Oxford Instruments plc
Announcement of half-year results for the six months to 30 September 2022

Strong demand from structural growth markets driving increased revenue, profit and order book; expectations remain in line for full year

Oxford Instruments plc, a leading provider of high technology products and systems for industry and research, today announces its half-year results for the six months to 30 September 2022.

Adjusted[1]	**Half year to 30 September 2022**	Half year to 30 September 2021	% change reported	% change organic constant currency[4]
Revenue	**£200.5m**	£170.1m	+17.9%	+10.2%
Adjusted operating profit	**£36.8m**	£30.6m	+20.3%	+4.6%
Adjusted operating profit margin	**18.4%**	18.0%	+40bps	
Adjusted profit before taxation	**£37.3m**	£30.2m	+23.5%	
Adjusted basic earnings per share	**50.8p**	41.2p	+23.3%	
Cash conversion[2]	**65%**	53%		
Net cash[3]	**£97.1m**	£70.1m		

Statutory	**Half year to 30 September 2022**	Half year to 30 September 2021	% change reported
Revenue	**£200.5m**	£170.1m	+17.9%
Operating profit	**£26.3m**	£21.8m	+20.6%
Operating profit margin	**13.1%**	12.8%	+30bps
Profit before taxation	**£26.6m**	£21.4m	+24.3%
Basic earnings per share	**35.9p**	28.7p	+25.1%
Dividend per share for the year	**4.6p**	4.4p	+4.5%

Financial highlights

- Strong growth in orders of 18.7%, 13.0% at constant currency (+9.3% organic constant currency)
- Revenue growth of 10.2% at constant currency (+5.7% organic constant currency), partially constrained by supply chain disruption and export licence delays
- Reported order book of £315.7m, growth of 28.7% at constant currency (+25.3% organic constant currency)
- Currency tailwind supported strong growth in adjusted operating profit of 20.3%, with margin rising to 18.4%
- Net cash increased to £97.1m despite increase in inventories to support growth and mitigate supply chain disruption, as well as deferred shipments due to export licence delays, resulting in normalised cash conversion of 65%
- Growth in interim dividend of 4.5%

Operational highlights

- Structural growth markets driving strong order, revenue and profit growth
- Continued growth momentum: resilience of business model underpinned by strategic priorities of market intimacy and relentless innovation, with increased investment in R&D
- Proactively managing global headwinds: price rises implemented to protect margin; increased inventory partly mitigating supply chain disruption
- Strong growth in Materials & Characterisation and Service & Healthcare; Research & Discovery performance impacted by supply chain disruption despite continued strong customer demand
- Investment in new operations capacity and customer service supporting future growth
- WITec acquisition has performed strongly, with growth supported by revenue synergies across the Group

Summary and outlook

Ian Barkshire, Chief Executive of Oxford Instruments plc, said:

"The Group has continued to deliver strong growth momentum despite the challenging external landscape. Our purpose – to enable a greener, healthier, more connected advanced society – together with our customer-centric, market-focused strategy, is driving increasing demand from structural growth markets for our world-class solutions.

"Our pipeline remains robust across all our end markets. We anticipate higher production in the second half, combined with the positive impact of recent price increases as we convert our record order book. This provides good visibility for an expected improvement in trading in the second half, with full-year trading at constant currency remaining in line with expectations.

“While mindful of the increasingly uncertain macroeconomic and geopolitical landscape, our record order book demonstrates our positive trajectory and underpins our confidence in the future growth potential of the Group.

“Our strong balance sheet positions us well to invest in the business and consider further acquisitions, and we continue to selectively review a pipeline of acquisition opportunities.”

1. Adjusted items exclude the amortisation and impairment of acquired intangible assets, acquisition items, profit or loss on disposal of operations, other significant non-recurring items, and the mark-to-market movement of financial derivatives. A full definition of adjusted numbers can be found in the finance review and Note 2
2. Cash conversion measures the percentage of adjusted cash from operations to adjusted operating profit, as set out in the finance review.
3. Net cash includes total borrowings, cash at bank and bank overdrafts but excludes IFRS 16 lease liabilities.
4. Constant currency numbers are prepared on a month-by-month basis using the translational and transactional exchange rates which prevailed in the previous year rather than the actual exchange rates which prevailed in the year. Transactional exchange rates include the effect of our hedging programme.

LEI: 213800J364EZD6UCE231

Number of pages: 34

Enquiries:

Oxford Instruments plc

Ian Barkshire, Chief Executive; Gavin Hill, Chief Financial Officer

Tel: **01865 393200**

MHP Communications

Katie Hunt/Eleni Menikou/Veronica Farah

oxfordinstruments@mhpc.com

Tel: **020 3128 8100**

Chief Executive’s review

The Group has maintained its strong growth momentum despite the challenging external landscape, demonstrating the continued resilience of our business model. Our strategic focus on markets with structural growth is driving increased demand for our world-class solutions, with double-digit revenue and operating profit growth. Together with our record order book, this positive trajectory underpins our confidence in the future growth potential of the Group.

As a global provider of high technology products and services to many of the world’s leading companies and foremost scientific research institutes, we have a crucial role to play in accelerating progress in critically important areas of science and technology.

Our purpose – to enable a greener, healthier, more connected advanced society – puts us at the heart of key developments and growth markets, while our customer-centric, market-focused strategy (which we describe as our market intimacy) ensures we are well placed to anticipate customers’ needs, working closely with them to create the products and services that will accelerate their progress.

Long-term structural growth drivers underpinning resilient performance
The health and resilience of our chosen end markets (Semiconductor & Communications, Advanced Materials, Healthcare & Life Science, Energy & Environment and Quantum Technology) have played a critical role in our strong performance during the period.

As customers respond to changing circumstances post-Covid-19 and seek to accelerate progress towards a more sustainable future, we have seen our markets’ structural drivers reinforced across both academic and commercial customers, stimulating funding and increasing demand. The superior performance, unrivalled ease of use and global support we are able to deliver across our range of products and services makes us the partner of choice for leaders in their field across the globe. We were delighted, for example, that the winners of the 2022 Nobel prizes for both chemistry and physics used our equipment in the course of their transformational research.

Digital connectivity is shaping the society of the future, transforming sectors and industries globally and bringing communities closer together, enabling life-changing progress for billions. The resulting demand for data management, increased connectivity and bandwidth, and ever-more sophisticated electronics is fuelling rapid growth in our Semiconductor & Communications markets, where our solutions help customers develop, produce, analyse and test products, maximising performance and yield.

The global energy transition away from fossil fuels is creating demand for our Materials & Characterisation solutions. The battery market, in particular, is growing at pace, and our products provide crucial insights at every stage of the production process, from research and development to failure analysis.

Similarly, in our Advanced Materials segment, our products are playing a vital part in helping companies and academic institutions develop and optimise the advanced materials which will create more valuable products and use resources more efficiently, speeding the path to a more sustainable society.

In Healthcare & Life Science, the pace of discovery is accelerating as scientists are increasingly able to understand fundamental disease mechanisms. Our products support this by enabling critical insights and measurement of the efficacy of new medicines and therapies at the molecular and cellular level.

In the Quantum Technology market, we are working with world leaders in the field as the market continues its evolution from earlier stage research into applied R&D and the rapidly evolving commercial market, including the transition to commercial data centres. Our deep expertise and specialised cryogenic, optical and fabrication solutions for this market are supporting our customers to accelerate their roadmaps and deliver the transformational step changes required.

While our strategy is driving growth across the Group, there have been significant global headwinds during the period, including supply chain shortages and ongoing Covid-related disruptions, especially in China. This has negatively impacted revenue in a number of our business units in the period. We have proactively addressed the current inflationary environment across employment, material and energy costs by successfully implementing price rises to protect our margins. However, due to the phasing of our order book, we have only started to see the benefit of these price increases towards the end of the period, resulting in a slight impact on our operating margin. Our price increases are starting to flow through, with greater benefit in the second half of the year.

A further challenge during the period was an increase in the number of orders to China requiring export licences, with a modest increase in refusals. This has slowed delivery into China, impacting regional revenue in the period. To address these headwinds we are shifting our focus to less sensitive growth markets in China where we anticipate fewer licence issues.

WITec, the leading Raman and optical imaging solutions business which we acquired in the previous financial year, has performed ahead of our expectations, with strong growth supported by the exploitation of our extensive customer base to drive revenue synergies across the Group. The strength of our balance sheet positions us well to consider further acquisitions, and we continue to selectively review a pipeline of opportunities.

Horizon strategy drives resilience and continuing growth
The ongoing delivery of our Horizon strategy, which centres on driving sustainable growth and increased margins, has also underpinned our good performance. The key elements of Horizon are:

- A focus on building our scale and capability in specific end markets with long-term structural growth drivers, where we can sustain leadership positions for technologies and products that create high value add for customers.
- Proactive engagement across the full technology cycle, from research and applied R&D to high-volume manufacturing, to maximise the returns from our core technologies, deepen our insight and position us to benefit from each wave of growth and technology disruption.
- Our deep market intimacy, which we use to inform our significant and focused investment in innovative product development and best-in-class service support.
- A relentless dedication to continuous improvement, driving ongoing synergies, efficiencies, and strong commercial processes across the Group.
- Driving above-market growth through organic investments, further augmented by complementary, value-adding acquisitions.

Progress on Horizon in the period
We have made further progress in the period, strengthening the four pillars of our operating model: market intimacy; operational excellence; innovation and product development; and customer service and support.

This strategy has resulted in strong growth to commercial and academic customers in the half. Over the longer term, this represents a 19% compound annual growth rate (CAGR) of orders from commercial customers since 2019 and a 6% CAGR from academic customers over the same period. In line with our strategy of broadening our reach and addressing larger markets, commercial customers now represent 53% of orders in the period, compared with 45% in 2019.

Our **market intimacy** has supported a strong contribution to growth from products launched since the start of the Horizon strategy, and increased returns from our investment in research and development. In the first half, it has driven strong growth in existing markets and expansion into new and adjacent markets, through our disruptive innovation as we continue to tailor our products to optimise them for specific and new applications.

Our ongoing investment in **operational excellence** has played a key role in our first-half performance, with our dedicated teams proactively managing the many challenges during the period. We have continued to strengthen relationships with strategic suppliers and to further consolidate our supply chain. We have also increased inventory levels of critical parts to enable us to continue to supply customers, as well as engineering out components where we anticipate long-term critical shortages could occur. We have increased investment across our operations, including additional automation of manufacturing processes and efficiency improvements to our business management systems, for example combining customer relationship management with sales management pipelines.

Despite these initiatives, we have continued to see shortages of critical semiconductor and electronic components. This has particularly impacted our Plasma, Andor and NanoScience business units, moderating revenue in the period despite the healthy order book.

We continue to work with our suppliers to minimise the impact of component shortages; however, production schedules continue to be impacted by delays in supplier deliveries. We anticipate an improvement in the second half of the year, but the situation remains dynamic.

While managing current headwinds, we continue to invest in our businesses for the medium and long term, with a strong ongoing focus on disruptive **innovation and product development** to ensure we remain at the forefront of our chosen markets. Recent product launches and upgrades, designed with customer productivity and ease of use at their core, are supporting our healthy order pipeline.

Our Research and Development investment has increased to £18.2m (H1 2021: £15.4m), an 18% rise, growing in line with sales and representing 9.1% (H1 2021: 9.1%) of revenue.

We remain focused on ensuring that we have the specialist talent, infrastructure and facilities we need to support our customers and markets as we grow our business. The construction of our new facility near Bristol, UK for our Plasma Technology business is on track, and is set to be fully operational by summer 2023.

We have made further progress with our **customer service and support** offering, with revenue up by 16.6% as we embed our global service model, broadening the range of services we offer and tailoring them to specific market segments.

We have increased profitability, driving efficiencies through leveraging our scale, with further consolidation of our regional service teams and ongoing training to enable them to address a wider range of products.

Continued order momentum and strong financial performance

As stated above, the Group delivered a strong financial performance in the first half of the year, with strong growth in reported orders, revenue and adjusted operating profit, and an increase in adjusted operating margin, supported by a significant currency tailwind.

At constant currency there was double-digit order and revenue growth. Adjusted operating profit of £32.0m (H1 2021: £30.6m), which grew by 4.6%, was held back by a combination of supply chain challenges and the phasing of our price increases in the period. This adversely impacted adjusted operating profit margin, at 17.1% versus 18.0% at half year 2021.

With our price increases expected to favourably impact H2, and our seasonal weighting of revenue to the second half, we anticipate improved constant currency performance in the second half.

Group	**H12022**	Reported growth vs half year to 30 September 2021	Constant currency growth vs half year to 30 September 2021
Orders	**£235.3m**	18.7%	13.0%
Revenue	**£200.5m**	17.9%	10.2%
Adjusted operating profit	**£36.8m**	20.3%	4.6%
Operating margin	**18.4%**	40bps	(90bps)

Orders

Orders increased to £235.3m from £198.3m, increasing by 18.7%. This represented 13.0% growth on a constant currency basis.

From an end market perspective, we delivered double-digit order growth across our key segments: Semiconductor & Communications, Advanced Materials, Energy & Environment and Quantum Technologies. Strong growth across our life science microscopy portfolio was offset by the phasing of OEM framework orders, resulting in Healthcare & Life Science orders slightly lower than the previous period on a constant currency basis, albeit ahead on a reported basis. Our planned move away from large, one-off bespoke systems has resulted in a managed decline in the Research & Fundamental Science market, now representing 3% of orders received.

Healthy global demand resulted in double-digit order growth across our main geographies: Europe, North America and Asia. Within Asia, orders in China showed modest growth, despite the significant lockdowns, particularly in the first quarter, with growth in product orders offset by a significant reduction in service orders (which were constrained by the lockdowns). This was supported by the continued implementation of procedures we put in place during the early stages of Covid-19, enabling us to drive growth in product orders and revenue, and service revenue.

