

PCN

Europe

processing & control news

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Sara Ibrahim
s.ibrahim@tim-europe.com

In the Mood for ADIPEC

When I went for the first time to Abu Dhabi for **ADIPEC** last year, I was positively impressed by the international atmosphere surrounding this show, even if most of the exhibitors were participating with the local branch only and not with their international headquarters.



This means two things: On one hand, Adipec still attracts some of the most important players and small to medium operators in the world **oil & gas scenario**, but, on the other hand, at the same time the majority of them are international companies that chose to open a local branch in the Emirates and directly work with Middle-Eastern **commodity supplier**, in a setting in continuous and stable evolution.

This gives the measure of how much the **United Arab Emirates** are becoming the heart of progress and development of energy projects and achievements, considering that it appears most convenient to Western companies to **open a branch** or at least an office there than work remotely. The collaboration with the West is then going on profitably well and UAE's economy is growing, also thanks to new investments coming after the **Golden Age of petroleum** and the research of new sources of income.

We should anyway consider that, even if the first edition of Adipec **dates back to 1984** and still remains one of the most important oil & gas events – for sure among the top 3 shows in the world, that has the power to gather and welcome delegates, visitors and exhibitors from across the globe – **things are slowly changing** and becoming hard for that area too.

The Emirates dream has started to dissolve with the fossil fuel downturn and with the **critical situation in the Middle East**, hit by terrorism and long-standing wars. And even if the Emirates have lived in a sort of cotton wool for many years, a change is inevitable in this unstable moment and here it comes.

With the growing tension between **Saudi Arabia and Qatar** – punished for its commercial relationship with Iran – and the **political isolation of Iran**, which is anyway an important energy player, we are more and more concerned about the future of the area.

Adipec resisted to all these recent upsets and comes back with a new edition, also opened to downstream industries and strategies to deliver continuous success.

Sara Ibrahim

Editor of PCN Europe

editorial

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Sulzer Participated at Argentina Oil & Gas Expo 2017

Sulzer exhibited its turnkey turbomachinery, pump and electromechanical services to the energy industry at Argentina Oil & Gas Expo (AOG) 2017. As an established service provider and maintenance partner in the sector, Sulzer is dedicated to providing fast and flexible rotating equipment services to the highest quality standards. As a fully independent service provider, Sulzer gathers vast experience in supporting oil and gas projects around the world. The business offers a singular point of contact for all aspects of turbines, compressors, motors, generators and pumps. This includes the support of subsea and offshore pumping systems, specialized aftermarket components as well as full electromechanical maintenance support. Sulzer is also a leading manufacturer of high performance pumps for the industry, supporting onshore, offshore and shale gas applications in the region. Such expertise has seen Sulzer pumps utilized around the world, enabling a number of large scale oil and gas projects, with the business focused on delivering the performance, quality and reliability these applications demand.



Eastman TREVA Received USDA Certified Biobased Product Label

Eastman Chemical Company, the world's leading producer of cellulosic materials showcased Eastman TREVA at Bio-Based Live. TREVA, a breakthrough in engineering bioplastics designed to help companies overcome the trade-off between sustainability and performance, recently received its USDA Certified Biobased Product Label from the United States Department of Agriculture's BioPreferred® program. This certification verified that TREVA GC6011 has a biobase content of 45 percent and TREVA GC6021 has a bio base content of 42 percent. TREVA offers a combination of thermoplastic properties and performance, design flexibility - and price - that other bioplastics cannot match. The cellulose in TREVA is sourced exclusively from reputable suppliers holding internationally recognized certifications attesting to their sustainable forest management practices. Free of BPA and phthalates, TREVA stands up better than other engineering thermoplastics to some of the harshest chemicals including skin oils, sunscreens and household cleaners.



German Packaging Award 2017 Went to Bosch Packaging Technology

The sensor-controlled product detection and adaptivity of the concept machine SVC 1820 BH from Bosch Packaging Technology has been honored with the German Packaging Award 2017. The award is presented on an annual basis by the German Packaging Institute (Deutsches Verpackungsinstitut – dvi). The vertical form, fill and seal machine SVC 1820 BH convinced the jury with sensors inside the forming tube. The machine is designed to package food. The jurors rated a total of 200 projects from twelve countries and rewarded the best innovations in ten categories. "By winning the German Packaging Award, enterprises show their outstanding innovative power and make a strong statement," says Dr. Bettina Horenburg, dvi Board Member and person in charge of the German Packaging Award. Senior development engineers André Philipp and Peter Langers from Bosch Packaging Technology in Weert, The Netherlands, accepted the award at the winners' gala in the Humboldt Box in front of the Berlin City Palace on September 26, 2017.



Emerson Expands Syncade MES Project for Life Science Pipelines Manufacturing

Emerson has selected Enterprise System Partners (ESP), a global consulting and project engineering company, to collaborate with and assist life sciences manufacturers in implementing Syncade manufacturing execution systems to improve operations management and accelerate product manufacturing pipelines for new biotech and pharmaceutical therapies. By understanding the unique challenges of MES projects, Emerson and ESP have completely refreshed their execution model and methodology. Now the team deploys an iterative approach to project delivery that enables life sciences enterprises to adopt new technology faster - and start up more rapidly. Faster, iterative approaches will help ensure projects reflect the project vision and end-user requirements, while helping Emerson and ESP meet increased demand for its Syncade MES. "Being successful in a growing industry like life sciences requires new and innovative approaches to execute projects. In selecting ESP to collaborate with, we have set the stage for even more efficient project execution," says Tom Snead, president of global life sciences industry for Emerson.



TANK CLEANING MACHINE

For water saving up to 60% and 70%



Saving time and water are some of the KPIs which have the most attention in the hygienic industries. The new **Alfa Laval TJ40G** rotary tank cleaning machine uses a high-impact jet stream to effectively clean tough tank residues and minimize the risk of product contamination. This four-nozzle rotary jet head also cleans tanks 60% faster than static spray ball technology, which increases production uptime. And because it cleans faster, this new device uses less water and less cleaning agents thereby reducing operating costs by up to 70%. The Alfa Laval TJ40G is capable of handling tough tank residues as well as solids up to 1mm in the cleaning fluid in tank sizes 50-1000 m³. This is particularly important for demanding process lines, such as applications within the brewhouse, where both the size and the amount of particles may be re-circulated in cleaning media.

Alfa Laval

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ALL-PLASTIC STOP VALVE

For pressurized hot water systems



Solvay announced that its high-performing **Radel®** polyphenylsulfone

(PPSU) polymer enabled China-based CiXi Zhenpeng Plumbing Fittings Company to replace traditional brass in a new line of all-plastic valves targeting pressurized hot water systems used in Heating, Ventilation and Air Conditioning (HVAC) applications. Among Zhenpeng's new products is the industry's first all-PPSU stop valve to meet standards ASME A112.18.1-2012 and CSA B125.1-12, as tested by the International Association of Plumbing and Mechanical Officials (IAPMO). In addition to enabling Zhenpeng's all-PPSU stop valve, Solvay's high-performance polymer enabled a patented one-piece ball valve and valve rod design, a half-ball valve, and L-type and T-type valves. Zhenpeng's all-plastic valves and fittings will be available in Europe in the near future.

Solvay

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CUSTOM FILTER HOUSING

To fit the exact required dimensions



Amazon Filters has designed and supplied a custom filter housing to a world renowned advanced research laboratory, to replace an ageing cooling water ring main filter. Because of the criticality of the application the new filter housing had to be dimensionally the same as the existing unit to fit into place without altering any pipework. Unable to access or view the ring main filter to be replaced, as it was shrouded and radioactive, the Amazon Filters design team had to use old customer drawings and details from the 1980's to produce accurate and detailed manufacturing specifications. Drawing upon their highly experienced design and manufacturing teams, Amazon Filters were able to quickly build and supply a bespoke filter housing to meet the exact required dimensions.

Amazon Filters

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MULTI-BASKET STRAINERS

Contain from 2 to 23 baskets



Rosedale's multi basket strainers and multi bag filter housings offer a wide range of flow capacities and contaminant-holding capabilities. They

contain from 2 to 23 baskets. To serve as a strainer, a unit is ordered with perforated stainless steel baskets (mesh-lined if desired). When ordered as a filter, it's fitted with perforated stainless steel baskets designed to hold filter bags or pleated cartridges. Industry-standard size bags are used: the standard 30 inch baskets accept bag size 2, the optional 15 inch baskets take size 1. The standard pressure rating for all models is 150 psi. All multi basket strainer and multi bag filter housings can be supplied with an ASME code stamp, if required. Multi-basket models are also available as duplex filters for duplex filtration systems.

Rosedale Products

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PRESSURE SENSOR

For gas boilers and pumps



Sensata Technologies has introduced a pressure sensor featuring compact size and proven technology

that offers a cost-effective new solution to improve performance and safety in gas boilers and pumps. The new 116CP Sensor incorporates Sensata's patented ceramic capacitive pressure sensing technology, which has a highly successful, proven track record in automotive and industrial applications. The 116CP builds on this established reliability with a new package/form factor designed specifically for gas boilers, pumps, and other residential and light commercial applications that require smaller size and lower cost pressure control. In gas boiler applications, the 116CP sensor monitors pressure in the boiler's water loop. It gives this feedback to the control unit which then issues a warning signal to the user when the pressure reaches too high or too low levels.

