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November 2016



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#### www.read-tpi.com

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# TUDE Products INTERNATIONAL

The trade magazine for tube and pipe products



#### The November issue

Welcome to the latest Tube Products INTERNATIONAL magazine. This issue we have a feature on pipeline inspection and two extended articles. The first article is from UKF Stainless and examines the many benefits and versatile uses of stainless steel tubes in our everyday lives. The second article takes an in-depth look at extending the service life of valves and is written by Arc Energy Resources.

A brand new website for Tube Products INTERNATIONAL will have been launched as you read this (it launches on 1 November). We are very excited about it as it has been completely redesigned to make it a far more attractive and intuitive portal for all of our readers.

We decided to undertake this redesign bearing in mind more and more of our readers are accessing the website and online version of the magazine from various devices. The new website is fully scalable so should be a pleasure to read whatever the size of your screen. It will load quickly and automatically adjust to be readable on smartphone, tablet or desktop PC. There are several new advertising opportunities too, so feel free to get in touch if you would like to get involved. Go to www.read-tpi.com to see it in action.

In the forthcoming January issue we have features on small diameter, high precision tubes, welding technology and two show features including a look at BORU 2017 in Turkey and Tube Russia 2017. The magazine will be distributed at both of these major events so get in touch if you would like your products to be showcased to customers in these two important international markets.

If you have any press releases, case studies or technical articles to send please contact me at rory@intras.co.uk

Enjoy the magazine.

Rory McBride Editor



# events calendar

#### **2016 -**



#### 16-18 November FABTECH (Las Vegas, USA) International Exhibition www.fabtechexpo.com



29 November – 1 December Valve World (Düsseldorf, Germany) International Exhibition www.valveworldexpo.com





23-25 March BORU 2017 (Istanbul, Turkey) International Exhibition www.borufair.com



17-19 May Made In Steel (Milan, Italy) International Exhibition www.madeinsteel.it



5-8 June Tube Russia (Moscow, Russia) International Exhibition www.metallurgy-tube-russia.com



28-30 June Guangzhou Tube Fair (Guangzhou, China) International Exhibition www.chinaexhibition.com



**18-23 September EMO** (Hanover, Germany) International Exhibition www.emo-hannover.de



19-21 September Tube Southeast Asia (Bangkok, Thailand) International Exhibition www.tube-southeastasia.com

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# business & market NGWS

Olympic Ares construction support vessel

# Bibby Offshore continues North Sea success with new contract win

Bibby Offshore, a subsea services provider to the oil and gas industry, has announced a multi-million pound contract win with an independent UK-based E&P company, to provide air diving, and ROV inspection and construction services across five of its North Sea assets.

The contract, which commenced in June 2016 and is to be completed by the end of the year, will see Bibby Offshore utilise several vessels, including its construction support vessel *Olympic Ares*, diving support vessel *Bibby Topaz* and subsea support and construction vessel *Olympic Bibby*.

The vessel-based engineering work involves Bibby Offshore installing a cathodic protection system on one platform, and performing air diving services to complete routine and non-routine inspection, repair and maintenance support at three other

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facilities. The company will also carry out routine pipeline inspection surveys at all five assets.

Fraser Moonie, chief operating officer, at Bibby Offshore, said, "We have suc-



cessfully completed multiple projects with this customer, with the latest contract demonstrating the continued confidence in our ability to deliver such complex work scopes.

"We place a huge emphasis on collaboration, which has led to us completing numerous high profile North Sea contracts throughout 2016, enabling our clients to achieve greater efficiency in this challenging market."

Bibby Offshore offers an integrated service portfolio to a diversified client and contract base, including project management, engineering, procurement and subsea intervention services to construct, maintain and extend the life of subsea oil fields.

Bibby Offshore Ltd – UK info@bibbyoffshore.com www.bibbyoffshore.com

# Groundbreaking ceremony unveils new tube pickling plant

Sandvik held a ceremony in June, at its headquarters in Sandviken, Sweden, to commemorate a major investment in a new pickling plant for hot flow processes in tube manufacturing. Construction of the plant was set to begin immediately, and the new pickling line will be up and running by the end of 2017. The new facility will cover 6,000m<sup>2</sup>.

Around 50 people were invited to take part in the event, in which the ground beneath the location of the new pickling plant was symbolically broken for the first time to mark the beginning of construction of the new building. A custom-made shovel was produced for the occasion, and the first dig was a joint effort between Christina Anttila, project manager; Michael Andersson, head of product area tube; Ulrika Silver, supply manager tube; and Petra Einarsson, president of Sandvik Materials Technology.

Ms Einarsson commented, "This investment is very positive for Sandviken. It strengthens our position globally and, at the same time, confirms that Sandviken remains an important part in our forward direction." Almost all tubes produced in Sweden pass through the pickling process step, which makes the new plant an important investment that will help ensure the stability and quality of tube production. The plant will be equipped with the latest technology and will be designed to provide a safer working environment and environmentally friendly processes.

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

# Final acceptance issued for modernised bar mill

HES Hennigsdorfer Elektrostahlwerke GmbH, a company in the Riva Group, has issued Primetals Technologies with the final acceptance certificate for a modernised turnkey bar mill in Hennigsdorf, in the German state of Brandenburg.

The modernisation project included replacing two existing stands in the roughing mill with new Red Ring stands, which do not have housing. This solution requires less space and has greater rigidity, to enable consistently narrow product tolerances to be achieved. The new stands also have larger rolls. This increases the stability of the process and allows multi-strand operation.

Primetals Technologies received the order in May 2015, and commissioning took place during a scheduled plant shutdown at the turn of the year 2015/16, with industrial rolling restored in January.

HES is one of three production locations that the Italian Riva Group has in Germany. The plant converts raw scrap metal provided by Riva Stahl GmbH into steel products, which are then marketed by Riva Stahl GmbH. The range of products includes continuously cast billets, reinforcement steel and bright steel, which is mainly supplied to the automotive industry and its suppliers. For the modernisation of the bar mill, Primetals Technologies supplied two new type RR564 housing-less Red Ring roughing stands with a horizontal configuration. The scope of supply also included couplings, drive spindles and spindle supports. The centreline of the rolls can be varied between 480 and 730mm, and the roll barrels are 850mm long. A new gearbox was also installed on one stand.

Stand change parts, a motorised device for roll change operation, and the on-board electrical equipment for the stands completed the scope of supply. Primetals Technologies was also responsible for construction and commissioning. The bar mill processes billets of carbon steel and low alloy grades with a square cross-sectional area of 140 x 140mm, a length of 12m, and a weight of 1.8 metric tons. The final products are rebars with diameters of between 10 and 50mm, and rounds with diameters ranging from 14 to 50mm.

Primetals Technologies Ltd – UK www.primetals.com

#### **HES Hennigsdorfer**

Elektrostahlwerke GmbH – Germany www.rivagroup.com

Two Red Ring rolling stands from Primetals were installed on the HES mill



# Accelerated manufacturing with assembly station

Spanish metal structure manufacturer Tecade SA has partnered with Pemamek to deploy a Pema Assembly station that is able to handle and weld heavy and large diameter work pieces.

Tecade has operated for 30 years in the field of heavy steel manufacturing, and has developed into a large-scale international company, becoming established in the bridge and offshore markets. The company's plans are to implement large investments while maintaining the same positive business incline.

Even though Tecade has its main focus on domestic markets, the company aims to broaden its supply internationally. It currently exports around ten per cent of its production and has major projects in



Juan Diego Camino Munõz and the Pema Assembly station

progress in countries such as Mexico, Scotland, Venezuela and Canada.

In order to boost production and drive growth in the bridge and offshore industry, Tecade was in need of production machinery for heavy and large diameter products. The aim was to find a supplier that would be able to provide reliable machinery and a complete solution from welding to material handling.

Tecade worked with Pemamek's product specialist, with clear and open communication, and developing ideas were exchanged during and after the project. To implement the solution and get the machinery in manufacturing use as soon as possible, Tecade closely cooperated with Pemamek's team.

> Even with the agreed tight schedule, the assembly line was delivered on time and was ready for production after only one week of commissioning.

> "Pemamek understood our needs and was able to fulfil all of our requirements," commented Juan Diego Camino Muñoz, chief operating officer of Tecade.

"They were flexible and cooperative to make the solution to our needs. Additionally, Pema had experience in wind and offshore industry, and presented very good references."

The Pema Assembly station now enables Tecade to speed up the manufacturing process while producing high quality products that can weigh up to 300 tons.

Efficient production of customers' largescale cylindrical and conical pieces relies on the ability to operate in a broad area with a diameter of 1.5 to 8m, where no additional setting times are needed.

The station also enables precise and fast shell fit-up and tack welding. With an integrated column and boom, the seams of each work piece can be welded in the same station.

Tecade's first project with the Pema Assembly station included manufacturing piles with a diameter of 2.7m and thicknesses of 50, 60 and 100mm.

Pemamek Oy Ltd – Finland info@pemamek.com www.pemamek.com

Tecade SA – Spain info@tecade.eu www.tecade.eu

# **HandyTube receives NORSOK qualification**

HandyTube has been successfully qualified by MRC Energy Piping for its 6Mo (UNS S31254) seamless coil and straight length tubing up to 3.8mm wall thickness, according to NORSOK M650 Edition 4 for MDS R18.

NORSOK is a set of standards developed by the Norwegian petroleum industry to ensure adequate safety, added value and cost effectiveness for development and operations in the petroleum industry and is intended to supersede oil company specifications and to serve as authorities' regulatory references.

NORSOK M-650 verifies that a manufacturer has sufficient competence and experience producing the relevant material and the necessary manufacturing facilities and equipment to support the production of the product for the duration of the qualification period. To meet the qualification requirements for NORSOK M-650 the purchasing company – MRC Energy Piping – was responsible for performing an audit of the manufacturer. The results of this audit demonstrated HandyTube possesses the knowledge, equipment and procedures necessary to produce the required finished products for use in critical applications. Upon completion of the audit MRC Energy Piping and Handy Tube signed a Qualification Test Record stating all qualification requirements had been met.

HandyTube – USA info@handyharman.com www.handyharman.com

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AdditionMT.com

# £1mn pipeworks project at Manchester's Spinningfields

Internal works are underway on the development of No.1 Spinningfields and the XYZ Building in Manchester, UK. Engineering group J Fletcher Engineers, Eccles, UK, has started work on a new heating and chilled water pipe system that uses cutting-edge materials, in keeping with the 'forward-thinking' theme of the two buildings.

The £73mn No.1 Building will be 24 storeys high, and home to 343,000ft<sup>2</sup> of flexible office space and a skyline restaurant. J Fletcher was on-site at the Quay Street location in July, to fit around 3,000m of tube to the plant rooms. The 160,000ft<sup>2</sup> XYZ Building project will see the firm install 5,000m.

J Fletcher Engineers plans to utilise new technologies in pipeworks, forgoing traditional carbon materials and designing an advanced system made from stainless steel. The firm frequently works with stainless steel on commercial projects. The high chromium content in the alloy forms an invisible layer on the steel, to prevent corrosion and staining, which in turn extends product life.

Director Steve Fletcher commented, "Traditionally, carbon steel pipework has

been used on such projects. We're using thin-wall stainless steel as it has many benefits. It's much lighter, so health and safety risks during installation are greatly reduced. It's also cost-effective: corrosion is limited so the material offers a much longer lifespan than carbon steel – a lifespan of up to 40 years.

"Winning the project has seen us take on extra staff – we're now a 130-strong workforce. We're also now looking for larger premises because of the expanding workload and the rising demand for prefabricated pipework and steelwork. We're always championing innovative design and materials, so it's a pleasure to work on some of Manchester's most advanced commercial buildings. It's projects like these that evidence the exciting future of the engineering industry."

Before work began on-site, J Fletcher utilised complex 3D models of each building, to enable the firm to efficiently co-ordinate the pipework, ventilation and electrical systems.

Mr Fletcher said, "Our in-house 3D modelling facility offers the client the option to co-ordinate the installation



The XYZ Building in Manchester, UK

before the building is complete – enabling clients to prefabricate with confidence. We then exercise greater quality control by building the systems off-site and transporting them to be readily installed. This also dramatically reduces timescale and health and safety risk."

No.1 Spinningfields is expected to be completed in summer 2017, while the ten-storey XYZ Building is due for completion this year. The combined project is estimated to be worth more than £100mn to the city of Manchester.

J Fletcher Engineers – UK enquiries@jfletcher.co.uk www.jfletcher.co.uk

### Asahi/America welcomes new sales team member



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Thermoplastic fluid flow technology specialist Asahi/America, Inc has announced the addition of Anthony Hernandez to its sales team.

Mr Hernandez joined the company in June, and brings a wealth of knowledge and experience to the team.

Mr Hernandez, who will represent Asahi/ America in eastern Pennsylvania, Long Island and New York City, NY, New Jersey, Maryland, Delaware, Northern Virginia, and Washington, DC, has nearly a decade of experience in the thermoplastics industry. He is currently based in North Carolina. Asahi/America, Inc specialises in providing solutions for fluid handling systems, individualised to meet customers' needs.

The company manufacturers corrosionresistant thermoplastic fluid handling products including valves, actuators, pipe and fittings. It also maintains an extensive custom fabrication department, and provides on-site consultation, supervision and training where required.

Asahi/America, Inc – USA asahi@asahi-america.com www.asahi-america.com

# Joint venture to manufacture pre-insulated flexible pipe for district heating

Radius Group, UK, a provider of pipeline infrastructure solutions for district heating, gas and water transportation, has announced the establishment of a new joint venture with Jielin Plastic Pipe Manufacture Co Ltd based in Zibo, Shandong Province, China. Radius Group will be the majority shareholder.