From a sector perspective, Materials & Characterisation grew by 25.9% on a constant currency basis and 31.6% on a reported basis to £135.4m (H1 2021: £102.9m). Reported order growth was 3.8% in Research & Discovery, a 2.1% decline at constant currency. This reflected continued strong demand across our product portfolio, comprising increased direct end user orders, but a lower contribution from framework OEM orders, due to delayed timing and the ongoing move away from large, complex systems. Growth in service orders of 0.9% at constant currency was held back by the previously mentioned lockdown-related decline in China.

Revenue

Reported revenue grew 17.9% to £200.5m (2021: £170.1m), representing growth of 10.2% at constant currency. The supply chain challenges previously mentioned particularly impacted our NanoScience, Andor Technology and Plasma businesses, which affected the distribution of revenue in the period. As a result, reported revenue growth was 28.0% in Materials & Characterisation, 3.2% in Research & Discovery and 16.6% in Service & Healthcare.

Stronger revenue growth into commercial customers relative to growth in academia resulted in the proportion of commercial customers increasing to 51% (2021: 50%) in the period. From an end market perspective, we had particularly strong revenue growth across Quantum Technology, Advanced Materials and Energy & Environment market segments, with strong growth across Healthcare & Life Science. Revenue into Semiconductor & Communications was impacted by reduced shipments from the Plasma business, despite a healthy and expanding order book. Revenue in Research & Fundamental Science declined in line with our strategy.

Regionally there was constant currency revenue growth of 12% in Europe, 23% in North America and 4% in Asia.

Overall, the Group has delivered a strong performance due to the continued execution of its strategy with diversification across the technology life cycle, structural growth end markets, geographies and product range.

Dividend

Due to the Group's robust trading performance, the Board is declaring an interim dividend of 4.6p per share (2021: 4.4p per share).

Board composition

We were delighted to welcome Reshma Ramachandran to our Board in September 2022 as a Non-Executive Director. Reshma is an engineer by training, with a broad range of international experience and expertise at creating value through digital transformations. She is currently Senior Vice President & Group Head of Transformation at Adecco Group AG.

Shaping a sustainable future

Through our stated purpose – to enable a greener, healthier, more connected advanced society – we are committed to making a positive impact on the world through our solutions and services. Our purpose underpins our wholehearted commitment to playing our part in creating a sustainable future throughout our own operations, and by behaving as a responsible business.

This year, we are seeking to formalise our commitment to reach net zero (i.e. where we add no incremental greenhouse gases to the atmosphere) ahead of our previously stated target of 2050. We are carrying out detailed analysis to enable us to create an evidence-based net zero roadmap. Due to the great strides we have made in the past, our own emissions represent a small proportion of our overall footprint, which is dominated by our supply chain and our customers' use of our end products.

In the period we have engaged with our strategic suppliers to better understand how their sustainability programmes can support our progress to net zero; we are also exploring how we can modify our products to reduce their environmental impact. At the end of the financial year, we will outline our specific commitments on our approach to our own operations (Scopes 1 and 2) and those of our value chain (Scope 3).

We are also making strong progress with the social and governance aspects of our sustainability programme. Our values shape each decision we make, and are a particular source of strength when external circumstances are challenging, as they have been this year. We recognise that cost-of-living pressures are impacting people all over the world, including our employees. Earlier this year, in line with our values, we brought forward our annual salary review by three months so that colleagues would benefit from an immediate early uplift in their income. In October 2022, we announced a further additional one-off cost-of-living payment to support those employees earning up to £40,000 in the UK or the equivalent in other high inflation regions of the world.

We are committed to creating a diverse workplace across all parts of the organisation, so that all feel welcome and where difference is valued. We are seeing a further uplift in engagement scores around diversity and inclusion and will continue our work in this area. We continue to invest in our highly capable workforce, whilst proactively recruiting individuals who come with specific additional knowledge and skills to complement and extend the capabilities of existing teams.

Sustainability has been a foundation of our business for many years; our journey continues as we work to formalise our targets on key aspects of environmental and social governance.

I want to thank all our employees for their continued energy and commitment to delivering on our strategy and living our purpose and values every day. I am grateful, as ever, for the vital contribution they make to our ongoing success, and proud of the culture we are shaping together.

Summary and outlook

The Group has continued to deliver strong growth momentum despite the challenging external landscape. Our purpose – to enable a greener, healthier, more connected advanced society – together with our customer-centric, market-focused strategy, is driving increasing demand from structural growth markets for our world-class solutions. Our pipeline remains robust across all our end markets. We anticipate higher production in the second half, combined with the positive impact of recent price increases as we convert our record order book. This provides good visibility for an expected improvement in trading in the second half, with full-year trading at constant currency remaining in line with expectations.

While mindful of the increasingly uncertain macroeconomic and geopolitical landscape, our record order book demonstrates our positive trajectory and underpins our confidence in the future growth potential of the Group.

Our strong balance sheet positions us well to invest in the business and consider further acquisitions, and we continue to selectively review a pipeline of acquisition opportunities.

Ian Barkshire
Chief Executive

7 November 2022

Operations review

Materials & Characterisation

Key highlights

	Half year to 30 September 2022	% reported growth vs half year to 30 September 2021	% constant currency[1] growth vs half year to 30 September 2021
Orders	**£135.4m**	+31.6%	+25.9%
Revenue	**£108.7m**	+28.0%	+19.7%
Adjusted[2] operating profit	**£18.9m**	+45.4%	+23.1%
Adjusted[2] operating margin	**17.4%**	+210bps	+40bps
Statutory operating profit	**£17.2m**	+53.6%	
Statutory operating margin	**15.8%**	+260bps	

1. For definition refer to note on page 2.
2. Details of adjusting items can be found in Note 2 to the half year financial statements.

Materials & Characterisation sector overview

The Materials & Characterisation sector has a broad customer base across a wide range of applications for:

- The imaging and analysis of materials down to the atomic level (across our Asylum Research, NanoAnalysis, Magnetic Resonance and WITec businesses), where our leading product performance, ease of use and advanced analytics enhance our customers' capabilities, provide actionable insights and increase their productivity. Our portfolio of materials analysis solutions (including X-ray, electron and magnetic resonance analysis systems and atomic force and Raman microscopes) enable the measurement of the structures, composition and critical properties that define the modern world.
- The fabrication of semiconductor devices and structures, where our portfolio of advanced semiconductor etch and deposition process systems (in our Plasma Technology business) provides our customers with the ability to create and manipulate materials with atomic scale accuracy to manufacture advanced compound semiconductor devices.

The sector has a strong focus on accelerating our customers' applied R&D, enabling the development of new devices and next generation higher performing materials, as well as enhancing productivity in advanced manufacturing, quality assurance (QA) and quality control (QC).

Operational and strategic progress
In the period we have continued to focus on maximising the synergies across our portfolio of materials analysis solutions by leveraging the strength of our existing customer relationships and our in-depth knowledge of their workflows. These insights have enabled us to offer a broader range of tailored solutions to existing customers as they deploy multiple products and techniques to accelerate their own development. They have also enabled us to expand into larger and faster growing markets, with increased reach into commercial markets. This approach has been a key element supporting the successful integration and growth of WITec since its acquisition in the previous year.

In our compound semiconductor processing systems, we have continued to enhance both our range of dedicated platforms for use in high volume manufacturing and our portfolio for applied R&D.

By focusing on the critical layers within a semiconductor that determine device performance and productivity, we have driven strong growth to both commercial and academic customers. Our Plasma Technology business's new UK facility, which will increase our production capacity, is on track to become fully operational in summer 2023. Comprising a state-of-the-art manufacturing area and advanced laboratories, it will support the further development of our leading-edge technologies and growth within the surging compound semiconductor market.

Strong growth and margin enhancement in the period
The Materials & Characterisation sector delivered double-digit order, revenue and profit growth in the period, with increased margins in the period supported by our strategic focus on attractive and robust structural growth end markets. This comprised double-digit order growth across both our materials analysis and compound semiconductor processing solutions, and from each of our key target markets for this sector: Semiconductor & Communications, Advanced Materials, and Energy & Environment. We continue to see sustained strong demand across each region, with double-digit order growth across Europe, North America and Asia (including China, despite the impact of repeated lockdowns in the period).

We also saw double-digit order growth to both academic and commercial customers, with commercial customers representing 59% of orders in the period. We continue to have a healthy pipeline across our portfolio as governments and companies increase their investments in our target markets to deliver economic growth and drive their own roadmaps.

In terms of revenue, the sector delivered strong growth to all regions and to both academic and commercial customers, despite global shortages of critical electronic components which significantly impacted our ability to convert the healthy order book for our compound semiconductor systems. Advanced Materials, Energy & Environment, and Quantum Technology segments all grew versus last year, with Semiconductor & Communications broadly in line with the previous year.

Reported operating margin for the sector increased to 17.4%, representing 15.7% at constant currency (2021: 15.3%), with constant currency operating profit growth of 23.1% in the period (+17.2% organic, excluding the impact of WITec), despite the previously mentioned supply chain challenges in Plasma Technology.

Across the sector, our order book for future deliveries has increased by 34% to £155m (March 2022: £116m). Growth on an organic constant currency basis was 18.0%.

Impact of WITec
WITec was acquired on 31 August 2021 and contributed one month of results in the half year to 30 September 2021, but six months in the half year to 30 September 2022. WITec generated orders of £10.3m (2021: £2.9m) and revenue of £9.7m (2021: £1.8m). Ignoring the acquisition of WITec, the organic growth rate in Materials & Characterisation orders was 19.2% at constant currency with a 10.8% constant currency growth rate in revenue.

The sector has good positions in a number of our end markets, and developments in these are as follows:

Semiconductor & Communications
This is a key focus for the sector. We have continued to deliver double-digit order growth in the period, supported by our broad reach across R&D, the manufacturing of mainstream silicon semiconductor devices, and the separate compound semiconductor market, which enables the transformation of communications and connectivity, and increases the energy efficiency of power devices and consumer electronics.

The silicon semiconductor market is characterised by the ongoing need for higher performing and more energy efficient solutions. This has led to the continuing increased demand and well-publicised global shortages in advanced semiconductors for markets such as automotive, and the proliferation of semiconductor chips in consumer electronics, as well as the more cyclical demand for the processing and memory chips required for personal computers. One example of growth in this market is the increasing move towards autonomous and intelligent cars to improve both safety and driving experience. From Advanced Driver Assistance Systems to secure vehicle access, our analysis systems are used to control the quality of critically important radars, thermal cameras and sensors.

Our imaging and analysis systems are chosen for their unparalleled performance and productivity, across the silicon semiconductor devices themselves, printed circuit boards and more standard electronic components such as resistors and capacitors. We are able to deliver fastest speed-to-result and simple workflows that can be employed in industrial environments.

The leading precision and imaging performance of our systems, combined with their impressive ease of use, remains a key differentiator in the substantial corporate and academic R&D market. Here, our customers are developing next generation devices as well as new disruptive technologies. We have seen sustained demand for our analysis systems in the manufacturing of silicon semiconductor devices, resulting in an overall increase in orders.

We are seeing increasing demand in the compound semiconductor market, driven by the rise in digital data flow, surging demand for connectivity, the requirement for more energy-efficient devices, and the increased deployment of human-machine interfaces such as facial recognition.

This has led to strong order growth across our compound semiconductor processing systems, to both R&D and high-volume production customers. Our growth is driven by our focus on developing solutions which can process and control materials at the atomic scale for the critical layers within devices, and which have the biggest impact on end device performance, cost, and yield. Our systems and processes are being used in a multitude of end applications:

- optical devices used across communication networks and data communications centres;
- augmented reality applications, including micro LEDs and 3D sensors, which are increasingly being deployed across phones, cameras and cars;
- proximity sensors in smartphones, in applications such as face recognition and contactless payment, where their premium performance is key; and
- critical yield and performance in power semiconductors for consumer electronics, such as USB-C fast chargers, which can charge a smartphone in just ten minutes.

We have also seen strong growth in academia, as universities invest in the latest capabilities within their central facilities and specialist clean rooms supported by sustained government funding.

Advanced Materials
Advanced materials are the building blocks of modern society, enabling everything from the screens we watch and the cars we drive to the batteries that power our world. The continued strong order and revenue growth for our materials analysis systems and characterisation reflects the strength and breadth of our end markets.

As customers seek to accelerate their progress in developing the new, higher value materials that will enable a more sustainable net zero future, and the new techniques that will support more responsible use of valuable and finite resources, our solutions provide them with the capability to image, analyse and ultimately control manufacturing. This has driven growth to both academic and commercial customers for research and development through to production. With nearly all materials and products undergoing some form of analysis, this continues to drive increasing demand across our imaging and analysis systems.

Our systems allow our customers to measure down to the nanoscale, optimising the performance and production of lighter, stronger, higher functioning materials from early stage research through to design and production.

We have had strong growth in structural materials such as steel and concrete, which together combine to account for around 15% of global CO_2 emissions. The challenge of making greener alternatives without compromising the performance of the material is critical to the green economy. These macro-scale construction materials benefit greatly from nano-scale analysis. Research into advanced concretes includes recipes which produce fewer carbon emissions and the development of self-healing concretes which can repair cracking automatically.

We also had strong growth into the automotive industry, as carmakers use our systems to help create the lighter, stronger materials needed to offset the weight of batteries, as well as performing quality control on their incoming parts.

The acquisition of WITec has expanded the range of capabilities we can provide to our customers, including, for example, for the development and characterisation of 2D materials, so called because they are just one atom deep. These new types of materials can be designed to have transformational properties such as thermal and electrical, with the potential to provide significant advantages across a wealth of applications.

Graphene, which is the best-known 2D material, is starting to make its way into mainstream products including smartphones and wearable devices as scientists and researchers learn how to harness its capabilities. Other 2D materials are being used in areas such as battery research, displays and next generation semiconductors, where their electrical properties are being explored for their potential to enhance performance.

Our products – particularly our atomic force microscopes – also play a crucial role in helping scientists understand the properties of polymers, including viscosity, adhesion, strength and hardness. The integral role polymers play in a multitude of products used in daily life, from tyres to fabrics and medical implants, underpins our growth in this area.

Energy & Environment
Our systems are playing a critical part in the development of a greener future as governments, academia and commercial customers seek to reduce negative impacts on the planet and drive positive change.