Sensata Technologies

►► 53437 at www.pcne.eu

MEASUREMENT SYSTEM

For ventilated or pressurised tanks



Keller AG has introduced **Castello**, a flexible, modular system for the accurate indication of the content of a liquid in a tank.

Castello offers a user-friendly way to represent the pressure measurement at the bottom of a tank as the quantity of remaining liquid. At the push of a button, the microprocessor performs the calculations using the information of the tank shape and dimensions and displays the remaining tank content quantity on the clearly legible 5-digit LED display in the desired unit (litres, gallons etc.). The easy to use software to configure Castello is free of charge. It contains the most current tank shapes. Other tank shapes can be easily integrated at the factory. The exclusive use of absolute pressure sensors in the Castello system eliminates the use of capillary vented cables.

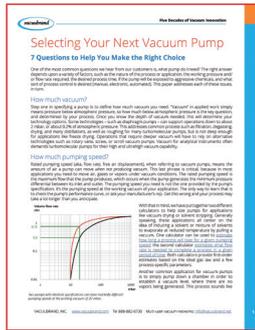
Keller AG

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Selecting Your Next Vacuum Pump

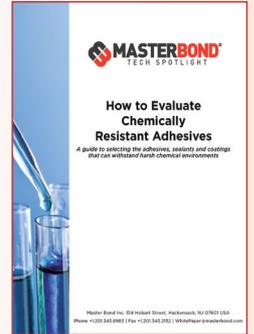
Vacuubrand. One of the most common questions we hear from our customers is: What pump do I need? The right answer depends upon a variety of factors, such as the nature of the process or application, the working pressure and/or flow rate required, the desired process time, if the pump will be exposed to aggressive chemicals, and what sort of process control is desired (manual, electronic, automated). This paper addresses each of these issues, in turn. Step one in specifying a pump is to define how much vacuum you need. "Vacuum" in applied work simply means pressure below atmospheric pressure, so how much below atmospheric pressure is the key question, and determined by your process. Once you know the depth of vacuum needed, this will determine your technology options. Some technologies – such as diaphragm pumps – can support operations down to about 2 mbar, or about 0.2% of atmospheric pressure.



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Chemically Resistant Adhesives

Masterbond. Of all the factors that should be considered when selecting adhesive products, chemical exposure too often gets short shrift. A quick peek at a few data sheets or a chemical resistance chart may be all the work that goes into evaluating an adhesive product for use in a specific chemical environment. Yet this kind of halfhearted effort simply won't cut it if you want to make sure that adhesives, sealants and encapsulants will withstand the chemicals found in so many industrial, medical, automotive and aerospace applications. All polymers, including adhesives, have potential chemical vulnerabilities that can result in a loss of physical properties. The challenge is knowing exactly how those vulnerabilities will come into play given all the variables that govern the effects of chemical exposures. These variables start with the interaction of material systems with specific chemicals.



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Lens Talk: Technology for the Nuclear Industry

Driven by safety considerations the Nuclear Industry has a desire for higher and higher resolution, remote viewing of its operational facilities. For this reason, the uptake of CMOS colour sensors in place of traditional monochrome cameras is increasing. Mark Pontin, Managing Director at Resolve Optics, describes the company's non-browning lens developments to cope with the demands of the Nuclear industry

PCN Europe: What are the key criteria that a lens system has to satisfy in order to meet the needs of the nuclear industry?

Mr. Pontin: The Nuclear Industry requires that the lenses it uses are Non-Browning and are able to maintain a usable image up to a maximum allowed radiation dosage. All Resolve Optics lenses are qualified to withstand 10^8 (100 million) Rads over an extended period of time. The term 'Non-Browning' is used to describe an optical lens that does not significantly change colour when exposed to radiation. Standard glasses will rapidly turn brown or grey when exposed to radiation which will cause a transmitted image to become dark and unusable.

PCN Europe: Can you describe some recent advances made by Resolve Optics in the area of Lens Technology for the nuclear industry?

Mr. Pontin: The Nuclear industry has increasingly been adopting CMOS colour sensors in place of the traditionally used tube cameras which produce a monochrome image. This move towards colour images necessitated that Resolve Optics develops a new generation of non-browning lenses. As standard radiation resistant optical materials are very yellow most non-browning lenses produce images with a yellow tint. The new Model 357 range of non-browning lens from Resolve Optics minimises the amount of yellow tint in the image.

PCN Europe: Please describe some of the main areas in a nuclear plant that are benefiting from radiation resistant lens technology?

Mr. Pontin: In a nuclear power station - radiation tolerant cameras are used to monitor all areas of the plant including the reactor containment area, nuclear fuel storage facilities and decom-

missioning areas. Even if these cameras are in areas that are not exposed to high radiation they will be required to be radiation resistant in case of an emergency. Other typical use of non-browning lenses includes rooms used to store crucial equipment and for inspection of pipes in water cooling facilities surrounding the reactor. Nuclear reprocessing plants also use non-browning lenses and radiation tolerant cameras to monitor the reprocessing and vitrification of nuclear waste.

PCN Europe: Can you tell us about one of your most interesting applications that you have helped solve for a nuclear industry customer?

Mr. Pontin: Because of the security sensitive nature of almost all nuclear installations, I am not really at liberty to reveal specific customer details. However, I can say that the new generation Model 357 non-browning lenses for use with colour CMOS camera was developed initially as a bespoke lens product for a nuclear systems integrator.

PCN Europe: Resolve Optics has developed a range of radiation resistant lenses for use in the nuclear industry. What other applications outside this industry can benefit from these particular types of lens?

Mr. Pontin: Space is another major application that has widespread need of non-browning lenses. The higher the orbit of a satellite or spacecraft the greater the levels of radiation that onboard cameras, sensors and instrumentation containing optics is subject to. Space applications are very demanding as the last thing you would want is to get your optical system into space only to find it does not work as expected or your image quickly deteriorates as a critical lens darkens. Therefore, Resolve Optics



Mark Pontin

non-browning lenses for space applications are designed to withstand the harsh environment of that unforgiving environment.

Increasingly Resolve Optics non-browning lenses are also being used in medical applications. In medical research - Resolve Optics radiation resistant lenses form targeting elements in synchrotron radiation therapy machines and also in commercial x-ray instrumentation.

PCN Europe: What do you see as future possible developments of lens technology for the nuclear industry?

Mr. Pontin: The trend in the Nuclear industry is to require higher and higher resolution images so that more detail can be seen remotely. Being highly regulated and very safety conscious, changes in the Nuclear industry happen very slowly. Consequently, Resolve Optics has some time to translate the knowledge it gained from developing HD and ultra HD resolution lenses for other industries into a new generation of radiation resistant high resolution lenses.

Sara Ibrahim

Resolve Optics

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ULTRASONIC FLOWMETER

For use in demanding process and control environments



Designed to IP65 standards the Process Atrato ultrasonic flowmeter from **Titan Enterprises** is built for use in demanding process and control environments. Durable constructed from 316 stainless steel and PEEK, and incorporating proprietary ultrasonic flowmeter technology, the Process Atrato offers reduced cost of ownership compared to existing flow measurement devices used in the process environment.

Rated for use up to 65°C and 20Bar the compact Process Atrato is available in 4 models operating over flow ranges from 2ml/min to 15litres/min, featuring an accuracy of $\pm 1\%$ over the whole flow range. Each Process Atrato is calibrated with a pre-set 'K' factor so all meters of the same flow range are fully interchangeable simplifying assembly and set-up procedures for OEM manufacturers looking to integrate the flowmeter into their process and control set-up. Using patented technology that enables it to operate accurately over wide flow ranges, the Process Atrato signal processing system permits flow measurement across the whole Reynolds number range allowing both viscous and non-viscous products to be metered. The Atrato Process is based on Titan standard, wide ranging, Atrato meter but packaged to address the more challenging process and control environment.

Titan Enterprises

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Demagnetizing Oil Pipelines in Situ

Goudsmit Magnetics has recently solved a case of remnant magnetism by demagnetizing PE coated pipelines, delivered by the Dylan Group Netherlands, of a new oil refinery to be built in Southeast India

To have the magnetism disappear or to reduce it to a workable level, Goudsmit has developed a system that consists of a low frequency generator and a specific cable system. This cable system is wrapped around the pipelines as a coil. This causes a strong variable magnetic field in the pipelines that decreases in strength to 0. The consequence thereof is that the remanent magnetism disappears or is reduced to a workable value of approx. 35 Gauss. In this case it concerned approx. 40 pipelines of carbon steel, each with a length of 12 meters and a diameter of $\varnothing 470\text{mm}$. The activities took 4 days.

DEMAGNETIZING

The causes of remanent-magnetism of materials can be various and difficult to classify in practice. However, they are usually caused by magnetic fields in the area, intentionally or unintentionally. For example, by clamping surfaces, magnetic transport, induction heating, tear tests, magnetic grippers etc. But this magnetization is also strengthened by electrical

welding, mechanical vibrations, grinding, sawing and cold deformation. The consequences are usually very divers. Plasma soldering is usually impossible, small metallic particles and metallic dust remain sticking, increased wear in case of lagers, fallout and waiting time in case of automatic processing stations due to clinging materials, problems with electrical welding, unevenness and thickness differences in case of electrical zinc coating and chroming, sharp edges when galvanizing etc.

