, deburring or facing and chamfering, checking of lengths, roundness or chamfer, cleaning and stacking.

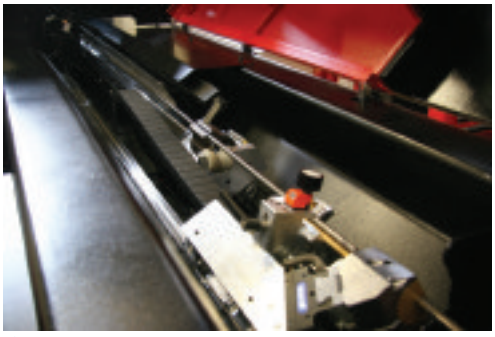
In the experience of the RSA developers and designers, another argument for the single cut concerns the quality of the parts. Apparent motions in the tube bundle or in the layer can lead to scratches on the tube surface. Due to minimal misalignments within the tube bundle, parts are outside of determined tolerance.

RSA claims that the Rasacut XS achieves in a single cut output values that are as high as those of multi-cut or bundle cut saws – and depending on the dimensional range, even more – due to the reduction of ancillary times. Material is fed by means of a gripper with an acceleration of up to 40 m/s². The next tube is fed during the current sawing process, avoiding a loss of time during the changeover to the next stock length.

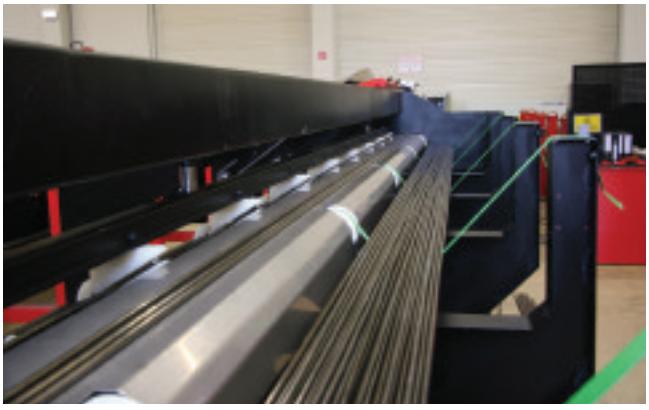
On the basis of the Rasacut XS output values, around 150 changeovers to the next stock length are required per hour for a tube with 8mm diameter and a fixed length of 250mm, for a stock length of the random material of 6,000mm. This example shows the importance of ancillary times with regard to the total output. As an example of output: round tube with a diameter of 12mm and a wall thickness of 1mm, material



*The central clamping of workpieces facilitates the use of saw blades with small diameters and high speed*



*Two gripper feeds reduce to zero the ancillary times for a changeover to the next stock length*



*The Rasacut XS automatically singles the tubes from the crane bundle and feeds them to the saw*

E235. For a fixed length of 150mm the output of the saw adds up to 4,014 pieces per hour.

Forward feed and drive of the saw is effected through servomotors. The saw blade diameters are between 175 and 200mm, and depending on the material, HSS, carbide or solid-carbide saw blades can be used. The specific tuning of the teeth profiles with the material and workpiece characteristics of the parts to be cut is done by RSA.

The use of saw blades with small diameter and high speed reduces cutting times. To cover the whole spectrum of workpieces with saw blades of this diameter range, tubes are centrally clamped, and not on a support.

**RSA Entgrat- u. Trenn-Systeme GmbH & Co KG** – Germany
**Fax**: +49 2351 995 300
**Email**: tiemo.krause@rsa.de • **Website**: www.rsa.de

**RSA Cutting & Deburring Systems Ltd** – UK
**Fax**: +44 1952 580511
**Email**: rsa.gb@rsa.de • **Website**: www.rsa.de

## High frequency tube mill for truck exhaust tubing

T&H Lemont, USA, has installed a quick change, high frequency tube mill to manufacture stainless steel tubing for the truck exhaust industry. This high-speed machine has a capacity up to 6" and is capable of finished cut-to-length products at top speed.

While utilizing many proven mill components, T&H Lemont worked closely with the customer to ensure a highly efficient installation and startup. Customer delivery commitments dictated an extremely tight delivery time requiring T&H Lemont to interface seamlessly with other component suppliers to meet timely deliveries.

T&H Lemont has produced mills for the automotive industry for components such as exhaust and catalytic converters, hydroformed frames, cooling components, suspension components and other automotive and truck components.

The company is dedicated to exploring new technologies and innovations to expand capabilities, reduce production costs and improve productivity, not only for the welded tube and pipe industries, but for the rollforming industry.

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

Components offered by T&H Lemont include, but are not limited to welders, cut-offs, entry equipment, accumulators, pre-punch, post-punch, seam orientation stands, weld boxes, edge conditioner, OD bead scarfing systems, straightening systems, single point adjustment systems and dedimplers.

**T&H Lemont** – USA
**Fax**: +1 708 482 1802
**Email**: sales@thlemont.com
**Website**: www.thlemont.com



## Unique solution for multi-void tube spraying

Corrosion of heat exchangers for automotive air conditioning units can be a major problem. The unit is often located near the front grille of the vehicle and is exposed to a severely corrosive environment. Road salts, rain and high temperatures all contribute to high corrosion rates. Arcsprayed zinc offers resistance to corrosion, lower production costs and reduced pollution, compared to other processes.

Multi-void aluminium tubing is used in the production of serpentine type condensers, which are widely used in air conditioning systems. The voids in the tubing provide a route for the cooling medium to extract heat from the incoming air. The coating of the tubing and the corrugated fins is generally carried out by flux brazing or zincate nocolok brazing processes. In either case, problems are inevitable.

Whether the air is extracted from the top or the bottom of the air conditioning unit, cleanliness is critical to the process, as is production reliability. The advantages of zinc sprayed tubing include improved productivity and zinc deposited at a pre-selected rate. In addition, a zinc diffusion pattern equally uniform to the zincate process is produced.

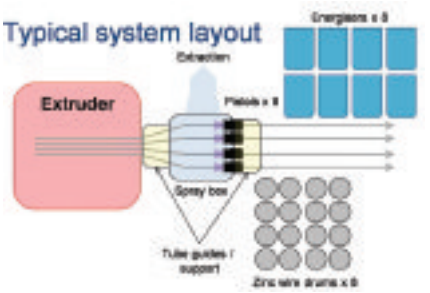
Spraying with zinc also means highly corrosive flux, zincate treatment and waste treatment are not required and post brazing cleaning processes can be eliminated.

The zinc coating is carried out in line with the extrusion press. The plant can be installed on to either new or existing lines. The number of individual arcspray pistols required depends on the number of extrusions being produced by the press.

The pistols are located on adjustable mounts, angled to allow even coverage and can accommodate single of multi strand extrusions. Metallisation has over 145 units in use around the world, with some companies opting for 1.2mm wire to produce a very fine coating finish for specialist surface protection.

The Metallisation Arc 528E is a heavy duty, high performance arcspray pistol, which features a unique constant geometry head. This proven head ensures reliable alignment of the wire for long periods, giving consistent spray quality and ease of maintenance. The electric drive, electronic control system and constant geometry spray head combine to give a wide range of deposition rates to match the job size.

*The Arc 528E is a heavy duty, high performance arcspray pistol*




*A diagram of the system layout*

The Arc 528E supplies pack and wire feed includes power cables, air hose and control cable. For multi-void mills, a quick release option is also available, as this dramatically reduces the complexity of the system and pistol changeover time.

The S250 Energiser is a reliable, consistent, low current power supply, which has been specifically designed for arc spraying. With a PLC control it offers reliability and ease of maintenance. For added reliability, its control electronics panel is sealed to reduce dust ingression, has easy access energiser panels and an external fuse bank for reduced mean time to repair.

**Metallisation Ltd** – UK
**Fax**: +44 1384 237196
**Email**: sales@metallisation.com
**Website**: www.metallisation.com

## Variable wall tube drawing line for truck and SUV tubes

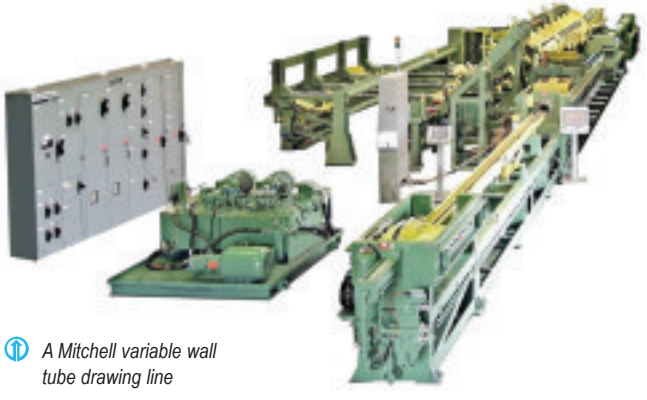
George A Mitchell Company is the manufacturer of variable wall tube drawing systems that can accommodate drawing of tubular shapes, such as square, rectangular and hexagonal cross sections. These are used for products such as automobile crush tips and frame tubes, as well as truck and SUV axle tubes, all of which are produced in North America for the automotive market by Mitchell's customers.

Mitchell and its customers have long standing relationships that extend over the past 25 years, where many special forming processes have been jointly developed to enhance the tubular products fabricated for the automotive industry, sporting goods and tubular parts industries.

Mitchell is a leader in providing production equipment to produce variable wall tubes used in making cylinder blank tube for power steering assemblies, SUV and truck axles, as well as instrument panel beams and automobile fuel tank filler tubes.

Mitchell is also the world leader in producing hydraulic tube push pointers in capacities ranging from 5,000lb up to 1,000,000lb, for materials from aluminium to zirconium, for the tube drawing industry.

With over 600 push pointers produced and delivered worldwide in the past 48 years, no other company on the globe can match Mitchell's push pointing expertise and machine design.



*A Mitchell variable wall tube drawing line*

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

APPLICAZIONI TERMOELETTRONICHE

Zaniolo CdA 12.09

## INDUCTION HEATING?

## ATE, YOUR FIRST CHOICE EVEN WITH YOUR EYES CLOSED.

ATE Applicazioni Termo Elettroniche guarantees its Customers the highest standards of **quality**, **reliability** and **service** in every stage of a project, from the feasibility study of an application through the manufacturing to the commissioning and for the whole working life of the plant. All over the world, hundreds of ATE induction systems and equipments for the heat-treatment of **wires**, **bars**, **pipes** and **straps** prove the reliability of the technical solutions implemented and Customers' satisfaction.

**ATE Applicazioni Termo Elettroniche srl** - Registered office: V.le Artigianato 9 - 36100 Vicenza
Works and Offices: Via Soastene 4 - 36040 Brendola (VI) Italy - Tel. +39(0)444.601455 - Fax +39(0)444.406434 - **info@ate.it**

**www.ate.it**

## Workbenches for production of car components

Manufacturing companies always look for automatic manufacturing systems to reduce or remove labour costs.

However, the continuous development of new products always leads to design changes that vary according to different markets. SMS Engineering, Italy, provides simple but highly productive manipulating rigs that meet all these requirements.

SMS workbenches meet a range of productivity requirements that ensure simple but efficient technology. SMS's hydraulic machines are suitable for carrying out punching, end forming, flattening, bending, and cutting operations on metallic tube.

*Car components can be produced using different processes on the work bench*

With these rigs it is possible to produce a range of car components. The rigs are made up of different hydraulic units that operate simultaneously or in sequence. The units carry out all the operations required on a specific component. Each rig requires a trained operator to run and maintain the machine.

Car components can be produced using different processes on the working benches. End-forming can be carried out on the tube to achieve different deformation configurations at the end of the tube.

In addition, the forming operation can flatten different sizes with excellent definition. The punching operation can make holes on the tube once flattening and cutting has taken place.

All cutting and punching operations are made using internal matrices with shapes strictly complying with a drawing in order to limit tube deformation. Unit tooling is made of special titanium steel that covers against wear.

All hydraulic groups have internal matrices that are mobile to allow easy loading and unloading operations. The location of the working stations has been carefully designed to help the operator when loading and unloading pieces during production.

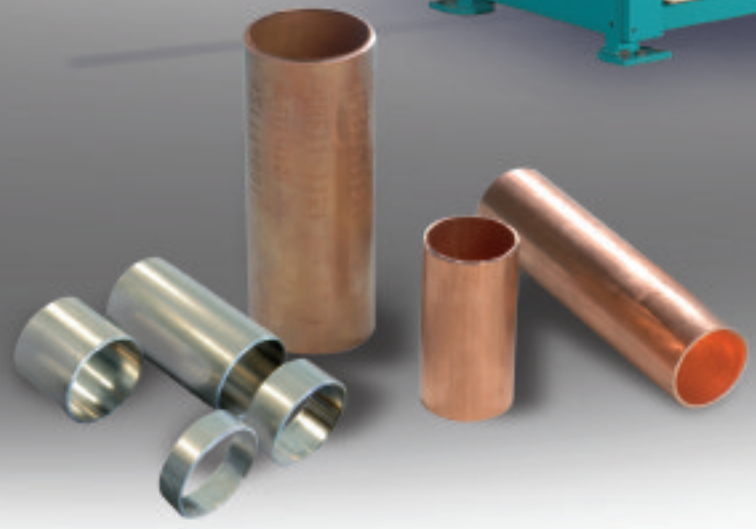
**SMS Engineering Srl** – Italy
**Fax**: +39 035 581509
**Email**: commerciale@sms-italy.it
**Website**: www.sms-italy.it

TUBE PROCESS TECHNOLOGY

E-PILOT UDINE

Planning and manufacturing of automatic machines,
tube cutting machines, tube bending machines without mandrel,
shaping machines, end sealing machines, return bends machines,
rings-assembling machines, tube expanding machines,
hairpins trimmers, tubes drilling machines.

## MTV 40 AP
PIPE CUTTER MACHINE



| | |
|---|---|
| STRAIGHT LENGTH | ∅ MIN. 10 mm |
| | ∅ MAX. 38,6 mm |
| LWC COIL | ∅ MIN. 8 mm |
| | ∅ MAX. 36 mm |

**SISTEMI MECCANICI INDUSTRIALI S.R.L.** 33030 Varmo (UD) Italy via dell'Olmo - tel. +39.0432 778644 - fax 778411 www.smisrl.it - info@smisrl.it



## A comprehensive service for automotive tube components

Kolsatpol sp zoo, Poland, is a specialist in production of metal elements for the automotive industry in the field of metal machining (tube and bar). Products manufactured by Kolsatpol are assembled in automotive brands such as Fiat, Opel, Toyota, and Volvo.

The company's range of final products is 4mm to 81mm diameter, with a length from 10mm to 350mm. Kolsatpol carries out operations including cutting, chamfering, drilling/reaming, boring, threading and shaping.

Kolsatpol's aim is the permanent assurance of product quality, proven with certification from quality systems ISO 1400:2004 and ISO/TS 16949:2002.

**Kolsatpol sp zoo** – Poland
**Fax**: +48 33 816 93 95
**Email**: dariusz.kuznik@kolsatpol.com
**Website**: www.kolsatpol.com



## Comfortable car seats with precision tubes

Together with the automotive supplier Faurecia, Jansen has developed special precision steel tubes for the rear seat construction of the Audi Q7 SUV. The successfully completed project is a good example of co-engineering: the mutual development of a product by two specialised technology partners.

Jansen Ltd, Switzerland, supplies a wide range of international customers with high quality precision steel tubes. By beginning close collaboration at the earliest stage, it is possible to define the materials and product specifications together with the client. This saves development costs and time, and the time to market-readiness is significantly decreased.

The rear seats of the Audi Q7 were developed by Faurecia, one of the most significant automotive supply companies in the world. The rear seat concept in the Q7 offers multiple configuration possibilities.

*Jansen Ltd is a specialist for welded precision tubes*

*Round, rectangular and flat-oval tubes for rear seats in Audi Q7*

The rear seats can be folded down and stored away as needed so that a flat loading surface up to the front seats is created.

For the sub-construction of the rear seats, cold-rolled precision steel tubes from Jansen were delivered in five different sizes. Depending on the type of seat, round, rectangular or flat-oval tubes are used.

The definitive forms and models of the steel tubes were developed by Jansen, together with Faurecia. Various grades of steel, wall thicknesses, strengths and elongations were made and tested in the course of prototyping.

**Jansen Ltd** – Switzerland
**Fax**: +41 71 761 22 70
**Website**: www.jansen.com

## Tube mills specifically developed for automotive products

Officine MTM SpA, Italy, is the manufacturer of tube mills for the automotive industry. The company began manufacture of these mills in 1984, with the first application being a complete tube mill for tubes in high tensile carbon steel, with small OD and thick material.

Since that time several tube mills have been developed specifically for automotive products, for carbon steel, stainless steel and aluminium alloys in different applications.

MTM currently has a comprehensive range that can satisfy most requirements of tubes for automotive industry. For carbon steel tubes, the company offers its expertise with complete tube mills for seats, shafts, engine supports and frames. Exhausts are made in aluminized and galvanized carbon steel as well as in HF welded stainless steel.

For aluminium radiator and heat exchangers, MTM has a specific range of complete solutions for welded and folded tubes, as well as charging air cooler sections. The company also has experience in manufacturing tube mills for hydroforming applications.

Due to its partnership with Atomat, a worldwide leader in design and manufacturing of roll sets for the tube industry, MTM can offer turnkey plants complying with the highest quality standard.

**Officine MTM SpA** – Italy
**Fax**: +39 041 999611
**Email**: sales@mtmtubemills.com
**Website**: www.mtmtubemills.com

# June 10 - 12, 2009, Kyiv, Ukraine


## Want to extend your business into the growing Ukrainian marketplace?

- Ukraine is in the center of Europe
- Ukraine is a member of WTO
- Ukraine and Poland will host Euro 2012 (The 2012 UEFA European Football Championship)

- Visa-free regime for Europeans
- Low-cost accommodations/customs brokerage service

- Rapidly developing national economy
- Open to new foreign investments
- Main production sector - machine building, ferrous and non-ferrous metal industry

Kyiv

KyivExpoPlaza Exhibition Center

## Exhibit at the Tubes & Fittings Ukraine 2009 show!

For the first time alongside the Kyiv Technical Trade Show 2009 will be held

## International Forum "Anticor Ukraine 2009"

МЕТИЗ

General media sponsor

Official support:
Ministry of Industrial Policy of Ukraine

Show organizers:
UKRTRUBOPROM Association
State Tube Institute
UKRCZVETMET Concern
TDS-Expo Ltd.
Trade House Welding

Austrian

Official Carrier

Visa support - Royal Mile Travel Company
Tel.: +38 044 493 9898 E-mail: travel@royalmile.com.ua

SK-EXPO

Customs clearance and on-site services for exhibition cargo - SK-EXPO LTD
Tel.: +38 044 526 9451 E-mail: sk-expo@w-mail.com.ua

International Sales and Marketing - INTRAS Ltd. (Great Britain)
Tel.: +44 1926 334137 E-mail: intras@intras.co.uk

**For further information and to reserve your booth space please contact Intras Ltd.**
**Tel: +44 1926 334137 Fax: +44 1926 314755 E-mail : intras@intras.co.uk**

Organizer: LLC "TDS-EXPO", Tel.: +380 44 596 93 76, Fax: +380 44 596 93 74, E-mail: olga@welding.kiev.ua, Web-Site: http://www.weldexpo.com.ua

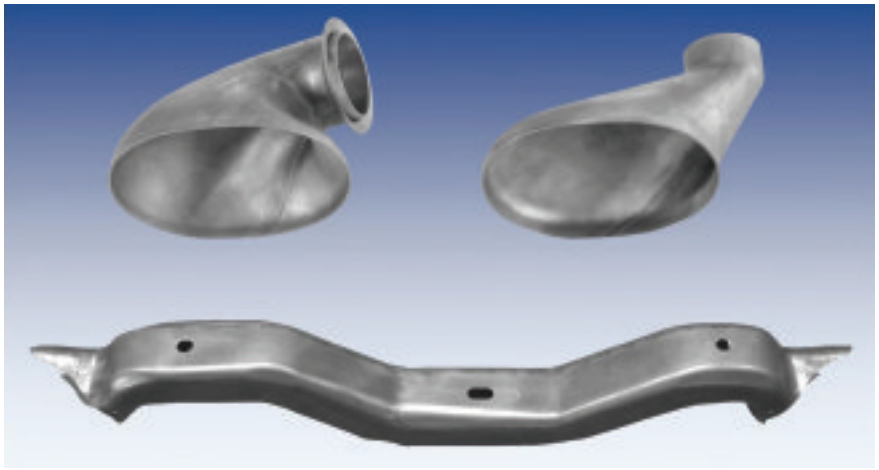


## The fluid solution for automotive tube manufacture

Forming tubes with water pressure is not a new idea. However, hydroforming technology has only become regarded as a mature manufacturing method in the last few years, in an almost unnoticed manner. Hydroforming currently has a remarkable presence in the market and its importance in automotive engineering is not to be underestimated.

In particular, the fields of chassis, car body and exhaust systems benefit from this technology. In terms of chassis components, the focus lies on lightweight construction. Important features are low wall thickness in tandem with high rigidity and stiffness, together with high accuracy for joining operations and avoiding a vast number of parts.

*Salzgitter Hydroforming is specialized in the manufacture of hydroformed components*



In contrast, important factors for the exhaust sector are flow properties, utilization of available space and reduction of welding operations. All these properties can be achieved using hydroformed components.

Due to the implementation and refinement of CAE methods, such as forming simulations, the process stability and the degree of deformation of hydroforming can be significantly increased. To reach an optimal cost structure, a closed process chain is required including all relevant up- and downstream processes such as bending, mechanical forming, heat treatment and (laser) cutting.

Salzgitter Hydroforming provides such a complete process chain. The company is specialized in the manufacture of hydroformed components by using a wide range of materials, such as carbon steel, stainless steel, aluminium and copper.

**Salzgitter Hydroforming GmbH & Co KG** – Germany
**Fax**: +49 3762 9597 29
**Email**: p.bartschat@szhf.de
**Website**: www.szhf.de

## Effective coating for automotive brakepipe lines

Universal Finishing Systems, UK, has designed and manufactured a new coating and drying line for Bant Boru, Turkey's sole manufacturer of double walled copper brazed tubes. This is the fifth international order for Universal in this sector, with previous finishing lines having been installed in Germany and Italy.

Bant Boru has gained an enviable reputation for the reliability and quality of its tubing, which is supplied to the automotive sector for fluid storage, transfer and delivery pipeline for brakes, fuel and air conditioning. The tubes are also supplied as condenser tubing in refrigeration equipment.

The new line at Bant Boru's plant in Gebze, just outside Istanbul, utilises Universal's Supa-Vac vacuum coating system for the application of a water-based etching treatment. This is then dried with an inline gas infra-red drying system, using special cylindrical emitters fabricated to suit the application.

*Figure 1: The Cartridge coating system*

Following application of this coating, Universal has manufactured a custom designed cartridge coating system for the application of a solvent primer coating (figure 1), which is required to ensure excellent adhesion of the final high performance PA coating. In order to dry the primer coating and convert the volatile solvent emissions into harmless gases, Universal has supplied an integrated hot air dryer/thermal oxidizing system (figure 2).

