Press Release

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2018 FULL YEAR RESULTS

19 February 2019 - Spectris plc (SXS: LSE), the productivity-enhancing instrumentation and controls company, announces full year results for the twelve months ended 31 December 2018.

	2018	2017	Change	Like-for-like change[1]
Adjusted[1]				
Sales (£m)	**1,604.2**	1,525.6	5%	5%
Operating profit (£m)	**248.3**	239.3	4%	7%
Operating margin (%)	**15.5%**	15.7%	(0.2pp)	0.3pp
Profit before tax (£m)	**241.4**	234.2	3%	
Earnings per share (pence)	**164.9p**	154.6p	7%	
Operating cash flow conversion (%)	**59%**	77%	(18pp)	
Operating profit after Project Uplift costs of £10.8m (2017: £15.8m)	**237.5**	223.5	6%	
Statutory				
Sales (£m)	**1,604.2**	1,525.6	5%	
Operating profit (£m)	**176.4**	182.4	(3%)	
Operating margin (%)	**11.0%**	12.0%	(1.0pp)	
Profit before tax[2] (£m)	**218.0**	278.4	(22%)	
Basic earnings per share (pence)	**157.6p**	197.0p	(20%)	
Dividend per share (pence)	**61.0p**	56.5p	8%	

Adjusted performance measures: For 2018, and presented on a comparable basis for 2017, restructuring costs of £15.6 million (2017: £15.8 million) including £10.8 million relating to Project Uplift and £4.8 million relating to the new profit improvement programme, have been excluded from adjusted measures. Adjusted profit before tax, adjusted earnings per share and adjusted operating cash flow conversion previously reported in 2017 were £218.4 million, 145.1p and 75%, respectively (2018 on a comparable basis would be £230.6 million, 158.1p and 58%, respectively).

1 Alternative performance measures ('APMs') are used consistently throughout this press release and are referred to as 'adjusted' or 'like-for-like' ('LFL'). These are defined in full and reconciled to the reported statutory measures in Note 2 to the Financial Statements.

2 The main adjusting items to statutory profit before tax in 2018 and 2017 were profits on disposal of businesses of £56.3 million and £100.5 million, respectively, increasing basic earnings per share by 47.9 pence and 84.3 pence, respectively.

Highlights

- Sales of £1,604.2 million, reflecting a 5% LFL sales increase, building on the progress made in 2017
- Adjusted operating profit of £248.3 million, adjusted operating margin up 0.3pp on a LFL basis
- Adjusted earnings per share up 7%, dividend per share increase of 8%
- New profit improvement programme is anticipated to deliver annualised benefits of more than £30 million, of which £15-20 million is expected to be realised during 2019
- Strategic review initial conclusions presented:
  - Group would benefit from becoming a more focused and simplified business
  - Assessing which operating companies can drive the greater shareholder value:
    - Scalable, in attractive high growth markets, with strongest capabilities and greatest performance potential
    - Identified three platform businesses so far - Malvern Panalytical, HBK, Omega equating to more than 60% of Group sales and adjusted operating profit

Commenting on the results, Andrew Heath, Chief Executive, said: *"*I am pleased that our performance in 2018 was slightly ahead of expectations, reflecting the quality of our businesses. We were able to build on the increased momentum across our end markets and delivered good LFL sales growth. We expect sales growth to moderate in 2019, given the more cautious macroeconomic outlook. Consequently, we are focusing on what we can control; increasing productivity and operational efficiency, while driving sales. Our profit improvement programme is expected to deliver benefits of £15-20 million during 2019, helping drive margin expansion. With this focus on improving profitability, we anticipate operating profit to grow ahead of sales, growing our margin in the process.

Since I joined the Group last Autumn, we have taken decisive action to improve Spectris' performance. This will continue through 2019 as we complete the strategic review and execute our strategy for profitable growth, as the basis for delivering a significant and sustainable increase in shareholder value.

I am convinced that there is significant value creation opportunity here for our customers, shareholders and people. I look forward to setting out in more detail the results of the review and our vision for the Group at our Capital Markets Day in June 2019.*"*

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A meeting with analysts will be held at 8:30am GMT today at the offices of FTI Consulting. This will be available as a live webcast on the company's website at www.spectris.com and a recording will be posted on the website after the meeting.

Copies of this press release are available to the public from the registered office at Heritage House, Church Road, Egham, Surrey TW20 9QD and on the company's website at www.spectris.com.

About Spectris

Spectris plc is a leading supplier of productivity-enhancing instrumentation and controls. The Company's products, technologies and services help customers to improve product quality and performance, improve core manufacturing processes, reduce downtime and wastage and reduce time to market. Its global customer base spans a diverse range of end-user markets. Spectris operates across four business segments which reflect the applications and industries it serves: Materials Analysis, Test and Measurement, In-line Instrumentation and Industrial Controls. Headquartered in Egham, Surrey, United Kingdom, the Company employs approximately 10,000 people located in more than 30 countries. For more information, visit www.spectris.com.

2018 results overview

In 2018, we delivered good organic sales growth, building on the progress made in 2017. Sales for the year increased by 5% to £1,604.2 million (2017: £1,525.6 million), reflecting a 5% increase on an organic, constant currency (like-for-like, 'LFL') basis, helped by a supportive macroeconomic environment in a number of geographies and a strong demand backdrop in many of our key end markets. Acquisitions, net of disposals, contributed 2% to sales growth, which was offset by a 2% negative impact from foreign currency exchange movements.

Adjusted operating profit increased by 4% to £248.3 million (2017: £239.3 million), which reflected a LFL increase of 7%. Adjusted operating margin improved 0.3pp on a LFL basis to 15.5% as overheads received greater focus in the second half.

	LFL sales change		
Sales by segment	**H1**	**H2**	**FY**
Materials Analysis	11%	6%	8%
Test and Measurement	6%	6%	6%
In-line Instrumentation	(3%)	5%	1%
Industrial Controls	4%	1%	3%
Group	**5%**	**5%**	**5%**

	LFL sales change		
Sales by destination	**H1**	**H2**	**FY**
North America	5%	2%	4%
Europe	6%	1%	3%
Asia	6%	14%	10%
Rest of the world	1%	1%	1%
Group	**5%**	**5%**	**5%**

The LFL sales growth was achieved in all geographic regions with particularly good growth in Asia, led by strong demand in China. In North America, the pharmaceutical and academic research end markets saw good growth while Europe was helped by a strong contribution from the UK, particularly in the first half of the year. Good demand was seen in many of our end markets, and there was notable LFL sales growth across the pharmaceutical, automotive, semiconductor, electronics and academic research sectors.

Materials Analysis and Test and Measurement both reported strong LFL growth of 8% and 6%, respectively. Materials Analysis saw strong demand in the semiconductor and pharmaceutical industries, with a rebound in academic research activity also underpinning the performance. In Test and Measurement, the automotive sector was the key driver behind the growth. In-line Instrumentation achieved a 1% increase in LFL sales, despite a weaker performance year-on-year in the converting and film extrusion industries, and a tough comparator in the wind energy sector which had large one-off sales in 2017. Industrial Controls achieved 3% LFL growth, benefiting from improved North American industrial spending, although growth was constrained given a product refresh underway at Omega.

Statutory operating profit was £176.4 million, compared to £182.4 million recorded in 2017. A 4% improvement in adjusted operating profit was more than offset by higher acquisition-related costs and other adjusting items, which were up £15.0 million. Statutory operating margins of 11.0% were 1.0pp lower than the prior year. Adjusted operating profit, after costs of £10.8 million in relation to Project Uplift, was £237.5 million (2017: £223.5 million). The Group also recorded restructuring costs of £4.8 million in relation to its new profit improvement programme, which have been excluded from the adjusted measures.

The Group's adjusted operating cash conversion rate was 59%. This was below the 77% recorded in 2017, a similar level to which we expect to return to in 2019. The year-on-year reduction resulted from higher working capital, due to higher receivables, driven by sales growth and recent acquisitions, together with increased project completion inventory, and an increase in capital expenditure. Average trade working capital expressed as a percentage of sales, decreased by 0.5pp to 11.4%. Capital expenditure, net of grants, during the year totalled £94.1 million (2017: £73.1 million), of which £43.1 million related to spend by Millbrook, principally on capacity expansion, as the business invested to access high-growth opportunities in support of customer project demand. In addition, there was spend of £207.2 million (2017: £39.3 million) in relation to acquisitions and the Group completed a £100 million share buyback programme during the year. After allowing for a net cash inflow of £41.8 million from the divestment of EMS B&K into a joint venture, net debt stood at £297.1 million (2017: £50.5 million) at the year end, 1.0 times the full-year adjusted EBITDA.

The Board is proposing to pay a final dividend of 40.5 pence per share which, combined with the interim dividend of 20.5 pence, gives a total of 61.0 pence per share for the year, an increase of 8%. This is consistent with our policy of making progressive dividend payments based upon affordability and sustainability. The dividend will be paid on 28 June 2019 to shareholders on the register at the close of business on 24 May 2019. The ex-dividend date is 23 May 2019.

Positioning Spectris to deliver profitable growth

Spectris serves a diverse set of end markets with a number of high-quality businesses, which have strongly recognised brands in the target markets they serve.

As set out in our November 2018 trading statement, we believe there are significant opportunities to improve the operational performance of the Group and to drive shareholder value creation through increasing our operating margin and by taking a more focused approach to portfolio composition, asset optimisation and capital allocation.

In November, we announced a profit improvement programme and a strategic review of our operations. We have progressed this work with vigour – we are in the process of focusing the business on its highest growth areas and where we are or can be competitive, in conjunction with reducing cost to deliver profitable growth. While there has already been a significant amount of work undertaken, we still have further work to do to complete our assessment. Accordingly, we plan to provide a comprehensive update on the outcomes of the strategic review and on our strategy to maximise long-term shareholder value at a Capital Markets Day in June 2019.

Profit improvement programme

The implementation of Phase 1 of Project Uplift continued as planned, with savings derived predominantly from improvements in procurement (both direct and indirect), as well as benefits from simplifying our property portfolio. In 2018, the gross recurring benefit achieved from Project Uplift was £17.3 million (2017: £2.8 million) and the one-off costs incurred were £10.8 million (2017: £15.8 million). We remain confident in our objective of Project Uplift delivering £25 million of annualised gross recurring savings by the end of 2019, with a total cost to achieve of £35 million.

Alongside the decision taken last November not to proceed with the global shared services centre model, we initiated a new, comprehensive programme focused on achieving profit improvement through further cost reductions and targeted growth initiatives across the Group.

To date, this programme has identified more than £30 million of annualised benefits, of which £15-20 million are planned to be realised during 2019, with the full benefit to be delivered in 2020 and will help to offset inflationary pressures to our cost base. At the same time, we continue to make investments in higher growth areas and operational improvements. Delivering these ongoing savings will result in one-off restructuring costs during 2019 of around £35 million. Benefits and savings are arising from improving the sales mix, product profitability, site rationalisation, improving organisational effectiveness and driving Lean through our operations. The merger of Brüel & Kjær Sound & Vibration with HBM has also been initiated. In addition, the size of the centre is being reduced and it will be focused on Group-level governance, managing financial performance and capital allocation across the Group, driving strategy execution, Lean and organisation and talent development.

Spectris has strong gross margin businesses, but our operating margin performance has been below our historic highs and operational gearing has disappointed over the past few years. Our initiatives, which are focused on improving gross margin and constraining overheads to drive future operating margin expansion as we grow, will continue throughout 2019. Our aim is to return our operating margin to at least our previous highs.

Strategic review

Spectris has a portfolio of businesses with high-quality technologies, strong market positions and talented people. The fundamentals of Spectris' core addressable markets are attractive, with many displaying GDP+ growth characteristics, in particular, the pharmaceutical, automotive, electronics/semiconductor, metals/minerals/mining and technology-led industrial markets. Each of these end markets is witnessing significant trends that are favourable for Spectris' businesses:

- *Pharmaceutical*: Drug discovery and development is facing a number of complex challenges. More stringent expectations around efficacy improvements, complex disease pathways requiring more sophisticated therapies, personalised medicine and a desire to shorten development timelines are increasing requirements for more precise testing to better predict success, ensure safety and reduce time to market;
- *Automotive*: The growing proliferation of car platforms, the shortening of platform lifecycles and the introduction of new technologies (e.g. electrification and autonomous vehicles) is increasing the overall volume, complexity and pace of change in research and development, testing and measurement;
- *Electronics and semiconductors*: Electronic components are becoming increasingly complex and advances in semiconductor technology are enabling more chips to be embedded in a broader range of products, requiring more sophisticated quality control and testing equipment and techniques at the chip fabrication level as well as at the system level (e.g. full vehicle testing, phone performance testing);
- *Metals/minerals/mining:* Alongside an increasing health and safety as well as environmental awareness, our customers are focusing on delivering improved yields, productivity, product quality and cost reduction in the extraction and processing of raw and bulk materials which are fundamental to the manufacturing industry; and
- *Technology-led industrials*: The increased focus on optimising production processes in real-time, enabled by embedding more sensors on the production line to underpin IIoT and drive further improvements to operational efficiency, is increasing demand for smart sensors, testing hardware, control systems and software solutions.

