

# SAMSON

Issue 9

# MAGAZINE

SAMSON MAGAZINE 2006



## Impulse

On the safe side with SIL

## Report

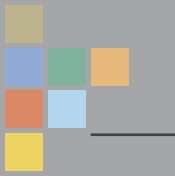
Crossroads between Orient and Occident

## Portrait

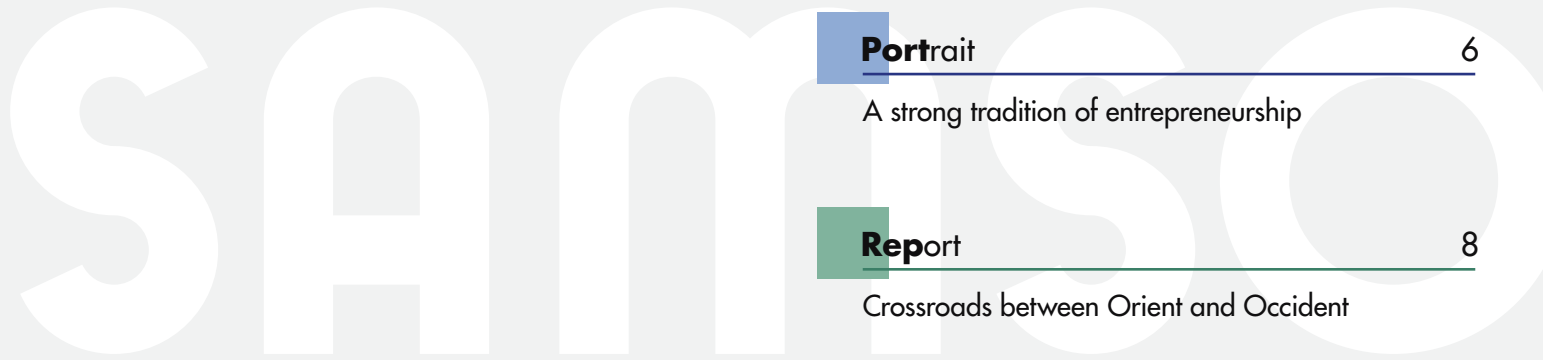
A strong tradition of entrepreneurship

## Innovations

Regular valve work-outs



# Contents



## **Editorial** 3

Project management—a key element to success

## **Innovations** 4

Regular valve work-outs

## **Portrait** 6

A strong tradition of entrepreneurship

## **Report** 8

Crossroads between Orient and Occident

## **Impulse** 14

On the safe side with SIL

## **Special topic** 16

Working successfully together

## **Facts and figures** 20

Achievements to be proud of

## **Spotlight** 22

An idea becomes reality

### Cover

Istanbul's Sultanahmet Mosque completed in 1616 has become known as the Blue Mosque due to the beautiful blue, green, and white encaustic tiles that adorn it. SAMSON established its own subsidiary in Turkey in 1984.

### Photo material

We wish to acknowledge the Turkish Ministry of Culture and Tourism in Ankara, Turkey as well as BASF AG, Silke Lohrberg, [www.PixelQuelle.de](http://www.PixelQuelle.de), [www.photocase.com](http://www.photocase.com), and [www.sxc.hu](http://www.sxc.hu) for providing photo material.



## Project management—a key element to success

Dear Readers,

Projects have existed ever since large undertakings had to be carefully planned and organized. It would be hard to deny the planning effort taken by the architects who built the pyramids of Giza, the Carthaginian Hannibal who led 26,000 soldiers and 37 elephants over the Alps to the Po plains to fight the Romans, or Christopher Columbus who managed to coax the Spanish Crown into giving him three ships for his first overseas expedition.

Yet, from a modern perspective, these historical figures all acted more upon gut feeling than following any theoretical principle or a particular approach in project planning. It is hard to believe that project management did not take root until the second half of the twentieth century when existing findings were compiled, methodized, and put into a scientific form. Projects entered schools and universities, and project planning itself became a discipline in its own right.

In 2001, the research findings published by the Human Genome Project, which had been investigating the genetic makeup of humans since the 1980s, caused a stir throughout the world. Professional project management has also become indispensable in the global economy, which has paved the way for cross-linking information and practices on an immense scale, and led to larger and more complex projects.

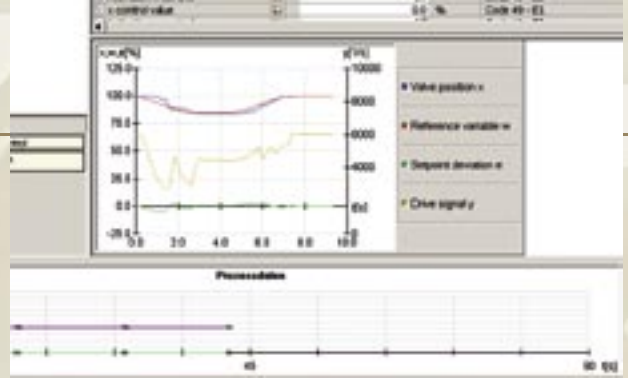
At SAMSON, project business first got going in the early 1970s when Series 240 Valves were developed. It was the first time in the company's history that project-related orders placed by the chemical industry could be won. Initially, our sales and engineering office in Frankfurt and plant engineers on site were in charge of this business branch. Later, our worldwide sales network and representatives also got involved. In 1999, SAMSON founded the International Sales and Marketing Department to manage and monitor international projects from Frankfurt. The After-sales Service Department provides support together with the local service on site to take care of any maintenance work on our instruments.

You can find more details on project management in the Special topic article on page 16.

We hope you enjoy reading the magazine.

A handwritten signature in blue ink that reads "G. Vogel". The signature is fluid and cursive.

Günther Vogel  
Head of International Sales and Marketing



The opening behavior of a valve recorded in the positioner allows the expert to recognize any slowly developing pattern of damage.

## Partial stroking for reliable valves Regular valve work-outs

Anybody who has ever seen an oil refinery in real life will know the scale they are built on. It is difficult to believe that the enormous network of sprawling pipes and numerous distillation towers is in effect just one big plant that takes crude oil and turns it into various products. Once the plant starts running, it takes a long time to shut it down, and even longer to start it up again. This is just one of the reasons why an oil refinery is designed to run round the clock. Nowadays, the guideline for scheduled maintenance turnarounds in refineries is five years. Another factor of major importance involves the stringent safety requirements that must be met by this type of plant, requiring regular maintenance and instrumentation tests. However, a safety shutdown valve cannot simply be quickly closed to see if it is still working as the plant operation would be interrupted, which involves immense costs. The way out of this dilemma, and not just in refineries, is provided by partial stroke testing of valves. This sort of valve testing while the process is running is both efficient and reliable, requiring smart valve positioners to stroke the valve precisely and to record the resulting test data. SAMSON has gained extensive experience in this field of engineering.