The joint venture will focus on the production of reinforced pre-insulated flexible pipes for the district heating market in China, and will operate under the name Radius (Shandong) Piping Systems Ltd.

Andy Taylor, Radius Group CEO, said, "We are overjoyed and excited to partner with Zibo Jielin Plastic Pipe Manufacture in establishing this exciting new opportunity. District heating is a core segment for Radius Group and through this manufacturing partnership we will deliver a state-of-the-art pipeline solution which will benefit the Chinese district heating market.

"Zibo Jielin Plastic Pipe Manufacture is a leader in the production of plastic pipe for district heating, gas and water applications. Their pipe manufacturing capabilities, knowledge, quality and leading position in the Chinese market combined with Radius Group's unique product proposition in reinforced pre-insulated flexible district heating pipe systems will create a strong market player."

Liu Hongbo, CEO of Zibo Jielin Plastic Pipe Manufacture, added, "I am very excited at the prospect of this collaboration with Radius. Radius's highly

advanced production technology, outstanding R&D capabilities, management expertise and experience in developing value makes them one of the largest manufacturers of plastic pipes and fittings in Europe and therefore a perfect partner for Zibo Jielin. Through the establishment of this JV both parties will benefit from outstanding synergy opportunities. Our combined product proposition is unique and will accelerate the replacement of steel pipes in the district heating network. As a result,



Miron Gorilovsky, president of Radius Group, and Liu Hongbo, CEO of Zibo Jielin Pipe Manufacture, sign the new JV agreement

our JV company will contribute to the energy saving and the carbon emission reduction in the district heating industry in China."

Radius Systems Ltd – UK sales@radius-systems.com www.radius-systems.com



# McElroy unveils modernised website

Pipe fusion equipment manufacturer McElroy has launched its newly redesigned website. The entire fusion website has been designed to be more inviting, informative and mobile-friendly, and is easy to use, providing machine information as well as fused piping system information to both frequent and first-time users.

With a new menu structure, machines are grouped into two distinct categories based on the type of industries served: underground/construction – for equipment fusing traditional thermoplastics like HDPE, MDPE, PA12 and Fusible PVC<sup>®</sup>; and mechanical/ HVAC/plumbing – for equipment fusing polypropylene pipe including PP-R and PP-RCT. All product lines include an overview of the features and benefits. Individual product pages include all information and collateral pertinent to the particular machine within the product line, for example part numbers; photos, videos and animations; machine specifications; literature; and accessories and replacement parts.

A search feature has been added that allows visitors to search for products, articles, accessories and more.

An optional tutorial to help visitors navigate the site is also offered.

McElroy – USA fusion@mcelroy.com www.mcelroy.com



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# **MasterFlow expands sales team**

MasterFlow, one of the UK's newest fittings and brassware suppliers, has strengthened its sales team in the South East with the appointment of Michael Porteous as area sales manager.



Michael Porteous (centre), with Malcolm Cairnes (left) and Gary Mason (right)

MasterFlow offers a range of products including fittings, yellow brass, flexi hoses, heating, gas products, taps, showers, traps and wastes.

Mr Porteous brings a wealth of experience to the MasterFlow team, after 32 years in the industry, initially beginning his career within the plumbers' merchants sector before moving into sales for Pulsar Direct, then on to Westco Flow Control.

MasterFlow expects Mr Porteous's knowledge of the market to be instrumental in helping the company increase its market share within Greater London and the South East region.

Commenting on his appointment, Mr Porteous said, "I have joined the MasterFlow team as I firmly believe in the quality of the brand's products and the strong potential for growth. Our products' WRAS accreditation and fully traceable supply gives current and future customers confidence in purchasing from us.

"Alongside this, in only a short time in the market, MasterFlow has carved out a reputation for good service and consistent supply so I'm looking forward to adding further weight to this."

MasterFlow – UK www.masterflow.co.uk

# TMK supplies pipe for Arctic development

TMK has made its first shipment of tubular products for the construction of production wells on the Arctic shelf. The pipes were manufactured for Gazprom Neft Shelf, a subsidiary of Gazprom Neft, to be used at the Prirazlomnoye oil field in the Pechora Sea.

The shipment comprised various types and sizes of casing pipe for building casing columns, with TMK UP PF premium threaded connections and GreenWell lubricant-free coating, including  $H_2$ S-resistant grade L80 SS and grade P110 SS pipes.

The products were manufactured in cooperation with Volzhsky Pipe Plant and Orsky Machine Building Plant, and with the involvement of the Russian Research Institute for the Tube and Pipe Industries (RosNITI). "In our operations we strive to keep pace with the requirements of key oil and gas companies as they seek solutions to their most challenging needs," said TMK's CEO, Alexander Shiryaev. "TMK has vast experience in producing products for use in aggressive offshore environments."

**TMK** – Russia tmk@tmk-group.com www.tmk-group.com

### **GF acquires piping company in Indonesia**

GF Piping Systems has announced the acquisition of PT Eurapipe Solutions, Indonesia, giving the company a platform for further growth in the country.

PT Eurapipe has a reputation as a producer of pipes and fittings made from polyethylene. The company, located in Karawang, 80km east of Jakarta, operates in the mining business and other water-related market segments. The acquisition strengthens GF Piping Systems' position in South East Asia in line with the strategy of the division to expand in growth markets.

Founded in 1992, PT Eurapipe generated sales in 2015 of around US\$20mn, with a workforce of approximately 100 people. GF acquired 100 per cent of the outstanding shares and will rename the company GF Indonesia after taking ownership. The parties have agreed not to disclose financial details of the transaction.

"We are pleased to welcome PT Eurapipe in the GF family," said Yves Serra, CEO of GF. "We look forward to continuing to serve existing customers and partners to the same high standards. We will further expand the company in Indonesia and in the region, working together with the entire team of PT Eurapipe."

GF Piping Systems is a supplier of piping systems made of plastics and

metal. The division focuses on system solutions and components for the safe transport of water, gas and chemicals in the industry, utility and building technology sectors.

Its product range includes pipes, fittings, valves, sensors and automation, as well as jointing technologies, and covers all water cycle applications. Worldwide, the division operates more than 30 production facilities, and supports customers in over 100 countries through its own sales companies and representative offices.

**Georg Fischer Ltd** – Switzerland info@georgfischer.com www.georgfischer.com

# **Technip awarded subsea contract**

Technip has been awarded a large subsea contract by Woodside to support the development of the Greater Enfield Project offshore Western Australia, at a water depth of 340 to 850m.

The contract covers project management, design, engineering, procurement, installation and pre-commissioning (EPIC) of carbon steel production flowline, carbon steel water injection flowline, flexible risers and flowlines totalling 82.2km; subsea structures and valves; 38.9km of umbilicals (dynamic and static); and a multi-phase pump system (transport and installation).

Technip's operating centre in Perth, Australia, will execute the contract with support from Technip's Asia Pacific subsea hub in the Kuala Lumpur office in Malaysia, and the office in Chennai, India.

The group will leverage its subsea integrated approach from fabrication to installation: the flexible pipes will be manufactured at Asiaflex Products. Technip's manufacturing plant in Tanjung Langsat, Johor, Malaysia; the umbilicals will be supplied by the Technip Umbilicals facility located in Newcastle, UK; and the offshore installation will use several vessels from Technip's fleet, and is scheduled for completion in 2018.

Technip has also announced that the company, along with DOF Subsea, through their 50/50-owned affiliate TechDof Brasil AS, have taken final delivery of the pipe-lay support vessel (PLSV) Skandi Açu.

The vessel has been approved for hire by Petrobras and commenced as per commitment its eight-year charter contract. It is the first of four PLSVs fixed on long-term charters with Petrobras, which were awarded to the ioint venture between DOF Subsea and Technip in 2013. Skandi Acu is designed to achieve a 650-ton laying tension

capacity, enabling the installation of large diameter flexible pipes in ultradeep water environments such as the Brazilian pre-salt. It was built by VARD in Romania and Norway, with the main pipe-laying equipment by Huisman in the Czech Republic and the Netherlands.

Mons S Aase, DOF Subsea's CEO, commented. "The extensive new-build programme of four PLSVs together with Technip has combined the subsea and vessel expertise across our organisations. Taking final delivery of Skandi Acu and commencing the contract with Petrobras is an important milestone in our partnership with Technip, and the joint venture now has three vessels in operation."

Technip - France www.technip.com

DOF Subsea Group - Norway info@dofsubsea.com www.dofsubsea.com

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# Cyberhawk completes UAV inspection for oil and gas supermajor

Unmanned aerial vehicle (UAV) and drone inspection and survey company Cyberhawk Innovations has completed what is claimed to be the world's first ever UAV internal industrial chimney inspection for one of the largest oil and gas supermajors. The project, which took place earlier this year, was completed over the course of two days at one of Europe's largest and most complex refineries.

Traditional internal industrial chimney inspections require personnel to climb inside dangerous and potentially chemically hazardous areas. Inspecting the chimney stack with Cyberhawk's UAVs allowed for a quick and safe audit

Cyberhawk Innovations has completed a UAV internal industrial chimney inspection



of the chimney, and meant that personnel were not required to physically enter the chimney to complete the inspection.

This new internal chimney inspection solution complements the company's existing external chimney stack inspection service, which involves using a drone to capture high definition images of the stack's full external surface before creating a three dimensional model of the chimney. This then provides accurate sizing and positioning of defects along with the provision of high definition orthophotos of each elevation of the chimney, all delivered in Cyberhawk's cloud-based asset management software, iHawk.

> Malcolm Connolly. technical director and founder of Cyberhawk, commented, "We have been working with this particular client for more than six years, and this demonstrates project continued confidence from one of the world's oil and gas supermajors in our ability to deliver more complex and challenging projects.

"Our portfolio includes a significant amount of work undertaken at refinery

and petrochemical sites, such as flare stacks, cooling towers and piperack inspections. We have already been using UAVs to conduct external inspections on chimneys for more than five years, and the completion of this recent work scope has proven the feasibility of using drones internally. Completion of this project represents a major leap forward for drone technology and demonstrates the huge safety improvements on offer."

The project builds on Cyberhawk's drone inspection service, which last year saw the team undertake the first internal inspection of a cargo oil tank on an operational FPSO, using a UAV. Projects this year have also added to the company's internal inspection credentials, with the completion of internal steam boiler inspections, at operational thermal power stations, the inspection of oil storage tanks and inside large chemical plants.

Cyberhawk operates in the utilities, oil and gas, renewables and rail sectors. In the oil and gas sector the company has completed more than 200 live flare inspections for companies including Shell, BP, Chevron, Total and Exxon, across Europe, the Middle East, Africa, North America and Asia.

Cyberhawk Innovations Ltd – UK info@thecyberhawk.com www.thecyberhawk.com

# **Artel launches new website**

UK-based Artel Rubber Company, a manufacturer of tubing, hose and fittings, has announced the launch of its new website. The website has been designed to provide a user-friendly experience with improved navigation and functionality throughout, allowing customers to access detailed product information and images.

The site has been designed using the latest technology so that it is compatible with modern browsers and mobile devices. The new website will enable customers to more easily access

the full range of services. Increasing demand from both UK and international customers was the driving factor for the new website, but Artel Rubber is mindful of its local market.

The updated website also provides the opportunity to receive interactive feedback from consumers. "A modern site gives you so many invaluable ways to connect with your customers," said Mr Lavin. "There's really no excuse for organisations to be out of touch with the public in this day and age, and we're committed to forging meaningful connections with our customers however we can."

Artel Rubber Company manufactures and fabricates silicone and rubber tubing and hose. The company offers a broad product line, and with the introduction of automotive performance tubing, hose and fitting products it is able to meet the demands of various applications.

Artel Rubber Company – UK sales@artelrubber.co.uk www.artelrubber.co.uk

# Liberty enters steel wind tower market as its steel expansion plans start to take shape

The Liberty House Group's 'Greensteel' strategy to build a fully integrated steel and engineering business across the UK has taken another step forward with the purchase of plant to make wind towers, T-pylons and other large-scale tubular steel fabrication.

The equipment will form the heart of a major new manufacturing centre that will eventually supply the growing offshore wind market and turbine casings for Tidal Lagoon power, in which Liberty's sister company SIMEC is a major investor.

Plans for this centre also represent an early boost for Liberty's newly acquired steel plants at Dalzell and Clydebridge in Scotland, which will make the heavy-duty steel plate required for the towers. The mothballed Scottish plate mills began recruitment with a view to re-starting production in September. Liberty, part of the GFG Alliance, bought the steel tower production equipment that was closed down in September 2015 by Mabey Bridge Renewables at Chepstow, South Wales.

The equipment makes towers of up to 56m tall x 5m diameter for onshore wind installations, and Liberty has plans to upgrade the facility to make 110m x 10m towers for the growing offshore market.

The plant will also make towers and cross-sections for the National Grid's newly introduced 35m-tall T-pylons, which are expected to become a common feature across the British landscape.

The group's executive chairman, Sanjeev Gupta, said, "We are very excited about this new opportunity. It is an excellent example of how we are integrating our steel production and manufacturing supply chain to create a robust industrial eco-system. It is particularly appropriate that this new business will supply the renewable energy market in view of our own Greensteel strategy, which involves investing in green energy as the basis of a competitive UK steel and engineering industry.

