for the year ended 31 December 2022

1. General information

Xaar plc ('the Group') is incorporated in England and Wales under the Companies Act 2006. The address of the registered office is given on the inside back cover. The nature of the Group's operations and its principal activity are set out in the Strategic Report on pages 4 to 59.



The Strategic Report can be found on pages 4 to 59

2. Key sources of estimation uncertainty and critical accounting judgements

The key assumptions concerning the future and other sources of estimation uncertainty at the date of the statement of financial position that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are as follows:

Accounting judgements - The Group applies judgement in how it applies its accounting policies, which do not involve estimation, which could materially affect the numbers disclosed in these financial statements. The key judgements, without estimation, that could have the most significant effect on the amounts recognised in these financial statements are as follows:

Capitalisation of development costs (accounting judgement) - note 16

As described in note 16, the Group capitalises development expenditure as an intangible asset where the criteria under IAS 38 'Intangible Assets' is met. This requires management to make judgement on when all of the criteria for capitalisation are met and when to cease capitalisation and start amortising the asset. In the current year £1.7 million of external development costs were capitalised and no internal development costs were capitalised. There were no capitalised development costs for the prior year. The technical feasibility criteria is only typically achieved at the end of a project for most of internal projects. During a printhead product development programme many sub-systems are evaluated in parallel and all of these systems carry their own risk.

Significant estimates - The preparation of financial statements in accordance with UK-adopted international accounting standards (IFRS) requires the use of estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting year. Although these estimates are based on management's best knowledge of the amount, events or actions, actual results ultimately may differ from those estimates. The estimates and underlying assumptions are reviewed on an ongoing basis. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

Climate change is a global challenge and an emerging risk to business, people and the environment across the world. We have a role to play in limiting warming by improving our energy management, reducing our carbon emissions and by helping our customers and suppliers do the same. Growing awareness of climate change will provide the impetus for business growth as we provide products, services and solutions that increase efficiency and reduce customers' energy use and carbon emissions.

Our plans allow for the upgrade, modification and improvements to our assets, to enable us to achieve our climate change strategy. We do not envisage any specific impact to the useful economic life of assets as a result of these changes.

Based on the results of the recent formal climate-related scenario planning, the climate risk for the Group has been assessed to be medium to low. Assuming we meet our target of becoming Net Zero by 2030, which is significantly sooner than most of the industry, the risk will be downgraded to low. So at this point of assessment, in our view climate change does not create any further key sources of estimation uncertainty. For further detail see the Risk management and Sustainability sections of the Strategic Report.

The Directors consider the following to be the key estimates applicable to the financial statements, which have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next financial year or in the longer term:

Contingent consideration (estimation uncertainty) - notes 11 and 12

In November 2021, Stratasys Solutions Limited acquired the remaining 55% of Xaar 3D Limited for an initial consideration of US\$13.5 million or £9.9 million in cash and a milestone consideration and 3% earn-out consideration which are contingent on the achievement of certain milestones in respect of the future revenue stream of Xaar 3D and should be estimated using a statistical simulation model. This contingent consideration is measured at fair value using a Monte Carlo Simulation model and the use of a recognised third party.

The Monte Carlo Simulation model uses a number of inputs that require estimation. The key ones are the risk-adjusted discount rate and revenue volatility. The milestone consideration and 3% earn-out consideration are calculated based on the terms of the proposed transaction and by reference to simulated revenue. This is then discounted back to the valuation date using a discount rate over a period commensurate with the year in which payments are payable.

The Group considers this model to be appropriate, given the complex conditions associated with the milestone consideration and 3% earn-out consideration A sensitivity analysis is provided in note 22.

Impairment of goodwill and intangibles (estimation uncertainty) - notes 15 and 16

The Group tests goodwill and intangibles annually for impairment or more frequently if there are indications that goodwill might be impaired. Having performed appropriate testing, no impairment has been identified and therefore no impairment loss has been recognised in 2022 (2021: £nil). Management has performed sensitivity analysis on its reasonably worst case scenario for EPS, FFEI and Megnajet and it has been completed on each key assumption in isolation. Reasonably possible change sensitivities are included in note 15.

Revenue recognition - note 5

Engineered Printing Solutions and FFEI recognise revenue on the stage of completion for some of the customer contract and performance obligations in the manufacture of bespoke machinery and equipment as well as some of the research and development services for delivery to the customer.

Each month an assessment is undertaken of the work in progress and stage of completion in both supply of individual components and labour hours allocated to the project against the expected project manufacture costs. The revenue determined is recognised upon the proportion and stage of completion of the performance obligations. This assessment enables an estimate to be undertaken for the expected profitability of the customer contract, costs incurred to date, and costs to complete, but is subject to a level of uncertainty until the work in progress is finalised and the completed machinery and services are available for final delivery and acceptance by the customer.

The transaction price allocated to partially satisfied and unsatisfied obligations at 31 December 2022 is set out in note 5.

for the year ended 31 December 2022

2. Key sources of estimation uncertainty and critical accounting judgements continued Acquisition of Megnajet Ltd and Technomation Ltd – note 36

There is a high level of judgement surrounding the valuation of goodwill and acquired intangibles for any material acquisitions and this applies to the acquisition of Megnajet and Technomation in the year. An additional judgement was required around the classification of Technomation as an asset purchase rather than a business purchase and it was concluded as such as a result of the applied concentration test under IFRS 3:B7(A)a.

Management involved a third party valuation expert to estimate the value of the acquired intangibles and goodwill to ensure the judgements are appropriately considered.

3. Significant accounting policies

Basis of accounting

The Group financial statements have been prepared in accordance with UK adopted International Accounting Standards (IAS). The financial information has been prepared on the basis of all applicable IFRS, including all International Accounting Standards (IAS), Standing Interpretations Committee (IFRIC) interpretations and International Financial Reporting Interpretations Committee (IFRIC) interpretations issued by the International Accounting Standards Board (IASB) that are applicable to the financial period.

The financial statements have been prepared on the historical cost basis, except for the revaluation of financial instruments. The Group financial statements are presented in Sterling and all values are rounded to the nearest thousand pounds (£'000) except when otherwise indicated. The principal accounting policies adopted are set out below.

Basis of consolidation

The consolidated financial statements incorporate the financial statements of Xaar plc ("the Company") and entities controlled by the Company ("its subsidiaries") made up to 31 December each year. Control is achieved where the Company has the power to govern the financial and operating policies of an investee entity so as to obtain benefits from its activities. An investor controls another entity, an investee, if and only if the investor has all of the following: it has power over the investee, exposure or rights to variable returns from its involvement with the investee, and the ability to use its power over the investee to affect the amount of the investor's returns. To have power, an investor must have existing substantive rights that give it the current ability to direct the relevant activities. The investor reassesses whether it controls an entity if facts and circumstances indicate changes to one or more of the elements of control.

The results of subsidiaries acquired or disposed of during the year are included in the consolidated income statement from the date of acquisition or up to the date of disposal, as appropriate. Where necessary, adjustments are made to the financial statements of subsidiaries to bring the accounting policies used in line with those used by the Group.

All intra-group transactions, balances, income and expenses are eliminated on consolidation. Foreign exchange gains and losses arising on the retranslation of trading balances with subsidiaries with different functional currencies are reported in the income statement.

Profit or loss and each component of other comprehensive income are attributed to the owners of the Company and to the non-controlling interests. Total comprehensive income of subsidiaries is attributed to the owners of the Company and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance.

Changes in the Group's interests in subsidiaries that do not result in a loss of control are accounted for as equity transactions. The loss of control of a subsidiary results in the recognition of a gain or loss on the sale of the interest sold and the derecognition of all assets, liabilities and any retained non-controlling interest.

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 Strategic Report on pages 16 to 25. Notes 21 and 22 include a description of the Company's objectives, policies and processes for managing its capital; its financial risk management objectives; details of its financial instruments and hedging activities; and its exposure to credit risk and liquidity risk. The Group's day-to-day working capital requirements are expected to be met through the current cash and cash equivalent resources (including treasury deposits) at the balance sheet date of 31 December 2022 of £8.5 million. As set out in note 22, the Group has a £5 million invoice discounting facility, of which £0.4 million was drawn as at 31 December 2022.

The Group has prepared and reviewed monthly profit and cash flow forecasts which cover a period up to 30 June 2024, the going concern period. This base case forecast position has been compiled by considering the performance of the different businesses across the Group and each of their funding requirements which represents the current Board approved forecasts. These forecasts reflect existing technologies and products, existing 0EM adoption, the committed order pipeline, an increasing customer install base and demand for consumables such as fluids across the customer base and no specific risks around creditworthiness. This creates a high degree of predictability within the short-term cash flows, which have been factored in to the level of sensitivity testing and reverse stress testing performed below. As set out in note 6, there is no concentration of revenues from an individual customer. The operational steps described in the Strategic Report also provide increased predictability over future margins, which have been incorporated in this base case forecast. Using this base case, liquidity compliance has been assessed across the going concern period and is sufficient to enable the Group to settle its obligations as they fall due.

To support the going concern conclusion, a sensitivity analysis has been performed which models a 10% reduction in revenue and 2% reduction in gross margin in comparison to the base case and is below the reported FY22 actual result. The outcome of this sensitivity analysis is that the Group maintains liquidity across the going concern period and is able to meet all forecasted obligations as they fall due. A reverse stress scenario has also been performed to model the circumstances required to eliminate available liquidity during the going concern period. This includes reducing revenues and reducing gross margin. This reverse stress scenario requires a reduction in revenue in excess of 25% in comparison to the base case and is below the reported FY22 actual result, as is the assumed margin. The Directors believe the possibility of this combination of severe downsides arising to be remote given the recurring revenue base and predictability of forecasts, and that there are numerous controllable mitigating actions such as deferring non-committed capital expenditure and reducing performance related pay which could be taken to avoid a liquidity breach.

3. Significant accounting policies continued

Going concern continued

Should extreme downside scenarios occur, the Group has further options within its control to mitigate a cash shortfall which have not been factored into the above forecasts and stress testing, such as staffing reductions, further delaying/stopping capital and research and development expenditure and aligning performance related pay to actual results. The Group has also received credit pre-approval for a £5 million revolving credit facility. No drawdowns have been assumed during the going concern period, nor are they required in the sensitivity or reverse stress scenarios described above and as such the facility would provide additional liquidity headroom to the Group across the going concern period.

Based on the above, the Directors have a reasonable expectation that the Group has adequate resources to continue in operational existence for the period to 30 June 2024. For this reason, we continue to adopt the going concern basis in preparing the financial statements.

Adjusted financial measures

Adjusted financial measures relate to continuing operations and comprise adjusted profit/(loss) before tax, adjusted EBITDA, and adjusted basic and diluted earnings per share. These measures are alternative performance measures (APMs) which are not defined or specified under the requirements of IFRS. These APMs adjust for recurring and non-recurring items which management consider are not reflective of the underlying performance of the Group. These APMs are used in evaluating management's performance and in determining management and executive remuneration. Items adjusted for include share-based payment charges, exchange differences on intra-group transactions, gain on derivative financial instruments, restructuring and transaction expenses, the research and development expenditure credit, fair value gains on financial assets and amortisation of acquired intangible assets. See note 4 for further detail.

Recurring items are adjusted each year irrespective of materiality to ensure consistent treatment, and allow for variation transactions that can occur e.g. due to volatility in share prices in respect of share-based payment charges, or the significant impact of restructuring and transaction expenses. Non-recurring items are identified and adjusted for by virtue of their size or nature.

Share-based payment charges are excluded from the calculation of adjusted profit/(loss) before tax as these represent a non-cash accounting charge which represent long-term incentives designed for long-term employee retention. Share-based payment charges are not included in the analysis of segment performance used by the Chief Operating Decision Maker and their add-back is consistent with metrics used by a number of other companies in the technology sector, therefore this treatment remains appropriate.

Fair value gains and losses on financial assets at fair value through profit and loss are excluded from the calculation of adjusted profit/(loss) before tax as these represent a non-cash movement in accounting estimates related to divestment contingent consideration.

The movements are driven by external factors and not influenced by the Group. Fair value gains and losses on financial assets at fair value through profit and loss bear no relation to the Group's underlying ongoing operational performance, and are not included in the analysis of segment performance used by the Chief Operating Decision Maker.

Amortisation of acquired intangibles is excluded from the calculation of adjusted profit/(loss) before tax as these charges are the result of acquisition accounting, and whilst revenue recognised in the income statement benefits from the underlying intangibles that have been acquired, the amortisation costs bear no relation to the Group's underlying ongoing operational performance. In addition, amortisation of acquired intangibles is not included in the analysis of segment performance used by the Chief Operating Decision Maker.

Net cash includes cash, cash equivalents and treasury deposits. Gross R&D investment represents the cost of research and development on continuing operations in the year.

Business combinations

The acquisition of subsidiaries is accounted for using the acquisition method in accordance with IFRS 3.

Goodwill

Goodwill arising on acquisition is recognised as an asset and initially measured at cost, being the excess of the sum of consideration transferred, the amount of any non-controlling interests in the acquiree over the net of the acquisition-date fair values of the identifiable assets, liabilities and contingent liabilities recognised. If after reassessment, the Group's interest in the net fair value of the acquiree's identifiable assets, liabilities and contingent liabilities exceeds the cost of the business combination, the excess is recognised immediately in the income statement.

Goodwill arising on consolidation is initially recognised as an asset at cost and is subsequently measured at cost less any accumulated impairment losses. Goodwill which is recognised as an asset is reviewed for impairment at least annually. Any impairment is recognised immediately in the income statement and is not subsequently reversed.

For the purposes of impairment testing, goodwill is allocated to each of the Group's cash-generating units expected to benefit from the synergies of the combination. Cash-generating units to which goodwill has been allocated are tested for impairment annually or more frequently when there is an indication that the unit may be impaired. If the recoverable amount of the cash-generating unit is less than the carrying amount of the unit, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit pro rata on the basis of the carrying amount of each asset in the unit.

On disposal of the cash-generating unit, the attributable amount of goodwill is included in the determination of the profit or loss on disposal.

Goodwill arising on acquisitions before the date of transition to IFRS has been retained at the previous UK GAAP amounts subject to being tested for impairment at that date. Goodwill written off to reserves under UK GAAP prior to 1998 has not been reinstated and is not included in determining any subsequent profit or loss on disposal.

for the year ended 31 December 2022

3. Significant accounting policies continued

Revenue recognition

Overall policy

Revenue is measured based on the consideration to which the Group expects to be entitled in a contract with a customer and excludes amounts collected on behalf of third parties. The Group determines whether to recognise revenue, following a five-step process:

- 1. Identifying the contract with a customer;
- 2. Identifying the performance obligations;
- 3. Determining the transaction price;
- 4. Allocating the transaction price to the performance obligations; and
- **5.** Recognising revenue when/as performance obligation(s) are satisfied.

Revenue streams

Revenue arises from a number of sources but mainly "product sales":

- the manufacture and sale of printheads
- · engineered printing solutions and
- · digital imaging devices

The Group also provides consulting and research and development services ("commissions and services"), and licenses intellectual property to third parties as part of royalty-based revenue ("licensee royalties").

Revenue is shown net of value-added tax, returns, rebates and discounts and after eliminating sales within the Group.

