

Company Profile

Gas Measurement Technology



Facts and Milestones in Product Development

- 1836 _____ Formation of the American Meter Company
- 1848 _____ On the 1st of October, Elster was founded in Berlin and began producing gas lamps
- 1853 _____ Production of large station gas meters
- 1865 _____ Formation of G. Kromschroeder AG
- 1876 _____ The factory in Mainz was built
- 1878 _____ Emil Haas obtained a patent for the principle of a rigid limited space for the volume measured, which is still valid for the production of our diaphragm gas meter today
- 1936 _____ The first horizontal turbine gas meter was launched
- 1952 _____ PTB approval was granted for the first horizontal operating turbine gas meter (PTB = German Approval Authority)
- 1955 _____ Development of the first mechanically driven volume corrector
- 1961 _____ Development of the quantometer for in-plant measurement
- 1965 _____ Foundation of Instromet in the Netherlands
- 1971 _____ SM-RI Turbine Meter and Q-RI Quantometer were launched
- 1976 _____ Development of a turbine gas meter with interchangeable measuring cartridge suitable for calibration
- 1980 _____ Development and production of electronic volume correctors and flow computers by Instromet
- 1981 _____ Establishment of an instrument flow computer and volume correctors division in the UK
- 1982 _____ Development of SM-RI Turbine Meter and Q-75 Quantometer Multi-Index
- 1982 _____ Approval was granted for the first electronic volume corrector called EMU that uses micro process technology
- 1987 _____ Announcement of the long-term pulse collecting system called LIS 100 to the global market
- 1987 _____ Launch of the BK-G4 Diaphragm Gas Meter with improved performance
- 1990 _____ Launch of a battery-driven EK-88 Volume Corrector and the GAS-ACE station management system by Flow Comp
- 1991 _____ Launch of an IRM-A Rotary Meter
- 1992 _____ Process gas chromatographs developed for energy measurement
- 1993 _____ Introduction of mechanical temperature correction on BK-G4 and BK-G6
- 1995 _____ Launch of a RVG Rotary Meter series
- 1995 _____ Development of the ultrasonic meter for non-fiscal metering
- 1997 _____ Development of the M2R Compact Gas Pressure Regulator (max 4 bar)
- 1999 _____ Launch of the IRM-3 Rotary Meter
- 2001 _____ Development of a new generation of volume correctors known as EK210 and EK230 and of gas meters with an Absolute-ENCODER technology
- 2003 _____ Flow Comp gas-net product line launched, new generation of industrial diaphragm gas meters BK-G40 and BK-G65, PTB approval for a gas analyser system gas-lab Q1. Launch of high-pressure regulator MR 50
- 2004 _____ Introduction of the modular index concept Z6 for diaphragm gas meters, together with CHEKKER and Absolute Encoder Technology
- 2005 _____ Merger of Elster and Instromet
- 2005 _____ Turbine meter series TRZ2 were launched
- 2006 _____ Introduction of the new industrial diaphragm gas meter BK-G100
- 2006 _____ Approval of the air operated closed loop high pressure test rig in Mainz
- 2007 _____ PTB approval for Encal 3000 gas chromatograph



In Restrospect

Elster and Instromet have contributed a number of technical innovations and patents to the field of gas measuring and regulation.

The Haas patent for diaphragm gas meters and the development of the first horizontal turbine gas meter are milestones in the history of gas development technology led by Elster.

The development of encoder technology, station computers and also high-pressure regulators are all high-profile achievements within the new generation of products.

Instromet pioneered the use of ultrasonic gas flow measurement; over two decades of experience in the field has shaped the current series of ultrasonic gas flow meters.



With the introduction of the Digital Absolute Travel Time Method in the early 1980's, the first accurate and reliable ultrasonic river flow measuring system was born.

Energy metering and analysers are sophisticated developments, which were designed by Instromet in recent years. The introduction of IRM rotary piston gas meters and the SM-RI turbine gas meters are milestones, which have significantly improved the quality of gas measurement.

American Meter and Kromschroeder have set standards in both North America and Europe in the field of low-pressure gas measurement.

Their developments stand for long-term performance and reliability as well as for innovative features, such as temperature correction and pulse readiness.