"Our aim is to create a world-class centre for the production of tubular towers and other large-scale steel fabrication. Most of these products are currently imported, so there is great potential to substitute this with our own production of best-in-class and competitive British towers, building sustained value and creating skilled jobs in a growth sector."

Liberty House Group – UK www.libertyhousegroup.com

# Strengthening position in SE Asia

Schmolz + Bickenbach International has invested in another subsidiary as part of an initiative to expand its sales and services activities in Asia. With immediate effect, the special steel producer with global operations is represented with its own sales location in Bangkok, Thailand.

The aim is to expand the service offerings for existing customers in the automotive and electronics industry as well as in manufacturing, and to acquire potential new customers in these branches. Local industries can then benefit from informed consulting in the application-specific development of optimum long steel solutions.

Sales activities of the Schmolz + Bickenbach Group subsidiary focus on special steels engineered specifically for machining in the production divisions Deutsche Edelstahlwerke, Steeltec and Ugitech. These products are sold in the technologically advanced automotive and electronics industry in Thailand. The new location is also to expand the sale in East Asia of special long steel from Deutsche Edelstahlwerke. There is in particular a demand among specialist suppliers in Thailand for high quality steel products such as those used, for example, in propeller shafts.

Schmolz + Bickenbach Group – Switzerland www.schmolz-bickenbach.com



# Arc Energy Resources MD shortlisted for IoD award

Andrew Robinson, managing director of UK-based Arc Energy Resources, has been shortlisted for the Institute of Directors (IoD) South West Regional Director of the Year Awards.

Mr Robinson has been at the helm of the family business since 2014, during



which time the company has delivered record turnover and strong profits, achieved through workshop expansion and procurement of a number of new technologies. Arc Energy's prime customers are in the oil and gas industry, but the company also supplies petrochemical, power generation, defence and nuclear sectors. Around 20 per cent of its work is exported.

Following his appointment as managing director of Arc Energy Resources, Mr Robinson developed a six-year business plan emphasising 15 per cent year-on-year growth. As a result, in 2015 the company achieved turnover of £6.3mn and maintained a strong profit level.

He also initiated a number of projects, including expansion of the workshops and procurement of three new cuttingedge technologies. Commenting on the value of the IoD Awards, Mr Robinson said, "Having received very positive exposure from winning the IoD SW Developing Director of the Year award in 2014, I am now applying for this year's IOD award to celebrate my results as Arc Energy's MD, as well as those of everyone in the business; and I wanted to build on our efforts and prove we could all achieve more. This is a good time to apply for the award, as it showcases the link between my directorial input and the tangible results the business has achieved, which also gives confidence to Arc Energy's staff that the company is in safe hands, after passing onto the next generation."

Arc Energy Resources – UK sales@arcenergy.co.uk www.arcenergy.co.uk



# Radius pipes connect town to gas network and upgrade water pipeline infrastructure

Radius Systems has supplied 25km of its ProFuse peelable polyethylene (PE) gas pipe and 4km of its PE100 water pipe, with all associated fittings, to Gas Networks Ireland (GNI) and Irish Water, for one of the largest combined pipeline infrastructure projects in Ireland.

The new ProFuse pipeline will deliver gas to businesses and residents in Nenagh, ending their energy reliance on oil and coal, while the town's ageing potable water supply network was replaced using Radius's high performance PE pipe.

Working closely with GNI, Radius Systems extended its range of ProFuse pipe to develop a pipe and fittings system to suit the project. The first phase of the scheme involved the installation of the new 400mm ProFuse pipeline from the outskirts of Nenagh to Annacotty, County Limerick, where it was connected to the existing gas network.

The next phase involved the building of a new gas distribution system for the town of Nenagh, using Radius's PE80 gas pipe in diameters 90 to 180mm.

Radius Systems regional sales manager Lisa Williams said, "The construction of the new ProFuse pipeline has gone really well and the whole project is set to be completed on time. Steel pipes would have traditionally been used for this 400mm pipeline, so we've worked closely with GNI to develop a polyethylene system solution which suited their project needs and provided installation cost benefits."

GNI and Irish Water, both part of the Ervia group, collaborated closely on the project to undertake the combined gas and water works to reduce construction costs and disruption to local businesses and residents, and in order to deliver a more efficient project.

The replacement water main, using Radius Systems 90 to 225mm PE pipes, was installed in the same trench and at the same time as the gas distribution system in Nenagh.

This upgrade to the existing water supply network will provide long-term benefits to the water network, with reduced service disruption, reduced water leakage and improvement to the water pressure.

Rory Somers, GNI's materials and innovation manager, commented, "This scheme is the first multi-utility gas and



water project for Ervia and is one of the largest utility pipeline capital projects being undertaken in the Republic of Ireland. It is a strategic investment for the town of Nenagh and the surrounding area and will provide security of energy supply to our customers, so we had to ensure that this innovative pipeline solution met with our exacting performance criteria for the safety of our gas network.

"This is the first time that polyethylene gas pipes in larger diameters have been used in the Republic of Ireland and we've worked closely with the Radius Systems development and technical teams to ensure that the pipe specified is a safe, robust and sustainable solution for this project."

Radius Systems Ltd – UK sales@radius-systems.com www.radius-systems.com



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# Danobat equipment in new threaded pipes factory

International company Tubos Reunidos has a new facility, complete with Danobat machines for the manufacture of threaded pipes and hoses. The project is the result of a joint venture between Tubos Reunidos and Marubeni.

The premises total around 31,500m<sup>2</sup> and include a workshop where the Danobat machines manufacture the threaded pipes.

The new production line will manufacture highly technological pipes, specifically threaded for drilling and production of oil and gas wells.

Danobat machines finish the pipes with patented premium threads that are claimed to provide superior performance compared to standard threads.

"They are perfectly suited for work on sites at 4,000 or 5,000m depth," said Carlos San Martín, director of technology and development of Tubos Reunidos Industrial.

Among other facilities, the line will have several horizontal Danobat TTB lathes for machining of pipes. The line will also be equipped with Danobat band saws to cut the pipes.

In the new factory, Danobat machinery will also produce the necessary special couplings to join the pipes in the well.

The company will have sophisticated Danobat lathes to machine the couplings, in addition to a robotised loadunload system, obtaining a near fully automated production system with minimum operator intervention.

Danobat – Spain www.danobatgroup.com

**Tubos Reunidos** – Spain www.tubosreunidos.com



# Penspen and Dar Al Handasah sign deal

Penspen and Dar Al Handasah, operating as a joint venture, have been awarded a new project management contract by Kuwait Gulf Oil Company (KGOC) to manage the engineering, procurement and construction of a new gas and condensate pipeline. The pipeline runs both offshore and onshore from Khafji in Saudi Arabia to the final destination of Mina Al Ahmadi in Kuwait.

The two companies, both members of the Dar Group, have been providing FEED and project management services for this new pipeline since March 2010. The project is now at an advanced stage and will be completed under this new contract, which is set to run for 18 months.

Penspen has more than 60 years of experience helping clients develop new energy assets by providing customised engineering and project management services, and by assisting them with the rehabilitation of existing energy assets to maximise productivity and efficiency.

Penspen – UK info@penspen.com www.penspen.com



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# **Bend restrictors receive API 17L1 design** review certification

Trelleborg's offshore operation in the UK has been certified for the design review of its bend restrictors under the American Petroleum Institute's specification for flexible pipe ancillary equipment (API 17L1 Ed. 1 2013).

The certificate was awarded by Lloyd's Register EMEA, acting as an independent verification agent. All verification was completed by conducting a thorough overview of the product range, design philosophies and extensive safety track record based on over 20 years of service experience. This was evaluated alongside Trelleborg's material qualifications, manufacturing processes and procedures. In addition, a manufacturing audit and site visit to the company's metal work supplier was undertaken.

Andrew Garside, innovation and technology director within Trelleborg's offshore operation, commented, "Bend restrictors are required to perform in increasingly challenging offshore environments. For this, it is critically important that the combination of design expertise, qualification and compliance are fully supported by years of application experience. The API assessment is a detailed process, which put our design procedures of bend restrictors under stringent analysis. Receiving the certification demonstrates the performance of our bend restrictors, especially for use in challenging and harsh sea environments."

API 17L1 specification defines technical requirements for safe, dimensionally functionally interchangeable and flexible pipe ancillary equipment that is designed and manufactured to uniform standards. These industry standards determine the minimum requirements for the design, material selection, manufacture. documentation. testing. marking and packing of flexible pipe ancillary equipment.

Trelleborg's bend restrictors are used to protect flexible pipelines from over bending and buckling during their installation or operation phase where



static loads are generated. The system consists of interlocking elements that articulate in three dimensions when they are subject to external loads. At a designed radius, the elements mechanically lock to form a semi-rigid curved structure that will not bend further. Bend restrictors are of split design to allow easy installation of the restrictor after pipe termination.

Key features of bend restrictors are that they maintain the manufacturer's recommended minimum bend radius during the life of the project; provide a suitable load path from tubular to fixed structures; and reduce point loading at the termination to an acceptable level.

Trelleborg – Sweden www.trelleborg.com

### New profile measuring system for hot rolling mill in Slovenia

Zumbach Electronic has won a contract from Štore Steel doo in Slovenia for a Profilemaster® SPS 400-S4 in-line profile measuring system, based on laser light section technique and machine vision.



Profilemaster SPS 400-S4 measuring unit

22

The system will be integrated into a hot rolling mill, helping to increase the efficiency of the mill and to assure product quality.

Štore Steel produces various round and flat steel products for the forging, spring and engineering industries.

The company is modernising its in-line measuring systems in order to gain better and faster control over its production process. A significant efficiency increase is expected by shortening start-up time and reducing downtime.

The ordered Profilemaster SPS400-S4 is equipped with technology for full profile measurement and surface fault detection. The system is has four high-speed camera/laser modules to capture the full contour of the hot rolled profile. Scanning the product with up to 500 full contours per second, the measuring system provides continuous dimensional measurements as well as surface fault detection.

The engineered construction and the conditioning features of the Profilemaster SPS 400-S4 ensure stable and reliable measurements. Commissioning is planned before the end of 2016.

For measurement and control in the cold finishing process, Štore Steel also ordered a non-contact measuring and control system from the Zumbach ODAC - USYS product line.

Zumbach Electronic AG - Switzerland sales@zumbach.ch www.zumbach.com

# ASMAG signs contract for two innovative production lines

ASMAG GmbH, based in Austria, is a specialist in machinery for the production of metals. It has recently signed a contract with the Italian Berna Ernesto SpA of Lumezzane, Brescia, for the turnkey supply of two complete fully automated production lines. The plants will produce hollow bars and profiles in various brass alloys.

The agreement was signed in Gmunden, Austria, by Andrea Berna, CEO, and Johann Vielhaber, CEO of ASMAG. This was the successful result of several technical meetings in which all requirements of Berna were carefully evaluated to identify and outline the best technological and layout solutions.

The philosophy of Berna, orientated to unconditionally guaranteed product quality and customer satisfaction, was the main theme of the talks and led the engineers of Scharnstein to their project choices. The technological encounter, knowledge and sharing of experience was further enhanced by mutual visits of delegations in the respective premises at Lumezzane and Scharnstein.

The scope of supply includes drawbench, straightening lines for rounds and profiles, cut-to-length station, chamfering, straightness control unit and testing table, automatic bundling and packing, erection and commissioning services.

Considering the qualitative targets firmly established by the management of Berna, strong attention to material handling and extensive adoption of in-line instrumentation were also foreseen by the Austrian engineers. This will ensure the physical and aesthetic properties of the finished brass bars.

ASMAG is a manufacturer of integrated lines for the production of cold drawn metals (ferrous and non-ferrous). Its markets are mainly Europe, USA and Russia.

Founded in 1984 by the engineer Johann Vielhaber, it has grown since then in the factory of Scharnstein, and with the acquisition of SEUTHE, Germany, in 2010 and OCN, Italy, in 2015. The ASMAG group now totals more than 200 employees.

Following the purchase of the assets of OCN, a new ASMAG branch office has also been established in Tavagnacco (UD), Italy, whose first important result has been this project with Berna.

With this contract, ASMAG states that it confirms its growing leadership in high-technology cold drawing machinery around the world.

ASMAG GmbH – Austria sales@asmag.at www.asmag.at

# Road map for European plastics industry

The new president of the European Plastics Distributors Association (EPDA), Lari Hahtonen, set out his vision for the plastics industry in his inaugural speech to delegates attending the industry's annual conference in Hamburg, Germany.

At the event Mr Hahtonen, who was vice-president and takes over from outgoing president David Ladyman, stressed the importance for Europe's plastics manufacturers to react quickly to the challenges posed by new developments in technology that are shaping the industrial environment.

Mr Hahtonen, who has been in the plastics industry for more than a decade and works for his family business (Aikolon Oy in Finland), said, "I wish to thank David for all his great work as president of the EPDA; he will be a hard act to follow. Plastic is fantastic and we must remain at the forefront of innovation and customer-centric solutions for manufacturers."

**European Plastics Distributors Association** – UK info@epda.com www.epda.com

# KHANNA INDUSTRIAL PIPES PVT.LTD. CARBON STEEL PIPES AND TUBES MANUFACTURER FROM INDIA Khanna Industrial Pipes Pvt. Ltd. Is a manufacturer of carbon steel welded pipes and tubes established in the year 1986 and Government of INDIA recognized Star Export House Company. We are manufacturing the Pipes and Tubes as per International Standard: BS EN 10219, 10255, 10217 and ASTM A-53 Gr A and B , A-500 Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Company Image: Compan



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15mm x 15mm to 40mm to 40mm	1.0mm to 2.5mm	Upto 12 Mtrs.
20mm x 10mm to 50mm to 30mm	1.0mm to 2.5mm	Upto 12 Mtrs.