Identification of performance obligations

When the Group enters into an agreement with a customer, goods and services deliverable under the contract are identified as separate performance obligations ("obligations") to the extent that the customer can benefit from the goods or services on their own and that the separate goods and services are considered distinct from other goods and services in the agreement. Where individual goods and services do not meet the criteria to be identified as separate obligations they are aggregated with other goods and/or services in the agreement until a separate obligation is identified.

Typically each of the revenue streams listed above qualify as separate performance obligations, with consideration allocated accordingly. However, for certain of the Digital Imaging and Product Print Systems contracts, the performance obligations are not distinct, for example where the services are essential for the customer to be able to benefit from the product sale.

Timing of revenue recognition

Revenue is recognised in accordance with IFRS 15 when control has been transferred to the customer. For product sales, revenue is recognised at a point in time, unless specific conditions have been satisfied allowing revenue to be recognised over a period of time as identified in the five-step process (above); this can arise in the Product Print Systems and Digital Imaging segments for example where the asset produced does not have an alternative use and the Group has an enforceable right to payment for performance completed to date. An input methodology (based on estimated labour hours or costs) is used as this depicts the performance conditions when recognising revenue over time. Where this is the case, the performance obligations are typically not distinct as set out above. Payments for revenue recognised over time are typically in instalments whereas point in time revenue is typically invoiced in arrears.

Commissions and services revenue is recognised over time where the customer simultaneously receives and consumes the benefits of the Group's performance obligations. Where this is not the case, revenue is recognised at a point in time. Payments for this revenue stream are typically in arrears.

Royalties are recognised on an accruals basis, based on quarterly statements received from each licensee. The royalties arise from the licensee's use of their printheads and the Group's related intellectual property installed in equipment developed by original equipment manufacturers (OEMs).

Further details of payment terms are provided in note 21.

Receivables

A receivable is recognised when the performance obligations are satisfied (e.g. upon shipment for product sales, upon delivery as services are rendered or upon completion of service) as this is the point in time that the consideration is unconditional because only the passage of time is required before the payment is due, there will be a reservation of title until payment has been received, but control has been transferred.

Investment income

Investment income is accrued on a time basis, by reference to the principal outstanding and at the effective interest rate applicable, which is the rate that discounts estimated future cash receipts through the expected life of the financial asset to that asset's net carrying amount.

Interest expense

Interest expense on lease liabilities is a component of finance costs which is required to be presented separately in the income statement.

Foreign currencies

The individual financial statements of each Group company are presented in the currency of the primary economic environment in which it operates (its functional currency). For the purpose of the consolidated financial statements, the results and financial position of each Group company are expressed in Sterling, which is the functional currency of the Company and the presentation currency for the consolidated financial statements.

Exchange differences arising on the settlement of monetary assets and liabilities, and on the retranslation of monetary assets and liabilities, are included in the income statement for the period.

3. Significant accounting policies continued

Foreign currencies continued

For the purposes of presenting consolidated financial statements, the assets and liabilities of the Group's foreign operations are translated at the exchange rates prevailing on the date of the statement of financial position. Income and expense items are translated at the monthly average exchange rates for the period which are an approximation of actual rates.

Exchange differences arising on the translation of the net investment in foreign operations are recognised in other comprehensive income and taken to the translation reserve.

When the Group's foreign operations are liquidated or disposed, exchange differences previously recognised through other comprehensive income and the translation reserve will be recycled and recognised through the income statement.

Goodwill and fair value adjustments arising on the acquisition of a foreign entity are treated as assets and liabilities of the foreign entity and translated at the closing rate.

Government and EU grants

Government and EU grants are not recognised until there is reasonable assurance that the Group will comply with the conditions attached to them and that the grant will be received. Government and EU grants relating to research and development are treated as income over the periods necessary to match them with the related costs.

Restructuring costs

Restructuring cost refers to the one-time expenses or infrequent expenses which are incurred by the Group in the process of reorganising its business operations with the motive of the overall improvement of the long-term profitability and working efficiency of the Group.

Retirement benefit costs

Payments to defined contribution retirement benefit schemes are charged as an expense as they fall due. Payments made to state managed retirement benefit schemes are dealt with as payments to defined contribution schemes where the Group's obligations under the schemes are equivalent to those arising in a defined contribution retirement benefit scheme.

Taxation

The tax expense represents the sum of the tax currently payable and deferred tax, including UK corporation tax and foreign tax.

The tax currently payable is based on taxable profit for the year. Taxable profit differs from net profit as reported in the income statement because it excludes items of income or expense that are taxable or deductible in other years and it further excludes items that are never taxable or deductible. The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the date of the statement of financial position.

Deferred tax is the tax expected to be payable or recoverable on differences between the carrying amounts of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of taxable profit. Deferred tax liabilities are generally recognised for all taxable temporary differences and deferred tax assets are recognised to the extent that it is probable that taxable profits will be available against which deductible temporary differences can be utilised. Such assets and liabilities are not recognised if the temporary difference arises from the initial recognition of goodwill (taxable temporary differences only) or from the initial recognition (other than in a business combination) of other assets and liabilities in a transaction that affects neither the tax profit nor the accounting profit.

Deferred tax liabilities are recognised for taxable temporary differences arising on investments in subsidiaries, except where the Group is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future.

The carrying amount of deferred tax assets is reviewed at the date of each statement of financial position and reduced to the extent that is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Deferred tax is charged or credited in the income statement, except when it relates to items charged or credited in other comprehensive income or directly in equity, in which case the deferred tax is also dealt with in other comprehensive income or directly in equity respectively.

To the extent that the Group receives a tax deduction relating to share-based payment transactions, a deferred tax asset is recognised at the appropriate tax rate on the difference in value between the market price of the underlying equity as at the date of the financial statements and the exercise price of the outstanding share options multiplied by the expired portion of the vesting period. As a result, the deferred tax impact of share options will not be derived directly from the expense reported in the consolidated income statement. Where the deductible difference exceeds the cumulative charge to the consolidated income statement the excess of the associated tax benefit is recorded directly to equity rather than in profit or loss.

Deferred tax assets and liabilities are measured on an undiscounted basis and are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities and when they relate to income taxes levied by the same taxation authority and the Group intends to settle its current tax assets and liabilities on a net basis.

Property, plant and equipment

All property, plant and equipment is shown at original historical cost less accumulated depreciation and any recognised impairment loss.

Assets in the course of construction for production or administrative purposes are carried at cost, less any recognised impairment loss.

Depreciation of these assets, on the same basis as other assets in the same class, commences when the assets are ready for their intended use.

Freehold land is not depreciated.

for the year ended 31 December 2022

3. Significant accounting policies continued

Property, plant and equipment continued

Depreciation is charged so as to write off the cost or valuation of assets, less their residual values, other than assets in the course of construction, over their estimated useful lives, using the straight-line method, on the following bases:

- Leasehold property improvements: Shorter of the lease term and 20 years
- Plant and machinery: 3 to 20 years
- Furniture, fittings and equipment: 3 to 20 years
- Buildings: Up to 40 years

The gain or loss arising on the disposal of an asset is determined as the difference between the sales proceeds and the carrying amount of the asset and is recognised in income.

Spare parts are capitalised within property, plant and equipment where it is expected that future economic benefits will flow to the entity and the cost can be measured reliably. This typically relates to critical spares, which must be maintained for business continuity. Depreciation of these assets commences both when the assets are bought and when they are put in use. The former has longer useful life of six years to account for the 'idle' time whilst the latter is shorter useful life of three years which is an approximation for the average useful life of a part in use.

Internally generated intangible assets - research and development expenditure

Expenditure on research activities is recognised as an expense in the period in which it is incurred.

An internally generated intangible asset arising from the Group's development is recognised only if the conditions of IAS 38 paragraph 57 are met.

Internally generated intangible assets are amortised on a straight-line basis over 3 to 20 years. Where no internally generated intangible asset can be recognised, development expenditure is recognised as an expense in the period in which it is incurred.

Other intangible assets

Costs incurred in maintaining the patent and trademark portfolio are written off to the income statement as incurred.

Acquired intangible assets as a result of business combinations are capitalised and amortised on a straight-line basis over their estimated useful lives.

Payments in respect of software, and licence rights acquired are capitalised at cost and amortised on a straight-line basis over their estimated useful lives.

- Capitalised development costs Patents over the life of the patent; Development costs based on the project life
- Licences acquired shorter of the licence term and 20 years
- Software three to fifteen years with IT equipment being three years and infrastructure up to fifteen years
- Customer relationships six to eight years
- Brands ten years
- Technology-based patents six years

Impairment of tangible and intangible assets excluding goodwill

At the date of each statement of financial position, the Group reviews the carrying amounts of its tangible and intangible assets to determine there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). Where the asset does not generate cash flows that are independent from other assets, the Group estimates the recoverable amount of the cash-generating unit to which the asset belongs.

Recoverable amount is the higher of fair value less costs of disposal and value-in-use. In assessing value-in-use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the estimates of future cash flows have not been adjusted.

If the recoverable amount of an asset (or cash-generating unit) is estimated to be less than its carrying amount, the carrying amount of the asset (cash-generating unit) is reduced to its recoverable amount. An impairment loss is recognised as an expense immediately.

Where an impairment loss is subsequently reversed, the carrying amount of the asset (or cash-generating unit) is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset (or cash-generating unit) in prior years. A reversal of an impairment loss is recognised as income immediately.

Leases

The Group assesses whether a contract is or contains a lease, at inception of the contract. The Group recognises a right-of-use asset and a corresponding lease liability with respect to all lease arrangements in which it is the lessee, except for short-term leases (defined as leases with a lease term of 12 months or less) and leases of low-value assets. For these leases, the Group recognises the lease payments as an operating expense on a straight-line basis over the term of the lease unless another systematic basis is more representative of the time pattern in which economic benefits from the leased assets are consumed.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted by using the rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate. Generally, an incremental borrowing rate approach is applied.

3. Significant accounting policies continued

Leases continued

Lease payments included in the measurement of the lease liability comprise:

- fixed lease payments (including in substance fixed payments), less any lease incentives;
- variable lease payments that depend on an index or rate, initially measured using the index or rate at the commencement date;
- the amount expected to be payable by the lessee under residual value guarantees;
- the exercise price of purchase options, if the lessee is reasonably certain to exercise the options;
- payments of penalties for terminating the lease, if the lease term reflects the exercise of an option to terminate the lease.

The lease liability is subsequently measured by increasing the carrying amount to reflect interest on the lease liability (using the effective interest method) and by reducing the carrying amount to reflect the lease payments made.

The Group re-measures the lease liability (and makes a corresponding adjustment to the related right-of-use asset) whenever:

- the lease term has changed or there is a change in the assessment of exercise of a purchase option, in which case the lease liability is re-measured by discounting the revised lease payments using a revised discount rate;
- the lease payments change due to changes in an index or rate or a change in expected payment under a guaranteed residual value, in which cases the lease liability is re-measured by discounting the revised lease payments using the initial discount rate (unless the lease payments change is due to a change in a floating interest rate, in which case a revised discount rate is used);
- a lease contract is modified and the lease modification is not accounted for as a separate lease, in which case the lease liability is re-measured by discounting the revised lease payments using an incremental borrowing rate at the effective date of the modification.

The right-of-use assets comprise the initial measurement of the corresponding lease liability, lease payments made at or before the commencement day and any initial direct costs. They are subsequently measured at cost less accumulated depreciation and impairment losses.

Whenever the Group incurs an obligation for costs to dismantle and remove a leased asset, restore the site on which it is located or restore the underlying asset to the condition required by the terms and conditions of the lease, a provision is recognised and measured under IAS 37.

The costs are included in the related right-of-use asset, unless those costs are incurred to produce inventories.

Right-of-use assets are depreciated over the shorter period of lease term and useful life of the underlying asset. If a lease transfers ownership of the underlying asset or the cost of the right-of-use asset reflects that the Group expects to exercise a purchase option, the related right-of use asset is depreciated over the useful life of the underlying asset. The depreciation starts at the commencement date of the lease. The Group does not have any leases that transfer ownership of the underlying asset. The Group does not have any leases with a purchase option where there is a reasonable expectation that the option will be exercised.

Inventories

Inventories are stated at the lower of cost and net realisable value. Cost is calculated using the first in, first out (FIFO) cost formula, by applying the standard cost methodology, with costs including direct materials, direct labour costs and an attributable proportion of manufacturing overheads based on normal levels of activity that have been incurred in bringing the inventories to their present location and condition. Net realisable value represents the estimated selling price less all estimated costs of completion and costs to be incurred in marketing, selling and distribution. Provision is made for obsolete, slow-moving or defective items where applicable.

Contract asset/contract liability

A contract asset is recognised when revenue recognised in respect of a customer contract exceeds amounts received or receivable from the customer. This situation arises when the recognition of revenue over time to date is greater than amounts invoiced to the customer and invoicing is conditional on further performance. The carrying amount is reduced by allowances for expected credit losses under IFRS 9.

When there is an unconditional entitlement, generally when invoices are raised, the contract asset values are reclassified to trade receivables.

Contract liabilities comprise the Group's obligation to transfer goods or services to a customer for which the Group has received payment from the customer in advance of revenue recognition. This situation arises when the customer is invoiced in advance and the revenue recognised over time is lower than the amounts invoiced to the customer.

Financial instruments

Financial assets and financial liabilities are recognised in the Group's statement of financial position when the Group becomes a party to the contractual provisions of the instrument.

Financial assets and financial liabilities are initially measured at fair value. Transaction costs that are directly attributable to the acquisition or issue of financial assets and financial liabilities are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at fair value through profit or loss are recognised immediately in profit or loss.

Recognition of financial assets

All regular way purchases or sales of financial assets are recognised and derecognised on a trade date basis. Regular way purchases or sales are purchases or sales of financial assets that require delivery of assets within the time frame established by regulation or convention in the marketplace.

All recognised financial assets are measured subsequently in their entirety at either amortised cost or fair value, depending on the classification of the financial assets.

In order for a financial asset to be classified and measured at amortised cost or fair value through OCI, it needs to give rise to cash flows that are 'solely payments of principal and interest (SPPI)' on the principal amount outstanding. This assessment is referred to as the SPPI test and is performed at an instrument level. Financial assets with cash flows that are not SPPI are classified and measured at fair value through profit or loss, irrespective of the business model

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3. Significant accounting policies continued

Impairment of financial assets

The Group recognises an allowance for expected credit losses (ECLs) for all debt instruments not held at fair value through profit or loss.

ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the Group expects to receive, discounted at an approximation of the original effective interest rate. The expected cash flows will include cash flows from the sale of collateral held or other credit enhancements that are integral to the contractual terms.

ECLs are recognised in two stages. For credit exposures for which there has not been a significant increase in credit risk since initial recognition, ECLs are provided for credit losses that result from default events that are possible within the next 12 months (a 12-month ECL). For those credit exposures for which there has been a significant increase in credit risk since initial recognition, a loss allowance is required for credit losses expected over the remaining life of the exposure, irrespective of the timing of the default (a lifetime ECL). Trade receivables and contract assets are recognised using a lifetime ECL approach.

For financial assets carried at amortised cost, the amount of the impairment is the difference between the asset's carrying amount and the present value of the estimated future cash flows, discounted at the financial asset's original effective interest rate.

