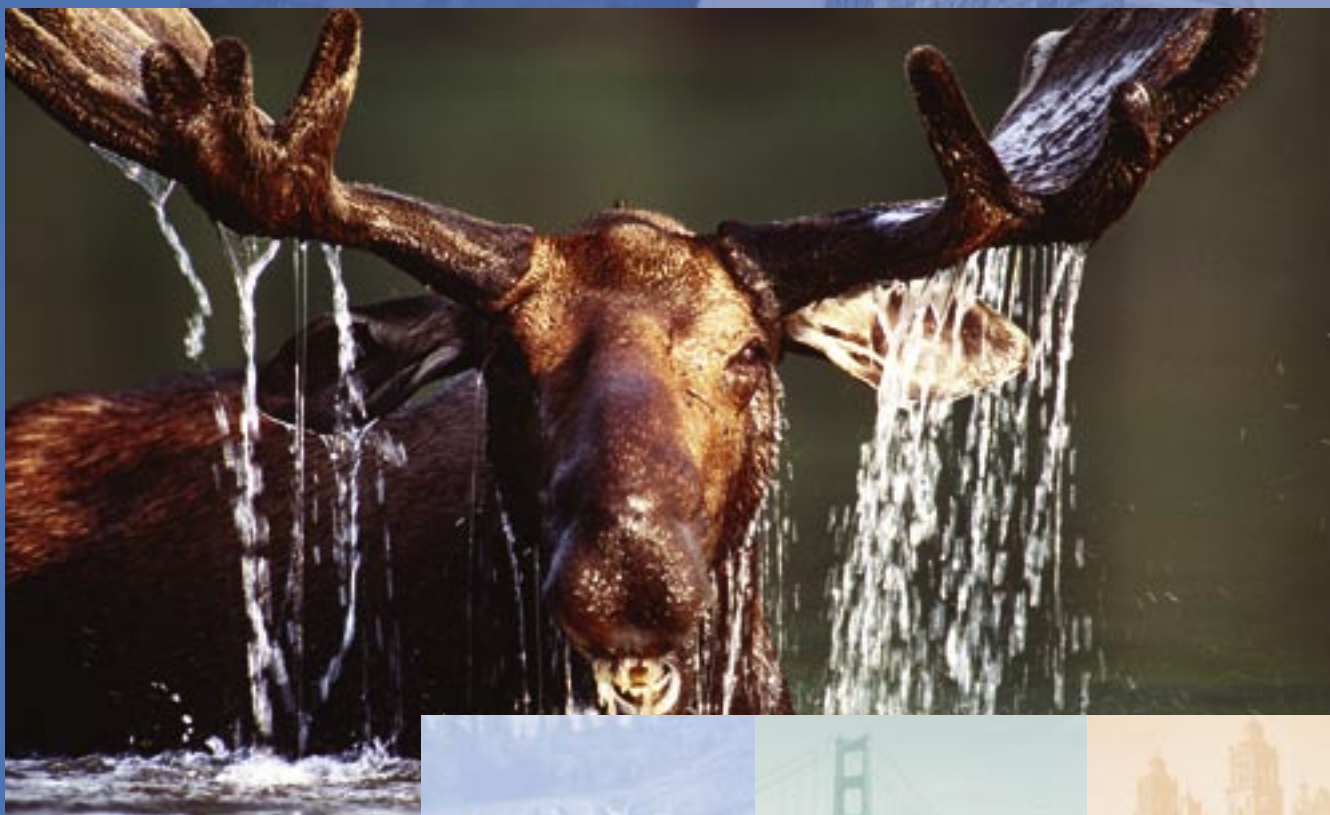


SAMSON

Issue 7

MAGAZINE

SAMSON MAGAZINE 2005



Impulse

There is no place like Mexico

Report

Land of endless opportunities

Portrait

Traveling on the Pan-American Highway

Innovations

Cryogenics: crying for genius

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Cover

Join us on our trip through North America, which will take us from Canada—home of moose, brown bears, and black bears—to Mexico.

Photo material

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Self-operated regulators

Dear Readers,

As you may know, SAMSON's success story began with self-operated regulators. But what is actually a self-operated regulator?

To put it simply, a self-operated regulator is a control instrument designed for automation purposes. More precisely, self-operated regulators are used to maintain physical quantities, such as the pressure or temperature, at a desired value. They use the energy supplied by the process medium to perform their control tasks. About a hundred years ago, this innovation was considered to be a great achievement since it ensured constant conditions, without having to put up with human shortcomings.

Today, these regulators are often unjustifiably ignored by engineering study programs. Hence, engineers tend to neglect them when they plan new plants although self-operated regulators offer great advantages: They eliminate the need for auxiliary energy and thus increase plant safety and reduce costs considerably—benefits which justify the large market share of self-operated regulators even in the digital era.

Most of these devices, however, are hidden to the user of controlled process media—I am speaking here of those regulators which are used to balance supply networks. The proper operation of a district heating network requires that every consumer is supplied with the necessary heat energy, that the noise of flowing water is kept to the minimum, and that downstream

radiator regulators cannot be forced to open by the differential pressure of the medium. An optimally designed flow rate control system takes into account the requirements of the consumer as well as the obligations of the supplier to equally supply all customers with energy. This applies not only to residential areas with various customers, but also to large consumers such as hotels, hospitals, airports, as well as water suppliers. The energy consumer often does not notice the presence of SAMSON's differential pressure regulators, flow regulators, temperature regulators, pressure reducing valves, and excess pressure valves owing to their trouble-free and maintenance-free operation. On the one hand, we at SAMSON are happy about this. On the other hand, we think that it is up to us to highlight the benefits of self-operated regulators since they are an excellent choice for balancing supply networks. These and other interesting applications are discussed in our "Special topic" section from page 26 onward. I trust you will enjoy reading this magazine.

With warm regards,

A handwritten signature in blue ink that reads "Horst Lingnau". The signature is written in a cursive style with a checkmark at the end.

Horst Lingnau,
Head of Technical Sales

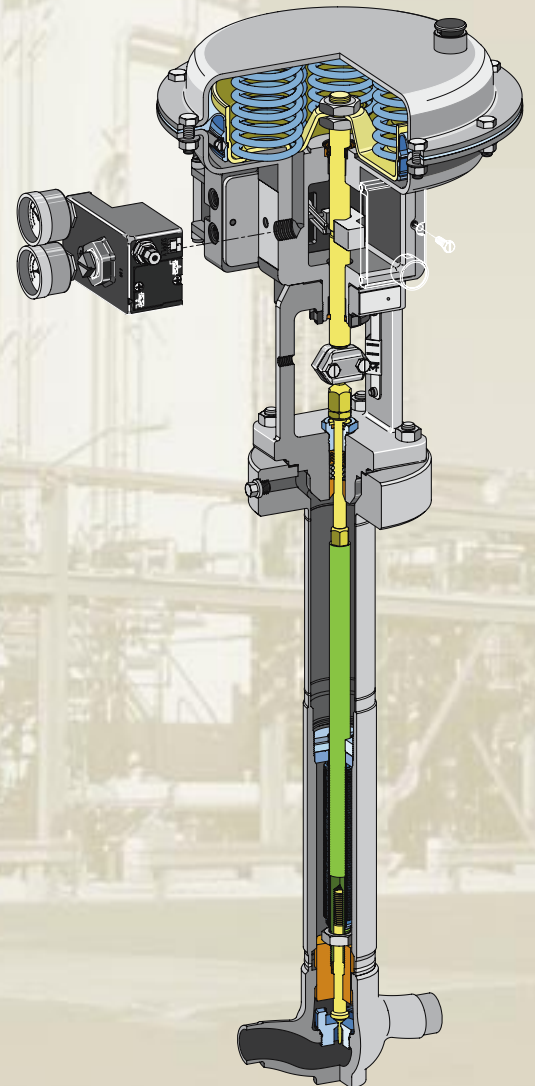


Technical gases are also involved in the process of glass manufacturing, fruit ripening, and water treatment.

Welcome to a cool world Cryogenics: crying for genius

What springs to mind when you think of a decorative wineglass, ripe fruit, clean water? Certainly not gases. Yet, gases are not only involved in the process of glass manufacturing, fruit ripening, and water treatment, but they are also used in modern medicine for diagnostic and therapeutic purposes. Gases serve as raw materials for chemical synthesis, favor chemical reactions, and act as oxidizing, reducing, and inerting agents. They provide energy and can be used for carrying, cooling, protecting, and controlling tasks.

Every year, industrial gases worth approximately 26 billion euros are produced worldwide. More than 85 percent of these gases are generated in air separation plants, which liquefy the gases contained in air by cooling them below their boiling point. The boiling point of nitrogen is $-196\text{ }^{\circ}\text{C}$ and that of helium is $-270\text{ }^{\circ}\text{C}$, which is close to absolute zero. Although the separation method is well established, the highly complex cryogenic separation processes still need to be optimized down to the smallest detail in order to achieve an operational efficiency as close to the theoretical limit as possible under trouble-free operating conditions. For this purpose, SAMSON offers expertly engineered control valves, which minimize the heat exchange between the liquid gases and the surroundings.



SAMSON's unique cryogenic valves can be installed in any desired mounting position thanks to their low-lying, reliable bellows seal.



A helium liquefaction plant designed by Air Products. Liquefied helium at a temperature close to absolute zero is an excellent refrigerant.



Medical gases are used to sustain breathing, anesthetize patients, and for diagnostic purposes.

