



PUMP ACTION



PUMP ACTION NEWSLETTER

SPRING 2013

NEW MEMBERS P2 • MEMBERS NEWS P2, 3 & 9 • TALKING TECHNICAL P4, 10 & 11 • PUMP CENTRE CONFERENCE 5, 6, 7 & 8 • TRAINING NEWS P12



Pumps & Systems Conference & Exhibition

Organised by the Pump Centre



Thursday, 23rd May. Hall 1, The International Centre, Telford, TF3 4JH

“Pumps and Systems” is the UK’s leading conference and exhibition for those involved with pumps and pumping. The event is bigger than ever before with more exhibitors, a full conference programme, back to basics breakout training sessions and a new products zone.

This year’s technical theme is “Sustainable Pumping” and presenters from the Environment Agency, Southern Water, Atkins plus many more have already been signed up.

Visitors to “Pumps & Systems” will be able to:



- Meet over 80 of the UK’s major manufacturers and suppliers.
- Network with industry experts and key players from across the supply chain.
- See the latest products and technology
- Improve their technical knowledge at the engineering breakout sessions
- Keep abreast of “Collaboration” within the supply chain via the conference programme.
- Discover solutions to their pumping issues.
- Visit the new products zone.



FOR CONFERENCE PREVIEW - SEE PAGES 5, 6, 7 & 8.

REGISTER NOW - To avoid disappointment!

The conference, exhibition and all the technical sessions are **FREE to pre-registered delegates**. Registered delegates also receive a **FREE** conference pack, proceedings, lunch and refreshments*.

(* subject to availability)

How To Register

Online - Simply go to the Pump Centre website: www.pumpcentre.com and click the **Conference 2013** button, then under the **DELEGATES** section click the **DELEGATE REGISTRATION** link and complete the simple registration form.

By Email - Send an email to conference@esrtechnology.com asking to register and details will be sent by return email.

Main Conference Sponsors



Contact Details: Tel: 01925 843512 Email: pumpcentre@esrtechnology.com www.pumpcentre.com

NEW MEMBERS

Specialist Pump Bearings

Exalto UK specialises in the bespoke manufacture of non-standard water lubricated bearings and coupling bushes used in pumping and rotational shaft equipment. Our extensive range of in-house tooling means we can accommodate requests for bearings with special profile shells, as well as straight or spiral flutes, and despatch quickly. In business for over 16 years, Exalto UK has built a reputation for industry expertise, reliability and quality with the biggest pump manufacturers and pump repair companies in the world.



The company has recently secured WRAS Approval for their composite material, Maritex AquaPure, for use in drinking water applications. AquaPure is uniquely designed for the dual purpose of water lubricated hydro-dynamic high speed rotating shafts, as well as completely self-lubricating low turning speed applications such as valve bushings. Developed specifically for potable water, AquaPure is a dimensionally stable tough non-metallic material made from a high strength chemical resistant thermoset resin re-enforced with synthetic fibres.



www.exalto.co.uk

Verder UK welcomes 2013

Verder UK Ltd supply pumps, systems and pump repair services.

We stick to good Yorkshire values, backed with the resources of Verder International.

2012 has been a fantastic year for Verder UK.

Firstly, we have seen the range of our pumps and mixing equipment grow to include the largest number of Verder branded pumps. For the customer it means they have a pump with high quality engineering and build quality at the competitive price that a company that Verder can provide.

Our projects have been going from strength to strength providing chemical dosing to STWs and AD & Biogas sites all over the country. We've brought a new innovative dosing method to the table - now our customers benefit from lower costs using crystal chemical and a lower carbon footprint. Finally, we have the strongest maintenance and engineering team on hand at our Service Centre and out on the road getting into see customers every day. We've made more site visits to install and commission than ever before, reducing downtime for our customers and getting their process powered with the best pumps.

In 2013 we have a talented project team ready to manage your pumping system, a sales team to give you the best buy and service team to give new life to your pumps! If you want the best pumps, the best service at the best price then contact Verder.



Just one of Chemical Dosing Skids being installed at a STW in the Midlands



Website: www.verder.co.uk

MEMBERS NEWS

News from the IMechE

The Institution continues to look for opportunities to work closely with The Pump Centre and will once again have an exhibition stand at the Pump Centre Conference. We will be available to discuss routes to chartership and other membership queries as well as being interested in understanding how best the IMechE can help mechanical engineers working in the Water Industry.

We are also planning an event to be held in the autumn (date tba) that will explore the interaction between Energy and Water, look at the range of Energy related challenges faced by the Water Industry and describe how the Industry and Academia are facing up to those challenges.

In addition you may be interested in a Seminar being organised by the IMechE entitled "Mechanical integrity of process plant: New guidance on inspection and testing" in London on 20th June next year. Further details can be found on the IMechE website.



www.imeche.org

Do you want to exhibit at Pumps & Systems?

Get a FREE Exhibition stand if you join the Pump Centre.

For more info contact Jim Eaves

07968 707753

MEMBERS NEWS

Scottish Technical Awareness Day Pump System - Control, Monitoring & Automation

At the end of October the Pump Centre held its Scottish technical awareness day at the Scottish Water offices, Balmore Road, Glasgow. The event was hosted by Brian Spence who sits on both the Pump Centre's Council and its Water Industry Mechanical and Electrical Specification (WIMES) steering group.

