Tube Products INTERNATIONAL
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The World of Tube & Pipe Products, Materials & Ancillaries
April 2010

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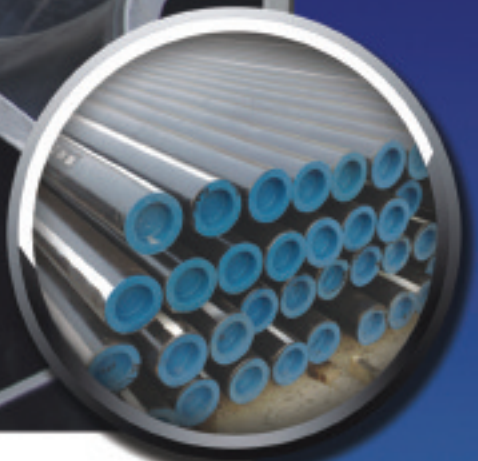

HEBEI XINGHAO PIPELINE EQUIPMENT MANUFACTURING CO., LTD.

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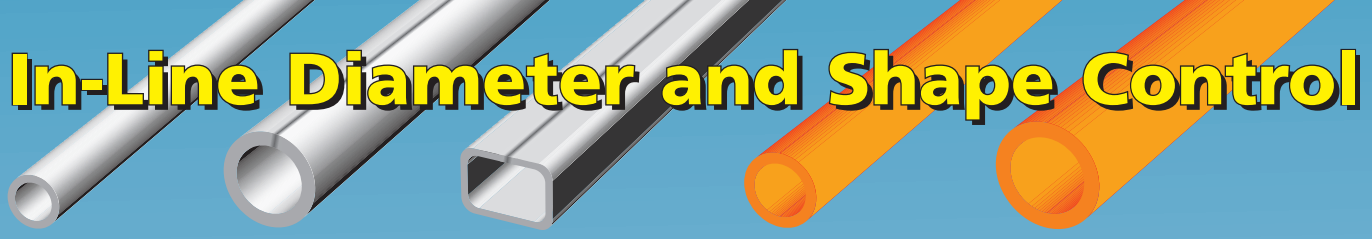

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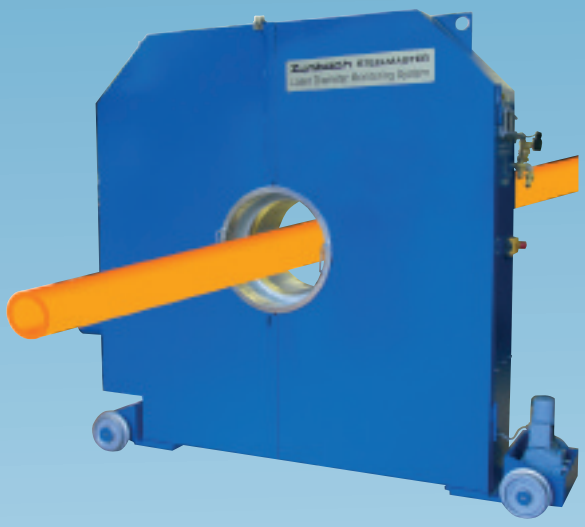

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***Largest product depending on centering**

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NEW

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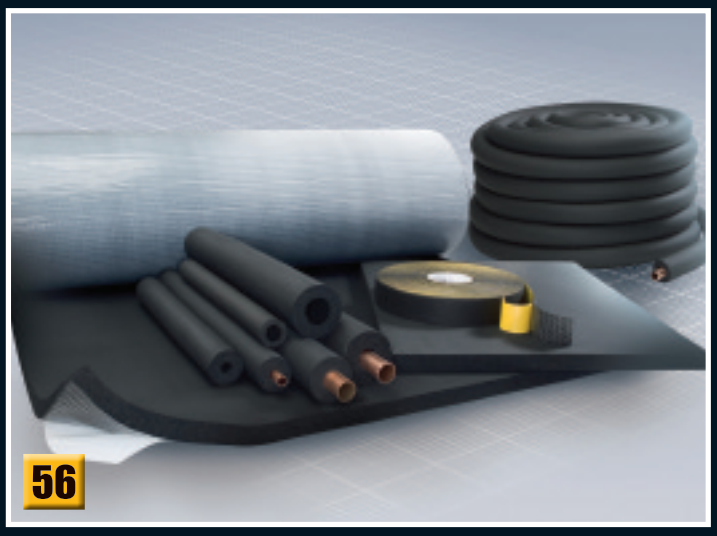

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April 2010

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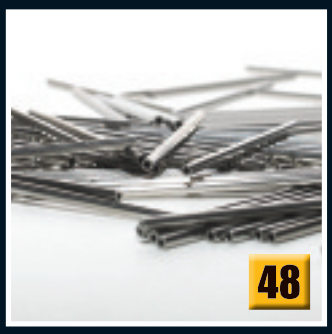


Tube Products INTERNATIONAL

The World of Tube & Pipe Products, Materials & Ancillaries

A busy year ahead

Welcome to the April issue of Tube Products International, which this month focuses on small diameter, high precision tubes and coated pipes and tubes as well as the usual round-up of all the latest business and marketing and product development news. Also don't forget to have a look at our technical article this month, which deals with present and future developments in carbon steel tubular products and offers some fascinating insights into the processes involved in making domestic tubing and how the methods are likely to evolve in the future. Also, we'd love to hear your feedback if you have found any of our articles particularly useful or if there are any areas that you might find it interesting for us to focus on in the future.

There's been lots of tube and pipe news dominating the headlines in Europe recently, especially on the Eastern fringes of the continent with moves to expand gas lines that supply the precious resource to Western Europe. The Nabucco Gas Pipeline, at 3,300 kilometres, will link Western Europe to the Caspian region, theoretically breaking Russia's monopoly on gas supplied to the West, a move that places it at the heart of a power play over who supplies Europe with gas. Construction is planned to start in 2011, but before that can happen there is the issue of financing the pipeline, whose investment costs amount to about €7.9bn ($11.03bn). The final go ahead is due to be given this summer.

In terms of raw materials Nabucco will require 2m tons of steel, 200,000 pipes and more than 30 compressor units. The diameter of the pipeline will be 56" (1,400mm). It will be interesting to see how it develops over the crucial next 12 months, especially with plans for rival pipelines already at an advanced stage.

The Intras team will, as I write, soon be flying out from the UK to Germany for the Tube Düsseldorf show so I hope you had a very successful event for your company and that you found Düsseldorf offered its usual warm welcome.

With Tube Düsseldorf now out of the way the rest of 2010 shows no sign of slowing down when it comes to tube events. Tube Russia, Tube China, EuroBLECH and then Fabtech in November will be upon us before we know it, and 2011 looks like being even more packed. Watch out for more details in forthcoming issues.

Talking of which next issue we have some interesting features on stainless steel tubes, Tube China and EuroBLECH 2010 so make sure that you submit your editorial by the closing date of 2 June.

Rory McBride
Editor

events calendar

2010

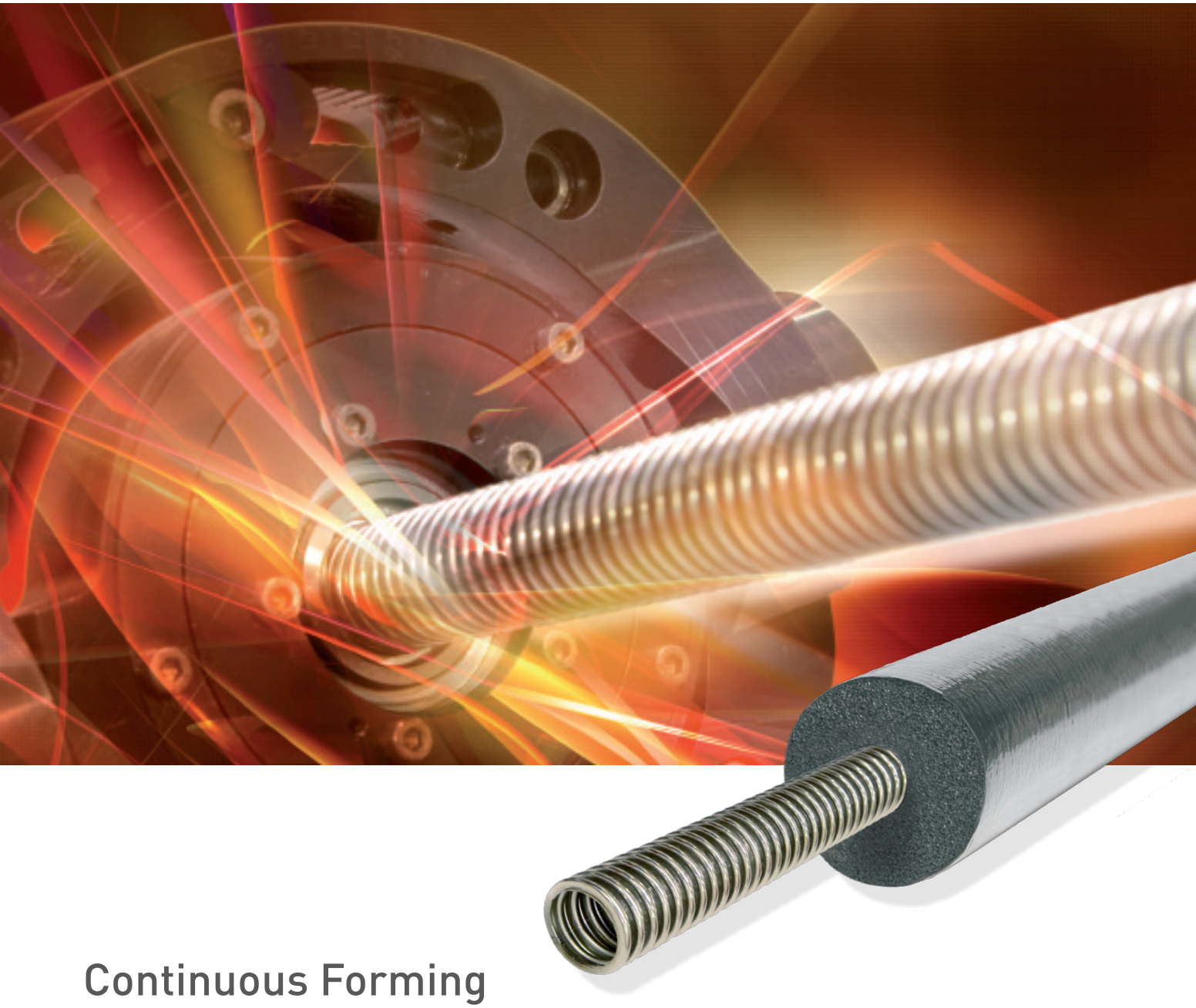
24-27 May	**Tube Russia 2010** International Exhibition www.metallurgy-tube-russia.com
21-24 September	**Tube China 2010** International Exhibition www.tube-china.net
26-30 October	**EuroBLECH** International Exhibition www.euroblech.com
2-4 November	**Fabtech / AWS Welding Show** International Exhibition www.fabtechexpo.com
30 November – 2 December	**Valve World Expo** International Exhibition www.valveworldexpo.com

2011

8-11 January	**Tekno / Tube Arabia 2011** International Exhibition www.tube.de
11-14 January	**SteelFab** *(Sharjah, UAE)* International Exhibition www.steelfabme.com
3-6 March	**BORU 2011** International Exhibition www.borufuari.com
13-15 September	**Tube Southeast Asia** International Exhibition www.tube-southeastasia.com
19-24 September	**EMO Hannover** International Exhibition www.emo-hannover.de
4-6 October	**Tubotech** *(Brazil)* International Exhibition www.cipanet.com.br
13-16 November	**Fabtech / AWS Welding Show** International Exhibition www.fabtechexpo.com
TBA	**Tolexpo** *(Paris)* International Exhibition www.tolexpo.com

For further information on any of the above events please contact INTRAS Limited UK office (address and contact details on page 4)

Tape Forming • Welding • Calibration • Corrugation



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Booth A74

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www.rosendahlaustria.com

KNILL Gruppe

The former Highbury Stadium, transformed into 'The Stadium' residential development

Polypipe Terrain helps redevelop a piece of history

An above-ground drainage system from Polypipe Terrain has been used on a high-profile project to transform the previous home of Arsenal Football Club into one of the most sought-after residential developments in London.

Terrain Drainage plastic piping products have been installed throughout 'The Stadium' development at Highbury Square, which now houses over 700 apartments.

The project involved the retention of the Highbury Stadium's original West Stand facade and the Grade II listed East Stand facade.

New accommodation blocks were created around the old pitch area, which has been transformed into communal gardens for the residents.

"We have worked on very many previous high profile developments and the level of engineering expertise we have brought to these projects has often been an important factor in winning the contract," commented Adam Turk, sales and marketing director of Polypipe Terrain.

In addition to its standard range of above-ground soil and waste products, Polypipe Terrain also supplied the project with quantities of bespoke 2" soil manifolds, which were specially prefabricated off-site in the Terrain factory. This helped speed the installation process and save installation time on-site.

"The plastic piping systems we provide are ideal for creating this type of bespoke product," added Mr Turk. "They are also well-suited to today's construction industry as they can easily adapt to suit the demands of off-site fabrication and other modern methods of construction."

Polypipe Terrain – UK
commercialenquiries@polypipe.com
www.polypipe.com

Indian company unveils ERW precision tubes

Grow Ever Steel manufactures ERW precision tubes (round, RHS and SHS) and tubular components, in a state-of-the-art factory located in Falta, India.

The company specialises in manufacturing close tolerance tubes in the range of 19 to 80.1mm OD, with thickness range of 0.6 to 3.5mm, suitable for use in the automotive, light engineering, medical equipment, construction and furniture sectors.

The company has installed high precision equipment from Germany to provide a complete solution for internal fin scarfing. Grow Ever Steel can cater to customers' specific requirements on an individual basis, and it also states that it can supply material within a maximum of 15 days from the date of order, of any size in the company's range.

Grow Ever Steel (India) Pvt Ltd – India
growever@groweversteel.com
www.groweversteel.com

Greenville Tube reveals it has attained ISO 9001:2008 certification

Greenville Tube, a RathGibson company, is a manufacturer of small diameter, stainless steel and nickel alloy, seamless and welded and drawn tubing and pipe. The company's ISO 9001:2008 management system certification acknowledges that Greenville has met and continues to meet a high standard of product development and manufacturing. Along with the successful achievement of documentation management, effective policies have been established to allow for streamlining all internal process steps, which lead to a better quality product.

"Greenville employees are dedicated to meeting our customers' needs for a high quality product," said Clint Blunier, general manager at Greenville Tube. "Along with industry leading quick turnaround times, all of our tubing is produced according to an ISO approved quality management system. The ISO certification shows our continuing commitment to providing our customers with the best."

Greenville Tube supplies a portfolio of stainless steel, duplex stainless steel, nickel, and super austenitic alloys for seamless and welded and drawn tubing with outer diameters (OD) as small as 3.18mm (1/8"). Greenville can also custom manufacture tubing with OD ranging from 3.18 to 38.1mm, in various wall thicknesses, and lengths up to 18.3m.

Greenville Tube – USA
www.greenvilletube.com

Welspun Gujarat achieves $250mn capital market fund raising

Welspun Gujarat Stahl Rohren Ltd (Welspun), the line pipe manufacturer and flagship company of the Welspun Group, has successfully completed a US$250mn capital raising exercise.

The capital raising was achieved by way of a $150mn Foreign Currency Convertible Bonds (FCCB) offering (placed in October 2009), and $100mn in the form of Qualified Institutional Placements (QIP) of equity shares, placed recently. The company's largest ever capital market initiative was well received among domestic and institutional investors.

The funds will be used to invest for capital expenditure, retirement of high cost debt, investments in growth opportunities and other usage in accordance with applicable statutory and/or regulatory requirements. The new shares being issued under QIP will be listed on the Bombay Stock Exchange and National Stock Exchange, and the FCCBs are listed on the Singapore Exchange. JP Morgan has acted as the sole book-runner for both FCCB and QIP.

Mr BK Goenka, chairman and managing director of Welspun, commented, "Successful placement of FCCB and QIP reiterates the trust and belief that the investors repose on us. This fund raising will pave way for the accelerated growth journey of Welspun and the company becoming one of the most respected pipe companies in the world."

Welspun Gujarat Stahl Rohren commenced activities in 1995, and has supplied pipes for prestigious projects including the world's deepest pipeline project in the Gulf of Mexico, and other critical projects across the globe. The company's plate and pipe plants are located in Dahej and Anjar in Gujarat, India.

The company has also commissioned a pipe mill in Little Rock, Arkansas, USA. The manufacturing facilities incorporate hybrid JCO technology from Mannesmann Demag of Germany (SMS Meer).

Welspun – India
www.welspun.com

Holding Centravis certified by Aramco Overseas Co

Manufacturer of seamless stainless steel tubes, Centravis, has been successfully certified and has joined the ranks of the officially approved suppliers of Saudi Aramco, a leading company in the oil and gas sector.

During the audit of the Centravis Production Ukraine plant (Dnepropetrovsk region, Nikopol), representatives of Aramco Overseas Co visited the cold shop and the hot shop, and reviewed in detail the production technology, new equipment, environmental and social regulations, and product quality management system.

On 29 December 2009, according to the Internal Standards of Quality Management System and requirements to the production process technology of the companies Saudi Aramco Co and Aramco Overseas Co, and also of the International Quality Auditing System, Centravis was granted the status of official supplier of Saudi Aramco. This status ensures the possibility to supply seamless stainless steel tubes with outside diameter up to 114mm and U-tubes with outside diameter up to 38mm.

Yuriy Atanasov, general manager of Centravis Holding, commented, "It is a great honour for us to be in the rank of officially approved suppliers of the biggest company in the oil and gas sector in the Middle East. We plan to strengthen our cooperation by extending the certified product assortment up to the diameter 219mm."

Centravis's product portfolio includes more than 1,000 standard sizes of tubes and pipes of more than 100 types of corrosion-resistant and heat resistant steel grades in seven segments: general tubes and pipes; boiler tubes and pipes; heat-exchanger tubing; instrumentation tubing; furnace tubing; hollow bars; and Ni-alloys.

Products are used in the chemical and petrochemical industries, nuclear and thermal power engineering, non-ferrous metallurgy, machine and shipbuilding, and the food industry.

Centravis product quality is confirmed by international certificate EN ISO 9001-2000. Products are manufactured according to American standard ASTM, German DIN, French NF, Italian UNI, Russian GOST and TU.

Centravis Production Ukraine
info@centravis.com
www.centravis.com

Radius Systems' 710mm water pipe deployed in new water supply main

Following investment in new pipe extrusion lines and fittings for polyethylene (PE) pipe diameters up to 1,200mm, Radius Systems was selected for the supply of 710mm dark blue PE for the prestigious new water supply main from Fobney to Tilehurst near Reading, UK, a 7km scheme for Thames Water.

Butt-fused pipe awaiting installation for Thames Water

Contractor Murphy Group selected PE over ductile iron due to its engineering performance for this particular application.

The installation was in a high water table area, close to a water course, and running across fields in some sections, so long lengths of butt-fused PE proved advantageous. PE's flexibility also negated the need for many bends.

The installation is part of Thames Water's ongoing investment in its water network.

Radius Systems – UK
sales@radius-systems.co.uk
www.radius-systems.co.uk

CityPipe 2010

CityPipe 2010, 'Piping Systems for Municipal Infrastructure: Construction, Diagnostics, Repair and Operation', will be held in Moscow, 1-4 June, in the IEC Crocus Expo exhibition complex.

Initially part of the ECWATECH water and wastewater technology show, CityPipe has now become a separate exhibition, attracting companies from other industry sectors of municipal utilities, including gas, power and heat supply, and communications.

In 2010, the 5th International Trade Fair and Conference CityPipe will be presented in parallel with ECWATECH and the NO-DIG Moscow exhibition.

The exhibition will incorporate subjects such as pipes and manholes; equipment for pipe manufacturing; valves and fittings; pipeline laying and repair; technologies, machines and materials for construction and repair of piping systems; trenchless technologies; operation of piping systems; machines, equipment and materials for piping systems operation; pipeline inspection; quality control; corrosion prevention; design and research; and IT technologies in piping systems design and operation.

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Venue: China Import and Export Fair Pazhou Complex

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OMS to sample flow line pipe ends for Gumusut-Kakap oil field

UK-based specialist measurement technology company Optical Metrology Services (OMS) Ltd has been awarded a contract to undertake dimensional measurement of pipes for the Gumusut-Kakap oil field installation, the first Shell deepwater project in Malaysia.

The three-week project requires OMS to carry out critical analysis and sampling of around 3,500 pipe ends and seven different sizes of pipe. The pipe ends will be used for both steel catenary risers (SCRs) and flow lines.

