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Dear Reader,

past months impressively showed with continuous changes in politics, the economy and society with simultaneous increasing uncertainty the importance of being able to accurately predict the political and economic developments of the next 12 months. We are living in a dynamic time of constant change and technical progress with dwindling length of stay.

Therefore, our customers and business partners expect even more flexibility from us and the shortest delivery and response times with appropriate support and the unchanged high sera quality and reliability. Meeting this requirement day after day is the mission of our qualified sera team. Because we do not only talk about customer orientation, but prove it every day.

Antoine de Saint-Exupéry formulated it appropriately: "You cannot see into the future, but you can lay the foundation for things to come – because the future is something you can build".

We want to do this with innovative products and system solutions as well as with competent advice and support to create economic and ecological added values for our customers and successfully contribute to shaping their future.

In this sera news, you will again find some interesting product innovations, customer solutions and company activities which document our capability and corporate philosophy.

I wish you interesting reading and assure you that we at sera will also be the powerful partner at your side in the future.

sera – Excellence in Fluid Technology

Best regards

Graduate Industrial Engineer Carsten Rahier, MBA
The brand name becomes the company name

Seybert & Rahier GmbH + Co. Betriebs-KG has become sera GmbH.

In order to meet the objective of anchoring the sera brand name which has been internationally established for many decades directly in the company names of all companies in the sera group of companies and thus further reinforcing the sera brand, Seybert & Rahier GmbH + Co. Betriebs-KG has been renamed and is officially trading as sera GmbH.

With regard to the company name, the parent company now forms a harmonic and understandable unit for the public with the subsidiaries sera ProDos GmbH, sera ComPress GmbH, sera ProDos UK Ltd. and sera ProDos SA (PTY) Ltd.

Nothing has changed in the internal structure, function and organisation of sera GmbH in the framework of the sera group of companies.
Grand opening ceremony with open house day

After almost two years of the reconstruction phase, the new sera company building was ceremoniously inaugurated on 27/04/2013.

After the official part in the morning, the families of the employees, friends, business partners and interested visitors had the opportunity in the course of an open house day to get to know the traditional sera group of companies, its history, products and the new premises.

Despite the rainy weather, more than 1,000 visitors took advantage of this offer. Musical events, an exhibition of modern art with thematic reference to sera, an appearance of the TSG 1848 Hofgeismar show group, a large tombola with great prizes and a comprehensive programme for children rounded off the day. Refreshments, for example, home-made cakes were also served.

The proceeds from the tombola and from the food and drinks were donated to the “Omaruru Children’s Haven” orphanage in Namibia. Children in need who have lost their parents due to aids find help and a new home there. They were happy to receive a donation of EUR 4,000 and T-shirts sponsored by sera.
European sales conference 2013

Pooling of sales activities in Europe

The year 2013 was also dominated by the development of consistent customer orientation and proximity as well as the expansion of the extensive consulting competence on the European market. For this reason, a large European sales conference was held at the sera headquarters in Immenhausen at which around 40 participants from almost all European sera sales partner companies could be welcomed.

Due to numerous professional presentations and a workshop, these received both a comprehensive impression of new sales actions as well as detailed information about technological developments.

The international sales team of sera ProDos GmbH was able to have many valuable discussions with the European partners. Due to the information obtained, the team can develop new and primarily targeted sales and service measures for the European market and of course first and foremost for the joint customers in the future.
In accordance with the sera corporate principles "...assume responsibility..." and "create added values for the people and the environment...", around 80 committed sera employees demonstrated regional environmental and responsibility awareness on the national "Environment Day" on 05/06/2013.

Sera employees divided themselves into teams of five to ten persons each in the early afternoon to clear litter and debris from public places, leisure facilities and children’s playgrounds in Immenhausen.

Other voluntary employees of the company concentrated on the areas around the sera company premises and the neighbouring former Süßmuth glassworks premises to perform cleaning and gardening work.