In the abovementioned case, the pipelines could not be welded together because of arc deflection. This can cause lack of adhesion and is therefore not desirable. In short: undesired remanent-magnetism costs time and money and influences the quality of the end-products. To prevent this, the company has developed a number of demagnetizing systems in tunnel form (possibly with (slat) conveyor), in table form (if needed with (slat) conveyor), as a manually-operated device or low frequency as mobile unit. When the investment in these is not profit-

able, the magnet producer also offers the possibility to do this on location or in-house.

DEMAGNETIZING SYSTEM FOR CUSTOMER USE

The company also has developed a mobile demagnetization system with which remnant magnetization in metals can be removed or reduced to an acceptable level. This is done in site, on location. The system is completely designed for customer use, without intervention of a specialist. It consists of a low-frequency generator and a specially designed cable system that is wound around the pipes to form a coil. This generates a strongly alternating magnetic field that dissipates in strength. The demagnetizer is automatically configured for use by simply answering a number of questions on the display. Undesired magnetism is often caused by magnetic fields in the immediate vicinity. Common causes include clamping tables, magnetic conveyance, induction heating, tear testing and magnetic grippers. Such magnetization can also be worsened by electric welding, mechanical vibration, grinding, sawing and cold deformation. This can have many different consequences. Plasma soldering is often impossible, because small metal particles and metal dust stick to the surfaces. Adhering materials also cause rapid wear of bearings, breakdowns and waiting time at automatic processing stations, problems with arc welding, unevenness and thickness differences during electro galvanization and chrome plating, or sharp edges during hot-dip galvanization. Quite simply: undesired magnetism costs time and money and has a negative impact on the quality of finished products.

The transport piping, delivered by the Dylan Group of the new oil refinery in Southeast India is demagnetized by one of the technicians of Goudsmit Magnetic Systems.



Goudsmit Magnetic Systems

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PLC+HMI+I/O

Built into a single unit



Unitronics has released UniStream® 5", a multi-function programmable logic controller in a compact hardware profile: PLC+HMI+I/O

built into a single unit. All-in-One, compact PLC + HMI with built-in I/Os fills a niche in the programmable controller market, serving OEMs and system integrator who need space-saving controllers that deliver the functionality to control complex machines, while creating a competitive advantage via a color-touch HMI panel. This All-in-One controller is available in two series: UniStream 5" and UniStream 5" Pro. Both series support SNMP, VNC, FTP, SMS, email, and communications via GSM/GPRS modem. The Pro version also offers a built-in Webserver, audio jack, and video support, as well as SQL. For more information, you can meet Unitronics at SPS IPC Drives 2017, hall 7, booth 171.

Unitronics

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MASS FLOW METER

For air / gas measurement



The QuadraTherm 640i from **Sierra** is an accurate insertion-probe thermal mass flow meter for air / gas mass flow rate measurement,

achieving gas mass flow rate accuracy of +/- 0.75% of reading above 50% of full scale. The QuadraTherm 640i air / gas mass flow meter achieves extreme precision with "percent of reading" accuracy, which for the first time rivals accuracies of Coriolis technology for measuring gas mass flow rate. Each QuadraTherm thermal flow meter comes with on board qMix(tm) gas mixing software which allows you to create custom gas mixtures in the field to compensate for gas compositional changes-no costly recalibration needed. Perfect for managing changes in flare gas composition in the field for upstream oil & gas flare gas measuring applications and others.

Sierra Instruments

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TRIPLEX METERING PUMP

Provides precise linear flow



The new Hydra-Cell MT8 seal-less triplex metering pump from **Wanner** can handle the low flow metering applications

in oil & gas (on-shore and off-shore), water & wastewater treatment, polyurethane foam manufacture and chemical processing. Exceeding API 675 performance standards for steady-state accuracy ($\pm 1\%$), linearity ($\pm 3\%$), and repeatability ($\pm 3\%$), the seal-less, hydraulically balanced, multiple-diaphragm design provides precise, virtually pulse-free, linear flow without the need for expensive pulsation dampeners. The seal-less design means no seals, cups or packing to leak or replace while the variety of pump head materials available, including stainless steel, brass, Hastelloy®, PVC and PVDF, ensures the Hydra-Cell MT8 can handle a wide range of processing fluids. The Hydra-Cell MT8 has an integral pressure relief valve.

Wanner International

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FLOW MEASUREMENT TECHNOLOGY

With no-moving parts



Fluid Components International's ST75 Series and ST100L Air/Gas Flow Meters and FLT93L Flow Switch provide ideal solutions for use in 0.25 to 2 inch (DN6 to DN50) pipe or tubing, with its advanced, ultra-reliable thermal dispersion flow measurement technology with no-moving parts. They excel where low flows,

wide-turndowns, dirty fluids, HazEx or harsh installations are among the applications factors. These flow instruments offer many advantages for service in a wide range of applications: plant, building or lab gas sub-metering, small inlet air/gas feed lines for boilers, gas relief valve monitoring, chemical injection, compressed air systems, cogen or CHP gas fuel measurement and control, sampling systems, and more. Many small process line applications are difficult to measure reliably with high repeatability due to variations in temperature and pressure, and have wide flow rates. FCI's thermal flow meters and switches are unaffected by, or have on-board compensation for, temperature and pressure changes and, in addition to superior detection of low flow rates, provide 100:1 turndown as a standard feature. FCI's reliable, small line air/gas flow meters and aid/gas/liquid flow switches combine state-of-art electronics technology with application fluid-matched flow sensors and laboratory calibration in rugged packages.

Fluid Components International

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40030

Process Pressure Transmitter

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Oil and Gas Transport in Deep Sea

The Fraunhofer Institute for Production Technology IPT led the EU research project “ambliFibre” focusing on the manufacturing of special pipes and pressure vessels able to withstand the extreme conditions for oil and gas transport in ultra deepwater areas and the development of an innovative and reliable Industrie 4.0 control system

To transport raw materials from the seabed to the surface, pipes for the oil and gas industry, particularly risers, have to meet specific requirements. They are highly relevant to security because every single pipe must be able to fully withstand the enormous loads of deep-sea production. Hence, controlling the manufacturing process of wound thermoplastic fiber-reinforced pipes is extremely complex. The same applies to pressure tanks, which are used in the automotive industry for brake and suspension systems of trucks. The EU research project “ambliFibre”, consisting of thirteen international partners led by the Aachen-



the semi-finished product, i.e. the yet unmelted material, are in constant movement throughout the running process. A large amount of control data has to be calculated and transferred in real-time in order to ensure that the winding process is continuously running. That is the only way to guarantee that the material will not overheat while the individual layers are sufficiently welded to each other.

based Fraunhofer Institute for Production Technology IPT, focuses on the manufacturing of these pipes and pressure vessels and aims to develop an Industrie-4.0-compliant, highly flexible and reliable control system.

Pipes used for oil and gas transport in the deep sea must be able to withstand extreme loads caused by waves and pressure while remaining resistant against corrosion and weathering at all times. Wound pipes made of fiber-reinforced plastics are particularly well suited for riser systems as they can also be used to transport oil and gas in ultra-deepwater areas.

The advantage of the material to the application of metal within these structures: The heavy-duty and very corrosion-resistant fiber-reinforced plastics substitute the metallic strengthening layers in multi-layered riser pipes, which leads to a reduction of their dead load. Considering that these pipes can have a length of two to three kilometers, this is a substantial advantage for the overall performance of the pipe system.

EVERYTHING UNDER CONTROL: SYNCHRONIZATION OF LASER AND WINDING SYSTEM

The laser, which is used for melting the matrix material during the winding process, has to release a precisely defined amount of energy into the process zone. Concurrently, the system and

In order to optimally synchronize all components of the system, the thermal characteristics in the process zone are recorded with a thermal imaging camera. Concurrently, a simulation software and data mining algorithms perform an analysis during the process. This allows for a precise determination of thermal energy that is required for the imminent welding process.

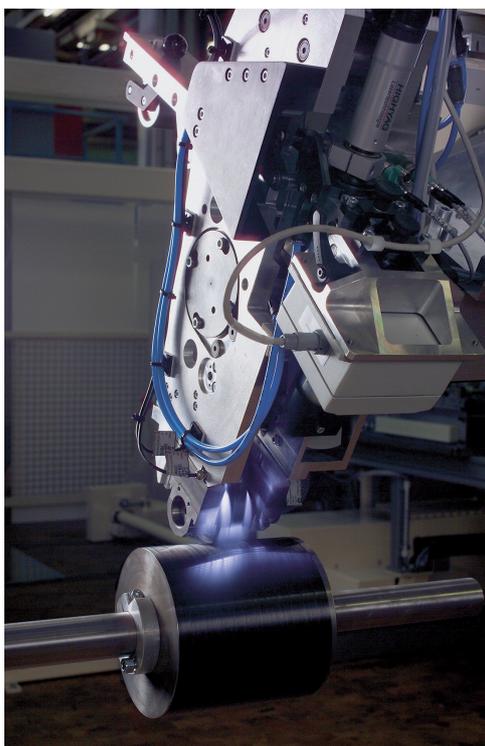
QUALITY MONITORING AND RESPONSE IN REAL-TIME

The networking of all system and software components through suitable interfaces and data processing is a prerequisite. Data is consistently structured and imported into databases, then sorted and evaluated by appropriate analytical methods. These include reliability analyses, which can prolong the lifetime of the overall system, as well as lifetime inspections for the manufactured products that also take into account the upstream and downstream stages of the process.

