Materials Analysis provides a wide range of analytical instrumentation to the metals and mining, pharmaceutical and life sciences, and semiconductor and electronics industries.

Highlights

- Good demand from academic research markets
- Government stimulus packages benefit infrastructure development projects
- Some recovery in semiconductors and electronics in Q4

£248.1m
Sales

£31.9m
Operating profit

Overview

Materials Analysis provides a wide range of analytical instrumentation to the metals and mining, pharmaceutical and life sciences, and semiconductor and electronics industries. Our products help customers to improve accuracy and speed of materials analysis in the laboratory and in process manufacturing applications. The operating companies in this segment are Malvern Instruments, PANalytical and Particle Measuring Systems.

Market drivers

In addition to the need to improve process manufacturing productivity, a key factor in the demand for this segment's products is the requirement for certification to comply with regulation, for example for quality control in the manufacture of drugs in the pharmaceutical industry and detection of materials such as lead and cadmium to meet legislation on the use of hazardous substances. Another driver for materials analysis instrumentation is the growth in new molecular and nano-material sciences, where our equipment is used to analyse and characterise materials and structures in the development of new products.

Segment performance

Sales in Materials Analysis, at £248.1 million, were 2% lower than in the prior year (down 11% at constant currencies). Operating profit declined by £5.6 million to £31.9 million. Operating margins declined from 14.8% to 12.9%. Around half of the decline in operating margins relates to the effects of foreign exchange and the remainder relates to the cost of restructuring.

Key market demand in this segment in 2009 came from the academic sector and from global infrastructure projects. Sales to academic research institutions were strong, partially offsetting weaker demand from industrial customers. Furthermore, government economic stimulus packages in a number of countries, notably China and India, to support infrastructure projects provided demand for equipment from Malvern and PANalytical in construction-related sectors such as cement, steel and asphalt for roads.

Requirements to improve food and drug quality and safety, particularly in China, provided good opportunities for PANalytical, whilst Particle Measuring Systems is also experiencing growing interest in its contamination monitoring solutions from food and pharmaceutical companies.

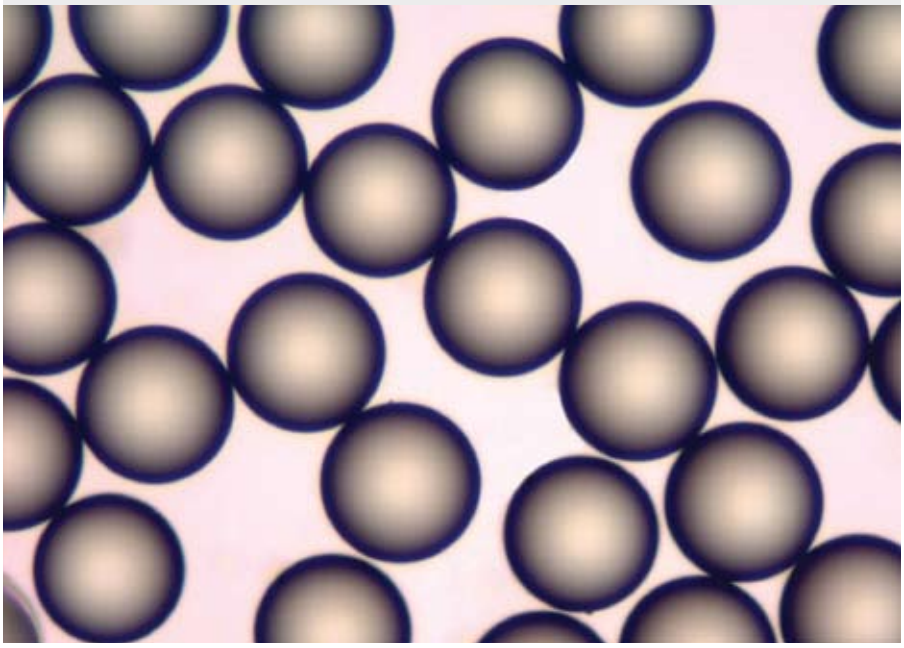
This segment has a strategic focus on the pharmaceutical sector. In October, Malvern signed a collaboration agreement with Kaiser Optical Systems, based in North America, a leading supplier of Raman analysers and components for spectroscopy. Malvern will integrate Kaiser's analysers and probes into its Morphologi platform, with the initial focus on pharmaceutical, life sciences and forensic applications. Particle Measuring Systems saw good demand from vaccine manufacturers, who are increasing capacity to address the growing global demand for immunisation, and their investment in a direct sales channel in China is proving successful, with a number of pharmaceutical facility monitoring systems installed during the year. In the second half of the year, the company acquired the business of MicroSafe, whose microbial air sampling products it had previously distributed, from an Italian subsidiary of 3M. The MicroSafe suite of