Carsten Rahier, the managing partner of the sera group of companies, who also energetically participated in the action himself, described this afterwards as "complete success for the environment". The mayor of Immenhausen was also impressed with the result which was able to be achieved in such a short time thanks to the great commitment of the sera employees taking part and made his thanks in person for the support of the town.
The subject of work-life balance at sera was already focussed on more than two years ago with the start of internal health management under the motto "be sera...be healthy" for which the trainees of sera were involved in the framework of their own project group and great commitment.

At the start and as first step, fresh fruit were made available every day to the employees at no cost which the employees could access during the complete working day. The employees have been delighted since then to take advantage of this offer which promotes or supports the supply of important vitamins and minerals.

Drinking water fountains were installed only a short time later in the reception area, on all floors of the office building and in the production halls to provide the employees with sufficient liquid supply. At the same time, all employees received their own water bottle to be able to fill this with the fresh, cooled water and take it to their work place.

In order to physically enable compensation for the mostly sitting or standing activities in the course of the working life, yoga and back training courses have been provided for some time which are very popular. The courses take place after work in a room created for this purpose – the "Room of Body and Soul".

Whoever is looking for mental relaxation or simply a room to draw new force or be inspired can do this in the also created "Room of Inspiration". In the framework of the trust-based flexitime already implemented at sera in 2012, the employees are free to decide at their own responsibility when and for how long they make use of this pleasant and relaxingly designed room.

An extensive library for reading and research has also been made available to the employees. An extensive range of literature from detective novels to scientific reference books can be used there.

Important subjects such as healthy nutrition, correct sitting and standing or also critical subjects such as alcohol misuse are addressed at sera. The health management project group of the trainees in collaboration with a health insurance scheme organised an information day in Spring 2013 against alcohol misuse where films were shown and information flyers and alcohol-free cocktails were provided.

The subject of health management will also be an important integral part of the company philosophy for sera in the future. Because only mentally and physically healthy employees with perfect balance of private and working life are content, well-adjusted and productive employees.
The **sera PLATO app**

The new free planning tool from sera for the planners of waste water treatment plants

Configure a dosing system for precipitants ready to use in 5 minutes? This is possible with the unique and free "PLATO app" from sera.

The powerful program provides all technical responsible persons and planners of industrial and municipal waste water treatment plants with a simple and platform-independent tool for the configuration of dosing systems for precipitants such as iron and aluminium salts.

Thanks to the intuitive user interface with comprehensive help, users of the purely web-based application can find the perfect dosing solution for their individual application with a few mouse clicks.

The user sees exactly how changes to the configuration affect the dosing system in an animated, graphical display. For example, directly on the configuration of the dosing monitoring. An appropriate tender specification together with P&I diagram for the completely configured dosing system can also be generated and then saved, printed out or exported in diverse formats such as GAEB, PDF or Word.

Configured systems can be saved in a project directory created by the user himself and assigned to him and retrieved again at a later time.

**Benefits overview:**

- Completely free, platform-independent use
- Intuitive user interface with comprehensive help
- With a few mouse clicks to the perfect solution for the process to be planned
- Saving of created tender specifications in own project directory
- Export of the tender specification texts as TXT, PDF, Word and GAEB

The free "sera PLATO app" can be found at its own Web URL [www.sera-plato.de](http://www.sera-plato.de) (until now german language only) or on the website of the **sera** group of companies ([www.sera-web.com](http://www.sera-web.com)).
Extended possible applications of the 510.1 series

Based on the implemented 510.1 pump series, the Development department of sera has extended the product range and developed new pump heads.

Expansion of the range of applications

The previous operating range of the piston diaphragm pumps for the 510.1 series is between 65 l/h to 1,300 l/h with up to 180 bar counter pressure. With the new pump heads, the performance gap between 5 l/h to 65 l/h is now also closed due to appropriate graduation and operating pressures up to 288 bar are covered. With this new graduation, the pump series can be adapted even more variably to many tasks in liquid dosing.

