Quality wins orders as customers focus on lifetime ownership costs

Fire and Gas

Halma has maintained its role as a world leader in the manufacture of commercial grade fire detectors and portable detectors for hazardous gases.

Workers in confined underground spaces rely on Crowcon detectors for protection against gas hazards.

The global fire detector market is protected from new entrants and rapid technological change, to a degree, by complex local and international standards governing manufacture, installation codes and product certification. However, this is a competitive sector with a small number of multinational players. While effective marketing strategies are essential to sustaining growth in mature business sectors, continuous product innovation is also vital to grow market share and penetrate new application areas.

A primary aim of fire detector R&D is to develop sensors that outperform competitive products in their ability to discriminate between a real fire threat and a benign change in an environment. However, research also continues into technical advances that reduce customers' cost of ownership during the whole life of the product.

A fire protection system based on 900 Apollo fire detectors protects the New World Hotel, Ho Chi Minh City, Vietnam.

One of the Group's newest fire detector technologies has gained rapid acceptance for use in technically sophisticated fire alarm systems. Available with dual fire and smoke sensing capability, Discovery series detectors are being installed in high occupancy, multi-use buildings such as universities, hospitals and hotels.

While sales of fire products in the USA showed some decline, this was offset by buoyant sales elsewhere, particularly in Europe, where the technical requirements to meet product approval standards are

becoming more difficult to achieve. UK sales growth was helped by more stringent safety codes for sports stadia. The fastest growing sales area for infrared wide-area smoke detection equipment was the USA.

Several Halma companies are developing products to improve evacuation of buildings during a fire. Based on original research by scientists at Leeds University, a new product has been developed that could reduce fire deaths. A world first, this new device emits sounds at special frequencies that allow people to tell the direction the sound is coming from. The directional sounders guide people trapped in smoke-laden buildings to the nearest safe exit.

Infrared smoke detectors from Fire Fighting Enterprises safeguard the Great Court of the British Museum in London.

The Group's gas detector businesses are reaping the rewards of encouraging large customers to make buying decisions on lifetime ownership costs, not just on purchase price. This trend greatly benefits Halma companies because they lead competitors in product reliability and service support. As large companies, such as BP, de-man and outsource non-core activities, the Group is winning substantial new business in equipment servicing. Last year's sale of 8,000 instruments to British Gas has been followed by a service contract for 600 units per month.

Greater emphasis on worker health and safety usually follows economic and social development. This trend is changing the global market for personal hazardous gas detectors, with the emergence of a new 'compliance products' segment. Essentially, these are low price, minimum specification products that meet the needs of local employee safety regulations. Four new 'compliance' portable detectors have been introduced to capture new business in this growth sector.

Within the Group's technology portfolio is a unique product that is used to humidify hydrogen gas in fuel cells. Halma has applied for several patents in this area that could prove valuable. These devices are predicted to replace batteries and small-scale power generators during the next decade.

Water scarcity and contamination problems solved with innovative technology

Water

In many parts of the world, water supplies for drinking, manufacturing and agriculture are reaching crisis point. Fresh water reserves are finite, yet demand rises relentlessly due to population growth and economic development. By 2005, there will be 50 cities with populations of over 10 million. In parts of China, Latin America and Southern Asia, ground water is being extracted at an unsustainable rate.

One million litres of water per day for soft drinks production is treated by Hanovia UV systems at the Silver Spring Mineral Water Company, England.

Halma companies operating in the water sector are world leaders in their specialist areas, supplying innovative, advanced technology products that help to conserve, treat and analyse water.

Compounding the supply problem, fresh water reserves are continually being degraded by air pollution, agricultural run-off and contamination from wastewater. Competition for resources, rising water quality expectations and environmental regulation are combining to stimulate demand for better conservation strategies and more effective treatment processes. This creates opportunities for new technological solutions, many coming from Halma companies, that address the problems of water scarcity and contamination.

A Hanovia UV water treatment system disinfects municipal sewage effluent for reuse as agricultural irrigation water in Murcia, Spain.