Derecognition of financial assets

The Group derecognises a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. If the Group neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Group recognises its retained interest in the asset and an associated liability for amounts it may have to pay. If the Group retains substantially all the risks and rewards of ownership of a transferred financial asset, the Group continues to recognise the financial asset and also recognises a collateralised borrowing for the proceeds received.

The decision as to whether a transfer qualifies for derecognition is made by applying a combination of risks and rewards and control tests. The risks and rewards tests seek to establish whether, having transferred a financial asset, the entity continues to be exposed to the risks of ownership of that asset and/or continues to enjoy the benefits that it generates. The control tests are designed with a view to understanding which entity controls the asset (i.e. which entity can direct how the benefits of that asset are realised).

Inherent in the IFRS 9 derecognition model is the notion of 'stickiness', i.e. it is more difficult to remove an asset from an entity's statement of financial position than it is to recognise that asset in the first place. Derecognition cannot be achieved by merely transferring the legal title to a financial asset to another party. The substance of the arrangement must be assessed in order to determine whether an entity has transferred the economic exposure associated with the rights inherent in the asset (i.e. its risks and rewards) and, in some cases, control of those rights. On derecognition of a financial asset, the difference between the asset's carrying amount and the sum of the consideration received and receivable and the cumulative gain or loss that had been recognised in other comprehensive income and accumulated in equity is recognised in profit or loss.

Financial liabilities and equity

Debt and equity instruments are classified as either financial liabilities or as equity in accordance with the substance of the contractual arrangement.

Financial liabilities

All financial liabilities are measured subsequently at amortised cost using the effective interest method or at fair value through profit or loss (FVTPL).

Financial liabilities are classified at FVTPL when the financial liability is (i) contingent consideration of an acquirer in a business combination, (ii) held for trading or (iii) it is designated as at FVTPL.

The effective interest method is a method of calculating the amortised cost of a financial liability and of allocating interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments (including all fees and points paid or received that form an integral part of the effective interest rate, transaction costs and other premiums or discounts) through the expected life of the financial liability, or (where appropriate) a shorter period, to the amortised cost of a financial liability.

Derecognition of financial liabilities

The Group derecognises financial liabilities when, and only when, the Group's obligations are discharged, cancelled or have expired. The difference between the carrying amount of the financial liability derecognised and the consideration paid and payable is recognised in profit and loss.

Cash and cash equivalents

Cash and cash equivalents comprise cash on hand and demand deposits and other short-term highly liquid investments that are readily convertible to a known amount of cash with an original maturity of three months or less and are subject to an insignificant risk of changes in value.

Treasury deposits

Treasury deposits comprise demand deposits that are convertible to a known amount of cash with an original maturity of between three months and 12 months and are subject to an insignificant risk of changes in value.

Interest-bearing loans and borrowings

Interest-bearing loans and bank overdrafts are measured initially at fair value, net of direct issue costs. Finance charges, including premiums payable on settlement or redemption and direct issue costs, are accounted for on an accrual basis in the income statement using the effective interest rate method and are added to the carrying amount of the instrument to the extent that they are not settled in the period in which they arise.

The Group has entered into an invoice discounting arrangement. See note 22.

3. Significant accounting policies continued

Provisions

Provisions are recognised when the Group has a present obligation as a result of a past event and it is probable that the Group will be required to settle that obligation. Provisions are measured at the Directors' best estimate of the expenditure required to settle the obligation at the date of the statement of financial position and are discounted where the effect of the time value of money is material.

A restructuring provision is recognised when the Group has developed a detailed formal plan for the restructuring and has raised a valid expectation in those affected that it will carry out the restructuring by starting to implement the plan or announcing its main features to those affected by it, and the plan has reached a stage where the decision is unlikely to be reversed. The measurement of a restructuring provision includes only the direct expenditures arising from the restructuring, which are those amounts that are both necessarily entailed by the restructuring and not associated with the ongoing activities of the entity.

Provisions for the expected cost of warranty obligations under contracts with customers and local sale of goods legislation are recognised in the month of sale of the relevant products, at the Directors' best estimate of the expenditure required to settle the Group's obligation. Provisions for leased property dilapidation are recognised at the commencement of the lease using the Group's best estimate to settle the obligation at the end of the lease term.

Share-based payments

The Group issues equity-settled share-based payments to certain employees. These payments are measured at fair value (excluding the effect of non-market based vesting conditions) at the date of grant. The fair value determined at the grant date of the equity-settled share-based payments is expensed on a straight-line basis over the vesting period, based on the Group's estimate of the shares that will eventually vest based on the satisfaction of non-market based vesting and service conditions.

The fair value of options issued under the Group's Long-Term Incentive Plan is measured using a stochastic (Monte Carlo binomial) model for grants made with market based vesting conditions. The fair value of all other equity-settled share-based payments is measured using the Black-Scholes pricing model. The expected life used in these models has been adjusted, based on management's best estimate, for the effects of non-transferability, exercise restrictions and behavioural considerations.

SAYE share options granted to employees are treated as cancelled when employees cease to contribute to the scheme. This results in accelerated recognition of the expenses that would have arisen over the remainder of the original vesting period.

Own shares

Own shares are deducted from equity. No gain or loss is recognised in the income statement on the purchase, sale, issue or cancellation of the Group's own shares

Non-current assets (or disposal groups) held for sale

Non-current assets (or disposal groups) are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use and a sale is considered highly probable. They are measured at the lower of their carrying amount and fair value less costs to sell, except for assets such as deferred tax assets, assets arising from employee benefits, financial assets and investment property that are carried at fair value and contractual rights under insurance contracts, which are specifically exempt from this requirement.

Non-current asset (or disposal group) is classified as held for sale only when two conditions are met:

- the asset (or disposal group) is available for immediate sale in its present condition subject only to terms that are usual and customary for sales of such assets (or disposal groups);
- and its sale is highly probable

Discontinued operations

A discontinued operation is a component of the Group that has been disposed of and that represents a separate major line of business and is part of a single co-ordinated plan to dispose of such a line of business. The results of discontinued operations are presented separately in the income statement and are shown not of tax

Where an operation is classified as discontinued, the post-tax results of that operation will be presented as a single line item on the face of the income statement and the cash flows from the discontinued operations are shown in the discontinued operations note 11.

New and amended standards and interpretations

The Group adopted the following amendments to standards and interpretations, which are effective for the first time this year:

- Annual improvements to IFRS standards 2018–2020
- Amendment to IFRS 3 Business Combinations
- Amendments to IAS 37 Provisions, Contingent Liabilities and Contingent Assets
- Amendments to IAS 16 Property, Plant and Equipment

The amendments have not had a material impact on the reported results.

International Accounting Standards in issue but not yet effective

The Group intends to adopt new and amended standards and interpretations, if applicable, when they become effective. The amended standards and interpretations that are issued, but not yet effective, up to the date of issuance of the Group's financial statements are not expected to have an impact on the Group's reported financial position or performance.

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4. Reconciliation of adjusted financial measures

	Note	2022 £'000	2021 €'000
Profit before tax from continuing operations		824	994
Share-based payment charges	9	1,748	758
Exchange differences on intra-group transactions		(811)	95
Gain on derivative financial liabilities	22	-	(2,919)
Restructuring and transaction expenses		450	1,404
Research and development expenditure credit		(379)	(270)
Fair value gain on financial assets at fair value through profit or loss	22	8	(987)
Amortisation of acquired intangible assets	16	982	354
Adjusted profit/(loss) before tax from continuing operations		2,822	(571)
Interest income	10	(38)	[4]
Finance costs		453	242
Depreciation of property, plant and equipment	17	2,654	3,318
Amortisation of intangible assets (other than acquired intangibles)	16	85	121
Loss on asset disposal		80	77
Impairment of assets	17	147	_
Adjusted EBITDA from continuing operations		6,203	3,183

EBITDA is calculated as statutory operating profit before depreciation (other than that arising from IFRS 16 accounting), amortisation and impairment of property, plant and equipment, intangible assets and goodwill. Adjusted EBITDA is calculated as EBITDA excluding other adjusting items as defined.

Adjusted financial measures are alternative performance measures, which adjust for recurring and non-recurring items that management consider to have a distorting effect on the underlying results of the Group.

Share-based payment charges include the IFRS 2 charge for the period of £1,559,000 (2021: £653,000) and the debit relating to National Insurance on the outstanding potential share option gains of £189,000 (2021: £105,000).

Exchange differences relating to the United States and Swedish operations represent exchange gains or losses recorded in the consolidated income statement as a result of intra-group transactions in the United States and Sweden. These costs were included in general and administrative expenses in the consolidated income statement.

Gain on derivative financial instruments relates to gains made on call option contracts which were exercised in 2021. These amounts are included on the consolidated income statement under gain on derivative financial liabilities.

Restructuring and transaction expenses of £450,000 (2021: £1,404,000) relate to costs incurred and provisions made in relation to acquisition transactions of £194,000 (2021: £961,000) and reorganisation costs. The calculated impact of the restructuring and transaction expenses at the corporation tax rate of 19% would be £32,000 based on the expenses included that would be treated as tax deductible (2021: £52,000). The cash paid related to restructuring and investment expenses is £792,000 (2021: £992,000).

The research and development expenditure credit relates to the corporation tax relief receivable relating to qualifying research and development expenditure. This item is shown on the face of the consolidated income statement. Cash receipts of £198,000 received during the year were in relation to the Xaar RDEC claim which related to the claim for year ended 31 December 2020. In 2021 £219,000 was received in relation to the FFEI RDEC and R&D claim which related to their financial year 1 April 2020 to 31 March 2021.

The fair value loss of £8,000 (2021: £987,000 gain) on financial assets at fair value through profit and loss relates to the sale of Xaar 3D Limited. The net consideration includes contingent consideration that is valued and reported at fair value. The fair value movement is recognised in the income statement as fair value loss on financial assets at fair value through profit and loss. Further details are included in notes 11 and 22.

The amortisation of acquired intangible assets relates to the acquisition of FFEI Limited in 2021 and the acquisition of Megnajet Limited and Technomation Limited in 2022. These include software, patents and customer relationships for FFEI which are being amortised over six years and IP, brand and customer relationships for Megnajet and Technomation which are being amortised over eight to ten years. These costs were included in general and administrative expenses in the consolidated income statement.

4. Reconciliation of adjusted financial measures continued

	Note	2022 Pence per share	2021 Pence per share
Basic earnings per share from continuing operations	14	2.3p	0.9p
Share-based payment charges		2.3p	1.0p
Exchange differences on intra-group transactions		(1.1p)	0.1p
Gain on derivative financial liabilities		_	(3.8p)
Restructuring and transaction expenses		0.6p	1.8p
Research and development credit		(0.5p)	-
Fair value gain on financial assets at FVTPL		_	(1.3p)
Amortisation of acquired intangible assets		1.3p	0.5p
Tax effect of adjusting items		(0.1p)	(0.2p)
Adjusted basic earnings/(loss) per share from continuing operations	14	4.8p	(1.0p)

This reconciliation is provided to align with how the Board measures and monitors the business at an underlying level, and is a measure used in establishing remuneration.

5. Revenue

The Group derives its revenue from contracts with customers for the transfer of goods and services over time and at a point in time in the following major segments. This is consistent with the revenue information that is disclosed for each reportable segment under IFRS 8 Operating Segments

Revenue from goods and services is recognised in accordance with IFRS 15 when control has been transferred to the customer. For sale of goods and services revenue is recognised at a point in time, unless specific conditions have been satisfied allowing revenue to be recognised over a period of time as identified in the five-step process (above), e.g. where the asset produced does not have an alternative use and the Group has an enforceable right to payment for performance completed to date. An input methodology (based on estimated labour hours or costs) is used as this depicts the performance conditions when recognising revenue over time.

2022 Continuing operations	Product sales £'000	Commissions & services £'000	Licensee royalties £'000	Total £'000
Printhead	38,318	675	49	39,042
Product Print Systems	19,056	568	_	19,624
Digital Imaging	8,809	2,824	_	11,633
Ink Supply Systems	2,483	-	-	2,483
	68,666	4,067	49	72,782

2021 Continuing operations	Product sales £'000	Commissions & services £'000	Licensee royalties £'000	Total £'000
Printhead	39,186	678	240	40,104
Product Print Systems	13,487	413	-	13,900
Digital Imaging	3,773	1,477	_	5,250
	56,446	2,568	240	59,254

Product Print Systems and Digital Imaging have contracts with customers where the performance obligations are partially unsatisfied at 31 December 2022. The transaction price allocated to partially satisfied and unsatisfied performance obligations at 31 December 2022 is as set out below. The transaction price allocated to partially satisfied performance obligations has been recognised in the year while the transaction price allocated to partially unsatisfied performance obligations has not been recognised.

Continuing operations	2022 £'000	2021 €'000
Transaction price allocated to partially satisfied performance obligations Transaction price allocated to partially unsatisfied performance obligations	5,464 6,437	4,569 6,060
Total transaction price for partially completed contracts	11,901	10,629

Management expects that £6,310,000 of the partially unsatisfied performance obligations at 31 December 2022 will be recognised in 2023 with the remaining £127,000 in future periods (2021: £5,809,000 recognised in 2022, £251,000 in future periods).

During the year contract assets have increased by £181,000 from £1,319,000 in 2021 (restated) to £1,500,000 in 2022. Contract liabilities have increased by £258,000 from £3,541,000 in 2021 (restated) to £3,799,000 in 2022. Both of these movements are primarily due to the completion of Product Print Systems contracts. All contract liabilities are expected to be realised within the next year.

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5. Revenue continued

	2022 £'000	2021 €'000
At a point in time	67,318	54,685
Over time	5,464	4,569
Total revenue	72,782	59,254
	2022 £'000	2021 £'000
Within one year	6,310	5,809
In between one and five years	127	251
Total transaction price for partially completed contracts	6,437	6,060
Asset/liability table	2022 £'000	2021 £'000 Restated
Trade and other receivables	7,321	5,192
Contract assets	1,500	1,319
Contract liabilities	(3,799)	(3,541)

The contract assets represent revenue recognised in the consolidated income statement, but not yet invoiced.

6. Business and geographical segments

For management reporting purposes, the Group's operations are analysed according to the four operating segments of 'Printhead', 'Product Print Systems, 'Digital Imaging' and 'Ink Supply Systems'. These four operating segments are the basis on which the Group reports its primary segment information and on which decisions are made by the Group's Chief Executive Officer and Board of Directors, and resources allocated. Each business unit is run independently of the others and headed by a general manager. The Group's Chief Operating Decision Maker is the Chief Executive Officer. There is no aggregation of segments for disclosure purposes.

Digital Imaging was added in the second half of 2021 as a result of the acquisition of FFEI and Ink Supply Systems was added in the first half of 2022 as a result of the acquisition of Megnajet on 2 March 2022.

Segment information for continuing operations is presented below:

Year ended 31 December 2022	Printhead £'000	Product Print Systems £'000	Digital Imaging £'000	Ink Supply Systems £'000	Unallocated £'000	Consolidated £'000
Revenue						
Total segment revenue	39,042	19,624	11,633	2,483	-	72,782
Result						
Adjusted (loss)/gain from continuing operations before tax	(754)	2,756	198	622	-	2,822
Share-based payment charges	_	_	_	_	(1,748)	(1,748)
Exchange differences relating to intra-group transactions	811	_	-	-	-	811
Restructuring and transaction expenses	(429)	_	_	(21)	_	(450)
Gain on derivative financial liabilities	_	_	_	_	_	-
Research and development expenditure credit	83	_	296	_	-	379
Fair value gain on financial assets at FVTPL	(8)	-	-	_	-	(8)
Amortisation of acquired intangible assets	-	-	(775)	(207)	-	(982)
Profit/(loss) before tax from continuing operations	(297)	2,756	(281)	394	(1,748)	824

Unallocated corporate expense relates to administrative activities which cannot be directly attributed to any of the principal product groups, consisting of share-based payment charges include the IFRS 2 charge for the year and the charge relating to National Insurance on the outstanding potential share options.