Under control close to absolute zero

Cold boxes that leave valves cold – The components of cryogenic plants, together with all the required valves and interconnecting piping, are installed in an insulating cold box. The inside of the cold box is well insulated against heat transfer by conduction, convection, and radiation. As a consequence, it cannot be directly accessed for maintenance purposes. In order to allow valve parts subject to wear and tear, such as the seat and the plug, to be replaced easily, the valve bodies inside the low-temperature box must be made accessible from the outside. In addition, the actuators and positioners used to operate the valves must be located outside the cold box since they are only able to work properly at temperatures down to -40°C . For this purpose, the valve bonnet is connected to the valve body by means of an extremely long extension piece that passes through the external wall of the cold box.

No heat no hassle – The undesired heat transfer from the valve bonnet to the body causes some of the liquid process gas in the valve body to evaporate. This vapor displaces the liquid gas in the extension piece and forms an insulating layer due to its low thermal conductivity. This layer stops thermal energy transfer, preventing the bonnet from icing up and hence moving valve parts from being blocked. The disadvantage of this design is that it requires the valves to be installed as upright as possible—quite a difficult job since most pipes in the cold box are also installed vertically.

Expertise required to withhold the cold – Many engineering details are required to ensure improved insulation of the extension piece. In order to reduce heat conduction, the extension piece as well as the plug stem are manufactured from thin-walled pipes made of austenitic material with a low thermal con-

ductivity. Either a hollow plug stem with a large diameter acting as a displacement element or an additional volume-reducing element made of cold-resistant plastic is used to minimize heat exchange by convection in the insulating vapor layer. It requires a lot of expertise and commitment to engineer valves suitable for cryogenic service.

Simple yet sophisticated – SAMSON offers an ingeniously simple solution, namely a state-of-the-art cryogenic control valve that can be installed in any desired mounting position thanks to its special design, which incorporates a bellows seal manufactured by SAMSON itself. This compact bellows seal, which is installed directly above the lower valve plug guide and protected against erosion by the liquid gas flow, makes sure the cryogenic medium is kept in the valve body. The extension piece located between the bellows seal and the maintenance-free back-up packing box in the valve bonnet is always filled with air at atmospheric pressure independently of the mounting position of the valve. Air at atmospheric pressure is an excellent insulator, providing better insulation than the liquid gas vapor at operating pressure.

Numerous measurements and several thousand valves in use worldwide prove that SAMSON's solution is superior to conventional low-temperature valve designs. Worldwide leading producers of technical gases, such as Air Products and Praxair, rely on our sophisticated engineering and expertise.



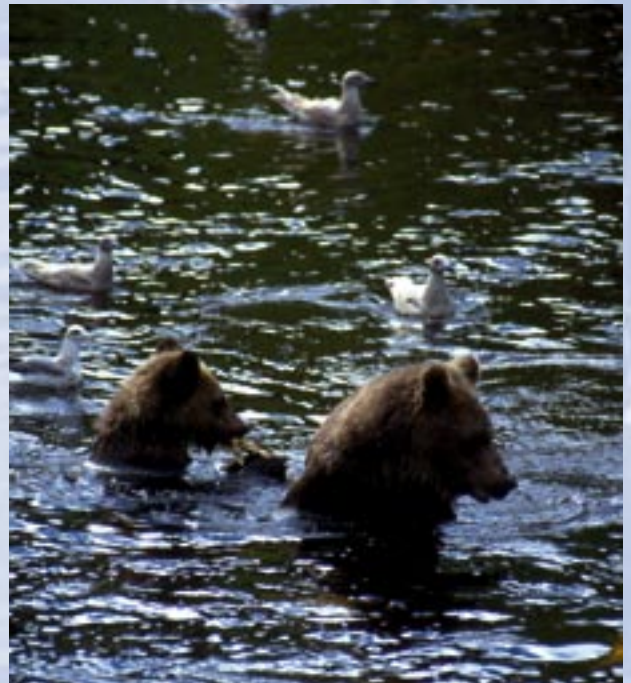
Since 1965, Canada's flag has borne the maple leaf, which has become the country's best-known national symbol. The leaves glisten in brilliant colors during the Indian Summer.

SAMSON in North America

Traveling on the Pan-American Highway

The Pan-American Highway is one of the world's most fascinating roads. Covering a length of over 25,000 km, the roughly unified stretch of highway links fourteen American countries, starting in the 100-inhabitant village of Circle, Alaska, and extending all the way down to the southernmost tip of the two continents, to Tierra del Fuego. The roots of the highway that connects Alaska and Chile date back to the Fifth International Conference of American States held in 1923. At that time, the Pan-American notion of political and economic cooperation across the continents was already more than 30 years old: In October 1889, the very first Pan-American Conference had been held in Washington DC with the intention of strengthening peace and prosperity in the Americas.

Tight trade bonds still exist today. Thanks to the increased demand in the U.S., the Canadian and Mexican economies have recently gained momentum as the three countries continue to be each other's most important trade partners. SAMSON is represented in all three countries.



Fishing grizzlies (*Ursus arctos horribilis*). Several brown bear species, including grizzly and Kodiak, share hunting grounds with the black bear.



The crystal clear, emerald Lake Moraine in the Wenkchemna Range is surrounded by ten massive, glacier-topped peaks. "Wenkchemna" is a Stoney Indian word meaning "ten."

Where the wilderness is largely unspoiled

Denali, the "High One" – The Pan-American Highway, particularly the North American section, holds a great appeal for all as it winds down the continent's west coast, off the beaten path of the huge industrial centers, before it crosses to the east coast in Argentina. Still today, the West remains largely undeveloped in certain areas, although this picture keeps changing in more and more places. A growing number of industrial centers springs up in and around the large cities along the formerly wild Pacific coast. But let's indulge in the pleasures of pristine wilderness for a little longer.

Visible from far away, we cannot miss the perpetually snow-covered summit of Mount McKinley, the highest peak in North America. Denali, "High One", was the name that the Athabascan native people gave the 6,194-meter-high mountain. Its greatness and grace as well as the beauty of its impressive surroundings have remained unaffected by the progress that Alaska has experienced since the first European settlers established themselves in the wilderness along the Bering Strait. It is well worth taking a detour to the gravel tracks of the Denali National Park and Preserve. While hardly any animal is visible near other Alaskan roads, the park's roads are different: Caribou graze on the wide mountainous tundra, brown bears roam the forests in search of berries and acorns, also feeding on salmon from the rough rivers, and stags occasionally fish through the shallow lakes for sea grass with their antlers.

B.C., Beyond Canada – Beyond the Alaskan border and well into British Columbia, nature remains largely untouched as in the fascinating dream still vivid in the minds of many people yearning for freedom, adventure, and endless wilderness.

Although British Columbia or B.C., Canada's westernmost province, covers an area as large as France and Germany together, it has just under four million inhabitants, far less than most big European, Asian, or American cities. Unlike the rest of Canada, seventy percent of B.C.'s territory is still covered by forest. Another detour may be worthwhile as there is a good chance that a black bear, typical of Canada's fauna, will cross our path. In addition, the Icefields Parkway that links the two largest national parks in the Rocky Mountains—Jasper and Banff—figures among the most breathtaking highways ever built, running through a spectacular scenery including rough rock formations, raging torrents, emerald green glacial lakes, and glittering water falls.



Moose (*Alces alces*), the largest member of the deer family, is considered the king of North American forests. Moose are largely solitary animals.



Daytime life in Toronto revolves around the modern office towers. At night, the glitter and glamor of the entertainment scene take over. · Alberta's agricultural production ranks among the top. Wheat, still the major agricultural product, is exported to countries across the world.

Metropolitan center in the west – In Vancouver, just north of the U.S. border, we encounter SAMSON for the first time on our trip. Vancouver was founded in 1886 in Canada's southwestern province with its abundant plant and animal life as an important terminus for transcontinental railroads and highways. Today, the industrial center serves as the country's main gateway for Pan-Pacific trade.

The Vancouver metropolitan area is home to B.C.'s major chemical, logging, fishing, and mining industries, but also increasingly attracts companies from the electronics and biotechnology sectors. The port of Vancouver, essentially a bulk cargo port, is the busiest in Canada that exports grain, mainly wheat, and minerals to over seventy countries throughout the world. In addition, Vancouver is an important departure point for cruise-ship vacations.

Breathtaking backdrop – It is not quite clear whether Vancouver manages to retain a reputation as being one of the most beautiful cities in North America thanks to or despite its economic success. It goes unchallenged, however, that Vancouver lives up to its reputation. Vast expanses of tree-covered parkland fall within the boundaries of the host city of the 2010 Winter Olympics, ocean and mountains surround it: the Pacific Ocean to the west, the Coast Mountains to the north, the Rocky Mountains to the east and the Cascade Range to the south. All elevations hover around the 4,000-meter mark, some of the snow-capped peaks are even reflected in the glossy facades of the city's skyscrapers. Nearly half of B.C.'s population has permanently settled in "Lotusland", as Vancouver is often referred to by other Canadians due to its unusually temperate climate and laid-back, out-

doorsy atmosphere. It takes us less than 20 minutes by car, for example on the northbound Sea-to-Sky Highway, to get to undisturbed nature. North America's largest island, Vancouver Island, is situated off the fjord-carved coast with its narrow inlets and steep cliffs rising almost 2,000 meters above sea level. The island's sandy white beaches, quiet bays, and idyllic villages lure millions of visitors to the prime recreational area each year. Further up, on the northern tip of the island, things are not always that calm: At times, the ice-cold water seems to be boiling due to hundreds of dolphins stirring up the sea in search of food. But let's get back to SAMSON.