*"This coating line is a very efficient and environmentally friendly coating line, utilising 100 per cent transfer efficient application machines, a high speed radiant drying unit and a convective drying system, which burns off harmful solvent emissions and re-circulates the hot air for drying,"* says Mr Kevin Whittle, managing director of Universal Finishing Systems.

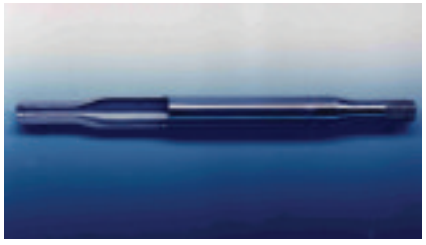
*Figure 2: Universal's hot air dryer/thermal oxidizing system*

Mr Ismail Cenker, managing director of Bant Boru, comments, *"This line illustrates Bant Boru's commitments to its customers and will enable us to respond to our customers' demands for quality, high performance brake pipe and rapid delivery times. Plus, it helps us to be environmentally friendly and provides significant energy savings. We were delighted with Universal's cooperation with this project and the smooth installation and start up of the line."*

**Universal Finishing Systems** – UK
**Fax**: +44 1244 288 102
**Email**: info@universalfinishing.co.uk
**Website**: www.universalfinishing.com

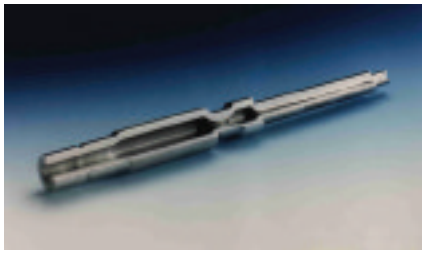
## Weight optimisation of workpieces in the automotive industry

Rotary swaging is a cold forming process. Compared to other forming processes rotary swaging stands out due to its advantages in the processing of tubes. The advantages of the process gain increasing importance due to the current developments in the environment and waste disposal policy.



Tubular drive shaft

Hollow transmission shaft



This method can improve the economy compared to other competing manufacturing processes. Thus more and more applications come to the focus of the development. Rotary swaging features all advantages of cold forming, such as short process times, exacting tolerances, plane surfaces and material savings due to the avoidance of chips.

All metallic materials that can be formed are suitable for rotary swaging. In case of steel this ranges from mild steels to alloy steels up to stainless steel. There is also no problem in using non-ferrous materials such as aluminium, magnesium, titanium and their alloys.

In addition to material savings, the process also offers considerable potential in weight optimisation. The savings are highest in case of changeover from solid material to tube. In order to follow this path economically, a process is needed that can form the requested geometries at the internal and external diameter of the workpiece ready-to-fit or at least near-net-shape.

Piston rod for shock absorber for passenger cars

Headrest rod out of stainless steel

Rotary swaging offers forming possibilities that would be difficult to achieve using other forming processes. The forming possibilities at the internal and external diameter enable a weight-optimisation at the workpiece.

The method can be used to manufacture cylindrical and conical bores with excellent

dimensional accuracy and surface quality. It is also possible to produce complex internal profiles by using mandrels as tooling, while the wall thickness of the workpiece can also be reduced specifically in less stressed areas.

Rotary swaging is generally suitable for the economic manufacture of tubular shafts. In addition to these examples, there are many other applications that prove their advantages in high volume production.

**Felss GmbH** – Austria
**Fax**: +49 7232 402 122
**Email**: info@felss.de
**Website**: www.felss.de

## Precision drawn tube for automotive applications

Standard-Metallwerke GmbH, Germany, is the manufacturer of precision drawn and premium tube in aluminium, copper and brass. These products are utilized in applications including automotive, aerospace, HVAC/R, industry and solar.

The company develops and supplies a range of innovative solutions, including coaxial tubes for tube-in-tube systems. This solution allows heat exchange between two independent running liquid media to be perfectly used in the field of air conditioning, and cooling devices for automotive applications.

*(From left to right) coaxial tube, finned tube and s-cooler tube*

Adapted to the market requirements, the company's finned tubes feature a maximum efficient heat exchange solution. The individually adapted size of ribs enables outstanding performance for various applications.

Aluminium tubes are predominantly used to guarantee the demand for lightweight systems, and to support a high requirement of stability. In addition, the company offers PA12 coated S-Cot tubes to deliver insulation, optimum protection against corrosion, and maximum mechanical impact protection – the best solution for a severe environment.

Standard-Metallwerke has recently developed a super, long-life alloy, based on a unique chemical composition for drawn tubes, branded S-Life. This alloys provides high corrosion resistance and outstanding SWAAT-test results.

**Standard-Metallwerke GmbH** – Germany
**Email**: info@standard-metall.de
**Fax**: +49 2922 808 185 • **Website**: www.standard-metall.com



## Complex tube end-forming in the automotive industry

EMS, France, is the manufacturer of a complete range of tube end-forming machines with standard working power from 30kN to 800kN. These machines – electrically or hydraulically driven – are utilized in the fabrication of automotive products.

The single or double machines enable the forming of one or two ends, with a maximum of 10 successive working stations. The machines require no setting down of the tube and include end-forming, chamfering, machining and rolling operations.

The company recently supplied its machinery to a German automotive subcontractor to simultaneously end-form both ends of stainless steel bent tubes. This task is difficult as both ends of the tube are not located on the same axes. In carrying out this work, an important ID expansion of 50 per cent was achieved.

*The tube from the German automotive subcontractor, end-formed using EMS technology*

The machine developed by EMS was able, under one clamping movement, to perform extreme end-forming with a working power of 400kN. EMS is still currently developing the cutting machine systems for this process. In addition to the classic CT system using knives – that allows cutting of over-length without scraps – EMS has also developed the CTR model.

The CTR machine is based on a wheel that approaches and cuts the tube from inside to outside. The result is a clean cut, without burrs and deformation. The new fully electric model of cutting machine (type CTR AK), allows a combination of cutting, rolling and calibration of tubes up to Ø 400mm, with all type of material and wall thickness.

The new model also cuts tubes with several angles, without any burrs or deformation. The new model is highly appreciated by the aerospace and exhaust industries because it is silent and electrically driven, and allows manufacturing of tube ends without scraps or burrs.

*Automotive tube cutting expertise from EMS (before and after cut)*

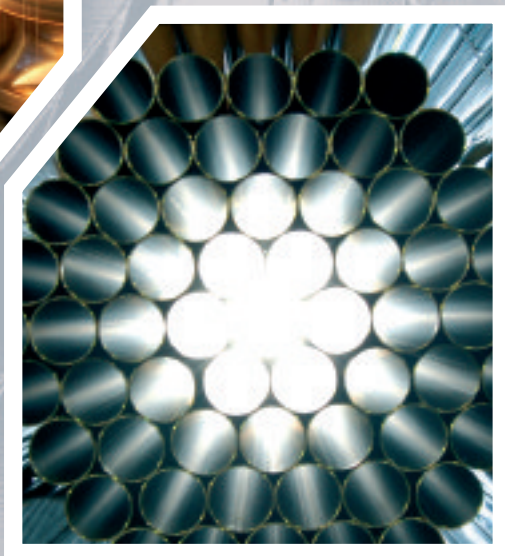
EMS also undertakes the manufacture of full automatic production lines for manufacturing press-fittings. The operations for this area include cutting, chamfering and end forming of stainless steel, steel, brass or copper tubes for the heating and sanitary industries.

EMS is a leader in production lines or machines for mounting of catalytic exhaust systems, including forming, mounting, spinning and measuring technologies. Other EMS services include maintenance, supply of cutting and end-forming tools, and production of pre-serial prototypes.

**EMS** – France
**Fax**: +33 388 910537
**Email**: info@ems-sa.com
**Website**: www.ems-sa.com

# TUBIFICIO DI TERNI

## AN AVANT-GARDE REALITY IN THE PRODUCTION OF ELECTROWELDED STAINLESS STEEL TUBES



**EXHAUST TUBES**

**ROUND TUBES**

**RECTANGULAR TUBES**

**SQUARE TUBES**

**AUSTENITIC GRADES**

*W1.4301 - 304*
*W1.4541 - 321*
*W1.4828 -*
*W1.4404 - 316L*

**FERRITIC GRADES**

*W1.4512 - 409LI*
*W1.4510 - 439M*
*W1.4509 - 441LI*
*W1.4513 - 436LI*
*W1.4003 - STR12*

***A company of***
***ThyssenKrupp Acciai Speciali Terni***

Factory & Commercial Offices
Strada di Sabbione 91/A
05100 Terni - Italy

Telephone: ++39 0744 8081
Telefax: ++39 0744 812902
Email: info.tubificio@thyssenkrupp.com



## Special units for hydraulic drilling and automotive tube transfer

Menegon Ennio sas, Italy, is the manufacturer of special units for hydraulic drilling and cutting, and tube/component transfer. Designed for the automotive industry, the equipment offers specialist functions such as scallop cutting, shearing, and drilling with radial pass and linear units.

With advanced R&D capabilities, the company is also a specialist in the production of complex stainless steel moulds. In addition to the automotive industry, the equipment is used in the fields of food production, appliances, construction, furniture and agriculture.

The company's lines are used for automotive production, offering functions such as scallop cutting, shearing, folding and tracing. The machine is divided into nine stations with different productive cycles. These stations include departure point, single perforation, double sided perforation, control and cleaning of holes, tablet insertion and folding, calibration, branding, control and unloading.

Menegon also offers a special unit for hydraulic drilling of tube and sheet. This machine provides scallop cutting, shearing of straight and inclined tubes, folding, and drilling tubes with a radial pass and linear unit. Features include high quality, advanced parts, hydraulic operation without springs during closing and extraction, and low maintenance. The addition of more units is easy due to the modular system. The blocking of pieces to drill is guaranteed by the mechanical closing of the dies, with accurate movement

*Menegon's automotive production line for cutting, shearing and folding*

and automatic centering of the material. The closing of dies is interchangeable and the machines allow the drilling of tubes up to 30mm in diameter (with 90° rotation). The functioning principle guarantees mechanical extraction of pieces because the punch completely re-enters in the same position while the dies are in position.

**Menegon Ennio sas** – Italy
**Fax**: +39 0424 570880
**Email**: menegonennio@gmail.com



## Automated non-destructive testing systems

NDT Technologies Inc, Canada, is the manufacturer of a range of automated non-destructive testing systems, precision measuring and material handling. The company has launched an automotive engine cylinder liner flaw detector. The inspection system is designed for offline detection of internal and external flaws in automotive engine cylinder liners.

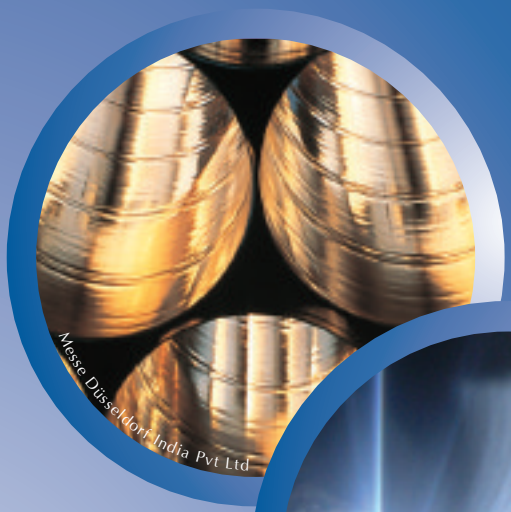
The system uses the eddy current flaw detection method for the detection of micro-cracks, surface imperfections and sub-surface flaws. Defective parts are diverted to the reject chute.

NDT Technologies has also introduced an automotive hollow shaft flaw detector. The Eddytron™ is designed to inspect aluminium steering column casting for internal surface flaws in the body, and in the hydraulic seal seat chamber.

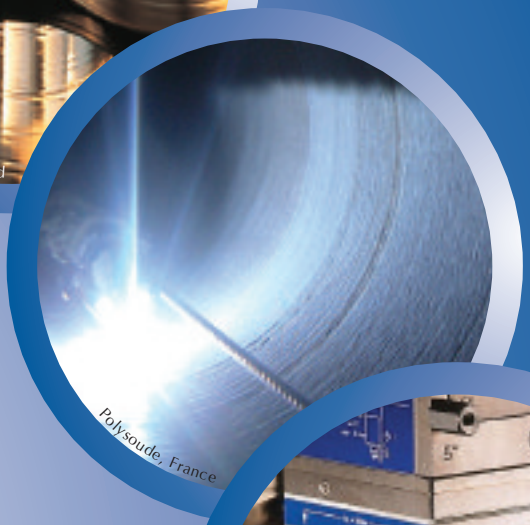
The casting is used for power steering applications in automotive industry. Due to the operational importance and highly complex geometric shape of the cast part, stringent quality control parameters need to be implemented. The system provides electronic evaluation of changes in eddy currents (due to imperfections) that are present on material surfaces.

The method is sensitive to changes in distance between the probe and the material, requiring a high level of manufacturing precision on the probe guidance system. Flaws as small as 0.2mm deep can be detected. In order to achieve test consistency, calibration specimens containing artificial flaws of known dimensions are supplied.

**NDT Technologies Inc** – Canada
**Fax**: +1 514 457 7652 • **Email**: info@ndt.ca • **Website**: www.ndt.ca




**The international magazine for the tube and pipe industries**




**Bringing you the latest technology in tube & pipe production, processing and machinery**


**Read by over 12,000 tube manufacturers and processors worldwide**

# Business doesn't stand still

# Find it Here.


Circulated to over 100 countries worldwide and on the internet 24/7

**Tel: +44 1926 334137** **tpt@intras.co.uk** **www.read-tpt.com**

# From the **AMERICAS**

## Automotive

### Washington moves Detroit's auto parts makers from the radar screen into the receiving line

In a 9 March column (*'There's no time to waste in saving the auto industry'*), an exasperated Tom Walsh wrote in the Detroit Free Press:

*"Sorry to be abrupt with you, exalted members of President Barack Obama's auto task force, but there's no time for small talk.*

*"You people need to act quickly – like yesterday, if not sooner – to put forward a clear-cut plan.*

*"Just get on with it, so all the suppliers, dealers, engineers, welders, bond holders, and accountants whose fates are at stake can plan accordingly.*

*"This industry, the Detroit region, and the people in it are so spooked right now that they are almost past caring about exactly what you plan to do – whether it's to keep federal loans flowing, force General Motors and Chrysler into bankruptcy, merge them, or even nationalize the auto industry.*

*"Just get on with it."*

Days later, they did. On 19 March the Obama administration announced that it would offer as much as $5 billion in assistance to the parts manufacturers that supply the US auto industry.

For companies like Visteon Corp, Lear Corp, Dana Corp, and American Axle & Manufacturing Inc – all of whose fortunes are tied to those of the producers they serve – this was good news, if long overdue. To some, it came as a last-minute reprieve.

With US government efforts to aid the domestic auto industry centred on General Motors Corp and Chrysler LLC, parts makers captured the attention of Washington only comparatively recently. Even then, the interest expressed was sympathetic but somewhat academic in tone, any public discussion brief and imprecise.

Only on 16 March did a top-level adviser to President Barack Obama's automotive task force appear to take the suppliers fully into account.

In an interview with the Detroit Free Press, Steven Rattner said the panel acknowledged that the suppliers had been left to fend for themselves and that their financial stress was a *'very, very urgent'* issue.

Mr Rattner was a leading candidate for *'car czar'* in the new administration until Mr Obama decided instead to create the task force, under the Treasury secretary and a White House economic aide, to review $17.4 billion in federal loans to GM and Chrysler and their requests for billions more in aid. Suppliers had sought their own $18 billion in federal assistance through a variety of measures designed to boost short-term liquidity.

The $5 billion pledged by the administration is well short of the amount requested. But it is no less welcome for that. And the suppliers can know – at least, and at last – that someone in Washington takes notice of them.

› The argument for aid to the suppliers had been made often and forcibly. A week before the Freep interview with Mr Rattner, Joann Muller wrote in Forbes that a collapse of its supplier network would be just as devastating to the domestic auto industry as the failure of General Motors. She asserted outright that funnelling more money to GM and Chrysler to help them through the current downturn would be wasted unless the government also found a way to help these producers' parts suppliers (*'Detroit's other crisis,' 9* March).

As noted by Forbes, without help to the suppliers there could be a collapse of the US auto industry from the bottom, rather than from the top down. With credit markets all but frozen, bankrupt suppliers would find it hard to obtain debtor-in-possession financing to stay in business during bankruptcy reorganization. Many would be forced to liquidate.

Ms Muller wrote, *"That would put the car makers in a jam, because they can't easily get the missing parts from other suppliers. It can take up to a year to shift tooling and re-certify critical components. The result, analysts say: US vehicle production would grind to a halt. Even foreign-based manufacturers operating here, like Toyota, Honda, and BMW, would be stuck, because they use many of the same US suppliers."*

## The bookshelf

### Getting a firmer grip on metals costs in huge capital projects

A *'white paper'* available to registrants of the blog MetalMiner has a long title: *'Cost cutting ideas – reducing steel and related metal costs in major capital projects for oil & gas and petrochemical turnarounds'*. But it is succinct and persuasive. For anyone open to the thesis that careful monitoring of costs can benefit both buyers and sellers of metals on a large scale, it will reward the investment in reading time. Registration is free at www.agmetalminer.com.

The authors are Lisa Reisman and Stuart Burns, co-founders of Aptium Global Inc, a Chicago-based consultancy in metals sourcing and project management. Both have a background in trading metal products around the world. In summary, they assert that companies generate greater cost savings when they break out fabrication costs from the underlying metal costs and track both sets of data over time. Multiple strategies are recommended, and examples cited.

The last section, *'Conclusions and savings,'* is attention-getting, although the authors acknowledge that generalizations can be misleading. Savings will vary across product categories (pipes, heat exchangers, pumps) and volumes. The urgency of a particular requirement can also impact savings.

Nevertheless, write Ms Reisman and Mr Burns, *"We have seen savings,"* as follows:

- Steel tube 4-6 per cent
- Stainless tube 15-18 per cent (before surcharges)
- Flat rolled steel 9-11 per cent
- Flat rolled stainless 10-12 per cent (before surcharges)

Depending on the metal involved, *"more-processed and further-worked products typically,"* yield similar results:

- Castings savings 4-11 per cent
- Fabrication savings 7-17 per cent

## Oil and gas

### Massachusetts, with 7,900 miles of antiquated gas pipes in the ground, is calling for replacement

Statistically, explosions from gas leaks are very rare in the United States, where roughly 1.1 million miles of natural gas mains crisscross the country. According to federal data cited by Boston Globe staffer Keith O'Brien, such incidents are even less common in Massachusetts: 20 events and six deaths between 1998 and 2008. (Nationwide, over the past two decades, there were fewer than 90 incidents per year, and just over 15 fatalities annually). But several recent explosions have prompted state officials to review the 12 incidents recorded in Massachusetts since 2004.

Mr O'Brien supplies a context for the obvious questions: Is the state's underground network of pipes as safe as it should be? Are these terrifying events just part of the cost of a gas distribution system? Could utilities and state regulators be doing more?

He wrote, *"These blasts, killing three and injuring one, have served as a reminder of the dangers associated with the massive underground pipe system tunnelling beneath streets and delivering a flammable product to nearly 1.5 million customers in the state. The system's 21,000 miles of gas main would be nearly enough to travel around the circumference of the Earth. More than a third of the system relies on old, antiquated pipes."* (*'After the blasts, a cloud of questions,'* 15 March).

The recent rash of explosions is under investigation, and there is no evidence that poor oversight, shoddy maintenance, or aging infrastructure played a direct role. But the state tracks the number of old bare steel and cast-iron pipes in the ground and requires gas companies to have plans to phase them out.

According to company officials interviewed by Mr O'Brien, Bay State Gas Co launched a programme four years ago to replace 570 miles of old steel pipe by 2020. National Grid expects to replace up to 50 miles this year. And NStar has been replacing about 16 miles of old pipe per year, even though many old pipes are aging well. According to Thomas Hart, NStar's director of gas engineering, *"Some large-diameter cast iron pipes are still very thick and still performing very well. And there are studies that show they will still be performing well for decades."*

The Globe noted that Massachusetts, with eight state inspectors, has twice as many as required by federal guidelines. The most recent federal audit of the state Department of Public Utilities gave its pipeline safety team a nearly perfect score. And state regulations are often more stringent than federal standards, requiring thicker walls on some pipes and greater volumes of odour-inducing chemicals in the gas. Residents typically smell leaking gas long before it becomes a threat.

Even so, with 7,900 miles of antiquated gas pipes in the ground in Massachusetts, probably suspicions about the infrastructure are inevitable.

Federal corrosion control regulations enacted in 1970 stopped US gas companies from installing cast iron pipes, either initially or as replacements. Around the same time, Mr O'Brien pointed out, gas companies started moving away from bare steel pipes, as well. In their place came plastic pipes – more pliable in shifting soil – and cathodically protected coated steel pipes that carry a slight electrical charge for better corrosion resistance.

A comment by Charles Batten, a former chief of pipeline accident investigations for the National Transportation Safety Board, illustrates the trade-off between better and best in the matter of high-pressure natural gas transport through bare steel and cast-iron pipes.

*"It'd be nice to go through and rip out all the old pipes and put in new pipes,"* Mr Batten told the Globe. *"But that's not going to happen."*

## Petro-Canada and Suncor Energy, both active in the Canada oil sands, will join forces

A proposed merger of two of the largest operators in Canada's oil sands industry is of more than usual interest, even for an all-stock deal worth about $15 billion. The plan, announced 24 March, to combine the oil giants Petro-Canada and Suncor Energy would form a new company with a market capitalization of about C$43 billion (US$35 billion). It also would erase the last visible traces of former Prime Minister Pierre Elliot Trudeau's audacious programme of the 1960s for bringing Canada's energy resources under government control.

Petro-Canada, which earned C$3.8 billion (US$3.1 billion) last year, was in fact controlled by Ottawa until 1995. The company operates refineries and a nationwide chain of service stations. But its more significant presence is as an operator of conventional and oil sands production sites in Canada.

Also in 1995, Suncor, then a subsidiary of Sun Oil, was sold by its American owners and has become the third-largest oil and gas company in Canada. Suncor began investing in oil sands after World War II, and was the first company to produce synthetic crude oil from the sands deposits. While this extraction method is condemned by some environmental groups, oil sands technology has helped make Canada the largest supplier of crude oil to the United States.

The Petro-Canada component of Mr Trudeau's National Energy Program met with strong opposition in the province of Alberta, oil sands country and the centre of Canada's energy industry. Among other objectionable provisions, the idealistic – some said Utopian – prime minister assigned Petro-Canada a number of responsibilities that hampered its market performance.

Investors in Petro-Canada are now to have a delayed satisfaction. The merger with Suncor Energy is expected to save about $300 million a year. Richard L George, the president and chief executive

of Suncor, who will head up the new company, asserted at a news conference, *"This will truly be a flagship corporation, which will compete with the best in the world."*

Mr George also made reference to something that still rankles many Canadians: the leveraged buyouts that, in the period of rising markets, saw several of Canada's largest corporations pass into foreign control. He pointed out that the merger of Petro-Canada and Suncor Energy meant that two of the country's largest oil companies would not – unlike its steel industry and many of its largest mining companies – come under foreign ownership.