The “ambliFibre” project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement no. 678875.

Fraunhofer Institute

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MASS FLOW CONTROLLERS

Integrated into a gas connection module



Alicat Scientific's MCE mass flow controllers have been integrated into MDC Vacuum Products' XpressStick™ MFC Gas Stick. With precision control of gas flows of up to 20SLPM and onboard display, Alicat's MCE provides gas

programming functionality to the gas connection module, which links pressurized gas inputs to vacuum chambers. The all-in-one design of the XpressStick MFC gas stick eliminates complex hardware specification in processes which include a combination of specialty gases, pressure, precise regulation, and vacuum. Its easy programming and precise gas control system allows users to go from bottle to process in one simple step.

Alicat Scientific

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COMBUSTION GAS ANALYZER

For emissions monitoring, maintenance and tuning



The E6000 from **E Instruments** is a NEW hand-held industrial combustion flue gas and emissions analyzer that can have up to six gas sensors. The E6000 is an innovation portable emissions monitor for accurate measurements of stack gases from combustion processes including boilers, burners, gas and diesel engines, turbines, furnaces, kilns, heaters, and laboratory analysis. E6000 features include: Up to six

gas sensors O2, CO, NO, NO2, SO2, CxHy, H2S; Dilution pump for CO; Auto-range measurements up To 10%; Low NOx capable with 0.1ppm resolution and high accuracy; Gas sensors are Pre-calibrated and field replaceable; Full color.

E Instruments

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INLINE 2-PATH ULTRASONIC FLOWMETER

For elevated process temperature and pressure



With the new Optisonic 4400, **Krohne** introduces an inline 2-path ultrasonic flowmeter for flow measurement at elevated process temperature and pressure. It is available in two versions: high temperature (HT) and high pressure

(HP). With a full bore/unobstructed sensor tube and their large dynamic range, both Optisonic 4400 versions feature an excellent long term stability and perform with minimum operational and maintenance costs. The dual parallel path design provides information about the flow profile and can also compensate for varying flow profiles. The rugged and fully welded construction without moving parts is complemented by protected cables.

Krohne Messtechnik

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ADVANCED DATA MONITORING

To manage oil field operation



Leroy-Somer released a new variable speed drive with Advanced Data Monitoring and Logging features, that allow to efficiently manage site operations and easily anticipate trips and failures. The advanced DML gives the possibility to centralize all well data

(drive, downhole and head) in the drive where a powerful interface will provide months of logging. This interface analyzes the data giving the possibility to flag deviations of any of the parameter logged (programmable slope). Customers then have the possibility to define combinations of flags to generate as many intelligent alarms as requested. Amount of information communicated to the operator is considerably reduced which improves its reactivity.

Leroy-Somer Emerson

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TUBE FORMING SYSTEM

To create reliable connections



The patented tube forming system **Stauff Form** - the latest addition to the Stauff Connect tube connection range - features exceptionally easy installation and a particularly high level of reliability. A contour is formed onto the end of a seamlessly cold-drawn precision steel tube or

stainless-steel tube using a machine with electro-hydraulic drive. The Stauff form ring is then pressed onto the formed tube end with a fixed and therefore captive elastomer seal. This creates a positive connection providing a reliable, permanent and maintenance-free seal on the only possible leakage path when used in combination with a standard fitting body with a 24° inner cone and a ISO-compliant union nut.

Walter Stauffenberg

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Stand 8814

INFRARED CAMERA SYSTEM

For continuous pilot flame monitoring



LumaSense FlareSpection system is designed to provide the clearest flare image and pilot flame monitoring for applications with multiple flare tips in close proximity. This thermal imaging system enables users to confirm flare operation remotely and automatically, detecting differences in heat signatures

of the flare stack. Designed with special spectral ranges, calibrations, and optics, this system is able to focus clearly through moisture, heavy rain, and fog at even great distances. The high-resolution camera is protected in a rugged stainless steel enclosure with an integrated site tube to prevent dust and dirt on the window.

Lumasense Technologies GmbH

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Stand 13056

PUMP FOR HIGH PRESSURE APPLICATIONS

Up to 103 Bar



The new Bran+Luebbe CEREX P-range pump from **SPX Flow** is designed for high-pressure applications up to 103 Bar, and all pumps are fitted with special PTFE diaphragms designed to ensure a long-life product. Unlike

the NOVADOS range of Bran+Luebbe pumps, the CEREX range is a standardised product that ensures low cost and instant availability. SPX FLOW anticipates that the new high-quality, low-cost and ready-made pumps will be very popular with the oil and gas industry, which has seen a flurry of new projects starting in recent months due to an upturn in the market. Bran+Luebbe is a brand owned by SPX FLOW since 2001, and has been manufacturing pumps since 1932.

SPX Flow

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Stand 4470



CORROSION INHIBITOR

For pipeline casings



CorroLogic® VpCl® filler patented is an innovative environmentally friendly solution designed by **Cortec** to fill and protect annular

void spaces between pipelines and their casings from corrosion for long periods of time. The two-part system combines a liquid Vapor phase Corrosion Inhibitor concentrate with a powder gelling agent. After the liquid VpCl® concentrate is mixed with water, the gelling agent is added to the liquid stream as the VpCl® solution is discharged from the tank and pumped into the structure. The product then turns into a gel at a predetermined set time inside the void space being protected. Little or no surface preparation is required, and the product can be removed by washing it off the metal surface.

Cortec® Europe

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Stand 11040

LED TECHNOLOGY

For hazardous location warning signals



E2S Warning Signals will be demonstrating at Adipec their extensive range of alarm horn sounders, beacons, loudspeakers and call points for fire and gas warning systems in offshore and onshore hazardous installations. The stand will feature key products from their

extensive hazardous area ranges, in particular the new generation LED beacons in the 316L stainless steel enclosure STEx family and the corrosion proof GRP enclosure GNEx range. The 'STExLD2' and 'GNExLD2' beacons offer multiple flash modes with high and low power steady modes, ensuring suitability for both warning and status indication.

E2S Warning Signals

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Stand 8423

FIRE AND GAS DAMPER

For use in offshore and marine ventilation system



Halton FDA fire dampers are type-approved class A0(A60) fire and gas dampers for use in offshore, marine and navy ventilation systems. The FDA can be installed in rectangular or circular ducts. All fire dampers have a fusible link and they prevent the spread of fire

and gases within the ventilation ductwork. When the blades are in the open position, the device does not cause significant pressure loss, noise or flow disturbance. An open-closed indicator is visible on the outside of the damper. Fire dampers with non-standard dimensions can be supplied on request.

Halton FDA

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Stand 7132





Young Adipec 2017 Invites First Edition Alumni

Nine young Emiratis from the 2013 edition were invited to participate in the current edition of Young Adipec Programme, with the aim of encouraging other students to launch their careers

Held under the patronage of His Highness Sheikh Khalifa Bin Zayed Al Nahyan, President of the UAE, hosted by the Abu Dhabi National Oil Company (ADNOC), and organised by the Global Energy division of dmg events, ADIPEC is one of the world's leading oil and gas events, and the largest in Africa and the Middle East. ADIPEC will be held at Abu Dhabi National Exhibition Centre from 13 to 16 November 2017.

Young ADIPEC takes place annually under the patronage of His Excellency Sheikh Nahyan Bin Mubarak Al Nahyan, Minister of Culture and

Knowledge Development, with support from the Department of Education and Knowledge – previously Abu Dhabi Education Council (ADEC).

Nine young Emiratis, who took part in the very first Young ADIPEC Programme of the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC), will be returning to this year's event to encourage others to follow in their footsteps as they launch their careers.

2013 ALUMNI TAKE FLOOR

The students, who were all part of the first edi-



tion of Young ADIPEC in 2013, will attend the 2017 edition as part of a new Young ADIPEC Alumni initiative. They will speak at the Young ADIPEC Forum – a series of TED-style talks designed to engage and inspire young people to pursue energy-related careers – with panellists sharing the experiences that influenced their educational choices, as well as their hopes for the future. Each of the students credits Young ADIPEC with helping them make a positive choice at a time when they were unsure about which path to take in life.



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Pushing the Boundaries of Lubrication Demand

Reducing cost of ownership while increasing power efficiency are two of the main goals for today's OEMs. This translates into a higher demand for lubricants which offer a well-balanced formulation that can maintain engine health and provide extended oil drain intervals

PCN Europe: ExxonMobil has recently launched the Mobil Pegasus™ 1100 series: can you tell us about the main benefits of this new product series?