The technical programme focussed on the control, monitoring and automation of pump systems and was selected by Brian to be of interest to Scottish Water employees. This approach proved very successful because half of the 50+ attendees came from within Scottish Water.

After Brian had given an excellent opening address the audience were treated to presentations on a range of topics including:

- Pump performance and control
- Intelligent valves
- Remote control of pumping station
- Variable speed technology
- Flow and level pump control
- Condition monitoring
- Pump efficiency monitoring

A number of Pump Centre member companies supported the event by participating in a small exhibition which ran alongside the technical day. The exhibitors brought along a variety of products, software demonstrations and models to keep the delegates interested.

The event was a great success and the plans for a similar event in October 2013 are already underway. However, the 2013 event will not be held at Balmore Road because Scottish Water is relocating its headquarters to new offices at Buchanan Gate Business Park, Stepps. The Pump Centre is currently checking out venues close to Buchanan Gate. A new venue for the Scottish awareness day is vital to allow the event to grow beyond the 55 max. capacity that was available at Balmore Road.



Stuart Duncan of Multitrode giving a demonstration of a software solution for delivering full remote control of pumping stations



Brian Spence of Scottish Water (2nd from the left) with the Pump Centre team (from left to right: Jim, Karen, & John)

FlowPulse Flow Monitor



New

Designed to reliably monitor flowrates of liquids and slurries to 4m/s in pipes to 1m dia and 20mm wall thickness. Non invasive. Clamps onto outside of pipe. Patent pending DSP technology ensures reliability.

● PC configuration	● ATEX Ex m pending
● Remote set up and display option	● 4-20mA output/ Modbus and relay alarm
● Simple pipe strap fixing	

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TALKING TECHNICAL

Advanced Sewage Sludge and bio-solids handling

Due to ever-advancing global practices in waste water treatment and sludge disposal there has been an increase in the advanced treatment of sewage sludge. The development of large centralized plants with new technologies for energy production has presented new challenges for progressive cavity pumps.

There are many options for treatment of the sludge:

At satellite treatment works dewatering of sludge, to reduce the sludge volume and therefore

transport costs, followed by rewatering or back mixing at advanced sludge treatment centres is becoming established practice. These processes, when managed by the correct pumping and mixing solutions, produce sludge at the ideal dry solids content for further processing including sludge drying, incineration, thermal hydrolysis and biogas production.

Sludge volume is reduced by dewatering: polymer is added using a dosing system and free water removed by mechanical means such as belt presses, centrifuges, filter presses or other dewatering devices. A dry solids content of 18 - 45% is achieved dependent upon the organic matter and the primary/secondary sludge ratios. The varying physical characteristics of the sludge must be considered when selecting pump types to ensure that the full range of ds% can be handled.

Further treatment can be done by mixing additives into dewatered sludge to improve the chemical and physical properties and to enable alternative agricultural disposal. Quicklime (CaO) is used because it produces an exothermic reaction which increases temperature and pH and reduces the moisture content, thereby reducing pathogens. Consistent mixing in an open hopper progressive cavity pump can be ensured by the action of bridge breaker paddle shafts, auger feed screw and rotor/stator pumping actions.

Any pump system has to be able to convey a high ds% sludge over a long distance through enclosed pipework to a final location. Both the pump and hopper should be designed to the application requirements to ensure maximum system efficiency. The use of boundary layer injection can reduce friction losses, developed by the sludge passing through the pipe, and improve whole life pump costs while automated systems should control the pump to match the dewatering equipment output.

At central larger sludge treatment centres the dewatered sludge from the smaller satellite works is received, it is typically discharged by truck into a reception bunker which can be installed above or below ground level depending upon the application. At this point the sludge may be 'back mixed' i.e the solids reduced to a level that is the correct feedstock for further processing. A mixing system comprising an open hopper mixing pump and a liquid feed

pump is used to mix the dewatered sludge with lower solids indigenous sludge to give a ds% ranging from 14 - 18 suitable for further processing options such as thermal hydrolysis. Precise control can be achieved regardless of variations in original sludge solids contents.

Anaerobic digestion is a proven technology used to break down organic matter and to produce biogas which is then used to generate green energy. Advanced anaerobic digestion is one of the latest processes being recognized as the technology of choice to increase biogas production and produce a pathogen free end product, which is easier to dewater thus resulting in less digestate volume for disposal.

Advanced anaerobic digestion can involve thermal pre-treatment of sludge with resultant changes to sludge characteristics that have challenged pump designs. Other considerations in the design of pumps for this process are the high temperatures used.

If the regional treatment centre is a sludge drying and incineration plant then the removal of the remaining water to produce a finished product of normally around 90 - 95% dry solids is achieved. These treatment centres not only process their own indigenous dewatered sludge cake but again receive imported sludge cake from satellite works. The imported sludge can be raw, biological, mixed or digested depending upon the processes employed. These sludges are not mixed to reduce the ds% but will be mixed in silos with indigenous dewatered sludge to produce a homogenous consistent quality.

Storage in silos of high solids sludge and consequent discharge again requires a specific design of pump, one that can be engineered to fit under a silo and which ideally has a shut off from the silo for maintenance needs.

