

***Halma's sales growth in the fire and gas sector is built on the development of increasingly sophisticated electronic sensors that detect life-threatening hazards***

### Fire and Gas

One of Halma's key strengths is detecting hazards to life and the Group is a world leader in electronic detectors that protect people from the twin dangers of fire and gas.

**Apollo** is the clear market leader in Europe for commercial quality fire detectors, and it has a significant share of the global market with sales to more than 70 countries. This year, the company sold record

numbers of detectors, installed across the world in commercial, industrial and public buildings. This company has consolidated its European leadership with the launch of new, microprocessor-based "intelligent" detectors, while an increasingly sophisticated range of electronic add-on products helped to expand its global presence.

Halma reinforced its fire detection focus in March 1999 with the acquisition of **Air Products and Controls**. Several new products have enhanced this company's

position as North America's leading brand of smoke detectors for air-conditioning ducts. Record sales and profits were achieved in its first full year in the Group.

Toxic and flammable gases are a common threat to life and Halma companies specialise in instruments that detect gases, measure them and warn users of an immediate danger.

Electronic gas detectors from **Crowcon** provide a vital early warning to personnel who may be exposed to gas hazards, such as firefighters, chemical workers and people in confined spaces. Excellent results in the previous year were partly due to three major overseas contracts to equip telecoms engineers; a record achievement which has not been possible to repeat this year. Also, a downturn in the oil and gas industry has caused several customers to defer capital projects. Substantial orders for



***Telegan has won a major contract to supply this new instrument, which measures the safety and efficiency of gas boilers, to all British Gas service engineers in the UK.***



***Firefighters rely on Crowcon detectors to warn of toxic and flammable gases and low oxygen levels. As well as giving visual and audible warning signals, the latest instruments vibrate to alert the user even in noisy environments.***

permanently installed fire and gas safety systems will be received later than expected. However recent sales growth in the USA and two new products are expected to have significant impact in 2000/2001, when full profit recovery is expected.

**Telegan** has recently won a major contract with Centrica, worth over £1 million, to supply all British Gas service engineers with a new instrument for checking the safety and measuring the energy efficiency of gas boilers. This prestige contract should provide a strong stimulus for sales to independent gas engineers.

Record sales and profits were reported by **Perma Pure**, whose unique products remove unwanted moisture from gas samples. This success is due to continued growth in its core markets, which include instruments to monitor the breathing of intensive care patients in hospital. New products for bio-medical and fuel cell applications are expected to build on this success in the coming year.



***British Airways' award-winning Waterside Business Centre near Heathrow, which provides office and leisure facilities for nearly 3,000 personnel, is protected from fire by over 2,500 Apollo devices.***

***Halma has a strong involvement with water technology. The Group meets the growing need for safe drinking water and relieves pressure on natural water resources***

## Water

Worldwide demand for clean drinking water is rising continuously due to economic development. At the same time, industrialisation and urbanisation are putting water resources under pressure through pollution and increased consumption.

Halma companies specialise in water technologies that meet the global need for cleaner, safer water. The Group has world-class water technology products – electronic instruments for measuring water quality and locating leaking pipes, and water treatment systems based on ultraviolet light.

In an increasing number of markets, growth in demand for water technology is reinforced by legislation. Improving water quality standards, and regulatory limits on pollution and tolerated wastage drive demand for Halma products.

Regulation of wastewater discharged into rivers has created strong demand for instruments that accurately and quickly analyse water. **Palintest**, which produced record sales and profits, makes electronic instruments, advanced chemical sensors and test reagents for testing water quality and monitoring industrial effluents. In the past year, excellent growth was achieved in sales of its world-leading lead analysis system which has recently been approved by the US Environmental Protection Agency. New electronic sensors are being developed for measuring metal pollutants in water, anticipating increased regulation, particularly from the EU.

