



# magazine

Where Innovation is Tradition

November 2013



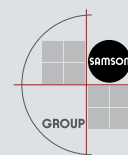
**Impulse**  
Space for  
Giant Valves



■ **Innovations**  
Simple Solution for  
Local Heating Networks

■ **Portrait**  
Regional Strength

■ **Special topic**  
Precise Seat Leakage  
Detection in Control Valves



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The new production hall on the Frankfurt site is directly connected to the high-bay warehouse used to store numerous parts for the production and assembly of valves.

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## Continual Change at SAMSON

Dear Readers,

In this edition of our corporate magazine you can read about the four new SAMSON buildings that have recently been completed. One of these new buildings was constructed in Antwerp, Belgium where we have set up the new headquarters of our Belgian subsidiary. New buildings have also been built at our Argentine subsidiary in Buenos Aires and at the German sales office in Burgkirchen to extend the facilities there. At the headquarters in Frankfurt, a large part of the production facilities has been moved to a new production hall equipped with modern machinery. These construction activities reflect the strong growth experienced at SAMSON. They also boost capacities for future expansion.

In order to thrive on the dynamic global markets and overcome strong competitors, we need to remain active and continue to evolve. Besides suitable buildings and machinery, functioning organizational structures and efficient processes in all areas are needed. Consequently, we continuously optimize our processes and undertake lasting improvements across the entire value chain. The continual change is based on sturdy foundations: high product and service quality, adaptability, process reliability and innovative drive have always been strong points of SAMSON. The newly launched TROVIS Heating Network illustrates this well. The same applies to our positioners with leakage sensors, which ensure a high control accuracy and a long valve service life.

The most important mainstay at SAMSON is our workforce. The continual expansion at SAMSON is founded on the ideas, commitment, diligence and loyalty of our staff. This is why we have always relied on continuous and long-term personnel development. The Chairman of the Executive Board, Mr. Ludwig Wiesner, exemplifies this approach perfectly. He started his career at SAMSON as a design engineer and recently celebrated 40 years with the company. His former deputy, Mr. Hans-Erich Grimm, retired not long ago after 48 years of service at SAMSON. Such careers demonstrate that continuity and change are two sides of the same coin at SAMSON.

You can read more on these topics in this new SAMSON magazine. It gives you further insight into how continuity and change complement each other on a daily basis within our company.

Gerhard Schäfer  
Member of the Executive Board



# SIMPLE SOLUTION FOR LOCAL HEATING NETWORKS

Renewable energies are experiencing a boom. A great deal of money and innovative drive is being invested all around the globe in search of efficient technologies to generate the power and heat that we need with net zero carbon emissions. The German government has even declared a national energy

transition towards renewable sources of energy. This has resulted in a huge expansion in the use and public financing of renewable energies, such as wind, water and solar power as well as biomass. More and more biogas plants are emerging, especially in rural parts of Germany, which are connected to small combined

heat and power (CHP) stations to produce energy. CHP stations are particularly efficient both ecologically and economically as they utilize the waste heat produced during power generation, for example by feeding it into a local heating network. Local and district heating always been part of SAMSON's core business.







**From a single order to a fully fledged product**

Initially, the order that started it all only entailed the polling and graphical output of ten data points in a small local heating network. This network is located in Overath, a small German town east of the city of Cologne. Here, a farmer runs

three CHP stations on biogas produced from solid and liquid manure as well as other organic material. The CHP stations and the connected local heating network were installed by Biogas Diez Stinn & Co KG, which contracted the companies Kring Transfer-Wärme-Technologie GmbH and TMT GmbH to implement

the system automation. SAMSON has a long-standing cooperation with these two companies in the field of heating control. "It started as a small-scale programming job," recalls Mr. Thomas Hilbig, product manager for the TROVIS 6600 Automation System at SAMSON. "Our engineers quickly recognized the



potential of this order. As a result, we started to think through the task more thoroughly and finally ended up developing a completely new product unrivaled on the market," Mr. Hilbig explains.

At the beginning, the actual state of the local heating network was documented: two of the three CHP units are located in the central heating station, while the other CHP is located 700 m away as a satellite unit to minimize heat loss while transferring heat to the end users. Around 60 substations at the customers' are integrated into the local heating network. Each CHP unit has a maximum feed-in capacity of 250 kW. Additionally, a gas boiler provides addi-

tional heat energy to cover peak heat demand. Two twin network pumps are used to circulate the heating water. The pump speed can be raised to meet a higher heat demand.

### No additional programming required

The SAMSON experts contemplated the question of how to monitor all the relevant parameters and optimally control the complete network with a high degree of automation while ensuring a user-friendly operation. The clear-cut analysis of a customer service inquiry resulted in the comprehensive software package TROVIS HEATING NETWORK 60. Its unique selling point: control of a local heating network, even the integration of the central heating station, can be implemented without the need for any additional programming. The software is simple to set up and enables network operators to manage the local heating network themselves, including adding new customers and plant components to the network as well as shutting down sections of the network for maintenance.

TROVIS HEATING NETWORK 60 allows the integration of up to 60 heat consumers into the network. A maximum of 48 substations

can be connected if the software is used to automate the central heating station as well. Immediately after the software is started for the first time, graphs are automatically displayed showing the selected system schemes configured in the heating controllers connected at the substations. Operating data are constantly updated since the TROVIS 6610 CPU Module used in the system is able to access the data of the connected substations at all times. It takes less than 30 seconds to poll the relevant data from all connected controllers using the Modbus protocol.

### Monitoring by smartphone

The system can be monitored and managed over a computer with touch screen. Mr. Hilbig stresses: "It was important that users would be able to operate the network without any additional training. That is why, during development, we focused on simple and intuitive operation." Dialog boxes with graphs give a clear overview, while control options appear as plain text. The network operator can also access the interface using a password-protected Internet connection from any computer, smartphone or other mobile device to adapt the heat distribution. Apps are available for Android and iOS. According to Mr. Hilbig, it is





possible to change the most important parameters for network operation, such as set points or pump and valve settings, from anywhere. "However, this is not usually necessary since our software ensures that the network regulates itself once the values have been entered and the system has been set up."

The efficiency of CHP stations can be increased considerably if they run continuously. Therefore, they must run during the summer months, even though no heat is required. The farmer at Overath can use the waste heat in a drying plant, for example to remove moisture from freshly harvested wheat. However, this is not always possible. Therefore, it makes sense to store excess heat in buffers. TROVIS HEATING NETWORK 60 also provides ready-configured solutions to control and manage such intermediate thermal storage buffers. Additional features of the TROVIS system include a pump speed control based on the network pressure and a network start-up function, allowing the heating capacity to be raised gradually or consumers to be connected one by one while the CHP station is being started up. The integrated e-mail client immediately notifies the network operator when malfunctions occur in the network.

**Simple logging of consumption data**  
TROVIS HEATING NETWORK 60 is also able to log the exact heat consumption. A ready-configured heat

meter is installed in each substation. The meters can be assigned plain-text names or other kinds of identification, e.g. an OBIS code (Object Identification System). This ensures that the generated data file is compatible with a wide variety of invoicing systems. The heat meter readings can be saved in an Excel spreadsheet on a monthly, annual or even hourly basis.

Summing up the benefits of the new product, Mr. Hilbig concludes: "TROVIS HEATING NETWORK 60 provides an all-in-one solution for

local heating networks with up to 60 substations. Several TROVIS networks can easily be combined to manage larger networks. No extra programming is required and the software is easy to use so that users do not have to waste unnecessary time learning how to work it, unlike other systems. Users can adapt the system as they like. The high degree of automation facilitates network management. And since the entire software package is available at a fixed price, there are no hidden costs to be reckoned with."