I. Reuser: Gas engine development is pushing the boundaries of engine design so that operators can get the most out of their engine. All of these factors place significant demands on lubrication.

The Mobil Pegasus™ 1100 Series is inspired by major OEMs and engineered to keep up with latest gas engine developments. It can help extend oil drain intervals by up to 1.5 times while also maintaining engine protection and cleanliness. The series itself consists of Mobil Pegasus™ 1105 and Mobil Pegasus™ 1107.

PCN Europe: Mobil Pegasus™ 1107 and Mobil Pegasus™ 1105: can you describe the characteristics of these solutions?

I. Reuser: Both lubricants have a well-balanced formulation helping to extend oil drain intervals (ODIs) by up to 1.5 times when compared to conventional mineral oils.

Following comprehensive industry and bench testing, the lubricants exhibited excellent oxidation and thermal stability, which helps to extend oil life. The series' outstanding anti-wear characteristics help reduce wear of engine components and scuffing of liners in highly loaded gas engines. In addition, the oil controls varnish formation and carbon deposits helping to maintain engine cleanliness.

This new product series is supported by the technical expertise offered through our Field Engineering Services. All of which is designed to offer customers effective lubricant solutions that ultimately help to improve their profitability.

PCN Europe: Which are the most important OEMs that are testing/ have already approved this series? And which applications can the Mobil Pegasus 1100 series be used for?

I. Reuser: Crucial to our ability to stay up to date with the latest trends and meet changing customer needs is our close collaboration with Original Equipment Manufacturers. These oils are suitable for a range of OEM natural gas engines and appropriate OEM tests are underway - the results so far are very positive. We were also pleased to announce that ExxonMobil is now a preferred global lubricants supplier for GE's Jenbacher Type 2, 3 and 9 natural gas engines. As part of this new global collaboration, ExxonMobil will help owner-operators of GE Jenbacher gas engines enhance equipment performance through the use of its Mobil Pegasus™ family of premium natural gas engine oils. The series is designed to protect today's high output, low emission, four-cycle gas engines. Both products are designed for high severity natural gas engines and meet the specifications for all piston types.

PCN Europe: As regard the market, do you see any differences between the European one and the rest of the world?

I. Reuser: Europe is an important market for unconventional energy sources with more than 17,000 biogas plants recorded by the end of 2014. The rate of growth has been particularly strong in Germany and the UK.

In the face of new engine design developments and use of varying gas sources, energy companies have to react to these challenges. They can do this by offering smart solutions for gas engine operators, to help optimise performance and reduce maintenance costs no matter the geography - in Europe as well as globally.



Inken Reuser, Industrial Marketing Advisor, EAME.

PCN Europe: What do you see for the future of these new products? Have you already received any feedbacks from your customers or competitors?

I. Reuser: It's an exciting time for gas engine development. The physical boundaries of engine design continue to be pushed, in an effort to increase power efficiency and reduce the cost of ownership. These changes directly translate into high demands for next generation lubricants. The Mobil Pegasus™ 1100 Series has been specifically designed to keep up with the latest gas engine developments and feedback to date has been very positive. We look forward to sharing customer success stories in the near future.

For more information:

<https://www.mobil.com/en/industrial>

Marta Roberti

ExxonMobil Fuels & Lubricants

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Automatic Lubrication System To Prevent Downtime

BMW Regensburg installed in its plant, on a large ventilation fan, a multi-point automatic lubricator from Schaeffler, the FAG CONCEPT8, that helped save from 5 to 6 hours maintenance per month

Inadequate lubrication can cause unplanned downtime which results in costly stoppages to production. To prevent it, BMW Regensburg installed the FAG CONCEPT8 multi-point automatic lubrication system from Schaeffler on a large ventilation fan at its paint facility. The BMW Group is one of the world's leading manufacturers of premium-class passenger cars. Since being put into operation in 1986, the BMW plant in Regensburg, Germany, more than 6 million cars have rolled off its production line.

A DOWNTIME CHALLENGE

In the paint facility at BMW Regensburg, large belt-driven radial ventilation fans are installed to remove waste air from the paint process. The current high demand for BMW vehicles means that the paint shop works around the clock in a three-shift operation. Every production stoppage reduces the number of vehicle paint jobs that the facility can complete, which in turn

interrupts the outgoing supply of vehicles. Several hours' downtime of the drive-side rolling bearings on one of these fans was deemed as unacceptable to BMW. This downtime had been caused by over-lubrication of the bearings. Due to a large volume of lubricant being added manually on one occasion, the temperature following re-lubrication increased sharply from 55°C to 80°C. This led to a disproportionately high level of stress on the lubricant that was used, which in turn resulted in premature failure of the bearing. Following this, BMW's objective was to improve the fan's availability by optimising the supply of lubricant to the fan bearings. In addition, there was a requirement for re-lubrication of the bearings without having to shut down the fan, which would disrupt production.

SOLUTION: MULTI-POINT AUTOMATIC RELUBRICATION

Schaeffler and sales partner Altmann recommended that BMW install a FAG CONCEPT8 automatic lubricator on the fan housing. This multi-point lubricator could be adjusted to provide four different lubrication volumes to cater for rolling bearings with varying lubrication requirements. FAG CONCEPT8 ensures a constant, optimum supply of grease to rolling bearings without the need for manual intervention, particularly if machines are located in difficult-to-access areas or are deemed as critical to the production process.

FAG CONCEPT8 provides up to eight separate lubrication points for dispensing precisely metered quantities of lubricant to rolling bearings. The system can dispense lubricant to rolling bearings in a range of industrial equipment, including pumps, fans, compressors, gearboxes,



The FAG CONCEPT8 multi-point automatic lubricator.

electric motors, machine tools and wind turbines.

FAG CONCEPT8 is fitted with four pairs of lubrication points (eight in total), which are controlled by four individual dispensing pumps. This means that users are able to individually control each pump in order to optimise cycle times and volumes of dispensed lubricant. The system can therefore be adjusted to meet up to four different bearing sizes, each with varying lubrication requirements. Rather than having to purchase multiple single point lubricators to cope with different bearing lubrication requirements, users can buy just one FAG CONCEPT8.

SAVINGS OF 5-6 HOURS' MAINTENANCE PER MONTH

Due to this improved supply of lubricant to the fan's bearings, BMW Regensburg is now able to avoid unplanned fan downtime due to inadequate lubrication and therefore any unwanted production stoppages. At the same time, servicing and maintenance have been reduced, as the fan can continue to operate even while lubrication is being carried out, which saves the Regensburg plant around five to six hours of maintenance each month.

Schaeffler

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The ventilation fan for the paint facility at BMW Regensburg.

Failure Analysis of Packing Cups

In this article, the metallurgical investigations such as micro-structural and fracture surface studies are presented for hyper compressor case

Authors: Shiva Molaei, Failure Analysis Engineer at Razi Metallurgical Research Center, Tehran, Iran
Mitra Attarian, Manager of Failure Analysis at Lab Razi Metallurgical Research Center, Tehran, Iran
Peyman Shojaei, Head of in Inspection Laleh at Petrochemical Co., Bandar-e Mahshahr, Iran

INTRODUCTION

High-pressure reciprocating compressors pressurize various gases up to pressure ranging from 67 MPa (10 ksi) to greater than 345 MPa (50 ksi).

The Hyper Compressor is a machine for Low Density Polyethylene (LDPE) production that compresses Ethylene with discharge pressure up to 350 MPa (50 ksi) (Fig. 1).

The gas leakage must be controlled in order to obtain the desired discharge pressures. The high pressure packing is designed for this purpose and is made a series of packing cups and packing rings (Fig. 2).

The high pressure packing is operating under cyclic stresses varying between suction and discharge. Therefore, fatigue failure of the packing cups is the most common cause due to their stress conditions.

To improve the reliability of hyper compressor,

wide range investigations were performed in the design of packing cups. The packing cups consist of two disks which are assembled by shrink fitting and in case by using auto-frettage in order to prepare the pre-stressing in this component (Fig. 3).

Moreover, the material selection is more important to increase the wear resistant and fatigue life of this pressure vessel. On the other hand, the safety of packing cup depends not only on design but also on the quality of material, finished surface and the fatigue strength. In order to increase the quality especially for elimination of defects, the very large forgings in high-strength steel alloy are required to develop the casting of the original ingot and its subsequent forging.

The stress analysis of the packing cups considering the service state is a useful guideline to choose the proper material. The fatigue

strength of utilized metals is an important key to prevent the future damages. The fatigue crack initiations are from surface defects such as fretting and machine marks. Maggi et al. showed that the typical failure modes of packing cups are tangential or radial.

The sensitivity to fracture increases when the surface defect is placed at critical points such as seal ring housing and lube oil ducts. Giacomelli et al. studied on the effect of influenced parameters on stress distribution at these points.

In this paper the failure causes of two fractured packing cups are investigated. These two are the second and third packing cups from eight starting from head end. All cracks are identified by using Magnetic Particle Test (MPT). The fractured surface of one of the cracks is investigated by Scanning Electron Microscopy (SEM). The mechanical properties of the material are studied to estimate the fatigue strength of the



Figure 1. Hyper Compressor for LDPE production.