Canada, land of vast distances – 7,000 kilometers lie between the Pacific Ocean in the west and the Atlantic Ocean in the east. To ensure on-time supply and immediate after-sales service despite these vast distances SAMSON cooperates with representatives both in Canada and the U.S. These representatives specializing in measuring and control equipment are unique in the SAMSON Group's sales network. Most representatives are located in the less-industrialized parts of Canada, e.g. in the untouched expanses of British Columbia. The system works as the good cooperation between Honeywell Vancouver and SAMSON shows.



Vancouver, nicely tucked against the Coast Mountains, will be hosting the XXI Olympic Winter Games in 2010.



Mike Espey, head of SAMSON's Canadian subsidiary, and his team. SAMSON Controls Inc. has been active in Canada since 1983.



The papermaking process is extremely complex. The paper's temperature and moisture content, for example, need to be controlled accurately.

Concerning all technical issues and possible applications of the products, the representatives work closely together with either the engineers at the local engineering and sales offices or the national headquarters, which are situated in the denser populated, industrialized eastern parts of Canada and the U.S.

As a result, it is not sufficient to explore only Canada's west to grasp all facets of the vast country. We thus leave the Pan-American Highway again, moving further towards the Atlantic.

More than wind and wheat – The forest-dominated scenery starts changing at the eastern edge of the Rocky Mountains as we reach Alberta, the most westerly of Canada's three Prairie provinces, which forms one of the richest agricultural lands together with the neighboring Saskatchewan province. The prairie is well developed. Around 1900, the Canadian Government started an extensive immigration and settlement campaign, attracting large numbers of American and European settlers who welcomed the opportunity to explore and develop the fertile farmland in the scarcely populated west. The offered grassland figured and still figures among the best farmland in the world, providing the settlers with excellent opportunities.

The more spectacular attractions of Alberta are found below ground: The province is renowned for its rich natural gas and oil resources, above all in the Athabasca Valley. Nevertheless, all attempts to mine and exploit the reserves bore little fruit at first as the extraction process seemed to be too inefficient. Most of the oil is trapped in the tar sands of the valley, thus ruling out conventional extraction methods. This is why the tar sands, a combination of clay, sand, water, and bitumen, are often referred to as "uncon-

From tree to paper

Vancouver emerged around 1870 near the first sawmills in the forest-covered province of British Columbia. No wonder the lumber industry continues to have a great influence on the city. Vancouver is one of the most important lumber centers worldwide, providing excellent opportunities for equipment suppliers. Honeywell Vancouver, for example, benefits from its favorable location: The subsidiary of the U.S.-based diversified technology and manufacturing leader Honeywell International has successfully implemented innovative solutions for the pulp and paper industry.

One of the subsidiary's major products, the Devronizer, a universally applicable steam box, is the prime choice when it comes to ensuring an even moisture profile across the paper. The steam box squirts steam directly onto the moving web to guarantee quick heating-up and even moisturization. A scanner with several sensors downstream of the Devronizer measures the temperature and moisture content across the whole width of the web. As a result, each of the nozzles tightly arranged in the steam box can be controlled individually. This method both improves the paper quality and speeds up the production process, while reducing overall steam consumption.

Trouble-free operation of the steam boxes requires a steady supply of dry steam near its saturation temperature. In the past, the steam fed to the boxes was either too hot or too wet, which frequently caused problems, ranging from web perforations and water marks to damaged equipment. Honeywell tried to solve this problem. Since 1998, the company has started to supply also the steam conditioning equipment that relies on SAMSON's Type 3281 Steam-converting Valves. The excellent experience gained with over 100 valves in operation across the world not only entailed follow-up orders, it also helped extend the companies' business relationship: Honeywell relies on SAMSON control valves and self-operated temperature regulators in its water treatment units as well. The close cooperation between both companies guarantees that customers receive high-performance systems.



Calgary, once a rural town, and Edmonton are the current centers of Canada's oil and gas industries. · The Canadians are crazy about sports: white-water rafting, skiing, diving, surfing, hiking—there is hardly a sport that they cannot enjoy right on their doorstep.

ventional" oils. For centuries, the only ones to use the oil sands were the Native Indians who sealed their canoes with them. On 30 July 1978, the first barrel of Black Gold in the form of bitumen was finally extracted. In August 2004, the production reached a new all-time high with an average of 182,000 barrels mined per day.

SAMSON has established engineering and sales offices in the two largest cities in the area, Edmonton and Calgary. SAMSON's i/p converters and digital positioners permanently display their strength on Alberta's natural gas fields.

Apple punch with maple syrup

(serves four)

- 3 tablespoons of (green) tea
- 1 medium-sized apple
- 1 ¼ cups of apple juice
- 1 stick of cinnamon
- 2 whole star aniseed
- 4 cloves
- 4 tablespoons of maple syrup
- 4 tablespoons of Calvados (apple brandy)
- 2 ½ cups of water

Slowly heat all ingredients. Allow the hot drink to rest for ten minutes. Strain through a sieve and serve while still hot.

Dynamic, multicultural, cosmopolitan – Additional offices are found further to the east in Montreal and Sarnia, close to the five Great Lakes, the largest group of freshwater lakes in the world. Since 1983, SAMSON's Canadian headquarters have been located in Toronto on Lake Ontario, the smallest and easternmost of the five lakes.

The region, discovered in the early 17th century by French explorers sailing inland from the Atlantic, soon became an important center for trade and a multicultural melting-pot thanks to the well-established infrastructure of roads, waterways, and railways. Since then, the region also known as the Golden Horseshoe has experienced unparalleled growth: With the foundation of the Canadian Confederation in 1867, Toronto, in particular, gained importance and became the fastest-growing city in North America. The dynamic cosmopolitan city, the "city that works" often also referred to as the most multicultural city in the world, sets the tone in Canada: It is fun to live and work in this hub known for entertainment, culture, sports, high fashion, and big business.

The Toronto and Great Lakes region figures among the world's greatest industrial centers and has direct access to the Atlantic Ocean over the Saint Lawrence Seaway. Both SAMSON headquarters as well as

the engineering and sales offices cater for the specific needs of the regional markets: Edmonton and Calgary specialize in oil and gas extraction, Montreal in food processing and pharmaceuticals, Sarnia in chemicals, and Toronto in automotive and mechanical engineering.

Wind, waves, heritage – Canada's actual roots are found on the Atlantic coast in the east, in the three provinces of Prince Edward Island, New Brunswick and Nova Scotia, over 7,000 km away from Vancouver.

The history of Charlottetown, the provincial capital of Prince Edward Island, is tightly linked to the disputes between the two most important colonial powers, France and Britain, the history of the native population as well as of the Canadian Confederation. Being one of the geographic outposts on the Atlantic coast, the island was one of the first European explorations in the area. The island was discovered by the Italian seafarer Giovanni Caboto who sailed under English flag. Caboto failed to claim the territory for the British Crown, enabling the French to take it for themselves in 1523. The first colonies were established in 1720. By 1758, the British had seized the entire area during the Seven Years' War. Five years later, with the signing of the Treaty of Paris, New France finally vanished from the



Prince Edward Island was one of the Canadian spots that the Europeans first set foot on. · In 1608, French explorer Samuel de Champlain established a trading post at present-day Québec City, the oldest European colony in Canada. · The old Samson locomotive operated in the Albion mines.

map: The territory extending from the Saint Lawrence River down south to Louisiana was handed over to Britain, but with certain restrictions. In view of the independence movement emerging in America, Britain did not want to squander all support by the newly gained subjects and refrained from Anglicizing the province of Québec, granting it language and religious freedom. This laid the foundations for the tolerance towards regional, cultural, and ethnic differences that Canada is still admired for today.

Almost 100 years after Charlottetown had fallen to Britain, the founding fathers thought up the outlines of a possible union of the Canadian provinces there. The bold plan was implemented in 1867 when the British Parliament passed the British North America Act, which created the self-governing Dominion of Canada, the Canadian Confederation, comprising the Province of Canada, New Brunswick, and Nova Scotia. The province of Prince Edward Island itself did not join the Confederation until 1873.

The name SAMSON has been known for a long time in the three easternmost Canadian provinces.

The old SAMSON – Stellarton, 1836: In 1798, coal had been discovered in the small village of Stellarton located in Pictou County in the north of Nova Scotia. In 1827, the first steam engine had begun puffing away in the Albion Mines. In 1836, a decisive step towards establishing a railroad was taken in Stellarton, eleven years after the world's first steam train had successfully completed a trial trip between the English towns of Darlington and Stockton. The Stellarton railroad was intended to transport the extracted coal over the six kilometers to the harbor near New Glasgow, where the

coal could be loaded onto ships. Merely three years later, in 1839, Canada's pioneer locomotive, the Samson, was given her first trial trips on the still incomplete railroad. From then on, the locomotive, which had been built in Durham, England in 1837, traveled back and forth between Stellarton and New Glasgow for the next forty years to come.

Still today, most of Nova Scotia's energy supply is covered by coal, but oil and natural gas are considered the energy sources of the future. In 1999, gas extraction was started 260 km east of Halifax, off Sable Island.

And SAMSON is part of it again. The old steam locomotive, however, has long since been retired and transferred to a museum, where the relic of the past is taken good care of.



Head-Smashed-In Buffalo Jump: For over 5,500 years, the native people in the Great Plains hunted bison by chasing them over the steep cliffs.



Indians called them "Thunder of Waters": Niagara Falls on the border between the U.S. and Canada.