*The fair exhibit, used for the first time at ISH 2013, illustrates the structure of the TROVIS HEATING NETWORK 60.*

# REGIONAL STRENGTH



Could there be a better symbol to represent the local identity of the German city of Kassel than the gigantic Hercules monument? The statue depicting the Greek demigod Heracles is an important landmark of this regional metropolis typical of federal Germany. Despite its relatively small size, Kassel has a lot to offer with its numerous public institutions and forms the socio-political and economic center of northern Hesse. Its cultural reach extends even further, mainly because the Documenta art exhibition turns Kassel into the world capital of contemporary art every five years. It is no wonder that SAMSON turned to this proud city when the decision was made fifty years ago to decentralize the German sales operations. SAMSON's first engineering and sales office was established in Kassel in 1963.

## Local presence

Until the early 1960s, all SAMSON operations in Germany were centered in Frankfurt. In those days, a specialist from the

headquarters would travel to Kassel three or four times a year to meet with customers in the region. Yet, business increased as the German post-war economic boom gained momentum. New technologies and products met a demand that was growing at the same rate as the need for technical support and service. To the SAMSON executives Kassel looked like the perfect testing ground to take the first steps towards regional customer support.

SAMSON's first engineering and sales office, as our regional representations have been called since, was opened on 1 April 1963. In the beginning, the "office" consisted of a small room in the apartment of Mr. Rudolf Swidersky, the first head of the office. The public sector including hospitals, schools, municipal service providers and the armed forces figured among the office's most important customers. Improving heating and steam applications was its core business long before everybody started talking about energy efficiency. Their quality and reliability made the SAMSON products very popular, also among plant engineering com-







panies located in the Kassel region. The local presence allowed planners to get support from a nearby expert already at the design stage.

### **In the thick of it**

When Germany was separated by a wall between 1961 and 1989, the heavily guarded East German border ran not far from Kassel along the surrounding region. Things changed when the German


Democratic Republic (GDR) ceased to exist. A sales area waiting to be exploited opened up for the Kassel office in the neighboring federal state of Thuringia. Mr. Robert Stuhldreier, the then-head of the Kassel office, took to the east right after the Berlin Wall had come down to explore the new market.

SAMSON had already made a name for itself east of the border.

Even during the days of the GDR had SAMSON devices been imported occasionally for installation in the vast district heating networks. Overall, however, the networks were in a bad state. As a result, it was highly appreciated that SAMSON could provide immediate support in modernizing the systems. Many contacts established during those days have developed into strong business relations







that still stand today. This is due to SAMSON never faltering in its ethos of treating business partners with fairness, even though the times of radical change were sometimes turbulent and the new partners had no previous experience with a market-driven economy.

Back in 1991, a branch office was opened in the Thuringian city of Erfurt to serve the eastern part of

the sales area, which the branch still does. Mr. Thomas Kroh, who has been the head of the Kassel office since 2012, remembers that many companies from West Germany came to the region during the boom years after the reunification, but retreated again after a while. "We, in contrast, further intensified our local activities and our customers highly esteem our reliability and consistency."



### Neighbors in control

In 1994, the Kassel team moved to the current site in the industrial park on Otto Hahn Straße. The site offers sufficient space for offices, a workshop for small repairs and a warehouse, which also serves as a store because, contrary to most other SAMSON representatives, the Kassel office also has walk-in customers. Mr. Kroh explains: "Many of our customers, mainly from the HVAC sector, pick up their devices and spare parts directly from our store. Often, they are our neighbors in the industrial park, whose heat supply is also controlled by SAMSON devices, by the way."

Today, nine people work at the Kassel office and one at the branch office in Erfurt. The sales area served extends from Fulda in the south to Göttingen in the

*Kassel engineering and sales office and Erfurt branch office  
(from left to right): Mr. Dietz, Mr. Wolf, Mr. Schmuck, Mr. Wettlaufer,  
Mr. Pimpel, Mr. Maurer, Mr. Dietrich, Mr. Stephansky, Mr. Kroh*



north, and from the Sauerland region in the west to Thuringia in the east. The staff assist customers in finding optimized solutions for new plants as well as in

*Kassel's hospital*





upgrading existing plants with the latest technology; they take care of everything from planning, quotations, on-time delivery to start-up. Thanks to the proximity, service technicians are quickly on site when problems occur or they are needed in the plant for some other reason.

### Labors of Hercules

The Hercules monument in Bergpark Wilhelmshöhe, which was added to the UNESCO World Heritage list recently, illustrates the city's pride and history as an 1100-year-old residence as well as the beginning of its industrial development. Under the reign of Landgrave Carl, one of the most modern metal-working shops of the time was established near Kassel in 1679. This is where the gigantic statue was manufactured in a light-weight design revolutionary for the time: the goldsmith Johann Jacob Anthoni made the skin from copper beaten to a thickness of only a few millimeters and attached it to a steel skeleton. The same method was later used for similarly gigantic statues like the Statue of Liberty in New York.

From this early copper shop stems the tradition of metal-working businesses in the region, which includes large production facilities for cars, airplanes and other vehicles by Daimler and Volkswagen, for example. Contrary to other SAMSON offices, Kassel has few large buyers of control valves

amongst its customers, meaning that the chemical, petrochemical or oil and gas industries are rather underrepresented in the area. This is why the HVAC sector has played a decisive role right from the beginning. This untypical distribution of business for SAMSON has grown even more pronounced with the German Reunification as district heating was widely used in East Germany, which allowed SAMSON to exploit its prominent position in this field and open up an important new market.

Since the early days, Kassel's hospital has figured among the largest customers of the office. This is where the new TROVIS 6600 Building Automation System was first installed in a large-scale project. Moreover, SAMSON supplies the processing industry in the area with various building automation and cleanroom solutions. This does not mean that the classic process control applications are not part of the everyday business at Kassel: companies in the pharmaceutical and food industries, such as dairies, breweries and distilleries, as well as in steel production are served as well. According to Mr. Kroh, the Hercules monument reminds the Kassel staff of how to work with what is available and turn it into the best solution possible. Not only in this way of thinking do the tradition of Kassel and the philosophy of SAMSON overlap.





# ENERGY GROWING ON THE COB

What do Che Guevara, Lionel Messi and the Argentinean national flag have in common? No, it is neither the revolution nor football: they all originate from Rosario, with 1.3 million inhabitants the largest city in Argentina's Santa Fé province located in the northern pampas region on the Paraná River. While Che Guevara's parents did not spend much time in Rosario on their river cruise and Lionel Messi also left his birthplace at an early age to pursue a career in international football, the national flag faithfully remained in Rosario.

It was there that the light-blue and white *bandera* was first raised by Manuel Belgrano in February 1812 and a monumental memorial complex was inaugurated on the banks of the Paraná River in 1957. Similarly impressive is the 12-km-long cable-stayed bridge named Nuestra Señora del Rosario or Rosario-Victoria bridge, which spans the Paraná delta and links Rosario with the city of Victoria in the neighboring Entre Ríos province. Among South America's rivers, the Paraná is second in length only topped by

the Amazonas and populated by the delicious golden dorado served in the restaurants lining the riverbanks. However, the river does not only flow past Rosario peacefully. Its depth also brings leviathans to the interior of the country, making it an important inland port and a major goods-shipping center. Grain and industrial products from the northern provinces are turned round in the port and shipped 300 km downstream to the estuary of the Río de la Plata near the country's capital, Buenos Aires.





Numerous chemical and petrochemical companies as well as companies active in the processing and selling of grain and cereal products have settled in the Rosario area. In view of such market opportunities, SAMSON wanted to be represented there as well.

