INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Consolidated Financial Statements for the Years Ended December 31, 2023, 2022 and 2021

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Consolidated income statements

	_	For the yea	er 31,	
in 000€, except per share data	Notes	2023	2022	2021
Revenue	22.1	256,127	232,023	205,450
Cost of sales	22.2	(110,996)	(103,255)	(87,278)
Gross profit		145,131	128,768	118,172
Research and development expenses	22.3	(38,098)	(37,568)	(26,891)
Sales and marketing expenses	22.4	(57,822)	(62,125)	(49,151)
General and administrative expenses	22.5	(37,068)	(35,143)	(33,315)
Net other operating income	22.6	(6,524)	3,196	3,402
Operating profit (loss)		5,619	(2,872)	12,217
Financial expenses	22.8	(3,865)	(4,420)	(4,101)
Financial income	22.9	5,019	6,114	5,620
Profit (loss) before taxes		6,772	(1,178)	13,736
Income tax benefit/(expense)	22.10	(78)	(975)	(591)
Net profit (loss) for the year		6,695	(2,153)	13,145
Net profit (loss) attributable to:				
The owners of the parent		6,722	(2,123)	13,154
Non-controlling interest		(27)	(29)	(9)
Earnings per share attributable to the owners of the parent				
Basic	23	0.11	(0.04)	0.23
Diluted	23	0.11	(0.04)	0.23

Consolidated statements of comprehensive income

	_	For the year ended December 31,				
in 000€		2023	2022	2021		
Net profit (loss) for the year		6,695	(2,153)	13,145		
Other comprehensive income/(loss)						
Items that are or may be reclassified subsequently to profit or loss						
Exchange differences on translation of foreign operations		1,255	(1,427)	1,565		
Items that will not be reclassified to profit or loss						
Fair value adjustment through OCI - Equity instruments	10	(331)	(92)	(3,443)		
Other comprehensive loss, net of taxes		924	(1,519)	(1,878)		
Total comprehensive income/(loss), net of taxes		7,619	(3,672)	11,267		
Total comprehensive (loss)/ income attributable to:						
The owners of the parent		7,644	(3,643)	11,276		
Non-controlling interest		(25)	(29)	(9)		

Consolidated statements of financial position

	-	As of		
in 000€	Notes	2023	2022	2021
Assets				
Non-current assets				
Goodwill	5	43,158	44,155	18,726
Intangible assets	6	31,464	37,875	31,668
Property, plant & equipment	7	95,400	94,276	84,451
Right-of-use assets	7	8,102	8,420	9,054
Deferred tax assets	22.10	2,797	1,186	227
Investments in convertible loans	10	3,744	3,494	3,560
Investments in non-listed equity instruments	10	_	307	399
Other non-current assets	10	5,501	5,136	7,519
Total non-current assets	10	190,166	194,847	155,604
		190,100	194,047	155,004
Current assets				
Inventories and contracts in progress	9	17,034	16,081	11,295
Trade receivables	11	52,698	51,043	41,541
Other current assets	10	9,160	8,424	8,940
Cash and cash equivalents	12	127,573	140,867	196,028
Total current assets		206,465	216,414	257,804
Total assets		396,630	411,262	413,408

Consolidated statements of financial position

		As o	of December 31,	! ,		
in 000€	Notes	2023	2022	2021		
Equity and liabilities						
Equity						
Share capital	13	4,487	4,487	4,489		
Share premium	13	233,942	233,895	233,872		
Retained earnings	13	5,564	(1,158)	965		
Other reserves	13	(7,346)	(8,268)	(6,749)		
Equity attributable to the owners of the parent		236,646	228,955	232,577		
Non-controlling interest	13	(53)	(28)	1		
Total equity		236,594	228,928	232,578		
Non-current liabilities						
Loans & borrowings	15	33,582	55,873	72,637		
Lease liabilities	15	5,333	5,147	5,268		
Deferred tax liabilities	22.10	3,725	4,312	4,371		
Deferred income	18	10,701	9,277	4,952		
Other non-current liabilities	16	1,745	1,611	2,167		
Total non-current liabilities		55,086	76,220	89,395		
Current liabilities						
Loans & borrowings	15	22,873	17,058	17,849		
Lease liabilities	15	2,610	2,902	3,353		
Trade payables		21,196	23,230	20,171		
Tax payables	17	1,777	1,246	783		
Deferred income	18	40,791	41,721	33,307		
Other current liabilities	19	15,703	19,957	15,972		
Total current liabilities		104,950	106,114	91,435		
Total equity and liabilities		396,630	411,262	413,408		

Consolidated statements of changes in equity

in 000€	Notes	Share capital	Share premium	Retained earnings	Other reserves	<u>Total</u>	Non- controlling interest	Total equity
At January 1, 2023		4,487	233,895	(1,158)	(8,268)	228,955	(28)	228,928
Net profit (loss) for the year		_	_	6,722	_	6,722	(27)	6,695
Other comprehensive income (loss)		-	-	-	922	922	2	924
Total comprehensive income (loss)		-	-	6,722	922	7,644	(25)	7,619
Capital increase through exercise of warrants	13	-	-	-	-	-	-	_
Equity-settled share-based payment expense	14	_	47	-	_	47	_	47
At December 31, 2023		4,487	233,942	5,564	(7,346)	236,646	(53)	236,594

Attributable to the owners of the parent

in 000€	Notes	Share capital	Share premium	Retained earnings	Other reserves	<u>Total</u>	Non- controlling interest	Total equity
At January 1, 2022		4,489	233,872	965	(6,749)	232,577	1	232,578
Net profit (loss) for the year		_	_	(2,123)	_	(2,123)	(29)	(2,153)
Other comprehensive income (loss)		_	_	_	(1,519)	(1,519)	_	(1,519)
Total comprehensive income (loss)		_	_	(2,123)	(1,519)	(3,642)	(29)	(3,672)
•				(2,123)	(1,51)		(2)	
Capital increase through exercise of warrants	13	(2)	22	_	_	20	_	20
Equity-settled share-based payment expense	14	_	-	-	_	_	-	_
At December 31, 2022		4,487	233,895	(1,158)	(8,268)	228,955	(28)	228,928

Attributable to the owners of the parent

in 000€	Notes	Share capital	Share premium	Retained earnings	Other reserves	Total	Non- controlling interest	Total equity
At January 1, 2021		4,096	141,274	(7,316)	(4,871)	133,183	-	133,183
Net profit (loss) for the year		_	-	13,154	_	13,154	(9)	13,145
Other comprehensive income (loss)		_	_	_	(1,878)	(1,878)	_	(1,878)
Total comprehensive income (loss)		_	-	13,154	(1,878)	11,276	(9)	11,267
Capital increase initial public offering	13	371	90,235	(4,873)	-	85,733	_	85,733
Capital increase through exercise of warrants	13	22	2,322	-	_	2,344	_	2,344
Incorporation NCI Tianjin Zhenyuan Materialise Medical Technology Ltd	13	-	_	-	-	-	10	10
Equity-settled share-based payment expense	14	-	41	-	_	41	_	41
At December 31, 2021		4,489	233,872	965	(6,749)	232,577	1	232,578

Consolidated cash flow statements

	_	For the year	ended Decemb	er 31,
in 000€	Notes	2023	2022	2021
Operating activities				
Net profit (loss) for the year		6,695	(2,153)	13,145
Non-cash and operational adjustments				
Depreciation of property, plant & equipment	7	15,065	14,940	15,574
Amortization and impairment of intangible assets	6	6,504	7,628	4,975
Impairment of goodwill and intangible assets from business combinations	5; 6	4,228	-	177
Share-based payment expense	14	39	(140)	(1,036)
Loss (gain) on disposal of property, plant & equipment	7	(415)	347	210
Movement in provisions		(181)	1,781	99
Movement in reserve for bad debt and slow moving inventory		499	(23)	255
Financial income	22.9	(5,033)	(6,114)	(5,620)
Financial expense	22.8	3,886	4,420	4,101
Impact of foreign currencies		(94)	(39)	40
Share in loss of joint venture (equity method)	8	-	-	_
Income taxes and deferred taxes	22.10	73	975	591
Working capital adjustment and income tax paid				
Decrease (increase) in trade receivables and other current assets		(3,335)	(6,330)	(10,920)
Decrease (increase) in inventories and contracts in progress		(806)	(5,011)	(1,423)
Increase in trade payables and other payables		(8,435)	12,365	6,453
Income tax paid		(2,737)	(1,425)	(1,152)
Interest received		4,206	1,067	376
Net cash flow from operating activities		20,157	22,288	25,845

Consolidated cash flow statements

	_	For the year ended December		er 31,
in 000€	Notes	2023	2022	2021
Investing activities				
Purchase of property, plant & equipment	7	(9,235)	(21,608)	(7,934)
Purchase of intangible assets	6	(2,525)	(3,165)	(3,788)
Proceeds from the sale of property, plant, equipment and intangibles (net)		723	205	462
Acquisition of subsidiary (net of cash)	4	_	(29,293)	(875)
Convertible loan granted	10	-	-	(999)
Net cash flow used in investing activities		(11,037)	(53,861)	(13,134)
Financing activities				
Repayment of loans & borrowings	15	(16,723)	(17,708)	(14,277)
Repayment of leases	15	(3,549)	(3,379)	(3,775)
Capital increase in parent company	13	-	23	88,117
Interest paid		(1,750)	(1,990)	(2,326)
Other financial income (expense), net		(346)	544	3,417
Net cash flow from financing activities		(22,368)	(22,510)	71,156
Net increase/(decrease) of cash and cash equivalents		(13,248)	(54,082)	83,867
Cash and cash equivalents at beginning of the year	12	140,867	196,028	111,538
Exchange rate differences on cash and cash equivalents		(46)	(1,078)	624
Cash and cash equivalents at end of the year	12	127,573	140,867	196,028

Notes to the consolidated financial statements

1 Corporate information

Materialise NV is a limited liability company with its office at Technologielaan 15, 3001 Leuven, Belgium. The consolidated financial statements comprise Materialise NV (the "Company" or "Parent") and its subsidiaries (collectively, the "Group" or "we," "us" and "our"). See Note 28 for a list of subsidiaries of the Company.

We are a leading provider of additive manufacturing and medical software and of sophisticated 3D printing services. Our products and services are offered through a market oriented organization that is active across three principal market segments: (i) Materialise Software, (ii) Materialise Medical, and (iii) Materialise Manufacturing. We sell our products and services in Europe, the Americas, Africa and Asia-Pacific.

