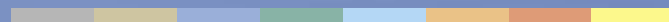


SAMSON

MAGAZINE

May 2002 **SAMSON MAGAZINE**



- Special topic** Energies of the future
- Report** On the right course
- Portrait** Anniversary in the Gaudí Year
- Innovations** Where virtuality and reality meet

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Local touch with a global reach

Dear Readers,

It will still take us all some time before we are able to assimilate the horrific images of the events that took place in the United States on 11 September last year. They have changed the world from a private perspective as much as in the business world.

Despite the difficult times, we will continue to implement our strategic goals such as expanding our sales and service network worldwide and to assert ourselves as an independent group.

After 28 years as Chairman of the Supervisory Board, Mr. Rolf Sandvoss has decided not to stand for this position again. He has proposed Dr. Hensel, who has served on the Supervisory Board for many years, as his successor. At the last annual general meeting, Dr. Hensel was elected unanimously to be appointed Chairman. The philosophy of SAMSON AG is thus ensured to continue in future with emphasis on tradition, expertise and a global outlook.

SAMSON AG will fortunately not lose Mr. Sandvoss as one of its most prominent personalities since he is to continue his 36 year career on the Supervisory Board. He has already accompanied three generations of

Management Board and under his chairmanship, the company's annual results have grown tenfold. His interest focuses in particular on our French subsidiary which has progressed to become the second largest sales and production site after Frankfurt.

A further example illustrating the link between awareness of tradition and modern thinking is introduced in this magazine. The city of Barcelona is an important European business center and the connecting link between the Iberian Peninsula and the rest of Europe; while, at the same time, the people who live in this city are intriguing on account of their strong adherence to Catalan tradition. This makes Barcelona one of the most diversified, exciting and dynamic cities on the Iberian Peninsula and, of course, an ideal site for our subsidiary.

We hope you enjoy reading!

Gernot Frank, Chairman of the Executive Board

Innovations

Where virtuality and reality meet Doctors from a distance

The fast-paced advances in information and communications technology do not stop at the office door. Global networking also presents a considerable advantage for medicine and process engineering. Although these fields do not seem to have much in common at a first glance, it soon turns out that their aims and requirements are, in fact, quite similar. No matter whether the patient is a person or a machine: when problems occur, expert knowledge should be applied. SAMSON's contribution is the TROVIS-EXPERT Valve Diagnosis Tool.



Operation Lindbergh conducted in September 2001 was the world's first transatlantic telesurgery operation. Although surgeon and patient were separated by several thousand miles, the surgeon in New York could control and observe the movements of the robotic system's arms almost without time delays.



In Australia's outback as well as on the high seas, remote medical diagnosis is vital. On board the *Gorch Fock*, a school ship of the German Navy, the wastewater treatment system is controlled by service engineers from dry land via Internet – no matter where the ship might be sailing.

Remote diagnosis in medicine and engineering

Dr. Distance – Visiting the doctor is impossible in many regions of the Earth as the next physician might be hundreds of miles away. If, however, the general practitioner was only needed for diagnosis while the treatment itself could be carried out by non-experts, it might be possible to replace the conventional face-to-face examination. A video conference could be established between physician and patient, if required, with on-the-spot support by an assistant with medical experience.

Thanks to new opportunities introduced, for example, by the mobile technology, remote diagnosis as a part of telemedicine is setting entirely new standards. Vital signs like the heart rate can be continuously recorded and transmitted to the physician who is able to monitor a patient in critical condition at any time. There are even visions of the future involving comprehensive medical monitoring via implants in the body.

Pioneers – Telemedicine is no longer limited to diagnosis. With the help of robotics, even remote surgery can be performed if surgeon and patient are separated by thousands of miles. The most spectacular case of telesurgery so far was a transatlantic operation performed last year. A robot located in Strasbourg, France, but controlled by a surgeon in New York, removed the gallbladder of a 68-year-old woman. The world's first surgical intervention across the Atlantic was named "Operation Lindbergh" after the famous American pilot who succeeded in crossing the Atlantic in the first nonstop solo flight in May 1927, almost 75 years ago.

Teleservicing – Nobody is seriously considering performing remote-controlled, robotic-assisted repairs on control valves. Nevertheless, video conferencing opens up new ways of fault diagnosis and correction

by combining the experience of the service personnel and the manufacturer's development expertise. Suitable on-site support can even provide more helpful data. The electronics of SAMSON's HART Positioner used together with the TROVIS-EXPERT software, for example, enable wear forecasting and diagnosis for preventive maintenance.

In addition, electronic components have increasingly found their way into the core features of field devices. Despite convenient graphical user interfaces like TROVIS-VIEW, the continuously growing number of functions overtaxes some operators. If devices do not work to complete satisfaction or at maximum performance, this can be put down to inappropriate settings in an increasing number of cases. But this is exactly the type of error which could easily be corrected via a remote access to the customer's field device, for example, via the Internet.