As a result, a service center of SAMSON's Argentinean subsidiary, VALTROL-SAMSON S.A., was founded there by Ms. Monica Dupleix in 2011; it comprises a sales office, workshop and spare parts warehouse. The young engineer had already been working at the VALTROL-SAMSON headquarters in Buenos Aires since 2005 and took on the challenge of establishing the new office with great enthusiasm and optimism as it allowed her to open up an enormous market for SAMSON valves and move away from the hectic capital to the charm-

ing provincial city of Rosario. Her commitment and dedication were rewarded with a large order for 240 valves manufactured by the SAMSON GROUP to be installed in a new bioethanol plant. On top of this, Ms. Dupleix received one of this year's SAMSON Imagine Awards for her achievements.

Traditionally, Argentina has figured among the world's leading grain producers and ranks third in worldwide soybean production behind the US and Brazil. As Argentina's population of 40 million is relatively small compared to the area of the country, the majority of agricultural products is exported. Located near Rosario is a state-of-







Monica Dupleix received the SAMSON Imagine Award.

the-art complex where 150,000 t of soybeans are processed into oil, meal and animal feed daily. Biofuels, however, as a relatively new product are gaining more and more importance. They include bioethanol and biodiesel made from agricultural raw materials or organic waste. Argentina also figures among the world's leading producers in this sector as the agricultural output mainly consists of soybeans, corn, sunflower seeds and sugar cane, which can all be used in biofuel production. Bioethanol can fully replace gasoline or be mixed with it; the same applies to biodiesel, which can be used in many diesel engines purely or mixed at a ratio of one to one with conventional diesel fuel.

A few years ago, the Argentinean authorities started subsidizing the national biofuel production to increase

the energy supply and cut back diesel imports. In 2010, a law was passed that makes the addition of 5 % bioethanol to gasoline and of 5 % biodiesel to hydrocarbon-based diesel mandatory. Around 1,500 million liters of biodiesel made from soybean oil are exported each year, which still makes biodiesel one of Argentina's most important exports, even though certain market regulations have caused the production to stagnate. To counteract this development, production has been shifted to making bioethanol from corn with an estimated output reaching 400 million liters in 2013. This was enough potential for a consortium of traders and processors of oil and grain seeds to found a new company in the Córdoba province, which is known as Argentina's breadbasket. From the second half of 2013, around 1,000 t of maize are to be processed daily to produce 140,000 m<sup>3</sup> of bioethanol per year as well as animal feed, corn oil and other by-products.

Around mid-2012, Ms. Dupleix got wind of the bioethanol project planned in the neighboring province, which was drafted by a leading European supplier of alcohol technologies. VALTROL-SAMSON could provide reference projects for this process, which allowed Ms. Dupleix to establish the first contacts with the project managers. She presented the SAMSON GROUP as a one-stop shop for innovative, comprehensive valve solutions. With her engineering experience, Ms. Dupleix could assist the customer in selecting and sizing the 240 control and on/off valves needed. Another benefit working to her advantage was the wide product range available from the SAMSON GROUP since the project involved control valves by SAMSON, controllers by SAMSOMATIC, rotary plug valves by VETEC, ball valves by PFEIFFER and



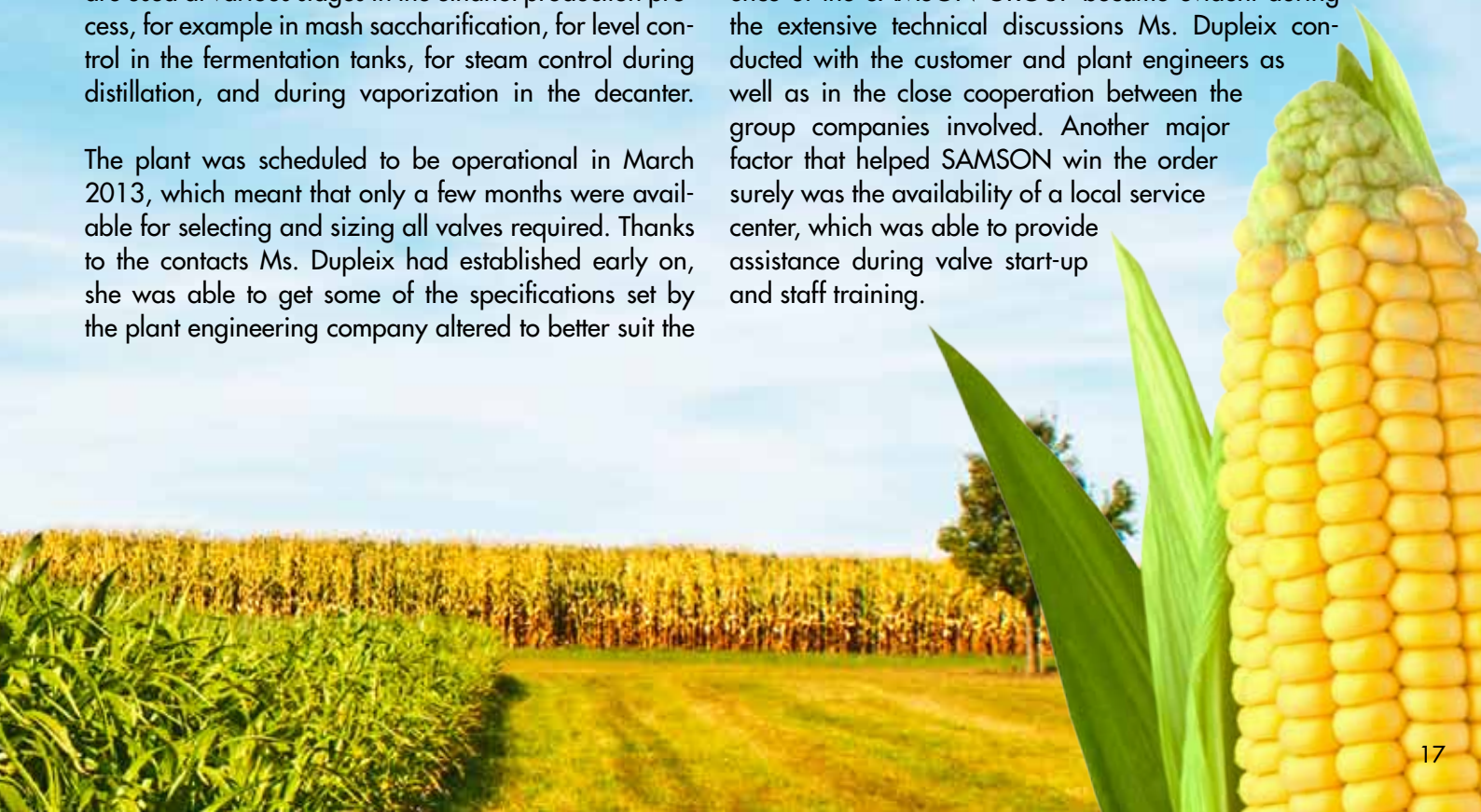


*In 2010, a law was passed that makes the addition of 5 % bioethanol to gasoline and of 5 % biodiesel to hydrocarbon-based diesel mandatory.*

pneumatic rotary actuators by AIR TORQUE. The valves are used at various stages in the ethanol production process, for example in mash saccharification, for level control in the fermentation tanks, for steam control during distillation, and during vaporization in the decanter.

The plant was scheduled to be operational in March 2013, which meant that only a few months were available for selecting and sizing all valves required. Thanks to the contacts Ms. Duplex had established early on, she was able to get some of the specifications set by the plant engineering company altered to better suit the

versions offered by SAMSON. The strength and experience of the SAMSON GROUP became evident during the extensive technical discussions Ms. Duplex conducted with the customer and plant engineers as well as in the close cooperation between the group companies involved. Another major factor that helped SAMSON win the order surely was the availability of a local service center, which was able to provide assistance during valve start-up and staff training.