The consolidated financial statements of the Group for the year ended December 31, 2023 were approved and authorized for issue on May 14, 2024, in accordance with a resolution of the Company's board of directors.

2 Basis of preparation

The consolidated financial statements of the Group for the three years ended December 31, 2023, 2022 and 2021 are prepared in accordance with the International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB) and as adopted by the EU (collectively "EU-IFRS").

These consolidated financial statements have been prepared on a historical cost basis, except for the assets and liabilities that have been acquired as part of a business combination, which have been initially recognized at fair value, and certain financial assets such as the non-listed equity instruments and the convertible loan receivable which are both included in the other non-current assets and the share appreciation rights which are measured at fair value.

The financial statements are prepared on a going concern basis. The consolidated financial statements are presented in thousands of euros (KE or thousands of E) and all "currency" values are rounded to the nearest thousand (E000), except when otherwise indicated.

The preparation of financial statements in compliance with IFRS requires the use of certain critical accounting estimates. It also requires Group management to exercise judgment in applying the Group's accounting policies. The areas where significant judgment and estimates have been made in preparing the financial statements and their effect are disclosed in Note 3.

New standards, interpretations and amendments adopted by the Group

The following amendments and interpretations issued by the IASB and IFRIC apply for the first time in 2023, but do not have a significant impact on the consolidated financial statements of the Group.

- IFRS 17 Insurance Contracts (issued on 18 May 2017); including Amendments to IFRS 17 (issued on 25 June 2020)
- Amendments to IAS 8 Accounting policies, Changes in Accounting Estimates and Errors: Definition of Accounting Estimates (issued on 12 February 2021)
- Amendments to IAS 1 Presentation of Financial Statements and IFRS Practice Statement 2: Disclosure of Accounting policies (issued on 12 February 2021)
- Amendments to IAS 12 Income Taxes: Deferred Tax related to Assets and Liabilities arising from a Single Transaction (issued on 7 May 2021)
- Amendments to IFRS 17 Insurance contracts: initial application of IFRS 17 and IFRS 9 Comparative information (issued on 9
 December 2021)
- Amendments to IAS 12 Income taxes: International Tax Reform Pillar Two Model Rules (issued on 23 May 2023)

Standards and Interpretations issued but not yet effective in the current period

No amendments to standards that are issued but not yet effective are considered to materially affect the Company's accounting policies or any of the disclosures when applied for the first time. The Company has not early adopted any of the below.

Amendments to IAS 1 'Presentation of Financial Statements: Classification of Liabilities as current or non-current' (effective January 1, 2024), affect only the presentation of liabilities in the statement of financial position — not the amount or timing of recognition of any asset, liability income or expenses, or the information that entities disclose about those items.

The amendments:

- clarify that the classification of liabilities as current or non-current should be based on rights that are in existence at the end of the reporting period and align the wording in all affected paragraphs to refer to the "right" to defer settlement by at least twelve months and make explicit that only rights in place "at the end of the reporting period" should affect the classification of a liability;
- clarify that classification is unaffected by expectations about whether an entity will exercise its right to defer settlement of a liability; and make clear that settlement refers to the transfer to the counterparty of cash, equity instruments, other assets or services; and
- clarify how conditions with which an entity must comply within 12 months after the reporting period, such as covenants, affect the corresponding liability's classification.

Amendments to IFRS 16 Leases: Lease Liability in a Sale and Leaseback (effective January 1, 2024). The amendments explain how an entity accounts for a sale and leaseback after the date of the transaction, specifically where some or all the lease payments are variable lease payments that do not depend on an index or rate. They state that, in subsequently measuring the lease liability, the seller-lessee determines 'lease payments' and 'revised lease payments' in a way that does not result in the seller-lessee recognizing any amount of the gain or loss that relates to the right of use it retains. Any gains and losses relating to the full or partial termination of a lease continue to be recognized when they occur as these relate to the right of use terminated and not the right of use retained.

Amendments to IAS 7 'Statement of Cash Flows' and IFRS 7 'Financial Instruments: Disclosures'1: Supplier Finance Arrangements (effective 1 January 2024). The amendments add disclosure requirements, and 'signposts' within existing disclosure requirements, that ask entities to provide qualitative and quantitative information about supplier finance arrangements.

The amendments:

- Do not define supplier finance arrangements.
- Add two disclosure objectives. Entities will have to disclose in the notes information that enables users of financial statements to assess how supplier finance arrangements affect an entity's liabilities and cash flows and to understand the effect of supplier finance arrangements on an entity's exposure to liquidity risk and how the entity might be affected if the arrangements were no longer available to it.
- Complement current requirements in IFRSs by adding to IAS 7 additional disclosure requirements about the type and effect of non-cash changes in the carrying amounts of the financial liabilities that are part of the arrangement and the terms and conditions of the supplier finance arrangements; for the arrangements, as at the beginning and end of the reporting period:
 - the carrying amounts of financial liabilities that are part of the arrangement and the associated line item presented;
 - the carrying amount of financial liabilities disclosed under a) for which suppliers have already received payment from the finance providers;
 - the range of payment due dates (for example, 30 to 40 days after the invoice date) of financial liabilities disclosed under a) and comparable trade payables that are not part of a supplier finance arrangement.

Amendments to IAS 21 'The Effects of Changes in Foreign Exchange Rates: Lack of Exchangeability'1, (effective 1 January 2025). The amendments to IAS 21 The Effects of Changes in Foreign Exchange Rates require disclosure of information that enables users of financial statements to understand the impact of a currency not being exchangeable.

The amendments:

- Specify when a currency is exchangeable into another currency and when it is not.
- Specify how an entity determines the exchange rate to apply when a currency is not exchangeable.
- Require the disclosure of additional information when a currency is not exchangeable.

3 Material accounting policies

Basis for consolidation

The consolidated financial statements comprise the financial statements of the Group and its subsidiaries.

Entities are fully consolidated from the date of acquisition, which is the date when the Group obtains control, and continue to be consolidated until the date when such control ceases. The financial statements of the entities are prepared for the same reporting period as the parent company, using consistent accounting policies.

Foreign currency translation

The Group's consolidated financial statements are presented in euros, which is also the parent company's functional currency. For each entity, the Group determines the functional currency, and items included in the financial statements of each entity are measured using the functional currency.

Financial statements of foreign subsidiaries

Foreign subsidiaries use the local currencies of the country where they operate. The statement of financial position is translated into euro at the closing rate on the reporting date and their income statement is translated at the average exchange rate at each month-end. Differences resulting from the translation of the financial statements of said subsidiaries are recognized in other comprehensive income as "exchange differences on translation of foreign operations".

Business combinations and goodwill

Business combinations are accounted for using the acquisition method at the acquisition date, which is the date at which the Group obtains control over the entity. The cost of an acquisition is measured as the amount of the consideration transferred to the seller, measured at the acquisition date fair value, and the amount of any non-controlling interest in the acquiree.

Acquisition costs incurred are expensed and included in general and administrative expenses.

Property, plant & equipment

Property, plant and equipment is stated at cost, net of accumulated depreciation and/or accumulated impairment losses, if any. Repair and maintenance costs are recognized in the income statement as incurred.

Depreciation is calculated on a straight-line basis over the estimated useful lives of the assets as follows:

Buildings: 20-30 years
Machinery: 5-12 years
IT assets: 3-5 years
Fixtures & Furniture: 10-15 years
Vehicles: 2-4 years
Leasehold Building Improvements: 10 years

Land is not depreciated.

An item of property, plant and equipment and any significant part initially recognized is derecognized upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in the income statement when the asset is derecognized.

The assets' residual values, useful lives and methods of depreciation are reviewed at each financial year-end and adjusted prospectively, if appropriate.

Right-of-use assets and related liabilities

Right-of-use assets:

The Group recognizes right-of-use assets at the commencement date of the lease (i.e., the date the underlying asset is available for use). Unless the Group is reasonably certain to obtain ownership of the leased asset at the end of the lease term, the recognized right-of-use assets are depreciated on a straight-line basis over the shorter of its estimated useful life and the lease term:

- Property leased Assets: Lease terms up to 10 years or useful life of 10-15 years when reasonably certain that ownership will be obtained at the end of the lease
- Leased machines: Lease terms up to 10 years or useful life of 5-10 years when reasonably certain that ownership will be obtained at the end of the lease
- Leased vehicles: Lease terms up to 4 years or useful life of 4 years when reasonably certain that ownership will be obtained at the end of the lease

Right-of-use assets are subject to impairment review whenever there is an indication that the right-of-use asset may be impaired.

Lease liabilities:

In calculating the present value of lease payments, the Group uses the incremental borrowing rate at the lease commencement date. After the commencement date, the amount of lease liabilities is measured at amortized cost using the effective interest rate method.

In addition, the carrying amount of lease liabilities is remeasured when there is a change in future lease payments arising from a change in an index or a rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee, if the Group changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment. When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

Short-term leases and leases of low-value assets:

The Group applies the short-term lease recognition exemption to its short-term leases of machinery and equipment (i.e., those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option) however this exemption is not applied for property leases. It also applies the lease of low-value assets recognition exemption to leases of office equipment that are considered of low value (i.e., below € 5k). Lease payments on short-term leases and low-value assets are recognized in the income statement when incurred.

Research and development

Research and development includes the costs incurred by activities related to the development of software solutions (new products, updates and enhancements), guides and other products.

Development activities involve the application of research findings or other knowledge to a plan or a design of new or substantially improved (software) products before the start of the commercial use.

Development expenditures on an individual project are recognized as an intangible asset when the Group can demonstrate:

- the technical feasibility of completing the intangible asset so that the asset will be available for use or sale;
- its intention to complete and its ability to use or sell the asset;
- how the asset will generate future economic benefits;
- the availability of resources to complete the asset; and
- the ability to measure reliably the expenditure during development.

The Group has determined that the conditions for recognizing internally generated intangible assets from proprietary software, guide and other product development activities are not met until shortly before the products are available for sale, unless either (i) the Group has strong evidence that the above criteria are met and a detailed business plan is available showing the asset will on a reasonable basis generate future economic benefits or (ii) the development is done based upon specific request of the customer, it is highly likely that the Group will be able to market the product also to other parties than the customer, the development is subject to an agreement and the substance of the agreement is that the customer reimburses the Group for a significant portion, but not all, of the development expenses incurred. As such, development expenditures not satisfying the above criteria and expenditures on the research phase of internal projects are recognized in the consolidated income statement as incurred. Internally generated intangible assets from proprietary software are amortized over their useful lives, starting from the moment they are ready for use/available for sale.