Safety – In process engineering plants, however, any form of manipulation is potentially dangerous. As a result, owners and operators of such plants are rather skeptical towards remote access, fearing unauthorized intrusions through the diagnosis interface. Therefore, direct Internet access to device data during operation will most likely not be granted for process engineering plants in the foreseeable future. Nevertheless, in building management systems involving lower safety requirements and in the workshop, remote diagnosis and configuration are a great opportunity. Remote servicing and maintenance could be used, not to replace existing expertise, but to add to it and enhance it. Customer service would, as a result, become quicker and more efficient – a clear advantage for both the manufacturer and the customer.

Portrait

20 years of SAMSON in Spain Anniversary in the Gaudí Year

For the past seven decades, SAMSON has been supplying the Spanish industry with high-quality products and contributed to the high standing of German manufacturers on the Iberian Peninsula. After the well-renowned trading-house Faust y Kammann had been selling SAMSON's products for many years, SAMSON founded its own subsidiary located in Spain's business capital Barcelona in 1982, exactly 20 years ago. Thus, 2002 is a year of celebration. But not only SAMSON is celebrating its anniversary. The famous Catalan architect Antoni Gaudí would have been 150 years old this year. In commemoration of this great artist, 2002 was proclaimed the International Gaudí Year in Barcelona.

Barcelona's old town is a maze of medieval alleys and small shops inviting visitors to stroll.



Tower of Casa Batlló. The house built by Gaudí from 1905 to 1907 has hardly any straight lines or plane surfaces.



Casa Milà is Gaudí's last civil building before he dedicated all his time to the cathedral Sagrada Família.



A lot of the cheese factories in the North are SAMSON's customers. The freshest food is always available on the Boqueria market.

Barcelona – too beautiful for just a casual glance

Love at second sight – You surely cannot fall in love with this city straightaway, but rather develop an affection slowly. This, however, only makes your feelings grow deeper and more intense. In Cervantes' famous novel, the knight Don Quixote passionately calls Barcelona "the treasure-house of courtesy, haven of strangers, asylum of the poor, home of the valiant, champion of the wronged, pleasant exchange of firm friendships, and city unrivalled in site and beauty."

A city with style – Between 1880 and 1910, Barcelona gained worldwide fame with its Modernism. The avant-garde direction in art, labeled Jugendstil or Art Nouveau in other countries, received its distinctively Catalan expression through architects like Antoni Gaudí (1852 - 1926). It is his incomparable works that make Barcelona unique. In 1984, UNESCO included some of them, for example Parc Güell and Casa Milà (also known as La Pedrera), in the World Heritage List. Gaudí managed to breathe the soul into the stones. His buildings are alive. The unfinished cathedral Sagrada Família is probably Barcelona's most famous monument and Europe's oddest building site. Why not make the most of the Gaudí Year, visit the city and participate in the numerous events staged to celebrate the architect's 150th birthday? You might, for example, listen to one of the evening concerts from the roof-terrace of La Pedrera on Passeig de Gràcia in summer.

The city's vital nerve – La Rambla, this is 1,200 meters of pure *joie de vivre*. Here, the experience is far more important than actually getting anywhere. The promenade, in fact composed of five separate ramblas, stretches from Plaça Catalunya to the Christopher Columbus monument at the harbor. This is where people meet. It is fascinating to indulge

in so many languages, fragrances and cultures in such a very confined space. Strolling through a remarkable scenery with Mercat Boqueria, the colorful fruit and vegetable market, or Plaça Reial, one of the nicest squares in Barcelona, is definitely worthwhile. Barcelona is a mixture of art, culture and cooking. One of its most interesting quarters is Barri Gòtic and the adjacent Ribera district. Everything is packed into a small place.

The Picasso Museum, an absolute must – On the way to the museum, you will feel like you have been set back to the Middle Ages. Enchanted courtyards and a maze of little narrow streets and alleyways dominate the scenery in Ribera. The museum itself is located in a magnificent medieval building. Picasso's *œuvre* comprises more than 2,200 works. Some of the most important ones are exhibited here.

Although Pablo Picasso was born in Malaga and lived in Paris for a long time, he spent many years



Picasso is just one of the numerous great personalities who have left their mark on Barcelona.

Portrait



in Catalonia's capital and was rewarded for it with a splendid museum. Picasso himself, Dalí, Miró and Tapiés have left their mark in more than one way. Their creativity and influence have turned Barcelona into a center of the Arts.

Famous daughters, famous sons – Not far away is the Palau de la Música, a modernistic music theater built by the famous architect Lluís Domènech i Montaner in 1908. This extraordinary building with its outstanding acoustics often stages con-

certs by the popular Catalan opera singers Montserrat Caballé and José Carreras.