OMS will carry out critical analysis and sampling of around 3,500 pipe ends

The Gumusut-Kakap field will be a semi-submersible Floating Production System (FPS) configured for the mild offshore environment North-West of Sabah, Malaysia, within the Indian Ocean. All wells are subsea, with oil and condensate exported via a pipeline to shore. In total, there will be 27 riser porches and 13 pull tubes on the Host FPS, of which 10 riser porches and five pull tubes have been allocated for the initial J and K field development.

OMS will provide assistance in the planning and execution of the creation of the J-Lay double joints. This process will enable the most round pipes to be allocated to the more critical areas of the pipeline, where they will be fitted together using a mixture of selection and rotation in order to provide the required fit up to less than 0.5mm that SCRs demand. Those pipes that are more difficult to fit together will be used in less critical areas.

OMS will also advise Serimax on the most suitable dimensions of the J-lay collars for welding the pipe ends. This will ensure the easiest and best fit up of pipes offshore, where it is essential to minimise the time and costs of the pipe-laying vessel. The pipe laying installation contractor on the Gumusut-Kakap project is SapuraAcergy. OMS was awarded the contract from the welding contractor for the project, Serimax.

OMS is a specialist measurement technology company that provides measurement services and precision measurement systems to the oil and gas industry. A key focus for the company is in the dimensional measurement of oil and gas pipes or other similar structures such as aero engines, process industry tubes or manufactured cylindrical objects, where dimensions are critical.

Optical Metrology Services Limited
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hugh@optical-metrology-services.com
www.optical-metrology-services.com

Welspun Gujarat nets orders

Welspun Gujarat Stahl Rohren Ltd, the flagship company of the Welspun Group, has won orders worth Rs 600 crore for pipes and plates from its global clients. The orders include orders of specialised plates received from large windmill manufacturers.

Mr BK Goenka, chairman and managing director of Welspun said, “With these new orders, we have once again re-established our capabilities as quality plate manufacturer in both the international and Indian markets.”

The company’s pipe and plate plants are located in Dahej and Anjar in Gujarat, India. The manufacturing facilities incorporate hybrid JCO technology from Mannesmann Demag of Germany (SMS Meer).

Welspun – India
www.welspun.com

Hill & Smith completes sale of subsidiary

Hill & Smith, an international group in the supply of infrastructure products, galvanising services and building and construction products to global markets, has announced that it has completed the sale of its wholly owned subsidiary, Ash & Lacy Perforators Limited.

Ash & Lacy Perforators is a long-established business engaged in the manufacture of perforated and expanded metal, mainly supplied to the building and construction industry. It has been sold to A&L Perforators Limited, a newly formed company under the control of some of the existing directors of Ash & Lacy Perforators. The net sale consideration of approximately £1mn is payable in cash, and is subject to adjustment based on the net assets of Ash & Lacy Perforators following finalisation of completion accounts.

Commenting on the disposal, Derek Muir, chief executive of Hill & Smith, said, “We are continuing to strategically focus the group towards the higher added value infrastructure products activities and the sale of Ash & Lacy Perforators represents a further step in the completion of this strategy.”

Hill & Smith Holdings Plc
– UK
enquiries@hsholdings.co.uk
www.hsholdings.co.uk

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United Arab Emirates' largest pre-insulated pipe manufacturing facility inaugurated

HRH the Crown Prince of Denmark, Frederik and HH Sheikh Mansoor Bin Mohammed Bin Rashid Al Maktoum have inaugurated Empower-Logstor Insulated Pipes Systems (ELIPS), UAE's largest pre-insulated pipe manufacturing facility, in Jebel Ali. The move signifies UAE's drive towards diversification of economy in order to sustain growth.

ELIPS is a joint venture between district cooling company Emirates Central Cooling Systems Corporation (EMPOWER), and Logstor, a manufacturer of pre-insulated pipes. The $25mn facility will cater to the requirements of district cooling services and oil and gas across the Middle East. District cooling is said to be over 50% more efficient than conventional air conditioning solutions; it also removes the heavy load on the electricity grid when demand for cooling is high.

ELIPS will ensure high quality of insulation and casing of pipes, enhancing efficiency and maintenance costs of district cooling systems services. It will also ensure price control by improving supply chain and eliminating artificial price fluctuations created due to the demand-supply gap.

The opening ceremony at the ELIPS facility

Ahmad Bin Shafar, CEO of Empower (51% partner), said: "ELIPS will also specialise in and supply pre-insulated pipes to the oil and gas sector as well as district cooling. Through ELIPS, Empower will be saving between 15–25% on the cost of pre-insulated pipes for its various projects."

ELIPS will benefit from its location in Jebel Ali Industrial area, which will provide easy access to both Dubai and Abu Dhabi markets, which are one of the largest markets for district cooling and oil & gas sectors in the region.

Logstor has been serving the Gulf region since 1992 and is now marking its commitment to serve the region by establishing an anchored presence with the ELIPS factory.

ELIPS uses spray technology for manufacturing large diameter pre-insulated pipes, which will ensure high quality products and also result in savings in raw material costs compared to traditional injection technology. The company states that currently only one out of five existing pre-insulated pipe manufacturers use spray technology.

Logstor – Denmark
logstor@logstor.com
www.logstor.com

Aerospace tubing manufacturer celebrates being first US tubing company to attain dual Nadcap accreditation

Plymouth Tube Company's Salisbury Mill has attained Nadcap accreditation for both heat treating and material testing laboratories. The mill is claimed to be the first North American tubing manufacturer to earn the dual accreditation from Nadcap for seamless stainless aerospace tubing.

Nadcap accreditation is becoming widely accepted as the standard in the worldwide aerospace industry. The audits at Plymouth Tube – Salisbury were performed by PRI (Performance Review Institute). In addition to Nadcap, the Salisbury mill also is certified under ISO9001:2008 and AS9100 surveillance (International Aerospace Quality Management Systems). To meet these standards, process controls and testing procedures are utilised to ensure proper heat treatment of materials, eliminating the chance of inner granular corrosion, thereby reducing the risk of field failures. These process controls provide tubing that demonstrates uniform, repeatable mechanical properties, resulting in improved downstream fabricating processes.

Steve Bohnenkamp, VP sales & marketing at Plymouth Tube said, "We have been providing high quality tubing to the aerospace industry since the 1920s. Earning Nadcap accreditation for both heat treating and material lab testing reinforces our long term commitment to being a leading supplier of tubing and special shapes to the global aerospace industry."

Plymouth Tube Co supplies the aerospace, transportation, energy and industrial markets. Steel, nickel and titanium extruded and cold drawn shapes are produced by Plymouth Engineered Shapes, while Plymouth Tube Co Chicago Processing offers coil slitting and a wide variety of edging options.

Plymouth Tube Co – USA
sales@plymouth.com
www.plymouth.com

Pipe Center named best supplier/ manufacturer by Briggs & Forrester

Pipe Center has been awarded a Certificate of Excellence for best supplier/manufacturer by one of its major customers, Briggs and Forrester Group.

The award was presented to Pipe Center, Wolseley's specialist supplier of commercial and industrial heating plant and pipe systems, when Briggs & Forrester hosted its 3rd annual Supply Chain Presentation.

The top supplier award is judged on a range of criteria and measures used to determine the winner included on-time and correct delivery, adherence to delivery procedures and office cooperation.

Key account manager for Pipe Center, Rob Townley, who collected the award at a ceremony at the Hilton Hotel, Northampton said, "To win an award from a customer is a real accolade. It's a credit to the whole team and we are all delighted to have done so well in a category that included strong competition. It's certainly an endorsement of our commitment to customer service and we fully intend to maintain these high standards of service in the future."

Pipe Center is a supplier to mechanical services and plant engineers, offering expertise in pipe fabrication and tube, valves and fittings in steel, plastic, copper, stainless steel and commercial/ industrial heating and air conditioning equipment.

The company has been a long-term supplier of valves, tubes, fittings and off-site fabrication to the Briggs & Forrester Group.

Paul Burton, managing director, Briggs & Forrester, commented, "Quality and customer service are two of Briggs & Forrester's core principles and we value the same level of commitment to them from our suppliers. Pipe Center clearly demonstrated these values and is a worthy winner of this award."

Rob Townley of Pipe Center (right) accepts the award from Briggs & Forrester procurement director Darren Grizzell

Wolseley UK
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Automated welding – forging ahead

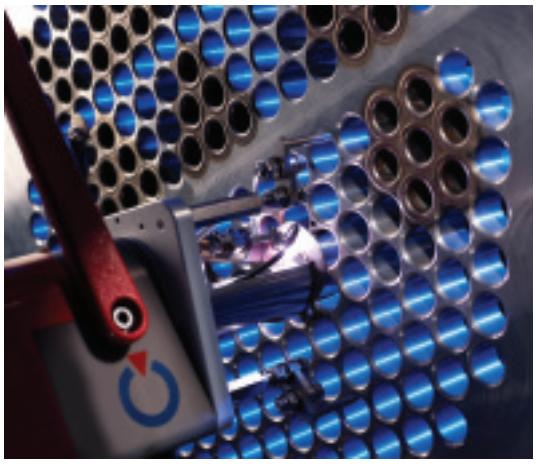
Polysoude has posted financial results showing a rise from €12mn in 2000 to over €33mn in 2009, and states that its success is the result of continuous forward planning, which can be broken down into a number of key factors.

Welding of a distribution line for ultra pure water in the pharmaceutical industry

The company has developed generators and welding heads since 1960, together with the software enabling it to be at the cutting edge of technology. Its innovative equipment combines performance and ergonomics.

Another success factor is its international outlook, with 50% in Europe and 85% exported globally. In recent years, emerging countries/regions such as China, India and the countries of Eastern Europe (including Russia, the Czech Republic and Poland) have played an increasingly decisive part. In these regions Polysoude has become established locally with its own teams.

A major change is Polysoude's focus on mechanised welding with turnkey equipment. Based on the development of a range of generic and modular 'tools' (weld torches, motorised slides, wire feeders, etc) combined with numerical control for all applications, Polysoude has become a key partner in many industries, such as the construction of nuclear and conventional power stations. Particular attention is also given to another specific feature: cladding by mechanised welding technology, used in many industrial sectors which are faced with abrasion or oxidation which age tubular structures and their components exponentially when manufactured without the use of this technology.



Welding head type TS for tube to tubesheet joints

Polysoude SAS – France
a.husson@polysoude.com
www.polysoude.com

Wolseley announces board changes

Wolseley Plc has announced a number of board changes:

Steve Webster is stepping down as chief financial officer (CFO) and as an executive director. He leaves Wolseley following the completion of the £1 billion capital raising in April 2009 and the disposal of Stock Building Supply, which have significantly strengthened the group's financial position.

John Martin will join the company and will succeed Steve Webster as CFO and an executive director of Wolseley Plc, following an effective handover period. He joins Wolseley from Alchemy Partners, where he has been a partner since 2008. He was CFO at Travelex Group between 2006 and 2008, and prior to that spent six years at Hays Plc, a specialist recruitment company, in senior finance positions including three years as CFO.

In order to focus on business unit performance and accelerate decision making in response to local market conditions, there will no longer be a role of chief executive officer (CEO) of Europe. Therefore, Rob Marchbank, the holder of this role, is leaving the group and will cease to be an executive director.

As a result of this action, the regional managing directors in the principal geographic regions in Europe, namely the UK, France and Nordic regions, will now report to Ian Meakins, group CEO.

Steen Weirsoe, managing director of the Nordic Region, and Philippe Gardies, managing director of France, will also join the group executive committee.

A recruitment process for a new managing director of the UK is underway. During the transition period Ian Meakins will assume overall operational responsibility for the UK.

Wolseley UK
www.wolseley.co.uk

Interpipe supplies pipes for oil terminal

Interpipe, Ukraine, has announced that it has supplied pipes for the building of an oil terminal in the port of Antwerp, Belgium. The volume of pipes supplied amounts to 2,000 tons.

The pipes have been produced according to the client's specific requirements, which included a bead-blasting treatment of pipes for surface condition SA 2.5 and a corrosion-resistant epoxy coating.

The new oil terminal will be used for the transfer and storage of mineral oil and oil-loading fleet replenishment tankers.

Interpipe – Ukraine
press-office@interpipe.biz
www.interpipe.biz

Record Carbon Trust loan project

The efficiencies of Teseo Air Systems' compressed air delivery systems have helped UK manufacturer Astrum to secure a prestigious £400,000 Carbon Trust loan – the largest interest-free loan awarded for a compressed air project in the UK. As a direct result of the Teseo-enhanced system, Astrum will save 1,253,800 KWHrs, which equates to £80,560 per year.

Teseo UK's hollow bar system (HBS) and aluminium profile (AP) compressed air delivery products satisfy efficiency and regulatory requirements, as well as providing a 100% leak free system combined with valved zoning. In an industrial application this versatility means that individual production areas can be automatically isolated when not in operation, to eliminate air leakage.

The company's aluminium extruded piping has an external rectangular section with tee slots and a fine, smooth internal bore, making it an attractive solution as well as practical. A wide selection of angle and straight joints and clamping brackets make the system totally flexible in layout and quick to install.

Teseo lines are lighter than traditional steel airlines, and so reduce stress on buildings. They are also more energy efficient due to higher flow rates of a smooth profiled aluminium tube (typically 30% higher than steel), which equates to a lower pressure drop and overall energy and cost savings.

The Carbon Trust's mission is to accelerate the move to a low carbon economy, by working with organisations to reduce carbon emissions and develop commercial low carbon technologies for the future. To encourage the move, the Carbon Trust offers interest free loans for business upgrades to eligible companies; any project that can demonstrate energy/cost savings in excess of the CO_2 threshold of 1.50 tCO_2/£1,000 of loan (minimum loan value £3,000) will be considered. The Carbon Trust audits all proposals before any loan is approved. Energy users can be certain that the energy savings claimed are accurate and will repay the capital within the loan term.

As part of a general drive to reduce manufacturing costs and increase production efficiency, independent consultancy Air Energy Management (AEM) was commissioned by Astrum to undertake an independent compressed air energy audit. Whereas most upgrades might focus on the compressor side of the system, AEM measures wastage from the system starting from the end-user interface and working back towards the power plant.

Richard Dainton, managing director of AEM explained why Teseo was so important to the project: "The Carbon Trust will not approve the loan unless they are sure that the energy savings are achievable. I put together a project justification to save energy through reduction of air leakage and effective pressure control. I included Teseo pipe work because it is 100% leak free and has low pressure drop which means less power needed to push the air around the system. The Teseo product was also anodised so the performance will remain constant over time, as it will not corrode."

Teseo UK
uk@teseoair.com
www.teseoair.com

Severn Trent Water awards Radius long-term contract

Radius Systems has been supplying Severn Trent Water with PE pipes for more than 10 years, and has recently been awarded a new contract from the company, for the supply of PE pipes plus electrofusion fittings.

The contract is for an initial three-year period, followed by options to renew for two further two-year periods. Radius Systems will supply potable PE blue and non-potable black pipes from 25 to 630mm in diameter, along with Puriton, Radius Systems' specialist barrier pipe for use in contaminated land, in diameters from 25 to 180mm. Innovative Radius products and systems, such as the QuickTee single-weld electrofusion fitting, were key elements featuring in the contract award.

Radius sales and marketing director Iain Knowles credited the contract win to high levels of delivery and performance: "We have proven our ability to deliver on an ongoing basis over a number of years, but more importantly our relationship with Severn Trent has provided them with a combination of short-term advantages and longer-term benefits. We are looking forward to providing more such benefits over the coming years."

Radius Systems electrofusion fittings will be supplied in addition to potable and non-potable pipes

Radius Systems – UK
sales@radius-systems.co.uk
www.radius-systems.co.uk

Hydratight excels at boring project

Hydratight has used its machining expertise to aid managers at the OMV refinery at Burghausen in the Bavarian 'Chemical Triangle'.

When optimising processes, OMV engineers wanted to improve tension on the base of two huge coker units. This required the precise change of geometry on different borings and slots, and this had to be performed 196 times.

"Geometry change of borings or slots isn't normally a big task, even though the admissible tolerance here was very tight," explained Hydratight's project engineer, Goetz Wagnitz. "The challenging part of the job was to achieve the same accuracy for all the slots, so the coker units wouldn't suffer out-of-specification stresses."

The entire project had to be completed during a scheduled 30-day shutdown – a rate of almost 11 completed slots per day, with two teams of Hydratight specialists working in shifts around the clock. To achieve the required accuracy the team developed a special milling frame, which allowed not only precise worm-gear driven control of the cutting head, but also fast set-up and transfer from slot to slot.

After testing several approaches at their workshop in Dietzenbach, on the outskirts of Frankfurt, the team came up with a super-stiff steel rig that could clamp to each coker unit with 18 super-powerful electro-magnets. "We needed something that offered not only fast set up, but also had to be vibration free, so we could achieve those very tight specified tolerances," explained Mr Wagnitz. "This rig could be fixed with completely free movement, thanks to the magnetic clamping system, so the single slot could be fixed horizontally or vertically to cut either hole or slot. Once the power was applied it virtually became part of the coker unit. And we designed it so the frame was only 70mm from the work surface. That meant vibration was kept to an absolute minimum."

OMV managers were said to be delighted with the result. "It was excellent research and development that produced the right tool specifically for this specific project," said Mr Wagnitz. "The work was completed in good time with the accuracy demanded and in the time allowed, and the coker units now operate just as the client wanted."

In other Hydratight news, the company has appointed two new product managers to oversee its machining and bolting services divisions.

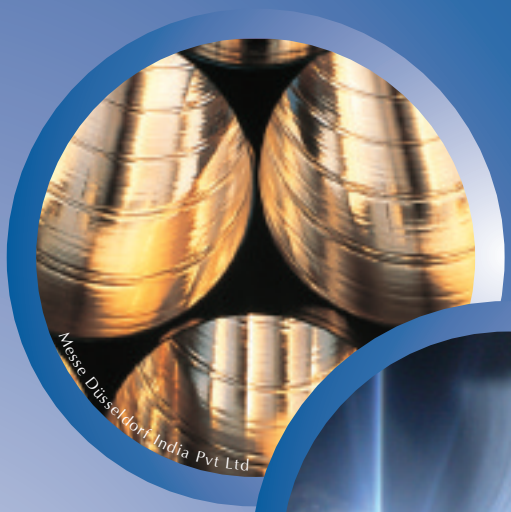
Mike Mroz, who joins Hydratight as machine product manager, has a strong track record of product development and market management. He is responsible for the strategic positioning of DL Ricci-brand machining products and product development.

Mark Ganey also has extensive experience in product management and development, having worked in a broad range of industries including general industrial, government, aerospace, petrochemical, oil & gas, healthcare, and laboratory science. As global product category manager for bolting, his responsibility is to manage and develop Hydratight bolting products and services.

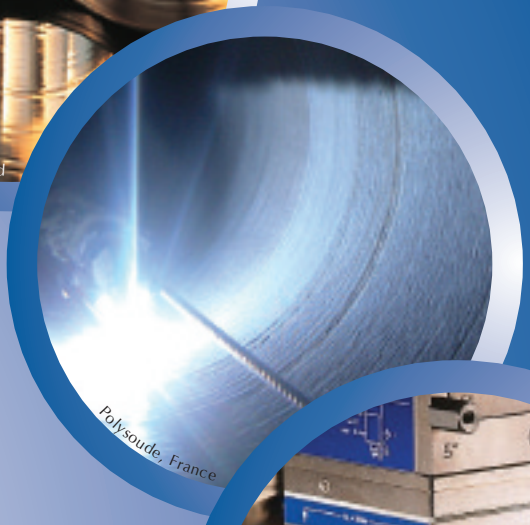
Hydratight – UK
roland.puetz@hydratight.com
www.hydratight.com

New machine product manager Mike Mroz

Global product category manager Mark Ganey



The international magazine for the tube and pipe industries



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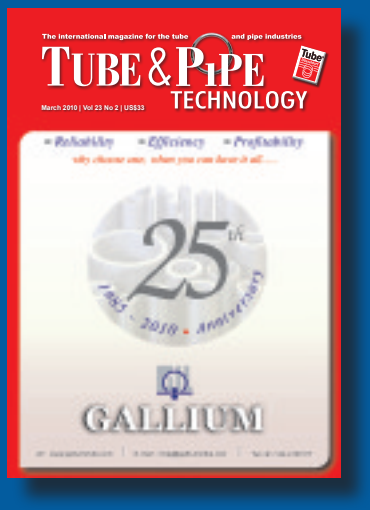

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High-temperature expandable system installed in Canadian SAGD well

Enventure Global Technology, a pioneer in solid expandable technology, has announced the successful installation of its new, SET® high-temperature cased-hole expandable system in a steam-assisted gravity drainage (SAGD) well in Alberta, Canada.

One of Canada's largest operators used Enventure's $9^{5}/_{8}$" x $11^{3}/_{4}$" high-temperature system to repair a casing integrity issue in the SAGD well. The 30ft liner was installed and expanded at a depth of 646ft (197m) and allowed the operator to continue using the well accordingly to its exploitation strategy.