Following initial recognition of the development expenditure as an asset, the asset is carried at cost less any accumulated amortization and accumulated impairment losses. Amortization of the asset begins when development is complete and the asset is available for use. It is amortized over the period of expected future benefit, which is determined on a project-by-project basis. Amortization is recorded in research and development expenditure. During the period of development, the asset is tested for impairment at least annually or whenever there is an indication of impairment.

Intangible assets other than goodwill and capitalized development expenditures

Intangible assets comprise acquired technology and customer portfolio, patents and licenses and technology and customers acquired in connection with business combinations. Those intangible assets are measured on initial recognition at cost, except for the acquired technology and customers arising from business combinations, which are measured initially at fair value. Following initial recognition, intangible assets other than goodwill are carried at cost less any accumulated amortization and accumulated impairment losses, if any.

The useful life of the intangible assets is as follows:

• Software: 3 years;

Perpetual licences for ERP & front end software : 10 years;

• Software with subscription license : subscription term

• Patents and licenses: 10 years;

• Acquired customers and technology: 5-20 years;

The intangible assets with finite lives are amortized over their useful economic life and assessed for impairment whenever there is an indication that the intangible asset may be impaired. The amortization period and the amortization method for an intangible asset with a finite useful life are reviewed at least at the end of each reporting period. The amortization expense on intangible assets with finite lives acquired through business combination is recognized in the consolidated income statement in the line "net other operating income".

Impairment of goodwill and other non-financial assets (excluding inventories and deferred tax assets)

Impairment tests on goodwill, assets under construction or capitalized development expenses which are not amortized yet, are undertaken annually at the financial year end. Other non-financial assets and goodwill are subject to impairment tests whenever events or changes in circumstances indicate that their carrying amount may not be recoverable. Where the carrying value of an asset exceeds its recoverable amount (i.e. the higher of value in use and fair value less costs to sell), the asset is written down accordingly.

Where it is not possible to estimate the recoverable amount of an individual asset, the impairment test is carried out on the smallest Group of assets to which it belongs for which there are separately identifiable cash flows: its cash generating units (CGUs). Goodwill is allocated on initial recognition to each of the Group's CGUs that are expected to benefit from the synergies of the combination giving rise to the goodwill.

The Group bases its impairment calculation on detailed budgets and forecast calculations, which are prepared separately for each of the Group's CGUs to which the individual assets are allocated. These budgets and forecast calculations cover a period of five years. For longer periods, a long-term growth rate is calculated and applied to future cash flows projected after the fifth year.

Impairment charges are included in profit or loss. An impairment loss recognized for goodwill is not reversed.

Inventories and Contracts in progress

Inventories are valued at the lower of cost and net realizable value. Costs incurred in bringing each product to its present location and condition are accounted for as follows:

- · raw materials: purchase cost on a first in, first out basis; and
- finished goods and work in progress: cost of direct materials and labor and a proportion of manufacturing overheads based on the normal operating capacity, but excluding borrowing costs.

Net realizable value is the estimated selling price in the ordinary course of business, less estimated costs of completion and the estimated costs necessary to make the sale.

A write-off of inventories is estimated based on an ageing or rotation analysis.

Work in progress relates to production of inventory for which a customer has not yet been secured, while contracts in progress are contract assets that relate to production for specific customers in performance of a signed contract. We refer also to the accounting policy on revenue recognition.

Financial assets

Trade receivables and debt instruments issued are initially recognized when they are originated. All other financial assets are initially recognized when the Group become a party to the contractual provisions of the instrument.

Financial assets are classified at initial recognition, and subsequently measured either at amortized cost, either fair value through other comprehensive income (OCI), and fair value through profit or loss. The classification of financial assets at initial recognition depends on the financial asset's contractual cash flow characteristics and the Group's business model for managing them.

Except for trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient, the Group initially measures a financial asset at its fair value plus transaction costs, in the case of a financial asset not at fair value through profit or loss. Trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient are measured at the transaction price.

For purposes of subsequent measurement, financial assets are classified in four categories:

- Financial assets at amortized cost;
- Financial assets at fair value through OCI with recycling of cumulative gains and losses (debt instruments);
- Financial assets designated at fair value through OCI with no recycling of cumulative gains and losses upon derecognition (equity instruments); and
- Financial assets at fair value through profit or loss.

Financial assets measured at amortized cost

This category is the most relevant to the Group. The Group measures financial assets at amortized cost if both of the following conditions are met:

- the financial asset is held within a business model with the objective to hold financial assets in order to collect contractual cash flows;
- the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Financial assets, trade and other receivables, cash and cash equivalents at amortized cost are subsequently measured using the effective interest rate (EIR) method and are subject to impairment. Gains and losses are recognized in profit or loss when the asset is derecognized, modified or impaired.

Financial assets at fair value through OCI with recycling of cumulative gains and losses (debt instruments)

The Group currently does not have financial assets at fair value through OCI with recycling of cumulative gains and losses.

Financial assets designated at fair value through OCI with no recycling of cumulative gains and losses upon derecognition (equity instruments)

The Group has irrevocably elected at initial recognition to classify the minority equity investment in the non-listed company AM-Flow BV and Essentium, as disclosed in Note 10 and Note 20, as financial asset designated at fair value through OCI as this measurement is most representative of the business model for these assets. Gain and losses on these financial assets are never recycled to profit and loss.

Financial assets measured at fair value through profit or loss

The Group has the following financial assets classified as financial assets at fair value through profit or loss:

- derivatives as disclosed in Note 10;
- a convertible loan granted to the company Fluidda as disclosed in Note 10.

Those financial assets are carried in the statement of financial position at fair value with changes recognized in the income statement in the lines financial income/expense.

Impairment of financial assets

Further disclosures relating to impairment of financial assets are also provided in Note 3 Significant accounting judgments, estimates and assumptions.

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

For trade receivables and contract assets, the Group applies a simplified approach in calculating ECLs. A loss allowance is recognized at each reporting date based on lifetime ECLs. The Group established a provision matrix that is based on its historical loss experience, adjusted for forward-looking factors specific to the debtors and the economic environment.

Financial liabilities

All financial liabilities are recognized initially at fair value and, in the case of loans and borrowings and payables, net of directly attributable transaction costs

The Group's financial liabilities include trade and other payables, loans and borrowings including bank overdrafts and derivative financial instruments.

Financial liabilities at amortized cost

The trade and other payables, and loans and borrowings are classified as financial liabilities at amortized cost.

Those financial liabilities are measured at amortized cost using the effective interest rate method. Gains and losses are recognized in the income statement when the liabilities are derecognized as well as through the effective interest rate method amortization process.

Financial liabilities at fair value through profit and loss

The derivative financial instruments are classified as financial liabilities at fair value through profit and loss.

Share capital

Financial instruments issued by the Group are classified as equity only to the extent that they do not meet the definition of a financial liability or financial asset. The Group's ordinary shares are classified as equity instruments.

Pension benefits

The Group has a defined contribution obligation where the Group pays contributions based on salaries to an insurance company, in accordance with the laws and agreements in each country.

The Belgian defined contribution pension plans are by law with variable minimum returns based on the Belgian government bonds, with a minimum of 1.75% and a maximum of 3.75%, effective for contributions paid as from 2016. For contribution paid until 2015, the minimum guaranteed return is 3.25% on employer contributions and 3.75% on employee contributions.

These plans qualify as defined benefit plans. Contributions are recognized as expenses for the period in which employees perform the corresponding services. Outstanding payments at the end of the period are shown as other current liabilities.

Share based payments

Directors and employees (including senior executives) of the Group receive remuneration in the form of share-based payments, whereby employees render services as consideration for equity instruments (equity-settled transactions). The Group currently has only warrants and share-appreciation rights as share-based payments.

Equity-settled transactions

Equity-settled share-based payments to employees and others providing similar services are measured, indirectly, at the fair value of the equity instruments granted. The cost of equity-settled transactions is recognized, together with a corresponding increase in other capital reserves in equity, over the period in which the performance and/or service conditions are fulfilled. The cumulative expense recognized for equity-settled transactions at each reporting date until the vesting date reflects the extent to which the vesting period has expired and the Group's best estimate of the number of equity instruments that will ultimately vest. The income statement expense or credit for a period represents the movement in cumulative expense recognized at the beginning and end of that period and is recognized as employee benefits expense.

The Group does currently only have equity-settled share-based payments that have service-based vesting conditions and no instruments with market vesting conditions.

No expense is recognized for awards that do not ultimately vest.

Other long-term employee benefits

The Group's net obligation for long-term employee benefits is equal to the value of future benefits acquired by personnel in exchange for services rendered in the current and prior periods.

Revenue from contracts with customers

The Group's revenue, which is presented net of sales taxes, is primarily generated by the sale of our software and 3D printed products and services. Software revenue is comprised of perpetual and periodic licenses, maintenance revenue and software development service fees. Perpetual license holders may opt to take an annual maintenance contract, which leads to annual fees. Periodic licenses entitle the customer to maintenance, support and product updates without additional charge. Revenue from prototypes and end products involving 3D printing technology is derived from our network of production centers and may include support and services such as pre-production collaboration prior to the actual production.

The Group sells its products and software through its direct sales force and through authorized distributors.

Software license revenue, maintenance and/or software development service fees may be bundled in one arrangement or may be sold separately.

The Group recognizes revenue for goods including software based on the five-step model per the requirements of IFRS 15.

Revenue from contracts with customers is recognized when control of the goods or services is transferred to the customer at an amount that reflects the consideration to which the Group is expected to be entitled in exchange from those goods and services.

If the consideration in a contract includes a variable amount, the Group estimates the amount of consideration to which it will be entitled in exchange for transferring the goods to the customer. The variable consideration is estimated at contract inception and constrained until it is highly probable that a significant revenue reversal in the amount of cumulative revenue recognized will not occur when the associated uncertainty with the variable consideration is subsequently resolved. Variable consideration is mainly related to quantities sold, volume (step-based) rebates and development time spent.

Prototypes and end products involving 3D printing technology

The Group recognizes revenue on the sale of goods to the customer or distributor at a point in time when control of the asset is transferred, generally upon shipment or delivery considering the shipment terms (usually Ex-works or FOB Time of Shipment Incoterms (International Commercial Terms)).

Perpetual licensed software

The sale and/or license of software products is deemed to have occurred at a point in time, i.e. when a customer either has taken possession of or has the ability to take immediate possession of the software and the software key.