Sardana, expression of the Catalan spirit – In his book *Iberia*, James A. Mitchener described the Sardana dance as "the movement of an animated clock that ran in both directions. Slow steps left, slow steps right. Left, right. Left, right, with arms held closely to the side. Then faster steps, with hands slightly raised. Then fast, intricate steps, with hands held high above the



For the Catalans, dancing Sardana is an expression of their unity and tradition. The dancers simply line up in circles on the city's squares.

head and the body swaying beautifully as the tempo of the music increased. Finally the entire plaza in motion, with worshipers filing in and out of the cathedral and stopping to join the dance if they felt so inspired. Within seconds a dozen purses, jackets, walking sticks and coats were piled neatly in that spot, and around them the Catalans, strangers to one another, began their slow sardana."

Symbiosis of nature and sound –

The mountains of the Montaña de Montserrat lie to the West of Barcelona. They are already visible from a distance. Mystically they rise above the green hills of the Baix Llobregat plain. As if God had folded his hands for a prayer here ages ago, mountains of brown, bare rock of a distinct beauty line up next to each other in silence. The ascent is definitely worth the effort. You can either drive up the winding road by car, use the cable car built by German engineers at the beginning of the last century, or venture to walk up the hill on foot.

No matter how you reach the height of 725 meters, you will be rewarded with a fantastic view looking down from the uniquely situated Benedictine monastery of Montserrat, which might have inspired Wagner to compose his drama *Parsifal*.



The Barcelonans take pride in their Montjuïc hill. Many of the sites built for the 1992 Olympic Games, like Palau Sant Jordi, are located here.

Montserrat is the spiritual center and home of Catalanism. Every day, several hundreds of people visit La Moreneta, the black madonna worshipped as Catalonia's patron saint. It is a once-in-a-lifetime experience to hear the mellifluous voices of the monastery's world-famous boys' choir singing *Salve Regina* in the afternoons or *Virolai* in the evenings to honor La Moreneta.

Not only the soul is catered for – So much art and culture gives you an appetite. The Catalan cuisine is just as special as the region itself. Even though it has been considerably influenced by France, it has never lost its unique style. Even the best-known gourmet restaurants, which usually tend to prefer French cooking, cannot afford to completely neglect Catalan taste. At least some of the typical plates, like the fish ragout *Suquet de peix* or the *Crema Catalana* (cinnamon-flavored custard dessert with burnt sugar topping) can be found on nearly all menus.

If you do not feel like eating a complete dinner, try one of the *xampanyerías* in Barcelona's Santa María del Mar district. They offer an uncounted variety of tapas. The small delicacies are served on a slice of bread which used to be placed on a glass of wine as a kind of lid (Spanish: *tapa*) to prevent flies from falling into the drink. This is, at least, one of the legends that has grown up around tapas.

If you managed to keep going all night, you should treat yourself to *churros con chocolate* for breakfast. There is probably no other breakfast quite as heavy and difficult to digest as the crispy, doughnut-like churros. But there is no better one either. A country that can bear eating churros and chocolate for breakfast can probably cope with anything.



Inside and outside Barcelona, in the Montaña de Montserrat mountains – Catalonia has a lot to offer.



The monastery of Montserrat in the middle of the Montserrat mountains is the home of the black Madonna, Catalonia's patron saint.

Portrait



SAMSON's team in Rubí with the head of the Spanish subsidiary, Ulrich Rohlfs (front row, third from the right).

A perfect match

A city cut out for SAMSON – Catalonia goes its own way. Thus, Barcelona seems to be the perfect match for SAMSON. SAMSON has this special mixture, too. This mixture of continuity and reliability on the one hand, and modern ideas and innovation on the other hand.

To face the challenge of the new millennium, the Spanish subsidiary has just moved into a new, fully air-conditioned logistics and service center in Rubí near Barcelona's airport. The subsidiary covering an area of more than 3,000 square meters is tailor-made for the requirements of SAMSON AG. The administrative building has been equipped with large conference rooms to hold employee and customer training. The functional workshop providing state-of-the-art equipment as well as huge storage facilities enables SAMSON to satisfy almost all customer demands immediately. All common spare parts

are kept in stock. Complete control valves can be assembled and thoroughly tested according to the customers' individual requirements. Defying the vastness of the peninsula, SAMSON has managed to establish a large and most flexible customer service network thanks to the close cooperation between the logistics center and the Spanish branches in Santander and Madrid as well as the Portuguese subsidiaries in Porto and Lisbon. The numerous small cheese factories in the North as well as the chemical groups in the South can be supplied within 24 hours. SAMSON's primary goal for the year 2002 is to establish a further branch in Cadiz. Gades, as it was formerly called, is considered to be Europe's oldest city. Founded by the Phoenicians 1100 BC, it soon became the largest and most important trade center along the Mediterranean coast. Especially the regional Andalusian companies in

the chemical, sugar and food industries – including the large olive oil factories – will be supplied by the engineers of SAMSON's Cadiz branch. Another thing introduced by the Phoenicians are the olive trees. Today, the Andalusian province of J  en possesses 50 million of them - more than the rest of the EU countries and Turkey put together. This can be traced back to the Reconquista. During the reconquest, the Moors were forced to move further to the south of Spain and developed their sophisticated irrigation system, still of great advantage in many places.