"High-temperature conditions, like those in SAGD wells, place extreme stress on casing and pipe because of the cyclical nature of the steam injection process," said Greg Noel, Enventure's product commercialisation manager. "Our system repaired the casing so the operator could avert the high cost of re-drilling the well. There are thousands of wells in Canada and around the world that face the issues resolved by Enventure's new high-temperature system."

The newly developed expandable system is available in all of the currently available SET system sizes. It is rated to withstand temperatures up to 270°C (518°F) at pressures of 1,000 psi. As is the advantage with all expandable technology, the in situ expansion of the steel casing allows for maximised internal diameter and throughput.

Enventure Global Technology – USA
need.info@enventuregt.com • www.enventuregt.com

Off-site solutions as modular engineering takes off

Pipe Center, part of Wolseley Group, became the UK's first construction materials distributor to offer an off-site engineering service with the launch of its Modular Engineering business in 2009.

The facility, based at a dedicated 30,000ft² factory in Worcester, UK, designs and manufactures pre-fabricated, multi-service pipe work modules that include all of the building and electrical services required for the most complex buildings.

These include air conditioning, refrigeration, water, fire, ventilation, electrical supply and security.

Contracts to date include complete modular M&E solutions for a major regional healthcare facility, a shopping

Steel backing for internationally acclaimed choir

Caparo Precision Tubes, an expert in the manufacture and post-production manipulation of steel tube, has provided much-needed support to the famous Caldicot Male Voice Choir. The company donated hundreds of metres of steel tube for use in the construction of the stage for the choir's annual concert in March.

The Caldicot Male Voice Choir, which was formed in 1963, sang alongside the Three Tenors (Pavarotti, Domingo and Carreras) at their concert at Wembley Stadium in 1996, and also performed at Her Majesty the Queen's Golden Jubilee, held at Buckingham Palace in 2002.

While preparing for its 2010 annual concert, the choir's management realised that they would require additions to the current staging for the event, to enable the choir to be staged in an arc formation by using wedge sections of steel frames. They contacted Caparo Precision Tubes with a request to assist in the supply of steel tube for the frames. The stage needed to fit the choir's purpose-built hall and the local leisure centre, be sufficiently load bearing, and provide a quality long-term solution for the formation. After establishing the exact requirements, Caparo Precision Tubes agreed to provide 170 lengths of zinc plated ERW tube, complete with swaged ends, in order for the stage construction frames to fit together. In addition, CPS delivered 20 lengths of zinc plated flat sided oval steel tube, which were also used for the construction of the frames.


The Caldicot Male Voice Choir

Leon Jones, Chairman of the Caldicot Male Voice Choir, who worked closely with Caparo Precision Tubes on this project, was highly complementary of the business and the support provided: "From the initial point of contact through to the very delivery of the tube components, Caparo were there for us every step of the way."

"We were more than happy to support this internationally acclaimed act," commented Dennis Morrill, managing director of Caparo Precision Tubes. "Especially in these difficult economic times, we are keen to give something back to the community, and demonstrate our support for the phenomenon that is the Caldicot Choir."

Caparo Precision Tubes – UK
sales@caparoprecisiontubes.co.uk
www.caparoprecisiontubes.co.uk

centre and prestigious office development.

Modular Engineering has won a top construction industry award from Offsite Construction magazine, as best new product or system. It was also highly commended in the Cooling Industry Awards for its contribution to environmental sustainability.

General manager Bob Hughes, who has more than 35 years' experience in the sector, commented, "We believe the time is right for this approach. Everyone is looking for quicker, more cost-effective ways of doing things. Off-site assembly delivers this, reducing lead times, cutting materials wastage, lowering costs and delivering a factory-tested solution to site that works first time. Once people see the benefits for themselves, they are won over. As the skills crisis in the construction trades becomes more acute, and health and safety legislation on-site more onerous, off-site engineering gives clients a guaranteed result, to an assured level of quality and at an agreed price – all delivered on time."

The company sees significant growth opportunities in this area, as more companies embrace the benefits of modular engineering.

Wolseley UK
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Valve World Expo 2010

The 2010 edition of Valve World Expo, a leading trade fair for valves and valve equipment, will take place for the first time at its new location in Düsseldorf, Germany, from 30 November to 2 December.

The seventh biennial conference and exhibition will attract trade visitors from the sectors of oil & gas, chemical industry, power supply industry, marine, refinery and offshore industry, machine and plant construction, shipbuilding, motor and vehicle construction, and food processing industry.

All of these sectors use the fast-paced developments of valve technology, which will be shown at Valve World Expo.

Main product groups will include valves and valve-related products, seals and sealing materials, valve-related piping products and engineering associations.

Material and plant engineers, quality inspectors, providers and retailers of valves, and suppliers for casting technology, forging, industrial springs and seals are expected to visit the exhibition in order to get up-to-date with the global range of products and services, and to analyse the latest technological trends.

Messe Düsseldorf – Germany
www.valveworldexpo.com

Subsea 2010 award for global oil and gas exports

UK-based measurement technology specialist Optical Metrology Services (OMS) Ltd has been awarded the Subsea Global Exports Award 2010, in recognition of the company's achievements in export sales to the global oil and gas industry.

The Subsea Business Awards celebrate the work of subsea organisations and individuals across the UK sector

OMS received the award at the Subsea 2010 Business Awards dinner held at the Aberdeen Exhibition & Conference Centre on 10 February. The fourth annual awards ceremony attracted more than 700 business leaders and entrepreneurs to celebrate the excellence and hard work of subsea organisations and individuals across the UK sector. Guest speakers included the Rt Hon Michael Portillo, and energy minister, David Kidney.

OMS was one of three companies shortlisted for the export award, which was sponsored and judged by UK Trade & Investment. At the awards dinner Denise Smiles, director of business development at OMS, accepted the award on behalf of the company: "We are delighted to receive such an award, which demonstrates that OMS has been doing something very right over the last year or so. A key ingredient in sustaining our impressive sales export growth is our people, who deserve a lot of credit for helping to achieve our goals."

OMS was recognised for its achievements in export sales

Subsea UK is the industry body for the British subsea industry. The organisation aims to increase business opportunities at home and abroad for the sector and acts on behalf of the whole supply chain, bringing together operators, contractors, suppliers and people in the industry.

OMS specialises in providing measurement services and precision measurement systems to the oil and gas industry worldwide. A key focus for the company is in the dimensional measurement of oil and gas pipes or other similar structures such as aero engines, process industry tubes or manufactured cylindrical objects, where dimensions are critical.

Optical Metrology Services – UK
sales@omsmeasure.com
www.omsmeasure.com

Socio-economic project acknowledged

Steel pipe and railway wheels producer Interpipe has won the first Ukrainian contest for case studies in corporate social responsibility in the category of 'environmental protection'. The authoritative international jury highly evaluated Interpipe's consideration of socio-economic norms in the construction of its electric arc furnace, Interpipe Steel. Oleg Kuzmin, director for corporate affairs at Interpipe commented, "We are delighted that our project, which will make a significant contribution to innovation in the country, has been recognised in this way. Improvements in efficiency have been central to this project and Interpipe Steel will contribute to reducing the emission of harmful substances into the atmosphere by over 2.6 times. Interpipe Steel will also reduce natural gas usage by 87mn cubic metres per annum."

Interpipe – Ukraine
press-office@interpipe.biz • www.interpipe.biz

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Photo: ETS Pouchard, France

products & developments

Choosing the right copper tube for your application

Copper tubes from Qaem are suitable for applications such as air conditioning and refrigeration, plumbing and heating systems.

Copper is the most commonly used material for residential water supply lines. Because of its thin-wall construction, copper tubing is smaller than IPS (iron pipe size) pipe. This distinguishes CTS (copper tubing size) from IPS. There are two basic types of copper tube: hard (tempered) and soft (annealed). It is up to the designer to select the type of copper tube for use in a particular application. Strength, formability and other mechanical factors often determine the choice.

Plumbing and mechanical codes govern what types may be used. When a choice can be made, it is helpful to know which type of copper tube can serve successfully in a given application. Hard tubing is rigid tubing sold in lengths of 10 or 20ft and is the most common pipe installed in new homes. It makes a neater installation, but it is more difficult to install than soft tubing, particularly in existing homes. It needs very little mechanical support to keep it in position, compared to soft tubing. Soft copper tubing is sold in coils of 50 to 180ft and is often preferred for repair work, since it can be run around obstacles without connections or cuts. Both function equally well once installed.

Since copper tube became the standard for potable water systems, it has generally outlasted the buildings in which it has been installed, and is frequently recycled for new construction. Records show that corrosion failures of copper plumbing systems occur in less than 1% of all known installations. Copper tubes offer long life, strength and corrosion resistance, and so meet the requirements for plumbing and heating systems. Copper tubes are considered ideal for domestic applications such as hot water, heating and solar panels.

Qaem Copper Industries Company has developed thin-walled copper tubes, produced in LWC form, both in plain and inner grooved type. They are lightweight and have good heat transfer. The special annealing furnace at the Qaem plant has a copper tube purging (CTP) system that provides a protective atmosphere through level-wound copper tube coils during the anneal cycle. This enhances the evaporation of lubricants from the inner surface to levels below 0.1mg/dm^2, resulting in clean tube products.

Qaem also produces a variety of copper tubes for electrical purposes. Copper cable lug, used as a connecting terminal in electric power transfer, is suitable for connection of copper conductors in power cable with electronic equipment. Qaem produces the copper tubes for cable lugs according to DIN standard, using tough pitch copper (T2) with purity above 99.9%, and they are usually supplied in straight lengths in a number of tempers.

Qaem Copper Industries Company
– Iran
info@qaemcopper.com
www.qaemcopper.com

HDPE pipes from Greece

Polieco Hellas AEBE, an affiliate company of the Polieco MPB Srl group, was established in Athens, Greece, as an industrial producer and trader of HDPE structured wall pipes, in order to supply the Greek and the Balkan area market. Production started in the industrial area of Serres in July 2008.

Production consists of a wide variety of pipes, produced in either rolls or bars from 40 to 1,200mm OD, along with fittings, manholes and jointing kits for any kind of installation.

The Polieco Group's products can be divided into four categories: cable conduits in HDPE, for the protection of electric and telephone underground cables; drainage pipes in HDPE, for artificial drainage of ground field; sewage pipes in HDPE, for sewage systems; and manholes and special fittings.

The company's twin-layer cable conduit, an HDPE pipe for the protection of electric and telephone underground cables, is made of two coextruded layers: the outer wall is corrugated to assure greater resistance to deflection and flexibility, while the inner wall is plain, to ease cable insertion and slipping. The twin-layer conduit is available from 40 to 200mm diameter, in coils and bars.

Polieco's Polidren twin-layer drainage pipe is a slotted HDPE pipe with a corrugated external wall and a smooth internal wall. It is available in coils for diameters between 63 and 200mm OD. The pipe has a resistance to compression higher than 300N, with a deformation of the external diameter equal to 5%.

The company's drainage range also includes Drenosewer, a slotted HDPE pipe with a corrugated external wall and a smooth internal wall. The pipe is available in coils of diameter from 110 to 200mm, and has a resistance to compression higher than 450N, with a deformation of the external diameter equal to 5%.

Drenopal slotted HDPE pipe is available in diameters from 160 to 1,200mm OD, in 6m pipes, and according to the stiffness classes SN 4kN/m^2, SN 8kN/m^2 and SN 16kN/m^2.

Ecopal HDPE corrugated sewage pipe is used in underground sewer ducts not under pressure, and is manufactured in compliance with the EN 13476 type B standard, stiffness class corresponding to SN 4kN/m^2 or SN 8kN/m^2. The pipe is produced in 6 or 12m bars, with jointing by a PEAD coupling and EPDM lip seal, and is available from 160 to 1,200mm diameter.

Polieco Hellas AEBE – Greece
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www.polieco.gr

Increased polishing capabilities with 12-head polisher

RathGibson's newly installed 12-head mechanical polisher, manufactured by Loeser GmbH, allows the company to offer ultra-fine OD finishes for its finest precision-engineered welded, welded and drawn, and seamless tubing.

"We have established high internal standards to meet and exceed applicable regulations," said Dave O'Donnell, director of process and product development. "The challenges of customer specifications are also a priority to us. The new polisher allows us to meet even more polishing requirements for our customers throughout the world." Polished tubing from RathGibson may be used in the food, dairy, beverage, pharmaceutical, biopharmaceutical, chemical, petrochemical, power generation and solar industries.

In addition to the 12-head mechanical polisher, RathGibson's Janesville facility also employs an 8-head mechanical polisher. Before a RathGibson tube enters a mechanical polisher, the ends are plugged to protect the tubing interior. As the tube travels through the polisher, it is covered with lubricant and abrasively polished at each head. After exiting the polisher, tubing is rinsed and air blows off any residuals before visual inspection, vinyl capping of the ends, line marking for complete traceability, and heat sealing in a poly-sleeve. While the 8-head mechanical polisher produces a 30µ-in Ra (0.8µm) OD maximum Ra surface roughness, the new 12-head mechanical polisher achieves less than 10µ-in Ra (0.25µm) OD Ra surface roughness.

The company's proprietary electropolishing process attains 10µ-in Ra (0.25µm) ID maximum and 15µ-in Ra (0.4µm) ID maximum finishes. By electro-chemically polishing or removing metal, RathGibson achieves an interior surface that has minimal crevices, to greatly decrease the chances for microbial contamination. RathGibson's Electropolishing Center at Janesville uses a state-of-the-art deionised (DI) high purity water system, as well as an ISO 14644-1 Class 5 clean room. After the tube's interior is electropolished, it is nitrogen purged, end capped, and bagged in a 6-mil poly sleeve.

RathGibson – USA
www.rathgibson.com

RathGibson has installed a new 12-head polisher

Bespoke mobile access system

Access and scaffolding contractor Harsco Infrastructure has designed and installed two bespoke mobile access systems to allow contractors to carry out essential maintenance work at Peterborough Power Station.

Centrica, which operates the 360MW gas-fired power plant, has enlisted industrial painting specialist East Coast Industries to carry out the work, which involves cleaning and re-painting the air-cooled condenser (ACC) units. This has involved working on the ACC's enormous horizontal steam pipes with obscure angles that made the ACC units inaccessible by conventional means. Also, with the pipes reaching a surface temperature of 65ºC, the access system has to withstand high temperatures and still be functional.

East Coast Industries awarded Harsco Infrastructure with the contract to design, manufacture and install a mobile access system that would allow safe access to and from the working area. The system was also required to provide a safe means of evacuation in the event of emergency.

Harsco Infrastructure's design employs powered, self-propelled work platforms suspended from a steel framework. The entire rig travels along the pipes on a series of wheels, which are specially angled to accommodate the cylindrical surface of the pipes. Users of the system gain access to the work platform via a cradle suspended from an electric hoist attached to the frame.

One challenging task for Harsco Infrastructure was to find a way for the system to traverse the steel flanges which project around the circumference of the pipe sections. This was solved by providing a jacking system that lifts the wheels clear of the flanges as they pass.

The inaccessible location of the site required the use of a high-capacity mobile telescopic crane to lift the two access rigs into position on top of the ACC pipes.

Peterborough Power Station, which entered into operation in 1993, uses 'grey' water supplied by the local sewage works to generate steam for its turbines, thereby reducing the consumption of expensive potable water. The condenser is air-cooled rather than water-cooled, to further reduce water consumption.

Harsco Infrastructure – UK
info_infrastructure@harsco.com
www.harsco-i.co.uk

The access rigs being lifted into position on top of the ACC pipes

Steel wire reinforced thermoplastic composite pipe

The new SRTP pipe from ESRTP/Yesaint is a steel wire reinforced thermoplastic (PE) composite pipe, which is also an HDPE pipe upgrade.

Among metal pipes, steel pipes are cheap in price and hard in strength, and have always taken a lead in the market. However, they are prone to erosion and corrosion, and may bring pollution to the fluid media and environment. In addition, as the price of metal materials grows, the cost of metal pipes rises.

Non-metal pipes, most of which are of plastic, are taking the place of metal pipes in some areas. However, though they have solved the problem of anti-corrosion and pollution, they are rigid in adapting to temperature, and are easily cracked. They cannot resist high temperature and pressure, which limits their wide use.

SRTP pipes make up for the lack of anti-corrosion ability of metal pipes and the lack of pressure-resistance of plastic pipes. By the special electric melting and connecting method, the pipes can also ensure stability during the process of installation.

The SRTP pipe uses highly intensive spiral steel wires as reinforcement, and HDPE as the base. It also uses bonding resin to combine the steel wires and the base together. The pipe is structured with inner plastic, special heat melting glue, twining steel nets and outer plastic. The pipelines are manufactured using electric-melting welding and flanged connection.

Product features include long service life: under standard condition it can be safely used for a minimum of fifty years. The inner wall is smooth, with small transmission resistance. According to Yesaint, compared to the water transmission rate of steel pipe of the same inner diameter, the flow rate can be raised by 30%. The company also claims the pipe has wear resistance of four times that of steel pipe. The pipe is also tough, and light in weight.

Yesaint's production line is able to provide 13 specifications of SRTP pipes, from DN110 to DN630. The pipe is especially suitable for gas and water supply, as well as other applications that demand high pressure and corrosion resistance.

ESRTP/Yesaint – China
info@yesaint.com • www.esrtp.com

Extruded static-dissipating duct

Novaflex's TPU-SD duct with steel wire helix is manufactured using a customised extrusion process with a specially formulated, inherently static-dissipating grade of urethane, allowing for permanent protection against electrostatic discharge. TPU-SD is suitable for abrasive applications where static build up is a concern, such as woodworking, plastics processing, material handling and dust control.

TPU-SD's special molecular-bonded, extruded construction is said to generate less turbulence than other designs, allowing for maximum flow efficiency. The TPU construction combined with the integral wire helix also offers flexibility, even in tight bends, as well as abrasion resistance, tear resistance and high tensile strength. Clear construction provides the additional benefit of visual monitoring during use.

The product offers the versatility to be used for the safe collection of dust and debris with in-process industrial vacuum systems, to ensure that any static electricity is dissipated when used in a grounded system.

The duct is available in 25 and 50ft lengths, in diameters from 1" to 12" (with larger diameters available on request). Specifications include a temperature range of 65°F to 200°F, and a compression ratio of 2:1.

The full Novaflex range includes products for fume control, material handling/transfer of abrasive media, exhaust extraction, cable conduit and aquaculture. Novaflex ducting products are widely used within the plastics industry itself, for exhaust extraction on material dryers, material transfer systems (hopper loaders), exhaust extraction/fume control, and dust/debris collection systems.

Novaflex – UK
uksales@novaflex.co.uk
www.novaflex.co.uk

Novaflex – USA
sales@novaflex.com
www.novaflex.com

Novaflex extruded static-dissipating TPU duct

Hydraulic-pneumatic steel tube supplier

Stahlkontor Hahn (S-K-H) is a supplier of seamless cold drawn precision and hydraulic-pneumatic steel tubes made in phosphated or galvanised (yellow or Cr-6-free with a layer thickness of 8-12µm).

The company also stocks stainless instrumentation tubing in metric and imperial sizes, for purposes such as automotive, aerospace and heat exchangers.

Carbon steel specifications are EN10305-1 and EN10305-4 with material grades E235 or E355+C or +N; size range 4-120mm OD, max 15mm WT.

Stainless steel specifications include EN10216-5 with tolerances according to EN10305-1 and ASTM A269, with material grades TP304L, 316L, 321H, 316Ti and UNS N08904; size range SWG/BWG 6.35-25.4mm OD, max 2.11mm WT; and metric size 4-42mm OD, max 6mm WT.

Stahlkontor Hahn – Germany
info@s-k-h.com
www.s-k-h.com

Tailored orbital tubes made to measure

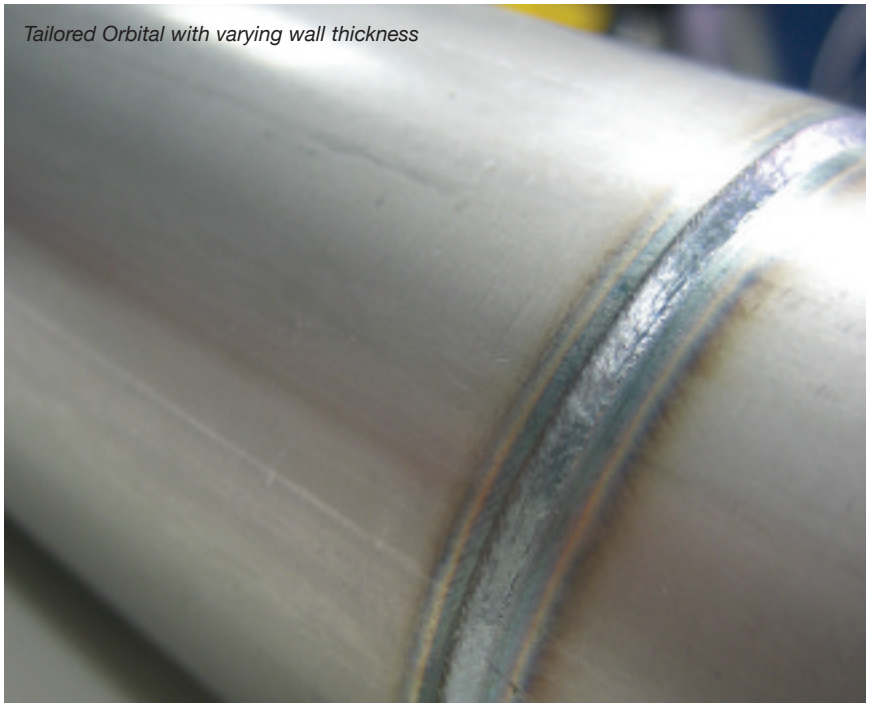
Tailored Orbitals can consist of up to five laser welded segments

Tailored Orbitals® from ThyssenKrupp Tailored Blanks feature a function- and load-oriented structure precisely matched to the conditions in the part. Unlike other tailored products, they are made from tubular starting material, rather than from flat blanks.

