

***Skilful investment in  
continuous product  
innovation drives  
Halma's success in fire  
and gas hazard markets***

## Fire and Gas

**Apollo** and **Crowcon** are two of Halma's world-class businesses whose fire and gas sensing products and customer service are industry benchmarks in many international markets.

Record sales figures for all companies selling fire detection products have enhanced the Group's reputation as a major international supplier in the fire safety market. Sales to the USA reached record levels accounting for 20% of total fire products turnover.

**Fire Fighting Enterprises** was acquired in October 2000 extending the Group's portfolio of fire protection technologies. This company is a world leader in infrared beam smoke detectors that monitor large open areas, such as warehouses. Its products are entirely complementary to **Apollo's** and the two companies benefit from shared market intelligence and collaborative marketing.

An important factor affecting growth potential, in both the fire and gas hazard sectors, is the adoption of increasingly proscriptive safety legislation. A number of Group employees sit on the standards committees that advise legislators on health and safety regulations. Close monitoring of the drafting and implementation of new legislation enables the Group to introduce products and services that exactly match the needs of customers having to comply with changing safety laws. For example, in a growing number of countries, legislation is being enacted that protects workers from gas hazards in confined spaces such as tunnels.

A trend in industrial hazard sensing is that customers are becoming increasingly responsive to benefits from new technology and software. As a result, fire and gas detector product life cycles are becoming shorter. The Group's continued success in fire and gas detection markets benefits from skilful investment in research and development to produce a constant stream of new and improved products. Over the past twelve months 30 new fire and gas products have been launched.

A new system for monitoring fire and toxic or flammable gases, called Vortex, was launched mid-year. This has sophisticated digital controls



***Health and safety legislation is protecting workers in a growing number of countries.***  
*Photo: Superstock Limited*



***The Staples Center in Los Angeles, California, a \$400m sports and entertainment venue protected by 1,000 Apollo fire detectors.***

and special features for operation in arduous conditions. High demand for this type of fixed gas detection system from the oil and gas industry gave second half sales a boost at **Crowcon** with significant orders from Nigeria, India and several Middle East countries.

Carbon monoxide is a dangerous gas produced in homes by faulty heaters. British Gas service engineers are now equipped with 8,000 of our state-of-the-art instruments that optimise fuel efficiency, minimise pollution and greatly reduce the risk of carbon monoxide poisoning.

**Perma Pure** is developing a strong position in the US fuel cell market where its gas treatment products regulate the amount of moisture in fuel gases. Fuel cells are widely predicted to become an important way of generating electricity in the future. The Group is working with the leading makers of residential fuel cell power generators. Patents will protect the Group's research in this area as it becomes commercially significant.

Group sales of fire and gas detectors extend across the world with exports now accounting for approximately half the turnover. This provides some protection from national or regional downturns. However, the Group's competitive advantage from market leadership, combined with its ability to innovate and rapidly turn new technical ideas into practical products, should ensure continued profit growth.

***Intensive care patients are monitored by Hudson RCI breath gas analysers incorporating Perma Pure gas drying products.***  
*Photo: Hudson RCI*



**World leadership in  
water treatment,  
conservation and  
testing technologies**

## Water

Halma recognised many years ago that global economic development, climate change and population increase would inevitably put water resources under pressure. A recent report revealed water shortages in 400 out of China's 668 cities, and even in the USA, Washington State has been declared a drought zone.



**Through its treatment, testing and conservation technologies, Halma helps water utilities worldwide meet rising demand for clean water.**

*Photo: Robert Harding*

To help meet constantly rising international demand for clean water, and also greater regulation of drinking water quality and wastewater discharges, the Group has developed core competencies in water treatment, conservation and testing. Halma's water technology businesses are world leaders in their specialist fields.

Following the acquisition of **Hydreka** and **Wessex**, the Group now offers water utilities a comprehensive range of analysis technologies for conserving water in distribution networks. Water pipe networks can be audited to measure losses, and leaks can be located and pinpointed using unique instruments. In its first year within the Group, **Hydreka** delivered record sales and profits exceeding expectations at acquisition.

The considerable research and development investment that led to **Palmer Environmental's** revolutionary Permalog system for identifying leaking water pipes produced an excellent return in the year under review. An evaluation by water utility Severn Trent showed that leak surveying with Permalog was eight times faster than before and they placed a second order worth over £2 million. Thames Water also trialed Permalog and placed significant orders. Permalog is now being marketed overseas, already producing substantial sales in Spain and Hong Kong.



**Thames Water uses Palmer Environmental's Permalog system to remotely monitor leakage from water pipes.**

New applications for the disinfecting power of ultra-violet light (UV), such as treatment of packaging to extend the shelf life of food, are continually



***This Hanovia UV treatment plant at Bedok, Singapore, disinfects wastewater for reuse in irrigation.***

electronics and pharmaceuticals, need extraordinarily pure water supplies. Pharmaceutical production processes, for example, require ultra-pure water with less than one part per billion of contamination, otherwise yields drop and costs rise. Halma companies have developed UV water treatment systems that meet these exacting requirements.