Partners for life – What's left now? Back to the Ramblas just one last time. In the upper part, on Rambla de Canaletes, you will find the Canaletes fountain. It is said that whoever drinks its water will keep returning to Barcelona ...



Thanks to the enormous warehousing facilities, the Rub   logistics and service center can supply almost any customer within 24 hours.



The new logistics and service center of SAMSON AG near Barcelona opened its doors on 17 November 2000.



Repsol YPF's new refinery in Tarragona, Spain, complies with the latest environmental standards.

Repsol – Celebrating success

In 1987, Repsol emerged as a conglomerate of former Spanish state-owned energy suppliers and chemical companies. Since then, Repsol has been Spain's largest industrial group specializing in various petroleum products and fuels. The group has established a network of filling stations across Spain, selling fuels under the brand names Repsol, Campsa and Petronor. Repsol also supplies the kerosene for all airports on the Spanish mainland as well as the Balearic and Canary Islands. In addition, Repsol's subsidiary Gas Natural has made the group Spain's leading natural gas supplier. But Repsol's scope extends even further. The product line also includes different oils and lubricants, chemicals, hydraulic fluids, fuel oils and propane as well as basic products for lacquers, paints, coatings, insulating material, waxes and paraffins. Apart from a share in the Argentinian petrol company Astra, Repsol acquired the Argentina-based company YPF S. A., the largest South American energy supplier also specializing in petrochemicals. Repsol YPF, the new group formed in 1999, has become the seventh largest oil and gas supplier in the world, extracting 945,000 barrels of oil every day. Until 2005, the daily output is to be boosted to 1.3 million barrels.

SAMSON has a share in this success story. SAMSON's ceramic-lined VETEC rotary plug valves are, for example, used in the cracking process. They control the quench oil circuit used to cool the raw gas before it enters the first distillation tower.

Due to the refining process, the quenching oil contains carbon particles and other solid contaminants, which have a highly abrasive effect. Nevertheless, SAMSON's VETEC valves reach a service life of three years thanks to the close cooperation between Repsol YPF, VETEC and SAMSON Spain. The previously applied product did not even last three weeks!

Report



The town of Porto, situated in northern Portugal, lent its name to the country and port wine. The attractive Café Majestic in Porto has won several awards.

In the footsteps of the explorers On the right course

The Portuguese were the first Europeans to sail the world's seas under the patronage of Prince Henry the Navigator (1394-1460). Prince Henry's seafarers discovered and colonized the Azores and Madeira. Explorers were able to travel far out into the oceans thanks to the new caravel, a pioneering innovation of its time owing to its speed and agility. In 1488, Bartholomeus Dias rounded the Cape of Good Hope. Vasco Da Gama followed this route and reached Calicut, India in 1498. The discovery of a sea route to India was the long-awaited opening into the lucrative spice trade until then dominated by Arabs and Italians. On 21 April 1500, Pedro Alvares Cabral landed on the coast of Brazil.

In Portugal, SAMSON is on the right course, too, and benefits from the currently expanding automotive industry as well as the constantly growing pulp and paper industry. One of the customers served by SAMSON is, for example, Portucel that runs the largest eucalyptus mill in Europe and is a world-leading pulp producer.



Prince Henry the Navigator is considered to be a pioneer in maritime exploration. In 1415, he founded the famous navigation school in Sagres.



From Belem, in Lisbon, the Portuguese explorers left in their caravels in search of the new worlds.



The Vasco da Gama bridge over the river Tagus is 17.2 kilometers long, making it one of the longest bridges in Europe.

A chequered history

Rise and fall of a nation – In 1493, Pope Alexander VI carved up the New World between Spain and Portugal. But the Portuguese were aggrieved at the decision. The Treaty of Tordesillas in 1494 settled the dispute between Spain and Portugal by splitting the territory using a north-south imaginary demarcation line drawn 370 leagues west of the Cape Verde Islands. This was later sanctioned by Pope Julius II. Brazil became a Portuguese colony. By colonizing Africa, India and Brazil, Portugal expanded its empire. Immense deposits of gold and jewels as well as slaves awaited the explorers which brought wealth to Portugal and helped it become a world power and leading trading nation. Portuguese trade extended as far as Shanghai and Nagasaki.

The rise of Holland and its ally, Great Britain, to great seafaring nations in the 16th and 17th centuries meant the slow decline for Portugal. The power of its former glory years never returned. In 1822, Portugal lost its largest and most important colony when Brazil, rich in gold and diamonds, declared its independence.

At the beginning of the 20th century, Portugal abolished its monarchy and declared itself a republic on 5 October 1910. In the years that followed, Portugal struggled under a succession of governments and had to contend with uprisings in its remaining colonies as well as one million immigrants returning from the colonies. The country that had often played a principal role in the past struggled with a declining economy.

Recalling upon old strengths – The spirit of enterprise was called for. Portugal succeeded. In-

creasingly more companies have been denationalized and the industry sector, largely ignored before democratization, has been growing continuously ever since. Today, this small country belongs to one of the largest pulp producers worldwide and has an impressive foreign trade considering the size of the country.