# New Building in BUENOS AIRES

While activities in Rosario were centered around the bioethanol plant, the Buenos Aires headquarters were busy overseeing the construction of the new VALTROL-SAMSON building in the Tortuguitas industrial estate located approximately thirty minutes north of the city center. VALTROL had been founded back in

1997 with the intention of selling specialized valves in Argentina. As such, the company also represented SAMSON, which took over ownership in 2000. Since then, the company has been active on the Argentinian market under the name VALTROL-SAMSON S.A. Currently, 18 people work for the company alongside







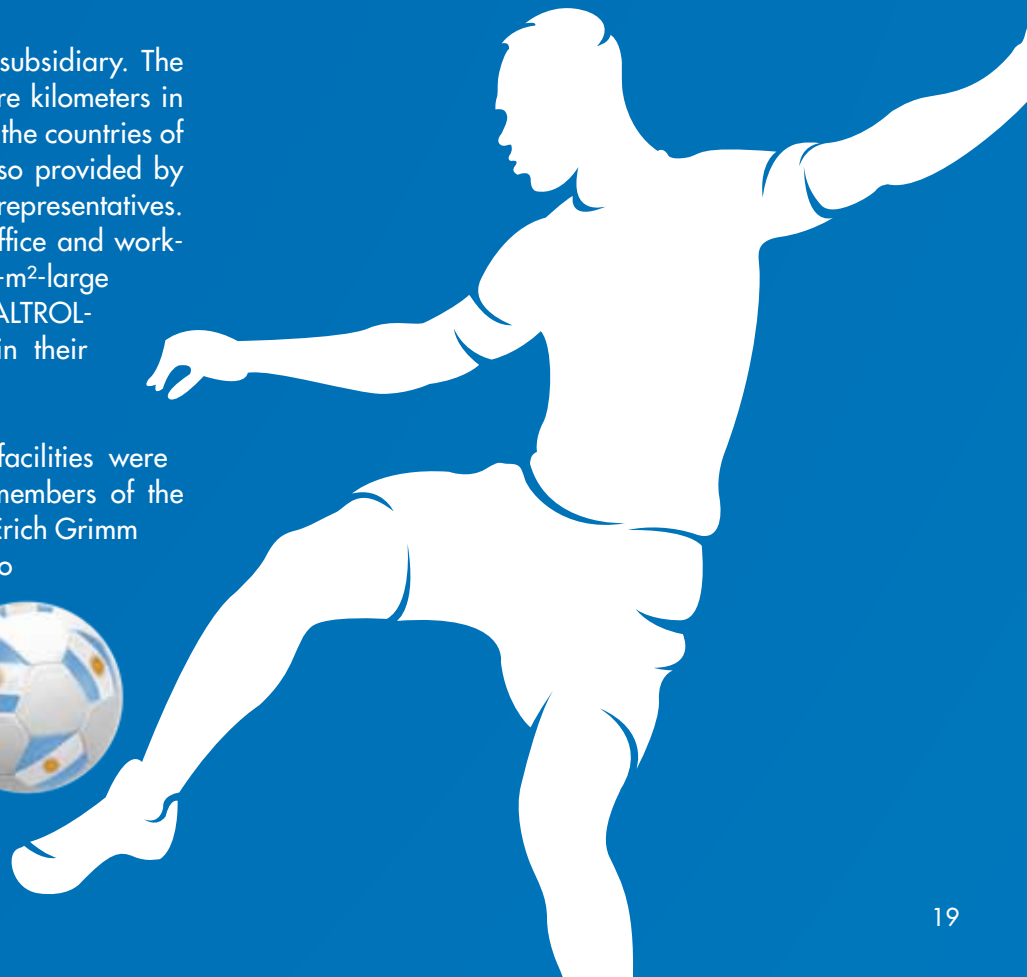
*Staff of VALTROL-SAMSON S.A. in front of the new building in Buenos Aires*



*A parrillada was held to celebrate the inauguration of the new building with the heads of the SAMSON subsidiaries in Argentina and Chile, Jorge Meszaros (2<sup>nd</sup> from the left) and Roberto Ulises Vargas (right) as well as the members of the SAMSON Executive Board Hans-Erich Grimm (3<sup>rd</sup> from the left) and Dr. Ingo Koch (left).*

Mr. Jorge Meszaros, the head of the subsidiary. The sales area covers the 1.8 million square kilometers in land area that make up Argentina plus the countries of Uruguay and Paraguay. Support is also provided by six trading companies that act as sales representatives. The new building, with 1,500 m<sup>2</sup> in office and workshop space, was erected on a 7,500-m<sup>2</sup>-large plot of land, which means that the VALTROL-SAMSON team could play football in their own backyard.

At the end of May 2013, the new facilities were inaugurated in the presence of two members of the SAMSON Executive Board, Mr. Hans-Erich Grimm and Dr. Ingo Koch, who had traveled to Argentina from Frankfurt for the occasion. As is the local tradition, the celebrations were accompanied by a typically Argentinean *parrillada* (barbecue) for staff, business partners and customers.



# Precise SEAT LEAKAGE DETECTION in Control Valves



If a valve's tight shut-off is impaired, the seat leakage does not become visible on the outside. Yet, it can be a problem on the inside. If the seat and plug do not shut off properly, an unacceptable amount of the process medium continues to flow through the valve even though it is supposed to be fully closed. The medium always finds a way between the seat and plug. An immediate consequence is that the control accuracy deteriorates. In the long run, the valve's service life is shortened. By connecting a sensor to the Series 3730 Positioners with integrated diagnostics, SAMSON has found a way to reliably detect and indicate leakage inside the valve.

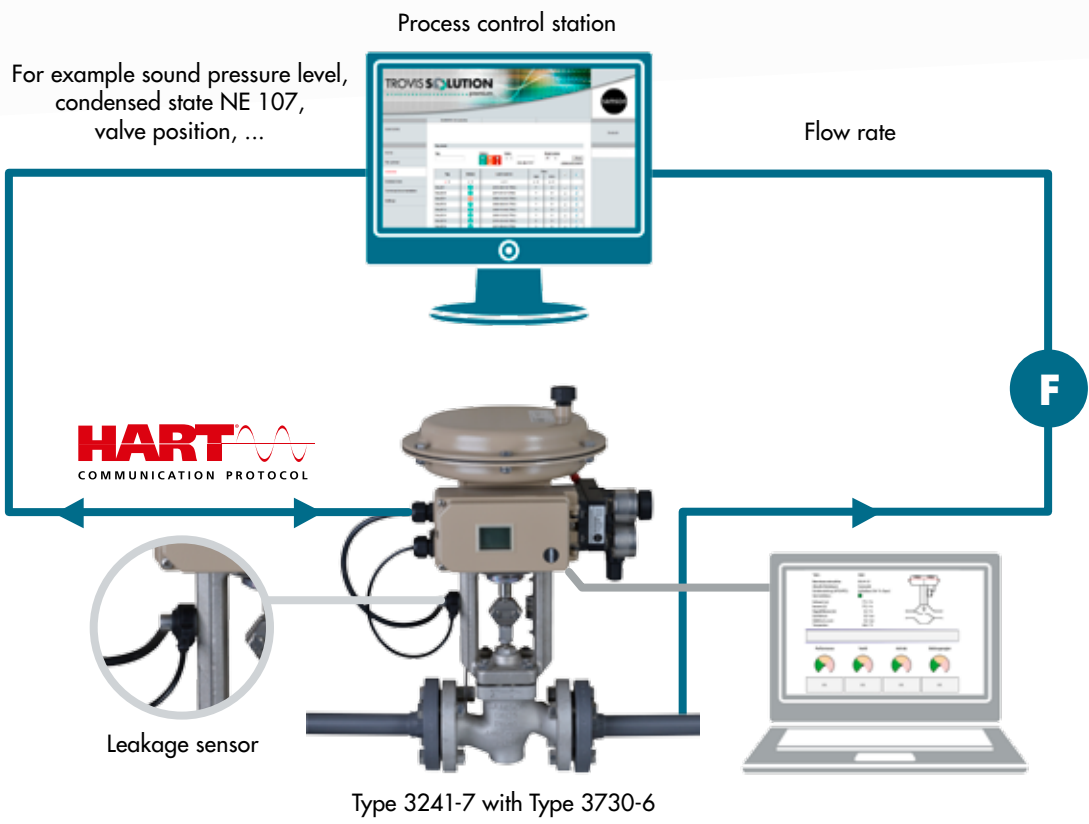
## Seat leakage

In a valve, the position of the plug determines the cross-sectional area of flow between the seat and plug, and thus the flow rate through the valve. When the valve is closed, the plug rests on the seat and, ideally, leaves no space for the process medium to flow through. The actual leakage rate of a valve depends on the valve design, particularly on the shape of the plug and the sealing at the seat. Further determining factors are the positioning force of the actuator and the pressure drop that exists between the valve inlet and outlet. Through the course of a valve's service life, the medium flow through the seat and plug when the valve is closed increases due

to progressing erosion at the plug caused by abrasive media, cavitation or flashing. As a result, the valve no longer complies with the specifications for which it was sized originally.