6. Business and geographical segments continued

Year ended 31 December 2021	Printhead £'000	Product Print Systems £'000	Digital Imaging £'000	Ink Supply Systems £'000	Unallocated £'000	Consolidated £'000
Revenue						
Total segment revenue	40,104	13,900	5,250	-	-	59,254
Result						
Adjusted (loss)/gain from continuing operations before tax	(526)	(766)	721	-	-	(571)
Share-based payment charges	-	-	-	-	(758)	(758)
Exchange differences relating to intra-group transactions	(95)	-	-	-	-	(95)
Restructuring and transaction expenses	(1,288)	(116)	-	-	-	(1,404)
Gain on derivative financial liabilities	2,919	_	-	-	_	2,919
Research and development expenditure credit	227	-	43	-	-	270
Fair value gain on financial assets at FVTPL	987	-	-	-	-	987
Amortisation of acquired intangible assets	-	_	(354)	-	_	(354)
Profit/(loss) before tax from continuing operations	2,224	(882)	410	_	(758)	994

In addition to the external revenue reported by operating segments, the Printhead segment made £1,399,000 (2021: £1,092,000) of intercompany sales, the Product Print Systems segment made nil (2021: £312,000) of intercompany sales and the Ink Supply Systems segment made £538,000 (2021: nil) of intercompany sales.

Segment assets - Continuing operations

	2022 £'000	2021 £'000
Printhead	67,089	73,247
Product Print Systems	16,920	16,793
Digital Imaging	15,035	13,900
Ink Supply Systems	3,397	-
Total assets	102,441	103,940

Assets are allocated to the segment which has responsibility for their control.

No information is provided for segment liabilities as this measure is not provided to the Chief Operating Decision Maker.

Other segment information - Continuing operations

Year ended 31 December 2022	Notes	Printhead £'000	Product Print Systems £'000	Digital Imaging £'000	Ink Supply Systems £'000	Unallocated £'000	Consolidated £'000
Depreciation and amortisation	8	3,265	244	1,260	23	-	4,792
Impairment of PPE		147	_	-	-	-	147
Share-based payment charges	9	-	_	-	-	1,748	1,748
Capital expenditure (PPE)	17	1,639	231	673	119	-	2,662

Year ended 31 December 2021	Notes	Printhead £'000	Product Print Systems £'000	Digital Imaging £'000	Unallocated £'000	Consolidated £'000
Depreciation and amortisation	8	3,844	290	530	-	4,664
Impairment of PPE		_	_	-	-	_
Share-based payment charges	9	_	_	-	758	758
Capital expenditure (PPE)	17	2,153	160	127	-	2,440

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6. Business and geographical segments continued

Revenues from major products and services - Continuing operations

	2022 £'000	2021 £'000
Printhead	39,042	40,104
Product Print Systems	19,624	13,900
Digital Imaging	11,633	5,250
Ink Supply Systems	2,483	-
Consolidated revenue (excluding investment income)	72,782	59,254

Geographical information

The Group operates in three principal geographical areas: EMEA, the Americas and Asia. The Group's revenue from external customers and information about its segments (non-current assets excluding deferred tax assets and other financial assets) by geographical location are detailed below:

	Continuing operations		
	2022 £'000	2021 £'000	
EMEA	28,418	23,730	
Asia			
- China	6,748	10,562	
– Japan	396	575	
- Other	1,045	828	
The Americas (predominantly USA)	36,175	23,559	
	72,782	59,254	

Revenue from external customers

Revenues are attributed to geographical areas on the basis of the customer's operating location.

Revenue attributed to the UK was £2,680,000 (2021: £3,733,000).

		Non-current assets
	2022 £'000	2021 €'000
EMEA	31,353	27,784
Asia	213	90
The Americas (predominantly USA)	8,450	7,657
	40,016	35,531

Non-current assets being Goodwill, Other intangible assets, Property, plant and equipment and Right-of-use assets as these are attributed to the location where they are situated.

Information about major customers

There are no customers whose revenue exceeds 10% of total revenues from continuing operations during the current and preceding year.

Revenue from the top five customers represents 29% of revenues (2021: 28%).

7. Other income

The only other income is government grants. The accounting policy in relation to the adopted and applicable treatment of government grants is disclosed in note 3, in accordance with IAS 20 Accounting for Government Grants and Disclosure of Government Assistance.

During the year FFEI received a grant of £139,276 from the UKRI Future Leaders Fellowships scheme. The purpose of this grant is to increase throughput, quality and validity of imaging data for Biomedical AI. The full £139,276 was recognised and received in the year.

Xaar plc and its UK based subsidiaries decided not to take part in any of the government support schemes arising from the COVID-19 crisis in current, prior nor preceding years.

8. Profit/(loss) for the year

Profit for continuing operations in the year has been arrived at after charging/(crediting):

	2022 £'000	2021 €'000
Research and development expenses*	6,718	5,706
Grants towards research and development including the research and development expenditure credit	(379)	(227)
Depreciation of property, plant and equipment	2,654	3,318
Depreciation of right-of-use asset	1,071	871
Amortisation of capitalised development costs (included in research and development expenses)	-	77
Amortisation of other intangible assets (included in general and administrative expenses)	1,067	398
Loss on disposal of property, plant and equipment	80	77
Cost of inventories recognised as expense	42,184	36,227
Impairment (losses)/gains on financial assets	46	(388)
Net gain on foreign exchange	(1,152)	(158)
Total fees payable to the Company's auditor and its associates	779	651

^{*} Total spend on research and development in 2022, including capitalised and amortised development costs included in note 16, was £8,375,000 [2021: £5,706,000].

Auditor's remuneration

	2022 £'000	2021 €'000
Fees payable to the Company's auditor		
– Group and Company audit	695	493
- Prior year overrun	-	120
Total audit fees	695	613
- Interim review	84	38
Total non-audit fees	84	38
Total fees payable for the continuing operations	779	651
Total audit fees payable for the discontinued operations	-	38
Total fees payable to the Company's auditor and its associates	779	689

The Audit Committee has considered the independence of the auditor in relation to non-audit services throughout the year. A description of the work of the Audit Committee is set out in the Corporate Governance statement on pages 73 to 78 and includes an explanation of how auditor's objectivity and independence is safeguarded when non-audit services are provided by the auditor.

9. Staff costs

The average monthly number of persons employed by the Group including Executive Directors was as follows:

	2022 Number	2021 Number
Research and development	85	86
Sales and marketing	49	46
Manufacturing and engineering	235	222
Administration	66	53
	435	407

Their aggregate remuneration comprised:

Notes	2022 £'000	2021 €'000
Wages and salaries	22,560	20,958
Social security costs	2,400	2,014
Pension costs 32	1,303	930
Share-based payments	1,748	758
	28,011	24,660

Share-based payment charges comprise the IFRS 2 charge for the year £1,559,000 (2021: £653,000) and a charge relating to National Insurance on the outstanding potential share option gains £189,000 (2021: £105,000).

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10. Interest receivable & payable

Investment income

	Group	2022	Group	2021
	£'000	Total £'000	£'000	Total £'000
Interest receivable on cash and bank balances, and treasury deposits	38	38	4	4

There was no accrued interest receivable at year end (2021: £1,000). Cash interest received at year end was £39,000 (2021: £13,000).

Finance Costs

	Notes	2022 £'000	2021 €'000
Interest on invoice securitisation/discounting	22	33	-
Interest on leases	18	242	144
Other interest costs		178	98
		453	242

Interest on invoice securitisation/discounting is charged daily on amounts drawn at a rate equivalent to the appropriate base rate + 1.75% p.a.

Interest on leases is calculated at an effective interest rate depending upon the initial gross valuation of the lease and discounted repayment terms to calculate an Internal Rate of Return (IRR) required to achieve a nil value at the end of the lease term. Each lease is considered in isolation, a range of discount rates and interest rates are applicable between 2.0% and 4.0%.

11. Discontinued operations

The Thin Film business which was discontinued in 2019 incurred costs in 2021 and 2022 which mainly related to supplier and customer liabilities and inventory for last time buy sales. All liabilities have now been settled and we maintain an amount of inventory that is fully provided and not likely to be sold.

During the year ended 31 December 2021, the Xaar 3D business completed its divestment. Xaar received net cash of £9,272,000 and as specified in the sale agreement, additional cash consideration of up to \$21,250,000. At the time of sale, the fair value of the consideration was determined to be £10,863,000. It was recognised as a financial asset at fair value through profit or loss. Further detail is disclosed in note 36.

During the year, Xaar received earn-out income amounting to €289,000 (£236,000). At year end, the fair value was re-estimated to be £11,606,000 (2021: £11,850,000). The loss of £8,000 (2021: £987,000 gain) is presented in the income statement as fair value gain on financial assets at fair value through profit or loss. The results of Xaar 3D business for the period ended 1 November 2021 are included in the discontinued operations in the income statement for the year ended 31 December 2021.

The results of Thin Film and 3D related activities for the year are shown below:

	Thin Film 2022 €'000	3D 2022 €'000	Total 2022 £'000	Thin Film 2021 £'000	3D 2021 £'000	Total 2021 €'000
Revenue Expenses	- (159)	-	- (159)	384 (623)	2,918 (7,075)	3,302 (7,698)
Loss before income tax Income tax credit	(159) -	-	(159) -	(239)	(4,157) 30	(4,396) 30
Net loss before gain on sale	(159)	-	(159)	(239)	[4,127]	[4,366]
Gain on sale of investment in subsidiary	-	-	-	-	17,899	17,899
(Loss)/profit after income tax from discontinued operations	(159)	-	(159)	(239)	13,772	13,533

The 2021 gain on sale of investment in subsidiary was not subject to income tax because it falls under the Substantial Shareholding Exemptions (SSE) Rule.

11. Discontinued operations continued

The 2021 £7,075,000 expenses in 3D are net of £297,000 that relates to service charge received from the Group undertaking which has to be eliminated in the Group's consolidated income statement.

	Thin Film	3D	Total	Thin Film	3D	Total
	2022	2022	2022	2021	2021	2021
	£'000	€'000	£'000	£'000	£'000	€'000
Attributable to: Owners of the Company Non-controlling interest	(159)	-	(159)	(239)	15,763	15,524
	-	-	-	-	(1,991)	(1,991)
	(159)	-	(159)	(239)	13,772	13,533

The net cash flows incurred by Thin Film and 3D are as follows.

	Thin Film 2022 £'000	3D 2022 £'000	Total 2022 £'000	Thin Film 2021 €'000	3D 2021 €'000	Total 2021 £'000
Net cash (outflow)/inflow from operating activities	(150)	-	(150)	103	[1,792]	(1,689)
Net cash outflow from investing activities	-	-	-	_	(122)	[122]
Net cash outflow from financing activities	-	-	-	_	(98)	(98)
Net cash (used)/generated from discontinued operations	(150)	-	(150)	103	(2,012)	(1,909)

	2022 Pence per share	2021 Pence per share
(Loss)/earnings per share		
(Loss)/earnings for the year from discontinued operations Diluted (loss)/earnings for the year from discontinued operations	(0.2p) (0.2p)	20.0p 19.7p

The sale of the Xaar 3D business is summarised below. The total consideration received includes the initial cash consideration and contingent consideration less transaction costs that are directly attributable to the sale. The carrying amount of the net assets sold represents 55% of the Xaar shareholding to 3D adjusted by an intra-company markup that relates to inventory.

	2021 €'000
Consideration received or receivable:	
Cash	9,272
Fair value of contingent consideration	10,863
Less: Transaction costs	(246)
Total disposal consideration	19,889
Carrying amount of net assets sold	(1,990)
Gain on sale of investment in subsidiary	17,899

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12. Tax

Total tax calculation:

Note	2022 £'000	2021 £'000
Current tax – UK	(269) 87	100 15
Current tax – overseas Amounts under provided in previous years	(182)	115
Total current income tax (credit)/charge	(86)	186
Deferred tax – origination and reversal Adjustment in respect of prior years	(881)	45 38
Total deferred tax credit	(881)	83
Total tax (credit)/charge for the year	(967)	269

The rate of tax for the year, based on the UK standard rate of corporation tax, is 19% (2021: 19%). Taxation for other jurisdictions is calculated at the rates prevailing in the respective jurisdictions.

The Finance Act 2021, which was substantively enacted on 10 June 2021, amended the main rate of corporation tax to 25% from 1 April 2023. As deferred tax assets and liabilities are measured at the rates that are expected to apply in the periods of the reversal, deferred tax balances at 31 December 2022 have been calculated at the rate at which the relevant balance is expected to be recovered or settled.

The cash flow statement shows repayments of tax for £113,000 during the year (2021: £150,000). The £113,000 is broken down as £199,000 for the RDEC claim received and £86,000 net income taxes paid (primarily in the US).

In the year ending 31 December 2022, the eligible UK companies in the Group are claiming R&D tax relief and RDEC for paid for development.

The closing deferred tax asset at 31 December 2022 is entirely related to the USA tax losses and has been calculated using the US tax rates at which the deferred tax asset is expected to be reversed in future periods. Details on deferred tax assets and liabilities are disclosed in note 23.

The charge for the year can be reconciled to the profit per the income statement as follows:

Notes	2022 €′000	2021 £'000
Profit before tax from continuing activities	824	994
(Loss)/profit before tax from discontinued activities	(159)	13,503
Profit before income tax	665	14,497
Tax on ordinary activities at standard UK rate of 19% (2021: 19%)	126	2,754
Effect of:		
Expenses not deductible for tax purposes	878	398
(Non-taxable) income	(1,521)	(4,021)
R&D SME credit	(285)	(171)
Effect of different tax rates of subsidiaries operating overseas	6	(135)
Effect of change in UK corporation tax rate on deferred tax	3	_
Current year losses not recognised	541	1,195
Previously unrecognised amounts now recognised	(1,060)	_
Derecognition of previously recognised deferred tax balances	-	141
Prior year adjustments	82	108
Losses surrendered for tax credit	374	-
Foreign exchange on translation of balances	(111)	-
Total tax (credit)/expense for the year	(967)	269
Income tax (credit)/expense reported in the statement of profit and loss	(967)	299
Income tax credit attributable to discontinued operations	-	(30)
	(967)	269

 $The \ expenses \ not \ deductible \ for \ tax \ purposes \ mainly \ relate \ to \ depreciation \ on \ non-qualifying \ assets, \ R\&D \ SME \ expenditure \ and \ share-based \ payments.$

The effective tax rate for the year is -145.4%. Without recognising the previously unrecognised US tax losses, this would have been 14.0% (2021: 1.9%).

13. Dividends

No interim or final dividend was proposed or paid during the current and preceding year.