SAMSON expanded to keep pace: a branch office of the Spanish subsidiary was opened in Lisbon in 1991. Another office in Porto followed. In this way, SAMSON could cater for the growing needs of the Portuguese industry. Furthermore, the benefit of a close network on the Iberian Peninsula allows SAMSON to react more effectively to serve customer requirements. Success never comes easily: nothing ventured, nothing gained.



The striking craft of making decorative tiles known as *azulejos* is a technique introduced to Spain by the Moors which adorned walls all over Portugal, too.

The ever-expanding Portuguese empire provided increasingly more exotic themes and colors for the *azulejos* that tell the tale of Portugal and its people.

Special topic



Parabolic trough collectors at Plataforma Solar de Almería.

Sunny outlook Energies of the future

Ominous scenarios depicting flooded coastal regions and islands alongside climate changes due to global warming are regarded as future certainties. Damaging ultraviolet radiation, smog alerts and the associated high levels of ozone are already reality in many industrialized countries. We witness the problematic nature of the constant growth in world energy consumption almost daily.



300 mirrors track the course of the sun in Andalusia and reflect the sunlight onto the tower, CESA-1, to produce steam used to generate electricity.



They concentrate the sunlight onto a pipe to heat up water. SAMSON control valves regulate the flow. Then the superheated steam is used to drive turbines which generate electricity.

Harnessing the sun's power

Conventional power generation – Presently, electricity is generated using conventional sources of energy such as fossil fuels, whose limited supply is being steadily depleted, as well as uranium. Fossil fuels such as oil, natural gas and coal produce high CO₂ emissions responsible for global warming. Nuclear power is regarded as clean, yet significant problems are raised concerning the safe disposal of radioactive waste and the harmful effects of radiation. Alternatives are urgently being sought after.

The obvious alternative – Exploiting the sun's power to produce sustainable energy has long since been an aspiration of scientists working on new energy sources. The center of our planetary system represents an almost inexhaustible energy source. More energy in the form of solar radiation reaches the Earth daily than we can use. And that free of charge. The complication in the matter is how to convert, store and distribute the solar energy. Photovoltaics, the technology applied to directly convert sunlight into electric power based on the photo effect, is already utilized in diverse ways. But, despite intensive research, this technology has only a 6 to 12 % efficiency rate.

Generating electricity using parabolic trough collectors may be the answer. These solar collectors supply the thermal energy used to produce superheated steam for driving turbines. The complex steam control required is a task for SAMSON.

Pure sun – In Tabernas, South Andalusia, Spain's hot spot and Europe's only desert region, a group of German and Spanish scientists is researching the new technology. Plataforma Solar de Almería is the largest European solar power pilot plant and worldwide the only power plant where direct

steam generation in combination with parabolic trough collectors is being researched.

Avant-garde in a barren landscape – The collector field consists of a 550-meter-long row of parabolic mirrors that concentrate the sunlight more than 80 times on metal absorber pipes. The water running through the pipes is heated up to achieve superheated steam. The flow is controlled using SAMSON valves. Not an easy task, given a maximum outlet temperature of 400 °C and pressures exceeding 100 bar. The currently achieved efficiency rate of 20 % is considerable when compared with photovoltaic cells.

A tower of sun power – The power generation efficiency in a solar power tower that is currently being researched in Spain could also be very promising. The solar field made up of around three hundred mirrors, called heliostats, is placed around a receiver at the top of a 83-meter-high tower. The mirrors are controlled by a computer to track the sun. This is done to ensure that the reflected sunlight focuses directly on the tower receiver where an absorber is heated up to temperatures of about 1000 °C by the concentrated sunlight. Liquid sodium transports the heat and a steam turbine drives an electrical generator to transform the heat into electricity. An efficiency rate of 23 % has already been achieved. The drawback of the plant is its high costs.

A vision of hope – The benefit of solar power generation is obvious: unlimited supply and zero emissions. Which is more than can be said about fossil fuels! Perhaps, in the near future, we will be able to drive across Europe and head for Andalusia with a tank full of sun.

Special topic

The town Lienz is investing in the future: local supplies of sawdust and wood as well as solar power are used to generate heat and electricity.



Natural heating – The drawbacks associated with solar power plants such as high production costs and their dependence on direct sunlight make it necessary to continue looking for alternative energy sources. Another sustainable energy resource is biomass. Biomass is a form of solar energy as it were. All biomass is produced by green plants converting sunlight into plant material through the process of photosynthesis. When biomass fuel in the form of wood, straw or even vegetable oil is burnt, carbon dioxide is emitted, yet an equal amount of carbon dioxide is absorbed from the atmosphere during the growth phase of the plants – a favorable balance of nature.



The cultivation of rape plants began in the 16th century, originally to produce lamp oil. Today, it is an important agricultural product.



Lienz enjoys more than 2,000 hours of sunshine every year - more than enough for the solar power station.



The fuel quality of biomass is subject to fluctuation. An innovative regulation concept helps to improve the efficiency.