Two Halma companies have developed an extremely strong position in the European market for ultraviolet light water treatment equipment. Demand for this technology is rising due to increasing pollution of water supplies and improving standards for drinking water and wastewater discharges. Market growth is also coming from high technology



***Halma's ultraviolet light water treatment systems for air conditioning plants kill Legionella pneumophila bacteria, the cause of Legionnaires' disease.***



***Severn Trent Water engineers installing Palmer Environmental's revolutionary Permalog leak detection system. Data from permanently fitted underground sensors is collected remotely from a passing vehicle.***

manufacturing processes, such as semi-conductors and pharmaceuticals, that require water of exceptional biological and chemical purity. **Berson**, based in The Netherlands, launched several new patented products, including a wastewater treatment system. **Hanovia** reported record order intake, record sales and record profits, supplying over 100 treatment systems to the electronics sector alone. There has been strong demand for a new treatment system that de-activates the Cryptosporidium organism in drinking water.

Precise measurement and location of leaks in water pipes has important economic, environmental and health consequences and is a market in which Halma companies offer world-class technology. **Palmer Environmental** is the global leader in advanced electronic instruments that detect and locate underground leaks and it reported record profits. Last year's launch of Permalog, a radically new leak detection product, has produced significant UK and overseas sales. This new product may transform leak location technology throughout the world. The purchase of **Hydreka** (France) in March 2000 extends the Group's technology portfolio into water flow auditing. It also provides a marketing platform for the sale of Group products to the major international water utilities headquartered in France.

*All the common pollutants and naturally occurring compounds found in lakes and rivers can be measured accurately, quickly and cheaply with Palintest's electronic analysis instruments.*



***Halma is the world leader in elevator safety. Our products make elevator use a safe and reliable experience for countless millions of people every day***

## Elevator Electronics

Elevators are the safest form of transport and Halma dominates the world market for elevator safety systems. The Group's primary products in this sector are the electronic devices that prevent elevator doors from closing onto passengers. These employ the latest developments in electronic infrared sensor technology. The most advanced systems sense passengers between doors or approaching an elevator.

Demand patterns for these products depend primarily on building construction growth in national markets. However, worldwide population drift towards cities is forcing up land values making high-rise buildings viable and creating increasing demand for elevators.



***Building managers fit Halma elevator safety systems to prevent accidents with closing doors and also to maximise the efficiency of passenger movement.***

The new-build market consists of about 300,000 new elevator installations each year plus continual safety upgrading of the world's installed base of about 7 million elevators. The Group believes it commands almost 50% of the world market for elevator passenger protection systems.

**Memco** is the world's largest manufacturer of elevator door safety systems. Access to new markets, through intragroup trading, should help to deliver profit growth this year. A unique product will soon be launched that will detect and stop anyone attempting to ride on the top of elevator cars, a growing problem known as "elevator surfing".

In October 1999, the Group strengthened its dominant position in elevator safety with the purchase of **T L Jones**, a major supplier of safety systems to elevator constructors and contractors in Australasia, China and west coast USA. To extend market share in China, this company has recently opened a third sales office supported by an established production facility in Shanghai.

Halma is also a global force in elevator emergency communication systems. The Group now enjoys market leadership in telecoms networks for elevator cars in the USA. **Electronic Micro Systems** achieved record sales and profits. Demand for its electronic telecoms products is growing in most countries, and new European legislation requiring emergency communication systems should boost sales next year.



***This state-of-the-art elevator position indicator, developed by E-Motive, can even display weather forecasts and news reports.***

The Group has recently bought **Vandal-Proof Products** to extend its emergency telecoms range and enter new public access area markets like train stations, airports and college campuses. From a Singapore base, the Group also supplies high quality elevator visual displays

and messaging systems through **E-Motive**, purchased in July 1999.

That company is extending sales beyond its home territories in south-east Asia through joint marketing activities with other Halma Group companies, benefiting from their well-established relationships with elevator manufacturers in North and South America and Europe.



***Memco's latest elevator door safety systems can prevent damage to doors, as well as safeguarding passengers, by sensing approaching hospital beds or supermarket trolleys.***

**Halma's process safety products safeguard the lives of hundreds of millions of workers in almost every country, every day**

## Process Safety

A common theme running through Halma Group activities is the detection of hazards and the protection of life. In the process safety sector, the Group is a world leader in systems that prevent workers from coming into contact with dangerous machines and in products which eliminate the risk of catastrophic explosions.

