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processing & control news

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Kay Petermann  
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Dear Reader,

Things are changing fast at the moment, faster than the most of us thought possible only some weeks ago. Therefore, most people are avoiding to make concrete predictions about when we will be back to normal conditions. But one thing is for sure, if times and circumstances



are unreliable, the sources of information you have should be reliable ones. We want to be such a reliable source for you, with this magazine and the website pcne.eu. We have searched the field for relevant information about products and solutions that can assist you and your colleagues in your daily work and hopefully also bring new ideas and insights to you.

In our Measurement Technology focus we put together some interesting developments and evolutions, for example you can find on page 8 an editorial about guided wave radar level management and how digitalization makes the set up for this technology much easier. The report on page 16 shows an example how pressure gauges can be both, analog and digital in one and on top they are able to communicate over a long range wirelessly.

I hope you will have an interesting time with this issue and as usual: Please contact me, if you have feedback for us or an idea for a story, to share with all readers.

Editor of PCN Europe

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Creating a new hygienic production facility that includes ATEX zone 1 areas is a complex task, especially when the facility will need over 1,400 control valves.



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## New Player in Flow Technology

Celeros Flow Technology has been launched as a standalone company following the divestiture by SPX FLOW, Inc. of its Power & Energy division to an affiliate of funds managed by private equity company Apollo Global Management, Inc. Commenting on the launch of the new company José Larios, CEO of Celeros Flow Technology, says: "Celeros Flow Technology has been established with the objective of radically altering the flow technology landscape. Our aim is to serve as a full-lifecycle optimization partner and as an experienced advisor to our customers on all matters concerning the world's critical flow systems. "By leveraging the talent, experience and enthusiasm inherent in our team, we deliver superior mission-critical flow control technology and services that extend the long-term effectiveness of our customers' systems, boost productivity levels, reduce operational expenses and maximize return on investment." Celeros Flow Technology is focussed on supporting customers operating in diverse end markets such as: conventional, renewable and nuclear power, oil and gas (both onshore and offshore), petrochemical processing and water treatment; as well as those building and operating marine vessels for commercial and defense applications. The Celeros Flow Technology portfolio comprises the M&J Valve, ClydeUnion Pumps, Copes-Vulcan, Plenty, Dollinger, Vokes, Airpel, and GD Engineering brands. Together they employ more than 1800 people at 20 sites globally.



## Growing Black Market for Illegal Gases in the EU

There is a growing black market for illegally imported HFC (hydrofluorocarbon) gases. Illegal HFCs are brought into Europe outside of defined quotas set in place to help combat climate change through the EU F-gas Regulation. This regulation entered into force five years ago this year and is targeting a 79% reduction of F-gas use by 2030, with the intended effect of stimulating the transition to alternative solutions. "Illegally imported HFCs undermine climate efforts made by governments, industry, the refrigerant value chain and end consumers," says Tim Vink from Honeywell, member of the European FluoroCarbons Technical Committee (EFCTC). "Because of the current lack of enforcement at the EU's borders, Europeans may unwittingly and unwillingly be supporting organised crime and disrupting the effort to reduce greenhouse gas emissions." The EU F-gas Regulation bound industry to progressively reduce HFCs through a strict quota system. Five years on, it is time to take stock of the progress made so far. While producers are committed to this phase-

down, multiple sources show that during these five years, illegal HFCs have flooded the European market, undermining European progress towards our climate goals. Customs officers regularly confiscate illegal HFCs, which are also offered in large quantities on the internet.



## Emerson and QRI to Deliver AI-Based Analytics to the Global Oil and Gas Industry

Emerson and Quantum Reservoir Impact announced they have teamed up to develop and market next-generation applications for artificial intelligence (AI)-based analytics and decision-making tools customized for oil and gas exploration and production (E&P). Together, the two E&P software industry leaders will help oil and gas customers embrace digital transformation technologies and harness vast amounts of data to optimize their reservoir management strategies.

The collaboration combines the power of Emerson's global reach and the world's largest independent E&P software portfolio with QRI's leading industry expertise in applying augmented AI, machine learning and advanced analytics for asset and reservoir management. "The combination of our technologies and deep E&P expertise in offshore, unconventional and mature fields results in a robust offering that can give customers a significant advantage in the marketplace," stated Steve Santy, president for E&P software at Emerson. As part of the ongoing collaboration, the companies will apply advanced computational technologies to help geoscientists and engineers make actionable and reliable field development decisions quickly, mitigating risks and leading to higher productivity and better performance.



## Warburg Pincus Completes Acquisition of Sundyne

Sundyne, a global leader in the design and manufacture of API compliant pumps and compressors has announced that leading global private equity firm Warburg Pincus has completed the acquisition of Sundyne, from BC Partners Advisors L.P. and The Carlyle Group. This acquisition was initially announced on January 6, 2020. Financial terms of the transaction were not disclosed. As stated in January, Sundyne's current management team led by CEO Mark Sefcik, will continue under Warburg Pincus' ownership. "Warburg Pincus' and Sundyne's interests align perfectly, and there is no better financial partner for Sundyne than Warburg Pincus," said Chief Executive Officer Mark Sefcik. "We are excited to continue to support our customers with our market leading product offering of highly engineered pumps and compressors with the strong financial backing of Warburg Pincus. We have already jointly-identified a number of ways in which Sundyne can accelerate growth and enhance opportunities for our customers, channel partners and employees. We will be focused on executing on these opportunities over the coming months."



## UNI-/BIPOLAR SIGNAL TRANSMITTER

Versatile device for use with different measurands



The 4184 universal uni-/bipolar converter is the ideal addition to PR's multifunctional 4000 series, as it is the world most versatile converter that can be operated by a detachable display for easy configuration and diagnostic. The module interfaces analog active signals or powers 2/3-wire transmitters from more

or less any field-device, such as pressure, flow and level transmitters, as well as, torque, position, current and acceleration sensors. This makes it the perfect interface for connecting devices like PLC, DCS, chart recorders and more. This is particularly useful, where customers are looking for a product to become site standard, where it is essential to secure a high-accuracy signal, eliminate noise issues, and provide a strong galvanic isolation protection. The module provides uni-/bipolar current and voltage output, or a passive 2-wire mA output. It has a fast < 20 ms response time and excellent 0.05% accuracy. It has configurable input limits controlling the output for increased safety and meets the demand from both NAMUR NE21 and NAMUR NE43. The handling of the module is safe, as changes can only be made in combination with an interface module. The 4501 Display/programming front allows access to your process data to locally monitor process values, device configuration and perform signal simulation.

►► 58978 at [www.pcne.eu](http://www.pcne.eu)

## HIGH-PERFORMANCE ACTUATOR CONTROL

Control and management with open fieldbus standards



**AUMA** has launched its new SIMA² Master Station, providing high-performance actuator control and supervision via open fieldbus standards. By optimising communications between field devices and host system, the SIMA² simplifies all aspects of configuring, controlling and managing actuators and other field devices over the plant's life cycle. While suitable for any type or size of plant, across all industry sectors, SIMA² Master Station is particularly beneficial for extensive sites with large numbers of actuators, such as tank farms and refineries. One Station can manage up to 988 actuators in four independent networks, arranged as loop or line topologies. Total cable length without external repeaters can be up to 296 km per network. The system supports Modbus RTU and Modbus TCP/IP to communicate with the host, linking to the actuators via either Modbus RTU or Profibus DP. Cycle times are extremely short, enhancing process efficiency. Integral Ethernet and OPC UA interfaces facilitate data exchange, ensuring future-proofing for IIoT applications. Multiple redundancy options maximise plant availability. Modbus RTU loop topology with built-in redundancy ensures communication even in the event of a cable break, for instance, while hot-standby architecture provides redundancy at system level.

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## HYGIENIC ENCLOSURES FOR VACUUM PUMPS

Ensuring highest standards for food environments



To guarantee that vacuum pumps are effectively protected from the used aggressive cleaning media in washdowns, **Leybold** has developed a series of Hygienic Enclosures. The vacuum specialist offers users these stainless steel

housings in seven different sizes, tailor made for each vacuum pump. In the food industry, vacuum pumps are often placed directly next to the processing and packaging lines and thus not implemented in the equipment. On the one hand, this leads to a higher vacuum performance because, losses in pumping speed over longer pipelines are avoided. A direct positive consequence of this, are shorter process cycles and a better product quality. On the other hand, unprotected pumps are directly exposed to aggressive cleaning media during the rinsing processes. Over time, this leads to corroded vacuum pumps, shorter life cycles, higher costs and ultimately even to food contamination. In order to counteract these risks, Leybold has developed a new protection concept with the Hygienic Enclosures. Encased by these stainless steel enclosures, the vacuum pumps can be positioned near machines and systems without any problems. All the enclosures are offered as a Do It Yourself kit and can be as well installed as commissioned by the user themselves without great effort.

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## SYSTEM SOLUTION FOR WATER ANALYSIS

Handling of routine water analysis in an easy way



The XD series of spectrophotometers from **Lovibond** lead in a new era. The UV and UV/VIS devices are a gain for every workplace in many respects. No matter whether they are used for disinfectant control, waste water

and raw water treatment, drinking water treatment, the analysis of boiler and cooling water or for pool water control and swimming pool water treatment: Water analysis has never been easier with the XD 7000 and XD 7500. Everything the user needs comes from a single source including the low-cost, barcoded cell test. Anyone can select the correct test method directly from the instrument. Using the external barcode scanner, the suitable analysis method can also be selected on reagent packaging, in the Lovibond Handbook of Methods or with specifically requested barcoded templates for your own SOPs. The instruments automatically recognise the most common cuvettes in the most common sizes, report the use of an incorrect cuvette or adjust the measuring range. This makes annoying detours and time-consuming extra work processes a thing of the past. The instruments of the XD series also offer support for analytical quality assurance. User-defined calibration, password control and automatic logging are just some of the options. In addition the instruments provide simple user guidance and global usability thanks to multilingualism on all important levels.

►► 58960 at [www.pcne.eu](http://www.pcne.eu)



## AIR HOISTS IN 'FOOD GRADE' DESIGN

Corrosion resistant and high-pressure cleanable



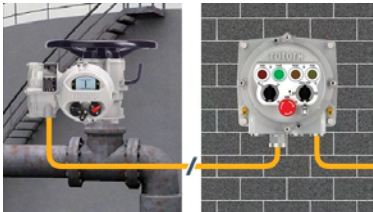
In the food and beverage industry, and also for chemical and pharmaceutical companies, special demands are made in terms of cleanliness and hygiene. To meet the requirements of these industries, **J.D. Neuhaus** (JDN) is now introducing a 'food grade' version of the air hoists in the mini series. The motor housing is made of uncoated cast aluminium. The chain, chain guide, load sleeve and hooks are made from stainless steel. This makes the hoists corrosion resistant

and impervious to high humidity. In addition, the hoists are easy to clean: even a high-pressure washer can be used without problem. JDN is using compressed air as an energy medium. Due to this no electrical short cut can happen. Additionally the hoists can be used, for example, in areas containing flammable organic substances. A completely synthetic (mineral oil-free) special grease that poses no physiological risk is used for lubrication of the motor, which is particularly well-suited to the food and pharmaceutical industries. The lubricant for the chain is also food-grade approved. The hoists' top hooks and load hooks are twist lock hooks. This enhances safety in daily operation. The hoists are available with a lifting height of 5 metres and a control length of 4 metres.