Most of the perpetual software licenses include one year maintenance and support services as a separate performance obligation. The Group sells these maintenance services also on a stand-alone basis and is therefore capable of determining their stand-alone selling price. On this basis, the amount of the embedded maintenance is separated from the fee for the perpetual license and is recognized ratably over the period to which they relate.

Time-based licensed software

The time-based license agreements include the use of a software license for a fixed term and maintenance and support services during the same period. The Group does not sell time-based licenses without maintenance and support services and therefore revenues are satisfied over time for the entire arrangements and are recognized ratably over the term.

Maintenance and support services

Maintenance and support services are satisfied over time and as such, the Group recognizes this revenue ratably on a straight-line basis over the term that the maintenance service is provided. In general, maintenance services are not automatically renewed.

A maintenance and support contract may include a reinstatement for previous years when the customer did not have a maintenance and support contract previously. Revenue from reinstatements is recognized immediately when the maintenance and support services commence.

Software development services (SDS)

SDS include customized development of software components for customers. Revenue from SDS agreements when distinct from other performance obligations is satisfied over time or at a point in time, depending whether one of the IFRS 15.35 criteria for performance obligations to be satisfied over time is met or not. In case of recognition over time, revenue is recognized either on time and material basis or on the stage of completion of each service when the percentage of completion can be measured reliably.

The Group determines the percentage-of-completion by comparing labor hours incurred to-date to the estimated total labor hours required to complete the project. The Group considers labor hours to be the most reliable available measure of progress on these projects. Adjustments to the Group's estimates of the time to completion are made when facts resulting in a change become known. When the estimate indicates that a loss will be incurred, such loss is recognized immediately.

In case of recognition at a point in time revenue is recognized when control over the product is transferred to the customer.

Contracts with multiple performance obligations

The Group has entered into a number of contracts with multiple performance obligations, such as when selling perpetual licenses that may include maintenance and support (included in the price of perpetual licenses) and time-based licenses (that include embedded maintenance and support, both of which may be sold with software development services, training, and other product sales). In some cases, the Group delivers software development services bundled with the sale of the software.

The Group evaluates whether each performance obligation is distinct from each other, i.e. the customer can benefit from the good or service on its own, or with readily available resources. Certain development services significantly modify and/or enhance the software license and as such are not considered distinct and combined with the software license.

In those contracts, whether sold to end-customers or to collaboration partners, the Group uses either price list, historical pricing information or management's best estimate of selling prices (e.g. also using a cost-plus method) to determine the stand-alone selling price for each distinct performance obligation, including software and software-related services such as maintenance and support. In general, elements in such arrangements are also sold on a stand-alone basis and stand-alone selling prices are readily available. If the stand-alone selling price of one or more goods or services in such arrangements is highly variable or uncertain, the Group estimates the stand-alone selling price with reference to the total transaction price less the sum of the observable stand-alone selling prices of other goods or services promised in the contract.

Revenue is allocated to each distinct performance obligation ("PO") based on the relative percentage of the stand-alone selling price for each PO compared to the total of stand-alone selling prices for all PO over the total transaction price and is recognized when the revenue recognition criteria described above are met.

Contracts with collaboration partners in the medical segment also include multiple elements such as software, maintenance and support services, training, software development services, 3D printed products and royalties. Revenue from those contracts is determined and recognized consistent with other multiple element arrangements.

For certain contracts with collaboration partners, the Group receives up-front fees, paid by customers for certain exclusivity rights, which may be bundled with transfer of title, rights and ownership of certain software products and maintenance and support services. In case the up-front fees do not relate to already delivered good or services, the Group includes the up-front fees in the total transaction price which is then allocated to all the distinct performance obligations. Other contracts with collaboration partners include prepaid fees to purchase a maximum number of "Plan Only" cases or case 'bundles' during a 12-month period. In this case, the prepaid fees are recognized over the period of 12 months based on the expected number of cases that will be purchased.

Contract assets

A contract asset is the right to consideration in exchange for goods or services transferred to the customer. If the Group performs by transferring goods or services to a customer before the customer pays consideration or before payment is due, a contract asset is recognized for the earned consideration that is conditional. Contract assets are only contracts in progress that are disclosed with the line inventory and contracts in progress in the statement of financial position. We refer to our accounting policies regarding Inventories and Contracts in Progress.

Contract liabilities

A contract liability is the obligation to transfer goods or services to a customer for which the Group has received consideration (or an amount of consideration is due) from the customer. If a customer pays consideration before the Group transfers goods or services to the customer, a contract liability is recognized when the payment is made or the payment is due (whichever is earlier). Contract liabilities are recognized as revenue when the Group performs under the contract. Contract liabilities are presented as deferred income in the statement of financial position.

Government grants

Government grants are recognized when there is reasonable assurance that the grant will be received and all attached conditions will be complied with. When the grant relates to development costs or another expense, it is recognized as income over the grant period necessary to match the income on a systematic basis to the costs that it is intended to compensate. When the grant relates to the construction of buildings, it is recognized as income over the depreciation period of the related building.

Such grants have been received from the federal and regional governments and from the European Union in the forms of grants linked to certain of its research and development programs, reduced payroll taxes and the financing of the construction of an office building in Leuven (Belgium) and in Freiberg (Germany).

Where retention of a government grant related to assets or to income, is dependent on the Group satisfying certain criteria, it is initially recognized as deferred income. When the criteria for retention have been satisfied, the deferred income balance is released to other operating income in the consolidated income statement on a systematic basis over the periods in which the entity recognizes as expenses the related costs for which the grants are intended to compensate.

Other financial income and expenses

Other financial income and expenses include mainly foreign currency gains or losses on financial transactions and bank related expenses.

Taxes

Current income tax

Income tax assets and liabilities for the current period are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted, at the reporting date.

Current income tax relating to items that are recognized directly in equity is recognized in equity and not in the income statement. Management periodically evaluates positions taken in the tax returns with respect to situations in which applicable tax regulations are subject to interpretation and establishes provisions where appropriate.

Deferred tax

Deferred tax is calculated using the liability method on temporary differences at the reporting date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes.

Deferred tax liabilities are recognized for all taxable temporary differences. Deferred tax assets are recognized for all deductible temporary differences, carry forward of unused tax credits and unused tax losses, to the extent that it is probable that taxable profit will be available against which the deductible temporary differences or the carry forward of unused tax credits and unused tax losses can be utilized. In order for any deferred tax assets to be recognized, and at a minimum, the respective Materialise entity should have recorded a taxable profit in the current year and it should be probable that a taxable profit will be achieved in the subsequent year.

The carrying amount of deferred tax assets is reviewed at each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilized. Unrecognized deferred tax assets are reassessed at each reporting date and are recognized to the extent that it has become probable that future taxable profits will allow the deferred tax asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the year when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been (substantively) enacted at the reporting date.

Deferred tax assets and deferred tax liabilities are offset, if a legally enforceable right exists to set off current tax assets against current income tax liabilities and the deferred taxes relate to the same taxable entity and the same taxation authority.

Significant accounting judgments, estimates and assumptions

The preparation of the Group's consolidated financial statements requires management to make judgments, estimates and assumptions that affect the reported amounts of revenue, expenses, assets and liabilities, and related disclosures. Uncertainty about these assumptions and estimates could lead to outcomes that require a material adjustment to the carrying amount of assets or liabilities for future periods.

The Group reviews its estimates, assumptions and judgments on an ongoing basis, including those related to revenue recognition, development expenses, share-based payment transactions, income taxes, impairment of goodwill, intangible assets and property, plant & equipment and business combinations, provisions for expected credit losses, convertible loans, equity instruments, useful lives of certain assets and leases.

The Group has based its assumptions and estimates on the parameters that were available when the consolidated financial statements were prepared. However, existing conditions and assumptions about future developments may change due to market changes or circumstances beyond the Group's control. Such changes are incorporated into the assumptions as they occur.

Revenue recognition

Our revenue recognition policy requires management to make significant estimates. Management analyzes various factors, including an evaluation of specific transactions, historical experience, creditworthiness of customers and current market and economic conditions. Changes in judgments based upon these factors may affect the timing and amount of revenues and expenses recognized and, consequently, the results of operations and financial condition. Significant estimates and judgments relate to:

- assessing whether a performance obligation is distinct in a bundled sales transactions;
- estimation of the variable considerations and the revenue constraint;
- estimation of stand-alone selling prices for each distinct performance obligation; and
- the stage of completion of our custom development of software components for customers when revenues are satisfied over time.

The Group makes significant judgments when performing the assessment of whether a performance obligation is distinct from the other performance obligations in a contract, i.e. whether the good or service has a benefit to the customer in its own or together with readily available resources and/or whether the good or service is highly interrelated or constitutes a significant input with another good or service provided, or whether it significantly modifies or tailors another good or service. The relevant assessments include but are not limited to the following:

- Whether the software license is distinct from the 3D printed guides in most cases with contracts with collaborative partners in the
 Materialise Medical segment, the software licenses are combined with the manufacturing of the 3D printed guides, as the software
 license has no benefit to the customer without the manufacturing services.
- Whether the development services are distinct from other performance obligations in most cases these performance obligations
 are distinct but for certain contracts, the software license may be combined with the license and the 3D printed guides as one distinct
 performance obligation.

For stand-alone selling prices, the Group uses prices from price lists or historical prices for similar transactions. However, in certain cases such information is not readily available and in those cases the Group estimates the stand-alone selling price based on a cost plus mark-up or other estimate. In addition, for certain performance obligations such as development services, the stand-alone selling prices also require an estimate of the time required to complete the development. If the Group determines that the stand-alone selling price of one or more goods or services in a multiple element arrangement is highly variable or uncertain, the Group estimates the stand-alone selling price with reference to the total transaction price less the sum of the observable stand-alone selling prices of other goods or services promised in the contract.

Certain contracts include estimates of variable considerations within the transaction price and assessing the revenue constraint, such as:

- quantities/volume sold at fixed prices related to, but not limited to, the manufacturing of 3D printed products, software licenses sold, maintenance renewals;
- contractual prices may vary based on volume purchased during a given period;
- FTE expenses for development or other services billed on a time and material basis; and
- volume rebates.

The method used to estimate the variable consideration depends on the number of possible scenarios and the probability of each scenario. If there are many possible scenarios with a high probability (each less than 50%), the Group will use the expected value method, while the most likely method is used when there is a scenario with a higher probability (more than 50%).

Variable consideration is not constrained when the Group determines, based on historical experience, a high reliable business forecast and/or the time frame of the estimates, that there is a high probability that it will not result in a future reversal of revenue.