Singapore is a country with rising demand and limited fresh water resources. In response, the Government is investing heavily in water conservation and infrastructure. An imaginative water-recycling scheme has attracted world attention. Called NEWater, this project has reduced the burden on drinking water supplies by reusing treated sewage effluent in industrial processes. Following a three-year pilot study at a NEWater test site,

the Group has won contracts to supply ultraviolet (UV) water disinfection systems to three new full-scale plants.

In the USA, strict environmental pollution regulations now limit the amount of chlorine disinfectant that can be discharged to rivers from sewage treatment plants. This has stimulated demand for cost-effective, non-chemical effluent disinfection techniques such as UV treatment.

Halma is a world leader in the UV disinfection process and is supplying two large wastewater treatment systems in Cobb County, Georgia, valued at $5 million. As the world's largest UV wastewater facilities treating effluent within enclosed pipework, these US plants represent a major technological advance.

In the developed world, conservation is a vital element in water resource management, and Halma is the world leader in instrumentation that finds leaks in water pipes. A reduced UK market demand for leak location products was compensated by overseas growth, particularly in the US and France. During the past year, the Group has regained its market leadership for leak location products in France and also in most French-speaking territories.

Many well-known American theme parks rely on Palintest testing kits to monitor water quality and hygiene.

The phased worldwide launch of the revolutionary Permalog high-speed leak monitoring system has been successfully completed. UK patents for Permalog were granted in 2002 and international patent applications are pending.

Sales and profits from water analysis products reached new records in the period under review. Growing acceptance among US pool and spa maintenance professionals of the Group's instrument-based water analysis system led to record sales in that territory.

Technically advanced products have reinforced market leadership

Elevator Electronics

Halma has maintained leadership of the elevator safety products sector. The Group remains the principal global manufacturer of electronic elevator door safety controls, emergency communication systems and information display panels. Our market position has been reinforced during the past year with the launch of several innovative products and marketing initiatives.

Memco elevator safety systems aid the swift movement of passengers through Hong Kong International Airport, China.

The Group supplies over half of the worldwide market for elevator safety edges and this delivers many competitive benefits. However, it also means that Halma elevator products companies are sensitive to rapid changes in market conditions.

For the first six months, sales in this sector were ahead of the previous year. However, a market downturn during the second half, particularly in the USA, eliminated the previous gains. Restructuring actions, designed to compensate for the downturn in demand, put a brake on the decline but had not restored profit growth to its former rate by the year end.

Elevators at the Fountain House offices, in the City of London, are equipped with Memco door safety sensors.

Business drivers in this sector are primarily the rate at which new buildings are constructed and old ones refurbished. There is also a continuing trend of public safety legislation being upgraded and tightening of building controls leading to increased demand for the Group's elevator products. EU regulations are moving towards a requirement for all elevators, not just new build, to be fitted with emergency communication equipment.

More than half of Group sales in this sector come from North America. The Greater New York City area is said to account for 20% of the total US market for elevator systems. A combination of the recent

economic decline and the impact of the 11 September terrorism had a severe impact on sales. In the aftermath of 11 September, a surge in demand for refurbished office space was anticipated. In the event, demand for offices in New York by displaced businesses was offset by cutbacks and closures which created a large reservoir of unlet space.

Despite the overall downturn in this sector, several territories showed very promising growth. The Group's third sales office established in China last year has quickly proved successful. Halma is now the market leader in elevator door detectors in Brazil, the South American centre of elevator manufacture. Significant reductions in manufacturing costs have been achieved by relocating a large proportion of European production to the Czech Republic. In Europe, the Group is now marketing its motor control power resistors to elevator manufacturers through its established elevator businesses.

The Al Faisaliah hotel and office complex in Riyadh, Saudi Arabia, where E-Motive LCD information displays are fitted in the elevators.