CASE STUDY
MO-SCI CORPORATION

World leader in precision glass technology Mo-Sci Corporation produces billions of unique glass beads every day. The beads are incorporated into blood group typing cards, used for determining a patient's blood type, with each card featuring almost half a million beads. The company has installed Malvern's Morphologi G3 image analysis system to characterise the size, shape and general morphology of these precision beads. With the measurements taking only a few minutes to make yet producing a large amount of information, the system is now an essential tool at Mo-Sci.

"Previously, it could take three operators four days to look at the beads on a single card. The Morphologi G3 can accurately measure all the beads on a card in around 15 minutes, and that includes setting up the sample."

Ted Day, President, Mo-Sci Corporation



NEW PRODUCT
AIRTRACE

The AirTrace Environmental Air Sampler is one of the products Particle Measuring Systems acquired with the MicroSafe business. This state-of-the-art microbial air sampler is used in pharmaceutical cleanroom monitoring for detecting micro-organisms and for micro-biological monitoring of surgical suites or operating rooms. Analysis of the data leads to understanding exactly when the contamination occurred during sampling.

microbial detection and monitoring products complements the existing particulate measurement systems for the pharmaceutical market and the combined product portfolio will enable the full capabilities for use in sterile manufacturing environments to be provided by a single supplier. In November, Particle Measuring Systems opened a new business and technology centre in Tokyo, Japan, consolidating its sales and service capability to provide direct sales and support in the country.

After a weak first half, semiconductor and electronics markets began to see some recovery towards the end of the year, driven by demand from the consumer electronics industry. Growing demand for LED technology benefited PANalytical and the company received a number of orders for its X-ray systems for LED applications from China and South Korea.

Outlook

We expect to see a gradual recovery in some of the industrial markets during 2010. We believe that the pharmaceutical sector will continue to provide good opportunities, particularly in life sciences, driven by research and development applications and increasingly stringent requirements for product quality in manufacturing processes. The outlook for the semiconductor market remains challenging, with further industry consolidation expected.

Test and Measurement supplies test, measurement and analysis equipment and software for product design optimisation and manufacturing control, principally to the aerospace, automotive and consumer electronics industries.

Highlights

- Dramatic cut in spending by automotive customers throughout the year
- Good demand from aerospace market, especially for satellite testing
- Operating profit impacted by volume and restructuring costs
- Acquisition of Lochard brings leadership in environmental monitoring

£267.1m
Sales

£1.4m
Operating profit

Overview

Test and Measurement supplies test, measurement and analysis equipment and software for product design optimisation and manufacturing control, principally to the aerospace, automotive and consumer electronics industries. For customers in the automotive and aerospace industries, our products and applications help them to design and test new products whilst reducing time to market. In consumer electronics, our equipment and software enable customers to refine the performance and accuracy of their products. Further applications are in the environmental monitoring market, where the desire for higher standards of community comfort drives increasing demand. The operating companies in this segment are Brüel & Kjær Sound & Vibration and HBM.

Market drivers

Product testing and quality control are the principal drivers of demand in the test and measurement sector. Prototype testing is a costly, but unavoidable, stage in the development of many consumer durable products. R&D engineers must ensure not only that consumer requirements are met within shorter development cycle times, but also compliance with ever-increasing environmental, safety and efficiency targets. In addition to product development, increasing regulation on noise levels (for example the EU directives on noise regulation for airports, cities and workplaces) is also driving demand for our test and measurement applications.