New generation products, such as CHEKKER and Absolute-Encoder, show features that go beyond metering. They represent the beginning of process optimization for meter-reading and billing.



Current and future prospects

In the industries of gas measuring, safety and regulation, Elster-Instromet* is well positioned to meet and exceed the requirements and ever growing needs of gas distribution and gas transmission companies.

We provide customized solutions, including a comprehensive range of off-the-shelf high-end products.

Our extensive global sales and service network guarantees our ability to react directly to the specific needs of various markets worldwide.

We are very proud of our achievements so far; but we are also prepared to face the challenges of the future.

Highly sophisticated technical facilities and production technologies with our own high-pressure test rigs enable us to meet the highest standards in product quality and product performance. Increasing demands for comprehensive solutions have caused us to take the necessary step towards developing our own supervisory (ISS) and data management (LIS) software. This allows us to deliver complete full service and we can also create a solution to your individual requirements.

New measuring principles and methods are developed through collaboration with universities and technical colleges. In retrospect, these technology transfers have generally proved to be beneficial for all parties concerned.

The basis for successful progress in development is to maintain a close relationship with you and our suppliers.



Elster-Instromet is a brand of Elster GmbH

Sales-customer relationship

The Elster GmbH in Mainz-Kastel (Germany) and the Elster-Instromet N.V. located in Essen (Belgium) are the joint sales organisation for products and solutions. Our major production sites are based in Mainz-Kastel (Germany), Essen (Belgium), Silvolde (Netherlands) and Osnabrueck (Germany).

Here we manufacture the key product lines for all applications in the field of gas distribution and gas transmission. The American Meter Company with its headquarters in Horsham and its main factory in Nebraska City is taking care of the US market. Our clients are people who are involved in the gas business in general, e.g. pipeline companies, gas utilities, gas distribution companies, power plants, chemical and industrial industries, laboratories and solution providers.

We offer a vast range of products

Our product portfolio ranges from residential gas meters to high-end measur-

The development of individual components with the conception of comprehensive solutions provide many opportunities for variations. Our complete and comprehensive range of services and solutions for your special requirements account for our reputation for high standards.

We have established a reliable and customer-oriented worldwide distribution network with a strong local presence via our international subsidiaries and representatives. We always do our utmost to deliver the best possible service to you by utilising modern communication technologies and with the assistance of our efficient internal sales team.

Orders are centrally managed by our internal sales departments and processed in our production sites, which are constantly monitored by our sales team. Our engineers, product specialists and our sales force are prepared to answer your technical questions and inform you



ing devices and also from low pressure regulators to high-pressure regulating devices. As a solutions provider, we offer you all combinations of our products. We provide turn-key solutions, which are customized and range from small district pressure reduction stations to custody transfer natural gas border metering stations.

In ideal circumstances, we are in charge of a complete project, from its conception to the installation and maintenance of a station. Our flexibility guarantees you full service anytime.

about any new innovations. We regularly participate in regional, national and international exhibitions and forums where we demonstrate the latest technological achievements.

We hold customer training sessions and seminars throughout the year in order to convey the latest information and to present ideas about the development of our products and services. In addition, our customer magazine, "PROFILES" is distributed three (3) times a year to all continents by mail or can be downloaded from our website.

Our quality standards

An important criterion for the excellent quality of our services is our ability to satisfy and exceed your requirements. Of course, this can only be achieved by maintaining the high quality of our products.

The purchase of raw materials, semi-manufactured goods and their assembly in production facilities are subject to thorough selection and quality control processes to ensure safety and the perfect condition of the goods.

For our metering and regulating products, we use materials of superior quality, which are delivered together with a materials test certificate by our personally selected subcontractors' suppliers. Fast communications and decision-making enable us to react promptly and flexibly.

Our products are manufactured in strict accordance with national and international regulations and standards.

Some of these standards form the basis on which we have set up even more sophisticated internal testing procedures. In every section of our company, responsibility, training and the distribution of detailed information to all staff members are vital in guaranteeing and improving

the quality and the output of our work in the long term. Emphasis is placed on seminars and regular training courses for our employees who are responsible for quality assurance and the improvement of our products.

Our quality assurance manual according to DIN ISO 9001 is mandatory for all sections of our company. The durability and reliability of our products confirm that this concept is indeed right.