14. Earnings per share - basic and diluted

The calculation of basic and diluted earnings per share is based on the following data:

	2022 £'000	2021 £'000
Earnings		
Earnings for the purposes of basic earnings per share being net profit/(loss) attributable to equity holders of the parent	1,632	16,219
from continuing operations from discontinued operations	1,791 (159)	695 15,524
Number of shares Weighted average number of ordinary shares for the purposes of basic earnings per share Effect of dilutive potential ordinary shares:	77,549,264	77,528,064
Share options	4,085,096	1,261,215
Weighted average number of ordinary shares for the purposes of diluted earnings per share	81,634,360	78,789,279
	2022 Pence per share	2021 Pence per share
Basic Diluted	2.1p 2.0p	20.9p 20.6p
Continuing operations:		
Basic Diluted	2.3p 2.2p	0.9p 0.9p
Discontinued operations:		

Potential ordinary shares are treated as dilutive if their conversion to ordinary shares would decrease earnings per share or increase loss per share.

The weighted average number of ordinary shares for the purposes of basic earnings per share is calculated after the exclusion of ordinary shares in Xaar plc held by Xaar Trustee Ltd, the Xaar plc ESOP Trust and the matching shares held in trust for the Share Incentive Plan.

For 2022, there were share options granted over 276,547 shares that had not been included in the diluted earnings per share calculation because they were anti-dilutive at the year end (2021: 107,490 shares that would not have been included).

The performance conditions for LTIP awards over 172,492 shares (2021: 1,510,685 shares) have not been met in the current financial period or are not expected to be met in future financial periods, and therefore the dilutive effect of those shares has not been included in the diluted earnings per share calculation.

Adjusted earnings per share

Basic

Diluted

This adjusted earnings per share information is considered to provide a fairer representation of the Group's trading performance year-on-year, as it removes items which, in the Board's opinion, do not reflect the underlying performance of the Group and is a measure used in establishing

The calculation of adjusted EPS, excluding the items listed below, is based on the loss on continuing operations of:

	2022 £'000	2021 €'000
Earnings/(loss) on continuing operations for the purposes of basic earnings per share being net profit/(loss) attributable to equity holders of the parent	1,791	695
Shared-based payment charges	1,748	758
Exchange difference relating to intra-group transactions	(811)	95
Gain on derivative financial instruments	_	(2,919)
Restructuring and transaction expenses	450	1,404
Research and development credit	(379)	_
Fair value gain on financial assets at FVTPL	8	(987)
Amortisation of acquired intangible assets	982	354
Tax effect of adjusting items	(100)	(179)
Adjusted profit/(loss) after tax – continuing operations	3,689	(779)

Tax effect of adjusting items is calculated at current corporation tax rate (19%) less any disallowed tax items.

(0.2p)

(0.2p)

20.0p

19.7p

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14. Earnings per share - basic and diluted continued

Adjusted earnings per share continued

The tax credit effect in the adjusted basic earnings per share reflects the fact that the FV gain/loss on financial assets at FVTPL and transaction costs were non-deductible. R&D tax credits are not taxable. In addition, deferred tax assets are largely unrecognised in respect of share-based payments.

The denominators used are the same as those detailed above for both basic and diluted earnings per share.

Adjusted earnings per share on continuing operations is earnings per share excluding the items adjusted for as detailed above:

	2022 Pence per share	2021 Pence per share
Adjusted basic Adjusted diluted	4.8p 4.5p	(1.0p) (1.0p)

15. Goodwill

The carrying amount of goodwill at 31 December 2022 was £7,163,000 (2021: £5,894,000).

Goodwill acquired in a business combination is allocated, at acquisition, to the cash-generating units (CGUs) that are expected to benefit from that business combination. Goodwill occurred from the acquisition of Engineered Print Solutions (EPS) in July 2016, FFEI Limited in July 2021 and Megnajet Limited in March 2022.

	2022 £'000	2021 €'000
Balance at the beginning of the year	5,894	5,152
Addition – acquisition of Megnajet Limited (2021: FFEI Limited)	661	689
Foreign currency translation	608	53
Balance at the end of the year	7,163	5,894

As part of the reportable segments, goodwill amounting to £5,813,000 is attributed to Product Print Systems (2021: £5,205,000), £689,000 to Digital Imaging (2021: £689,000) and £661,000 to Ink Delivery Systems (2021: nil). These are all single CGUs.

The Group tests goodwill annually for impairment or more frequently if there are indications that goodwill might be impaired. Having performed impairment testing, no impairment has been identified and therefore no impairment loss has been recognised during the current and preceding year.

The goodwill balance has been tested for annual impairment on the following basis:

- the carrying value of goodwill has been assessed by reference to value in use, which has been estimated using cash flow forecasts. The basis of these forecasts is the Board approved budget for the next year and management reviewed three-year plans, which have been extrapolated to a five-year view for each CGU, taking into consideration any expected inflationary pressures. Margins are broadly consistent with historic performance and revenues assumed take into account past experience and are reflective of a conservative view of Xaar's core strategy;
- discount rates range between 18.2 % and 14.5%, reflecting third party specialist advice, and have been determined by taking into account geographies, size of business and industry risk factors;
- long-term growth rates of 1% (2021: 1%) for UK based CGUs and 1.4% (2021: 1.4%) for those in the US (being Product Print Systems only) were used based on OECD growth rate.

The outcomes of the impairment assessments conducted are dependent on estimates which have been subject to sensitivity analyses before a conclusion on impairment was made. It is management's view that the key assumptions are revenue growth, gross margin % and discount rate. Any reasonably possible change to these sensitivities that could result in an impairment charge have been disclosed below:

Engineered Print Solutions (Product Print Systems) goodwill impairment review

Using a discount rate of 14.5% (2021: 13.7%) the recoverable amount calculated exceeds the carrying value of the CGU by \$12.1 million (£10.1 million, 2021: £10.0 million). The carrying amount of goodwill would exceed its recoverable amount, when compared to the risk adjusted cash flows, if:

- forecast compound annual revenue growth over the five-year period were to decline from a forecast of 3.9% to 0.3%, representing a movement in revenue from \$24.2 million in 2022 to \$24.6 million in 2027, assuming no mitigating actions were taken.
- there was a reduction in assumed direct gross margin from 39% to 34%.

Digital Imaging goodwill impairment review

Using a discount rate of 18.2% (June 2022: 11.4%) the recoverable amount calculated exceeds the carrying value of the CGU by £5.1 million (£7.2 million, June 2022). No reasonably possible changes to assumptions that could result in an impairment charge have been identified.

Ink Delivery Systems goodwill impairment review

• Using a discount rate of 15.6% the recoverable amount calculated exceeds the carrying value of the CGU by £4.1 million. No reasonably possible changes to assumptions that could result in an impairment have been identified.

16. Other intangible assets

	Capitalised development costs £'000	Licences acquired £'000	Software £'000	Technology- based intangible asset £'000	Brands £'000	Customer relationships £'000	Total £'000
Cost							
At 1 January 2021	38,687	532	3,437	-	-	-	42,656
Additions	-	_	124	3,044	-	1,204	4,372
Transfers	-	_	(80)	_	-	-	(80)
Exchange movements	-	-	2	_	-	_	2
At 1 January 2022	38,687	532	3,483	3,044	-	1,204	46,950
Additions	1,657	1,100	33	-	-		2,790
Acquisitions	=	-	-	1,990	281	422	2,693
Transfers	222	-	-	-	-	-	222
Exchange movements	-	_	12	-	-	-	12
Disposals			[14]	_	_	_	[14]
At 31 December 2022	40,566	1,632	3,514	5,034	281	1,626	52,653
Amortisation							
At 1 January 2021	38,611	532	3,306	-	-	-	42,449
Charge for the year	77	_	44	254	-	100	475
Transfers	(1)	_	(16)	_	-	_	(17)
At 1 January 2022	38,687	532	3,334	254	-	100	42,907
Charge for the year	=	38	46	715	23	245	1,067
Exchange movements	-	_	12	_	-	-	12
Disposals	_	_	[14]	_	_	_	[14]
At 31 December 2022	38,687	570	3,378	969	23	345	43,972
Carrying amount:							
At 31 December 2022	1,879	1,062	136	4,065	258	1,281	8,681
At 31 December 2021	=	-	149	2,790	-	1,104	4,043

In 2022, Xaar acquired additional intangible assets in relation to the acquisition of Megnajet Limited.

Further details on the acquisition are in note 36.

Development costs of £1,657,000 were capitalised during the year. These were externally generated costs relating to the development of a new generation printhead platform. These assets were in the course of construction at the reporting date and consequently not amortised during the year. On completion, it is anticipated that these assets will have a useful economic life of up to 20 years.

The licences acquired during the year of £1,100,000 are being amortised over a period of between 13 and 15 years.

Amortisation periods are in line with the accounting policy in note 3.

Amortisation is recorded in administrative expenses of the consolidated accounts.

At 31 December 2022 the Group had entered into contractual commitments of £358,000 (2021: nil) for the acquisition of intangible assets.

All intangible assets are tested annually for impairment. The assessment of the intangibles in Megnajet, EPS and FFEI was determined using a discounted cash flow model and no impairment was identified.

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17. Property, plant and equipment

	Land and buildings £°000	Leasehold property £'000	Plant and machinery £'000	Furniture, fittings and equipment £'000	Total £'000
Cost					
At 1 January 2021	1,811	13,520	66.881	3,992	86,204
Additions	31	693	1,259	457	2,440
Acquisitions	_	7	14	71	92
Transfers	65	(35)	1,095	(64)	1,061
Exchange movements	19	-	15	6	40
Disposals		(505)	(1,012)	(15)	(1,532)
At 1 January 2022	1,926	13,680	68,252	4,447	88,305
Additions	14	217	1,506	925	2,662
Acquisitions	-	1	50	2	53
Transfers	-	-	(222)	-	(222)
Exchange movements	225	4	286	73	588
Disposals		_	(931)	(255)	(1,186)
At 31 December 2022	2,165	13,902	68,941	5,192	90,200
Depreciation					
At 1 January 2021	388	8,785	56,395	3,489	69,057
Charge for the year	24	584	2,522	188	3,318
Transfers	39	(54)	1,081	(90)	976
Exchange movements	4	-	2	5	11
Disposals	_	(353)	(915)	(15)	(1,283)
At 1 January 2022	455	8,962	59,085	3,577	72,079
Charge for the year	61	586	1,614	393	2,654
Transfers	_	-	_	-	-
Exchange movements	48	1	201	53	303
Disposals	_	_	(833)	(254)	(1,087)
Impairment	-	-	147	_	147
At 31 December 2022	564	9,549	60,214	3,769	74,096
Carrying amount					
At 31 December 2022	1,601	4,353	8,727	1,423	16,104
At 31 December 2021	1,471	4,718	9,167	870	16,226

The impairment during the year is £147,000 (2021: nil). The impairment relates to Printhead machinery no longer in use.

Included within the plant and machinery assets is £651,000 assets in the course of construction (2021: £283,000).

As at 31 December 2022 the Group had entered into contractual commitments for the acquisition of property, plant and equipment amounting to £923,000 (2021: £1,330,000).

18. Leases

The Group has lease contracts for various items of buildings, equipment and vehicles used in its operations. The Group's obligations under its leases are secured by the lessor's title to the leased assets. Generally, the Group is restricted from assigning and subleasing the leased assets.

The Group also has certain leases of machinery with lease terms of 12 months or less and leases of office equipment with low value. The Group applies the 'short-term lease' and 'lease of low-value assets' recognition exemptions for these leases.

Set out below are the carrying amounts of right-of-use assets recognised and the movements during the year:

	Buildings £'000	Equipment £'000	Vehicles £'000	Total £'000
Cost				
At 1 January 2021	11,122	84	_	11,206
Additions (restated)	4,534	11	-	4,545
Acquisitions	3,057	16	-	3,073
Disposals	(6,341)	(14)	-	(6,355)
Exchange movements	4	-	-	4
At 31 December 2021 (restated)	12,376	97	_	12,473
Additions	246	28	24	298
Exchange movements	17	_	_	17
At 31 December 2022	12,639	125	24	12,788
Depreciation				
At 1 January 2021	9,078	50	_	9,128
Charge for the year	853	18	-	871
Disposals	(6,341)	[14]	-	(6,355)
Exchange movements	-	_	_	-
At 31 December 2021	3,590	54	_	3,644
Charge for the year	1,046	21	4	1,071
Disposals	(14)	-	-	[14]
Exchange movements	19		-	19
At 31 December 2022	4,641	7 5	4	4,720
Carrying amount				
At 31 December 2022	7,998	50	20	8,068
At 31 December 2021 (restated)	8,786	43	-	8,829

Please refer to note 37 for prior year restatement.

Of the £4,545,000 additions in the prior year, £2,733,000 represented the lease renewal of the Huntingdon main site.

Set out below are the carrying amounts of lease liabilities (included under current and non-current liabilities on the statement of financial position) and the movements during the period:

	2022 €'000	Restated 2021 £'000
At 1 January	9,191	2,579
Additions (2021 restated)	323	7,195
Accretion of interest	242	144
Payments	(914)	(726)
Exchange movement	(10)	(1)
At 31 December (2021 restated)	8,832	9,191
Current	1,032	692
Non-current	7,800	8,499
	8,832	9,191

Please refer to note 37 for prior year restatement.

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18. Leases continued

The table below summarises the maturity profile of the Group's lease liabilities based upon the contractual undiscounted payments as at 31 December 2022.

	2022 £'000	2021 £'000
On demand	_	_
Less than three months	291	196
Four to 12 months	872	759
One to five years	5,057	5,047
More than five years	3,620	4,538
	9,840	10,540
The following are the amounts recognised in profit or loss:	'	
	2022 £'000	2021 €'000
Depreciation expense of right-of-use assets	1,071	871
Interest expense on lease liabilities	242	144
Expense relating to short-term leases (included in administrative expenses)	59	375
Total amount recognised in profit or loss	1,372	1,390

Interest expense on lease liabilities consists of £242,000 (2021: £144,000) reported under continuing operations and nil in 2022 (2021: £9,000) relating to Xaar 3D business reported under discontinued operations.

Cash outflows in respect of right-of-use assets consisted of £914,000 (2021: £726,000) financing and £59,000 (2021: £375,000) operating cash flows.

19. Subsidiaries

A list of the investments in subsidiaries, including the name, country of incorporation and proportion of ownership interest, is given in note 11 to the Company's separate financial statements.

20. Inventories

	2022 £'000	2021 £'000
Raw materials and consumables	11,804	5,619
Work in progress	3,516	8,605
Finished goods	13,828	4,615
	29,148	18,839

The cost of inventories recognised as an expense includes a charge of £335,000 (2021: £1,189,000) in respect of inventory write-downs.

Gross stock was £37,973,000 [2021: £28,410,000] with inventory provisions of £8,826,000 [2021: £9,571,000]. The provision included £6,143,000 [2021: £6,289,000] in relation to discontinued operations, all of which are fully written down. A significant proportion of this increase in inventory is attributable to the managed investment in our supply chain capability.

There is no specific impact on the valuation of the Company's inventories arising from climate related matters. Estimates are based upon the most reliable evidence available at the time the estimates are made.

21. Other financial assets

The fair value of all financial assets and financial liabilities approximates their carrying value.

