

Judges Scientific plc
Annual Report and Accounts 2016

Chairman's Statement

For the year ended 31 December 2016

2016 was a year of contrasts for Judges. A record of four acquisitions were completed but the overall trading performance of the Group was disappointing. The Group currently consists of 13 trading businesses; the excellent progress of five of our organic businesses and the contribution of the newly acquired ones only partially compensated for the underperformance of three of the Group's businesses. The Group as a whole achieved modest revenue growth in 2016 to a new record of £57.3 million (2015: £56.2 million).

While the long-term growth drivers of the scientific instrumentation sector remain excellent, the volatile demand observed in the previous three to four years has continued to be a feature of our business; weak demand throughout the Group in the first half gave way to a good recovery and a strong order book by the year-end of 13.9 weeks (31 December 2015: 11.4 weeks).

Acquisitions

The year under review saw the completion of the acquisitions of:

- 100% of the issued share capital of CoolLED Limited ("CoolLED") on 18 February 2016 for a total consideration of £3.6 million (including an earn out payment of £0.1 million) plus excess cash. CoolLED designs, manufactures and markets illumination systems for fluorescence microscopy, which is a technique used in life sciences;
- the business and assets of Fire Instrumentation & Research Equipment ("FIRE") on 29 March 2016. This business manufactures instruments which test reaction to fire and has been integrated into Fire Testing Technologies;
- 100% of the issued share capital of Dia-Stron Limited ("Dia-Stron") on 1 April 2016 for a total consideration of £2.7 million plus excess cash. The company designs, manufactures and sells systems to test the mechanical properties of fibres; and
- 100% of the issued share capital of EWB Solutions Limited ("EWB") on 29 November 2016 for £1.8 million plus excess cash. The company manufactures edge-welded bellows used in Ultra High Vacuum systems and other scientific, medical and defence applications.

I am pleased to report that these new additions to the Group have performed well and further diversified our revenue streams and mitigated our risk profile.

Performance

Group revenues increased from £56.2 million to £57.3 million. This included organic growth of 2.5% and the 2016 acquisitions, offset to a degree by lower sales at Armfield. Adjusted operating profits reduced from £9.3 million in 2015 to £7.1 million. Statutory operating profit was £1.0 million (2015: £1.8 million).

Despite a disappointing trading performance, the Group's financial position remains strong and the Board recommends a final dividend of 18.5p, making a total of 27.5p in respect of 2016 (2015: 25.0p), representing a 10.0% increase.

Strategy

The Group's strategy is based on creating shareholder returns through highly selective and carefully structured acquisitions, underpinned by diversified, solid and consistent earnings and cashflows arising from our acquired businesses.

The Group's acquisition model is to acquire small/medium-sized scientific instrument companies, paying a disciplined multiple of earnings and to finance any acquisition ideally through existing cash resources and/or bank borrowings. We are highly selective in acquiring businesses with long-term sustainable profits and cashflows, in order to obtain immediate and enduring earnings enhancement for our shareholders. It is paramount that acquisitions are completed only when the Directors are satisfied that the target business has sound longstanding strength. As our Group grows it is then able to promptly pay down the acquisition debt, making space to reinvest in further acquisitions, subject to our prudent approach on gearing.

The underlying market for scientific instruments remains robust and the sector's long-term growth drivers provide comfort that the Group will continue to deliver strong and durable returns for shareholders despite, as we have seen this year, the potential for some short-term variability in performance. Long-term market drivers are rooted in the general global expansion of higher education and the need for improved measurement to support the relentless worldwide search for optimisation across science and industry.

Chairman's Statement

For the year ended 31 December 2016

Our team

The Group has highly specialised and skilled employees who constantly strive to improve and perfect their products and services in a rapidly changing technical world. Their intimate knowledge of their niche markets and customers, most of which are international to the UK, has allowed your Company to weather some changeable economic circumstances over the past few years and we are fortunate to benefit from their dedication and sheer hard work. Our thanks go out to them and to all our stakeholders for their continued and important contributions to the achievements reported during the year.

Alex Hambro
Chairman
20 March 2017

Strategic Report

Chief Executive's Report

For the year ended 31 December 2016

Group revenues for the financial year ended 31 December 2016 progressed modestly from £56.2 million to £57.3 million, an increase of 2%. This reflects organic growth of 2.5%, and the contribution of the four businesses acquired during 2016 and the full-year albeit reduced contribution from Armfield (2015: 11 months). For the year as a whole and excluding the businesses acquired since 1 January 2015 (this is the meaning of "organic" in this Report and Accounts), revenues declined 14% in the UK, 14% in the rest of Europe and 5% in China/Hong Kong but North America was strong, with USA/Canada up 34%.

Profit before tax and adjusting items receded to £6.6 million (2015: £8.8 million). Organic operating contribution was down 19.8% due to the underperformance of two businesses in the Group's Vacuum division; one was impacted by a reduction in demand from end customers in its niche, whilst the other suffered production and supply chain issues. Five organic businesses made excellent progress and increased the amount of their contribution by 29% but this only partially compensated the shortfall at the two organic underperformers. All operating subsidiaries combined (including Armfield and the 2016 acquisitions) produced a Return on Total Invested Capital of 15.2% (2015: 24.1%).

Basic earnings per share before adjusting items decreased by 22.3% to 84.8p from 109.2p, while fully diluted earnings per share before adjusting items declined 22.0% to 83.7p (2015: 107.3p).

For the third consecutive year, order intake started slowly and, in 2016, it only began to improve in June. The recovery was particularly strong in the third quarter and organic intake finished up 2.9% for the full year. Armfield also had a poor start and a strong third quarter but was behind last year in the fourth quarter and well behind for the year as a whole. Order intake in the newly acquired subsidiaries was in line with Judges' expectations. The organic order book grew from 11.4 weeks, as at 1 January 2016, to 14.7 weeks as at 31 December 2016; total order book at the year-end reached 13.9 weeks.

The trading issues experienced during 2016 impacted cashflow. Cash generated from operations, which amounted to £6.2 million (2015: £8.5 million), was also affected by the production problems mentioned previously. Adjusted net debt as at 31 December 2016, excluding subordinated debt owed to non-controlling shareholders and including sums still due in respect of an acquisition, amounted to £9.9 million (2015: £4.0 million); the main contribution to the increase is the £9.0 million spent on acquisitions. Year-end cash balances totalled £7.9 million (2015: £8.5 million).

Dividends

The Company is returning to the practice of paying only one interim dividend. Your Board is recommending a final dividend of 18.5p per share which, subject to approval at the forthcoming Annual General Meeting on 24 May 2017, will make a total distribution of 27.5p per share in respect of 2016 (2015: 25.0p per share). Despite the proposed 10.0% increase, the total dividend is covered over three times by adjusted earnings per share.

The proposed final dividend will be payable on 7 July 2017 to shareholders on the register on 9 June 2017 and the shares will go ex-dividend on 8 June 2017.

The Company's shareholders are reminded that a Dividend Reinvestment Plan (DRIP) is in place to enable shareholders to automatically reinvest their dividends in new Judges shares should they so wish.

Trading environment

The long-term fundamentals supporting demand for scientific instruments remain positive. Market demand is being driven primarily by increased worldwide investment in higher education and a growing trend towards optimisation across science and industry; optimisation requires measurement.

Despite these positive long-term trends, the markets across which Judges and its peers operate are characterised by a degree of shorter-term variability, influenced mostly by government spending, currency fluctuations and the business climate in major trading blocs, particularly the USA and China. In smaller territories, year-on-year comparisons can be somewhat meaningless, partly due to the high value of some individual orders and the long gestation period often occurring before purchasing intentions crystallise into orders and sales.

As a large percentage of the Group's sales are overseas, exchange rates have a significant influence on the Group's business: Judges' manufacturing costs are largely denominated in Sterling and most of its revenue originates from countries where the standard of value is the Euro (one-third of total revenue) or the US Dollar (half of total revenue). The currency movements in the run-up to the Brexit vote and since have had a positive influence (mitigated to an extent by hedging) on our margins or our competitiveness. Current exchange rates are the most favourable we have seen since 2009.

Strategic Report

Chief Executive's Report

For the year ended 31 December 2016

We are always seeking to maintain and develop market share through the creation of new and improved products. This is evidenced by our significant investment in research and development. Your Group's investment towards achieving these goals increased to £3.8 million during 2016, equivalent to 6.6% of Group revenue (2015: £3.0 million; 5.4%). We have budgeted to maintain this level of investment in 2017 reflecting the importance we place in providing our customers with innovative, state-of-the-art, products.

Acquisitions

As a buy and build group, the acquisition of new businesses is a fundamental feature of our strategy. Executing this effectively is required to ensure that long-term value is generated for shareholders. In 2016 we acquired four businesses: CoolLED in February, FIRE in March, Dia-Stron in April and EWB Solutions in November.

The industry in which we operate consists of a multitude of small global niches as highlighted by the diverse nature of the new entrants to our Group. The UK is recognised as a centre of excellence for product innovation and manufacturing with world-leading businesses in this arena. Our Group has built a reputation over the past decade as a worthwhile home for businesses in our sector whose owners wish to sell. We are trusted to act decisively and to complete deals under the initial terms agreed. Consequently, we continue to see many opportunities; affording us a high degree of selectivity.

CoolLED

CoolLED specialises in the design, manufacture and marketing of LED illumination systems for fluorescence microscopy and is based in Andover, Hampshire. The purchase consideration included an initial £3.5 million cash payment, a payment reflecting excess cash at completion and a potential £1.0 million earn-out payable to the extent that adjusted EBIT for the financial year ended 30 June 2016 exceeded £0.78 million. In line with the Board's expectations at completion £0.1 million was paid to settle the earn-out in August 2016. The trailing twelve months adjusted operating profit for CoolLED to 30 September 2015 was £0.75 million arising from £2.8 million of revenue. The £3.5 million paid at completion was drawn from the Group's acquisition facility.

CoolLED's innovative products have proven their value to researchers as high quality LED lighting sources which are progressively replacing outdated mercury lamps. It has grown strongly over the past few years and Scientifica, one of our subsidiaries and a major customer, believe their products are the best available.

FIRE

Our subsidiary, Fire Testing Technology ("FTT") acquired the business and certain assets of FIRE, which manufactures products similar in nature to FTT. Post-acquisition, FIRE has been integrated into FTT's operations.

Dia-Stron

Dia-Stron, which is based in Andover, Hampshire and with a sales office in the USA, manufactures systems to test the mechanical properties of fibres. Their instruments are predominantly used in the testing of human hair, where approximately 75% of its sales are achieved and they are the world leader. The balance comprises industrial fibres, skin testing instruments and contract testing for third parties. The company was acquired for a cash consideration of £2.7 million plus a separate payment to reflect excess cash at completion. Dia-Stron's adjusted operating profits for the 12-month period ended 30 August 2015 totalled £0.66 million on sales of £1.67m. This acquisition was financed from existing cash resources.

EWB

EWB is a company based in Hemel Hempstead, Hertfordshire, that manufactures edge-welded bellows used in Ultra High Vacuum ("UHV") systems and various other applications. EWB was acquired for a cash consideration of £1.76 million plus a payment to reflect excess cash at completion. The company's adjusted operating profit for the year ended 30 April 2016 was £0.5 million and its average adjusted operating profit for the five years ended on 30 April 2016 was £0.44 million. The acquisition was financed partly from the Judges acquisition facility and partly from existing cash resources.

The majority of EWB's products are bespoke but repetitive and sold directly to original equipment manufacturers ("OEMs") for integration into UHV systems; these provide high tech surface analysis and processing techniques, for use in semi-conductor manufacturing, nanotechnology, nuclear science and general research. Other applications include aerospace, medical and industrial devices. The acquisition reinforces the Group's pre-eminent position in the UHV field.

Strategic Report

Chief Executive's Report

For the year ended 31 December 2016

Current trading and prospects

2017 has commenced in a positive fashion with overall order intake for the first ten weeks of the year in line with our yearly budget, and organic order intake substantially ahead of the same period at the start of 2016. This continues the momentum of order intake experienced in the second half of 2016. This early start to 2017 is in contrast to the weak beginning observed in the previous three years.

Since the year-end we have taken further steps to address the production challenges in one of our businesses. However we expect that these actions will take some time before bearing fruit.

As a business which exports a significant amount of its output, we are benefitting from the weakness in Sterling resulting from the Brexit vote and we are now enjoying the most favourable foreign exchange environment since 2009. In spite of the continuing influence of some of the difficulties experienced in 2016, Judges commences 2017 with a solid financial position, four new businesses, a strong order book and positive order intake since the start of the year, all of which provides a platform for a year of progress.

David Cicurel
Chief Executive
20 March 2017

Strategic Report

Finance Director's Report

For the year ended 31 December 2016

The Group's strategy is based on the acquisition of companies operating in the scientific instruments sector and the continuing generation of profitable performance at its existing subsidiary businesses.

The Group's Key Performance Indicators, which are aligned with the ability to repay acquisition debt and fund dividend payments to shareholders, are earnings per share, return on capital and cashflow generation. All three KPIs have suffered as a result of the underperformance of three of our businesses this year.

Revenue

Group revenues only rose 2.0% by £1.1 million to £57.3 million (2015: £56.2 million). These revenues included organic sales growth of 2.5% in the year (2015: 4.9%), which was a mixture of strong performance at five of our businesses partially offset by weak performance at two others. The benefits of revenues from our new acquisitions were counterbalanced by weak performance at Armfield in 2016. Armfield will be measured as part of the organic businesses in 2017.

The Materials Sciences segment revenues remained stable at £28.2 million (2015: £28.3 million) and Vacuum revenues increased by 4.5% to £29.1 million compared to £27.9 million in 2015. Within the Material Sciences segment, poor performance at Armfield offset good organic performance and revenue from new acquisitions. The growth in Vacuum revenues is attributable to new acquisitions partially offset by sluggish organic sales.

Profits

2016's adjusted operating profits decreased by £2.2 million to £7.1 million (2015: £9.3 million). This decrease of 22.8% reflects the weak performance at three of our businesses, which more than offset the benefit from our new acquisitions and the good performance at five of our other businesses. Adjusted operating margins consequently reduced to 12.5% (2015: 16.5%) particularly impacted by the production issues at one of our businesses. Adjusted profit before tax was £6.6 million compared to £8.8 million in 2015.

Statutory operating profit reduced by £0.8 million to £1.0 million (2015: £1.8 million), and statutory profit before tax was £0.4 million compared to £1.3 million in 2015.

Adjusting items

Total adjusting items recorded in 2016 were £6.2 million compared to £7.5 million in 2015. Amortisation of intangible assets recognised upon acquisition, as required under IFRS, totalled £5.2 million compared to £6.7 million in 2015 and acquisition costs increased by £0.2 million to £0.7 million (2015: £0.5 million) as a consequence of the increased number of completed acquisitions this past year.

Finance costs

Net finance costs (excluding adjusting items) totalled £0.5 million (2015: £0.5 million). Statutory net finance costs were £0.6 million, the difference due to the £0.1 million net finance cost of the defined benefit pension scheme acquired with Armfield in 2015.