U.S. economy strong as ever Land of endless opportunities

Roads like the Pan-American Highway are not the only features the countries in North America have in common. They also share several large mountain ranges such as the Rocky Mountains. The Rockies stretch all the way from British Columbia to New Mexico, posing an almost insurmountable obstacle that blocked the settlers' way from the quickly developing east to the Wild West. The Rocky and Coast Mountains, the Cascade Range as well as the Sierra Nevada and Sierra Madre in the south are all part of the cordillera that dissects the continent's west and constitutes the longest range of fold mountains in the world with an overall length of 15,000 km.

On its way towards the south, the Pan-American Highway winds up and down one mountain range after the other, always following the rough route dictated by one of Nature's greatest attractions. Our first encounter with SAMSON in the U.S. takes place in the country's northwesternmost corner in the Seattle area, in Tacoma. Similar to Canada, the SAMSON Group relies on well-established representatives to serve customers across the large territories and vast distances typical of the U.S. market.





Mount Rushmore National Memorial in South Dakota pays tribute to the presidents Washington, Jefferson, Lincoln, and Roosevelt. · The Space Needle, Seattle's landmark, was built in 1962. · Seattle has become a haven for IT and dot.com businesses.

An industrial nation extraordinaire

From coast to coast – The name “America” was first used in the Old World on a map in 1507. The new continent had been named after the Italian navigator Amerigo Vespucci, who had been the first to assume that the discovered territory was not a part of India but an entirely new continent until then unknown to the Europeans.

Since the beginning of the 19th century, the U.S. have been the world's leading industrial nation thanks to the opening up of fertile farm land in the west, the abundance of natural resources, and the broad spectrum of industrial production, but also thanks to the people's unshakably positive attitude and tireless striving for prosperity. Similar to Canada, the industry had been concentrated almost exclusively in the Midwest and northeast for quite a long time. During the last few years, however, more and more sectors have expanded towards the south and the west. Even the northwest of the country, the area around Seattle, has experienced a boom.

The west has caught up – Seattle, founded in 1851 and named after Chief Seattle of the Suquamish and Duwamish Indians, is the focus of trade in the northwest: ship building, fishing, aerospace, mechanical and electronic engineering, food processing, IT services as well as a wide variety of other services are common sectors. Some of the world's most important companies originate in the area, including software giant Microsoft, headquartered in the Seattle suburb of Redmond, as well as the prime online book store Amazon.com.

The SAMSON Group is represented in the thriving Seattle metropolitan area by the Tacoma branch of Paramount Supply, a company specializing in control valves, piping, and innovative process automation solutions. Established in Portland, Oregon, in 1954, Paramount celebrated its 50th anniversary on

the highly competitive U.S. market in 2004, making it the ideal partner for SAMSON. Paramount, just like other representatives, knows the location and its traditions, which is key to giving SAMSON credibility with its customers.

Tacoma, “where the sails meet the rails”, is conveniently located on Puget Sound and has one of the ten largest container ports in North America. In addition, Tacoma has served as an important railway hub since the 1870s: The Northern Pacific Railroad designated Tacoma the western terminus of its transcontinental line running from the Midwest, from Minnesota, to Puget Sound. This is where the city's nickname, “City of



The bald eagle is the U.S. national symbol. The raptor feeds mainly on fish and stays near large bodies of water.



The legendary 501 jeans by Levi Strauss have become an American icon the world over.

Air Products – More than just hydrogen

Hydrogen is the clean, renewable alternative fuel of the future capable of replacing fossil fuels in the long term as their reserves diminish.

Air Products and Chemicals Inc. is taking an active leadership role in building up a hydrogen supply network.

Yet, Air Products is not just a worldwide leader in the development and supply of hydrogen. Its product range also includes all other relevant industrial and medical gases. Founded more than 60 years ago, the eastern Pennsylvania-based corporation with subsidiaries in more than 30 countries earns annual revenues of US\$ 6.3 billion. Currently, the company ranks among the top 300 US corporations in sales turnover. Over 18,500 employees worldwide work for the enterprise.

As international competition continues to intensify, Air Products is well positioned to compete thanks to its world-class production and applications technology. The long-standing commitment to safety, efficiency, and cost-effectiveness has always been a major corporate objective.

To stay fit for future challenges, continuous improvement processes have been established to further yield productivity gains and even higher levels of customer satisfaction. SAMSON, serving as a preferential valve supplier for Air Products worldwide, participates in this optimization of production plants. For example, SAMSON designed a cryogenic valve specially tailored to comply with cold box standards specified by Air Products. As a result, the specifications concerning welding ends, cryogenic extension, and welding collar not only meet the requirements, but the two-pieced plug stem also allows all valve components projecting from the cold box to be easily removed for shipping purposes. SAMSON after-sales service provides local start-up assistance at any Air Product location across the globe. Over 1,000 cryogenic valves have been supplied, in addition to standard engineered valves—an achievement that underlines the flourishing cooperation between the two companies.



California has a lot to offer: Yosemite National Park with its rich flora and fauna, e.g. coyotes, Sequoia National Park with its awe-inspiring redwood trees, and probably the most gorgeous coastline in the U.S.

Destiny," originates. Tacoma's actual name stems from the Indian name for near-by Mount Rainier, Tacobet. The glacier-clad peak in the Cascade Range southeast of the city dominates the view from nearly any vantage point in the region, making it the number one recreation area in the Cascades for locals and tourists alike. Thus, the favorable location and dedicated hard work of the westerners has helped Tacoma and the entire Seattle area develop a flourishing economy.

Inventions that changed the world – As we can see, the American Dream has not only been lived in the northeast, where a lot of important 19th-century inventors and entrepreneurs including Samuel Morse, Thomas Alva Edison, Alexander Graham Bell, J. P. Morgan, and John D. Rockefeller started their careers. The formerly Wild West managed to close the gap and has produced equally prolific personalities. In the east, Thomas Alva Edison constructed the first direct current power station for private consumers, called the Pearl Street generating station, in New York City in the second half of the 19th century. At that time, he was battling over the supremacy on the future power market with his hardest opponent, the engineer and industrialist George Westinghouse, a fervent supporter of the alternating current. An equally intense battle was being waged between the financier and merchant Cyrus W. Field and the mighty Western Union Telegraph Company over the installation of the first transatlantic telegraph cable. Westinghouse and Field finally succeeded with their projects. Meanwhile, a young German immigrant was fighting his own battles a few thousand kilometers further westward, in San Francisco, which brings us back to the Pan-American Highway.

From rags to riches – Said immigrant, namely Levi Strauss, creator of probably the most popular pair of

jeans, died on 26 September 1902 in San Francisco, his life still standing out as one of the most brilliant examples of the American Dream come true.

Born as Loeb Strauss near Nuremberg, Germany, he was the youngest of seven children. After the early death of his father, 18-year-old Loeb, his mother, and his two sisters sailed to America, where two of Loeb's half-brothers ran a dry goods business in New York. In 1853, five years after the first gold had been found in California, Levi, as he called himself, decided to venture to the Wild West. He opened a dry goods wholesale business in San Francisco, relying on hard, honest work rather than luck and coincidence like many of the fortune-hunters during the Gold Rush did. And he succeeded: His extremely sturdy "waist over-all", as the work pants worn by men of all trades were called until the 1950s, were made of brown canvas



Joshua trees, members of the Agave family, are found mainly in the Mojave Desert in the states of Nevada, California, Utah, and Arizona.



San Francisco's Golden Gate Bridge and cable cars are probably the most widely recognized symbols of the city. In 1776, a military outpost and mission were established near San Francisco Bay, which had been named for Saint Francis of Assisi by Spanish explorers several years earlier.

and held by suspenders. A few years later, Levi switched to the even more hard-wearing blue denim cloth and copper-colored, double-stitched seams. Around 1873, Jacob Davis, a Reno tailor and friend of Levi's, suggested to patent the process of riveting the pants' pockets to make them even stronger, paving the way for Levi's legendary 501 jeans, named after the pants' accounting number. Nevertheless, it took several more decades—Levi had long since passed

away—until the belt replaced the suspenders and the blue jeans could be worn also by Midwesterners and Easterners: The denim pants gradually became less associated with work wear and grew extremely popular among leisure-loving teenage boys and their older college-age brothers, who strove to imitate their idols such as James Dean and Marlon Brando. The jeans from the west thus "reconquered" the east and soon became an American icon known the world over.

Cultural diversity – San Francisco's attraction still builds on the openness and tolerance towards diversity that the community has been famed for since the old Gold Rush days and the 1960s hippie movement. San Francisco is not only home to people from over 1,000 ethnic groups, it is also home to one of SAMSON Controls Inc.'s engineering and sales offices. The U.S. subsidiary of SAMSON AG holds offices in Baton Rouge, Louisiana; Cincinnati, Ohio;



San Francisco's Six Sisters, the restored old Victorian houses, are located around Alamo Square, with the city's skyline in the background. The quarter withstood the earthquake that rocked the city in 1906.



Western atmosphere at its best: The Texans are proud of their cowboy traditions, expressed in various huge rodeo and livestock shows as well as steak eating contests. Thanks to its delicious taste, the Texas Ruby Red is the most popular grapefruit variety; it ripens to perfect sweetness in the Rio Grande Valley.

Kansas City, Kansas; West New York, New Jersey; and San Francisco, California, and receives support from over 30 representatives across the U.S. SAMSON Controls serves the chemical, petrochemical, power, pharmaceutical, biotech as well as the food and beverage industries and participates in a variety of tradeshows throughout the country.