Technology-led differentiation of instrumentation hardware continues to progress, particularly within offline applications. There remains significant room for differentiation on various hardware dimensions, to provide greater precision and reliability of high-quality data. Equally, opportunities exist for many of our operating companies to expand across the technology stack, including software and application intelligence, to provide greater value-adding solutions for customers. Consequently, the provision of technology-enabled solutions, based on our high-quality instruments, deep application capability, domain expertise and associated software and service offerings, remains at the core of our strategy.

To deliver the full potential of the Group, it is clear that Spectris would benefit from becoming a more focused and simplified business. As such, work is ongoing to identify a group of operating companies which can deliver greater shareholder value creation, with sales growth, margin expansion and working capital efficiency as the key goals, underpinning growth in operating cashflow. These principal operating businesses will include a number of platform businesses which are scalable, aligned to attractive high growth markets, with the strongest capabilities and greatest performance potential. Future capital investment, and in particular acquisition-led growth, will be focused on these platform businesses.

So far, the strategic review process has identified Malvern Panalytical, HBK and Omega, which together account for over 60% of Group sales and adjusted operating profit, as businesses that have this platform potential.

The remaining portfolio is made up of a number of high-quality operating companies. Work is underway to determine which of these businesses will remain key to the Group and those where Spectris will not be the best future owner. Operating companies with strong market positions, good growth prospects and margins will receive targeted investment where we are confident that such investment will yield a strong return. Potentially, these businesses may become platforms in their own right. They will be managed to deliver at least market growth with leading margins within their segments. The remaining businesses will be managed to optimise their performance under the Group's ownership and for value. These businesses may be divested over time and the proceeds either re-invested in the development of the Group's platform operations or, if attractive re-investment opportunities are not identified, returned to shareholders.

As well as reviewing the Group's operating company portfolio, the strategic review has also focused on capital allocation and returns. The existing capital expenditure plans of the Group have been reviewed to ensure capital is being invested efficiently and effectively to create profitable growth and value.

Going forward, the Group will adopt an even more rigorous capital allocation approach and is in the process of establishing a new investment framework to ensure that future spend drives stronger economic profit growth and value creation.

Corporate development

During 2018, we made three acquisitions of businesses which added further services and software capability to our portfolio. Concept Life Sciences ('CLS'), which was acquired in January, provides integrated drug discovery, development, analytical testing and environmental consultancy services, mainly in the pharmaceutical, biotechnology, agrochemical and environmental sectors, which complement the activities of Malvern Panalytical. Additionally, it carries out development and analytical services for the food, consumer and environmental industries. Although performance has been below expectations due to both internal and external factors, the outlook for outsourcing of R&D remains robust. To further leverage the collaboration already started between Malvern Panalytical and CLS, and to further drive growth and profit improvement, CLS will become part of the Malvern Panalytical platform.

Since the merger of Malvern Instruments and Panalytical, sales of the joint company have continued to benefit from the re-organised sales and marketing functions and the cross-selling of Malvern and Panalytical branded product lines. A number of new products have been launched this year which provide our customers with significant improvements in the quality and speed of the characterisation of materials, provide greater understanding of material properties or help increase productivity in their investigations, ultimately saving them development time and cost.

Following the success of the merger which formed Malvern Panalytical, in 2018 we decided to merge Brüel & Kjær Sound & Vibration and HBM in our Test and Measurement segment in 2019. This merger will bring together two leaders in precision measurement, creating a broader offering of high-quality instruments and simulation and modelling software to better deliver more integrated solutions to align with customers' requirements. As our customers undergo a digital transformation of their industries, we can deliver greater value to them and help them get their products to market faster. The new joint business has been renamed HBK (Hottinger, Brüel & Kjær). An integrated go-to-market model for the joint sales organisation has been established and the development of joint HBK products and solutions has commenced.

In Test and Measurement, our offering to automotive customers has been broadened by the acquisition of Revolutionary Engineering, Inc in the USA, which complements the existing test capabilities of Millbrook and extends its reach into North America. Millbrook has also added further capacity and test capability at its existing UK and Finnish sites.

We also acquired VI-grade Group ('VI-grade'), a leading global provider of vehicle simulation software, systems and services, primarily to automotive customers, which complements HBK's automotive offering and as such it will become part of the HBK platform.

At Omega, there has been a focus on introducing newer, faster-growing products to supplement its traditional thermocouple business. In addition, to strengthen market presence and increase growth prospects, a new e-commerce platform is being introduced to enhance the digital experience for customers. This was initially launched in North America and will be progressively rolled out globally during 2019. Omega is well positioned to take advantage of the continuing trend by process engineers to change the buying processes to on-line purchasing. Together with Omega's existing strong application knowledge and technical support, the new website will deliver precisely-targeted digital marketing campaigns and enhanced search engine optimisation performance, that we fully expect will see a higher conversion of website traffic to sales.

Our people deliver the strategy

Great products and services are only as good as the people standing behind them. As I have travelled around Spectris, since I started in September last year, I have continued to be impressed by the breadth and depth of capability and talent we have across the business. The openness, passion and enthusiasm are evident in the way I have seen our people go about their work. We will retain and promote these attributes that have driven our success, preserving the entrepreneurial and dynamic nature of the Group, as well as continuing to uphold our strong ethical culture and values.

Following new leadership appointments in Lean, supply chain, software and digital in 2018, we are better able to drive further performance enhancement across the Group, consistent with our renewed focus on profitable growth. This will be further supported via our talent management and organisational capability programmes, which in 2018 have focused on senior succession as well as the development of high potential employees.

After 12 years as Group Finance Director, Clive Watson has decided to retire and will step down from the Board. We are very pleased that Derek Harding will be joining the Board to succeed Clive, as Chief Financial Officer Designate, on 1 March, before formerly becoming Chief Financial Officer following a month's handover. Derek brings a wide range of financial leadership and industrial expertise to Spectris, having been most recently group finance director at Shop Direct and previously Senior plc, following 11 years in various finance and strategy roles at Wolseley plc.

I would like to thank Clive for his material contribution to developing the Group and driving its success during his tenure and personally, express my gratitude for the support he has provided since I started, as well as wish him the best for the future.

Summary and outlook

I am pleased that our performance in 2018 was slightly ahead of expectations, reflecting the quality of our businesses. We were able to build on the increased momentum across our end markets and delivered good LFL sales growth. We expect sales growth to moderate in 2019, given the more cautious macroeconomic outlook. Consequently, we are focusing on what we can control; increasing productivity and operational efficiency, while driving sales. Our profit improvement programme is expected to deliver benefits of £15-20 million during 2019, helping drive margin expansion. With this focus on improving profitability, we anticipate operating profit to grow ahead of sales, growing our margin in the process.

Since I joined the Group last Autumn, we have taken decisive action to improve Spectris' performance. This will continue through 2019 as we complete the strategic review and execute our strategy for profitable growth, as the basis for delivering a significant and sustainable increase in shareholder value.

I am convinced that there is significant value creation opportunity here for our customers, shareholders and people. I look forward to setting out in more detail the results of the review and our vision for the Group at our Capital Markets Day in June 2019.

Andrew Heath
Chief Executive

Introduction

Spectris uses alternative performance measures in addition to those reported under IFRS, as management believe these measures enable them to better assess the underlying trading performance of the businesses. Alternative measures exclude certain non-operational items which management have defined in Note 2 to the Financial Statements. A reconciliation of statutory and adjusted measures is provided in Note 2 to the Financial Statements.

Adjusted measures exclude restructuring costs which include Project Uplift costs and the one-off costs of implementing the Group's profit improvement programme that was announced in November 2018.

Operating performance

Sales increased by 5% to £1,604.2 million (2017: £1,525.6 million). Growth from acquisitions, net of disposals, contributed £23.6 million (2%) and LFL sales increased by £77.5 million (5%). Adverse foreign exchange movements reduced sales by £22.5 million (2%).

An improvement in adjusted operating profit of £9.0 million (4%) was more than offset by higher acquisition-related costs which were up £11.8 million and other adjusting items, up £3.2 million which resulted in statutory operating profit decreasing by 3% to £176.4 million from £182.4 million in the comparable year. Statutory operating margins of 11.0% were 1.0pp lower than the prior year.

Adjusted operating profit increased by £9.0 million (4%) to £248.3 million in 2018. LFL adjusted operating profit (before restructuring costs) increased by £16.6 million (7%). Acquisitions, net of disposals, and foreign exchange movements reduced adjusted operating profit by £7.5 million and £0.1 million, respectively.

Adjusted operating margins declined by 0.2pp, whilst LFL adjusted operating margins improved by 0.3pp compared to 2017, with the difference being explained mainly by the dilutive effects of acquisitions and foreign exchange. The improvement in the LFL operating margin consists of a 0.1pp LFL gross margin increase to 57.0% in 2018 (2017: 56.9%) combined with a 0.2pp decrease in LFL overhead costs as a percentage of sales. The improvement in operating margin was driven by Industrial Controls, up 2.6pp, which benefited from positive pricing as well as positive reorganisation impacts and In-line Instrumentation up 1.8pp, mainly due to favourable pricing and mix with overheads constrained to prior year levels. Materials Analysis operating margin was up 0.4pp, driven by higher volumes. These improvements were partly offset by the Test and Measurement segment down 2.0pp, principally due to higher overhead costs including those associated with the merger of BKSV with HBM, higher depreciation due to the ramp up in capital expenditure in this segment in the last three years. LFL overheads grew by 4.7% (2017: up 5.2%), reflecting annualisation of new headcount costs from the prior year as well as additional headcount in 2018, together with cost inflation, higher depreciation charges and reorganisation costs, particularly in the Test and Measurement segment.

We continued to invest in our R&D programmes, with total R&D spend (including capitalised development costs) of £103.4 million or 6.4% of sales (2017: £105.1 million or 6.9% of sales). Total R&D spend was up 1% compared to 2017 on a LFL basis.

Net finance costs increased by £9.0 million to £13.5 million (2017: £4.5 million) principally due to an increase of £8.5 million in translation losses on short-term US Dollar denominated intercompany loan receivables arising from Sterling's strengthening against the US Dollar. Adjusted net finance costs for the year were up £0.6 million at £5.7 million (2017: £5.1 million) as higher interest charges were driven by higher average borrowings after the share buyback. Statutory profit before tax decreased from £278.4 million in 2017 to £218.0 million in 2018. Statutory profit before tax in 2018 and 2017 benefited from profits on disposal of businesses of £56.3 million and £100.5 million, respectively. Adjusted profit before tax increased by 3% to £241.4 million.

Restructuring costs

The Group has incurred costs of £15.6 million relating to restructuring in 2018 (2017: £15.8 million). This includes £10.8 million relating to Project Uplift (2017: £15.8 million) and £4.8 million relating to one-off costs of the profit improvement programme announced in November 2018.

One-off costs incurred under Project Uplift in 2018 of £10.8 million included £7.7 million related to Phase 1 of the programme (which focused on IT, procurement and footprint) resulting in cumulative costs for Phase 1 of £26.7 million, and £3.1 million relating to Phase 2, the shared services centre programme, where a decision was taken not to proceed. Gross recurring savings of £17.3 million were realised during 2018, an annualised run-rate of £21 million and we expect to at least meet the £25 million of cumulative benefits in 2019. Additional spend and savings from the projects started under the Project Uplift programme will be realised in 2019 and thereafter but, since the project itself has now come to a natural end, the additional savings will now be secured by the operating companies as business as usual.

The operating companies will also be securing savings under the new Group-wide profit improvement programme which commenced at the end of 2018. The programme is aimed at delivering greater operational gearing in 2019 and beyond. The operating companies and the Group's head office have instigated a number of initiatives to create sustainable cost savings over the short to medium-term; these include a number of projects such as site consolidation, headcount reductions, lower profitability product retirements and improved operational performance using Lean techniques.

Acquisitions

The Group completed three acquisitions during the year. The total cost of acquisitions was £203.9 million (2017: £34.6 million), including £8.2 million (2017: £0.8 million) for cash acquired and £6.0 million (2017: £1.4 million) attributable to the fair value of deferred and contingent consideration which is expected to be paid in future years. A net £6.7 million (2017: £4.1 million) was paid in respect of prior year acquisitions, making the net cash outflow in the year £196.4 million (2017: £36.5 million). Furthermore, an amount of £10.8 million (2017: £2.8 million) was spent on acquisition-related costs, which makes the total acquisition-related cash outflow for the year £207.2 million (2017: £39.3 million). Acquisitions contributed £72.1 million of incremental sales and £1.2 million of incremental operating profit during the year. In 2019, these acquisitions are expected to contribute £15-20 million of incremental sales and up to £1 million of incremental adjusted operating profit.

Concept Life Sciences has not performed in line with our expectations. Therefore, management has carefully considered whether the goodwill amount of £105.5 million is impaired and have concluded that this is not the case, but recognise the continued operational improvements required, as set out in the Materials Analysis segment performance review. Further disclosures around the sensitivities on reasonably possible changes in relation to key assumptions which would result in an impairment will be included in the Annual Report.

Disposal and formation of joint venture

On 31 May 2018, the Group completed the disposal of EMS B&K into a joint venture with Macquarie Capital which resulted in a net cash inflow of £41.8 million, after paying cash taxes of £0.6 million. The post-tax profit on disposal was £55.9 million. Sales of £8.9 million and an operating loss of £0.4 million relating to EMS B&K were included in the operating results for the five-month period of ownership prior to its disposal on 31 May 2018.