Manufacturing processes are becoming faster and more complex. As a result, the potential risk of industrial workers being injured or killed continues to rise. Around the world, governments are imposing increasingly stringent safety regulations to reflect the rising dangers and changing social attitudes to acceptable risk. This background provides momentum for sales of products that protect people and prevent damage to industrial plant.

While the global process safety sector has long-term growth potential, investment cutbacks in petrochemicals have adversely affected sales of safety control systems in that market. With an increase in the oil price and a restoration of processing capacity, sales to this sector should rise again.

Halma's businesses dominate the world market in sequential locking systems, a principal area of process safety. These products control access to dangerous machinery. Because most production processes pose some risk to the operating staff, safe access control systems are essential throughout manufacturing industry. **Castell Safety International** is the world leader in this branch of industrial safety and maintained its historical level of profitability last year despite the impact of Sterling's strength on exports.

**OSECO**, which was purchased in July 1999, achieved record sales and profits post-acquisition. This company is a major US manufacturer of process plant



***OSECO and Elfab produce bursting discs to release pressure safely from process pipework. These companies are producing increasingly sophisticated, high-accuracy products to meet growing demand from the biochemical and pharmaceutical industries.***



***Unloading liquefied natural gas from a tanker is potentially dangerous. In Malaysia, safety systems from Smith Flow Control ensure that Petronas tankers cannot move until gas flow is stopped and the loading arm disconnected.***

protection devices called bursting discs. These products are fitted to pressurised pipes in almost all chemical processing facilities in the world. Excessive pressure causes bursting discs to rupture in a safe and controlled way, avoiding the possibility of a devastating random explosion.

**Elfab** is the largest UK manufacturer of bursting discs and during the year launched a series of innovative new products. These combine electrical sensors for status reporting and new types of disc for use in hygienic processes, such as biotechnology and pharmaceutical production.



***At BT's satellite communications centre in Cornwall, England, Castell safety systems ensure that access to antennas is available only to authorised personnel, and only when it is safe to enter.***

***Halma has built up a portfolio of power resistor manufacturers that can offer customers a range of technologies unequalled anywhere else in the world***

## Resistors

The Group is a major international supplier of high power resistors. These products are used by many industries, and their role is to safely absorb excess electrical power or to control the quality of an electrical supply. They are widely used to protect electricity generating plants and power distribution networks from damage and also to prevent supply interruption.

At first sight, the global market for power resistors appears to be mature. However, continued industrialisation and increasing electrical power generation will grow the size and value of this market for the foreseeable future. Allied to this, many industrial power consumers are demanding an improved quality of supply, in both electrical and continuity terms.

In recent years, Halma companies have created entirely new markets and applications for power resistor technology. Fast response by **Post Glover** to an emerging market in the protection of electrical supplies for internet service providers ("ISPs"), where continuity of supply is crucial, has enabled them to dominate this new market. ISPs buy resistive systems to control electrical faults and allow equipment to operate during a fault condition until it is repaired. The company set new sales records last year

and raised profits significantly after a decline the previous year.

An important safety-critical power resistor application is in speed control of locomotives and mass transit vehicles, where our resistors are used for braking.

In March 2000 the Group purchased from Eaton Corporation the **Cutler-Hammer** resistor business, which has facilities in the USA, the UK and Canada. Combined with Halma's existing market share, this acquisition makes the Group the key world supplier of locomotive braking resistors.