For all sludge pumping applications, the correct pump selection gives the optimum return on investment. It is important that the pump is not treated as a "stand-alone" commodity but that

a thorough understanding of the product to be handled and process requirements are considered. The development of tailor made packages demonstrates this understanding. Integration of pumps with complementary equipment, such as special live bottom hoppers, boundary layer injection systems, sludge mixing technology, together with integrated control systems is essential for sludge handling systems which provide reliability and lowest cost in use.

Progressive cavity pumps from seepex have been used in all of the applications described above.



seepex.com
all things flow

Website: www.seepex.com

PUMPS & SYSTEMS CONFERENCE & EXHIBITION 2013 PREVIEW

After the success of last year's conference "Pumps & Systems" is returning to the Telford International Centre (TIC) in May 2013. However the conference and exhibition layout will be significantly different from last year. The most obvious change is a 30% increase in the size of the exhibition which now covers a floor area of 3000 sq m². The exhibition is being held in Hall 1 on the ground floor. On-site parking is FREE for delegates and there are well over 1000 spaces available.

Breakout Sessions

The very popular breakout training sessions are being held in four bespoke rooms within Hall 1. This year the number of sessions is increasing to 12, three per room, each session will be run twice during the day. The following sessions have already been confirmed:

Common Pumping Station Problems and How to Avoid Them

Mark Thomas, Flowcheck Ltd

Flowcheck has performed hydraulic surveys at more than a hundred pumping stations. This presentation summarises the types of problems that are regularly found and it provides guidance on how to avoid them.

"How many pumps shall we run today?"

Steve Broadfoot, Pump Centre

"The session will challenge the traditional arrangement of optimising the Pumping Station for maximum flow conditions and discuss the circumstances under which Variable Speed Drives could offer improved efficiency."

Net Positive Suction Head - Explained

Bob Went, Xylem Water Solutions

Net Positive Suction Head has a major effect on the performance of pumps. This session aims to de-mystify NPSH and explain how the potential problems can be avoided.

Are your Pumps Operating in their Comfort Zone

Ron Palgrave, Sulzer Pumps

All centrifugal pumps have a performance Comfort Zone. Operation outside of this zone invites the risk of certain "bad habits". Because pumps are not transparent, the cause of this bad behaviour is not obvious. This presentation will attempt to explain the chief mechanisms.

Pump Demonstration

Steve Moore, Pump Centre

Using a small pump loop Steve will demonstrate some of the important operating characteristics of a centrifugal pump.

Positive Displacement Pump Basics

Brian Nesbitt, Independent Pump Consultant

Positive displacement pumps tend to be used for the difficult applications when centrifugal pumps are unsuitable. This session introduces the basic characteristics of positive displacement pumps and why they are used.

Pump System Optimisation

Brian Conway, Pump Management, Boulting Group

With the significant year on year increases in energy prices anything that can be done to reduce power consumption is worth investigation. This session introduces the subject of pump system optimisation and the savings that can be made.

Water Industry Mechanical and Electrical Specifications (WIMES)

Roger Marlow, Pump Centre

The Water Industry Mechanical and Electrical Specifications are now an established part of M&E procurement within the Water Industry. This session briefly explains how they were developed, what equipment they cover and how they are used.

Registration opens at **08:30 hrs on Thursday 23rd May 2013** and delegates who pre-register are eligible to FREE admission to all the technical sessions, both the main conference and the breakout sessions. The event has been designed so that delegates can effectively select their own agenda by concentrating on the elements that are of specific interest to them.

Main Conference Programme

The main technical conference is being held in the Newport Suite and the theme is "SUSTAINABLE PUMPING". The programme is expected* to include the following papers:

Improving Pumping Station Efficiency

Atkins and the Environment Agency have developed a new pump efficiency calculator to improve the efficiency of new or replacement pumps. Originally designed for flood defence pumping stations, feedback on the tool has been very positive.

Sustainable pumping solutions using statistical process control (SPC) (Sustainable solutions for existing systems)

Any process will exhibit a natural rhythm or variability, this due to sources of variation. SPC analysis techniques can be applied in order to detect non-random variable Watt data dissipated from a pumping load, and therefore allow for a holistic view of pump system condition. The distribution of the pump system watt data is well correlated using this method. This theory uses SPC, to allow for financial decision making to derive from fact not opinion.

"Pumping Station Recovery and Optimisation - Collaboration between Southern Water and Xylem Water Solutions - TotalCare"

Southern Water determined a requirement to ensure that its pumping stations delivered a stable level of operation whilst also reducing their operational impact to customers and the environment.

Xylem Water Solutions were engaged to fast track a pump station optimisation process covering 500 pump stations with a view to improve pump station performance, reduce risk and provide a measurable benchmark for future pump station performance.

A Systematic Way to Maximise the Energy Efficiency of Pumping Systems - Application Examples

Centrifugal pump systems driven by induction motors, as the largest single group of consumers of electrical energy in the processing industry, are being focussed on increasingly as the subject of governmental regulations. Such applications still offer enormous energy saving potential. However, that potential cannot be exploited without a good working knowledge of the pumps themselves and the systems they serve in. The use of highly efficient IE2-class or even IE3-class motors will have no significant effect unless the load cycle and other details about the system's energy demand are given their due attention...