## Of related interest . . .

› US Interior Secretary Ken Salazar said on 25 February that he was scrapping leases for oil-shale development on federal land in Colorado, Utah, and Wyoming. His department had already, on 4 February, cancelled leases to drill for gas and oil on 77 parcels of public land in Utah.

The Utah leases, covering more than 100,000 acres, were put up for bidding in December during the waning days of the George W Bush administration. The auctions were among eleventh-hour actions taken by the Bush Interior Department that are under review by officials reporting to President Barack Obama.

The cancellations mean that the government will forfeit at least $6 million in bidders' fees. While Mr Salazar did not rule out future drilling on the lands if warranted by a feasibility study, environmental advocacy groups hailed the new thinking in the Interior Department.

But the Independent Petroleum Association of Mountain States expressed *'grave concerns'* over the direction of the new administration. Kathleen Sgamma, director of government affairs for the nonprofit association representing natural gas and oil producers in the Intermountain West, said, *"This is going to make it more difficult to develop the natural gas resources we need for our nation's energy security."*

## Pipelines

### Two competing projects for Alaska are scrutinized in light of the long-term prospects for natural gas

The lead-time for commissioning a new pipeline is so long – ten years, at conservative estimate – as almost to rule out conjecture about market conditions when the oil or gas is flowing. A decade out, what will customers be buying? What price will it command? Will the political leadership of that time be friend or foe to the industry?

The emphasis placed by US President Barack Obama on cleaner fuels does nothing to mitigate the uncertainties of any major pipeline project. It does invite attention to two pipelines under consideration for the state of Alaska, only one of which is likely to be built. The

projects have roughly equivalent time-lines for completion. Both rest on hopes of a bright future for natural gas.

A company formed by ConocoPhillips (Houston, Texas) and Britain's BP Plc is proceeding without incentives from Alaska. By the attenuated standards of pipeline building, the plans for its Denali project are well advanced. TransCanada Corp won an exclusive state license to build a pipeline under the Alaska Gasline Inducement Act (AGIA), and with it up to $500 million in state incentives for its $30 billion project. The Canadian company has met with rougher going.

## The Denali project

› A ConocoPhillips executive said at the company's analyst meeting 11 March, in New York, that his company and partner BP expect to begin accepting bids next year for gas transportation along their pipeline. The plan is to bring Denali into service by 2019, said Ryan Lance, the company's president of exploration and production for Europe, Asia, Africa, and the Middle East (Dow Jones Newswires, 11 March).

BP and ConocoPhillips are third- and fifth-largest, respectively, among the six *'supermajor'* private-sector energy corporations worldwide. They envision a 2,000-mile pipeline that would bring 2 billion cubic feet of gas a day, or 6-8 per cent of total US daily consumption, from Alaska's North Slope to the Canadian province of Alberta. A 1,500-mile pipeline extension, from Alberta to Chicago, is also being considered.

› The competing TransCanada proposal is for an expansion of the company's Keystone pipeline system to serve existing natural gas refineries and markets on the US Gulf Coast. The 1,900-mile, 36" crude oil line would originate in Alberta and extend southeast to a final delivery point in Texas.

On 12 March, two Alaska legislators introduced a resolution that would call on the administration of Governor Sarah Palin to revisit the generous financial terms awarded Calgary-based TransCanada last year. On 18 March it was reported in the Chicago Tribune that Alaska state lawmakers received *"mixed messages"* at an energy conference in Washington DC, where the merits of Governor Palin's hallmark project were examined.

The strongly pipeline-minded governor, who also favours an in-state small-diameter line to deliver North Slope natural gas to urban Alaska markets, defended the TransCanada deal in advance of the first hearing on the reevaluation measure.

As reported by Anne Sutton on chicagotribune.com, state Republican Jay Ramras, co-sponsor of the resolution asking for a review, answered the governor's defence by citing a *'plate tectonics shift'* under way in the energy world. In this view, the global recession, together with the exploitation of new sources of natural gas, are creating surpluses in the Lower 48 (states of the US) that could depress prices for years to come. *"Only a government is capable of going on autopilot and staying put,"* Mr Ramras said. *"In the private sector, we revisit."*

**Dorothy Fabian**, Features Editor (USA)

## Coming to *Tube & Pipe Technology* in July: 'Global Marketplace'

Beginning with the next issue of *Tube & Pipe Technology*, *'From the Americas'* will have a new name and a new, broader field of interest. In acknowledgment of the wider perspective that has, in fact, informed this column for a while now, it is to become *'Global Marketplace'*.

*Tube & Pipe Technology* has readers in over 100 countries of the world. Acknowledgment of the concerns of that extended public is essential for intelligent analysis of the crucial issues facing our global industry in exceptionally challenging times.

This will be the third re-naming since the inauguration of *'A steel view of America'*, some 18 years ago, by Intras founder John C Hogg. At intervals, his insistence on topicality widened the coverage: first, from steel to the USA at large; then, from heavy metals to the surrounding industrial sector; still later, to the entire matrix, not excluding the political, within which tube and pipe makers conduct business.

At the most recent re-branding, as *'From the Americas'*, Mr Hogg had only one instruction for the proprietor of the column. It was characteristically brief: *"Don't let the USA be the whole show."*

Even with the most diligent monitoring of the news from Hudson Bay to Tierra del Fuego, compliance with this directive was not so easy. The US generated most of the copy; resistance was futile. But Mr Hogg, whose singular gift was to recognize trends before they became shifts, was ahead of his time. Now, of course, the USA is not *"the whole show."*

As this is being written, President Barack Obama is preparing to leave Washington for London and the *'crisis summit'* of the Group of 20 major economies. While there is nothing new about such gatherings on Olympus, there is something very new about the preparations for it made by this president. Since he took office on 20 January, he has been calling world leaders almost daily. He discussed his trip and the global economic crisis with British, French, and German leaders, among others.

The White House has promised a series of one-on-one conversations with the leaders of Turkey, Spain, Saudi Arabia, South Korea, China, India, and Britain. In Istanbul, he is expected to hold a global, video-based town hall meeting that will allow students from across Europe and Asia to ask questions.

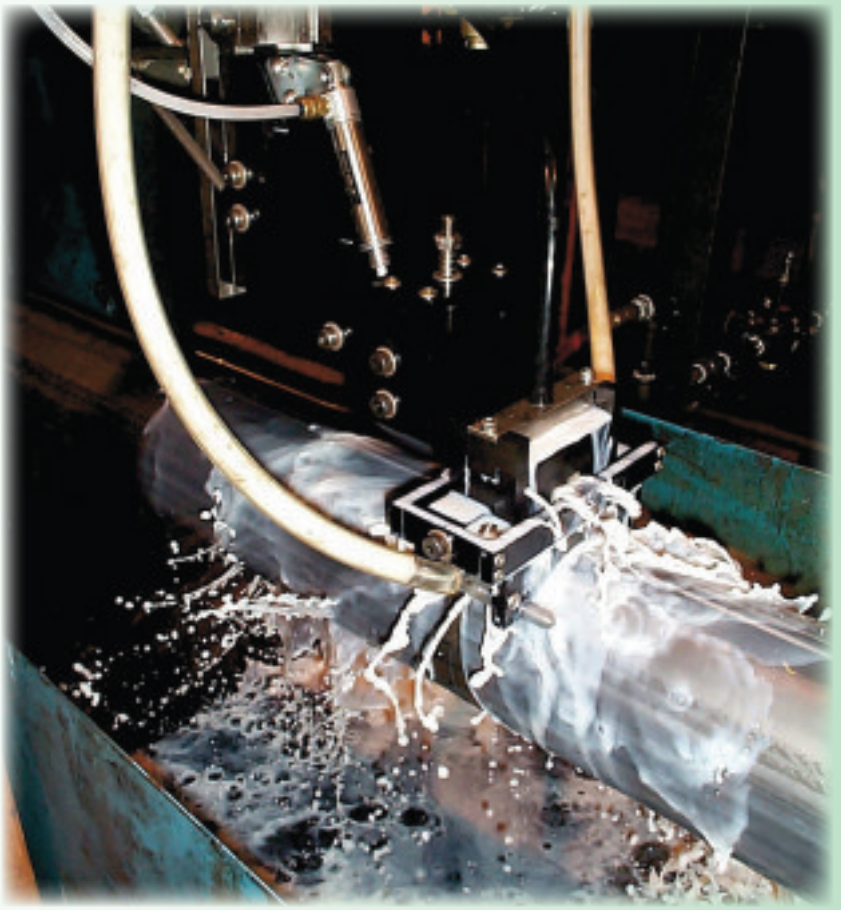
Developing nations will be exerting greater influence from now on, not least on the Washington-based International Monetary Fund. For the first time, emerging giants China, Brazil, Russia, India, and Mexico are believed to be planning major financial contributions, which would grant them more of a voice in how the IMF conducts global economic affairs. China is poised to produce the biggest gift, pledging an estimated $50 billion. That will buy a very big megaphone indeed.

In his call for a new approach to reviving the global economy through government spending, tougher regulation of financial institutions, and an embrace of free trade, Mr Obama will be one among many leaders of a changed world – and he knows it. The latest re-naming and reorientation of *'From the Americas'* reflects this global awareness.

# Inspection, Measuring, Testing & Marking

*"Without measurement there is no control,"* asserts the website of Particle Measuring Systems, a supplier of equipment for monitoring and qualifying contaminants.

Just as plausibly might the company serve notice that there is also no control without inspection, testing, and marking. The four stand or fall together, with faulty execution of any of them cancelling out excellence in the others.



*The ultrasonic weld profile visualisation system, from GE Sensing & Inspection Technologies, is based on phased array technology (see page 94)*

Zero tolerance is very much a working ideal in the tube making operation, and sound methods of inspection, measuring, testing, and marking are critical to process control. These are the certification specialities, without which it would be impossible for the manufacturer to guarantee that product delivery from the plant may be accepted with confidence.

*The WeldRover™ automated scanner for NDT testing (NDT) on pipe (see page 109)*

In statistics, an error is not a *'mistake'*. In tube making it is. The specialities under review here ensure that, in the critical transaction between producer and customer, error has no part.

## Comprehensive mill inspection in a single pass

Tuboscope, USA, is a leading supplier of tubular inspection services and equipment for the petroleum and pipe manufacturing industry. This range includes the efficient and effective Amalog® and Sonoscope® electromagnetic inspection (EMI) technologies. In addition, the Truscope®, TruWall® and TruScan® ultrasonic (UT) inspection systems are claimed to be faster than competitive systems.

The company's mill inspection equipment is capable of operating at high testing speeds and can be custom-designed to production line requirements. The machines can inspect tubulars as rapidly as they are fabricated.

The Truscope A/S© (Amalog-Sonoscope) is an inspection system that combines non-destructive techniques of EMI (electro-magnetic induction) and UT (ultrasonic) principles. This technology is used to detect, evaluate and classify transverse and longitudinal, internal and external flaws, together with wall thickness variations and laminations. This is undertaken in a single pass of the pipe through the system.

The Truscope A/S system provides full-body inspection across a large range of pipe diameters. These pipes can be seamless or ERW and manufactured from ferrous or non-ferrous alloy materials. They can also have a variety of end conditions – saw-cut or cropped; plain-end; threaded; coupled; and upset or non-upset.

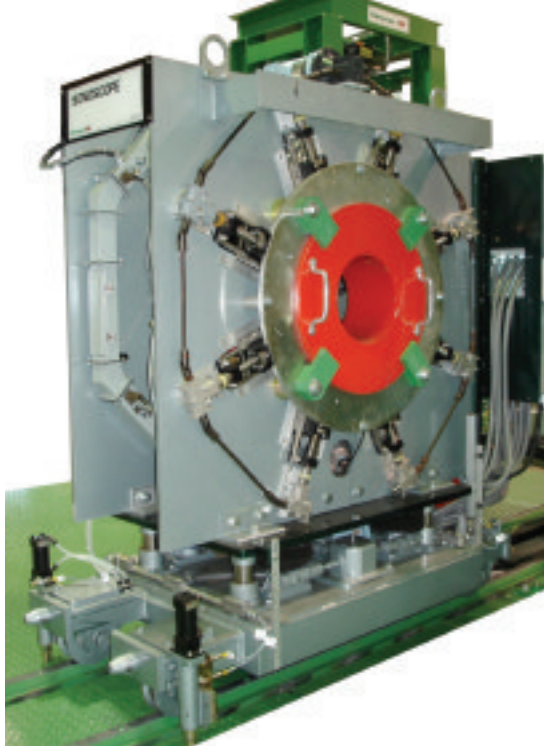
With its combination of EMI (Amalog and Sonoscope) and UT (Truscope) techniques, the Truscope A/S satisfies the latest editions of API 5CT, 5L, and 5D. It also meets numerous other international specifications for non-destructive inspection of tubular products for the energy industry.

The inspection system is composed of two main sections – the inspection platform and the computerized inspection electronics. Placed within a pipe conveyor line, the pipes are advanced to the inspection platform. Mounted on this platform are pinch rolls that contain the pipe and provide the driving power to move it at a constant speed though the three individual inspection heads, or positioners.

The testing sequence is first the Sonoscope, followed by the Amalog and ending with the Truscope. All three positioners are mounted on track roller systems to allow movement in or out the conveyor line for pipe size changeover or maintenance.

Pipe to be inspected is first conveyed through the Sonoscope inspection unit, where a high-strength active magnetic field – oriented longitudinally – is introduced into the pipe. With the entering pipe end, a multi-number of stationary detector assemblies, or 'shoes', are brought into contact with the outside diameter pipe surface. Flaws such as transversely-oriented cracks, rolled-in slugs and pits are detected by this inspection method.

*The inspection platform*



*The Sonoscope inspection unit*

The pipe is next conveyed through the Amalog inspection unit. The Amalog inspection unit is equipped with a dual-shoe detection system integrated into a rotating magnetizer assembly. As the pipe enters the Amalog inspection unit, a high-strength active magnetic flux field, circumferentially oriented, is introduced into the pipe.

The rotating detector shoes then scan the outside surface area of the pipe circumferentially in a helical path. Flaws such as longitudinally oriented seams, cracks, and overlaps are detected by this inspection method.

The pipe is then conveyed through the Truscope inspection unit, which identifies internal and external flaws and wall thickness variations by utilizing ultrasonic sound waves coupled to the pipe surface by water. As with the Amalog, the Truscope is equipped with a multiple-shoe detection system.

As the pipe enters the rotating assembly, water is applied to the outside pipe surface to provide the acoustic coupling required for ultrasonic inspection. The detector shoes are then brought into contact with the outside pipe surface to scan it circumferentially in a helical path.

The Truscope can be configured to detect longitudinal, transverse and oblique defect orientations, and out of tolerance wall thickness variations and laminations. Pipe defect indications are transmitted from the inspection platform to the computerized inspection electronics for software analysis.

**Tuboscope** – USA
**Fax**: +1 713 799 5452
**Email**: mmason@varco.com
**Website**: www.varco.com

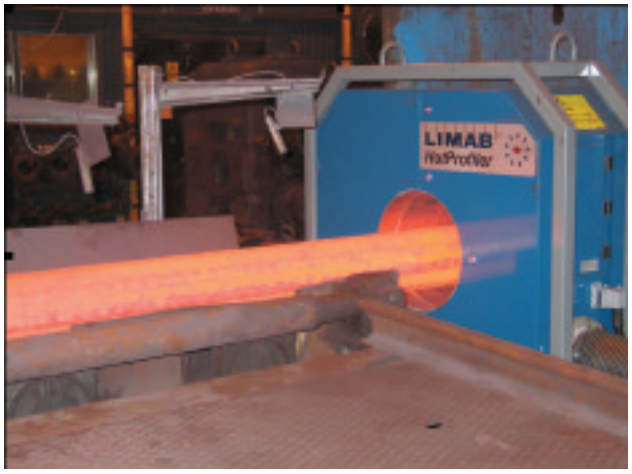


## Inline profile measurement of hot and cold tube

Limab, Sweden, is the manufacturer of diameter, ovality, thickness, length and width measurement systems based on non-contact laser technology. Established in 1979, the company is a pioneer in the non-contact laser based industry.

The new Limab TubeProfiler is designed for inline profile measurements of hot and cold tubes in different shapes. The system easily measures round, square, hexagonal, or any other type of tubes. The unique measuring design uses distance sensors mounted around the tube. This means it can detect any type of shape error that may occur during production.

*The TubeProfiler measurement system*




All measured dimensions are processed and displayed in the operator software. The results are shown as real time numbers, trend graphs and in 2D and 3D graphs for easy viewing. The system outputs key dimensions and an alarm signals if any of the tolerance or warning limits are exceeded.

It is easy to view the database, which provides an excellent source of production data for long term monitoring and process improvements. The TubeProfiler is easy to install into an existing line. With built-in lifting hooks and quick-change electrical connectors, the system is designed for easy relocation to different parts of the mill.

Limab also offers its renowned remote supervision support and worldwide support team to actively help improve production on a long-term basis.

The advantage of non-contact laser technology is that measurement can be undertaken on almost any type of surface (eg hard or soft, black or white, rough or smooth, hot or cold). Lasers also ensure there is no damage or scuff marking to the measured surface.

The heart of the system is the laser sensor itself that has no moving parts for zero maintenance. The sensors are completely sealed with a digital processor inside. It is capable of withstanding hot and dirty industrial environments.

**Limab** – Sweden
**Fax**: +46 31 58 33 88
**Email**: lennart.jacobsson@limab.se
**Website**: www.limab.com

## Hydrostatic and pneumatic testing systems

Be Ca Engineering Soc Coop, Italy, is a specialist manufacturer of hydrostatic and pneumatic testing systems for straight or bent tube and pipe. These systems are designed to meet industry standards and specifications such as ASTM, UNI, ISO and TEMA.

Hydrostatic and pneumatic testing systems are usually required to inspect the tube or pipe after manufacturing, processing and tooling. The hydrostatic test is carried out using pressure differential method.

The standard operation is semi-automatic: the regulation of the system is provided off-line by the operator; the loading and the unloading of the tube or the pipe are manual; the execution of the hydrostatic test is automatic. It is also possible to supply fully automatic systems.

*Be Ca Engineering manufactures hydrostatic and pneumatic testing systems*


The hydrostatic pressure is regulated by the operator up to 500 bar (about 7,200 psi), and this can be increased on request.

The same system is able to manufacture bimetallic tubes or pipes (patent pending). The bimetallic tube or pipe offers a technical and economical solution for the production of heat exchangers or plants with high stress and corrosive conditions.

The pneumatic test is carried out using two methods: tube or pipe with internal air pressure under water or pressure differential method. The standard operation is semi-automatic, but fully automatic systems can also be supplied. The pneumatic pressure is regulated by the operator up to 20 bar (about 300 psi), and this can also be increased on request.

Both systems are flexible, and it is possible to test different diameter sizes and lengths of tube on the same system. The automatic control of the pressure and the brief operating time make the testing operation fast and easy to conduct.

In addition to offering turnkey solutions for tube and pipe applications, Be Ca Engineering provides services including installation, training and setup of the machines and systems all over the world.

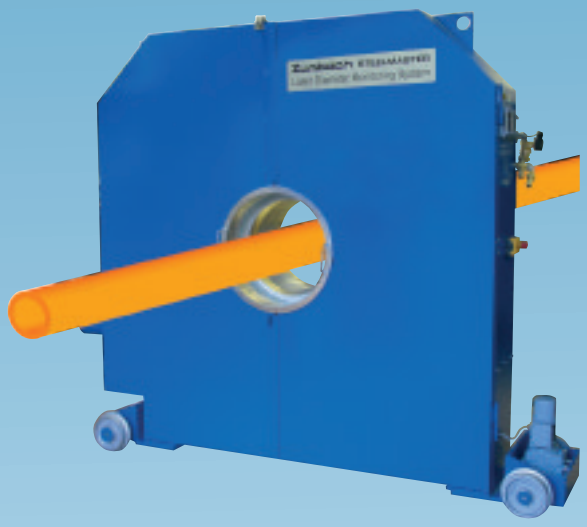
**Be Ca Engineering Soc Coop** – Italy
**Fax**: +39 348 1796778
**Email**: postmaster@beca-engineering.com
**Website**: www.beca-engineering.com

# In-Line Diameter and Shape Control

## For all Types of Pipe, Tube, Profile – Any Shape

### STEELMASTER gauges for hot and cold processes

**Hi-speed laser scanning. Measurement of diameter, ovality, height, width and diagonals.**



Possible measuring modes

| | |
|---|---|
| Standard measuring ranges: | 60, 100, 150, 300, 500 mm* (2.4, 4, 6, 12, 20 in.) |
| No. of measuring axes: | 1...6 |
| Measuring frequency: | 1000/s for each axis |
| Typical accuracy: | +/- 0.005 ... +/- 0.1 mm (+/- .0004 ... .002 in.) |

*Largest product depending on centering

**New!**

**FPS Method (pat.pend.). Novel measuring method with Full Profile Synthesis. Captures also asymmetrical shape deviations of round, oval and polygonal products.**

### PROFILEMASTER® gauges for cold processes

**Advanced vision technology (light-section). For any tube and profile of any shape and material. Full profile contour measurement. Profile and critical dimensions, radii and angles can be programmed (teach-in) and monitored.**

Any shape

| | |
|---|---|
| Standard measuring range: | 25, 140, 300 mm* (1, 5.5, 12 in.) |
| No. of cameras: | 1...6 (standard 4) |
| Measurable parameters: | length, width, height, diameter, radii, angles |
| Typical accuracy: | +/- 0.01 ... 0.05 mm (+/- .0004 ... .002 in.) |

*Largest product depending on centering


**Worldwide Zumbach Customer Service and Sales Offices in:**

**Switzerland (H.Q.):** Tel. +41 (0)32 356 04 00, E-mail: sales@zumbach.ch
**Argentina:** Tel. +54 (0)11 4701 0774, E-mail: ventas@zumar.com.ar
**Belgium:** Tel. +32 (0)2 478 16 88, E-mail: zumlux@skynet.be
**Brazil:** Tel. +55 (0)19 3849 5008, E-mail: vendas@zumbach.com.br
**China:** Tel. +86 (0)21 542 60 443, E-mail: office@zumbach.com.cn
**France:** Tel. +33 (0)1 64 24 46 31, E-mail: ventes@zumbach.com.fr
**Germany:** Tel. +49 (0)2238 8099-0, E-mail: verkauf@zumbach.de
**India:** Tel. +91 20 3048 4801, E-mail: joseph@zumbachindia.com
**Italy:** Tel. +39 0332 870 102, E-mail: zumit@zumbach.it
**Spain:** Tel. +34 93 666 93 61, E-mail: gestion@zumbach.es
**Taiwan:** Tel. +886 2 2630 5530, E-mail: zumfareast@giga.net.tw
**UK:** Tel. +44 (0)870 774 3301, E-mail: sales@zumbach.co.uk
**USA:** Tel. +1 914 241 7080, E-mail: sales@zumbach.com


**www.zumbach.com**

Zumbach

We Measure Quality



## Comprehensive test systems for automotive and OCTG tube

Magnetic Analysis Corp (MAC), USA, provides complex eddy current, flux leakage, and ultrasonic, multitest systems. With over 80 years of experience, MAC's technology incorporates test methods for magnetic and non-magnetic metal tube, bar, wire, plate and parts during online or offline manufacture.