***Thousands of power generating plants around the world are protected by neutral earthing safety systems provided by Halma companies.***



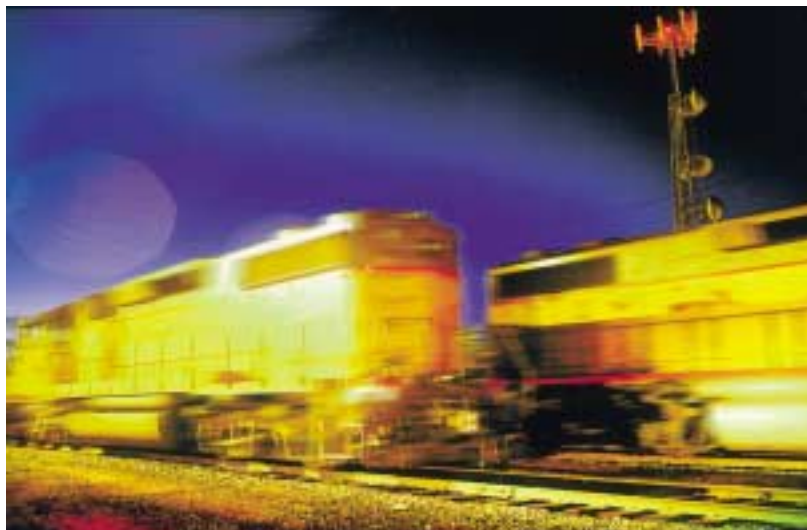
***Cressall resistor systems at a substation in Chuse, Japan. If an earth fault occurs, the resistors prevent equipment damage and ensure that other vital safety systems can function.***

When it was acquired in 1998, traction resistor specialist **Mosebach** had negligible earnings from exports. At the end of its first full year within the Group, the company had achieved exceptional results in growing its export business, to the extent that overseas sales made up over one third of turnover.

Recovery in its key Latin American export market enabled **IPC Resistors**

to report record profits and sales. New products that detect and signal electrical ground faults in industrial plants, already well received by the market, will create significant new sales opportunities.

As a whole, the Group's resistor businesses made record sales and close to record profits last year. Prospects for exceeding these figures this year are very promising. A single order for braking resistors for the Long Island Railway (New York, USA) will be shipped this year valued at over £1 million.



***A high proportion of all the world's locomotive traction resistors are manufactured by Halma companies.***

**One of Halma's key strengths is its ability to identify very specific customer needs and develop an ideal solution, with a high perceived value, using leading-edge technology**

## Optics and Specialist

Today, Halma focuses its activities in six core markets, including optics. However, the Group also has several highly successful businesses operating in specialist sectors such as pharmaceuticals, biotech and life sciences.

The Group is one of the world leaders in precision optical products for diagnosing and treating eye defects. An exciting new product currently being launched by **Keeler** uses miniaturised video technology to help the partially sighted to become more independent.

**Volk** is the US market leader in high precision ophthalmic lenses used by opticians and doctors. In the past year, the company reported a new sales record and launched VolkStore, the Group's first direct sales e-tailing web site.

This company's research and development investment delivers a continuous stream of innovative new products, such as lenses for new

types of laser treatment.

Miniature, precision flow control devices are another of the Group's successful specialist products. These measure and control flows of very valuable or hazardous gases or liquids in biotechnology processes and scientific instruments. Halma's miniature valves are built into the gene sequencing machines used by scientists working on the human genome project. The Group's micro-pumps can also be found in blood analysis machines controlling antibiotic dosing, chemical reagents and aggressive solvents.

### Summary

This review has been illustrated with a few examples from Halma's large portfolio of world-class products. Overwhelmingly, the Group's products prevent injury and preserve human life. These products are often used in safety-critical applications where



**Halma companies exploit the latest scientific advances in optics and electronics in the development of instruments for investigating and treating eye defects.**

**Volk leads the world in the design and manufacture of high precision lenses used by optometrists and ophthalmologists to examine and treat eye disorders.**

people's lives depend on them. Halma businesses mainly operate in sectors where they are, or can become, market leaders.

The Group's successful approach to product development and innovation is to supplement original ideas generated by internal research and development with leading-edge technology bought in via acquisitions. Acquisition prospects are selected from businesses operating in the same markets as existing Group companies, or with closely complementary products and technologies.

Using this strategy, Halma has established an ever-increasing range of valuable products focused in a narrow range of core markets, which puts the Group in a powerful position for both immediate and long-term growth.



***Keeler's innovative NuVision product will enable some partially sighted people to read books, use computers and watch TV for the first time. A head-mounted visor conceals a miniature video camera and two display screens, providing the user with a hugely magnified view of the world.***