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## LOCAL ACTUATOR CONTROL

For field devices in hazardous and inaccessible areas



The **Rotork** Local Hand Station is suitable for applications such as large penstocks, where it is difficult to access the actuator due to height, in chamber applications

where the actuator is located below the ground and space is limited or for control when the actuator/device may be in a hazardous location. The Local Hand Station provides a simple control panel interface between the actuator or field device and the Distributed Control System (DCS). The Local Hand Station offers complete local override of DCS control signals to ensure localised maintenance activities can be performed safely without unexpected operation occurring. Absolute control is critical to site safety so in addition to an Emergency Shutdown (ESD) button, the rotary selector switches have been used due to their increased resistance to sticking or jamming and the Local/Stop/Remote selector can be locked in any position. The Local Hand Station can be pole or wall mounted and is ATEX and IECEx certified. Power can be supplied directly from the connected actuator, meaning that installation can be carried out with just a standard electrical cable. This prevents the need for any supplementary power supplies on site and in the long run helps to save money and makes maintenance simpler.

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## HIGH-PERFORMING SANITARY COMPONENTS

Extended range of hygienic machine elements



It is of global importance to focus on the hygiene of hand-operated equipment in medical/bio-chemical and laboratory environments, including disability aids, food processing and pharmaceutical, catering and public fittings. **Elesa** offers

an effective aid to hygiene, with their recently expanded high-performing SAN (sanitary) range of handles, knobs, levers, clamping handles and similar, produced with exactly this situation in mind. Their range expansion includes new cylindrical handles e.g. for operating handwheels, knurled grip knobs, adjustable clamping handles, wing nuts and solid hand knobs - all suitable for equipment operation or adjustment. SAN products are proven to prevent the proliferation of microbes, bacteria and fungi on the product surface by controlled release of silver ions, thus providing a long-term anti-microbial action in critical environments. Silver has long been recognized for its efficiency in this role by damaging microbial cell walls - and even now - recent research has revealed a mechanism whereby the silver ions have been shown to inhibit operation of microbial flagella. The Elesa manufacturing team have managed to develop a sophisticated injection-moulding material with this silver inclusion, and with stainless steel inserts, suitable for use even in sterilization cycles up to 130°C.

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# Digitalization Drives Guided Wave Radar Level Measurement Forward

As a measurement technique, guided wave radar is well established: the equipment is robust, the technology is mature, and the primary application niches have clearly emerged. Until now, the instrumentation for guided wave radar products has been notoriously difficult to install so in keeping with their mission to make measurement easy the team at ABB Measurement & Analytics have developed the LWT300 series of instruments which introduces new functionality to simplify the set-up process.

Describing the novelty of the innovation, Nicolas Ho, ABB's Global Product Manager for laser and guided-wave radar level measurement says "ABB is tapping into two mega-trends: digitalization as a productivity enhancer and the increasing scarcity of skilled labour. The new devices can be installed by instrument technicians in a fraction of the time that previous models required and with the confidence that they will work perfectly from day one. That's especially important when a new tank farm with four or six tanks gets fitted out because the instrument technician will want to complete the installation within a day and return to base. These benefits are proving to be highly attractive in the cost-conscious 2020's, especially with the latest down-draft in the price of crude oil that we have seen around the world since early March".

## MULTI-PHASE LEVEL MEASUREMENT MADE EASY

Since its launch in 2019, hundreds of instruments in the LWT family have been adopted by end users around the world. Many are being used in the onshore upstream oil and gas sector where the most common application for guided wave radar level measurement is

in crude oil storage tanks at remote oil well locations. These tanks receive a multi-phase mixture of crude oil and water from the nodding donkey well-head and they perform an initial physical separation between these two liquid phases. Level monitoring in the crude storage tanks is essential to efficiently schedule the crude oil collection transportation vehicles. Good logistics management can avoid inefficient part-loads or costly down time resulting from enforced production stoppages if the storage tanks get too full. Beyond that, measurement of the water level underneath the oil layer is important to ensure that the water can be pumped off and the available tank storage capacity can be used for the valuable crude oil. "Some of the early adopters of the LWT310 instrument, which is the new model configured for liquid applications", continues Ho, "have had the chance to conduct multiple installations and use the product in the field for several months. Their feedback confirms that the reduced installation times are

saving money and they are equally enthusiastic about the reliability and accuracy of the level readings".

The principle of operation relies on the radar wave partially reflecting from the upper crude oil layer and partially penetrating to the oil-water interface, where it is then reflected from the water layer. Water is extremely reflective so the radar beam cannot penetrate further to detect additional interface layers such as a sandy solids phase in the tank base can be detected. If the full three phase measurement is required, which may be the case in other types of application, then a nuclear radiation device must be used alongside the guided wave radar. However, the associated complexity and precautions associated with this type of instrumentation must be considered carefully before taking that route.

## CHEMICAL INVENTORY MANAGEMENT WITH MICRO-PRECISION

The new generation LWT300 series also has a new embedded proprietary electronic algorithm to increase the level measurement accuracy and temperature compensation. The accuracy achievable with the new series is better than 2mm, taking these devices to the top of the league table for that specification. As far as the temperature compensation goes, innovative electronics and digital algorithms have resulted in improved measurement stability which is an order of magnitude better than the previous industry standard.

These accuracy benefits come to the fore when the guided wave radar level gauge is used for tank contents inventory manage-



*The LWT310 for liquids applications fits in a 19 mm (3/4 in) NPT interface and is offered in a flanged version.*





The LWT320 fits in a 38 mm (1 1/2 in) NPT interface and is offered in a flanged version. For solids applications, the LWT320 is recommended since it can withstand a higher pull force.

ment in the chemicals sector. For high value corrosive liquids, such as acids or molten sulphur, there are few choices for non-invasive level measurement and these applications are the home turf of guided wave radar level measurement instruments. However, with high value products in large diameter tanks, a few millimetres of level can equate to several thousand dollars-worth of inventory. So, high precision measurement is essential to ensure reliable book-keeping and fair product transfer valuations and invoicing. So, being able to rely on chemical storage tank level readings with a precision within a few millimetres can be a big deal.

**POWDERS AND SOLIDS TOO**

As a rule of thumb, for every four guided wave radar level instruments used for liq-

uids, there is typically one more that is used for the measurement of dry solids - generally meaning powders. These tend to be materials-handling and storage applications in the metals processing, chemicals, food and pharmaceutical sectors. With no moving parts to malfunction, the guided wave radar technology is ideal for situations where corrosive powders may be kicked up into the storage tank head space during mixing or product transfer. Moreover, the guided wave radar measurement principle offers the possibility to 'see through' dense dust or thick misty vapours and this is one of its main advantages when compared to non-contact level measurement techniques. This unique ability to find the true level is a key differentiator that has placed the guided wave radar technique in a league of its own.

Highly sought-after attributes such as this have led to it being one of the fastest growing instrumentation categories in the various process industry sectors in recent years.

**INTELLIGENCE INSIDE**

Since the guided wave radar technique is so versatile, instruments have been used in diverse applications from liquids to slurries, powders and two-liquid situations. That versatility has, unfortunately come with a usability penalty: setting up these instruments has been a technically complex task and that has been their main limitation since their introduction about two decades ago. Specialist expertise has generally been called in to do the installation, configuration and, in many cases, a follow-up trouble-shooting visit. All in all, the installation labour and service costs have often exceeded the instrument hardware cost by a factor of two.

This is the pain point that ABB have sought to resolve with the incorporation of the LevelExpert™ into the new LWT300 series. It is a powerful set of algorithms allowing the instrument to be configured by the input of some basic information about the application from various pre-set menu options which the installation technician can configure either from the device touch screen or from a computer connected to the level gauge. Significant setup time and cost reductions are the result. This intelligence built into the device might just be the catalyst to transform the reputation that this type of equipment has of being 'easy to install' in addition to robust and reliable in long term service. This will significantly widen its field of application and broaden its popularity and acceptance in existing applications.



Steel storage vessels for milk and powdered milk

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## Additional Safety for Hygienic Processes

The first device for continuous measurement of buildup thickness enters the food and beverage market

Since 2015 Endress+Hauser has been offering a level device that uses both conductive and capacitive measuring signals for level switching. The idea of using these signals to develop a continuous evaluation to optimize cleaning processes has now been put into practice. As world debut in the food and beverage industry, the Liquitrend QMW43 reliably measures the product buildup thickness when it occurs in tanks and pipelines. It helps customers to optimize processes, increase plant safety and provides reliable criteria to verify the product quality.

Part of the production time is spent on cleaning the plant. This is of great importance in the food and beverage industry, as it guarantees the production of high-quality and hygienic products for the end user. Many of the production processes in the food sector take place in closed systems. When pipelines or tanks are opened, there is a risk of contamination of the system through the penetration of bacteria. For this reason, Cleaning-In-Place (CIP) is used, an automated cleaning in a closed process. To ensure that tanks and pipelines are sufficiently cleaned, conductivity and turbidity values of the CIP return flow, for example, are evaluated and documented. In many cases, processes and the duration of cleaning are determined based on empirical data. To prevent insufficient cleaning, the cleaning time is often increased in practice. How can this unproductive time be minimized without risking product safety and lacking documentation? The Liquitrend QMW43 provides the answer. By evaluating the measurement signals, the plant operator knows whether buildup still adheres in tanks or pipelines and how strong it is. The

additional conductivity measurement also provides information about the cause of the buildup, i.e. whether it is caused by product residues or cleaning agents. The Liquitrend thus supports the plant operator in determining the cause of the contamination. Due to the direct connection of the device to the control system, the measurement data is

available in real time and is automatically documented. If the sensor shows no more buildup and conductivity, it can be concluded that the critical points have been successfully cleaned. Thereby, the device provides insights into the process which allow the cleaning time to be optimized. Valuable production time can be gained without losing the certainty of bringing flawless products to market.



### CONSTANT PRODUCT QUALITY BY MEASURING PRODUCT-SPECIFIC PARAMETERS

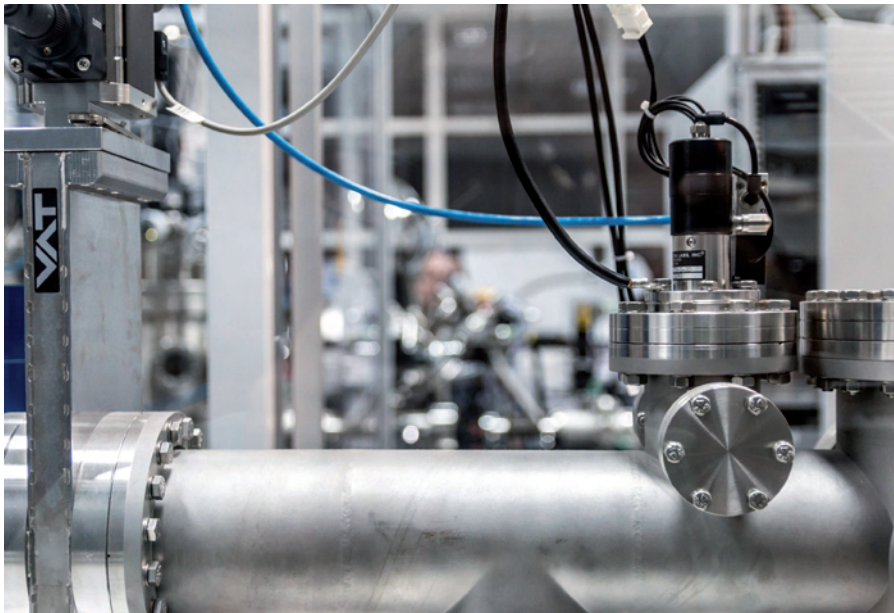
End consumers expect consistent product quality. This requires comprehensive quality control in the manufacturing companies with regards to appearance, smell, taste, consistency and shelf life of the products. For this purpose, numerous laboratory samples are taken in practice and the parameters mentioned are tested. This procedure costs time and, due to the necessary sampling, does not provide continuous measurement data. By means of the highly repeatable continuous measurement of conductivity value (conductive) or dielectric constant (capacitive) by the Liquitrend QMW43, the electrical properties of the products can be continuously determined and monitored. In the control system, limits can thus be set to immediately identify and reject qualitatively differing products. This makes it possible to reduce laboratory measurements without compromising process reliability and product quality.