Operational reliability goes without saying

Operational reliability is the focus for every application and goes without saying for sera. As already successfully used for other series, the pumps are fitted with a high quality material multilayer diaphragm system as standard. This reliably ensures diaphragm monitoring at any time.

The pumps themselves are also protected by an internal compensating valve. This valve primarily ensures the optimum amount of hydraulic fluid in the hydraulic chamber. A positive side effect of the valve is the limitation of the overpressure in the working area of the pumps.

Thereby, the valve opens if the pressure in the working area is too high and lets the hydraulic fluid flow into the storage tank.

The compensating valve opens during the following suction stroke and the lacking amount of hydraulic fluid flows back again. Due to the expansion of the delivery rates paired with high operational reliability, the sera piston diaphragm pumps are suitable for use in a very wide range. This ranges from metering tasks in the food industry to applications in the pharmaceuticals or petrochemicals industry.

ATEX design or conformity according to API 675 optionally available

In order to enable use in the crude oil conveying and processing industry, these pumps are also optionally available for the explosion-protected area as well as in accordance with the API standard 675. The latter is particularly enabled due to the positive connection of the individual parts.

Suitable accessories round off the concept

Extensive dosing accessories which are customised for the requirements of the end users and the pump are also available. Overall, the new pump heads round off the 510.1 series as a coherent concept. With this, sera will also meet the usual high requirements for accuracy, quality and reliability in the future.
Expansion of the product range of the 511.1 series

In the course of the further development of the 511.1 series, sera has expanded the product range and brought new designs ready for production.

In the pump types area, pumps without stroke length adjustment, double head pumps and combination design pumps are now also available. The further activities are based on the modular system of the already implemented 511.1 pump types.

Adaptable and suitable for a wide range of applications

With the performance data of the piston diaphragm pumps series and due to the variable configuration possibilities, the pumps are adaptable for a wide range of dosing technology applications. The combination of different pump heads of the 511.1 series in this context enables increase of the pump capacity or the simultaneous addition or mixing of various media.

Also optionally available with ATEX approval or conformity according to API 674

In order to enable use in the crude oil conveying and processing industry, the new versions are also optionally available for the explosion-protected area as well as in accordance with the API standard 674t. The latter is particularly enabled due to the positive connection of the individual parts.

Due to the modular system, the piston diaphragm pumps of the S series provide many combination possibilities.
Extraction of salts for agriculture

Crude salts are formed from salty seawater. These crude salts are always composed of different constituent parts. An appropriate treatment process is selected depending on which end product should be manufactured. One of these is flotation where the rock salt is separated from potash.

The basic principle of the process is that the minerals to be separated are suspended in a saturated salt solution. Air is blown into this. So that the air bubbles only attach to selected mineral sorts, these are made hydrophobic by addition of flotation agents. As a result, the kieserite (salt mineral) to be separated floats up as foam and can be skimmed off.

The salts extracted in this way are mainly used as fertilisers in agriculture. High purity salts are also used in the chemical industry and in medicine.

The company Kali+Salz contacted sera to produce a dosing system for the required flotation agents. A mixture of hot water, hydrochloric acid and amines (derivatives of ammonia) should be dosed as flotation agent.

sera was able to convince the customer for this order with comprehensive technical knowledge and took care of the planning, design, production, transport, installation and commissioning and a test run.

Detailed documentation was also included in the scope of delivery. The sera piston diaphragm pumps with the proven multilayer diaphragm technology were used to guarantee maximum operational reliability.

sera has of course complied with the factory specifications of the customer for documentation, electrical equipment, motors and installation as well as a certified occupational health and safety management system.
séra has developed a cost-efficient system solution specifically aimed at industries with fluctuating, but large requirements of alkaline detergents, such as sodium hydroxide. This solution ensures the safe and efficient preparation of soda lye on the basis of sodium hydroxide (NaOH) in solid form (pellets, flakes, beads or powder) and water.