**Hanovia's** technical pre-eminence in this area was recognised by the grant of a *Queen's Award For Innovation* for its development of SuperTOC<sup>®</sup>. This is a unique technology that removes contaminants from ultra-pure water used in electronics manufacture. This product is now being evaluated in the USA and Canada for removal of industrial pollutants that contaminate drinking water. Both **Aquionics** and **Hanovia** achieved record sales and profits in the past year.



being developed. The Group now supplies this type of UV equipment to the top three American makers of food packing machinery.

Industries operating at the leading edge of applied science, such as

***Hanovia's award-winning SuperTOC<sup>®</sup> technology removes contaminants from water used in electronics manufacturing processes.***

©Corbis Stockmarket



**Through organic growth  
and strategic acquisition**

**Halma dominates the  
global market for  
electronic elevator  
safety products**

## Elevator Electronics

Halma has become the world's leading manufacturer of electronic elevator safety products through a combination of organic growth and strategic acquisition to fill technology gaps or gain market presence.

Today, the Group meets half of the global demand for infrared door sensors and emergency telecommunications networks for elevators.

The Group's principal products in this sector are infrared sensors that stop doors from closing onto passengers, emergency voice communications systems and visual displays. Halma is constantly seeking new ways of applying electronics technology to elevators to make them safer, more secure and more reliable.

The rate of new building construction worldwide is a primary demand driver for elevator safety devices. However, the buoyancy of the commercial property rental market is also very important. This is because owners of high-rise residential and office buildings upgrade facilities like elevators to compete for occupancy and to

maximise rent income. Generally, both new build and refurbishment markets are continuing to grow.

In many countries Group sales continue to benefit from increasing legislation designed to improve public and worker safety. In some markets disability access legislation also drives demand. This is particularly true of the impact of the "Americans with Disabilities Act" on building codes in the USA.

Management reorganisation has further integrated the Group companies operating in the elevator safety sector. This has enabled



**Halma electronic products ensure the safety and security of elevator passengers worldwide.**

©Corbis Stockmarket



**Disability access legislation can require building owners to upgrade elevator equipment.**

©1999 PhotoDisc, Inc

the companies to gain extra benefits from the synergy between their businesses. Mutual benefits are being achieved through co-ordinated selling activity to shared international customers, joint marketing activities, sharing market intelligence and increased inter-company sales. Sales in this sector moved ahead by 22%.

Halma's elevator product companies invested heavily in research and development in the year. The principal focus has been to bring new technology to market and to transform products that are already successful in one market into world-class products with global impact.

**E-Motive** and **Electronic Micro Systems** have used this technique to build new routes to world markets.

**Memco** maintained its position as world leader in elevator door safety systems, achieving record turnover in the past year. A new sales office in Funabashi reinforced the Group's status as market leader in Japan. The growth in high-rise building construction in China, and other parts of Asia, is so rapid that this zone may soon represent 50% of total world elevator sales. A third sales office now established in China should strengthen the Group's dominance in the world's fastest growing elevator market.

*Elevators in the Burj Al Arab Hotel, Dubai, are fitted with Memco door safety systems.*



**Wider application of safety regulations within Europe has continued to drive demand for the Group's safety products**

## Process Safety

Halma companies specialising in process safety are international leaders in the field of industrial safety and security. Group subsidiaries manufacture and distribute engineered products designed to eliminate the risks associated with hazardous machinery or manufacturing processes.

The Group focuses on two core sectors of the industrial safety products market: sequential locking control systems, known as interlocks, and bursting discs. Both of these technologies protect workers from injury, prevent damage to capital plant and safeguard the environment. Halma companies are clear world leaders in sequential locking systems.

Demand in this sector is influenced partly by the growth rate of industrial capital investment, but more significantly from wider adoption of worker safety legislation. **Castell** is the world leader in interlock products for machinery safety. In the past year it benefited from the continuous improvement in health and safety standards, with rising demand from machinery exporters in Southern Europe. The likelihood of more countries joining the EU and having to operate within its regulatory framework should drive European demand for industrial safety systems forward in



**The Group has adapted its pressure relief safety products to match the special needs of the growing biotechnology sector.**

©Image Bank/Jay Freis

the short-to-medium term.

Following the stabilisation of oil prices in the second half, petrochemicals capital spending resumed. This has improved sales opportunities for **Smith Flow Control**, the world leader in valve control safety technology. As international oilfield projects are being brought to the



**Safety control systems supplied by SERV help to safeguard the operation of Spain's new high speed rail network.**

©Milepost 92½

construction stage demand for this company's safety systems is growing.

Last year's market-focused management reorganisation unified the Group's interlock businesses. A co-ordinated bid, centred on **Fortress'** unique modular safety products, helped the Group win significant orders in the USA from Ford at its Dearborn, Michigan, engine design centre. In France, both **H F Sécurité** and **SERV** won large orders for safety control equipment for high-speed TGV railway projects in South Korea and Spain, and tramways in six French cities.