We determine the stage of completion for development contracts satisfied over time by comparing the labor hours incurred to date with the estimated total labor hours required to complete the project. We consider labor hours to be the most reliable, available measure of progress on these projects. Adjustments to estimates are made in the period when facts that give rise to a change become known. When the estimate indicates that a loss will be incurred, the loss is recorded in the relevant period. Significant judgments and estimates are involved in determining the percentage of completion for each contract. Different assumptions can produce materially different results.

Development expenses

Determining whether internally generated intangible assets from development should be recognized as intangible assets requires significant judgment, particularly in determining whether the activities are considered research activities or development activities, whether the product enhancement is substantial, whether completion of the asset is technically feasible considering a company-specific approach, the likelihood of future economic benefits from sale or use, including an assessment of whether FDA approval will be obtained.

The Group has determined that the conditions for recognizing internally generated intangible assets from its own software, guides and other product development activities are not met until shortly before the products are available for sale, unless either (i) the Group has strong evidence that the above criteria are met and a detailed business plan is available showing that the asset will generate future economic benefits on a reasonable basis or (ii) the development is done at the specific request of the customer, the Group intends to market the product to other parties than the customer, the development is subject to an agreement and the substance of the agreement is that the customer will reimburse the Group for a significant portion of the development costs incurred. As such, development expenditures that do not meet the above criteria and expenditures for the research phase of internal projects are recognized in the consolidated income statement as incurred. This assessment is monitored by the Group on a regular basis.

The Group capitalized a total of K \in 1,577 of development expenses during 2023 (2022: K \in 2,438; 2021: K \in 1,684) related to capitalized internal development of our digital transformation program for which a detailed business plan is available and the Group expects future economic benefits.

Income taxes

Deferred tax assets are recognized only to the extent that it is probable that taxable profit will be available against which the deductible temporary difference can be utilized. Significant management judgment is required to determine the amount of deferred tax assets that may be recognized, based on the probable timing and level of future taxable profits, together with future tax planning strategies. As of December 31, 2023, the Group had current and non-current receivables related to tax credits for an amount of $K \in 5.281$ (2022; $K \in 5.105$; 2021; $K \in 4.717$).

For any deferred tax assets to be recognized, and at a minimum, the respective Materialise entity should have recorded a taxable profit in the current year and it should be probable that a taxable profit will be achieved in the subsequent year.

Impairment of goodwill, intangible assets and property, plant & equipment and determination of the cash-generating-unit.

The Group has goodwill for a total amount of $K \in 43,158$ as of December 31, 2023 (2022: $K \in 44,155$; 2021: $K \in 18,726$) which has been subject to an impairment test. The goodwill is tested for impairment based on a discounted cash flow model with cash flows for the next five years derived from the budget and a residual value considering a perpetual growth rate. The value in use is sensitive to the discount rate used for the DCF model as well as the expected future cash-inflows and the growth rate used for extrapolation purposes.

Also, as part of the impairment analysis, the Group needs to determine the different CGUs at the lowest non-aggregated level which requires the Group to make judgments about application of the criteria to determine the CGUs based on the facts and circumstances how the entities and business units within the CGU and within the Group operate and are monitored. The level of CGU may also have an impact on certain assumptions to make with regard to transfer pricing.

The key assumptions used to determine the value in use for the different CGUs are disclosed and further explained in Note 5.

During 2023 impairment charges have been recorded for K \in 4,228 (2022: K \in 672; 2021: K \in 177) related to the impairment of goodwill, intangible assets and PPE of Materialise Motion and Engimplan.

Business combinations

We determine and allocate the purchase price of an acquired business to the assets acquired and liabilities assumed as of the business combination date. Business combinations are discussed further in Note 4. The purchase price allocation process requires us to make significant estimates and assumptions, including:

- estimated fair value of the acquired intangible assets;
- · estimated fair value of property, plant and equipment; and
- estimated fair value of the contingent consideration.

While we are using our best estimates and assumptions as part of the purchase price allocation process to accurately value assets acquired and liabilities assumed at the date of acquisition, our estimates and assumptions are inherently uncertain and subject to refinement. Examples of critical estimates in valuing certain of the intangible assets we have acquired or may acquire in the future include but are not limited to:

- future expected cash flows from customer contracts and relationships, software license sales and maintenance agreements;
- the fair value of the plant and equipment
- the fair value of the deferred revenue; and
- discount rates.

Convertible debt instruments

At December 31, 2023 the Group holds a convertible debt instrument issued by Fluidda which is measured at fair value through profit & loss. In determining the fair value of those convertible debt instruments, the Group considers different contractual parameters such as the repayment and conversion scenarios and dates. In addition, the Group needs to make significant estimates such as (i) the discount rate, (ii) the probabilities for each repayment and conversion scenario, (iii) the amount of a qualified capital increase that will determine the conversion factor and (iv) the timing for each repayment and conversion scenario.

The convertible loan granted to Fluidda in January 2019 has a notional amount of $K \in 2,500$. The carrying value of the convertible loan as of December 31, 2023 amounted to $K \in 3,744$. The convertible loan has a duration of 7 years with a 10% annual interest rate which is capitalized. In the fair value analysis, the Group has applied a discount factor of 13.32% that is based on the estimated WACC of Fluidda reflecting the uncertainty in relation to the success of the company and the applied estimates by the Group.

The Group previously granted a convertible loan to AM Flow in January 2020 with a notional amount of K€300. The loan was converted into shares of AM Flow in September 2020 at a fair value of K€307. Despite a fundamental restructuring program implemented in 2023, AM Flow continues to be loss making, with no outlook on quick turnaround. Additional fund-raising and external debt were required in 2023 to avoid acute liquidity issues. As a result of these elements, and considering the Group's subordinate position as shareholder, the Group remeasured the fair value of its investment to zero on December 31, 2023 and recognized a K€307 downward fair value adjustment in OCI for the year ended December 31, 2023.

Equity investment held in Essentium

The Group acquired an equity investment of K\$3,300 in Essentium, a non-listed US company during 2018 and 2019. The Group has elected to measure the equity investment at fair value with changes in fair value recognized in OCI. As a result of liquidity issues at Essentium and considering the Group's subordinate position as shareholder, the Group remeasured the fair value of its investment to zero on December 31, 2021 and recognized a K€3,443 downward fair value adjustment in OCI for the year ended December 31, 2021. The Group determined that the fair value of this equity investment remained zero at December 31, 2022. Early January 2024 the company entered into an asset deal with Nexa3D, Inc. transferring virtually all of its assets in exchange for a stake in the common stock of Nexa3D, Inc. Taking into account the terms and conditions of this transaction, the Group determined that the fair value of this equity investment remained nevertheless zero at December 31, 2023.

Leases - estimating the discount rate and probability of exercising extension options/termination options and purchase options

The Group cannot always determine the interest rate implicit in the lease contract and therefore, the Group has to estimate the incremental borrowing rate to measure certain lease liabilities such as buildings. The Group uses for buildings the property yield as reference to determine the incremental borrowing rate. For other assets, the Group generally uses the interest rate implicit in the lease contract or applies the incremental borrowing rate for a portfolio of similar assets. The incremental borrowing rate reflects what the Group "would have to pay", which requires estimation when no observable rates are available or when they need to be adjusted to reflect the terms and conditions of the lease.

In addition, certain lease contracts may have extension options, termination options in case of property leases and/or purchase options in case of leases. The Group estimates whether it is reasonably certain or not, whether those options will be exercised or not, which impact the lease term in case of extension options and termination options and the period over which the lease assets are depreciated in case of purchase options.

4 Business Combinations

Acquisitions in 2023

The Group did not effect any business combinations in the course of 2023.

Acquisitions in 2022

Materialise Link3D, Inc.

On April 9, 2021, the Group acquired an option to buy Link3D, Inc. ("Link3D") On November 15, 2021, Materialise provided notice to Link3D of its intention to exercise the option. The acquisition was completed on January 4, 2022. This acquisition was realized by the Group's U.S. subsidiary, Materialise USA, LLC by exercising our call option. As a result of this transaction, Materialise USA became the sole shareholder of Link3D. On January 4, 2022, the Group completed the acquisition and obtained control of Link3D. Link3D is an additive workflow and digital manufacturing software company. The Group acquired 100% of voting equity interests in Link3D for a total cash consideration of K€26,747.

The acquisition of Link3D is expected to strengthen and accelerate the creation of the Materialise software platform, particularly for companies that are scaling up their additive manufacturing operations to volume production. By integrating Link3D's additive MES (Manufacturing Execution System) solution with the Materialise Magics software suite into a unified, cloud-based software platform, manufacturers will be able to run and continuously improve the most efficient, repeatable, automated and controlled processes to mass-produce identical or customized products. This process extends beyond the actual 3D printing operations and creates a closer alignment between 3D printing and conventional manufacturing, signaling the removal of the wall between both production environments.

On October 1, 2022, Link3D was merged into parent entity Materialise USA.

The fair value of the identifiable assets and liabilities at the date of acquisition was assessed at:

	Carrying value at acquisition date	Fair value adjust- ments	Fair value at acquisi- tion date
in 000€			
Assets			
Brands and trademarks	-	1,066	1,066
Software	-	6,892	6,892
IT, Furniture & Vehicles	21	-	21
Right-of-use assets	155	-	155
Deferred tax assets	2,149	121	2,270
Trade receivables	768	-	768
Other current assets	200	_	200
Cash & cash equivalents	1,135	-	1,135
Total Assets	4,428	8,079	12,507
Liabilities			
Long-term borrowings & Leases	(2,258)	-	(2,258)
Other non-current liabilities	-	-	-
Short-term borrowings & Leases	(1,926)	-	(1,926)
Deferred tax liability	_	(2,270)	(2,270)
Trade payables	(59)	_	(59)
Payroll-related payables	(1,012)	-	(1,012)

Acquisition price	-	-	26,747
Goodwill	_	23,251	23,251
Total identified assets and liabilities	(2,762)	6,258	3,496
Total Liabilities	(7,190)	(1,821)	(9,011)
Other current liabilities	(649)	-	(649)
Deferred revenue	(1,286)	449	(837)

The fair value of the identified assets and liabilities included in our consolidated financial statements at the acquisition date was $K \in 3,496$. The Group acquired 100% of voting equity interests in Link3D Inc. for a total consideration of $K \in 26,747$. This is the fair value of the identified assets and liabilities increased by a goodwill of $K \in 23,251$.