### FIELD OF APPLICATION

The Liquitrend QMW43 was developed for the food and beverage industry. It can be



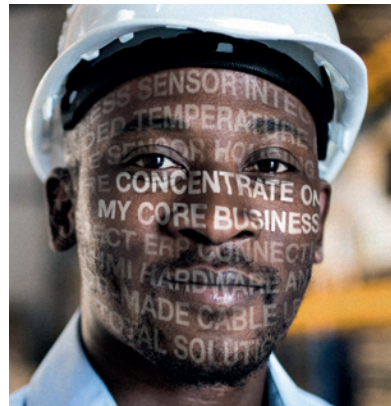




used to measure liquid or pasty media. It is irrelevant whether the media are electrically conductive or not. Due to the unique use of both conductive and capacitive measuring cycles, the device automatically detects the most accurate measuring mode and uses it automatically. This means that the device can be used without any prior knowledge of the type or strength of the contamination or the medium and without any presettings. Application and location in the respective plants are varied. The Liquitrend fulfils the guidelines applicable in the food and beverage industry and has been constructed with food safe and FDA compliant materials.

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## The Perfect Mixture for a Powerful Color Production

For many years, Siemens has been a reliable partner in the field of automation, operation and monitoring, power supply and instrumentation for a variety of OEM customers in the process industry. The highly accurate measurement of various products with specific characteristics, often under harsh conditions, is an enormous challenge for process instrumentation – while meeting the requirements of safety-related approvals.

In this demanding environment, the broad portfolio of reliable products and dedicated service support makes Siemens perfectly prepared for the OEM business. Using end-to-end solutions, Siemens has already helped several OEMs to fulfill their customer requirements with a high level of satisfaction.

### THE OEM AND ITS END CUSTOMER

The CGK Group, one of Siemens' OEM custom-

ers located in Gullegem (Belgium), specializes in customized tank facilities in the food and beverage, water treatment and chemical industry. There are two types of cylindrical plastic tanks: storage and process tanks, the latter is used for mixing, dosing, etc. These are typically made of PP, PEHD or PVDF materials. Storage tanks are subject to stricter legislation as they have to be double-walled and equipped with different safety systems, the tank design follows the guideline of the DVS (Deutscher Verband für Schweißen und verwandte Verfahren e. V. - German Welding Association), an extensive standard as base for the European directive.

The calculation of each plastic tank is done using a special software that considers the fol-

lowing parameters: selection of material, environmental conditions (indoor or outdoor application, wind intensity, available space, etc.), chemical resistance, temperature and more.

These tanks are available with a minimum volume of 60 liters and manufactured by centrifugal casting both in single- and double-walled versions. Various certifications (VLAREM II, Eurocodes, Food Grade, ...) ensure a long service life. CGK can customize the tanks, e. g. including pumps, agitators, heating, with or without insulation. The benefits are obvious: very good resistance to corrosive chemicals, seamless version, smooth walls, light construction for easy handling, designed under strict conditions and suitable even for food and beverage applications. The model is



The pressure transmitter P DS III in the mode differential pressure measurement.



Customized tank system allows precise dosing and continuous monitoring of all the process parameter







The SITRANS P DS III with diagnostic function as well as the SITRANS F M MAG serve as reliable and field-proven measuring instruments.

selected depending on the density of the material to be stored inside (less than 1000 kg/m<sup>3</sup> up to 1800 kg/m<sup>3</sup>). "With these systems, the customer can bring precise quantities of chemicals into his plants", says CEO Tijl Charle.

BOSS Paints produces wall paint for indoor and outdoor applications, varnishes and wood finishes, along with a number of 'problem solvers', specially developed paint for problematic substrates, e.g. damp or cracks. The product portfolio is complemented by color collections, decorative techniques, paint accessories as well as wall, ceiling and floor coverings. BOSS Paints also offers rental or sale of corresponding machines and services such as (technical) advice, training courses and more.

### MEET INDIVIDUAL CUSTOMER REQUIREMENTS

BOSS paints has a high reputation for quality products and in order to ensure consis-

tent quality of its end products it relies on CGK group, who develops the customized tank system which allows precise dosing and continuous monitoring of all the process parameters. This task is particularly challenging as a single facility has to ensure varied compositions and dosages of the raw materials. Moreover, compatibility must be ensured with the latest Siemens PLC system that BOSS Paints now wants to upgrade to.

To satisfy the high quality standards of BOSS paints, CGK Group requires high-grade process instrumentation products for the equipment of their systems, including the necessary pipelines.

These have to be selected according to the process fluid to be stored so that the measurement and control technology can supply perfect results and chemical resistance can also be guaranteed.

Flowmeters, level and pressure transmitters play a crucial role here.

### THE SITRANS RANGE AS PROBLEM SOLVER

For many years, Siemens has been considered as an established single-source system supplier for OEM customers in the process industry, offering both consultation and the required measurement and control technology. To best meet BOSS Paints customers' requirements, the CGK Group relied on proven products from the Siemens SITRANS range to develop the tank facility. In this case, SITRANS P DSIII and SITRANS F M MAG devices were used. These are highly accurate field-proven pressure, flow and level measurement devices with digital protocol and diagnostic capabilities.

### SATISFIED OEM AND END CUSTOMER

„The CGK Group particularly appreciates the low maintenance of the installed instruments and their compatibility with a wide range of chemicals.“, says the young CEO. „Siemens looks very closely into the customer projects and CGK as an OEM to find the right instrumentation for the application.“, he adds with praise. Thanks to the selected products, the customer can easily integrate the measurement and control technology into the SIMATIC control system and reliably and quickly automate the production. This saves time and money for planning, construction and commissioning. Both the end customer, BOSS Paints, and the OEM customer, the CGK Group, appreciate this: „That's a perfect fit for the culture of CGK.“, says CEO Tijl Charle enthusiastically. A good example of optimum cooperation between the CGK Group as OEM and Siemens as an instrumentation partner.

### ABOUT BOSS PAINTS

Chemical resistant measuring instruments are essential for the cylindrical-synthetic storage tanks. As an example, CGK developed a customized tank system for one of its customers BOSS Paints, based in Beveren-Leie, Belgium. BOSS Paints is a family-owned business that manufactures paints and sells them to commercial and private customers in Belgium and the Netherlands.

▶▶ 58991 at [www.pcne.eu](http://www.pcne.eu)



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## MULTIFUNCTIONAL SIL-TRANSMITTERS

Reliable four-wire transmitter in mounting rail case



The new **JUMO** dTRANS T06 Ex transmitter has a compact mounting rail case, which has a design width of just 22.5 mm, and the encoded plug-in terminals enable the device to be quickly installed into control cabinets. Its measurement input features 22-bit resolution with selectable noise suppression and is extremely precise. The SIL option fulfills the requirements of SIL 2 / SIL 3 according to DIN EN 61508 and PL c/PL d according to DIN EN ISO 13849.

The JUMO dTRANS T06 Ex also meets the ATEX and IECEx requirements up to zone 0. A particularly high galvanic isolation guarantees excellent signal stability, even when measuring conditions are difficult. Intuitive operation takes place via 4 keys and an LCD display, which can also be used to display information about the measuring point. Reliable SIL configuration is facilitated by an easy-to-use setup program. As a special feature, the device display can also be used to access a connection diagram that is based on the configuration. The device can be used with RTD temperature probes, thermocouples, resistance transmitters, as well as voltage and current signals. It converts the input signal into an output signal (0(2) to 10 V or 0(4) to 20 mA). The universal measurement input with 22-bit resolution ensures measuring precision.

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## THERMAL FLOW METER WITH PROFIBUS DP

Air/gas flow measurement with new interfaces



Process measurement and control engineers utilizing PROFIBUS digital bus communications in their operations can now solve air and gas flow applications with the ST80 Series thermal flow meter from **Fluid Components International (FCI)**. The ST80 has been expanded to also provide a new, PROFIBUS DP solution along with its existing PROFIBUS PA capability.

In addition to PROFIBUS I/O, the flow meter also includes standard output options of dual 4-20 mA analog outputs (NAMUR NE 43 compliant), HART (Version 7) I/O, and Modbus RTU. Simply, an ST80 flow meter is adaptive to any current or future control strategy. Designed with an optional backlit information LCD, the meter provides digital and bar graph readouts of process flow rate and temperature, totalized flow, alarm conditions, diagnostics feedback and a user defined label field is also available. The ST80 Series meters are suitable for pipe diameters from 1 inch to 99 inches [25 mm to 2500 mm] and air/gas temperatures up to 850 °F [454 °C]. They feature accuracy of  $\pm 1\%$  of reading,  $\pm 0.5\%$  of full scale and repeatability of  $\pm 0.5\%$  of reading with flow rates up to 1000 SFPS [305 NMPS] and 100:1 turndown. The rugged transmitter enclosure for the ST80 Series is NEMA 4X/IP67 rated and available in both aluminum and stainless steel.

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## HIGHLY ACCURATE 4-IN-1 PROBE

Measuring CO<sub>2</sub> and more in demanding environments



The EE872 from **E+E Elektronik** measures the CO<sub>2</sub> concentration up to 5 % (50 000 ppm) as well as relative humidity, temperature and ambient pressure. Additionally, the 4 in 1 probe also calculates the dew point temperature. It is perfectly suited for use in harsh and aggressive environment.

The active pressure and temperature compensation ensures a very high CO<sub>2</sub> measuring accuracy. A heated probe version is available for CO<sub>2</sub> measurement in high humidity applications. The CO<sub>2</sub> measurement is based on the pollution-resistant E+E dual wavelength NDIR measuring principle. It automatically compensates for aging effects, which leads to outstanding long-term stability. The robust IP65 stainless steel or polycarbonate enclosure as well as various filter caps optimally protect the sensing module from contamination. The probe is therefore particularly suitable for use in agriculture, for example in life stock barns, hatcheries, incubators and green houses. The multi-point CO<sub>2</sub> and temperature factory adjustment ensures high accuracy over the entire working range of -40...60 °C (-40...140 °F). Due to the active pressure and temperature compensation with on-board sensors, the EE872 offers a particularly high CO<sub>2</sub> measuring accuracy, independent of altitude or environmental conditions.

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## FOOD-GRADE PRESSURE SENSOR

With G 1/2 thread for installation without adapters



The new **ifm** pressure sensor PM15 with G 1/2 connection which meets the requirements for all approvals to industry-wide hygienic standards is ideal for such applications. A unique flush sealing concept was implemented for the new PM15 pressure sensor. As a result, the sensor allows hygienic integration into small pipes which are often used, for example, in dosing and filling systems.