Fish-Friendly Pumping Stations

Recent legislation imposes a requirement for proven fish-friendly pumping plant for many pumping stations in the UK. This presentation will explore the background and recent developments, demonstrating improvements on pumping efficiency and sustainability of aquatic life.

Appropriate Technology For Sustainable Waste Water Pumping Stations

What does sustainability mean to you in a sewage pumping station? A myriad of new choices face today's customer. Together with our client we explore what sustainability has meant for them by use of appropriate pumping station technology.

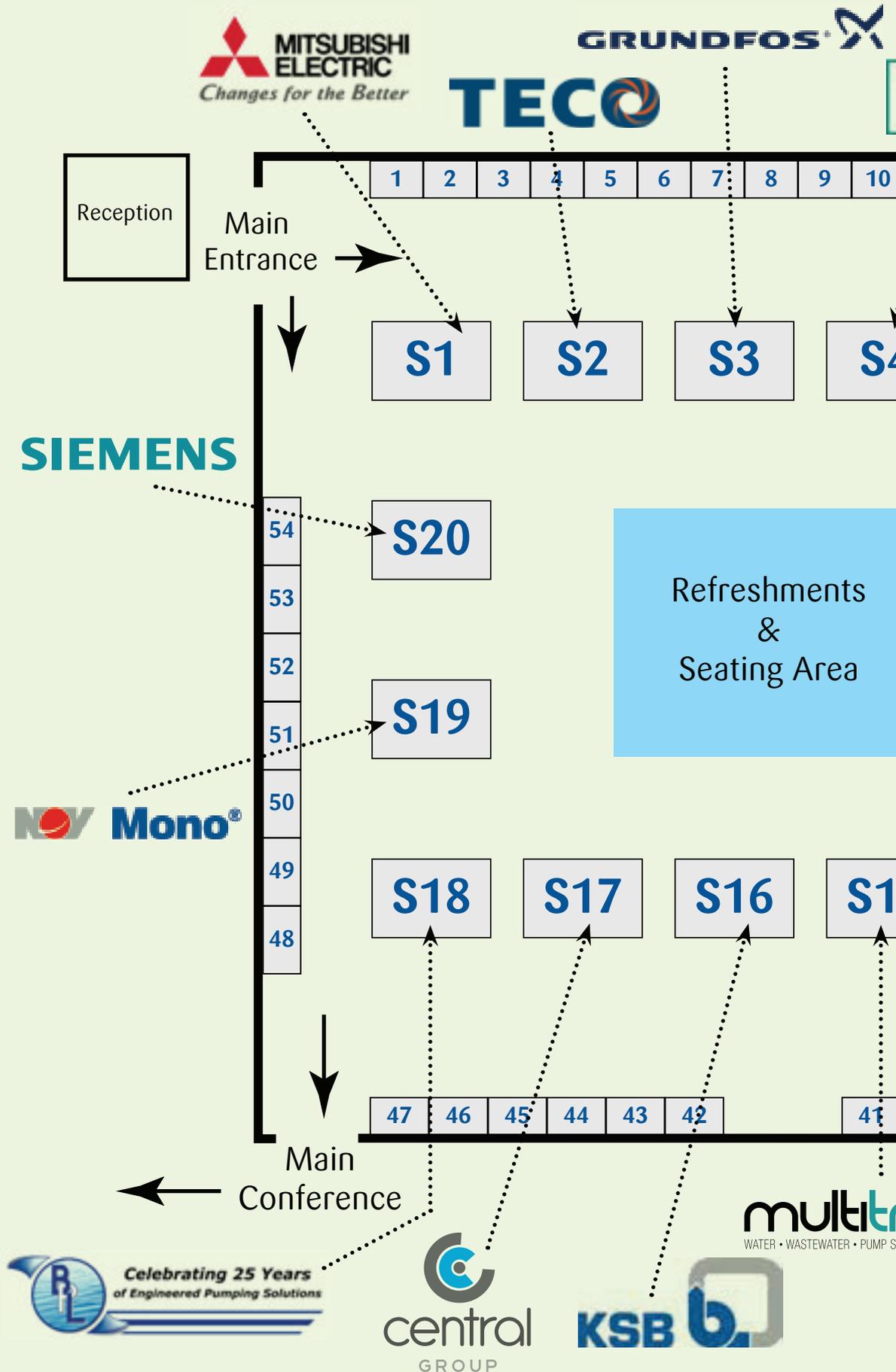
*At the time of going to press the programme was not fully finalised.