Segment performance

Sales in Test and Measurement increased by 5% (organic decline of 22% at constant currencies) to £267.1 million, with the recent acquisitions contributing £42.0 million in sales. The decline in the automotive industry was the principal driver behind the decrease in organic revenue. As a result of the lower sales and the fact that a significant portion of the restructuring and post-acquisition integration activities were incurred in this segment (£9.7 million), as sales channels and facilities were consolidated, operating profit was down by 95% to £1.4 million. Operating margins were 0.5% compared with 11.7% in the prior year period. Around half of the decline in operating margins relates to the dramatic reduction in volume, with the majority of the remainder attributable to the cost of the restructuring and post-acquisition integration activities referred to above.

Demand from the automotive industry declined during 2009, as customers cancelled or delayed spending on research and development projects. Nevertheless, activity was more resilient from automotive manufacturers in emerging markets, for example India and China, and from companies developing hybrid vehicles. Both the LAN-XI hardware platform and the new PULSE Reflex noise analysis post-processing software generated significant interest among automotive and aerospace customers alike, with a number of orders received for the combined system. Following the success of HBM's QuantumX system, launched with BMW in 2008, this system has now attracted significant interest from other vehicle manufacturers and also from customers involved in railway infrastructure services as well as the marine, aerospace and electrical test markets. Demand also continued to grow for Brüel & Kjær's Noise Vibration Harshness Simulator, with orders from Ford and Nissan. Ford is the first vehicle manufacturer in North America to use the simulator for vehicle design optimisation and considers it to be a key technology which helps the company to keep its innovative edge in vehicle development.

CASE STUDY
EUROPEAN SPACE AGENCY

The space industry has probably the most demanding requirements for vibration testing in the world. The huge stresses involved in launching a satellite from a rocket mean rigorous testing must be carried out on the ground beforehand. The European Space Research and Technology Centre, part of the European Space Agency, has installed an LDS quad shaker system for vibration testing. The system was used to test Herschel, the largest space telescope of its kind. Launched in May, Herschel is studying the chemical composition of the atmosphere around celestial bodies and is already sending back exciting images.

"The new facility will save time in the critical path of the mechanical test campaign and, therefore, will reduce the testing price for our programme."

Alexandre Popovitch, Head of Test Facilities and Test Methods, European Space Research and Technology Centre

In the aerospace industry, the LDS vibration test systems business saw good demand for satellite applications. These powerful shakers are designed for the most demanding vibration testing and are built for testing large payloads such as satellites and aerospace assemblies with masses of several tonnes.

Demand for our environmental noise monitoring services, which include the recently-acquired Lochard airport noise monitoring systems, was robust, with a number of orders secured from airports around the world. In July, Los Angeles World Airports launched a new online flight tracking and aircraft noise monitoring system using Lochard's WebTrak software, which allows them to manage better relations with their neighbouring communities. In November, Brüel & Kjær extended the airport noise monitoring concept to urban noise applications with the release of a newly-developed system, Sentinel, aimed at businesses which need to conform to local community noise directives.

Outlook

2009 was a year of consolidation and integration of the acquisitions in this segment. With the restructuring now substantially complete, we will see the benefits of this during 2010. Although we remain cautious about the prospects for the automotive industry, we do expect to see some recovery in spending on research and development in this market. The market for urban and airport noise monitoring is expected to continue to grow.

CASE STUDY
BERNINA AND GLACIER EXPRESS

HBM's data acquisition system, QuantumX, is used by TÜV SÜD Rail on the Rhaetian Railway – operator of the Bernina and Glacier Express in Switzerland – to carry out stress tests on the transporter wagons which carry vehicles through the 20km long Vereina tunnel at an altitude of over 1000m. The tests are designed to measure the train under various loading conditions to ensure the safety of the transported passengers and vehicles. These tests are only now possible because the QuantumX modules are small enough to be installed under the flat car transporter at various locations, with measurement data transmitted to the control compartment at the end of the train.

In-line Instrumentation provides process analytical measurement, asset monitoring and on-line controls for both primary processing and the converting industries.