Taxation

The Group's tax charge arising from adjusted profit before tax was £0.8 million compared to £1.8 million in 2015. The effective tax rate for adjusted profit is 11.6% (2015: 20.0%). This significant reduction is due to three reasons: reduced UK corporation tax rates; significantly improved claims for research and development tax credits; and achieving lower profitability in the US than originally expected. The latter was impacted by weaker demand at Armfield and a longer set-up period than expected following the opening of our new US subsidiary at Scientifica. As and when US profitability recovers this will weigh against the overall tax rate. At the same time, whilst we remain an SME for R&D tax credits the Group will derive the benefit from this scheme.

Earnings per share

Adjusted basic earnings per share reduced by 22.3% to 84.8p compared to 109.2p in 2015, while adjusted diluted earnings per share receded to 83.7p (2015: 107.3p), a decrease of 22.0%.

Statutory basic earnings per share, after reflecting adjusting items which were heavily influenced by the amortisation of intangible assets arising from recent acquisitions, was 1.3p (2015: 12.8p) and statutory diluted earnings per share totalled 1.3p (2015: 12.6p).

Strategic Report

Finance Director's Report

For the year ended 31 December 2016

Order intake

Organic order intake in 2016 was weak for the first quarter, similar to the previous two years. However, this weakness continued until the end of May 2016 when order intake then rebounded strongly and remained satisfactory for the rest of the year, resulting in a small increase in overall organic intake of 2.9% for 2016 (2015: 12.7%). If Armfield (which was acquired in January 2015 and is hence not part of organic growth on a like-for-like basis) was included, order intake would have shown a 2.3% decline. Your Board considers order intake and the resultant year-end order book as an important bellwether to the Group's ability to achieve its expected results. Our organic order book at 1 January 2017 was a robust 14.7 weeks of budgeted sales (1 January 2016: 11.4 weeks). Total order book which includes Armfield and our 2016 acquisitions totalled 13.9 weeks.

Return on Capital

The Group closely monitors the return it derives on the capital invested in its subsidiaries. At 31 December 2016 the annual rate of Return on Total Invested Capital ("ROTC") was 15.2% compared with 24.1% at the end of 2015, which is disappointing. The reduction illustrates the impact of the three underperforming companies.

The annual rate of ROTC is calculated by comparing attributable earnings excluding central costs, adjusting items and before interest, tax and amortisation ("EBITA") with the investment in property, plant and equipment, goodwill and unamortised intangibles and net current assets (excluding cash).

ROTC is influenced by the overall performance of our businesses and the size of, and multiple paid for, acquisitions. We continue to strive to improve ROTC although we remain cognisant of the downward impact that acquiring businesses at higher multiples has on overall ROTC.

Dividends

In relation to the financial year ended 31 December 2016 the Company paid an interim dividend of 9.0p per share in November 2016. The Board is recommending a final dividend of 18.5p per share which will, in aggregate, total 27.5p per share (2015: 25.0p per share), subject to shareholder approval, which is an increase of 10%. Dividend cover remains more than three times adjusted earnings per share.

Your Group's policy is to pay a progressively increasing dividend provided the Group retains sufficient cash and borrowing resources with which to pursue its longstanding business acquisition policies.

Headcount

The Group's total number of employees at year end stood at 417 (2015: 335). The growth in staff during the year is largely due to the 2016 acquisitions.

Share capital and share options

The Group's issued share capital at 31 December 2016 totalled 6,107,628 Ordinary shares (2015: 6,098,549). The issued shares arose from the exercise of share options by various members of staff during the year. See note 23 for further details.

Share options issued during the year under the 2015 scheme totalled 29,500 (2015: 144,172) and the total share options in issue under both the 2005 and 2015 schemes amounted to 268,411 (2015: 256,176).

Defined benefit pension scheme

The Group has a defined benefit pension scheme which was assumed as part of the acquisition of Armfield in 2015. This scheme has been closed to new members from 2001 and closed to new accrual in 2006. As part of the scheme's 2014 full actuarial valuation the annual contributions to the scheme were increased to £0.2 million subject to the next full actuarial valuation in 2017. At 31 December 2016 the net pension liability was £1.8 million (31 December 2015: £1.1 million). This increase in pension deficit is primarily attributable to the significant decrease in discount rates during 2016 from 3.9% to 2.8% offset partially by increases in the returns achieved on fund assets. Armfield takes its responsibility seriously to ensure the pension is adequately funded whilst also continuing to keep under review appropriate methods to control the deficit.

Strategic Report

Finance Director's Report

For the year ended 31 December 2016

Cashflow and net debt

Cash generated from operations totalled £6.2 million (2015: £8.5 million), with reduced cash conversion of 87% (2015: 92%) due to additional working capital usage arising from the operational difficulties at one of our businesses. Total capital expenditure on property, plant and equipment amounted to £0.8 million compared to £0.5 million in 2015. Year-end cash balances totalled £7.9 million (2015: £8.5 million).

Adjusted net debt at 31 December 2016 was £9.9 million compared to £4.0 million at 31 December 2015. This increase of £5.9 million is explained by the four acquisitions offset by the Group's overall cash generation. Gearing at 31 December 2016 was 1.39 times adjusted operating profit (31 December 2015: 0.43 times). We remain committed to maintaining a conservative gearing position whilst at the same time taking the opportunities of acquiring strong, sound businesses at disciplined multiples as illustrated over this past year.

The Group remains in a strong financial position. The existing five-year banking arrangements with Lloyds Bank Corporate Markets which were put in place in December 2014, have enabled the Group to pursue its acquisitive strategy. Our historical acquisition loans were consolidated into one single five-year amortising loan, which is repaid at over £2 million per annum, and a £10.0 million revolving acquisition facility, which following the four acquisitions made during the year is now drawn to £9.3 million (2015: £2.8 million). As and when opportunities arise for further acquisitions, we may activate the uncommitted and undrawn accordion facility of £10 million with the bank.

Overall, whilst your Group has had a positive year for acquisitions but a disappointing year for performance, it remains well placed to continue with its enduring strategy of achieving growth in earnings via selective acquisitions of strong niche businesses in the scientific instruments sector, alongside the ongoing performance of its existing businesses.

Brad Ormsby
Group Finance Director
20 March 2017

Strategic Report

Principal Risks and Uncertainties

For the year ended 31 December 2016

Acquisitions

The most significant risk for the Group is that an acquired company does not meet its expected profitability. As an important element of the Group's business strategy is development through acquisition, the Group is also exposed to the risk of insufficient availability of target companies of requisite quality. The Group manages these risks by maintaining relationships with organisations that market appropriate targets and by performing detailed research into potential acquisitions; post-acquisition, the Group provides advice and support to entity management teams as appropriate.

Key personnel

The Group's future success is dependent on its senior management and key personnel and, given the small niche-serving nature of the Group's businesses, there is always a challenge to maintain back-up support in respect of key roles or replace key staff should they leave our organisation. Finding quality executives in our sector is a challenge and it can take a long time to replace and/or to prove the suitability of any new executive. The Group encourages succession planning wherever possible and seeks to provide a positive work environment with opportunities for career growth coupled with appropriate remuneration and, where appropriate, longer-term incentives.

Economic conditions

The Group's customers are internationally located and are often state owned or those whose liquidity are closely linked to government spending. Accordingly, the prevailing uncertainties in the world economy, and particularly the borrowing constraints currently affecting many western nations, represent a risk to the Group's prospects. The Group seeks to trade globally as it operates in small worldwide niches. In the short to medium term, the decision by the UK to leave the EU also creates additional economic uncertainty as it is not yet clear what impact Brexit will have on our business.

R&D and products

The Group continues to invest in the development of new products to meet the needs of our end customers. There is a risk that our businesses may be unable to develop suitably commercial and technically reliable new products with which to maintain and drive sales performance. There is also a risk that new developments in science will make certain of the Group's products obsolete. The Group maintains a focus on ensuring there are ongoing R&D roadmaps for our businesses and that we continue to invest in well trained and qualified R&D and operations teams to deliver quality, well-engineered products for our customers.

Competition

The Group faces competition across all its businesses and there can be no certainty that each business will achieve the market penetration it seeks. There is also no guarantee that there will be no new competition or new entrant to the market with better products. The Group seeks to mitigate this through detailed market analysis when considering acquisitions and seeks to acquire companies in small global niches. Additionally the Group continues to listen carefully to its customers' aspirations for product development and, where possible, satisfy those product development requests.

Currency and foreign exchange

The Group exports the large majority of its products, hence it is exposed to fluctuations in exchange rates which may impact on its competitiveness. Further, Brexit has weakened exchange rates and may cause uncertainty and greater volatility in the medium term. The Group seeks, so far as is practicable, to mitigate these currency effects via hedging foreign exchange rates. Additional detail is set out in note 25.

On behalf of the Board

David Cicurel
Director
20 March 2017
Company registration number: 04597315

Board of Directors

Our Board

Providing a unique combination of international business, investor and financing experience across public and private markets.

Hon. Alexander Hambro

Chairman

A R

Alex Hambro (born 1962) has been in the private equity industry both in the UK and the USA for 30 years, during which time he has acted as a principal investor, manager and sponsor of private equity and venture capital management teams and adviser to high net worth families on their private equity investment strategies and targets.

As well as Judges Scientific plc, Alex is Chairman of AIM-listed Benchmark Holdings plc, a company engaged in the development of health and vaccine products for the aquaculture industry, and Octopus Apollo VCT plc. In addition to his responsibilities at these three companies, Alex is also Chairman of Bapco Closures Holdings Ltd and a NED of Whitley Asset Management Ltd, Crescent Capital Ltd and BACIT (UK) Ltd.

Alex is currently a principal at Welbeck Capital Partners, a specialist investment syndicate that deploys secured convertible loan notes to finance growth opportunities for small-cap AIM companies.

David Cicurel

Chief Executive

David Cicurel (born 1949) founded Judges in 2002 having spent much of his career as a turnaround specialist and, subsequently, as an "active value" investor operating with his own funds.

He has been responsible for several corporate recovery exercises including two UK public companies, International Media Communications plc (later known as Continental Foods) and International Communication and Data plc.

Brad Ormsby

Group Finance Director

Brad Ormsby (born 1976) is a Chartered Accountant who has significant senior finance and operational experience acquired during nine years at PwC followed by six years at Eurovestech plc, the pan-European development capital fund, and associated companies.

Prior to joining Judges Scientific, Brad was Chief Financial Officer at Kalibrate Technologies plc.

David Barnbrook

Chief Operating Officer

David Barnbrook (born 1952) is a Chartered Engineer with more than 20 years' experience as a Senior Manager and Director in sectors encompassing defence, instrumentation, aerospace and customer service.

He is a former Program Director at EDO MBM Rugged Systems and Operations Manager at Muirhead Vactric Motion Controls, both of which are suppliers to the defence and aviation industries. Previously (1988 to 1996) he was Production and Operations Manager at Rheometric Scientific, a specialist in the design and manufacture of thermal analysis instrumentation and flammability testing apparatus.

Ralph Cohen

Non-Executive

A R

Ralph Cohen (born 1948) was the Finance Director of Judges Scientific plc for nearly ten years until his retirement in April 2015. He held various senior executive positions within the energy and water divisions of the Paris based Vivendi group between 1981 and 2001, including eight years as Finance Director of a listed subsidiary, followed by positions as Managing Director within that group.

He previously spent nine years at Ernst & Young. Latterly he was the founding partner of MC Consultancy Services, where he was closely associated with major projects, including electricity supply opportunities in Europe and M&A projects.

He is currently the Non-Executive Chairman of the recently AIM-listed Yü Group PLC.

Ralph Elman

Non-Executive

A R

Ralph Elman (born 1953) is a former Finance Director of quoted companies Paramount plc, Delyn plc and International Communication & Data plc and Finance Director of businesses within GUS plc and RR Donnelley.

Ralph was Senior Partner of accountancy firm Elman Wall and is a Non-Executive Director of a number of private companies. He is Chairman of the Judges Audit Committee.

Glynn Reece

Non-Executive

A R

Glynn Reece (born 1958) is a graduate of Oxford University and a qualified solicitor. Since 1987, he has specialised in providing corporate finance deal origination and advisory services, working for (inter alia) Coopers & Lybrand, Arthur Andersen and CLB, a specialist AIM firm.

He is currently a Proprietor of Carl Reiss Meyer, a business that acts as an arranger of pre-flotation finance for small fast growing companies.

Committee membership

A Audit Committee R Remuneration Committee

Directors' report

For the year ended 31 December 2016

The Directors present their report and audited consolidated financial statements for the year ended 31 December 2016. Comparative information is provided for the year ended 31 December 2015.

Results and dividends

The results for the financial year to 31 December 2016 are set out in the Consolidated Statement of Comprehensive Income. The Company paid a first interim dividend of 9.0p per Ordinary share on 4 November 2016. At the forthcoming Annual General Meeting, the Directors will recommend payment of a final dividend for the year of 18.5p per Ordinary share to be paid on Friday 7 July 2017 to shareholders on the register on Friday 9 June 2017. The shares will go ex-dividend on Thursday 8 June 2017. The total dividend proposed for the 2016 financial year will aggregate to 27.5p, an increase of 10.0% (2015: 25.0p).

Going concern

The consolidated financial statements have been prepared on a going concern basis. The Directors have taken note of guidance issued by the Financial Reporting Council on Going Concern Assessments in determining that this is the appropriate basis of preparation of the financial statements. The Group's principal operating companies performed reasonably and generated satisfactory cashflows resulting in net debt of 44% of equity, despite acquiring four businesses during 2016 for a combined acquisition outlay of £9 million. The Group entered 2017 with a strong order book despite some of the challenges experienced in order intake in the first half of 2016. Whilst the global economic environment remains uncertain, the Directors consider that the Group is appropriately placed to manage its business risks successfully.

The Directors therefore have a reasonable expectation that the Group has adequate resources to continue in operational existence for the foreseeable future. Therefore, they continue to adopt the going concern basis in preparing the Annual Report and Accounts.

Payment policy

The Group's policy is to agree terms and conditions with suppliers in advance and to pay agreed invoices in accordance with the agreed terms of payment. Creditor days of the Company at the end of the year represented 45 days (2015: 26 days).

Financial risk management objectives and policies

The Group utilises financial instruments (see note 21), comprising borrowings, cash and cash equivalents and various other items such as trade receivables and payables that arise directly from its operations. The main purpose of these financial instruments is to raise finance for the Group's operations. The main risks arising from the Group's financial instruments relate to interest rates, liquidity, credit and foreign currency exposure. The Directors review and agree policies for managing each of these risks, which are described and evaluated in more detail in note 25 and which are summarised below. Except as stated, the policies have remained unchanged from previous years.

1. Interest rate risk

The Group finances its operations through a mixture of bank borrowings, equity and retained profits. With adjusted net debt of £9.9 million at 31 December 2016 (see note 20), exposure to interest rate fluctuations remains a low risk to the Group; however, the Group's loans are subject to interest rate hedges, as described in note 25.

2. Liquidity risk

The Group seeks to manage liquidity risk by ensuring that sufficient funds are available to meet foreseeable needs and to invest cash assets safely and profitably. Primarily this is achieved through loans arranged at Group level. Short-term flexibility is achieved through the significant cash balances that the Group currently holds. Additionally where the Group has already repaid funds into the revolving credit facility, it is able to subsequently redraw these funds should the need arise.

3. Credit risk

The Group reviews the credit risk relating to its customers by ensuring, wherever possible, that it deals with long-established trading partners, agents and government/university-backed bodies, where the risk of default is considered low. Where considered appropriate, the Group insists on upfront payment or requires letters of credit to be provided.