**Safety and efficiency are key**

The basic system consists of a stainless steel preparation tank, an agitator and a special conveyor, which has been separated from the preparation tank. The conveyor consists of a hopper and a stainless steel feed screw which transfers the solids into the preparation tank. This design ensures that the operator is not in the immediate danger zone of the preparation tank in which the solids react exothermically with water. The preparation tank is available with a capacity of 1000, 2000 or 5000 litres. It is fitted with a level gauge with shut-off valve, a temperature gauge and a tubular safety frame to prevent accidental body contact.

**Additional options and accessories**

The prepared solution is transferred into a larger storage tank either using a séra transfer pump which is mounted on the preparation tank or using a séra transfer unit which is separate from the preparation tank. An optional hopper cover and a special suction device as additional safety feature are available. The entire system can be partially automated or integrated into existing process control systems with the help of a PLC.

**Single source procurement**

To remove the solution from its storage tank and to accurately transfer it into the relevant process, a large range of séra dosing systems is available which can be customised for each application.

**Benefits overview**

- More safety for people and environment due to the physical separation of the bag infeed of the preparation tank (exothermic reaction) and the optional suction device
- Cost-efficient preparation of solutions as needed by preparing only the amount required for each process
- Cost savings for transport, delivery and storage of bagged undissolved solids in comparison with ready-made solutions
- No need for extensive structural safety features which would be required for the delivery of ready-made solutions via hazardous goods tankers
- More flexibility regarding the concentration of each solution by increasing or reducing the amount of solids
Phosphates are essential substances for all living beings. Particularly plants need mineral phosphates to be able to grow correctly. For this reason, fertilisers containing phosphates are used in agriculture.

However, phosphate can be problematic in water if too much reaches this. Just like plants on land react with strong growth to fertilisation with phosphate, the algae in water also start to grow strongly with any entry of phosphate.

Due to the large number of algae, the growth of other organisms is also increased so that the overall biomass in the water increases. The oxygen content of the water is greatly reduced due to the larger number of organisms and decomposition processes of dead organisms. Depending on the water and conditions, this can result in the complete water “dying” or once indigenous species can no longer survive.

As well as agriculture, one main way in which phosphate can get into water is the discharge of urban waste water. Particularly detergents for domestic dishwashers contain even larger amounts of phosphates today. These are used for lime binding and alkalisation.

Due to legal provisions for ingredients of detergents and other materials, the phosphate content of waste water has been greatly reduced in the course of recent decades. In order to further reduce water contamination, there have been limit values for phosphate in discharged waste water for a long time.

Therefore, the phosphate is filled into the waste water treatment plants with a ferrous or aluminium salt.

This means that the dissolved phosphate reacts with the cations of the salts to form insoluble compounds and can then be disposed of with the sludge.

Ferric chloride is dosed into the Bad Driburg waste water treatment plant (Germany) for this purpose. The dosing system with two redundant dosing pumps was constructed and put into operation in 1995. However, these former dosing pumps had reached the end of their service life and no longer functioned properly. Therefore, it was decided to make a new purchase and in doing so this lead to sera.

As sera dosing pumps have been very satisfactorily used for a longer time for other purposes at the waste water treatment plant and sera is quasi “on the doorstep”, it was decided to replace all dosing pumps with sera pumps. Two different solution approaches were discussed during the on-site meeting with a sera application engineer: the pure replacement of the pumps or the use or procurement of a complete dosing system.

Given the age of the installed components and the cost for retrofitting the new pumps, it was decided to replace the complete dosing system with a modern, modularly designed compact dosing system of the type sera CVD. To be on the safe side, the customer decided on the complete package of support, planning, construction of the dosing system and on-site installation and commissioning.
Formalin is an approximately 35%, aqueous formaldehyde solution with addition of methanol and was discovered at the end of the 19th century. Since then, it has developed into one of the most important organic raw materials in the chemical industry. Due to its germicidal effect, it is used among other things as medicament and for permanent fixing of tissue samples. As a result, it is possible to conserve anatomical and biological preparations for years. This has crucial importance for research and teaching purposes.