Automotive pipe and parts as well as oil country tubular goods (OCTG) can be inspected using MAC's exclusive and advanced NDT inspection systems. The company offers eddy current systems to detect short surface, subsurface, OD/ID cracks, and weldline defects, including short transverse discontinuities.

MAC also provides ultrasonic systems for material defects such as longitudinal and transverse cracks, inclusions, ID/OD and dimensional changes such as wall thickness, eccentricity and ovality. Flux leakage systems are also available to detect longitudinal and transverse defects on the OD and ID, along with wall defects.

MAC has recently installed a large ultrasonic (UT) inspection system at a European tube mill that is designed for an offline test of ERW carbon steel and other automotive tube. This system has an inlet and outlet conveyor for tube handling, together with an automated constant centre triple guide roll bench system.

The 'Conductor' control system operates all functions of the line to allow for changes in diameter, end suppression, handling and sorting, plus data acquisition and network accessibility with remote viewing.

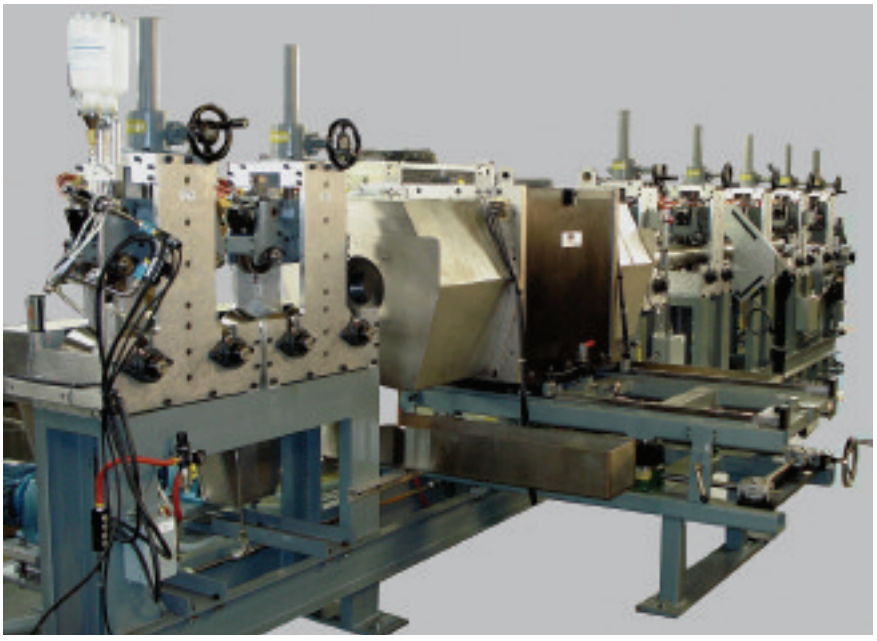
This system was custom designed to include 7 channels of Echomac® FD-4 ultrasonic electronics with a 75mm UT rotary test head to inspect Ø 12.7mm to 76.2mm pipe.

Four shear wave channels are included to detect surface and subsurface defects to normal industry specifications such as API. Three compression wave channels are used for delamination detection, and ID/OD diameter and wall thickness measurements.

Other MAC ultrasonic systems have recently accommodated material diameter sizes from 6.35mm to 220mm with electronics up to 32 channels in a single chassis.

MAC's eddy current test systems – such as the Multimac®, Minimac®, or MAC400 – can inspect automotive pipe for surface, subsurface, OD/ID cracks, and weldline defects, including short transverse discontinuities.

*The multi test 220mm Echomac® ultrasonic and Rotoflux® flux leakage test system is used to detect transverse and longitudinal defects in OCTG tube up to 193.68mm diameter with wall thickness from 4mm to 25mm*



The Varimac® eddy current comparator and production comparator can be used to check alloy, heat treat or hardness in tube, It can also be used to sort parts such as fasteners, bearings, pistons, strut rods, and similar parts. MAC systems can also incorporate a laser gauge where only the outside diameter of the tube is a concern.

*A 180mm Echomac ultrasonic inspection system to inspect hot rolled, seamless carbon steel tube using 16 test channels to detect longitudinal and transverse flaws and lamination*

For heavy wall magnetic OCTG such as linepipe and casing, MAC's Rotoflux® flux leakage inspection system provides precise detection of longitudinal and transverse calibration notches or defects on the OD and ID. These defects might include rolling skins, laps, cracks, laminations, cavities, and defects within the wall, along with drilled holes specified for calibration. The Rotoflux can handle diameters up to 406mm.

Several recent OCTG systems installed in Europe and Asia have included MAC's 220mm Rotoflux transverse and longitudinal flux leakage systems, demagnetizers, and Echomac UT (180mm or 220mm) to detect defects and measure wall thickness.

Mechanical handling and feed systems include articulating roll feeds or inlet and outlet conveyors. These are composed of driven V-rolls that feed the tube through a constant centre triple guide bench and transport the tube into accept or reject pockets.

Some of the materials being tested include heavy wall, hot rolled, straight or upset pipe and low-alloyed carbon steel, and seamless tube with wall thickness up to 25mm. Automatic markers and a conductor control panel complete the systems.

**Magnetic Analysis Corporation** – USA
**Fax**: +1 914 699 9837
**Email**: jgould@mac-ndt.com
**Website**: www.mac-ndt.com


# Look beyond the surface.

## TUBULAR INSPECTION AND MAINTENANCE SERVICES

- Mill Equipment Sales and Service
- New and Used Pipe Services
- Drill Pipe Services
- Line Pipe Services
- Hardbanding Services
- Machine Services
- 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**



**www.nov.com**

Tuboscope® NOV



## Robotized laser measurement system compliant with API

LAP GmbH, Germany, has introduced a new, robotized laser measurement system that provides 100 per cent quality control of tube end dimensions compliant with API requirements. This system enables precise measured data for each individual tube in the finishing shop and during tube inspection.

Tube end rectangularity and welding bevel measurements can be included as optional features. Inline measurement by laser triangulation sensors dispenses with the manual offline random checks, which were common in the past.

*With the new RDMS-40, LAP has completed the range of measurement systems for the dimensional measurement of wire rod, tube and bar*

The measurement system is designed for tube diameters from 168mm to 1,500mm. The accuracy of the diameter measurement is between 0.1mm and 0.3mm depending on the measurement range.

The company has also developed Calix, a new laser-based thickness sensor that measures strip thickness inline. The Calix system carries out measurements independently of the material properties.

For the user this often means that it is unnecessary to input material parameters and maintain the material data in a database, as required by radiometric gauge measurements.

In addition, there is no handling of radioactive material.

Due to its novel design, Calix requires no calibration onsite, either when it is first installed or during operation. Even optically challenging surfaces like black varnished, glossy sheet can be measured by Calix with accuracies better than ±5µm under production conditions.

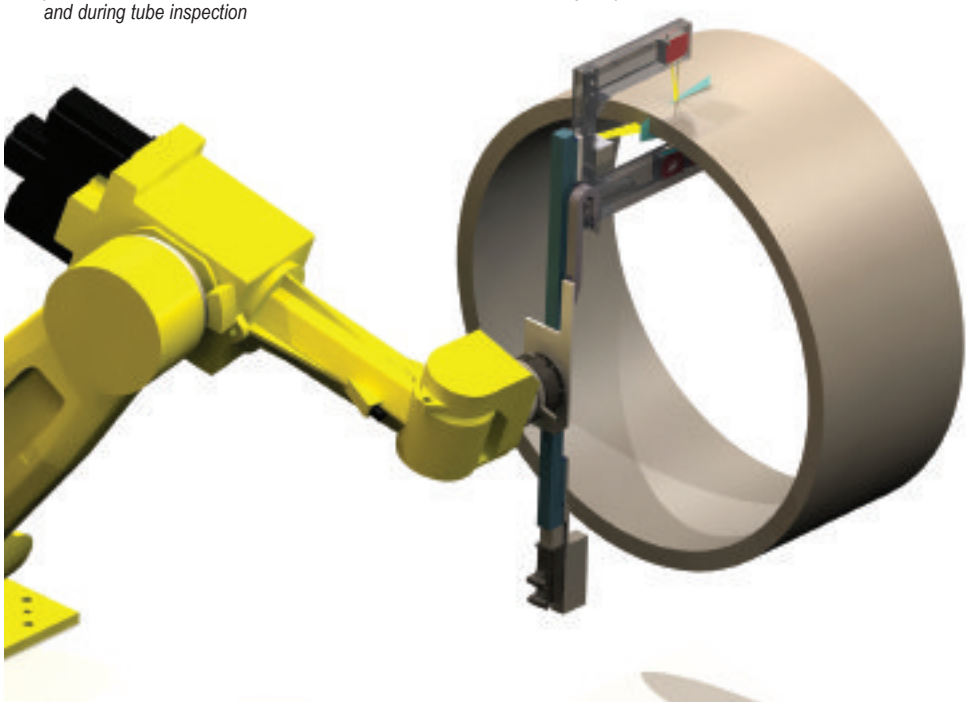
The system is highly compact: it is no longer necessary to design complex measuring bridges. All it needs is the single compact, easy to install C-frame, which can simply be traversed across the width of the material.

The new RDMS-40 profile measuring system for inline profile measurements has been specially developed for wire rod mills operating at speeds of up to 150m/s. It rounds off LAP's range of measurement systems for long products.

Using the novel series of Metis laser micrometers designed by LAP, the company now offers measurement solutions for all diameters between a few millimetres and more than one metre.

**LAP GmbH** – Germany
**Fax**: +49 4131 951196
**Email**: info@lap-laser.com
**Website**: www.lap-laser.com

*With the new laser based system it is possible for the first time to have precise measured data at hand for each individual tube in the finishing shop and during tube inspection*



# olimpia80

## ENGINEERING

Stainless steel tube mill with LASER welding system and complete with vertical strip accumulator - max. production speed 20 m/min

Tube mill for production of stainless steel H.F. welded exhaust tubes - max. production speed 120 m/min

# TUBE MILLS

Stainless steel tube mill with TIG-PLASMA-TIG welding system for production of thick wall tubes bead rolled (33.7 mm O.D. x 4.6 mm wall)

**OLIMPIA 80 s.r.l. Engineering**

ZONA INDUSTRIALE: Cà Verde - 29011 BORGONOVO V.T. (PC) - Italy - Tel. +39 0523 86.26.14 / 86.28.80 - Fax +39 0523 86.45.84

olimpia@olimpia80.com • www.olimpia80.com



## Effective handling and ultrasonic testing of oil and gas pipe

Haven Manufacturing Corporation, USA, has expanded its material handling and systems control knowledge into the oil and gas pipe testing market. The company is a worldwide leader in integrated tube processing systems.

In cooperation with a leading non-destructive test company, Haven has designed a gantry and rail system that supports a full body phased array ultrasonic tester. The capacity of this system is from 64-535mm diameter and up to 15m long.

*An ultrasonic tester using Haven's gantry and rail system*

A walking beam transfer device positions the pipe in the test station, while simultaneously removing a tested pipe. In the testing station, the pipe is rotated at a controlled rpm to match the specified linear speed of the ultrasonic tester carriage.

Multiple servo drives control the test cycle synchronization, while manipulation of up to 11,000kg of pipe at one time requires both precision and robust construction.

Haven's reputation for dependable design and superior quality has been transformed from its standard tube cutting and tube finishing products to an industry that demands ultra-reliable performance.

In addition, the company has also been involved with pipe end-to-end manipulation for ultrasonic testing.

**Haven Manufacturing Corporation** – USA
**Fax**: +1 912 264 9001
**Email**: sales@havencut.com
**Website**: www.havencut.com



## Automated non-destructive testing systems

NDT Technologies Inc, Canada, is the manufacturer of a range of automated non-destructive testing systems, precision measuring and material handling. The company has launched a new device for offline detection of internal and external flaws in automotive engine cylinder liners.

The system uses the eddy current flaw detection method for the detection of micro-cracks, surface imperfections and sub-surface flaws. Defective parts are diverted to the reject chute. Typical test cycle in production factory is less than 15 seconds.

NDT Technologies has also introduced an automotive hollow shaft flaw detector. The Eddytron TM is designed to inspect aluminium steering column casting for internal surface flaws in the body, and in the hydraulic seal seat chamber.

The casting is used for power steering applications in automotive industry. Due to the operational importance and highly complex geometric shape of the cast part, stringent quality control parameters need to be implemented. The system provides electronic evaluation of changes in eddy currents (due to imperfections) that are present on material surfaces.

The method is sensitive to changes in distance between the probe and the material, requiring a high level of manufacturing precision on the probe guidance system. Flaws as small as 0.2mm deep can be detected.

In order to achieve test consistency, the system is supplied with calibration specimens that contain artificial flaws of known dimensions. The calibration specimens are used to set the test base line sensitivity.

**NDT Technologies Inc** – Canada
**Fax**: +1 514 457 7652
**Email**: info@ndt.ca • **Website**: www.ndt.ca

## Eddy current and ultrasonic inspection for tubes

Contrôle Mesure Systèmes (CMS), France, is a leading manufacturer of NDT equipment including inline and offline eddy current and ultrasonic inspection for tube, bar and plate.

To ensure detection of all possible defects, CMS technology encompasses a range of complementary inspection techniques. Eddy current anti mix is employed to verify the steel grade and avoid mixing. In addition, equipment is available to test using eddy current by rotation, in order to detect longitudinal defects. Eddy current testing is also available to detect transversal defects by encircling coil.

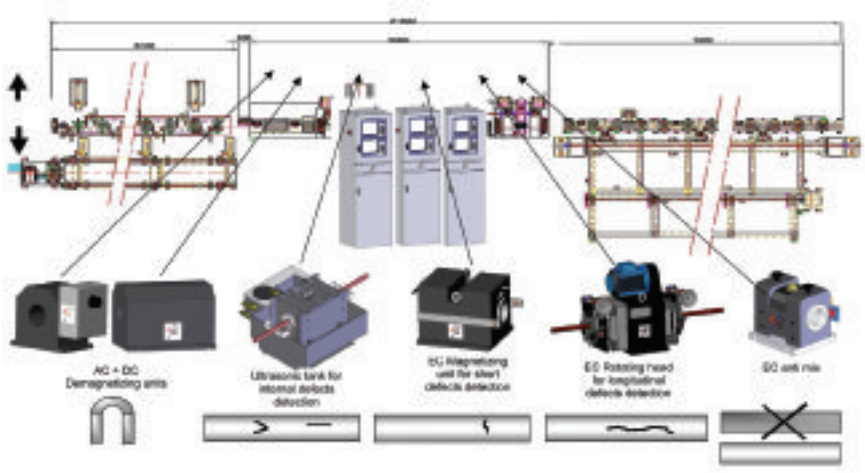
Ultrasonic inspection is used for the detection of internal defects using several transducers dedicated to different types of defect with different orientation, delamination, inclusion, and chevrons. Inspection is usually undertaken by local immersion. Demagnetizing units are employed to remove remnant magnetic fields.

A series of markers (eg paint, spray or saw) are used to indicate the position of detected defects. A computerized system is employed to drive different NDT equipment, communicate with the PLC of the line and give an NDT report for each product in a batch.

Automatic settings of mechanical parts (table, pinch rolls, centring devices etc) are designed to support NDT elements.

This configuration can be modified using variants like flux leakage, weld inspection, and thickness measurement. The settings are dependant upon the product characteristics and normative values. However, inspection can work according to any production speed.

*Eddy current and ultrasonic inspection of tube and bar*



**Contrôle Mesure Systèmes** – France
**Fax**: +33 385 94 14 15
**Email**: contactcms@cmseddyscan.com
**Website**: www.cmseddyscan.com



## Ultrasonic inspection systems for tube

Tac Technical Instrument Corp, USA, is the manufacturer of the TacTic™ line of ultrasonic inspection systems for bars, billets and tubes. These systems are used for end-use applications in the making of precision parts for critical applications.

This equipment, which has been on the international market for over 40 years, is used to test material of round, rectangular or hexagonal cross section. System configurations are designed to meet the requirements for high-volume, semi-automatic production tests or for lower quantity manual operation.

The company also provides ultrasonic inspection services in its commercial test laboratory for the same material types, with reference block certifications and transducer profiling.

In addition, the company performs ultrasonic instrument calibration either in its lab or at the customer's plant. Typical ASTM standards are accommodated, including A450/A450M, E127, E213, E273, E314, E317, E1001, E1065, and E2375.

The systems provide material handling and transducer positioning apparatus and utilize flaw detection instruments manufactured by a number of companies. These are connected to the company's specialized instruments to accomplish such functions as automatic stopping on, marking, or sorting of defect indications when required.

*A TacTic™ ultrasonic inspection system*

**Tac Technical Instrument Corp** – USA
**Fax**: +1 609 882 3147
**Email**: tactictest@aol.com
**Website**: www.tactictest.com


## EASIER THAN YOU MAY THINK.

The answer to any request in terms of
sheet metal, pipe and section bar punching is close at hand.

If you think it's hard to find, ask BS:

for over 40 years we have been designing tailor-made systems,
so as to meet the most diverse requirements.

Companies the world over, operating in all sorts of industries, can confirm that
**with BS the answer is close at hand.**

*automatic pipe punching machine*

**PUNCHING SYSTEMS** • VIA A.DIAZ 80/B • 21044 CAVARIA (VA) • TEL. +39.0331.217704 • FAX+39. 0331.216107 • info@bssistemi.it • **www.bssistemi.it** •

## Process variation monitoring (PVM) in mandrel bending

Unseen, unknown, and unresolved process issues in mandrel bending lead to premature tool wear, unexpected equipment damage, and costly downtime. Even worse, undetected mandrel faults or poor quality parts can be produced and shipped without any realization of a quality issue. Current QA practices may not be adequate.

Detection of a broken mandrel link is critical, so manufacturers try to have some system in place to verify the presence of the intact mandrel. However, even when these systems are successful in detecting a broken mandrel, they do nothing to alert the operator ahead of time of a process change that could result in either a broken mandrel link, or the production of poor quality parts.

A different approach to quality is to use an in-process monitor to capture the 'signature' of the process. It is then possible to compare the signature of each production cycle with a reference of known good parts as a way to monitor the manufacturing process. This is known as process variation monitoring, or PVM.

The fundamental theory behind PVM is simple: if a process (including inputs, force, and tooling) is known to be capable of producing only good parts, and the process is consistent and repeatable, then the output of good parts should also be consistent.

If any of these process variables change, such as raw material (ie thickness, hardness), lubrication, tooling condition, and even machine condition (bearings, clutches, setup, etc), the resultant signature will change. An effective PVM system detects the change and provides an alert.

Process variation monitoring represents a necessary practice to detect broken mandrel links or deteriorating quality issues such as loss of lubrication, galling, tube slippage, out-of-spec material, or a change in material hardness that can lead to breaks. The simple benefits include reduced scrap and increased revenues, elimination of unnecessary downtime, and avoidance of repair.

Some vehicle manufacturers have specified that an objective system be utilized to 'see' that the mandrel assembly remains intact, leading some manufacturers to focus attention on the mandrel with vision detection or complicated mechanical devices.

Initiating an effective monitoring system requires examination of the entire process

*Figure 1 – Loss of lubrication*

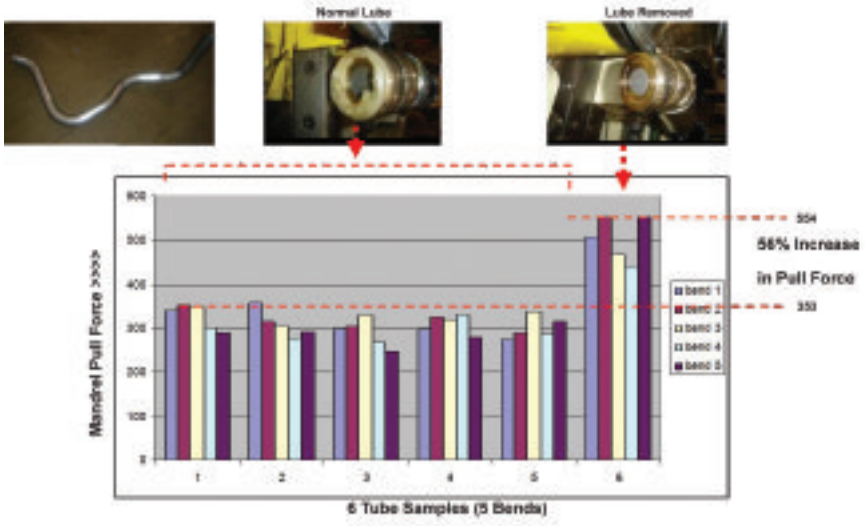
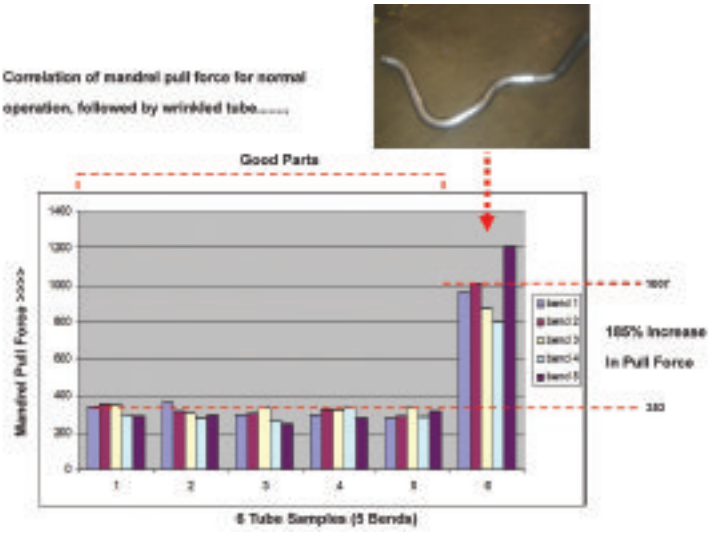





*Figure 2 – Misalignment of the setup*



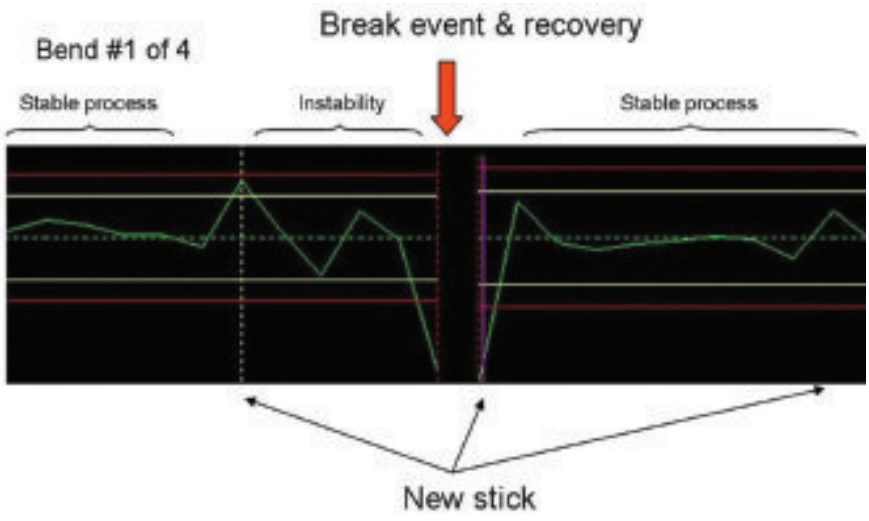



*Figure 3 – A production log file from the monitor indicating a mandrel fault*

in order to find the true 'pulse' of the process, which in mandrel bending exhaust tubing is detection of the pull force during the bend cycle.