The rotationally symmetrical parts are manufactured on a dedicated laser welding line, on which up to five individual tube segments can be joined together end-on. The individual segments can consist of different materials such as carbon steel and stainless steel, and can have different diameters, different wall thicknesses and different coatings. The result is a starting material that is optimised from the outset for a particular application.

Typical areas of use for Tailored Orbitals include car seats, exhaust systems, cockpit support tubes and chassis parts. For example, ThyssenKrupp Tailored Blanks has developed a tailored orbital alternative for a rear seat back reinforcement made from a conventional tube. The new solution reduces weight by around a kilogram because the conventional structure is made from a tube of uniform wall thickness, that thickness being determined by the highest loads occurring in the part. The part made from a tailored orbital on the other hand is of varying wall thickness. In the lower third of the seat back, where the heaviest loads occur, the material is 1.5 to 2.5mm thick. In the other areas, 1 to 1.5mm is sufficient.

Tailored Orbitals for shock absorber reservoir tubes achieve claimed weight reductions of up to 30%. ThyssenKrupp Tailored Blanks has developed a new solution for a current mid-size platform. Unlike the conventional solution, with uniform wall thickness, the Tailored Orbitals solution has a thickness of around 2.5mm only in the highly stressed lower section of the tube. Further up, wall thicknesses of well below 2mm are sufficient.



Tailored Orbital with varying wall thickness

In view of the high cost of the stainless steel used in exhausts, wall thickness reductions have a large impact in the shape of reduced material costs. Further savings opportunities are offered by the ability to combine different materials. The use of expensive, highly corrosion–resistant materials can be limited to areas exposed to particular attack from heat and aggressive exhaust gas constituents.

Tailored Orbitals can be fabricated just like conventional straight-seam welded tubes. The orbitals do not have to be cut to length first, because this is part of the manufacturing process, as is machining of the tube ends. Dimensional tolerances are similar to those of straight-seam welded tubes. In addition, Tailored Orbitals can shorten production processes by combining several manufacturing steps.

The orbitals are available in lengths of up to 2,500mm, and in diameters that can vary between 30 and 90mm within one tube. They can be made in all carbon and stainless steels suitable for laser welding.

ThyssenKrupp AG – Germany
info@thyssenkrupp.com
www.thyssenkrupp.com

Spiral-welded pipes and flat rolled products

US Steel Košice sro, a subsidiary of USS Corporation, is a producer of flat rolled products with an annual production capability of 4.7 million tons. The company produces a wide range of hot rolled, cold rolled and coated sheets for different industries.

In addition to flat rolled products, the company produces spiral-welded pipes, made from structural and micro-alloyed hot rolled coils. The pipe diameter dimensions vary from 406 to 1,422mm, with wall thicknesses from 5 to 14.2mm and lengths from 8 to 18m. The production process is continuously monitored; the pipe surface and welds are systematically inspected using series of non-destructive tests, and all results are recorded and archived.

All pipes are manufactured in accordance with internationally recognised API, EN and DIN standards, with grades up to X70 according to API Spec 5L, or L 485 MB according to EN 10 208-2 standards. To keep up with recent trends US Steel Košice has expanded its production range for extra high-strength steel to X80 or L 555 MB grades respectively. Because of greater yield strength, the X80 pipes are particularly suitable for high-pressure pipelines, including main gas pipelines. Thanks to a reduction in wall thickness, with all other parameters remaining unchanged, the pipes provide an alternative to longitudinally welded pipes, as well as to spiral-welded pipes of lower grades. In addition, the reduction of wall thickness results in a weight decrease, which allows more efficient transportation.

The company has been producing spiral-welded pipes since 1960. Since then, more than 24,000km of pipes have been produced, representing around 3.5 million tons. The company takes advantage of its strategic location in the heart of the continent for exporting its products to many European countries and further. The pipe mill produces approximately 100,000 tons per year, and the pipes are used in gas distribution, crude oil and water distribution lines, district heating and cooling systems, civil engineering and for structural purposes.

US Steel Košice sro – Slovakia
www.usske.sk

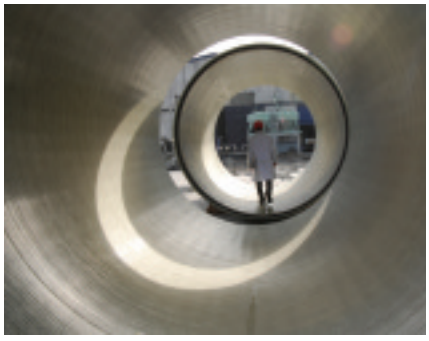
US Steel Košice produces spiral-welded pipes up to 1,422mm

Toxicological effect of water pipelines on water quality

Major causes of water pollution include industrial waste disposal, organic disposals such as artificial manure and sewerage, agricultural pesticides and the chemical structure of the source.

Various disinfection methods have been in use for a number of years. However, advanced academic research has identified that some disinfection methods that were believed to be harmless have been proved to cause toxicology for human health.

The most common technique for disinfection of water has been chlorination. The reaction of chlorine with organic substances in the water, as well as the reaction with the pipe walls it flows through, have been shown to display a high possibility of carcinogenic toxicology. For instance, the outcome of vinyl chloride in PVC pipes, or the outcome of ethylene chloride in PE pipes, have been proven to create a carcinogenic effect. Therefore, in the USA and many EU countries, ozone rather than chlorine is used as the disinfection agent for water.



The pipe structure is formed from polyester resin

For the healthy disinfection of water with ozone, most pipes need an expensive special lining layer to prevent penetration of ozone inside the pipe walls. However, composite pipes such as glass fibre reinforced polyester (GRP) pipes, have an advantage over other types of pipes for an ozoned-water environment.

Superlit GRP pipes do not need a special lining layer to prevent chemical reaction of disinfection chemicals with the pipe walls. With re-engineering of polyester resin, which forms the pipe structure, GRP pipes become completely resistant for the ozoned-water environment. Since pipe wall deformation does not take place, Superlit GRP pipes do not require complicated and expensive maintenance, even in the long-term. Superlit claims that since both internal and external surfaces of its GRP pipes are highly resistant to aggressive chemicals and structural corrosion, pipe performance displays excellent results, even under high pH conditions. Superlit production director PhD Eng Alpay Gulcan emphasised the importance of the issue: “In a world where clean water scarcity as well as the polluting sources are both increasing very fast, the effect of water transmission line on water purity can not be disregarded.

Superlit GRP pipes are completely resistant in ozoned-water environments

“Likewise, to avoid carcinogenic toxicology of chlorination, water ozonization is becoming widespread all over the world for a healthy purification. When these two approaches are taken into account, the most feasible water transmission solution, where water purification is kept stable with high corrosion resistance for ozoned-water transmission, is highlighted as Superlit GRP pipe systems.”

Superlit – Turkey
sales@superlit.com
www.superlit.com

Vacuum pipe lifting

Schoenbeck GmbH & Co KG has introduced additional models in its vacuum pipe lifting range, incuding the ELiTE 12 & 16TE (tonnage/electrical) vacuum pipe lifter models and the ELiTE LiTE power pack concept.

The ELiTE 12TE vacuum pipe lifter is electrically powered by the user’s main power supply (380V/420V, 50 or 60Hz). Supplied with either a SWL of 12,000 or 16,000kg (26,500lb/35,200lb) units, both can be delivered with a central single or two outer double hook eyes for tower/gantry crane applications. The power is transported to an electrical motor, which in turn drives a vacuum pump.

In the event of a factory power failure/power tripping, the machine has sufficient warning power to operate for an additional 8-12 hours. A power pack is loaded prior or during normal lifting operations, and is activated automatically on demand. Standard warning sirens/flash lights are incorporated, as are safety valves and -40°C solenoids for extreme cold working environments and pre start-of-work system checks.

Schoenbeck also now manufactures C hooks for steel coils with SWLs of 10,000kg to 40,000kg (22,000lb to 88,000lb). The standard model is delivered with a crane eye (size according to requirement), while alternative models can be equipped with a power swivel/rotor.

Schoenbeck GmbH & Co KG – Germany
info@schoenbeck-maschinen.de
www.schoenbeck-maschinen.de

Rods and tubes for transmission

Yee Young specialises in rods and tubes for the transmission industry. The company manufactures seamless steel honed tube, stainless seamless steel honed tube, hydraulic cylinder tube, pneumatic cylinder pipe, cold drawn precision steel tube, aluminium alloy tubes for pneumatic cylinder, and OST2 seamless carbon steel tubing.

After cold drawing and honing, the tube has precision diameter and smooth surface. The products are suitable for hydraulic cylinders, pneumatic cylinders, forklifts, cranes, excavators, punching machines and automation engineering industry applications.

Yee Young also produces hard chrome shaft, induction harden chrome plated rod, stainless steel hardening chrome plating rod, bearing steel bar, linear guide rod, telescopic rod, slide rail, tie bar, column rod and hollow shaft. The company can also provide single and dual shaft type linear guides. Its chrome shaft has good corrosion resistance, abrasion resistance and uniformity of hardness, and is suitable for additional processing, such as lathing, milling and drilling.

Yee Young Industrial Co Ltd – Taiwan
sales3@yeeyoung.com.tw
www.fluid-power.com.tw

Products from Yee Young

Steel and aluminium tubes

Precis Inter Holding JSC, a producer of electro-welded steel and aluminium tubes, is continuing to expand its product range and to adapt to market developments. Since 2008, one new steel tube production mill has become fully operational, and another one is to be installed, enabling the company to cover the broad range of steel tubes from 9.75 to 168.3mm in diameter.

The company is able to apply the CE mark to its steel and aluminium tubes for use in construction, in compliance with the EU Construction Products Directive. In addition to construction, the steel and aluminium tubes produced by Precis Inter Holding also find wide application in the furniture and household and sporting equipment production.

Precis Inter Holding JSC – Bulgaria
sales@precis-inter.com
www.precis-inter.com

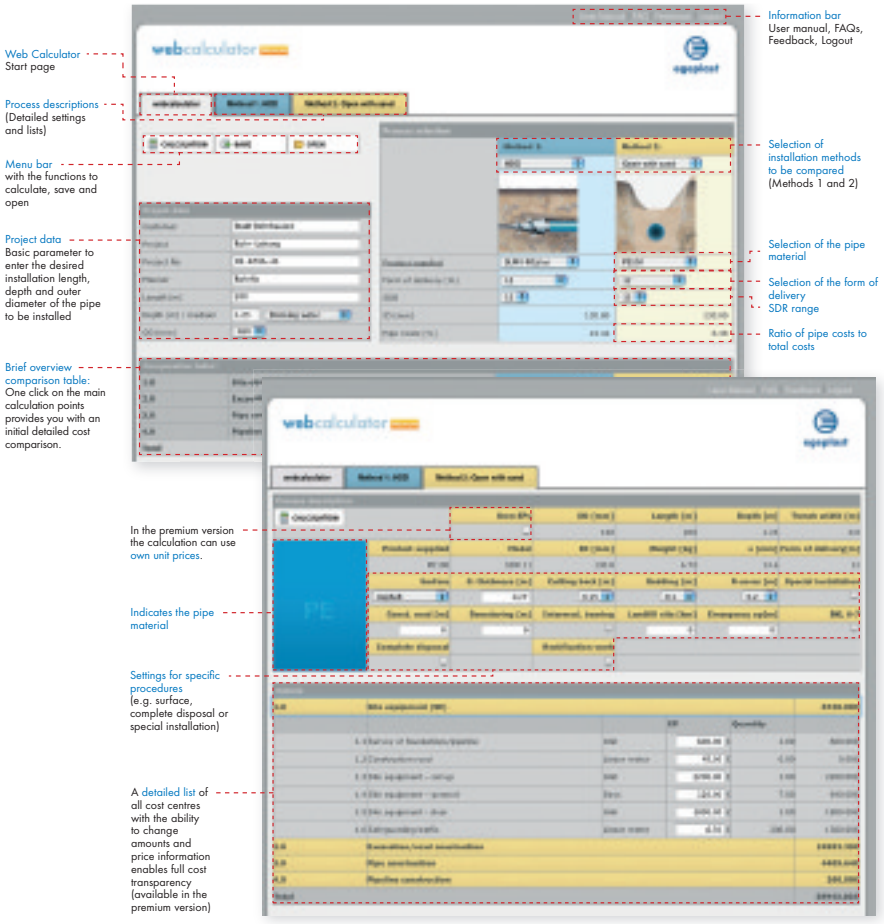
Cost comparison at the touch of a button

The new Web Calculator from PE pressure pipe manufacturer egeplast provides transparency when selecting procedures for laying plastic pipelines. The program reveals within seconds which of two procedures is the more cost-effective, and indicates the right direction for economic pipe installation. The tool, developed by egeplast, provides those responsible for projects with a quick overview, with detailed comparison of costs.

Installation lengths, diameters and installation depths are entered on the start page. The SDR for specific pipes can then be stipulated, as can delivery forms and delivery lengths. The Web Calculator calculates which of the two procedures under consideration is more efficient with respect to the costs it has previously estimated for the construction site. The user is also able to see in the clearly structured overview where the cost advantages of the respective procedure lie.

The calculated projects can be saved and called up again at any time for further processing. It is possible to compare seven procedures with each other using the Web Calculator: open trench installation with and without sand bed, horizontal directional drilling (HDD), milling and ploughing procedures, pipe bursting and relining.

"I have spent a great deal of time using the Web Calculator," stated Peter Steinhauser, technical manager of Energieversorgung Selb-Marktredwitz GmbH. "Until now I have used the Premium Version for initial cost estimates for project planning.



I can now say that the Web Calculator has exceeded my expectations by far." Following registration on the start page, the Web Calculator can be used free of charge at www.webkalkulator24.com or at www.egeplast.eu, with immediate effect. Users will have access to use the Basic Version, and can begin with their desired calculations. It also costs nothing to register for the Premium Version, which gives users the opportunity to vary parameters such as unit prices when taking local and regional influencing factors into consideration.

Doris Pannwitz from the Web Calculator project team at egeplast helped to develop the program: "We can see that the Web Calculator is a real aid to decision making for everyone involved in a project. The number of registrations is growing every day, and we welcome the positive feedback." egeplast's product range covers the entire underground pipeline infrastructure: pipes for drinking water, wastewater, gas and data. The company is a specialist in the development and production of pipes with protective and test properties for trenchless installation.

egeplast Werner Strumann GmbH & Co KG – Germany
info@egeplast.de
www.egeplast.eu

Low and medium pressure hoses

As a wholesaler/distributor of industrial hoses and couplings, Articom/Alfaflex offers a complete range of low and medium pressure hoses in PVC, rubber, SS corrugated, composite and PTFE. The company's key suppliers are well-known European manufacturers with whom they have an official dealership relation, including Dantec, Avery Hardoll and Tubest. In addition to a 25,000m² covered warehouse, the company has welding, fitting and testing facilities, all situated in Mechelen, near Antwerp, Belgium, while PVC hoses are manufactured in the company's own factory in France.

Articom/Alfaflex NV – Belgium
info@articom.be
www.articom-europe.com

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Centrifugally cast tubes and pipeline components

Research & Production Corporation Trubostal Ltd is a Ukrainian manufacturer of centrifugally cast tubes and pipes, and a major producer of pipeline components, including pipe elbows.

The company manufactures tubes and pipes in the OD range from 100 to 1,066mm, wall thickness range from 7 to 250mm, and lengths up to 6,250mm, in carbon, structural, high-alloyed, heat-resistant and temperature-resistant steels and alloys, as well as bi-metallic ones of different combinations of layers. The tubes are supplied as cast, after heat treatment and machining, and in the form of finished articles made according to customer specifications.

Centrifugally cast tubes are applied in different fields of industry, such as columns and posts of heavy loaded constructions, port structures, bridges, viaducts, underground railway stations, railroad stations, multi-stock buildings, foundations, columns of oil platforms, piles with anti-corrosion silica-oxide coating, and tubular articles serving in sea water.

In some cases where seamless tubes of large OD and thick WT are necessary, or if the tube is to be manufactured of hardly- or non-deformable steels or alloys, centrifugally cast tubes have no alternative among known processes of manufacture of tubes.

Trubostal's pipeline components are manufactured in the OD range from 20 to 630mm (seamless), up to 1,420mm (welded), using carbon and stainless steels in compliance with requirements of GOST and European Standards. Production of the pipeline components has been certified according to EN ISO 9001:2000.

Research & Production Corporation Trubostal Ltd – Ukraine
trubostal@trubostal.com.ua • ww.trubostal.com.ua

Tubes for heat exchangers and condensers

FAE is an Argentinean company that manufactures seamless tubes from 6 to 50mm OD, in a broad selection of alloys that includes stainless steel, duplex, nickel, titanium and zirconium. The company has started supplying zirconium tubes for nuclear fuels for Argentina's two nuclear plant power reactors, Atucha I and Embalse.

FAE produces tubes for heat exchangers, condensers and other equipment, in lengths up to 20m, with quick delivery. The company is certified under ISO 9001:2000, ISO 14001, OHSAS 18001, EN 9100:2003, PED 97/23/EC and TSSA.

FAE SA – Argentina
fae@conuarfae.com • www.conuarfae.com

Welding equipment at work on pipeline project

CRC-Evans Automatic Welding is providing equipment for a gas pipeline project that is currently underway in France.

Known as the Beauce-Mantois Link, the project is designed to supplement the existing Beauce pipeline with a pipeline between Saint-Arnoult-des-Bois and Fontenay-Mauvoisin, an area west-southwest of Paris. Pipeline owner GRTgaz and contractor Ghizzoni SpA are constructing the pipeline link that will comprise approximately 40 miles (65 km) of 36" pipe.

Ghizzoni has chosen to use the Internal Welding Machine, and the P260 and P600 fill pass automatic welding machines manufactured by CRC-Evans.

The P260 welder provides tip-to-work tracking, 32-pass programmable welding, PDA downloads in the field, and position-based parameter control. The P600, the latest generation in external welding equipment, features either dual or single torch, a secure smart card and an onboard computer that ensures precise control of parameters.

“Our experience has led to technology innovations that make a real difference in quality and productivity on jobs like this,” said Brian Laing, president and COO of CRC-Evans Pipeline Equipment and Automatic Welding Group. “The P260 and P600 welders will be powerful assets on the French pipeline project.”

CRC-Evans Automatic Welding designs and builds automatic welding systems for land or offshore pipeline construction. In addition to renting or selling these systems to contractors on a project basis, the division provides other specialised services such as engineering, on-site technicians, and training.

CRC-Evans Automatic Welding
– USA
autoweld@crc-evans.com
www.crc-evans.com

Capillary tubes

Wolverine Tube, Inc manufactures small and medium-diameter copper tube to customer specifications.

Products include coils in lengths of up to one mile, smooth straight tube, internally-enhanced tube with internal surface ridges to increase heat transfer in air conditioning coils, and very small diameter capillary tube (as small as 0.01") for control valve operations. The company’s Capilator© capillary tube is used in the refrigeration and air conditioning industry for flow restriction applications. The tubular components are produced in copper hard drawn straight lengths.

Control Tube is a small bore annealed tube used in applications such as heat loop and pressure control for refrigeration manufacturing.