More than 20 million tons of formaldehyde are produced annually. The contaminated solutions are usually simply disposed of via waste water after use and in this way result in not insignificant pollution of our waters.

The Formafix company is a technology specialist for the reprocessing of formalin. sera dosing systems are used here which ensure that already used and contaminated formalin solutions can be recycled and made available to the user again.

This is crucially important for avoiding waste and thus part of general social responsibility. The sera dosing system in use at Formafix is designed as wall pallet with control of the complete system, signal boxes for local operation, level monitoring of the formalin tanks provided by the customer and leakage sensor in accordance with the German Water Resources law (WHG). The pumps installed in the dosing system are sera piston diaphragm pumps with the proven multilayer diaphragm technology. These guarantee maximum operational reliability.
Recycling of energy-containing waster from the water treatment.

The Goldenberg power plant is a brown coal power plant operated by RWE. It supplies the neighbouring industry in the Knapsack chemical park (Germany) with electricity, process steam and district heating.

Sludge incineration in coal-fired power plants has established itself in recent years. No additional environmental burden is produced here and the waste from the urban waste water treatment is reused. 60 million cubic metres of sludge had to be disposed of in Germany as early as at the beginning of the 1990s.

The company Saxlund International provides well-engineered solutions for sludge handling. The largest slurry pump for sludge conveying is in the Goldenberg power plant. As the sludge has to be transported in pipelines over large distances, lubricants are required to minimise the pipe friction losses. A sera dosing system is used for the preparation and dosing of the lubricant; in this case polymer solutions.

The system consists of a 1,700 litres preparation and dosing tank, a dosing pump for preparing the polymer concentrate, apparatus for filling with dilution water and level monitoring and a pump for the prepared polymer solution. The components were mounted on a steel frame with drip tray.

The specifications of the end customer (RWE AG) had to be complied with; these related, for example, to makes of the apparatus used, installation conditions (dimensions and ambient conditions), safety devices, motor design and documentation. All self-evident for sera.

Sludge background information:
Sludge is a mixture of water and suspended matter which occurs during waste water purification. Sludge also contains substances such as heavy metals which can be problematic for the environment and people.

© RWE AG
The plant growth promoting effect of nitrogen was discovered around 1840. Bound in nitrates, this is obtained from ammonia and nitric acid. Ammonium nitrate is produced which quickly supplies plants with nitrogen without this escaping into the atmosphere.

However, many farmed lands today are low in nitrogen. Therefore, fertilisers are important for agriculture and thus for the food supply in the entire world.

The international plant constructor, Thyssen Krupp Uhde, is currently building an ultra modern and efficient plant complex in Egypt for the manufacture of 200,000 tons per year of ammonium nitrate. LDAN (Low Density Ammonium Nitrate) will be manufactured in this. The cooling water quality is of elementary importance for trouble-free operation of the plant.

Therefore, a sera dosing system was decided on for the cooling water treatment. Design, engineering, manufacture, documentation and delivery are included in the scope of supply. Many different water treatment chemicals such as oxygen binding agents are dosed in the system. This provides corrosion protection. Furthermore, amongst other things trisodium phosphate for pH value adjustment and sodium hypochlorite for disinfection are dosed.

The systems are installed outdoors; accordingly the design had to be adapted to the climatic conditions of Egypt. This was also no problem for the sera application engineers.

Ammonium nitrate background information:
Ammonium nitrate is a salt which is formed from ammonia and nitric acid. It forms colourless crystals which melt at 169.6 °C. The density of pure ammonium nitrate is 1.725 g cm⁻³. In aqueous solution, the density increases with increasing concentration and falls with increasing temperature. Ammonium nitrate is the main ingredient of many fertilisers and commercial explosives.
Gelatine – hidden in many everyday products

Gelatine is not only in jelly babies but also in many everyday things which would not be expected at all. For example, many foods such as cake glaze, yoghurt and low fat margarine contain large proportions of gelatine.