Strategic placement of a piezoelectric sensor captures representative force feedback while remaining completely clear of the business end of the machine. Figures 1 and 2 show the pull force captured during normal operation and then when a typical process variance was induced to demonstrate the effect on the force involved; there is loss of lubrication (figure 1) and misalignment in the setup (figure 2).

An effective process variation monitoring system comprises 3 elements: a sensor, an intelligent control module and a user interface. The PVM2000-MB™ mandrel bend monitor from OES utilizes a piezoelectric strain sensor mounted on the mandrel rod housing. This provides input to the control module in the electrical cabinet connected to a touchscreen for the operator interface.

The control module analyzes the relative pull forces on each production bend cycle relative to a learned reference and programmable tolerances, displaying the results on the operator touchscreen. If a bend is within tolerance it passes and the process continues. If it is outside of tolerance the process variance is indicated and the process can be interrupted as required.

The PVM bend monitor will catch a broken mandrel due to sudden excessive tension or as a result of a fatigue break. Stopping the process when a mandrel fault occurs allows removal of the defective part, and prevents production of additional scrap material or possible collateral damage to equipment. Figure 3 shows a production log file from the monitor indicating a mandrel fault during the first bend in a four bend part, and subsequent recovery to steady, stable production after repairs.

In monitoring the mandrel pull force through every bend cycle without adding time or processing steps, the PVM2000-MB™ mandrel bend monitor provides an alert to potential issues before they become real problems.

This pro-active system measures the process variance on a machine for every cycle of production, detecting problems at source, often well before they become quality issues. Early detection of a degrading process reduces scrap, and saves unnecessary downtime and machine repair.

**OES Inc** – Canada
**Fax**: +1 519 652 3795
**Email**: oes@oes-inc.com
**Website**: www.oes-qualityassurance.com

*Figure 4 – The PVM2000-MB™ mandrel bend monitor from OES*



## All-round capability for non-contact inline dimensional measurement

Zumbach Electronic, Switzerland, provides a complete line of measuring and monitoring instruments. Typical applications of these systems are hot rolling mills for wire steel rod, profiles and seamless pipes, welded pipe production, test stands (NDT), and cold processes, like peeling, grinding, straightening, and polishing.

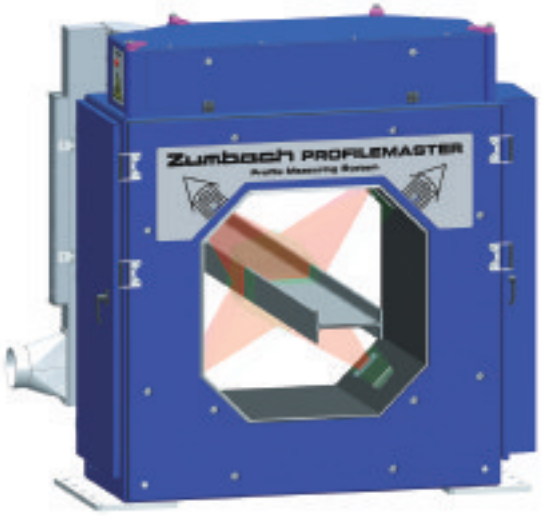
This technology is geared towards closer tolerances (½, ¼ DIN), zero faults, 100 per cent quality control, higher productivity, faster startup, less downtime and manpower.

Zumbach provides three systems groups: Steelmaster, Profilemaster® and Odac® Trio. Steelmaster is a non-contact laser measuring system range for hot and cold, inline and applications in rolling mills. Profilemaster provides profile and shape measuring systems for hot and cold, inline and offline applications, while Odac Trio are 3-axis laser diameter gauges.

Steelmaster gauges and systems are based on the latest technology. Almost 300 units are in operation in hot rolling and similar processes. They are backed up by many thousands of Odac scanners, operating in cold processes.

The Steelmaster processor is the 'brain' of the system. It processes the measuring data, communicates with the plant network and provides the operator with self-explanatory displays and key data. The process transparency is dramatically improved, especially if multiple measuring heads are installed.

*The Profilemaster measuring unit*




The machine can be used with oscillating gauges for round and non-round products (flats, squares hexagons etc). This system has up to 6 measuring axes for seamless 360° coverage, with measurement independent of twist.

There are no blind zones, with cross section computation and oscillating or static operation. The version with static gauges is especially suited to round products. This compact system has up to 6 fixed axes, no moving parts and an extremely fast measuring rate, with short measuring distances.

Steelmaster gauges offer decisive advantages for easy integration, dependable operation and data processing and display. They include hi-tech laser scanners with high accuracy, up to 6,000 measurements (1,000 per scanner), compact industrial PC, and highly developed software. In addition, the Steelmaster comes with sophisticated mechanics and protection system, and close to zero maintenance.

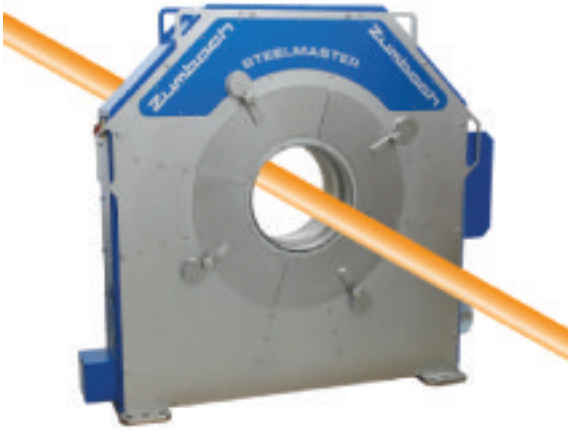
Designed for any requirement, the modular Profilemaster system provides accurate inline profile measurement using the 'light section' principle and machine vision. One or up to six laser/camera modules measure the cross-section of the moving profile.

A powerful PC based processor adds together the partial pictures of the cameras made up of straight lines and radii to yield the momentary cross-section of the profile.

All relevant dimensions such as width, height, angle and radii are combined to form the full cross-sectional picture. The nominal values for the profile can be directly imported from the CAD construction (as a DXF file), which allows easy and problem free programming.

Changes in speed and twist within normal limits have no affect on the measurement. The combination of 1-6 laser/camera modules allows the measurement of virtually all shapes, achieving an optimal measurement result with the smallest possible number of laser/camera modules.

The Odac Trio system is based on Zumbach's vast experience, gained over many years of design and manufacture of optical diameter gauges. This measuring head features 3 integrated measurement axes.




*The Steelmaster non-contact laser measuring system*

Conventional 2 axis instruments with laser or CCD can only provide approximate values for a minimum OD and maximum OD and ovality. The mean value (X+Y/2) is influenced by the orientation of the product ovality within the measuring field.

Advantages of the ultra-compact Odac Trio include 3 synchronized measurement axes on 1 single plane, and reliable detection of out-of-round condition, regardless of the orientation of the product ovality.

The device detects any deviation from roundness of oval and out-of-round with polygonal shape (multi-lobe), with highly accurate yields regardless of the orientation of the product ovality.

The Trio computes accurate values of circumference and cross section, which is important when mixing the products of tube and hose. The technology also offers increased measurement accuracy and reliability, and integrated fault detector with 3 times higher detection certainty and sensitivity (than 2 axis models).

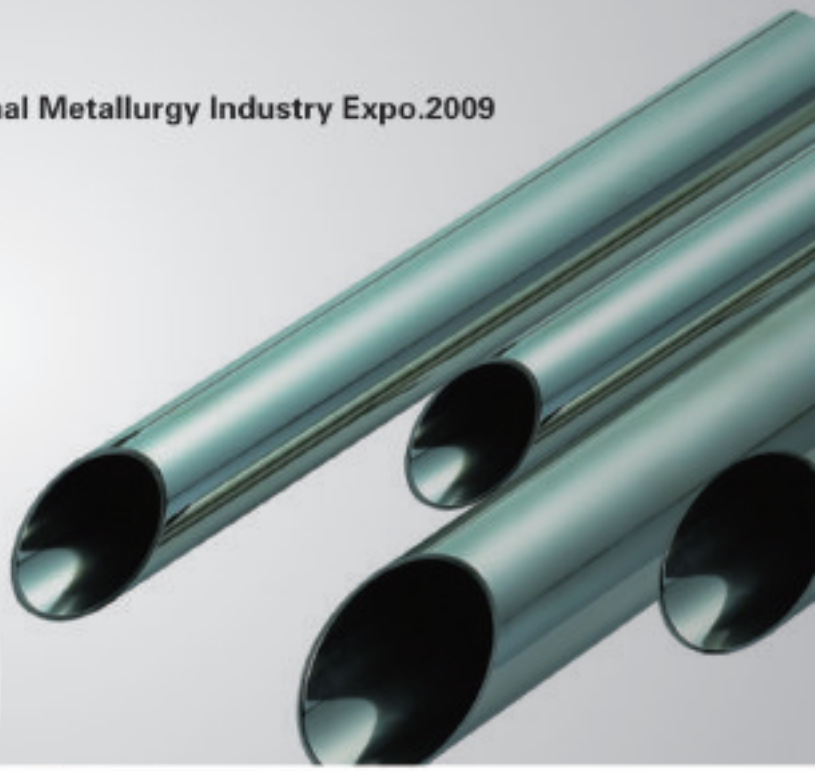
**Zumbach Electronic AG** – Switzerland
**Fax**: +41 32 356 0430
**Email**: sales@zumbach.ch
**Website**: www.zumbach.com

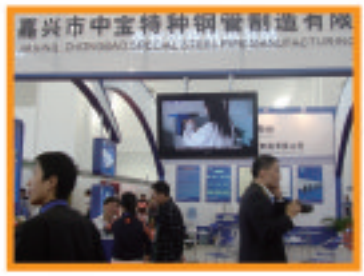
# The 6th China (Beijing) International Steel Tube Industry Expo. 2009

Aug.13–15, 2009 China International Exhibition Center (Beijing)

## Concurrent Events

The 6th China (Beijing) International Metallurgy Industry Expo.2009






**Organizing Committee of STEXPO 2009**

Add.： 218 Hua Yue Long Building, 7 Jingyuan Rd.,
Shijingshan District, Beijing, China P.C.： 100043
Tel.： 86–10–68639549 Fax.： 86–10–88680811
E–mail： arksales@bjsjjy.com
Web： www.bcime.com/st/st/en www.bjsjjy.com



## New phased array scarf monitoring system

GE Sensing & Inspection Technologies has introduced an ultrasonic weld profile visualisation system that uses phased array technology.

This new scarf monitoring system provides an accurate picture of both the ID and the OD profiles of scarfed ERW pipes.

The online system operates in real-time to monitor scarfing as it takes place during the manufacturing process. As a result, it is possible to effect real-time control of the scarfing process by identifying events such as tool drift and edging as they occur. This can achieve significant reductions in scrap.

The heart of the new system is the ultrasonic phased array transducer, which electronically simulates the scanning action required to provide the weld profile information.

The resultant signal is then fed into the field-proven UTxx digital flaw detection and thickness measurement system.

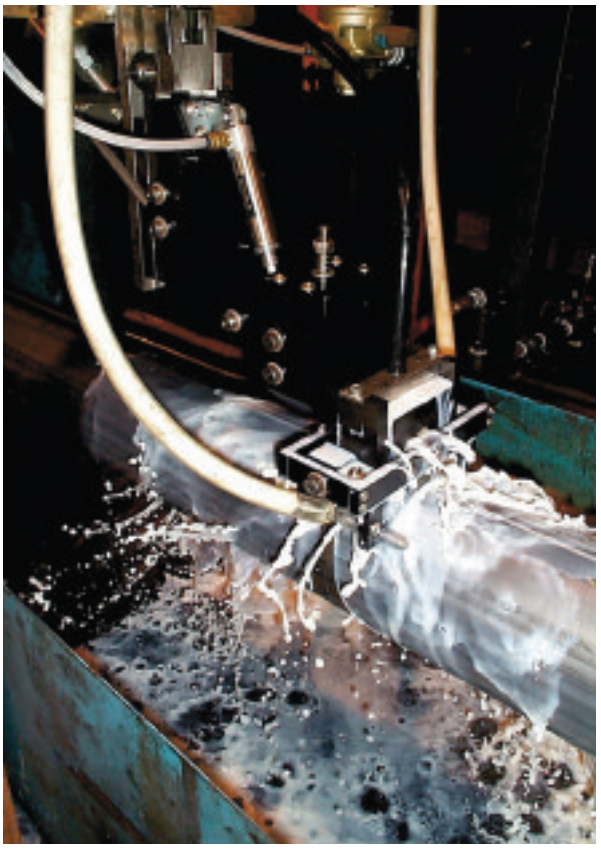
This process incorporates standard or phased array flaw detection channels and all the associated processing electronics. It ensures a complete scarf monitoring and flaw inspection package.

In operation, the transducer test head assembly is mounted in such a way that it is directly above the weld line. The mill coolant acts as the ultrasonic coupling medium.

The transducer test head then uses its phased array elements to monitor the inside and outside diameter of the weld as it is being cut, at a scanning rate of up to 300 profiles/sec.

Transducers and shoes are available to monitor tubes from 50mm up to 500mm in diameter. Typical coverage is ±25mm from the nominal weld centre line.

Inspection data is displayed in a true-to-scale cross-sectional profile at one or multiple monitor screens. High and low limit alarms provide warning of weld profile deviation. Intelligent dynamic software averaging techniques minimize the possibility of false readings.



*The ultrasonic weld profile visualisation system uses phased array technology*

The weld profile visualization system features all-electronic setup for simplicity and repeatability. It can be installed within feet of the weld station, depending on local temperature and geometrical conditions. It thus operates as a process control system and a quality control system.

The system can be combined with flaw detection and it allows inspection traceability through a built-in data logger, which records minimum and maximum thickness readings across the weld area and strip thickness.

**GE Sensing & Inspection Technologies** – UK
**Fax**: +44 1727 795400
**Email**: david.jervis@ge.com
**Website**: www.geinspectiontechnologies.com

## State-of-the-art ultrasonic data acquisition equipment

AGR Field Operations, USA, specialises in the design and manufacture of state-of-the-art ultrasonic data acquisition equipment. AGR combines phased array, ToFD and pulse/echo into a convenient and powerful range of instruments designed to suit the widest range of applications.

AGR's product range includes the 8-channel miniature TD Pocket-Scan and 16-channel TD-Scan with motion control. This device offers ToFD and pulse/echo in various forms. The company's range also includes the TD Handy-Scan and TD Focus-Scan with 8 and 16 conventional channels respectively for ToFD and pulse echo, together with 64/32 and 128/64 phased array respectively. The TD Focus-Scan also boasts built in motion control.

The company's latest advanced ultrasonic system is the TD Handy-Scan, a fully portable multifunction instrument with both phased array and conventional channels. It provides a compact, versatile instrument ideal for field use in petrochemical plants, offshore installations, and power station workshops.

The TD Handy-Scan is supported by AGR's latest tried and tested version of the TD-Scan software incorporating TD Super-View.

The latest TD-Scan software has been enhanced to provide the operator with superior one-handed control of the handheld instrument and ASME code compliant features.

**AGR Field Operations** – Norway
**Fax**: +47 56 31 60 01
**Email**: utsales@agr.com
**Website**: www.agr.com

## High-speed turnkey testing lines

Reika, Germany, has announced the start-up of its turnkey NDT systems at one of Europe's largest producers of seamless steel tubes. The lines are directly linked to straightening lines with a large buffer area and inlet conveyor systems.

The testing lines are equipped with electromagnetic and ultrasonic testing systems. Typical testing brands are Geit and Foerster but other brands can also be integrated into existing standard interfaces.

*Turnkey NDT systems can be directly linked to straightening lines*

According to the demand of the tube mill the adequate electronic devices can be chosen and integrated in the workflow. Before testing, the tubes are internally extracted from loose scale after straightening and from chips, which remain after cutting.

The tubes are transported individually with high-speed into the multi-testing NDT-section. The lines only run at up to 5m/s throughput rate for eddy current testing. The testing mode can be selected for continuous end-to-end testing in case of ultrasonic testing, which minimizes the length of the untested ends.

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

Due to this initial cleaning process, any pollution into the UT-water circuit can be avoided. Wear of the rotating probes and pollution of the water circuit is drastically reduced, with higher line efficiency and an 80 per cent reduction in the 'false defects' with second testing.

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

Tube eccentricity and orientation of the tube in the probe can be neglected because the distance of the testing probe and the outer tube surface is almost constant along the circumference. Start-up of the complete lines can be carried out within 4 weeks.

A control interface to Host computer systems is available for production reports and line status reports. The lines are completed by bypass repair sections with manual grinding and final inspection.

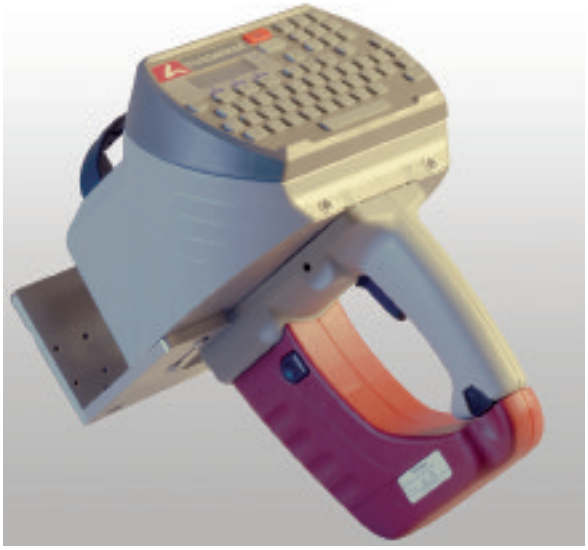
**Reika GmbH & Co KG** – Germany
**Fax**: +49 2331 969036
**Email**: info@reika.de
**Website**: www.reika.de



## Flexible marking of individual and serial parts

Markator, Germany, has introduced a handheld marking system, branded the FlyMarker® Mobil Akku. A 100 per cent mobile and compact handheld marking system, it offers point-by-point marking of almost all materials.

*The FlyMarker® Mobil Akku hand-held marking system*



The system uses an electromagnetic driven marking pin to mark working parts made of hardened steel, aluminium or plastics through to materials which are pressure-sensitive, thin walled, coated or round finished. It is a perfect machine for workshops to mark fast, flexible, durable and with a low noise level.

The FlyMarker works without a power supply line and without compressed air. The ergonomic design and two handed operation enables effortless marking of bulky, heavy and unmovable objects. It is possible to undertake a range of marking jobs with ease and repeatability.

Marking is undertaken by well-structured single dot characters and numbers. It is possible to mark letters, special characters, logos and Data Matrix® codes in very high grades. Even uneven surfaces can be marked in a stable way.

There are two versions of the practical handheld unit. It can operate either with a power supply or with a long-lasting rechargeable battery.

Due to the built in display and keyboard, it does not have any wires or tubes as part of the design. The serious risk of a trip hazard is also prevented.

Based on the consistent modular design concept of Markator® it is possible to mount the hand-held FlyMarker® Mobil Akku quickly on a column frame and convert it into a table marking system.

Due to this fact, it is possible to mark large and difficult to access parts directly on-site and also small parts on a workbench.

**Markator® Manfred Borries GmbH** – Germany
**Fax**: +49 7144 85 75 616
**Email**: info@markator.de
**Website**: www.markator.de

# SUBSCRIBE TODAY!

TUBE & PIPE TECHNOLOGY

**www.read-tpt.com**

**The international magazine for the tube and pipe industries providing worldwide news and information on tube and pipe production, processing and machinery.**

- Published 6 times a year
- Circulated to over 100 countries worldwide
- Distributed at all major trade shows
- Indepth technical articles in every issue
- Discounts for 2 and 3 years subscription*


INDUSTRY NEWS

New LAP facility doubles production space for 'large measuring systems'

Tube 2008: the industry favourite romps home again


Tube & Pipe Welding: Trends & Progress






*from only $175 / Euro 126 per year


EXHIBITOR LISTING

Subscribe at **www.read-tpt.com**

email: Liz@intras.co.uk Tel: +44 1926 334137

A publication of

INTRAS
INTRAS LIMITED

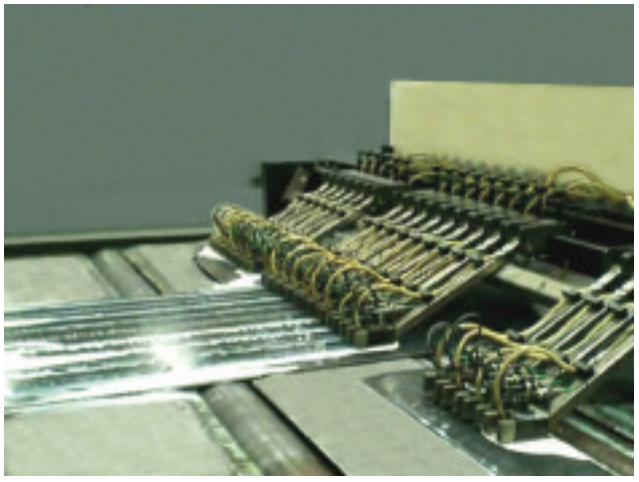


## Meeting demands for thorough strip and plate testing in modern pipe mills

Inspectech Analygas Group, Canada, has supplied customised NDT solutions for the tube and pipe industry for over 30 years, and continues to explore new technologies and innovations to meet the industry's NDT needs.

Strip and plate inspection systems are custom designed for material inspections up to 6.4m wide and 100mm thick, with operating temperatures up to 200°C. These ultrasonic systems are suitable for thickness monitoring, lamination detection and surface flaw detections.

*Inspectech's skelp monitoring system has been commissioned at a new tube mill in Mexico*



Inspectech has recently updated and redesigned its skelp monitoring systems. The mechanical system has been enhanced to allow every transducer more positional adjustment.

The computer-based electronics have been re-packaged to a reduced format by implementing new back-plane technologies.

The number of process cards required has been reduced by half, and data security is now virtually guaranteed with the introduction of a RAID hard-drive backup system.

An Inspectech ultrasonic skelp monitoring system was recently commissioned at a new tube mill in Mexico.

The system was ordered to allow the mill to inspect strip materials for OCTG to the latest specifications of API and ISO. Recent updates to these inspection standards have generated new enquiries for the strip testing system.