Energy from biomass

Electricity growing on trees – Whether wood or straw, bark or sawdust briquettes, they all have one thing in common: these energy resources grow quickly or are byproducts of the wood industry. The classical biomass consists of wood waste from sawmills and forests. But also wheat, rye or barley formed into pellets are suitable and quick to renew in a one-year cycle.

CHP plant in Lienz – At the end of 2001, a combined heat and power station running on biomass started operation in the town of Lienz, Austria. Customers in the town are supplied the whole year round with district heating gained by burning renewable resources such as sawdust, wood chips and bark. The district heating network is continuously expanding and will reach a pipeline length of 37.5 km in 2003. SAMSON is involved in providing the control engineering for nearly 1,000 district heating substations as well as the entire control equipment. The plant can supply an annual thermal output of 60 GWh. In addition, a



The use of local, sustainable energy resources helps the forestry industry.

solar power plant with a collector area of 630 m² has been set up to “harvest” an additional 250 MWh sun power per year in this particularly sunny part of Austria.

Liquid alternatives – Running a car on wood is nowadays inconceivable. Yet, biomass comes in liquid form, such as ethanol that can be recovered from sugar beet and sweet sorghum. An additional source is rapeseed oil used to produce biodiesel that can substitute conventional diesel in most engines without any modification. The cold-pressed oil is converted in a simple transesterification process by heating the oil with a catalyst and methanol. The reaction produces biodiesel and the byproduct glycerine, used in the cosmetic industry.

Environmentally friendly – As rapeseed grows successfully in industrialized countries where the diesel is needed, a great deal of transportation costs can be saved. Additionally, a considerably lower amount of toxic emissions are released from modern engines powered by biodiesel than conventional diesel fuel. Biodiesel contains no sulfur while the sulfur content of mineral fuels can only be reduced at the expense of wasting energy.

A never-ending energy source? Biodiesel is currently available at over 1,000 filling stations across Germany. Approximately six percent of Germany’s diesel demand could be covered with biodiesel. Suitable farming locations and crop rotation have to be observed on cultivating rapeseed. Consequently, biodiesel cannot fully replace petroleum oil, but supplement it instead. There is a little bit of sunshine in every drop. And every drop helps.



Visitors were surprised to see a control valve operating underwater. The *Operating in deep water* presentation demonstrates the low air consumption of the positioner.

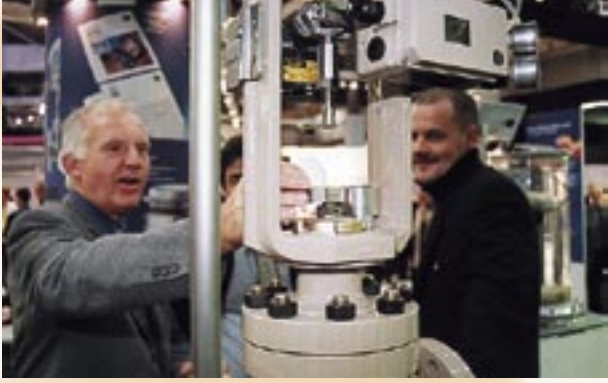
Experience the world of positioners Come and **test the best**

Does the following situation sound familiar to you? You are visiting an exhibition. You want to inform yourself about some products as efficiently as possible. Pressed for time, you head for the desired booth. The way is longer than you thought. And when you finally reach your destination, you are inundated with technical information, making it difficult for you to recognize the products' true assets. But that's not all. No sooner have you returned to your hotel room than you realize that you have already forgotten the details.

But how is it possible to pick out the most important information from this overwhelming amount of material?



The Type 241 Control Valve is able to operate properly even under hostile conditions.



As sure as eggs is eggs, SAMSON's delicate control valves do not crack eggs when stamping them.



The man-machine contest demonstrates how much skill is needed to compete with SAMSON positioners for speed and precision.

Hands-on exhibits to explore

SAMSON has resolved this problem – offering three unforgettable exhibition attractions. These pioneering attractions invite visitors to touch and try the devices under the motto *Experiencing the world of positioners*. The SAMSON positioners are presented performing very demanding tasks under unusual conditions to prove their quality in an impressive manner. Experiencing the world of positioners at the exhibition enables visitors to “grasp” the devices in the truest sense of the word and to make a mental note of the positioners' ability to perform special control tasks fast, precisely and carefully without overshooting even under hostile conditions, while consuming very little power.

The challenge: who can position faster? – Is there anybody who can win the man-machine contest against a positioner? The objective is to position a SAMSON butterfly valve to the predetermined set point faster and more accurately than SAMSON's Type 3730 Positioner, using two buttons to vent or fill the actuator. This exciting, unforgettable experience clearly demonstrates how difficult it is to win the contest and thus how much skill is needed to compete with SAMSON equipment.