In practice, a small seat leakage rate is tolerated in most control applications. In shut-off valves, however, even the smallest amount of unwanted medium flow can cause severe damage, for example when toxic, highly reactive or highly flammable media get into the process without being properly controlled. In such cases, it is vital that signs of wear on the plug are detected at an early stage.





### Flow-induced sound

Even the smallest medium flow creates sound of a measurable level. SAMSON uses this phenomenon to detect valve leakage at an early stage. A leakage sensor mounted on a pneumatic control valve can reveal and indicate impaired valve shut-off with the help of the EXPERTplus valve diagnostics integrated into the positioner. As a result, the combination of leakage sensor and positioner with diagnostic functions allows operators to precisely monitor their valves for seat leakage.

Monitoring the leakage rate is indispensable particularly in safety-instrumented systems where valves

must shut off on demand, reliably and without leakage. In such applications, plant operators must be alerted when unacceptable amounts of the medium flow through a closed valve.

So far, mainly flow meters have been used for seat leakage monitoring. To detect minimal leakage rates, however, it makes sense to supplement the flow meters with leakage sensors, which require neither an additional power supply nor a connection to the process control system. Mr. Marcel Richter, product manager at SAMSON for positioners, the integrated EXPERTplus valve diagnostics and leakage sensors,

sees the main benefit for customers in the fact that the positioner-leakage sensor combination can be integrated seamlessly into existing systems: "The leakage sensor is powered and linked to the process control system simply by being connected to the positioner. Whether the measured sound pressure level is transmitted to the control system using the HART® or FOUNDATION™ fieldbus protocol depends on the selected positioner. This also means that only one leakage sensor version is required for the different communication protocols employed by the positioners."

### Prime valve performance

A valve setup matching the actual conditions in a plant has been installed on the test bench at SAMSON's Frankfurt headquarters to show how well the unit comprising a control valve with positioner, integrated diagnostics and leakage sensor works in the field. One of the visitors impressed by the setup was Mr. Rolf Ohrndorf, head of SAMSON's Cologne engineering and sales office: "For those of us interacting directly with the customers, this is a good opportunity to see the leakage sensor firsthand and learn how it works. I was particularly impressed by the low threshold that caused the leakage rate to be indicated in the valve diagnostics." Mr. Ohrndorf considers the test bench setup a valuable presentation for SAMSON staff and customers alike, even though the focus is on

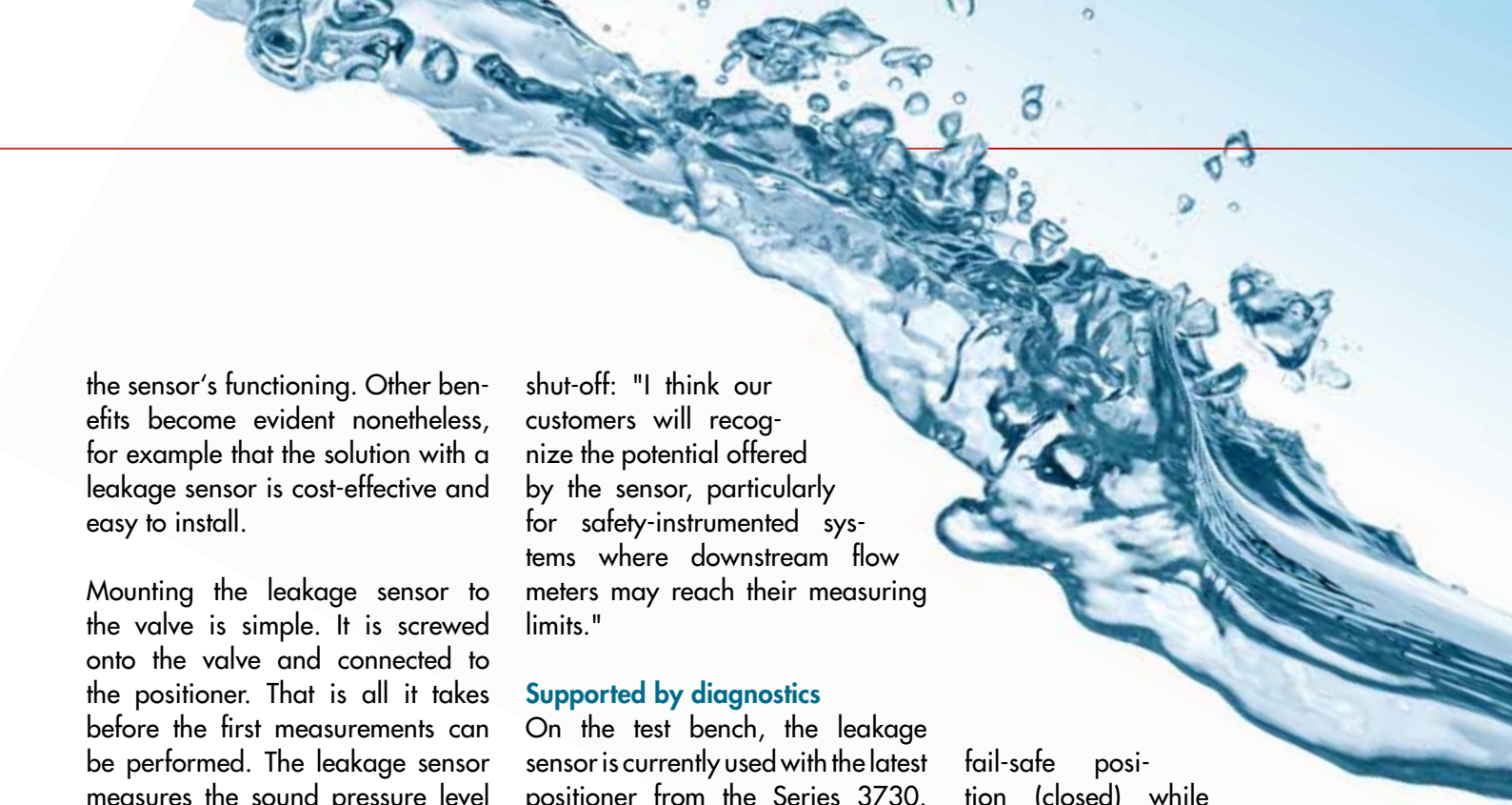
### For you to take a look yourself ...



The leakage sensor detects even the smallest seat leakage. Watch the product video on the SAMSON website to see how the sensor works.







the sensor's functioning. Other benefits become evident nonetheless, for example that the solution with a leakage sensor is cost-effective and easy to install.