A ball valve from Pfeiffer with a SAMSON Type 3731 Positioner in an flameproof enclosure for partial stroke testing and extensive valve diagnostics



SAMSON positioners are tailored to perform partial stroke tests thanks to their precise travel or rotational angle feedback, integrated solenoid valve, and limit switches together with their excellent diagnostic and data storage capacities.

## Early diagnosis to prevent valve malfunctioning

**Exercise is the key to valve health** – Large plants with a risk potential must be equipped with reliable safety systems. Emergency shutdown (ESD) valves play a decisive role within these safety instrumented systems to open or shut off the process medium flow in the case of emergency and to interrupt the process. The problem with these valves is that they remain unused in one position during the normal everyday running of the plant. As a result, corrosion and deposits can impair the proper functioning of the valve and make the valve susceptible to sticking. Any problems with the valve go unnoticed until the valve is required to do its job in the rare case of an emergency and fails to move to the required fail-safe position with fatal consequences.

The Probability of Failure on Demand (PFD) is a decisive factor for certification of safety instrumented systems. It allows the exact calculation of the likelihood of failure with the aid of numerous parameters and complicated statistics. The more critical the process, the lower the PFD needs to be. The safety integrity level rating SIL 3 (see article on page 14) allows for the potential occurrence of one failure in 1000 years at the maximum. The lowest possible PFD can only be achieved, however, when the safety-related components are frequently checked and tested.

**Advance in engineering** – Engineers came up with a special test procedure, which allows partial stroking of the valves without causing any drastic interruptions in the production process. SAMSON was on the ball right from the start and can call upon sound engineering experience, which comes in hand as partial stroke testing is not as simple as it appears: The valve is not completely closed or opened, but moved only partially. A 10 % to 20 % stroking of the valve does not impair the plant perceptibly, yet a sticking valve is noticed straightaway. The plant operator can verify

whether the valve will shut down in the event of emergency, or at least determine it with a certain probability, which, in turn, depends on various other factors.

**Independent of the process control system** – At this point, the matter gets more complicated. The plant operator can safely expect that a valve used to control a non-corrosive, clean process medium like methane gas will work properly and that the ESD function will work on demand after the valve has successfully completed a partial stroke test. However, a successfully completed partial stroke test involving a process medium that may corrode the valve material or form deposits does not provide sufficient indication for the plant operator. Critical factors that can affect valve operation develop gradually, for example when tiny amounts of residue build up over years, creating a critical blockage. This is where the valve diagnostics in SAMSON positioners come into play to provide predictive information on the valve condition and to warn of such slowly advancing problems at an early stage. The positioner is also able to follow the course of pressure in the pneumatic actuator without having to actually measure the pressure. A progressively longer response time from test to test before the valve starts to move detected by the positioner is a clear indication of a sticking valve that needs servicing as soon as possible.

Another benefit of this positioner is its ability to be programmed on site, allowing it to perform tests without having to bother the process control system. Collected diagnostic data are stored in the positioner ready on demand. These capacities enable the probability of failure of safety instrumented systems to be reduced considerably, leading to longer maintenance intervals involving plant shutdown with the same SIL rating – a solution that is well worth its investment.



SAMSON AG in Frankfurt, Germany: The sound family business has been successful on the international market for decades.

## Rolf Sandvoss

# A strong tradition of entrepreneurship

At SAMSON, employees celebrating their 40-year employment anniversary are nothing out of the ordinary. And Rolf Sandvoss is one of those entrepreneurs who considers such anniversaries a good thing. Staying with a company for such a long time displays experience and know-how, which, according to Mr. Sandvoss, are indispensable to a sound enterprise. Such loyalty also stands for continuity, reliability, stability, and, not least of all, the success that SAMSON has achieved by going its own way in these fast-paced times.

On 26 August 2005, it was Mr. Sandvoss's turn to celebrate 40 years at SAMSON as a member of the Supervisory Board, thus following the maxim of the founding Sandvoss family who has always given fervent support to the business: being there when you are needed, giving all you have to give, and above all, standing together for the sake of SAMSON's continuation and development. Obviously, the strong family ties best reflect the significant role that the Sandvosses have played for SAMSON ever since Hermann, the youngest of the Sandvoss brothers, founded the company in 1907—this family tradition ultimately paved the way for SAMSON's enduring success.



2005 Sales Meeting in France: Rolf Sandvoss and his wife surrounded by the heads of the worldwide subsidiaries as well as staff from the Frankfurt headquarters.



The strong ties between the Sandvoss brothers and their families have been key to the success of SAMSON, which was founded by Hermann (middle), in 1907. · Rolf Sandvoss (right), long-standing chairman of SAMSON's Supervisory Board celebrated his 70<sup>th</sup> birthday in March 2006.

## SAMSON – a family business par excellence

**Strong family ties** – Support amongst the family members has been important ever since the early days: Wilhelm Sandvoss, one of Hermann's four brothers and Rolf's grandfather, recognized the market potential that lay dormant in Hermann's inventions. Right from the beginning, Wilhelm supported his brother's groundbreaking developments, including temperature regulators, steam traps, and other self-operated regulators. While Hermann took charge of R&D and production, his brothers established companies to sell the equipment.

Rolf's grandfather went to Kehl am Rhein, a German town just across the French border. Wilhelm's knowledge of the French language and his cosmopolitan attitude opened SAMSON the gates to the French market and laid the foundations for a fruitful relationship that even stood the test of two world wars. By founding the company "Wilhelm Sandvoss" in Stuttgart in 1913, he established the second SAMSON site in southwestern Germany. In 1935, Wilhelm's son Heinrich assumed control of the business, who in turn was succeeded by his son Rolf in 1960.

**Young, yet successful** – The first few years were not easy for Rolf Sandvoss. While he was still at university, his father died unexpectedly of a heart disease. At only 24, Mr. Sandvoss took charge of the family business and continued his father's work very successfully. Only five years later, he was presented with the next challenge: On 26 August 1965, Mr. Sandvoss became the youngest family member to be appointed to the SAMSON AG Supervisory Board. Because of his entrepreneurial talent, Mr. Sandvoss soon gained growing appreciation and commended himself for the position as chairman of the board. He accepted the offered position in September 1973 and held it for 28 years, greatly contributing to SAMSON's success. In 2001, Mr. Sandvoss himself appointed

Dr. Nikolaus Hensel to become his successor. The Supervisory Board honored Mr. Sandvoss and his achievements by appointing him honorary chairman of the board for life.