PUMP CENTRE EXHIBITION 2013

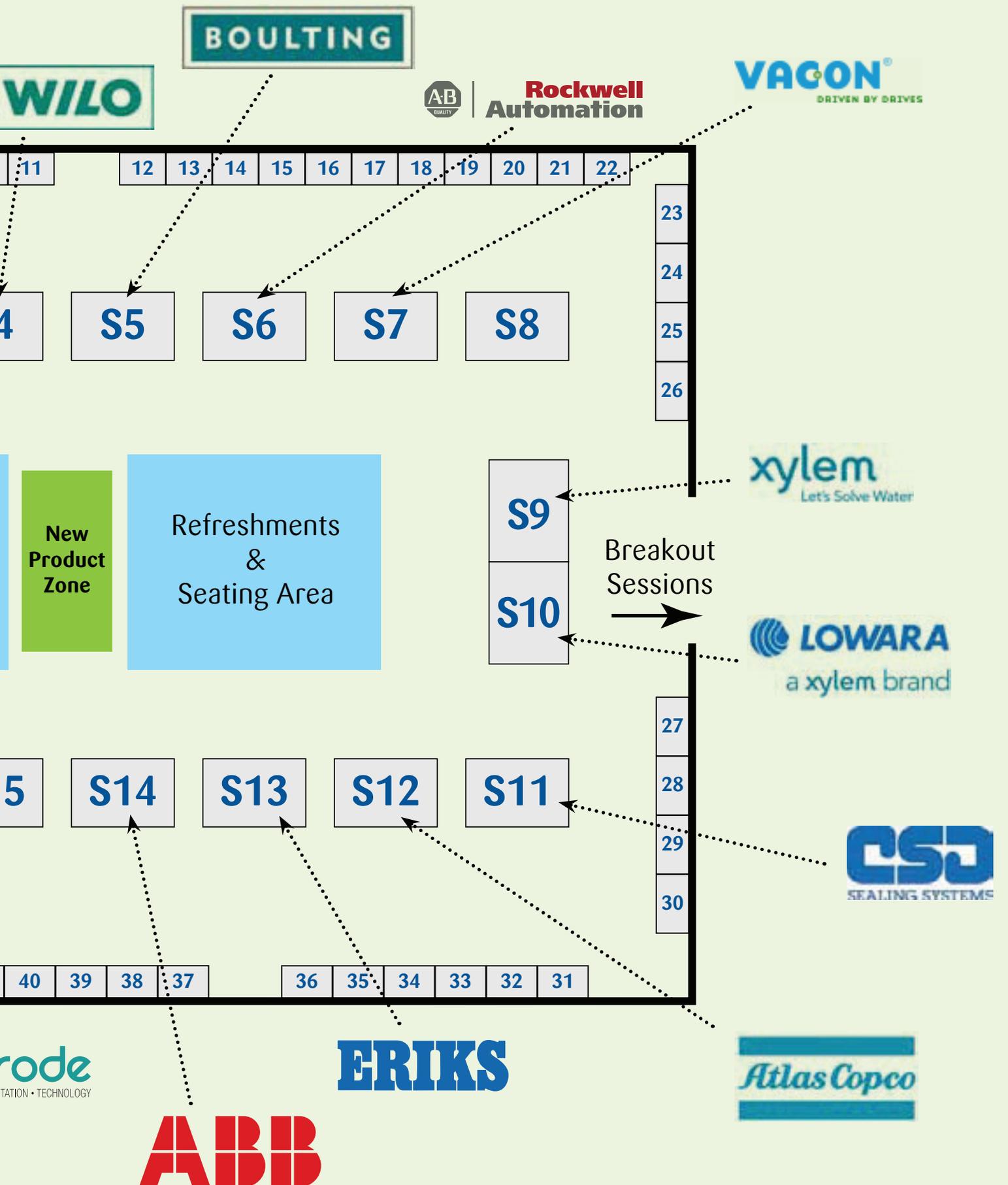
Confirmed Exhibitors

- AEMS
- AERZEN
- BOERGER PUMPS
- BUSCH
- CAPRARI PUMPS
- CEMA
- DANFOSS
- DRAEGER UK
- EAGLEBURGMANN
- EMS
- EXALTO
- FILOFORM
- FLOWCHECK
- GILKES
- GRAPHALLOY
- HYDROMARQUE
- IFM ELECTRONIC
- NETZSCH PUMPS
- NOMENCA
- PORTASILO
- PROCESS MEASUREMENT
- PRUFTECHNIK
- PULSAR
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Correct at time of printing.



COME AND MEET OUR MAIN SPONSORS



PUMP CENTRE EXHIBITION 2013

The Pump Centre Conference Dinner Good food, good entertainment and good friends!

If you want to network with your customers the Pump Centre conference dinner is the ideal event for you. Held on the evening of Wednesday 22nd May 2013 prior to the conference and exhibition, the dinner is a great place to meet.

This year the International Centre's head chef has developed a special menu for the Pump Centre which will feature his signature "Pear and Asparagus" soup starter followed by his "Blade of beef" main course. At a food tasting earlier in the year both these dishes were unexpectedly selected by a unanimous decision as the preferred menu options.

The Ironbridge Suite has been chosen as the venue for the dinner because of its good acoustics and it offers a number of possible

layout options depending on the number of dinner guests. The conference dinner has become more popular year on year with almost 350 dinner guests attending in 2012.

The event will have a different "feel" with a new Master of Ceremonies, Pete Emmett, taking charge this year. Pete will be supported by an after dinner speaker Dr Kevin Jones (a former member of the Heart-Lung transplant team at Papworth Hospital) and the Yorkshire based comedian Lea Roberts. There will also be a few surprises throughout the evening to keep dinner guests entertained.

If you are interested in booking places at the conference dinner please contact Jim Eaves for all the details.