Mounting the leakage sensor to the valve is simple. It is screwed onto the valve and connected to the positioner. That is all it takes before the first measurements can be performed. The leakage sensor measures the sound pressure level created by the medium flowing through the valve every time the valve is fully closed. The assessment necessary for leakage detection is done by the positioner, or more precisely the EXPERTplus valve diagnostics integrated into the positioner. They save and analyze the transmitted sound pressure level. Based on a reference measurement performed when the valve was closed, the positioner generates an alarm every time the valve is closed tightly and the customizable alarm limits for the leakage rate are exceeded. The urgency of the alarm can also be defined by the operator. The color-coded classification is based on NAMUR Recommendation NE 107 and indicates the valve's diagnostic status as either green (no message), yellow (out of specification) or red (failure) depending on the settings adjusted by the operator.

After his visit to the Frankfurt test bench, it was clear to Mr. Ohrndorf that the leakage sensor presented a cost-effective solution for plant operators to detect impaired valve

shut-off: "I think our customers will recognize the potential offered by the sensor, particularly for safety-instrumented systems where downstream flow meters may reach their measuring limits."

#### Supported by diagnostics

On the test bench, the leakage sensor is currently used with the latest positioner from the Series 3730. The Type 3730-6 communicates with the process control system using the HART® protocol. Two of the four HART® variables can be used to permanently transmit the sound pressure level and the status of EXPERTplus. In this way, the valve's shut-off is properly monitored at all times. The leakage sensor further enhances safety-instrumented shut-off valves that are operated very rarely but expected to either close or open on demand (fail-close or fail-open applications). In fail-open applications, the valve is closed during normal operation, which means that the leakage sensor monitors the leakage rate constantly. In fail-close applications, the valve is open during normal operation. In such applications, the leakage sensor is mainly needed to perform the mandatory functional tests at regular intervals.

As part of these mandatory proof tests, the valve is moved through its entire travel range from its normal operating position (open) to its

fail-safe position (closed) while key data, such as the breakaway and closing times, are recorded. A leakage sensor additionally provides information on whether the valve is still able to shut off reliably and tightly after remaining in the open position for longer periods of time.

Mr. Richter is convinced that, with the positioner and leakage sensor, SAMSON has introduced a high-quality product to the market that complies with the latest technical requirements. "Visitors of the test bench can see for themselves. For our international staff as well as our customers who do not have the chance to see the leakage sensor at work firsthand, we have uploaded a product video to the Internet. It shows how precisely the leakage sensor works."

# SPACE FOR GIANT VALVES

A valve size of NPS 20 or DN 500 is the limit for globe valves or, at least that is what process engineers believed until recently. Other valve types, e.g. butterfly valves, were automatically chosen for larger pipelines. Recently, however, there has been a shift in thinking: engineers want to make use of the high control accuracy of automated globe valves even in large pipelines. Numerous SAMSON valves in NPS 24 and 28 for use as anti-surge valves have recently been manufactured. And this is by

no means the end of the story as far as valve sizes are concerned. To machine valves of such gigantic proportions, a new production building has been constructed at the Frankfurt headquarters. Its sheer size and equipment match the demand for size in every respect. Since September 2013, SAMSON has been able to respond even faster to customer requirements, and not just where giant valves are concerned.

*At an open day in October 2013, SAMSON staff along with their families were able to visit the new production building.*





### The start of something big

On planning the new building, certain considerations had to be made. "A large valve with an actuator mounted on top of it can loom as high as 10 m and weigh up to 25 t. Assembling a valve construction of such gigantic proportions requires a certain area and overhead space," explains Mr. Torben Kalbhenn, head of works maintenance at SAMSON and responsible for the all buildings on site. "This sort of valve can only be moved by powerful cranes. As a result, the flow of material from the machining to the packaging stage must run as linear as possible. And as we were going to build a new production hall, we seized the opportunity to optimize the entire production logistics. Consequently, large sections of production, even for the smaller valves sizes, were brought together in the new building," explains Mr. Kalbhenn.

The plans for the new building evolved based on these guidelines. With a floor area of 105 x 30 m and a height of approx. 28 m, the building is one of the largest on site. The ground floor is filled by the production facilities, the three floors above it house the thermostat production, the valve assembly workshop for small valves, quality assurance and offices. The first floor only takes up half the length of the building and can be removed as required. As Mr. Kalbhenn explains: "In this way, we can double the production area for large valves with the required hall height in the future." Under the ceiling on the other side of the hall, directly underneath the second floor, run the rails of a heavy-duty crane with a lifting capacity of 25 t, which can lift and move the heavy-weight valves.

### Underground and overground

This crane along with other cranes with various lifting capacities between 5 and 16 t make up just a small part of the optimized production logistics which stretch far



*The new production hall with a floor area of 3150 m<sup>2</sup> and a height of 28 m is one of the largest buildings at SAMSON.*



*The guided tour around the factory at the international sales meeting held in June 2013 included a visit to the new production building.*

beyond the new building. Primarily, the material flow had to be connected to the main high-bay warehouse, which houses an endless number of parts intended for production and final assembly. However, a road runs between the warehouse and the new building, which is used by trucks delivering and collecting goods on site. Hindering the trucks was not an option. "We solved the problem with a double connection," explains Mr. Kalbhenn.



"A conveyor tower with a bridge to the new building ensures the supply of parts to the assembly workshops on the upper floors, while a tunnel and lift facilities underneath the road are used to transport parts to the ground floor."

A fifth of the main hall is taken up by one single machine: the UNICOM 8000 CNC turning and milling machining center. It is placed on a purpose-built foundation to bear its weight of more than 100 t and withstand the dynamic forces that unfold when the machine is in operation. The 1½-m-thick base is supported by 192 concrete columns, each 1 m in diameter, which were inserted into the sandy soil until they reached solid ground. This complex construction ensures that the machine stands on a completely level surface, which deforms only minimally under heavy machining loads within tolerances of a hundredth millimeter per one meter length.

### Mass in motion

The dynamic forces that the foundation is subjected to are colossal like the dimensions of the workpieces: the diameter of a valve body machined in the center can be as large as 2.5 m, for instance. Parts weighing up to 9 t can be clamped in place in the machine. "The machine tool spindle of the UNICOM 8000 can revolve up to 6000 rpm," remarks Mr. Walter Schneider, the production manager at SAMSON, the performance of the new machining center. The face plate holding the heavy workpieces reaches speeds of up to 250 rpm. "And let's not forget the forces created as the rotating mass is slowed down," adds Mr. Schneider.

A pallet changer on the rear side of the machine grants unrestricted operator access at the front. A rotating transfer unit delivers the pallet carrying the workpiece on its way from the loading station to machining. A holding area in between makes the system more flexible and improves the logistic capacities. "This allows the machine to be loaded and unloaded at the same time, which keeps it running almost continuously," explains Mr. Schneider. The fully automatic tool changer and the integrated carousel turning station also play an impor-



tant role. In combination with the main spindle, they allow complex parts to be completely milled, drilled and vertically turned.

### Investment in new production facilities

Many of the workpieces that need to be cleaned after leaving the machining center are too large for the existing electroplating facilities at SAMSON. Therefore, a new dry ice blasting unit has been set up as the next station in the production process of the new building. Frozen carbon-dioxide pellets are propelled at workpieces at extremely high speed to blast-clean them. The dry ice at  $-70\text{ }^{\circ}\text{C}$  converts back into carbon dioxide gas after impact, removing dirt from the workpiece surfaces without damaging them or leaving any residue. The installation is housed in an acoustically insulated cabin, which means the tremendous noise of 120 dBA created in the process is hardly audible. Following blast cleaning, the valves are assembled and then subjected to tests on a test rig that can hold valves in sizes up to NPS 32. Valves are then painted in the spray paint booth, whose temperature and air humidity are controlled to also allow curing of high-temperature paint coatings.

Everything is tailor-made for the giant valves during the further course of production as well. The investment in a welding positioner means that welding work can be performed on large valve bodies or components on site. Large valve bodies and bonnets can be heat-treated and dried after tests with water in the new wagon hearth furnace. To facilitate assembly, an elevated work platform lifts fitters up to a maximum height of 7 m in a work cage to attach valve accessories and hook-ups on large valves.