Batteries play a key role in the transition from fossil fuels, enabling sustainable travel and providing efficient and affordable storage to complement renewable energy generation. We have developed tailored solutions across our materials and analysis portfolio to address challenges in every stage of the battery life cycle from raw materials and R&D through to quality control and failure analysis, and end-of-life recycling.

With the active elements of a battery operating at the nanoscale, our products help researchers better understand the fundamental chemistry and mechanisms that affect battery capacity, charging rate and lifetime. Our solutions are also adopted to ensure quality control, including particle analysis to detect potentially harmful contamination within raw materials.

The unique breadth and relevance of our solutions across the battery market means we are ideally placed to support our customers in developing the solutions needed, both today and in the future.

Our analysis solutions are also starting to play a role in the quest for a cleaner, less polluted environment. Customers are using our systems to assess the type and volume of microplastics in water – crucial in helping their understanding of the impact of these pollutants – and to assess the levels of fats, oils and grease in wastewater, helping to prevent the fatbergs and pollution incidents which can occur when these build up in sewer networks.

Healthcare & Life Science
Whilst still a relatively small proportion of revenue for the Materials & Characterisation segment, we have continued to see growth in the Healthcare & Life Science sector, with increasing demand for our solutions as customers seek to deliver ever-more advanced medicines and treatments in pursuit of a healthier society. The acquisition of WITec has enhanced our offerings in this space, as its suite of products are ideally suited to the study of living cells and their chemical structure.

Customers are also using our WITec products to characterise medical polymers used in implants and stents, and to check the biocompatibility of treatments and medicines. In biomolecular research, our atomic force microscopes are being used to explore the mechanics of drug delivery – for example, whether a particular particle attached to a drug can help it take effect more quickly.

Life Science remains an area for growth, as we build on our market intimacy and tailor solutions to better meet customers' needs.

Quantum Technology
We continue to see Materials & Characterisation opportunities in quantum technology markets, alongside our main quantum focus in Research & Discovery. In particular, thanks to the combination of our expertise in semiconductor processing and characterisation, and our relationships with customers within the quantum market, we are seeing demand for our compound semiconductor processing systems for the fabrication of quantum chips and their subsequent characterisation.

Research & Discovery

Key highlights

	Half year to 30 September 2022	% reported growth vs half year to 30 September 2021	% constant currency[1] growth vs half 2021
Orders	**£62.8m**	+3.8%	(2.1%)
Revenue	**£58.1m**	+3.2%	(4.4%)
Adjusted[2] operating profit	**£7.0m**	(19.5%)	(34.5%)
Adjusted[2] operating margin	**12.0%**	(350bps)	(490bps)
Statutory operating profit	**£3.9m**	(29.1%)	
Statutory operating margin	**6.7%**	(310bps)	

1. For definition refer to note on page 2.
2. Details of adjusting items can be found in Note 2 to the half year financial statements.

The sector, which comprises our Andor Technology, NanoScience and X-Ray Technology businesses, provides advanced solutions and unique environments that enable imaging and analytical measurements down to the atomic and molecular level, as well as ultra-low temperature and high magnetic field environments, used across scientific research and applied R&D, and commercial applications.

Research & Discovery overview
The sector has a higher proportion of sales to academia and a growing number of commercial customers as we develop application-specific, easy-to-use solutions based on our high-end, research-orientated platforms.

Our imaging and analytical portfolio includes market-leading scientific cameras, advanced optical microscopes, spectrometers, laser engines and X-ray tubes. Our ultra-low temperature cryogenic and high magnetic field platforms provide versatile research platforms as well as dedicated systems for more applied and increasingly routine use.

Operational and strategic progress
In addition to selling directly to end customers, where we have a strong brand presence, we also access a broad range of additional end markets by providing our key enabling technologies to strategic original equipment manufacturer (OEM) partners. The sector's products play a key role across a broad range of life, material, and physical science applications, and are at the centre of the development and advancement of quantum technologies. In the period we continued to focus on the key markets for the sector, namely Healthcare & Life Science, Advanced Materials and the evolving Quantum Technology market.

We continue to develop tailored and easier-to-use solutions to support our growth, both within academia and by expanding into adjacent commercial markets. This has led to double-digit growth across our life science microscopy portfolio, and our key enabling technologies, which are supporting the rapid progress in quantum computing. We are increasingly focused on larger and higher value markets with reduced activity for bespoke one-off complex systems, particularly to academia. This resulted in strong order growth to commercial customers, increasing to 33% of orders (2021: 29%) but a reduction into academia.

In the period we had unfavourable phasing of large OEM framework orders for our scientific cameras and X-ray tubes, as well as a significant reduction in academic orders in China due to both the extended lockdown and an increase in export licence controls for certain quantum applications.

This resulted in reported order growth of 3.8%, corresponding to a 2.1% reduction at constant currency, despite the positive underlying market growth.

The previously mentioned supply chain challenges, lockdowns in China and extended delays in obtaining export licences had a disproportionate impact on revenue for the sector. This resulted in reported revenue growth of 3.2%, representing a 4.4% reduction at constant currency.

The reduction in revenue for the period impacted adjusted operating profit of £7.0m (2021: £8.7m), corresponding to £5.7m at constant currency, and resulted in a reduction in operating margin to 12.0% (2021: 15.5%).

The healthy order book of £118m, a book to bill of 1.08, and an improving supply chain provides confidence in a higher seasonal uplift to performance in the second half of the year.

The sector has good positions in a number of our end markets, and developments in these are as follows:

Quantum Technology
Oxford Instruments is at the heart of the extensive global research and development programmes and the ongoing commercialisation of quantum technology. We are collaborating with many of the sector's key players to accelerate progress towards the adoption of quantum computers as a mainstream tool to unlock complex challenges in areas such as finance, logistics, drug discovery and chemistry. We are developing the technology to support customers as they transition quantum computers from the research lab into mainstream data centres, and are well poised to support the transformational disruption of established end markets.

Our unique position, supporting both cryogenic quantum environments and optics-based quantum communication, through our scientific cameras, puts us at the heart of a rapidly growing market. Global technology companies and a range of ambitious and innovative smaller players are breaking new boundaries as they create ever-more powerful quantum computers which are starting to be used for mainstream applications.

As an example, through our collaboration with Rigetti UK Ltd and a consortium of partners, the UK's first commercial quantum computer – housed at our site in Oxfordshire – is now available to partners through the cloud.

Healthcare & Life Science
The long-term structural growth drivers for the Healthcare & Life Science market remain robust as academic researchers, scientists and pharmaceutical companies push to accelerate progress towards a healthier society, delivering improved treatments for neurological diseases and cancers and the eradication of diseases such as malaria and polio. The significant progress in these fields is being fuelled by the improved understanding of the fundamental disease mechanisms at a molecular and cellular level.

We are supporting this transformation through our continued investment across our portfolio of advanced microscopy solutions and dedicated analytical software. Our goal is to enable the fast, repeatable imaging of large molecular and cellular samples with the highest possible resolution for the ultimate research capability, whilst expanding the addressable market by bringing research-grade capability to broader and much larger markets through our disruptive easy-to-use benchtop platform. Our enhanced portfolio has supported double-digit order growth for our optical microscopy systems in the period.

As an example, life scientists are using our high spatial resolution microscopy systems to investigate and better understand how the nanoscale molecular machines that perform fundamental biological functions operate and, importantly, how diseases impact and change their performance. Understanding the biological details at the nanoscale enables new treatments and medicines to be designed to either stop or inhibit the disease mechanisms. Our recently launched benchtop microscope enables researchers and pharmaceutical companies to look at the impact of these new medicines and treatments in much larger cell systems or parts of the body at an attractive price point. Intuitive, easy and fast to operate, it makes high quality microscopy available beyond the pure research arena in a format that is accessible to every life scientist. The product has shown strong growth in cancer research, and neuroscience applications such as studies into Alzheimer's disease and other forms of dementia. Our AI-powered analytical software packages enable the automated analysis and interpretation of the increasingly rich data sets being acquired, with tailored packages for neuroscience, cancer research and cell biology applications.

The phasing of OEM framework orders across our portfolio of scientific cameras, X-ray tubes and lasers negatively impacted orders in the period.

Advanced Materials
The drive to develop new advanced materials with significantly enhanced properties for use across a broad range of applications is supporting sustained customer demand across our portfolio of key enabling technologies. This has led to strong order growth from our optical spectroscopy and scientific cameras across all regions and, in particular, to commercial customers. Growth for our cryogenic and high magnetic field measurement systems in Asia and the US was, however, more than offset by a reduction in Europe. These systems are primarily used to measure the fundamental properties within new and exotic materials, as well as sophisticated graphene-like 2D structures, as researchers seek game-changing performance improvements.

Research & Fundamental Science
Within Research & Fundamental Science we continue to see long-term customer interest in our high-end scientific cameras and specialised cryogenic and superconducting magnet systems across a broad range of research themes including astronomy, chemistry and physics research. These orders, which tend to be lumpy in nature, were down in the period, in part due to the phasing of customer orders as well as our own de-prioritisation towards larger and higher value markets. Our products continue to support the forefront of science; for example in September, our scientific cameras were used in NASA's successful asteroid deflection test, while in October, customers of our Andor equipment were named as the winners of the Nobel prizes for both chemistry and physics.

Service & Healthcare

Key highlights

	Half year to 30 September 2022	% reported growth vs half year to 30 September 2021	% constant currency[1] growth vs half year to 30 September 2021
Orders	**£37.1m**	+6.3%	+0.9%
Revenue	**£33.7m**	+16.6%	+10.7%
Adjusted[2] operating profit	**£10.9m**	+22.5%	+15.7%
Adjusted[2] operating margin	**32.3%**	+150bps	+140bps
Statutory operating profit	**£11.3m**	+27.0%	
Statutory operating margin	**33.5%**	+270bps	

1. For definition refer to note on page 2.
2. Details of adjusting items can be found in Note 2 to the half year financial statements.

The Service & Healthcare sector comprises the Group's service and support related to Oxford Instruments' own products, and the support and service of third-party MRI scanners in Japan.

Service & Healthcare overview
We have continued to progress with our customer service transformation, offering a broader range of service products to increase our customers' capabilities throughout the lifetime use of our systems. We continue to use our market intimacy to develop our tailored service offerings for specific end applications, as well as for academic and commercial customers. This has supported strong revenue growth in the period, with a particularly strong uplift in Europe and North America. The implementation of our regionally led service model, where global processes are implemented locally through our combined regional teams, and where teams are trained to service multiple products, has continued to drive efficiency and ensure consistent high quality with improved customer response times.

This supported double-digit growth in adjusted operating profit, with a 150 basis points increase in adjusted operating margin to 32.3%.

Sales of Imaris life science analytical software licences have grown strongly in the year, in part as a result of having provided free introductory licences to customers during the Covid-19 pandemic to support home working. We have successfully converted many of these to fee-paying licences now that customers have experienced the value, analytical capabilities and increased insights that our solutions provide.

Building on the positive momentum triggered by our effective response to pandemic restrictions, we continue to extend our delivery of digital and remote support services, which offer customers both speed of response and convenience. As well as having a sustainability benefit by reducing our travel footprint, we are increasingly able to diagnose and resolve issues within a few hours, using virtual reality as part of our digital toolkit, and in many cases removing the need for engineers to make site visits.

Our servicing of third-party MRI imaging equipment in Japan continues to deliver excellent levels of service and support to our customer base.

The Service & Healthcare sector remains on a strong upward trajectory, with significant ongoing opportunities to drive further revenue and margin expansion.

Finance review

We delivered a robust financial performance with growth in orders, revenue and underlying cash flow, supported by a strong currency tailwind.

Oxford Instruments uses certain alternative performance measures to help it effectively monitor the performance of the Group as management believes that these represent a more consistent measure of underlying performance. Adjusted items exclude the amortisation of acquired intangible assets; acquisition items; profit or loss on disposal of operations; other significant non-recurring items; and the mark-to-market movement of financial derivatives. All of these are included in the statutory figures. Note 2 provides further analysis of the adjusting items in reaching adjusted profit measures. Definitions of the Group's material alternative performance measures, along with reconciliation to their equivalent IFRS measure, are included within the finance review.

Summary

The Group trades in many currencies and makes reference to constant currency numbers to remove the impact of currency effects in the year. These are prepared on a month-by-month basis using the translational and transactional exchange rates which prevailed in the previous year rather than the actual exchange rates which prevailed in the year. Transactional exchange rates include the effect of our hedging programme.

Reported orders increased by 18.7% to £235.3m (2021: £198.3m), an increase of 13.0% at constant currency (+9.3% organic constant currency, which excludes the impact of WITec). At the end of the period, the Group's order book for future deliveries stood at £315.7m (30 September 2021: £231.6m). The order book grew 36.3% on a reported basis and 28.7% at constant currency (+25.3% organic constant currency).

Reported revenue increased by 17.9% to £200.5m (2021: £170.1m). Revenue, excluding currency effects, increased by 10.2% (+5.7% organic constant currency), with the movement in average currency exchange rates over the year increasing reported revenue by £13.1m.

Adjusted operating profit increased by 20.3% to £36.8m (2021: £30.6m) with a currency tailwind in the half year of £4.8m. Adjusted operating profit, excluding currency effects, increased by 4.6%. Adjusted operating margin increased by 40 basis points to 18.4% (2021: 18.0%). Excluding currency effects, adjusted operating margin decreased by 90 basis points to 17.1%. Constant currency margin has faced downward pressure from: (i) price rises not yet offsetting inflationary pressures due to phasing of the order book; and, (ii) lower shipment growth than anticipated not supporting investment in headcount made to support growth and deliver improvements to operations.

Statutory operating profit includes the amortisation of acquired intangibles of £4.3m (2021: £3.8m) and a charge of £6.1m (2021: £3.8m) relating to the movement in the mark-to-market valuation of uncrystallised currency hedges for future years.

Statutory operating profit of £26.3m (2021: £21.8m) increased by 20.6%.

Adjusted profit before tax grew by 23.5% to £37.3m (2021: £30.2m), representing a margin of 18.6% (2021: 17.8%). Statutory profit before tax grew by 24.3% to £26.6m (2021: £21.4m). This represents a margin of 13.3% (2021: 12.6%).