4. Currency risk

With exports representing a significant proportion of its sales, the main risk area to which the Group is exposed is that of foreign currencies (principally US\$ and Euros). The Group adopts a strategy to hedge against this risk by entering into currency options/forward exchange contracts and/or by maintaining a proportion of its bank loans in these currencies, although this does not represent a hedge under IAS 39. The Directors review the value of this economic hedge on a regular basis. There remains, nevertheless, an ongoing threat to the Group's competitive position in international markets from any sustained period of Sterling strength. Forward and option contracts are entered into in both US\$ and Euros maturing in the subsequent year, aimed at protecting the ensuing year's competitive position and margins from adverse currency movements.

5. Cashflow risk

The Group manages its cashflow through a mixture of working capital, bank borrowings, equity and retained profits. With adjusted net debt at 31 December 2016 of £9.9 million (see note 20) and cash and cash equivalents of £7.9 million, the Group's cash position is considered to be a key strength.

Directors

The following Directors have held office during the year and until the date of signing this report:

Hon. AR Hambro* – Non-Executive

Mr DE Cicurel

Mr BL Ormsby

Mr D Barnbrook

Mr RL Cohen* – Non-Executive

Mr RJ Elman* – Non-Executive

Mr GC Reece* – Non-Executive

* Member of the audit and remuneration committees.

Corporate governance

Being AIM quoted, the Company is not required to and does not fully comply with the UK Corporate Governance Code. However, drawing upon best practice, the Directors have established an Audit Committee and a Remuneration Committee with formally delegated duties and responsibilities. The members of both committees are the Non-Executive Directors. Following Ralph Cohen's transition from an executive role to that of a Non-Executive, he was appointed to both Board committees after serving as a Non-Executive Director for more than one year.

The Audit Committee determines the terms of engagement of the Company's auditor and, in consultation with the Company's auditor, the scope of the audit. The Audit Committee has unrestricted access to the Company's auditor. The Remuneration Committee has delegated authority to determine the scale and structure of the Executive Directors' remuneration and the terms of their service contracts. The remuneration of the Non-Executive Directors is determined by the Board as a whole.

The main Board meets monthly in addition to any ad hoc Board meetings that may be required during the year, such as to approve changes to the Share Dealing Code following the implementation of the MAR rules. All Board members were in attendance at all meetings this year except when a Board member was unable to attend on two separate occasions.

The Audit Committee met three times, once in reviewing the audit scope and plan, and twice to review the auditor's findings on the financial results. The Remuneration Committee met three times to review the level of executive pay and approve changes to the eligibility of the Group's Share Incentive Plan.

Directors' interests

At 31 December 2016, the Directors had the following beneficial interests in the Company's Ordinary shares of 5p each and options to subscribe for shares:

Ordinary shares of the Company

	31 December 2016		1 January 2016	
	Shares	Options	Shares	Options
Non-Executive Directors				
Hon. AR Hambro	71,500	—	77,500	—
Mr RL Cohen	64,341	1,775	64,341	1,775
Mr RJ Elman	62,402	—	62,398	—
Mr GC Reece	—	—	—	—
Executive Directors				
Mr DE Cicurel	916,833	9,275	916,672	9,275
Mr BL Ormsby	258	60,000	—	60,000
Mr D Barnbrook	18,136	28,325	21,953	28,325

Dividends paid in the year to Directors who hold shares amounted to £295,000 in aggregate (2015: £260,000).

Throughout 2016, the Group continued to award a free "matching share" under the Judges Scientific Share Incentive Plan for every share purchased up to a maximum value of £600 per employee per tax year for all eligible employees who have completed 12 months' service within the Group. Shares acquired by Directors, including matching shares, were 161 acquired by Mr DE Cicurel (2015: 152) and 133 by Mr D Barnbrook (2015: 162). Mr BL Ormsby joined this scheme in March 2016 after completing one year of service and acquired 258 shares in 2016.

Options over Ordinary shares in the Company

Date of option issue	Mr DE Cicurel	Number of shares		
		Mr D Barnbrook	Mr BL Ormsby	Mr RL Cohen
2005 Option Scheme				
28 April 2008 at 124p	—	6,550	—	—
23 July 2009 at 92p	—	10,000	—	—
9 May 2011 at 470p	—	5,000	—	—
25 October 2013 at 1690p	1,775	1,775	—	1,775
30 March 2015 at 1437.5p	—	—	60,000	—
2015 Option Scheme				
21 October 2015 at 1402.5p	7,500	5,000	—	—
	9,275	28,325	60,000	1,775

Directors' remuneration

The remuneration paid to or receivable by each person who served as a Director during the year was as follows:

	Salary/fees £000	Bonus £000	Pension £000	Benefits £000	2016 total £000	2015 total £000
Non-Executive Directors						
Hon. AR Hambro	33	—	—	—	33	33
Mr RL Cohen (from 1 May 2015)	23	—	—	—	23	15
Mr RJ Elman	23	—	—	—	23	23
Mr GC Reece	48	—	—	—	48	48
Executive Directors						
Mr DE Cicurel	163	—	—	5	168	205
Mr BL Ormsby (from 3 March 2015)	137	—	7	2	146	147
Mr D Barnbrook	131	—	7	17	155	183
Mr RL Cohen (to 30 April 2015)	—	—	—	—	—	59
Total	558	—	14	24	596	713

During the course of 2016 no Directors exercised options over the Ordinary shares of the Company.

Statement of Directors' responsibilities

The Directors are responsible for preparing the Annual Report and the financial statements in accordance with applicable law and regulations.

Company law requires the Directors to prepare financial statements for each financial year. Under that law the Directors have elected to prepare the Group consolidated financial statements in accordance with International Financial Reporting Standards as adopted by the European Union (IFRSs) and the parent company financial statements in accordance with United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice). Under company law the Directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs and of the profit or loss of the Group and the parent company for that period.

In preparing each of the Group and parent company financial statements, the Directors are required to:

- select suitable accounting policies and then apply them consistently;
- make judgements and accounting estimates that are reasonable and prudent;
- state whether applicable IFRSs or UK Accounting Standards have been followed, subject to any material departures disclosed and explained; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the Group and the parent company will continue in business.

The Directors are responsible for keeping adequate accounting records that are sufficient to show and explain the parent company's transactions and disclose with reasonable accuracy at any time the financial position of the parent company and the Group and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also generally responsible for taking steps as are reasonably open to them to (i) safeguard the assets of the Group and (ii) prevent and detect fraud and other irregularities.

The Directors are responsible for the maintenance and integrity of the corporate and financial information included on the Company's website. Information published on the website is accessible in many countries and legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Provision of information to the auditor

The Directors confirm that:

- so far as each Director is aware, there is no relevant audit information of which the Company's auditor is unaware; and
- the Directors have taken all the steps that they ought to have taken as Directors in order to make themselves aware of any relevant audit information and to establish that the auditor is aware of that information.

Auditor

The auditor, Grant Thornton UK LLP, has expressed willingness to continue in office. In accordance with section 489(4) of the Companies Act 2006, a resolution to re-appoint Grant Thornton UK LLP will be proposed at the Annual General Meeting.

Annual General Meeting

The Annual General Meeting of the Company will be held on Wednesday 24 May 2017 at 12.00 noon at the Lansdowne Club, 9 Fitzmaurice Place, London W1J 5JD.

On behalf of the Board

Brad Ormsby

Director

20 March 2017

Company registration number: 04597315 (England and Wales)

Independent auditor's report

To the members of Judges Scientific plc

We have audited the consolidated financial statements of Judges Scientific plc for the year ended 31 December 2016 which comprise the Consolidated Statement of Comprehensive Income, the Consolidated Balance Sheet, the Consolidated Statement of Changes in Equity, the Consolidated Cashflow Statement and notes 1 to 29. The financial reporting framework that has been applied in their preparation is applicable law and International Financial Reporting Standards (IFRSs) as adopted by the European Union.

This report is made solely to the Company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the Company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Company and the Company's members as a body, for our audit work, for this report, or for the opinions we have formed.

Respective responsibilities of Directors and Auditor

As explained more fully in the Statement of Directors' Responsibilities, the Directors are responsible for the preparation of the consolidated financial statements and for being satisfied that they give a true and fair view. Our responsibility is to audit and express an opinion on the consolidated financial statements in accordance with applicable law and International Standards on Auditing (UK and Ireland). Those standards require us to comply with the Auditing Practices Board's Ethical Standards for Auditors.

Scope of the audit of the financial statements

A description of the scope of an audit of financial statements is provided on the Financial Reporting Council's website at www.frc.org.uk/auditscopeukprivate.

Opinion on financial statements

In our opinion the consolidated financial statements:

- give a true and fair view of the state of the Group's affairs as at 31 December 2016 and of its profit for the year then ended;
- have been properly prepared in accordance with IFRSs as adopted by the European Union;
- have been prepared in accordance with the requirements of the Companies Act 2006.

Opinion on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the Strategic Report and Directors' Report for the financial year for which the consolidated financial statements are prepared is consistent with the consolidated financial statements.
- the Strategic Report and Directors' Report has been prepared in accordance with applicable legal requirements.

Matter on which we are required to report under the Companies Act 2006

In the light of the knowledge and understanding of the Group and its environment obtained in the course of the audit, we have not identified any material misstatements in the Strategic Report and Directors' Report.

Matters on which we are required to report by exception

We have nothing to report in respect of the following matters where the Companies Act 2006 requires us to report to you if, in our opinion:

- certain disclosures of Directors' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit.

Other matter

We have reported separately on the parent company financial statements of Judges Scientific plc for the year ended 31 December 2016.

Philip Sayers

Senior Statutory Auditor

for and on behalf of Grant Thornton UK LLP

Statutory Auditor, Chartered Accountants

East Midlands

20 March 2017

Consolidated statement of comprehensive income

For the year ended 31 December 2016

	Note	Adjusted £000	Adjusting items £000	2016 Total £000	Adjusted £000	Adjusting items £000	2015 Total £000
Revenue	3	57,285	-	57,285	56,203	—	56,203
Operating costs		(50,141)	-	(50,141)	(46,953)	—	(46,953)
Adjusted operating profit	3	7,144	-	7,144	9,250	—	9,250
Adjusting items	4	-	(6,153)	(6,153)	—	(7,443)	(7,443)
Operating profit/(loss)		7,144	(6,153)	991	9,250	(7,443)	1,807
Interest income	9	9	-	9	28	—	28
Interest expense	9	(523)	(60)	(583)	(523)	(60)	(583)
Profit/(loss) before tax		6,630	(6,213)	417	8,755	(7,503)	1,252
Taxation (charge)/credit	10	(767)	1,091	324	(1,753)	1,615	(138)
Profit/(loss) for the year		5,863	(5,122)	741	7,002	(5,888)	1,114
Attributable to:							
Owners of the parent		5,173	(5,092)	81	6,614	(5,839)	775
Non-controlling interests		690	(30)	660	388	(49)	339
Profit/(loss) for the year		5,863	(5,122)	741	7,002	(5,888)	1,114
Other comprehensive income							
Items that will not be reclassified subsequently to profit or loss							
Retirement benefits actuarial (loss)/gain					(776)		113
Items that may be reclassified subsequently to profit or loss							
Exchange differences on translation of foreign subsidiaries					126		13
Other comprehensive income for the year, net of tax					(650)		126
Total comprehensive income for the year					91		1,240
Attributable to:							
Owners of the parent					(569)		901
Non-controlling interests					660		339
Earnings per share – adjusted							
Basic	12	84.8			109.2		
Diluted	12	83.7			107.3		
Earnings per share – total							
Basic	12				1.3		12.8
Diluted	12				1.3		12.6

The accompanying notes form an integral part of these consolidated financial statements.

Consolidated balance sheet

As at 31 December 2016

	Note	2016 £000	2015 £000
ASSETS			
Non-current assets			
Goodwill	13	13,337	10,927
Other intangible assets	14	9,736	9,088
Property, plant and equipment	15	5,288	4,787
Deferred tax assets	16	776	351
		29,137	25,153
Current assets			
Inventories	17	9,939	7,922
Trade and other receivables	18	11,341	11,040
Cash and cash equivalents		7,909	8,530
		29,189	27,492
Total assets		58,326	52,645
LIABILITIES			
Current liabilities			
Trade and other payables	19	(11,682)	(10,807)
Trade and other payables relating to acquisitions		(1,648)	(85)
Borrowings	20	(2,693)	(3,361)
Current tax liabilities		(1,195)	(1,436)
		(17,218)	(15,689)
Non-current liabilities			
Borrowings	20	(13,855)	(9,556)
Deferred tax liabilities	16	(2,310)	(1,922)
Retirement benefit obligations	28	(2,198)	(1,394)
		(18,363)	(12,872)
Total liabilities		(35,581)	(28,561)
Net assets		22,745	24,084
EQUITY			
Share capital	22	305	305
Share premium account		14,472	14,441
Other reserves	24	2,130	2,004
Retained earnings		4,425	6,532
Equity attributable to owners of the parent company		21,332	23,282
Non-controlling interests		1,413	802
Total equity		22,745	24,084

The accompanying notes form an integral part of these consolidated financial statements.

The financial statements were approved by the Board on 20 March 2017.

David Cicurel
Director

Brad Ormsby
Director

Consolidated statement of changes in equity

For the year ended 31 December 2016

	Share capital £000	Share premium £000	Other reserves £000	Retained earnings £000	Total attributable to owners of the parent £000	Non- controlling interests £000	Total equity £000
At 1 January 2016	305	14,441	2,004	6,532	23,282	802	24,084
Dividends	—	—	—	(1,581)	(1,581)	(49)	(1,630)
Issue of share capital	—	31	—	—	31	—	31
Share-based payments	—	—	—	169	169	—	169
Transactions with owners	—	31	—	(1,412)	(1,381)	(49)	(1,430)
Profit for the year	—	—	—	81	81	660	741
Retirement benefit actuarial losses	—	—	—	(776)	(776)	—	(776)
Foreign exchange differences	—	—	126	—	126	—	126
Total comprehensive income for the year	—	—	126	(695)	(569)	660	91
At 31 December 2016	305	14,472	2,130	4,425	21,332	1,413	22,745
At 1 January 2015	300	14,294	1,374	6,910	22,878	512	23,390
Dividends	—	—	—	(1,385)	(1,385)	(49)	(1,434)
Issue of share capital	5	147	617	—	769	—	769
Share-based payments	—	—	—	119	119	—	119
Transactions with owners	5	147	617	(1,266)	(497)	(49)	(546)
Profit for the year	—	—	—	775	775	339	1,114
Retirement benefit actuarial gains	—	—	—	113	113	—	113
Foreign exchange differences	—	—	13	—	13	—	13
Total comprehensive income for the year	—	—	13	888	901	339	1,240
At 31 December 2015	305	14,441	2,004	6,532	23,282	802	24,084

The accompanying notes form an integral part of these consolidated financial statements.