The sensor features a G 1/2 thread and can therefore be installed without expensive adapters. This also avoids the creation of a dead band during installation. So the sensor can also be used with viscous media, ensuring optimum cleanability for CIP processes. Since the pressure sensor is designed without Elastomer seal on the process side, it is completely maintenance free. The flush and robust ceramic measuring cell requires no pressure transducer liquids and withstands pressure and vacuum shocks as well as impact by abrasive substances. Moreover, the sensor tolerates medium temperatures up to 150 °C for up to 1 hour. Since the sensor integrates a temperature measurement whose measured value is also transmitted via the IO-Link interface there is no need for an additional temperature sensor. ifm provides a factory certificate for every sensor which can be downloaded free of charge.

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### AUTARKIC RADAR SENSORS

Level measurement made easy



**VEGA** is now developing a completely new series of measuring systems especially for these situations: Autarkic level sensor systems based on powerful 80-GHz radar technology. The new autarkic radar sensors is anticipated to be available

on the market from mid-2020 - optimized for logistics or control processes. Energy efficiency was at the forefront of this development. Measurement performance, wireless data transmission and energy consumption are perfectly matched to each other for this purpose. In combination with optimized measuring cycles, the batteries can provide energy management that ensures up to 10 years operation. The stand-alone sensors from VEGA are wireless, inexpensive, flexible and reliable - and can be installed quickly via plug-and-play. Regardless of whether the measurement involves storage containers with chemicals, containers with cleaning agents that have to be replaced regularly or residual material containers waiting for collection. The autarkic VEGA sensors can be quickly and easily mounted on IBC containers. Thanks to radar, measurement from the outside is possible, the IBC plastic vessel does not have to be opened or modified. Installed in a few simple steps, this solution can remain permanently on the container and transmit the respective level status, whether in the plant or during transport.

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### ULTRASONIC TRANSDUCER FOR GASES

3D-printed mini-horn array enhances performance



**Emerson** has released the Daniel T-200, a titanium-housed transducer, for its gas ultrasonic flow meter product line, marking the first use of metal 3D printing to enhance the acoustic performance of ultrasonic flow meters in custody transfer applications.

The T-200's robust design provides increased reliability, uptime and safety while achieving the highest accuracy class attainable in gas measurement. Signal quality and strength are critical to measurement accuracy, which is paramount in custody transfer applications. An error of only 0.1% can equate to hundreds of thousands of euros annually in a large diameter high pressure pipeline. The all-metal housing provides a barrier from corrosive hydrocarbon fluids and wet gas, thereby extending the life of transducer components and ensuring stable performance. This unique design allows the meter to be hydrotested with transducers in place, steam cleaned while in the operating line and blown down with no limits on the rate at which the meter can be depressurised. The capsule which contains the piezoelectric crystal used to produce ultrasonic sound waves is retractable as a single piece for simplicity and ease of use. The new design is rated for a wide range of operating conditions, including pressures from 1 bar gauge (barg)/103 Kilopascal (kPa) to 255 barg/25,855 kPa and temperatures from -50 to 125°C.

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### HIGH PRESSURE HASTELLOY C FLOWMETERS

For use in hazardous areas with up to 700 bar



**Titan Enterprises** offers the OG Series flowmeters, designed to give reliable, high performance in a wide range of applications. For more challenging applications an OG flowmeter in Hastelloy® C is the right choice. Inherently Hastelloy C has outstanding resistance to

highly oxidizing and reducing agents, making it an ideal choice for moderate to severe corrosive fluid handling and environments. Titan Hastelloy C OG flowmeters can withstand high temperatures, high pressures and can be fitted with a suitable sensor for hazardous areas. The chamber sealing on these meters is designed for the required pressure rating and it can be a fluid compatible 'O' ring such as Kalrez. When constructed from Hastelloy C and PEEK™ compact OG flowmeters are perfect for measuring flow at pressures up to 700 Bar and 150°C. Designed to be IP-67 / NEMA 4 compliant, Titan's Hastelloy C OG Series high pressure flowmeters are available in standard and customer specified configurations. Unlike other types of flowmeter, the measurement accuracy of these oval gear flowmeters improves as liquid viscosity increases, from a nominal one per cent towards 0.1 per cent of flow rate at higher viscosities.

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# Pressure Gauges in a Well Monitoring System Go Digital

There is no alternative to digitised factories. The biggest challenge here lies in transforming existing plants and processes into an Industrial Internet of Things system. A WIKA project for an oil company in northern Germany, where pressure, temperature and level must be monitored in wells, proves that mechanical measuring instruments can also be integrated into the digital world in this way.

Everything is interconnected. Connectivity is what makes the Internet of Things work. Standardised communication between all devices and systems provides the input for the real added value of digitised processes: this information, together with analysis tools, enables operators to optimise their processes in terms of quality, productivity and costs. However, that is only possible if all process data can be accessed independently of the manufacturer. Suppliers of measuring equipment must therefore offer a standardised method of data exchange across different platforms. Apart from the measured values, this concerns all specific information from connected devices that is required to generate a digital twin and allow more extensive planning and analyses.

## BIDIRECTIONAL DATA EXCHANGE

The idea is that, in future, WIKA customers will be able to purchase a system solution, which is why a central platform with open standards is being developed parallel to IIoT-compatible measuring instruments. Bidirectional data exchange, both with the sensor level (measuring instrument) and with customer systems, will then become reality. This platform will also be utilised by the oil company whose well monitoring system is being digitised by WIKA at a site in northern Germany. The project was triggered by a change in the German



Pressure gauge with an integral LoRa module, type PGW23

Source: WIKAI picture

Mining Act. The amended version of this act stipulates continuous data acquisition at all extraction points. The policy until now has been for employees to drive to each individual point at intervals, then read off and make a note of the instrument values as well as the water level in the wells – a costly and time-consuming procedure. If an oil field has more than

one well, safety features are controlled by means of a process control system – a local solution with no connection to the outside. Once again, a human being has to carry out regular on-the-spot inspections.

In theory, it would be perfectly possible to transmit the data from all extraction points to a central control room via cable. However, laying the necessary cables over such a long distance would have a significant environmental impact and it would not make business sense either.

## COST-EFFECTIVE SOLUTION

The uniform concept developed by WIKA for all extraction points complies with all regulations, so that there is no need to have the operating license amended. At the same time, it represents a cost-effective solution for the customer: many oil fields have only a limited operational life remaining and the budget for investments



Source: ©iStockphoto







must not be out of proportion. The digitised well monitoring system is economically feasible despite the tight financial constraints.

In the past, exclusively mechanical measuring instruments have been used at the extraction points to obtain data as the basis for plant monitoring. The operator wishes to keep this on-site option alongside online monitoring as an alternative requiring no external power, particularly for pressure and temperature, which are the two most crucial parameters. When the digitised monitoring system is installed, therefore, the existing devices will be replaced with WIKA models from the “intelliGAUGE” and “intelliTHERM” series, which are designed with both an electrical output (4...20 mA) and an on-site display. On the other hand, the level in the storage tank at the well will in future be recorded using a float switch with a 4...20 mA signal.

All devices are connected to a local gateway in the plant via their electrical outputs. This gateway transmits the data from the measuring points to the central system platform using an LPWAN (Low Power Wide Area Network) wireless standard. In the case of pressure, temperature and level measuring instruments, only a relatively small amount of information per day has to be transmitted. The battery for operating the wireless module has a service life of up to ten years for this reason, so that installation and maintenance costs are reduced to a minimum.

#### LORAWAN AND MIOTY

WIKA generally favours LoRaWAN or MIOTY as the wireless standard for its IIoT devices. Both standards transmit on a public band (868 MHz) that can be used by approved devices without a license. Distances of 30 kilometres or more can be covered in this way, depending on the topography. The standards are thus also ideal for locations with a weak mobile signal.

LoRaWAN is already well-established in the market. WIKA uses this standard as well, to integrate classic display instruments into



digitised processes. The manufacturer’s portfolio will soon include a pressure gauge integrating a type PWG23 LoRa module – the first in a new series of mechanical LPWAN devices. It has a microprocessor that converts the measured value transmitted by the Bourdon tube into a radio signal.

Besides LPWAN solutions, WIKA’s planning also takes account of wireless standards which were integrated by the manufacturer in a previous measurement solution for monitoring decentralised tank plants. Dynamic processes with a large number of measured values must have sufficient bandwidth and power output – in other words, a mains supply – in order to transmit data once a second. Systems are also conceivable where many low power data transmissions are concentrated at a single wireless node and bundled. MIOTY, widely held to be the next generation of LPWAN technology which the oil company is pioneering in field use, was selected as the wireless standard for this particular well project. Developed by the Fraunhofer Institute for Integrated Circuits IIS, the MIOTY standard works with telegram splitting technology, which guarantees stable data transmission and a low error rate. What’s more, MIOTY is extremely scalable. Even networks with a very large number of devices and only one receiver can be operated without any deterioration in quality.

The operator of the oil production facility decided in favour of the new low power standard chiefly because it offers such excellent network stability. All status information can also be transmitted to a smartphone as text messages or emails, so that a person on standby can take immediate action should a fault occur.

#### DATA BASED PLANT CONTROL

As well as being able to demonstrate the plant’s safety to relevant authorities and customers, the operator can also reap enormous benefits from the IIoT solution. All processes are controlled on demand based on the data, so that on-the-spot inspections and other assignments are confined to an essential minimum. Tomorrow’s oil production will be determined by actual well parameters, with no more losses due to inefficient operation. In a second phase, a feature for switching off the well automatically will likewise be integrated into the system.

The platform also supports condition-based maintenance. Maintenance and replacements no longer take place at fixed intervals but are based solely on data-driven decisions. Not only will this strategy save money; errors will be virtually eliminated as a result.

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## IN-LINE ULTRASONIC FLOW METERS

For low viscosity liquid applications



**Flow Technology** has introduced the QCT Series of in-line ultrasonic flow meters for use in low viscosity liquid applications. It is a compact, versatile, cost-effective solution for measuring low viscosity liquids in a wide range of industries. The meter's construction makes it the meter of choice for many high purity and corrosive fluids. Typical applications

include water treatment for boilers and cooling towers, clean-in-place (CIP) systems, mechanical seal flushing/cooling, high purity water systems, process water, cooling loops, reverse osmosis (RO) systems, and small line injection systems. High accuracy and repeatability are achieved through the unique measurement section within the QCT Series meter where flow is conditioned and Delta T measured along the meter's axis. The time difference is directionally proportional to the fluid's flow rate. The QCT has no moving parts, non-wetted sensors, and there is nothing in the flow stream that will cause an obstruction to the flow path. The meter is available in sizes of 1/8 inch to 1 inch, accurate to +/- 0.5 percent of reading plus zero stability and repeatability is +/- 0.2 percent over 10:1 calibration range. It has a 0.035 to 70 GPM (0.13 to 265 l/min) flow range, 14°F to 176°F (-10°C to 80°C) temperature range, and analog, scaled frequency and Modbus RTU outputs.