Adjusted basic earnings per share grew by 23.3% to 50.8p (2021: 41.2p). Basic earnings per share were 35.9p (2021: 28.7p), an increase of 25.1%.

Cash generated from operations of £26.6m (2021: £18.4m) represents 47% (2021: 50%) cash conversion. During the half year, we incurred expenditure of £6.4m on the construction of our new semiconductor facility near Bristol; cash conversion on a normalised basis, which excludes this expenditure, was 65% (2021: 53%). Cash conversion was depressed by an increase in inventories to provide operational resilience, export licence delays, and the phasing of shipments close to the half year as we awaited delivery of components from our suppliers. Despite this, net cash increased from £85.9m on 31 March 2021 to £97.1m as at 30 September 2022.

Our revolving credit facility remains undrawn, leaving approximately £115m of committed facilities. This represents total headroom of over £210m, including net cash on the balance sheet.

Income statement
The Group's income statement is summarised below.

	30 September 2022 £m	Half year to 30 September 2021 £m	Change
Revenue	**200.5**	170.1	+17.9%
Adjusted operating profit	**36.8**	30.6	+20.3%
Amortisation of acquired intangible assets	**(4.3)**	(3.8)	
Non-recurring items	**(0.1)**	(1.2)	
Mark-to-market of currency hedges	**(6.1)**	(3.8)	
Statutory operating profit	**26.3**	21.8	+20.6%
Net finance income/(costs)[1]	**0.3**	(0.4)	
Adjusted profit before taxation	**37.3**	30.2	+23.5%
Statutory profit before taxation	**26.6**	21.4	+24.3%
Adjusted effective tax rate	**21.4%**	21.5%	
Effective tax rate	**22.2%**	22.9%	
Adjusted earnings per share – basic	**50.8p**	41.2p	+23.3%
Earnings per share – basic	**35.9p**	28.7p	+25.1%
Dividend per share (total)	**4.6p**	4.4p	+4.5%

1. Net finance costs for 2022 include a non-recurring charge of £0.2m (2021: -) against the unwind of discount on WITec contingent consideration.

Revenue and orders
Total reported orders grew by 18.7% (+13.0% at constant currency) to £235.3m. Excluding the impact of WITec, organic constant currency orders grew by 9.3%. In Materials & Characterisation, reported orders grew by 31.6% (+25.9% at constant currency; 19.2% organic constant currency), driven by strong demand for our electron microscope analysers and semiconductor processing systems. In Research & Discovery, we saw good growth in orders for our optical imaging and microscopy products, offset by fewer orders in our cryogenic and complex magnet business as we reorientate the business away from bespoke systems. Lower orders in X-Ray Technology were primarily due to phasing of OEM orders. As a result, reported orders grew by 3.8% (-2.1% at constant currency) for the segment. Service & Healthcare increased by 6.3% (+0.9% at constant currency).

Reported revenue of £200.5m (2021: £170.1m) increased by 17.9% (+10.2% at constant currency and 5.7% organic constant currency). Reported revenue grew by 28.0% for Materials & Characterisation (+19.7% at constant currency; 10.8% organic constant currency), with strong growth for our electron microscope analysers and atomic force microscopes. Constant currency growth was held back by lower than expected production of semiconductor processing systems owing to supply chain issues.

Operational and supply chain challenges, as well as export licence delays, have also held back the conversion of orders into revenue in Research & Discovery, resulting in reported revenue growth of 3.2% (-4.4% at constant currency). Revenue growth from service of our own products resulted in reported growth of 16.6% (+10.7% at constant currency) for Service & Healthcare.

The book-to-bill ratio (orders received to goods and services billed in the period) for the year was 117% (2021: 117%) with conversion in Materials & Characterisation offsetting the challenges in Research & Discovery.

Geographic revenue growth
(30 September 2021 restated to reflect correct allocation of WITec revenue)

£m	Half year to 30 September 2022 £m	Half year to 30 September 2022 % of total	Half year to 30 September 2021 % of total	Half year to 30 September 2021 % of total	Change £m	% growth	% growth at constant currency
Europe	**43.4**	**22%**	38.5	23%	**+4.9**	**12.7%**	**11.7%**
North America	**58.3**	**29%**	41.4	24%	**+16.9**	**40.8%**	**23.4%**
Asia	**97.2**	**48%**	88.2	52%	**+9.0**	**10.2%**	**4.0%**
Rest of World	**1.6**	**1%**	2.0	1%	**(0.4)**	**(20.0%)**	**(20.0%)**
	200.5	**100%**	170.1	100%	**+30.4**	**17.9%**	**10.2%**

On a geographical basis, revenue grew by 12.7% in Europe (+11.7% at constant currency), supported by additional deliveries of our electron analysers and semiconductor process systems. Constant currency orders grew by 11.8%.

Revenue for North America increased by 40.8% on a reported basis and by 23.4% at constant currency, with good demand for our semiconductor processing systems. Orders grew by 11.0% at constant currency, with good demand for our semiconductor processing systems, optical imaging and microscopy products.

Asia remains our largest region by revenue, with China constituting 58% of regional revenue and 28% of total Group revenue. Asia delivered revenue growth of 10.2% (+4.0% at constant currency) with strong demand for our electron microscope analysers offset by fewer deliveries of our semiconductor processing systems due to supply chain challenges and delays caused by the UK export licence process. Orders for the region at organic constant currency grew by 13.3%, driven by strong demand for electron microscope analysers and semiconductor processing systems.

The total reported order book grew by 36.3% (28.7% at constant currency) compared to 30 September 2021 to £315.7m. The order book, at constant currency, compared to 30 September 2021, increased by 45.6% for Materials & Characterisation, with strong growth across all constituent businesses. Growth on an organic constant currency basis was 47.1% for Materials & Characterisation. Research & Discovery grew by 16.5% at constant currency, with strong demand for our imaging and microscopy products. Supply chain disruption has led to slower order conversion than would normally be expected, placing upward pressure on the order book. Continued focus on own product service resulted in growth of 14.7% at constant currency from Service & Healthcare.

£m	Materials & Characterisation	Research & Discovery	Service & Healthcare	Total
Revenue: 2021/22	84.9	56.3	28.9	170.1
Constant currency growth	16.7	(2.5)	3.1	17.3
Revenue at constant currency: 2022/23	101.6	53.8	32.0	187.4
Currency	7.1	4.3	1.7	13.1
Revenue: 2022/23	**108.7**	**58.1**	**33.7**	**200.5**
Revenue growth: reported	28.0%	3.2%	16.6%	17.9%
Revenue growth: constant currency	19.7%	(4.4%)	10.7%	10.2%

Gross profit

Gross profit grew by 18.7% to £104.1m (2021: £87.7m), representing a gross profit margin of 51.9%, an increase of 30 basis points over last year.

Adjusted operating profit and margin

Adjusted operating profit increased by 20.3% to £36.8m (2021: £30.6m), representing an adjusted operating profit margin of 18.4%, an increase of 40 basis points against last year. At constant currency, the adjusted operating profit margin was 17.1%, a decrease of 90 basis points.

Reported Materials & Characterisation adjusted operating profit increased by 45.4% (+23.1% at constant currency) with reported margin increasing by 210 basis points to 17.4% (2021: 15.3%). We have seen a high level of shipments of our electron microscope analysers but supply chain disruption led to a weaker level of shipments from our semiconductor processing systems business.

Within Research & Discovery our imaging and microscopy business has been hampered by operational and supply chain disruption, as well as export licence delays, resulting in slow conversion of a strong order book. In addition, operational throughput of our standard cryogenic and magnet systems has been constrained by a diversion of resources to completing the withdrawal from more complex bespoke systems, which now make up a much smaller component of the business. We have been increasing headcount to drive future growth and deliver improvements to our operational capacity and processes. The lower level of shipments, combined with price rises not fully translating into revenue owing to phasing of the order book, have resulted in a fall in profit and a 350 basis point reduction in adjusted operating margin to 12.0% (2021: 15.5%). At constant currency, the margin was 10.6%, a fall of 490 basis points. We expect both businesses to improve operational productivity in the second half of the year.

Service & Healthcare margin increased by 150 basis points to 32.3% (2021: 30.8%) as a result of in-year contract efficiencies in Healthcare & Life Science. At constant currency, the margin was 32.2%, an increase of 140 basis points owing to our focus on improving service revenue on our own products.

Currency effects (including the impact of transactional currency hedging) have increased reported adjusted operating profit by £4.8m when compared to blended exchange rates net of hedges for the comparative period.

£m	Materials & Characterisation	Research & Discovery	Service & Healthcare	Total
Adjusted operating profit: 2021/22	13.0	8.7	8.9	30.6
Constant currency growth	3.0	(3.0)	1.4	1.4
Adjusted operating profit at constant currency: 2022/23	16.0	5.7	10.3	32.0
Currency	2.9	1.3	0.6	4.8
Adjusted operating profit: 2022/23	**18.9**	**7.0**	**10.9**	**36.8**
Adjusted operating margin[1]: 2021/22	15.3%	15.5%	30.8%	18.0%
Adjusted operating margin[1]: 2022/23	17.4%	12.0%	32.3%	18.4%
Adjusted operating margin[1] (constant currency): 2022/23	15.7%	10.6%	32.2%	17.1%

1. Adjusted operating margin is calculated as adjusted operating profit divided by revenue. Adjusted operating margin at constant currency is defined as adjusted operating profit at constant currency divided by revenue at constant currency.

Statutory operating profit and margin

Statutory operating profit grew by 20.6% to £26.3m (2021: £21.8m), representing an operating profit margin of 13.1%. Good growth in statutory operating profit is due to an improved trading performance from the business, supported by currency benefits.

Adjusting items

Amortisation of acquired intangibles of £4.3m (2021: £3.8m) relates to intangible assets recognised on acquisitions, being the value of technology, customer relationships and brands. The increase in the charge from last year reflects the additional amortisation on intangibles recognised following the acquisition of WITec.

Non-recurring items within operating profit of £0.1m comprise the release of a property dilapidations provision of £0.4m relating to the previously disposed OI Healthcare business, offset by a charge of £0.5m that eliminates the profit arising in the acquired WITec business from revaluing their inventories to fair value, in accordance with accounting standards.

The Group uses derivative products to hedge its short-term exposure to fluctuations in foreign exchange rates. Our hedging policy allows for forward contracts to be entered into up to 24 months forward from the end of the next reporting period. The Group's policy is to have in place at the beginning of the financial year hedging instruments to cover up to 80% of its forecast transactional exposure for the following twelve months and, subject to pricing, up to 20% of exposures for the next six months. The Group has decided that the additional costs of meeting the extensive documentation requirements of IFRS 9 to apply hedge accounting to these foreign exchange hedges cannot be justified. Accordingly, the Group does not use hedge accounting for these derivatives.

Net movements on mark-to-market derivatives in respect of transactional currency exposures of the Group in future periods are disclosed in the income statement as foreign exchange and excluded from our calculation of adjusted profit before tax. In the half year this amounted to a charge of £6.1m (2021: £3.8m charge). The increase in the net liability for derivative financial instruments from 31 March 2022 reflects: (i) the crystallisation of forward contracts that were hedging the first half of this financial year, which are recognised in adjusted operating profit, and; (ii) an uncrystallised reduction in the mark-to-market valuation of forward contracts from the large fall in the value of Sterling at the balance sheet date against a blended rate achieved on US Dollar forward contracts that will mature over the next 18 months.

Net finance costs

The Group's recorded net interest income was higher at £0.5m (2021: net cost of £0.4m), due to an increase in the interest credit on pension scheme net assets and a rise in interest income on our net cash balance. In addition, we recorded in financial expenditure a non-recurring charge of £0.2m against the unwind of discount on WITec contingent consideration.

Adjusted profit before tax and margin

Adjusted profit before tax increased by 23.5% to £37.3m (2021: £30.2m). The adjusted profit before tax margin of 18.6% (2021: 17.8%) was above last year due to the effect of currency offsetting a small decline in constant currency margin.

Reconciliation of statutory profit before tax to adjusted profit before tax	**Half year to 30 September 2022 £m**	Half year to 30 September 2021 £m
Statutory profit before tax	**26.6**	21.4
Add back:		
Amortisation of acquired intangible assets	**4.3**	3.8
Non-recurring items (Note 2)	**0.3**	1.2
Mark-to-market of currency hedges	**6.1**	3.8
Adjusted profit before tax	**37.3**	30.2

Statutory profit before tax and margin

Statutory profit before tax increased by 24.3% to £26.6m (2021: £21.4m). The statutory profit before tax margin of 13.3% (2021: 12.6%) was above last year, principally due to the increase in reported margin offsetting the increased charge from the mark-to-market valuation movement on financial derivatives.

Taxation

The adjusted tax charge of £8.0m (2021: £6.5m) represents an effective tax rate of 21.4% (2021: 21.5%). The tax charge of £5.9m (2021: £4.9m) represents an effective tax rate of 22.2% (2021: 22.9%).

The half-year tax rate has been calculated based on the expected effective tax rate for the year of 20.8% (having made certain assumptions about where profits will arise) and reflects the effect of the benefit of enhanced capital allowances for the fit out of the new semiconductor facility.

The tax rate is expected to increase to approximately 23% in the year to 31 March 2024, given the previously announced increase in the corporation tax rate in the UK. Again this forecast rate is dependent on the location of profits and the potential availability of certain tax incentives.

Earnings per share

Adjusted basic earnings per share increased by 23.3% to 50.8p (2021: 41.2p); adjusted diluted earnings per share grew by 23.3% to 50.2p (2021: 40.7p). Basic and diluted earnings per share increased by 25.1% to 35.9p (2021: 28.7p) and 35.4p (2021: 28.3p) respectively.

The number of undiluted weighted average shares increased to 57.7m (2021: 57.5m).

Currency

The Group faces transactional and translational currency exposure, most notably against the US Dollar, Euro and Japanese Yen. For the half year, approximately 15% of Group revenue was denominated in Sterling, 56% in US Dollars, 19% in Euros, 8% in Japanese Yen and 2% in other currencies. Translational exposures arise on the consolidation of overseas company results into Sterling. Transactional exposures arise where the currency of sale or purchase transactions differs from the functional currency in which each company prepares its local accounts.