Consolidated cashflow statement

For the year ended 31 December 2016

	2016 £000	2015 £000
Cashflows from operating activities		
Profit after tax	741	1,114
Adjustments for:		
Financial instruments measured at fair value:		
Hedging contracts	21	10
Contingent consideration measured at fair value	—	25
Share-based payments	241	119
Depreciation	592	482
Amortisation of intangible assets	5,155	6,736
Loss on disposal of property, plant and equipment	30	30
Foreign exchange gain on foreign currency loans	166	(15)
Interest income	(9)	(28)
Interest expense	523	523
Retirement benefit obligation net finance cost	60	60
Contributions to defined benefit plans	(198)	(198)
Tax (credit)/expense recognised in income statement	(324)	138
(Increase)/decrease in inventories	(1,442)	617
Decrease/(increase) in trade and other receivables	620	(2,759)
Increase in trade and other payables	37	1,638
Cash generated from operations	6,213	8,492
Finance costs paid	(522)	(528)
Tax paid	(1,080)	(1,387)
Net cash from operating activities	4,611	6,577
Cashflows from investing activities		
Paid on acquisition of new subsidiary	(9,847)	(11,421)
Gross cash inherited on acquisition	3,714	3,904
Acquisition of subsidiaries, net of cash acquired	(6,133)	(7,517)
Paid on the acquisition of trade and certain assets	(261)	(33)
Purchase of property, plant and equipment	(835)	(530)
Interest received	9	28
Net cash used in investing activities	(7,220)	(8,052)
Cashflows from financing activities		
Proceeds from issue of share capital	31	150
Repayments of borrowings	(3,945)	(4,626)
Proceeds from bank loans	7,545	4,755
Repayment of loan notes	(117)	—
Equity dividends paid	(1,581)	(1,385)
Dividends paid – non-controlling interest in subsidiary	(49)	(49)
Net cash from/(used in) financing activities	1,884	(1,155)
Net change in cash and cash equivalents	(725)	(2,630)
Cash and cash equivalents at the start of the year	8,530	11,148
Exchange movements	104	12
Cash and cash equivalents at the end of the year	7,909	8,530

The accompanying notes form an integral part of these consolidated financial statements.

Notes to the consolidated financial statements

For the year ended 31 December 2016

1. General information

Judges Scientific plc is the ultimate parent company of the Group, whose principal activities comprise the design, manufacture and sale of scientific instruments.

Judges Scientific plc is incorporated and domiciled in the UK and its registered office is 52c Borough High Street, London SE1 1XN.

2. Summary of significant accounting policies

Basis of preparation

The consolidated financial statements have been prepared under the historical cost convention except for certain financial instruments which are carried at fair value.

Being quoted on the Alternative Investment Market of the London Stock Exchange, the Company is required to present its consolidated financial statements in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union. Accordingly, these financial statements have been prepared in accordance with the accounting policies set out below which are based on the IFRS in issue as adopted by the European Union (EU) and in effect at 31 December 2016.

The preparation of financial statements in conformity with IFRS requires the use of certain critical accounting estimates. It also requires management to exercise its judgement in the process of applying the Group's accounting policies. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements, are disclosed under "Use of key accounting estimates and judgements".

Changes in accounting policies

Standards, amendments and interpretations to existing standards that are not yet effective

At the date of approval of these consolidated financial statements, certain new standards, amendments to and interpretations of existing standards have been published but are not yet effective, and have not been adopted early by the Group including the following:

IFRS 9 'Financial Instruments' (2014) (effective date 1 January 2018) – the new standard introduces extensive changes to IAS 39's guidance on the classification and measurement of financial assets and introduces a new "expected credit loss" model for the impairment of financial assets. IFRS 9 also provides new guidance on the application of hedge accounting.

IFRS 15 'Revenues from Contracts with Customers' (change to IASB effective date 1 January 2018) – this new standard presents new requirements for the recognition of revenue, replacing IAS 18 'Revenue', IAS 11 'Construction Contracts' and several revenue-related Interpretations. The new standard establishes a control-based revenue recognition model and provides additional guidance in many areas not covered in detail under existing IFRSs, including how to account for arrangements with multiple performance obligations, variable pricing, customer refund rights, supplier repurchase options and other common complexities.

IFRS 16 'Leases' (effective date 1 January 2019) – this new standard will require the capitalisation of operating leases, such as the Group's building and vehicle leases, as right to use assets with an offsetting financial liability. The current rental charge will be replaced with a combination of depreciation from the asset and an interest charge from the liability.

Management currently anticipates that all of the pronouncements will be adopted in the Group's accounting policies in accordance with each standard's effective date. Assessment of the potential impact of these standards on the Group's financial statements is ongoing.

Consolidation

The consolidated financial statements include those of the parent company and its subsidiaries. Subsidiaries are entities where the Group is exposed, or has rights, to variable returns from its involvement with the subsidiary and has the ability to effect those returns through its power over the subsidiary. The Group obtains and exercises control through voting rights. Income, expenditure, unrealised gains and intra-group balances arising from transactions within the Group are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred.

The Group uses the purchase method of accounting for the acquisition of a subsidiary. Acquisition consideration is measured at the fair value of the consideration given, equity instruments issued and liabilities incurred or assumed at the date of exchange.

Business combination costs directly attributable to the acquisition are immediately written off through the Statement of Comprehensive Income. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date irrespective of the extent of any non-controlling interest. The excess of the cost of acquisition over the fair value of the Group's share of the identifiable net assets acquired is recorded as goodwill. If the cost of the acquisition is less than the fair value of the net assets of the subsidiary acquired, the difference is recognised directly in the Statement of Comprehensive Income.

The parent company has taken the merger relief that is required by section 612 of the Companies Act 2006 in respect of the fair value of the consideration received in excess of the nominal value of the equity shares issued in connection with the acquisition of Fire Testing Technology Limited, UHV Design Limited, Scientifica Limited and Armfield Limited.

Goodwill

Goodwill is the difference between the fair value of the consideration paid and the fair value of the net identifiable assets and liabilities acquired in a business combination. Following recognition, it is not amortised; however, it is subject to impairment testing on an annual basis or more frequently if circumstances indicate that the asset may have become impaired and is carried at cost less accumulated impairment losses. Goodwill is allocated to cash-generating units for the purpose of impairment testing.

Revenue recognition

Revenue is measured by reference to the fair value of consideration received or receivable by the Group, excluding value added tax (or similar local sales tax). It is recognised when the amount of revenue and the costs incurred or to be incurred in respect of the transaction can be measured reliably and it is probable that the associated economic benefits will flow to the Group.

Revenue from sales of instruments and spares is recognised at the point at which the risks and rewards of ownership are transferred to the customer. This is usually on despatch; however for sales from overseas subsidiaries, it is when the customer receives the goods.

Revenue from services, such as installation, support, training or consultancy, is recognised once the service has been performed.

Interest income is recognised using the effective interest method which calculates the amortised cost of a financial asset and allocates the interest income over the relevant period. Dividend income is recognised when the shareholder's right to receive payment is established.

Segment reporting

The Group's activities are predominantly in or in support of the design and manufacture of scientific instruments. The Group operates two main operating segments: Materials Sciences and Vacuum. No operating segments have been aggregated.

Operating segments are reported in a manner consistent with internal reporting provided to the Board of Directors, which is responsible for allocating and assessing performance of operating segments, and which is considered to be the Chief Operating Decision Maker. Each segment's range of instruments has its individual requirements in terms of design, manufacture and marketing.

Intangible assets acquired as part of a business combination

In accordance with IFRS 3 'Business Combinations', an intangible asset acquired in a business combination is deemed to have a cost to the Group of its fair value at the acquisition date. The fair value of the intangible asset reflects market expectations about the probability that the future economic benefits embodied in the asset will flow to the Group.

Amortisation charges are included as adjusting items in operating costs in the Statement of Comprehensive Income. Amortisation is provided at rates calculated to write off the cost of each intangible asset over its expected useful life, as follows:

Customer relationships	3 years
Non-competition agreements	2 years
Distribution agreements	Between 2 and 5 years
Research and development	5 years
Sales order backlog	On shipment (this is usually consumed within six months of initial recognition)
Brand and domain names	Between 1 and 5 years

Subsequent to initial recognition, intangible assets are stated at deemed cost less accumulated amortisation.

Research and development

Research and development expenditure is recognised in the Statement of Comprehensive Income as an expense until it can be demonstrated that the conditions for capitalisation under IAS 38 'Intangible Assets' apply.

The criteria for capitalisation include demonstration that the project is technically and commercially feasible, the Group has sufficient resources to complete development and the asset will generate probable future economic benefit.

Property, plant and equipment

Property, plant and equipment is stated at historical cost, less accumulated depreciation.

Disposal of assets: the gain or loss arising on the disposal of an asset is determined as the difference between the disposal proceeds and the carrying amount of the asset and is recognised in the income statement.

Depreciation: provided at annual rates calculated to write off the cost less residual value of each asset over its expected useful life, within the following ranges:

Property	50 years (excluding the estimated cost of land)
Plant and machinery	7 years
Fixtures, fittings and equipment	Between 3 and 7 years
Motor vehicles	4 years
Building improvements	Over the minimum term of the lease

Material residual value estimates and expected useful lives are updated as required but at least annually.

Impairment testing of goodwill, other intangible assets and property, plant and equipment

For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are largely independent cash inflows (cash-generating units). As a result, some assets are tested individually for impairment and some are tested at cash-generating unit level. Goodwill is allocated to those cash-generating units that are expected to benefit from synergies of the related business combination and represent the lowest level within the Group at which management monitors goodwill.

Cash-generating units to which goodwill has been allocated are tested for impairment at least annually. All other individual assets or cash-generating units are tested whenever events or changes in circumstances indicate that the carrying amount may not be recoverable.

An impairment loss is recognised for the amount by which the asset's or cash-generating unit's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of fair value, reflecting market conditions less costs to sell, and value in use. Value in use is based on estimated future cashflows from each cash-generating unit, discounted at a suitable rate in order to calculate the present value of those cashflows. The data used for impairment testing procedures is directly linked to the Group's latest approved budgets, adjusted as necessary to exclude any future restructuring to which the Group is not yet committed. Discount rates are determined individually for each cash-generating unit and reflect their respective risk profiles as assessed by the Directors.

Impairment losses for cash-generating units reduce first the carrying amount of any goodwill allocated to that cash-generating unit. Any remaining impairment loss is charged pro rata to the other assets in the cash-generating unit. With the exception of goodwill, all assets are subsequently reassessed for indications that an impairment loss previously recognised may no longer exist. Impairment charges are included in operating costs in the Statement of Comprehensive Income. An impairment charge that has been recognised is reversed if the cash-generating unit's recoverable amount exceeds its carrying amount.

Leases

For finance leases, where the Group bears substantially all the risks and rewards related to ownership of the leased asset, the related asset is capitalised at the inception of the lease at the fair value of the leased asset or, if lower, the present value of the minimum lease payments. The interest element of leasing payments represents a constant proportion of the capital balance outstanding and is charged to the Statement of Comprehensive Income over the period of the lease. Finance lease obligations are included in financial liabilities net of interest costs.

Operating leases where the lessor retains substantially all of the risks and rewards of ownership are charged to the Statement of Comprehensive Income on a straight-line basis over the lease term. Lease incentives are spread over the term of the lease.

Inventories

Inventories are recorded at the lower of cost and net realisable value. Costs of ordinarily interchangeable items are assigned using the first-in, first-out cost formula. Cost includes materials, direct labour and an attributable proportion of manufacturing overheads based on normal levels of activity.

Taxation

Current tax is the tax currently payable based on taxable profit for the year.

Deferred taxes are calculated using the liability method on temporary differences. Deferred tax is generally provided on the difference between the carrying amounts of assets and liabilities and their tax bases. However, deferred tax is not provided on the initial recognition of goodwill, nor on the initial recognition of an asset or liability unless the related transaction is a business combination or affects tax or accounting profit. Deferred tax on temporary differences associated with shares in subsidiaries is not provided if reversal of those temporary differences can be controlled by the Group and it is probable that reversal will not occur in the foreseeable future. In addition, tax losses available to be carried forward as well as other income tax credits to the Group are assessed for recognition as deferred tax assets.

Deferred tax liabilities are provided in full, with no discounting. Deferred tax assets are recognised to the extent that it is probable that the underlying deductible temporary differences will be able to be offset against future taxable income. Current and deferred tax assets and liabilities are calculated at tax rates that are expected to apply to their respective period of realisation, provided they are enacted or substantively enacted at the balance sheet date.

Changes in deferred tax assets or liabilities are recognised as a component of tax expense in the Statement of Comprehensive Income, except:

- where they relate to items that are charged or credited directly to equity in which case the related deferred tax is also charged or credited directly to equity; or
- where items are recognised in other comprehensive income, in which case the related deferred tax is recognised in other comprehensive income.

Share-based employee compensation

The Group operates equity-settled share-based compensation plans for remuneration of its Directors and employees.

All employee services received in exchange for the grant of any share-based compensation are measured at their fair values. The fair value is appraised at the grant date and excludes the impact of any non-market vesting conditions (e.g. profitability or sales growth targets).

Share-based compensation is recognised as an expense in the Statement of Comprehensive Income with a corresponding credit to other reserves. If vesting periods or other vesting conditions apply, the expense is allocated over the vesting period, based on the best available estimate of the number of share options expected to vest. Non-market vesting conditions are included in assumptions about the number of options that are expected to become exercisable. Estimates are subsequently revised if there is any indication that the number of share options expected to vest differs from previous estimates.

The proceeds received net of any directly attributable transaction costs are credited to share capital and share premium when the options are exercised.

Financial assets

Financial assets consist of loans, receivables, derivatives and investments in subsidiaries.

Cash and cash equivalents

Cash and cash equivalents comprise cash at bank and in hand and short-term deposits which are subject to an insignificant risk of changes in value.

Trade receivables

Trade receivables are recognised and carried at the original invoice amount less an allowance for uncollectable amounts. An estimate of uncollectable amounts is made when collection of the full amount is no longer probable. Uncollectable amounts are written off to the Statement of Comprehensive Income when identified.

Financial liabilities

Financial liabilities are obligations to pay cash or other financial assets and are recognised when the Group becomes a party to the contractual provisions of the instrument. Financial liabilities are recorded initially at fair value net of direct issue costs if they are not held at fair value through profit and loss. Derivatives are recorded at fair value through profit or loss. The fair value of derivative financial instruments is determined by reference to active market transactions or using a valuation technique where no active market exists.

All financial liabilities with the exception of interest rate swaps and foreign currency options are recorded at amortised cost using the effective interest method, with interest-related charges recognised as an expense in finance cost in the income statement.

These financial liabilities include trade and other payables and borrowings, including bank loans, subordinated loans and hire purchase commitments. Finance charges, including premiums payable on settlement or redemption and direct issue costs, are charged to the Statement of Comprehensive Income on an accruals basis using the effective interest method and are added to the carrying amount of the instrument to the extent that they are not settled in the period in which they arise.

Interest rate swaps and foreign currency options are treated as derivative financial instruments and are accounted for at fair value through profit and loss.

A financial liability is derecognised only when the obligation is extinguished, that is, when the obligation is discharged or cancelled or expires.

Employee benefits – Defined contribution plans

The Group operates defined contribution pension schemes for employees and Directors. The assets of the schemes are held by investment managers separately from those of the Group. The contributions payable to these schemes are recorded in the Statement of Comprehensive Income in the accounting period to which they relate.

Employee benefits – Defined benefit plans

The Group operates a funded defined benefit scheme, where payments are made to trustee administered funds. The asset or liability recognised in the consolidated Statement of Financial Position is calculated as the present value of the defined benefit obligation less the fair value of the plan assets, as at the balance sheet date.