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# **FES International wins Ghana deal**

Oil and gas firm FES International has won a contract to supply equipment to the Offshore Cape Three Points (OCTP) integrated oil and gas project, 60km off the coast of Ghana. The project includes the combined development of the Sankofa Main, Sankofa East, Gye Nyame, Sankofa East Cenomanian and Sankofa East Campanian fields, located within the OCTP block in the Tano Basin, where oil production from the project is expected to start in 2017.

The contract, which was awarded by Oceaneering International, Inc, involves the supply of a range of equipment including five diverless bend stiffener connectors (DBSC). The FES DBSC enables the quick and efficient installation of bend stiffeners, which are used offshore to securely connect the umbilicals to the floating production storage and offloading vessel (FPSO).

Rob Anderson, managing director of FES International, said, "The timescales for this project were extremely tight but we have worked closely with our well-established supply chain in order to accelerate the process and achieve the customer requirements within the deadlines. We have worked extensively with Oceaneering in the UK and the USA, and continue to maintain a good relationship with the company, which is important for positioning FES International in the area."

FES (Flexible Engineered Solutions) International provides fluid transfer solutions to the offshore industry, and has more than 40 years' experience, with a track record in the design, manufacture and supply of products to the oil and gas and offshore renewables markets.

The company delivers safe and efficient solutions that are tailored to meet customer demands and market needs. Focusing on the provision of fluid transfer systems and five other core product lines, FES International employs experts in design, including FEA analysis and modelling, draughting (on the latest 3D software), machining



and manufacture, assembly and testing to manage every stage of a project commission.

**& XUYI TITAN** 

FES International – UK fes@fesItd.co.uk www.fesinternational.com



# Val-Matic video resources

Valve manufacturer Val-Matic has a library of reference videos, covering a wide range of topics such as how an air valve works, coating adhesion, and making systems safe with inflow preventers. Users interested in learning how to reduce slam with a Val-Matic check valve, protecting systems with Val-Matic pump controls, providing power supply with Val-Matic accumulators or just finding out more about the company can view the videos on Val-Matic's YouTube page or on the company's website.

Val-Matic Valve & Mfg Corp – USA valves@valmatic.com www.valmatic.com



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# products & developments



Pipe and hose fittings from the Volz Group

# Tube and hose fittings produced in Germany, available internationally

The Volz Group's tube and hose fittings made from high-grade stainless steel 1.4571 (316 Ti) ensure the safety of hydraulic systems. They are developed at the company's headquarters in Deilingen, Germany, and are internationally available through the company's own subsidiaries and sales partners.

The company offers a large selection of stainless steel fittings, including cutting-ring and male stud fittings, 24° taper couplings (DKO), 37° flare tube connections, and non-return and shuttle valves. The product line also includes JIC fittings with differing threads, which were specially developed for markets outside Europe.

In addition to connections for ridged tube fittings, an extensive range of universal hose fittings and interlock hose fittings for various hose types are available off the shelf at short notice from the international sales partners. They are matched with common hose types (EN, ISO, SAE) and brands, and are available in various fitting configurations.

Internal tests under extreme conditions and approvals and certificates from independent organisations for hoses of manufacturers such as Gates, Manuli and Eaton SEL back up the performance. A number of assembly and system manufacturers have also approved combinations of certain hose types with Volz fittings.

"Our demands on quality begin as early as the material selection," said Ralph Wolter, director of marketing and business development at Volz. "In contrast to many competitors, we always use high-grade stainless steel 1.4571 (316 Ti)." Rod material and forging blanks come exclusively from European countries. According to acceptance test certificate 3.1, exact batch tracking of the raw material up to the melt is possible. "We supply to industries in which leak tightness must be guaranteed even under extreme conditions," commented Mr Wolter.

Stainless steel 1.4571 is extremely corrosion resistant, to saltwater and acids, for example, and is suitable for high temperatures and more resistant to inter-crystalline corrosion than materials of lower quality. The Volz Group has entered more sectors and international markets with its stainless steel product line in recent years. Volz is internationally involved with sales corporations in the USA, Turkey, Ukraine, Australia and Singapore.

Volz Group GmbH – Germany info@volz.de www.volz.de

# Largest Victrex PEEK-based structure to deliver subsea pumping reliability

To reduce exploration and production costs and risks in subsea oil and gas systems, Magma Global Ltd has developed the flexible m-pipe<sup>®</sup> technology.

The latest lightweight continuous pipe is described as the largest and longest Victrex<sup>®</sup> PEEK-based structure ever, achieved with the support and expertise of Victrex. It can be deployed to depths of 3,000m (10,000ft), and can handle pressures of up to 15 ksi (103MPa). The composite pipe combines Victrex PEEK, high-grade carbon fibre and S-2 Glass fibres to form a subsea intervention line that meets the demand for a hydraulic pumping system that can handle high pressures and high flow rates.

"Thanks to partnering with Victrex, we have been able to successfully develop our 10,000ft solution for hydraulic pumping and light well intervention in the Gulf of Mexico," said Charles Tavner, commercial director at Magma. "Victrex PEEK polymer's high performance, and their material and processing expertise, has supported the new record-breaking flexible and spoolable m-pipe for the oil and gas industry."

Magma is offering its m-pipe and integrated deployment package as

a vessel back-deck system for rapid hydraulic light well intervention. The Magma deployment system has a modular reeler with m-pipe intervention line pipe handling system, built-in tensioner, level wind, controls cabin, hydraulic power unit, installation platform and winch, for rapid pipe deployment and retrieval.

The m-pipe is a composite material, based on Victrex PEEK polymer, carbon and glass fibres, that delivers low fatigue, improved buoyancy in fluids and high resistance to corrosion compared to steel pipe.

"In oil and gas exploration the continuous need to extend scope and efficiency motivates us to develop reliable solutions further," explained Tom Swanson, energy director at Victrex.

By specifying high-performance PEEK composites and polymers that Victrex has developed for this programme, the m-pipe in the new Magma deployment system offers the capability to handle high temperatures; ability to deal with pressures up to 103MPa; deep water capability down to 10,000 feet; excellent fatigue life for thousands of reliable deployments; light weight for ease of installation and reduced pipe stress; smooth PEEK bore for efficient and rapid flow of intervention fluids; and resistance to well completion and stimulation fluids and gases for operational reliability.

The Victrex PEEK-based m-pipe and deployment system can be rented as a complete deployment package from Magma, on either a short-term campaign or annual contract basis. The Magma system is designed to minimise mobilisation time and maximise vessel utilisation by reducing hydraulic pumping time.

Magma's 'integrated package' approach provides the ability to intervene in subsea completions continuously and efficiently, to maximise their ongoing productivity. The Magma system and high performance m-pipe allows for flexible high pressure and high-flowrate pumping of intervention fluids into subsea wells from small vessels.

Victrex plc – UK www.victrex.com

Magma Global Ltd – UK sales@magmaglobal.com www.magmaglobal.com



# Meeting high requirements with diaphragm valves

Alfa Laval has an understanding of the hygienic industries' demand for reliability and equipment that supports sustainable processes. The company's range of diaphragm valves is designed to deliver reliability in sterile and aseptic applications.

The Alfa Laval DV-ST UltraPure is a compact, lightweight valve with a modular design, enabling a wide range of purpose-built configurations. The specified sulphur content is standard for all forged and block valves, safeguarding high quality weldings. With a pneumatic actuator, adjustment of the spring pressure is possible, as well as utilisation of a stroke limiter. For all handles, over-closure protection in manual operations ensures a defined closing pressure against the diaphragm. Both solutions optimise the safety of the sealing functions and prolong diaphragm lifetime.

The DV-ST range includes the T- and Tank-outlet valves, available either as machined from block or forged and welded. Using the T-valve configurations made from forged bodies enables a reduction in material and operating costs. The reduction in weight (up to 62 per cent compared to conventional block solutions) also reduces stress on the piping. Furthermore, it reduces sterilisation time, while cutting energy costs and system downtime.

The new design of Alfa Laval's Premium UltraPure diaphragm valve (DV-P)

provides more precise flow regulation and is claimed to give double the flow rate of conventional diaphragm valve designs at a given pressure drop.

The Alfa Laval DV-P cuts energy costs because of double flow rate or lower pressure drop, enabling the use of smaller feed pumps, which require less electricity to operate. Installation costs are also lower than conventional diaphragm valves due to the use of smaller pumps, valves and piping. Further savings are achieved through extended lifetime of the diaphragm, which results in longer service intervals.

Alfa Laval – Sweden info@alfalaval.com www.alfalaval.com

# **PP-R welding solution**

Ritmo's Basic is a range of welding machines for PP-R and other plastic pipes such as HDPE, PB and PVDF, for industrial or civil use. The Italian-made machines are designed for precision and ease of use, and follow all of Ritmo's quality standards.

Basic 160 is a small welding machine with a working range of Ø 40 to 160mm (1" to 5" IPS), while the largest of the line – Basic 355 – is for 125 to 355mm (4" to 14" IPS).

Basic 160 includes a machine body built with a supporting frame, four clamps and two hydraulic cylinders with fast, non-drip coupling connections. The Teflon-coated (PTFE) heating plate has a built-in independent thermometer to check the working temperature, and a high-precision electronic thermoregulator, 'Digital Dragon',  $(\pm 1^{\circ}C)$  with digital display and regulating buttons. The system includes LED indicators to show if the machine is working normally (live tension and working temperature), and to alert the user to contingent probe failures or temperature anomalies.

An extractable electric milling cutter, to face the heads of the pipes and fittings, includes a safety micro-switch and a thermal circuit breaker. The electrohydraulic gear case is protected from

crashes and atmospheric corrosion by a plastic box.

The machine includes a control lever to open and close the clamps, maximum pressure and discharge valves (also useful for the 'dual pressure' welding process), hydraulic connection hoses with fast couplings, and a timer to check the warming and welding time. The machine





Machines from the Basic range at work on the job site

is pre-set for the connection of the electronic controller 'The Inspector'.

Basic 160 is able to weld fittings such as elbows, tees, Y-branches and flange necks, and is available in 110V and 230V versions.

Ritmo SpA – Italy info@ritmo.it www.ritmo.it



# Improvements in laser cutting technology

Fonon Corp has brought a series of advancements to its latest generation of laser equipment for industrial applications that were previously underserved by the most common laser cutting technology.

The most widely used conventional laser cutting machines incorporate  $CO_2$  lasers, and have proven less effective when used to process certain metals and reflective materials. Due to their highly reflective nature, a large number of metals and materials cannot be efficiently cut with conventional  $CO_2$  lasers, including aluminium, copper and brass. When processed by a  $CO_2$  laser, these metals reflect a majority of the laser power, causing equipment damage due to back reflections.

Industries that use these metals, including manufacturers of construction equipment, aluminium vehicles, kitchenware, copper and brass gaskets, food processing equipment of any kind, and materials used in the aerospace and defence industries, can now access advanced laser cutting capabilities.

Fonon's latest laser cutting technology benefits from the company's understanding of material behaviour at transition temperatures – the point when the material changes properties, such as reflectivity and absorption, as it transitions from a solid to a liquid state.

Fonon's cutting machines incorporate advanced lasers that are specially configured for metal cutting, with variable laser beam output parameters, making them suitable for cutting a wide variety of metals, and metals with changing thicknesses.

When compared to a CO<sub>2</sub> laser of equal wattage, Fonon laser cutting technology is claimed to be three times faster when cutting stainless, mild or galvanised steel. Power consumption by Fonon laser equipment is less than one quarter

the consumption of a comparable  $CO_2$  cutting system, and the laser is maintenance-free and requires no consumables.

"More than ever, manufacturers need to find ways to improve quality, speed and their financial bottom line, and there is a dramatic increase in demand for laser cutting machines that can efficiently work with reflective metals," said Dmitriy Nikitin, CTO and interim CEO of Fonon Corporation.

The advanced laser cutting technology is currently incorporated into the new models of the Titan FX line of large, flat-bed laser cutting machines, and is scheduled to be included as optional equipment in all cutting, marking and engraving products available under the Laser Photonics brand.

Fonon Corp – USA products@fonon.us www.fonon.us



<image><section-header>

EMAIL:sales@stellarpipe.com www.stellarpipe.com.cn

# **Optimising key assets**

For the offshore oil and gas industries, cost efficiencies have never been more critical. Oil and Gas UK reported that an urgent structural reduction in the industry's operating costs was needed. Companies are now committed to reducing the costs of operating their existing assets, and a reduction of 22 per cent (£2.1bn) is expected by the end of 2016 (Source: Oil and Gas UK).

In North Sea offshore facilities, one of the world's toughest environments, wind speeds can reach over 100mph and waves are frequently 10m high. Metal structures and components face a constant challenge from corrosion and abrasion. In addition to salt spray, wind, ice and high UV, the drilling itself creates mud, acids and hydrocarbons.

The useful properties of metal are degraded by corrosion: it loses its strength and its permeability to liquids and gases. Wear and tear, appearing as scratches, dents and pits, causes damage and also increases the likelihood of corrosion as water and salts accumulate in the pitted areas. This can eventually lead to premature, sometimes sudden, failure.

The consequences of coating damage and corrosion are costly to the industry. Health and safety issues may arise from structural failure and the threat of hydrocarbon leaks. As rigs move into deeper waters, maintenance and replacement projects are becoming more difficult and costly.