Crossing the continent from San Francisco all the way to the coast of the Gulf of Mexico, our trip brings us to the headquarters of SAMSON Controls located in the Houston area in the oil state of Texas. SAMSON Controls has considerably benefited from the boom that the chemical and petrochemical sectors, in particular, have experienced in Texas over the past few decades. The discovery of oil at the beginning of the 20th century, which gave rise to numerous refineries, and the growth that the chemical industry has experienced since World War II finally turned Texas into a successful site for industry.

State of superlatives – “Don’t mess with Texas”, the Texans have their very own state of mind. The state’s name is derived from the Indian word “tejas”, meaning “friends” or “allies.” This is also where the state’s official motto, Friendship, comes from. Texas is a state of superlatives: It leads the U.S. in total productivity, it is the nation’s leading oil, beef, and cotton producer, it is a giant in the space industry, and a major player in high technology. Quite fittingly, Texas also boasts the largest of all the state capitol buildings, constructed of 15,000 carloads of pink granite. And no state has a greater variety of reptiles or a more diverse selection of flowers than the Friendship State.

This giant of a state comes second in area and population only to Alaska and California respectively. A less-widely known fact is that Texas also figures among the top producers of citrus fruit. Since the 1920s, especially the typical Texas red grapefruit

have flourished on the plantations in the valley of the Rio Grande river: Texas, together with Florida, accounts for 60 percent of the world’s grapefruit crop. Most people are also unaware of the fact that the Lone Star State used to be part of Mexico. Discovered in the 16th century by Spanish explorers, Texas remained under Spanish rule until the founding of the First Mexican Empire in 1821. At first, the new government invited Anglo settlers from the U.S. into Texas. Only 14 years later, however, tension between the settlers and the Mexican government had grown to such an extent that the Texans revolted, seeking independence. The government’s attempt to suppress the revolt failed and the Texas Revolution broke loose. In April 1836, Texan forces finally defeated the Mexicans in the decisive Battle of San Jacinto. In 1845, the independent Republic of Texas was directly admitted to the United States as a constituent state of the union. The San Jacinto Battleground State Park of Texas located 25 miles east of Houston still commemorates the fierce battle.

Nevertheless, Texas and Mexico have since formed a close business partnership: The majority of Mexican products enters the U.S. through Texas.

A meteoric rise – Not even 170 years have passed since the Allen brothers, originally from New York, founded the city of Houston. The businessmen Augustus and John Allen traveled north from the Galveston Bay on the Buffalo Bayou, chief tributary to the San Jacinto river. Further inland from the Gulf of Mexico, the two brothers discovered a fertile stretch of land where they founded their town, naming it after General Sam Houston, hero of the Battle of San Jacinto. Since then, Houston, the fourth largest city in the U.S., has gained a reputation as being the fastest growing city in the U.S., which is world renowned for its energy industry, particularly its oil sector. Houston



From cowboy country to oil emporium: While Texas' north is still characterized by intensive livestock farming, the south is dominated by the oil industry. Cities including Houston and Dallas have benefited from this economic transition.

is a great industrial, commercial, and financial hub as well as home to leading medical research facilities. Numerous space and science research firms, including the U.S. space agency, NASA, have coined Houston's nickname, Space City. Similar to Texas, Houston is a city of superlatives: The Houston Astrodome, now Reliant Astrodome, which opened in 1965, was the first ever ballpark to have a roof over the playing field. The three-

week-long Houston Livestock Show and Rodeo is the world's largest rodeo event. And Houston harbor is the second busiest tonnage-handling port in the U.S. after New York.

Bayou City – Known among the locals as Bayou City, Houston would never have become the city it is today without its port and the bayous, the midge-infested, sluggishly moving marshes and swamps typical of the river deltas

along the Gulf coast. These creeks have been used since the 19th century to transport Texas' rich agricultural output—including cotton, corn, wheat, oats, rice, and vegetables—towards the ocean. Houston port itself was opened in 1842 and by 1919, the Buffalo Bayou had been dredged to form the Houston Ship Channel, an 80-kilometer-long channel that links Houston directly with the Gulf of Mexico. Houston quickly became the biggest cotton port in the U.S. However, when the first oil was discovered in Texas at the beginning of the 20th century, the Black Gold soon replaced cotton as the prime cargo. By 1930, no less than nine refineries had been built along the busy channel. Today, the port is home to a 15-billion-dollar petrochemical complex that forms part of the Texas-Louisiana petrochemical belt, which is the largest, most modern, and most successful collection of chemical plants in the world. Refined oil and its related products are still shipped via Houston.

Traffic hub – But not only the bayous have contributed to Houston's economic rise: The city's road system has had its share as well. It comprises over 3,000 miles of freeways and has a hub-and-spoke structure with multiple loops. The innermost is Interstate 610, one of the heaviest-traveled roads in the U.S. Many of the goods transported on Houston's freeways origi-



Pelicans inhabit the rocky or sandy coasts of the Pacific and Atlantic Oceans in North, Central, and South America. The birds live in large colonies and build crude nests of twigs and branches near bodies of water.



The pro sports leagues—whether baseball, basketball, hockey, or football—are extremely popular across the U.S. The staging of the 2004 Super Bowl and the new sports arenas helped boost Houston's image.

nate in Mexico, which has considerably expanded its exports since the North American Free Trade Agreement (NAFTA) went into effect in 1994, tripling its trade with the U.S. and Canada. Above all the *maquiladoras*, Spanish for "mills", have been booming since 1994: The factories are located in Mexican border towns and mostly owned by large U.S. multinationals. They import semi-finished materials and equipment on a duty- and tariff-free basis for the labor-intensive assembly or manufacturing process and export the finished components back to the U.S. The *maquiladoras* account for nearly half of Mexico's overall exports. A large proportion of these products re-enters the U.S. via Houston.

Houston loves sports – Houston is not only top of the league when it comes to business. The city also has teams in three of the major North American pro sports leagues. Since 1962, the Houston Astros have been throwing balls in Major League Baseball (MLB). In 1971, the Houston Rockets started shooting hoops in the National Basketball Association (NBA). Since then, they managed to snatch the NBA title twice, in 1993/94 and 1994/95, bringing triumph and glory to the city. In 2002, the National Football League (NFL) finally returned to Houston with the Houston Texans. The Texans have not played a major role in the championship yet, but at least their NFL debut was spectacular: The Texans became the first NFL team in 41 years to win their league debut, stunning their archrivals, the Dallas Cowboys, in front of 69,600 frantic spectators at Reliant Stadium, the Texans brand-new home venue.

Apart from the economic boom, Reliant Stadium, as well as the return of the NFL, played key roles in the rebirth of Houston. Incorporating the first retractable roof in NFL history, Reliant Stadium with its enormous glass-and-steel structure is an important architectural

landmark and national sports site. In February 2004—exactly 30 years after the first Super Bowl, the mother of all American sporting events, had been held in Houston—over 70,000 fans under the translucent roof watched the glorious moment of Super Bowl XXXVIII when the New England Patriots proudly raised one of the world's most sought-after sports trophies into the glistening Houston night sky. Thousands of people from across the country celebrated the Patriots victory in the city's streets and bars, almost certainly guaranteeing Houston the return of the Super Bowl within the next few years.

Boom on Galveston Bay – Baytown, similar to its huge neighbor, Houston, was almost created from scratch. The area around the seat of the SAMSON Controls headquarters was populated by settlers around 1822, but Baytown itself was not founded until 1948. Since then, the city east of Houston has



The venomous rattlesnakes warn off intruders by vigorously shaking the horny rattle at the tip of their tail.



The graceful Fred Hartman Bridge, which connects the cities of Baytown and LaPorte, is a Texas landmark. The four-kilometer-long cable-stayed bridge crosses the Houston Ship Channel, one of Texas' transportation lifelines.

turned into an attractive, quickly expanding location attracting both new inhabitants and industry.

In 1919, the Humble Oil & Refining Company built a refinery in Baytown, which would soon become one of the largest in the world. The company renamed itself in 1972 and has been known as Exxon since then. After Exxon joined forces with Mobil in 1998, the merged Exxon Mobil Corporation has figured among the top-ranked corporations worldwide. Apart from Exxon Mobil, other world-renowned multinationals including Chevron Phillips Chemical, Bayer, and BP Amoco are located in direct vicinity of the SAMSON Controls headquarters.

A success story – In 1992, SAMSON AG decided to pursue the double strategy of establishing a proper subsidiary and corporate engineering and sales offices in addition to cooperating with representatives. The success story started with only two employees. The official building of the new U.S. headquarters in Baytown was opened in 1994; at that time, the number of staff had already increased to eight. Finally in 1999, the subsidiary opened its own production facilities, also founding SAMSON Products Inc. The current 33 members of staff celebrated SAMSON's tenth anniversary in the U.S. in September 2004. The Baytown headquarters as well as the offices in Baton Rouge and West New York pos-

sess huge stock-keeping facilities for quick delivery and quality service. Major customers include Air Products, BASF, Bayer, Degussa, Dow Chemical, Micron, Monsanto, and Praxair as well as communities like New York City and Austin.

While the chemical industry continues to be a major customer for SAMSON Controls, the subsidiary has managed to achieve considerable growth rates in the power sector over the past few years. In 2003, for example, SAMSON Controls landed a major valves contract with Austin Energy: It supplied SAMSON control valves as well as steam-converting valves by Welland & Tuxhorn, a partner of the SAMSON Group, for the Sand Hill Energy Center, a state-of-the-art 300-megawatt power generation plant operated on natural gas.