Trade and other receivables	2022 £'000	2021 €'000
Amount receivable for the sale of goods Allowance for doubtful debts	7,446 (125)	5,336 (144)
Contract assets (2021 restated) Other debtors Prepayments	7,321 1,500 1,291 1,415	5,192 1,319 2,211 1,439
	11,527	10,161
Current tax asset	735	531

21. Other financial assets continued

Trade receivables

The average credit period taken on sales of goods is 37 days (2021: 32 days). No interest is charged on the receivables for the period agreed in the Requirements Contract or, if not specified or applicable, the first 30 days from the date of the invoice. Thereafter, the Group reserves the right to charge interest at a daily rate from 1.5% to the greater of 4.0% per annum above the base rate of the Bank of England from time to time, or the maximum rate of interest allowable under the Late Payment of Commercial Debts (Interest) Act 1998, on all sums outstanding until payment in full is received. Trade receivables over 120 days are provided for based on estimated irrecoverable amounts from the sale of goods, determined by reference to past default experience.

The maximum exposure to credit risk is the carrying amount of the financial assets as disclosed in the liquidity section of note 22. Before accepting any new customer, the Group uses an external credit scoring system to assess the potential customer's credit quality and defines credit limits by customer. Credit limits are reviewed at least once per year. Of the trade receivables balance at the end of the year, seven customers each represented greater than 5% of the total receivables balance, totalling £2,857,000 (2021: £2,100,000). The total due from these customers represents 4% (2021: 4%) of the

Included in the Group's trade receivables balance are debtors with a carrying amount of £1,700,000 (2021: £1,444,000) which are past due at the reporting date for which the Group has not provided as there has not been a significant change in credit quality and the amounts are still considered

Ageing of past due but not impaired receivables:

	2022 £'000	2021 £'000
1–30 days overdue	831	885
30-60 days overdue	417	150
60-90 days overdue	398	264
90–120 days overdue	55	81
Over 120 days overdue	(1)	64
Total receivables	1,700	1,444

Movement in the allowance for doubtful debts:

	2022 £'000	2021 £'000
Balance at the beginning of the year	144	622
Impairment (reversal)/losses increased	46	(388)
Exchange difference	4	0
Amounts written off as uncollectible	(69)	(90)
Balance at the end of the year	125	144

The Group always measures the loss allowance for trade receivables at an amount equal to lifetime ECL. The expected credit losses on trade receivables are estimated using a provision matrix by reference to past default experience of the debtor and an analysis of the debtor's current financial position, adjusted for factors that are specific to the debtor, general economic conditions of the industry in which the debtor operates and an assessment of both the current as well as the forecast direction of conditions at the reporting date. The Group has recognised a loss allowance of 1% for receivables aged 60 days or less, 5% for receivables aged between 61 and 90 days and 15% for 91 and 120 days. A loss allowance of 25% is applied for receivables aged over 120 days. The loss allowance calculation excludes receivables with a specific provision. Most of the debt over 120 days has been provided in full and relates to a small number of customers where none of the debt is expected to be recovered through normal trading. A provision is made against trade receivables until such time as the Group believes the amount to be irrecoverable (such as the bankruptcy of a customer or emerging market risks, which would render the receivable irrecoverable), after which the trade receivable balance is written off.

Ageing of impaired trade receivables:

	2022 £'000	2021 £'000
Current	3	2
1–30 days overdue	1	2
30-60 days overdue	-	-
60–90 days overdue	8	-
90–120 days overdue	46	_
Over 120 days overdue	67	140
Total	125	144

The Directors have considered the sensitivity of doubtful debts and a 1% increase on the ECL percentage would equate to an additional £70,000 allowance (2021: £51,000). The Directors consider that the carrying amount of trade and other receivables approximates their fair value.

Contract assets

Contract assets consist of a small number of contracts relating to the design and production of bespoke machines or R&D services. Since there is regular contact with all those customers for project management purposes, with robust milestone payments, there is no generic risk in relation to any of those balances. The only time when expected credit loss provision would be in place is where we become aware of a risk of those customers becoming exposed to risk of bankruptcy. We were not aware of any such cases at year end so no such provision is in place.

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21. Other financial assets continued

Cash and cash equivalents

Cash and cash equivalents comprise cash held by the Group and short-term bank deposits with an original maturity of three months or less. The carrying amount of these assets approximates their fair value.

The analysis of cash and short-term bank deposits is as follows:

	2022 £'000	2021 £'000
Cash	8,546	25,051

The credit risk on liquid funds and derivative financial instruments is limited because the counterparties are banks with high credit ratings assigned by international credit-rating agencies.

Non-current assets

	2022 £'000	2021 £'000
Non-current assets	136	-

22. Financial instruments

Fair value measurements

The following table combines information about:

- · classes of financial instruments based on their nature and characteristics;
- · the carrying amounts of financial instruments;
- fair values of financial instruments (except financial instruments when carrying amount approximates their fair value); and
- fair value hierarchy levels of financial assets and financial liabilities for which fair value was disclosed.

Fair value hierarchy Levels 1 to 3 are based on the degree to which the fair value is observable:

- Level 1 fair value measurements are those derived from quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2 fair value measurements are those derived from 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 fair value measurements are those derived from valuation techniques that include inputs for the asset or liability that are not based on observable market data (unobservable inputs).

		F	inancial assets	Fina	ncial liabilities	
2022	FVTPL – designated £'000	FVTPL – mandatorily measured £'000	Amortised cost £'000	FVTPL – mandatorily measured £'000	Amortised cost £'000	Total £'000
Financial asset at FVTPL (Level 3) (note 11)	_	11,606	_	-	-	11,606
Trade and other receivables (note 21)	-	-	10,114	-	-	10,114
Cash and bank balances (note 21)	-	-	8,546	-	-	8,546
Trade and other payables (note 24)	_	-	-	-	(14,862)	(14,862)
Borrowings and invoice discounting	-	-	-	-	(379)	(379)
Lease liabilities (note 18)	-	-	-	-	(8,832)	(8,832)
Other financial liabilities due after one year (note 24)	-	-	-	-	(2,094)	(2,094)

Additional disclosure for lease liabilities is reported in note 18.

		F	inancial assets	Fina	ncial liabilities	
2021 (Restated)	FVTPL – designated £'000	FVTPL – mandatorily measured £'000	Amortised cost £'000	FVTPL – mandatorily measured £'000	Amortised cost £'000	Total £'000
Financial asset at FVTPL (note 11)	_	11,850	-	_	_	11,850
Trade and other receivables (note 21)	_	_	8,722	_	_	8,722
Cash and bank balances (note 21)	_	_	25,051	_	_	25,051
Trade and other payables (note 24)	_	_	-	_	(15,971)	(15,971)
Borrowings and invoice discounting	_	_	_	_	_	_
Lease liabilities (note 18)	_	_	_	_	(9,191)	(9,191)
Other financial liabilities due after one year (note 24)	-	-	-	_	(3,354)	(3,354)

The fair value of cash, trade and other receivables/payables and other financial liabilities is deemed to equal book value.

22. Financial instruments continued

Fair value of the Group's financial assets and financial liabilities that are measured at fair value on a recurring basis

Some of the Group's financial assets and financial liabilities are measured at fair value at the end of each reporting period. The following table gives information about how the fair values of these financial assets and financial liabilities are determined (in particular, the valuation technique(s) and inputs used).

Financial asset/financial liabilities	Valuation technique(s) and key input(s)	Significant unobservable input(s)	Relationship and sensitivity of unobservable inputs to fair value
Financial asset at fair value through profit or loss (Level 3)	Monte Carlo Simulation model. The following variables were taken into consideration: revenue projections and discount rate. The milestone consideration and 3% earn-out consideration are calculated based on the terms of the proposed transaction and by reference to simulated revenue. This is then discounted back to the valuation date using a discount rate over a period commensurate with the year in which payments are payable.	Revenue volatility (20% based on a median of comparable companies) Risk-adjusted discount rate. (10%)	10% increase/(decrease) in revenue volatility would result in £7,000 and £11,000 decreases respectively. 1% increase/(decrease) in discount rate would result in £12,000 decrease and £14,000 increase in fair value respectively.

Reconciliation of Level 3 fair value measurements of financial instruments

On 1 November 2021, the sale of Xaar 3D Limited to Stratasys was completed and Xaar received net cash of £9,272,000 and contingent consideration of £10,863,000 with a fair value of £11,850,000 as at 31 December 2021. The contingent consideration was recognised as financial asset at fair value through profit or loss. During the year, Xaar received earn-out income amounting to £236,000. The fair value of the contingent consideration as at 31 December 2022 is £11,606,000 with a fair value movement of £8,000.

	2022 £'000	2021 €'000
Balance at 1 January	11.850	_
Recognition of contingent consideration	-	10,863
Earn out received	(236)	-
Fair value (loss)/unrealised gain on financial assets at FVTPL	(8)	987
Balance at 31 December	11,606	11,850
Current asset	517	_
Non-current asset	11,089	11,850
	11,606	11,850

Financial risk management objectives

The Group's policy is to manage the Group's financial risk, secure cost effective funding for the Group's operations and to minimise the adverse effects of fluctuations in the financial markets on the value of the Group's financial assets and liabilities, on reported profitability and on the cash flows of the

The Group finances its activities with a combination of cash and treasury deposits. Other financial assets and liabilities, such as trade debtors and trade creditors, arise directly from the Group's operating activities.

Financial instruments give rise to foreign currency, interest rate, credit and liquidity risk. The Group's management of its exposure to credit risk is discussed in note 21.

The Group's exposure has been calculated with reference to these balances as at the year-end.

Short-term borrowings

Short-term borrowings include an advance against customer invoices assigned to a third party as part of an invoice discounting arrangement. At the reporting date the carrying values of the customer invoices assigned and the associated liabilities were:

Invoice discounting facility	2022 £'000	2021 €'000
Gross invoice value assigned Advance drawn	2,851 (379)	- -
Net position	2,472	-

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22. Financial instruments continued

Short-term borrowings continued

Interest on the invoice discounting facility is charged daily when the facility is in an overdrawn position at a rate equivalent to the Bank of England base rate +1.75% p.a. There is an annual service fee of £25,000 charged monthly, and a one-off arrangement fee to open the facility of £10,000. No interest is payable on the unutilised element of the facility.

The facility limit is £5 million and operates for a minimum of 12 months from inception (September 2022). The facility can be cancelled with a three month notice period. There are no covenants attached to the invoice discounting facility.

Eligible debts in GBP and USD denomination are legally assigned to the facility provider as or soon after they are raised. The facility makes available 90% of the debts to Xaar Jet Limited, subject to certain monetary funding limits and concentration percentages by customer. XaarJet Limited remain responsible for collecting the debts as the collection agent for the finance provider and the remittances are made into an account held for the benefit of the finance provider, the balance of which is held as a liability in XaarJet Limited. Receipts from debtors in full generally have the effect of increasing the available facility.

No fair value adjustments are deemed necessary for these amounts; however, the receivables are subject to an allowance for doubtful debt (see note 21).

The invoice discounting facility is secured with fixed rate charges over purchased debts and a floating charge over the assets of Xaar Jet Ltd.

It remains the entity's responsibility to appropriately insure, manage and recover the debts assigned under the terms of the arrangement, and the transferred assets are subject to recourse at any time. This means the Group retained substantially all the risks and rewards and the control over the assets, thus derecognition criteria of accounts receivable were not met.

Interest rate risk

The Group's borrowing facilities, including its invoice discounting facilities, are linked to Bank of England base rate for GBP values, and Federal Bank Base rate for USD values. An increase in these benchmarks would impact the Group's cost of borrowing which, in turn, would affect the Group's financial performance.

If interest rates had been 1% higher/reduced by 1%, and all other variables were held constant, the Group's profit for the year ended 31 December 2022 would decrease by £4,000 or increase by £4,000 based on the invoice discounting facility balance at the year end. There would be no effect on equity reserves.

		2022				2021		
	Fixed rate financial liabilities	Floating rate financial liabilities	Interest free financial liabilities	Total	Fixed rate financial liabilities	Floating rate financial liabilities	interest free financial liabilities	Total
Leases (2021 restated)	(8,832)	_	_	(8,832)	(9,191)	_	_	(9,191)
Invoice discounting facility	_	(379)	_	(379)	_	_	_	-
Other liabilities	-	-	(16,956)	(16,956)	-	-	(19,325)	(19,325)
	(8,832)	(379)	(16,956)	(26,167)	(9,191)	_	(19,325)	(28,516)

Foreign currency risk

The Group receives approximately 41% of its revenues in US Dollars and 6% of its revenue in Euros, which are partially naturally hedged by supplies in these currencies, but the remainder requires conversion into Sterling in order to fund the remaining costs of the UK operations. The Group has R&D operations in Sweden, and therefore incurs costs and holds cash balances in Swedish Krona.

The Group is mainly exposed to foreign currency risk resulting from transactions in US Dollars, Euros and Swedish Krona. The following table demonstrates the Group's sensitivity to a 10% increase and decrease in the Sterling exchange rate against the relevant foreign currencies on the Group's profit before tax and equity (due to changes in the fair value of monetary assets, liabilities and forward currency contracts). 10% represents management's assessment of the reasonably possible movement in exchange rates. The sensitivity analysis includes only outstanding foreign currency denominated monetary items and adjusts their translation at the period end for a 10% change in foreign currency rates. The sensitivity analysis includes intercompany balances within the Group where the denomination of the balance is in a currency other than the functional currency of the debtor or the creditor. A positive number below indicates an increase in profit or equity.

	Euro currency impact		US Dollar currency impact		Swedish Krona currency impact	
	2022 £'000	2021 £'000	2022 £'000	2021 €'000	2022 £'000	2021 £'000
Effect of a 10% increase in relevant exchange rate on:						
Profit or loss	(63)	(96)	(1,489)	(1,126)	46	67
Equity	(63)	(96)	(1,489)	(1,126)	46	67
Effect of a 10% decrease in relevant exchange rate on:						
Profit or loss	77	117	1,819	1,376	(57)	(82)
Equity	77	117	1,819	1,376	(57)	(82)

22. Financial instruments continued

Capital risk management

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business, maximise shareholder value and provide flexibility for value enhancing investments. The Group manages its capital structure and makes adjustments to it in light of changes in economic conditions or as a result of corporate strategy.

To maintain or adjust the capital structure, the Group may adjust the dividend payment to shareholders, return capital to shareholders or issue new shares. In addition, any potential value enhancing investments may be funded through additional debt instruments. No changes were made in the objectives, policies or processes during the current or prior year. No dividend is proposed for 2022.

Further information can be found on page 138 (note 13)

The Group monitors capital using a gearing ratio, which is determined as the proportion of debt to equity. Debt is defined as long- and short-term borrowings. Equity includes all capital and reserves of the Group attributable to the equity holders of the parent. The Group's policy for its existing business is to use debt where appropriate, whilst maintaining the gearing ratio at a level under 10%. The gearing ratio (excluding IFRS 16 leases) at the year-end is as follows:

	2022 £'000	2021 £'000
Borrowings excluding leases	379	_
Total equity	71,769	68,802
Gearing ratio	1%	0%

The Group is not subject to externally imposed capital requirements.

Credit risk management

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in financial loss to the Group. The Group has adopted a policy of only dealing with creditworthy counterparties and insuring the suppliers, as a means of mitigating the risk of financial loss from defaults.