However, quality improvements and quality assurance are ongoing processes to which we will continue to devote our attention and energy in the future.



Our staff

We strongly believe in ensuring the welfare of our staff. We are aware of the fact that a positive work environment is vital for satisfied personnel, which, in turn, is beneficial to you. In order to ensure this, we are continuously improving our internal organisation and communications. Our employees are given a chance to submit proposals for improvements and alterations. We have also initiated a company development process which reveals our strengths and weaknesses. At regular intervals our staff members are trained by product specialists or take part in especially selected external courses.

Since we operate worldwide and are intensifying our global activities, communication and mutual understanding are essential. To meet this need, language courses are provided to all interested members of the staff.

Other morale-boosting activities and social events for the staff are encouraged in order to improve the overall quality of the work environment.

Practice-oriented education and training facilities for industrial, technical, accounting and business practices are essential in order to instruct and prepare our young generation for their future tasks. Our company guidelines state: the principal asset of our company is the employees, and their energy and strength will lead to ever greater success for the company, and then for the employees and ultimately for you as well.



Our products

Our range of products can be subdivided into four major groups: measuring devices, regulation equipment, electronics and stations. In the development and production of our components, we put special emphasis on safety, accuracy and reliability.

We can ensure you that our products are state of the art in terms of technology and exceed the industry standards.

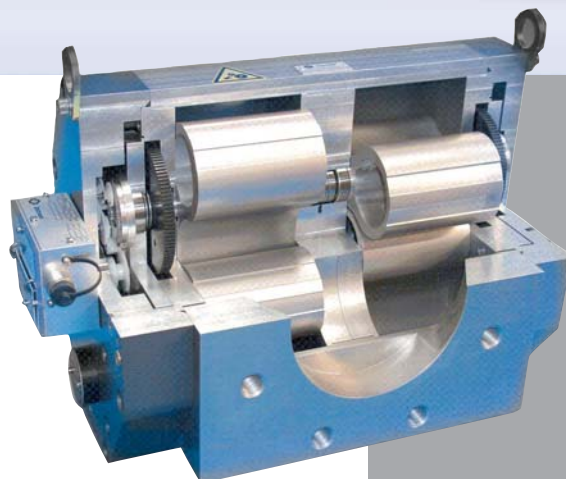
Our metering products are used for official billing purposes and are available in various versions and different pressure rates. All meters have proved themselves to be reliable and accurate natural gas meters. Research and development in the last decade has concentrated on

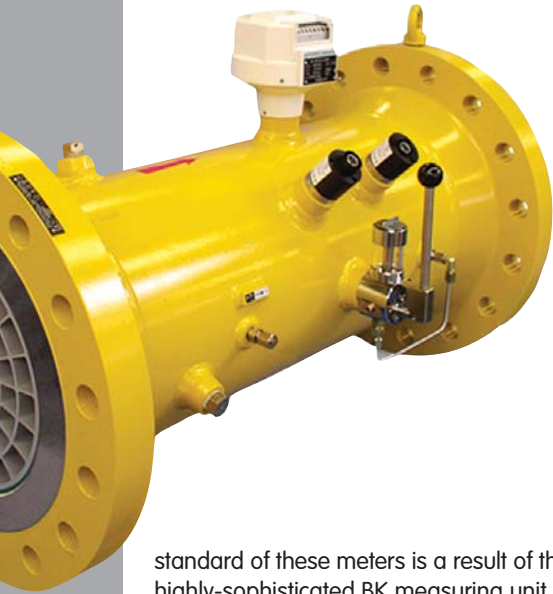


One innovation in the field of gas meters is the absolute encoder totalizer for faultless data transfer, which is a unique feature launched by Elster-Instromet. Domestic gas meters and commercial diaphragm gas meters are manufactured by Kromschroeder Osnabrueck. The high



minimising installation effects and on optimising accuracy at high pressures. Elster-Instromet covers a comprehensive range, and offers an optimized solution for each application. Our meters comply with European standards and International guidelines.





standard of these meters is a result of the highly-sophisticated BK measuring unit. This is supported by quality assurance efforts in compliance with DIN-ISO 9001.