Highlights

- Service and consumables prove resilient
- Infrastructure development projects in China, India and emerging regions continue to drive demand
- Good demand from power and alternative energy projects
- Pulp and paper performance robust due to growth in tissue applications

£227.5m
Sales

£41.5m
Operating profit

Overview

In-line Instrumentation provides process analytical measurement, asset monitoring and on-line controls for both primary processing and the converting industries. Our products and applications provide precision measurement in challenging operating environments, ensuring process quality, asset uptime, safety, and improved yield. The operating companies in this segment are Beta LaserMike, Brüel & Kjær Vibro, BTG Group, Fusion UV Systems, NDC Infrared Engineering, and Servomex.

Market drivers

The growing requirement to improve process manufacturing productivity and drive down costs in an increasingly competitive global environment has led to greater demand for process instrumentation. End-user markets are facilities with critical plant assets such as paper mills and converting plants where downtime and lost production are costly. Environmental issues are also key drivers for process instrumentation in these industries. The oil and gas industry continues to focus on enhancing productivity and is seeing growing demand from the industrialising economies. Increasing power costs have led energy-intensive industries such as pulp and paper to install new instrumentation as they seek production efficiencies. Investment in infrastructure is also driving demand for process control solutions worldwide. The growth in demand for renewable resources, for example alternative energy sources such as hydro-electric and wind power, as well as the need to meet regulations on reducing emissions, has led to an increase in demand for process control solutions. Safety is also a priority in these industries, where it is a requirement to monitor emissions and other harmful substances in order to comply with increased health and safety regulation.

Segment performance

Sales in In-line Instrumentation declined by 2% (decline of 13% at constant currencies) to £227.5 million. Operating profit decreased by 3% to £41.5 million and, at 18.2%, operating margins remained in line with the prior year (2008: 18.3%). The high content of service and consumables in this segment resulted in margins being largely unaffected.

Orders were weak from original equipment manufacturers. However, sales of service, spare parts and consumables, which are a key feature of this segment, were more resilient compared with sales of new products and systems, as customers focused on maintaining existing facilities.

The pulp and paper industry experienced some capacity closures and widespread temporary production curtailments, particularly in Europe, as paper producers de-stocked in response to reduced demand. Nevertheless, sales of BTG's high performance creping blades to tissue manufacturers grew throughout the year.

CASE STUDY
DUNMORE CORPORATION

Fusion's UV curing equipment has improved reliability and reduced maintenance costs for Dunmore Corporation, a global manufacturer of metallised, coated, and laminated films for a wide variety of applications. Dunmore replaced its arc lamp system with an automated UV system, which takes up around half the space, simplifies the operator's job, and requires less frequent maintenance.

"Fusion's UV system has significantly improved the reliability of our production process and as the equipment requires less maintenance than our previous system, we have also reduced our operating costs."

Paul Sullivan, Director of Engineering, Dunmore Corporation

NEW PRODUCT
DUROBLADE-VELVET

BTG's new creping blade, Duroblade-Velvet, has been specifically designed for tissue manufacturers. Its plasma-sprayed engineered ceramic tip produces a softer and bulkier tissue and has a longer operation time than other ceramic blades, due to its resistance to surface damage. This results in fewer blade changes and, consequently, an increase in daily tissue production.

BTG launched a number of new products designed to help paper manufacturers reduce their costs and improve paper properties, including a range of optical sensors for measuring pulp consistency and a new high performance creping blade which improves machine uptime whilst enhancing tissue quality.

In the energy, refining and utilities sector, customer investment provided good demand for both Brüel & Kjær Vibro and Servomex. Within the gas-based process industries, customer requirements are for higher reliability of equipment and reduced maintenance, and Servomex launched a number of new products during the year which meet this demand and also provide improved measurement accuracy and lower cost of ownership. In July, the company secured its first order to supply the award-winning Servotough Oxy oxygen analysers to China. In September, Servomex launched the Servotough Laser analyser, the first product to benefit from the strategic partnership with Norsk Elektro Optikk (NEO). The result is an analyser that combines NEO's precision technologies within a rugged Servomex design, suitable for a wide range of emissions control and process and combustion control applications.