The Group's foreign currency exposure for the half year is summarised below.

£m (equivalent)	Revenue	Adjusted operating profit
Sterling	30.2	(29.7)
US Dollar	113.1	47.7
Euro	37.4	13.3
Japanese Yen	15.9	4.9
Chinese Renminbi	2.9	0.6
Other	1.0	—
	200.5	**36.8**

The Group maintains a hedging programme against its net transactional exposure using internal projections of currency trading transactions expected to arise over a period extending from 12 to 24 months. As at 30 September 2022, the Group had currency hedges in place extending up to 18 months forward.

For the full year 2022/23, our assessment of the currency impact is, based on hedges currently in place and forecast currency rates, a tailwind of approximately £28.0m to revenue, and £3.5m to profit. The currency tailwind to profit is forecast to be a little lower than at the half year due to a higher proportion of forward contracts crystallising in the second half of the year. Forecast currency rates on unhedged positions are: GBP:USD 1.17; GBP:EUR 1.16; GBP:JPY 170. The tailwind to operating profit is due to stronger Sterling currency rates achieved on hedges in place for 2022/23 against the previous year being more than offset by unhedged transactional and translational exposures against actual currency rates achieved in 2021/22 due primarily to the weakness in Sterling against the US Dollar. Uncertain volume and timing of shipments and acceptances, currency mix and rate volatility may significantly affect full-year currency forecast effects.

Looking further ahead to the financial year 2023/24, based on the above currency assumptions, we would expect currency effects to have a broadly neutral impact to revenue and a £1.8m benefit to operating profit.

Acquisition of WITec

On 31 August 2021, the Group completed the purchase of 100% of the share capital in WITec for an initial consideration of €37.0m. Additional consideration of up to €5m is conditional on trading performance over a period of twelve months following completion. This payment is expected to be made in full early in the second half of the year. The business has integrated well into our regional and segmental structure and, during this half year, contributed constant currency revenue of £9.5m (2021: £1.8m) and constant currency adjusted operating profit of £1.0m (2021: £0.2m).

Dividend

The Group's policy on the dividend takes into account changes to underlying earnings, dividend cover, movements in currency and demands on our cash. After a good first half year of trading, the Board has declared an interim dividend of 4.6p per share (2021: 4.4p per share), growth of 4.5%. The interim dividend will be paid on 13 January 2023 to shareholders on the register as at 2 December 2022.

Cash flow

The Group's cash flow is summarised below.

	Half year to 30 September 2022 £m	Half year to 30 September 2021 £m
Adjusted operating profit	**36.8**	30.6
Depreciation and amortisation	**5.1**	4.1
Adjusted[1] EBITDA	**41.9**	34.7
Working capital movement	**(12.6)**	(13.6)
Equity settled share schemes	**1.2**	1.1
Pension scheme payments above charge to operating profit	**(3.9)**	(3.8)
Cash from operations	**26.6**	18.4
Interest	**0.1**	(0.5)
Tax	**(2.6)**	(4.0)
Capitalised development expenditure	**(0.1)**	(0.2)
Expenditure on tangible and intangible assets	**(11.5)**	(5.5)
Acquisition of subsidiaries, net of cash acquired	**—**	(30.6)
Acquisition-related costs	**—**	(0.3)
Dividends paid	**(7.9)**	(2.4)
Proceeds from issue of share capital and exercise of share options	**—**	0.1
Payments made in respect of lease liabilities	**(1.5)**	(1.3)
Decrease in borrowings	**(0.1)**	—
Net increase/(decrease) in cash and cash equivalents	**3.0**	**(26.3)**

1. Adjusted EBITDA is defined as adjusted operating profit before depreciation and amortisation of capitalised development costs. The consolidated statement of cash flows provides further analysis of the definition of adjusted EBITDA.

Cash from operations

Cash from operations of £26.6m (2021: £18.4m) represents 47% (2021: 50%) cash conversion. Cash conversion on a normalised basis was 65% (2021: 53%) once we exclude expenditure relating to our new semiconductor facility. Cash conversion has been tempered by an increase in inventories to provide greater operational resilience. In addition, a high level of shipments close to half year due to late supplier deliveries has increased receivables. Cash conversion is defined as cash from operations before business reorganisation costs and pension scheme payments above charge to operating profit, less capitalised development expenditure, capital expenditure and payments made in respect of lease liabilities divided by adjusted operating profit.

Reconciliation of cash generated from operations to adjusted operating cash flow	**Half year to 30 September 2022 £m**	Half year to 30 September 2021 £m
Cash from operations	**26.6**	18.4
Add back:		
Pension scheme payments above charge to operating profit	**3.9**	3.8
Capitalised development expenditure	**(0.1)**	(0.2)
Expenditure on tangible and intangible assets	**(11.5)**	(5.5)
Payments made in respect of lease liabilities	**(1.5)**	(1.3)
Adjusted cash from operations	**17.4**	15.2
Cash conversion % (adjusted cash from operations/adjusted operating profit)	**47%**	50%
Cash conversion % (normalised[1])	**65%**	53%

1. Cash conversion calculated on a normalised basis excludes expenditure in the half year of £6.4m (2021: £0.9m) on the new semiconductor facility.

In order to mitigate supply chain challenges and provide greater resilience to operations, we have been increasing our levels of buffer stock and extending stock order lead times, resulting in an increase in inventories of £12.8m. Furthermore, delays in receiving UK export licences have contributed to an increase in finished goods. An increase in receivables of £13.9m reflects the high number of shipments made close to the half year end as we managed late deliveries of components from our suppliers. Stronger order growth has resulted in an increase in the level of customer deposits, leading to an increase in payables and customer deposits of £14.1m.

Pension

Pension recovery payments above charge to operating profit total £3.9m (2021: £3.8m).

Interest

Net interest received was £0.1m (2021: £0.5m paid), reflecting the increased returns on our positive cash balances.

Tax

Tax paid was £2.6m (2021: £4.0m).

Investment in Research and Development (R&D)

Total cash spend on R&D in the half year was £17.5m, equivalent to 8.7% of sales (2021: £15.1m, 8.9% of sales). A reconciliation between the adjusted amounts charged to the consolidated statement of income and the cash spent is given below:

	Half year to 30 September 2022 £m	Half year to 30 September 2021 £m
R&D expense charged to the consolidated statement of income	**18.2**	15.4
Depreciation of R&D-related fixed assets	**(0.2)**	(0.1)
Amounts capitalised as fixed assets	**—**	0.3
Amortisation and impairment of R&D costs capitalised as intangibles	**(0.6)**	(0.7)
Amounts capitalised as intangible assets	**0.1**	0.2
Total cash spent on R&D during the year	**17.5**	15.1

Net cash and funding

Net cash

Cash from operations in the full year was partially offset by an increase in capital expenditure, resulting in an increase in the Group's net cash position from £85.9m at 31 March 2022 to £97.1m on 30 September 2022. The Group invested in tangible and intangible assets of £11.6m, of which £6.4m relates to payments associated with the new semiconductor facility.

To date we have incurred costs of £14.6m on the new semiconductor facility, which is currently undergoing internal fit-out. As we progress towards completion, we expect additional payments of approximately £12m in the second half of this year, with a further £10m in the following financial year.

Movement in net cash	£m
Net cash after borrowings as at 31 March 2022	85.9
Cash generated from operations	26.6
Interest	0.1
Tax	(2.6)
Capitalised development expenditure	(0.1)
Capital expenditure on tangible and intangible assets	(11.5)
Dividend paid	(7.9)
Other items	6.6
Net cash after borrowings as at 30 September 2022	**97.1**

Net cash including lease liabilities	**Half year to 30 September 2022 £m**	Half year to 30 September 2021 £m
Net cash after borrowings	**97.1**	70.1
Lease liabilities	**(31.4)**	(12.9)
Net cash and lease liabilities after borrowings	**65.7**	57.2

The increase in lease liabilities reflects the commencement of a 20-year lease on the new semiconductor facility, which is currently undergoing its internal fit-out.

Funding

On 2 July 2018, the Group entered into an unsecured multi-currency revolving facility agreement, which is committed until June 2025. The facility has been entered into with two banks and comprises a Euro-denominated multi-currency facility of €50.0m (£43m) and a US Dollar-denominated multi-currency facility of $80.0m (£70m).

Debt covenants are net debt to EBITDA less than 3.0 times and EBITDA to interest greater than 4.0 times. As at 30 September 2022 the business had net cash.

Pensions

The Group has a defined benefit pension scheme in the UK. This has been closed to new entrants since 2001 and closed to future accrual from 2010.

On an IAS 19 basis, the surplus arising from our defined benefit pension scheme obligations on 30 September 2022 was £24.5m (31 March 2022: £51.7m). The significant increase in gilt rates has reduced both the value of the scheme's assets and accounting liabilities, resulting in a smaller surplus. The value of scheme assets decreased to £241.2m (31 March 2022: £351.7m) and scheme liabilities decreased to £216.7m (31 March 2022: £300.0m).

An advance payment of £4.0m was made in October 2022 to allow the trustees to meet collateral calls to swap counterparties under the liability driven investment scheme in case gilt yields worsen. It is not expected that these funds will be required and the company has the right to recover this advance through making reduced payments in the future.

The scheme's actuarial valuation review, rather than the accounting basis, determines our cash payments into the scheme. The cash contributions into the scheme are expected to continue until 2025/26, at which point we expect, based on current assumptions, the scheme to achieve self-sufficiency. The scheme rules provide that in the event of a surplus remaining after settling contractual obligations to members, the Group may determine how the surplus is utilised.

Going concern

The Group's business activities, together with the factors likely to affect its future development, performance and position, are set out in the performance highlights, Chief Executive's review and operations review sections of this half year report. The financial position of the Group, its cash flows, liquidity position and borrowing facilities are described in the finance review.

Trading for the Group has been good during the half year. The Group has prepared and reviewed a number of scenarios for the Group based on key risks noted for the business and the potential impact on orders, trading and cash flow performance. In addition, the Group has overlaid the risk of long-term adverse movements in currency rates to our cash flow forecasts. The Board is satisfied, having considered the sensitivity analysis, as well as its funding facilities, that the Group has adequate resources to continue in operational existence for the foreseeable future.

Forward-looking statements
This document contains certain forward-looking statements. The forward-looking statements reflect the knowledge and information available to the company during the preparation and up to the publication of this document. By their very nature, these statements depend upon circumstances and relate to events that may occur in the future, thereby involving a degree of uncertainty. Therefore, nothing in this document should be construed as a profit forecast by the company.

Gavin Hill
Chief Financial Officer

7 November 2022

Principal risks and uncertainties

Information regarding the risk management process in place at the Group is set out on pages 77 to 79 of the 2022 Report and Financial Statements. The principal risks and uncertainties identified through that process are set out on pages 80 to 84 of the 2022 Report and Financial Statements and can be found on the Group's website at **www.oxinst.com.**

In keeping with the risk management process, the Group has performed a quarterly update of its risk register as at 30 September 2022. It has evaluated the disclosures made on pages 80 to 84 of the 2022 Report and Financial Statements and has concluded that all of the risks identified continue to be relevant for the remainder of the year ending 31 March 2023. Further it considers that there are no additional significant risks to be disclosed. A summary of the risks and uncertainties identified in the 2022 Report and Financial Statements is set out below:

- Geopolitical risk;
- Supply chain risk;
- Routes to market;
- Technical risk;
- Inflation;
- Legal/compliance risk;
- New Covid variant;
- Adverse movements in long-term foreign currency rates;
- IT risk;
- People;
- Operational risk;
- Climate change; and
- Pensions.

The Board considers that geopolitical risks have increased since the publication of the 2022 Report and Financial Statements. For example, we have seen heightened adverse sentiment towards China from the US and a higher number of UK export licence delays and rejections. In addition, the Board considers that economic volatility in the UK in particular may exacerbate inflationary risks.

Responsibility statement of the Directors
in respect of the half-year financial statements

We confirm that to the best of our knowledge:

- the condensed set of financial statements has been prepared in accordance with UK adopted IAS 34 Interim Financial Reporting; and
- the interim management report includes a fair review of the information required by:

  a) DTR 4.2.7R of the Disclosure Guidance and Transparency Rules, being an indication of important events that have occurred during the first six months of the financial year and their impact on the condensed set of financial statements; and a description of the principal risks and uncertainties for the remaining six months of the year; and
  b) DTR 4.2.8R of the Disclosure Guidance and Transparency Rules, being related party transactions that have taken place in the first six months of the current financial year and that have materially affected the financial position or performance of the entity during that period; and any changes in the related party transactions described in the last Report and Financial Statements that could do so.