The goodwill recognized is primarily attributable to the trained and knowledgeable workforce and to the expected synergies that will be realized at the level of development, manufacturing and the existing customer base. The goodwill is not deductible for income tax purposes.

The accounting for the business combination resulted in fair values at date of acquisition of $K \in 1,066$ for Brands and trademarks (useful life of 1 year) and $K \in 6,892$ for software (useful life of 7 years). The valuation technique used to measure the fair value of brands and trademarks, as well as software, was the relief-from-royalty method. The relief-from-royalty method considers the discounted estimated royalty payments that the Group would be prepared to pay to license the respective asset under a contract if it did not own the asset. Key assumptions used in the application of this valuation technique include the forecasted year-on-year growth rate of revenue, the software royalty rate, the brands and trademarks royalty rate and the discount rate. A deferred tax liability was recognized of $K \in (2,270)$ on the adjusted fair values. The discount rate used for the valuation was set at 14.00%. The carrying value of the acquired receivables, the trade and other receivables approximate their fair value due to the short term character of these instruments. Trade receivables acquired comprised gross contractual amounts due of $K \in 992$, of which $K \in 224$ was expected to be uncollectible at the date of acquisition.

The Link3D revenue included in the consolidated financial statement between acquisition date of January 4, 2022 and merger date October 1, 2022 amounted to KE2,631. The amount of revenue between the merger date and December 31, 2022 was KE993. As integration within the Materialise Software segments started immediately it is impracticable to disclose information on profit.

There are no contingent considerations payable.

Materialise Identify3D, Inc.

On September 1, 2022, the Group executed a share purchase agreement and acquired 100% of the shares of Identify3D, Inc. ("Identify3D" or "ID3D") for a total cash consideration of K€3,853. The acquisition was realized by the Group's U.S. subsidiary, Materialise USA, LLC.

With the acquisition of Identify3D the Group wants to address growing data security and integrity requirements and market interest, and to make CO-AM the most secure software platform for distributed manufacturing. This acquisition will allow manufacturers to secure the flow of digital parts and maintain a competitive advantage.

On December 31, 2022, Identify3D was merged into parent entity Materialise USA.

The fair value of the identifiable assets and liabilities at the date of acquisition was assessed at:

in 000€	Carrying value at acquisition date	Fair value adjust- ments	Fair value at acquisi- tion date
Assets			
Brands and trademarks	-	174	174
Software	-	1,723	1,723
Deferred tax assets	474	_	474
Cash & cash equivalents	172	-	172
Total Assets	646	1,897	2,543
Liabilities			
Long-term borrowings	(100)	_	(100)
Deferred tax liability	_	(474)	(474)
Trade payables	(44)	_	(44)
Payroll-related payables	(512)	-	(512)
Total Liabilities	(656)	(474)	(1,130)
Total identified assets and liabilities	(10)	1,423	1,413
Goodwill	_	2,439	2,439
Acquisition price	-	_	3,853

The fair value of the identified assets and liabilities included in our consolidated financial statements at the acquisition date was $K \in 1,413$. The Group acquired 100% of voting equity interests in ID3D Inc. for a total consideration of $K \in 3,853$. This is the fair value of the identified assets and liabilities increased by a goodwill of $K \in 2,439$.

The goodwill recognized is primarily attributable to the trained and knowledgeable workforce and to the expected synergies that will be realized at the level of development, manufacturing and the existing customer base. The goodwill is not deductible for income tax purposes.

The accounting for the business combination resulted in fair values at date of acquisition of $K \in 174$ for Brands and trademarks (useful life of 7 years) and $K \in 1,723$ for software (useful life of 7 years). The valuation technique used to measure the fair value of brands and trademarks, as well as software, was the relief-from-royalty method. The relief-from-royalty method considers the discounted estimated royalty payments that the Group would be prepared to pay to license the respective asset under a contract if it did not own the asset. Key assumptions used in the application of this valuation technique include the forecasted year-on-year growth rate of revenue, the software royalty rate, the brands and trademarks royalty rate and the discount rate. A deferred tax liability was recognized of $K \in (474)$ on the adjusted fair values. The discount rate used for the valuation was set at 14.05%. Trade receivables acquired comprised gross contractual amounts due of $K \in 0$.

The amount of revenue included in the consolidated financial statement between acquisition date of September 1, 2022 and the merger date of December 31, 2022 was K€0. As integration within the Materialise Software segments started immediately it is impracticable to disclose information on profit.

There are no contingent considerations payable.

Acquisitions in 2021

The Group did not effect any business combinations in the course of 2021.

5 Goodwill

The goodwill has been allocated to the cash generating units ("CGU") as follows:

	As	As of December 31,			
in 000€	2023	2022	2021		
CGU: MAT Software	28,961	28,933	3,241		
CGU: e-Prototypy	787	730	743		
CGU: ACTech	8,812	8,812	8,812		
CGU: OrthoView	4,598	4,505	4,755		
CGU: Engimplan	_	_	_		
CGU: Materialise Motion	_	1,175	1,175		
Total	43,158	44,155	18,726		
Total	43,158	44,155	18,726		

The changes in the carrying value of the goodwill can be presented as follows for the years 2023, 2022 and 2021:

in 000€	Gross	Impairment	Total
At January 1, 2021	20,070	(1,471)	18,599
Additions	_	_	_
Impairment	-	(177)	(177)
Currency translation	304	-	304
At December 31, 2021	20,374	(1,648)	18,726
Additions	25,691	-	25,691
Impairment	-	-	_
Currency translation	(263)	-	(263)
At December 31, 2022	45,802	(1,648)	44,155
Additions	-	-	-
Impairment	-	(1,175)	(1,175)
Currency translation	178	-	178
At December 31, 2023	45,980	(2,823)	43,158

The goodwill of MAT Software, Orthoview and e-Prototypy include respectively K€28, K€93 and K€ 57 impact of currency translation in 2023.

The Group has performed an impairment test for all CGUs, estimating the Value-in-Use based on a discounted cash flow model with cash flows for the next five years derived from the budget and a residual value considering a perpetual growth rate. The MAT Software CGU is included in the reportable segment "Materialise Software". The CGUs ACTech, e-Prototypy (PL), and Materialise Motion are included in the reportable segment "Materialise Manufacturing". The CGUs Orthoview (UK) and Engimplan (BR) are included in the reportable segment "Materialise Medical".

CGU: MAT Software

The goodwill allocated to the CGU MAT software relates to the goodwill from the acquisition of Cenat in 2015, the goodwill related to the acquisition of Marcam in 2011 (DE-3D Printing Software), the goodwill from the acquisition of Link3D in 2022 and the goodwill from the acquisition of Identify3D in 2022.

The impairment test is based on the discounted cash flows resulting from the CGU MAT Software, considering a period of five years. The main assumptions for goodwill impairment testing include a discount rate (based on WACC) of 9.91% (11.21% pre-tax) (2022: 9.67% post-tax; 2021: 7.40% post-tax) and a perpetual growth rate of 5% (2022: 5%; 2021: 5%). Other assumptions include the year-on-year growth rate of the revenue, gross margin and the operating costs which has been determined by management based on past experience. It was concluded that the value in use is higher than the carrying value of the cash generating unit of K01,158. Based on the sensitivity analyses performed by the Group, including analyses whereby the discount rate would increase by 100 basis points or the perpetual growth rate would be zero, there are no reasonably possible changes in assumptions that would reduce the value in use below the carrying value of the cash generating unit.

CGU e-Prototypy

The goodwill relates to the acquisition of the Polish entity e-Prototypy . The impairment test on the CGU e-Prototypy is based on the discounted cash flows considering a period of five years. The main assumptions include a discount rate (based on WACC) of 12.89% (14.89% pre-tax) (2022: 12.72% post-tax; 2021: 9.90% post-tax) and a perpetual growth rate of 2% (2022: 2%; 2021: 2%). Other assumptions include the year-on-year growth rate of the revenue, gross margin and the operating costs which has been determined by management based on past experience and continued investments in capex in new 3D printing equipment. It was concluded that the value in use is higher than the carrying value of the cash generating unit of K€4,144. Based on the sensitivity analyses performed by the Group, including analyses whereby the discount rate would increase by 100 basis points or the

perpetual growth rate would be zero, there are no reasonably possible changes in assumptions that would reduce the value in use below the carrying value of the cash generating unit.

CGUACTECH

The impairment test on the CGU ACTech is based on the discounted cash flows, considering a period of five years. The main assumptions include a discount rate (based on WACC) of 8.26% (11.33% pre-tax) (2022: 8.04% post-tax; 2021: 6.36% post-tax) and a perpetual growth rate of 1% (2022: 1%; 2021: 1%). Other assumptions include the year-on-year growth rate of the revenue, gross margin and the operating costs which have been determined by management based on past experience. It was concluded that the value in use is higher than the carrying value of the cash generating unit of K€24,824. Based on the sensitivity analyses performed by the Group, including analyses whereby the discount rate would increase by 100 basis points or the perpetual growth rate would be zero, there are no reasonably possible changes in assumptions that would reduce the value in use below the carrying value of the cash generating unit.

CGU Orthoview

The goodwill relates to the acquisition of Orthoview. The impairment test on the CGU Orthoview is based on the discounted cash flows considering a period of 5 years. The main assumptions include a discount rate (based on WACC) of 10.75% (13.69% pre-tax) (2022: 10.27% post-tax; 2021: 8.05% post-tax) and a perpetual growth rate of 1% (2022: 1%; 2021: 1%). Other assumptions include the year-on-year growth rate of the revenue, gross margin and the operating costs which have been determined by management based on past experience. It was concluded that the value in use is higher than the carrying value of the cash generating unit of K€12,307. Based on the sensitivity analyses performed by the Group, including analyses whereby the discount rate would increase by 100 basis points or the perpetual growth rate would be zero, there are no reasonably possible changes in assumptions that would reduce the value in use below the carrying value of the cash generating unit.

The Orthoview business is integrated in the existing software business within our Materialise Medical segment. Synergies that are expected from joined product lines are not taken into account in the current impairment review as management believes that Orthoview can be considered a separate cash generating unit.