Wolverine Tube, Inc – USA
mkt@wlv.com
www.wlv.com

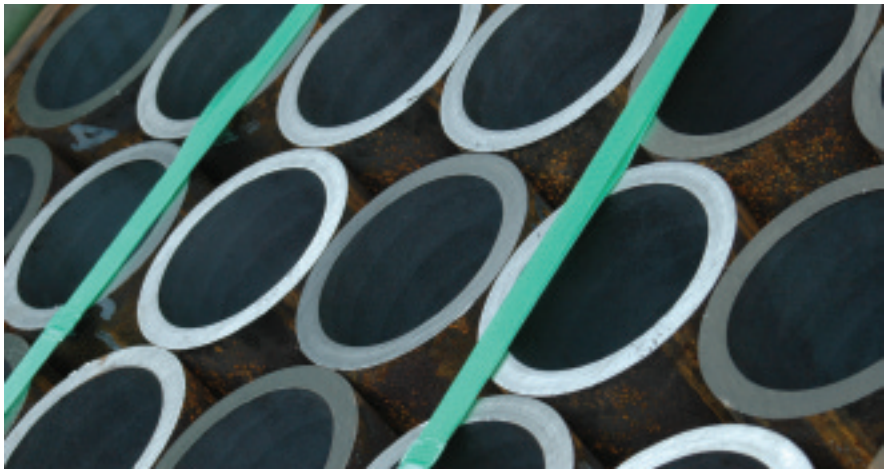
Carbon steel tubes from France

Pouchard Tubes, based in the suburbs of Paris, carries a large stock of seamless and welded tubes, either hot or cold finished.

The company also manufactures cold drawn tubes in a wide variety of shapes and sizes, to meet specific mechanical properties, tolerances and surface finishes.

Pouchard Tubes has also developed a process for cutting and machining, in order to supply products that are closer to their destined use.

ETS Pouchard – France
export@pouchard.fr
www.pouchard.fr



Pouchard stocks a wide range of seamless and welded tubes

Welded and cold-drawn precision tubes

Forster, Switzerland, manufactures welded and cold-drawn precision steel tubes in line with customer-specific requirements, according to EN 10305-2, EN 10305-3 and EN 10305-5.

The company states that its welded products (EN 10305-3) can in many cases offer cost-saving alternatives to seamless or cold drawn tubes (EN 10305-1 or EN 10305-2).

The production of Forster precision steel tubes ranges from 12 to 76mm outside diameter with wall thickness from 0.8 to 6mm, and for cold drawn execution outside diameters range from 10 to 60mm with thickness from 0.8 to 5.5mm.

Forster Rohr- & Profiltechnik AG – Switzerland
forster.rohre@afg.ch
www.forster-profile.ch

Expanding production of steel welded pipes

Macedonian producer of steel welded pipes, IGM Trade, has expanded its range of steel welded pipes. The company's new pipe line can produce square pipes up to 250x250x12mm and rectangular pipes up to 300x200x12mm, increasing the capacity of the factory to 250,000t per year. The company has also invested in new slitting lines: one combo slitting line, and one to accommodate widths of 2,000mm, thickness of 16mm and lengths of 15m.

The owner of the factory, Mr Ilija Gechev, said that IGM Trade is the largest green-field investment in South East Europe, with an area of 400,000m^2 and covered space in buildings and halls of 150,000m^2. The company's next goal is to invest in a cold rolling mill.

The production programme of IGM Trade also includes round pipes up to 168.3x6mm, tested pipes under pressure of 50 bar up to 88.9x4mm, oval pipes and RP profiles.

The company supplies around 10% of its pipes to the domestic market, and exports 90% to the EU and Balkan markets. Production is certified with ISO 9001 and CE- mark.

IGM Trade – Macedonia
info@igmtrade.com
www.igmtrade.com

IGM Trade's new line will allow it to produce an increased range of steel welded pipes

Steel products from Turkey

Hasçelik, a manufacturer and importer of steel products, holds stock of approximately 50,000 tons in six warehouses, to meet urgent requirements.

In the company's continuous hot-rolling mill located in Kocaeli, Turkey, hot rolled round, flat, square and hexagonal steel bars are produced, with a capacity of 200,000 tons per year. Hasçelik also produces cold drawn, peeled and ground steel round bars, as well as square, hexagonal, and flat bars in two service centres located in Istanbul and Konya.

The company's product range consists of hot-rolled steel bars (round, flat, square and hexagonal), cold drawn bright steel bars (round, flat, square and hexagonal), and peeled or ground bright steel round bars. Main grades are S235JR, St37.2, S355JR, St52.3, C10, C20, C30, C40, Ck45, C60, SAE1010, SAE1020, SAE1030, SAE1040, SAE1045, SAE1050, 55CR3 and 60SIMN5.

Besides production, Hasçelik imports special steel bars and seamless steel tubes from leading producers. Such products include hot rolled round bars, forged round bars, forged square bars, hot rolled flat bars, seamless steel tubes and ground round bars.

Hasçelik San ve Tic AS – Turkey
hascelik@hascelik.com • www.hascelik.com

Design software compatible with Windows 7

Blue Ridge Numerics, Inc, a leader in upfront CFD software, has announced that CFdesign 2010 has been fully tested and is compatible with Microsoft Windows 7. The process ensures that CFdesign 2010 has passed Microsoft-designed tests for compatibility, reliability and performance on the Windows 7 platform, using both 32- and 64-bit processors. CFdesign is also compatible with Windows XP and Windows Vista.

"We are committed to leveraging and supporting the latest and greatest Windows operating systems," commented Derrek Cooper, product manager, Blue Ridge Numerics.

"It is very important that our customers are able to keep their equipment and operating systems up-to-date and be assured that CFdesign will 'just work' on new versions of the Windows platform."

In addition, CFdesign 2010 supports the new Core i7 processor from Intel, providing users with up to 2.5 times faster processing times than with earlier processors. CFdesign upfront CFD software integrates comprehensive fluid-flow and heat-transfer simulation into early phases of design and engineering, when companies can improve product quality, time-to-market, and ultimately profitability through the product life cycle.

Blue Ridge Numerics
– USA
paul.whalen@cfdesign.com
www.cfdesign.com

Fittings & Flanges

A selection of fittings from GIPL

Butt-weld fittings manufacturer begins production at Gujarat plant

Gujarat Infrapipes Pvt Ltd (GIPL), an Indian manufacturer of butt-weld pipe fittings made from ferrous and non-ferrous materials, ranging from 2" to 76", has begun production at its new plant located in Managlej, Baroda, Gujarat.

The company has doubled its capacity to 10,000MTpa, and claims to now have the largest and most modern facility for manufacturing pipe fittings in India.

The company has installed new equipment such as induction heating mandrel machines, hydro-forming machines, and automatic material handling equipment.

The new plant will enable GIPL to serve customers with quality products and committed on-time delivery, and will also allow the company to serve international markets, especially the Middle East and Europe.

Examples of recent special orders carried out by the company include: welded Y-piece BW, MOC Inconel 625 Size 20" x 14mm; seamless elbow, tees and reducers, MOC A403 GR 347 of size 18" to 24", and thickness of 42 to 60mm; and seamless cross, MOC A234 GR WP9 of size 10" and 18" x Sch 100.

Gujarat Infrapipes Pvt Ltd – India
mail@gujaratinfra.com
www.gujaratinfra.com

Butterfly valves: 'torque' less and achieve more

Saint-Gobain PAM UK has developed a new range of Eurostop butterfly valves that provide a modern solution for network engineers.

Used typically as isolation devices on pipelines, waterworks and hydroelectric plants, Eurostop butterfly valves offer cost-saving benefits over traditional gate valves typically used in this application.

Due to the size differential between a butterfly valve and gate valve in larger diameters, butterfly valves require less depth of cover during installation. This means less concrete is required to build the valve chamber and so creates a reduction in CO_2 emissions.

Due the nature of butterfly valves, the Eurostop does not require a diverter valve to help regulate differential pressure to reduce the opening torque of the valve. Eurostop butterfly valves draw on 30 years of design experience at Saint-Gobain PAM, utilising the most up-to-date design software, to optimise hydraulic performance, durability and sealing.

The ductile iron body and disc create a high strength-to-weight ratio and a safety factor in excess of 4. Operating torques are significantly reduced due to the double eccentricity of the disc and the fact that each valve is fitted with an AUMA gearbox as standard.

The valves offer low head loss in the fully open position and a perfectly watertight seal when closed. Optimum sealing is achieved through the presence of an automatic continuous gasket and stainless steel cold rolled sealing seat that prevents thermal stresses and blowholes.

Eurostop butterfly valves fully comply with 1074-1 and 2, EN593 and ISO 10631 and are available for both water and sewage applications PN10, PN16 and PN25. They are available in manual, buried, flange mounted for actuator, or actuated versions.

Saint-Gobain PAM UK
www.saint-gobain-pam.co.uk

High pressure tube connector guide

Parker Hannifin, a manufacturer of motion and control technologies and systems, has published a new 40-page guide to its range of ferrule-less tube connectors for high-pressure fluid applications, which provide permanent connections for instrumentation tubing systems operating to 20,000psi/1,380 bar.

The company claims that its Phastite connectors, which are assembled by means of a push-fit operation taking seconds, can reduce installation costs by factors of up to 90% or more compared with welded or cone-and-thread fittings.

The guide describes the technology and sealing principle, the assembly process, and the advantages of the connection system compared with other approaches. It also provides detailed specifications and selection information for the various shapes and sizes of fitting for tube diameters from 6 to 25 mm (¼" to 1"), and information on the associated handheld or bench-top assembly tools.

The guide is available for download at www.ipde-innovations.com/lp/phastite/

Parker Hannifin – UK
ipd@parker.com • www.parker.com

Flanges and fittings from China

Maxvalue Industries Co Ltd is a specialised manufacturer and supplier of flanges and fittings.

The company produces many kinds of flanges, such as slip-on, welding neck, blind and lap joint, and sizes range from ½" to 24".

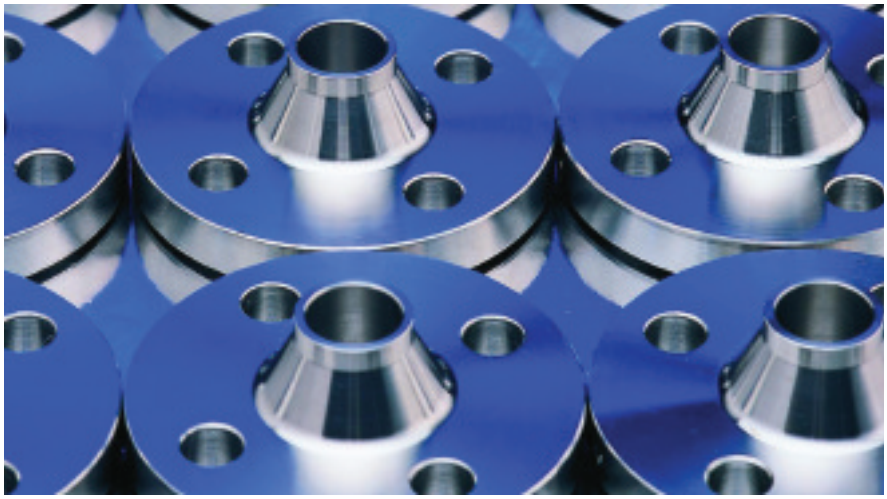
The main materials used are stainless steel, carbon steel, duplex, super duplex, nickel alloys, copper nickel, titanium and special alloys, and standards include ANSI, DIN, EN, UNI, BS, JIS, AS, NFE and SAE.

For fittings, Maxvalue mainly produces stainless steel screwed fittings and butt-welding fittings using stainless steel and carbon steel. The company's sanitary fittings are widely used in pharmaceutical, beer, food, dairy, beverage and chemical industries.

The company holds ISO 9001 and TUV certificates, and its total exports amount to around US$20mn per year.

Maxvalue Industries Co Ltd – China
info@maxvalue.net
www.maxvalue.net

Maxvalue Industries manufactures a wide range of flanges and fittings



Teekay opens new premises

Specialist pipe coupling manufacturer Teekay Couplings Ltd has opened new premises in Milton Keynes, UK, increasing current manufacturing floor-space by 80%. The opening ceremony was attended by 150 people, consisting of employees and key suppliers in order to recognise this important milestone in the company's current period of expansion. The new premises accommodate final assembly, production testing and despatch departments, and also includes storage facilities suitable for housing a stock in excess of 20,000 pipe couplings.

The opening of the new Teekay Couplings premises

The company has also been selected by BAE Systems to supply Axilock-FP couplings for the Type 45 Anti-Air Warfare Destroyer Project, the backbone of the Royal Navy's future air defence capability.

Other recent activity for the company includes an order from a Danish water industry contractor for 3,000 pipe couplings for a new water treatment facility; a major dry docks that is fitting 800 couplings on two seismic survey vessels; and several orders for Teekay pipe couplings from the New Orleans reconstruction programme, including the first, recently introduced, 4,115mm diameter coupling for water pipelines.

Teekay Couplings Ltd – UK
info@teekaycouplings.com
www.teekaycouplings.com

Schroeder Valves invests in new headquarters

Schroeder Valves GmbH & Co KG, a specialist manufacturer of protective pump fittings, will build new headquarters this year.

Due to its present site having no space for expansion, the company has acquired a 10,000m^2 area in an industrial park in Gummersbach, east of Cologne, Germany, where the new plant will be built. "The new building opens up completely new possibilities," commented managing director Axel Muecher. "In addition to the increased work space, the location allows a 3-shift operation, thus enabling us to meet the requirements of our customers."

Schroeder Valves fittings ensure reliability and are said to be valued worldwide in the chemical and petrochemical industries, in power plant construction, in offshore industries, the paper industry and metallurgical industry, and in the field of ship loading/marine transport. The company operates from offices in China, France, Germany, India, Japan, Canada, Norway, Eastern Europe, Singapore, Spain, South America, North and South Africa, and the USA.

Schroeder Valves GmbH & Co KG – Germany
info@schroeder-valves.com
www.schroeder-valves.com

Expanded range of medium-pressure ball valves

Swagelok Company has released a larger size of its FKB series medium-pressure ball valve. Designed for improved cycle life in the field, the trunnion-style ball valves provide a leak-tight seal for applications up to 15,000 psig (1,034 bar) and feature Swagelok's patent-pending direct load design, which delivers a consistent seal across a full range of pressures. Innovative stem and end connection seals prevent shell leakage and provide robust cycle life even in severe conditions.

The two-way 8FKB ball valve complements the original 6FKB ball valve introduced in May 2009. The 8FKB ball valve, with a 9.52mm (0.375") orifice, offers ½" gaugeable Swagelok medium-pressure tube fitting end connections or ½" female NPT. The 6FKB ball valve is available with 5.31mm (0.209") orifice and ¼", ⅜" or ½" Swagelok medium-pressure tube fitting end connections, or female NPT end connections.

All valves feature 316 stainless steel body construction and reinforced PEEK seat seals. The valves are rated for temperatures from -17° to 121°C (0° to 250°F) and maintain a full pressure rating throughout the entire operating temperature range. Multiple O-ring materials are available, including nitrile, fluoroelastomer and perfluoroelastomer.

Swagelok medium-pressure ball valves deliver reliable and repeatable operation to meet the performance requirements of common off-shore applications, such as topside wellhead control panels, chemical injection panels, well workover panels and control systems. Maintaining the integrity of the valve seal is critical for applications where positive shut off is required. A bottom-loaded stem design eliminates stem blowout for enhanced operator safety.

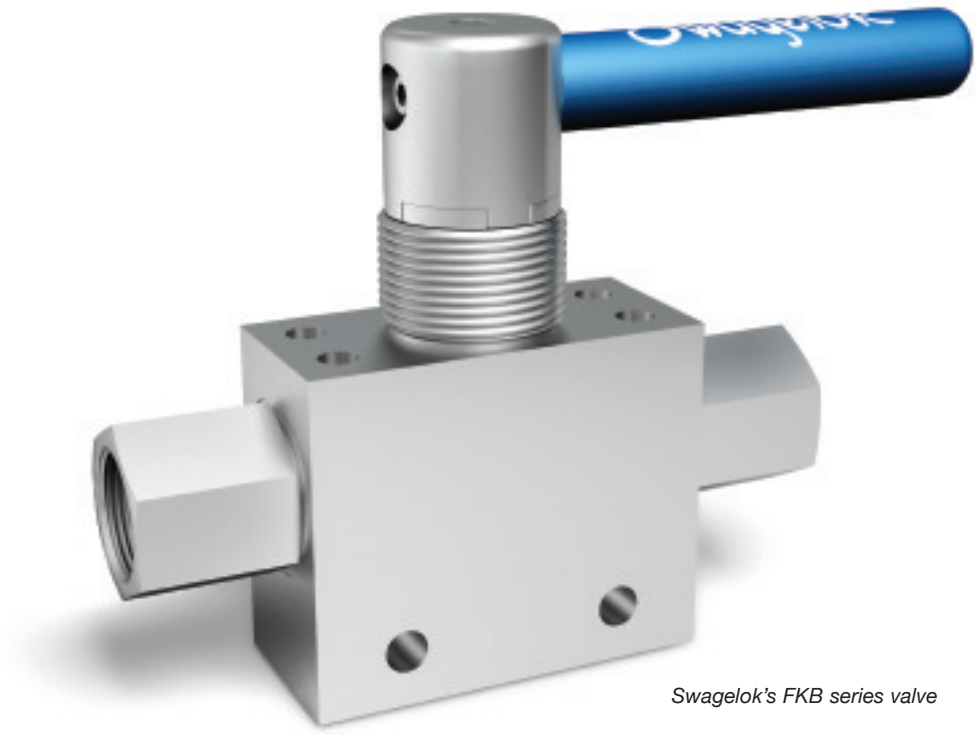
The FKB series features low-torque actuation, eliminating the need for assist methods and accessories in manual actuation. If pneumatic actuation is required, the valves are available with ISO-5211 compliant actuators. A positionable handle provides flexibility in panel layout by reducing clearance issues with other components.

Swagelok medium-pressure tube fitting end connections provide single turn makeup, or makeup by torque, for reduced installation time and labour costs. Like traditional Swagelok tube fittings, the end connections employ a two ferrule design to deliver robust tube grip, leak-tight gas seal, and vibration resistance.

Designed for the higher working pressures of the oil and gas industry, the Swagelok line of medium pressure products also includes medium pressure fittings and seamless tubing.

The all 316 stainless steel fittings are available in a variety of configurations for use with medium pressure stainless steel tubing, both heavy wall annealed and cold-drawn ⅛ hard, and SAF 2507™ super duplex tubing.

Swagelok – USA
www.swagelok.com



Swagelok's FKB series valve

High pressure fittings

Nexus is a stockist and exporter of pipefittings and flanges, including butt-weld fittings, long radius bend, high pressure fittings, 'O'lets and flanges, in materials such as stainless steel, duplex stainless steel, alloy steel, carbon steel, LTCS, copper nickel, aluminium, and nickel alloys.

The product range for butt-weld fittings features SR & LR elbow, u-bend, tee, reducer, nipple, cap and laterals, in various sizes and schedules.

High pressure fittings are in socket weld and screwed-in forms of union, elbow, tee, coupling, cap, plug and bush. Bends are available as hot bend, piggable bend and long radius bend in 3D, 5D, 6D and 10D, with minimum wall thinning rate and ovality, without wrinkles and with required tangent length.

Other products include 'O'lets (weldolet, Sockolet, Elbolet, Thredolet, Nipolet), and flanges in WNRF, SWRF, SORF, BLRF, LWNRF, and spectacle blind from 150# to 2500# up to 60".

The company has exported products to UAE, Saudi Arabia, Italy, Canada, Singapore, Thailand and Africa, as per ASTM, BS, ANSI, MSS SP and DIN standards, for industries such as power plants, oil and gas, petrochemical, offshore and shipbuilding.

Nexus Alloys & Steels Pvt Ltd – India
export@nexussteel.com
www.nexussteels.com

Stainless steel press fittings

Dacapo Stainless is a supplier of stainless steel products in the Netherlands. The company's warehouses stock 5,000 metric tons of products, consisting of stainless steel tubes, fittings, flanges, valves, sheets, bars and profiles.

Since January, the company has stocked stainless steel press fittings and associated tubes. This system allows companies to build water pipeline systems quickly and cost effectively.

Dacapo Stainless BV –
The Netherlands
contact-nl@dacapo.com
www.dacapo.com

Simple and efficient clamp fittings now accommodate PE-Xa

FIP (Formatura Iniezione Polimeri SpA), a subsidiary of Axialis group, offers the Magnum® compression fittings system as an alternative to conventional joining techniques to bond or weld.

Magnum clamp fittings made of PP are said to be particularly resistant, with high hardness, thermal stability and chemical resistance. The fittings are suitable for high tensile strength, and the detachable connection of plastic pipes of equal and different plastic types, such as HDPE 80/100, LDPE, PP, PVC-U/C (with special ZCKO clamping ring), and now also for PE-Xa (up to d63).

By tightening the nut, the clinching ring is released and clamps the pipe while the compression bush compresses the O-ring, creating a permanently tight connection. The Magnum system, which is distributed in Germany by Akatherm FIP GmbH (Mannheim), provides a secure connection of the pipeline thanks to the dynamic user-sealing system, and it is mainly implemented in the field of irrigation, household connection, swimming pools, horticulture, mining and telecommunications.