The defined benefit obligation is calculated at least triennially by independent actuaries using the projected unit credit method and is determined by discounting the estimated future cash outflows using interest rates of high quality corporate bonds, matched to the currency in which the benefits will be paid, and that have terms to maturity approximating to the terms of the related pension obligation. The plan administration expenses and past service costs or credits are recognised as an operating expense in the consolidated Statement of Comprehensive Income. There is no current service cost. The retirement benefits obligation net finance cost is the change during the year in the net defined benefit liability due to the passage of time and is recognised as an interest expense in the consolidated Statement of Comprehensive Income. The interest rate is based on the yield on high quality corporate bonds. Actuarial gains and losses arising from changes in actuarial assumptions and experience adjustments are recognised in the consolidated Statement of Comprehensive Income in the year which they arise.

Foreign currencies

Transactions in foreign currencies are translated at the exchange rate ruling at the date of the transaction. Monetary assets and liabilities in foreign currencies are translated at the rates of exchange ruling at the balance sheet date. Exchange differences arising on the settlement of monetary items or on translating monetary items at rates different from those at which they were initially recorded are recognised in the Statement of Comprehensive Income in the period in which they arise. In respect of overseas subsidiaries on consolidation, assets and liabilities have been translated at the closing rate and income and expenses have been translated at the average rate over the reporting period. Exchange differences are recorded in other comprehensive income.

Dividends

Final dividend distributions payable to equity shareholders are included in trade and other payables when the dividends are approved in general meeting but not paid prior to the balance sheet date. Interim dividends are recognised in the period in which they are paid.

Equity

Equity comprises the following:

Share capital

Share capital represents the nominal value of equity shares.

Share premium

Share premium represents the excess over nominal value of the fair value of consideration received for equity shares, net of expenses of the share issue.

Capital redemption reserve

Capital redemption reserve represents amounts set aside from retained earnings on conversion of convertible redeemable shares equal to the reduction then arising in the overall nominal value of share capital of all classes.

Merger reserve

Merger reserve represents the fair value of the consideration received in excess of the nominal value of equity shares issued in connection with acquisitions where the Company has taken the merger relief that is required by section 612 of the Companies Act 2006.

Retained earnings

Retained earnings represents retained profits and losses.

Revaluation reserve

Revaluation reserve represents gains and losses due to the revaluation of certain financial assets.

Non-controlling interests

Non-controlling interests represent retained profits and losses attributable to minority shareholders in subsidiary companies.

Adjusting items

Adjusting items (and their related tax impact) are those which by their size or nature the Directors' consider should be disclosed separately for the purposes of presenting results and earnings per share figures so as to enable users of the financial statements to evaluate more effectively the underlying operating performance of the Group.

Provisions

Provisions are recognised when the Group has a present legal or constructive obligation as a result of a past event, it is likely that an outflow of resource will be required to settle the obligation and that the amount of the probable outflow can be reasonably estimated. Where the Group expects all or some of the obligation to be reimbursed, the reimbursement is recognised as a separate asset to the extent that it is virtually certain to be reimbursed. The expense relating to any provision is presented in the Statement of Comprehensive Income net of any reimbursement.

Provisions are measured at the present value of management's best estimate of the expenditure required to settle the present obligation at the year-end date. If material, provisions are determined by discounting the expected future cashflows using rates that reflect current market assessments of the time value of money.

Use of key accounting estimates and judgements

Many of the amounts included in the consolidated financial statements involve the use of judgement and/or estimation. These judgements and estimates are based on management's best knowledge of the relevant facts and circumstances, having regard to prior experience, but actual results may differ from the amounts included in the consolidated financial statements. Information about such judgements and estimation is contained in the accounting policies and/or the notes to the consolidated financial statements and the key areas are summarised below.

Judgements in applying accounting policies:

- **Revenue recognition:** The Group makes a judgement whether all of the conditions required for revenues to be recognised in the Statement of Comprehensive Income have been met.
- **Fair value assessment of a business combination:** Following an acquisition the Group makes an assessment of all assets and liabilities, inclusive of identification of intangible assets and acquired and/or related goodwill. The valuation process for the intangible assets requires a number of judgements to be made regarding future performance of an acquisition, together with other asset-specific factors.

Sources of estimation uncertainty:

- **Retirement benefits:** The costs and present value of any related pension assets and liabilities depend on factors such as life expectancy of the members, the salary progression of current employees, the returns that plan assets generate and the discount rate used to calculate the present value of the liabilities. The Group uses estimates based on the previous experience and independent external actuarial advice in determining these future cashflows and the discount rate.
- **Depreciation:** Depreciation rates are based on estimates of the useful lives and residual values of the assets involved.
- **Carrying value of intangible assets and goodwill:** Estimates are required as to intangible asset carrying values, their useful lives and goodwill carrying value. These are assessed by reference to budgeted profits and cashflows for future periods for the relevant income-generating units and an estimate of their values in use.
- **Provisions:** Provisions are based on estimates of the expenditure required to settle.

3. Segmental analysis

For the year ended 31 December 2016	Note	Materials Sciences £'000	Vacuum £'000	Unallocated items £'000	Total £'000
Revenue		28,162	29,123	—	57,285
Operating costs		(22,937)	(25,731)	(1,473)	(50,141)
Adjusted operating profit		5,225	3,392	(1,473)	7,144
Adjusting items	4				(6,153)
Operating profit					991
Net interest expense					(574)
Profit before tax					417
Income tax credit					324
Profit for the year					741

For the year ended 31 December 2015	Note	Materials Sciences £'000	Vacuum £'000	Unallocated items £'000	Total £'000
Revenue		28,347	27,856	—	56,203
Operating costs		(22,894)	(22,957)	(1,102)	(46,953)
Adjusted operating profit		5,453	4,899	(1,102)	9,250
Adjusting items	4				(7,443)
Operating profit					1,807
Net interest expense					(555)
Profit before tax					1,252
Income tax charge					(138)
Profit for the year					1,114

Unallocated items relate to the Group's head office costs.

Segment assets and liabilities

	Materials Sciences £000	Vacuum £000	Unallocated items £000	Total £000
At 31 December 2016				
Assets	14,963	22,445	20,918	58,326
Liabilities	(6,622)	(7,482)	(21,477)	(35,581)
Net assets	8,341	14,963	(559)	22,745
Capital expenditure	305	523	7	835
Depreciation	223	289	80	592
Amortisation	2,865	2,290	—	5,155

	Materials Sciences £000	Vacuum £000	Unallocated items £000	Total £000
At 31 December 2015				
Assets	14,370	14,070	24,205	52,645
Liabilities	(6,562)	(7,026)	(14,973)	(28,561)
Net assets	7,808	7,044	9,232	24,084
Capital expenditure	117	202	211	530
Depreciation	185	233	64	482
Amortisation	4,246	2,490	—	6,736

Unallocated items are borrowings, intangible assets and goodwill arising on acquisition, deferred tax, defined benefit obligations and parent company net assets.

	Year to 31 December 2016 £000	Year to 31 December 2015 £000
Geographic analysis		
UK (domicile)	8,732	9,303
Rest of Europe	13,794	13,822
North America	15,489	12,526
Rest of the world	19,270	20,552
	57,285	56,203

Segmental revenue is presented on the basis of the destination of the goods where known, otherwise the geographical location of customers is utilised.

No customer makes up more than 10% of the Group's revenues.

4. Adjusting items

	2016 £000	2015 £000
Amortisation of intangible assets	5,155	6,736
Contingent consideration measured at fair value	—	25
Financial instruments measured at fair value:		
Hedging contracts	21	10
Share-based payments	241	119
Acquisition costs	736	553
Total adjusting items in operating profit	6,153	7,443
Retirement benefits obligation net interest cost	60	60
Total adjusting items	6,213	7,503
Taxation	(1,091)	(1,615)
Total adjusting items net of tax	5,122	5,888
Attributable to:		
Owners of the parent	5,092	5,839
Non-controlling interest	30	49
	5,122	5,888

5. Operating costs

	2016 £000	2015 £000
Raw materials and consumables	24,217	24,763
Other external charges	7,890	6,492
Staff costs	17,442	15,216
Depreciation	592	482
Other operating costs, excluding adjusting items	50,141	46,953
Amortisation of intangible assets	5,155	6,736
Contingent consideration measured at fair value	—	25
Hedging contracts	21	10
Share-based payments	241	119
Acquisition costs	736	553
Total operating costs	56,294	54,396

Research and development expensed in the year totalled £3,774,000 (2015: £3,018,000). This does not include amortisation of research and development intangibles arising on acquisition.

6. Remuneration of key senior management

	2016 £000	2015 £000
Short-term employee benefits:		
Salaries including bonuses and social security costs	1,752	1,706
Company car allowance and other benefits	77	73
Total short-term employee benefits	1,829	1,779
Post-employment benefits:		
Defined contribution pension plans	121	55
Total post-employment benefits	121	55
	1,950	1,834

Key management personnel comprise Directors of the parent company and the managing directors of the principal operating companies and totalled 18 (2015: 14).

Remuneration of Directors is disclosed in the Directors' Report on page 13.

7. Employees

	2016 £000	2015 £000
Employment costs		
Wages and salaries	15,243	13,326
Social security costs	1,469	1,370
Pension costs	730	520
	17,442	15,216
Share-based payments	241	119
	17,683	15,335

Average number of employees

	2016 No.	2015 No.
By function:		
Manufacturing	139	115
Sales and administration	269	217
	408	332
By operating segment:		
Materials Sciences group	174	154
Vacuum group	225	169
Head office (includes Non-Executive Directors in both years)	9	9
	408	332

8. Operating profit

	2016 £000	2015 £000
Operating profit is stated after charging:		
Fees payable to the Company's auditor:		
for the audit of the Company's annual accounts	29	32
Fees payable to the Company's auditor for other services:		
for the audit of the Company's subsidiaries, pursuant to legislation	103	87
for taxation compliance services	—	27
for taxation advisory services	—	40
for all other assurance services	136	91
Depreciation	592	482
Amortisation of intangible assets	5,155	6,736
Operating lease rentals – land and property	626	543
Operating lease rentals – vehicles	55	37
Operating lease rentals – other	52	50

9. Interest income and expense

	2016 £000	2015 £000
Interest income – short-term bank deposits	9	28
Interest expense – bank loans	(523)	(523)
Retirement benefits obligation net finance cost	(60)	(60)
	(583)	(583)
Net interest expense	(574)	(555)

10. Taxation charge/(credit)

	2016 £000	2015 £000
UK corporation tax at 20.00% (2015: 20.25%)		
Current year	847	1,576
Prior years	(456)	(98)
Foreign tax suffered	52	—
	443	1,478
Deferred tax – origination and reversal of temporary differences:		
Current year	(727)	(1,340)
Prior years	(21)	—
Effect of changes in tax rates	(19)	—
	(767)	(1,340)
Tax on profit for the year – current year	153	236
Tax on profit for the year – prior years	(477)	(98)
	(324)	138

Factors affecting the tax charge for the year:

Profit before tax	417	1,252
Profit before tax multiplied by standard rate of UK corporation tax of 20.00% (2015: 20.25%)	83	254
Share options	(42)	(181)
Provisions and expenditure not deductible for tax purposes	116	136
Changes in tax rates	(19)	—
Contingent consideration	—	5
Overseas tax	15	59
Other temporary differences	—	(37)
Tax on profit for the year – current year	153	236
Tax on profit for the year – prior years	(477)	(98)
Total net taxation charge	(324)	138

11. Dividends

	Pence per share	£000	Pence per share	£000
	2016		2015	
Second interim dividend for the previous year	15.9	970	—	—
Final dividend for the previous year	1.0	61	14.7	892
First interim dividend for the current year	9.0	550	8.1	493
	25.9	1,581	22.8	1,385

The Directors will propose a final dividend of 18.5p per share, amounting to £1,130,000, for payment on 7 July 2017. As the final dividend remains conditional on shareholders' approval at the Annual General Meeting, provision has not been made for this dividend in these consolidated financial statements.

Dividends declared by subsidiaries that are not wholly owned are paid to the non-controlling interest in the period in which they are declared and amounted to £49,000 in the year (2015: £49,000).

12. Earnings per share

	Note	2016 £000	2015 £000
		Pence	Pence
Profit attributable to owners of the parent			
Adjusted profit		5,173	6,614
Adjusting items	4	(5,092)	(5,839)
Profit for the year		81	775
Earnings per share – adjusted			
Basic		84.8	109.2
Diluted		83.7	107.3
Earnings per share – total			
Basic		1.3	12.8
Diluted		1.3	12.6
Number			
Issued Ordinary shares at the start of the year		6,098,549	5,996,211
Movement in Ordinary shares during the year	22	9,079	102,338
Issued Ordinary shares at the end of the year		6,107,628	6,098,549
Weighted average number of shares in issue		6,102,463	6,054,699
Dilutive effect of share options		80,957	109,140
Weighted average shares in issue on a diluted basis		6,183,420	6,163,839

Adjusted basic earnings per share is calculated on the adjusted profit, which is presented before any adjusting items, attributable to the Company's shareholders divided by the weighted average number of shares in issue during the year.

Adjusted diluted earnings per share is calculated on the adjusted basic earnings per share, adjusted to allow for the issue of Ordinary shares on the assumed conversion of all dilutive options and any other dilutive potential Ordinary shares. The calculation is based on the treasury method prescribed in IAS 33. This calculates the theoretical number of shares that could be purchased at the average middle market price in the period out of the proceeds of the notional exercise of outstanding options. The difference between this theoretical number and the actual number of shares under option is deemed liable to be issued at nil value and represents the dilution.

Total earnings per share are calculated as above whilst substituting total profit for adjusted profit.

13. Goodwill

	2016 £000	2015 £000
Cost		
1 January	10,927	8,678
Additions	2,410	2,249
31 December	13,337	10,927

Goodwill is tested annually for impairment by reference to the value in use of the relevant cash-generating units, which are the Group's operating segments. This is calculated on the basis of projected cashflows for five years. These are derived from detailed budgets for the coming year, with subsequent years including revenue and cost growth of 3% per annum and maintained gross margins. The 3% long-term growth rate takes into account both UK and overseas markets. These cashflows are discounted using a weighted average cost of capital of 11.2% (2015: 11.4%) per annum, calculated by reference to year-end data on equity values and interest, dividend and tax rates. The long-term growth rate and discount rate is consistent for all segments on the basis that the businesses operate in similar markets and are exposed to similar risks. The residual value at the end of the five years, computed by reference to projected year six cashflows and discounted, is also included. There was no requirement for any impairment provision at 31 December 2016 (2015: £nil).

The Directors have considered the sensitivity of the key assumptions, including the weighted average cost of capital and long-term growth rates, and have concluded that any possible changes that may be reasonably contemplated in these key assumptions would not result in the value in use falling below the carrying value of goodwill, given the amount of headroom available.