Email - jim.eaves@esrtechnology.com

Tel - 07968 707 753 or 01925 843421



Tanks for the memory...

Just four of many GRP storage tanks removed, at customers' request, when switching to the spiral-wound thermoplastic tanks designed and built by Chem-Resist. Managing Director Simon Hewitt says: "We're invariably asked to remove existing GRP tanks before ours go in and this is happening much more frequently..." Why?



"Because GRP is regarded as old technology; customers recognise our 20years-plus experience in spiral-wound technology and manufacture, and are fully aware of the longer life span of spiral-wound tanks tailored precisely to their needs, their corrosion resistance and infinite recyclability."



Chem-Resist tanks and storage vessels are produced to clients' specific requirements - up to 4.3m diameter and up to 120m³ capacity - and designed to BS EN 12573 standards.

IMPORTANT NEWS from Chem Resist

"Bloodhound were able to make use of Chem Resist's long experience in working with hazardous chemicals. They played no small part in ensuring Bloodhound's recent hybrid rocket firing was a success."

Tony Parraman BLOODHOUND PROJECT

This amazing supersonic vehicle will attempt to raise the current land speed record from 763 mph to an astonishing 1000 mph in autumn 2014. Chem Resist are providing four World Chemical YD402 GVF Ad5-G pumps to be used as a main Hydrogen Peroxide fuel pump and a back-up pump at both ends of the run. A jet engine, plus a rocket, will take Bloodhound from a jet-powered 400 mph to a rocket-propelled 1000 mph!



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Telephone: 01924 499 466 Fax: 01924 490 334 Email: enquiry@chemresist.com

www.chemresistfluidtransfer.com



MEMBERS NEWS

Industry professionals out in force as WWEM 2012 proves resounding success for Dräger

This year's WWEM exhibition and conference has proved the most successful yet for safety specialist Draeger Safety UK Ltd as its experts unveiled the new Polytron 8000 flammable or toxic gas detector series, marking a major step forward for fixed gas detection.



Recently named overall winner at Manufacturing Excellence Awards 2012, Dräger also had a key role to play in the delivery of two seminars by industry experts Kevin Honner and Chris Baldwin on the subjects of "Calibration and Bump

test Requirements for Portable Gas Detectors" and "Visual and Multi-Channel IR Detection", both which were well attended.

Dräger's Functional Safety specialist Doug Longstaff was also in attendance and was presented with his copy of The CoGDEN Guide to Gas Detection by CoGDEN Director, Leigh Greenham.

CoGDEN is the gas detection industry's Trade Association, and as he is one of their standards experts, Doug wrote the Functional Safety chapter for the new reference book. This is intended to provide industry professionals with a complete reference document on the accurate and reliable detection of hazardous gas concentrations in occupational safety applications.



Over 129 exhibitors took part and numerous visitors including professionals from the water and other process industries, were out in force to support this year's show, making it one of the most largely attended since its launch in 2005 with a 22 per cent increase on last year's visitor number.

Leigh Greenham comments: "We were delighted to use WWEM as a platform to announce the launch of our Guide to Gas Detection and our thanks go out to all the contributors, including Dräger, for their time and continued dedication as members of CoGDEN."

"The buzz in the air and the superb turn out certainly suggests that this has been the most successful to date and we're already looking forward to building on this year's success at WWEM 2014, alongside Dräger and other key players in the gas detection industry."



Website: www.draeger.co.uk

Anglian Water to use ZS blowers at wastewater treatment re-development sites

Anglian Water, one of the UK's largest water and wastewater treatment companies - operating over 1000 wastewater treatment works in the East of England - has chosen Atlas Copco's low-pressure ZS blowers to supply air to the aeration diffusers at four of its wastewater treatment re-development sites.

A total of 22 Atlas Copco ZS90 rotary screw blowers will be installed at the sites in Colchester, Letchworth, Bedford and Flag Fen, near Peterborough as part of Anglian Water's initiative to find innovative ways of reducing its energy costs.

Wastewater treatment plants use bacteria to break up waste which requires large quantities of air to be blown into aeration



tanks. In a typical biological wastewater treatment plant, the blower system will account for up to 70% of energy usage. Anglian Water approached Hydrok, an aeration diffuser and IFAS specialist,

about supplying submerged, high-efficiency, bubble aeration framework systems incorporating bio textile curtains and fixed bed media. These units improve the distribution of aeration air to maintain the desired level of dissolved oxygen within the wastewater containment system.

Hydrok matched their high efficiency diffuser technology with Atlas Copco ZS low pressure screw blowers, which make energy cost savings of up to 35% possible, for optimum performance. The ZS90 range of Variable Speed Drive, oil-free rotary screw displacement blowers comprise a complete, fully integrated package based on a simple internal principle: precision timing gears maintain minute clearances between two intermeshing oil free screw elements that never touch. No lubrication is required in the compression space and special seals stop any rotor bearing oil from entering the compression chamber. Intake air is compressed between the rotors and their housing and oil-free, pulsation-free air at pressures of 550-700 mbar is delivered at an output rate of between 1300 - 4500 Nm³/h free air delivered dependent upon process demand.