**From Frankfurt into the wide world** – During these 28 years, SAMSON turned into a modern company that became well established on all important markets by constantly developing its products. Thanks to well-planned investment, the Frankfurt production site is competitive on an international level. Nevertheless, modesty is what is visible from the outside. Mr. Sandvoss affirms that this also applies to the new administration building currently being added to the Frankfurt facilities, which, according to him, is not about spectacular architecture: "We do not waste money on superficialities, but rather invest in new machinery."

SAMSON sales are organized by independent subsidiaries who rely on a tight-meshed network of local engineering and sales offices spread across the globe. SAMSON has evolved into an international group, "not for relocation purposes" as Mr. Sandvoss emphasizes, but to increase the presence on the different markets. According to Mr. Sandvoss, the reasoning already came to light in his days that integrating smaller, efficient companies to widen the product range only made the German business less susceptible to crisis. A similar course was pursued by establishing specialized production sites abroad.

When asked about his relation to SAMSON staff, Mr. Sandvoss likes to refer to himself as a French *patron*, the type of entrepreneur who does everything he can for his company, without ever losing sight of the staff's interests and needs. Mr. Sandvoss has openly set an example for this sense of partnership and thus contributed to SAMSON's corporate culture like only he could do.



Istanbul, vibrant metropolis on the Bosphorus: The city is at the heart of Turkey's fast-growing economy.

## Turkey, a growth market

# Crossroads between Orient and Occident

Many visitors to Turkey surely remember the numerous statues and monuments of Mustafa Kemal: The politician and Turkish national hero—later honored with the name Atatürk, meaning “Father of the Turks”—managed to re-inspire his compatriots with a feeling of national identity after the losses of World War I and the defeat of the formidable Ottoman empire. Atatürk, who was proclaimed the first president of the Republic of Turkey in 1923, restructured the former caliphate to create a secular state.

When Atatürk died in 1938, he left behind a modern country with a sound economic structure whose foreign politics have been organized along the same lines ever since: Turkey's only point of orientation is the West. The West, in turn, has also directed its efforts towards Turkey for the past few decades. SAMSON, for example, has been active on the Turkish market with its own subsidiary since 1984.



The terrace-like pools filled with warm water at Pamukkale offer blissful relief. The natural attraction used to be considered a sacred place due to the healing powers of the mineral water, which leaves thick white layers of limestone cascading down the mountain slope, making the whole area look like a *pamukkale* (cotton castle).





The Atatürk Mausoleum in Ankara: The founder of modern-day Turkey is still honored as the country's most important personality.



The Turkish company AKNIŞASTA specializes in the production of high-quality carbohydrates and relies on SAMSON equipment.

## Towards a modern Turkey

**Continuing as if he were still alive** – 80 years after the proclamation of the republic, Turkey is a prospering democratic country. And this can still be attributed to the achievements of Mustafa Kemal, who did far more than introduce far-reaching reforms, create a sovereign Turkish state, and secularize the country: He also managed to promote a new generation of citizens who asserted Turkey's identity as a strong, modern state. Before that, the Turks had never really felt as if they belonged to a unified nation because the vast Ottoman Empire—which lasted more than 600 years and covered vast areas of the Middle East, Eastern Europe, and North Africa—had brought together a multitude of diverse ethnic groups.

Atatürk's principles known as Kemalism and the wide-ranging political, social, and legal reforms he implemented were continued by his close associate and successor as president, İsmet İnönü. İnönü further democratized the political system and permitted the introduction of opposition parties. His reign was ended by the first democratic change of government in 1950. The gradual introduction of democracy from 1946 onwards also marked a change in the Kemalist regime. Contrary to the early days of the republic, when secularism dictated the strict separation between the Muslim establishment and the state, secularism now grew to mean that the influence of religion was to be regulated by the social institutions of the state and not banned altogether. The corresponding measures, such as introducing religious education in schools or re-approving pilgrimages, were greatly appreciated since over 98 % of Turkey's population considered—and still consider—themselves Muslims.

**Abolishing the caliphate** – Turkey's orientation towards other Western democracies affected nearly all sectors of society. Over the past 60 years, national employment has clearly been shifted away from the

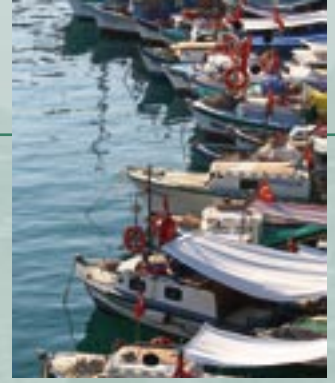
## Starched by nature

Nature allows us to create energy reserves from proteins, fats, or carbohydrates. While humans and animals store energy in the form of glycogen, green plants produce amylose, commonly known as starch, during the process of photosynthesis. This starch is mainly stocked up as granules in the plants' bulbs, tubers, and seeds. Apart from their own carbohydrate reserves, humans have always made extensive use of plant starch as well, which forms a main pillar of their nutrition.

Starch was first extracted from wheat flour on the Greek island of Khios according to the Roman encyclopedist Pliny the Elder, who was the first to collect the entire knowledge on natural sciences of his time in his 37-volume *Historia Naturalis*.

In the 16<sup>th</sup> century, the Dutch started industrial production of starch on a large scale. Since then, the industrial starch extraction methods have been perfected thanks to the steady improvement of the applied centrifugal equipment. At the same time, the methods for thermal and chemical modification of the extracted native starch have constantly been refined as well. Today, starch is used in many industries, including paper, textiles, and plastics, for example as a filler material in biodegradable plastics.

The Turkish company AKNIŞASTA A.Ş. caters for the more traditional applications of starch in the food industry. Apart from starch, AKNIŞASTA also refines glucose and fructose, mainly supplying beverage producers, bakeries, and confectioners. In 2004, the Lüleburgaz plant was opened and SAMSON A.Ş. supplied 110 Type 3241 Control Valves equipped with Type 3730-3 Positioners. According to Hakan Yüzer, member of the AKNIŞASTA executive board, the company is very happy with its choice and would not hesitate to cooperate with SAMSON again. Perhaps this will already be the case soon, when the plant's capacity comes up for expansion.