Bob Urbanowicz, head of the U.S. subsidiary, joined SAMSON's Canadian branch in 1985 and relocated to Baytown two years ago. Since then, Mr. Urbanowicz has been successfully steering the young subsidiary. He welcomed this challenge and opportunity with enthusiasm, as Baytown lies within one of the fastest-expanding metropolitan areas in North America. Credit must though be given to the authorities for not entirely sacrificing environmental protection to the benefit of economic growth. In close vicinity, where Galveston Bay and San Jacinto



Big Bend is one of the largest and least visited of America's national parks. From the banks of the Rio Grande to the Chisos Mountains—Big Bend includes massive canyons and vast desert expanses.



Gernot Frank, CEO of SAMSON AG (back row, fifth from right), and Bob Urbanowicz, head of the U.S. subsidiary (back row, sixth from left), celebrated the subsidiary's 10th anniversary with the entire team. • SAMSON Controls' annual Crawfish Boil: crawfish are a specialty in Texas and Louisiana.

River meet, we find the Baytown Nature Center. The preserve is dedicated to protecting the natural habitat of more than 300 species of birds, numerous butterflies, dragonflies, wildflowers, mammals, and aquatic organisms at home in the Gulf and its coastal regions.

Let the good times roll – Contrary to most lobsters that live in salt water, the closely related crayfish species at home in the Gulf region prefer the freshwater of the river deltas. The tasty crustaceans, also referred to as crawfish, are famous specialties in Louisiana and Texas. It is thus no wonder that the annual Texas Crawfish & Music Festival celebrated in Old Town Spring, a sparkling little community in North Houston, is extremely popular and the largest of its kind outside Louisiana, the self-appointed crawfish capital of the world. More than 25 tons of crawfish are consumed at the festival each year. The consumption at the annual SAMSON Controls customer appreciation party is not on such a grand scale, but the celebrations are no less cheerful.

Each year, the subsidiary invites its customers to enjoy a few hundred kilos of the delicious crustaceans at the SAMSON Crawfish Boil under the motto "Let the good times roll," an English translation of the Cajun phrase "Laissez les bon temps rouler!" The expression was coined by the French-speaking inhabitants of near-by Louisiana whose Acadian ancestors retreated from what are now the Canadian provinces of Nova Scotia, New Brunswick, and Prince Edward Island to Louisiana as a result of their refusal to swear allegiance to the Crown after the British had won the French and Indian War in 1763. Cajun culture is still vivid in Louisiana and the distinctive, spicy hot Cajun cuisine has become a trademark the world over. Many Cajun dishes include crawfish as an essential ingredient; no wonder that the state on the Gulf of Mexico has made the small shrimp the state's official crustacean.

Black gold – The Gulf of Mexico is where the U.S. and Mexican oil and petrochemical industries face each other. In contrary to the U.S., the oil and gas sector in Mexico, centered mainly in the Tampico area, is controlled by the Government as both resources are considered goods of national importance. The petrochemical industry used to be exclusively state-run until recently as well, but gradually the Government has privatized the processing of oil-related products. This brings us to the end of our trip through the U.S. and we return to our starting point, the Pan-American Highway. Let's move on to the last stage of our journey through North America: Mexico.



Turkey vultures are widespread in the open, deciduous areas from southern Canada, through the U.S., and throughout South America.



The green-and-white Volkswagen Beetle taxis are still a common feature on the streets of the colorful metropolis of Mexico City.

¡Como México no hay dos! There is no place like Mexico

Mexico's history is tightly meshed with the country's rich resources in silver and gold. The Spanish *conquistadores* were the first to tap the noble metal deposits in the southernmost of the three North American countries. Still today Mexico figures among the leading producers and exporters of silver.

When following the route of the *carretera panamericana*, as the Pan-American Highway is referred to in Spanish, we frequently encounter witnesses of the rich Mexican heritage and history. Having passed through Monterrey, the country's second largest city and home to the heavy, automotive, textile, and chemical industries as well as a sales office of SAMSON's Mexican subsidiary, we exit the highway and take a short detour inland towards the old silver-mining city of Guanajuato. The city was home to Father Miguel Hidalgo y Costilla, the revolutionary priest who set off Mexico's independence movement in 1810. Hidalgo's courageous fight against the Spanish will forever remain engraved in Mexican history.



The intrepid cliff divers of Acapulco: Linger 15 to 35 meters above the water, they wait for the right moment to jump.



The Kukulcan pyramid at Chichén Itzá: The Maya center of worship, overgrown by jungle for centuries, was rediscovered in 1841.

¡Viva México!

Struggle for independence – The beautiful parish church of Nuestra Señora de los Dolores in the small village of Dolores Hidalgo, 50 km north of Guanajuato, is an important national monument. Similar to the tussle during the gold rush, the Spanish colony's struggle for independence has had a strong impact on modern-day Mexico. It was here in Dolores Hidalgo at the southern foot of the central Mexican highlands that the priest's famous cry for independence resounded for the first time: "¡Mexicanos, viva México!", were Hidalgo's words, calling on the people to overthrow the Spanish colonial government. Only a few days later, the first battle between the revolutionaries and the Spanish colonial forces took place in Guanajuato. And although Father Hidalgo himself was sentenced to death during the armed battle, his efforts were not in vain: Mexico declared its independence in 1813, but the struggle dragged on.

It was not until 1821 that Mexico finally managed to end Spain's rule over the country. The following decades saw the rise and fall of the short-lived First Mexican Empire and the federal republic of Mexico. Around 1836 Mexico was forced to hand over vast sections of its resource-rich territory to the U.S., including the territory now forming the states of Texas, California, and New Mexico.

Today, however, Mexico is a country at the verge of becoming an industrialized nation. Since the oil boom of the 1970s and the international economic crisis extending well into the early 1980s, during which Mexico piled up a large foreign debt, the country's economy has undergone a marked structural change. Mexico successfully integrated its economy into the highly competitive global market, completed an aggressive policy of privatization, developed new technologies, improved its know-how, and increasingly attracted foreign investment. For the coming year, the Government has forecast growth at around 4 %.



The control valves for the Altamira site are assembled and inspected at SAMSON's Mexican subsidiary.

Chemicals for the future

The Altamira industrial complex located 30 km north of Tampico on the Gulf of Mexico was founded to supply the chemical markets in the Americas. One of the reasons why Altamira emerged as the central hub for plastics is its port specializing in the handling of chemical mass products for export. The domestic demand in Mexico has been increasing over the last few years as well thanks to the continued growth in the automotive, textile, and plastics industries.

BASF AG, a world leader in chemicals headquartered in Ludwigshafen, Germany, started operating several specialty polymer production facilities in Altamira in 1995, the objective being the streamlining and expansion of the global market for the versatile styrenic polymers. All facilities are state of the art and certified according to ISO 9001:2000.

Altamira began copolymer production in 2000, supplying high-quality plastics to the telecommunications and automotive industries, to name but a few. In early 2001, the "Dyes for NAFTA" project, which focuses on manufacturing colorants for the North American paper industry, was launched. In April 2004, the world-scale production plant for the Styrolux[®] styrene-butadiene copolymers (SBCs) was finally put into service. SBCs are characterized by their high transparency and impact strength, making them suitable for medical applications, food service products, toys, and household appliances as well as applications in the textile industry. During the restructuring of the production processes, the production of BASF's Styropor[®] polystyrene brand will even be relocated from South Brunswick, New Jersey, to Altamira.

The Altamira facilities rely on over 750 pieces of equipment supplied by SAMSON and its associated companies. The SAMSON Group has the right solution for any application: SAMSON control valves, positioners, and self-operated regulators, SAMSOMATIC solenoid valves, Pfeiffer ball valves, bottom drain valves, and rotary actuators as well as VETEC rotary plug valves.

Eternal spring at the heart of Mexico – Let's continue our trip on the Panamericana driving past Mexico City, the capital that hovers almost 2,300 m above sea level on the Anáhuac plateau. A one-hour drive from the metropolis, which was built on the ruins of the fabulous Aztec capital of Tenochtitlán, we find Cuernavaca. The colonial city with its gentle spring-like climate and colorful flowers floats like an island in a sea of rolling hills and ancient lava flows dotted with villages and lakes. We can thus understand why the German explorer Alexander von Humboldt named Cuernavaca the "City of Eternal Spring".

Treasures of gold – Cuernavaca has seen the famous and infamous: Hernán Cortés, the Spaniard who conquered the Aztec empire with its riches from 1519 to 1521, took a liking to the paradise-like refuge. Cortés was named governor and captain general of New Spain and got Cuauhnáhuac, meaning "near the trees", as a fief. Since Cortés found the Indian name of the city unpronounceable, he renamed it Cuerna de Vaca (meaning "cow's horn"), later shortened to Cuernavaca, and had a palace for his retirement constructed on an old Toltec temple, now a museum.

Barbara Hutton, American heiress to the Woolworth fortune, society lady, and one of the richest American women of her time, also fell for the picturesque city. She had sent out experts to find her the most beautiful spot on earth and they encountered Cuernavaca, where Ms. Hutton's extravagant Japanese-style palace was constructed in 1959. Today, the Sumiya resort, meaning "place of peace, tranquility, and longevity," is considered one of Mexico's most exquisite hotels offering a breathtaking view of the snow-capped Popocatepetl volcano.

Modern-day Cuernavaca is proud of its rich heritage and multitude of influences, ranging from the traditional indigenous culture of the Mesoamerican peoples to the vanguard art of the 20th century as well as the country's increasing industrialization.