▶▶ 58752 at [www.pcne.eu](http://www.pcne.eu)

## LIGHTWEIGHT OXYGEN ANALYZER

Cost-effective quality control in safe-area applications



**Michell Instruments** has launched a new lightweight oxygen analyzer to provide accurate and cost-effective control of oxygen from 500 ppm O<sub>2</sub> to oxygen purity in safe area applications. The XTP501 Oxygen Analyzer uses

Michell's tried and tested thermo-paramagnetic technology for highly accurate and stable measurements. These sensors are non-depleting and will last for the life of the instrument under normal operation which keeps the cost of ownership low since only minimal maintenance is required and there are no consumable parts to replace. The analyzer offers users a choice of ranges to ensure the best accuracy for specific applications. There are six available ranges to choose from: 0-1/21/25% O<sub>2</sub> & 20/80/90 to 100% O<sub>2</sub> which are ideal for a wide range of application needs from monitoring trace oxygen in inert gases to ensuring the purity of oxygen generated for use as an industrial gas. The XTP501 is a highly stable instrument at ±0.25% of span per month and accurate to ±0.02% O<sub>2</sub>, making it one of the best-performing analyzers in its class. Because they have no moving parts or liquid components thermo-paramagnetic oxygen sensors are robust and not affected by vibration or sudden shocks. With a lightweight IP55-rated casing, the analyzer is compact and easily installed.

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## TEMPERATURE TRANSDUCER/SWITCH

Precise monitoring in systems and piping with IO-Link



The **GEMÜ 3240** temperature transducer/switch supersedes the existing GEMÜ 3220 product range with immediate effect. The new sensor's high-quality measuring cells are able to withstand media temperatures of between -40 °C and +150 °C and operating pressures of up to 160 bar while maintaining an accuracy of 0.35% FSO. In addition to the considerably

broader measuring scope, the new series scores highly in terms of its wide range of features. For demanding acid/alkali applications, all media wetted parts are available with PVDF encapsulation, for example. With an IO-Link interface, the GEMÜ 3240 temperature transducer/switch can be used centrally to automate and monitor processes. This is beneficial for system networking, for example, as it makes components compatible with one another and facilitates parameterization and data transmission. The rotatable LED display is another advantage: The 4-digit display allows the current operating parameters to be viewed in any installation position. The new GEMÜ 3240 temperature transducer/switch can be used for a wide variety of applications. The sensor is a reliable temperature measurement and control instrument for use in cooling circuits or for monitoring sterilization processes.

▶▶ 58790 at [www.pcne.eu](http://www.pcne.eu)

## MULTIPROTOCOL GATEWAY FOR EX AREAS

Bringing high data rates from Zone 0 to the control system



**Turck** is opening the world of the process industry for digitalization and Industry 4.0 with the first Zone 2 Ethernet gateway for the excom I/O system. All process data can thus now for the first time reach IT systems for analysis and evaluation at sufficient speed via a parallel data channel - a fast and easy way of implementing condition monitoring

and predictive maintenance. Controllers and control systems are protected here from access attempts. The new GEN-3G multiprotocol device operates at high data rates in Profinet, Ethernet/IP or Modbus TCP networks without the need for manual intervention. The integrated gateway switch enables the implementation of linear topologies which can be connected easily in the network to form a ring. Besides the hardware redundancies for power supply units and gateways, excom also supports redundancy concepts such as S2 system redundancy to ensure maximum availability. excom can also provide special solutions for protocols that do not specify any native standards for redundancy. The I/O system thus offers a standard redundancy landscape for operators - irrespective of the protocol used at the particular site. Regardless of whether excom is used for Zone 1, 2 or the safe area: Users can always rely on the same DTM, EDS or GSDML and the same operator logic.

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# Inspecting Natural Gas Compressors

## Preventing leaks and downtime with Optical Gas Imaging and visual borescope

Compressors are a common component in natural gas plants, and they are specifically designated for inspection in environmental regulations such as the US EPA 0000a. Compressors can fail for a range of reasons, including extensive wear or thermal stress on constituent parts. Determining the source of the failure through internal or external inspections will often be time consuming, labor intensive and can be costly if equipment has to be shut down.

A solution increasingly being adopted by natural gas companies is to use a borescope to routinely visually inspect compressor pistons and an OGI camera, such as the FLIR GF620, to locate gas leaks. The GF620 allows companies to inspect compressors for emissions from a safe distance and quickly facilitate pinpoint maintenance reducing downtime and maintaining regulatory compliance. With features including thermal analysis and a proprietary High Sensitivity Mode, maintenance engineers can use a GF620 OGI camera to quickly and efficiently inspect a compressor for leaks without having to dismantle the equipment which can be very time consuming.

The HD resolution FLIR GF620 helps inspectors survey for fugitive gas emissions from further, safer distances than is possible with lower-resolution OGI cameras. The GF620 is equipped with a 640x480 infrared detector, the camera is calibrated to measure temperature, allowing the user to assess the thermal contrast between the gas and the background scene, and adjust it to improve visibility. The FLIR GF620 also features the company's unique high sensitivity mode, which accentuates plume movement to improve detectability in low-contrast scenes. Incorporating a borescope or OGI camera into a routine maintenance plan can help natural gas companies improve safety, reduce costs, and extend the life of compressors – reducing downtime and maintaining regulatory compliance. Using a borescope to inspect the pistons of a compressor allows the user to have visual imagery to support a diagnosis or to share with a vendor or asset owner if inspected by a service company. This may allow an inspection to be performed without completely dismantling the equipment, drastically expediting the inspection. When inspecting a compressor with an OGI camera, maintenance professionals can

ensure that regulation associated with that piece of equipment is met; the exact source of a leak is located, and a repair made accordingly. The GF620 camera will also allow a user to inspect the compressor from a safe distance and find a leak without being directly in when inspecting.

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## On-line Turbidity Measurement



### PTV 1000 / 2000

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- Intuitive User Interface
- Local Touchscreen Display

Lovibond® Water Testing



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## Fast, Easy and Safe - Packaging for Powdered Products and Granules

The guidelines for the Austrian market leader Kora Füll GmbH in the contract filling of nutritional supplements and cosmetics are strict. Fast and easy product changes, compliance with food and pharmaceutical standards, a pleasant working atmosphere and high energy efficiency for sustainable resource conservation are among them. The Piab vacuum conveyors are the perfect link between the process steps. Because they fulfill exactly these criteria.

When filling 300 different products a year at a run rate of one to three days per variety, product changes have to be fast and easy, so that the plant efficiency is right. If a company like the Kora Füll GmbH in Ernsthofen near Linz positions itself in the premium segment of dietary supplements and cosmetics, the requirements of EU directives for food and pharmaceuticals must be complied with, as well as the regulatory safety requirements for the handling of hazardous substances. With a team of 20, the group of companies, including the packaging industry, generates almost four million euros in sales per year.

When filling superfoods with the help of the

Pi-Flow P vacuum conveyor, the powdered products or granules are filled into small stickpacks - similar to sugar sticks for coffee in the catering trade. The sticks can be easily torn to a drink for immediate consumption or dissolution in the water. The packaging - usually plastic or coated paper - runs from a roll on the side into the stickpack system. The feed of the corresponding product is from above. In addition to the filling quantity, the size of the stickpack can be set and the tear point defined via the control of the stickpack system. The system automatically seals the floor before filling. When the desired portion size is reached, the top part is welded and

separated from the endless packaging tube. The finished stickpack then runs through a conveyor belt directly into the provided carton - if it meets the requirements. If this is not the case, the stickpack falls into a scrap container underneath the machinery.

### AVOIDING POSSIBLE CONTAMINATIONS

When deciding on Piab's Pi-Flow P for filling powders in the stickpacking plant, the possibility of rapid product change played a decisive role. At this plant - in addition to sports drinks - powdered Superfoods are filled in serving units from 1 to 80 grams. "The simple and uncomplicated cleaning of the Piab vacuum conveyors was the deciding factor in our decision," explains Merlin Wintersteiger, Managing Director of Kora. "Thanks to the quick-release system with filters and gaskets, the entire conveyor can be disassembled, cleaned and reassembled for the next production in just a few steps, and it was important to us that the conveyor can be cleaned not only in the shortest possible time, but also thoroughly, so that no residues of the previous production contaminate the next - especially in the case of allergens an absolute no-go." Wintersteiger adds that the modular design of the piFLOW® vacuum conveyors enables Kora to remain highly flexible in future changes in this fast-moving market. Because Piab's systems can just as easily be retrofitted and expanded or supplemented with additional modules to be prepared for new requirements."

### COMPLIANT WITH THE HIGHEST STANDARDS

Piab's Pi-Flow P conveyors for powders and bulk solids perfectly match the high standards of operational safety and hygiene in



The Pi-Flow P vacuum conveyor from Piab feeds Kora's contract filling line



*Easy to clean, the Piab Pi-Flow P Vacuum Conveyor is ready for filling-in another product*

the food and pharmaceutical industries. They are made of electropolished stainless steel and materials that comply with US FDA and EU 1935/2004 regulations. As a delivery line, a suction hose made of PU is used. An internal steel spiral helps to minimize the electrostatic charge of the product or diverts it to equipotential bonding. The filter in the upper part of the conveyor is cleaned with a filter shock after each delivery cycle. The device control is located in a separate control cabinet.

To be prepared for all cases, Kora decided on the Pi-Flow P dust-tested ATEX version. All plastic or rubber parts, including filters and seals, are made of antistatic nitrile butadiene rubber (NBR).

One of the important decision-making criteria for Piab is the good cooperation. Wintersteiger explains, "For Kora, that means above all spare parts safety, service assignments, when it fits our schedule, and a local contact person. Quick support in case of need helps us to reduce downtimes. Based on the common experiences, we plan in the future to convert our entire demand for vacuum conveyor technology to Piab."



#### NOISE AND DUST REGUCTION

In particular, Wintersteiger employees appreciate the significantly lower noise level on the new vacuum conveyor, which has improved the working environment accordingly. Together with the reduction of dust in the room and the associated cleaner hygiene level, both the occupational safety and the general well-being of the employees could be increased.

The reason for the quiet operation is the use of Piab's patented Coax® multi-stage ejectors in the vacuum pump. These combine the suction capacity of a blower in the volume flow

with the final vacuum of simpler rotary vane pumps. Depending on the product, conveyor speeds of 2 to 25 m/s can be pre-set. In addition, the pumping speed can be varied over the set feed pressure. The capacity of the conveyor is up to 500 kg/h with a conveyor length of 10m.

The vacuum is generated in the Coax® technology by the discharge of compressed air from a nozzle system. This allows both a high efficiency of the system and an absolute vacuum level of 250mbar maximum. Blockages in the delivery line are almost impossible. Since no mechanically moving parts are present in the vacuum pump, the system works maintenance-free. The vacuum pump is mounted directly on the conveyor. The collection volume of the conveyor can be adapted to different requirements, for example resulting from the product density.

As independent comparative tests at the Fraunhofer Institute for Machine Tools and Forming Technology IWU in Dresden have shown, Piab's COAX® ejectors work twice as fast as other ejectors and deliver three times more flow than conventional ejectors with identical air consumption. This allows the pump unit to perform well even with low or fluctuating supply pressure and is particularly energy efficient. This saves on compressed air and electricity costs and blends perfectly into Wintersteiger's vision of achieving a positive energy balance in the long term.