In addition to the standard fittings, Magnum transition fittings, with a one-sided plastic or metal thread, solve the critical problem of transition to plastic or metal counter. Through the use of Magnum universal transition fittings, metal pipes such as copper, lead and steel can also be easily connected.

The Magnum clamping system includes fittings, couplings, elbows, tees, reducers, end caps, transition fittings with tapered external or internal threads, universal flanges, universal transition fittings and accessories.

FIP SpA – Italy
info@fipnet.it
www.fipnet.it

Akatherm FIP GmbH – Germany
info@akatherm-fip.de
www.akatherm-fip.de

Dual three-way isolation valves

NResearch Inc's model 360T04x Teflon® isolation valves incorporate two fluidically independent three-way isolation valves operated by a single solenoid.

The valves are designed for applications where two independent three-way valves need to be operated at the same time.

The single solenoid operation eliminates the need for precision timing. Available in a number of port arrangements and internal system configurations, the product simplifies the design of continuous process sample injection and extraction.

Using the 360T04x isolation valves with the NResearch range of fittings, tubing, connectors and distribution manifolds can provide a zero dead volume, easy to install and reliable fluidic system.

NResearch has also developed a new solenoid actuator technology, and is able to provide a number of full opening pinch valves at a modest increase in initial power consumption.

The valves can accommodate all sizes of silicone tubing up to 9.5mm (3/8") outside diameter, 1.6mm (1/16") wall thickness, and 55-60 shore hardness.

The company supports these valve products with its new single valve drivers and power saving circuits for latching, as well as for normally open and normally closed valves.

Using the drivers, the power saving full opening latching valves may also operate as NO or NC at the time of system shut down or in the event of a power failure.

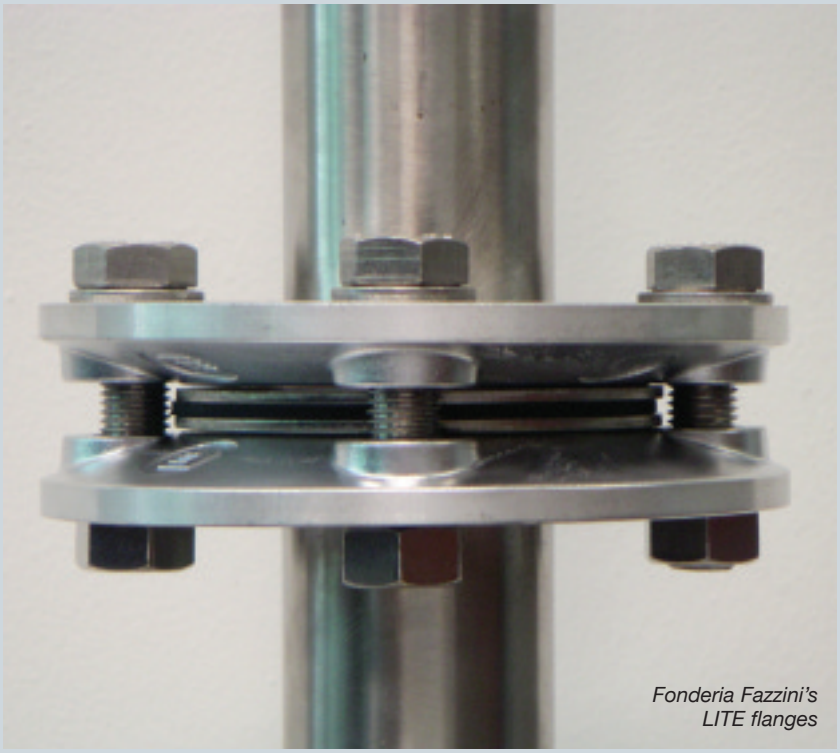
NResearch Inc – USA
sales@nresearch.com
www.nresearch.com

LITE aluminium flanges

Fonderia Fazzini's LITE flanges are claimed to be 30% lighter than current aluminium flanges, thanks to their truncated cone shape, and they provide high strength, certified by RWTüV.

The company also states that the flanges are cheaper, saving purchase, transport and installation costs. LITE flanges are compatible with EN PN10/16 standards and they provide an alternative to traditional loose flanges.

Fonderia Fazzini Srl – Italy
info@fonderiafazzini.it
www.fonderiafazzini.it



Fonderia Fazzini's LITE flanges

Small diameter, high precision tubes

It might be objected that our heading is a redundancy, since a small-diameter tube that is not also high-precision is difficult to imagine. If one should be produced, and somehow escape the scrap pile, another difficulty arises: finding a use for it.

All the output of a state-of-the-art tubing plant is held to extraordinarily high standards as to chemical composition, heat treatment, corrosion resistance, tensile strength, mechanical properties, surface smoothness, and much more. Even so, a sense persists that, the narrower the tube, the greater the requirement for zero-tolerance manufacturing.

Purchasing agents in several crucial global industries — medical, fibre optic, food, aeronautical — would not necessarily disagree. At the very least, in the matter of precision they would be inclined to designate small-diameter tubes first among equals.

Photo: Handle SA – France

High precision tubes in stainless steel

Sandvik Materials Technology produces small diameter, high precision stainless steel tubes for a range of demanding applications, from nuclear to aerospace, and from pulp processing to medical.

The company works closely with its customers to develop project-specific duplex, high alloy, nickel alloy and special grade stainless tubes in coils, random lengths or cut lengths with defined mechanical properties for high pressure applications. Its high precision tube manufacturing capability ranges from 1 to 120mm outside diameter, in wall thickness from 0.25 to 25mm.

Factors such as tensile and yield strength and hardness can be adjusted to satisfy application requirements.

All tubes, round shapes and profiles are manufactured to exacting standards and close tolerances, including defined surfaces, drawn and polished with a finished straightness deviation of 0.5:1,000mm and concentricity up to 3% of nominal wall thickness.

Sandvik also manufactures welded and seamless redrawn precision tubes in stainless steel and nickel alloys, in a range of outside diameters from 0.3 to 50.8mm. One of the company's specialities is thin wall tubes from 0.1 to 3mm maximum wall thickness.

The tubes can be delivered in either hard or annealed condition, and in random or fixed lengths, with an inner and outer surface roughness of 0.4μm maximum.

Precision, thin wall tubes can be produced in non-standard sizes and manufactured to customer specific dimensions, with precision drilling and cutting offered as added value services.

High precision stainless steel tubes from Sandvik

Sandvik Materials Technology – Sweden
www.smt.sandvik.com

Contract manufacturing service

The UK site of Accellent, located in East Manchester, specialises in providing a contract manufacturing service for precision metal tubular components and assemblies. With the expertise and quality standards to meet the stringent UK and European medical device standards for quality and delivery performance, Accellent has applied these skills to manufacturing metal tubular parts for aerospace and industrial applications where precision is sometimes more important than the cheapest price.

David Searle, director of operations for Accellent UK commented, "We pride ourselves in maintaining over a 99% on-time delivery record. To achieve the quality and reliability that our customers need, we have found it vital to source the majority of our tubing raw material from the specialist tube drawing facilities within the Accellent group."

Accellent has facilities in the United Sates and Germany specialising in the drawing of various grades of stainless steels, including specialist alloys, and precious metals such as titanium, platinum and gold. The UK facility uses a variety of techniques and application engineering expertise to cut, form, weld and finish its products, employing a combination of automated and semi-automated processes as well as using bespoke forming tools to provide the required component or assembly.

Mr Searle explained: "Our goal is to provide a reliable supply chain solution. Accellent deliberately excludes itself from the selling, marketing and admin of the final product, which allows us to support our customers through the development of their product into volume production."

Accellent – UK
info@accellent.com
www.accellent.com

Accellent UK provides a contract manufacturing service for precision metal tubular components and assemblies

Pitfalls to avoid when outsourcing tubing

Manufacturers of medical devices who outsource metal tubing should insist on validation of tubing specifications with an expert, and require realistic lead times.

There is a hard price to pay for those who choose not to consult with knowledgeable suppliers when outsourcing metal tubing for medical devices. Unless certain steps are taken to ensure that designs and specifications are accurate, the potential consequences include exceeded R&D budgets, exorbitant production costs, delay of FDA approval, slowed speed to market and a great deal of frustration.

By qualifying and partnering with a metal tube supplier, most of the pitfalls that cause such problems can be identified and avoided.

For example Lance Heft, CEO of International Tube USA, a major supplier of metal tubes to the medical device industry said: "A big pitfall that we run into is that a lot of engineers will look at tolerances in terms of the upper and lower extremes; they do not take into account tolerance stacking, effects of secondary operations, ID clearance issues etc. If these items are not specified properly and prototype runs are ordered, the engineer loses their monetary investment, and more importantly time, which translates to time to market and missed product release deadlines, or even worse – recalls."

"These are critical factors that you often run into in production runs. If this happens, you have to go back to the drawing board because perhaps just one of those specs didn't work. So, we'll bring those types of questions up in the initial meeting with a customer to make sure the engineers get what they want in their initial prototype run."

Here are five other pitfalls that OEMs, engineers, and procurement people can avoid when outsourcing metal tubing used in medical devices:

Using unqualified input

We live in the Age of Information, yet it's essential to remember that not all information is accurate. Many engineers will refer to Internet sites for information on metals and their corresponding mechanical and chemical properties.

"While such information may be convincing, it is often misleading," says Mr Heft. "The trouble with the Internet and even some reference books is that they may encourage the selection of an exotic material that could be unavailable or inappropriate for the application. We see this all the time. Your supplier should explain such issues and then determine what you are trying to achieve. They should be knowledgeable of the application and make suggestions regarding alloys and design factors."

Mr Heft adds that the collaborative relationship is often most important to smaller and mid-size medical device manufacturers who do not have the range of experience with metallurgy and applications that the tube supplier should have. Additionally, it is important to fully understand the different manufacturing methods of tubing and how this relates to the performance of the end product.

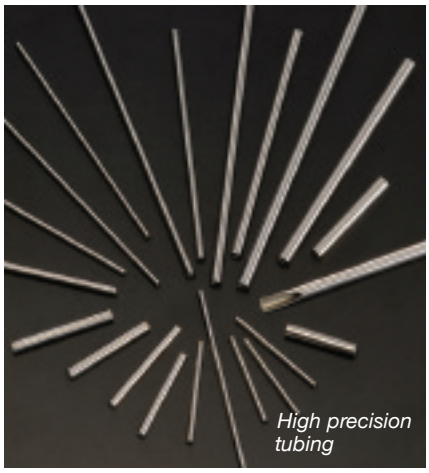
Many tube designs and configurations include fabrication challenges such as metallurgy, tube formation and configuration, tensile strengths, cost, structural characteristics and coatings.

These may include bulges, flairs and swages that are difficult to perform, yet may be vital to the performance of a device. So, it is important to confirm that your supplier has experience with such configurations.

Over-estimating requirements

Prospective vendors should be qualified according to their experience with an application to validate tubing requirements. For instance, small-diameter tubing is becoming increasingly important because medical devices continue to become more miniaturised.

"This creates a need to put more materials or devices through a smaller ID tube," Mr Heft explains. "When you put multiple devices, such as fibre optics, other tubes, guidewires and even stents, through a narrow laparoscopic or endoscopic tube, for example, you get a 'stack-up' of tolerances. That results in costly problems. So, it becomes much more important that the ID is accurate, the inner surface is smooth without burrs, roughness or debris which could cause damage to the materials, and that



High precision tubing

the instrument is engineered so that it does not develop kinks."

"Our knowledge comes in right from the start. It's scary to say but it has happened to us that the customer will come to us and ask for 316 or 304 stainless and then we find out that they are using it for an implanted device," says Heft. "That is not implant-grade material, so we have to make them aware that they need an implant-grade material, and help them understand the properties and why they are important."

Fully understanding the tube application can lead to optimum functionality plus cost savings. Having access to specialised engineers at the vendor level helps to define device quality requirements and also ensures consideration of solutions to both current and future requirements in an environment of constant technological change. "If your supplier does not have engineers on staff, look somewhere else," Mr Heft states.

Taking quality correlation for granted

It is vital for the vendor to ensure that the tube can perform to the level of quality expected and it is extremely important to find a provider that makes sure that quality measurement techniques are correlated between both parties, products are being inspected properly, and products are being run through the necessary tests to make sure they perform.

"The subject of correlation doesn't come up as often as it should," Mr Heft says. "In some cases engineering handles the mechanics and functionality of the device. But there is a separate quality

division, and they have the responsibility to ensure that, however the device has actually been specified – and even if it has been specified wrongly – it is going to comply with their print."

A thorough supplier of metal tubes will eliminate such design problems before they become product problems. They know how different alloys are produced and fabricated and the various mechanical and chemical properties that are available from different materials, as well as what fabrications can be realistically expected and how far the envelope can be pushed.

Quality credentials may also be important. Many suppliers of medical device components are ISO-9001 certified. But when a vendor has ISO-13485 certification, that credential indicates a supplier has very high quality standards, not only in products, but also systems. "With the FDA and other governing authorities becoming more and more involved in the monitoring of a medical device company's activities and quality, they better have a vendor that has 13485 compliance. The FDA is getting more and more active, and this is another level of comfort for them," Mr Heft stated.

Falling into turnaround traps

Speed to market often depends on prototype turnaround. Look for a metal tube supplier who can provide quick turnaround of prototypes, which can often be done within weeks or even days.

However, whether for prototypes or volume orders for approved tubes, choose vendors who provide realistic delivery dates; in some cases larger suppliers take orders without knowing how quickly they can respond, estimating volume deliveries in eight weeks that in reality will take three to six months.

Overlooking communications

When outsourcing metal tubes or other critical components, partner with a specialist with good communications skills and systems.

"Proactive communication is an important supplier qualification," Mr Heft said. "That doesn't seem to resonate as much today as it should. But it is important that you don't rely on suppliers who are simply order takers. This is a critical interface between the supplier and customer.

International Tube USA
info@internationaltube.com
www.internationaltube.com

ERW precision tube from Australia

OneSteel Tube Mills has manufactured ERW precision tube in Australia since 1939, supplying products for a diverse range of applications, including safety-critical automotive components.

The company's manufacturing facilities are located in Melbourne and Kwinana, and the precision tube business is currently capable of producing 70,000 tonnes annually. Tubes range from 19 to 101.6mm in diameter, and the company produces RHS, CHS, SHS and customised sections to a maximum gauge of 6mm.

The company, which is committed to sustainable manufacturing, is certified to quality standard ISO TS16949, and maintains environmental management systems certified to ISO 14001.

Manufacturing capability includes ERW precision tube manufacturing from 4 to 8 metre lengths, with weld line fin cutting available. Further processing capabilities include precision saws with cutting length tolerances to -0, +0.5mm, with inline wire brush de-burring and automated robot packing facilities.

Heat treatment capabilities include the supply of very high strength (VHS) material for the application of side intrusion beams in the automotive market, with tube yield strengths exceeding 1,350MPa using a boron steel tube. Automatic CNC lathe facilities provide internal and external chamfer capability on both ends, with inline tube washing. Laser cutting equipment allows accurate further processing of tube.

The Kwinana operations produce powder coated tube to Australian Standard AS4506:2005, and TubeColor® powder coating technology allows TubeColor powder coated tube to be supplied with a 7-year warranty. This tube is used for applications including residential construction for patios and fencing.

OneSteel Tube Mills – Australia
onesteeldirect@onesteel.com
www.onesteel.com

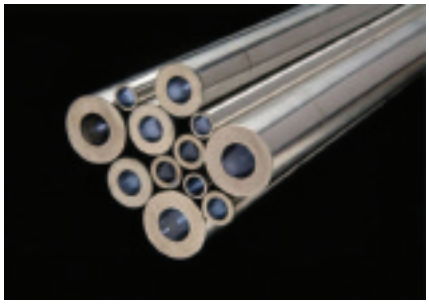
Small diameter tubes

Precision, seamless tube hollows

Dearborn Precision Tubular Products specialises in precision, seamless tube hollows. Founded in 1947, the company has pioneered manufacturing processes to manufacture products with uniform wall thickness.

A partial list of available materials includes titanium, tantalum, nitinol, L-605, MP35N, niobium, zirconium, inconel alloys, and stainless alloys. Dearborn can supply uniform wall thickness tubing with ID sizes ranging from 0.125" to 3" in lengths up to 20ft, and wall thickness variation of less than 1%.

Dearborn Precision serves the commercial, medical, nuclear, power generation, aerospace, and the oil and gas industries. Applications include instrumentation tubing, light weight high pressure hydraulic tubing, nuclear reactor components, medical devices and implants, and pressure vessels.



Tubing from Dearborn Precision Tubular Products

Dearborn Precision Tubular Products Inc – USA
info@dearbornprecision.com
www.dearbornprecision.com

Coils and straight lengths from STP

Small Tube Products (STP) is a producer of highly engineered, high precision small diameter tubing in 24 different copper, copper-based and aluminium alloys. The company manufactures and ships products domestically in the United States, and exports to numerous international destinations in Europe, the UK, several Asian countries and South America.

The size range for tubing manufactured to customer specification is 1 to 66.7mm (0.04" to 2.625") outside diameter, with wall thicknesses ranging from 0.12 to 10.16mm (0.005" to 0.4"). Established in 1947, STP has over sixty years of tube making experience, and serves more than 800 customers worldwide.

STP's coils are available in copper (1-22mm OD), brass (1-22mm OD), cupro-nickel (1-22mm OD) and aluminium (5-16mm OD).

The company produces straight lengths ranging from 3.2mm to 11.4m, in copper (1-67mm OD), brass (3-67mm OD), cupro-nickel (3-67mm OD), leaded brass (2.8-35mm OD), bourdon tube (5-22mm OD), and aluminium (9.5-50mm OD).

Small Tube Products – USA
www.smalltubeproducts.com

Precision seamless tube from Shanghai

Shanghai Lee&Yu International Co Ltd is a manufacturer and supplier of stainless steel tubular products and customised fittings. The company has over 10 years' experience of serving various industries in EU, North America, and South America.

Lee&Yu can produce stainless steel welded and seamless tube and pipe, to various standards and using a range of grades.

The company's small diameter, high precision seamless tube is available in diameters ranging from 4.79 to 19.05mm and wall thicknesses from 0.71 to 1.65mm.

The seamless tube can be manufactured in coil and straight type, with outside polished in 180, 320, 400 and 600 grit, and mirror surface. The inner surface can also be polished if the tube OD is greater than 10mm, and the size tolerance of the tube can be controlled to ±0.1mm.

Most of Lee&Yu's tube and pipe is distributed to the EU and USA. The company accepts third party inspection (TUV, SGS) before shipment. Lee&Yu also produces customised tubular products, valves, flanges and fittings.

Shanghai Lee&Yu International Co Ltd – China
sales@lee-yu.com.cn
www.lee-yu.com.cn

Capillary tubes for industrial and micromechanic applications

Handle SA manufactures stainless steel tubes and cannulas. The company's capillary tubes are used in several industrial fields, and are also used for temperature control and regulation and in micromechanic industries.

Small diameter tubes from Handle SA

With dimensions ranging from 0.25 to 10mm OD, and 0.06 to 60mm ID, the company produces a complete range of stainless steel hypodermic cannulas, to manufacture various types of single-use needles and catheters, in OD dimensions 0.25mm (31G) to 2.12mm (14G).

Handle SA – France
sales@handle.fr
www.handle.fr

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www.citypipe.ru

▲ RathGibson titanium tubing will be installed in India's US$4.2 billion Tata Mundra Project

Contract for Tata Mundra Project

RathGibson, USA, is a manufacturer of welded, welded and drawn, and seamless stainless steel, nickel, and titanium tubing.

The company's Bahrain branch office has secured a major contract in India's first 4,000 megawatt power project.

The company was chosen by Indian engineering firm Larsen & Toubro to supply titanium welded tubing for the condensers for the Tata Mundra Project. The power plant will be built near the city of Mundra, in the state of Gujarat, India.

Alfredo D'Souza, the company's director for business development, Middle East and India, commented, "*Our commitment to the region has resulted in increased education and technical support for our channel partners and end-users. We are excited to witness the exponential expansion in this area and are proud to contribute to that development.*"

Developed by Coastal Gujarat Power Limited, the Tata Mundra Project will provide power to over 16 million customers in the states of Gujarat, Rajasthan, Maharashtra, Punjab, and Haryana. The plant, an answer to the country's energy shortage, will contribute to India's domestic growth and commercial competitiveness.

The project will create India's first private power plant to use supercritical technology. The term 'supercritical' refers to the state of water when it cannot be clearly defined as a liquid or a gas. By achieving this supercritical state, the efficiency of energy generation is increased while emissions are greatly decreased.

RathGibson supplies products to diverse industries such as chemical, petrochemical, power generation, energy – oil and gas, food, beverage, pharmaceutical, biopharmaceutical, medical, biotechnology, and general commercial.

RathGibson – USA
www.rathgibson.com

A look ahead to Tube 2010

The international trade fairs Tube and wire, being held for the twelfth time, will showcase technological power from the sectors of wire, cable and tube processing, at Germany's Düsseldorf Exhibition Centre from 12 to 16 April 2010.