Mr. Schneider is particularly pleased with the new production facilities. "The large hall with the new facilities and the inline production logistics puts us in an excellent position to respond to the ever increasing demands of the market." This not only applies to the growing demand for large-sized SAMSON valves. The new production building has increased the production capacity of all other products as well. More importantly regard-

ing the production of the giant valves, SAMSON now has full control over the quality and machining times of the large valves. "We no longer have to outsource preliminary machining work, which is in both our and our customers' interest."



Valves in NPS 20 and larger can now be machined and assembled in the new production building at the Frankfurt site.

# FLEXIBILITY AND GLOBAL PRESENCE ENSURE SAMSON'S GROWTH

Throughout the 2012/2013 financial year, the worldwide markets showed a mixed performance. Even though business slowed in some emerging economies, some regions continued to experience considerable growth. The US has recovered from its trough and given new impetus. Meanwhile, the euro zone – with the important exception of Germany – remained caught in a tailspin. Against this hazy economic backdrop, SAMSON continued on its course of growth in all regions and registered another good financial year. Consolidated sales grew by 7.2 % to 571 million euro.

*The new building at the Frankfurt headquarters provides enough space for production and additional offices.*



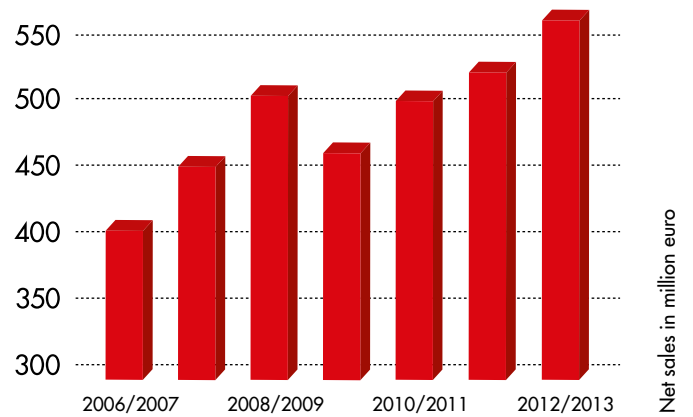


### Business development

For SAMSON, Western Europe remained the region with highest sales. Despite the on-going euro crisis, sales grew by 5.5 %. The largest national market was Germany, where fifteen engineering and sales offices generated a turnover of almost 136 million euro. In Eastern Europe, the four subsidiaries recorded a double-digit growth percentage. Together with the regional sales representatives, they achieved a 38.9 % plus.

SAMSON is represented all across Asia by ten subsidiaries and numerous service centers. Together with the sales representatives, the region contributed a growth of 5.9 %. In the Americas, SAMSON operates nine subsidiaries and one company with its own production. All of them showed a positive trend. Sales in the most important market, i.e. the US, grew by 18.4 %. Additionally, several interesting projects allowed us to extend our market share, particularly in the NAFTA countries.

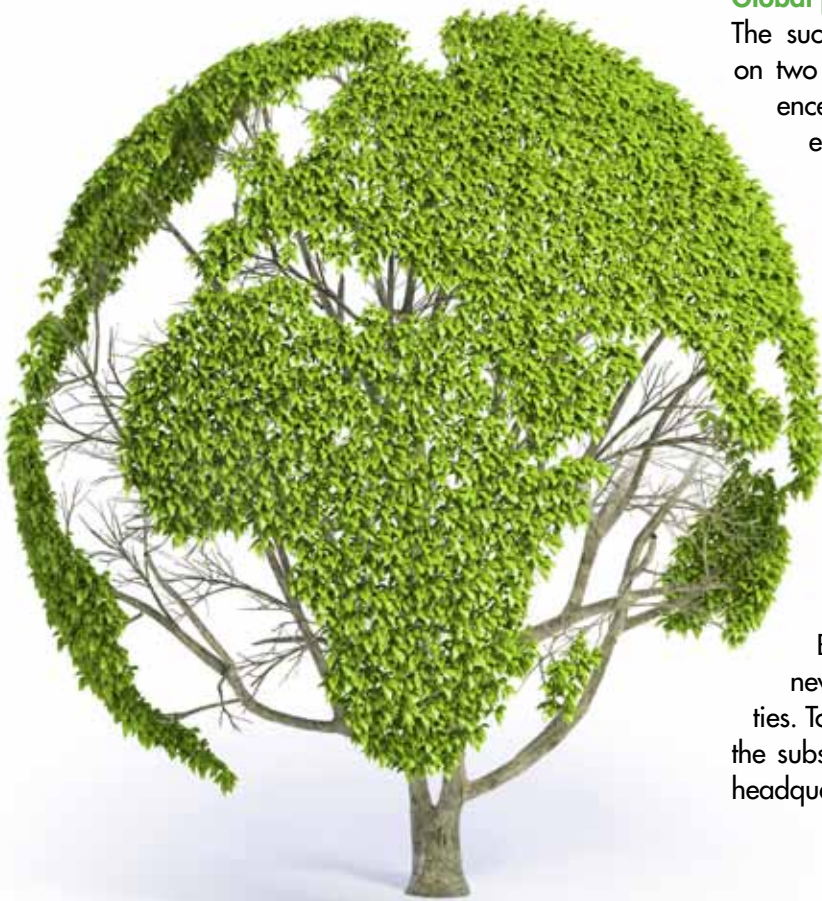
### 2012/2013 financial year



### Global presence

The success and continued growth of SAMSON rests on two mainstays: our flexibility and our global presence. Our products have a modular design, which enables us to respond instantly to different customer requirements. Thanks to our tightly meshed international sales and service network, SAMSON is at hand wherever high-quality control equipment is needed. Highly motivated staff work in our numerous local service centers to assist our customers with their engineering expertise. This know-how helps customers cut costs without compromising quality, reliability or safety.

The service network was expanded further in the past financial year. The logistics and service facilities in Buenos Aires, Argentina and Burgkirchen, Germany were moved to generous new buildings with more space for business activities. Towards the end of the 2011/2012 financial year, the subsidiary in Belgium relocated from their previous headquarters at Brussels to a new building at Antwerp.



### Immediate customer assistance

SAMSON delivered a vivid example of quick and competent service after a serious incident: on 31 March 2012, an explosion occurred at the Evonik Industries plant in Marl, Germany, which destroyed large parts of the cyclododecatriene (CDT) plant that the chemical company operates there. CDT is used as a raw material in the production of plastics indispensable in the automotive and photovoltaics industries. As CDT is only produced by a handful of companies worldwide, buyers feared serious supply shortages. As a result, the task of rebuilding the plant and putting it back into service as quickly as possible was of utmost urgency.

All parties involved – one of them being SAMSON as the control valve supplier – soldiered through the rebuilding process and managed to complete it by the beginning of December 2012. The management of Evonik Industries sent a letter of gratitude to say thanks



*SAMSON control valves are also used at Evonik Industries, an international supplier of specialty chemicals.*



*From the new building in Buenos Aires, the Argentinean subsidiary serves customers in Argentina, Uruguay and Paraguay.*

for SAMSON's assistance in restoring the plant back to operation. Evonik praised SAMSON as a supplier and partner whose extraordinary contribution by far exceeded the normal cooperation. According to the management, the plant could not have been put back into service that quickly without SAMSON's help.

### New building in Buenos Aires

At the end of May 2013, VALTROL-SAMSON S.A. moved into a new corporate building in the Tortuguitas industrial estate located north of downtown Buenos Aires, Argentina. The building comprises 1,500 m<sup>2</sup> in office and service space and is located on a 7,500-m<sup>2</sup>-large plot of land. From there, Mr. Jorge Meszaros and his 18 members of staff serve our customers in Argentina, Uruguay and Paraguay. Additionally, they are supported by six sales representatives. As is the local tradition, the inauguration



of the new building was celebrated with a typically Argentinean *parrillada* (barbecue). Mr. Hans-Erich Grimm and Dr. Ingo Koch, two members of the SAMSON Executive Board, joined in the celebrations with staff, business partners and customers.