But wine and clear fruit juices can also contain gelatine. The gelatine is used in the beverage industry for filtering out turbidity substances so that small amounts can also be contained in the finished product.

As well as the food industry, gelatine is also used in medicine, among other things for hard and soft capsules or for coating implants. Even high quality photo paper contains gelatine.

During the manufacture of this important material, parts of animals containing collagen, mainly pig rinds, are treated with sulphuric acid to liberate the appropriate protein. The proteins are cleaned afterwards and can then be further processed for the various gelatine products.

A sera dosing system has been installed in a factory of the market leader for gelatine products for the purpose of dosing sulphuric acid.

Particular importance during the planning of the system has been made for the safety of the personnel as sulphuric acid is extremely irritating and caustic to the skin. As well as a splash guard, the system has a completely enclosed draining and rinsing system which largely prevents contact with the medium during cleaning for maintenance purposes.

The system is also designed so that the complete system can be replaced with an identical system stored in the factory in the case of any fault. This means the system can be rinsed and serviced afterwards without time pressure from threatening production downtime.

In order to reduce the acceleration pressure during filling of the new tank and to be able to simultaneously maintain the synchronisation for the old tanks, the system has two different dosing pumps which can be actuated depending on the tank by the control system provided by the customer.

Thus both the safety level as well as the availability can be substantially increased by the new dosing system.
The director of the building authority of the town of Immenhausen approached sera with an enquiry last Autumn. Ferric chloride has been provisionally dosed from IBC containers into the aeration basins for years for phosphate elimination using an old solenoid diaphragm pump. A system according to the state of the art and conformity with the German Water Resources law, also with regard to the new statutory phosphate limit values, should now be procured.

The application engineers of sera agreed an on-site appointment to find out the requirements and expectations of the customer. The objective of the customer was to purchase a complete system with the planning, design and installation from one source until the handover. The system should be installed in a roofed warehouse without heating and the dosing line to the aeration basins 100 m away should be installed above ground. A switch cabinet for the control with connection to the existing process control system was also required.

Everything from one source – No problem for sera!

Optimally matched to the customer requirements, a system with the following components was developed by sera:
- storage tank with filling nozzle cabinet
- dosing system in protective cabinet with heater, splash guard and transfer pump
- suction aid, storage tank and two dosing pumps
- switch cabinet with wireless transmission to the process control system
- mounting of the components and installation of approx. 160 m dosing line (hose in pipe with trace heating)
- cabling of the station

The overall concept and the corresponding quotation were agreed with the customer during another on-site meeting. This was followed by placement of the order. The turnkey system was handed over and accepted in July 2013.

**Ferric chloride (FeCl₃) background information:**
Ferric chloride is a chemical compound of iron and chloride ions. It is used for binding hydrogen sulphide, phosphate precipitation and also as precipitant for simultaneous precipitation and generally for biological waste water purification as flocculant.
Following a decision by the German parliament to stop generating electricity in nuclear power plants, the gross consumption of electricity from renewable sources is to be increased from 17% to 35% by 2020. This represents an economic and technical challenge.

With the share of renewable energy from wind, hydro, biomass, solar and geothermal sources growing, the future demand for electricity storage facilities is set to increase significantly. Nowadays, in the event of periodical periods of overproduction of wind and solar power, the energy generated must be taken up and distributed by the local power grid.

To counteract this problem, new innovative storage options are needed to store the excess energy, even over long periods, and to retrieve it later when necessary. Such storage facilities must also not only have a suitable performance and capacity but above all, they must be economical.

In order for electrical energy to be stored, it first has to be converted into another form of energy. This can be done by converting to mechanical energy, electric fields or electro-chemical bonding energy. In particular, the conversion into electrochemical bonding energy, with the focus on hydrogen and other gas systems, appears to have a very high and promising potential.

The electricity from renewable energy sources can be converted into hydrogen and stored in large quantities by electrolysis, so that it can be used for fuel cell applications, for example.