InspecTech has provided flaw detection systems for the tubular goods industry, using eddy current, flux leakage and ultrasonic technologies in both online and offline applications for North American and international markets since 1977.

**Inspectech Analygas Group** – Canada
**Fax**: +1 416 757 8096
**Email**: sales@inspectech.ca
**Website**: www.inspectech.ca

# TECNOFAR

## Stainless Steel Tubes Manufacturer

ITALCERT
UNI EN ISO 9001 - 2000
UNI EN ISO 13485 - 2004

- Tecnofar spa is a family-owned company specializing in manufactured redrawn PRECISION tubes (available in bars and coils) and TIG WELDED tubes.
- Outside diameters range from 0.30 to 76.00 mm and wall thickness from 0.10 to 3.50 mm.
- Tecnofar spa offers high quality products, and is able to produce completely burr-free cut pieces in lengths of just a few millimeters when needed.
- Please contact us for further details

TECNOFAR

23014 Delebio - SO - ITALY
Via della Battaglia 17
tel. +39 0342 684115
Fax +39 0342 684500
www.tecnofar.it
info@tecnofar.it

## Innovative measuring and control technology for increased productivity

Sikora AG, Germany, is one of the world's leading manufacturers of measurement, control and test equipment for the hose and tube industry. The company's non-contact measurement devices cover a wide range of values such as diameter, wall thickness, ovality and eccentricity.

The technology includes solutions for the detection of lumps and neckdowns in the product surface, with future-oriented technology for temperature measurement of PE melts. The systems, which are based on premium laser, LED, ultrasonic and X-ray technology, are perfectly suited to measuring any kind of PE, PVC, fluoropolymers, silicon and rubber hose and tube in a diameter range of 0.05mm to 500mm.

Transparent products can also be measured with high performance. All measurement systems offer calibration-free, reliable online measurement and control of the relevant product parameters.

Sikora's quality management according to DIN EN ISO 9001:2000 is a warranty for the highest customer satisfaction. The mean time between failures (MTBF) – an indicator for the average time that equipment shows a repairable defect – is approximately 15 years for the diameter gauges of the Laser 2000 series, even under extreme production conditions.

Sikora AG has set up local regional offices in the USA, Brazil, China, France, Russia, Korea, India, Italy, Ukraine and Turkey.

*Ecocontrol 600: innovative display and control system*



*X-Ray 2000: Sophisticated tool for eccentricity, diameter, wall thickness and ovality measurement at hose and tube extrusion lines*

With these offices, working in conjunction with more than 30 regional representative agencies the company ensures global customer support.

**Sikora AG** – Germany
**Fax**: +49 421 48 900 90
**Email**: sales@sikora.net
**Website**: www.sikora.net

# AUTOMATIC BENDING UNITS FOR TUBES AND POLES

SOMO PRODUZIONE SPA

ITALIAN TECHNOLOGY

Via San Siro 43/45 - 20010 Cornaredo (Milano) - Italy - tel +39 02 9362524 - fax +39 02 93561457

www.somoproduzione.com



## New punch marking system for large tube and pipe

Numtec-Interstahl GmbH, Austria, has introduced a fully automated marking machine based on a standard industrial robot. The machine's marking head is based on single stamping needle technology and is installed on axis number 6.

The machine is designed to apply an identity onto the machined ends of a pipe. Varying bevelled angles can be accommodated. The machine undertakes permanent ID-marking and no consumables are used (like ink or paint).

The pipe is positioned on a conveyor with the machine surface facing toward to the stamping machine. Two stationery laser detectors are mounted adjacent to the marking position and are used to calculate the diameter of the pipe.

*Numtec-Interstahl manufactures a fully automated marking machine*


Once the 'marking start' signal is received by the marking system the robot searches for the pipe end position by means of a mechanical detection unit that is mounted next to the stamping head on axis 6 of the robot. Once the pipe position and diameter have been established, the marking image is stamped in a curved manner around the machined bevelled surface. It is possible to undertake front side and bevel marking, with flexible character size.

If marking is required on the other end of the pipe then it is repositioned and the marking sequence is repeated on the other end. The marking data, pipe wall thickness, diameter and angle are automatically fed into the marking machine control unit by the host computer or via the operator panel. Other product data – for example character size, and shape of bevel – are manually input via the operator panel.

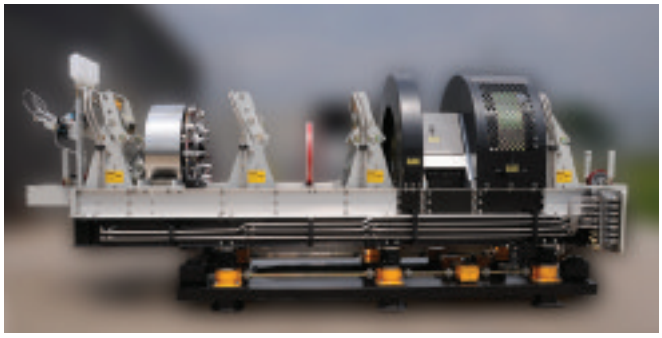
**Numtec-Interstahl GmbH** – Austria
**Fax**: +43 7672 25429
**Email**: office@numtec.at
**Website**: www.numtec-interstahl.com

## Non-destructive testing of OCTG tubing and casing

Scan Systems Corp, USA, is a specialist in non-destructive testing of OCTG tubing and casing, with over 25 years of experience and state-of-the-art manufacturing facilities. The company has recently introduced its unique EMI (electro-magnetic inspection) product that offers an advanced range of specifications and features.

In developing its products, the company's aim is to increase MFL performance and produce a superior quality inspection. This cutting edge technology can be found in the company's Digi-Tech™ EMI inspection family of products.

Options are available to replace existing analog signal processing electronics with magnetic flux leakage (MFL) technology, coupled with custom digital signal processing software (Digi-Pro™). The Digi-Tech equipment is now capable of performing a quality EMI inspection of OCTG pipe with wall thicknesses up to 0.625", and with production speeds up to 150ft/min.



*The Digi-Tech 'M-Series' product line*

The Digi-Tech 'M-Series' product line features a four-function EMI (electro-magnetic inspection) unit specifically designed for high volume, continuous operation. Originally created for steel mill applications, the M-Series inspection units are designed for 24/7 operation with low maintenance, and high production.

The robust M-Series offers quality steel welded sub-frame for stability and performance. The rigid aluminium centre section frame is the foundation where all inspection systems are mounted and integrated. Enhanced pinch roller systems and greatly improved magnetic circuits assure high accuracy when inspecting OCTG.

Within the 'M-Series' design, the company offers two models covering the entire size range of common OCTG materials. The DT-2100™ equipment features the capacity to inspect plain-end OCTG materials from 2 3/8" (60.3mm) through to 8" (203.2mm).

The DT-3100™ equipment can handle plain-end material from 4½" (114.3mm) through to 14" (355.6mm). Inspection methods include magnetic flux leakage technology for OD and ID longitudinal and transverse flaws, magnetic flux density for 100 per cent coverage of the wall thickness variations, and an eddy current system for simple comparison of metallurgical mass and permeability differences.

**Scan Systems Corp** – USA
**Fax**: +1 281 219 2317
**Email**: mattr@scansystems.com
**Website**: www.pipeinspectionequipment.com

## Inline surface inspection and profile measurement combined in one system

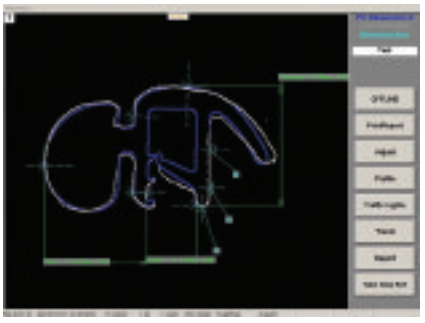
Pixargus, Germany, develops and manufactures systems for optical inline measurement and inspection of plastic and rubber profiles. The company's systems inspect sealing profiles, for example for the automotive industry, and tubing, catheters, cables or window seals, as well as raw material (compounds) made of thermoplastic elastomers (TPE) and rubber.

The company has launched a new version of its DualHead System for simultaneous inspection of the geometry and surface quality of profiles. The system captures the smallest irregularities at the surface and minute size deviations while production is running.

There is a simultaneous inspection of the surface quality and geometry of profiles, cables and tubing through an optical inline process. This provides the possibility of capturing all relevant geometrical parameters by a single system. The line operators can quickly understand any variations in the production process, and diagnose the problem and intervene before out-of-spec material is produced.

The ProfilControl-DualHead is a combination of one Pixargus surface inspection system of the ProfilControl-Surface series and one ProfilControl-Dimension contour measurement system. The machine is designed with highly compact construction.

*The ultrasonic weld profile visualisation system uses phased array technology*



*The screen shows the nominal and actual contour of the profile*

In addition to the low space requirement, combining two different Pixargus systems into one common quality station, provides another advantage: both systems have identical, intuitive user interfaces, allowing operators to quickly become accustomed to using the two systems. The operator menu is navigated by large, clearly visible touchscreen buttons.

Inline surface inspection systems of the ProfilControl-Surface series detect and classify defects such as pimples, bubbles, breakouts, inclusions or holes. Cameras scan the entire surface, and a 'surface map' and individual defect images are displayed on the touchscreen. During final inspection it is possible to locate those areas of the profiles that do not comply with the required quality standards.

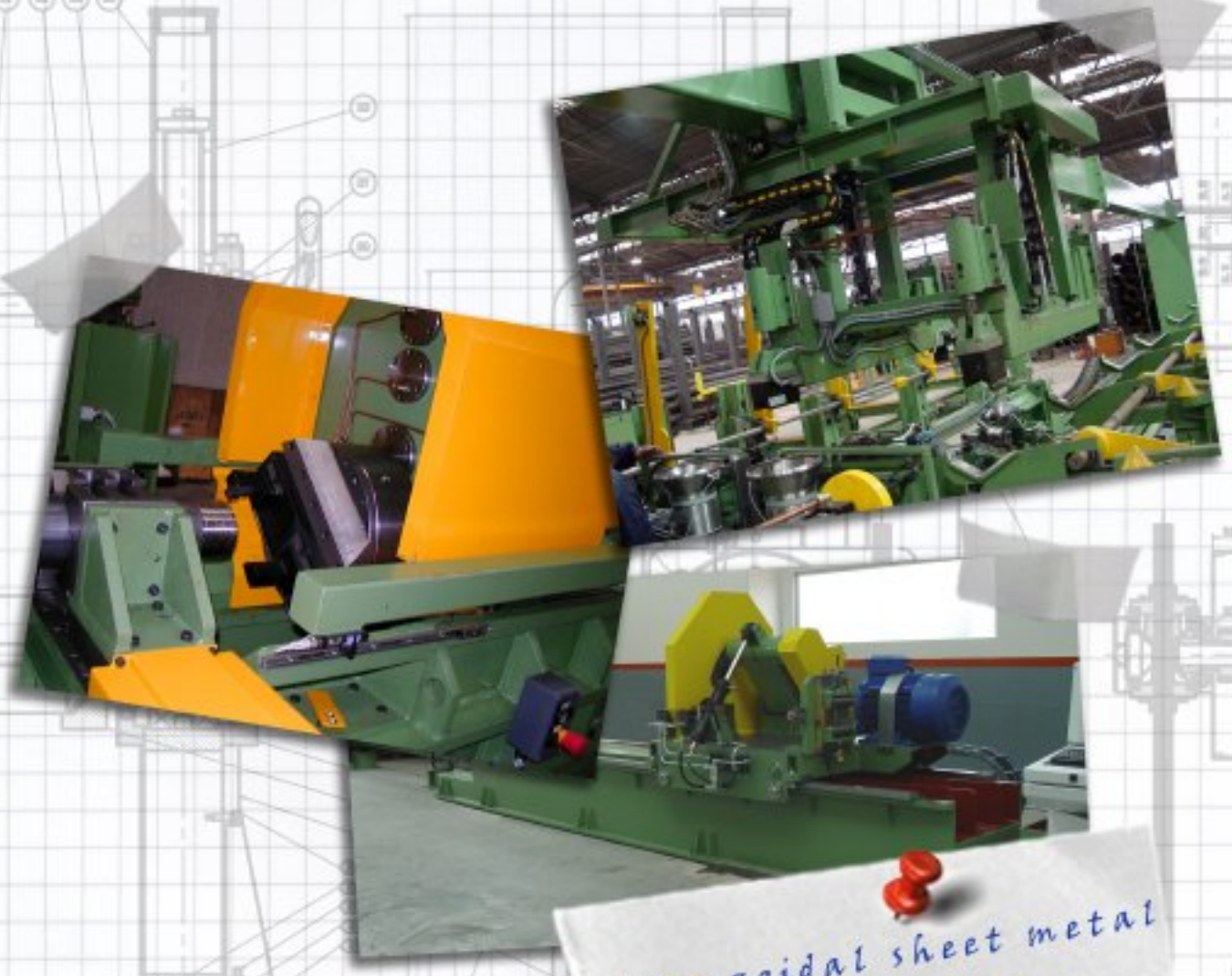
The inline profile measurement systems are based on the Pixargus ProfilControl-Dimension series. Cameras arranged around the profile scan the complete contour of the extruded profile, and dedicated software calibrates it against the contour of a reference profile. The profile is graphically displayed, complete with its allowable tolerances.

The sturdy design of the two systems makes them suitable for the environmental conditions prevailing at the production line, and long-life LEDs are used as light sources.

**Pixargus GmbH** – Germany
**Fax**: +49 2405 47908 11
**Email**: info@pixargus.de
**Website**: www.pixargus.de

# S.V.M.

...partner for better



trapezoidal sheet metal
welded pipes
open sections

sandwich panel
toolings

S.V.M. S.r.l. Via Don Sturzo, 16 20033 Desio (MI)
Tel. +39 0362 .303.445 Fax +39 0362.622.702 info@svmdesio.com
www.svmdesio.com

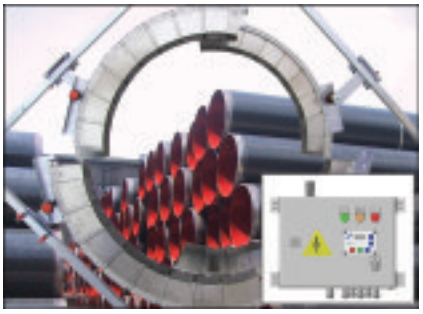


## Inline holiday detection systems

Elmed, Germany, has recently launched a new Isotest act 35 inline holiday detection system. The company has delivered several testing units for pipe diameters up to 70" to well known pipe mills in South America, Europe and China.

The unique customised 'testing profile' enables an easy setup of the required testing voltage according to the defined material and thickness tables – covering the complete range from three-layer PE coatings to FBE.

*The Isotest act 35 inline holiday detection system*



The Isotest act 35 equipment has many state-of-the-art features and new functions that make it suited to modern production lines with up-to-date standards.

The optimal price performance ratio is in compliance with the current challenging economic requirements.

The Isotest act is not only applicable to spiral extrusion by using a single flat electrode, but also to hose extrusion. In this area, the new sophisticated electrode mounting system can easily be adapted to different pipe diameters.

The new look equipment is completed by a segmented type of electrode that works by optimum and flexible forming of the pipe diameter with substantial longevity.

**Elmed Dr Ing Mense GmbH** – Germany
**Fax**: +49 2056 93 29 33
**Email**: info@isotest.de
**Website**: www.isotest.de

## ECT array crack detection system

Raynar, South Korea, has developed ECT (eddy current test) and UT (ultrasonic test) inspection systems for factory automation. The company provides these systems for automobile parts, tube and steel makers.

Raynar has recently developed the ECT array crack detection system to perform high-speed inspection on rolls.

The company has already installed combined ECT and UT technology at a tube and pipe factory.

The company has also developed a PEC (pulsed eddy current) system for thicker carbon steel pipe inspection.

The nanometre level detection system was designed with ECT for copper and tungsten sheet measurement.

**Raynar Co Ltd** – South Korea
**Fax**: +82 42 931 8412
**Email**: raynar@raynar.co.kr
**Website**: www.raynar.co.kr

## Automated tube and rod alloy verification

Tube and pipe manufacturers often produce many different alloys. The most demanding (and high margin) customers, such as petrochemical, aerospace and nuclear, require suppliers to verify the correct alloy grade. An alloy grade mix-up can be catastrophic for both customer and supplier.

If unchecked, the wrong grade can lead to a catastrophic failure, followed by liability claims, lost reputation and damaged future business. A supplier needs to know the right grade is being shipped, and also needs a system that is easy to use and tough enough for the factory floor.

Innov-X offers the Fox-IQ tube analyzer (factory online XRF), with the IQ to analyze quickly and accurately. There are currently several leading tube and rod manufacturers, such as Sandvik, using this system. The Fox-IQ enables use of XRF to check the grade of each and every tube produced.

XRF is a very good technique because it is powerful and can analyze up to 25 elements (titanium and above) in a single test. This enables even the toughest grade splits, as often the absence or presence of even a small amount of an element determines the grade.

*The Fox-IQ tube analyzer is used to verify the correct tube alloys*


The process is also fast; for example, the Fox-IQ can differentiate based upon 0.3 per cent Ti in 5 seconds of testing time (304/321 stainless steel), 0.2 per cent V in 8 seconds (9Cr / P91 low alloy steel) and 0.04 per cent V in 15 seconds (various carbon steel). In addition, the Fox-IQ is flexible and works in the same setup on tubes from 6mm diameter to 6m.

The Fox-IQ takes the power of XRF and wraps it up into a package that integrates easily into either new or existing lines. The analysis head is compact enough (10cm x 10cm x 30cm) to fit between rollers on the line. It should be mounted within 5mm of the sample to differentiate grades with Ti, and within 10mm of the tube for other elements. Closer to the tube is better as it means higher count rates and shorter testing.

The user interface has been designed specifically for the needs of the tube and rod industry. It is intuitive to operate and indexes the data by lot number to make record keeping and report generation very simple.

The Fox-IQ can communicate to external systems using either physical binary voltage signals to a PLC or using TCP/IP commands over ethernet.

*This article was supplied by Mr Phil Miller, product manager for online systems.*

**Innov-X Systems Inc** – USA
**Fax**: +1 781 938 0128
**Email**: info@innovxsys.com
**Website**: www.innovx.com

## Inkjet printers for marking with the highest flexibility

Leibinger, Germany, is the manufacturer of inkjet printers with the highest flexibility, intuitive operation and reliability. Applications include printing on cable with pigmented contrast inks, best before dates or lot numbers on packages as well as data matrix codes in the pharmaceuticals and automotive industries.

*Camera systems are used to verify print information*


Solvent inks are already wipe-proof after one second and suitable for materials like plastics, metal or glass. All inkjet units are equipped with an automatic nozzle seal that closes the nozzle and return-line after shutdown and prevents ink from drying.

Combined with the Leibinger camera system the printed information can be identified and verified. Printer and camera are perfectly coordinated and guarantee a smooth production process.

The latest inkjet model form the company – the Leibinger JET3 – is equipped with a state-of-the-art capability for marking and coding in the industrial environment. Printing is accomplished using continuous inkjet technology for fast, non-contact marking with a printing speed up to 6.6m/s and a printing height of 0.8 to 16mm.

All possible surfaces, including round, vaulted, waved, rough or graded can be printed on easily. Very good print quality is also possible when large throw distance from head to product is required.

Simple operation keeps production running smoothly. The Leibinger Jet3 offers intuitive and comfortable operation with Windows CE® technology. The operation menu is simple and neatly organized and illustrates the basic functions for production and printing processes like loading and editing of jobs, password administration and explorer navigation.

*Leibinger's Jet3 inkjet printer for effective product marking*


Typical Windows features like drag and drop, pull-down menu and copy/paste are partnered by an interactive operator guidance for quick and easy use of the printer. Many special functions like graphic and font editor make handling very easy.

The newly developed refill system guarantees clean and splash-free refilling. Ink and solvent bottles are hermetically sealed and are only opened once screwed onto the corresponding tanks. Ink and solvent tanks are without pressure and allow for easy refilling without interruption of the ongoing production process.

The highest availability is guaranteed by the automatic Leibinger nozzle seal, which closes the nozzle and makes the return-line airtight after shutdown. No drying or clogging can occur due to the closed ink circuit. Even after long-term shutdowns, drying of ink can be excluded. A time consuming manual or automatically operated nozzle cleaning process is not necessary.

The efficiency of the JET3 printer is ideal. State-of-the-art technology in hydraulics, electronics and print head design guarantee minimum use of ink, solvent and energy as well as minimum maintenance requirements. Multiple interface and connection ports, based on the latest technological developments, mean the Leibinger JET3 can easily be integrated into existing machines.

Leibinger offers the suitable camera systems to verify print information. With the Leibinger high quality cameras, multiple objects can be traced in independent windows. Printed figures, codes or other defined areas of interest are identified, decoded and verified on-the-fly against a reference database.

Reference data can be generated by the system itself or can be provided from a file or via interface. Signals are available to mark or reject incorrect documents. Based on Windows technology and featuring a simple teach-in function, the Leibinger cameras are easy to operate in different applications.

**Paul Leibinger GmbH & Co KG** – Germany
**Fax**: +49 74 61 92 86 199
**Email**: dmaucher@leibinger-group.com
**Website**: www.leibinger-group.com

## Automated scanner for nondestructive testing (NDT) of pipe

Olympus, USA, has introduced the WeldRover™ automated scanner for nondestructive testing (NDT) on pipe, metal plate, and vessels. The WeldRover™ can also be used on welded components from 4" (100mm) in diameter to flat surfaces and on longseam welds 30" (750mm) in diameter or larger.

The automated scanner can be used with the modular OmniScan MX flaw detector or TomoScan Focus LT to provide phased array (PA), time-of-flight diffraction (TOFD), and advanced conventional ultrasound (UT) capabilities for both the standard and advanced level inspector.

*The WeldRover™ automated scanner provides nondestructive testing for metal plate, pipe, vessels and welded components*

The WeldRover is part of the PV200 family of Olympus systems that combine phased array, conventional UT, and TOFD technologies for a complete turnkey solution for code based inspections to ASME, API, AWS, and similar procedures.

It is claimed to be the only phased array system on the market that can demonstrate a full calibration of every focal law on every channel for time of flight, sensitivity (ACG as defined by ASME), TCG\DAC, and velocity.

The WeldRover itself is a one-axis encoded, motorized scanner. Data acquisition is acquired with either an Omniscan MXU for direct acquisition or Focus LT for computer based acquisition.

Any Olympus UT or PA instrument with an encoder input is compatible with the WeldRover and requires no programming besides entering the encoder information. In addition, standard OmniScan or Tomoview software is used.

Olympus NDT is a manufacturer of innovative nondestructive testing instruments including ultrasound, ultrasound phased array, eddy current, and eddy current array.

Its products include flaw detectors, thickness gauges, in-line systems, automated systems, industrial scanners, pulser-receivers, probes, transducers, and various accessories.