Steep cliffs, secluded bays, dark blue water, colorful harbors, and beautiful sandy beaches have turned Turkey into a popular spot for visitors from all across the world—a true paradise for beach-lovers and sailors.

traditional agricultural sector towards industry and services. Nowadays, Turkey is considered an industrial nation. Even the worst economic crisis since the proclamation of the republic, which culminated in an inflation rate reaching 54.9 % in early 2001, has been overcome in the meantime. The reforms initiated in 2002, such as restructuring the banking and taxation systems, attracting direct foreign investment, and abolishing subsidies for sugar and tobacco, have taken effect. The fresh breeze that has been blowing through Turkey since then has given society and the economy new momentum, ranking Turkey among the fastest expanding economies worldwide: Exports have doubled, the gross domestic product has grown by approx. 9 % over the past few years. The chronically high inflation rate plummeted below 8 %. At the same

time, urbanization proceeded rapidly: Over two thirds of Turkey's population now live in cities or towns. Amongst them are many young people, which is an added booster for sales. The government has set itself challenging objectives by directing its efforts towards achieving the Maastricht criteria, which is one of the prerequisites for the accession membership talks with the EU to be successful. Istanbul, home to 12 million inhabitants, is at the heart of this restructuring process.

**Building on foundations of gold** – A Turkish proverb says that the stones of Istanbul are made of money. It is thus no surprise that one fifth of Turkey's total population lives in the country's largest city and secret capital. Picturesquely situated on the rolling hills to both sides of the Bosphorus strait, Istanbul is the only city in the

world that sits astride two continents: Europe and Asia. The Bosphorus greatly contributed to Istanbul's strategic importance since it links the Black Sea with the Marmara Sea (the eastern part of the Mediterranean) and thus constitutes one of the world's most important sea routes. Istanbul has always been a crossroads of civilizations thanks to its unique geographical location and its well-protected natural harbor situated on the Golden Horn, a narrow, horn-like channel of the Bosphorus. Two major bridges span the Bosphorus and thus establish an overland link between the Balkans on the European side and the Anatolian peninsula in Asia Minor. Up until today, Istanbul continues to serve as Turkey's major commercial center and transport hub. Since 1973, the historic city center as well as the industrial and working-class districts in

## Bal Kabađi Tatlısı · Pumpkin dessert

### Ingredients

- 1 kg pumpkin
- 150 g sugar
- 25 ml water
- 2 whole cloves
- 100 g ground walnut

### Preparation

Dice the pumpkin and put it into a shallow saucepan. Add sugar, water, and cloves. Simmer for 30 minutes with the lid closed. Allow to cool down in the pan. Fill into bowl and spread chopped walnut on top.





Great civilizations, including the Roman Empire, have left their mark on Turkey's over-4,000-year-long history: the amphitheatre at Aspendos.



Temple-like tombs were carved into the cliffs at Myra. St. Nicholas served as a bishop in the Lycian town in the 4<sup>th</sup> century.

the European part of town have experienced a considerable boom. And this thanks to the Bosphorus Bridge being built: The 1074-meter-long steel construction links the European quarters with the prosperous Asian districts. The urbanization wave that had started to hit the western part of town in the 1950s could also extend to the eastern part now. New industrial and residential areas sprang to life. The second bridge across the Bosphorus, the 1090-meter-long Fatih Sultan Mehmet Bridge, was completed in 1988 and acts as another vital lifeline.

**Murder on the Orient Express** – Despite the impetus gained by establishing connections between the European and Asian parts of town, an intercontinental railway link has never been built. And it seems like any such plans have been shelved for the moment. Currently, city planners are pursuing the idea of routing the city's suburban trains through a tunnel underneath the Bosphorus. As it is, visitors traveling eastward from Europe still need to get off their trains at Istanbul's Sirkeci Station and cross the Bosphorus strait by ferry. Having reached the Asian part of town, they continue their ride from Haydarpaşa Station, perhaps on board the Taurus Express, a connection train to the legendary Orient Express. When mentioning this famous train, Agatha Christie immediately springs to mind. The world's best-known crime fiction writer regularly left London on the Direct Orient line, changed trains in Istanbul, and continued her journey on board the Taurus Express to reach the Iraqi capital of Baghdad. From there, she set out to visit her second husband Sir Max Mallowan, who worked as an archaeologist in Syria and Iraq. No wonder that several of Christie's nerve-racking stories are set in the Middle East. In 1929, the Taurus Express once got stuck in heavy snowfall for five days—an irresistible opportunity for Agatha Christie. She found herself in the situation to



Istanbul's many bazaars and markets are vibrant and colorful, always inviting for a stroll or a shopping spree.



Istanbul's influences are diverse, ranging from one of the greatest surviving examples of Byzantine architecture, the Hagia Sophia, to the Fatih Sultan Mehmet Bridge, a modern, gravity-anchored steel suspension bridge.

plot a nearly perfect murder, had there not been her brilliant Belgian detective, Hercule Poirot, who gradually disentangled the mystery of the murder on the Orient Express.

**Moving closer to the EU** – As mentioned before, Istanbul has always functioned as an important connecting link, particularly the posh Asian

Kadiköy district where Haydarpaşa Station is located. Kadiköy is also the area where Istanbul's in-crowd meets and where the football players of Fenerbahçe have found their home. On a larger scale, the same also applies to Turkey as a whole: The country has always acted as an important crossroads between the Orient and the Occident. It is a founding member of the UN and holds NATO and OECD membership. Turkey has also been an official candidate for EU membership since 1999 and symbolically opened membership negotiations with the EU in October 2005.

For quite some time now, Germany has been Turkey's most important trade partner. With a total of over 1200 German subsidiaries and German-Turkish joint ventures, Germany accounts for the largest number of foreign companies investing in Turkey. Since 1985, the German economy has been represented in Turkey by an office of the Association of German Chambers of Industry and Commerce (DIHK). In addition, the German-Turkish Chamber of Commerce opened its gates in Istanbul in 1994, while the Turkish-German counterpart was established in Cologne ten years later.

**A subsidiary to be proud of** – Rather early on, in 1984, SAMSON recognized the trend and opened a subsidiary in Istanbul named SAMSON

ÖLÇÜ VE OTOMATİK KONTROL SİSTEMLERİ SAN. VE TİC. A.Ş., or SAMSON A.Ş for short. Since 1930, SAMSON sales in Turkey had been organized exclusively through representatives. By the mid-1980s, the control valve market was expanding to such an extent that SAMSON thought it was time to take full control of sales again as well as open its own production facilities.