Protection of the metal is the job of metal surface finishing, including galvanising,

anodising, liquid and spray paints and powder coatings. On offshore facilities, paints and coatings are most commonly used in the demanding 'splash zone', near water level, and need to be applied with the highest of standards. They must be highly resistant to the environment, have good adhesion, and be abrasion resistant, easily maintained, quick drying and non-toxic.

Liquid paints are frequently used but these deteriorate quickly under the challenging conditions. The coating is simply not robust enough. The smallest cracks or chips in the paint will allow water and salts to penetrate, and rust will begin to form and spread beneath the paint surface causing it to flake away.

Suitable thermoplastic powder coatings can have longer durability than liquid paint in hostile environments. Plascoat PPA 571, a thermoplastic polyolefin powder developed by Plascoat Ltd, has demonstrated longevity in the North Sea.

The photograph shows two safety railings on an offshore rig in the North Sea operated by a major Danish energy, offshore and shipping operations company. The railings were coated six years ago, one with liquid paint and the other with Plascoat PPA 571.

The liquid paint has suffered considerable deterioration, and corrosion of the underlying metal is evident. In contrast, the PPA 571 coating is intact and providing protection to the underlying metal.



PPA 571 forms a fusion bonded coating over the metal beneath, producing a thick, flexible coating with long-term protection again corrosion. It has abrasion resistance and does not chip or crack on impact - highly relevant on a rig where heavy components are being shifted around, where storms can throw items against each other, and where rough straps and brackets are frequently attached to posts and railings to secure items. There is no chance of penetration by water, gases or microbes, so degradation does not start underneath the surface as it often does with liquid paint. In tests, PPA 571 has been subjected to over 20,000 hours of salt sprav testing with no blistering, cracking or flaking.

The flexibility of the coating means that it does not crack, either on bending or at very low temperatures. The smooth, glossy surface provides a low anchor for algae and fungus, so the rate of fouling is slower than with many alternative coatings. The surface of PPA 571 is classed as 'good grip' and 'warm to touch', making it especially appropriate for safety rails.

No primer or galvanising is required for Plascoat PPA 571, and it is a single coating, most frequently applied by fluidised bed or electrostatic spray directly on to the metal. Should the coating become damaged once in situ there are quick and easy repair procedures. If heat is applied to the coating at the edges of the damaged area it will begin to soften. Molten material from a strand or film of PPA 571 can be slowly applied to fill in the damaged area and the coating will re-seal itself upon cooling, leaving no metal surface exposed to the elements. If it is not possible to apply heat then an acrylic polyurethane coating can be carefully brushed or sprayed into the damaged area to create a seal.

PPA 571 is BPA free, and contains no VOCs, TGIC, phthalates, isocyanates, halogens or heavy metals. In the event of a fire it has a low burn rate and density of smoke generation, with very low fume toxicity.

Plascoat Systems Ltd – UK sales@plascoat.com www.plascoat.com

# New tool to help determine costeffective pipelines

Utility officials and professional engineers now have a life cycle cost analysis model available to compare the true cost of alternative materials for water pipelines throughout their service lives, using various scenarios. The tool, developed by a team of researchers at the University of Michigan, can be used by utility decision-makers to evaluate multiple factors affecting pipes, allowing them to determine cost-effectiveness beyond initial expense, including costs associated with environmental impacts.

"It is important to consider more than one factor in selecting a pipeline material," said Carol C Menassa, PhD, of the University of Michigan Civil and Environmental Engineering Department, and lead researcher of the project. "With this new tool, the true value of the pipe as an asset can be understood, allowing for investment to be made in a good way."

The life cycle cost assessment (LCCA) tool allows for different pipe sizes, flows and locations, providing a framework for analysing various operations and actual service life scenarios. Developing the LCCA model was a primary objective of the University of Michigan research paper published by the American Society of Civil Engineers (ASCE), and presented by Dr Menassa at the ASCE 2016 Pipelines Conference in July. Titled 'A Framework to Evaluate Life Cycle Costs and Environmental Impacts of Water Pipelines', the paper compares two of the most common pipe materials used in water systems: ductile iron pipe and polyvinyl chloride (PVC) pipe.

Results of the research show that while PVC pipe may have initial cost benefits, ductile iron pipe is the more cost-effective material over the pipeline's service life. There is a sharp rise in a cost break-even graph analysis of the two pipe materials due to the shorter service life of PVC pipe, which then requires replacement. Because PVC pipe has a limited performance history, the University of Michigan research team conducted an extensive literature review on reported service lives of both PVC and ductile iron pipe. From the studies, the research team set service lives for PVC pipe at 50 years, and ductile iron pipe at 100 years. Users of the LCCA model, however, can make adjustments to test any service life option.

Other findings of the University of Michigan study showed that ductile iron pipe has a lower environmental impact, based both on the production and operation phases of the alternatives, and the rate of pumping across all pipe diameters has the highest impact on cost. The University of Michigan study on both economic and environmental impacts is important for utility decision-makers as they seek to balance fiscal concerns over immediate and long-term needs as well as the environmental impact of pipeline materials across production, design, installation, operations and maintenance, and planned end of life.

Ductile Iron Pipe Research Association – USA info@dipra.org www.dipra.org

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#### products & developments

# Saw technology from framag

For framag, a saw manufacturer from Frankenburg, Austria, the requirements of ThyssenKrupp Rothe Erde GmbH were clear: an old sawing system had to be replaced and the new saw needed to be integrated in the existing production line. The goal was to achieve a high level of process reliability and a good cutting result on quenched and tempered steels (eg 42CrMo4) and construction steels.

Using state-of-the-art technology, framag engineered a KKS 1600 cold circular saw that cuts round materials with a diameter up to 600mm and a length of 6,000 to 10,000mm precisely and reliably (out-of-roundness up to 1.5 per cent). A special three-point clamping device, combined with a table height adjustment system, supports the material during cutting.

The newly developed hydraulic saw blade damping patented by framag improves the smooth running of the saw blade, which also has a positive effect on the blade's service life. The cut becomes more even overall, with a minimal cut gap.

"framag is a competent partner. The communication in the project phase was very good and all our requirements were met to our complete satisfaction," said H Tschich (Dr Ing) from ThyssenKrupp Rothe Erde. "The installation and commissioning were also carried out extremely professionally. The agreed acceptance criteria were met without any problems."

#### framag Industrieanlagenbau GmbH - Austria

office@framag.com www.framag.com



### Inflow preventer meets AWWA standard

Val-Matic's FloodSafe<sup>®</sup> inflow preventer meets the new AWWA standard C514-15 – 'Air Valve and Vent Inflow Preventer Assemblies for Potable Water Distribution System and Storage Facilities'. This first edition standard describes 1" to 12" air valve and vent inflow preventer assemblies



designed for use on the outlet of potable water distribution systems air valves furnished in accordance with ANSI/AWWA C512 or storage facility vent pipes.

Val-Matic has showcased this product in its video, 'Making Your System Safe with the Val-Matic FloodSafe', available on the company's YouTube channel.

Val-Matic Valve & Manufacturing Corp – USA valves@valmatic.com www.valmatic.com

A cutaway view of the Val-Matic FloodSafe inflow preventer



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# **Reducing weld purging times**

Welders, supervisors and quality control personnel can often be kept waiting, sometimes for hours, for stainless steel or titanium pipes to be purged of oxygen ready for welding. In addition, expensive inert argon gas flows away to waste after it has passed through the pipe, gathering oxygen and other harmful gases along the way.

QuickPurge<sup>®</sup> tube, pipe and pipeline weld purging systems from Huntingdon Fusion Techniques (HFT) are designed to help avoid this time loss and material waste.

The welding manager at a pipework fabricator was recently charged with the task of reducing costs and waiting time in the department. The specialists at HFT were contacted to discuss the options.



Some of the range of QuickPurge welding purging systems

After discussions during which the welding process of plasma/TIG (PAW/ GTAW) was highlighted, HFT delegates prepared their demonstration equipment for a welding trial on 900mm (36") pipes. The purge was completed in just a few minutes instead of the hours that were taken previously, and the special heat protective covers, fitted around the volume-reducing sleeve, absorbed the extra heat of the plasma arc.

Several welds were made with different sizes of pipe and all were successful, restoring the confidence that they had lost due to the failure of the previous systems that they had purchased elsewhere.

QuickPurge has an additional gas input line that allows extra purge gas to be introduced for applications such as this, achieving a faster purge down to the lowest oxygen levels, and making it suitable for larger diameter pipes where quality welds are required. The extra cold gas mitigates the additional heat produced by the plasma/TIG process. The design of the QuickPurge system means that oxygen levels as low as ten parts per million (ppm) can be reached, allowing zero-colour welds to be achieved with no loss of corrosion resistance caused by oxidation.

### Enhanced coupling makeup

Within its product ranges for oil and gas pipe finishing lines, Lazzari has improved the design and technical features of its high-productivity Coupling Makeup machines (CM), in order to meet the latest requirements of API standards for quality and increased performances.

All components of the CM series machines have been redesigned and improved to allow a fully automatic complete cycle to apply couplings on tubing and casing pipes up to 508mm (20") nominal OD, up to a maximum torque of 130,000Nm in the case of special Premium coupling types. The machine controls and measures the values of torque and turns during the whole pre-screwing and screwing operation, recording the graphics of the coupling final screwing with automatic working cycle with torque priority or position priority. The machine operator works from a touch panel to manage the receipt of pipes and machine data, as well as machine diagnostics and alarms.

The machine mainly consists of a robot to load the couplings directly from the coupling container, a storage chute for the coupling measurement and for the dope application on the coupling thread, starter unit, screw-on unit, short drifter unit, pipe transfer unit by rotating arms, a set of durable tooling, and auxiliary hydraulic and electrical equipment.

Lazzari SpA – Italy lazzari@lazzarigroup.com www.lazzarigroup.com



QuickPurge features an additional gas input line

Using IntaCal<sup>®</sup> combined with the integrated PurgeGate<sup>®</sup> device makes it possible to safely inflate the systems with argon gas, for purging the space between the dams where the weld joint is located. With PurgeGate, burst dams are prevented in the event of undue pressure increase or accidental flow increase of the purging gas.

Huntingdon Fusion Techniques – UK hft@huntingdonfusion.com www.huntingdonfusion.com



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# Sectional mobile valves

Eaton has launched its CLS sectional mobile valve. Featuring a modular design with one of the smallest envelopes in the industry, the valve allows end users to prioritise work functions to improve productivity, machine efficiency and safety.

"The modular, highly versatile CLS sectional mobile valve was designed to streamline features – adding value



without increasing size or sacrificing

"With a number of available features unique to many load-sensing valves, such as priority flow sharing and local load sense relief on each section, OEMs can customise the valve to meet the distinctive needs of their machine."



The pre- and postcompensated mobile valve offers up to ten working sections and available mid-inlet or customer manifolds. The valve is available in models CLS100, CLS180, CLS250 or CLS350 to accommodate different flow requirements - 100 litres per minute (I/min), 180 l/min, 250 l/min and 350 l/min, respectively.

Each valve may accommodate a working pressure inlet port of 350 bar and a maximum pressure T- port of 25 bar.

Eaton's hydraulics business supports companies that want to increase efficiency, reliability and safety within industries including construction and mining, agriculture and forestry, traditional and renewable energy, manufacturing and processing, oil and gas, transportation and material handling. The global hydraulics team designs, manufactures and markets a comprehensive line of hydraulic and industrial systems including electrohydraulics, fan drive, hybrid and steering solutions to leading edge components including adapters, couplings, cylinders, fittings and assemblies, hose and tubing, motors, pumps and valves.

Eaton (Hydraulics Group EMEA) – Switzerland www.eaton.com



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### **Check valves**

Val-Matic can meet check valve needs, from potable water to abrasive slurries and corrosive chemicals, with a wide range of metallurgies, seating materials and accessories. Slamming characteristics, head loss and maintenance needs are features that were taken into consideration when engineering and designing Val-Matic's seven distinct check valves, including the Dual Disc<sup>®</sup>, Foot, Silent Check, Swing Check, Swing-Flex<sup>®</sup>, Surgebuster<sup>®</sup>, and Tilted Disc<sup>®</sup>, which are engineered to provide long life and trouble-free performance. All Val-Matic check valves are certified NSF/ANSI 61 for drinking water and NSF/ANSI 372 lead-free. The company's website hosts a number of technical papers, videos and articles on the benefits of its check valves.

Val-Matic Valve & Manufacturing Corp – USA valves@valmatic.com







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### products & developments

# Stainless steel is not maintenance free

The corrosion resistance of stainless steel can be adversely affected if handled improperly. Typical causes are heat tint, oxide scale, weld defects, iron contamination, rough surfaces and/or inorganic contamination.

Bradford Derustit Corp has over 50 years of experience resolving contamination with superior results by restoring the protective coating to stainless steel. The company has been a major manufacturer of pickling solutions to restore the corrosion resistance of stainless steel. Its product line meets the NSF programme as well as the ASTM designations for cleaning, decaling and passivation of stainless steel.

Bradford Derustit Corp – USA sales@derustit.com www.derustit.com



# Patterned steel profiles and pipes

Boray Boru, a member of Aytekin Group located in Turkey, produces and exports galvanised pipes and profiles, hot rolled pipes and profiles, and hammered profiles.

The company also has a production line for flower patterned profiles and pipes, in addition to wood and flower patterned handrails.