Ian Barkshire
Chief Executive

Gavin Hill
Chief Financial Officer

7 November 2022

Condensed consolidated statement of income

Half year ended 30 September 2022

		Half year to 30 September 2022			Half year to 30 September 2021		
			Adjusted			Adjusted	
		Adjusting	**items[1]**	**Total**	Adjusting	items[1]	Total
	Note	**£m**	**£m**	**£m**	£m	£m	£m
Revenue	4	**200.5**	**—**	**200.5**	170.1	—	170.1
Cost of sales		**(96.4)**	**—**	**(96.4)**	(82.4)	—	(82.4)
Gross profit		**104.1**	**—**	**104.1**	87.7	—	87.7
Research and development	5	**(18.2)**	**—**	**(18.2)**	(15.4)	—	(15.4)
Selling and marketing		**(29.2)**	**—**	**(29.2)**	(22.9)	—	(22.9)
Administration and shared services		**(23.1)**	**(4.4)**	**(27.5)**	(21.2)	(5.0)	(26.2)
Foreign exchange gain/(loss)		**3.2**	**(6.1)**	**(2.9)**	2.4	(3.8)	(1.4)
Operating profit		**36.8**	**(10.5)**	**26.3**	30.6	(8.8)	21.8
Interest credit on pension scheme net assets		**0.6**	**—**	**0.6**	0.2	—	0.2
Other financial income		**0.3**	**—**	**0.3**	0.1	—	0.1
Financial income		**0.9**	**—**	**0.9**	0.3	—	0.3
Financial expenditure		**(0.4)**	**(0.2)**	**(0.6)**	(0.7)	—	(0.7)
Profit before income tax	4	**37.3**	**(10.7)**	**26.6**	30.2	(8.8)	21.4
Income tax (expense)/credit		**(8.0)**	**2.1**	**(5.9)**	(6.5)	1.6	(4.9)
Profit for the period attributable to equity shareholders of the parent		**29.3**	**(8.6)**	**20.7**	23.7	(7.2)	16.5
Earnings per share		**pence**		**pence**	pence		pence
Basic earnings per share	3						
From profit for the period		**50.8**		**35.9**	41.2		28.7
Diluted earnings per share	3						
From profit for the period		**50.2**		**35.4**	40.7		28.3

1. Adjusted numbers are stated to give a better understanding of the underlying business performance. Details of adjusting items can be found in Note 2

		Year to 31 March 2022		
			Adjusting	
		Adjusted	***items[1]***	***Total***
	Note	***£m***	***£m***	***£m***
Revenue	4	***367.3***	***—***	***367.3***
Cost of sales		***(179.5)***	***—***	***(179.5)***
Gross profit		***187.8***	***—***	***187.8***
Research and development	5	***(32.8)***	***—***	***(32.8)***
Selling and marketing		***(52.5)***	***—***	***(52.5)***
Administration and shared services		***(42.2)***	***(11.6)***	***(53.8)***
Foreign exchange gain/(loss)		***6.0***	***(6.4)***	***(0.4)***
Operating profit		***66.3***	***(18.0)***	***48.3***
Interest credit on pension scheme net assets		***0.4***	***—***	***0.4***
Other financial income		***0.1***	***—***	***0.1***
Financial income		***0.5***	***—***	***0.5***
Financial expenditure		***(0.9)***	***(0.3)***	***(1.2)***
Profit before income tax	4	***65.9***	***(18.3)***	***47.6***
Income tax (expense)/credit		***(11.7)***	***2.7***	***(9.0)***
Profit for the period attributable to equity shareholders of the parent		***54.2***	***(15.6)***	***38.6***
Earnings per share		***pence***		***pence***
Basic earnings per share	3			
From profit for the period		***94.3***		***67.1***
Diluted earnings per share	3			
From profit for the period		***93.0***		***66.2***

1. Adjusted numbers are stated to give a better understanding of the underlying business performance. Details of adjusting items can be found in Note 2

The attached notes form part of these financial statements.

Condensed consolidated statement of comprehensive income

Half year ended 30 September 2022

	Half year to 30 September 2022 £m	Half year to 30 September 2021 £m	***Year to 31 March 2022 £m***
Profit for the period	**20.7**	16.5	***38.6***
Other comprehensive income/(expense):			
Items that may be reclassified subsequently to condensed consolidated statement of income			
Foreign exchange translation differences	**9.1**	1.3	***1.0***
Items that will not be reclassified to condensed consolidated statement of income			
Remeasurement (loss)/gain in respect of post-retirement benefits	**(31.8)**	4.7	***27.3***
Tax credit/(charge) on remeasurement in respect of post-retirement benefits	**7.9**	(1.2)	***(6.8)***
Total other comprehensive (expense)/income	**(14.8)**	4.8	***21.5***
Total comprehensive income for the period attributable to equity shareholders of the parent	**5.9**	21.3	***60.1***

Condensed consolidated statement of financial position

As at 30 September 2022

	Note	**As at 30 September 2022 £m**	As at 30 September 2021 £m	***As at 31 March 2022 £m***
Assets				
Non-current assets				
Property, plant and equipment		**41.0**	25.6	***31.7***
Right-of-use assets		**31.1**	12.4	***17.9***
Intangible assets		**138.4**	148.7	***140.7***
Long-term receivables		**0.1**	—	—
Derivative financial instruments	9	**0.1**	—	—
Retirement benefit asset		**24.5**	25.0	***51.7***
Deferred tax assets		**14.1**	14.2	***13.7***
		249.3	225.9	***255.7***
Current assets				
Inventories		**79.5**	66.3	***65.3***
Trade and other receivables		**118.2**	86.9	***104.7***
Current income tax receivable		**0.9**	0.6	***0.8***
Derivative financial instruments	9	**0.1**	2.6	***1.0***
Cash and cash equivalents	9	**118.9**	119.3	***96.4***
		317.6	275.7	***268.2***
Total assets		**566.9**	501.6	***523.9***
Equity				
Capital and reserves attributable to the company's equity shareholders				
Share capital		**2.9**	2.9	***2.9***
Share premium		**62.5**	62.5	***62.5***
Other reserves		**0.2**	0.2	***0.2***
Translation reserve		**16.7**	7.9	***7.6***
Retained earnings		**233.3**	205.4	***243.2***
		315.6	278.9	***316.4***
Liabilities				
Non-current liabilities				
Bank loans	9	**1.1**	—	***1.3***
Lease payables		**27.2**	10.1	***14.9***
Derivative financial instruments	9	**1.2**	0.5	***0.3***
Provisions		**0.1**	—	***0.1***
Deferred tax liabilities		**7.5**	7.3	***15.4***
		37.1	17.9	***32.0***
Current liabilities				

Bank loans and overdrafts	9	**20.7**	49.2	***9.2***
Trade and other payables		**167.8**	137.9	***149.5***
Lease payables		**4.2**	2.8	***3.5***
Current income tax payables		**6.7**	5.3	***4.5***
Derivative financial instruments	9	**7.8**	—	***1.1***
Provisions		**7.0**	9.6	***7.7***
		214.2	204.8	***175.5***
Total liabilities		**251.3**	222.7	***207.5***
Total liabilities and equity		**566.9**	501.6	***523.9***

The financial statements were approved by the Board of Directors on 7 November 2022 and signed on its behalf by:

Ian Barkshire
Director

Gavin Hill
Director

Company number: 775598

Condensed consolidated statement of changes in equity

Half year ended 30 September 2022

	Share capital £m	Share premium £m	Other reserves £m	Translation reserve £m	Retained earnings £m	Total £m
As at 1 April 2022	**2.9**	**62.5**	**0.2**	**7.6**	**243.2**	**316.4**
Total comprehensive income/(expense):						
Profit for the half year	**—**	**—**	**—**	**—**	**20.7**	**20.7**
Other comprehensive income/(expense):						
– Foreign exchange translation differences	**—**	**—**	**—**	**9.1**	**—**	**9.1**
– Remeasurement loss in respect of post-retirement benefits	**—**	**—**	**—**	**—**	**(31.8)**	**(31.8)**
– Tax credit on items that will not be reclassified to condensed consolidated statement of income	**—**	**—**	**—**	**—**	**7.9**	**7.9**
Total comprehensive income/(expense) attributable to equity shareholders of the parent	**—**	**—**	**—**	**9.1**	**(3.2)**	**5.9**
Transactions with owners recorded directly in equity:						
– Credit in respect of employee service costs settled by award of share options	**—**	**—**	**—**	**—**	**1.2**	**1.2**
– Dividends	**—**	**—**	**—**	**—**	**(7.9)**	**(7.9)**
Total transactions with owners recorded directly in equity:	**—**	**—**	**—**	**—**	**(6.7)**	**(6.7)**
As at 30 September 2022	**2.9**	**62.5**	**0.2**	**16.7**	**233.3**	**315.6**
As at 1 April 2021	2.9	62.4	0.2	6.6	194.1	266.2
Total comprehensive income/(expense):						
Profit for the half year	—	—	—	—	16.5	16.5
Other comprehensive income/(expense):						
– Foreign exchange translation differences	—	—	—	1.3	—	1.3
– Remeasurement gain in respect of post-retirement benefits	—	—	—	—	4.7	4.7

– Tax charge on items that will not be reclassified to condensed consolidated statement of income	—	—	—	—	(1.2)	(1.2)
Total comprehensive income attributable to equity shareholders of the parent	—	—	—	1.3	20.0	21.3
Transactions with owners recorded directly in equity:						
– Credit in respect of employee service costs settled by award of share options	—	—	—	—	1.1	1.1
– Proceeds from shares issued	—	0.1	—	—	—	0.1
– Dividends	—	—	—	—	(9.8)	(9.8)
Total transactions with owners recorded directly in equity:	—	0.1	—	—	(8.7)	(8.6)
As at 30 September 2021	2.9	62.5	0.2	7.9	205.4	278.9

	Share capital £m	***Share premium £m***	***Other reserves £m***	***Translation reserve £m***	***Retained earnings £m***	***Total £m***
As at 1 April 2021	***2.9***	***62.4***	***0.2***	***6.6***	***194.1***	***266.2***
Total comprehensive income/(expense):						
Profit for the year	**—**	**—**	**—**	**—**	***38.6***	***38.6***
Other comprehensive income/(expense):						
– Foreign exchange translation differences	**—**	**—**	**—**	***1.0***	**—**	***1.0***
– Remeasurement gain in respect of post-retirement benefits	**—**	**—**	**—**	**—**	***27.3***	***27.3***
– Tax credit on items that will not be reclassified to condensed consolidated statement of income	**—**	**—**	**—**	**—**	***(6.8)***	***(6.8)***
Total comprehensive income attributable to equity shareholders of the parent	**—**	**—**	**—**	***1.0***	***59.1***	***60.1***
Transactions with owners recorded directly in equity:						
– Credit in respect of employee service costs settled by award of share options	**—**	**—**	**—**	**—**	***2.1***	***2.1***
– Tax credit in respect of share options	**—**	**—**	**—**	**—**	***0.2***	***0.2***
– Proceeds from shares issued	**—**	***0.1***	**—**	**—**	**—**	***0.1***
– Dividends	**—**	**—**	**—**	**—**	***(12.3)***	***(12.3)***
Total transactions with owners recorded directly in equity:	**—**	***0.1***	**—**	**—**	***(10.0)***	***(9.9)***
As at 31 March 2022	***2.9***	***62.5***	***0.2***	***7.6***	***243.2***	***316.4***

Other reserves comprise the capital redemption reserve, which represents the nominal value of shares repurchased and then cancelled during the year ended 31 March 1999.

The foreign exchange translation reserve comprises all foreign exchange differences arising since 1 April 2004 from the translation of the Group's net investments in foreign subsidiaries into Sterling.

Condensed consolidated statement of cash flows

Half year ended 30 September 2022

	Note	**Half year to 30 September 2022 £m**	Half year to 30 September 2021 £m	***Year to 31 March 2022 £m***
Profit for the period		**20.7**	16.5	***38.6***
Adjustments for:				
Income tax expense		**5.9**	4.9	***9.0***
Net financial (income)/expense		**(0.3)**	0.4	***0.7***
Fair value movement on financial derivatives		**6.1**	3.8	***6.4***
Release of provision on disposal		**(0.4)**	—	***—***
WITec post-acquisition gross margin adjustment		**0.5**	0.9	***1.7***
Acquisition related costs		**—**	0.3	***0.4***
Amortisation and impairment of acquired intangibles		**4.3**	3.8	***9.5***
Depreciation of right-of-use assets		**1.9**	1.6	***3.4***
Depreciation of property, plant and equipment		**2.6**	1.8	***4.1***
Amortisation of capitalised development costs		**0.6**	0.7	***1.9***
Adjusted earnings before interest, tax, depreciation and amortisation		**41.9**	34.7	***75.7***
Charge in respect of equity settled employee share schemes		**1.2**	1.1	***2.1***
Cash payments to the pension scheme more than the charge to operating profit		**(3.9)**	(3.8)	***(7.6)***
Operating cash flows before movements in working capital		**39.2**	32.0	***70.2***
(Increase) in inventories		**(12.8)**	(1.7)	***(0.1)***
(Increase) in receivables		**(13.9)**	(5.9)	***(21.6)***
Increase/(decrease) in payables and provisions		**0.3**	(6.1)	***11.4***
Increase/(decrease) in customer deposits		**13.8**	0.1	***(1.5)***
Cash generated from operations		**26.6**	18.4	***58.4***
Interest paid		**—**	(0.5)	***(0.5)***
Income taxes paid		**(2.6)**	(4.0)	***(8.8)***
Net cash from operating activities		**24.0**	13.9	***49.1***
Cash flows from investing activities				
Proceeds from sale of property, plant and equipment		**0.1**	—	***—***
Acquisition of property, plant and equipment		**(11.6)**	(5.5)	***(13.9)***
Acquisition of subsidiaries, net of cash acquired	6	**—**	(30.6)	***(30.6)***
Acquisition related costs		**—**	(0.3)	***(0.4)***
Acquisition of intangible assets		**—**	—	***(0.1)***
Capitalised development expenditure		**(0.1)**	(0.2)	***(0.7)***
Interest received		**0.1**	—	***0.1***
Net cash used in investing activities		**(11.5)**	(36.6)	***(45.6)***
Cash flows from financing activities				
Proceeds from issue of share capital		**—**	0.1	***0.1***
Interest paid on lease liabilities		**(0.3)**	(0.1)	***(0.3)***
Repayment of lease liabilities		**(1.2)**	(1.2)	***(3.1)***
Repayment of borrowings		**(0.1)**	—	***(0.1)***
Dividends paid		**(7.9)**	(2.4)	***(12.3)***
Net cash used in financing activities		**(9.5)**	(3.6)	***(15.7)***
Net increase/(decrease) in cash and cash equivalents		**3.0**	(26.3)	***(12.2)***
Cash and cash equivalents at the beginning of the period		**87.7**	97.6	***97.6***
Effect of exchange rate fluctuations on cash held		**8.0**	0.8	***2.3***
Cash and cash equivalents at the end of the period		**98.7**	72.1	***87.7***
Comprised of:				
Cash and cash equivalents as per the condensed consolidated statement of financial position		**118.9**	119.3	***96.4***
Bank overdrafts	9	**(20.2)**	(47.2)	***(8.7)***
Net cash and cash equivalents in the condensed consolidated statement of financial position		**98.7**	72.1	***87.7***

Notes to the half-year financial statements

Half year ended 30 September 2022

1 Basis of preparation

Reporting entity

Oxford Instruments plc is a company incorporated in England and Wales. The condensed consolidated half-year financial statements consolidate the results of the company and its subsidiaries (together referred to as the “Group”). They have been prepared and approved by the Directors in accordance with International Financial Reporting Standard (IFRS) IAS 34 Interim Financial Reporting as adopted by the UK. They do not include all of the information required for full annual financial statements, and should be read in conjunction with the consolidated financial statements of the Group for the year ended 31 March 2022.