CGU Engimplan

The impairment test on the CGU Engimplan is based on the discounted cash flows, considering a period of 5 years. The main assumptions include a discount rate (based on WACC) of 18.82% (21.26% pre-tax) (2022: 19.84% post-tax; 2021: 15.49% post-tax) and a perpetual growth rate of 7.6% (2022: 8.5%; 2021: 7.0%), supported by an expected long term inflation rate of 4.1%, continued growth opportunities from the increase of the standard of living in Brazil (including access to medical and health care insurances), a growing population in Brazil and export opportunities in Latin America. Other key assumptions include the year-on-year growth rate of the revenue, gross margin and the operating costs which have been determined by both local and Group management based on past experience. It was concluded that the value in use is lower than the carrying value of the cash generating unit of KE9,214 which has resulted in a full impairment of the intangible assets customer lists and trade marks for respectively KE(397) and KE(121) as well as a tangible asset 3D printer for KE(139) as shown in Note 6 and Note 7. The full impairment charge was recognized in the Consolidated income statement under Net other operating income and is included in the reportable segment 'Materialise Medical'.

The key events that led to the impairment loss for the CGU Engimplan were related to a delay of business growth and to less advantage of synergies than initially foreseen.

A sensitivity analysis was performed to assess the impact of changes in the key assumptions used on the current estimated value-in-use and can be summarized as follows:

Sensitivity analysis Engimplan impairment	As of Decem	ber 31, 2023
Relevant assumption	Change applied	Evolution of the value-in-use (in 000€)
•		· · · · · ·
WACC	+1%	(611)
WACC	-1%	739
Perpetual Growth	-1%	(401)

CGU Materialise Motion

The impairment test on the CGU Materialise Motion is based on the discounted cash flows, considering a period of five years. The main assumptions include a discount rate (based on WACC) of 9.91% (11.72% pre-tax) (2022: 9.67% post-tax; 2021: 7.40% post-tax) and a perpetual growth rate of 3% (2022: 5%; 2021: 1%). Other assumptions include the year-on-year growth rate of the revenue, gross margin and the operating costs which have been determined by management based on past experience. It was concluded that the value in use is lower than the carrying value of the cash generating unit

of $K \in 3,605$ which has resulted in a full impairment of the goodwill for an amount of $K \in (1,175)$ as well as a partial impairment on intangible assets partnership agreement, customer list, and developed technology for respectively $K \in (853)$, $K \in (107)$, and $K \in (1,437)$ as shown in Note 6. The full impairment charge was recognized in the Consolidated income statement under Net other operating income and is included in the reportable segment 'Materialise Manufacturing'.

The key event that led to the impairment loss for the CGU Materialise Motion was a delay in business growth versus what was initially foreseen.

A sensitivity analysis was performed to assess the impact of changes in the key assumptions used on the current estimated value-in-use and can be summarized as follows:

Sensitivity analysis Materialise Motion impairment	As of Decem	ber 31, 2023
Relevant assumption	Change applied	Evolution of the value-in-use (in 000€)
•		
WACC	+1%	(1,028)
WACC	-1%	1,405
Perpetual Growth	-3%	(1,629)

6 Intangible assets

The changes in the carrying value of the intangible assets can be presented as follows for the years 2023, 2022 and 2021:

in 000€	Patents and licenses	Software	Acquired customers, technology and order backlog	Developed technology and software under construction	Total
Acquisition value					
At January 1, 2021	4,662	11,494	35,484	4,658	56,298
Additions	660	70	-	3,058	3,788
Acquisition of a subsidiary	_	-	_	_	-
Disposals	(153)	(23)	-	(65)	(242)
Transfer between accounts	272	162	2	(496)	(60)
Currency translation	1	6	386	-	393
Other	_	-	-	_	_
At December 31, 2021	5,442	11,709	35,872	7,155	60,177
Additions	362	184	-	2,619	3,165
Acquisition of a subsidiary	1,241	-	8,613	_	9,855
Disposals	(267)	(1,142)	-	-	(1,409)
Transfer between accounts	137	1,908	-	(1,248)	797
Currency translation	(1)	20	(54)	1	(33)
Other	_	-	_	_	_
At December 31, 2022	6,915	12,679	44,431	8,527	72,552
Additions	327	1,006	-	1,685	3,018
Acquisition of a subsidiary	_	-	-	_	_
Disposals	(132)	(4,504)	-	(45)	(4,680)
Transfer between accounts	129	7,458	-	(7,603)	(16)
Currency translation	0	11	241	0	252
Other	-	_	_	_	_
At December 31, 2023	7,239	16,649	44,673	2,564	71,125

in 000€	Patents and licenses	Software	Acquired customers, technology and order backlog	Developed technology and software under construction	Total
Amortization & Impairments					
At January 1, 2021	(3,051)	(7,721)	(10,433)	(2,112)	(23,317)
Amortization charge for the year	(392)	(1,831)	(2,523)	_	(4,746)
Impairments	-	(231)	-	-	(231)
Disposals	107	23	-	_	131
Transfer between accounts	(1)	(33)	(0)	22	(12)
Currency translation	(1)	(5)	(287)	-	(293)
Other	_	(41)	-	_	(41)
At December 31, 2021	(3,337)	(9,839)	(13,244)	(2,090)	(28,510)
Amortization charge for the year	(1,729)	(1,416)	(3,780)	_	(6,926)
Impairments	(29)	(672)	-	_	(702)
Disposals	267	1,142	-	_	1,408
Transfer between accounts	-	-	-	-	_
Currency translation	0	(15)	67	_	52
Other	_	_	-	_	_
At December 31, 2022	(4,829)	(10,799)	(16,957)	(2,090)	(34,676)
Amortization charge for the year	(755)	(3,027)	(2,722)	-	(6,504)
Impairments	_	-	(2,915)	_	(2,915)
Disposals	132	4,504	-	_	4,636
Transfer between accounts	_	_	-	_	_
Currency translation	(0)	(10)	(191)	_	(202)
Other	_	-	-	_	_
At December 31, 2023	(5,453)	(9,333)	(22,785)	(2,090)	(39,661)
Net carrying value					
At December 31, 2023	1,786	7,316	21,887	474	31,464
At December 31, 2022	2,086	1,879	27,474	6,437	37,875
At December 31, 2021	2,105	1,869	22,628	5,065	31,668

At January 1, 2021 1,611 3,773 25,051 2,546 32,981

Patent and licenses include only the directly attributable external costs incurred in registering the patent and obtaining the license. Software relates to purchased software for internal use and in-house developed technology. The remaining amortization period is 2.4 years for the main software purchases and 2.2 years for the main patents and licenses.

The 'Acquired customers, technology and other intangibles' have been recognized as part of the acquisition of Materialise Motion, Engimplan, ACTech, E-Prototypy, OrthoView, Cenat, Link3D and Identify3D (see Note 4). At December 31, 2023, the remaining amortization period for the acquired customers is 1.9 years for Materialise Motion, fully amortized for Engimplan, 12.75 years for ACTech, fully amortized for E-Prototypy, 0.75 years for OrthoView and 1.25 years for Cenat. At December 31, 2023, the remaining amortization period for the acquired technology and contracts is 1.75 years for Materialise Motion.

The net book value of developed technology and software under construction at December 31, 2023 relates primarily to the internal digitalization program.

The total amortization charge for 2023 is $K \in 6,504$ (2022: $K \in 6,926$; 2021: $K \in 4,746$). In 2023, impairments were booked on "Acquired customers, technology and other intangibles" for $K \in 2,915$ related to Motion and Engimplan (also refer to Note 5).

7 Property, plant & equipment

The changes in the carrying value of the property, plant & equipment can be presented as follows for the year 2023, 2022 and 2021:

in 000€	Land and buildings	Plant and equipment	Right-of-use assets	Construction in progress	Total
Acquisition value					
At January 1, 2021	42,417	94,420	20,147	8,639	165,623
Additions	462	5,259	2,397	2,213	10,331
Disposals	_	(3,682)	(1,191)	(779)	(5,652)
Transfers	4,099	6,673	(1,249)	(8,296)	1,227
Currency Translation	183	598	103	4	888
At December 31, 2021	47,161	103,268	20,207	1,781	172,417
Additions	773	3,555	2,871	17,280	24,479
Acquired from business combinations	-	62	155	_	217
Disposals	(18)	(4,227)	(1,293)	(38)	(5,576)
Transfers	5	3,167	(329)	(3,060)	(217)
Currency Translation	38	52	8	(8)	90
At December 31, 2022	47,959	105,877	21,619	15,955	191,410
Additions	142	3,850	3,965	8,325	16,282
Disposals	-	(4,299)	(3,313)	-	(7,612)
Transfers	40	15,031	(4,433)	(11,585)	(947)
Currency Translation	458	586	(74)	(153)	817
At December 31, 2023	48,599	121,045	17,764	12,543	199,951
Depreciation	_	_	_	_	_
At January 1, 2021	(8,007)	(49,202)	(9,151)	-	(66,360)
Depreciation charge for the year	(1,344)	(10,590)	(3,640)	_	(15,574)
Disposals	-	3,594	1,166	-	4,760
Transfers	(143)	(1,595)	515	-	(1,223)
Currency Translation	(92)	(380)	(41)	_	(513)
At December 31, 2021	(9,586)	(58,173)	(11,151)	-	(78,910)
Depreciation charge for the year	(1,416)	(10,222)	(3,302)	-	(14,940)

Disposals	-	3,898	1,203	-	5,101
Transfers	-	_	_	_	_
Currency Translation	(43)	27	51	-	35
cember 31, 2022	(11,045)	(64,470)	(13,199)	_	(88,714)
Depreciation charge for the year	(1,352)	(10,433)	(3,296)	-	(15,081)
Impairment	_	(160)	_	-	(160)
Disposals	_	3,996	3,024	-	7,020
Transfers	_	(2,935)	3,802	_	867
Currency Translation	(33)	(356)	8	-	(381)
cember 31, 2023	(12,430)	(74,358)	(9,661)	-	(96,449)
ook value					
At December 31, 2023	36,169	46,688	8,102	12,544	103,503
At December 31, 2022	36,914	41,407	8,420	15,955	102,696
At December 31, 2021	37,575	45,095	9,056	1,781	93,507
At January 1, 2021	34,410	45,218	10,996	8,639	99,263

The investments in property, plant & equipment and right-of-use assets in 2023 amounted to $K \in 16,282$ (2022: $K \in 24,479$). They are related to land and buildings ($K \in 4,027$), new machines and installations ($K \in 8,682$), IT equipment ($K \in 1,102$), (leased) vehicles ($K \in 2,240$) and furniture ($K \in 231$). The additions to land and buildings, machines and installations in 2023 related mainly to our new metal production facility in the USA and the extension and expansion of our production capacity in Germany. The investments in 2022 related to new machines and installations ($K \in 7,903$), land and buildings ($K \in 13,985$), IT equipment ($K \in 1,275$) and leased vehicles ($K \in 971$) and furniture ($K \in 3,635$), land and buildings ($K \in 2,224$), IT equipment ($K \in 2,126$) and leased vehicles ($K \in 769$).