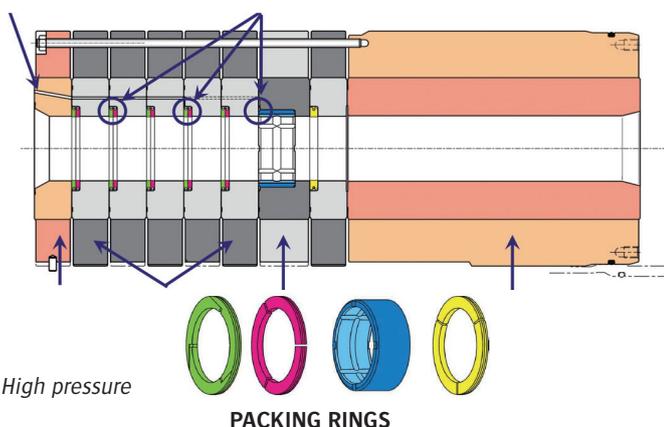


Figure 2. High pressure packing.

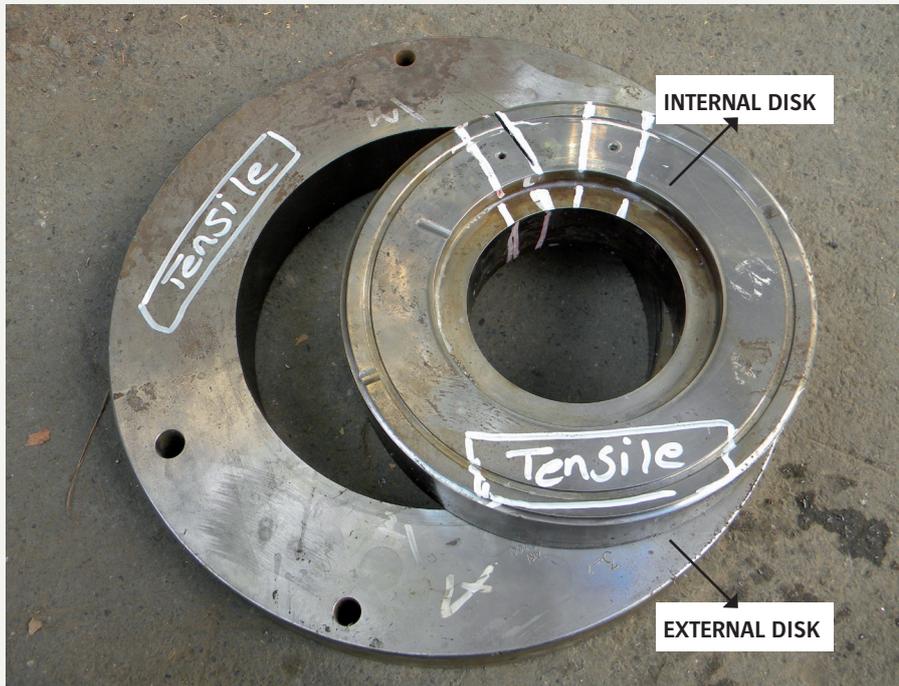


Figure 3. Packing cup disks.

mechanical properties of the internal disk of packing cups are shown in Table 1. The selected nickel-chromium-molybdenum alloy steel is acceptable for high strength alloy steel forgings for pressure vessel.

It is observed that the radial crack is transgranular. In addition to the main cracks (radial cracks), some defects and cracks were also observed on the cup surface.

Observing the surface quality of lube oil ducts edge and some wear effects, it can be seen that fretting wear takes place on the hole edges due to high pressure of lube oil suction and discharge operations. Also, fretting wear happens on the surfaces of two close cups because of difference in radial deformation in secondary compressor operation. Moreover, one of the fretting cracks is fatigue crack in this failure.

The previous investigations exhibited the variations of pressure in the first three cups are larger than the rests. In addition, the lube oil pressure in lube oil ducts decreases from first cup to the final cup. Consequently, the first to third cups are sensitive to fatigue fracture because of more wear and high lube oil pressure. In this case study the second and third cups have been failed.

packing cups. The microscopic investigations are also carried out to study the microstructure and the metallurgical quality of the specimens. The stress state of lube oil ducts are calculated with both methods of fatigue beach marks and Lamé's equation. Moreover, microscopic analyses are performed to inspect the surface quality of critical points of packing cups.

In another specimen, the radial cracks are initiated from lube oil ducts (Fig. 4b.). The cause is the significance of the packing cup stress condition at the lube oil ducts. Therefore, the optimization of the packing cup with emphasis on lube oil duct zones is essential.

As a result, all investigations are focused on the internal disk. The material composition and

EXPERIMENTAL RESULTS

As it can be seen, all of the critical points of the packing cup are in the internal disk. MPT results indicate the tangential and radial cracks on internal disk of packing cups that initiated from critical zones (Fig. 4.). Figure 4a. shows the crack that is initiated from surface groove which at first propagates tangentially. Then, the propagation of the crack is changed. In other words, the crack leaves the tangential mode to radial mode at bore profile.

TABLE 1. MATERIAL COMPOSITION AND MECHANICAL PROPERTIES OF INTERNAL DISK (ASTM A 723/ A 723M-02 GRADE 3/ CLASS 3)

C	Si	Mn	Cr	Mo	Ni	P	S	Fe
0.18	0.21	0.48	0.92	0.54	3.60	0.006	0.003	Base
R_t Tensile stress (MPa)			R_m Yield stress (MPa)			%A ₅₀		
1153			1050			19		

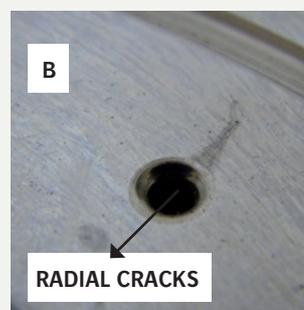


Figure 4. Failure modes of packing cups.

CONCLUSION

According to the obtained results in this research the selection of material plays a sensitive role in industries.

It can be achieved by considering the geometrical design of components, stress state of service condition and other manufacturing important items.

In high-pressure reciprocating compressors the fatigue resistant of packing cups material is necessary to prevent future damages. The choice of material should be performed based on material tensile strength, fretting and abrasion resistance properties.

Offshore Maintenance and Leak Detection

Visual inspection technology leading supplier Inspectahire selected Flir GFx320 for maintenance inspections and hydrocarbon detection jobs, in hydrocarbon production plants

Inspectahire offers equipment rental, contracting and project engineering services supported by a team of skilled engineers who have a wealth of inspection knowledge and experience. Their expertise extends to a wide range of equipment and assets, both onshore and offshore, and in all environments – including harsh and hazardous. All Inspectahire's inspection solutions are carried out in accordance with ISO 9001 best practices.

OIL & GAS INDUSTRY

Having worked for three decades in the Oil & Gas industry, both in the North Sea and worldwide, Inspectahire has built up a strong expertise in this sector. Safety and cost are two of the biggest concerns in the offshore oil and gas industry today. Inspectahire aims to tackle those challenges by using the best technologies available. "The offshore oil and gas industry are proactive in their search for the best technologies for detecting emissions that may affect the safety, profitability and environmental impact of their assets," comments Cailean Forrester, Managing Director of Inspectahire. "At Inspectahire we strive to identify and offer the best available technological solutions for all remote inspection scenarios."

SAFETY & ECONOMY

Dangerous gas leaks are a concern to every oil and gas production plant. Not only do some of the gases harm the environment, but the leaks also cost companies substantial amounts of money. "The company has been



Inspectahire has been using optical gas imaging cameras for a long time to detect dangerous gas leaks

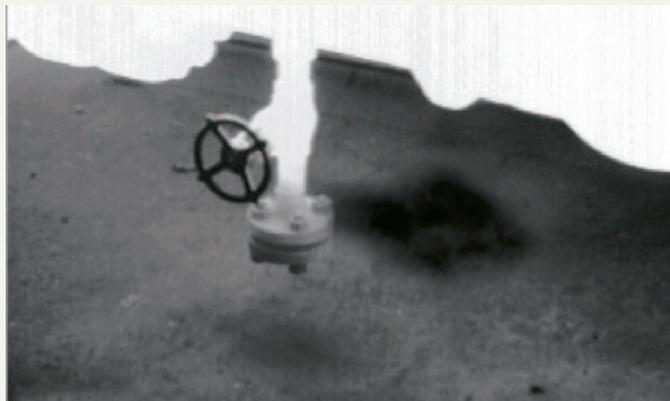
using optical gas imaging cameras for a very long time to detect dangerous gas leaks," comments Cailean Forrester "Thanks to optical gas imaging cameras, we can easily detect gases in difficult to reach or hazardous locations. And we can help companies prevent costly downtime of their production plant."

WHO IS INSPECTAHIRE

Established in 1981, Inspectahire is a leading international supplier of specialist remote visual inspection technology and solutions to companies in many industries around the world. Supported by the most advanced technologies around, Inspectahire helps its customers manage their safety, profitability and environmental impact of their assets. When the company is tasked with the detection of fugitive hydrocarbon emissions, FLIR's GFx320 Optical Gas Imaging (OGI) camera is their preferred technology to use.