Atlas Copco ZS blowers fitted with weather proofing kits for external installation are being installed at Anglian Water's wastewater plants in Flag Fen and Bedford. Using the ZS range will also allow Anglian Water to locate the blower motor inverters, controls and condition monitoring in an Anglian Water designed purpose built MCC room. At the Letchworth and Colchester sites, the blowers will be located within an existing plant room.



Website: www.atlascopco.com

TALKING TECHNICAL

South Staffs Water trials IE4 synchronous reluctance motor and drive package

The world's first IE4 synchronous reluctance motor and drive package (SynRM) from ABB has replaced an induction motor-based variable-speed drive package at South Staffs Water, resulting in an additional 6 percent energy saving.

At Somerford Pumping Station the company needed to replace a 20-year old, 115 kW induction motor used to control a single vertical shaft driven borehole pump which abstracts 2.5 million litres of water each day. The IE2 motor was already using an ABB drive, ACS800, and had maximised the process energy saving opportunities using the drive's flux optimisation function. The utility was interested in trialling the SynRM to harness its benefits including higher efficiency, greater reliability, lower heat loss, less noise and reduced maintenance costs.

The installation meant removing the existing drive and replacing it with an ABB drive, ACS850, featuring a more powerful core processor that enables operation with the synchronous reluctance motor along with the next generation direct torque control (DTC), which avoids the need for encoders and speed feedback devices.

"The biggest benefit, above all others, is the 6 percent reduction in energy," explains Keith Marshall, Supply Director at South Staffs Water. "While being one of the most efficient companies in the industry, our electricity bill is more than £9 million per year and rising through increases in wholesale energy prices. Pumping water accounts for some 90 percent of this spend as we have one of the highest pumping head of any UK water utility because of the deep boreholes and hilly terrain within our area of supply. So a 6 percent reduction on one pump in a system that was already very efficient is massive news for us."

"Including the UK government's Enhanced Capital Allowances (ECAs), we estimate the return on investment to be between five to six years. Given that the existing drive and motor were already fairly efficient and therefore squeezing more savings was always going to be difficult, then this is a very acceptable return."

A SynRM rotor has neither a conducting short circuit cage as with the induction motor, nor permanent magnets, nor a field excitation winding. Instead, the magnetic principle of reluctance is utilised. The streamlined rotor structure eliminates rotor cage losses, therefore increasing efficiency and compactness. Achieving standard power and torque levels at a low temperature rise class improves the lifetime of the motor insulation and lengthens the bearing lifetime or greasing intervals.

At South Staffs Water, the SynRM design has resulted in 58 percent reduction in frame temperature compared to the induction motor. "In the summer lots of sites run hot and using SynRM across more sites means we can dramatically reduce the need for forced ventilation," says Marshall. "As the rotor has effectively no losses this lowers the bearing temperature. This means we can either choose to extend the period between greasing or increase the bearing life expectancy."

The SynRM has resulted in a 75 percent reduction in audible noise: down from 78 dBA to 72.3 dBA when running at 1,450 rpm.

Such is the belief in the potential savings that South Staffs Water has brought forward its Investment Programme to capitalise sooner on the benefits.



Website: www.abb.co.uk

New generation of ultrasonic measurement launched by Siemens

Reducing operating costs is a key business target for plants in the water industry, so Siemens has developed the world's most accurate ultrasonic controller series for level measurement - the Sitrans LUT400.

The compact, single point ultrasonic controllers continuously monitor and control level in liquids, solids or slurry applications.

The controllers offer the highest accuracy available, ensuring consistently precise measurements to help plants reduce energy usage and increase operational efficiency. Due to unbeaten precision of the devices, operators can be confident of level and flow measurements. This results in cost-effective operations as inventory monitoring will be accurate, eradicating the risk of running out of a product or expensive spill clean-ups due to over-filling.



Energy cost savings can be realised thanks to the range's time measurement and energy saving algorithms, which can reduce pump operations during peak energy periods.

The range includes three models - the Sitrans LUT420 level controller, Sitrans LUT430 level, pump and flow meter and the Sitrans LUT440 high accuracy open channel monitor. All have been designed to reduce engineering time due their easy to use functionality and their data logging capabilities which allow users to store and review data easily or transfer it to a computer. All products can be fully integrated into a plant and enable remote configuration and diagnostics.

Derek Moore, product manager at Siemens Industry, commented: "The Sitrans LUT400 truly marks a new generation of ultrasonic level measurement that will deliver on helping the water industry reduce operating costs. At Siemens we understand the challenges and pressures the industry faces and have worked to develop a solution that addresses these needs - and its best in class accuracy really delivers. Importantly, the devices are also easy to use and quick to configure and can be monitored remotely."



Website: www.siemens.co.uk

TALKING TECHNICAL

Bedford Pumps new SAF Range are proven fish friendly

Bedford Pumps Ltd have just been awarded an “Excellent” rating for their new SAF Range of Fish Friendly pumps.

The credential was granted by independent research consultants, VisAdvies BV (specialists in the field of water management, focusing on the environment of fish in all types of inland waterways), following extensive and stringent trials. The results prove conclusively that Bedford Pumps’ new SAF Range of pumps are fish and eel friendly with no direct mortality observed from exposure to the pump.