Sales of electronic displays, which the Group manufactures in Singapore, rose significantly, particularly in Europe and the US. A significant installation was the Al Faisaliah building in Saudi Arabia, where the Group won a £100,000 contract for displays and electronic elevator monitoring systems. All passenger elevators in this 267 metre tower are fitted with electronic displays that show the location, direction of travel, floor number, and the outside temperature, date and time.

The ageing of the global population is a long-term trend that should create extra demand in the elevator sector. Despite population expansion, the United Nations predicts that the elderly will grow in proportion to outnumber the youth by 2050. The rate of population ageing in the developed countries is most rapid. As a result, Halma companies have targeted the emerging market for safety products in luxury private residence elevators as a new sales opportunity.

Profit growth from workplace safety products

Process Safety

Halma is a world leader in specialist areas of industrial safety that protect workers from hazardous machinery, and protect process plant and the environment from catastrophic explosions.

Expenditure on industrial health and safety divides into regulatory costs, which are essential for an organisation to operate within the law, and discretionary spending. The latter provides better plant protection and employee safeguards for humane or environmental reasons. Because safety performance can affect recruitment, retention, productivity and morale, manufacturers are increasingly making a connection between safety and profitability. This can lead to higher discretionary safety spending on top of the rising spend required to satisfy legislation, with the Group benefiting from both.

Halma process safety systems protect workers and plant in every industrialised country in the world.

The Group's interlocking products are an ingeniously simple way of protecting people at work from the risk of injury. These systems are designed to be foolproof and protect workers even if they are negligent of their own safety. The interlock businesses delivered good profit growth during the past year.

In the past, commitment to worker safety has often been higher among European manufacturers than their counterparts in the USA. There are strong signs that safety is becoming a more important issue to US manufacturing industries with increased acceptance of the Group's well established and proven safety technologies.

Despite the poor profitability of the global automotive industry, this sector continues to invest heavily in new production facilities and offers growing sales opportunities. Halma companies have developed safety products ideally suited to controlling access to car production lines. These products have now gained worldwide acceptance by the auto industry, including the Ford Motor Company and its principal suppliers.

On the back of strengthening oil prices, increased capital spending in the petrochemical sector pushed up demand for the Group's valve control safety systems. Significant contracts have been won recently in Kazakhstan and Colombia.

Sales of explosion-prevention bursting discs by the Group's UK and US businesses were depressed by a global slump in capital spending by the chemical processing industry. Our reaction to this downturn has been restructuring to reduce the cost base together with changes to the sales operation that have improved customer service and extended market penetration.

OSECO's new sanitary quality pressure control products have been rapidly accepted by the pharmaceutical industry.

Several new products were developed in this sector. The most significant is a unique bursting disc that will replace several existing products. Features of its design and production method have been patented. Special products optimised for process safety in pharmaceutical manufacture have gained rapid acceptance by the market and attracted new customers. In the UK, expansion of customer support services has opened up new sales opportunities in offshore oil and marine applications.

Smith Flow Control valve safety systems help eliminate human error in the operation of Shell Expro's Delta oil platform in the North Sea.

In response to continuing globalisation of the customer base, worldwide sales and marketing by the Group's bursting disc companies has become more unified. A sharper focus on customer service has resulted in faster order-to-delivery times and even greater competitiveness.

Successful entry into new markets

Resistors

The Group's six resistor businesses are world leaders in heavy-duty electrical resistor technology. Throughout the world, power utilities rely on Halma resistor systems to safeguard their electricity generation and distribution infrastructure. Our resistors are also widely used to control powerful electric motors and for speed control on trains.

Control of the heavy electric motors that power overhead cranes is a major market for the Group's resistor products.

Operating from the USA, Canada, the UK and Australia, Halma's resistor companies market cooperatively worldwide, sharing technology, R&D advances, application experience and market intelligence.

In the period under review, the principal resistor markets, power distribution and locomotive braking, were significantly depressed. This was especially evident in the USA, where Halma has a high market share in both sectors. To offset the downturn in demand from existing customers, the Group responded by a sharp reduction in the overhead cost base and an aggressive entry into new markets. After restructuring, costs have been cut by 12%.