14. Other intangible assets

	Distribution agreements £000	Research and development £000	Sales order backlog £000	Brand and domain names £000	Customer relationships £000	Total £000
Gross carrying amount						
1 January 2015	1,949	4,438	2,276	7,348	6,425	22,436
Acquisitions	707	1,905	1,947	2,201	402	7,162
31 December 2015	2,656	6,343	4,223	9,549	6,827	29,598
Acquisitions	272	2,132	300	1,486	1,613	5,803
31 December 2016	2,928	8,475	4,523	11,035	8,440	35,401
Amortisation						
1 January 2015	1,387	2,239	2,276	3,147	4,725	13,774
Charge for the year	519	1,201	1,947	1,825	1,244	6,736
31 December 2015	1,906	3,440	4,223	4,972	5,969	20,510
Charge for the year	541	1,488	210	1,970	946	5,155
31 December 2016	2,447	4,928	4,433	6,942	6,915	25,665
Carrying amount 31 December 2016	481	3,547	90	4,093	1,525	9,736
Carrying amount 31 December 2015	750	2,903	—	4,577	858	9,088
Carrying amount 31 December 2014	562	2,199	—	4,201	1,700	8,662

15. Property, plant and equipment

	Plant and machinery £000	Fixtures, fittings and equipment £000	Motor vehicles £000	Property and building improvements £000	Total £000
Cost					
1 January 2015	761	831	172	4,158	5,922
Additions	33	122	139	236	530
Acquisitions	52	39	165	—	256
Disposals	(77)	(8)	(56)	—	(141)
Exchange differences	2	1	2	—	5
31 December 2015	771	985	422	4,394	6,572
Additions	124	446	145	120	835
Acquisitions	77	76	—	114	267
Disposals	(41)	(7)	(127)	—	(175)
Exchange differences	17	9	23	—	49
31 December 2016	948	1,509	463	4,628	7,548
Accumulated depreciation					
1 January 2015	512	539	93	267	1,411
Charge	88	144	130	120	482
Disposals	(60)	(8)	(43)	—	(111)
Exchange differences	2	—	1	—	3
31 December 2015	542	675	181	387	1,785
Charge	116	225	138	113	592
Disposals	(30)	—	(102)	(13)	(145)
Exchange differences	14	6	8	—	28
31 December 2016	642	906	225	487	2,260
Net book value – 31 December 2016	306	603	238	4,141	5,288
Net book value – 31 December 2015	229	310	241	4,007	4,787
Net book value – 31 December 2014	249	292	79	3,891	4,511

Included in the net book value of property and building improvements at 31 December 2016 is £2,615,000 (2015: £2,661,000) relating to a factory in Laughton, East Sussex, occupied by Quorum Technologies Limited and UHV Design Limited. The net book value of plant, machinery and vehicles included above held under finance leases and hire purchase contracts amounted to £23,000 at 31 December 2016 (2015: £46,000).

16. Deferred tax

	2016 £000	2015 £000
Assets		
1 January	351	—
Acquisitions in the year (note 27)	143	404
Adjustments in respect of prior years	(55)	—
Movement in Other comprehensive income – Retirement benefits actuarial (loss)/gain	165	(63)
Credit to income statement in the year	81	10
Credit to equity in the year	91	—
31 December	776	351
Deferred tax balances relate to temporary differences as follows:		
Provisions allowable for tax in subsequent periods	64	72
Share options	150	—
Losses	188	—
Defined benefit obligation	374	279
	776	351
Liabilities		
1 January	1,922	1,820
Acquisitions in the year (note 27)	1,130	1,432
Adjustments in respect of prior years	(75)	—
Credit to income statement in the year	(667)	(1,330)
31 December	2,310	1,922
Deferred tax balances relate to temporary differences as follows:		
Accelerated capital allowances	475	158
Provisions allowable for tax in subsequent periods	—	3
Intangible assets	1,835	1,761
	2,310	1,922

Deferred tax assets and liabilities are calculated at tax rates that are expected to apply to their respective period of realisation, provided they are enacted or substantively enacted at the balance sheet date. The changes in rate from 20% to 19%, effective from 1 April 2017, and from 19% to 18%, effective from 1 April 2020, were both substantively enacted on 26 October 2015. Subsequently the Finance Act 2016, which was substantively enacted on 6 September 2016, announced that the tax rate would instead reduce to 17% effective from 1 April 2020.

17. Inventories

	2016 £000	2015 £000
Raw materials	6,333	4,784
Work in progress	1,463	1,018
Finished goods	2,143	2,120
	9,939	7,922

In 2016, a total of £24,217,000 of inventories was included in the Statement of Comprehensive Income as an expense (2015: £24,763,000). This includes an amount of £54,000 (2015: £121,000) resulting from write-downs of inventories and an amount of £67,000 (2015: £4,000) which is the reversal of previous write-downs. The carrying amount of inventories held at fair value less costs to sell is £767,000 (2015: £834,000). All Group inventories form part of the assets pledged as security in respect of bank loans.

18. Trade and other receivables – current

	2016 £000	2015 £000
Trade receivables	8,737	9,445
Other receivables	1,400	702
Prepayments and accrued income	1,204	893
	11,341	11,040

The fair value of receivables approximates to their carrying value. All trade and other receivables have been reviewed for impairment with no material provision being required.

Some of the unimpaired trade receivables were past due at the balance sheet date as follows:

	2016 £000	2015 £000
Not more than three months	2,466	3,561
More than three months but not more than six months	359	444
More than six months but not more than twelve months	61	237
Greater than one year	91	39
	2,977	4,281

Trade and other receivables are denominated in the following currencies:

	2016 £000	2015 £000
Sterling	7,589	7,457
US Dollars	2,714	2,722
Euros	1,038	861
	11,341	11,040

19. Trade and other payables – current

	2016 £000	2015 £000
Trade payables	5,261	5,403
Social security and other taxes	1,016	593
Other payables	749	785
Accruals and deferred income	4,656	4,026
	11,682	10,807

The fair value of trade and other payables approximates to their carrying value.

20. Borrowings

	2016 £000	2015 £000
Current		
Bank loans	2,306	2,845
Subordinated loans	379	497
Net obligations under hire purchase contracts	8	19
	2,693	3,361
Non-current		
Bank loans	13,852	9,545
Net obligations under hire purchase contracts	3	11
	13,855	9,556

There were four bank loans secured on assets of the Group at the start of the year. During the year one of these loans was repaid in full.

The four bank loans are summarised as follows:

- The first loan of £6,756,000 (2015: £8,948,000) is repayable in quarterly instalments over the period ending 31 December 2019 and bears interest at 1.75 to 2.75% (depending upon gearing) above LIBOR-related rates.
- The second loan of £9,300,000 (2015: £2,755,000) is repayable by 2019 and bears interest at 1.75 to 2.75% (depending upon gearing) above LIBOR-related rates.
- The third loan of £540,000 was settled in March 2016.
- The fourth loan of £102,000 (2015: £147,000) is repayable in quarterly instalments over the period ending 31 March 2019 and bears interest at 3.75% above LIBOR-related rates.

The subordinated loans were advanced by minority shareholders in Bordeaux Acquisition Limited. They are unsecured, interest free and repayable at the discretion of that company. The hire purchase obligations are secured on the related assets.

Borrowings mature as follows:

	Bank loans £000	Subordinated loan £000	Hire purchase £000	Total £000
31 December 2016				
Repayable in less than six months	1,387	379	5	1,771
Repayable in months seven to twelve	1,352	—	3	1,355
Current portion of long-term borrowings	2,739	379	8	3,126
Repayable in years one to five	14,404	—	3	14,407
Total borrowings	17,143	379	11	17,533
Less: interest included above	(985)	—	—	(985)
Less: cash and cash equivalents	(7,909)	—	—	(7,909)
Total net debt	8,249	379	11	8,639
Adjusting items				
Subordinated debt to non-controlling shareholders				(379)
Accrued deferred consideration				1,648
Adjusted net debt				9,908

	Bank loans £000	Subordinated loan £000	Hire purchase £000	Total £000
31 December 2015				
Repayable in less than six months	1,833	497	13	2,343
Repayable in months seven to twelve	1,273	—	6	1,279
Current portion of long-term borrowings	3,106	497	19	3,622
Repayable in years one to five	9,981	—	11	9,992
Total borrowings	13,087	497	30	13,614
Less: interest included above	(697)	—	—	(697)
Less: cash and cash equivalents	(8,530)	—	—	(8,530)
Total net debt	3,860	497	30	4,387
Adjusting items				
Subordinated debt to non-controlling shareholders				(497)
Accrued deferred consideration				85
Adjusted net debt				3,975

A proportion of the Group's bank loans is drawn in foreign currencies to provide a hedge against assets denominated in those currencies. The Sterling equivalent at 31 December 2016 of loans denominated in Euros was £1,217,000 (2015: £1,050,000). These amounts are included in the figures above for bank loans, repayable in years one to five.

21. Financial instruments

The Group's policies on treasury management, capital management objectives and financial instruments are given in the Directors' Report on page 11.

Fair value of financial instruments

Financial instruments include the borrowings set out in note 20. The Group enters into derivative financial instruments in order to manage its interest rate and foreign currency exposure. The principal derivatives used include interest rate swaps and foreign currency options. Material changes in the carrying values of these instruments are recognised in the Statement of Comprehensive Income in the periods in which the changes arise. Such recognition is treated as an adjusting item in the Statement of Comprehensive Income where the foreign currency hedge was entered into in order to protect profits in later accounting periods. In such cases, the charge or credit will be reversed out of adjusting items in the accounting period for which the hedge was intended and will be shown in results before adjusting items. All financial instruments denominated in foreign currencies are translated at the rate of exchange ruling at the balance sheet date. The Directors believe that there is no material difference between the book value and fair value of all financial instruments.

Borrowing facilities

The Group has a revolving acquisition facility of £10 million. At 31 December 2016 the Group had drawn £9,300,000 (2015: £2,755,000).

Trade payables

All amounts are short term (all payable within six months) and their carrying values are considered reasonable approximations of fair value. The values are set out in note 19.

Fair value hierarchy

The fair value hierarchy has the following levels:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices).
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

The interest rate swaps and foreign currency hedges are measured at fair value in accordance with the fair value hierarchy and are classed as level 2.

	2016 £000	2015 £000
Summary of financial assets and financial liabilities by category		
Financial assets		
Trade and other receivables	10,137	10,147
Cash and cash equivalents	7,909	8,530
Total financial assets	18,046	18,677
Financial liabilities – amortised cost		
Trade payables	5,261	5,403
Accruals and deferred income	4,656	4,026
Other payables	749	785
Trade and other payables relating to acquisitions	1,648	85
Current portion of long-term borrowings	2,693	3,361
Long-term borrowings	13,855	9,556
Total financial liabilities	28,862	23,216
Net financial liabilities	10,816	4,539
Non-financial assets and liabilities not within the scope of IAS 39		
Goodwill	13,337	10,927
Other intangible assets	9,736	9,088
Property, plant and equipment	5,288	4,787
Inventories	9,939	7,922
Prepayments and accrued income	1,204	893
Social security and other taxes	(1,016)	(593)
Retirement benefit obligations	(2,198)	(1,394)
Current tax payable	(1,195)	(1,436)
Deferred tax assets	776	351
Deferred tax liabilities	(2,310)	(1,922)
	33,561	28,623
Total equity	22,745	24,084

Financial assets

The Group's financial assets (which are summarised above) comprise cash and cash equivalents and trade and other receivables.

- The amounts derived from these assets and included as interest income in the Statement of Comprehensive Income are £9,000 (2015: £28,000) (see note 9).
- Cash and cash equivalents are principally denominated in Sterling and earn interest at floating rates.

Financial liabilities

The Group's principal financial liabilities are bank loans, trade and other payables and derivative financial instruments. The Group also holds interest rate swaps and foreign currency forward contracts and options:

- The costs attributable to these liabilities and included as interest expense in the Statement of Comprehensive Income amounted to £523,000 (2015: £523,000) (see note 9).
- A proportion of the bank loans are denominated in foreign currencies to provide a hedge against currency risk on Group assets (see note 20). Foreign exchange losses attributable to bank loans and included as operating income in the Statement of Comprehensive Income amounted to £166,000 (2015: gain £15,000).

22. Share capital

	2016 £000	2015 £000
Allotted, called up and fully paid – Ordinary shares of 5p each		
1 January: 6,098,549 shares (2015: 5,996,211)	305	300
Issue of 36,738 Ordinary shares as part of the deferred consideration due upon the acquisition of Armfield Limited	—	2
Exercise of share options: 9,079 shares (2015: 65,600)	—	3
31 December: 6,107,628 shares (2015: 6,098,549)	305	305

Allotments of Ordinary shares in 2016 were made:

- to satisfy the exercise of 9,079 share options in aggregate on six occasions during the year when the share price was within the range of 1285.0p to 1857.5p (2015: exercise of 65,600 share options when the share price was within the range 1400.0p to 1887.5p).

Throughout 2016, the Group continued to award a free “matching share” under the Judges Scientific Share Incentive Plan for every share purchased up to a maximum value of £600 per employee per tax year. In 2016, an average of 85 employees participated in the scheme each month (2015: 71 employees), purchasing 10,109 shares in total, including matching shares (2015: 7,960 shares).

The market price of the Company's Ordinary shares at 31 December 2016 was 1387.5p. The share price range during the year was 1190.0p to 1895.0p.

23. Share-based payments

Equity share options

At 31 December 2016, options had been granted and remained outstanding in respect of 269,411 Ordinary shares in the Company, all priced by reference to the mid-market price of the shares on the date of grant and all exercisable, following a three-year vesting period, between the third and tenth anniversaries of grant, as below:

	At 1 January 2016 Number	Granted Number	Lapsed Number	Exercised Number	At 31 December 2016 Number	Of which exercisable Number	Weighted average exercise price (p)
2005 Approved Option Scheme	69,212	—	(4,686)	(9,079)	55,447	41,375	922.2
2005 Unapproved Option Scheme	114,664	—	—	—	114,664	56,050	189.6
2015 Approved Option Scheme	37,747	17,328	(3,500)	—	51,575	—	—
2015 Unapproved Option Scheme	34,553	12,172	—	—	46,725	—	—
	256,176	29,500	(8,186)	(9,079)	268,411	97,425	

2005 Option Scheme

Exercise prices for the year ended 31 December 2016 ranged between 124.0p and 720.0p per share (2015: between 92.0p and 720.0p per share), with a weighted average remaining contractual life of 5.52 years (2015: 6.42 years).

2015 Option Scheme

No options were exercised in the year ended 31 December 2016. The weighted average remaining contractual life is 8.96 years (2015: 9.80 years).

In accordance with IFRS 2, a Black Scholes valuation model has been used. The key assumptions used in the model are as follows:

- interest rate – 0.8%;
- volatility – 30.2%;
- dividend yield – 1.6%; and
- expected life of option – 3.0 years.

The charge for the year ended 31 December 2016 was £241,000 (2015: £119,000).

24. Other reserves

	Capital redemption reserve £000	Merger reserve £000	Translation reserve £000	Total £000
Balance at 1 January 2016	23	1,968	13	2,004
Issue of share capital	—	—	—	—
Transactions with owners	—	—	—	—
Exchange differences on translation of foreign subsidiaries	—	—	126	126
Total comprehensive income	—	—	126	126
Balance at 31 December 2016	23	1,968	139	2,130

	Capital redemption reserve £000	Merger reserve £000	Translation reserve £000	Total £000
Balance at 1 January 2015	23	1,351	—	1,374
Issue of share capital	—	617	—	617
Transactions with owners	—	617	—	617
Exchange differences on translation of foreign subsidiaries	—	—	13	13
Total comprehensive income	—	—	13	13
Balance at 31 December 2015	23	1,968	13	2,004

The movement on the merger reserve arose from the issue of 36,738 shares as part of the acquisition cost of Armfield.