The thickness range for galvanised products is 1mm, 1.2mm, 1.5mm, 2mm, 2.5mm and 3mm. Hot rolled products (industrial pipes, plain hollow section and plain hammered section) are available in 1.2mm, 1.4mm, 1.8mm and 2.5mm thicknesses.

Galvanised, hammered and flower patterned dimensions range from 20 x 20mm to 80 x 80mm for profiles, and from 20 to 101.6mm for galvanised and industrial pipes. The company's production capacity is greater than 60,000 tons per year.

Boray Boru ve Profil AS – Turkey info@borayboru.com www.borayboru.com

# TMK GIPI to operate new 6" mill

As part of its ongoing 'In Country Value' initiatives, TMK GIPI (Oman) has announced the final stage of its 8" to 24" mill expansion for manufacturing smaller sizes – 6" to 7", which are used for oil and gas well delivery and are currently sourced from the overseas market.

The company states that the mill modernisation and expansion shows its commitment to the industrial development of the country.

It not only contributes to the manufacturing of new products for the exploration and production of oil and gas, but also strengthens the value chain through the participation of local suppliers and local labour.

TMK GIPI CEO Vladimir I Shcherbatykh said, "This mill is world class, stateof-the-art for the oil and gas industry. These days the challenge of increasing oil and gas production is associated with technology, and TMK's commitment is to provide Oman oil and gas industry, as well as other operators within the region, with products manufactured under the strictest standards and with the highest quality, along with just-intime service and technical support."

This key milestone for TMK GIPI is expected to create 15 permanent jobs, develop local talents, give support to SMEs, and stimulate the local economy.

The company states that it is proud to contribute to the development and progress of the Omani economy by minimising dependence on imports and increasing export of local quality products to other markets with fair, competitive prices.

The mill occupies 240,000m<sup>2</sup> and includes the expansion of new 6" lines, which incorporate latest technology to manufacture pipes for the oil and gas industry.

This technology includes a cuttingedge heat treatment line, threading facilities capable of processing OCTG, inspection lines to meet the highest quality standards, and adjustment lines.

The entire process ensures production of high quality finished pipes in line with international standard requirements.

TMK GIPI (Gulf International Pipe Industry) was established as a limited liability company in the Sultanate of Oman in January 2007.

It claims to be the first manufacturer of high pressure steel line pipes and casing pipes in Oman and the first mill in the MENA region and sub-continent of India to manufacture high pressure 6" to 24" electric resistance welded (ERW) steel pipes.

**TMK GIPI** – Oman sales@gipi.co.om www.tmk-gipi.co.om



sales@snstainless.com - www.snstainless.com

# Schroeder introduces range of serial valves

Protective pump fittings specialist Schroeder Valves, Germany, has expanded its portfolio with a serial version of its automatic recirculation valve.

The range, named SmartLine, is available in five bypass flow-rate steps (five Cv-value stages) for each frame size. All are low pressure valves, as fittings for higher pressures or pressure ratings as well as individually adapted flow rates are covered by other protective pump fittings offered by Schroeder Valves.

The range is initially being offered in nominal sizes from 2" to 6" with class 150 and class 300 pressure ratings (in cast stainless steel). Schroeder Valves plans to later complete the series with





www.mac-ndt.com

additional nominal sizes, pressure ratings and materials. The SmartLine is suitable for various media and for admissible average temperatures between -50°C and 200°C.

The SmartLine range is designed to meet the requirements of customers who demand not only pump protection valves for higher pressures or pressure levels and adapted flow volumes, but also valves for applications that do not require an exact design for a tightly tolerated area of minimum quantity.

"As a serial product doesn't require any specific design or individual functional check, the capital expenditure is distinctly lower for the customer," commented a Schroeder Valves spokesperson.

"Its fast availability is another benefit, as it is permanently on stock in high quantities."

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

A cutaway view of Schroeder's SmartLine serial valve Photo credit: Schroeder Valves GmbH & Co KG



#### products & developments

# **Pressure hose** retention system at Safety 2016

Represented by its American branch, O+P took part in the ASSE Safety conference and exhibition event in June. At the global safety showcase, O+P introduced its Stopflex retention system for pressure hoses.

Designed in-house at the company's premises in Brescia, Italy, and patented internationally, Stopflex retains the movement of the pressure hose once the fitting is removed, fully protecting the operator and safeguarding the components.

The force released by the hose could cause a 'whiplash' effect that could be hazardous for property and people. In order to avert this serious risk, Stopflex allows the flexible hose to be anchored to the system through a steel rope: the strip, provided with a gasket, remains anchored to the hose, absorbing the force released by the movement of the hose and simultaneously allowing the duct to breathe, depending on the operating pressure.

Stopflex may be applied on all types of flexible hoses, and may be used in various industries including oil hydraulic

plants, earth moving machines, drilling machines, hydraulic cranes and offshore and shipbuilding industries. Fixing can be applied to nipples, SAE flanges or various elements of the system.

The Stopflex range of products now includes a new variant to the conventional system: an openable sealing element for nipples that meets assembly needs without having to demount hoses in existing operative systems.

Stopflex recently won the recommendation of IHSA (International Hydraulic Safety Authority) in the USA - a major acknowledgement for O+P and its American branch in Acton, Massachusetts, as a member of NAHAD (National Association for Hose

# **Dedicated app for cutting** professionals

As a sawing industry first, Dutch circular saw blade manufacturer Kinkelder has developed a dedicated app for Apple, Android and Windows phones.

The Kinkelder app provides a wide range of free information on saw blades and steel cutting applications. The app allows the user to find local Kinkelder distributors, check the company's HSS and TCT product range, choose the most suitable saw blade for specific applications, and have extensive technical details at their fingertips.

Kinkelder catalogues can be viewed, downloaded and shared, and the app presents the latest Kinkelder news, including details of local exhibitions where the company is being represented. The app is currently only available in English, but other languages will be available soon. It can be downloaded for free via iTunes/Apple App Store, Google Play or the Windows Store.

Kinkelder was founded in the Netherlands in 1945. 90 per cent of its production is designated for export to approximately 70 countries. Outside the Netherlands, the company has its own sales, service and/or production branches in Germany, the USA, France, Belgium, Czech Republic, the UK and China. The rest of the world is covered by a network of dedicated distributors.

Kinkelder BV - Netherlands info@kinkelder.nl www.kinkelder.com



& Accessories Distribution) and NAHAD Hose Safety Institute.

O+P has been producing equipment for hydraulic pipelines for more than thirty years, offering customised solutions according to customers' specific applications.

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# Duct system for transportation of corrosive fumes

Asahi/America, Inc, a specialist in corrosion-resistant thermoplastic piping system technology, has introduced the Pro-Vent<sup>®</sup> duct system, specifically designed for ventilation and exhaust systems that transport corrosive fumes.

Pro-Vent is claimed to provide superior performance over PVC, fibreglass and sheet metal systems due to its chemical resistance, mechanical properties, solid construction and ease of installation.

Pro-Vent pipe and fittings are joined by either hot air or extrusion welding and do not require additional cure time after they are fully cooled.

Available in five materials – polypropylene (PP), polypropylene selfextinguishing (PPs), polypropylene selfextinguishing-electroconductive (PPsel), polyethylene (PE) and polyvinylidene fluoride (PVDF), Pro-Vent is suitable for applications in water treatment facilities, electroplating shops, semiconductor wet stations and pharmaceutical processing.

Pro-Vent is a complete system including pipe, fittings, damper units, inspection access ports, condensing roof outlets, flexible connectors and more.

Available sizes for PP and PPs are 63 to 1,200mm (2" to 48"). Polyethylene is available in 90 to 1,200mm (3" to 48"), and PPs-el and PVDF are offered in 90 to 400mm (2" to 16").

Asahi/America specialises in providing solutions for fluid handling systems, individualised to meet virtually any customer's need. Asahi is a manufacturer of corrosion-resistant thermo-



Products from the Pro-Vent range

plastic fluid handling products including valves, actuators, pipe and fittings.

The company maintains an extensive custom fabrication department, and provides on-site consultation, supervision and training where required.

Asahi/America, Inc – USA asahi@asahi-america.com www.asahi-america.com

# Jingning Junwen Steel Co., Ltd



Stainless Steel Seamless Pipe / Tube				
Type:	Austenitic stainless steel seamless pipe			
Process Method:	Cold Drawn / Cold Rolled			
Surface Finish:	Bright Annealed / Pickling / 180# 240# 320# 400# 600#			
	Manual Polished / Mechanical Polished			
Grade:	TP304, TP304L, TP316 / 316L Dual Grade.			
Standard:	ASTM (ASME) SA / A312 / A213 / A269 and DIN, GB, JIS			
Size:	OD <sup>3</sup> / <sub>16</sub> "-1 <sup>1</sup> / <sub>2</sub> " (6mm-38mm), WT 0.028"-0.118" (0.7mm-3mm)			
Tolerance:	Outer Diameter: ±0.08mm (0.00315"), Wall Thickness: ±10%			
Certification:	ISO9001:2000, GB/T19001-2000			



Stainless Steel Cold Drawn Seamless Tubing in Coils & Pipe Coils (Made of Cold-Drawn Pipe Billet Instead of Plank-Welding) Type: Austenitic stainless steel seamless pipe Process Method: Cold Drawn / Cold Rolled Surface Finish: Bright Annealed Grade: TP304, TP304L, TP316 / 316L Dual Grade Standard: ASTM (ASME) SA / A312 / A213 / A269 and DIN, GB, JIS OD 3/16"-1" (4.76mm-25.4mm), WT 0.028"-0.083" (0.7mm-2.11mm) Size: Tolerance: Outer Diameter: ±0.08mm (0.00315"), Wall Thickness: ±10% Length: 100ft-2,000ft, or according to customers' requests Certification: ISO9001:2000.GB/T19001-2000

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#### products & developments

### Easy and safe connection of measuring and display devices

In addition to flow, pressure is the most relevant parameter and measuring factor in hydraulics. Measuring system pressure is therefore the most important and most frequently used method for monitoring, controlling and preventive service and maintenance of hydraulically operated machines and systems, and is a prerequisite for their economical operation.

Test couplings from the Stauff Test range are planned during the design phase of a machine and installed in suitable positions in the hydraulic system at the factory. They allow machine operators and maintenance personnel to easily

The entire range of measuring equipment from Stauff, including test couplings and adaptors



and safely connect analogue and digital measuring and display devices for the temporary or continuous testing of system pressure and other factors.

If required, they also allow venting of the system as well as collecting representative fluid samples, eg for analysing the degree of contamination of the fluid. This type of connection requires no tools and can also be carried out during operation under full system pressure up to 630 bar (depending on the type of coupling).

The check valve (ball or poppet valve) integrated into the test coupling opens only after connection of the hydraulic tester with suitable adapters or hoses. This ensures safe sealing of the connection without leakage or danger of fluids escaping from the system.

> Stauff test couplings are not crimped after insertion of the internal valve components and seals, but are closed with a threaded nipple in a fully automated process. Not only does this design contribute to precision and process reliability in production, it also secures the proper functioning of the couplings. The vibration

Cross section of a male stud test coupling SMK with integrated ball valve from the Stauff Test 20

protection, which prevents a self-acting detachment of the protective metal cap through vibrations in the system, is another advantage.

For the finishing of the test coupling range in carbon steel, Stauff relies on the zinc/nickel surface coating, which provides more than 720 hours of resistance against red rust/base metal corrosion in the salt spray chamber in line with DIN EN ISO 9227. The chromium(VI)-free coating exceeds the highest requirements with regard to resistance and durability and also complies with the valid ELV, REACH and RoHS guidelines.

Versions in stainless steel V2A and V4A are generally available from stock. Alternative materials and surfaces are available on request.

Walter Stauffenberg GmbH & Co KG – Germany sales@stauff.com www.stauff.com

# Stainless steel tubes for forming and bending

Tecnofar SpA produces stainless steel and special nickel alloys tubes, welded and cold drawn. The company's ability to provide tubes in full hard or bright annealed condition, over its entire range, makes the products suitable for many kinds of applications.

The drawing process, carried out by means of drawing benches or floating mandrel machines, ensures product compliance with close tolerances on diameter and thickness, with material hardness according to customer requirements. By varying production stages, the company can achieve hardness values between 160 and 470 HV, tensile strength values (Rm) between 580 and 1,700N/mm<sup>2</sup>, and yield strength between 240 and 1,200N/mm<sup>2</sup> with elongation of more than 50 per cent, for austenitic steels.

These features make Tecnofar's tubes suitable for use in a range of applications, from those that require high hardness and elasticity, to those for which high malleability and deformability are necessary for machining, bending, hydroforming and expanding. These characteristics are required, for example, in component production for the automotive industry, hot water, heat exchangers and thermocouples. Tecnofar also has experience in the production and heat treatment of special nickel alloy and ferritic steel (400 series) pipes.

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





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# **Protection of the connection**

One of most important considerations for any corrosion-resistant piping system is protection of the connection area. Duoline Technologies manufactures a metal wire reinforced nitrile elastomer ring for API connections. This reinforced elastomeric corrosion barrier ring (CBR) is compressed between the liners in the connection make-up process. The compressed CBR is held in place by the liner, preventing passing fluids from causing coupling failure.

When corrosion starts in downhole tubing, the string soon fails. The result is downtime and increased operation costs for workovers and tubing pulls. Duoline<sup>®</sup> is claimed to stop corrosion where alternative lining or coating systems soon fail.