Cressall filter resistors improve power transmission efficiency at the Willington Power Station, England.

One of the most interesting new markets for the Group's resistor technology is the elevator industry. Resistors safely control elevator speed by absorbing excess power generated by the winding motors. Because this application is safety critical, and requires products of exceptional reliability and longevity, it is a natural market for the Group to enter. Working with the Group's elevator electronics companies, the resistor businesses are now selling to the large elevator manufacturers in North America and Europe. In the USA, Halma is now the principal supplier of resistors to Otis Elevators.

A technology bought into the Group by the Cutler-Hammer acquisition in 2000 has significantly contributed to growth in sales of resistors for

locomotive and mining truck applications. Since joining the Group, the transit resistor part of the acquired business has been re-engineered with a new emphasis on product quality and customer service. As a result, two major transit customers have awarded the Group approved supplier status. Braking resistors with a contract value of approximately £1.7 million are being supplied to Mitsubishi Electric for the Long Island Rail Road in New York State, USA.

In May 2001 the Group extended its technology portfolio with the acquisition of Schneider Canada's earth-fault relay business. These devices monitor industrial power systems and protect them from damage in the event of an electrical surge.

Halma companies already market allied products called earth-fault resistors, and there is great synergy between the two technologies. The Group can now provide customers with an integrated approach to detecting, locating and preventing the kind of major electrical failures that, unchecked, could bring a factory's production to a standstill.

In the UK, the National Grid Company specifies Cressall resistors to protect electrical power distribution equipment.

Continuous technical innovation stimulates demand for optical products

Optics and Specialist

The Group's activities in the Optics and Specialist sector principally cover the manufacture of magnification and diagnostic products for professionals in the optical and healthcare industries. However, the Group also has several highly successful specialist businesses that make sensors, analytical products and cash management systems.

Halma continues to develop new products that give healthcare professionals a greater insight into eye disorders.

Halma is a world leader in high precision optical instruments used by opticians around the world to diagnose and treat eye conditions. The past year saw the launch of a much improved and enhanced version of the Group's flagship product in this market, the Pulsair Tonometer. This is a hand-held instrument that lets opticians measure the pressure inside a patient's eyes without any physical contact. Regular upgrades have maintained this instrument's market leadership in many countries. The latest improvements in portability and usability have helped to increase US sales despite a difficult economic climate.

The Group also has an international reputation as the premier designer and manufacturer of precision lenses for the investigation of eye disorders and laser surgery. Worldwide, the ophthalmic market showed little growth in the past year. Lens sales were down in the USA, but higher export sales compensated. Latest innovations include new lenses for surgery on the retina and inside the eye cavity; their revolutionary optical design provides surgeons with greatly improved visibility while allowing easier access to surgical tools.

Volk is a world leader in the specialist lenses needed to diagnose and treat ocular disease.

Halma's business that formerly specialised in retail security products has now undergone a comprehensive transition to focus on cash management and cash handling systems. A new range of cash counting scales for use with the Euro helped to double sales in Europe.

The Group has been working with several large UK retailers to develop techniques that cut the considerable costs involved in handling and banking cash.

Recent European legislation governing the crash testing of new cars means that it is now necessary to measure impact forces very accurately. The Group is now one of the leading designers and manufacturers of the special sensor arrays needed for vehicle crash testing. Halma has supplied systems to several car makers as well as testing and certification organisations such as the Transport Research Laboratory in the UK and UTAC in France.

Keeler's new Pulsair Tonometer is a simple way of measuring pressure inside the eye, an important factor in the diagnosis of glaucoma.

The Group is one of only a handful of manufacturers of very high specification miniature valves used for precise control of liquid and gas flow in scientific instruments. An interesting new application is in portable biohazard instruments. These have been developed in America to rapidly detect disease organisms released into the environment by terrorists or sent in the mail. Heightened global concern over bio-terrorism could prompt rapid growth in this market and create significant opportunities for sales of our specialist valves.