**Typical applications:**

- CO₂-neutral vehicle concepts based on fuel cells (cars, fork lift trucks, and public transport buses)
- Military and aerospace (e.g. as a substitute for diesel generators)
- As a source of energy for cellular telephony base stations
- For domestic use, for instance, in energetically self-sufficient building concepts

Two-stage sera metal diaphragm compressor for industrial applications
Compact solar power-operated two-stage sera metal diaphragm compressor with noise absorption hood, for use in home and mobile applications, for example

Two-stage metal diaphragm compressor from our sales and service partner PDC for a solar-powered hydrogen filling station

It is also possible to feed the hydrogen obtained by electrolysis directly into the gas grid or to convert the hydrogen into synthetic methane by means of methanation.

This methane is produced by combining hydrogen and carbon dioxide. Synthetic methane and hydrogen can be used for a variety of applications, ranging from electricity and heat generation to providing fuel for gas-powered vehicles.

**Efficient and safe hydrogen compression and storage with metal diaphragm compressors from sera**

Sera can draw on decades of expertise in the process of hydrogen compression and storage, and offers a large range of suitable compressor systems, which can meet almost every customer-specific application need.

Metal diaphragm compressors from sera are suitable for use at pressures up to 1000 bar, and at flow rates from a few standard litres to several hundred standard cubic metres per hour.

**The advantages of sera metal diaphragm compressors at a glance:**

- Oil- and contamination-free compression
- No gas losses (absence of leaks)
- Type examination in accordance with ATEX
- Complete systems – everything from a single source
- High level of efficiency
- Safe, fully automatic operation
- Simple and flexible adaptation to customer-specific safety and operating concepts
The new sera diaphragm compressors of the MV 6 and 420.1/410.2 – MLG series with integrated control electronics improve and simplify processes in all areas of industry and research where gases (such as hydrogen or helium) need to be conveyed in a contamination-free and environmentally friendly way and in pressure ranges up to 500 bar.

Process compressors are an integral part of many production and testing facilities. Their areas of application need not only be characterized by relatively large flow rates and high operating pressures. Instead, parameters such as reliability, operational safety, environmental friendliness and a high degree of efficiency, combined with the lowest possible operating costs are much more representative of the requirements for the machinery.

As a rule, the compressors are integrated into fully automated processes. The control technology processing of the machine logic is performed in control systems that are uncoupled from the machines. This has applied until now for almost all process compressors, regardless of their size.
The result: interfaces with the known "imponderables". For experienced operators from major industries, this point is certainly less problematic than for the owner of pilot and test plants, especially as in production facilities the machine is frequently run at a steady performance, so that no significant fluctuations in operating parameters have to be assumed. However, operation in pilot and test plants does place other demands on the equipment. Because procedures are being developed and tested in such places, the compressors have to be very flexible in terms of application.

The new sera diaphragm compressors of the MV6 and 420.1/410.2 MLG series have been developed to meet these special demands. Both series received integrated control electronics, which, on the one hand, permits a decentralized integration into automated processes, though it also enables manual operation by entering the parameters directly at the compressor.

In addition to the permanent monitoring of the diaphragm, the flow rate of the compressors is adjusted to the process, analogously to the 0/4 – 20 mA - input signals. If the control electronics also monitors the gas pressures on the process side when needed, then it can even be used to dose the gas in batches.

The compressors currently cover a performance range (motors - nominal power) of up to 2.2 kW. The metal diaphragm version of the MV6 series reaches operating pressures of up to 500 bar, while the MLG versions with PTFE multi-layer diaphragm technology achieve operating pressures of up to 16 bar. Single to three-stage designs are used, depending on the compression ratio.

Depending on the operating conditions on the suction and pressure side, gas flow from a few standard litres per hour up to about 20 Nm³/h can be regularly dosed. The stroke adjustment feature (optional) allows the control range to be extended.
Locally present for our global customers

With local offices in England and South Africa and a worldwide sales and service network with more than 30 foreign representatives in more than 80 countries across all continents, sera guarantees optimum support for customers locally.

2014 Trade fair calendar

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