Fragile: handle with care – SAMSON control valves equipped with large pneumatic actuators work so carefully and accurately that they can be used to label eggs without any complications even in applications where the hysteresis is high. No two eggs are alike. Therefore, a laser measures the distance to the eggshell, determines the set point and passes this information on to the SAMSON positioner. The latter then positions the valve fast and accurately without overshooting so that the egg does not crack when it is stamped. Just imagine that your own product is handled with the same care by an actuator which is strong enough to lift a full-grown elephant.

Underwater: tightness tested to the extreme – No industrial process requires a valve to operate underwater, of course. If a standard valve, however, is able to function properly in this unusual, hostile environment, it demonstrates its quality in an impressive manner. SAMSON's Type 241 Control Valve with integral positioner attachment remains tightly sealed even when completely submerged in water. Owing to the low air consumption of the flapper-nozzle assembly, a low gauge pressure is continuously produced in the positioner, preventing water – and the corrosive atmosphere – from entering the positioner. The spring chamber, too, is constantly purged with instrument air, providing additional protection against corrosion and increasing the service life of the actuator. The use of solar cells emphasizes the low power consumption of the SAMSON positioner, i.e. 4 mA are enough.

Fast, accurate and tight – the pioneering exhibition attractions clearly convey what is meant: unforgettable, impressive and lasting. Getting informed involves a lot more than just gathering data.



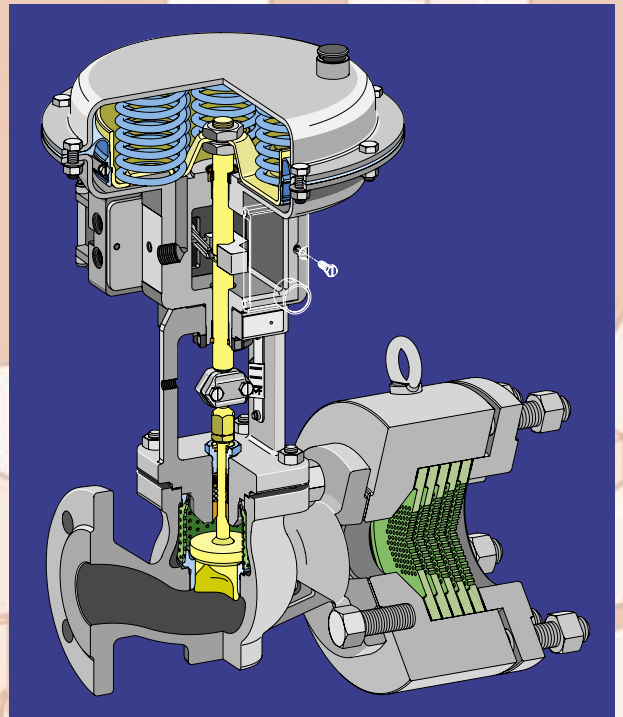
At Interkama in Düsseldorf, SAMSON invited visitors to explore hands-on exhibits for the first time.

Facts and figures

Type 241 Control Valve A best seller for good reasons

SAMSON's Series 241 is the world's market leader with more than 500,000 control valves sold. The demand for ANSI or JIS versions of more than 15 % of SAMSON's control valves emphasizes the acceptance of these valves among customers worldwide.

The success story of the Series 241 began in 1968 with the pioneering invention of a completely new, compact actuator design. Instead of using one central spring, the SAMSON engineers arranged several internal springs or spring assemblies symmetrically around the actuator stem. The innovative integration of a maintenance-free, self-adjusting packing allowed the SAMSON engineers to do without the conventional gland flange and to reduce the height of the valve bonnet. In 1975, the seat-guided V-port plug – unknown in Europe until then – replaced the parabolic plug and was instrumental in preventing vibrations from occurring in valves with larger seat bores.



Flow dividers and silencers significantly reduce the noise level when the gas expands.



V-port plugs and bellows seals guarantee trouble-free operation.



Integral positioners are instrumental in ensuring the proper functioning and high performance of the Type 241.

The best-known brand in its market

No ifs, ands or buts about modular design – The success of the Series 241 is also fueled by the modular design which allows the same valve bonnet and the same trim to be used for several valve sizes within one of the three nominal size ranges. And the same packing is designed for different valve sizes ranging from DN 15 to DN 80. A bellows seal or an insulating section can be retrofitted and connected to the plug stem without requiring the plug to be replaced. All valve versions of the series can be combined with actuators that have effective diaphragm areas ranging from 120 to 700 cm². The actuators also feature a modular design, which allows an actuator with an effective diaphragm area of 700 cm² to be equipped with 3 – 18 springs as standard. Five springs alone can be combined to achieve seven different spring ranges. And last but not least, the operating direction can be reversed without requiring any parts to be exchanged and without using special tools.

Unique technique at the peak – Although the Series 241 dates back 34 years, it is still considered to be one of the most state-of-the-art valve series owing to its continuous development and improvements in design and construction. The introduction of forged bonnets and bodies in 1987 and the construction of special versions in accordance with ANSI in 1988 and with JIS in 1996 mark a few further milestones in the successful history of the Series 241. In 1989, a new production process was introduced which made a great product even better. The valve parts were no longer manufactured on two rotary table machines with eight production stages, but were completed in one fixturing on modern machining centers to prevent alignment errors. Additionally, the fact that a large number of parts, including bellows, diaphragms and accessories, are “home-made” increases the overall quality of SAMSON’s products.