SAMSON in Mexico – Although the city's colorful gardens, hot springs, and cafés radiate a relaxing atmosphere, hard work is being done here: The expansion of nearby Mexico City has reached Cuernavaca,



Gift of the gods

Bitter beans – The *Theobroma cacao L.*, the cacao tree, is a botanical phenomenon: Its small pink flowers and yellowish fruits grow directly from the trunk and older branches. The gnarled evergreen and ever-blooming trees can reach heights of up to ten meters in the hot and humid climate of the tropics. The Olmec, one of the first major Pre-Columbian civilizations in Mesoamerica whose rise to power began around 1200 BC, highly esteemed the cacao seeds. It is assumed that the Olmec were the first to grind the seeds, more commonly known as beans, into the thick oily paste that still serves as a basic ingredient of today's chocolate. They mixed the cream with hot water and spiced it up with chili peppers and vanilla: Cocoa was born. However, almost three thousand years passed until sugar was added to the bitter cocoa drink and sweet chocolate started conquering the world.

Cocoa conquers Europe – Up until then, cocoa beans were considered a gift or food of the gods by the Olmec, the Maya, the Toltec, and the Aztec peoples. All these advanced civilizations used the beans as a currency in their vast trade systems. One hundred beans once sufficed to buy a slave. Legend has it that over a billion cocoa beans were found in the burial chamber of Montezuma II, the last Aztec emperor.

In the beginning, the Europeans in Mesoamerica found the spicy cocoa mix undrinkable. The famous *conquistador* Hernán Cortés was the first to discover the true eco-



Olaf Scheper (sixth from the right), head of SAMSON Controls S.A. de C.V., with his team and Hans Grimm (fifth from the left), deputy member of the SAMSON AG board.

conomic potential of the beans. As a result, he established a cacao plantation in 1519 to “cultivate money” for the Spanish crown. A few years later, Cortés began shipping the beans back to Spain, where the spicy cocoa was flavored with cinnamon, honey, and cane sugar that the Europeans had taken a liking to since the Crusades. At first, however, the new sweet drink was enjoyed only by the very wealthy.

From pope to the people – It was not until the 19th century that the privileged gentry and clergy lost its almost exclusive access to the luxury drink and that cocoa became widely available at a reasonable price. In 1828, Dutchman Coenraad van Houten patented a press that allowed him to remove the fatty cacao butter from the cacao paste, thus finding a simple and cheap method of producing cocoa powder for drinking chocolate. In 1849, Joseph Fry presented the first chocolate bar, i.e. moldable eating chocolate, at a trade fair in Birmingham, UK. The breakthrough in the food of the gods’ conquest of the Old World came with three Swiss men: Daniel Peter and Henri Nestlé worked out a recipe for milk chocolate in 1876 and Rodolphe Lindt developed a conching process only three years later that enabled him to produce the first smooth, creamy chocolate bars like we know them today. Since then, the demand for chocolate has been growing and growing: Today, approximately three million tons of cacao beans are harvested worldwide each year.

but without trailing the hassle of the megalopolis. This development has been of great benefit also to the headquarters of SAMSON’s Mexican subsidiary, which celebrated its tenth anniversary in October 2004. Olaf Scheper, head of the subsidiary, and his twelve employees have successfully enlarged the SAMSON sales network. During its history, the subsidiary has expanded several times, now holding engineering and sales offices in all important areas of the country. These areas include Mexico City and Monterrey with customers like Praxair, which operates the world’s longest hydrogen pipeline, and Moctezuma, one of Mexico’s largest breweries. SAMSON is also present in Tampico, the center for petrochemicals, where customers such as BASF are active, and in Coatzacoalcos, an important exploration site of the government-owned petroleum company Pemex.

Setting records – Following the trail of the Panamericana further to the south, we reach Puebla, where another important industrial center has developed in relative vicinity to the capital. And this is due to the fact that an era came to an end in far-away Germany: The last Volkswagen Beetle came off the German production line in the city of Emden in 1978. Since then, the legendary car has been assembled exclusively in Volkswagen’s Puebla plant. Only three years later, Puebla set an amazing record by producing the 20 millionth Beetle. The plant still is the largest employer in the area.

Finally, we exit the Panamericana shortly after the city of Oaxaca, terminating our trip through North America near “El Tule.” The great Montezuma cypress is over 2,000 years old and its trunk circumference exceeds 54 meters. The tree, considered one of the world’s largest single biomasses, can give shade to almost 500 people at a time—another record, this time set by nature.

Special topic



SAMSON's regulators feature many innovative details, such as a special bellows design ensuring a hysteresis-free, pressure-balanced plug.

Cost-effective, reliable operation

Self-operated regulators

You are certainly familiar with the benefits of self-operated regulators since they play an important role in everyday life. They make sure that our water networks and the connected devices are protected against excessive pressure. Used as thermostats on radiators, they ensure a comfortable room temperature. In bathrooms, they provide a constant agreeable water temperature in the shower and discreetly control the right water level in the lavatory cistern.

Self-operated regulators use the energy contained in the process medium to perform their control tasks, i.e. they operate without electricity or any other auxiliary energy. This is why they continue operating reliably and safely even when the power supply fails.

It is therefore no surprise that even in today's era of digital technology, these simple, sturdy, maintenance-free regulators are still considered to be the most cost-effective solution for many control tasks in the field of district heating, building automation, utility and energy services, as well as process automation.



London's futuristic office building called 30 St Mary Axe is equipped with expertly engineered differential pressure regulators from SAMSON.



Cost-effective manufacturing and comprehensive quality assurance are the key to the success of SAMSON's self-operated regulators.



In Dresden, one of the first European cities to use district heating, the heat transfer plants are mainly equipped with SAMSON regulators.

Making do without transmitter and control unit

Universal use – Self-operated regulators are ideally suited for all automation applications where the set point remains permanently constant or rarely varies. An example of such an application is the pressurization of storage tanks. The empty tank volume is filled with an inert gas to prevent the tank contents from oxidizing and to protect the environment against possible emissions. In the tank, the gauge pressure of the gas, which must not exceed a few millibars for economical reasons, must remain constant even when the volume changes during the filling or tapping procedures or due to temperature fluctuations. For this purpose, a pressure reducing valve is used together with an excess pressure valve. When the pressure drops, the pressure reducing valve causes the inert gas stored in a reservoir to flow into the tank until the pressure set point is achieved again. When the pressure in the tank rises, the excess pressure valve opens and the contaminated inert gas is flared off, until the pressure is balanced.

Excellent choice for supply networks – Complex hot and cold water supply networks in large buildings and plants are a classic field of application for self-operated regulators. These networks operate properly and cost-effectively provided they are hydraulically balanced with care. In other words, the supply systems require that every consumer is supplied with the promised amount of energy under any load condition, that only the necessary amount of water is circulated, and that differential pressure fluctuations are prevented. SAMSON's differential pressure and flow regulators have proven to be ideal for this hydronic balancing task. If they are sized and installed correctly, they provide the necessary valve authority, i.e. sufficient pressure drops across the control valves over the entire load range, reduce wear and tear as well as noise emission caused by excessive differential pres-

ures, and favor an environmentally friendly, cost-effective operation of the plant when working together with electronically controlled pumps.

A matter of principle – The self-operated pressure and differential pressure regulators operate on a simple principle: The pressure to be controlled is exerted on the diaphragm of the actuator and produces a positioning force proportional to the actual value. In steady state, this positioning force is balanced by the force of the pre-tensioned actuator spring which is proportional to the set point. If the actual value deviates from the set point, the positioning force deflects the diaphragm, which, in turn, changes the position of the valve plug until a new equilibrium is reached. In principle, flow regulators are differential pressure regulators designed to maintain the differential pressure across the adjustable orifice plate and thus the flow rate at a constant value. The self-operated temperature regulators also operate partially on the force-balance principle: The temperature produces a vapor pressure in the actuator which is proportional to the actual value. Other self-operated temperature regulators benefit from the expansion of the sensor medium when the temperature rises, to move the plug.

Expertise and excellence in everything – Despite their simple principle of operation, SAMSON's self-operated regulators are sophisticated instruments in disguise: Their expertly engineered construction eliminates undesired static and dynamic forces on the plug and minimizes friction forces acting on the bearings and seals of moving parts. Many design details ensure a narrow proportional band and optimized noise behavior. The adaptive restrictions installed in the control lines increase the stability of the control loop and allow SAMSON's regulators to be used even under the most adverse conditions.

Facts and figures



The 12-million metropolis of Buenos Aires, Argentina, is considered one of the most vivid and cosmopolitan cities in South America.