Production started in Istanbul's European district of Taksim in 1985, only a stone's throw away from the Grand Bazaar, the Süleymaniye Mosque, and the Golden Horn. In the first year, a total of 663 self-operated regulators was manufactured. Today, SAMSON is a market leader in this field with a share of 70 %. Sales operations were based in Karaköy, a district a little to the north of Taksim. In 1992, production and sales moved together into new facilities in the Güneşli district. At the same time, Mr. Mete Akidil became head of SAMSON's Turkish subsidiary. The production range was expanded to include Type 3241 and Type 3351 Control Valves as well. By 1992, the annual production had risen to 7,000 devices and the number of staff had grown from 12 to 35. Since 2000, the production process has been organized to comply with the ISO 9001 quality assurance standard and the European Pressure Equipment Directive (PED). The number of staff



The Apollo Temple in Didyma is where Zeus allegedly procreated the twins Apollo and Artemis.



SAMSON A.Ş. in Istanbul is one of the production sites of the SAMSON Group outside Germany. The Turkish sales network is tightly meshed. · Mete Akidil, head of the subsidiary, surrounded by the team of SAMSON A.Ş. · Staff of SAMSON A.Ş. packs equipment for delivery.

has continued to grow, now reaching 52. And the product range has also been expanded further. SAMSON A.Ş. supplies not only the Turkish market, but also produces equipment for SAMSON Frankfurt, e.g. the Type 3353 Angle-seat Valve: The valve was specifically engineered by SAMSON A.Ş. for certain Turkish textile companies in 2002 and has since been sold more than 15,000 times.

**Providing the proven SAMSON service** – The SAMSON sales network has expanded hand in hand with the production range. In 2002, an engineering and sales office was opened in Adana, the commercial and industrial heart of southeastern Anatolia. In 2004, further offices followed in Bursa, the former

capital of the Ottoman Empire, and Çorlu, the Thracian textiles center. SAMSON A.Ş. mainly supplies the chemical industry including customers like KEMİTEKS and the food-processing sector with customers like AKNİSAŞTA A.Ş., Danone, or Mey Alkollü A.Ş., who produce the traditional alcoholic aniseed drink, raki. Erdemir, the Turkish steel giant, is another major customer as well as the very important textiles industry, which produces for brands such as adidas, Dolce & Gabbana, H&M, HUGO BOSS, Levis, Nike, Puma, Sears, or Zara.

At this point at the latest, this is where all pieces fall into place as these world-famous brands are popular both in the Orient and the Occident. Mustafa Kemal Atatürk would be very proud of his country.



Istanbul's Sultanahmet Mosque, completed in 1616, is regarded one of the greatest masterpieces of Islamic architecture. It represents one of the many cultural and ethnic influences that have shaped the face of Turkey's largest and most diverse city.



In mountaineering and rock climbing, protection is granted by using redundant safety systems as well.

## Standardized safety On the **safe** side with **SIL**

Usually, a pair of well-tailored pants will stay on your hips all by itself. Nevertheless, most men use a safety system to eliminate the risk of being embarrassingly exposed: They wear either a belt or a pair of suspenders. This roughly corresponds to safety integrity level SIL 1. Wearing a belt and suspenders together would increase the safety rating to SIL 2. This means that the pants would not slip more than once if you kept wearing them without interruption for 100 years. Bearing this in mind, it seems particularly odd if men use redundant means to secure their pants since SIL 1—i.e. one slipping incident in 10 years—seems to be fully sufficient in this case. However, when it comes to the health and safety of persons or the protection of the environment, it might be advisable to supplement belt and suspenders with an additional monitoring system that can self-test its functionality. The reason for this is that severe incidents involving critical processes in a chemical plant or refinery are best avoided altogether, even over a period of a thousand years. Such processes require SIL 3, which can be achieved with SIL-compliant control valves from SAMSON.



SAMSON positioners with integrated solenoid valve and inductive limit switch comply with SIL 4 rating.



Safety is an important issue in the steam cracking plant of BASF-YPC Co. Ltd. in Nanjing, China.



The prior use certificate for SAMSON's control valves was issued by Infraserv Höchst based on a six-year field study.



## Meeting highest safety requirements

**Equipped with the right level of safety** – The International Electrotechnical Commission (IEC) is the leading global standardization body that prepares and publishes international standards for all electrical, electronic, and related technologies. On 1 August 2004, IEC published the IEC 61508 standard, which covers all safety-related electrotechnical systems across all industries. The standard defines four safety integrity levels (SILs) ranging from 1 to 4. Specific standards for the various sectors stipulate special requirements for safety equipment. In process engineering, such equipment usually consists of emergency shutdown systems.

Which safety level is required for a process depends on the potential risk of an accident. Questions to be answered include: How high is the potential damage? Is there a risk of injury or death? How high is the probability that an accident occurs at all? One thing is for sure: the higher the safety level, the higher the requirements placed on the safety equipment.

**Ready for the rare case of emergency** – Let's look at an example: The production of common indoor paints involves a relatively low risk. Even if paint spills from a leaky pipe or an overfilled tank, the worst consequences to be expected for the staff on site are slight skin irritations. Safety equipment complying with SIL 1 would be sufficient in this case, if required at all. SIL 1 defines that the probability of the safety equipment failing to function upon demand once in ten years is acceptable. Things look quite different when it comes to making special paints as they also contain explosive solvents and toxic ingredients. Individuals as well as the environment must be protected against 'real' dangers, which means SIL 3 is obligatory. This safety level stipulates a permissible probability of failure upon demand of no more than one failure over

the course of 1000 years. A safety system is made up of three components: sensors, logic controllers, and final control elements. In our indoor paint example, a level sensor might indicate imminent overfilling of the tank to the controller, which would then cause the safety valve to close. Of course, such emergencies occur only very seldom, at most once a year in modern process engineering plants. This means that the safety system slumbers on at least 364 days of the year. But what springs to mind now is how can we make sure that it awakens at the decisive moment?

**Safe through experience** – The probability of pants slipping and belt failure can only be estimated, whereas complex statistical methods and an enormous amount of data exist for calculating the technical probability of failure of safety equipment. At SAMSON, data have been compiled, amongst others, in the Quality Assurance Department and during a large-scale field study at the industrial complex in Höchst near Frankfurt, where several tens of thousands of SAMSON control valves are in use. Between 1996 and 2002, all complaints and repairs on safety-related control valves were collected to provide records of valves proven in use that no other manufacturer can rely on. Assigning sensors and controllers a SIL rating is simpler because the failure rates for electronic components can be calculated exactly. These rates are added up and totaled with the control valve data. As a result, the reliability of the entire system can be calculated very exactly to allocate the appropriate SIL rating. In addition, SIL enables companies to plan, build, and operate their plants along the same standardized lines all across the world.