EU legislation was brought into effect in 2007 to tackle the rapid decline in global populations of the European eel. Eels are a migratory species and in order to breed must return to their spawning grounds of the Sargasso Sea - a distance of approximately 6500 km. Obstructions which impede their journey, such as pumping stations, may be a contributing factor in their fall in numbers.

The EU legislation “EU Eel Regulations” proclaims that each Member State shall implement appropriate measures to reduce eel mortality. In 2009 UK legislation empowered the Environment Agency to undertake activity to satisfy EU regulations. To this effect the Environment Agency can serve notice where the safe passage of eels is impeded and enforce a resolution to preserve the life of eels. This legislation is specific to the eel population but it is generally accepted by all concerned that protecting fish stocks is an added bonus of utilising this type of pump.

Eel and fish friendly pumping solutions will shortly become a requirement at the majority of pumping station and water abstraction points where eel populations have been identified.

Bedford Pumps’ Axial Flow Fish Friendly pump underwent rigorous tests in a dry dock in Hellevoetsluis, Holland. VisAdvies BV performed the evaluation by means of forced exposure of the fish to the pump. Three representative

groups of fish were used, in two size classes, 0-15cm and 16cm plus. The pump was tested at a duty of 1300 l/s at 1.5m head, running at speeds of 330, 425 and 518rpm consecutively.



The pump achieved 100% survival of eels passing through the pump. The most severe damage that occurred was some scale loss on the coarse fish. This was not caused by the pump impeller, but by the impact of the fish hitting the water after passing through the pump. In an actual Land Drainage application, the discharge point would be below the water level.

Bedford Pumps’ SAF Range of Fish Friendly pumps cover from 400 to 7,000 l/s at 2 to 6m head and are ideally suited for Land Drainage, Flood Defence and Fish Farm applications. Larger capacity pumps can also be designed to meet specific requirements.



In addition to protecting the fish, the new design demonstrates a significant improvement in hydraulic efficiency resulting in an 8% reduction in power absorbed. Consequently the new range will satisfy objectives of eel protection and carbon reduction.

Bedford Pumps have just installed their first Fish Friendly pump at a new pumping station in Kempsey for the Environment Agency. The pumps will discharge water from Hatfield Brook, a waterway which has caused flooding to the village 23 times in the past 30 years. Hatfield Brook is home to an eel population, so the new pumping station will be the first station in the UK to comply fully with the new EU regulations.



www.bedfordpumps.co.uk

TRAINING NEWS

Training & Awareness Day Programme 2013

TITLE	DATE	FULL PRICE
Condition Monitoring Awareness	26 Feb 2013	£350 + VAT
Introduction to Motors and Drives	27 Feb 2013	£350 + VAT
Pumps for Beginners & Intermediates (2 days)	05-06 Mar 2013	£550 + VAT
Pumps for Beginners	05 Mar 2013	£350 + VAT
Pumps for Intermediates	06 Mar 2013	£350 + VAT
Positive Displacement Pumps	12 Mar 2013	£350 + VAT
Pumping in the Water Industry (4½ days)	18-22 Mar 2013	£995 + VAT
Waste Water Screening & Preliminary Treatment	09 Apr 2013	£350 + VAT
Awareness Day (at Sutton Coldfield) Pump System - Control, Monitoring and Automation	16 Apr 2013	£120 + VAT

Pump Centre Members receive 30% discount off training courses and 20% discount off awareness days.

All courses unless specified will be held at:
 The Rhinewood Country House Hotel
 Glazebrook Lane
 Glazebrook
 Nr Warrington
 Cheshire WA3 5BB
 Tel: 0161 775 5555

The majority of our training courses can be run "In-House" at a venue selected by the Client. In-house courses become cost effective when clients have 8 or more members of staff to be trained. Please contact the Pump Centre for a quote.

To discuss your training requirements contact:

Jim Eaves (call +44 (0)7968 707 753 or email jim.eaves@esrtechnology.com)

To reserve your places contact:

Karen Bridgeman (call +44 (0)1925 84 3512 or email karen.bridgeman@esrtechnology.com)



FEATURED TRAINING COURSES

NEW COURSE: 12 March 2013

Positive Displacement Pumps

A one day course that highlights the various characteristics of Positive Displacement (PD) pumps. The course covers; selection, specification, installation, problem solving and maintenance.

The differences between PD and rotodynamic pumps are explained together with the effects on the process system. Special attention is given to efficiency and energy costs, and how pump specification influences reliability. PD pumps are capable of handling a wide range of liquids, solids and two-phase mixtures and selection guidelines are given for each pump type.

This course is for mechanical engineers, process engineers, technologists and individuals involved in process liquid handling, plant design, equipment selection, equipment plant operation and maintenance.

NEW COURSE: 18-22 March 2013

Pumping in the Water Industry

This is a dedicated Water Industry Course providing 4½ days training, spread over 5 working days.

It is intended to give a detailed understanding of pumps and pumping systems to engineers who are required to design pumping systems, approve designs submitted by sub-contractors, or advise clients on possible improvements to existing systems.

The course will conclude with an exercise, based on a typical situation, which brings together all the points covered and enables the delegates to use the skills learned during the week.

Using a series of demonstrations, presentations and practical exercises, the course will provide an understanding of the factors affecting pumping system design, and equip participants with a "toolkit" of ideas and techniques for the design of efficient pumping systems.