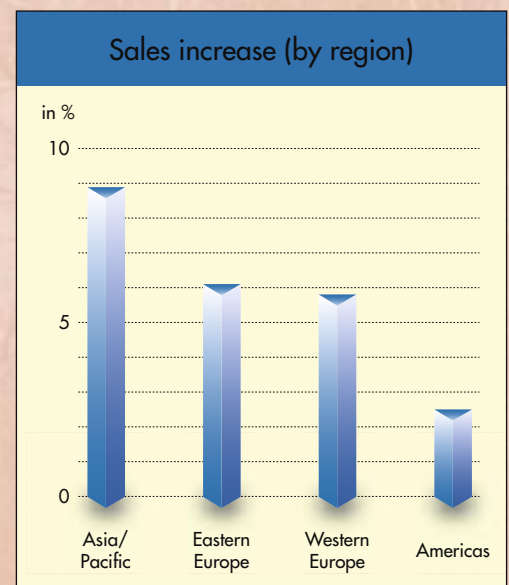
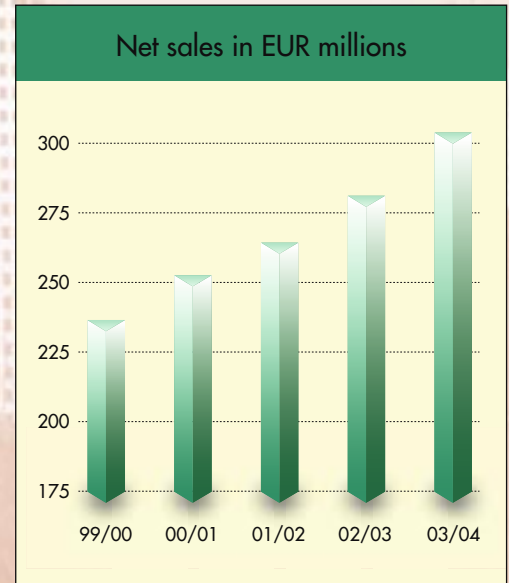
Financial year 2003/2004

Strengthened market position

Over the past financial year, the SAMSON Group upped its consolidated sales by 8.0 percent, to reach EUR 304 million—another excellent result. The largest sales increases were recorded in Asia, where both Japan and Taiwan managed to boost their sales by over 40 percent. Nevertheless, China remains SAMSON's major market in Asia.

In South America, Argentina came out the unchallenged leader with a sales increase of 64 percent. In the Middle East, SAMSON was particularly successful in Iran as the country continues to expand its position as an important site for the petrochemical industry.

In addition, the SAMSON Group managed to open up new markets in the heating, ventilation, and air-conditioning sector across the world. For example, the new convention center built in Barcelona, Spain, as part of the 22@BCN urban renewal plan is equipped with SAMSON differential pressure regulators. In Greece, Amynteo no longer is the only city that uses SAMSON equipment in its district heating network: Ptolemais and Kozáni have followed its example. In the United States, ConEdison installed SAMSON control valves and pneumatic regulators in many of the area substations used in its Manhattan steam network, the largest in the world.





Helsinki Cathedral—In cooperation with Welland & Tuxhorn, the Finnish subsidiary recorded a major sales increase in the past financial year. · The steam cracker is at the heart of BASF-YPC's ethylene production site in Nanjing, China, with an annual output of 600,000 metric tons.

Project business secures the future

South America in the lead – Three subsidiaries constitute the backbone of SAMSON's South American sales network: Brazil, Chile, and Argentina. These subsidiaries are supported by representatives in Venezuela, Columbia, Ecuador, and Peru. During the past years, the countries in South America have been striving—more or less successfully—to integrate their national economies into the global market by deregulation, privatization, and by opening up the domestic markets. After having suffered through a deep recession, Argentina, for example, succeeded in increasing its GDP by 8.7 percent by the end of 2002. SAMSON's main customer groups in Argentina as well as in Brazil, Venezuela, and Columbia, i.e. the chemical and petrochemical industries, benefited greatly from this economic recovery. The SAMSON Group extended its market share and can now provide its proven customer service on site as local stocks have been established. In addition, extensive facilities to train staff and customers have been added.

Technically challenging – In the Catalan capital of Barcelona, SAMSON opened up an entirely new market segment. For years, Barcelona has been working hard on modernizing its coastline and boosting its image as a cosmopolitan location. The 22@BCN urban renewal plan marks a milestone in these efforts: Over 200 hectares of the old industrial area in the Poblenou district in the northeastern part of town will be transformed into an innovative economic district with leading-edge infrastructure, flexible space for high-tech businesses, residential buildings, shops, hotels, and a convention center. The restructured district by the sea designed to meet the challenges of a knowledge-based economy is supplied by a combined district heating and cooling system consisting of three kilometers of pipeline net-

work. Combining district heating and cooling in one single system posed a great technical challenge, yet the SAMSON differential pressure regulators in nominal sizes up to DN 300 proved to be the perfect choice.

Fastest growing market – Similar to last year, China came out the largest and fastest growing market worldwide. With the help of U.S. and Chinese joint ventures, chemical leader BASF AG expanded its production facilities in China. New major production sites were opened in Nanjing and Caojing, turning Nanjing into the third largest BASF site in the world after Ludwigshafen, Germany, and Antwerp, Belgium. In the past financial year alone, SAMSON and its associated companies supplied more than 1,900 valves to the Chinese site, giving the group's Nanjing branch office, which opened in March 2003, a lot to do.

In Caojing, BASF kicked off an integrated isocyanates complex as the first foreign company to receive authorization for the production of synthetic fibers and plastics in China. Scheduled for completion in 2006, the complex is expected to supply the growing domestic demand in the automotive and construction industries with 240,000 metric tons of MDI (methylene-diphenyl diisocyanate) and 160,000 metric tons of TDI (toluene diisocyanate).

Recently, SAMSON AG, Pfeiffer Chemie-Armaturen GmbH, and VETEC Ventiltechnik GmbH won a contract to supply over 1,100 control valves to the new integrated petrochemicals site.

The Chinese market will continue to grow, and thus provide bright prospects not only for the chemical industry. This again proves that SAMSON is on the right course with its strategy of providing immediate on-site customer service almost anywhere across the world.

Spotlight



17th-century Dutch settlers named the Manhattan island between the Hudson River and the East River New Amsterdam.

New York, city of extremes Moving full steam ahead

New York, founded in 1626 under the Dutch name of Nieuw Amsterdam, is the city that never sleeps. Cramming together over eight million inhabitants on an area of less than 800 square kilometers, the Big Apple has grown to be the largest city in the United States. Despite or because of its relatively small number of only 1.5 million inhabitants packed together on 50 square kilometers, Manhattan is probably the best-known of the city's boroughs. Every day, over 3.5 million people commute to the Manhattan island to work, shop, or simply window-shop, enjoying the bustle and diversity of the lively metropolis.

The steam network that ConEdison has woven through Manhattan with an overall grid size of 160 km is the largest in the world. To secure supply at all times, the area substations feeding the huge commercial and residential buildings traditionally include two separate lines for normal and peak demand. SAMSON, together with SAMSOMATIC, provides a tailored system for independent pneumatic control of the lines and automatic switchover from normal to peak supply. Many buildings housing famous celebrities have already been equipped with the SAMSON-controlled steam system. Whether Halle Berry knows which equipment makes her feel so comfortable at home?



The lavishly decorated City Spire was erected in 1989, the tallest mixed-use skyscraper in New York.



"If I can make it there, I'll make it everywhere," this line from a famous Frank Sinatra song expresses the dream of many artists across the world: to hit a Broadway stage. The Statue of Liberty was dedicated in 1886. It is one of the most universal symbols of political freedom and democracy.

Reliable energy supply for the Big Apple

New York City torn between hot and cold – Despite the usually temperate climate, the city's five boroughs—Manhattan, Queens, Brooklyn, the Bronx, and Staten Island—often experience extremely hot days in summer and icy cold days in winter. Temperatures ranging from 40 °C to -25 °C, i.e. from 100 °F to -13 °F, are quite common in the city of extremes. During the notorious blizzards—the severe winter storms trailing extreme cold, strong winds, and heavy snowfall—temperatures may plummet by over 25 °C within a short period of time. When such a blizzard hits the city, the crowded airports are closed, the usually bustling traffic comes to a standstill, and the always busy New Yorkers retreat to their warm apartments. This is when a reliable heating supply and dependable switchover from normal to peak demand are most vital.

Comfortable condos for celebrities – City Spire is the name of a 248-meter-high domed glass tower near Central Park erected in 1989. The 72-story high-rise with its primarily octagonal layout is the city's tallest mixed-use skyscraper accommodating both offices and lavish luxury apartments. The Trump World Tower completed in 2001, however, topped out City Spire as New York's tallest residential building towering 14 meters above it. Nevertheless, City Spire's 353 luxury condominiums located above 23rd floor are quite popular among celebrities including Hollywood actress and 2002 Oscar winner Halle Berry. The apartments grow in size the higher up they are, the top being divided into only two 200-square-meter units.

The newly installed SAMSON steam station, which replaced a different make, ensures that the HVAC and domestic hot water systems supplying the lush apartments always have the right pressure, thus ensuring reliable operation at all times.

John F. Kennedy International Airport – Yet, water is used much more frequently for heating and cooling than steam. For large buildings such as skyscrapers, airports, schools, hospitals, or universities this implies strict requirements concerning the proper distribution of the available energy: Even at peak demand, the most remote consumer must be supplied with a sufficient amount of energy. Nevertheless, the same system must not start to hunt or excessively circulate water at low demand. Differential pressure regulators from SAMSON used in combination with speed-controlled pumps simplify start-up, stabilize pressure conditions, and reduce energy consumption.

In New York City, SAMSON differential pressure regulators display an impeccable performance in many large buildings. Examples include John F. Kennedy International Airport in Queens and the Whitehall Terminal of the Staten Island Ferry in Lower Manhattan. SAMSON differential pressure regulators will ensure trouble-free commuting for 70,000 ferry riders each day once the reconstruction of the terminal has been completed. The terminal will be built almost entirely of steel and glass, maximizing the views of Lower Manhattan and New York Harbor, and shaping up to be one of the city's most eye-catching transportation centers.

Customer service and proven equipment – Due to its skyscrapers and special climate, New York poses special challenges when it comes to installing heating and cooling systems. SAMSON has the right solutions thanks to its tailored equipment and systems proven in service. SAMSON's West New York engineering and sales office established in March 2004 provides on-site customer service to the city that never sleeps, making it comfortable at all times.



SAMSON worldwide



SAMSON

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