18.2%
Operating margins

Demand for Brüel & Kjær Vibro's remote monitoring systems and safety systems in the power market led to a number of orders for its solutions and its Compass 6000 predictive monitoring system was installed in a number of large oil and gas plants. The market for renewable energy also grew strongly, with the company receiving significant orders for large wind farms and in December Brüel & Kjær Vibro entered into an agreement with Suzlon, one of the world's largest wind turbine manufacturers, to supply remote condition monitoring solutions for their range of wind turbines.

Increasing interest in hybrid vehicles resulted in a number of orders for NDC for battery manufacturing applications and new developments in LCD and solar cell technology brought orders for both NDC's measurement systems and Fusion's UV curing systems. In addition, a number of developments within the display market have led to increased demand for UV curing systems, in particular for the manufacture of LCDs used in items such as televisions, e-book readers and satellite navigation systems.

In the converting industry, increased demand for packaged food products benefited NDC, with the company seeing strong orders from food manufacturers for its sensors. A new blown film system was launched for measuring and controlling the multi-layer barrier films used in complex food packaging. Beta LaserMike's LaserSpeed product continued to perform well and demand for products to measure metals and cable remained strong as the Chinese economy continued to expand. The LaserSpeed's greater accuracy of measurement compared with conventional methods achieves material savings of 1–2%, often resulting in payback periods of just a few weeks. Beta LaserMike also launched the Centerscan non-contact eccentricity gauge for wire and cable applications. During the year, Fusion received its first order for the commercial UV coating of steel. This new application enables rolls of steel to be produced with special coating qualities, for example stainless steel coatings with anti-fingerprint properties which are particularly suitable for the domestic appliance market.

In the healthcare market, Beta LaserMike secured a number of important orders for its Ultrascan product for medical tubing applications. These applications require measuring wall thicknesses around one-half the width of a human hair. Also in the healthcare market, Servomex launched the Paracube Micro oxygen sensor. This is the latest addition to Servomex's portfolio of innovative gas sensors and provides oxygen analysis for critical care ventilators, anatomical anaesthesia, patient monitoring and other life-critical healthcare applications.

CASE STUDY
LA SEDA DE BARCELONA

Servomex is designing and supplying a complete gas monitoring system for a new PTA (Pure Terephthalic Acid) plant being built in Portugal by Artenius, a subsidiary of chemical company La Seda de Barcelona. The plant is expected to open in 2010 and will produce 700,000 tonnes a year of PTA – a primary material used in the manufacture of plastic packaging. Servomex will supply seven photometric process gas analysers and seven process oxygen analysers, providing an accurate and reliable solution for monitoring of PTA processes and ensuring rigorous safety procedures are met.

"The new system will help limit our environmental impact and deliver an important cost reduction in building additional infrastructure for the new plant."

Rafael Español, President, La Seda de Barcelona

NEW APPLICATION
BATTERY COATINGS AND FILM

High density, rechargeable lithium batteries are everywhere in daily life, from flashlights to mobile phones and laptops, and also in vehicles ranging from electric bicycles to cars and buses. These advanced battery technologies require specialised coating and film processes to maintain performance and quality. NDC's sensors are used by manufacturers of lithium batteries to provide precise measurement and control of the coatings for anodes and cathodes, and of the micro-porous film that insulates these electrodes when assembled into a battery cell.

Government-funded infrastructure development in China and India led to robust demand for optical fibre and related cable products for the telecommunications industry, driven by 3G technology and fibre to the home, which benefited Fusion and Beta LaserMike. Beta LaserMike's systems are used in optical fibre production to measure the fibre to an accuracy of 0.2 microns, taking 2,500 measurements per second, and the company also provides a laser-based flaw detector.

Outlook

Market conditions are improving in some of this segment's end markets. Demand in the upstream energy and hydrocarbon processing markets should remain in line with that experienced in 2009. A sustained recovery in pulp and paper and other converting industries will depend on a broader recovery in consumer demand for their end products. We anticipate that service, spare parts and consumables will continue to provide a resilient revenue base for this segment.

Industrial Controls supplies automation and control products for the discrete manufacturing industries.