Taxation

The effective tax rate on adjusted profit before tax was 19.7% (2017: 21.3%), a decrease of 1.6pp primarily due to reduction in US tax rates in 2018. On a statutory basis, the weighted average effective tax rate was 26.0% (2017: 28.6%), a decrease of 2.6pp largely due to the reduction in US tax rates and the fact that the 2017 statutory results included significant profits on disposal arising in the USA. In 2019, the Group expects an increase in its effective tax rate of up to 2pp as a result of changes in tax laws. The Group's approach to tax matters is set out in its tax strategy which, in compliance with the Finance Act 2017, has been made available on our website, *www.spectris.com/sustainability/tax-strategy*.

Earnings per share

Adjusted earnings per share increased by 7% from 154.6p to 164.9p, reflecting the net impact of the 3% increase in adjusted profit before tax, the reduction in the effective tax rate and the decrease in the weighted average number of shares from 119.2 million in 2017 to 117.5 million in 2018, following the share buyback.

Statutory basic earnings per share decreased from 197.0p to 157.6p, with the difference between the two measures shown in the following table.

	2018 pence	2017 pence
Statutory earnings per share	**157.6**	197.0
Net acquisition-related costs and fair value adjustments	**10.4**	0.3
Depreciation of acquisition-related fair value adjustments to property, plant and equipment	**0.7**	0.6
Amortisation and impairment of acquisition-related intangible assets	**36.8**	35.1
Bargain purchase on acquisition	-	(1.6)
Restructuring costs	**13.3**	13.3
Profit on disposal of business	**(47.9)**	(84.3)
Net (gain)/loss on retranslation of short-term inter-company loan balances	**6.1**	(1.1)
Unwinding of discount factor on deferred and contingent consideration	**0.5**	0.6
Tax effect of the above and other non-recurring items	**(12.6)**	(5.3)
Adjusted earnings per share	**164.9**	154.6

Cash flow

Adjusted operating cash flow	2018 £m	2017 £m
Adjusted operating profit	**248.3**	239.3
Adjusted depreciation and software amortisation[1]	**35.3**	30.5
Working capital and other non-cash movements	**(42.8)**	(12.1)
Capital expenditure, net of grants	**(94.1)**	(73.1)
Adjusted operating cash flow	**146.7**	184.6
Adjusted operating cash flow conversion	**59%**	77%

1 Adjusted depreciation and software amortisation represents depreciation of property, plant and equipment and software amortisation, adjusted for depreciation of acquisition-related fair value adjustments to property, plant and equipment.

Adjusted operating cash flow generation of £146.7 million during the year was impacted by higher than normal working capital outflows and higher capital expenditure resulting in an adjusted operating cash flow conversion rate of 59%, compared with 77% in 2017. The higher working capital outflow was mainly attributable to higher receivables driven by sales growth and recent acquisitions, together with increased inventory mainly due to the timing of recognition of large projects and complex installations for completion in 2019 and advance purchases of limited supply components. The higher capital expenditure resulted from higher investment at Millbrook, together with capital expenditure from acquisitions during 2018, aimed at securing future growth. Capital expenditure is expected to be at a similar level in 2019.

Average trade working capital (the monthly average of the sum of inventory, trade receivables, trade payables and other current trading net assets), expressed as a percentage of sales, decreased by 0.5pp to 11.4% (2017: 11.9%). Excluding acquisitions, disposals and foreign exchange, the LFL reduction in average trade working capital was 0.4pp, with improvements across all segments, aside from Test and Measurement which experienced lower sales. Decreases were most notable in the Industrial Controls segment, with improvements in inventory management at both Red Lion and Omega. In the Materials Analysis segment, higher sales drove the reduction and in In-line Instrumentation, Servomex and BTG contributed to the better performance. The year-end trade working capital to sales ratio increased by 0.6pp from 14.0% in 2017 to 14.6% in 2018.

Capital expenditure (net of grants) on property, plant and equipment and intangible assets during the year of £94.1 million (2017: £73.1 million) equated to 5.9% of sales (2017: 4.8%) and was 267% of adjusted depreciation and software amortisation (2017: 240%).

Non-operating cash flow	2018 £m	2017 £m
Tax paid	**(37.7)**	(47.0)
Net interest paid	**(8.8)**	(4.1)
Dividends paid	**(68.2)**	(63.2)
Acquisition of businesses, net of cash acquired	**(196.4)**	(36.5)
Acquisition-related costs paid	**(10.8)**	(2.8)
Proceeds from disposal of businesses, net of tax paid of £0.6 million (2017: £19.0 million)	**43.8**	91.9
Loan to joint venture	**(0.9)**	-
Restructuring costs paid	**(8.6)**	(16.8)
Share buyback	**(100.5)**	-
Exercise of share options	**0.7**	0.5
Foreign exchange	**(5.9)**	(6.2)
Total non-operating cash flow	**(393.3)**	(84.2)
Adjusted operating cash flow	**146.7**	184.6
(Increase)/decrease in net debt	**(246.6)**	100.4

Financing and treasury

The Group finances its operations from both retained earnings and third-party borrowings, with a broadly even split of the year-end gross debt balance between fixed rate and floating rate borrowings.

As at 31 December 2018, the Group had £814.4 million of committed facilities denominated in different currencies, consisting of a five-year $800 million (£625.6 million) revolving credit facility maturing in July 2023 (with two one-year extension options, subject to approval by the lenders, which, if exercised, would extend the maturity to July 2025), a seven-year €94.8 million (£84.8 million) term loan maturing in October 2020, and a seven-year €116.2 million (£104.0 million) term loan maturing in September 2022. £467.9 million of the revolving credit facility was undrawn at the year end. In addition, the Group had a year-end cash balance of £73.1 million, bank overdrafts of £5.8 million and various uncommitted facilities available.

At the year end, the Group's gross borrowings amounted to £370.2 million, 51% of which was at fixed interest rates (2017: 99%). The ageing profile at the year end showed that 6% (2017: 1%) of year-end borrowings are due to mature within one year, 23% (2017: nil) between one and two years, and 71% between two and five years (2017: 99%).

Overall, net debt increased by £246.6 million (2017: decrease of £100.4 million) from £50.5 million to £297.1 million. Net bank interest costs were covered by adjusted operating profit 37 times (2017: 56 times).

Currency

The Group has both translational and transactional currency exposures. Translational exposures arise on the consolidation of overseas company results into Sterling. Transactional exposures arise where the currency of sale or purchase invoices differs from the functional currency in which each company prepares its local accounts. The transactional exposures include situations where foreign currency denominated trade receivables, trade payables and cash balances are held.

After matching the currency of revenue with the currency of costs wherever practical, forward exchange contracts are used to hedge a proportion of the remaining forecast net transaction flows where there is reasonable certainty of an exposure. At 31 December 2018, approximately 59% of the estimated net Euro, US Dollar and Japanese Yen exposures for 2019 were hedged using forward exchange contracts, mainly against the Swiss Franc, Sterling, the Euro and the Danish Krone.

The largest translational exposures are to the US Dollar, Euro, Danish Krone, Japanese Yen and Swiss Franc. Translational exposures are not hedged. The table below shows the average and closing key exchange rates compared to Sterling.

	2018 (average)	2017 (average)	Change	**2018 (closing)**	2017 (closing)	Change
US Dollar (USD)	**1.34**	1.29	4%	**1.28**	1.35	(5%)
Euro (EUR)	**1.13**	1.14	(1%)	**1.12**	1.13	(1%)
Japanese Yen (JPY)	**147**	145	1%	**141**	152	(7%)
Swiss Franc (CHF)	**1.31**	1.27	3%	**1.26**	1.32	(5%)

During the year, currency translation effects resulted in operating profit being £0.1m lower (2017: £5.9m higher) than it would have been if calculated using prior year exchange rates. Transactional foreign exchange gains of £2.1 million (2017: £2.1 million loss) were included in administrative expenses, whilst sales include a loss of £1.4 million (2017: £1.1 million loss) arising on forward exchange contracts taken out to hedge transactional exposures in respect of sales.

Brexit

The Group operates in a range of end-user markets around the world and may be affected by Brexit developments in the future. Mitigating actions have been put in place through an enhanced analysis including stress testing for Brexit to determine severe but plausible potential scenarios and the Group is continuously monitoring events. As part of this analysis, management have considered the measurement impact on the Group's balance sheet. Although the outcome of Brexit is difficult to quantify, we do not expect the direct consequences of Brexit to have a material impact to the Group.

Dividends and Annual Report

The Board is proposing to pay a final dividend of 40.5 pence per share (2017: 37.5p) which, combined with the interim dividend of 20.5 pence per share (2017: 19.0p), gives a total dividend of 61.0 pence per share for the year (2017: 56.5p), an increase of 8%. The dividend is covered 2.7 times by adjusted earnings and is consistent with our policy of making progressive dividend payments, based upon affordability and sustainability. In determining the level of dividend in any year, the Board considers a number of factors that influence the proposed dividend, including the level of distributable reserves in the Company, future cash commitments and investment needs to sustain the long-term growth prospects of the Group and the level of dividend cover.

The Annual Report will be made available to shareholders on 28 March 2019, either by post or online, and will be available to the general public on the Company's website at www.spectris.com or on written request to the registered office at Heritage House, Church Road, Egham, Surrey TW20 9QD.

OPERATING REVIEW

	Materials Analysis		Test and Measurement		In-line Instrumentation		Industrial Controls		Total	
	2018	2017	**2018**	2017	**2018**	2017	**2018**	2017	**2018**	2017
Sales (£m)	**541.1**	464.9	**522.6**	487.3	**312.2**	310.9	**228.3**	262.5	**1,604.2**	1,525.6
LFL growth vs prior year (%)	**8%**		**6%**		**1%**		**3%**		**5%**	
Adjusted operating profit (£m)	**95.4**	87.3	**67.2**	74.2	**42.6**	36.0	**43.1**	41.8	**248.3**	239.3
LFL adjusted operating profit change (%)	**11%**		**(9%)**		**17%**		**19%**		**7%**	
Adjusted operating margin (%)	**17.6%**	18.8%	**12.9%**	15.2%	**13.6%**	11.6%	**18.9%**	15.9%	**15.5%**	15.7%
LFL adjusted operating margin change (pp)	**0.4pp**		**(2.0pp)**		**1.8pp**		**2.6pp**		**0.3pp**	
Project Uplift costs (£m)	**(3.0)**	(4.2)	**(3.3)**	(5.3)	**(2.0)**	(2.8)	**(2.5)**	(3.5)	**(10.8)**	(15.8)
Adjusted operating profit after Project Uplift costs (£m)	**92.4**	83.1	**63.9**	68.9	**40.6**	33.2	**40.6**	38.3	**237.5**	223.5
Statutory operating profit (£m)	**72.1**	68.6	**42.8**	55.6	**32.2**	29.5	**29.3**	28.7	**176.4**	182.4
Statutory operating margin (%)	**13.3%**	14.8%	**8.2%**	11.4%	**10.3%**	9.5%	**12.8%**	10.9%	**11.0%**	12.0%

Sales % of Group sales	**34%**	31%	**33%**	32%	**19%**	20%	**14%**	17%	**100%**	100%

MATERIALS ANALYSIS

Our Materials Analysis operating companies provide products and services that enable customers to determine structure, composition, quantity and quality of particles and materials, during their research and product development processes, when assessing materials before production, or during the manufacturing process. The operating companies in this segment are Malvern Panalytical, Particle Measuring Systems (‘PMS’) and Concept Life Sciences ('CLS', acquired January 2018).

Segment performance

	2018	2017	Change	LFL change
Sales (£m)	**541.1**	464.9	16%	8%
Adjusted operating profit[1] (£m)	**95.4**	87.3	9%	11%
Adjusted operating margin[1] (%)	**17.6%**	18.8%	(1.2pp)	0.4pp
Statutory operating profit (£m)	**72.1**	68.6	5%	
Statutory operating margin (%)	**13.3%**	14.8%	(1.5pp)	

1 Adjusted operating profit excludes restructuring costs of £4.4m (2017: £4.2m).

Sales increased 16%, reflecting an 8% increase in LFL sales, a 10% contribution from acquisitions and a 2% negative impact from foreign currency exchange movements.

Sales growth for the year was driven by strong demand in Asia, particularly in China, South Korea and India, with a notably stronger performance in the second half. In North America and Europe, LFL sales were also up, with particularly strong first half performances in both regions.

On a LFL basis, adjusted operating profit increased 11% and adjusted operating margins increased by 0.4pp, reflecting the higher LFL sales, some mix effects and good overhead cost control. The 1.2pp decline in adjusted operating margin reflected the dilutive impact of the acquisition of Concept Life Sciences in the year. Statutory operating profit increased 5% to £72.1 million.

Sales at **Malvern Panalytical** have continued to benefit from the re-organised sales and marketing functions following the merger and are being aligned with three market sectors: advanced materials, pharma and food, and raw and bulk materials. Alongside a key account structure, these are focused on value-based selling in order to benefit our customers and create differentiation from the competition. We have continued to generate orders from cross-selling the Malvern- and Panalytical-branded product lines, with incremental sales into various universities and industrial customers recognising the benefits of the combined businesses.