### Expansion at Burgkirchen

The engineering and sales office located in Burgkirchen, Germany moved to a new 1,000 m<sup>2</sup> building in the Hecketstall industrial area. The new construction provides sufficient space for a workshop, administrative, sales and training facilities as well as test benches and a warehouse. It also includes a cleanroom for leak-testing valves that are free of oil and grease. The sales office had been forced to relocate due to the constant growth it had experienced since its foundation in 1993. The modern office and workshop complex was built on a 10,000-m<sup>2</sup>-large plot, which leaves enough space for future expansion.

### Relocation to Antwerp and steamcracker overhaul

At the end of July 2013, SAMSON Belgium moved into its new headquarters in Antwerp. The new building sits on a 5,000-m<sup>2</sup>-large plot in the Alpha Campus industrial area, conveniently close to the motorway and many customers' facilities. It houses 2,100 m<sup>2</sup> in usable floor space. The workshop is optimally fitted with sand blasting, cleaning and painting facilities as well as a test bench, making it suitable for larger service orders.

The first test for the facilities came during a scheduled plant shutdown of a BASF steamcracker and ethylene oxide plant. 180 control valves had to be overhauled, tested and returned to the BASF site within only four weeks. An international service team with staff deployed from ten countries was set up at Antwerp to accomplish this feat.



*By expanding the facilities of the Burgkirchen engineering and sales office SAMSON strengthens its position in Bavaria's chemical triangle.*



*At Antwerp, complete control valves can be assembled and tested.*



*RINGO VÁLVULAS, the Spanish manufacturer of special valves, joined the SAMSON GROUP in September 2013.*

### Ringo Válvulas joined SAMSON GROUP

On 1 August 2013, RINGO VÁLVULAS S.L., a specialized valve manufacturer headquartered in Zaragoza, Spain joined the SAMSON GROUP. With this acquisition, SAMSON's product range is extended to include valves in large sizes and with high pressure ratings for the oil and gas sector, power stations as well as the chemical and petrochemical industries. 90 highly skilled members of the Ringo Válvulas staff develop and manufacture ball valves, globe valves, choke valves, gate valves, check valves and butterfly valves. Additional products in the company's portfolio include special valves, such as subsea valves as well as double block and bleed valves.

### SAMSON sponsored NAMUR annual general meeting

SAMSON sponsored the 75<sup>th</sup> annual general meeting of NAMUR held at Bad Neuenahr, Germany in November 2012. The motto of the event attended by 600 participants was: "From Hand-operated Restrictions to Smart Control Valves". In a one-hour keynote, Dr. Kiesbauer, member of the SAMSON Executive Board for R&D, underlined the importance of having in-depth expertise in all aspects and components to select the perfect control valve: valve, actuator, valve accessories,



*Dr. Kiesbauer, member of the SAMSON Executive Board for R&D, held the keynote speech at NAMUR's 75<sup>th</sup> annual general meeting.*

engineering, diagnostics, integration into process control systems, plant asset management and innovation. He pointed out that selecting the perfect control valve requires a thorough knowledge in various areas. In the accompanying exhibition, SAMSON displayed a design study of a positioner with WirelessHART® technology. The positioner generates the required power itself from the supply air. The new Flow Unit by SAMSOMATIC, consisting of a speed-controlled centrifugal pump, a control valve and an industrial controller with new control algorithms to optimally combine the two components, received a great deal of attention as well.

### Demonstration of GROUP-wide valve expertise

At Valve World Expo 2012, all valve manufacturing members of the SAMSON GROUP shared a joint stand for the first time. The uniform appearance with modern multimedia presentations and a new stand design allowed visitors to experience the control valve expertise of the entire SAMSON GROUP. Valve World Expo, which is held at Düsseldorf, Germany, figures among the most important fairs and exhibitions in the process automation sector. Last November, the fair attracted 10,000 visitors from over 50 countries.





At Valve World Expo, all members of the SAMSON GROUP exhibited their products on a joint stand.



# CONTINUITY AND CHANGE on the Board

New members under the proven aegis and a moving farewell: the developments experienced by the SAMSON Executive Board over the past financial year vividly represent the seemingly contrasting principles of continuity and change. In February 2013, the SAMSON AG Supervisory Board appointed

Mr. Gerhard Schäfer new member of the Executive Board responsible for Production. Mr. Schäfer has been working at SAMSON since 2005, holding executive positions in this division. In June 2013, another new member was added to the board: Dr. Andreas Widl. Having a doctoral degree in physics,

Dr. Widl took over as the head of Sales, Marketing and Strategy from Mr. Hans-Erich Grimm after working at his side for four months. Before he joined SAMSON, Dr. Widl had held executive positions at the Mannesmann group, GE Capital and, since 2004, the Swiss Oerlikon group.



Gerhard Schäfer



Dr. Andreas Widl



Hans-Erich Grimm



### **Bidding farewell to Hans-Erich Grimm**

Mr. Hans-Erich Grimm, Vice Chairman of the SAMSON Executive Board, retired after working for almost 50 years. His impressive career at SAMSON began in 1965 when he took up a sales apprenticeship and it ended in the position of Vice Chairman of the Executive Board. In a moving ceremony, SAMSON bade him farewell on 25 September 2013. On this occasion, Mr. Grimm reminisced about the best job he could imagine: conquering the world on behalf of SAMSON.

During the early stages of his career, Mr. Grimm established and managed the new subsidiary in Spain. Further stages included being granted full signing powers, serving as director and ultimately, being at the forefront of worldwide sales for the last 22 years. In this time, Mr. Grimm was the driving force behind SAMSON's international expansion. He initiated the foundation of numerous subsidiaries all across the world. With 670 business trips to 57 countries, he embodied and lived the global presence of SAMSON. His greatest achievements were acknowledged in several speeches.

Here are some excerpts:

*"Our work together was always characterized by mutual respect, appreciation and a deep trust. With your strong will, your great empathy, your drive to succeed, your calmness and your composure you have contributed greatly to and successfully steered the business of SAMSON. You have been a motor driving our company."*

Ludwig Wiesner

Chairman of the Executive Board of SAMSON AG

*"Your excellent expertise guided you through your time on the executive board. You have been a mover and shaker in Sales and rendered great services to SAMSON."*

Dr. Nikolaus Hensel

Chairman of the Supervisory Board of SAMSON AG

*"In our short time together, I have come to know you as a highly educated, keen and reflective man who is open to new ideas and at the same time upholds the unique SAMSON culture. Many of us could learn a lot from you, Mr. Grimm, and I have nothing but respect for your well-considered decision of moving on to the next stage in your life."*

Dr. Andreas Widl

Member of the Executive Board for Sales, Marketing and Strategy of SAMSON AG

Ludwig Wiesner



### **Ludwig Wiesner celebrates 40 years with SAMSON**

On 6 September 2012, the Chairman of the Executive Board of SAMSON AG, Mr. Ludwig Wiesner, celebrated 40 years with the company. To honor the occasion, Dr. Nikolaus Hensel, the Chairman of the SAMSON Supervisory Board, praised the drive and commitment that Mr. Wiesner has shown and thanked him on behalf of the shareholders. He also expressed his admiration for Mr. Wiesner's career: he completed his vocational training and started a part-time study program in engineering in addition to his job. Mr. Wiesner had started his career at SAMSON in 1972 as a design engineer. He was appointed head of Production Planning in 1988. In 2003, he was assigned head of the entire Production Division and appointed to the Executive Board. Since 2007, Mr. Wiesner has been serving as Chairman of the Executive Board of SAMSON AG.



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