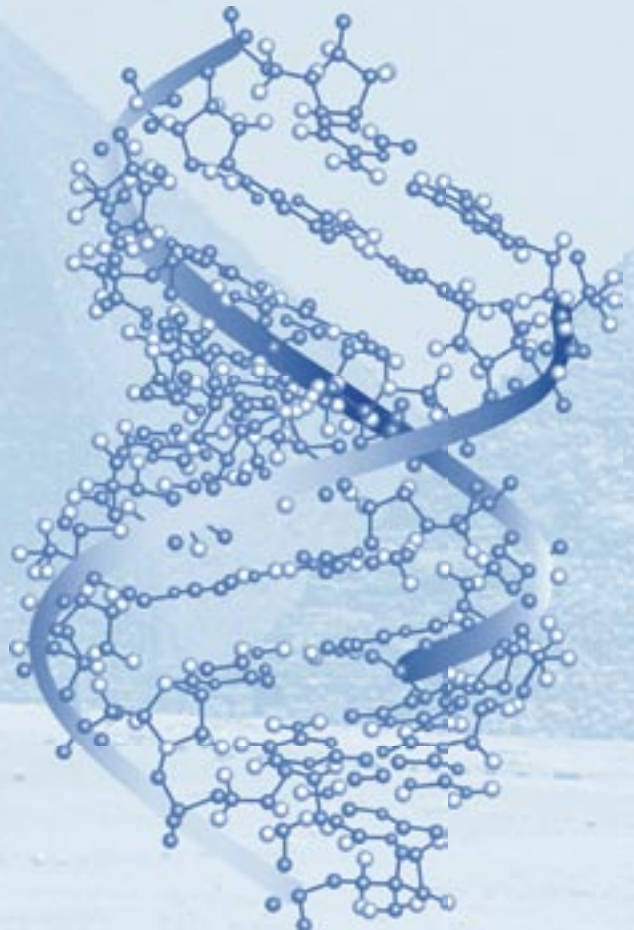


The pyramids of Giza: Project and quality standards were, of course, still unknown when the Egyptians built the pyramids.

# Project management at SAMSON Working successfully together

What makes modern projects different from those embarked upon in former times? Haven't projects been around right from the start? And what do modern project management practices actually entail?

Large-scale projects from the past, like the building of the pyramids of Giza around 2500 BC, the crossing of the Alps led by Hannibal and his 26,000 men and 37 elephants in 218 BC, or the bold discovery expeditions of the great seafarers in the 15<sup>th</sup> century, were often based upon the strong will to put an idea into practice and were certainly initiated without a scientific basis. The wear on resources in those days was huge. Present-day projects benefit from scientific practices established by compiling and methodizing findings, which turned project management into a discipline in its own right. A systematic approach and precisely defined quality control are applied to the management of projects. Even the major standardization institutes like ISO, DIN, and BSI have meanwhile turned their attention to standardizing project management.



One of the greatest projects ever undertaken: the Human Genome Project to investigate the genetic makeup of humans.





The Atomium, symbol of the 1958 Brussels World Fair: The world fair projects have drawn big crowds ever since the first fair held in 1851.



SAMSON supplied around 1,800 control valves to the new BASF site in Nanjing, China, their third largest site worldwide.

## Scientific, reliable, and quality-conscious

**How do you define a project?** – The rather wordy definition of the ISO 10006 standard, Guidelines for Quality Management in Projects, describes a project as a “unique process consisting of a set of co-ordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including constraints of time, cost and resources.” This description highlights the primary feature of uniqueness that often makes a project much more interesting than other business activities. In addition, the time constraints often applied to projects are tight due to planned schedules and allow little leeway for variation. These two features together give rise to the third essential feature of projects: the relatively high degree of risk as uniqueness often prevents proceeding in a uniform manner. Furthermore, new decisions need to be made under time pressure. Each project is in itself new and hides a whole series of its very own challenges.

**Requiring the best engineering expertise** – The field of plant engineering in itself can be classified as project work since process engineering plants belong to the largest and most complex engineering accomplishments, always requiring individual, detailed solutions, meaning they are almost always tailor-made. Usually, plant operators do not undertake the planning themselves, yet still prefer that the turn-key components for the plant come from one source. System providers offering complete solutions, like the large international engineering companies and plant constructors, enjoy increasing popularity in this field. Plants and processes are often developed simultaneously within a network of alliances and cooperations in the global marketplace and in pursuit of short innovation and product cycles: The basic engineering takes place in Germany while the detailed engineer-

ing is dealt with by a company’s subsidiary in Eastern Europe for example, and steel construction is produced on site organized by a local office, let’s say in China, where the plant is to be built. Even in cases where products off-the-shelf find a use, there is still a lot of coordination work to be done by the planning engineers; not to forget the time constraints to complete the plant and the process planning requirements involved. These types of challenges require the best possible use of material and energy, while meeting environmental and safety standard requirements and a high level of availability. Even highly experienced managers find it sometimes difficult to keep track of the situation.

To prevent events getting out of hand, science has come up with two interdependent approaches—project management and a standardized quality management—that interact with one another like cogwheels in the ideal case.

**Coming of age** – Both project management and quality management practices have not been around for that long, yet have passed the teething-trouble stage. Both emerged at the beginning of the 1960s from the classical discipline of management, established in Germany after World War II, which brought the scientific fields of business management and organizational psychology together for the first time in a practice-oriented concept. The project management isolated itself from the classical management branch as a result of the typical project-specific traits, like its uniqueness, time constraints, and resulting iterative approach, and emerged as an independent field with its own processes and laws regulating it. Founded in 1965, the International Project Management Association (IPMA), currently still consisting of mostly European associations, acts as a central focus point in international project management. The



The V12 Project Department team is able to pool its valve expertise, excellent planning abilities, and diverse language skills needed to ensure that all projects are completed successfully and on schedule.

Global Project Management Forum (GPMF) started in 1995 to provide an additional communication platform for the associated organizations.

Important guidelines creating a new wave in the understanding of the project management was provided by the ISO 10006 standard. It outlines quality management principles and practices as they relate to the management of projects.

### From Frankfurt into the wide world

The development of the Series 240 and 250 Valves at the beginning of the 1970s marked the onset of project business at SAMSON, when orders placed by the chemical industry set the ball rolling. The control valves from both series are designed on the modular-assembly principle, making them suitable for almost any industrial plant thanks to their wide scope of application. Initially, the German engineering and sales offices paved the way for project business. Project partners in those days included major German corporations like BASF, Bayer, Hoechst, Merck, and Henkel. In 1972, the first project was handled in cooperation with the plant engineering company Uhde located in the Rhine-Main area. Soon, the project business grew on an international scale, causing SAMSON to set up an international network of representatives and subsidiaries, some even with their own project departments.