Trade receivables consist of a large number of customers, spread across different industries and geographical areas. Ongoing credit evaluation is performed on the financial condition of accounts receivable.

The credit risk on liquid funds is limited because the counterparties are banks with high credit ratings assigned by international credit rating agencies. Additional credit insurance coverage is maintained where appropriate against agreed credit terms with customers.

Liquidity risk

The Group aims to mitigate liquidity risk by managing cash generation by its operations and applying cash collection targets throughout the Group. Investment is carefully controlled, with authorisation limits operating up to Group Board level and cash payback periods applied as part of the investment appraisal process. In this way the Group aims to maintain a good credit rating to facilitate fund raising.

In order to mitigate the Group's liquidity risks, the Group can choose to fund significant fixed asset purchases by finance leases repayable over a period of three to five years dependent on the individual asset being financed and interest-bearing loans.

In its funding strategy, the Group's objective is to maintain a balance between continuity of funding and flexibility through the use of overdrafts, bank loans, finance leases and hire purchase contracts. The Group manages liquidity risk by maintaining adequate reserves and banking facilities by continuously monitoring cash flows and matching the maturity profiles of financial assets and liabilities. Given the current level of cash availability there are currently no overdraft or bank loan facilities arranged with banks either drawn or undrawn.

Non-derivative financial liabilities of £14,854,000 (2021: £15,971,000) comprise trade creditors. The trade creditors are within current liabilities. The inherent liquidity risk of these financial liabilities is managed within the overall liquidity risk of the Group as described above. The maturity profile of lease liabilities is set out in note 18. The only other non-current financial liabilities are in relation to deferred consideration for the two acquisitions (FFEI and Megnajet) which will be fully settled in 2024.

The Group's policy is to invest any excess cash used in managing liquidity in financial instruments exposed to insignificant risk of changes in market value, being placed on interest-bearing deposit with maturities no more than 12 months.

2022	Trade and other payables	Invoice discounting	Deferred consideration	Lease liabilities	Total
In three months or less, or on demand	10,459	379	_	291	11,129
Four to twelve months	2,757	-	1,733	872	5,362
One to five years	-	-	2,133	5,057	7,190
More than five years	-	-	-	3,620	3,620
	13,216	379	3,866	9,840	27,301
2021	Trade and other payables	Invoice discounting	Deferred consideration	Lease liabilities	Total
In three months or less, or on demand	12,099	-	-	196	12,295
Four to twelve months	2,283	-	1,733	759	4,775
One to five years	-	-	3,467	5,047	8,514
More than five years	-	-	-	4,538	4,538
<u> </u>	14,382	-	5,200	10,540	30,122

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23. Deferred tax

The following are the major deferred tax liabilities and assets recognised by the Group and movements thereon during the current and prior reporting periods:

	Accelerated tax depreciation £'000	Share-based payment £'000	Intangible assets £'000	Tax losses £'000	Other temporary difference £'000	Total £'000
At 1 January 2021	692	[1]	-	(721)	(178)	(208)
(Credit)/charge to income	(13)		(64)	235	(20)	138
(Credit)/charge for discontinued operations	(58)	_	-	(38)	-	(96)
Acquisitions	_	_	989	(989)	-	-
Disposals	(450)	_	-	419	195	164
Foreign exchange movement	_	-	_	-	3	3
At 31 December 2021*	171	[1]	925	(1,094)	-	1
(Credit)/charge to income	206		(142)	(834)	(127)	(897)
Acquisitions		-	170	_	-	170
At 31 December 2022	377	(1)	953	(1,928)	(127)	(726)

^{*} Prior year included a misclassification disclosure which resulted in both the accelerated tax depreciation and the tax losses being overstated by £925k at 31 December 2021. There is no impact on the total deferred tax. Prior year also included a misclassification of items shown in the (Credit)/charge to income line that should have been shown through the Disposals line.

Certain deferred tax assets and liabilities have been offset. The following is the analysis of the deferred tax balances (after offset) for financial reporting purposes.

	2022 £'000	2021 £'000
Deferred tax liabilities	_	1
Deferred tax (assets)	(726)	
Being: Deferred tax (assets)/liabilities from continuing operations	(726)	1
Being: Deferred tax (assets)/liabilities from discontinued operations	-	_

As at 31 December 2022, the Group had unused tax losses of £119.925,000 (2021: £117,015,000) available to offset against future profits. As at 31 December 2022, in addition to the deferred tax asset recognised on losses in the table above, the Group has an unrecognised deferred tax asset in respect of these losses totalling £28,100,000 (2021: £28,200,000). These losses may be carried forward indefinitely.

Whilst the Board believes in the long-term potential and profitability of the Printhead business unit, the forecast taxable losses over the next couple of years mean that the UK tax losses will not be utilised in the short term. Therefore, no deferred tax asset has been recognised relating to UK losses for 2022. However, due to the forecasted taxable profits for the EPS business unit, a deferred tax asset in relation to brought forward US losses has been fully recognised resulting in a tax credit for the period, and is expected to be used over 2023 and 2024. USD 1,900,000 of US tax losses were utilised in 2022 with USD 4,200,000 carried forward.

As at 31 December 2022, the Group has unused capital losses of £1,100,000 [2021: £1,100,000] available for offset against future gains. No deferred tax asset has been recognised in respect of these capital losses as it is not considered probable that there will be future chargeable gains available. These losses may be carried forward indefinitely.

The impact of climate change has been considered in the forecast and valuation of future taxable profits and no impacts were noted.

24. Trade and other payables

	2022 £'000	2021 £'000 Restated
Current liabilities		
Trade payables and accruals	13,216	14,382
Other financial liabilities	1,646	1,589
	14,862	15,971
Non-current liabilities		
Other financial liabilities	2,094	3,354

Trade creditors and accruals principally comprise amounts outstanding for trade purchases and ongoing costs. The average credit taken for trade purchases is 36 days (2021: 28 days).

Contract liabilities are now shown separately on the balance sheet.

The other financial liabilities represent the deferred consideration in relation to the acquisitions of FFEI Ltd, Megnajet Limited and Technomation Limited, split between the current portion due in 2023 [£1,646,000] and non-current portion.

The Directors consider that the carrying amount of trade payables approximates to their fair value.

25. Provisions

	Warranty £'000	Restructuring £'000	Provision for dilapidation £'000	Total £'000
At 1 January 2021	77	280	_	357
Additional/(release) provision in the year	253	11	250	514
Acquisition	_	-	50	50
Utilisation of provision	(18)	(280)	_	(298)
Release of provision	(59)	_	_	(59)
At 1 January 2022	253	11	300	564
Additional/(release) provision in the year	225	93	_	318
Utilisation of provision	(166)	[11]	_	(177)
Release of provision	-	_	_	_
At 31 December 2022	312	93	300	705

The warranty and commercial agreements provision represents management's best estimate of the Group's liability related to claims against product warranties or commercial sales agreements. The timing of the utilisation of this provision is uncertain.

Additional restructuring provisions of £93,000 have been added primarily in relation to redundancy which will be utilised in 2023; the utilisation of the £280,000 in 2021 related to the relocation of HQ to Waterbeach.

Non-current provisions relate to provisions for dilapidation which form part of right-of-use assets and are depreciated over the lease term. Further details on leases are in note 18.

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26. Share capital

	2022 £'000	2021 £'000
Issued and fully paid: 78,446,230 (2021: 78,446,230) ordinary shares of 10.0p each	7,844	7,844
The movement during the year on the Company's issued and fully paid shares was as follows:		

	2022	2021	2022	2021
	Number	Number	£'000	£'000
Balance at 1 January Exercise of share options	78,446,230	78,334,296	7,844	7,833
	-	111,934	-	11
Balance at 31 December	78,446,230	78,446,230	7,844	7,844

The Company has one class of ordinary shares which carry no right to fixed income.

Scheme	Date of grant	Number of shares under option as at 31 December 2022	Number of shares under option as at 31 December 2021	Subscription price per share
Xaar plc 2004 Share Option Plan	1 May 12	-	90,000	226.5p
		_	90,000	
Xaar plc 2017 Share Save Scheme	1 November 17	_	_	344.0p
	1 November 18	-	34,975	142.0p
	1 December 19	145,893	893,038	34.0p
	2 November 20	644,544	681,104	102.0p
	4 November 21	606,961	632,995	129.0p
	3 November 22	508,529	_	140.0p
		1,905,927	2,242,112	
Xaar plc 2013 Share Incentive Plan	17 April 13	_	4,332	0.0p
	16 April 14	-	4,749	0.0p
	14 April 16	-	6,766	0.0p
	13 April 17	-	3,952	0.0p
		_	19,799	
Total share options outstanding at 31 December		1,905,927	2,351,911	

Options under the Xaar plc Share Save Scheme are ordinarily exercisable between 36 and 42 months after the date of grant.

Long-Term Incentive Plan

Performance Share Awards outstanding under the Xaar plc 2007 Long-Term Incentive Plan are as follows:

Date of grant	Number of shares under option as at 31 December 2022	Number of shares under option as at 31 December 2021
1 May 2012	_	5,229
2 April 2015	25,096	30,179
28 September 2015	2,536	2,536
1 April 2016	15,733	17,733
11 May 2016	4,662	4,977
27 June 2016	-	3,733
6 September 2016	700	700
1 December 2016	-	15,093
	48,727	80,180

All awards under this scheme are exercisable within three to ten years after the date of grant.

26. Share capital continued

Long-Term Incentive Plan continued

Performance Share Awards have been made under the Xaar plc 2017 Long-Term Incentive Plan as follows:

Date of grant	2022 Number of shares	2021 Number of shares
16 May 2017	12,202	18,804
2 April 2019	_	104,292
30 April 2019	_	59,789
4 October 2019	180,328	180,328
29 April 2020	368,333	394,000
4 June 2020	535,000	535,000
1 October 2020	21,000	21,000
14 October 2021	937,528	986,272
6 April 2022	702,006	-
14 Dec 2022	204,317	_
	2,960,714	2,299,485

All awards under this scheme are exercisable within three to ten years after the date of grant.

27. Share premium account

	2022 £'000	2021 £'000
Balance at 1 January Premium arising on issue of equity shares	29,427 -	29,328 99
Balance at 31 December	29,427	29,427

28. Own shares

	2022 £'000	2021 €'000
Balance as at 1 January Purchased in the year Sold in the year	(1,923) (1,000) 2,148	(1,957) - 34
Balance at 31 December	(775)	(1,923)

Of this balance, £20,000 (2021: £20,000) represents 91,250 ordinary shares in Xaar plc held in trust by Xaar Trustee Ltd. Xaar Trustee Ltd was formed in 1995 to act as trustee to the Employee Benefit Trust established in 1995 to hold shares for the benefit of the employees of the Company and the Group. There has been no movement in the number of shares held in trust by Xaar Trustee Ltd during the year.

The remaining balance of £755,000 (2021: £1,903,000) represents the cost of 307,410 (2021: 692,575) shares in Xaar plc purchased in the market at market value and held by the Xaar plc ESOP trust to satisfy options granted under the Company's share option schemes.

During the year the ESOP purchased 474,971 shares (2021: nil) and sold 860,136 shares to satisfy exercised options in the year (2021: 12,508).

The market value of own shares at 31 December 2022 was £773,000 (2021: £1,427,000).

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29. Translation reserves

	2022 £'000	2021 £'000
Balance at 1 January Exchange differences on retranslation of net investment	1,011 617	864 147
Balance at 31 December	1,628	1,011

Exchange differences relating to the translation of the net assets of the Group's foreign operations, which relate to subsidiaries only, from their functional currency into the parent's functional currency, being Sterling, are recognised directly in the translation reserve.

30. Retained earnings and other reserves

	Notes	Merger reserve £'000	Share-based payments £'000	Other reserves £'000	Total other reserves £'000	Retained earnings £'000	Total £'000
Balance at 1 January 2021		1,105	14,911	5,151	21,167	(5,564)	15,603
Net profit for the year		-	_	_	_	16,219	16,219
Share option exercises		-	-	_	_	(32)	(32)
Charge to equity for equity-settled share-based	32		653		653		450
payments	32				633	_	653
Balance at 31 December 2021		1,105	15,564	5,151	21,820	10,623	32,443
Net profit for the year		-	-	_	_	1,632	1,632
Cash-settled share-based payments		-	-	_	_	(249)	(249)
Share options exercises		-	-	_	_	(1,740)	(1,740)
Charge to equity for equity-settled share-based							
payments	32	_	1,559	_	1,559		1,559
Balance at 31 December 2022		1,105	17,123	5,151	23,379	10,266	33,645

The merger reserve and other reserves are not distributable. The merger reserve represents the share premium account in Xaar Technology Limited.

The share-based payment reserve represents the cumulative charge made under IFRS 2 in relation to share options and LTIP awards. Other reserves represent the non-distributable portion of the dividend received in Xaar plc from Xaar Digital Limited.

31. Reconciliation of liabilities arising from financing activities

	2021	Cash flows	Additions	Discontinued operations	Interest	Foreign exchange movement	2022
Lease liabilities (2021 restated)	9,191	(914)	323	_	242	(10)	8,832
Deferred consideration	4,943	(1,733)	374	_	156	-	3,740
Invoice discounting facility	-	346	-	_	33	_	379
Other interest incurred and paid	-	(22)	_	-	22	-	-
	14,134	(2,323)	697	_	453	(10)	12,951

	2020	Cash flows	Additions	Discontinued operations	Interest	Foreign exchange movement	2021
Lease liabilities (restated)	2,579	[824]	7,195	98	144	(1)	9,191
Deferred consideration	-	_	4,858	_	85	_	4,943
Other interest incurred and paid	_	(13)	_	_	13	_	_
	2,579	(837)	12,053	98	242	(1)	14,134

32. Share-based payments

Equity-settled share option scheme

The Company's share option schemes are open to all employees of the Group. Options are exercisable at a price equal to the average quoted market price of the Company's shares on the date of grant. The standard vesting period is three years.

Xaar plc 2004 Share Option Plan from 2011 onwards: The last remaining options either lapsed or were exercised during the year-ended 31 December 2022.

The Xaar 2017 Share Save Schemes provide an opportunity to all UK employees to save a set monthly amount (up to £500) over three years towards the exercise of a discounted share option, which is granted at the start of the three years.

The Xaar Share Incentive Plan provided an opportunity for all UK employees to buy shares from their pre-tax remuneration up to the limit permitted by the relevant tax legislation and were awarded additional shares for free on a matching basis. The last remaining options granted under the scheme were exercised during the year-ended 31 December 2022.

Options and awards under the Xaar 2007 and 2017 Share Save Schemes and Xaar Share Incentive Plan are not subject to performance conditions.

If the options remain unexercised after a period of ten years from the date of grant, or 42 months in the case of the Share Save Scheme, or five years in the case of the Share Incentive Plan (being the contractual lives), the options expire. Save as permitted in the share option scheme rules, options ordinarily lapse on an employee leaving the Group.