The financial information contained herein is unaudited and does not constitute statutory accounts as defined by Section 435 of the Companies Act 2006. The comparative figures for the financial year ended 31 March 2022 are not the company’s statutory accounts for that financial year. Those accounts have been reported on by the company’s auditors and delivered to the registrar of companies. The report of the auditors was (i) unqualified, (ii) did not include a reference to any matters to which the auditors drew attention by way of emphasis without qualifying their report, and (iii) did not contain a statement under Section 498 (2) or (3) of the Companies Act 2006.

Significant accounting policies

As required by the Disclosure and Transparency Rules of the Financial Conduct Authority, the condensed set of financial statements has been prepared applying the accounting policies and presentation that were applied in the preparation of the company’s published consolidated financial statements for the year ended 31 March 2022.

Estimates

The preparation of half-year financial statements requires management to make judgements, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets and liabilities, income and expense. Actual results may differ from these estimates.

In preparing these half-year financial statements, the significant judgements made by management in applying the Group’s accounting policies and key sources of estimation uncertainty were the same as those that applied to the consolidated financial statements as at and for the year ended 31 March 2022.

Going concern

The Directors have considered the adoption of the going concern basis of preparation for these half-year financial statements. The Directors have reviewed cash flow forecasts prepared for a period of 18 months from the date of approval of these condensed accounts.

At the end of the reporting period the Group had £212.4m of available liquidity including £97.1m of net cash and £115.3m of the undrawn revolving credit facility (‘RCF’). In reviewing the cash flow forecasts the Directors considered the current trading position of the Group and the likely capital expenditure and working capital requirements. Trading for the Group has been good during the first half year, with improved operating cash conversion (65%) when compared with the prior half year (53%), and the expected capital expenditure for our semiconductor facility coming to an end. The Group has prepared and reviewed a number of scenarios for the Group based on key risks noted for the business and the potential impact on orders, trading and cash flow performance. In addition, the Group has overlaid the risk of long-term adverse movements in currency rates to our cash flow forecasts. The cashflow forecasts show that the Group expects to comply with the covenants included within the RCF agreement throughout the review period.

Taking into account the current cash level and the committed facilities the Directors are confident that the Group will have sufficient funds to allow it to continue to operate. After reviewing the projections and sensitivity analysis the Directors believe that it is appropriate to prepare the half-year financial statements on a going concern basis.

Exchange rates

The principal exchange rates used to translate the Group’s overseas results were as follows:

Period end rates	**Half year to 30 September 2022**	Half year to 30 September 2021	***Year to 31 March 2022***
US Dollar	**1.12**	1.35	***1.32***
Euro	**1.14**	1.16	***1.18***
Japanese Yen	**162**	150	***160***

Average translation rates	**US Dollar**	Euro	**Japanese Yen**
Half year to 30 September 2022			
April	**1.28**	1.19	**161**
May	**1.26**	1.18	**163**
June	**1.24**	1.17	**164**
July	**1.22**	1.18	**164**
August	**1.19**	1.18	**162**
September	**1.14**	1.15	**161**

Average translation rates	US Dollar	Euro	Japanese Yen
Year to 31 March 2022			
April	1.38	1.16	152
May	1.40	1.16	153
June	1.40	1.16	154
July	1.39	1.17	153
August	1.38	1.17	152
September	1.36	1.16	151
October	1.36	1.17	153
November	1.35	1.18	153
December	1.34	1.18	153
January	1.35	1.19	155
February	1.34	1.20	155
March	1.33	1.19	157

2 Non-GAAP measures

In the preparation of adjusted numbers, the Directors exclude certain items in order to assist with comparability between peers and to give what they consider to be a better indication of the underlying performance of the business. These adjusting items are excluded in the calculation of adjusted operating profit, adjusted profit before tax, adjusted profit for the year from continuing operations, adjusted EBITDA, adjusted EPS, adjusted cash conversion and adjusted effective tax rate. Details of adjusting items are given below.

Adjusted EBITDA is calculated by adding back depreciation of property, plant and equipment, depreciation of right-of-use assets and amortisation of intangible assets to adjusted operating profit, and can be found in the condensed consolidated statement of cash flows. The calculation of adjusted EPS can be found in Note 3. Adjusted effective tax rate is calculated by dividing the share of tax attributable to adjusted profit before tax by adjusted profit before tax. The definition of cash conversion is set out in the finance review.

Reconciliation between operating profit and profit before income tax and adjusted profit

	Half year to 30 September 2022		Half year to 30 September 2021		***Year to 31 March 2022***	
	Operating profit £m	**Profit before income tax £m**	Operating profit £m	Profit before income tax £m	***Operating profit £m***	***Profit before income tax £m***
Statutory measure	**26.3**	**26.6**	21.8	21.4	***48.3***	***47.6***
Acquisition related costs	**—**	**—**	0.3	0.3	***0.4***	***0.4***
Release of provision on disposal	**(0.4)**	**(0.4)**	—	—	***—***	***—***
WITec post-acquisition gross margin adjustment	**0.5**	**0.5**	0.9	0.9	***1.7***	***1.7***
Amortisation and impairment of acquired intangibles	**4.3**	**4.3**	3.8	3.8	***9.5***	***9.5***
Fair value movement on financial derivatives	**6.1**	**6.1**	3.8	3.8	***6.4***	***6.4***
Unwind of discount in respect of contingent consideration	**—**	**0.2**	—	—	***—***	***0.3***
Total non-GAAP adjustments	**10.5**	**10.7**	8.8	8.8	***18.0***	***18.3***
Adjusted measure	**36.8**	**37.3**	30.6	30.2	***66.3***	***65.9***
Adjusted income tax expense		**(8.0)**		(6.5)		***(11.7)***
Adjusted profit for the period		**29.3**		23.7		***54.2***
Adjusted effective tax rates		**21.4%**		21.5%		***17.8%***

Acquisition related costs

These represent the costs of one-off charges incurred at the balance sheet dates relating to the acquisition of WITec Wissenschaftliche Instrumente und Technologie GmbH (“WITec”).

Release of provision on disposal
This represents the release of the provision on disposal of the OI Healthcare business in the US in 2020.

WITec post-acquisition gross margin adjustment
The finished goods and work in progress inventories were revalued to fair value, based on selling price less costs to sell.
The adjustments in the current and prior periods relate to the gross margin which would have been earned on post-acquisition sales to 30 September 2022, but which have been absorbed into the acquisition date fair value. All such inventory at the acquisition date has now been delivered to customers and therefore these will not recur.

Amortisation and impairment of acquired intangibles
Adjusted profit excludes the non-cash amortisation and impairment of acquired intangible assets and goodwill.

Fair value movement on financial derivatives
Under IFRS 9, all derivative financial instruments are recognised initially at fair value. Subsequent to initial recognition, they are also measured at fair value. In respect of instruments used to hedge foreign exchange risk and interest rate risk, the Group does not take advantage of the hedge accounting rules provided for in IFRS 9 since that standard requires certain stringent criteria to be met in order to hedge account, which, in the particular circumstances of the Group, are considered by the Board not to bring any significant economic benefit. Accordingly, the Group accounts for these derivative financial instruments at fair value through profit or loss. To the extent that instruments are hedges of future transactions, adjusted profit for the period is stated before changes in the valuation of these instruments so that the underlying performance of the Group can be more clearly seen.

Unwind of discount in respect of contingent consideration
Adjusted profit excludes the unwind of the discount in respect of the contingent consideration on the acquisition of WITec.

Adjusted income tax expense
Adjusting items include the income tax on each of the items described above.

Reconciliation of changes in cash and cash equivalents to movement in net cash

	Half year to 30 September 2022 £m	Half year to 30 September 2021 £m	***Year to 31 March 2022 £m***
Net increase/(decrease) in cash and cash equivalents	**3.0**	(26.3)	***(12.2)***
Effect of exchange rate fluctuations on cash held	**8.0**	0.8	***2.3***
Movement in net cash in the period	**11.0**	(25.5)	***(9.9)***
Net cash at the start of the period	**87.7**	97.6	***97.6***
Net cash at the end of the period	**98.7**	72.1	***87.7***

Reconciliation of net cash to condensed statement of financial position

	Half year to 30 September 2022 £m	Half year to 30 September 2021 £m	***Year to 31 March 2022 £m***
Overdrafts	**(20.2)**	(47.2)	***(8.7)***
Cash and cash equivalents	**118.9**	119.3	***96.4***
Net cash at the end of the period	**98.7**	72.1	***87.7***

3 Earnings per share
Basic earnings per ordinary share (EPS) is calculated by dividing the profit attributable to equity shareholders of the parent by the weighted average number of ordinary shares in issue during the year, excluding ordinary shares held by the Employee Share Ownership Trust, which have been treated as if they had been cancelled. The weighted average number of shares used in the calculation is as follows:

	Half year to 30 September 2022 Shares million	Half year to 30 September 2021 Shares million	***Year to 31 March 2022 Shares million***
Weighted average number of shares outstanding	**57.7**	57.6	***57.7***
Less: weighted average number of shares held by Employee Share Ownership Trust	**—**	(0.1)	***(0.2)***
Weighted average number of shares used in calculation of basic earnings per share	**57.7**	57.5	***57.5***

For the purposes of calculating diluted and diluted adjusted EPS, the weighted average number of ordinary shares is adjusted to include the weighted average number of ordinary shares that would be issued on the conversion of all potentially dilutive ordinary shares expected to vest, relating to the company's share-based payment plans. Potential ordinary shares are only treated as dilutive when their conversion to ordinary shares would decrease EPS.

The following table shows the effect of share options on the calculation of diluted earnings per share:

	Half year to 30 September 2022 Shares million	Half year to 30 September 2021 Shares million	**Year to 31 March 2022 Shares million**
Number of ordinary shares per basic earnings per share calculations	**57.7**	57.5	**57.5**
Effect of shares under option	**0.7**	0.8	**0.8**
Number of ordinary shares per diluted earnings per share calculations	**58.4**	58.3	**58.3**

Basic and diluted EPS are based on the profit for the period attributable to equity shareholders of the parent, as reported in the condensed consolidated statement of income. Adjusted and diluted adjusted EPS are based on adjusted profit for the period, as reported in note 2:

	Half year to 30 September 2022		Half year to 30 September 2021		***Year to 31 March 2022***	
	£m	**Pence**	£m	Pence	***£m***	***Pence***
Underlying profit attributable to equity shareholders of the parent/Underlying EPS	**20.7**	**35.9**	16.5	28.7	***38.6***	***67.1***
Total underlying adjustments to profit before tax (Note 2)	**10.7**	**18.5**	8.8	15.3	***18.3***	***31.8***
Related tax effects	**(2.1)**	**(3.6)**	(1.6)	(2.8)	***(2.7)***	***(4.6)***
Adjusted profit attributable to equity shareholders of the parent/adjusted EPS	**29.3**	**50.8**	23.7	41.2	***54.2***	***94.3***
Diluted underlying EPS		**35.4**		28.3		***66.2***
Diluted adjusted EPS		**50.2**		40.7		***93.0***

4 Segment information

The Group has nine operating segments. These operating segments have been combined into three aggregated operating segments to the extent that they have similar economic characteristics, with relevance to products and services, type and class of customer, methods of sale and distribution and the regulatory environment in which they operate. Each of these three aggregated operating segments is a reportable segment. The aggregated operating segments are as follows:

- the Materials & Characterisation segment comprises a group of businesses focusing on applied R&D and commercial customers, enabling the fabrication and characterisation of materials and devices down to the atomic scale;
- the Research & Discovery segment comprises a group of businesses providing advanced solutions that create unique environments and enable measurements down to the molecular and atomic level which are used in fundamental research; and
- the Service & Healthcare segment provides customer service and support for the Group's products and the service of third-party healthcare imaging systems.

The Group's internal management structure and financial reporting systems reflect the three aggregated operating segments based on the economic characteristics discussed above.

Reportable segment results include items directly attributable to a segment as well as those which can be allocated on a reasonable basis. The operating results of each are regularly reviewed by the Chief Operating Decision Maker, which is deemed to be the Board of Directors. Discrete financial information is available for each segment and used by the Board of Directors for decisions on resource allocation and to assess performance. No asset information is presented below as this information is not presented in reporting to the Group's Board of Directors.

On 31 August 2021, the Group acquired 100% of the issued share capital of WITec, which was integrated into the Materials & Characterisation segment on acquisition.

Results

Half year to 30 September 2022	**Materials & Characterisation £m**	**Research & Discovery £m**	**Service & Service & £m**	**Total £m**
Total segment revenue	**108.7**	**58.1**	**33.7**	**200.5**
Segment adjusted operating profit	**18.9**	**7.0**	**10.9**	**36.8**

Half year to 30 September 2021	Materials & Characterisation £m	Research & Discovery £m	Service & Service & £m	Total £m
Total segment revenue	84.9	56.3	28.9	170.1
Segment adjusted operating profit	13.0	8.7	8.9	30.6

Year to 31 March 2022	***Materials & Characterisation £m***	***Research & Discovery £m***	***Service & Service & £m***	***Total £m***
Total segment revenue	***185.5***	***120.3***	***61.5***	***367.3***
Segment adjusted operating profit	***26.1***	***21.3***	***18.9***	***66.3***

Revenue in the Materials & Characterisation and Research & Discovery segments represents the sale of products. Revenue in the Service & Healthcare segment relates to service income.