*The product is filled in the desired quantity in the packaging unit*

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# Crate Expectations

## Scottish veg processor adopts fresh thinking for sprout packing

Forward-looking vegetable processor Drysdale's has become the first UK produce company to automate its sprout crate loading operation, future-proofing against potential labour shortages that could arise from Brexit. The Scottish company's investment in Brillopak's award-winning UniPAKer robotic cell has already yielded a return on investment thanks to its ability to consistently load bags of sprouts into crates at speeds in excess of 75 packs per minute with minimal manual intervention.

"No-one else is using a machine like this to pack sprouts into crates; this investment fits with our business philosophy of harnessing

innovation in farming and production methods in order to stay at the top of our game and deliver the best quality produce and service to our customers. We haven't yet placed an order for a second robotic crate packer but if and when we do, it will be with Brillopak," says Drysdale's Farming & Facilities Director, Ian McLachlan.

Located in the Scottish Borders, Drysdale's has developed from its origins as a farm-based enterprise to a nationwide processor of added-value, locally grown vegetables. The company grows 50,000 tonnes of fresh vegetables – mainly swedes, sprouts and leeks – a year for British supermarkets. It supplies sprouts

year-round, growing 900 acres – more than any other company in Europe – as well as being the largest peeler and the first company to operate a semi-automated peeling line.

### AVOIDING POTENTIAL LABOUR ISSUES

Continuing this spirit of innovation, at the start of 2019, Drysdale's embarked on a project to install a new fully automated sprout packing line. The line would comprise a vertical bagging machine, metal detector, checkweigher and crate packing system, all located on a mezzanine floor. This was to be the first time Drysdale's had automated crate packing on its sprout processing lines, a decision driven largely by concerns about future labour supply.

"On all of our lines we were relying on manual labour to pack bags of sprouts into crates. However, with Brexit, we foresee a potential labour issue. The time was right to invest in a machine that could perform this task," explains Ian.

One of the challenges of automating this operation was the number of possible pack and crate configurations. Sprouts are packed in a variety of bag sizes, from 200g up to 500g, and each retailer has their own crate format requirements.

"We needed the flexibility to accommodate different pack sizes and crate lengths, whole and half crates, landscape and portrait layouts and different volumes - from 10 packs up to 25 packs to a crate," says Ian.

Drysdale's invited several robotic equipment suppliers to put forward proposals, among them Brillopak, a Kent-based designer and manufacturer of flexible robotic packing and palletising systems.



The UniPAKer cell has been running successfully at Drysdale's facility in Cockburnspath, Berwickshire and is currently programmed to run 30 different patterns without the need for any tool changeovers







*Pictured Ian McLachlan, Farming & Facilities Director, Drysdale's. The investment fits with the business philosophy of harnessing innovation in farming and production methods in order to stay at the top of our game and deliver the best quality produce and service to our customers.*

Brillopak's solution was the UniPAKer robotic pick and place cell that was originally engineered for packing bags of potatoes and apples into crates. The UniPAKer has been specifically designed to improve productivity and improve pack presentation on shelf. Using a four-arm delta robot on a compact footprint, it will load up to 75 VFFS, tray sealed or flow wrapped packs per minute and is ideal for vegetables, fruits and salad up to 1kg.

#### SOLUTION FOR FLOW WRAPS

"We had never tried using the UniPAKer to handle sprouts before, but we knew that we could do the job. The challenges were the same as with potatoes – how do you pick and place flexible bags containing small, moving spherical products at speed with accuracy?" says David Jahn, director at Brillopak.

Two key elements of the UniPAKer solution address these challenges: the use of vision

technology to recognise and orientate the packs and the unique design of Brillopak's suction end-effector.

Suction heads can accommodate the irregular contours of flow wraps and pillow packs and adjust swiftly to different pack sizes. However, if the vacuum is compromised, there is the risk of bags sagging and dropping onto the packing conveyor, causing line stoppages. Brillopak's approach to vacuum handling is different to others in that it manufactures its own heads using cups with independent vacuum generators, providing greater control during handling.

"When you are looking to replace labour at the end of a line with robotics, consistency is king, as you have to assume there won't be anyone there to intervene if the robot stops. Our business is built on designing automation solutions that operate at high speed but with consistency; the key to achieving this is pre-

cision control over the product throughout," says David.

From Drysdale's point of view, this expertise instilled confidence in Brillopak's ability to deliver a sound technical solution backed up by honest, specialist advice if its needs were to change in the future.

"Brillopak has many years of experience in vacuum heads, which was important, as controlling the suction on the bags was a key part of this project. This also gave us confidence that if in future, a customer wants to produce, say, a 1kg pack, we can easily change the head," says Ian.

The UniPAKer cell has been running successfully for over eight months at Drysdale's facility in Cockburnspath, Berwickshire. The flexible system is unphased by the multiple crate configurations required on this line and is currently programmed to run 30 different patterns without the need for any tool changeovers. Manual intervention is limited to just one person to take away full crates, replace empty crates and perform quality checks.

"We've achieved what we set out to at the start of the project and the system does exactly what Brillopak promised it would do. Throughout the project they have been completely honest and really good and quick at coming up with solutions," concludes Ian.

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## ABOUT BRILLOPAK

Brillopak is a British manufacturer of highly flexible robotic packing systems. Using the latest proven technologies our automation solutions are designed to raise the bar in packing efficiency. All machines are small footprint and are simple to operate by unskilled staff. We have an uncompromising approach to machine safety and prioritise our design process towards minimal maintenance requirement to maximise machine uptime. Brillopak was founded in 1999 and its machines are designed and built at our factory in East Peckham, Kent in the United Kingdom.



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## Blazing the Trail in Reliability

**From a kiln cooling system to silos: the safe and economical transportation of hot materials like clinker is crucial in cement plants. The material can have extremely high temperatures of 500 to 800 degrees Celsius. Reliable plant operation requires a robust conveying system. The BEUMER Group supports cement manufacturers with system solutions tailored for this industry, for example apron conveyors.**

Why are apron conveyors particularly efficient for the transport of clinker? André Tissen doesn't need to think long: "The cement plant operators are still not able to ensure with one hundred percent certainty that the material does not leave the clinker cooler at temperatures of 500 to 800 degrees Celsius." Tissen is a sales manager for Customer Support at BEUMER Group and is familiar with the demands of the customers. In general, the clinker should cool down to the ambient temperature plus 80 degrees, but during the process, a so-called raw meal flash can occur in the shell section of the preheater tower, caused by breaks in the kiln outlet sealing. "It doesn't happen often, but it does happen. It can't be completely avoided," explains the expert. Within a few seconds, several tons of raw meal or clinker run through the cooler. The material cannot cool down and arrives on the conveyor at extremely high temperatures. BEUMER Group apron conveyors provide robust and reliable solutions that are completely heat

resistant. The specific design of the cells allows safe, low-friction transportation of any hot material. Sealed and overlapping side walls and bottom plates in the cells prevent the clinker from exiting and minimise the escape of dust. Operators get the BEUMER apron conveyors SZF and GSZF with cell width gradations from 500 to 2,000 millimetres, centre distances of more than 250 metres and conveying capacities of over 1,300 cubic metres per hour.

### ANGLES OF INCLINATION UP TO 60 DEGREES

The angles of inclination on the SZFs and GSZFs depend on the height of the silo and the conveying distance. The systems come in three different designs. "We have an open cell design where the bulk material is transported at an angle of up to 30 degrees without rolling back," explains Tissen. The cells on the second design are equipped with baffle plates. Inclinations of up to 45 degrees are possible. The design as steel box conveyor allows extreme

inclinations of up to 60 degrees. "This design is perfect for steep inclinations and small curves, but also for smaller inclinations when transporting clinker with a high content of fine particles," he describes.

And this is becoming more and more important for operators. Instead of using fossil fuels like coal and gas they are opting for alternative fuels in order to reduce greenhouse gas emissions and production costs. Besides liquid materials like waste oil or solvents, the majority of the solid alternative fuels are composed of municipal and industrial waste, such as plastic, paper, composite material and textile mixes. This also changes the chemical process. "Clinker grains are spherical with a diameter of ten to 30 millimetres and the content of fine particles is less than five percent when using fossil fuels. This content increases however to 30 percent when using alternative fuels," explains Tissen. "In order to handle this safely, the boxes need to be completely enclosed."



BEUMER Group supplies belt apron conveyor to the Turkish cement manufacturer Göltas Cemento.

### BELTS - THE ECONOMICAL ALTERNATIVE

The traction element in the conveyor is usually a single or double strand sprocket chain, designed as steel-bushed roller chain with a pitch of 315 millimetres. Finely regraded versions for breaking forces ranging between 250 and 2,700 kilo newton ensure optimum adaptation to the required parameters. The maximum conveying speed is 0.3 meters per second.

"Instead of a chain we also offer the apron conveyors with our tried and tested BEUMER steel wire belt coming from the bucket elevator technology," reports the expert. Here the cells are attached to the low-wear, long-lasting and steel-wire reinforced belt in a way so that the heat of the clinker in the steel cells is not transferred on





*The narrow and weight-reduced design of the GSZF reduces the costs for steel structure and freight. The operator was able to save considerably on costs.*

to the belt. A special profile between the steel cells and the belt prevents this. Partition plates are attached in the material feeding area below the cooler and can be easily removed for maintenance, protecting the belt against hot clinker in case of a kiln flash.

#### PERFECT FOR RETROFITTING

One decisive advantage of the belt apron conveyor: with 0.6 metres per second, it can reach double the conveying speed compared to apron conveyors with a chain. "This makes it perfect for retrofitting and modernisations," says Tissen. If the operator wants to increase the kiln capacity for example, he can replace an existing apron conveyor with an belt version of the same size. It means double the capacity without having to change anything on the steel structure or the conveyor bridge.

The operator also benefits of a new construction application: The thinner, lighter design of the GSZF reduces costs for the steel structure and freight. Furthermore, the decreased net weight lowers the static and dynamic loads which affect the clinker silo and the foundations for example. "A new construction project can be designed for a smaller load and is therefore more cost-effective to build," explains the expert. "The light-weight design also lowers operational costs."

#### QUIET, LOW IN MAINTENANCE, RELIABLE

As the entire belt lies with its surface on the drive and return pulley, the unwanted polygon effect on the chain is avoided. The particularly smooth running of the machine also reduces noise emission considerably. The noise is less than half as loud as conventional SZFs with chains. This is good for the employees, the environment and the surrounding area.

The use of the durable BEUMER steel wire belt instead of a chain lowers the maintenance costs, and extends maintenance intervals. Chains can also break, if preventive maintenance is not performed properly, which will lead to the conveyor collapsing. "The belt with the steel wires only ages and the rubber becomes brittle, but it would never completely break," describes Tissen. Lubrication is also not required for the belt, whereas used frequently on a chain, if for no other reason than to reduce noise levels. Grease and oil are not only a cost



factor, but also detrimental to the environment and the conveyor. The clinker dust gets stuck on it and settles in the chain links, which accelerates the wear and tear.

#### GÖLTAS CEMENTO OPTS FOR GSZFS

BEUMER belt apron conveyors are in operation for nearly 150 companies. One of them is the Turkish cement manufacturer Göltas Cemento, located close to Isparta, approximately 130 kilometres north of Antalya. In the wake of a building boom in Turkey and the growing demand for cement, the cement manufacturer opted for modernising its kiln and increasing the performance. An increase from 250 to 400 tons per hour of the conveying technology capacity was required, for a chain apron conveyor that transports the clinker from the kiln cooling system to the silo. And for an economical production, Göltas Cemento has been increasingly opting for alternative fuels over the last several years, which meant that the content of fine particles also increased continuously. The existing conveyor already transported high quantities of material, and the process had become extremely dirty. Personnel was constantly needed to perform cleaning work.