**Oseco** had an excellent year reporting record sales and profits. A new range of patented bursting discs was launched. These are designed to meet growing demand for this type of safe pressure control equipment in the biotechnology and pharmaceutical industries. A new sales office in Singapore is already profitable and enables the Group to sell into the growing South East Asia petrochemicals sector.



***In an emergency, Elfab bursting discs would safely release excessive pressure from these Wessington Cryogenics Ltd gas storage vessels.***

**Halma's ability to exploit the technologies and markets of acquired businesses, coupled with strong organic growth, generated record resistor sales and profits**

## Resistors

Industry needs high power resistors to safely absorb excess electrical power. Power resistors also help maintain a continuous electricity supply even when faults occur in the power distribution network.



**An important application of power resistors is the protection of electricity distribution networks from the potentially damaging effect of power surges.**

*Photo: Telegraph Colour Library*

Halma's position as a leading international supplier of high power resistor systems was reinforced by strong organic growth that produced record sales and profits in the past year. The Group also extended its customer base and enhanced its portfolio of resistor technologies through the acquisition of **Cutler-Hammer** in March 2000. This business, which had facilities in the USA, the UK and Canada, was successfully integrated into the Group's resistor companies in those three countries in the first half of the year.

The key growth drivers in this sector during the past year were: increased competitiveness resulting from further integration of the separate businesses; electricity supply problems in a key market; and the imaginative adaptation of existing technologies to satisfy new customer needs.

An integrated management structure and co-ordinated marketing provides Halma's US, Canadian, UK and Australian resistor businesses with a global presence in this sector that helps develop long-term relationships with multinational customers. Customers benefit from a partnership with a unified business possessing unrivalled international application experience and understanding of materials technology. At the same time, local manufacturing maintains the ability to satisfy unique regional demands.



**Standby power supplies for critical electrical equipment, like this cellular telephone relay station, are a growing market for the Group's power resistor products.**

Rapid changes are occurring in the electric power industry, particularly in America. In California, for example, demand has recently exceeded supply causing power blackouts. The problem stems from escalating power costs combined with deregulation of the energy industry. This power crisis has created new sales opportunities that the Group's resistor companies have been quick to exploit.

Many American businesses can no longer take electric power availability and reliability for granted. This has created rising demand for resistor systems that allow electrical equipment to operate even if power supplies vary in quality. The growing reliance on emergency power generators also creates demand for resistor systems. This trend benefited

**Post Glover** which was very successful at selling equipment designed to safeguard power continuity into the internet and telecommunications sectors.

Because the Group has a broader portfolio of power resistor technologies than any other supplier, it can enter new markets faster and solve new customer needs more effectively than most competitors. Considerable opportunities exist for increasing resistor sector profit from growth in existing markets, materials and technology advances and new applications. Significant global markets such as power generation/transmission and passenger trains will see increased capital investment for the foreseeable future and the Group is well placed to meet the evolving needs of energy utilities and train operators worldwide.



***A Cressall resistor system valued at £1 million was supplied to Rolls-Royce plc in Canada for testing Trent power generation turbines.***

*©Rolls-Royce plc*

***New opportunities for  
co-operative marketing  
and sales growth***

## Optics and Specialist

The Group's **Keeler** business, which has its main operations in the UK and USA, makes and sells instruments for opticians and ophthalmologists. An integrated approach to international sales and marketing combined with effective pooling of technical and sales resources delivered a substantial profit increase in this sector. The USA showed most growth with instrument sales rising by 36%. A combination of advanced new products, sales growth from further integration, and a focus on capital employed should deliver further profit growth.

**Volk** is a world leader in the manufacture of specialist lenses used by ophthalmologists. Last year the company applied its unique lens-making technology to a new series of lenses for the diagnosis and treatment of glaucoma. This is a common eye disorder that can cause blindness. Compared to competitors' plastic lenses, **Volk's** new glass lenses deliver clearer images for diagnosis and greater precision when used in laser treatment.



***Volk's latest lenses help ophthalmologists carry out delicate laser surgery.***  
©Science Photo Library

The sales and profits from the Group's Singapore sales office, which marketed Group products to South East Asia, were redistributed back to its principals as part of a worldwide product group reorganisation completed this year.

**Klaxon** performed strongly and won significant orders for a special type of safety sounder it has developed for fitting on the outside and interior of train carriages. These sounders, which tell blind people when train doors are opening and closing, are a new requirement of disability access legislation in the UK.

The buoyancy of the US life sciences instrumentation



***New from Keeler is the All Pupil II ophthalmoscope used by opticians to examine patients' eyes.***

market provided sales opportunities for **Omnifit** and also for **Bio-Chem Valve** which reported record profits and sales of its miniature, high precision valves. Life science research is a primary growth market for these companies because it demands components of the very highest technical quality and reliability.



***Precision fluid control components made by Bio-Chem Valve are used in the gene sequencing machines used by researchers working on the Human Genome Project.***  
*Photo: Telegraph Colour Library*