Highlights

- Weakness in general manufacturing and electronics sectors, improving in Q4
- Emerging markets continue to provide good opportunities
- New broader range of track, trace and control products launched
- Strong performance from Red Lion with key account wins

£44.6m
Sales

£4.4m
Operating profit

Overview

Industrial Controls supplies automation and control products for the discrete manufacturing industries. Our products provide identification and tracking solutions during the manufacturing process, displays for process monitoring and control, and data interfaces for a broad range of manufacturing industries. Sales are made indirectly to end users via distributors as well as directly to original equipment manufacturers, with a significant proportion of repeat business. The operating companies in this segment are Microscan and Red Lion Controls.

Market drivers

Manufacturing automation is growing in importance as customers compete in an increasingly global environment where improving efficiency and reducing unit costs are key to survival. Another significant factor driving automation and control equipment is the demand for increased operational data regarding product manufacture, and the need to improve processes to reduce rework and scrap, for example by tracking products through the manufacturing process and beyond so that they can be traced in the event of a product recall. In some industries, such as the aerospace and pharmaceutical industries, product tracking by means of barcodes is a regulatory requirement.

Segment performance

Sales in Industrial Controls decreased by 2% to £44.6 million (down 16% at constant currencies). Operating profit was down from £8.4 million to £4.4 million. Operating margins were 9.9% compared with 18.4% in 2008. Around one-third of the reduction in operating margins relates to the organic volume decline, with the remainder attributable to the effects of foreign exchange and the costs for restructuring and post-acquisition integration activities.

Although the electronics and general manufacturing sectors started the year with weak conditions, capacity utilisation began to improve towards the end of the year. Microscan completed the integration of the Siemens Machine Vision Business (SMVB) acquired in 2008. The vision products acquired have brought world-class decoding algorithms, vision knowledge and protected intellectual property to Microscan and enabled the company to secure a number of large projects in markets which were not previously accessible. During the year, the company launched eleven new products, the majority of which were developed following the acquisition of SMVB, expanding its portfolio of solutions for the electronics, pharmaceutical packaging, life sciences, and automotive industries. These included the Visionscape GigE product, launched in the first half, which was well received, particularly in Asia where there is a growing trend and acceptance of track, trace and control solutions in the electronics manufacturing sector. Microscan also re-launched the NerLITE machine lighting business, which was part of SMVB. This comprises a range of coloured lights and focal configurations which help to illuminate images or barcode surfaces in conditions which are difficult to read,

NEW PRODUCT
MOBILE HAWK

The new Mobile Hawk hand-held imager expands Microscan's speciality product line of imagers and verifiers focused on challenging direct part mark applications. Developed following the acquisition of the Siemens Machine Vision Business, the product combines proprietary Microscan lighting and algorithm technologies in a plug-and-play mobile imager that is easy to use and extremely reliable for low-contrast applications.

for example direct part marks on low contrast, curved surface or dirty parts. These accessories are critical for a number of industrial applications, and Microscan is one of the few suppliers able to offer lighting together with its vision-based products.

Although activity in the industrial controls and machine building markets remained depressed in China in the first half, the market returned to growth in the second half and Red Lion Controls secured a number of important orders. Growth was also good in India, with sales in the second half of the year more than doubling compared with the second half of 2008. Sales via catalogue channels were much more resilient throughout the downturn. Red Lion's interface products performed well, with increasing success in marine, offshore and oil and gas markets. The marine industry is now adopting Human Machine Interfaces (HMIs) to replace the buttons and dials that still make up the typical control panel and with multiple sub-systems that need to be both monitored and controlled, the ability to communicate with many devices is a valuable differentiator for Red Lion's products.

Outlook

The second half of the year saw a slight recovery in demand from the general manufacturing sector, which we expect to continue. We anticipate that our portfolio of track, trace and control solutions will continue to find opportunities across a number of industrial controls sectors.

NEW PRODUCT
PAX2A

The new PAX2A panel meter from Red Lion features a variable intensity, dual line, dual colour display and a universal input to handle various signals including process, voltage, current and temperature. The meter is suitable for a wide range of industrial applications.