Several new products were launched by Malvern Panalytical in the year. These included the Epsilon 4 XRF spectrometer, a new high-performance benchtop analytical tool for determining the chemical composition of different materials. It is applicable to industries such as mining, pharmaceuticals and oils/fuels which need to comply with international regulations and test methods. A third generation Empyrean X-ray diffractometer with the newly-developed MultiCore Optics was introduced. It aims at increasing productivity in around-the-clock investigations and offers unprecedented traceability of experiments in regulated environments. For example, leading electronics companies have been selecting Empyrean for optimising the performance of lithium-ion batteries.

Also launched were the Zetasizer Ultra and Pro systems, which deliver significant improvements in the quality and speed of the characterisation of nanomaterials and proteins. New capabilities, including the use of machine learning techniques, significantly shorten sample preparation and measurement times, whilst providing more stable and reliable results. One nanoparticle manufacturer, Particle Works, part of Blacktrace Holdings Ltd, reduced the development cycle for polymer nanoparticles, used in for example, targeted drug release vehicles, from 12 months to approximately one month using the Zetasizer Ultra.

And lastly, the new Morphologi range of automated static imaging systems for particle characterisation is designed to provide deeper understanding of process and/or material properties, for example in pharmaceuticals and battery materials. The system's capability in delivering precise particle characterisation data enables complex generic drug manufacturers to gain faster regulatory approval using lab-based assessments instead of relying on complex clinical studies.

Particle Measuring Systems benefited from growth in the semiconductor industry as well as continued good demand for both its contamination monitoring hardware and high-level consulting services into the pharma industry. Demand for these services is motivated by regulatory compliance, which is becoming more stringent, and PMS is well positioned in a growing market for aseptic processing and sterility assurance. In this context, PMS released the next generation of FacilityPro products which deliver enhanced flexibility to meet the latest environmental monitoring needs whilst ensuring data security and reliability. Following the establishment of a global partnership with Novatek International in 2017 to provide a fully-integrated software and hardware solution for environmental monitoring, PMS launched the first fully-integrated Quality Assurance data management system for pharmaceutical manufacturers, PharmaIntegrity, to securely meet regulatory requirements and ensure product integrity. This uniquely offers our customers a complete solution package, with advisory services, particle and microbial monitors, cleanroom monitoring systems, training and education, and data management.

Performance at **Concept Life Sciences** was below expectations due to a range of factors including a reduction in project work from two major clients, delays in gaining new laboratory and manufacturing accreditations (GLP and GMP); as well as a period of sub-optimal performance at one of its analytical laboratories. These internal issues largely reflected the state of the business on acquisition, which was in the process of integrating previous acquisitions into two divisions, as well as distraction and disruption caused to the commercial organisation triggered by the acquisition. Remedial action to improve operational effectiveness is already having an impact; the preparatory work for the manufacturing accreditations has progressed well and the funnel of opportunities across the business has developed strongly. Management believes that the end markets for CLS are still very strong as customers continue to look to outsource analytical services and pharmaceutical development work. With a similar end-market focus to Malvern Panalytical, the two companies have been marketing collaboratively and for example, a recent significant project was awarded to CLS as it could access Malvern Panalytical's Morphologi 4-ID particle characterisation system and offer a unique solution to a key client.

Sales to the **pharmaceuticals and fine chemicals** industries rose notably on a LFL basis, with North America seeing particularly strong growth. LFL sales also increased in Europe and Asia, with growth in the latter driven by strong demand in China and India as rising disposable incomes in these countries bring increased demand for effective healthcare. This has led to greater investment in generic pharmaceutical development and manufacturing in both regions. Significant cross-selling opportunities have been realised within the value chain for traditional oral solid dose products, where Malvern Panalytical's morphology and structural analysis solutions provide insight into drug product bioavailability and stability.

The **metals, minerals and mining** sector saw an increase in LFL sales, with North America and Europe broadly flat and growth in other regions. The improved investment climate has seen an increase in market activity as well as a focus on safety and productivity. The sector has focused on delivering improved yields, productivity, product quality and cost minimisation in the extraction and processing of raw materials fundamental to the manufacturing industry, and Malvern Panalytical instruments are critical in delivering these improvements.

After a notably weak 2017, sales to **academic research** customers were much improved in 2018, with good LFL growth across all key regions. The year started slowly but improved notably in the second half with a significant pick-up in demand in North America and Asia as improving economic conditions and increased government funding led to greater market activity. In China, for example, the government has a number of initiatives and investments underway to help develop the country's technology and pharmaceutical industries and establish world-class universities. In Japan, the government aims to increase spending on science and technology to support significant industry and academic partnerships in established research areas. In North America, LFL sales benefited from an increase in universities' internal funding and our improving win-rate.

Sales to the **semiconductor and electronics** industries recorded another year of good LFL growth in 2018, particularly in Asia where we have seen strong demand from battery and electronics customers in China, Taiwan and Korea as Asian demand for consumer electronics and IIoT applications has increased. Semiconductor capital spending continues to rise as new fabrication plants ('fabs') are developed, although we have seen a slower pace of growth in 2018. Notable customer wins in this area include a well-known semiconductor manufacturer and world-leading memory supplier, who have installed multiple UDI-20 units, an extremely sensitive liquid particle counter, in their new fabs. In addition, one of the world's most advanced foundries has just built a leading-edge chip facility in which PMS particle counters have been installed.

Segment outlook

In the **pharmaceutical** sector, the global growth in disposable incomes and consequent demand for effective healthcare has resulted in sustained investment in R&D and we expect this trend to continue. Alongside this, an increasing awareness of total lifecycle cost awareness is pushing customers to reduce both development costs and time to market for new products, underpinning an increased need for new solutions and services. Increasing regulatory compliance and sterility assurance for drug manufacturing processes will also continue to drive growth of our hardware and services.

We expect the steady growth in the **mining and materials** sector to continue, where our focus is on customers involved in the research, development and manufacturing of novel materials and complex systems and devices.

With its dependence on government funding, we expect growth in the **academic research** market to be variable, although demand in Asia is benefiting from a number of government initiatives.

Within the **semiconductor** industry, after another year of strong demand, we expect the pace of semiconductor investment to be at more muted rates than in 2018.

Our Test and Measurement operating companies supply test, measurement and analysis equipment, software and services for product design optimisation, manufacturing control, microseismic monitoring and environmental noise monitoring. The operating companies in this segment are Brüel & Kjær Sound & Vibration ('BKSV'), ESG Solutions ('ESG'), HBM, Millbrook and VI-grade Group ('VI-grade', acquired August 2018). From 1 January 2019, BKSV and HBM will be merging their activities into a new company called HBK (Hottinger, Brüel & Kjær).

Segment performance

	2018	2017	Change	LFL change
Sales (£m)	**522.6**	487.3	7%	6%
Adjusted operating profit[1] (£m)	**67.2**	74.2	(9%)	(9%)
Adjusted operating margin[1] (%)	**12.9%**	15.2%	(2.3pp)	(2.0pp)
Statutory operating profit (£m)	**42.8**	55.6	(23%)	
Statutory operating margin (%)	**8.2%**	11.4%	(3.2pp)	

1 Adjusted operating profit excludes restructuring costs of £5.2m (2017: £5.3m).

Sales increased 7%, including a 2% contribution from acquisitions, net of disposals, and a 1% negative impact from foreign currency exchange movements. LFL sales increased by 6%. By region, North America, Europe and Asia all delivered similar levels of LFL sales growth, with the UK, China and Japan being the key countries posting higher growth.

Adjusted operating profit decreased 9% on a LFL basis and LFL operating margins decreased by 2.0pp. This reflected the higher LFL sales volumes, in particular at ESG and Millbrook which are lower gross margin businesses, plus higher overheads. The overheads increase resulted from HBK-related merger costs, higher employee costs (reflecting an increase in headcount and higher than expected wage inflation), as well as higher depreciation at Millbrook. Statutory operating profit decreased to £42.8 million from the £55.6 million recorded in 2017. At the end of May, we completed the disposal of the EMS Brüel & Kjær environmental monitoring business into a joint venture with Macquarie Capital.

During 2018, preparatory work continued ahead of the merger of **BKSV** and **HBM**, the two largest operating companies within this segment. The businesses are being combined in order to leverage the strengths and complementary expertise across the measurement chain to enhance our customer proposition and the joint company is being renamed HBK (Hottinger, Brüel & Kjær). An integrated go-to-market model for the joint sales organisation has been established and the development of joint HBK products and solutions has commenced. During 2018, both companies launched new software products which aim to streamline and simplify data acquisition and monitoring: HBM has launched EVIDAS, its next-generation data acquisition and analysis software with cloud integration, and BKSV released BK Connect, a highly innovative sound and vibration software analytics platform which has already received strong customer feedback and generated a robust funnel of opportunities. These platforms help integrate seamless data acquisition, monitoring, multiple analysis, data viewing and reporting in the same system. HBM also launched ClipX, a novel miniaturised data acquisition product for industrial applications.

Overall sales growth has been held back in 2018 by supply shortages and constraints at HBM, by internal staffing issues at BKSV which have now been resolved, and by some interruption from pre-merger related activity. However, orders for their traditional hardware products have remained strong, particularly for BKSV's shaker business and for HBM's core torque, load sensor/cell and strain applications and data acquisition products. For example, OEM sensors have seen significant growth, both with existing and new customers, in applications like agriculture, medical devices, textile machines and spectrometry devices. HBM´s DAQ instrument business has grown significantly, a notable order being from ITER for their experimental fusion reactor project. Going forward, we see a solid pipeline of opportunities for ground vehicles, aircraft and other end markets.

At **Millbrook**, we continued to expand our testing capacity and capability. We increased our capacity for testing advanced driver assistance systems and connected and autonomous ('CAV') vehicle technologies via modifications to existing track infrastructure plus investment in high-precision instrumentation and soft targets that allow contact without damage. A new battery test facility started up in January 2019 and all 12 chambers will become operational throughout the first half of 2019. The refurbishment of the full-scale crash laboratory has increased efficiency and enabled additional tests to be offered. At Test World in Finland, additional indoor tyre testing capacity has come into commercial use successively through the year. The acquisition of Revolutionary Engineering, Inc (now Millbrook RE) in Detroit, USA in April extended our position into a new region, market and services offering and we have seen good demand for its services since acquisition.

In August, we acquired **VI-grade**, a leading global provider of vehicle simulation software, systems and services, primarily to automotive customers, which complements our existing hardware and services offering into this sector. VI-grade helps clients shorten development cycles, enhance innovation and decrease risk by providing real-time virtual prototype simulation capabilities. Performance since acquisition has been in line with expectations and VI-grade will be collaborating with other operating companies in this segment to expand our solutions for our automotive customers.

Within the **automotive** sector, LFL sales grew strongly during the year with the UK, China and Japan being the main contributors to the growth. Growth reflects robust demand for electric and hybrid vehicles globally and policy changes in certain markets such as China (compulsory EV targets for vehicle manufacturers) and Europe (emissions testing for new cars). We also had another year of strong growth in our eDrive applications.

In **machine manufacturing**, a significant portion of which represents sales into the automotive supply chain, LFL sales rose year-on-year in the two key regions, Europe and Asia. The two main markets, Germany and China, both saw good growth with a continued increase in exports from Germany. Sales of our weighing sensors benefited from strong machine maker demand globally and customer wins.

In the **aerospace and defence** sector, LFL sales declined in all regions, though this is typically a project business and sales can be lumpy. In addition, 2017 was a tough comparator due to a sizeable one-off order and we have seen some projects being delayed by customers into 2019. However, we continue to see good R&D investment in the industry and have been building our pipeline of opportunities, for example within hull vibration monitoring systems for naval applications. Our key account programme has delivered new sales opportunities with a number of notable contracts signed. For example, we have been working with Mitsubishi Regional Jet on Japan's first commercial jet aircraft during its certification phase to ensure exterior take-off and landing noise meets requirements. BKSV's array acoustic products were utilised to perform noise source identification to help identify areas of the aircraft that need continued analysis or further design enhancements. In addition, HBM has secured various projects for tests of electric aircraft.

LFL sales to our **consumer electronics and telecoms** customers were slightly higher in 2018, with growth this year lower than in prior years, primarily reflecting fewer new product launches by customers. Sales of our high-frequency head and torso simulator which was launched in 2017 and is designed for in-situ electro-acoustics tests on smartphones, headsets and microphones have been above expectations, particularly into consumer electronics companies, and we have a strong pipeline. Underlying demand for our electro-acoustics products is still good as manufacturers strive to deliver the higher sound quality that customers now demand from their mobile devices and speakers.

LFL sales into **academic research** institutes were flat year-on-year, with lower sales in Europe and North America. LFL sales were strong in Asia driven by very good growth in China, reflecting the increased government funding and continuing investment to move China towards being a technology- rather than manufacturing-driven economy.

Improved conditions in global **oil and gas and mining** markets continued into 2018 and LFL sales growth was again strong, particularly in North America. A rising rig count and the launch of new oil and gas and mining projects saw demand for ESG's microseismic monitoring solutions increase notably. In particular, we saw a higher level of activity for our downhole hydraulic fracture mapping and monitoring activities. Sales of our new microseismic data acquisition, processing and analysis product, FRACMAP® Clarity, which was launched during the year, have been very good as it brings greater insight for our oil and gas customers on the productive fracture network resulting from well completion operations. This enables more strategic well planning, better stage placement and reservoir coverage and an improved estimate of recoverable resource.