Tube 2010 will take place in halls 1 to 7, where a complete range of products and services will be displayed, including tube production via processing to machining.

Exhibits will include raw materials, tubes and accessories, machinery for the production of tubes, used machines, process technology tools and auxiliary materials, measurement and control technology.

Test engineering and special areas such as warehouse automation, monitoring and control systems will complement the range of technology on display.

The accompanying wire 2010 event will be held in halls 9-12 and 15-17. The segmentation in halls 15 to 17 is new for this show. The area of fastener technology will present its current technologies in hall 15, while part of hall 16 will be dedicated to the latest processes in spring making.

All applications connected to wires and cables, wire and cable machinery and fibreglass machines will be located in halls 9-12 and 16-17.

A major topic is the area of tube trade. For the second time, after a successful debut in 2008, pipelines and OCTG

Photo – ETIC – see page 34

'Seamless supply' stainless steel butt weld fittings

Stock Services is a new organisation that aims to be an integral part of the supply chain of support for tubular distributors, offering one-stop purchasing for its customers.

A large investment has been made in seamless stainless steel butt weld fittings to help clients achieve their aims.

To achieve the service levels and competitively priced products demanded by the distribution industry, and to offer 'seamless supply' for its clients, Stock Services has made considerable investment in the latest logistics IT technology, marketing expertise and international procurement.

The UK stock based in Birmingham is also supported by the manufacturer's stock, estimated at £1.6 million. The company's website shows real-time stock, enabling clients to make purchases through the Internet.

Stock Services represents Lioue Steel Pipe Company Limited China. Both companies are approved by Lloyds Register of Shipping, with appropriate quality assurance standard ISO 9001.

All products conform to European Pressure Directive 97/23/EC.

The company's policy is to offer a seamless supply to the UK and European distribution sector, helping to eliminate supply problems for its customers.

Stock Services – UK
info@stockservices.co.uk
www.stockservices.co.uk

Flow-stopping a 630mm gas main

UPLUS, the field installation team from Radius Systems (formerly Uponor), working in partnership with Floxstop Services, has successfully carried out what it believes to be a 'world first', in isolating a damaged 630mm polyethylene city centre gas main.

The project provided an effective flow-stop solution for the SDR 21 ProFuse polyethylene gas main, when part of the pipe was damaged by a mechanical excavator.

Supplies downstream were uninterrupted, and repairs were carried out using an inflatable bag system developed by ALH-Systems and saddle technologies developed by Radius Systems.

Traditionally, this technique had been restricted to 315mm pipe diameters, so

Photo – TS Steel Pipe & Fittings SrC – see page 20

Increased nozzle life for plasma cutting systems

Hypertherm's Centricut brand engineers and manufactures advanced plasma and laser cutting consumables. Its product line includes consumables that can deliver increased value to users of most cutting systems, including systems from ESAB, Kjellberg, and Trumpf.

All Centricut products are engineered and manufactured to exacting standards and incorporate the latest technological advances that help to reduce operating costs, while delivering increased cut speed and quality.

The company has launched new technology to benefit owners of Kjellberg® plasma cutting systems. Operators of Kjellberg's FineFocus 800 and 900, as well as its PA-570 and PA-575 products, can now purchase nozzles that are claimed to last twice as long as current Kjellberg nozzles. The nozzle life is increased, and operating costs reduced, through the use of patent pending CoolFlow™ technology and patented SilverLine® technology.

Centricut's CoolFlow technology was developed using advanced modelling software that enabled engineers to closely study heat distribution within the nozzle, as well as the cooling process. Centricut engineers then worked to design a nozzle that would funnel the cooling fluid to the hottest areas of the nozzle. The end result is money saved for customers, because the nozzle stays cooler and lasts longer.

The CoolFlow technology is combined with Centricut's patented SilverLine electrode technology to further increase nozzle life. To create SilverLine electrodes, Centricut's machinists use a combination of silver and copper to increase electrode life.

"*The increased life span of the CoolFlow nozzles will help Kjellberg owners save money, since advanced Centricut technology translates into a need for fewer consumables,*" commented Dean Lizotte, team leader for Hypertherm's Centricut brand.

Hypertherm designs and manufactures advanced plasma cutting systems for use in a variety of industries, such as shipbuilding, manufacturing, and automotive repair. Its product line includes handheld and mechanised plasma systems and consumables, as well as CNC motion and height controls.

Hypertherm – The Netherlands
hkeurope.info@hypertherm.com
www.hypertherm.com/eu

Stainless steel and nickel alloy tubes

Founded in 1974, Italian company Tecnofer SpA is a specialist in the manufacture of stainless and nickel alloy tubes. With advanced technology, the company has two production units, located in Dalmine and Gorgonzola, covering a total surface area of 7,000m².

The company produces redrawn precision tubes, both in bar and coil form, using the TIG welding process. The company offers a modern, well-equipped department for tube cutting and is able to produce cut pieces measuring just a few millimetres in length, completely burr-free.

Tecnofer can adhere to a range of dimensional tolerances, with a stainless steel tube range of 0.3 to 70mm and wall thickness from 0.1 to 3.5mm. These tubes are produced using stainless steels provided and guaranteed by leading steel mills.

ISO 9001:2000 accredited by Italcert, the company has been certified by RINA for its welding system and heat treatment for the production range of OD 6-16mm and wall thickness of 0.4 to 1.1mm.

Tecnofer SpA – Italy
info@tecnofer.it
www.tecnofer.it

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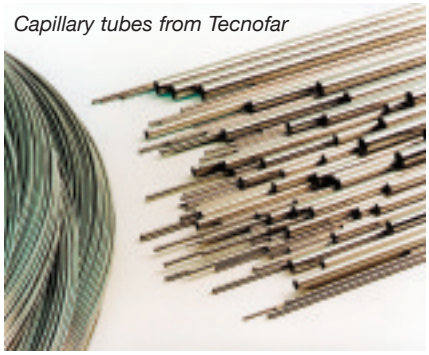
Stainless steel and nickel alloy tubes

Tecnofar SpA is a specialist in the manufacture of stainless and nickel alloy tubes. With advanced technology, the company has two production units, located in Delebio and Gordona, covering a total surface area of 7,000m^2.

The company produces redrawn precision tubes, both in bar and coil form, using the TIG welding process. The company is able to produce cut pieces measuring just a few millimetres in length, completely burr-free.

Tecnofar can adhere to a range of dimensional tolerances, with a stainless steel tube range of 0.3 to 76mm and wall thickness from 0.1 to 3.5mm. These tubes are produced using stainless steels provided and guaranteed by leading steel mills.

ISO 9001:2000 accredited by Italcert, the company has been certified by RINA for its welding system and heat treatment for the production range of OD 6-19mm and wall thickness of 0.4 to 1.1mm.



Capillary tubes from Tecnofar

Tecnofar SpA – Italy
info@tecnofar.it
www.tecnofar.it

Narrow and ultra-narrow tubes from Japan

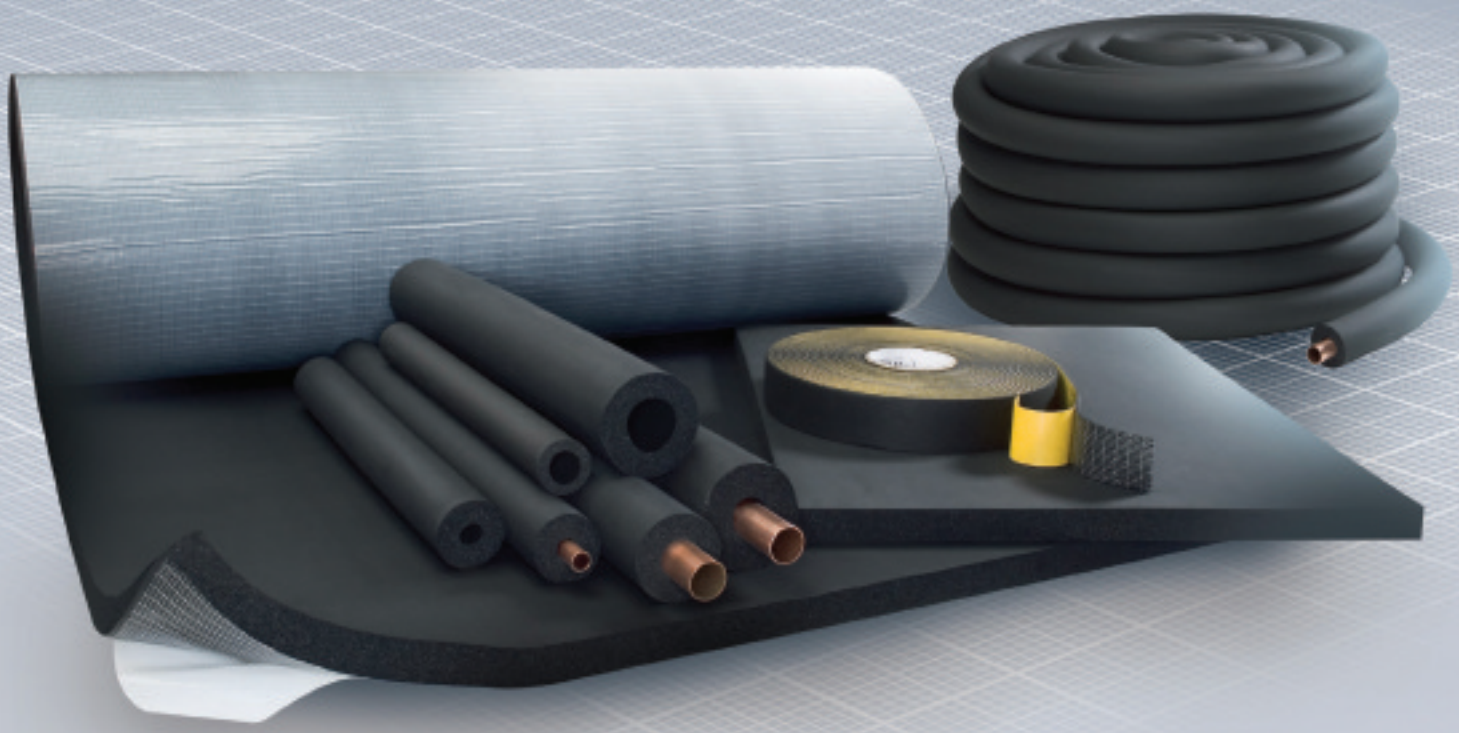
Sankyo Stainless Tube is a wholly owned factory of Sankyo & Co, Ltd, established as a production base for seamless stainless pipe products with the assistance of Kobe Special Tube Co, Ltd (formerly Tube & Pipe Department of Kobe Steel, Ltd).

Seamless stainless pipes are used in electric power plants and in a number of industries including oil (drilling, transportation, refining and processing), steel, shipbuilding, textile, food, machinery, computer and electric industries. These pipes are also indispensable components in the aircraft, semiconductor, energy and space industries.

The plant specialises in producing narrow tubes and ultra-narrow tubes, and aims to produce 500 to 800 metric tons per year with the introduction of production equipment and technologies from Japan, and with enterprise and quality management by Japanese engineers.

Sankyo & Co, Ltd – Japan
skb@sankomj.co.jp
www.sankomj.co.jp

Coated tube & pipe



Coated tubing and pipe answer to two imperatives: practical and aesthetic. The requirement for any kind of coating means that the application calls for more of a given property – strength, corrosion resistance, longevity – than is promised by an already perfectly produced and certified workpiece. But the multiplicity of uses for coated tubulars imposes a further obligation. The coated pieces must not only perform to the highest basic and advanced standards. They must also do it beautifully.

This double focus has fostered an exceptionally responsive relationship between producer and customer. Buyers of coated tubing know exactly what they need and want – for purposes that grow in tandem with every advance in engineering, architecture, and design. And the coating specialists in a modern tube and pipe mill know, with great precision, how to ensure that those needs and wants are met.

Photo: Armacell UK Ltd – UK

Tubing and couplings

Tubing columns belong to the most critical parts of the piping systems used in oil and gas production and transportation. In many respects, oil and gas production costs depend on their trouble-free operation.

The use of non-metallic coatings, such as polymeric, glass-enamel, silicon-enamel and improves tubing corrosion resistance, but the application of such coatings does not favour the formation of anti-wear and anti-corrosion properties of the tubing and coupling thread coats, and as a result, total tubing protection cannot be ensured.

Integrated studies of diffusion zinc coating properties and their extensive field tests have shown that they provide efficient protection of tubes against corrosive and erosive effects of corrosive media during oil production.

Delta 5+ is a new-generation diffusion zinc coating applied by the method of thermochemical diffusion zincing. This coating has been developed by Neozinc Scientific and Production Association for oil country tubes and their couplings. In comparison with galvanic, phosphate and metallised coatings, Delta 5+ has high characteristics of hardness, wear resistance and cohesion (due to diffusion bond) with the product surface. In comparison with polymeric coatings, Delta 5+ is not prone to ageing and galling. This feature prevents accidental damage of the coating and minimises drop of its protective properties.

The technology and equipment for diffusion zinc coating developed by Neozinc Scientific and Production Association allow zincing of both long products (up to 12.5m) and small parts. An electric furnace of special design has a reliable multi-zone electronic system for controlling the coating process temperature conditions and ensures a high-quality coating on the inside and outside tube surfaces and threaded ends. Coating of a uniform thickness is formed on the entire coupling thread profile.

Neozinc Scientific and Production Association JSC – Russia
koryakan@gmail.com

Zistaplex corrosion protection for tubes

Benteler Steel/Tube, Germany, is a manufacturer of high-quality steel tubes, and manufactures chromium-VI-free galvanised precision steel tubes under the name Zista-CRF®. These tubes are used in applications such as vehicle tubing and for machine and plant construction. However, the coating must meet higher requirements in numerous applications.

The combination of surface damage through transportation, handling, and further processing, as well as the absence of the self-repairing effect of the chromium-VI-free coating, led to a limitation of corrosion protection characteristics. Benteler Steel/Tube offers welded and seamless Zistaplex® tubes in the chromium-VI-free product range as a solution to this problem.

Benteler Zistaplex improves the corrosion resistance of galvanised tubes through an additional organic coating. In addition to providing corrosion protection, Zistaplex is also distinguished by excellent formability that meets most requirements, even after complete machining of the tubes. This eliminates the complex and costly galvanising and painting process on the customer side.

Benteler's Zistaplex tubes

The special production process enables the flexible use of different organic coating types. In addition to free colour selection, special requirements such as temperature and chemical resistance can be met. A solvent-free process is employed for environmental and personnel safety reasons, which fulfils requirements of the EU Solvents Directive.

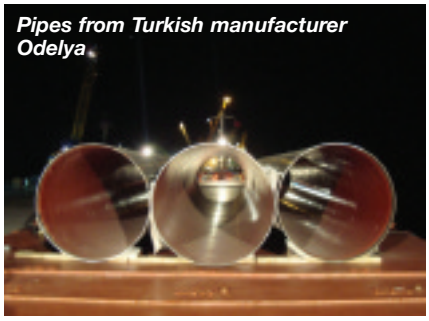
The process also ensures a uniform coating and uniform corrosion protection over the entire tube, which enables use of the most common DIN and SAE tube screw fittings without prior removal of the coating.

Benteler Stahl/Rohr GmbH – Germany
www.benteler.de

Coated and lined steel line pipes

Odelya is a supplier of line pipes consisting of spirally welded steel pipes from 6" to 120" OD and ERW pipes from ½" to 16" OD. The company's pipes can be supplied with many types of coating and lining, such as inside epoxy/coal tar epoxy, bitumen, cement mortar lining; outside bitumen, polyethylene, polypropylene; and epoxy/coal tar epoxy coating. The pipes are used in pipelines for water, natural gas and petroleum, and as pilings in seaport construction.

Partnership with selected mills, rigorous quality control, and reliable multi-model transport delivery allow the company to supply products to clients' requirements and requested delivery times. Global sourcing of materials means that the right material will be available anywhere in the world.



Pipes from Turkish manufacturer Odelya

Odelya Demir Celik Tic San ve Nakliyat Ltd Sti – Turkey
odelya@odelya.com
www.odelya.com

Continuous zinc plating

Precision steel tubes destined for hydraulic and pneumatic pressure pipes account for a significant share of the overall volume of precision tubes produced. The surface of these tubes, referred to as HPL tubes in commercial use, must be protected against corrosion.

One possibility to protect surface of base material is the electrolytic (galvanised) deposition of metal coatings that prevent corrosion of the surface. The surface usually does not consist of one layer, but of multiple layers, and besides corrosion protection, the coatings also improve the aesthetic look of the product.

Železiarne Podbrezová can meet the above requirements for passivation without using CrVI. For continuous zinc plating and tube passivation with outside diameter range 10 to 42mm and wall thickness range between 1 and 4 mm, the company has a process line that is able to process two tubes at the same time.

The company zinc plates seamless tubes of E235+N and E355+N standards, and welded precision tubes greater then 19mm made according to E195+N, E235+N, E275+N and E355+N standards. The length of the incoming tubes ranges from 4 to 6 metres, zinc layer thickness ranges from 8 to 30µm, and the passivation type is thin or thick layer passivation without CrVI.

Železiarne Podbrezová can apply zinc plating and tube passivation

Železiarne Podbrezová as – Slovakia
admin@zelpo.sk
www.steeltube.sk

Pre-insulated pipes, coatings and linings

Riveco GeneralSider SpA is an industrial group focused on supplying products and services to companies involved in the business of conveying fluids, transporting energy fuels (oil and gas), and to infrastructure industries. Production is carried out at two industrial sites with a combined area of 96,000m^2.

The first production unit (Chieti, Italy) manufactures longitudinally welded (HFI W) carbon steel pipes for both distribution and transport of fluids such as crude oil, gas, water and oxygen at low, medium and high pressure, in the range from 88.9 to 406.4mm (3" to 16"). The pipes are manufactured in compliance with most relevant international standards.

The unit also manufactures extruded high density polyethylene (HDPE) pipes in PE 80 and PE 100, for methane and water distribution, with a production ranging from Ø 20 to 400mm and pressures ranging from PN 6 to PN 25, according to UNI EN 1555, UNI EN 12201 and UNI ISO 4437.

Pre-insulated pipes for district heating/cooling systems and transportation of hot fuels for energy production: the combination of producing steel and HDPE pipes for conveying fluids, HDPE pipes for the sleeves and the foaming equipment makes Riveco GeneralSider a fully integrated producer of pre-insulated pipes.

The company's glass fibre fabrics are used as a mechanical reinforcement for asphalt and coaltar coatings, rock-shield protection and as anti-shearing enhancement for gloss surface coatings (such as FBE or paints) prior to concrete overweighting. The company provides full service, and is also able to distribute glass fibre felt.


Riveco GeneralSider operates two production units in Italy, in Chieti and Larino, Campobasso

In the second production unit (Larino, Campobasso, Italy), all kinds of anticorrosion coatings and linings for pipes up to 64" are applied: epoxy paint, PE, PP, FBE, concrete overweighting and sacrificial anodes application for offshore pipelines, rock-shield mechanical protection, polyurethane foam insulation for district heating projects and related services, and pipe-in-pipe for oil and gas applications.

The company states that its most important achievement has been the accomplishment of the Greenstream Project: polyurethane coating, epoxy lining, concrete overweighting and anodes applications of a 520km long sub-sea line linking Melittah gas refinery on the Libyan Coast to Gela Terminal in the Italian coast, also known as the Libyan Gas Transmission System (LGTS).

Riveco had already coated and concrete overweighted a large part of the Transmediterranean pipeline conveying Algerian gas to the Italian coast from Tunisia. LGTS is the largest and most important energy project carried out in the Mediterranean, and a milestone in the worldwide energy industry. It holds the record for the deepest sea pipe lay in the Mediterranean.

The company has also completed the concrete overweighting and anode application of 30km of 32" pipes linking a revamped ship acting as a floating storage and regasification terminal to the national gas distribution network onshore, and has erected a fully equipped plant at Livorno port in order to perform the job.

Riveco GeneralSider SpA – Italy
leonzio@rivecogeneralsider.it
www.rivecogeneralsider.it

Successful start-up of pipe mill in Oman

GIPI's plant has capacity to produce over 250,000tpa

Gulf International Pipe Industry (GIPI) was established as a limited liability company in the Sultanate of Oman in January 2007. The company claims to be the first high-pressure carbon steel pipe mill to be set up in Oman, and also the first of its kind in the Arabian Gulf region to produce up to 24" ERW high-pressure pipes.

The establishment of the pipe mill is in line with the aim of the Sultanate of Oman to reduce dependency on the import of finished products needed to service Oman's strategic oil and gas sector.

The groundbreaking ceremony for the mill took place in April 2008, and was attended by over 180 local and international dignitaries. Commercial production was scheduled to commence in January 2010, with a planned grand opening ceremony in March.