The process of inserting a rigid plastic liner sleeve inside the pipe eliminates the 'holiday' potential created by IPC coating processes. A grouting layer of cement material is placed in the annular space under pressure using a tightly controlled process. The Duoline process does not depend on bonding or adherence of the liner to the steel pipe wall. This benefit, combined with the high hoop strength of the GRE liners, provides a resilient lining system for high-pressure gas service or water systems with high  $CO_2$  or  $H_2S$  content.

Whether the job calls for new steel tubing with premium gas tight connections or reclamation of used tubing with API type threads, Duoline can be applied to meet a wide range of applications and customer needs. As well as being used in  $CO_2$  injection and water flood injection fields, deep gas production and gaslifted oil production wells have been a target application for use of the Duoline lining system. Duoline Technologies has installed Duoline in over 100 million feet of tubing.

Duoline Technologies offers several liner selections that match material

performance in specific applications. The Duoline liners offer solutions to most downhole environments, from shallow brine water disposal wells to deep-hotgas production in both onshore and offshore wells.

The company manufactures a metal wire reinforced nitrile elastomer ring for API connections; a fibreglass reinforced PTFE ring is available for premium gas tight connections.

Duoline Technologies recommends the presence of a trained Duoline technician when Duoline is installed or repaired at the well site. Qualified technicians are available around the world. In addition, a number of service companies have technicians who have been trained by Duoline Technologies to run or repair Duoline.

Duoline Technologies – USA customerservice@duoline.com www.duoline.com

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# **Eliminating condensation**

Flexible elastomeric foam (FEF) insulation materials can be used to prevent condensation forming on cold, refrigeration and air conditioning pipes. Condensation on pipework should be prevented wherever possible. Moisture formation can damage the structural fabric of a building, promote mould growth and either cause or accelerate pipe corrosion. In extreme circumstances corrosion attributed to condensation can even shorten the lifespan of a mechanical system.

Insulation is used to ensure that the surface temperature remains above the critical dew-point temperature, so that condensation cannot form. "The properties of the insulation play an important role in preventing condensation, and closed-cell materials have a clear advantage," explained Ralf Springub from the European FEF/PEF interest group CEFEP.

Warmer air can hold a lot of moisture as water vapour but this capacity is



diminished as it cools. Eventually cooling air must relinquish some of the moisture it could hold at higher temperatures, creating condensation. Any surface cooler than the surrounding air presents the potential for condensation but the risks are greater as the temperature decreases, making it a particular issue for refrigeration and air conditioning pipes.

Pipe insulation does not just reduce energy loss, but can also be used to prevent the warm, moisture-laden air coming into contact with the cold surfaces of refrigeration and air conditioning pipework. "The properties of an insulation material are important when assessing its suitability for refrigeration and air conditioning pipework," said Mr Springub. "It's essential to keep the surface temperature above the dew-point so that condensation cannot form."

Besides the specific thermal conductivity, the surface emissivity of the insulation material is critical. The surface emissivity describes the potential of a material to give off energy in the form of thermal radiation etc. With a non-reflective, high emissivity finish, black surfaces are well suited to controlling the surface temperature. In this way, relatively low insulation thicknesses can be used for the reliable control of condensation.

Differences in partial water vapour pressure force moisture towards cold surfaces. If water vapour is free to pass through the insulation surface it can cause interstitial condensation within the material, reducing energy-saving performance and increasing the risks of pipe corrosion.

For many insulation materials the only way to prevent this is to apply an external water vapour barrier, usually in the form of a thin and easily damaged aluminium foil. Closed cell FEF and PEF materials are, however, so inherently effective at preventing the passage of water vapour that they can be considered to possess an in-built water vapour barrier and do not require an external foil to be applied.

The nature of this resistance means that surface damage to a closed cell FEF or PEF insulation material is unlikely to significantly impair or diminish its ability to prevent condensation moisture ingress. Because FEF and PEF insulation materials are not reliant on a low emissivity external water vapour barrier, they are able to present a high emissivity surface finish. This can lead to thinner insulation solutions for controlling condensation when using FEF or PEF materials.

FEF insulation materials are practical when it comes to insulating irregularly shaped pipework elements such as valves and flanges. With the flexibility of the foam and the water vapour resistance offered by the closed cell structure, FEF materials can be easily shaped and cut to size, and are not reliant on an externally applied water vapour barrier for protection against moisture ingress.

**CEFEP** – Germany info@cefep.net www.cefep.net

To prevent condensation from forming, it is essential to insulate pipes for refrigeration and air conditioning systems



Photo credit: CEFEP





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# Pipeline inspection

# **Robotic innovation sparks growth**

Ant Hire, a UK supplier of specialist testing and construction equipment to the water industry, has announced an expansion of its business and services fuelled by the commercial success of its technology-led robotics and pressure testing divisions.

The expansion of the specialist divisions is the first phase of a growth strategy that aims to increase turnover from  $\pounds$ 4mn to  $\pounds$ 10mn in the next five years and create a number of new job opportunities.

Ant Hire provides pressure testing solutions and specialist robotic inspection systems to large contractors and water companies across the UK, including Yorkshire Water, Thames Water, Kier, Lumsden & Carroll and JN Bentley.

The company has its own research and development team based in Leeds, which has led to a number of design patents and inventions. These include the 'Ten Minute Test' – a water pressure testing system that reduces the time required to check for leaks and reduces water company reconnection times – and the development of bespoke robotic camera systems now used by the nuclear industry.

Ant Hire managing partner Adrian Thompson said, "Ant Hire has always been a well-known name in the water supply industry but we've recently seen a huge increase in new business enquiries, particularly in our robotics

50

and pressure testing divisions, which has meant we needed to grow to keep pace with demand. At Ant Hire we aim to provide our customers involved in drainage and clean water networks with an excellent service, and the new space and additions to the team will enable us to offer a one-stop shop for products, advice and technical support to get the job done and to make things simpler for customers."

As part of its recent growth, Ant Hire appointed Antony Scott as director. With more than ten years working in senior roles within the drainage industry, Mr Scott will lead all sales activity for the business and will oversee the launch of new prototype equipment in both the pressure testing and robotics divisions.

The new head office involved a capital investment of more than £350,000, and the new space will enable the business to expand its core teams to support growth and to enhance the customer experience. The new site will also be home to Ant Hire's research and development division.

Ant Hire Solutions – UK www.anthire.co.uk



# Video inspection of small drain lines

Even routine jobs may conceal unpredictable issues that extend work times for the plumber and pose an inconvenience for the customer. A blockage, for example, indicates a probable pipe breakage of which the full-blown effects become evident once the obstruction has been removed. The significance of such warning signs can be assessed with the aid of a video inspection camera system.

When re-laying the drains of a home, using this equipment on the pipes and storing the recorded video provides proof, in the event of a complaint, that the job was done properly. This is useful, especially when the drains are installed prior to other jobs during which paints or debris, caused by accidents or negligence, might enter. After the video inspection job is done, a report can be sent to the customer. Inconvenience can be further reduced by combining the camera with a locator that will pinpoint the exact location where the pipe needs repair, avoiding unnecessary additional construction works or even accidental damage to the piping.

The Ridgid<sup>®</sup> SeeSnake<sup>®</sup> microDrain<sup>™</sup> inspection system is a portable pipe inspection diagnostic reel and camera with a 20m push cable, combined with a handheld Ridgid micro CA-300 digital inspection camera monitor with a 3.5<sup>"</sup> colour LCD screen.

The product range includes different versions of reels, depending mainly on the push cable length and camera diameter. The pushrod inner drum is removable and interchangeable, and is compatible with all other SeeSnake microReel or nanoReel models. There is no risk of rust or accidental breaks as there are no weld lines. Drain lines from 32 to 100mm can be easily inspected with the SeeSnake microDrain inspection system. The camera can pass multiple turns and 90° bends from 40mm upwards with no need to dismantle them.

The Ridgid Navitrack Scout<sup>®</sup> locator is able to trace the pipeline and precisely detect the signal of a sonde (transmitter) to see where assessment or service is needed inside the pipe. The SeeSnake HQ software, which is supplied with the SeeSnake equipment and can be updated free of charge, enables data to be monitored and managed on the work site by connecting the equipment to a PC.

Reports, which can include confidential remarks not visible to the customer, can then be exported to a CD or USB memory stick. The 235MB internal memory can store more than 2,000 photographs. Images and videos can be stored on the 4GB SD card that is included with the micro CA-300 camera and transferred via the USB port to a computer.

Ridge Tool Company – USA www.ridgid.com



Using the arrow keys, the image can be enlarged as required for optimal viewing





# Inspection, measurement and repair solutions

OMS (Optical Metrology Services) is an award-winning technology company with a track record of inspection, repair and maintenance in difficult-to-reach or confined spaces such as pipelines. Twice winner of the Queen's Award for Innovation, the company's team of specialist engineers work with asset owners, installation companies, fabricators and operators to inspect, repair and verify, as well as manage the integrity of plant and pipelines.

The company's goal is to provide efficient, flexible services to industry, allowing organisations to successfully grow their businesses, safe in the knowledge that their assets are fit for purpose, ensuring maximum performance. Utilising its suite of versatile crawler units to access seemingly out of reach locations, OMS can provide a range of inspection and corrective repair solutions to address challenging problems faced by the pipeline construction industry, highlighting potential issues before they occur or carrying out risk-based inspection work.

Using innovative technology, the company provides techniques to identify potential problems, confirming tight tolerances are within specification; identifying oxidation, corrosion and wrinkling; checking wall thickness; and inspecting welds; then implementing corrective repairs such as grinding, filling or welding.

OMS understands the critical importance of accuracy to its customers,



whether inspecting a structure to provide condition or shape information, looking for defects in pipework and plant, implementing corrective actions, or even identifying potential problems as pipeline systems are assembled and deployed. The inspection tools are capable of navigating the most difficult situations, including 3D bends, horizontal, diagonal and vertical pipe structures, and both long and short distances.

Tools provide feedback from forwardand side-looking cameras with high quality images, and real-time video including laser measurement data and detailed mapping, with results compiled into a comprehensive report.

OMS's ability to inspect, measure, repair and verify any necessary remedial action, combined with visual, accurate dimensional analysis, allows clients to see the 'bigger picture', make the right decisions, then recommend and implement the right repair solutions immediately, rather than delaying important work.

**Optical Metrology Services Ltd** – UK info@omsmeasure.com www.omsmeasure.com

# Borescopes add speed and efficiency to tube and pipe inspection

Manufacturers of tubes and pipes are increasingly utilising borescopes in their visual inspection processes, according to Dr Douglas S Kindred, president and chief scientist of Gradient Lens Corporation, manufacturer of Hawkeye<sup>®</sup> precision borescopes. The Hawkeye systems allow fast, reliable visual inspection inside even long, narrow or bent tubes and pipes.

Gradient Lens manufacturers more than 80 models of patented Hawkeye Rigid, Flexible and Video Borescopes. Diameters range from 0.5 to 8mm, with lengths from 2" to 20ft, making Hawkeyes suitable for internal inspection of seam welds, orbital welds and internal surface finish.

Made in the USA, in Rochester (New York) and Phelan (California), Gradient Lens Corporation's patented endoGrins<sup>®</sup> gradient-index lens technology is built into its exclusive line of borescopes.

The latest borescopes display highquality inspection images on portable or desktop video monitors, and laptop or desktop computers. The images can also be saved, documented and emailed. The newest addition to the Hawkeye line – the Hawkeye V2 Video Borescope – represents the next generation of fully portable, articulating video borescopes manufactured by Gradient Lens.

For more than 20 years, Gradient Lens has designed and manufactured precision optics and instruments. In addition to its Hawkeye borescopes, the company offers Hawkeye and Luxxor<sup>®</sup> Light Sources.

**Gradient Lens Corp** – USA info@gradientlens.com www.gradientlens.com

#### **Pipeline inspection**

## **Contract to monitor 1,850km TANAP pipeline project**

OptaSense and its partner Optilan, a telecommunications systems integrator, have been awarded the combined leak detection and security package from ABB, the engineering, procurement and construction prime contractor for the delivery of the control infrastructure for the Trans-Anatolian Natural Gas Pipeline (TANAP).

The contract, in excess of \$30 million split evenly with Optilan, was awarded at the start of the year and is now entering the equipment delivery phase. This will be the world's largest fibre distributed sensing project, protecting and monitoring more than 1,850km of pipeline, including perimeter security for all facilities. The TANAP natural gas pipeline runs from Azerbaijan, through Georgia and Turkey, to Europe. The project is of strategic importance for the region, as it will enable the first Azerbaijani gas exports to Europe, while strengthening the role of Turkey as a regional energy hub. Construction of the pipeline began in 2015 and is scheduled to be completed in 2018, with expected costs in the region of \$10-11bn.

Magnus McEwen-King, executive director at OptaSense, commented, "This project marks a significant turning point in the adoption of fibre sensing globally with delivery of security and leak detection from a single fibre system. This approach will enable us to demonstrate superior technical performance and value for money. With our partners ABB and Optilan we look forward to helping TANAP use the OptaSense technology to deliver the highest levels of pipeline availability and reduce the cost of asset ownership."

Bal Kler, executive director at Optilan, said, "We are pleased to be partnering once again with the world's leading fibre sensing company to deliver the world's largest pipeline monitoring project. Implementation of this project for TANAP will deliver total security and monitoring over the entire pipeline length and follows on from other successful security projects in Turkey."

OptaSense's integrated DAS solution works across multiple functions via a single fibre-optic cable that effectively 'listens' to the pipeline in order to provide detailed data about its current status. Any changes to the condition of the pipe are fed back through an interrogator unit in real time, allowing users to identify and address issues early, and maintain the highest level of pipeline integrity and product throughput.