Our BK Series Diaphragm Gas Meters represent state-of-the-art precision engineering and future-oriented measur-

It is obvious that electronic measuring and registration devices will become even more necessary in the future. We provide complete data collecting and processing systems. Our Data Loggers, Volume Correctors and Flow Computer systems are especially designed for the gas business. They collect and store measuring data, monitor the status of the station, regulate pressure, flow and pre-heating, coordinate and supervise the proper function of the system and communicate with the control room when necessary.

Together with our ISS supervisory system, the Flow Computers are the perfect solution for local and centralized SCADA applications for gas transmission systems.

Together with the new generation of compact volume correctors, the LIS long-term pulse collecting system allows a universal mode of application with regard to data processing and evaluation of consumption data.

Our products enable us to provide practical technical solutions but also to complete projects according to customers' specifications. However, we are not content to rest on the successes of our present developments; we are constantly striving for improvement in developments for the future.

Whether the requirement is for a simple volume corrector or a high-tech data call-up system, the joint range of Elster-



ing principles, which also offer the utility of temperature compensation technology.

Our regulators range from cost-effective low-pressure products to high-temperature and inlet pressure resistant devices. They guarantee safety and reliable operations but also precise pressure control in low, medium and high pressure environments.



Instromet products opens up a wide scope of possibilities for you.

Electronic devices and associated hardware and software comprising the joint Elster-Instromet product portfolio can be used in a variety of ways and complement each other ideally for use in a wide range of applications and systems.

Our markets

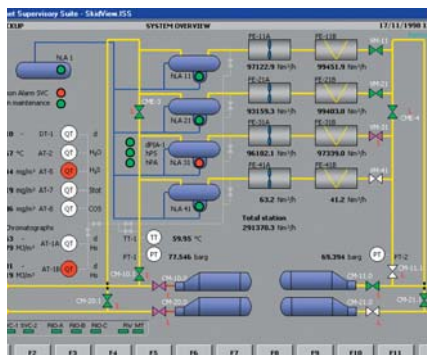
We have established a global distribution network with the help of many affiliated companies and representatives all over the world.

Elster GmbH is manufacturing in Mainz, Dortmund and Osnabrueck (D). We also operate production facilities in Silvolde (NL), Essen (B) as well as in Spain, Italy, China England and Latin America.

We have our own sales organisations in all major gas markets, which gives us the possibility to react swiftly to your demands worldwide and to provide assistance on site.

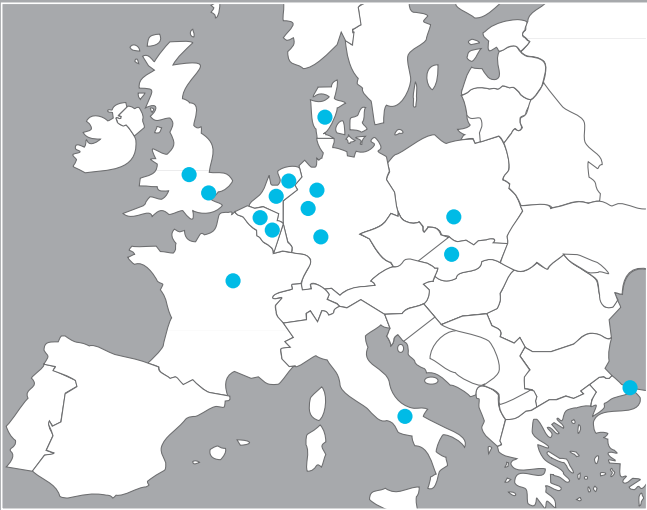
Our well-organized global distribution network provides us with the necessary local information for markets worldwide. This gives us a valuable insight into these markets.

We are looking forward to the new challenges of a common market in Europe. We plan to extend our activities in Eastern Europe and to intensify our business relationships with Middle and Far East countries in the future.





● = Production plants





About Elster Group

Elster Group is the world's leading manufacturer and supplier of highly accurate, high quality, integrated metering and utilisation solutions to the gas, electricity and water industries. In addition, through its subsidiary Ipsen International, it is the leading global manufacturer of high-level thermochemical treatment equipment.

The group has over 8,500 staff and operations in 38 countries, focused in North and South America, Europe and Asia. Elster's high quality products and systems reflect the wealth of knowledge and experience gained from over 170 years of dedication to measuring energy and scarce natural resources.

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