Segment outlook

As the development of electric and hybrid vehicles continues to grow rapidly, and stricter emissions testing, battery development and the growth of CAV continue apace, we expect the demand in the **automotive** sector to continue to grow, especially driven by the associated R&D. New capacity coming onstream at Millbrook will also enable us to better access these high-growth sectors.

In **aerospace**, overall demand will be driven by new development programmes and while our pipeline remains strong, the ability to convert these into orders will be key.

The underlying trends in the **consumer electronics and telecoms** market remain healthy in our view, with continued consumer demand for smartphones with high-quality audio and innovative features. The prevalence of new product launches will help drive demand for our applications.

Market conditions in the **oil and gas** industry are harder to predict, with continued volatility in oil and gas prices. However, our new product offerings continue to position us strongly with increased instrument capability and analytic solutions in the micro-seismic segment.

IN-LINE INSTRUMENTATION

In-line Instrumentation operating companies provide process analytical measurement, asset monitoring and on-line controls, as well as associated consumables and services for both primary processing and the converting industries. The operating companies in this segment are Brüel & Kjær Vibro, BTG, NDC Technologies ('NDCT') and Servomex.

Segment performance

	2018	2017	Change	LFL change
Sales (£m)	**312.2**	310.9	0.4%	1%
Adjusted operating profit[1] (£m)	**42.6**	36.0	18%	17%
Adjusted operating margin[1] (%)	**13.6%**	11.6%	2.0pp	1.8pp
Statutory operating profit (£m)	**32.2**	29.5	9%	
Statutory operating margin (%)	**10.3%**	9.5%	0.8pp	

1 Adjusted operating profit excludes restructuring costs of £3.0m (2017: £2.8m).

Sales were broadly flat year-on-year, with a LFL sales increase of 1%. Servomex and BTG performed well, with NDCT's sales contracting and Brüel & Kjær Vibro having a tough comparison against high one-off sales in 2017. A 1% negative impact from foreign currency exchange movements was compensated by a 1% contribution from acquisitions. On a regional basis, LFL sales rose strongly in Asia, particularly in China, but this was mostly offset by the lower LFL sales recorded in North America and Europe.

LFL adjusted operating profit increased 17% and LFL adjusted operating margins increased 1.8pp year-on-year. This resulted from higher gross margins at BTG and Servomex, the segment's larger two operating companies, plus lower overheads year-on-year, with the 2017 results reflecting certain one-off restructuring costs which were not repeated this year. There was also a rise in statutory operating profit, from £29.5 million to £32.2 million.

In the **pulp and paper** markets, LFL sales increased compared with 2017, with similar growth in all the key regions and notably strong growth in China driven by robust capital project activity. **BTG**'s Process Solutions business unit, established in 2017, has continued to gather momentum with several customers placing orders for integrated solutions. Orders were placed in the Americas and Europe for pulping solutions, including instrumentation and MACS advanced process control content. These solutions are designed to deliver sustainable gains in business performance for our customers, including cost savings and productivity enhancements. Solutions tailored to drive gains in efficiency continue to be aligned with many of the projects that the pulp and paper industry is seeking, including a more widespread use of automation and real-time monitoring of process conditions.

The Capstone dataPARC analytics offering also continues to be deployed in several process industries, including power generation, chemical, wastewater and ethanol. As an example, a leading Korean utility company is replacing its existing data historian with dataPARC across all their generation sites, creating a central monitoring and prognosis centre at their head office and a common visualisation platform at their sites. The real-time data and information gathered through dataPARC is also integrated with the customer's predictive modelling infrastructure.

In the **energy and utilities** market, LFL sales rose, with notably strong growth in Asia more than offsetting lower LFL sales in North America and Europe, with the higher year-on-year oil price supporting steady project investment in both upstream and downstream projects. In addition, waste-to-energy projects in the Americas and combustion control in power plants in Asia continued to drive opportunities.

With our strengthened sales and marketing organisation at **Servomex**, we have continued to capitalise on this improved backdrop in the industrial gas and hydrocarbon processing sectors and benefited from sales of new products launched in recent years, where we have seen substantial growth in orders. For example, we have had notable sales of our Laser 3 Plus, particularly to the Asian power sector as well as for hydrocarbon processing in both Europe and the Americas. Since their launch last year, the new MonoExact and MultiExact gas analysers have been experiencing significant growth, with sales to major industrial gas companies globally, and sales of the newly-launched 4900 Multigas are already notably above target. These products measure multiple gases, which further optimises processes, improves product yields, ensures high product quality and helps meet regulatory and safety requirements for our customers. Gas monitoring applications are equally in demand in other industries outside of energy, for example, sales of our analysers into the semiconductor market, to ensure gas purity during the manufacturing process, have been buoyant as activity here remains strong. We had a notable order in the year from a major player in advanced semiconductor technology to deliver 135 analysers for their new semiconductor fabrication facility in South Korea.

In the wind energy sector, although the market continues to see growth, we have seen lower LFL sales at **Brüel & Kjær Vibro** due to a tough comparator in 2017 when we had exceptionally high sales to wind turbine manufacturer Vestas. During the year, we delivered our 20,000th wind turbine condition monitoring system and have further expanded the number of wind farm owners and operators to whom we provide remote turbine monitoring and diagnostic services. During the year, we launched our new state-of-the-art condition monitoring unit, DDAU3, that is set to provide further opportunities in 2019 and beyond. Early sales included the selection as a preferred condition monitoring system supplier with a large wind turbine manufacturer based in China for both the DDAU3 hardware as well as our remote monitoring services for one of their LatAm wind farms for a multi-year period. New and existing customers are also showing keen interest in our new third-generation product.

At **NDCT**, LFL sales to **web and converting industries** were down notably across all key regions. In the film extrusion and converting segment, we have seen demand softness in all regions, in particular in the Americas where we have seen fewer upgrades compared with last year, driven by industry consolidation and customers delaying projects to focus on consolidating production lines.

An important development and opportunity has been our work on lithium-ion batteries and NDCT continues to progress activities to further penetrate this market. It has developed a new generation of sensor products for the continuous measurement and inspection of the lithium-ion battery electrode manufacturing process. Its new Photon Sensor provides a new level of performance in coat weight measurement accuracy and fine detail of the coating flatness and its new micro-caliper thickness sensor enables manufacturers to get a true picture of product quality, enabling them to make improvements to their production processes. We had a notable order with a battery manufacturer in Taiwan and are currently working on projects with American, Chinese, Japanese and Thai battery manufacturers. In the **food and bulk materials** segment, manufacturers continued to seek higher performing measurement solutions to meet more stringent food safety and consumer requirements. For example, in 2018, NDCT's Infralab product introduced a degree of roast measurement that allows coffee manufacturers to perform moisture and degree of roast measurements at a single station.

Segment outlook

We continue to drive the mix shift in our **pulp and paper** business to be less dependent on graphic paper, a long-term declining market, into the higher growth areas of tissue, packaging and pulp markets. Tissue growth is driven by increasing consumer penetration in emerging markets and packaging from the rise in online shopping. We also expect to continue to capture new opportunities with our Process Solutions business, including reliability services.

The market environment in global **oil and gas** markets is difficult to predict, given current contrary macroeconomic signals. However, in the **wind energy** sector, investment is expected to continue to grow and we continue to look at expanding our offering into new wind farm owners and operators as well as OEMs. In the medium term, there remains the potential for additional capabilities beyond vibration to encompass other condition monitoring technologies in order to provide more predictive analysis and a more holistic monitoring solution.

The demand softness we have seen in the **film extrusion and converting** segment is likely to persist into 2019 and we will continue to look at cost containment measures to offset this, as well as focus on key areas of growth such as the lithium-ion battery market. In the **food and bulk materials** market, activity is expected to remain robust. Over the medium term, we believe opportunities across these markets are expected to increase as customers develop new products which require advanced in-line measurement solutions.

INDUSTRIAL CONTROLS

Industrial Controls operating companies provide products and solutions that measure, monitor, control and inform during the production process. The operating companies in this segment are Omega Engineering (‘Omega’) and Red Lion Controls (‘Red Lion’).

Segment performance

	2018	2017	Change	LFL change
Sales (£m)	**228.3**	262.5	(13%)	3%
Adjusted operating profit[1] (£m)	**43.1**	41.8	3%	19%
Adjusted operating margin[1] (%)	**18.9%**	15.9%	3.0pp	2.6pp
Statutory operating profit (£m)	**29.3**	28.7	2%	
Statutory operating margin (%)	**12.8%**	10.9%	1.9pp	

1 Adjusted operating profit excludes restructuring costs of £3.0m (2017: £3.5m).

LFL sales increased by 3%, there was a negative impact of 3% from foreign currency exchange movements and 13% from the disposal of Microscan, resulting in sales being 13% lower year-on-year. This segment has a high exposure to North America (74%), where we recorded solid sales growth. Asia recorded good growth in LFL sales, particularly at Omega. In Europe, overall segment sales were lower on a LFL basis due to a tough comparative from good project sales in 2017.

Adjusted operating profit (LFL) increased by 19% and LFL operating margins improved by 2.6pp, following the continued improvement in gross margin at Omega, from both efficiency improvements and pricing, and at Red Lion. The results reflect reorganisation costs of £0.7 million at Omega (2017: £2.1 million). Statutory operating profit increased to £29.3 million from £28.7 million.

LFL sales growth was good in Asia, driven in particular by demand from the Chinese market. In Europe, LFL sales for both companies were lower, with Omega reflecting a tough comparator given the strong project work in 2017. The better year-on-year results reflect the impact of higher LFL sales and the continuing operational improvements at Omega, and likewise improvement at Red Lion was primarily driven by operational improvements, coupled with solid growth in its main market of North America.

Operational performance improved at **Omega**, with both higher gross margins and operating margins. This has been achieved by a continued focus on Lean operations, tighter inventory management plus footprint rationalisation by consolidating its global distribution centres. During 2018, Omega has experienced some product availability and lead time issues, impacted primarily by the tight US labour market as well as raw material availability. Omega's focused operational improvement initiatives should help further on this front going into 2019.

In addition, Omega has been focusing on introducing newer, faster-growing products to offset the lower growth of its traditional thermocouple business. As an example, during the year, Omega launched the ZW-Series wireless sensor system for web-based monitoring of temperature, humidity, barometric pressure and a wide range of process-related devices in diverse industrial, laboratory, commercial and agricultural applications. The ZW-Series is supported by the Omega Enterprise Gateway which provides a set of web-based data visualisation, monitoring, alarming, data historian and email services. Omega’s first cloud-capable Bluetooth wireless thermometers were also released. With their seamless connectivity, they allow the user to collect, transmit and store accurate temperature data for analysis or compliance reporting without any additional or third-party software. Omega has also created differentiation in its new series of custom pressure transducers for industrial applications that can be quickly and easily configured online and shipped to the customer within 48 hours, beating the competition's delivery of similar custom products by weeks.

In December, to strengthen market presence and increase growth prospects, a new e-commerce platform was introduced to enhance the digital experience for customers. This was initially launched in Canada and the platform will be progressively rolled out globally during 2019. Omega has supplemented this with more precisely-targeted digital marketing campaigns as well as enhanced organic search engine optimisation performance and together these are expected to translate into higher conversion of website traffic to sales.

The increasing emphasis on industrial connectivity and IIoT from our customers is generating opportunities for both Red Lion and Omega. **Red Lion** added cloud connectivity to its Crimson software platform, allowing the data collected from industrial devices to be pushed to platforms that include Amazon AWS or Microsoft Azure. This further broadens the appeal of Red Lion's equipment beyond their traditional core factory automation market, and has enabled new wins in several key verticals, including energy exploration and alternative energy. The company also added OPC UA functionality, a machine to machine communication protocol for industrial automation, allowing access to data via a standard that is becoming the common language of the industrial controls world.

The connectivity capability of Omega's portfolio was similarly expanded with the launch of four product platforms with wireless, ethernet and/or remote connectivity, while also extending the ability of existing platforms to utilise new types of measurement inputs and send data through wireless connections. Omega and Red Lion have begun collaborating to find ways to leverage their digital infrastructure to enhance their product offering to customers.

Red Lion has also been refreshing its product lines. For example, it launched the DA10D and DA30D protocol conversion and data acquisition devices, providing customers with a cost-effective way of unlocking the value of data contained in legacy equipment. Via easy-to-use software, customers can quickly configure communications links to over 300 types of industrial controllers, allowing them to cost-effectively monitor and manage machines that might otherwise have been left isolated from their data collection strategy. The company also launched a range of addition communications modules for their CR3000 series touchscreen operator panels, again allowing easier integration with a broad range of equipment. The requirement for industrial companies to drive productivity and operational efficiencies by enabling effortless and secure access to their manufacturing information is increasing demand for these types of products.

Segment outlook

Given the predominance of sales in the North American market, the performance of this segment will be influenced by industrial markets in that region, where growth in 2019 is likely to be more subdued than in 2018. However, our enhanced digital e-commerce platform, in combination with a refresh of our product portfolio, are expected to drive enhanced medium-term growth at Omega, and we will also benefit from improved operating leverage from the continued restructuring activities and Lean focus.