Thanks to optical gas imaging cameras, Inspectahire can easily detect gases in difficult to reach or hazardous locations.



With the GFx320 camera, you can keep a safe distance and still detect gas leaks with great precision.

CONTACT MEASUREMENT TECHNOLOGIES VS. OPTICAL GAS IMAGING

“We have been using certain contact measurement tools like laser detectors or leaks sniffers,” says Cailean Forrester. “But the problem is that you have to go right up to the object, which is not always safe or even possible. In other words, this approach is limited and not very precise. With an optical gas imaging camera like the GFx320 however, you can keep a safe distance and still detect gas leaks with great precision.”

SAFETY ZONE 2 COMPLIANT

The Inspectahire team is using the GFx320 for maintenance inspections and hydrocarbon detection jobs, in hydrocarbon production plants or for the inspection of any material that uses hydrocarbon as a fuel. The GFx320 camera is able to scan a broader area much more rapidly and monitor areas that are difficult to reach with contact measurement tools. “If a hydrocarbon leak is there, you will certainly see it with the GFx320 camera, even if it is a small one,” comments Cailean Forrester. ‘Small leaks can become big ones, that is why it is important to be able to detect them in an early stage. With the GFx320, we are sure of an accurate and reliable detection.’”



Small leaks can become big ones, that is why it is important to be able to detect them in an early stage.

In addition, the GFx320 greatly improves operator safety, because it allows users to detect emissions at a safe distance and it enables them access Zone 2/Class I, Div II areas, potentially eliminating the need for hot work permits. A zone 2 area is any place where an explosive atmosphere may occur, due to flammable gases or vapor, in quantities that require people to take special safety precautions. A zone 2 area is defined as such, that the explosive gas atmosphere is not likely to occur in normal operation and, if it occurs, will only exist for a short time.

Flir System

▶▶ 53660 at www.pcne.eu

GFX320 OPTICAL GAS IMAGING (OGI) CAMERA

The GFx320 optical gas imaging camera has been tuned to visualize more than 400 fugitive emissions that are impossible to see with the human eye. With the potential to detect gases leaking at just 0.4 g/hr, the GFx320 meets sensitivity standards defined in the US EPA’s OOOOa methane rule.

Unique to FLIR is the company’s High Sensitivity Mode (HSM), which employs proprietary video processing techniques, for a 5x increase in leak detectability.



The FLIR GFx320 Optical Gas Imaging (OGI) camera

Hazardous-Location Certified

The GFx320’s third-party safety certification allows inspectors to work with confidence, knowing that once they scan a hazardous area and deem it safe, they can enter with the camera in hand. The GFx320 streamlines access for inspectors, potentially eliminating the need for hot work permits in Zone 2/Class I, Div II areas, depending upon company protocols.

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Can a Timing Belt Improve Pumps Performance?

The German pump manufacturer Netzsch Pumpen & Systeme employed Contitech belt drive to increase the efficiency of its rotary lobe pump and reduce maintenance in sensitive applications, like Food & Beverage

ContiTech heavy-duty timing belts can significantly improve the performance, installation and maintenance of pumps in sensitive applications. For example, the T2 series, the second generation of the Tornado rotary lobe pump manufactured by Netzsch Pumpen & Systeme GmbH from Waldkraiburg, Germany, uses a belt drive instead of the usual timing gear.

In this application, a ContiTech heavy-duty timing belt from the Synchroforce family transmits the torque from the motor to the two rotors while synchronizing their rotation at the same time. The pump therefore operates entirely without oil; no need for lubrication and oil changes, while contamination of the conveyed material and pollution of the environment are ruled out.

The belt drive also enables the pump to be very robust and low-maintenance since the hard-soft contact between the belt and the sprockets ensures very smooth running.

Should a fault nevertheless occur, the belt can be removed by loosening just two bolts and be replaced within just a few minutes without any special tools.



Netzsch's T.Sano pumps use heavy-duty timing belts from the ContiTech Synchroforce family. © ContiTech



The T.Sano pumps from Netzsch are used especially in the beverage industry, filling rates of 11,000 bottles per hour are the rule. ©Netzsch

T2 PUMP SERIES

The T2 series' particular drive form enables an especially compact design with a comparatively low weight and extremely shallow depth. The unit can therefore be installed even where space is tight. This can be seen in the T.Sano, a pump from the T2 series that Netzsch



The ContiTech timing belt transmits the drive torque and synchronizes the rotors at the same time. This means it is not susceptible to faults and can be replaced within just a few minutes, if required. © Netzsch

developed specially for the food and beverage industry and for which, as a result, all the parts in contact with foodstuffs are made of stainless steel. The low-pulsation rotary lobe pump enables precise metering when bottling water or wine. At the same time, thanks to its continuous performance, it ensures a gentle, continuous material flow over the entire route conveyed, without pressure fluctuations or turbulence.

This means a sensitive product such as wine can be conveyed gently to maintain its quality from the storage vessel to the filtration or bottling line. Even champagne and other sparkling wines can be conveyed gently, retaining the pressurized carbon dioxide, as demonstrated by the use of a T.Sano pump in a winery in Northern Italy.

The really compact dimensions of the T.Sano pump made possible by its belt drive also enable it to be used in mobile applications, a facility which a number of wineries and breweries are already making use of. They can use just a single pump to pump material from various tanks, as required.

ContiTech

►► 53661 at www.pcne.eu



Screw Pump for Community Peacekeeping

Mahanoy City, Pennsylvania, replaced the old pump units of its Wastewater Treatment Plant with two brand new 84" diameter enclosed Type C screw pumps from Lakeside

It's oh-so-quiet at the Mahanoy City Wastewater Treatment Plant in Pennsylvania. Unless you'd been told otherwise, you wouldn't know that close by, a 36 inch diameter pump is operating night and day in a giant concreted basin.

And even when one of the two larger screw pumps (84" diameter) is also being put through its paces, remarkably there's still a kind of a hush.

With the town's school district just 300 feet away, this very well-run treatment plant is a good neighbour.

FAIL AND REPLACEMENT

Today, the original 36" diameter raw sewage enclosed screw pump, which had become increasingly unreliable, failed twice, ultimately giving the plant operators no option but to look for a more sturdy and efficient alternative. The heavy-duty enclosed Type C screw pump from Lakeside Equipment Corporation was chosen - a design with two convoluted flights that are welded to the rotating outer tube, with the lower bearing mounted above water level. Designed for trouble-free operation, with options for either an open or enclosed design,



Lakeside Screw Pumps lift large quantities of water or wastewater at low heads for applications such as return activated sludge or storm water pumping. The Open Design consists of the spiral screw, upper and lower bearings and a drive arrangement, using a tube and spiral flights set in an open, inclined trough that permits both simplicity and reliability.

Lakeside Equipment Corporation

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Happy Medium, Happy Pump

Meeting the needs of high temperatures and viscosity handling is a real challenge. ONIXline Rotary Lobe Pump from Börger can keep up with demanding high pressures up to 16 bar and has no wearing parts

Finding that happy medium between a pump that can handle high temperatures but also handle highly viscous products appears to have taken a distinct turn for the better in the world of pump evolution.

As those, for example, in the coatings industry will know all too well, seal-less Magnetic (Mag) drive pumps are suitable for high temperatures and prevent any leakage of fluid, which is clearly important when dealing with chemicals and corrosive liquids. With their simple design, Mag pumps are considered 'reliable' and 'low maintenance', but when trying to deal with viscous fluids, this isn't the case at all. Magnetic drive pumps are also far more expensive than mechanical seal pumps. You also won't have to look too far to find a manufacturer of Twin Screw Pumps describe them as 'durable and low on maintenance'. True for durable, and for handling highly viscous products, true again, but a totally different story if it's a liquid that contains some solid particles. Less of a story and more of a nightmare with arduous and very expensive maintenance bills on top of a hefty purchase price.

It's also true that the seal is the weak point in standard Mechanical Seal pumps, which can lead to potentially dangerous leakage, but as David Brown from Borger Pumps explains, compared to magnetic drive pumps, there is far more scope for applications with viscous liquids.

NO WEARING PARTS

Available with interchangeable cartridge seals to suit a customer's requirements and seal plans, ONIXline can handle demanding high pressures up to 16 bar and has no wearing parts. It benefits from superior rotors that promote maximum energy efficiency through gentle, almost pulsation-free pumping.

An example of the benefits it can bring has been seen just recently at a manufacturer of plant protection products, which uses the pump for conveying medium with a viscosity of up to 150,000 mPas.

SIMPLE TOOLS

David Brown continued: "Here, the duplex stainless steel pump removes the 'melt' being

formed in a thin-film evaporator and pumps it to a disperser. Now, with Maintenance-In-Place (MIP) designed in, routine servicing is much, much easier, with simple tools and very little downtime compared to other pumps".

For this plant protection application, stainless steel rotors are utilised for the highly viscous media. There is a low pulsation and a speed of just 20 rpm. The medium has a temperature of up to 140 °C and must not cool down during the pumping process. For this reason, a heater cover is installed on the pump, which heats the pump chamber to maintain a constantly high temperature of the medium.