25. Risk management objectives and policies

The Group is exposed to market risks, arising predominantly from currency exposure resulting from its export activities, interest rate fluctuation on its loans and deposits and credit and liquidity risks. Risk management strategies are co-ordinated by the Directors.

Foreign currency sensitivity

The Group exports a substantial proportion of its sales, frequently denominated in foreign currencies (principally in US\$ and Euros). Exposure to currency rate fluctuations exists from the moment a sales order is confirmed through to the time when the related remittance is converted into Sterling. This exposure is computed monthly (along with offsetting exposure on purchases, generally of minimal amounts) and economically hedged, predominantly through the use of currency forward contracts and options. The net exposure to risk is therefore substantially reduced. This does not, however, represent a hedge under IAS 39. Residual exposure is the difference between the net exposure and the amounts of currency hedges, both translated into Sterling at each measurement date.

	Sterling equivalent of US\$ £000	Sterling equivalent of € £000
31 December 2016		
Amount of foreign currency hedged at year end	3,382	3,717
Residual exposure at year end – long/(short)	4,770	(1,516)
Impact on pre-tax profits of a 5% variation in exchange rate on year-end residual exposure	239	76
Impact on equity of a 5% variation in exchange rate on year-end residual exposure	191	61

	Sterling equivalent of US\$ £000	Sterling equivalent of € £000
31 December 2015		
Amount of foreign currency hedged at year end	3,900	2,650
Residual exposure at year end – long/(short)	2,497	(311)
Impact on pre-tax profits of a 5% variation in exchange rate on year-end residual exposure	125	16
Impact on equity of a 5% variation in exchange rate on year-end residual exposure	100	13

In addition to the hedging of existing measured foreign currency exposure, the Group seeks to mitigate the impact of currency fluctuations on future trading performance. This was achieved at 31 December 2016 by entering into currency options to sell €4.5 million and \$6.2 million during 2017, at predetermined exchange rates.

The fair value of these financial instruments is an asset of £13,000 (2015: £56,000), offset by a fair value liability of £18,000 (2015: £39,000) on interest rate swaps. These transactions have been recognised in these accounts and are held within other receivables.

Interest rate sensitivity

The Group's interest rate exposure arises in respect of its bank loans, which are LIBOR linked for interest rate purposes, and its surplus funds, which are bank base rate linked. To hedge this risk the Group is party to interest rate swaps at predetermined rates. The fair value of these financial instruments has been recognised in these accounts. The Group's sensitivity to interest rate changes is as follows:

	2016 £000	2015 £000
Unhedged bank loans outstanding at year end	12,897	5,505
Impact on pre-tax profits of a 1% change in LIBOR	129	55
Impact on equity of a 1% change in LIBOR	103	44
Surplus funds at year end	7,909	8,530
Impact on pre-tax profits of a 1% change in bank base rates	79	85
Impact on equity of a 1% change in bank base rates	63	68

Credit risk

The Group's exposure to credit risk is limited to the carrying amounts of financial assets recognised at the balance sheet date, as follows:

	2016 £000	2015 £000
Cash and cash equivalents	7,909	8,530
Trade and other receivables	10,137	10,147
	18,046	18,677

The Group reviews the credit risk relating to its customers by ensuring wherever possible that it deals with long-established trading partners, and agents and government/university-backed bodies, where the risk of default is considered low. Where considered appropriate, the Group insists on upfront payment and requires letters of credit to be provided. The Directors consider that all the Group's financial assets that are not impaired at each of the reporting dates under review are of good credit quality, including those that are past due (see note 18). None of the financial assets are secured by collateral or other credit enhancements.

Group companies generally trade through overseas agents and credit exposure to an individual agent can be significant at times. At 31 December 2016, no counterparty owed more than 10% of the Group's total trade and other receivables (2015: none).

The credit risk for liquid funds and other short-term financial assets is considered small. The substantial majority of these assets are deposited with Bank of Scotland, part of the Lloyds Banking Group.

Liquidity risk

Longer-term finance is required to enable the Group to pursue its strategic goal of growing through acquisitions as well as through organic development. This financing need has been satisfied for the foreseeable future by a £10 million revolving acquisition facility advanced by Lloyds Bank Capital Markets together with a £10 million uncommitted accordion facility. The Group's strategy envisages the servicing of this debt to be achieved from the cashflow arising from the businesses acquired. For short and medium-term financial needs, the Group regularly compares its projected requirements with available cash and borrowing facilities.

The periods of maturity of the Group's borrowings are set out in note 20. The maturity of all trade and other payables is within the period of less than six months.

26. Operating lease commitments

	2016 £000	2015 £000
Minimum operating lease commitments falling due:		
Within one year – land and property	670	492
Within one year – vehicles	45	35
Within one year – other	26	52
	741	579
Between one and five years – land and property	1,117	1,068
Between one and five years – vehicles	54	49
Between one and five years – other	13	22
	1,184	1,139
Greater than five years – land and property	135	180
Total commitment	2,060	1,898

27. Acquisitions

During the financial year to 31 December 2016, the Group completed four separate acquisitions, namely the purchase of CoolLED Limited, Dia-Stron Limited and EWB Solutions Limited and the trade and assets of Fire Instrumentation and Research Equipment.

On 18 February 2016, the Group acquired 100% of the issued share capital of CoolLED Limited, an instrument maker based in Andover, Hampshire. CoolLED designs, manufactures and markets illumination systems for fluorescence microscopy. CoolLED was acquired for an initial cash consideration of £3.5 million, a payment to reflect excess working capital and an earn-out capped at £1.0 million calculated via achievement of adjusted operating profits of £1.0 million in respect of the year to 30 June 2016, reducing by £4.50 for each £1 shortfall below £1.0 million. On 8 August 2016 £0.1 million was paid in full settlement of the earn-out.

On 29 March 2016, the Group acquired the trade and certain assets of FIRE, a fire testing equipment manufacturing and servicing business. The purchase consideration is not material in the context of the overall Judges Group.

On 1 April 2016 the Group acquired 100% of the issued share capital of Dia-Stron Limited, a company which designs and manufactures systems to test the mechanical properties of fibres and is based in Andover, Hampshire. Dia-Stron was acquired for a cash consideration of £2.75 million plus a payment to reflect excess working capital.

On 29 November 2016 the Group acquired 100% of the issued share capital of EWB Solutions Limited, a manufacturer of edge-welded bellows used in Ultra High Vacuum systems and various other applications. EWB is based in Hemel Hempstead, Hertfordshire. EWB was acquired for a cash consideration of £1.8 million and a payment to reflect excess working capital.

The summary provisional fair value of the costs of these acquisitions includes the components stated below:

Consideration	£000
Initial cash consideration	8,223
Deferred consideration	100
	8,323
Gross cash inherited on acquisition	3,714
Cash retained in the business	(367)
Payment in respect of surplus working capital*	3,347
Total consideration	11,670
Acquisition-related transaction costs charged to the income statement	736

*Of the £3,347,000 payment in respect of surplus working capital, £1,598,000 is payable in 2017.

The consideration and associated transaction costs for these transactions were financed from existing cash resources and £4.5 million was drawn down from the Group's existing £10 million acquisition loan facility.

The summary provisional fair values recognised for the assets and liabilities acquired are as follows:

	Book value £000	Fair value adjustments £000	Fair value £000
Property, plant and equipment	267	-	267
Intangible assets	-	5,803	5,803
Deferred tax assets	115	28	143
Inventories	830	(255)	575
Trade and other receivables	921	-	921
Cash and cash equivalents	3,714	-	3,714
Total assets	5,847	5,576	11,423
Deferred tax liabilities	(21)	(1,109)	(1,130)
Trade payables	(728)	(71)	(799)
Current tax liability	(234)	-	(234)
Total liabilities	(983)	(1,180)	(2,163)
Net identifiable assets and liabilities	4,864	4,396	9,260
Total consideration			11,670
Goodwill recognised			2,410

Management performed a detailed review of each of the acquiree's intangible assets. The intangible assets recognised reflect recognition of acquired customer relationships, the value of the acquired future committed order books, internally generated technology, trademarks, domain names and distributor relationships. A significant amount of the value of the acquired business is attributable to its workforce and sales knowhow. As no assets can be recognised in respect of these factors, they contribute to the goodwill recognised upon acquisition.

Other fair value adjustments reflect specific inventory provisions and accruals and related deferred tax assets. The deferred tax liabilities recognised represent the tax effect which will result from the amortisation of the intangible assets, estimated using the tax rate substantively enacted at the balance sheet date and the fair value of the assets.

The acquisitions resulted in a profit after tax (before adjusting items) attributable to owners of the parent company of £908,000 in the period post-acquisition. After amortisation of intangible assets, the contribution to owners of the parent company's results amounted to a gain of £127,000 after tax.

If the acquisitions had been acquired on 1 January 2016, based on pro-forma results, revenue for the Group for the year ended 31 December 2016 would have increased by £1,091,000 and profit after tax (before adjusting items) attributable to owners of the parent company would have increased by £265,000 after allowing for interest costs but before charging amortisation of intangible assets (a reduction of £375,000 after charging additional amortisation of intangible assets of £640,000).

Armfield acquisition

There have been no amendments to the fair values presented in the 2015 consolidated financial statements. As part of the terms of the acquisition, there is a further contingent payment of £360,000 which may become due if the triennial actuarial valuation of Armfield's defined benefit pension fund as at 31 March 2017 shows a reduction in the yearly contribution required to eliminate its funding deficit. The fair value of this consideration has been recorded at £nil as the Directors consider that it is unlikely that the Company will be required to settle this potential payment.

28. Retirement benefit obligations

Defined benefit obligations

The Group's subsidiary, Armfield Limited, operates a defined benefit scheme for certain of its employees. The latest full actuarial valuation was carried out as at 31 March 2014 and the retirement benefit liability was independently revalued as at 31 December 2014.

The scheme has been closed to new members from 2001 and closed to new accrual in 2006. The average duration of the plan's liabilities has been calculated to be approximately 18 years. The trustees are drawn partly from Armfield's employees and also from nominees of the Judges Group.

The full actuarial valuation carried out as at 31 March 2014 was in accordance with the scheme funding requirements of the Pensions Act 2004 and the funding of the plan is agreed between Armfield and the pension trustees in line with those requirements. These in particular require the surplus/deficit to be calculated using prudent, as opposed to best estimate, actuarial assumptions. It was agreed with the trustees that contributions be increased to £198,000 per annum to eliminate the deficit over a period of six years. The next full actuarial valuation will be carried out no later than 31 March 2017. The asset investment strategy is the responsibility of the trustees.

	31 December 2016 £000	31 December 2015 £000
Summary		
Fair value of plan assets	5,759	5,405
Present value of defined benefit obligation	(7,957)	(6,799)
Deficit in scheme	(2,198)	(1,394)
Deferred tax	374	279
Net retirement benefit obligation	(1,824)	(1,115)

	31 December 2016 £000	31 December 2015 £000
Changes in the fair value of plan assets		
1 January	5,405	5,286
Interest income	201	190
Return on plan assets (excluding amounts in interest income)	410	(150)
Contributions by the Company	198	198
Benefits paid	(455)	(119)
31 December	5,759	5,405

The actual return on plan assets for the year ended 31 December 2016 was £611,000 (2015: £40,000).

	31 December 2016 £000	31 December 2015 £000
Changes in the fair value of defined benefit pension obligations		
1 January	6,799	6,994
Current service cost	—	—
Expenses	—	—
Interest expense	261	250
Actuarial gains due to scheme experience	—	—
Actuarial gains due to changes in demographic assumptions	(76)	—
Actuarial losses/(gains) due to financial assumptions	1,428	(326)
Benefits paid	(455)	(119)
31 December	7,957	6,799

There were no plan amendments, curtailments or settlements in the above years.

	31 December 2016 £000	31 December 2015 £000
Major categories of plan assets		
Quoted equities	2,114	1,893
Bonds	3,197	2,898
Property	432	438
Cash and other assets	16	176
31 December	5,759	5,405

	31 December 2016 %	31 December 2015 %
Principal actuarial assumptions		
Discount rate	2.80	3.90
Inflation rate	3.50	3.20
In payment pension increases	3.50	3.40
In deferment pension increases	5.00	5.00

The mortality assumptions used in valuing the liabilities of the plan are based 100% on the standard tables S2Px A, projected using the CMI 2013 model with a 1.00% per annum long-term rate of improvement.

The life expectancies assumed are as follows:

	Life expectancy at age 65 (years)
Male retiring in 2016	21.9
Female retiring in 2016	23.9
Male retiring in 2036	23.2
Female retiring in 2036	25.4

Sensitivity

The significant actuarial assumptions in determining the defined benefit obligation are the discount rate, the rate of mortality and rate of inflation. Changes to these actuarial assumptions may impact this obligation as follows:

	Change in liabilities £000
Discount rate – decrease by 0.25% per annum	350
Inflation rate – increase of 0.25% per annum	111
Mortality rate – increase of one year in life expectancy	228

The above shows the impact on the defined benefit obligation if the assumptions were changed as shown (assuming all other assumptions remain constant). The sensitivity analysis may not be representative of the actual change in the obligation as it is unlikely that any change in assumption would happen in isolation.

Risk management

There is a risk that changes in discount rates, price inflation, asset returns and/or mortality assumptions could lead to a materially greater deficit. Given the long-term time horizon of the pension plan cashflows, the assumptions used are uncertain. The assumptions can also be volatile from year to year due to changes in investment market conditions. A higher pension deficit could directly impact the Group's equity valuation and credit rating and may lead to additional funding requirements in future years. Any deficit relative to the actuarial liability for funding purposes, which may differ from the funding position on an accounting basis, will generally be financed over a period that ensures the contributions are reasonably affordable to the Group and in line with local regulations.

29. Non-controlling interests

Summarised financial information of the Group's non-controlling interests is set out below:

	2016 £000	2015 £000
Non-current assets	585	598
Current assets	2,472	2,402
Total assets	3,057	3,000
Current liabilities	(1,353)	(2,355)
Non-current liabilities	(63)	(113)
Total liabilities	(1,416)	(2,468)
Total equity	1,641	532
Attributable to:		
Owners of the parent	837	271
Non-controlling interest	804	261
	2016 £000	2015 £000
Revenue	3,867	4,127
Profit for the year	1,109	788
Attributable to:		
Owners of the parent	566	402
Non-controlling interest	543	386
	2016 £000	2015 £000
Net cash from operating activities	1,005	623
Net cash used in investing activities	(20)	(38)
Net cash used in financing activities	(866)	(398)
Net cash inflow/(outflow)	119	187

No dividends were paid to the non-controlling interest during the year (2015: £nil).

Independent auditor's report

To the members of Judges Scientific plc

We have audited the parent company financial statements of Judges Scientific plc for the year ended 31 December 2016 which comprise the balance sheet, the statement of changes in equity and the related notes. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice), including FRS 101 Reduced Disclosure Framework.

This report is made solely to the Company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the Company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Company and the Company's members as a body, for our audit work, for this report, or for the opinions we have formed.

Respective responsibilities of Directors and Auditor

As explained more fully in the Statement of Directors' Responsibilities, the Directors are responsible for the preparation of the parent company financial statements and for being satisfied that they give a true and fair view. Our responsibility is to audit and express an opinion on the parent company financial statements in accordance with applicable law and International Standards on Auditing (UK and Ireland). Those standards require us to comply with the Auditing Practices Board's Ethical Standards for Auditors.