**Olympus NDT** – USA
**Fax**: +1 781 419 3980
**Email**: meindert.anderson@olympusNDT.com
**Website**: www.olympus-ims.com

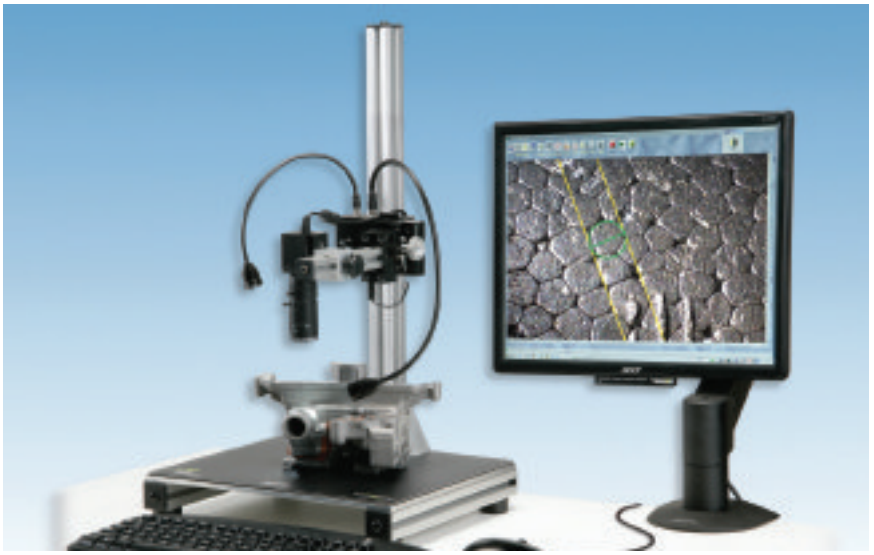


## Video microscope for fast and stable repetitive inspections

Gradient Lens Corporation, USA, has introduced a new Luxxor video microscope that is used as an inspection station for users to quickly and easily attach either a microscope lens or a borescope to its mount.

The system allows users to easily switch from an external to internal inspection mode by replacing the standard lens with a Hawkeye Precision borescope, or a borescope from most other manufacturers.

*The Luxxor Video Microscope from Gradient Lens Corporation*



The microscope attachment features an f/4.5 zoom lens that delivers very sharp close-up views of the exterior of any metal machined part, casting, or welded part, with magnification ranges from 15x to 83x.

A quick change to the borescope attachment (not included) allows for high-quality internal inspection. Key applications include those found in manufacturing automotive, aerospace and medical parts.

Users of the Luxxor video microscope can capture video or still images with the included computer software. Users can also document inspection images and store and email documented images to quality teams, suppliers and other parties.

The system can measure defects or features accurately with a metrology capability. Exposure and contrast levels can be adjusted to obtain the sharpest image quality.

**Gradient Lens Corporation** – USA
**Fax**: +1 585 235 6645
**Email**: info@gradientlens.com
**Website**: www.gradientlens.com

# The Leading Metal and Metallurgy Exhibition in South China

## MetalsFair China 2009

MetalsFair

**The Event Of The Year -**

**Not To Be Missed**

**23-26 June 2009**

China Import and Export Fair Pazhou Complex
Guangzhou, China

**www.metalsfair.com/en**

metallurgical technology, equipments and products

metal sheet, bar, section and wire products

tube and pipe

stainless steel

Adnet Exhibition

**Adnet Exhibition Ltd.**
Room 1004, Ocean Express Tower A
No. 66 Xiaguangli, Chaoyang District
Beijing, China 100027
Tel: +86-10-85866442
Fax:+86-10-85865746
www.adnetex.com

**Metallurgical Council of CCPIT**
46 Dongsi Xidajie,
Beijing,
China 100711
Tel: +86-010-65220753
Fax: +86-010-65233861
www.metalsfair.com



## Better steels call for better testing

Imatek Ltd, UK, is a manufacturer of materials testing equipment used primarily in the fields of impact testing and polymer melt rheology. The company's machines are used to test the properties of materials, components and assemblies within a wide range of industries including aerospace, automotive, and steel production.

The use of higher grade steels in oil and gas pipeline construction is creating the need for a new generation of specialist impact testers. Imatek offers a range of drop weight tear testers (DWTT) for measuring the fracture characteristics of steel specimens according to API recommended practice 5L3, EN 10274, ASTM-E 436 and 'Pellini'. Steel grades of X120 and specimens of up to 50mm can be accommodated.

A major feature of the Imatek range is the optional high-quality instrumentation and analysis software that provides information, both graphical and tabular, for the specimen failure. Whereas historically the DWTT test method has not required instrumentation, more recent research indicates that it is of significant benefit when testing tougher x-steels.

Instrumentation enables crack initiation and, most importantly, propagation energies, for the specimen to be determined. This is considered a better measure of 'in-use' performance for these steels. Imatek also offers an integrated high-speed video option.

*Imatek's drop weight tear tester*

Imatek's integrated high-speed video system uses its C3008 data acquisition system to combine signals recorded during a test event together with high-speed video imagery, all under the control of the ImpAcqt software. Since the camera and the data acquisition share the same trigger, data points and images can be precisely correlated.

A video sequence provides a great deal of qualitative information about the test event, and the software also allows quantitative information to be extracted.

Integrated high-speed video offers an advantage in many application areas and is available as an option for any of the Imatek range of impact testers or in a stand-alone mode, making it a general purpose tool that can be utilised by other parts of a customer's operation.

The system is already proving useful in the testing of steel tensile specimens at high rate, enabling detailed analysis for the deformation of the specimen gauge length to be undertaken.

Customers currently benefiting from Imatek's products include Mittal Steel, Arcelor, Canadoil, Ruukki Steel, Posco Steel and Corus.

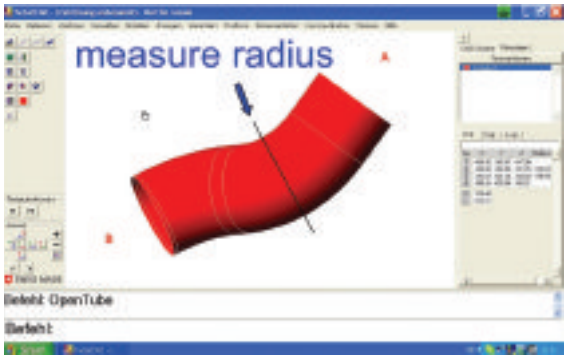
**Imatek Ltd** – UK
**Fax**: +44 1438 829054
**Email**: info@imatek.co.uk
**Website**: www.imatek.co.uk

## Innovative tube measuring with leading software module

The most advanced innovations are often in greater demand during difficult circumstances like the current global economic crisis. TeZetCAD is a market leading software module for easy tube measurement that aims to increase accuracy and efficiency in tube production.

Tubes are rarely correct when they leave the bender, as a tube cylinder is not always straight or round. It may be that the straight has a minimal bend or that the bend has a near ovality while being formed in the bender.

*TeZetCAD tube measuring software reveals problems with bent tube*




There is also the possibility that after deformation in the bender, the radius does not conform to the predefined radius of the tooling. In this case, both before and after the bend, the cylinder lengths differ to some extent, which can cause complicated discussions with a quality control department that cannot accept abnormal lengths.

It should be possible to prove if a tube has been deformed into ovality. It is also necessary to prove if the circularity of the tube is continuous. However, the method of tactile measurement of the bend or the roundness/circularity is even more important when dealing with issues of handling.

In measuring such values, the most valuable criteria are the collected measuring points. If the measuring points are collected at different points on the tube, the deviation can be predicted more easily. If the deviation is within the allowed tolerance the basic principle of comparison fits together.

Another challenge is that the bent radius does not fit the nominal value. It is vital to follow a set of rules to show fitting accuracy of the delivered part. It is also important to show the fitting accuracy of centre-points in flange holes in a graphical comparison.

TeZetCAD has a range of features that provide comprehensive tube measurement. The visual display of the documentation of a bent radius is completely unremarkable, as a deviation is shown in the bend but the deviation consequences crop up 'only' in the lengths before and after this bend.

The measurement of a supposed ovality in a bend can look easy, but the task is often difficult. For this feature the user is guided pinpoint to the calculated measuring point before the bend. The program finds the points automatically which are in ovality (ie where the tube has no more circularity) and leads the user with the measuring probe to these points.

**TeZet Technik AG** – Switzerland
**Fax**: +41 56 2492878
**Email**: tezet_leistritz@compuserve.com
**Website**: www.tezet.com



## Ultrasonic technology for measuring thin pipe and tube layers

Inoex, Germany, is a specialist in measuring and control technology and process engineering in the plastic material industry. The company's systems are finely tuned to requirements in pipe, profile, cable and film extrusion.

The automotive industry and many other industrial sectors set high demands on multi-layer products. As a consequence, the production process is complex for products such as brake hoses and floor heating pipes.

Extremely thin barrier and functional layers are frequently required to provide tube and pipe with their specific mechanical and chemical properties. Conventional ultrasonic measuring techniques have measuring limits at approximately 0.2mm. iNOEX has introduced a new technology where the bottom measuring limit is 0.05mm.

*A sample screen showing measurement results*

Barrier layers prevent oxygen, for example, from penetrating into the pipe, or volatile components from leaving it. These layers provide products with special mechanical and chemical properties.

In order to reduce cost, the aim is to make these layers as thin as possible but as thick as necessary. This can only be done when wall thickness is controlled during production.

Inoex has further developed proven ultrasonic measuring principles, allowing function and barrier layers that could not be measured in the past to be precisely controlled through intelligent ultrasonic sensor technology, combined with new algorithms and digital measuring techniques.

Even data of extremely thin-walled pipes can be precisely recorded, which means that high safety regulations can be adhered to and quality demands fulfilled.

Ultrasonic measurement has previously been based on the determination of ultrasonic transit times inside a product.

Through digitalisation the complete signal is now recorded, improving signal evaluation and further processing.

The complete recording of the signal makes results highly precise, and supplies full information on the product.

**Inoex GmbH** – Germany
**Fax**: +49 5731 96766
**Email**: info@inoex.de
**Website**: www.inoex.de

## Versatile mechanical testing of tube and pipe

The versatile 'Plus' range of high performance material testing machines, from Lloyd Instruments, can be used for a wide variety of compression and tensile testing on tube and pipe. Typical tests include ring stiffness, tensile strength and compressive strength.

The Davenport™ range of polymer test instruments, such as the MFI series of melt flow indexers, can be used for the evaluation of the materials from which tube and pipe are extruded.

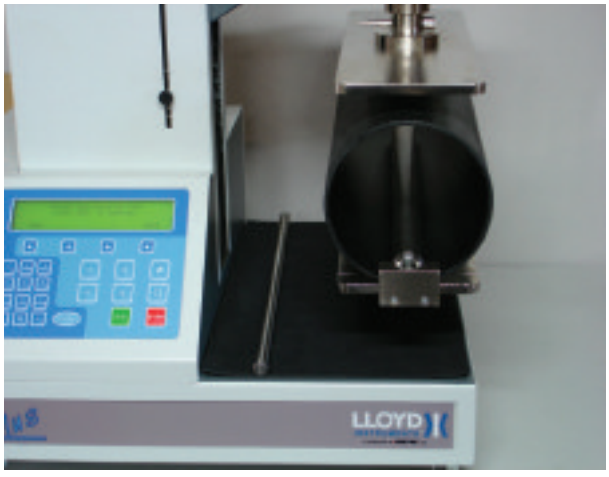
The 'Plus' range features 13 universal single column and twin column materials testing instruments and tensile testers. They are designed to make accurate and repeatable force measurements in the range from 0.1N to 300kN (0.0225lbf to 67443lbf). These versatile products are renowned for ease-of-use, excellent reliability and precision measurement.

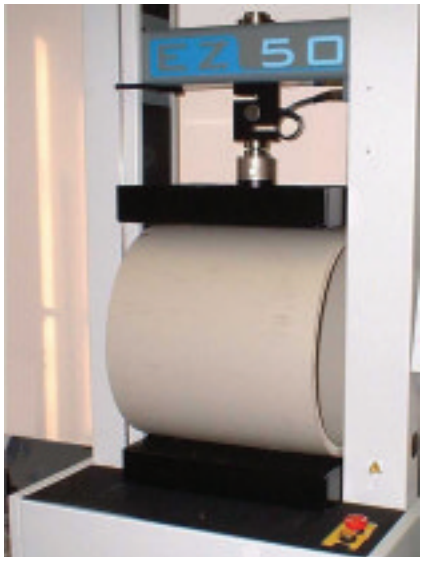
Automation of testing is achieved using NexygenPlus™ test and control software, which provides an extensive library of pre-defined test setups based on international standards. They can also be used to set up routine tests or create an advanced multi-stage test.

An extensive range of standard grips, probes, fixtures and flexural jigs – with a variety of sizes, gripping surfaces, styles and capacities – allow universal material testing machines to be used in a wide range of applications. Non-standard applications can often be accommodated through the design of a special jig or fixture to hold the particular sample.

For example, a self-aligning pipe compression jig has been developed in order to evaluate the resistance to collapse of smooth-walled or corrugated pipes manufactured from PVC, PP and HDPE. Some specialised applications may require the material tester itself to be modified.

*A TS36 pipe compression jig*




*A TG166 pipe compression tester*

Lloyd Instruments can produce customised versions of its universal testing machines. Examples have included a special extended 100kN machine to provide 2.1m free movement to perform a ring stiffness test on pipe.

Lloyd Instruments is a unit of the Ametek Measurement & Calibration Technologies Division. Both are part of Ametek Inc, a New York Stock Exchange-listed company and a leading global manufacturer of electronic instruments and electric motors with annual sales of $2.2 billion.

**Lloyd Instruments Ltd** – UK
**Fax**: +44 1489 885118
**Email**: suzanne.sharpe@ametek.co.uk
**Website**: www.lloyd-instruments.com

## Dynamic measurements in extreme conditions

Aicon 3D Systems is a provider of optical camera based 3D measurement systems. The company develops and distributes systems for inspection and testing, including car safety and tube inspection.

The company's MoveInspect optical measuring system captures 3D dynamic processes and analyses them with regard to geometric changes.

Due to a new climate control concept, MoveInspect is also able to analyse movements and deformations under extreme climatic conditions, for example in environmental chambers. The optical system replaces mechanical travel sensors, significantly reducing the setup work.

MoveInspect is based on a camera bar that is equipped with digital cameras, and is offered in a number of different versions. The high-end version is able to conduct tests at a frequency of 1,000Hz. The system can also be applied for endurance testing, as it records data without time limit.

The results of the dynamic measurements are displayed in a clear and descriptive manner. They may also be exported to external analysis software such as DIADem.

By default, MoveInspect is provided with a rugged camera body suitable for industrial requirements (IP65). For dynamic measurements over large temperature ranges, Aicon also assembles MoveInspect cameras with a special body temperature control.

This is managed by a central unit and allows for the precise identification of the geometric changes in a temperature range between -25°C to +70°C with an accuracy of up to 10µm. The recorded 3D movements can be shown in the same reference system.

The first climate-controlled MoveInspect system is in use at a German vehicle manufacturer. The company performs endurance load tests lasting several days under different environmental conditions.

**Aicon 3D Systems GmbH** – Germany
**Fax**: +49 531 58 000 60
**Email**: info@aicon.de
**Website**: www.aicon3d.com

# A study into rollforming of parabolical section

By Dr Jiying Liu, Mr Yuanguang Li and Mr Zhengqing Ai, North China University of Technology, Beijing, China
Supported by Beijing Municipal Natural Science Foundation (3082008)

## Abstract

In order to meet precision requirements, the parabola fitting is achieved by using the smallest arc. Based on the Biswas formula, the springback model of rollforming parabolic section is a viable option. It is possible to design the roll flower pattern of parabolic section. The correctness of the springback model is verified by experiments and finite element analysis. The rollforming method can be used for the manufacture of parabolic section in engineering applications.

Key words: *Parabolic section, rollforming, FEA simulation, Biswas springback*

## 1. Introduction

Directional light, which is normally present in sectional surface, can be focused on the focal line by use of a parabolic section. It can then achieve a highly efficient gathering that puts heat pipe on the focal line. Based on this feature, parabolic section can be used as a reflector of solar energy water heater.

The principle drawing is shown in figure 1. Some research shows that heat energy efficiency of multiple parabolic reflector (composed of parabolic section), is higher than that of a plane and circle arc reflector by 60 to 70 per cent [1] [2].

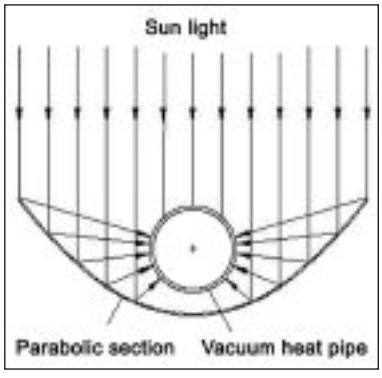



**Figure 1**: *Principle drawing of solar energy reflector with parabolic section*

At present, because of high cost and difficult forming, to some extent, application of parabolic section is limited in engineering. Roll forming is a high production and low cost of forming process of sheet metal. So, using roll forming technology to manufacture parabolic section has positive signification to industrial application.

**Figure 2**: *Roll flower pattern*

The difficulty of using roll forming technology lies in manufacturing the section of variable curvature, what with the complexity of spring back during forming which can not be resolved by existing technology. Aimed at reflector of solar energy water heater and combining finite element simulation and experiment analysis, we have investigated a roll forming method to form parabolic section.

## 2. Forming of a parabolic section

In this study, an inside contour of parabolic section is used as the research object. The mathematical expression of the contour is

$$y = \frac{1}{72} x^2, (-48 \le x \le 48)$$

The section material is 1060H18 aluminium sheet. The unfolding width of the section is 120mm, and the thickness is 0.5mm.

Using a circle arc subsection fitting parabolic line, the variable curvature problem is simplified as a multi-arc problem. When experiencing a normal error with a maximum limit of less than 0.1mm, the parabolic section can be substituted with 4 arcs. Two outside arcs are formed first, and then two inside arcs.

Due to this fact, forming with a large radius of thin wall, the springback must be considered. For fitting a circle arc, the over-bend forming method should be applied, and the over-bend radius is calculated by the following formula [3]:

$$\frac{r_{i1}}{r_{i2}} = 1 - 1.5 \cdot \frac{r_{i1}}{r} + 0.5 \cdot \left(\frac{r_{i1}}{r_f}\right)^3$$

(where, $r_f = \frac{\mathrm{E} \times t}{2 \times S}$ , $r_{i1}$ = bend radius (mm), $r_{i2}$ = radius after springback (mm), $r_f$ = yield curvature (mm), $\mathrm{E}$ = Young's modulus (MPa), $t$ = thickness of sheet materials (mm), $S$ = yield stress of materials (MPa))

The roll flower pattern is shown in figure 2. It is possible to see that the third pass is an over-bending forming of the outside arc, and the ninth pass is over-bending forming in the side arc.

## 3. Experiments and result analysis

According to the forming of the flower pattern, the rolls were designed and manufactured, and the experiment carried out by a rollforming machine at the North China University of Technology Roll-forming Laboratory (figure 3). The precut length of the aluminium strip was 1,000mm, width 120mm and thickness 0.48mm. The formed parabolic section samples are shown in figure 4.

**Figure 3**: *Forming machine used for experiments*

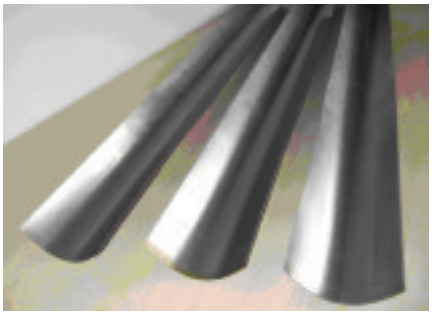


**Figure 4**: *Formed samples for experiments*

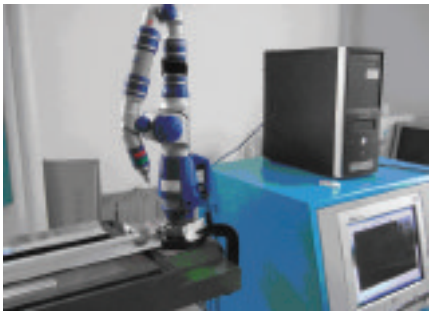


**Figure 5**: *Detection facility*

The adopted samples were precut aluminium sheets; there was an unavoidable error at the beginning and end of the forming section. When checking the forming section of the samples, it was decided to select three cross sections along the forming direction.

The distances from the beginning section were 400mm, 500mm and 600mm respectively. The detection facilities included a FaroArm Tumbler trilinear coordinates measuring instrument and one PC with CAM2 Measure software. The two detection facilities are shown in figure 5. To ensure that the checked section was normal to the axes of section, a V-type tank combined fixture was used to orient in the course of checking.

Discrete points on the section contour were measured by detection facilities. In this study, discrete points on the section were fitted by reverse engineering using soft Imageware and create section contour curve. Three forming sections of each sample were fitted and compared with the theoretical parabolic contour. Then, the symmetrical point of section was used as a coordinate (0, 0), shown in figure 6.

Because of the symmetry, only the positive half axle of a transversely unfolding coordinate of section was taken into account. This strip is divided equally into six parts, and on the divided point, the normal error between the forming section and theoretical parabolic contour is shown in table 1.

**Table 1**: *A normal error between formed section and theoretical parabolic contour (mm)*

| Sample No. | Formed section in Z coordinate (mm) | Transverse unfolding coordinate of section (mm) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | X=0 | X=10 | X=20 | X=30 | X=40 | X=50 | X=60 |
| 1 | Z=400 | 0 | 0.34 | 0.63 | 1.24 | 1.71 | 1.89 | 2.03 |
| | Z=500 | 0 | 0.35 | 0.69 | 1.54 | 1.97 | 2.06 | 2.08 |
| | Z=600 | 0 | 0.32 | 0.77 | 1.48 | 1.92 | 2.10 | 2.20 |
| 2 | Z=400 | 0 | 0.27 | 0.50 | 1.09 | 1.62 | 1.97 | 2.17 |
| | Z=500 | 0 | 0.27 | 0.59 | 1.26 | 1.79 | 2.02 | 2.18 |
| | Z=600 | 0 | 0.23 | 0.49 | 1.15 | 1.78 | 2.02 | 2.22 |
| 3 | Z=400 | 0 | 0.23 | 0.45 | 1.05 | 1.56 | 1.84 | 2.10 |
| | Z=500 | 0 | 0.32 | 0.58 | 1.17 | 1.68 | 1.98 | 2.23 |
| | Z=600 | 0 | 0.41 | 0.81 | 1.48 | 1.62 | 1.85 | 1.99 |

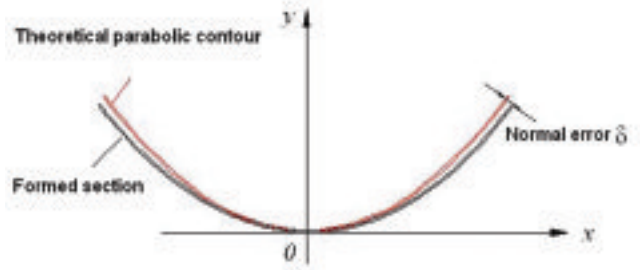



**Figure 6**: *Formed section and theoretical parabolic contour*

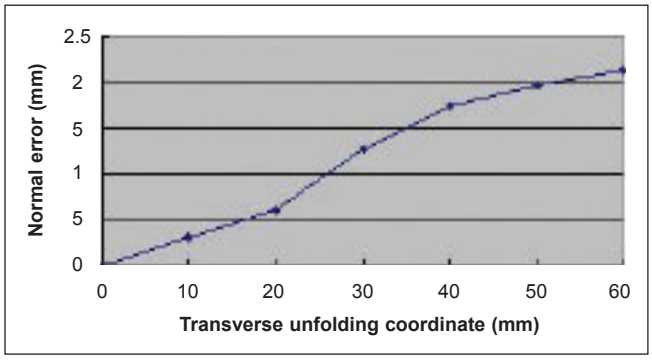



**Figure 7**: *Mean normal error between formed section and theoretical parabolic contour*

The mean value of normal errors of every divided point is shown in figure 7. Given the data of table 1, the maximum error lies in the edge part of the formed section, and its value is 2.13mm.