Nothing left to be desired – Today’s design of the Type 241 Control Valve for intermediate pressure ranges leaves nothing to be desired: Hard-faced trims and stellite plugs are available to resist erosive media. Highly viscous media can be kept in flow by means of a heating jacket. The bellows seal meets even the highest requirements on external sealing effectiveness. Flow dividers help to reduce the noise level significantly. The AC trim prevents cavitation from causing problems. Integral positioner attachment is possible, contributing to cost cutting.

The use of a pressure-balanced trim allows smaller actuators to handle high pressures. And last but not least, pneumatic actuators are available in stainless steel to meet very stringent corrosion resistance requirements.

500,000 valves sold – A number that SAMSON is most proud of and that symbolizes the unique success of a best seller. SAMSON’s close sales network and worldwide customer service round the clock position the Series 241 for continued success.



Heating jackets allow the valves to be used for highly viscous media · Safety shut-off devices for gas burners can be implemented cost-effectively.

Spotlight



The smallest wild cats in the world: the South Indian rusty-spotted cat is eager to explore its new enclosure.

SAMSOMATIC – jungle experts Some cats like it hot

For the first time since the opening of the Grzimekhaus in 1978, Frankfurt Zoo has unveiled a large animal house again: the Katzendschungel. The cat jungle – a paradise for wild cats from South East Asia – stretches out over almost 3,000 square meters. The inside and outside enclosures are modeled as authentically as possible on the natural habitat of the mammals, placing great emphasis on the animals' welfare. Since last July, cats endangered by extinction in the wild have been kept here.

Under the responsibility of Dr. Bernhard Grzimek between 1945 and 1974, Frankfurt Zoo – one of the oldest zoos in the world – became a role model for the progressive keeping of animals. With its new enclosure for wild cats, Frankfurt is back on the fast track in the international zoo business. SAMSOMATIC, a subsidiary of SAMSON AG, has contributed to this development.



The main building of Frankfurt's Zoological Society known as the Gesellschaftshaus became a cultural monument in 1984.



Interactive terminals and illustrations provide useful information for the visitors · The wild cats enjoy their outside habitat. Nothing but water separates Sumatran tiger Iban from the visitors on the bridge · Feeding the wild cats: different flavors are added to the meat to offer some variety.

SAMSOMATIC turns even the jungle into a cozy place

Controlled coziness – Making the cats really feel at home requires tailored equipment with a sophisticated control system. The system must include various special features, and it should be able to react to changing requirements in a highly flexible way. Standard controllers would not be up to the job.

To ensure, for instance, that the three Asiatic lions called Kashi, Kiri and Devika can really enjoy lazing about lion-style in their North Indian tropical monsoon and dry forest, the sandstone rocks must be brought to the right temperature. Therefore, floor heating and sensors in the rocks are required to heat the surface the cats lounge on.

A rain forest has been built for the Sumatran tiger couple and for the nine South Indian rusty-spotted cats – weighing just 1.5 kilos the smallest big cats in the world – that will move to the habitat soon. The rain forest provides waterfalls, pools, ponds, musty smelling bark mulch, bamboo thickets and trunks to climb on. If the Sumatran tiger called Iban goes stalking or if it gets too dry in the rain forest, motion detectors or special sensors control the fog system.

A lot of work for the zoo designer – The rain forest tree towering seven meters above the ground – an artificial trunk with real vines – is intended as a happy hunting ground for the clouded leopards which will move into their own enclosure within the jungle in late spring 2002. “Macan dahan”, the branch leopard, is how the Indonesians call these climbing-mad cats native to South East Asia. Due to their short, muscular legs, not even five-meter-wide gaps between the branches of the trees can stop them from hunting monkeys, their favorite prey. Their habitat is still under construction. A landscaping bio-designer puts the finishing touches on the shape of the trunk. It will be

equipped with heating plates to provide the cats with snug rest areas high up in the tree.

Thanks to TROVIS – It took two and a half years to build the new cat habitat. The zoo is proud of SAMSON’s TROVIS MODULON Automation System, which provides a freely programmable direct digital control (DDC) system and a self-sufficient automation station linking the different sensors and actuators on site and managing the data flow to the control station. The full graphic TROVIS process visualization on the control computer allows the keepers to conveniently monitor what is going on in the enclosures. The images tailored to the specific habitat can be checked from a safe place.

Young given a warm welcome – When cats are offered so much coziness and comfort, it should not take long before they produce offspring. Provisions for this case have already been included in the program drawn up for the preservation of the species. Special sheltered areas have been designed, which allow the cat mothers to retreat whenever they wish to while they raise their young.



Sumatran tiger Iban still goes stalking on his own. But he will soon be joined by a female.



SAMSON worldwide



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