In the medium term, the demand from industrial companies wishing to drive productivity and operational efficiencies, by having effortless and secure access to their manufacturing data, is expected to increase. Our ability to provide connected devices, digital monitoring and optimisation solutions enables our customers to benefit from our deep applications knowledge, as we apply our process applications and products expertise to address their industrial optimisation requirements.

Clive Watson
Group Finance Director

CONSOLIDATED INCOME STATEMENT

For the year ended 31 December 2018

Continuing operations	Note	2018 £m	2017 £m
Revenue	3	**1,604.2**	1,525.6
Cost of sales		**(696.8)**	(658.1)
Gross profit		**907.4**	867.5
Indirect production and engineering expenses		**(106.8)**	(116.8)
Sales and marketing expenses		**(352.1)**	(336.4)
Administrative expenses		**(272.1)**	(231.9)
Adjusted operating profit	2	**248.3**	239.3
Restructuring costs	2	**(15.6)**	(15.8)
Net acquisition-related costs and fair value adjustments	2	**(12.2)**	(0.4)
Depreciation of acquisition-related fair value adjustments to property, plant and equipment	2	**(0.8)**	(0.7)
Amortisation and impairment of acquisition-related intangible assets	2	**(43.3)**	(41.9)
Bargain purchase on acquisition	2	**-**	1.9
Operating profit	2,3	**176.4**	182.4
Share of post-tax results of joint venture		**(1.2)**	-
Profit on disposal of businesses	11	**56.3**	100.5
Financial income	4	**2.5**	1.9
Finance costs	4	**(16.0)**	(6.4)
Profit before tax		**218.0**	278.4
Taxation charge	5	**(32.8)**	(43.6)
Profit for the year from continuing operations attributable to owners of the Company		**185.2**	234.8
Basic earnings per share	7	**157.6p**	197.0p
Diluted earnings per share	7	**156.9p**	196.1p
Interim dividends paid and final dividends proposed for the year (per share)	6	**61.0p**	56.5p
Dividends paid during the year (per share)	6	**58.0p**	53.0p

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

For the year ended 31 December 2018

	2018 £m	2017 £m
Profit for the year attributable to owners of the Company	**185.2**	234.8
Other comprehensive income:		
Items that will not be reclassified to the Consolidated Income Statement:		
Re-measurement of net defined benefit obligation, net of foreign exchange	**5.4**	5.9
Tax charge on items above	**(1.4)**	(1.4)
	4.0	4.5
Items that are or may be reclassified subsequently to the Consolidated Income Statement:		
Net (loss)/gain on effective portion of changes in fair value of forward exchange contracts on cash flow hedges	**(2.4)**	4.0
Foreign exchange movements on translation of overseas operations	**27.9**	(44.7)
Currency translation differences transferred to profit on disposal of business	**(5.1)**	(4.4)
Tax credit/(charge) on items above	**0.5**	(0.7)
	20.9	(45.8)
Total other comprehensive income	**24.9**	(41.3)
Total comprehensive income for the year attributable to owners of the Company	**210.1**	193.5

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

For the year ended 31 December 2018

	Share capital £m	Share premium £m	Retained earnings £m	Translation reserve £m	Hedging reserve £m	Merger reserve £m	Capital redemption reserve £m	Total equity £m
At 1 January 2018	**6.2**	**231.4**	**820.8**	**144.3**	**(2.0)**	**3.1**	**0.3**	**1,204.1**
Adoption of IFRS 9 and IFRS 15	-	-	(18.6)	-	-	-	-	(18.6)
At 1 January 2018 (restated)	**6.2**	**231.4**	**802.2**	**144.3**	**(2.0)**	**3.1**	**0.3**	**1,185.5**
Profit for the year	-	-	185.2	-	-	-	-	185.2
Other comprehensive income	-	-	4.0	22.8	(1.9)	-	-	24.9
Total comprehensive income for the year	-	-	189.2	22.8	(1.9)	-	-	210.1
Transactions with owners recorded directly in equity:								
Equity dividends paid by the Company	-	-	(68.2)	-	-	-	-	(68.2)
Own shares acquired for share buyback programme	(0.2)	-	(100.5)	-	-	-	0.2	(100.5)
Share-based payments, net of tax	-	-	5.1	-	-	-	-	5.1
Utilisation of treasury shares	-	-	0.9	-	-	-	-	0.9
At 31 December 2018	**6.0**	**231.4**	**828.7**	**167.1**	**(3.9)**	**3.1**	**0.5**	**1,232.9**

	Share capital £m	Share premium £m	Retained earnings £m	Translation reserve £m	Hedging reserve £m	Merger reserve £m	Capital redemption reserve £m	Total equity £m
At 1 January 2017	6.2	231.4	638.3	193.4	(5.3)	3.1	0.3	1,067.4
Profit for the year	-	-	234.8	-	-	-	-	234.8
Other comprehensive income	-	-	4.5	(49.1)	3.3	-	-	(41.3)
Total comprehensive income for the year	-	-	239.3	(49.1)	3.3	-	-	193.5
Transactions with owners recorded directly in equity:								
Equity dividends paid by the Company	-	-	(63.2)	-	-	-	-	(63.2)
Share-based payments, net of tax	-	-	5.9	-	-	-	-	5.9
Utilisation of treasury shares	-	-	0.5	-	-	-	-	0.5
At 31 December 2017	6.2	231.4	820.8	144.3	(2.0)	3.1	0.3	1,204.1

CONSOLIDATED STATEMENT OF FINANCIAL POSITION
As at 31 December 2018

	2018 £m	2017 £m
ASSETS		
Non-current assets		
Intangible assets:		
Goodwill	**766.3**	627.5
Other intangible assets	**263.3**	209.9
	1,029.6	837.4
Property, plant and equipment	**331.5**	275.8
Investment in joint venture	**5.0**	-
Other receivable – joint venture	**38.9**	-
Deferred tax assets	**11.3**	10.5
	1,416.3	1,123.7
Current assets		
Inventories	**216.4**	176.0
Current tax assets	**1.6**	3.5
Trade and other receivables	**381.5**	323.9
Derivative financial instruments	**0.4**	1.4
Cash and cash equivalents	**73.1**	137.9
Assets held for sale	**3.9**	32.5
	676.9	675.2
Total assets	**2,093.2**	1,798.9
LIABILITIES		
Current liabilities		
Borrowings	**(23.7)**	(1.3)
Derivative financial instruments	**(2.2)**	(0.5)
Trade and other payables	**(344.1)**	(272.5)
Current tax liabilities	**(22.5)**	(23.6)
Provisions	**(31.6)**	(25.2)
Liabilities directly associated with the assets held for sale	**-**	(4.8)
	(424.1)	(327.9)
Net current assets	**252.8**	347.3
Non-current liabilities		
Borrowings	**(346.5)**	(187.2)
Other payables	**(27.4)**	(20.7)
Retirement benefit obligations	**(32.1)**	(34.0)
Deferred tax liabilities	**(30.2)**	(25.0)
	(436.2)	(266.9)
Total liabilities	**(860.3)**	(594.8)
Net assets	**1,232.9**	1,204.1
EQUITY		
Share capital	**6.0**	6.2
Share premium	**231.4**	231.4
Retained earnings	**828.7**	820.8
Translation reserve	**167.1**	144.3
Hedging reserve	**(3.9)**	(2.0)
Merger reserve	**3.1**	3.1
Capital redemption reserve	**0.5**	0.3
Total equity attributable to owners of the Company	**1,232.9**	1,204.1

CONSOLIDATED STATEMENT OF CASH FLOWS

For the year ended 31 December 2018

	Note	2018 £m	2017 £m
Cash generated from operations	8	**215.8**	237.6
Net income taxes paid		**(37.7)**	(47.0)
Net cash inflow from operating activities		**178.1**	190.6
Cash flows used in investing activities			
Purchase of property, plant and equipment and intangible assets		**(97.0)**	(74.3)
Proceeds from disposal of property, plant and equipment and software		**5.6**	0.5
Acquisition of businesses, net of cash acquired	10	**(196.4)**	(36.5)
Proceeds from disposal of businesses, net of tax paid of £0.6m (2017: £19.0m)		**43.8**	91.9
Loan to joint venture		**(0.9)**	-
Proceeds from government grants		**2.9**	1.2
Interest received		**0.6**	0.6
Net cash flows used in investing activities		**(241.4)**	(16.6)
Cash flows used in financing activities			
Interest paid		**(9.4)**	(4.7)
Dividends paid	6	**(68.2)**	(63.2)
Share buyback purchase of shares		**(100.5)**	-
Proceeds from exercise of share options		**0.7**	0.5
Proceeds from borrowings		**175.5**	-
Repayment of borrowings		**-**	(41.0)
Net cash flows used in financing activities		**(1.9)**	(108.4)
Net (decrease)/increase in cash and cash equivalents		**(65.2)**	65.6
Cash and cash equivalents at beginning of year		**136.7**	71.2
Effect of foreign exchange rate changes		**(4.2)**	(0.1)
Cash and cash equivalents at end of year		**67.3**	136.7

Reconciliation of changes in cash and cash equivalents to movements in net debt	Note	2018 £m	2017 £m
Net (decrease)/increase in cash and cash equivalents		**(65.2)**	65.6
Proceeds from borrowings		**(175.5)**	-
Repayment of borrowings		**-**	41.0
Effect of foreign exchange rate changes		**(5.9)**	(6.2)
Movement in net debt		**(246.6)**	100.4
Net debt at beginning of year		**(50.5)**	(150.9)
Net debt at end of year	2	**(297.1)**	(50.5)

NOTES TO THE ACCOUNTS

1. Basis of preparation and accounting policies

The Consolidated Financial Statements have been prepared on a historical cost basis except for items that are required by IFRS to be measured at fair value, principally certain financial instruments. The Consolidated Financial Statements have been prepared in accordance with IFRS as issued by the International Accounting Standards Board ('IASB') and interpretations issued by the International Financial Reporting Interpretations Committee of the IASB, as adopted by the European Union ('adopted IFRS'), and in accordance with the provisions of the Companies Act 2006. The Consolidated Financial Statements have been prepared on a going concern basis. The full year results announcement is presented in millions of pounds Sterling rounded to the nearest one decimal place, which is the Group's presentational currency.

The Consolidated Financial Statements have been prepared using consistent accounting policies with those of the previous financial year. The Group has adopted IFRS 9 and IFRS 15 in 2018 details of the impact on adoption are presented in the Consolidated Statement of Changes in Equity.

The financial information included in the full year results announcement does not constitute statutory accounts of the Company for the years ended 31 December 2018 and 2017. Statutory accounts for the year ended 31 December 2017 have been reported on by the Company's auditor and delivered to the Registrar of Companies. Statutory accounts for the year ended 31 December 2018 have been audited and will be delivered to the Registrar of Companies following the Company's Annual General Meeting. The report of the auditors for both years was (i) unqualified, (ii) did not include a reference to any matters to which the auditors drew attention by way of emphasis without qualifying their report, and (iii) did not contain a statement under Section 498 (2) or (3) of the Companies Act 2006.

These results were approved by the Board of Directors on 19 February 2019.

2. Alternative performance measures

Policy

Spectris uses adjusted figures as key performance measures in addition to those reported under IFRS, as management believe these measures enable management and stakeholders to better assess the underlying trading performance of the businesses as they exclude certain items that are considered to be significant in nature and/or quantum, foreign exchange movements and the impact of acquisitions and disposals.

The alternative performance measures ('APMs') are consistent with how the businesses' performance is planned and reported within the internal management reporting to the Board and Operating Committees. Some of these measures are used for the purpose of setting remuneration targets. The key APMs that the Group uses include like-for-like ('LFL') organic performance measures and adjusted measures for the income statement together with adjusted financial position and cash flow measures. Explanations of how they are calculated and how they are reconciled to an IFRS statutory measure are set out below.

Adjusted measures

The Group's policy is to exclude items that are considered to be significant in nature and/or quantum and where treatment as an adjusted item provides stakeholders with additional useful information to assess the period-on-period trading performance of the Group. The Group excludes such items which management have defined as:

- restructuring costs;
- amortisation and impairment of acquisition-related goodwill and other intangible assets;
- bargain purchase on acquisition;
- depreciation of acquisition-related fair value adjustments to property, plant and equipment;
- acquisition-related costs, deferred and contingent consideration fair value adjustments;
- profits or losses on termination or disposal of businesses;
- unwinding of the discount factor on deferred and contingent consideration;
- unrealised changes in the fair value of financial instruments;
- gains or losses on retranslation of short-term inter-company loan balances; and
- related tax effects on the above and other tax items which do not form part of the underlying tax rate (see Note 5).

2. Alternative performance measures (continued)

In November 2018, the Group announced the implementation of a Group-wide profit improvement programme. The total costs of implementation of this programme are considered to be significant in both nature and amount. On this basis the costs of the implementation of this programme are excluded from adjusted operating profit. Adjusted operating profit (including on a LFL basis) is therefore presented before the impact of Project Uplift and Group profit improvement programme costs, which have been combined as restructuring for presentation purposes. Adjusted operating profit after Project Uplift costs has been presented for ease of comparability between 2017 and 2018.

LFL measures

The Board reviews and compares current and prior year segmental sales and adjusted operating profit at constant exchange rates and excludes the impact of acquisitions and disposals during the year.

The constant exchange rate comparison uses the current year segmental information, stated in each entity's functional currency, and translates the results into its presentation currency using the prior year's monthly exchange rates, irrespective of the underlying transactional currency.