According to the fitting curve of the formed section, the curvature and direction of the normal line can be received. It is possible to determine the reflection path of the random beam reflected by formed section. Figure 8 shows the reflection path of the parallel light with a normal incidence reflected by the formed section and theoretical parabolic contour.

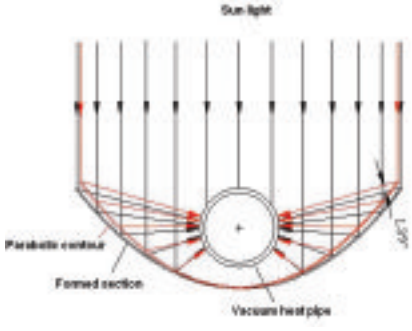



**Figure 8**: *Collation of spotlight performance of formed section and parabolic contour*

Once at this stage of the theoretical parabolic contour, there is a 1.39° deflection of the reflected light of the formed section's outset point. However, the reflected light can only be reflected to the effective decalescence position. According to the marginal ray principle[4], all of the parallel light arrives at the effective decalescence position after reflection by the formed section, which shows that the spotlight performances of formed section and parabolic contour are closed to a considerable degree.

## 4. Finite element analysis simulation

For practical engineering, the required parabolic parameters and experimental model cannot be fully in accordance. The method involves an extensive application of the feasibility of the forming parabolic using rollforming and the accuracy of roll design. Therefore, finite element analysis was used for the forming process of the parabolic section in this study. Rollforming is a complicated non-linear problem. Therefore, the forming process for the parabolic section was simulated by the commercial FEA software MSC Marc.

### 4.1 Finite element analysis simulation of forming process experiments

Because the rollforming process is very complicated, the FEA model used in simulation should be simplified according to the practical condition. In this study, during setup of the simulation forming model, sheet material is deformable and the roll is rigid, and friction force is not considered. Sheet material fed through the rolling tool is replaced with a quarter roll sliding on the strip, and the entire long sheet material is replaced by precut pieces of strip.

The centre distance between two stations is 250mm, and the length of precut strip material is 300mm and the width 120mm. The strip is divided equally to 60 elements in X-axis (transverse direction) and 50 elements in Z axis (forming direction). There are 3,000 elements in total, and the element thickness is the practical thickness of forming aluminium sheet (0.48mm). The element type is No.139 with 4 nodes of thin shell. The simulation geometric model is shown in figure 9.

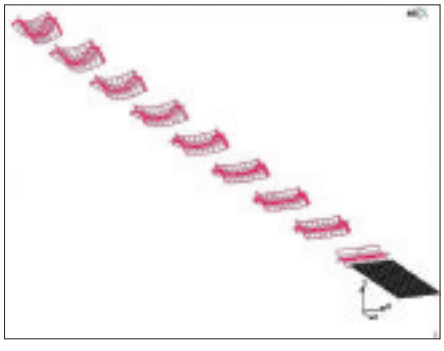


**Figure 9**: *Simulation geometric model*

Boundary conditions comprise the fixed displacement at the beginning and end of the forming strip in Z direction, and all fixed displacement areas on the centre point of the end strip in X direction. The Von Misses yield and isotropic hardening criterion were used.

In the simulation result of the forming strip, displacement in Y axis (vertical direction) is shown as figure 10. Here different colours have been used to represent different displacement. It can be observed that Y displacements of the forming strip are always shown as the same colour, which means that the length of the forming direction of the parabolic section is uniform and the forming of the parabolic section is comparative.

| Sample No. | Formed section in Z coordinate (mm) | Transverse unfolding coordinate of section (mm) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | X=0 | X=10 | X=20 | X=30 | X=40 | X=50 | X=60 |
| 1 | Z=400 | 0 | 0.16 | 0.22 | 0.25 | 0.37 | 0.49 | 0.55 |
| | Z=500 | 0 | 0 | -0.04 | 0.21 | 0.31 | 0.10 | -0.15 |
| | Z=600 | 0 | 0.16 | 0.18 | 0.43 | 0.50 | 0.28 | 0.07 |
| 2 | Z=400 | 0 | -0.07 | -0.19 | 0.04 | 0.2 | 0.14 | 0.11 |
| | Z=500 | 0 | -0.06 | -0.10 | 0.25 | 0.36 | 0.2 | -0.04 |
| | Z=600 | 0 | -0.11 | -0.20 | 0.10 | 0.35 | 0.38 | 0.44 |
| 3 | Z=400 | 0 | -0.11 | -0.23 | 0 | 0.13 | 0.01 | -0.11 |
| | Z=500 | 0 | -0.01 | -0.1 | 0.12 | 0.25 | 0.15 | 0.07 |
| | Z=600 | 0 | -0.18 | -0.27 | 0.05 | 0.27 | 0.20 | 0.05 |

**Table 2**: *A normal error between simulation section and formed section (mm)*

### 4.2 Simulation result analysis

The formed section can be compared with the simulation result. For analysis, the experiment results had 3 corresponding sections that keep the distance respectively of 400mm, 500mm and 600mm to the beginning of the formed strip. For this reason, 3 sections were picked that keep the respective distances of 100mm, 150mm and 200mm to the start of strip simulation.

Firstly, coordinates are based in the unfolding centre of the formed section. Because of the symmetry, only the positive half axle of transversely unfolding section coordinates is taken into account. Then, this strip is divided equally into 6 parts, and on the divided point, the normal error between formed section and simulation section is shown in table 2. In the table, the positive value shows that the simulation section is blow formed section on the divided point, and the negative value shows that the simulation section is formed from above on the divided point.

The mean value of normal errors of every divided point is shown in figure 11. Given the data of table 2, the maximum error is 0.3mm. It is observed that simulation section and formed section are basically identical, and simulation results in high precision, so that simulating results are reliable for engineering design.

### 4.3 Finite element simulation of aluminium sheet forming process with the thickness of 0.5mm

In order to establish the thickness difference of material and roll design setting, 0.5mm thickness aluminium sheet is used for finite element simulation. The error is compared with a simulation strip thickness of 0.48mm.

**Table 3**: *A normal error between simulation section and idea parabolic section (mm)*

| Formed section in Z coordinate (mm) | Transverse unfolding coordinate of section (mm) | | | | | | |
|---|---|---|---|---|---|---|---|
| | X=0 | X=10 | X=20 | X=30 | X=40 | X=50 | X=60 |
| Z=100 | 0 | -0.12 | -0.2 | -0.33 | -0.35 | -0.56 | -0.95 |
| Z=150 | 0 | -0.17 | -0.17 | -0.31 | -0.38 | -0.5 | -0.88 |
| Z=200 | 0 | -0.11 | -0.21 | -0.29 | -0.36 | -0.54 | -0.89 |

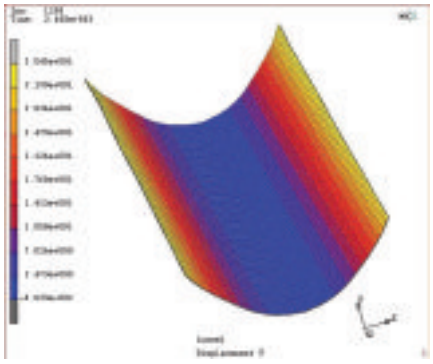


**Figure 10**: *Simulation forming result of strip*

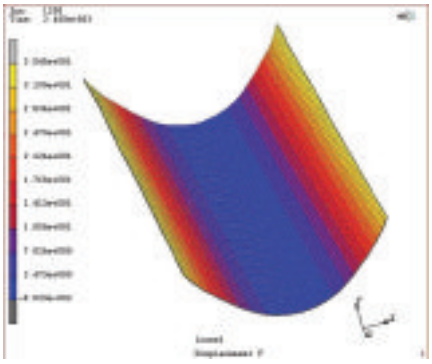


**Figure 12**: *Simulation of aluminium sheet with 0.5mm*

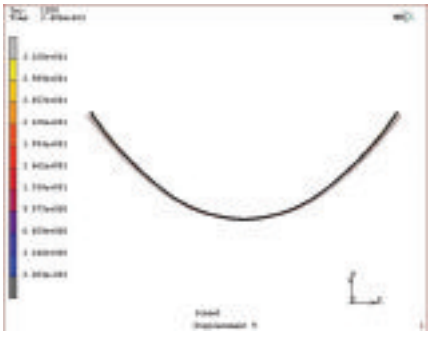


**Figure 13**: *Simulation section compared with idea contour*

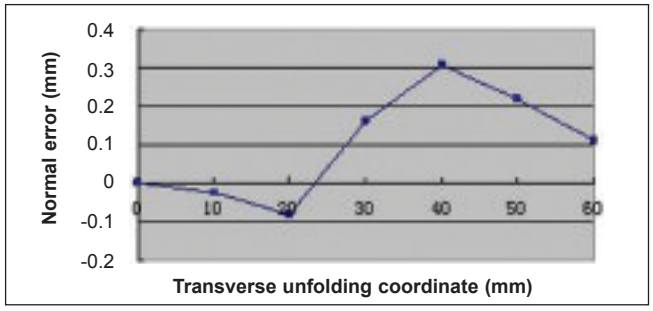



**Figure 11**: *Even normal error between simulation and formed section*

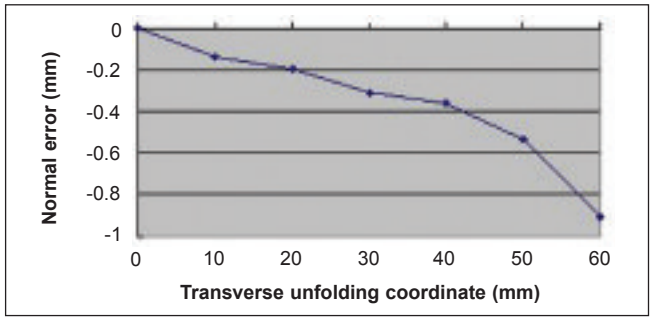
With the same simulation model, the thickness of sheet material and thickness can be changed to 0.5mm, with no other setting change kept. The simulation forming result is shown in figure 12.

For the simulation forming result, three sections with a distance of 100mm, 150mm and 200mm to the beginning of forming, are taken to contrast with the contour concept. These results have been analyzed and are shown in figure 13. Here it is possible to view the positions as the simulation section, and the below concept of parabolic contour.

Firstly, there are coordinates in the unfolding centre of the parabolic contour concept. Because of the symmetry, only the positive half axle of the transversely unfolding section coordinate is taken into account. Then, this strip is divided equally into six parts; on the divided point, the normal error between the forming section and parabolic contour concept is shown as table 2. In the table, the negative value shows that the simulation section is above the forming section on the divided point.

The mean value of normal errors of every equally divided point is shown in figure 14. Given the data of table 3, the maximum error is

**Figure 14**: *Even normal error between simulation section and idea parabolic section*




0.9mm. It is observed that when using aluminium sheet with 0.5mm to form in an experiment, the parabolic contour concept and formed section are basically identical. This shows that the main reason causing relatively large deviation between experiments of formed section and idea parabolic contour, is deviation of the existing thickness between experiment materials and designed materials. At the same time, the correctness of the forming method and the roll shape design is proven.

## 4. Conclusions

1. It has been established that in engineering a method is possible that uses the circle arc to fit parabolic contours and uses subsection arc over the bending method to rollform a parabolic section.
2. When using rollforming to form a parabolic section, the formed section can be controlled with a limited error. The spotlight performance can work normally as a reflector of solar energy.
3. It can be observed that the simulation strip and formed sections are basically identical, and FEA simulation can provide reliable results for engineering design.
4. The Biswas formula is adequate for the calculation of rollforming springback on multi-curvature section.

## 5. Acknowledgements

The authors would like to thank Mr Delin Guo of the Central Research Institute of Building and Construction MM, who was consulted during this study.

## 6. References

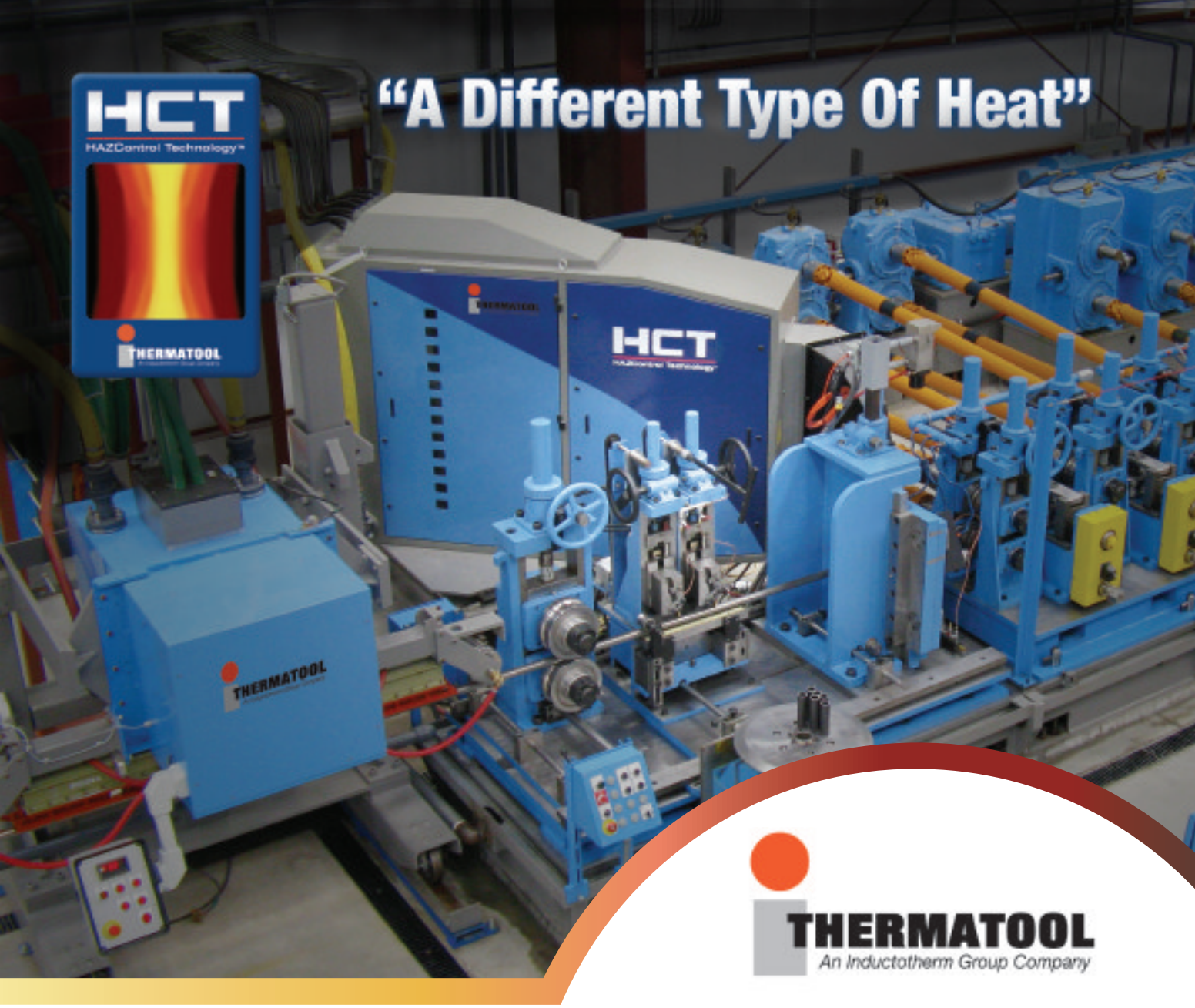
[1] Yang Hefeng, Yang Weizhi, Yang Shulan. *'The effect and optimal design of solar energy reflector used for vacuum heat pipe'*. [J] Rural Energy, 2000(1):12
[2] Liu Fang，Xin Yongjie. *'The application of CPC used in solar energy heat collector'*. [J] Solar Energy, 2001 (2): p18-19
[3] data M Software GmbH. Copra RF Software user manual, [K] Germany: [sn], 2007.7
[4] Zhang Shengzhu, Cui Wenxue. *'The principle of CPC design'*. [J] Solar Energy, 2004 (5): p41-43

**North China University of Technology**
**Fax**: +86 10 88801107
**Email**: Jiyingliu@vip.sohu.com
**Website**: www.rollforming.com.cn

# ADVERTISERS INDEX


ABS Utensili Srl ....33
Meccanica Adda Fer Srl ....11
Alcobex Metal India Ltd ....44
Arvind Anticor Ltd ....40
ATE Applicazioni Termo Elettroniche Srl ....59
Ava-Matic (UK) Ltd ....98
Axxair SA ....103
Bhandari Foils & Tubes Ltd ....100
E.Braude (London) Ltd ....112
Bronx/Taylor-Wilson Ltd ....3
BS di Bazzani D & C Sas ....89
Camu Srl ....64
CML International SpA ....13
Combilift Ltd ....35
CON.T.R.A.S.T di Carlo Icardi ....16
CSM SpA ....106
Dee Tee Industries Ltd ....22
EFD Induction AS ....Inside Front Cover
Electronic & Engineering Co. (I). P. Ltd ....16
Emmedi - Saet Group ....Inside Back Cover
Entech Engineering Co Ltd ....45
Erne Fittings GmbH & Co ....18
Eurolls Group – Eurolls SpA ....25
Friulana Flange Srl ....100
Gallium Industries Ltd ....15
Guangzhou Hongda Steel Tube Co Ltd ....Insert 64/65
Haeusler AG Duggingen ....35
Han Sum Enterprise Co Ltd ....60
Hebei Longrun Pipeline Co Ltd ....77
IMS Messsysteme GmbH ....95
INEX Inc ....38
Jang Wuel Steel Machinery Co Ltd ....43
Jesse Engineering Co ....42
Jiangsu Guoqiang Zinc-Plating Industry Co Ltd ....74
Krystal Steel Mfg Pvt Ltd ....88
Kuhn Tec Bright Annealing Plant ....75
Kyoung Dong Machinery Co Ltd ....45
LAP GmbH ....65
Lessmann GmbH ....76
Limab AB ....107
Linsinger Maschinenbau GmbH ....66
Magnatech International BV ....17
MC-CCPIT ....111
Menegon Ennio S.A.S. ....62
Messe Düsseldorf Asia Pte Ltd ....114
Milltech Co Ltd ....1
Officine MTM SpA ....31
Myung-Jin Machinery Co Ltd ....19
Neureuter Fair Media (Tube 2010 Catalogue) ....47, 49
Numtec-Interstahl GmbH ....24
Olimpia 80 Srl ....85
Olympus NDT Inc ....29
Orbimatic GmbH ....104
Oto Mills SpA ....41
Ozimeks Ltd ....46
Randolph Tool Co Inc ....110
Reika GmbH & Co KG ....Front Cover
Richardson Electronics ....68
RSA Entgrat-u. Trennsysteme GmbH & Co KG ....39
Scan Systems Corporation ....34, 87
Sema Systemtechnik Sewing GmbH & Co KG ....12
Sen Fung Rollform Machinery Corporation ....38
Shandong Flying Casting & Forging Co Ltd ....48
Shandong Province SiFang Technical Development Co Ltd ....60
Shanghai Yueyuechao International Trade Co Ltd ....96
Shanghai Zhongyou Tipo Steel Pipe Co Ltd ....21
Shijiazhuang RuiDaTong Pipe Fitting Co Ltd ....57
Shijiazhuang Zhongtai Pipe Technology Development Co Ltd ....110
Shuz Tung Machinery Industrial Co Ltd ....108
Siemens VAI ....73
Sikora AG ....9
SLS Tubes Pvt Ltd ....70
SMI – Sistemi Meccanici Industriali Srl ....61
Socratech ....102
Sofratest ....84
Somo Produzione SpA ....101
SST Forming Roll Inc ....10, 23
Star Bend Srl ....88
Suraj Stainless Limited ....109
SVM Srl ....105
Tanitec Corporation ....113
T-Drill Oy ....67
TDS – Expo (Tubes & Fittings Ukraine 2009) ....63
Tecnofar SpA ....99
Tezet Technik AG ....14
The 6th China (Beijing) Int'l Steel Tube Industry Expo 2009 ....93
Thermatool Corporation ....Back Cover
Thermatool IHWT ....Back Cover
Tong Da Precision Enterprise Co Ltd ....98
Tracto-Technik GmbH ....109
Transfluid Maschinenbau GmbH ....90, 91
Tubetech Corporation Ltd ....86
Tubificio di Terni ....69
Tuboscope Vetco International ....83
USM Mazzucchelli Srl ....36
WeiFang HuoDa Pipe Fittings Manufacture Co Ltd ....2
Wenzhou Chisin Valve Co Ltd ....113
Winner Stainless Steel Tube Co Ltd ....14
Wonjin Industrial Co Ltd ....20
Zhejiang Yuanan Liquid Equipment Co Ltd ....12
Zibo Wel-Fit Metal Products Co Ltd ....20
Zumbach Electronic AG ....81


Via Torino, 213
I-10040 Leinì
(TORINO) ITALY
Tel. +39.011.9977999
Fax. +39.011.9974328
www.saetgroup.com
www.emmedi.it
info@saetgroup.com




THERMATOOL
An Inductotherm Group Company

Thermatool Solid State HF Welders are unique, able to provide precise independent control of weld power and frequency. This proven technology is enhanced by the new HAZControl Technology™, a control platform designed to benefit operators by:

- Making it easier to achieve the best weld using different combinations of weld power and weld frequency, on each and every mill run.
- Storing product process parameters for quick, easy, automatic operation on future mill runs.
- Consistently delivering the highest weld quality.
- Enhancing operator skills and reducing process variability and costly scrap.
- Simple control of your process parameters.

**For the most reliable return on your investment, turn to Thermatool.**

**Thermatool Corp.**
East Haven, CT 06512, USA
Tel: +1 (203) 468-4100
E-mail: info@ttool.com
www.thermatool.com

**Thermatool IHWT**
Basingstoke, Hants RG24 8NA,
England
Tel: +44 (0) 1256 335533
E-mail: info@ihwtech.co.uk
www.inductotherm-hwt.co.uk

INDUCTOTHERM GROUP

Leading Manufacturers of Melting, Thermal Processing and Production Systems for the Metals and Materials Industry Worldwide.