David Brown explained that Lecithin is extracted from raw vegetable oil in a degumming process by a separator. The (up to) 90 °C hot lecithin mixture is then transported to a storage tank from where the Borger ONIXline pump conveys the mixture (with a viscosity of up to 5,000 mPas) into a 35m high tank. During the process, a pump pressure of approximately 10 bar is created. Animal feed is produced in the tank. For this purpose, the oil mill uses the lecithin-enriched press cake which has been separated from the rapeseed. Variable amounts of the lecithin mixture have to be added, depending on the liquid content of the press cake. The pump is driven by a frequency converter so that the speed and flow rate can be varied and adapted to the liquid content of the animal feed.

David Brown concluded: "This installation shows that the happy medium for high temperatures and highly viscous products is now possible – with lower capital and ongoing maintenance costs".



Börger

►► 53663 at www.pcne.eu

ROTARY SELECTOR VALVE

With 1/4-28 UNF and 10-32 UNF threads



Beswick is introducing miniature 4-port and 6-port rotary selector valves with 1/4-28 UNF and 10-32 UNF threads. The four and six port selector valves offer bidirectional flow switching between four or six ports. It is designed with one central inlet at the bottom of the valve and four or six outlets on the perimeter of the valve

body. Simply push the flat on the knurled knob while turning the knob to select the active port. Flow can also be directed from one of the outlet ports to the single inlet port. It is suitable for use with most liquids and gases (when a compatible o-ring material is selected). Available in both 10-32 and 1/4-28 threaded designs.

Beswick Engineering
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METAL-SEATED BALL VALVES

Provide tight shutoff



Emerson Automation Solutions introduces the Fisher™ Z500 line of metal-seated ball valves to its severe service portfolio. Fisher Z500 metal-seated valves are engineered to withstand higher temperatures, pressures, and more

erosive conditions than a standard on/off ball valve, providing increased reliability and protection of critical assets in demanding applications. A patented, bi-directional sealing design offers a unique solution to process back pressure and shutoff requirements in both flow directions, safeguarding control valves and other equipment in the line. Fisher Z500 valves are designed with an integral metal seat and self-energised metal body gasket.

Emerson Automation Solutions
 ▶▶ 53677 at www.pcne.eu

HYGIENIC ROTARY LOBE PUMP

With oil-free design and operation



The new design of the TORNADO® rotary lobe T.Sano® from **Netzsch** has a completely smooth housing compared to the previous model, which attracts barely any dirt or dust. In addition to materials and cleanability of the pump area,

great emphasis is placed on the outer contours of the components in the production process of the food and hygiene industries. To ensure that no dust can accumulate, the pump housing must also be designed without superfluous corners, edges and dead spaces. The range of the TORNADO® rotary lobe pump T2 all-metal is interesting for food manufacturers due to its lack of dead space and also due to its oil-free design and operation.

Netzsch Pumpen und Systeme
 ▶▶ 53679 at www.pcne.eu

HIGH TORQUE DISC VALVE MOTORS

For low and medium duty applications



Eaton has launched its Xcel series low speed high torque disc valve motors designed for low and medium duty applications to optimise performance with value and reliability. XL2 and XL4 motors share a three-zone design

allowing true bi-directional operation and a case drain facility that improves resistance to pressure spikes and extends seal and motor life. The motor's easy-to-design-in features and displacements makes it an ideal solution for applications with more generic design needs. Many applications demand a mix of higher and lower rated motors for different functions. This means either having multiple suppliers or compromising price or performance of motors from one supplier.

Eaton Hydraulics
 ▶▶ 53676 at www.pcne.eu

VALVELESS FLUID TRANSFER PUMP

For analytical instrumentation



Fluid Metering International's Valveless, Fluid Transfer Pump integrates CeramPump® pumping technology with the long life performance of a brushless DC motor and integral driver electronics. All that is needed is a simple 24VDC input power supply

making FMI's Fluid Transfer Pump an easy drop-in for existing instrumentation designs. FMI's unique CeramPump® valveless piston fluid control technology utilizes one moving part, a rotating and reciprocating ceramic piston to accomplish all fluid control functions within the pump, thereby eliminating the need for check valves typical of reciprocating pump designs.

Fluid Metering
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AIR-COOLED COMPRESSORS

Generate a flow rate of 420 m³/h



Sauer Compressors presents the BREEZE WP323LM Basic air compressor. This three-stage air-cooled compressor generates a flow rate of 420 m³/h with a final pressure of 40 bar (g) and a power consumption of 90 kW. It is one of

four medium pressure models from a newly developed compressor series for industrial applications. The BREEZE series is based on a flexible modular system consisting of several crankcases with three to five cylinders. Thanks to its nine cylinder/piston combinations, the series covers a wide output range and meets numerous customer requirements. The air-cooled compressors from the new BREEZE series offer the CubeCooler concept.

Sauer Compressors
 ▶▶ 53680 at www.pcne.eu

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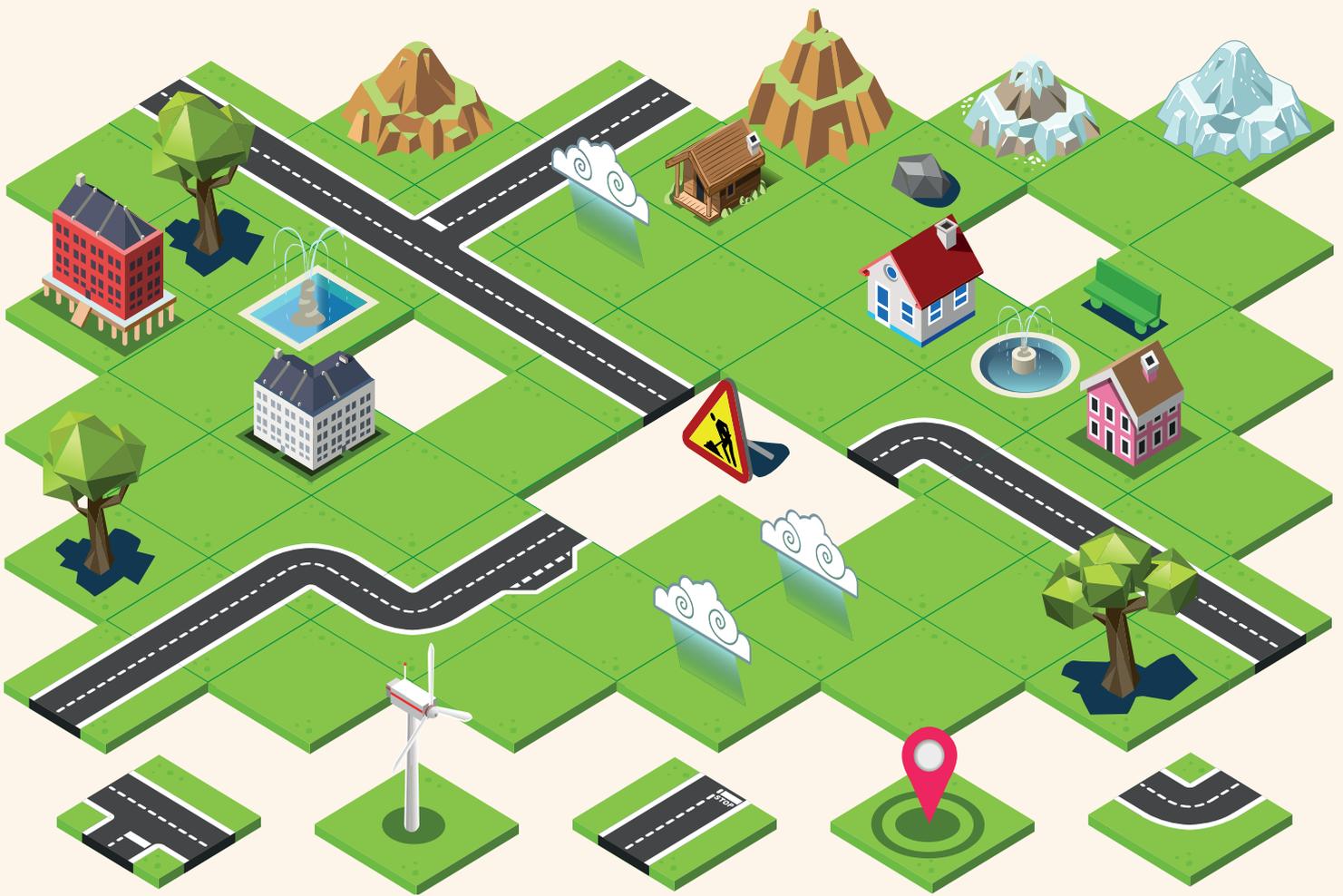
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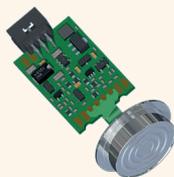
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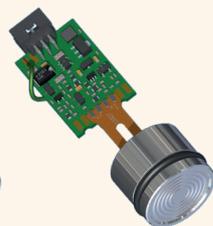
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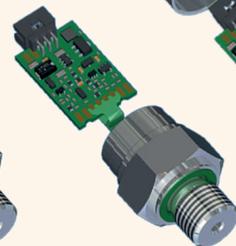
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