The project was executed via EPC contracts with Milltech from South Korea undertaking the engineering, procurement, installation, testing and commissioning of all equipment, and JK Engineering for civil works. Other notable local contractor contributions were from MBM and Dawood Engineering.

GIPI manufactures high grade carbon steel pipes and casing within a diameter range of 8" to 24", with capability for wall thickness of up to 25mm and pipe length of up to 18m. The pipe manufacturing process uses state-of-the-art Fifth Generation technology.

The company is also equipped with coating facilities capable of both internal and three-layer external coating, and threading facilities for casing pipes up $13^{3}/_{8}$". Professional in-house laboratory services offer a full range of inspection and testing in accordance with international industry standards, and can perform independent testing as per UKAS certification and ISO/IEC 17025.

The plant is capable of producing over 250,000tpa of products meeting stringent international and customer-specific standards.

Gulf International Pipe Industry LLC
– Sultanate of Oman
support@gipi.co.om
www.gipi.co.om

Armacell adds anti-microbial protection

Class O Armaflex engineered foam insulation materials, including sheets, tubes and coils, are now supplied with built-in anti-microbial protection providing continuous and lifelong protection against the proliferation of potentially infectious agents. These products are particularly appropriate for use in buildings with high occupancy levels, such as offices, hospitals, schools and leisure centres, but can be used anywhere to provide added protection against harmful microbes such as bacteria, mould and mildew.

The protection is provided by Microban anti-microbial product protection, a technology that is incorporated into the manufacturing process of the insulation materials. On contact, this protection penetrates the cell walls of micro-organisms, disabling their ability to function, grow and reproduce. Because the anti-microbial protection is an inherent part of the insulation material, the protection provided is permanent and cannot be removed during handling, washing or general wear. The effectiveness of the protection is also maintained in conditions of heat and cold as may be expected in applications for thermal insulation materials.

Microbes are a wide group of often microscopic organisms, which can be responsible for illness and disease in humans, particularly leading to respiratory problems. Given ample food and moisture, any surface can support microbial and bacterial growth. Where left unchecked, this can result in rapid rises in infection counts, which in conjunction with other elements can often collectively contribute to a 'sick building syndrome'.

A selection of the Class O range of Armaflex products with Microban anti-microbial protection

The Armaflex products also provide passive protection to supplement and complement the active protection provided by Microban. The passive elements, forming part of the engineered structure of the product, include a closed-cell foam construction, which is an effective water vapour barrier. The material is also non-wicking and small surface damage does not compromise the integrity of the barrier. Armaflex is also free of dust and fibrous materials to prevent any combination of mould spores and bacteria that could cause or aggravate respiratory infections. This combination of active and passive protection ensures suitability of the product for use even in sensitive areas.

Class O fire rating is also incorporated into the Armaflex range of products as well as excellent thermal properties, designed for both rectangular and circular ductwork as well as general pipework, flanges and valve boxes. The products are formaldehyde free, and protection against UV exposure, impact damage and weathering can also be provided.

Armacell UK Ltd – UK
info.uk@armacell.com
www.armacell.com/uk

Corrosion protection of steel pipelines by polyurethane coating

TIB Chemicals AG has developed a new high-performance corrosion protection, Protegol® UR Coating 32-60.

The new coating system is a solvent-free, two-component liquid, 100% solids, pure polyurethane which fulfils the requirements of DIN EN 10290:2002 (2002) 'Steel tubes and fittings for on- and offshore pipelines, external liquid applied polyurethane and polyurethane-modified coating', class B, thickness of 1,500µm, for a service temperature between -20°C and +80°C.

To formulate this coating system it was important to select the ideal raw materials, in order to achieve a polyurethane system with a high grade of polymerisation and resistance capacity against chemical and mechanical influences. The new coating has improved properties and is a very fast-set coating. It can be reliably applied on-site, without a complex and time-consuming application process, by use of a regular airless gun for product that has been formulated with a mixing ratio of 1:1, a density of 1.2 g/cm³ and a pot life of 10 to 15 seconds.

The modified fast-curing system, using a fusion gun with two mixing chambers and tip air-blast cleaning instead of solvents, gives an additional advantage in reducing both cleaning agents and waste of material.

Claimed advantages include a single-layer, homogeneous coating with excellent bonding to steel, providing good chemical and mechanical resistance (soil stress); the fast curing protects the coated surface against contamination, such as wind carrying and dust; and the coated pipes or pipe sections can be inspected in less time after application, holiday-tested and brought back into service.

TIB Chemicals AG – Germany
info.cps@tib-chemicals.com
www.tib-chemicals.com

Production and coating of carbon and stainless steel pipes

Petek Boru Sanayi AS has been involved in the production and coating of carbon and stainless steel pipes and fittings, as well as the production of polyethylene pipes and fittings, since 1979. The company operates from a 22,300m^2 facility, of which 12,300m^2 is closed space, including quality laboratories.

The company's spirally welded steel pipe production line can manufacture pipes between 219.1 and 1,626mm (8" to 64") in diameter, with a 3.2 to 14mm wall thickness range, via continuous on-line UT (ultrasonic test) control. Current production capacity is 18,000 tons per year.

Petek Boru is experienced in the external coating of all types of steel pipes with PE (polyethylene), FBE (fusion bonded epoxy), liquid epoxy, bitumen, varnish, primer and wire-mesh reinforced external cement mortar.

For internal lining, solvent-free and coal-tar epoxy lining as well as cement mortar lining are the most used methods. Thermal insulation of pipes is another area of expertise.

Products manufactured by the company include spirally welded steel pipes (carbon steel and stainless steel), fittings (carbon steel and stainless steel), elbows, tees and reducers. The company also manufactures HDPE 100 polyethylene pipes and fittings, chimney pipes, victaulic pipes, sigur-headed pipes, and threading and coupling.

Epoxy coated pipes from Petek Boru Sanayi

Petek Boru Sanayi AS – Turkey
info@petekboru.com.tr
www.petekboru.com.tr

3rd international trade fair for industrial coating technology

PaintExpo, a trade fair that focuses on industrial coating technology, will be held for the third time, at the Karlsruhe exhibition centre, Germany, 13-16 April 2010. Over 200 companies have already booked exhibition space, including market and technological leaders from many sectors. Companies from the coatings sector include BASF Coatings, Relius Coatings and Tiger Coatings, who have not taken part in previous shows.

The exhibition will present a broad and in-depth offering in every aspect of wet painting, powder coating and coil coating. The trade fair's portfolio for industrial coating technology includes systems and applications technology, coatings, transport systems, automation solutions and paint robots, consumables and services for the organic coating process, ranging from pre-treatment to final inspection.

Whether companies have in-house coating facilities or subcontracted coating operations, the demand is for improved efficiency with higher quality, greater environmental awareness and flexibility. One solution that ensures reduced investment and operating costs, particularly in the automotive sector, leads to material savings and an improved productivity, energy and eco-balance is the so-called 'Integrated Concept II'. Here, the function of the primer is integrated into a single or dual-component water-based paint system. By substituting the primer it is possible to dispense with the entire filler application or area of equipment, including the materials used, as well as the before- and after-treatment. The coating facility and time are accordingly reduced. The system can be integrated into existing coating facilities and reduces VOC emissions.

Using very high solid or ultra-high solid coatings with a very high solid content reduces VOCs. In some cases, only slight adjustment is required to the existing coating facility. However, application technology with paint guns and atomisers has a role to play, which enables a more effective application and adjusts the spray jet formed to the geometry of the work piece. Exhibitors at PaintExpo will present solutions in this area that permit savings in the consumption of coatings.

A further approach for reducing material consumption lies in intelligent coating logistics with flexible coating supply systems. Pigging system technology enables unused coatings to be recovered from the pipe, or specific quantities of coating to be conveyed to the application system.

In the area of coating powders, developments at manufacturers are moving towards solutions that harden at lower stoving temperatures. Here, there are already systems available that harden at between 120 and 130°C. Alongside energy savings, they also enable productivity to be increased. In addition, plastic materials and composites can be powder coated at these low temperatures.

Where the recovery of overspray is an issue, innovative electrostatic separator systems not only achieve higher levels of separation, they also reduce water and energy consumption.

Potential savings can further be exploited through increased automation. The use of paint robots results in greater reproducibility of coating results, a reduction in waste and better overall quality.

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Current applications and future developments for carbon steel tubular products

By Murat Ergin, Borusan Mannesmann Boru – Istanbul, Turkey

Indoor and outdoor applications in which chrome plated carbon steel tubular products are being used are spreading rapidly.

Borusan TR currently manufactures round, rectangular and a wide variety of special-shaped sections suitable for chrome plating using convenient carbon steel grades. The company is able to produce a common range of shapes and dimensions made of stainless steel as well.

In this paper, the current state and future aspects of electro-chrome plated and decorative industrial painted carbon steel tubular products used in manufacture of heating radiators, steel furniture and some other constructive appliances are highlighted.

Besides this, the subject of tube production technology and some electro-chrome-plating process highlights are introduced as well as pre-coating surface treatment topics.

Introduction

Domestic radiator and (steel) furniture manufacturing industries are the two main areas where carbon steel tubular products are being widely used either as chromium plated or painted. The purpose of chromium plating is to protect the appliances against staining, rust and pitting thus achieving resistance to corrosion and oxidation, ensuring hygiene and enhancing visual appeal to be considered “decorative”.

Functionality and appearance are the two main parameters for the so called “high-end” products; heating radiators and steel furniture to be used in residences, houses, offices, schools, hotels, hospitals and such other social buildings.

For the applications subject to matter, the production range covers round tubes OD12mm to OD76mm and the equivalent square/rectangular sections beginning from 10x10mm to 60x60mm. Special sections commonly used in such applications are: flat-sided oval, elliptical oval, pointed oval, drop shaped, semi-round, tunnel (U) profile and other special sections that lie in the production range of OD12mm to OD76mm round tubes’ equivalent circumference. The hollow sections subject to the discussion in this paper are “as welded” carbon steel tubular products within the scope of EN 10305-3 and EN 10305-5 standards.

Technical requirements for tubes suitable for decorative electroplating

Generally, two types of surface quality are available; one is suitable for general use involving the decorative painting application, while the other is suitable for electroplating after convenient surface preparation process steps. The latter quality is referred to as “CRP” according to the denomination of Borusan, emphasising that the tubular product is guaranteed to be suitable for electroplating after applying specific

***Figure 1**: The amount of metal (0.03mm) that has to be removed from the outer surface of steel tube – by means of grinding – to provide conformity for electroplating*

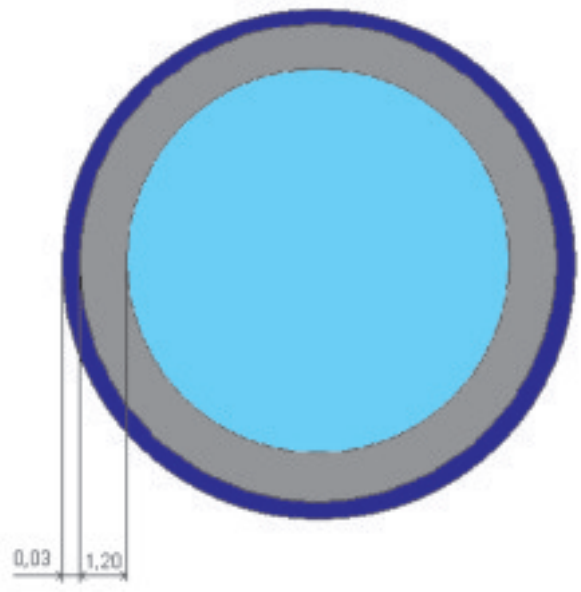


***Figure 2**: Scratches that do not disappear after electroplating*

surface preparation and finishing operations (grinding, polishing, etc) following proper process steps. The key point is to grind and polish the surface to maintain a "mirror finish" condition, to an extent that the surface roughness will be low enough. Ra<0.2µm has to be maintained uniformly all around the outer surface.

It may be necessary to remove an amount of 30µm from the outer surface, by the use of mechanical abrasives.

The amount of metal that has to be removed from the outer surface of steel tube, by means of grinding, is shown in figure 1. The use of grinding media rougher than 240grit is not recommended.

The electroplating process does not make surface defects such as scratches and pits disappear by filling in. The deposit just follows the contour of the tube's outer surface. Scratches which do not disappear after electroplating are seen in figure 2.

The so-called decorative chrome plating process (also referred to as nickel-chrome plating) differs from industrial (hard) chrome application as the thickness of chromium deposit layer is below 1µm. Under this most outer chromium layer, there exists deposits of nickel and copper at higher thickness values, between 10 to 25µm.

Technical requirements for making tubes suitable for decorative painting

Electroplating is different from painting applications as it has the ability to fill in the scratches and pits to a certain extent.

Surface preparation of the substrate to be painted is very important. As high as 80% or more of all coating adhesion failures can be directly attributed to improper surface preparation. The most common forms of surface debris are oils or greases that originated from mechanical processing or are deliberately applied for purposes of corrosion prevention during temporary storage or shipping.

Other surface contaminants commonly include oxidation, rust, corrosion, heat scale, tarnish and, in some cases, old paint. Dirt, grease, or other similar materials will block the bonding surface and create an imperfection on the finished part. Sand blasting, shot blasting and mechanical cleaning are the commonly referred methods to prepare the steel surface for painting.

While there is no universally acceptable reference for evaluating the conformity of steel surfaces to be suitable for painting applications – based on numerical criteria – the international standard ISO 8501 "Preparation of steel substrates before application of paints and related products – visual assessment of surface cleanliness" is a universal reference for this purpose.

***Figure 3**: Layers of nickel, copper and chromium deposit achieved by electroplating*

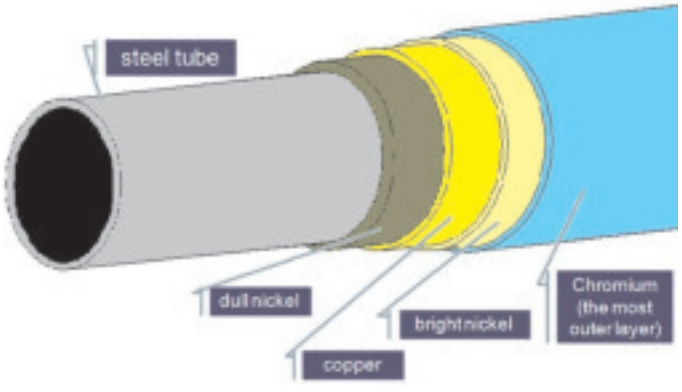
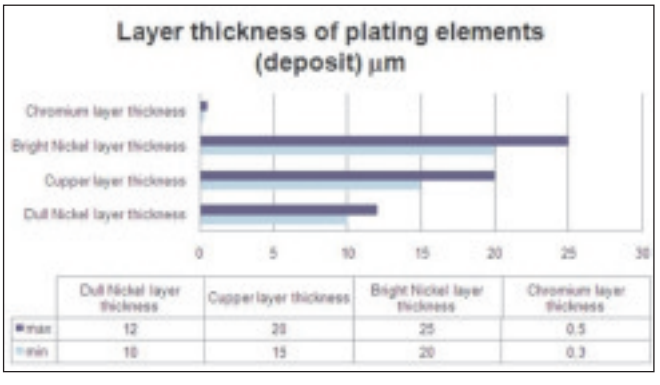


***Figure 4**: Typical values for the thickness of plating element layers on steel tube*



Process steps in radiator manufacturing

Surface and weld quality, geometry and dimensions are the characteristics critical to some process steps in radiator manufacturing. Typical process flow in radiator manufacturing is as follows:

- Cutting to length
- Drilling/punching
- Grinding, polishing
- Assembly for welding, plug insertion, welding fill-in material application
- Welding/brazing (in furnace)
- Leakage test
- Finishing (polishing)
- Electroplating

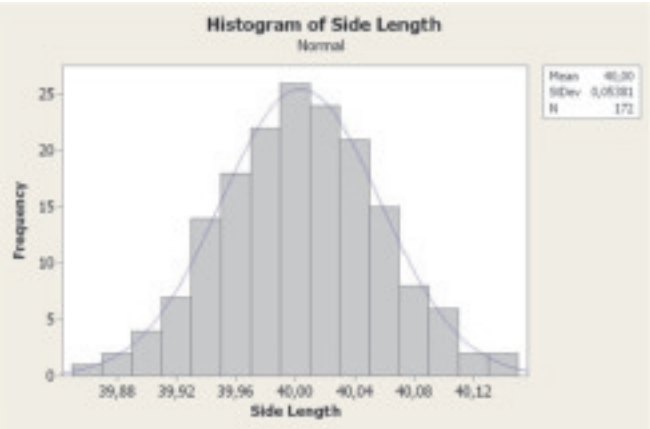
A critical customer requirement: narrow dimensional tolerances to assure conformity for plug installation and welding

Welding in a furnace is a recently developed contemporary method used in radiator manufacturing. In this process, the four open ends of the hollow sections on the assembled radiator are closed by the insertion of metal plugs, which are welded (or brazed) with the addition of filler metal paste.

Conformity of dimensions and geometry of the hollow sections to ensure the convenience of plug installation is a critical requirement. So as to provide this conformity, the variance of dimensions (side length and wall thickness) has to be under control. Six Sigma tools are utilised thoroughly for the purpose of controlling the dimensional variance.

So as to fulfil the geometrical and dimensional requirements for tight tolerances, tube geometry and dimensions should be stable. Specialised roll design is another means to ensure this stability.

***Figure 5**: An ideal (normal) measurement distribution for side length of a hollow section*



Future aspects

Multi-generation product planning (MGPP) approach for product development

When considering the steel hollow sections to be electroplated as a "product", a stepwise product development plan may be established as follows:

- MGPP1: Provide cut-to-length tubes to customer (radiator or furniture manufacturers)
- MGPP2: Provide surface finished tubes to customer using off-line polishing machinery (after tube mill)
- MGPP3: Surface finished tube production (via on-line or in-line polishing) at the tube mill
- MGPP4: Tube production using "bright" raw material, suitable for direct chrome plating
- MGPP5: In-line chrome coating of tubes during production at the (exit of) tube mill

Other future aspects

- Production of high strength tubes suitable for electroplating so as to yield a reduction in the weight of furniture
- Usage of stainless steel tubes in radiator manufacturing may become an economically considerable alternative to electroplating carbon steel tubes; thus the current state-of-the-art materials may be substituted at some point
- Similarly, hollow sections made of aluminium alloys may become more popular as an alternative to carbon steel in the future
- Development of "greener" chemicals in electroplating process
  - Trivalent bath instead of hexavalent
- Development of welding process technology in radiator manufacturing
  - Carrying out the welding process in specially designed furnaces, which increases productivity as well

Future trends for the finishing industry

1. Economic trends (cost of labour and consumables, increase productivity)
2. Regulatory trends (air, wastewater, hazardous, toxic)
3. Technology trends

Optimising existing technology

- Optimise conventional wet processes to achieve near zero discharge and risk
- Improve process monitoring and control systems
- Improve energy efficiency

Developing and implementing new technology
- Change to “greener” process chemicals
- Change from “wet” processes to “dry” processes
- Develop nanotechnology

Shot blasting highlights

Shot blasting made using low carbon steel shots
Shot blasting is a commonly used method to prepare steel surfaces for painting applications. Due to recent developments and future aspects in “shot” materials and “shot” manufacturing processes, the conventional polishing routine made by using specific machinery and common abrasives may be substituted by some convenient shot blasting applications. One of the key points may be the selection of low carbon steel shot – instead of high carbon – to yield a longer service life, also providing a more effective and faster cleaning cycle.

Due to bainitic microstructure, low carbon steel shots have crack-free grains and higher impact absorbing capacity. The impact is distributed evenly over the surface of the shot. Unlike high carbon shots, no surface cracks are observed on low carbon shots. Cracks shorten the use of shots considerably. Following few operational cycles in shot blasting machines, low carbon steel shots harden up to 46–49 HRC and their active cleaning effects increase. The ideal surface finish can be reached using the convenient shot dimension, which may be as tiny as 0.07mm (0.029") corresponding to SAE mesh no 200 to 2.8mm (0.111") corresponding to SAE mesh number 7.

Another technical development in blasting is achieved by using spherical shots made of glass.

The above and such special process designs may make shot blasting become a preferred surface finishing method even for electroplating applications.

Conclusions

It is vital to select the right quality of steel tubes for either electroplating or decorative painting application.

Surface treatment (finishing) operations applied for the purpose of preparing the metal surface for electroplating are too costly due to intensive utilisation of labour, machinery, equipment and consumables.

The surface conditions required to be provided by chrome plating are directly related to surface quality and conformity of raw material used in the production of the tubes to be plated.

Raw material conformity, limitation and uniform distribution of surface roughness, geometrical and dimensional stability, weld integrity, proper inside weld beam removal are the critical requirements.

Under these circumstances, “quality” should be the basic criteria to make a decision for the most convenient tubular product selection, rather than price.

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