### Standardization versus flexibility –

These days, the share of project business adds up to approximately 20 % of the Group's total turnover in a seemingly uninterrupted upward trend. In the past few years, in particular, SAMSON was active in various large projects in the petrochemical sector, leading to rearrangements of the corporate structure more than once to optimally adapt it to the changing conditions, while striving to bring project processes into line as far as possible without having to accept too many restrictions concerning flexibility. Uniqueness has become the rule so to say, which does not mean that the challenges have declined. As in the past, trials and tribulations involved in the project business include coming to terms with unexpected changes and disruptions arising almost on a daily basis, which therefore cannot be taken into account beforehand. The attempt to handle, for instance even complex projects over international online auctions is still fresh in the minds of those involved.

**Keeping track** – Since September 1999, the V1 International Sales and Marketing Department has been at the center of project management at SAMSON. The head of this department, Günther Vogel, had a career characteristic of many SAMSON managers. In the 1970s, he began his employment as an engineer in the

R&D department, taking part in the development of the Series 240 and 250 Valves. He then decided to transfer to the sales side of the organization and later took over the management of the Frankfurt engineering and sales office, from where he changed to head of the V1 Department in 1999. Since then, Mr. Vogel and his team have taken care of international projects to keep them on track even when tight schedules have to be kept, any special engineering requirements need to be met, a clash of responsibilities emerges, or intercultural differences are involved. Many years' experience in project business and a vast product knowledge have assisted him in his job. However, project management has never been an easy task since several projects need attending to at the same time, as is almost always the case. All the more reason for him to fully rely on his team.

### Organizational structure of project business –

One of the subdepartments that Mr. Vogel is in charge of, the V12 Project Department, is responsible for processing projects from the first inquiry stage through to project documentation, usually after the orders have been won by the branch engineering offices or worldwide subsidiaries. Any engineering or sales matters at the bidding stage and concerning the resulting orders are handled by the V12 Department, supported by



Around 50 % of project work is taken up with engineering tasks, while 30 % involves preparing documentation, which is required for each individual valve assembly and, similar to the delivery deadline, subject to contract penalties.

the technical sales, accounting, R&D, order processing, production, and quality assurance departments. After the products are released for delivery, the projects are placed in the responsibility of the V50 After-sales Service Department, which is currently expanding its international team of service staff as part of a global support network to deal with any service work arising within a project, providing the usual high quality of SAMSON in this area of business, too.

**Ensuring that the customer returns and not the product** – The German DIN 69905 standard published in 1997 specifies that project management and quality management should interact as closely as possible. The three separate manuals for projects, quality management, and project management required until then were combined into one manual. The project manual contains the standardized general information on project execution. The project management manual details information on departments involved and project objectives, and the quality management manual includes the measures and standards required for quality assurance. While renowned plant constructors are required to keep all three manuals, only a modern quality management

that includes project management is called upon for SAMSON's project business because SAMSON is active on a much smaller scale as supplier and advisor in detailed engineering matters. Since 1990, SAMSON has had its quality management certified regularly.

In the past few years, the trend in the chemical industry has gone towards joint ventures, resulting in even larger and more complex projects. BASF AG, one of the world's largest chemical enterprises, built a steam cracker with nine downstream plants, fitted with the latest technology in Nanjing, China on the banks of the Yangtze river in cooperation with the Chinese partner Sinopec and several international plant engineering constructors, such as the Japanese companies Toyo Engineering and JGC. 1.7 million metric tons of various chemical components, ranging from ingredients for exterior paints to superabsorbent material for diapers, are annually produced on this site. Six of the nine plants as well as two auxiliary facilities for synthesis gas production and a waste-to-energy plant were fitted with SAMSON valves. BASF is planning to increase production capacities, which promises future project business at SAMSON.

<p><b>Integration management</b> coordinates the project plan development and overall change control.</p>	<p><b>Scope management</b> defines the implementation and any adaptation of objectives.</p>	<p><b>Schedule management</b> establishes the timeline to be followed.</p>
<p><b>Cost management</b> involves estimating costs and ensuring costs are kept in line with the budget.</p>	<p><b>Quality management</b> ensures standardization of project management processes as well as documents the project work and results.</p>	<p><b>Human resource management</b> coordinates the available staff skills and capacities.</p>
<p><b>Communication management</b> coordinates information needs. This often involves up to 50 % of the project work.</p>	<p><b>Risk management</b> involves drawing up risk analyses, implementing preventive action, and keeping an emergency plan.</p>	<p><b>Procurement management</b> includes organizing and managing the relationships with the suppliers.</p>

Project management is a complex business with exceptionally variable and often interrelated requirements. The nine areas of knowledge specified by the Project Management Institute (table above) need to be implemented to ensure the successful completion of a project.



Dr. Nikolaus Hensel (left), Chairman of the SAMSON AG Supervisory Board, and Prof. Greiner actively support science and research.

# Cross of Merit and 20" valves Achievements to be proud of

Quite understandably, you might wonder what a valve size has to do with the Federal Republic of Germany's Cross of Merit. Nothing, might be your obvious first guess. But this is not the case at SAMSON, where both represent extraordinary achievements: in the field of valve manufacturing and in the personal commitment of the chairman of the Supervisory Board.

In 2005, for the first time in several years, SAMSON Frankfurt started to manufacture 20" valves on an entirely new machining center. Before, certain parts for valves in such large sizes had to be contracted out. And although producing such valves—the unmachined body alone weighs over 3.5 metric tons—still poses an extreme challenge to any valve manufacturer, SAMSON managed to finish the valves in a record-breaking time of under two months. In December 2005, the finished valves were ready for delivery.

One month later, on 19 January 2006, Dr. Nikolaus Hensel, who has been chairman of the SAMSON AG Supervisory Board since 2001, was honored with the Federal Republic of Germany's Cross of the Order of Merit First Class for his extraordinary commitment to science and research.



Adding the finishing touches to the valves before the final inspection includes mounting the flameproof positioner.



Manufacturing large valves in size 20" still poses a technical challenge. Experience and expertise are key in such complex tasks. The four valve giants standing side by side make for an impressive view. The new machining center allowed for a record-breaking production time.