Leak and intrusion detection are vital to maintaining pipeline integrity and production maximisation in the oil and gas industry. In 2015 an attack on the Kirkuk-Ceyhan pipeline, which exports crude from Iraq to Turkey, halted operations, resulting in significant repairs and thousands of barrels per day in lost deliverables.

**OptaSense** – UK www.optasense.com





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# **Steely ambitions: UKF Stainless**

Stainless steel has a large number of applications, being Jused in industries including automotive, decorative, dairy, water, marine, fabrication and petrochemical. Known for its two attractive properties of durability and resistance to corrosion, it delivers many functional as well as aesthetic benefits.

Phil Morris, group chairman at UKF Stainless Ltd, a stockist and supplier of stainless steel tube products, provides an overview of the versatile and valuable commodity that plays a significant role in both industry and everyday life.



#### What is stainless steel?

Stainless steel is a group of iron-based metal containing a minimum of 10 per cent chromium (alloy metals); its purpose being to provide hard steel material highly resistant to stain, rust and corrosion, and resistance against adverse atmospheric and weather conditions, as well as natural and artificially produced chemicals, such as ozone. It is also 100 per cent recyclable, rendering it an eco-friendly material, helping to reduce waste and energy.

# What sectors does stainless steel provide an important role in?

Stainless steel has multiple applications, so much so that it is almost overwhelming. Stainless steel is used in every sector, and everyone's working environment is characterised by steel – from office handrails to machinery and food processing plants. Beyond that, it forms part of our everyday lives, be it at work or in our leisure time. UKF Stainless is significantly involved in the automotive sector, supplying both first and second tier original equipment manufacturers. We also supply steel for many non-automotive applications, including architectural, general engineering fabrication, agriculture, sanitary, marine and petrochemical.

#### As a stainless steel tubing specialist, how is UKF Stainless involved in the automotive sector?

With the recent acquisition of our fourth site in Bromsgrove, UK, UKF now offers over  $50,000ft^2$  of warehouse and

manufacturing space with the ability to store up to 2,000 bundles.

In terms of the automotive sector, we are one of the UK's leading suppliers and stockholders of welded stainless steel exhaust tubes, supplying material in standard lengths and also cut lengths to customer requirements. Products are generally kept in the 'as welded' condition, but we also hold a complete range of polished material. Added to that mix, we also supply fuel rails and fuel fillers to some of the largest vehicle manufacturers in the world.

We also hold vast stocks of perforated tubing and although they are widely used for automotive applications, they're also used in a wide range of other applications/industries such as filtration systems, aerospace, aviation, paper and pulp, and oil, gas and petrochemical, as well as architectural applications.

#### What about other key sectors?

In the marine industry, we offer a comprehensive range of super mirror marine polished stainless steel tube in grade 316 (1.4401), with a size range covering tubes from 12.7 to 63.5mm ( $\frac{1}{2}$ " to 2 $\frac{1}{2}$ ") with a 1.6mm (16 gauge) wall thickness.

Our thin-walled stainless steel tubing is produced for use in sanitary applications such as shower heads, and is longitudinally welded; it can also be supplied highly polished or un-polished.

Food and drink processing, dairies, breweries, medical and pharmaceutical sectors are also key areas, as hygienic tubes are used in environments where sanitary and cleanliness is of the utmost importance. These types of tube are usually



supplied in the annealed and bead rolled condition, to remove the possibility of contamination, and are available in either unpolished or dull polished finishes.

Our square sections are used in a variety of industries from building and construction to catering equipment. In addition, we offer rectangular sections, which are used in an extensive range of sectors from building and construction to automotive, normally supplied in standard 6m length, but they can also be supplied cut, washed and de-burred.

To illustrate its versatility, stainless steel is also used as a decorative feature. Polished stainless steel is known for its beautiful high-shine texture, strength and durability, which lends itself as an ideal choice to replace more traditional products for architectural type applications. Consequently, stainless steel is more widely used not only for interior but also in exterior decoration, furniture, kitchenware and sculpture, for instance.

# Can you describe some of the processes involved in your tubing solutions?

Our in-house cutting and processing facility at our warehouse premises in Bromsgrove, Worcestershire, UK, provides cutting, polishing, perforating, manipulation and component sub-assembly services.

Firstly, our cutting shop is purpose-built and contains a bank of modern fully automatic and semi-automatic saws, as well as handsaw and bandsaw cutting. The automatic machines have in-line de-burring and washing facilities, with standalone de-burring and washing machines also available.

All our machines have the ability to hold exceedingly tight tolerances ( $\pm 0.15$ mm) on diameters ranging from 6 to 153mm, with cut lengths on the automatic saws up to 3,000mm. Fast changeovers allow flexibility to meet customer demand, for a 'just in time' service and cost effectiveness so that we are able to encompass small- and large-sized volumes.

Secondly, our in-house polishing facility enables a quick reaction to the supply of polished tube. Our purpose-built multi-head polishing machine means that it's possible for us to supply the complete range of finishes, from a dull 180



grit to a super mirror 600 grit. Our polishing service can accommodate any length of tube, from small specialist components to full 6m lengths. Any diameter of tube can also be polished from 12 to 153mm, with the polishing of round bar also being available.

Thirdly, to complement our existing range of stock based products, in 2009 we set up a dedicated manufacturing company, the Joint Perforating Company (JPC), which specialises in the manufacture of interrupted perforated tubes. The process perforates pre-formed tube in one operation, which saves time and costs and provides an end result that also visually enhances the product. This combination has positioned JPC as the preferred choice within the automotive and domestic appliance markets. Using the latest manufacturing technology, JPC provides effective perforating in a variety of materials including stainless steel, titanium, mild steel and aluminised zinc coated steel from 32 to 101.6mm outside diameter, in lengths of up to 1,000mm.

Last but not least, an increase in demand is being seen in the supply of manipulated components that our customers can buy fit for purpose on a 'just in time' basis. As a result, we've made a sizeable investment into this area, with the addition of our own tool-room that can provide the manipulation department with technical expertise, while also producing our own in-house tooling quickly and effectively.

#### What does the future hold for UKF?

UKF Stainless understands and embraces the need for change, investment and continual improvement. With this at the forefront of our philosophy, we have recently invested in a complete new racking system that will not only provide faster turnaround times for order picking, but also ensures the preservation of product quality is improved. Future plans include the procurement of a tube laser that will not only open up new marketplace opportunities but will also enhance our production processes and provide a one-stop shop facility for our customers.

#### **About UKF Stainless**

- A stockholder and distributor of stainless steel tubes, established in 1992
- Offers a wide variety of products from stock, alongside additional services including cutting, perforating and polishing stainless steel, enabling it to tailor its finished products to suit individual needs
- Long-term partnerships with the world's key manufacturers
  Accredited to BSEN ISO 9001: 2000, and originally certified
- Accredited to BSEN ISO 9001: 2000, and originally certified in 1999
- Located in Bromsgrove, Worcestershire, UK, and is situated to provide fast nationwide coverage using its own fleet of delivery vehicles
- Modern premises maintain a high level of stock, ensuring customer orders can be met and delivered to schedule
- An online tracking facility enables the company to pinpoint any of its vehicles at any time, allowing accurate delivery times when goods are in transit
- times when goods are in transit
  Holds one of the UK's most complete stocks of welded stainless steel pipe, manufactured to ASTM A312 specification. This includes bars, sections, sheet and plate to complete an extensive product offering, with additional products also supplied on quick lead times, if required

UKF Stainless – UK info@ukfstainless.co.uk www.ukfstainless.co.uk

# Extending the service life of globe valves

By Arc Energy Resources, UK

Globe valves, which are used for regulating flow in pipelines, consist of a movable disk-type element and a stationary ring seat in a generally spherical body. They are named for their spherical body shape, with the two halves of the body separated by an internal baffle.

As cast components, globe valves can be produced in virtually any shape required. In addition, inlets and outlets are designed with a constant cross sectional area that allows the flow of material to remain uniform. In effect, this means that inlets can be round to match the pipes delivering the flow of material, but then can change to an elliptical shape of the same cross sectional area, to maintain the compact dimensions of the valves in order to optimise flow within the valve.

Globe valves are linear motion valves and are commonly used as on/off valves and as throttling systems for both gas and liquid systems. The gradual change in spacing between the disk and seat ring gives the globe valve good throttling ability as long as the pressure and temperature limits are not exceeded, and the process does not require special materials to combat corrosion.

However, it is generally acknowledged that globe valves contain inherent cavities that can easily promote contamination and allow slurry material to become entrapped in the body of the valve, disabling its operation. This often prevents globe valves being specified for high purity or slurry systems.

As globe valves are castings and can therefore be made to any shape the customer wants, designers generally try to keep the inlets and outlets at a constant cross sectional area, so that the flow is uniform. As mentioned earlier, this means valve inlets are circular to match incoming pipework, and then change to an elliptical section of the same cross-sectional area, which keeps the valve dimensions compact. When a globe valve is cast, the internal shapes are generally created naturally. However, service and repair can cause future problems, as applying anti-corrosion coatings for long-term protection can be very difficult due to the complicated shapes created by a valve's internal geometry.

While it can be difficult to apply anti-corrosion coatings to the internal surfaces of castings, weld overlay cladding specialist Arc Energy Resources has successfully applied its specialised coatings to globe valves for companies such as Masilinia Dresser and Severn Glocon and has, more recently, developed special techniques with the cooperation of globe valve manufacturers to apply the coatings more cost effectively. These techniques are also improving the protection performance and the efficiency of the valves.

Commenting for Arc Energy Resources, managing director Alan Robinson said, "We have been applying corrosionresistant coatings to equipment in the oil and gas industry throughout the world and have been aware of the difficulties with globe valves for some time. However, following an investment in two specialist welding machines, which we bought specially to handle the difficulties mentioned, we have already coated globe valves from 12" to 24". Since installation, these machines played an important part in the initial planning for globe valve contracts and have applied anti-corrosive coatings to the first batch of globe valves in an important current contract."

The specialist welding machines extend the size and scope of corrosion-resistant coating contracts that Arc Energy Resources can handle. The automated machines manipulate



the welding torch around a fixed component, accurately positioning it to apply the overlay to large and/or complex components using MIG, TIG, hot wire, twin wire TIG and twinhead, and enabling four wires to be clad simultaneously.

Having worked with the specialist machines for five years, Arc Energy has gained valuable experience of their strengths, one of which is versatility. This has enabled the company's welding engineering team to develop a technique that enables Arc Energy to improve access to the internal surfaces and improve the coverage and consistency of the coatings that can be applied to difficult internal and external surfaces. Significantly, this technique has proved valuable in the application of coatings for globe valves.

Mr Robinson said, "To achieve the improvements we now work with valve manufacturers to develop certain aspects at the design stage, which enable us to apply coatings more efficiently and cost effectively. The developers then analyse our suggestions to confirm the functionality of the globe valves is still intact."

When globe valves and other components are cast there is no machining or rotation, so the shape can be made very simple, but it also means that the shapes of internal surfaces can make it very difficult to effectively apply anti-corrosion coatings. However, Arc Energy has developed a cladding technique that, by working with the valve manufacturer at the design stage and making various internal changes, makes it an economic possibility to achieve successful surface coatings on globe valve sizes from 12" to 24".



In terms of the design changes needed to enable the coating operation to succeed, Arc Energy briefed the customer's engineering teams on the specific design changes involved, and followed that with further discussions and demonstrations, covering every aspect of the project. The customer accepted that the new approach was a combination of knowledge based on years of engineering experience in the oil and gas industry, plus knowledge and experience of how globe valves work and their functionality. While also showing that the changes would not reduce the flow of the globe valves, the engineers who design, produce and sell the actual products were impressed that lasting material flow rates could be accurately maintained.

Having shown the customer the potential of the new approach, they needed to convince them that the flow would still achieve the performance requirements they expected. The client is based in the Middle East and its senior engineer – the man in charge of the whole project – needed convincing that the cladding could be completed successfully before he gave the go-ahead, so he flew over to the UK for just one day, had a four-hour meeting and flew back fully convinced.

Prior to his visit, Arc Energy had already carried out its own design check, so was able to show details of the changes planned for the valves and what was required. Following the meeting, Arc Energy prepared CAD drawings and sent them on for approval. The client ran computer-based tests to confirm the flow figures based on the engineering team's drawings, and was able to confirm the flow figures.

The globe valves are intended for an island that is dedicated to the extraction system for oil taken from a particular area of the Mediterranean. All the oil coming off this island will be delivered through the valves.

For operations in the Middle East some customers may cast Inconel 625, but for globe valves the percentage cast in steel compared to Inconel 625 depends on factors such as the type of oil they will be pumping, where the globe valve fits into the process flow and where it is located in the delivery chain. Customers also need to assess the corrosive nature of the oil itself to determine whether, for example, it may need to be chemically adjusted to make it less corrosive.

The globe valves that Arc Energy is coating for the Middle East contract are located 'at source' on the island where the oil is extracted and where it is at its most corrosive. Therefore, chemical pre-treatment is not practical. The location is a potentially huge development planned over the next few years, and Mr Robinson hopes there will be long-term opportunities for the company's globe valve coating operations: "We think there may be up to twenty projects planned – one each year – so we are hopeful that the success of the first twelve globe valves will convince the client to consider us for future projects. With the exception of smaller 8" and 12" globe valves, all those for this particular project are steel cast and internally clad."

Arc Energy Resources – UK sales@arcenergy.co.uk www.arcenergy.co.uk

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