To find an efficient solution and a suitable partner on their side, Göltas Cement turned to the BEUMER Group. The two companies have been working together since 1996. The system provider has supplied two clinker transport systems and four belt bucket elevators over the course of their partnership. So, the cement manufacturer was already familiar with the advantages of the BEUMER steel belt technology. The project phase began mid-2015, the contract was

awarded in the beginning of 2016, followed by the installation and commissioning in the fall.

#### MODERNISATIONS WITHOUT EXTENSIVE RECONSTRUCTION WORK

"For a more powerful chain apron conveyor, we would have needed to take down the entire system including the building structures and the concrete tunnel," says Tissen, who was responsible for this project with his team. "This wasn't necessary when opting for the belt version. It reaches double the conveying speed, so that the BEUMER Group engineers could design the system for an increased capacity while keeping the same width. The conveyor bridge and the self-supporting steel structure, as well as the concrete foundations remained. Göltas Cement was able to considerably reduce costs, and put the system quickly into operation. "The silo is 50 metres high. In order to overcome an inclination of 40 degrees, we installed a steel box conveyor," explains the expert. It releases almost no material to the environment, despite the higher content in fine particles, creating a cleaner work environment.

For the installation work, BEUMER Group provided the supervisor, the assembly was carried out by the client personnel. "Our collaboration went great," sums up Tissen. "The assembly only was a little trickier in the very narrow concrete tunnel, where the conveyor is located. But the installation was well-prepared. So we were still able to stick to the set schedule." Göltas Cemento and BEUMER Group are already discussing future modernisation projects.

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# Product-to-Product Heat Recovery

Wastewater, sewage, effluents and sludge are useful sources of energy with the potential to heat (or in some circumstances cool) other products or materials in industrial processes. The DTR Series of double tube heat exchangers from HRS is designed to maximise direct (product-to-product) energy recovery from such low viscosity materials, allowing valuable heat to be recaptured before the effluent enters final treatment or is discharged to the environment.

Where biological water treatments are employed, it may be necessary to reduce the temperature of the effluent before treatment. For aerobic decomposition or other biological treatments, temperatures between 25 and 35 °C are recommended; with activity ceasing above 50 °C, the temperature of discharged cooling water is often around 40 °C (Madden, N, Lewis A. & Davis, M.: <http://iopscience.iop.org/article/10.1088/1748-9326/8/3/035006>); while work in Switzerland suggests that domestic wastewater typically has a temperature around 20 °C and rarely falls below 10 °C (Schmid, F.; <http://web.deu.edu.tr/atiksu/ana52/aryen3.html>). Capturing the effluent closer to its source can result in higher temperatures.

## ECONOMICALLY AND ENVIRONMENTALLY SENSIBLE

Making use of any available heat is good for both your pocket and the environment, re-

ducing the energy required for heating, with a corresponding drop in greenhouse gas emissions. Discharging water which is closer to ambient temperatures is also much better for the wider environment. HRS Heat Exchangers have designed the DTR Series specifically to use low viscous products (or waste streams) as the heating (or cooling) medium. The DTR series is perfect for direct sludge to sludge heat recovery and environmental industry heat recovery.

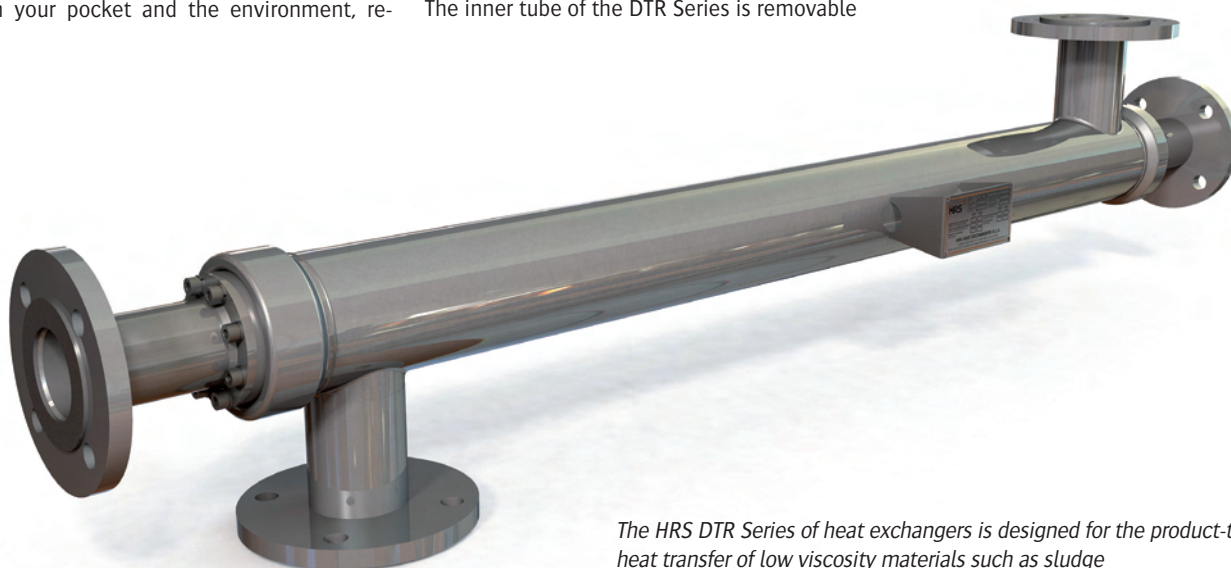
The tube-in-tube design means that the DTR series copes well with fluids that contain particles, without the worry of blockages impeding the flow of product or heating medium. Special stainless steel corrugated tubes are used to increase heat transfer and reduce fouling, making the DTR Series more efficient than similar smooth tube heat exchanger designs.

The inner tube of the DTR Series is removable

for inspection, cleaning and maintenance, meaning that both the tube and shell sides can be inspected and cleaned, while the corrugated tube technology that HRS is so well known for improves heat transfer, yet reduces potential fouling compared to standard smooth tube heat exchangers. This allows the product or waste stream to run in both the inner and tubes. It also allows for easier and faster cleaning, so overall there is less operational downtime, even with high fouling products.

For large installations, multiple units can be interconnected and mounted in a frame, and a range of options, including thermal insulation and cladding in materials including stainless steel are available.

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*The HRS DTR Series of heat exchangers is designed for the product-to-product heat transfer of low viscosity materials such as sludge*



## HYGIENIC VALVE CONTROL UNITS

IO-Link communication from valve automation systems



The new **Alfa Laval ThinkTop** IO-Link enhance communication between your hygienic valves and Industry 4.0 automation systems. The point-to-point IO-Link communication protocol connects sensors

and actuators—regardless of fieldbus—to your automation systems. This enables real-time data exchange, improving diagnostics and simplifying configurability and control. ThinkTop IO-Link is perfect for use in the dairy, food, beverage, pharmaceutical and home-personal care industries. Users benefit from shorter installation time due to convenient M12 connectors and automatic recording of the hygienic valve stroke duration. Smarter time adjustments are enabled by the ability to assign priority to critical data. Flexibility is enhanced as a result of the capability to change data and process parameters from a remote automation system. Experience better daily operations due to enhanced data storage, availability and analytics. Valve cleaning could be optimized using the devices and a remote programmable logic controller to switch between standard time-based seat lift cleaning and burst seat cleaning. The clearly visible LEDs with customizable colours and flashing-light 'wink' function eases valve identification on the automation system to the factory floor and a pressure shock counter for nearly instant detection of valve movements is integrated.

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## LEVEL SWITCHES FOR SOLIDS APPLICATIONS

Flexible level monitoring and overflow prevention



**Emerson** has introduced a range of new Rosemount solids level switches designed to optimise operations, increase safety and reduce waste by providing reliable point level

monitoring and supporting overflow prevention. The introduction of switches based on four proven and trusted technologies enables Emerson to offer a complete product portfolio for continuous and point level solids measurement. The vibrating fork, paddle, capacitance and vibrating rod switches ensure reliable monitoring of solid materials such as powders, grains and pellets in all silo types across industries including food and beverage, agriculture, chemical, power, cement, mining and plastics. The compact, easy-to-operate switches require low levels of maintenance and are suitable for operation in extremely challenging environments, including those with high temperatures, high pressures, dust and risk of explosion. The switches can be used to provide standalone point level monitoring to help optimise filling and emptying cycles. They can also be deployed within an overflow prevention system. In applications involving light, fine-grained and powdered materials where high measurement sensitivity is required, Rosemount 2511 and 2521 vibrating fork switches provide a cost-effective solution with European Commission ATEX certification.

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## PENTAIR BOOSTER SETS

Pentair Sta-Rite delivers booster Sets with UL-778 pumps



Riyadh metro is a rapid transit system under construction in the capital of Saudi Arabia. It is part of the Riyadh Public Transport Project (RPTP) and will be 176 km long with six lines and 85 stations. The new metro system is expected to fulfil the demands of the growing population, as well as reduce traffic congestion

and improve air quality. All products installed in the infrastructure of this mega-project have to meet the highest quality requirements. **Pentair Sta-Rite** delivered booster-, transfer- and circulation sets with UL-778 pumps to ensure the supply of fresh water in the sanitary areas, kitchens and prayer ablution rooms of all the stations. The sets will boost and maintain the water pressure level. The Sta-Rite sets are built with higher specification (UL-778 certified: that safety standard covers submersible and nonsubmersible motor-operated pumps intended to be used in ordinary locations in accordance with the National Electrical Code, NFPA 70 ), flood resistant and allow a customized adaptation due to electrical and mechanical requirements. Further information is available on the [starite.it](http://starite.it) website.

►► 59010 at [www.pcne.eu](http://www.pcne.eu)

## STAINLESS STEEL CONVEYOR

Extension of series in 70 mm width for smaller products



**FlexLink** expands its' range of stainless conveyor widths and product handling functions designed for dairy, food, personal care, and pharmaceutical production. In addition to the 85, 180 and 300 mm stainless steel

sizes available, FlexLink now offers a new 70 mm option. This new size will replace the XLX option. Designed to handle smaller food containers and packets that are more sensitive to being unstable during production, this additional offer gives manufacturers greater possibilities to optimize their production control during manufacturing. The importance of operator safety continues to be a driving force for product development at FlexLink. In line with the additional 70 mm conveyor option, the company has also introduced a new chain design, available for the stainless steel, as well as the aluminum product range. The innovative chain design has a high focus on product and operator safety, decreasing the opportunity for operator injury during production. The new design is approved by and compliant with both the latest European and American regulations. Thanks to a reduction of pinch points, manufacturers are less likely to experience production losses caused by unstable products. When considering line design, the simplicity of a lean interior reduces the time needed to clean the line and minimizes the risk of cross-contamination.

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# Delivering Valves for a New Life Science Facility

Creating a new hygienic production facility that includes ATEX zone 1 areas is a complex task, especially when the facility will need over 1,400 control valves. Hygienic process systems specialist Briggs of Burton PLC called in Bürkert to help deliver a large-scale manufacturing facility for a Life Sciences company PuroLite.