Within the In-line Instrumentation segment, the BTG business has large functional currency mismatches against its underlying transaction currencies which distort LFL comparison at times of significant currency movements. Accordingly, we have modified the basis on which BTG's LFL results are translated into Sterling by using the actual underlying transaction currency mix for determining transactional gains/losses to provide more accurate and reliable information on BTG's underlying performance.

The incremental impact of business acquisitions is excluded for the first twelve months of ownership from the month of purchase. For business disposals, comparative figures for segmental sales and adjusted operating profit are adjusted to reflect the comparable periods of ownership. The EMS business was disposed of on 31 May 2018 and the segmental LFL adjusted sales and adjusted operating profit for 2017 exclude the trading results of EMS for the last seven months of 2017.

The LFL measure is presented as a means of eliminating the effects of exchange rate fluctuations on the period-on-period statutory results as well as allowing the Board to assess the underlying trading performance of the businesses on a LFL basis for both sales and operating profit.

Based on the above policy, the adjusted performance measures are derived from the statutory figures as follows:

Income statement measures

a) LFL adjusted sales by segment

2018 sales by segment	Materials Analysis £m	Test and Measurement £m	In-line Instrumentation £m	Industrial Controls £m	2018 Total £m
Sales	**541.1**	**522.6**	**312.2**	**228.3**	**1,604.2**
Constant exchange rate adjustment	**7.6**	**3.6**	**4.0**	**7.3**	**22.5**
Acquisitions	**(44.5)**	**(25.9)**	**(1.7)**	**-**	**(72.1)**
LFL adjusted sales	**504.2**	**500.3**	**314.5**	**235.6**	**1,554.6**

2017 sales by segment	Materials Analysis £m	Test and Measurement £m	In-line Instrumentation £m	Industrial Controls £m	2017 Total £m
Sales	464.9	487.3	310.9	262.5	1,525.6
Disposal of businesses	-	(15.6)	-	(32.9)	(48.5)
LFL adjusted sales	464.9	471.7	310.9	229.6	1,477.1

2. Alternative performance measures (continued)

b) Adjusted operating profit, operating margin and adjusted EBITDA

2018 adjusted operating profit	**Materials Analysis £m**	**Test and Measurement £m**	**In-line Instrumentation £m**	**Industrial Controls £m**	**2018 Total £m**
Statutory operating profit	**72.1**	**42.8**	**32.2**	**29.3**	**176.4**
Restructuring costs	**4.4**	**5.2**	**3.0**	**3.0**	**15.6**
Net acquisition-related costs and fair value adjustments	**1.4**	**6.4**	**4.2**	**0.2**	**12.2**
Depreciation of acquisition-related fair value adjustments to property, plant and equipment	**0.2**	**0.6**	**-**	**-**	**0.8**
Amortisation and impairment of acquisition-related intangible assets	**17.3**	**12.2**	**3.2**	**10.6**	**43.3**
Adjusted operating profit	**95.4**	**67.2**	**42.6**	**43.1**	**248.3**
Constant exchange rate adjustment	**0.2**	**(0.7)**	**(0.7)**	**1.3**	**0.1**
Acquisitions	**1.2**	**(2.7)**	**0.3**	**-**	**(1.2)**
LFL adjusted operating profit	**96.8**	**63.8**	**42.2**	**44.4**	**247.2**

2017 adjusted operating profit	Materials Analysis £m	Test and Measurement £m	In-line Instrumentation £m	Industrial Controls £m	2017 Total £m
Statutory operating profit	68.6	55.6	29.5	28.7	182.4
Restructuring costs	4.2	5.3	2.8	3.5	15.8
Net acquisition-related costs and fair value adjustments	1.8	(0.1)	0.4	(1.7)	0.4
Depreciation of acquisition-related fair value adjustments to property, plant and equipment	-	0.7	-	-	0.7
Amortisation of acquisition-related intangible assets	12.7	14.6	3.3	11.3	41.9
Bargain purchase on acquisition	-	(1.9)	-	-	(1.9)
Adjusted operating profit	87.3	74.2	36.0	41.8	239.3
Disposals	-	(4.2)	-	(4.5)	(8.7)
LFL adjusted operating profit	87.3	70.0	36.0	37.3	230.6

2018 operating margin	**Materials Analysis %**	**Test and Measurement %**	**In-line Instrumentation %**	**Industrial Controls %**	**2018 Total %**
Statutory operating margin	**13.3**	**8.2**	**10.3**	**12.8**	**11.0**
Adjusted operating margin	**17.6**	**12.9**	**13.6**	**18.9**	**15.5**
LFL adjusted operating margin	**19.2**	**12.8**	**13.4**	**18.8**	**15.9**

2017 operating margin	Materials Analysis %	Test and Measurement %	In-line Instrumentation %	Industrial Controls %	2017 Total %
Statutory operating margin	14.8	11.4	9.5	10.9	12.0
Adjusted operating margin	18.8	15.2	11.6	15.9	15.7
LFL adjusted operating margin	18.8	14.8	11.6	16.2	15.6

2. Alternative performance measures (continued)

b) LFL and adjusted operating profit by segment and EBITDA (continued)

Adjusted operating profit after Project Uplift costs	2018 £m	2017 £m
Adjusted operating profit	248.3	239.3
Project Uplift costs	(10.8)	(15.8)
Adjusted operating profit after Project Uplift costs	237.5	223.5

Restructuring costs	2018 £m	2017 £m
Profit improvement programme	4.8	-
Project Uplift costs	10.8	15.8
Restructuring costs	15.6	15.8

Adjusted EBITDA	2018 £m	2017 £m
Statutory operating profit	176.4	182.4
Depreciation	30.3	25.6
Amortisation and impairment of intangible assets	49.1	47.5
EBITDA	255.8	255.5
Restructuring costs	15.6	15.8
Net acquisition-related costs and fair value adjustments	12.2	0.4
Bargain purchase on acquisition	-	(1.9)
Adjusted EBITDA	283.6	269.8

EBITDA is calculated as statutory operating profit before depreciation and amortisation and impairment of intangible assets. Adjusted EBITDA is calculated as EBITDA excluding other adjusting items as defined previously. This measure is used for the purpose of assessing capital management and covenant compliance and is reported to the Group Executive Committee.

c) Adjusted net finance costs

	2018 £m	2017 £m
Statutory net finance costs	(13.5)	(4.5)
Net loss/(gain) on retranslation of short-term inter-company loan balances	7.2	(1.3)
Unwinding of discount factor on deferred and contingent consideration	0.6	0.7
Adjusted net finance costs	(5.7)	(5.1)

d) Adjusted profit before taxation

	2018 £m	2017 £m
Adjusted operating profit	248.3	239.3
Share of post-tax results of joint venture	(1.2)	-
Adjusted net finance costs	(5.7)	(5.1)
Adjusted profit before taxation	241.4	234.2

2. Alternative performance measures (continued)

e) Adjusted earnings per share

Adjusted earnings	2018 £m	2017 £m
Statutory profit after tax	**185.2**	234.8
Adjusted for:		
Restructuring costs	**15.6**	15.8
Net acquisition-related costs and fair value adjustments	**12.2**	0.4
Depreciation of acquisition-related fair value adjustments to property, plant and equipment	**0.8**	0.7
Amortisation and impairment of acquisition-related intangible assets	**43.3**	41.9
Bargain purchase on acquisition	**-**	(1.9)
Profit on disposal of businesses	**(56.3)**	(100.5)
Net loss/(gain) on retranslation of short-term inter-company loan balances	**7.2**	(1.3)
Unwinding of discount factor on deferred and contingent consideration	**0.6**	0.7
Tax effect of the above and other non-recurring items	**(14.8)**	(6.3)
Adjusted earnings	**193.8**	184.3

Adjusted earnings per share	2018	2017
Weighted average number of shares outstanding (millions)	**117.5**	119.2
Adjusted earnings per share (pence)	**164.9**	154.6

Basic earnings per share in accordance with IAS 33 'Earnings Per Share' are disclosed in Note 7.

Financial position measures

f) Net debt

	2018 £m	2017 £m
Bank overdrafts	**5.8**	1.3
Bank loans unsecured	**364.4**	187.2
Total borrowings	**370.2**	188.5
Cash and cash equivalents including held for sale	**(73.1)**	(138.0)
Net debt	**297.1**	50.5

Cash flow measures

g) Adjusted operating cash flow

	2018 £m	2017 £m
Net cash inflow from operating activities	**178.1**	190.6
Acquisition-related costs paid	**10.8**	2.8
Restructuring cash outflow	**8.6**	16.8
Net income taxes paid	**37.7**	47.0
Purchase of property, plant and equipment and intangible assets	**(97.0)**	(74.3)
Proceeds from government grants	**2.9**	1.2
Proceeds from disposal of property, plant and equipment and software	**5.6**	0.5
Adjusted operating cash flow	**146.7**	184.6
Adjusted operating cash flow conversion[1]	**59%**	77%

[1] Adjusted operating cash flow conversion is calculated as adjusted operating cash flow as a proportion of adjusted operating profit.

2. Alternative performance measures (continued)

g) Adjusted operating cash flow (continued)

Net acquisition-related costs and fair value adjustments comprise acquisition costs of £7.4m (2017: £3.4m) that have been recognised in the Consolidated Income Statement under IFRS 3 (Revised) 'Business Combinations' and other fair value adjustments relating to deferred and contingent consideration comprising a charge of £4.8m (2017: credit of £3.0m). Net acquisition-related costs and fair value adjustments are included within administrative expenses. Acquisition-related costs have been excluded from the adjusted operating profit and acquisition costs paid of £10.8m (2017: £2.8m) have been excluded from the adjusted operating cash flow.

3. Operating segments

The Group has four reportable segments, which are the Group's strategic business units. These units offer different applications, assist companies at various stages of the production cycle and are focused on specific industries. These segments reflect the internal reporting provided to the Chief Operating Decision Maker (considered to be the Board) on a regular basis to assist in making decisions on capital allocated to each segment and to assess performance. The segment results include an allocation of head office expenses.

Information about reportable segments	Materials Analysis £m	Test and Measurement £m	In-line Instrumentation £m	Industrial Controls £m	2018 Total £m
Segment revenues	**541.4**	**524.2**	**312.4**	**228.4**	**1,606.4**
Inter-segment revenue	**(0.3)**	**(1.6)**	**(0.2)**	**(0.1)**	**(2.2)**
External revenue	**541.1**	**522.6**	**312.2**	**228.3**	**1,604.2**
Operating profit	**72.1**	**42.8**	**32.2**	**29.3**	**176.4**
Share of post-tax results of joint venture[1]					**(1.2)**
Profit on disposal of businesses[1]					**56.3**
Financial income[1]					**2.5**
Finance costs[1]					**(16.0)**
Profit before tax[1]					**218.0**
Taxation charge[1]					**(32.8)**
Profit after tax[1]					**185.2**

1 Not allocated to reportable segments

	Materials Analysis £m	Test and Measurement £m	In-line Instrumentation £m	Industrial Controls £m	2017 Total £m
Segment revenues	465.2	487.5	311.1	262.9	1,526.7
Inter-segment revenue	(0.3)	(0.2)	(0.2)	(0.4)	(1.1)
External revenue	464.9	487.3	310.9	262.5	1,525.6
Operating profit	68.6	55.6	29.5	28.7	182.4
Profit on disposal of businesses[1]					100.5
Financial income[1]					1.9
Finance costs[1]					(6.4)
Profit before tax[1]					278.4
Taxation charge[1]					(43.6)
Profit after tax[1]					234.8

1 Not allocated to reportable segments

3. Operating segments (continued)

Geographical segments

The Group's operating segments are each located in several geographical locations and sell to external customers in all parts of the world. No individual country amounts to more than 3% of revenue by location of customer, other than those noted below. The following is an analysis of revenue by geographical destination.