Reconciliation of reportable segment profit

Half year to 30 September 2022	**Materials & Characterisation £m**	**Research & Discovery £m**	**Service & Healthcare £m**	**Unallocated Group items £m**	**Total £m**
Segment adjusted operating profit	**18.9**	**7.0**	**10.9**	**—**	**36.8**
Release of provision on disposal	**—**	**—**	**0.4**	**—**	**0.4**
WITec post-acquisition gross margin adjustment	**(0.5)**	**—**	**—**	**—**	**(0.5)**
Amortisation and impairment of acquired intangibles	**(1.2)**	**(3.1)**	**—**	**—**	**(4.3)**
Fair value movement on financial derivatives	**—**	**—**	**—**	**(6.1)**	**(6.1)**
Financial income	**—**	**—**	**—**	**0.9**	**0.9**
Financial expenditure	**—**	**—**	**—**	**(0.6)**	**(0.6)**
Profit/(loss) before income tax	**17.2**	**3.9**	**11.3**	**(5.8)**	**26.6**

Half year to 30 September 2021	Materials & Characterisation £m	Research & Discovery £m	Service & Healthcare £m	Unallocated Group items £m	Total £m
Segment adjusted operating profit	13.0	8.7	8.9	—	30.6
Acquisition related costs	(0.3)	—	—	—	(0.3)
WITec post-acquisition gross margin adjustment	(0.9)	—	—	—	(0.9)
Amortisation and impairment of acquired intangibles	(0.6)	(3.2)	—	—	(3.8)
Fair value movement on financial derivatives	—	—	—	(3.8)	(3.8)
Financial income	—	—	—	0.3	0.3
Financial expenditure	—	—	—	(0.7)	(0.7)
Profit/(loss) before income tax	11.2	5.5	8.9	(4.2)	21.4

Year to 31 March 2022	***Materials & Characterisation £m***	***Research & Discovery £m***	***Service & Healthcare £m***	***Unallocated Group items £m***	***Total £m***
Segment adjusted operating profit	***26.1***	***21.3***	***18.9***	***—***	***66.3***
Acquisition related costs	***(0.4)***	***—***	***—***	***—***	***(0.4)***
WITec post-acquisition gross margin adjustment	***(1.7)***	***—***	***—***	***—***	***(1.7)***
Amortisation and impairment of acquired intangibles	***(3.2)***	***(6.3)***	***—***	***—***	***(9.5)***
Fair value movement on financial derivatives	***—***	***—***	***—***	***(6.4)***	***(6.4)***
Financial income	***—***	***—***	***—***	***0.5***	***0.5***
Financial expenditure	***—***	***—***	***—***	***(1.2)***	***(1.2)***
Profit/(loss) before income tax	***20.8***	***15.0***	***18.9***	***(7.1)***	***47.6***

5 Research and development (R&D)

The total research and development spend by the Group is as follows:

	Half year to 30 September 2022 £m	Half year to 30 September 2021 £m	***Year to 31 March 2022 £m***
R&D expense charged to the condensed consolidated statement of income	**18.2**	15.4	***32.8***
Less: depreciation of R&D-related fixed assets	**(0.2)**	(0.1)	***(0.2)***
Add: amounts capitalised as fixed assets	**—**	0.3	***0.3***
Less: amortisation of R&D costs previously capitalised as intangibles	**(0.6)**	(0.7)	***(1.9)***
Add: amounts capitalised as intangible assets	**0.1**	0.2	***0.7***
Total cash spent on R&D during the period	**17.5**	15.1	***31.7***

6 Acquisition of WITec

On 31 August 2021, the Group acquired 100% of the issued share capital of WITec Wissenschaftliche Instrumente und Technologie GmbH ("WITec") on a cash-free, debt-free basis for consideration of €42m (£36.0m), of which €5m (£4.3m) was conditional on trading performance over a period of twelve months from the acquisition. The conditions for the deferred consideration were meeting certain revenue, order and margin thresholds and have been met. WITec is a leading designer and manufacturer of Raman microscopy imaging solutions, based in Ulm, Germany.

The book and fair value of the assets and liabilities acquired is given in the table below. Fair value adjustments have been made to better align the accounting policies of the acquired business with the Group accounting policies and to reflect the fair value of assets and liabilities acquired. The business has been integrated into the Materials & Characterisation segment.

	Book value £m	**Adjustments £m**	**Fair value £m**
Intangible assets	**—**	**8.3**	**8.3**
Property, plant and equipment	**0.2**	**—**	**0.2**
Right-of-use assets	**2.8**	**—**	**2.8**
Inventories	**5.3**	**2.6**	**7.9**
Trade and other receivables	**3.0**	**—**	**3.0**
Deferred tax	**0.2**	**(3.0)**	**(2.8)**
Trade and other payables	**(2.1)**	**—**	**(2.1)**
Lease liabilities	**(2.8)**	**—**	**(2.8)**
Provisions	**(0.5)**	**—**	**(0.5)**
Bank loans	**(1.9)**	**—**	**(1.9)**
Cash	**1.7**	**—**	**1.7**
Net assets acquired	**5.9**	**7.9**	**13.8**
Goodwill			**20.6**
Total consideration			**34.4**
Net debt acquired			**0.2**
Deferred consideration after discounting to transaction date			**(3.6)**
Creditor in respect of working capital adjustment			**(0.4)**
Net cash outflow relating to the acquisition			**30.6**

The goodwill arising is considered to represent the value of the acquired workforce and the value of technology that has not been individually fair valued.

Acquisition related costs in the prior year of £0.4m were expensed to the condensed consolidated statement of income as an adjusting item in the administration and shared services cost line.

If the acquisition had occurred on the first day of the prior year, the acquisition would have contributed to the prior half-year results additional revenue of £5.3m, additional adjusted operating profit of £0.3m and additional statutory profit before tax of £0.3m.

7 Taxation

The total effective tax rate on profits for the half year is 22.2% (2021: 22.9%). The weighted average tax rate in respect of adjusted profit before tax (see Note 2) for the half year is 21.4% (2021: 21.5%).

For the full year, the Group expects the tax rate in respect of adjusted profit before tax to be 20.8%.

8 Dividends per share

The following dividends per share were paid by the Group:

	Half year to 30 September 2022 pence	Half year to 30 September 2021 pence	Year to 31 March 2022 pence
Previous period interim dividend	**—**	4.1	***4.1***
Previous period final dividend	**13.7**	—	***12.9***
Current period interim dividend	**—**	—	***4.4***
	13.7	4.1	***21.4***

The following dividends per share were proposed by the Group in respect of each accounting period presented:

	Half year to 30 September 2022 pence	Half year to 30 September 2021 pence	Year to 31 March 2022 pence
Interim dividend	4.6	4.4	*4.4*
Final dividend	—	—	*13.7*
	4.6	4.4	*18.1*

The interim dividend for the year to 31 March 2022 of 4.4 pence was approved by the Board on 8 November 2021 and was paid on 14 January 2022. The final dividend for the year to 31 March 2022 of 13.7 pence was approved by shareholders at the Annual General Meeting on 28 July 2022 and was paid on 23 August 2022.

The interim dividend for the year to 31 March 2023 of 4.6 pence per share was approved by a sub-committee of the Board on 7 November 2022 and has not been included as a liability as at 30 September 2022. The interim dividend is expected to be paid on 13 January 2023 to shareholders on the register on the record date of 2 December 2022, with an ex-dividend date of 3 December 2022 and with the last date of election for the Dividend Reinvestment Plan (DRIP) being 20 December 2022.

9 Financial instruments

Fair values of financial assets and liabilities

The following table shows the carrying amounts and fair values of financial assets and financial liabilities, including their levels in the fair value hierarchy. It does not include fair value information for financial assets and financial liabilities not measured at fair value if the carrying amount is a reasonable approximation of fair value.

		Half year to 30 September 2022		Half year to 30 September 2021		***Year to 31 March 2022***	
	Fair value hierarchy	**Carrying amount £m**	**Fair value £m**	Carrying amount £m	Fair value £m	***Carrying amount £m***	***Fair value £m***
Assets carried at amortised cost							
Long-term receivables		**0.1**		—		***—***	
Trade receivables		**86.2**		66.8		***74.8***	
Other receivables and accrued income		**26.7**		14.1		***21.4***	
Cash and cash equivalents		**118.9**		119.3		***96.4***	
Assets carried at fair value							
Derivative financial instruments:							
– Foreign currency contracts	2	**0.2**	**0.2**	2.6	2.6	***1.0***	***1.0***
Liabilities carried at fair value							
Derivative financial instruments:							
– Foreign currency contracts	2	**(9.0)**	**(9.0)**	(0.5)	(0.5)	***(1.4)***	***(1.4)***
Liabilities carried at amortised cost							
Trade and other payables		**(87.2)**		(64.0)		***(87.0)***	
Bank overdrafts		**(20.2)**		(47.2)		***(8.7)***	
Borrowings		**(1.6)**		(2.0)		***(1.8)***	
Lease payables		**(31.4)**		(12.9)		***(18.4)***	

The following summarises the major methods and assumptions used in estimating the fair values of financial instruments reflected in the above table.

Derivative financial instruments

Derivative financial instruments are marked-to-market using market prices.

Fixed and floating rate borrowings

The fair value of fixed and floating rate borrowings is estimated by discounting the future contracted principal and interest cash flows using the market rate of interest at the reporting date.

Trade and other receivables/payables
For receivables/payables with a remaining life of less than one year, the carrying amount is deemed to reflect the fair value. All other receivables/payables are discounted to determine their fair value. Advances received are excluded from other payables above as these are not considered to be financial liabilities

Lease payables
The lease liability is measured at amortised cost using the effective interest method.

Fair value hierarchy
The table above gives details of the valuation method used in arriving at the fair value of financial instruments. The different levels have been identified as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets and 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); and
- Level 3: inputs for the asset or liability that are not based on observable market data.

There have been no transfers between levels during the year.

10 Retirement benefit obligations
The Group operates a defined benefit plan in the UK. A full actuarial valuation of the UK plan was carried out as at 31 March 2021 which, for reporting purposes, has been updated to 30 September 2022 by a qualified independent actuary.

At 31 March 2022, the scheme actuary calculated a retirement benefit asset of £51.7m, being the net of £351.7m of assets and a present value of future liabilities of £300.0m.

In the period to 30 September 2022, there has been an increase in the discount rate from 2.8% to 5.1% and significant changes to market conditions have reduced the value of the scheme's obligations. The impact of these changes has decreased the benefit obligation to £216.7m (31 March 2022: £300.0m). There have been no changes to the demographic assumptions associated with the scheme.

The Group has agreed a basis for deficit recovery payments with the trustees of the UK pension scheme. The deficit recovery payments are payable through to and including 2026 and will rise by approximately 3% per annum. The deficit recovery payment for the period was £4.1m (year to 31 March 2022: £8.0m). However, significant changes in market conditions reduced the scheme's assets during the period. As a result, the fair value of plan assets decreased to £241.2m (31 March 2022: £351.7m).

The overall effect is that for the purposes of IAS 19 the surplus on the scheme decreased from £51.7m to £24.5m.

11 Related parties
All transactions with related parties are conducted on an arm's length basis and in accordance with normal business terms. Transactions between the company and its subsidiaries, which are related parties, have been eliminated on consolidation and are not disclosed in this note.

Independent review report to Oxford Instruments plc

Conclusion
Based on our review, nothing has come to our attention that causes us to believe that the condensed set of financial statements in the half-yearly financial report for the six months ended 30 September 2022 is not prepared, in all material respects, in accordance with UK adopted International Accounting Standard 34 and the Disclosure Guidance and Transparency Rules of the United Kingdom's Financial Conduct Authority.

We have been engaged by the company to review the condensed set of financial statements in the half-yearly financial report for the six months ended 30 September 2022 which comprises the condensed consolidated statement of income, condensed consolidated statement of comprehensive income, condensed consolidated statement of financial position, condensed consolidated statement of changes in equity and condensed consolidated statement of cash flows.

Basis for conclusion
We conducted our review in accordance with the International Standard on Review Engagements (UK) 2410, "Review of Interim Financial Information Performed by the Independent Auditor of the Entity" ("ISRE (UK) 2410"). A review of interim financial information consists of making enquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other

review procedures. A review is substantially less in scope than an audit conducted in accordance with International Standards on Auditing (UK) and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

As disclosed in Note 1, the annual financial statements of the group are prepared in accordance with UK adopted international accounting standards. The condensed set of financial statements included in this half-yearly financial report has been prepared in accordance with UK adopted International Accounting Standard 34, “Interim Financial Reporting”.

Conclusions relating to going concern
Based on our review procedures, which are less extensive than those performed in an audit as described in the Basis for conclusion section of this report, nothing has come to our attention to suggest that the Directors have inappropriately adopted the going concern basis of accounting or that the Directors have identified material uncertainties relating to going concern that are not appropriately disclosed.

This conclusion is based on the review procedures performed in accordance with ISRE (UK) 2410, however future events or conditions may cause the group to cease to continue as a going concern.

Responsibilities of Directors
The Directors are responsible for preparing the half-yearly financial report in accordance with the Disclosure Guidance and Transparency Rules of the United Kingdom’s Financial Conduct Authority.

In preparing the half-yearly financial report, the Directors are responsible for assessing the group’s ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Directors either intend to liquidate the Group or to cease operations, or have no realistic alternative but to do so.

Auditor’s responsibilities for the review of the financial information
In reviewing the half-yearly report, we are responsible for expressing to the company a conclusion on the condensed set of financial statements in the half-yearly financial report. Our conclusion, including our conclusions relating to going concern, are based on procedures that are less extensive than audit procedures, as described in the basis for conclusion paragraph of this report.

Use of our report
Our report has been prepared in accordance with the terms of our engagement to assist the company in meeting the requirements of the Disclosure Guidance and Transparency Rules of the United Kingdom’s Financial Conduct Authority and for no other purpose. No person is entitled to rely on this report unless such a person is a person entitled to rely upon this report by virtue of and for the purpose of our terms of engagement or has been expressly authorised to do so by our prior written consent. Save as above, we do not accept responsibility for this report to any other person or for any other purpose and we hereby expressly disclaim any and all such liability.

BDO LLP
Chartered Accountants
Reading, UK

7 November 2022

BDO LLP is a limited liability partnership registered in England and Wales (with registered number OC305127).

[ends]