## Reasonable investment

**Giving back to the community** – It sounds very modest when Dr. Hensel states his personal motto. Nevertheless, an enormous amount of commitment is hidden behind it. It is not only SAMSON, one of Frankfurt's few industrial companies successful on the global market, that Dr. Hensel has vastly supported. The attorney and notary born in Templin near Berlin works in Frankfurt and wants to contribute to the community of the city where he enjoyed his greatest successes. For several years, Dr. Hensel has supported, amongst others, the Department of Physics at Frankfurt's Goethe University. He founded the Förderverein für Physikalische Grundlagenforschung, an association that is dedicated to fostering basic research in physics and awards endowed chairs as well as a multitude of prizes, for example for extraordinary doctoral theses. He has also been very active in the foundation of the Frankfurt Institute for Advanced Studies (FIAS). He even managed to convince many of his friends and acquaintances to become donors or sponsors as well—and not only for this project. Dr. Hensel has become a popular consultant when it comes to further improving Frankfurt University.

All of Dr. Hensel's efforts do not come as a surprise when looking at his long history of doing charitable work in various positions, such as secretary general of the German Friends of Tel Aviv University, member of the board of trustees of the Frankfurt Herbert Giersch Foundation, and chairman of the board of the Frankfurt-based Alexander Foundation. In January 2006, Dr. Hensel's extraordinary charitable commitment was rewarded with the Cross of the Order of Merit First Class, which is presented by the Federal Republic of Germany to personalities who render exceptional services to the community. Dr. Hensel received the decoration from Udo Corts, the Hesse State Minister for Higher Education, Research, and the Arts, on behalf of the Federal President.

**Handling a tough valve size** – 95 % of the control valves delivered worldwide come in size DN 100 or 4" and smaller. Valve sizes of DN 500 or 20", however, are ordered less frequently. Their capacity is simply too high: Valves in such sizes can control water for over one million people at a differential pressure of only 2 bar, which roughly corresponds to 130 million liters of water a day. These enormous capacities require high-performance engineering and consequently, producing such gigantic valves still poses a challenge to any manufacturer.

**Relying on a new machining center** – The last time SAMSON Frankfurt supplied such large valves was several years ago, when BASF AG needed two valves for the steam supply in its Ludwigshafen power plant in size DN 500 and pressure rating PN 40. The valves fitted with insulating section, pressure balancing, flow divider, and electric actuator replaced butterfly valves that no longer fulfilled the noise emission requirements. Despite the lower pressure rating, it still took SAMSON nine months to complete the project, from receiving the order to delivering the finished valves.

In 2005, SAMSON's new machining center was put to its first tough test: The US engineering contractor Foster Wheeler had ordered four Type 3254 Control Valves in size 20" and ANSI Class 900 with 2800 cm<sup>2</sup> Type 3271 Actuators and Type 3731-3 Ex d Positioners with HART communication. This time, SAMSON needed only four months from order to delivery, a record-breaking achievement as getting the body blanks alone took two months. The high-performance valves are now used in the oil and gas sector in the Middle East, where they are in charge of regulating the gas pressure before the actual treatment is done. SAMSON has already received a follow-up order.



The computer image shows how the extension will be integrated into the existing buildings.

## Modernity combined with tradition An idea becomes reality

Since May 2005, a new administration building is being built at SAMSON headquarters in Frankfurt. The building site seems to look different every morning for the around 1,400 SAMSON employees passing by on their way to work. The building changes its appearance and size on a daily basis. After the extension is finished, the sales and technical sales departments as well as the project department currently located nearby in rented offices will be unified under one roof.

The new administration building, a construction with a total volume of 21,000 cubic meters, is already the company's second large-scale construction project in Frankfurt alone since the start of the millennium. In July 2002, the new logistics center was opened and integrated into the production process.

The new extension and the organizational restructuring accompanying it will make SAMSON fit to meet future demands—as has often been the case during the course of the company's almost 100 year history.



In August 2006, the new building will be ready for almost the entire sales division, which will be unified under one roof for the first time.



The start of the building activities on 17 May 2005: The new building comprises a gross volume of 21,000 cubic meters.



Ten months on: The shell of the building is nearly finished. Part of the glass construction can already be recognized.

## Gaining a new perspective

**Well prepared** – It all started like it always does when a new building is built: Passers-by find it difficult to make out what exactly is going to be built on the site unless, of course, they take a closer look at the area around the building site. Various activities could be observed by on-lookers. Old buildings had to be knocked down and the brick and sandstone-colored facings of the neighboring building, characteristic of SAMSON's buildings, had to be removed where the extension is to adjoin it. Several areas on the company site had to be leveled and new staff parking space had to be created elsewhere. While all these activities were going on, soil samples were being taken from as far as 10 meters underground to analyze the composition of the ground at various layers to be able to take the necessary provisions on planning the building construction. The ground water situation and the further use of excavated earth were also evaluated on the basis of these samples. In May 2005, the first spadeful of earth was turned and since then the building site seems to change on a daily basis.

**Playing with shapes and diagonals** – Even on taking a quick glance at the uncompleted building, it is easy to see that SAMSON has resolved to go new ways in architecture. The roof of the new office building is particularly striking; its construction similar to a penthouse is completely made of glass and has expansive light-flooded rooms, a sloping roof, and a wide terrace that runs around the entire top story. The office building itself is a trapezoid-shaped construction positioned diagonally on the rectangular first-floor building, which is aligned at a right angle to the adjacent road. A building at the side joins the administration building to the extension and acts as a connection of styles, from the long-stretched, straight lines of the older building to the

shorter diagonals of the new building. An externally located staircase at the back section of the new building continues the long-stretched line of the original administration building.

In addition to the diagonally positioned offices and the roof, other new elements have been included to link the new facilities with the traditional design elements characteristic of many SAMSON buildings. For example, a section of the new façade will be covered with clinker bricks in response to the historical buildings on site. The rest of the façade, however, will be designed as a modern glass construction, as will be the roof. An additional optical transformation and literally a link between old and new is the roofed-over walkway over Weismüllerstrasse, which will allow staff to move safely and quickly between the buildings without getting wet when it rains.

**The view from within** – On entering the building, visitors and staff alike will find themselves in the generously sized, five-meter-high entrance and reception area with gallery. The new training and meeting facilities are located just a few steps up from the foyer. The flexible wall arrangement allows the seminar rooms to be easily adapted to a wide variety of requirements. The office floors are located above these rooms, designed according to the latest ergonomic standards. In particular, the modern video conference room will catch the visitor's eye. With these new facilities, the staff located at headquarters will be able to communicate with the subsidiaries, no matter where they are located.

The new offices will accommodate staff from almost all the sales departments under one roof—a key decision for the company, its staff, and customers, to make internal operations even more efficient and effective.

# SAMSON worldwide



**SAMSON**

SAMSON AG · MESS- UND REGELTECHNIK · Weismüllerstraße 3 · 60314 Frankfurt am Main · Germany  
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507 · E-mail: [samson@samson.de](mailto:samson@samson.de) · Internet: <http://www.samson.de>