	Materials Analysis £m	Test and Measurement £m	In-line Instrumentation £m	Industrial Controls £m	2018 Total £m
UK	**50.9**	**69.3**	**6.6**	**6.4**	**133.2**
Germany	**29.5**	**91.1**	**23.6**	**7.2**	**151.4**
France	**17.7**	**23.3**	**7.8**	**2.4**	**51.2**
Rest of Europe	**77.3**	**76.5**	**49.8**	**8.3**	**211.9**
USA	**102.1**	**103.3**	**85.8**	**156.5**	**447.7**
Rest of North America	**16.6**	**12.1**	**11.4**	**12.3**	**52.4**
Japan	**32.9**	**31.8**	**14.4**	**3.3**	**82.4**
China	**81.9**	**69.6**	**55.2**	**14.8**	**221.5**
South Korea	**25.5**	**10.8**	**10.0**	**4.9**	**51.2**
Rest of Asia	**68.4**	**20.9**	**29.1**	**8.9**	**127.3**
Rest of the world	**38.3**	**13.9**	**18.5**	**3.3**	**74.0**
	541.1	**522.6**	**312.2**	**228.3**	**1,604.2**

	Materials Analysis £m	Test and Measurement £m	In-line Instrumentation £m	Industrial Controls £m	2017 Total £m
UK	14.6	62.0	7.5	7.6	91.7
Germany	24.7	82.5	25.4	11.3	143.9
France	15.1	20.6	7.4	3.1	46.2
Rest of Europe	73.2	76.5	51.4	11.2	212.3
USA	97.6	89.2	89.3	169.0	445.1
Rest of North America	13.6	11.7	12.6	13.3	51.2
Japan	33.7	28.3	15.4	3.3	80.7
China	72.8	63.4	43.6	21.8	201.6
South Korea	21.7	14.0	7.9	6.7	50.3
Rest of Asia	61.5	24.3	29.1	11.3	126.2
Rest of the world	36.4	14.8	21.3	3.9	76.4
	464.9	487.3	310.9	262.5	1,525.6

4. Financial income and finance costs

Financial income	2018 £m	2017 £m
Interest receivable	(0.5)	(0.6)
Income on receivable from joint venture	(2.0)	-
Net gain on retranslation of short-term inter-company loan balances	-	(1.3)
	(2.5)	(1.9)

Finance costs	2018 £m	2017 £m
Interest payable on loans and overdrafts	7.3	4.9
Net loss on retranslation of short-term inter-company loan balances	7.2	-
Unwinding of discount factor on deferred and contingent consideration	0.6	0.7
Net interest cost on pension plan obligations	0.6	0.7
Other finance costs	0.3	0.1
	16.0	6.4
Net finance costs	13.5	4.5

5. Taxation

	2018			2017		
	UK £m	Overseas £m	Total £m	UK £m	Overseas £m	Total £m
Current tax charge	3.9	37.1	41.0	6.3	58.3	64.6
Adjustments in respect of current tax of prior years	(0.1)	(2.0)	(2.1)	(1.0)	(4.8)	(5.8)
Deferred tax - origination and reversal of temporary differences	(3.3)	(1.9)	(5.2)	(1.1)	(5.3)	(6.4)
Deferred tax – changes in US tax rate	-	(0.9)	(0.9)	-	(8.8)	(8.8)
Taxation charge	0.5	32.3	32.8	4.2	39.4	43.6

The standard rate of corporation tax for the year, based on the weighted average of tax rates applied to the Group's profits, is 26.0% (2017: 28.6%). The tax charge for the year is lower (2017: lower) than the standard rate of corporation tax for the reasons set out in the following reconciliation.

	2018 £m	2017 £m
Profit before taxation	218.0	278.4
Corporation tax charge at standard rate of 26.0% (2017: 28.6%)	56.7	79.6
Profit on disposal of business taxed at lower rate	(16.0)	(17.1)
Net impact of US tax reform measures	(0.9)	(8.0)
Effect of intra-group financing	(4.9)	(5.4)
Other non-deductible expenditure	3.8	3.8
Movements on unrecognised deferred tax assets	0.4	-
Tax credits and incentives	(4.1)	(5.0)
Change in tax rates (excluding US)	0.3	-
Adjustments to prior year current and deferred tax charges	(2.5)	(4.3)
Taxation charge	32.8	43.6

'Net impact of US tax reform measures' above refers to the impact of the US Tax Cuts and Jobs Act of 2017. In 2017, this comprised a credit of £8.8m arising from the re-measurement of net US deferred tax liabilities on the balance sheet at 31 December 2017 at the lower US tax rate, net of a one-off charge of £0.8m on accumulated foreign profits of the Group's US subsidiaries. In 2018, this comprises a credit of £0.9m arising as a prior year adjustment in respect of re-measuring the prior year net deferred tax liabilities.

'Tax credits and incentives' above refers principally to research and development tax credits and other reliefs for innovation such as the UK Patent Box regime and Dutch Innovation Box regime.

5. Taxation (continued)

The following tax (credits)/charges relate to items of income and expense that are excluded from the Group's adjusted performance measures.

	2018 **£m**	2017 £m
Tax credit on amortisation and impairment of acquisition-related intangible assets	**(9.6)**	(12.9)
Tax credit on depreciation of acquisition-related fair value adjustments to property, plant and equipment	**(0.1)**	(0.1)
Tax credit arising from net impact of US tax reform measures	**(0.9)**	(8.0)
Tax credit on net acquisition-related costs and fair value adjustments	**(0.6)**	(0.1)
Tax (credit)/charge on retranslation of short-term inter-company loan balances	**(0.5)**	0.3
Tax charge on profit on disposal of businesses	**0.4**	19.0
Tax credit on restructuring costs	**(3.5)**	(4.5)
Total tax credit	**(14.8)**	(6.3)

The effective adjusted tax rate for the year was 19.7% (2017: 21.3%) as set out in the reconciliation below:

Reconciliation of the statutory taxation charge to the adjusted taxation charge	**2018** **£m**	2017 £m
Statutory taxation charge	**32.8**	43.6
Tax credit on items of income and expense that are excluded from the Group's adjusted profit before tax	**14.8**	6.3
Adjusted taxation charge	**47.6**	49.9

6. Dividends

Amounts recognised and paid as distributions to owners of the Company in the year	**2018** **£m**	2017 £m
Final dividend for the year ended 31 December 2017 of 37.5p (2016: 34.0p) per share	**44.5**	40.5
Interim dividend for the year ended 31 December 2018 of 20.5p (2017: 19.0p) per share	**23.7**	22.7
	68.2	63.2

Amounts arising in respect of the year	**2018** **£m**	2017 £m
Interim dividend for the year ended 31 December 2018 of 20.5p (2017: 19.0p) per share	**23.7**	22.7
Proposed final dividend for the year ended 31 December 2018 of 40.5p (2017: 37.5p) per share	**46.8**	44.7
	70.5	67.4

The proposed final dividend is subject to approval by shareholders at the Annual General Meeting on 24 May 2019 and has not been included as a liability in these Financial Statements.

7. Earnings per share

Basic earnings per share amounts are calculated by dividing net profit for the year attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding during the year (excluding treasury shares).

Diluted earnings per share amounts are calculated by dividing the net profit attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding during the year but adjusted for the effects of dilutive options.

Basic earnings per share	**2018**	2017
Profit after tax (£m)	**185.2**	234.8
Weighted average number of shares outstanding (millions)	**117.5**	119.2
Basic earnings per share (pence)	**157.6**	197.0

Diluted earnings per share	**2018**	2017
Profit after tax (£m)	**185.2**	234.8
Basic weighted average number of shares outstanding (millions)	**117.5**	119.2
Weighted average number of dilutive 5p ordinary shares under option (millions)	**0.6**	0.9
Weighted average number of 5p ordinary shares that would have been issued at average market value from proceeds of dilutive share options (millions)	**(0.1)**	(0.4)
Diluted weighted average number of shares outstanding (millions)	**118.0**	119.7
Diluted earnings per share (pence)	**156.9**	196.1

8. Cash generated from operations

	2018 £m	2017 £m
Cash flows from operating activities		
Profit after tax	**185.2**	234.8
Adjustments for:		
Taxation charge	**32.8**	43.6
Profit on disposal of businesses	**(56.3)**	(100.5)
Share of post-tax results of joint venture	**1.2**	-
Finance costs	**16.0**	6.4
Financial income	**(2.5)**	(1.9)
Depreciation	**30.3**	25.6
Amortisation and impairment of intangible assets	**49.1**	47.5
Bargain purchase on acquisition	**-**	(1.9)
Acquisition-related fair value adjustments	**4.8**	(3.0)
(Profit)/loss on disposal of property, plant and equipment	**(1.9)**	0.1
Equity-settled share-based payment expense	**5.1**	5.4
Operating cash flow before changes in working capital and provisions	**263.8**	256.1
Increase in trade and other receivables	**(30.4)**	(34.3)
Increase in inventories	**(17.4)**	(0.6)
(Decrease)/increase in trade and other payables	**(3.6)**	17.5
Increase/(decrease) in provisions and retirement benefits	**3.4**	(1.1)
Cash generated from operations	**215.8**	237.6

9. Share capital, treasury shares and employee benefit trust shares

At 31 December 2018, the Group held 5,636,153 treasury shares (2017: 5,747,360). During the year, 111,207 (2017: 93,153) of these shares were issued to satisfy options exercised by, and SIP Matching Shares awarded to, employees which were granted under the Group's share schemes. 3,825,802 ordinary shares were repurchased and cancelled by the Group during the year (2017: nil) as part of the share buyback programme announced on 5 March 2018, which concluded on 13 August 2018.

10. Acquisitions

Concept Life Sciences

On 26 January 2018, the Group acquired 100% of Concept Life Sciences (Holdings) Limited ('CLS') for a gross consideration of £166.9m. CLS is a UK-based group providing integrated drug discovery, development, analytical testing and environmental consultancy services mainly in the pharmaceutical, biotechnology, agrochemical and environmental sectors. This acquisition adds to the Group's capabilities in test services in the Materials Analysis segment. The excess of the fair value of consideration paid over the fair value of the net tangible assets acquired is represented by the following intangible assets: customer-related (relationships), technology and goodwill. Goodwill arising is attributable to the acquired workforce, expected future customer relationships and synergies from cross-selling instruments and services, as well as the development of novel analytical methods and assays based on the combination of technical knowhow from CLS and instrumentation technology from Malvern Panalytical.

Other acquisitions

The Group completed the acquisition of 100% of Revolutionary Engineering, Inc. on 3 April 2018 for a gross consideration of £8.7m. Revolutionary Engineering, Inc. is an automotive test system and service provider based in the USA. The provisional fair value of net assets acquired was £5.4m, including £3.8m of intangible assets, which generated provisional goodwill of £3.3m. The Group completed the acquisition of 100% of VI-grade Group in August 2018 for a consideration of £28.3m. VI-grade is a leading global provider of vehicle simulation solutions and services, primarily to automotive customers. The provisional fair value of net assets acquired was £15.5m, including £15.8m of customer-related and technology intangible assets, which generated provisional goodwill of £12.8m. Both other acquisitions are included in the Test and Measurement segment.

The fair values included in the table below relate to the acquisition of CLS and other acquisitions during the year. The fair values in respect of CLS are final. The fair values in respect of other acquisitions are provisional, reflecting the timing of the acquisitions, and are expected to be finalised within 12 months of the acquisition date:

	Concept Life Sciences £m	Other acquisitions £m	Total fair value £m
Intangible assets	**52.4**	**19.6**	**72.0**
Property, plant and equipment	**13.0**	**2.5**	**15.5**
Inventories	**7.0**	**1.1**	**8.1**
Trade and other receivables	**11.3**	**5.5**	**16.8**
Cash and cash equivalents	**1.5**	**6.7**	**8.2**
Trade and other payables	**(14.6)**	**(9.1)**	**(23.7)**
Provisions	**(0.3)**	**(0.5)**	**(0.8)**
Deferred tax liabilities	**(8.9)**	**(4.9)**	**(13.8)**
Net assets acquired	**61.4**	**20.9**	**82.3**
Goodwill	**105.5**	**16.1**	**121.6**
Gross consideration	**166.9**	**37.0**	**203.9**
Adjustment for cash acquired	**(1.5)**	**(6.7)**	**(8.2)**
Net consideration	**165.4**	**30.3**	**195.7**

There are no material contingent liabilities recognised in accordance with IFRS 3 (Revised).

Analysis of cash outflow in Consolidated Statement of Cash Flows	**2018 £m**	2017 £m
Net consideration in respect of acquisitions during the year	**195.7**	33.8
Deferred and contingent consideration on acquisitions during the year to be paid in future years	**(6.0)**	(1.4)
Cash paid during the year in respect of acquisitions during the year	**189.7**	32.4
Cash paid in respect of prior years' acquisitions	**6.7**	4.1
Net cash outflow relating to acquisitions	**196.4**	36.5

In the Consolidated Income Statement for the year ended 31 December 2018, sales of £62.9m and operating profit of £1.5m have been included for all acquisitions in the year. Full details of acquisitions completed in 2018 are included in the 2018 Annual Report and Accounts. Group revenue and operating profit for the year ended 31 December 2018 would have been £1,619.2m and £177.3m, respectively had each of these acquisitions taken place on the first day of the financial year.

11. Profit on disposal of businesses

The Group completed the disposal of 100% of its environmental monitoring business, EMS Brüel & Kjær ('EMS B&K') on 31 May 2018 into a joint venture with Macquarie Capital in exchange for cash consideration of £45.1m and a 45% interest in the joint venture. This generated a profit on disposal of £56.3m which included £44.4m arising as a result of measuring to fair value the Group's retained 45% interest in the EMS B&K business, transaction expenses of £6.5m and a contingent deferred payment to Macquarie Capital estimated at £2.9m which is dependent upon the delivery of certain objectives.

	2018 £m
Goodwill and other intangible assets	23.4
Property, plant and equipment	1.4
Net deferred and current tax assets	0.5
Inventory	1.7
Trade and other receivables	6.1
Cash and cash equivalents	0.2
Trade and other payables	(4.4)
Net assets disposed	28.9
Consideration received, satisfied in cash	45.1
Consideration received, satisfied in equity in the joint venture	6.0
Consideration received, satisfied in other receivables from the joint venture	38.4
Contingent deferred payment	(2.9)
Transaction costs	(6.5)
Net consideration from disposal of business	80.1
Net assets disposed of	(28.9)
Currency translation differences transferred from translation reserve	5.1
Profit on disposal of business	56.3

In 2017, the disposal of Microscan resulted in a profit on disposal of business of £100.5m. During the year, £2.0m was received in respect of deferred consideration for the disposal of Microscan.

Cautionary statement