Briggs of Burton was appointed by PuroLite as the main contractor to design and build additional production facilities consisting of eleven reactor vessels split across nine production areas. Briggs was able to specify the manufacturer of the equipment being installed, (except for the sensors, the supplier for which had already been decided) and chose Bürkert products.

## SPECIALIST REQUIREMENTS

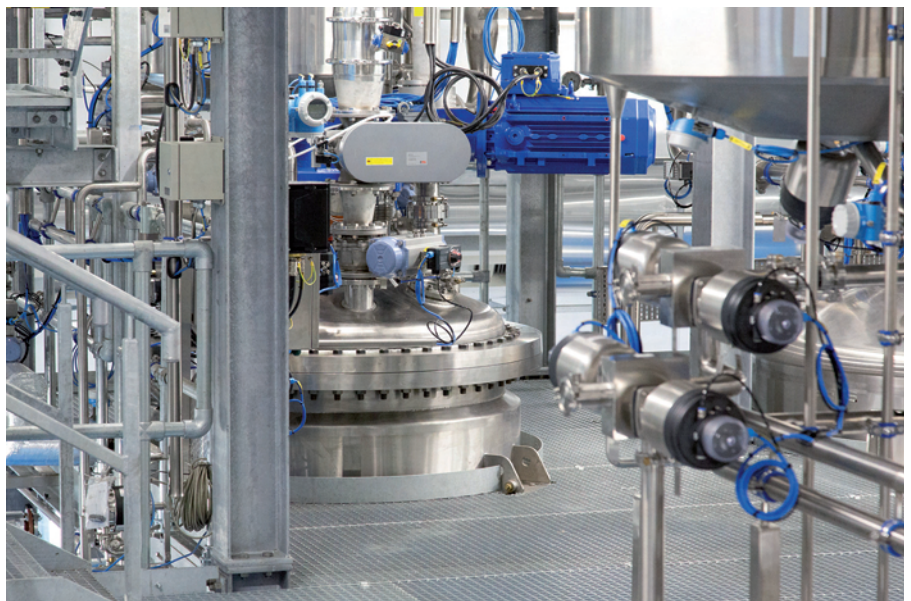
The scale of the project meant that the equipment would be located in a range of environments from outdoors to ATEX zone 1. Any valves, sensors or control gear located in potentially explosive atmospheres must be manufactured and certified as well as being installed by suitably qualified engineers.

Having been appraised of the process requirements, Briggs needed process equipment suppliers that could deliver not just the valves but also the 3D CAD drawings and relevant certification to integrate into their overall 3D model. The drawings are essential for the design engineers to finalise the valve locations and ensure that all the equipment will fit into the space available around the vessels.

Briggs initially approached Bürkert for diaphragm valves, but during the discussions about the project, it became apparent that Bürkert would be able to deliver all the process valves they needed. This would include, butterfly, quarter turn, diaphragm and manual valves.

## IMPROVED EFFICIENCY

In total, the project needed over 1,400 process valves and each one had to be accompanied by certification documents and drawings. The delivery of this information was greatly simplified when Bürkert setup an online resource for



Looking into the plant, where a total of 1,400 different control valves had to be installed

Briggs engineers to login and access all the information they required.

The logistics of the project were also further simplified when Bürkert packaged together all the valves for each production area and labelled them accordingly. This made the installation process much quicker and ensured that all the necessary valves were in the correct location.

Aside from the standard process valves, Bürkert was also able to create bespoke solutions for tank bottom valves; multi-seat valve blocks were also manufactured to minimise the footprint of the installation. Bürkert's specialist manufacturing capabilities ensured that every part was delivered with the correct control gear and seals for a simple installation.

Damien Moran, Field Segment Manager Hygienic, Pharmaceutical for Bürkert, explains: "Our aim is to deliver the best solution for the customer and our products are designed so that they fit into local, decentralised or, as in this case, centralised control structures. With some additional advice, we were able keep the project costs to a minimum, while ensuring reliability."

## REDUCING COSTS

All the automated valves for this project have pilot solenoid valves in the control head, or in the case of the quarter turn valves, located in the switch box on the top of the controller. This made a number of external valve islands and the associated ATEX rated pneumatic control







The state-of-the-art manufacturing facility at Puro-lite's R&D Centre of Excellence in South Wales, was officially opened in 2018

The partnership between Briggs and Bürkert has delivered an efficient and cost-effective project."

#### ABOUT THE PLANT:

Puro-lite Life Sciences' facility is capable of producing 100,000L of high flow agarose resin annually for their Praesto® range of Protein A affinity and ion-exchange resins, designed for the purification of monoclonal antibodies. The multi-million-pound investment gave Puro-lite Life Sciences capability to supply 30% of global demand for agarose-based chromatographic resins, with construction boosting local supply chains in South Wales by an estimated £120 million. The state-of-the-art manufacturing facility, located at Puro-lite's R&D Centre of Excellence in South Wales, was officially opened in 2018.

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panels redundant, saving the project around £80,000.

George Crombie, Engineering Director for Briggs, comments: "The whole process has been much simpler than we envisaged, and Bürkert's ability to make changes to individual valves quickly, plus their ability to manufacture

bespoke valve manifolds has really helped in the delivery of this project."

Duncan Sinclair, Production Manager at Puro-lite, concludes: "The new production facility has worked out very well. The knowledge of the Bürkert engineers in hygienic process control has certainly paid off in the final design.

## WASTE WATER PUMP

Equipped for a long and efficient service life



At IFAT **KSB** will present its new submersible motor pump of the Amarex type series. The pumps are employed in applications like waste water and sludge treatment as well as the transport of stormwater. They can handle waste water with long fibres and solid substances, fluids containing gas as well as sludges, service and grey water and are equipped with either free-flow impellers (F-max) or

open two-vane impellers (D-max). So customers can choose the right impeller type depending on their requirements: low waste water flow rates at high heads and high flow rates at lower heads. Pump variants featuring D-max impellers are optionally available with D-flector which significantly increases resistance to clogging. A multitude of material and mechanical seal variants ensures that the user can transport a wide range of corrosive and abrasive fluids. The impellers' non-clogging feature markedly reduces maintenance requirements compared with conventional designs and the pumps' high levels of hydraulic efficiency combined with high-efficiency IE3 motors make for low energy consumption during operation. The type series has a maximum head of 42 metres and a maximum flow rate of 320 m<sup>3</sup>/h. An environmentally friendly, non-toxic oil fill provides continuous lubrication of the mechanical seal.

►► 58980 at [www.pcne.eu](http://www.pcne.eu)

## PERISTALTIC METERING PUMP

For fluids that place high demands on pumps



The new Dulcoflex Control extends the **ProMinent** portfolio with an intelligent peristaltic metering pump. The new pump meters reliably 10 ml/h up to 30 l/h at up to 7 bar. A brushless three-phase motor forms the heart of the Dulcoflex Control. Its ingenious control provides for precise metering and reduced pump capacity with continuous metering up to 10 ml/h. Linear and repro-

ducible metering is guaranteed with this peristaltic pump under all process conditions. The new peristaltic pump is also IoT enabled, meaning that it is fully connectible and can be connected to ProMinent's in-house developed DulconneX platform, which enables it to work even smarter. The unique changing technique developed by ProMinent enables the quick and straightforward replacement of the tube totally without the need for a tool. The display provides the fitter with precise instructions about the steps to be completed when replacing the hose. The thermoplastic elastomer high-performance hose used guarantees exceptional chemical resistance and a long service life. The order information required for replacement of the hose can be found on the pump's operating menu. The intuitive user interface with click-wheel ensures the simple operation of the peristaltic pump.

►► 58989 at [www.pcne.eu](http://www.pcne.eu)



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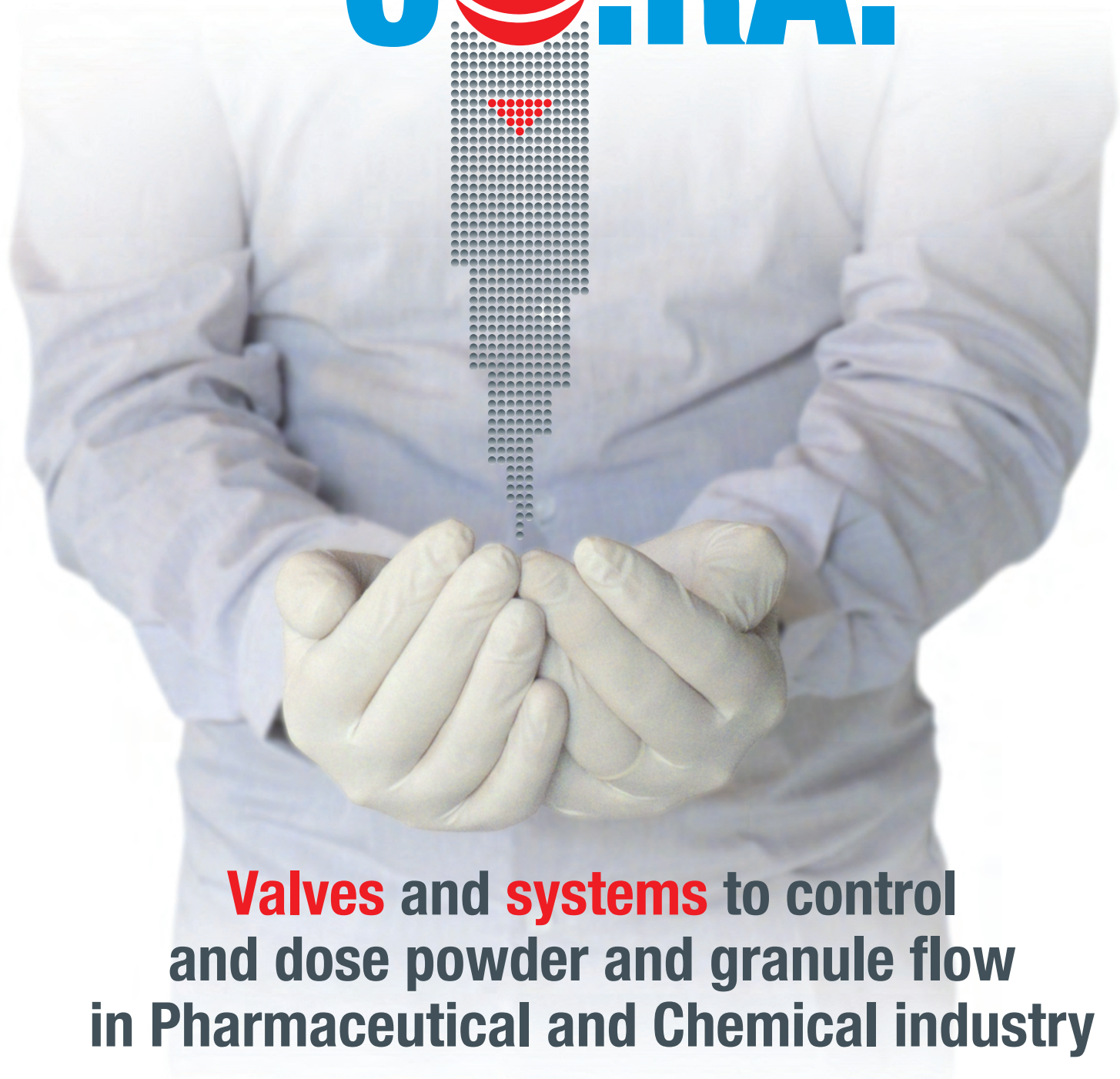
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