Scope of the audit of the financial statements

A description of the scope of an audit of financial statements is provided on the Financial Reporting Council's website at www.frc.org.uk/auditscopeukprivate.

Opinion on financial statements

In our opinion the parent company financial statements:

- give a true and fair view of the state of the company's affairs as at 31 December 2016 and of its profit for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006.

Opinion on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the Strategic Report and Directors' Report for the financial year for which the financial statements are prepared is consistent with the financial statements.
- the Strategic Report and Directors' Report has been prepared in accordance with applicable legal requirements.

Matter on which we are required to report under the Companies Act 2006

In the light of the knowledge and understanding of the parent company and its environment obtained in the course of the audit, we have not identified any material misstatements in the Strategic Report and Directors' Report.

Matters on which we are required to report by exception

We have nothing to report in respect of the following matters where the Companies Act 2006 requires us to report to you if, in our opinion:

- adequate accounting records have not been kept by the parent company, or returns adequate for our audit have not been received from branches not visited by us; or
- the parent company financial statements are not in agreement with the accounting records and returns; or
- certain disclosures of Directors' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit.

Other matter

We have reported separately on the consolidated financial statements of Judges Scientific plc for the year ended 31 December 2016.

Philip Sayers

Senior Statutory Auditor

for and on behalf of Grant Thornton UK LLP

Statutory Auditor, Chartered Accountants

East Midlands

20 March 2017

Parent company balance sheet

As at 31 December 2016

	Note	2016 £'000	2015 £'000
Fixed assets			
Tangible assets	3	714	3,403
Investments in subsidiaries	4	39,264	27,936
		39,978	31,339
Current assets			
Debtors	5	22,061	16,421
Cash in hand and at bank		—	428
		22,061	16,849
Creditors: amounts falling due within one year	6	(8,998)	(3,542)
Net current assets		13,063	13,307
Total assets less current liabilities		53,041	44,646
Creditors: amounts falling due after more than one year	7	(13,796)	(9,443)
Deferred tax liability	8	—	(110)
Total net assets		39,245	35,093
Capital and reserves			
Called up share capital	9	305	305
Share premium		14,472	14,441
Capital redemption reserve		23	23
Profit and loss account		24,445	20,324
Shareholders' funds		39,245	35,093

In accordance with the exemptions permitted by section 408 of the Companies Act 2006, the profit and loss account of the parent company has not been presented. Profit for the year totalled £5,552,000 (2015: £5,996,000).

These parent company financial statements were approved by the Board on 20 March 2017.

David Cicurel
Director

Brad Ormsby
Director

Parent company statement of changes in equity

For the year ended 31 December 2016

	Share capital £000	Share premium £000	Capital redemption reserve £000	Retained earnings £000	Total equity £000
At 1 January 2016	305	14,441	23	20,324	35,093
Dividends	—	—	—	(1,581)	(1,581)
Issue of share capital	—	31	—	—	31
Share-based payments	—	—	—	150	150
Transactions with owners	—	31	—	(1,431)	(1,400)
Profit for the year	—	—	—	5,552	5,552
Total comprehensive income for the year	—	—	—	5,552	5,552
At 31 December 2016	305	14,472	23	24,445	39,245
At 1 January 2015	300	14,294	23	15,594	30,211
Dividends	—	—	—	(1,385)	(1,385)
Issue of share capital	5	147	—	—	152
Share-based payments	—	—	—	119	119
Transactions with owners	5	147	—	(1,266)	(1,114)
Profit for the year	—	—	—	5,996	5,996
Total comprehensive income for the year	—	—	—	5,996	5,996
At 31 December 2015	305	14,441	23	20,324	35,093

Notes to the parent company financial statements

For the year ended 31 December 2016

1. Statement of compliance

The financial statements were prepared in accordance with FRS 101 'Reduced Disclosure Framework'.

2. Summary of significant accounting policies

Basis of preparation

As permitted by FRS 101, for both periods presented, the Company has taken advantage of the disclosure exemptions available under that standard in relation to financial instruments, capital management, presentation of a cashflow statement, share-based payments, fair value measurements, comparative reconciliations for tangible and intangible assets, standards not yet effective, related party transactions with other wholly owned members of the Group, and key management personnel compensation. Equivalent disclosures are, where required, given in the Group accounts of Judges Scientific plc. The Group accounts of Judges Scientific plc are available to the public.

The financial statements have been prepared on the historical cost basis.

Use of key accounting estimates and judgements

Many of the amounts included in the financial statements involve the use of judgement and/or estimation. These judgements and estimates are based on management's best knowledge of the relevant facts and circumstances, having regard to prior experience, but actual results may differ from the amounts included in the financial statements. Information about such judgements and estimates is contained in the accounting policies and/or the notes to the financial statements, and the key areas are summarised below.

Sources of estimation uncertainty

- Depreciation rates are based on estimates of the useful lives and residual values of the assets involved.

Tangible fixed assets

Tangible fixed assets are stated at historical cost, less accumulated depreciation.

Depreciation is provided at annual rates calculated to write off the cost less residual value of each asset over its expected useful life at the following rate:

Property	50 years (excluding the estimated cost of land)
Leasehold improvements	Over the minimum term of the lease
Fixtures, fittings and equipment	Between three and seven years

Investments

Fixed asset investments in subsidiaries are stated at cost less provision for impairment.

Taxation

Current tax is provided at amounts expected to be paid or recovered either directly or through Group relief arrangements.

Deferred tax assets and liabilities are calculated at rates that are expected to apply to their respective period of realisation, provided they are enacted or substantively enacted at the balance sheet date.

Employee benefits – defined contribution plans

The Company operates defined contribution pension schemes for employees and Directors. The assets of the schemes are held by investment managers separately from those of the Group. The contributions payable to these schemes are recorded in the Statement of Comprehensive Income in the accounting period to which they relate.

Share-based employee compensation

The Group operates equity-settled share-based compensation plans for remuneration of its Directors and employees.

All employee services received in exchange for the grant of any share-based compensation are measured at their fair values. The fair value is appraised at the grant date and excludes the impact of any non-market vesting conditions (e.g. profitability or sales growth targets).

Share-based compensation is recognised as an expense in the Statement of Comprehensive Income with a corresponding credit to other reserves. If vesting periods or other vesting conditions apply, the expense is allocated over the vesting period, based on the best available estimate of the number of share options expected to vest. Non-market vesting conditions are included in assumptions about the number of options that are expected to become exercisable. Estimates are subsequently revised if there is any indication that the number of share options expected to vest differs from previous estimates.

The proceeds received net of any directly attributable transaction costs are credited to share capital and share premium when the options are exercised.

Foreign currencies

Monetary assets and liabilities denominated in foreign currencies are translated into Sterling at the rates of exchange prevailing at the balance sheet date. Transactions in foreign currencies are recorded at the rate of exchange prevailing at the date of transaction. All differences are taken to the profit and loss account.

3. Tangible assets

	Property and leasehold improvements £'000	Fixtures, fittings and equipment £'000	Total £'000
Cost			
1 January 2016	3,565	20	3,585
Additions	7	—	7
Disposal	(2,775)	—	(2,775)
31 December 2016	797	20	817
Depreciation			
1 January 2016	180	2	182
Disposal	(160)	—	(160)
Charge	74	7	81
31 December 2016	94	9	103
Net book value – 31 December 2016	703	11	714
Net book value – 31 December 2015	3,385	18	3,403

The disposal relates to the intra-group transfer of Judges House to UHV Design Limited.

4. Investments in subsidiaries

	2016 £'000	2015 £'000
Cost		
1 January	27,936	16,537
Additions	11,450	11,399
Repayment of subordinated debt in Bordeaux Acquisition Limited	(122)	—
31 December	39,264	27,936

The additions in the year relate to the acquisitions of CoolLED Limited, Dia-Stron Limited and EWB Solutions Limited.

The Company's subsidiaries at 31 December 2016, all of which are incorporated and domiciled in the United Kingdom (except as stated), are as follows:

Company	Principal activity	Class of shares	% held
Fire Testing Technology Limited	Design and assembly of fire testing instruments	Ordinary £1	100%
PE.fiberoptics Limited	Design and assembly of fibre-optic testing instruments	"A" Ordinary 50p	100% of "A" class, being 51% of total equity
UHV Design Limited	Design and manufacture of instruments used to manipulate objects in ultra high vacuum chambers	Ordinary £1	100%
Aitchee Engineering Limited	Manufacture of engineering parts and finished products	Ordinary £1	100%
Quorum Technologies Limited	Design, manufacture and distribution of instruments that prepare samples for examination in electron microscopes	Ordinary £1	100%
Sircal Instruments (UK) Limited	Design, manufacture and distribution of rare gas purifiers for use in metals analysis	Ordinary £1	100%
Deben UK Limited*	Design and manufacture of devices used to enable or improve the observation of objects under a microscope	Ordinary £1	51%
Global Digital Systems Limited	Design and manufacture of instruments used to test the physical properties of soil and rocks	"A" and "B" Ordinary £1	100%
Scientifica Limited*	Design and manufacture of instruments used in electrophysiology to enable or improve the observation of objects under a microscope	Ordinary £1	100%
Scientifica LLC (USA)*	Sale of instruments used in electrophysiology to enable or improve the observation of objects under a microscope		100%
Bordeaux Acquisition Limited	Holding company	Ordinary £1	51%
Armfield Limited	Design and supply of research and training equipment	Ordinary £1	100%
Armfield Technical Education Limited*	Dormant	Ordinary £1	100%
Armfield Inc. (USA)*	Supply of research and training equipment	Common Shares	100%
CoolLED Limited	Design and manufacture of illumination systems for fluorescence microscopy	Ordinary £1	100%
Dia-Stron Limited	Design and manufacture of systems to test the mechanical properties of fibres	Ordinary £1	100%

Company	Principal activity	Class of shares	% held
Dia-Stron Inc. (USA)*	Sale of systems to test the mechanical properties of fibres	Common Shares	100%
EWB Solutions Limited	Design and manufacture of edge-welded bellows	Ordinary £1	100%
Judges Capital Limited	Holding company	Ordinary £1	100%
EM Technologies Limited*	Dormant	Ordinary £1	100%
FTT Scientific Limited*	Dormant	Ordinary £100	100%
GDS Instruments Limited*	Dormant	Ordinary £1	100%
Polaron Instruments Limited*	Dormant	Ordinary £1	100%
Stanton Redcroft Limited*	Dormant	Ordinary £1	100%

* Indirectly held.

5. Debtors

	2016 £000	2015 £000
Amounts owed by Group companies	21,261	15,890
Prepayments and accrued income	721	531
Deferred tax asset (note 8)	79	—
	22,061	16,421

Included in amounts owed by Group companies are:

- the sum of £14,349,000 (2015: £13,896,000) which is repayable on demand at any time after 30 June 2017 provided that all liabilities to third parties falling due on or before that date have been met. These loans are unsecured and bear interest at the rate of 7.5% per annum;
- the sum of £1,500,000 (2015: £nil) which is repayable on demand at any time after 30 June 2017 provided that all liabilities to third parties falling due on or before that date have been met. This loan is unsecured and bears interest at the rate of 5% per annum;
- a loan to UHV Design Limited, made during 2016 to finance the transfer of Judges House, amounting to £2,615,000 (2015: £nil) which is to be repaid by 2026. This loan is unsecured and bears interest at the rate of 5% per annum; and
- a loan to Fire Testing Technology Limited, made during 2010 to finance the acquisition of Sircal Instruments (UK) Limited, amounting to £1,316,000 at 31 December 2016 (2015: £1,316,000). This loan is unsecured, repayable on demand and bears interest at the rate of 7.5% per annum.

Except as stated, all amounts are recoverable in less than one year.

6. Creditors: amounts falling due within one year

	2016 £000	2015 £000
Bank overdraft	3,282	—
Current portion of bank loans	2,260	2,260
Trade and other payables	436	126
Amounts owed to Group companies	415	300
Corporation tax	321	315
Social security and other taxes	470	168
Other creditors	69	42
Amounts owed to acquisition creditors	1,604	—
Accruals and deferred income	141	331
	8,998	3,542

7. Creditors: amounts falling due after more than one year

	2016 £000	2015 £000
Bank loans	13,796	9,443

Borrowings comprise a bank loan secured on assets of the Group. The loan is repayable in quarterly instalments over the period ending 31 December 2019 and bears interest at 1.75% to 2.75% above LIBOR-related rates, depending upon gearing.

The repayment profile of borrowings is as follows:

	Bank loans £000
Repayable in less than one year	2,625
Repayable in years one to five	14,345
	16,970
Less: interest included above	(914)
	16,056

A proportion of the Company's bank loans is drawn in foreign currencies to provide a hedge against Group assets denominated in those currencies. The Sterling equivalent at 31 December 2016 of loans denominated in Euros was £1,216,000 (2015: £1,050,000). These amounts are included in the figures above for bank loans, repayable in years one to five.

The Company enters into derivative financial instruments in order to manage its interest rate and foreign currency exposure. The principal derivatives used include interest rate swaps and foreign currency forward contracts and options. The fair value of these financial instruments is an asset of £13,000 (2015: £56,000), offset by a fair value liability of £18,000 (2015: £39,000) on interest rate swaps. These transactions have been recognised in these accounts and are held within other creditors.

The parent company guarantees bank loans advanced to its 51%-owned subsidiary, Bordeaux Acquisition Limited, amounting in aggregate at 31 December 2016 to £102,000 (2015: £687,000).

8. Deferred tax asset/(liability)

	2016 £000
1 January	(110)
Credit to income statement	87
Adjustment in respect of prior year	11
Credited to equity	91
31 December	79

Deferred tax is recorded at a rate of 17% and relates to accelerated capital allowances and share options.

9. Share capital and share-based payments

Details relating to the parent company's share capital are set out in note 22 to the consolidated financial statements.

10. Related party transactions

The Company is exempt under the terms of FRS 101.8 from disclosing transactions with its wholly owned subsidiaries.

Funds were advanced by the Company in 2011 to its 51%-owned subsidiary, Bordeaux Acquisition Limited, to facilitate the purchase during that year of the entire issued share capital of Deben UK Limited. The amount of £395,000 was outstanding at 31 December 2016 (2015: £517,000). There are no interest or repayment terms to these advances.

Dividends paid in the year to Directors who hold shares amounted to £295,000 in aggregate (2015: £260,000).

11. Directors and employees

	2016 £000	2015 £000
Staff costs (including Directors)		
Wages and salaries	718	798
Social security costs	87	100
Other pension costs	21	15
	826	913
Total Directors' emoluments		
Emoluments	582	701
Defined contribution pension scheme contributions	14	12
	596	713
Emoluments of the highest paid Director		
Emoluments	168	205

During the year, two Directors participated in a defined contribution pension scheme (2015: two).

	2016 Number	2015 Number
Average number of persons employed		
Directors	7	7
Administrative staff	2	2
Total	9	9

Company information

Directors

The Hon. Alexander Robert Hambro (Non-Executive Chairman)
David Elie Cicurel (Chief Executive)
Bradley Leonard Ormsby (Group Finance Director)
David Barnbrook (Chief Operating Officer)
Ralph Leslie Cohen (Non-Executive Director)
Ralph Julian Elman (Non-Executive Director)
Glynn Carl Reece (Non-Executive Director)

Company Secretary

Christopher Talbot

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