Details of the share options outstanding during the year are as follows:

	2022			2021
	Number of share options	Weighted average exercise price (£)	Number of share options	Weighted average exercise price (£)
Outstanding at the beginning of the year	2,351,911	0.88	1,925,315	0.79
Granted during the year	508,529	1.40	632,995	1.29
Lapsed during the year	(105,267)	1.49	(104,614)	1.59
Exercised during the year	(849,246)	0.49	(101,785)	1.08
Outstanding at the end of the year	1,905,927	1.16	2,351,911	0.88
Exercisable at the end of the year	145,893	0.34	144,774	1.75

The weighted average share price at the date of exercise for share options exercised during the period was £2.05 (2021: £1.64). The options outstanding at 31 December 2022 had a weighted average remaining contractual life of two years [2021: two years]. In 2022, options were granted on 3 November. The aggregate of the estimated fair values of the options granted on those dates is £559,000. In 2021, options were granted on 4 November. The aggregate of the estimated fair values of the options granted on those dates is £561,000.

The inputs into the Black-Scholes model are as follows:

2022	2021
Weighted average share price £1.81	£1.61
Weighted average exercise price	£1.29
Weighted average expected volatility 78%	73%
Expected life 3.25 years	3.25 years
Risk-free rate 3.12%	0.69%
Weighted average expected dividends 0.00%	0.00%

Expected volatility was determined by calculating the historical volatility of the Group's share price over periods ranging from the previous one to three years. The expected life used in the model has been adjusted, based on management's best estimate, for the effects of non-transferability, exercise restrictions and behavioural considerations.

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32. Share-based payments continued

Long-Term Incentive Plan

The Company's Long-Term Incentive Plan is open to all employees of the Group.

From 2018, revenue from new products in the third year in the vesting period, whereby 25% of the awards will vest if the threshold target is achieved, below threshold 0% will vest and up to a maximum of 100% if the maximum revenue target or higher is achieved.

There are also a number of LTIP share awards granted that are subject to the achievement of different performance conditions for specific individuals, dependent on revenue or profit performance over a set performance period.

In addition, options shall only become exercisable in respect of any shares if the Committee in its absolute discretion determines that the overall financial performance of Xaar plc over the performance period is satisfactory. All awards that will vest will be calculated on a straight-line basis. All awards made under this scheme are exercisable within three to ten years after the date of grant. Save as permitted in the Long-Term Incentive Plan rules, awards lapse on an employee leaving the Group.

Key individuals have previously been invited to participate in a bonus matching scheme where matching LTIP share awards are granted when the employee invests their bonus in Xaar shares and retains ownership of these shares for the duration of the LTIP share award vesting period. The matching share award is a 1 for 1 match on the pre-tax value of the bonus used to acquire bonus investment shares. Matching LTIP share awards are subject to the same performance criteria as all other LTIP awards.

Details of Performance Share Awards outstanding during the year are as follows:

	2022	2021
Awards outstanding at the start of the year	2,379,665	1,587,450
Granted during the year	941,240	986,272
Lapsed during the year	(190,043)	(161,535)
Cash settled during the year	(84,700)	_
Exercised during the year	(36,721)	(32,522)
Awards outstanding at the end of the year	3,009,441	2,379,665
Exercisable at the end of the year	60,929	98,984

During the year ended 31 December 2022 the Remuneration Committee used its discretion to settle 84,700 awards that vested in the year in cash at their market value as at 31 March 2022 of £249,000 (2021: none).

The weighted average share price at the date of exercise for awards exercised during the period was £2.03 (2020: £1.67). The options outstanding at 31 December 2022 had a weighted average remaining contractual life of eight years (2021: nine years). In 2022, Performance Share Awards were made in April and December. The aggregate of the estimated fair values of the grants made during the year is £1,763,000. In 2021, Performance Share Awards were made in October. The aggregate of the estimated fair values of grants made on that date is £1,457,000.

The estimated fair values for grants with non-market based performance conditions were calculated using the Black-Scholes model. The inputs into the Black-Scholes model were as follows:

	2022	2021
Weighted average share price	£2.54	£1.77
Weighted average exercise price	£nil	£nil
Weighted average expected volatility	77%	81%
Weighted average expected life	3.41 years	2.44 years
Weighted average risk free rate	1.87%	0.67%
Weighted average expected dividends	0.00%	0.00%

The estimated fair values for grants with market based performance conditions were calculated using the Monte Carlo model. The inputs into the Monte Carlo model were as follows:

	2022	2021
Weighted average share price	£2.46	£1.77
Weighted average exercise price	£nil	£nil
Weighted average expected volatility	75 %	90%
Weighted average expected life	3.61 years	2.44 years
Weighted average risk free rate	2.04%	0.55%
Weighted average expected dividends	0.00%	0.00%

32. Share-based payments continued

Deferred Bonus Plan

Under the Group's Deferred Bonus Plan, executives receive 70% of the participant's bonus achieved in cash and 30% in the form of rights to deferred shares of Xaar plc. These awards are subject only to service conditions, i.e. the requirement for recipients of awards to remain in employment with the Company over the vesting period. In 2022, the awards were granted in April and were in respect of participants' bonus for the Company's financial year which ended on 31 December 2021 and will vest on the dealing day following the announcement by the Company of its annual results for 2023 (assumed 24 March 2024) or, if later, the date on which the Committee determines. In 2021, the awards were granted in October in respect of the participants' bonus for the Company's financial year which ended on 31 December 2020 and will vest on the dealing day following the announcement by the Company of its annual results for 2022 (assumed 24 March 2023) or, if later, the date on which the Committee determines.

The executives do not receive any dividends and are not entitled to vote in relation to the deferred shares during the vesting period. If an executive ceases to be employed by the Group within this period, the rights will be forfeited, except in limited circumstances that are approved by the Board on a case-by-case basis.

The following table shows the deferred shares granted and outstanding at the beginning and end of the reporting period.

	2022	2021
Awards outstanding at the start of the year	34,098	_
Granted during the year	18,633	34,098
Lapsed during the year	-	_
Exercised during the year	-	-
Awards outstanding at the end of the year	52,731	34,098

The options outstanding at 31 December 2022 had a weighted average remaining contractual life of seven months (2021: one year and three months). The aggregate of the estimated fair value of grant made in 2022 was £50,000 and the estimated fair value of the grant made in 2021 was £60,000.

The estimated fair values for grants with non-market based performance conditions were calculated using the Black-Scholes model.

The inputs into the Black-Scholes model were as follows:

	2022	2021
Weighted average share price	£2.70	£1.77
Weighted average exercise price	£nil	£nil
Weighted average expected volatility	77%	81%
Weighted average expected life	1.25 years	1.25 years
Weighted average risk free rate	1.87%	0.67%
Weighted average expected dividends	0.00%	0.00%

The Group recognised total expenses of £1,559,000 and £653,000 related to all equity-settled share-based payment transactions in 2022 and 2021, respectively. A charge relating to National Insurance on the outstanding potential share option gains of £189,000 was recorded in 2022 (2021: £105,000).

33. Retirement benefit schemes

Defined contribution schemes

The UK based employees of the Group's UK companies have the option to be members of a defined contribution pension scheme managed by a third party pension provider. For each employee who is a member of the scheme the Company will contribute a fixed percentage of each employee's salary to the scheme. The only obligation of the Group with respect to this scheme is to make the specified contributions.

The total cost charged to the income statement in respect of all of the Group's retirement benefit schemes during 2022 was £1,303,000 (2021: £930,000). As at 31 December 2022 contributions of £165,000 (2022: £102,000) due in respect of the current reporting period had not been paid over to the schemes.

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34. Related party transactions

Transactions between the Company and its subsidiaries, which are related parties, have been eliminated on consolidation and are not disclosed in this note.

There were no other transactions during the year with related parties who are not members of the Group.

Remuneration of Directors

The actual remuneration of the Directors, who are the key management personnel of the Group, is disclosed in the Directors' Remuneration report. The contractual employee benefits are set out below in aggregate for each of the categories specified in IAS 24 'Related Party Disclosures'.

Further information about the remuneration of individual Directors is provided in the audited part of the Directors' Remuneration report on pages 84 to 104

Remuneration of Directors

	2022 £'000	2021 £'000
Short-term employee benefits	1,080	924
Post-employment benefits	36	32
Share-based payments	494	168
	1,610	1,124

35. Non-controlling interest

Following the completion of the sale of Xaar 3D Limited to Stratasys during the year ended 31 December 2021, there are no non-controlling interests to report as at 31 December 2021 nor 31 December 2022.

On 1 November 2021, Stratasys exercised the call option and acquired the remaining 55% shareholding of Xaar 3D Limited. Xaar received \$13.5 million as initial consideration and with the 3% revised earn-out and the earn-out payments allow Xaar to receive up to \$34.75 million.

The 2021 income statement and the movement in cash flow as at and up to the date of sale (1 November 2021) are as follows:

Xaar 3D Limited

Income statement and other comprehensive income	2021 £'000
Revenue Expenses	2,918 (7,342)
Loss for the year	[4,424]
Loss attributable to owners of the Company Loss attributable to the non-controlling interests	(2,433) (1,991)
Loss for the year	[4,424]
Total comprehensive loss attributable to owners of the Company Total comprehensive loss attributable to the non-controlling interest	(2,433) (1,995)
Total comprehensive loss for the year	[4,428]
Cash flow statement	2021 £°000
Net cash outflow from operating activities Net cash outflow from investing activities Net cash outflow from financing activities	(1,792) (122) (98)
Net cash outflow	(2,012)
Non-controlling interest equity	2021 £`000
Balance at 1 January Share of total comprehensive expense for year Derecognition of non-controlling interest	3,771 (1,995) (1,776)
Balance at 31 December	-

36. Business combination

On 2 March 2022, Xaar completed the acquisition of 100% of the share capital of Megnajet Ltd and Technomation Ltd. The companies trade together under the name of Megnajet, and design and manufacture industrial ink management and supply systems for digital inkjet. The acquisitions will accelerate the Company's growth strategy by creating a more integrated inkjet solution whereby customers can access more of the printing ecosystem (such as ink supply systems and the electronics) from Xaar.

Technomation Ltd was acquired for its Intellectual Property and know-how. The acquisition has been accounted for as an asset acquisition using the optional concentration test within IFRS 3. The purchase price of £3,038,000, which includes £187,000 deferred consideration, was allocated to its Intellectual Property amounting £1,990,000 (being the purchase price net of £517,000 cash balance and £531,000 balance relating to working capital consisting of £816,000 receivables, £130,000 corporation tax creditor and £155,000 VAT creditor). Megnajet Ltd was accounted for as a business combination and the details of the net assets acquired, goodwill and purchase consideration are as follows:

Recognised amounts of identifiable assets acquired and liabilities assumed	Fair value £'000
Cash	1,067
Trade & other receivables	487
Corporate tax payable	(27)
Inventories	503
Property, plant and equipment	53
Intangible assets	703
Trade & other payables	(821)
Deferred Tax liability	(170)
Total net identifiable assets	1,795
Goodwill	661
Total consideration	2,456
Satisfied by:	£.000
Cash	2,269
Deferred consideration	187
Total consideration transferred	2,456
Net cash outflow arising on acquisition	€'000
Cash consideration	(2,269)
Less: cash and cash equivalents acquired	1,067
Total net cash outflow arising on acquisition	(1,202)

The fair value of acquired receivables is £250,000. The gross contractual amount for trade receivables due is £252,000, with a loss allowance of £2,000 recognised on acquisition. Other receivables relate to VAT amounting to £237,000.

The goodwill of £661,000 arising from the acquisition represents those characteristics and valuable attributes of the acquired business that cannot be quantified and attributed to separately identifiable assets in accounting terms. This goodwill is underpinned by a number of elements, the most significant of which is the well established, skilled and assembled workforce and potential new customer relationships and contracts which enable Megnajet to accelerate the development of ink management and supply systems through the shared expertise, technologies and resources across the Group. None of the goodwill recognised is expected to be deductible for income tax purposes.

The fair value of the intangible assets attributed to the acquisition of the business relates to customer relationships (£422,000) and brand (£281,000). These have an estimated useful life of eight and ten years respectively.

In addition to the cash consideration, deferred consideration shall be paid in the second year anniversary from the date of acquisition. The undiscounted amount of all future payments that the Company is required to make under the deferred consideration arrangement is £200,000.

Acquisition related costs which are included in administrative expenses in the consolidated income statement for the period ended 31 December 2022 amounted to £193,000.

The acquired business contributed revenues of £2,483,000 and net profit of £758,000 to the Group for the period from 2 March 2022 to 31 December 2022. If the acquisition had occurred on 1 January 2022, consolidated pro-forma revenue and profit for the period ended 31 December 2022 would have been £3,038,000 and £832,000 respectively. These amounts have been calculated using the subsidiary's results and adjusting them for differences in the accounting policies between the Group and the subsidiary; and the additional depreciation and amortisation that would have been charged assuming the fair value adjustments to property, plant and equipment and intangible assets had applied from 1 January 2022, together with the consequential tax effects.

During the prior year, on 11 July 2021, Xaar acquired 100% of the issued share capital of FFEI Limited for a total consideration of £8,762,000, comprising £3,907,000 in initial cash and deferred consideration of £4,855,000 (which is £5,200,000 discounted using 3.49% discount rate). Net assets acquired totalled £8,073,000, and goodwill of £689,000 arose on the acquisition. The fair value of the intangible assets attributed to the acquisition related to patents and software (£3,044,000) and customer relationships (£1,204,000) with an estimated useful life of six years. Net cash flow arising on the acquisition was an inflow of £168,000, being cash equivalents acquired of £4,075,000 minus the cash consideration paid. The deferred consideration is payable in three annual instalments, of which one instalment was paid during the year ended 31 December 2022 (£1,733,000). Acquisition costs included in the consolidated income statement for the prior year amounted to £618,000.

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37. Restatement of prior period

The financial statements include prior period restatements in relation to leases and contract assets and liabilities.

Right-of-use asset and lease liabilities were both overstated by £539,000 due to an error in recording the renewal on one lease with no impact on net assets, cash flows or profit for the period. Since 2022 additional finance reviews have been introduced for all legal contracts. With the current control introduced in 2022, we believe the likelihood of such errors is substantially reduced.

Additionally, the EPS division had not been netting contract assets and liabilities and both balances were shown gross in the prior period. This error was identified by management in the current year and was corrected resulting in changes in processes and systems to ensure correct accounting is in place going forward. The respective adjustment for the prior year amounted to \$2,672,000 (£1,977,000) with no impact on net assets, cash flows or profit for the period.

The following tables summarise the impact of the prior period restatement on the financial statements of the Group for the period ended 31 December 2021:

Consolidated statement of financial position	2021 as reported £'000	IFRS 16 lease correction £'000	Contract assets /liabilities correction £'000	2021 restated £'000
Non-current assets				
Right-of-use asset	9,368	(539)	_	8,829
Current assets				
Trade and other receivables	12,138	-	(1,977)	10,161
Total assets	103,940	(539)	(1,977)	101,424
Current liabilities				
Contract liabilities	(5,518)	-	1,977	(3,541)
Lease liabilities	(1,231)	539	_	(692)
Total liabilities	(35,138)	539	1,977	(32,622)
Net assets	68,802	-	-	68,802

38. Subsidiary audit exemption

The following companies are exempt from the requirements relating to the audit of individual accounts for the year ended 31 December 2022 by virtue of section 479A of the Companies Act 2006: XaarJet Limited (03375961), XaarJet (Overseas) Limited (04312431), Xaar Technology Limited (02469592), Xaar Digital Limited (03588121), Xaar Trustee Limited (03025096), Xaar 3D Holdings Limited (11425540), FFEI Limited (03244452) and Megnajet Limited (07160441).