The Group realized a net gain on disposal of property, plant and equipment of K€416 in 2023 (2022: a net loss of K€347; 2021: a net loss of K€210).

Impairments of property, plant and equipment amounted to K€(160) in 2023 (2022: K€0; 2021: K€0).

Assets under construction

Per December 31, 2023 the main assets under construction were related to the extension and expansion of capacity in Germany for K€10,551.

The right of use assets can be presented as follows:

The carrying value of Right-of-Use assets at December 31, 2023 was $K \in 8,102$ (2022: $K \in 8,420$; 2021: $K \in 9,054$). Right-of-Use assets are mainly related to buildings with a carrying value of $K \in 4,511$ at December 31, 2023 (2022: $K \in 4,822$; 2021: $K \in 4,419$) and for which depreciation of $K \in 1,735$ was recorded in 2023 (2022: $K \in 1,663$; 2021: $K \in 1,663$; 2021: $K \in 1,663$; 2021: $K \in 1,934$; 202

Acquisition value At January 1, 2021 7,574 4,555 8,018 20,143 Additions 1,624 710 62 2,396 Disposals (1,022) (268) (281) (1,571) Currency Translation 96 3 3 102 Transfers (151) (112) (605) (868) At December 31, 2021 8,121 4,888 7,197 20,206 Additions 1,934 877 60 2,87 Acquired from business combinations 155 - - 155 Disposals (546) (680) (65) (1,291) Currency Translation 11 2 (5) 8
Additions 1,624 710 62 2,396 Disposals (1,022) (268) (281) (1,571 Currency Translation 96 3 3 102 Transfers (151) (112) (605) (868 At December 31, 2021 8,121 4,888 7,197 20,206 Additions 1,934 877 60 2,877 Acquired from business combinations 155 - - 155 Disposals (546) (680) (65) (1,291
Disposals (1,022) (268) (281) (1,571) Currency Translation 96 3 3 102 Transfers (151) (112) (605) (868) At December 31, 2021 8,121 4,888 7,197 20,200 Additions 1,934 877 60 2,872 Acquired from business combinations 155 - - 155 Disposals (546) (680) (65) (1,291)
Currency Translation 96 3 3 102 Transfers (151) (112) (605) (868) At December 31, 2021 8,121 4,888 7,197 20,206 Additions 1,934 877 60 2,877 Acquired from business combinations 155 - - - 155 Disposals (546) (680) (65) (1,291)
Transfers (151) (112) (605) (868) At December 31, 2021 8,121 4,888 7,197 20,206 Additions 1,934 877 60 2,877 Acquired from business combinations 155 - - - 155 Disposals (546) (680) (65) (1,291)
At December 31, 2021 8,121 4,888 7,197 20,206 Additions 1,934 877 60 2,877 Acquired from business combinations 155 - - 155 Disposals (546) (680) (65) (1,291)
Additions 1,934 877 60 2,87 Acquired from business combinations 155 - - 155 Disposals (546) (680) (65) (1,291)
Acquired from business combinations 155 - - 155 Disposals (546) (680) (65) (1,291)
Disposals (546) (680) (65) (1,291
Currency Translation 11 2 (5)
Transfers (284) (407) (782) (1,473
At December 31, 2022 9,391 4,680 6,405 20,470
Additions 1,739 1,980 246 3,965
Disposals (2,607) (676) (30) (3,313
Currency Translation (112) 2 36 (74
Transfers (236) (909) (2,145) (3,290
At December 31, 2023 8,175 5,077 4,512 17,764
Depreciation
At January 1, 2021 (2,657) (1,891) (4,603) (9,151
Depreciation charge for the year (1,794) (1,236) (610) (3,640
Disposals 639 257 270 1,160
Currency Translation (41) (2) 2 (41)
Transfers 151 74 289 514
At December 31, 2021 (2,798) (4,652) (11,152
Depreciation charge for the year (1,663) (1,188) (455) (3,306
Disposals 467 671 65 1,203
Currency Translation 47 (2) 6 55
Transfers 283 407 458 1,148

At December 31, 2022	(4,569)	(2,909)	(4,578)	(12,055)
Depreciation charge for the year	(1,735)	(1,185)	(376)	(3,296)
Disposals	2,360	627	36	3,023
Currency Translation	45	(3)	(34)	8
Transfers	235	909	1,515	2,659
At December 31, 2023	(3,664)	(2,561)	(3,437)	(9,662)
Net book value				
At December 31, 2023	4,511	2,516	1,075	8,102
At January 1, 2023	4,822	1,771	1,827	8,420

The following amounts related to leases are recognized in profit & loss

	As of December 31,		
(in 000€)	2023	2022	2021
Depreciation expense	(3,296)	[Black](3,306)	[Black](3,640)
Interest expense on lease liabilities	(325)	304	[Black](289)
Expenses related to short-term leases/ low-value assets/ variable lease payments	(689)	645	[Black](537)

The Group has negotiated several contracts with extension and termination options because of common practice in the country or for the asset. Management has exercised significant judgments in determining whether these extension and termination options are reasonably certain to be exercised. The potential future cash flows beyond the period following the exercise of the extension and termination option that are not included in the lease term are presented in the following table:

	As of December 31,		
(in 000€)	2023	2022	2021
Potential (non-discounted) cash flows for terminations options that are not reasonably certain to be exercised:	1,089	1,430	3,015
Potential (non-discounted) cash flows for extensions options that are reasonably certain to be exercised	1,838	1,571	1,560

Pledges

Land and buildings (including buildings under construction) with a carrying amount of $K \in 21,851$ (2022: $K \in 22,696$; 2021: $K \in 24,451$) are subject to pledges to secure several of the Group's bank loans. In addition, pledges have been given on machines with a total carrying amount of $K \in 314$ (2022: $K \in 864$; 2021: $K \in 1,131$) (Note 24).

8 Investments in joint ventures

Materialise had no investments in joint ventures at December 31, 2023, 2022 or 2021.

9 Inventories and contracts in progress

Inventories and contracts in progress include the following:

	As	31,	
in 000€	2023	2022	2021
Raw materials	9,061	7,975	6,246
Work in progress	4,070	4,626	2,383
Finished goods	3,266	2,837	2,171
Contracts in progress	637	643	495
Total inventories and contracts in progress	17,034	16,081	11,295

Inventory written-off on the balance sheet amounted to K \in 471 for the year ended December 31, 2023 (2022: K \in 1,473; 2021: K \in 1,196). The expenses are recorded in Cost of Sales.

The Group has contracts in progress and advances from customers. The total costs incurred is $K \in 545$ and the profit recognized is $K \in 92$ as of December 31, 2023. Advances were received for the amount of $K \in 126$ with respect to contracts in progress per end of 2023 (2022: $K \in 60$; 2021: $K \in 11$).

10 Other assets

Other non-current assets

Other non-current assets include the following:

Investments in convertible loans	As o	As of December 31,	
in 000€	2023	2022	2021
Convertible loan	3,744	3,494	3,560
Total	3,744	3,494	3,560

The Group granted a convertible loan to Fluidda in January 2019, with a notional amount of $K \in 2,500$. The convertible loan is accounted for as a financial asset measured at fair value with changes in fair value through the income statement. The carrying value of the convertible loan amounts to $K \in 3,744$ at December 31, 2023. The convertible loan has a duration of 7 years with a 10% annual interest rate which is capitalized. We refer to Note 3 and Note 20.

Investments in non-listed equity instruments	As o	As of December 31,	
in 000€	2023	2022	2021
Non-listed equity investments	-	307	399
Total	_	307	399

At December 31, 2023, the Group remeasured the fair value of its investment in AM Danube BV (holding company for AM Flow Holding BV) to zero, recognizing a $K \in 307$ fair value adjustment in other comprehensive income. We refer to Note 3 and Note 20.

At December 31, 2022, the Group remeasured the fair value of its investment in African Drive NV to zero, recognizing a K€92 fair value adjustment in other comprehensive income. We refer to Note 3 and Note 20.

At December 31, 2021, the Group remeasured the fair value of its equity investment in Essentium, Inc. to zero, recognizing a K€3,443 fair value adjustment in other comprehensive income. We refer to Note 3 and Note 20.

Other non-current assets	As of December 31,		
in 000€	2023	2022	2021
Tax credits	4,467	4,144	4,044
Guarantees and deposits	493	404	447
Loan to Link3D incl capitalized interest	_	_	2,249
LT deferred charges	_	_	741
Other	541	588	38
Total	5,501	5,136	7,519

The non-current tax credits mainly relate to Belgian R&D tax credits, recoverable between 2025 and 2029.

Other current assets

Other current assets include the following:

	As of December 31,		
in 000€	2023	2022	2021
Deferred charges	4,486	4,158	2,958
Tax credits	814	962	673
Accrued income	611	17	384
Other tax receivables	2,466	1,004	1,459
Grants	372	944	1,021
Other non-trade receivables	272	1,077	675
Derivatives	139	261	1,770
Total other current assets	9,160	8,424	8,940

The other tax receivables included Value Added Tax (VAT) receivables and corporate tax receivables.

11 Trade receivables

The trade receivables include the following:

	As	As of December 31,		
in 000€	2023	2022	2021	
Trade receivables	53,505	51,443	42,814	
Allowance for doubtful accounts	(807)	(400)	(1,273)	
Total	52,698	51,043	41,541	

Trade receivables are non-interest bearing and are generally on payment terms of 30 to 90 days.

As of December 31, 2023, trade receivables of an initial value of $K \in 807$ (2022: $K \in 400$; 2021: $K \in 1,273$) were considered to be not probable of recovery, based on the expected credit loss analysis. Impairment is accounted for under the other operating expenses. See below for changes in the impairment of receivables.

in 000€

iii oooe	
At January 1, 2021	(1,475)
Addition	(689)
Usage	259
Reversal	632
At December 31, 2021	(1,273)
Addition	(517)
Usage	483
Reversal	906
At December 31, 2022	(400)
Addition	(706)
Usage	122
Reversal	177
At December 31, 2023	(807)

12 Cash and cash equivalents

Cash and cash equivalents include the following:

	As o	As of December 31,		
in 000€	2023	2022	2021	
Cash at bank	119,606	26,028	192,895	
Cash equivalents	7,967	114,839	3,133	
Total	127,573	140,867	196,028	

For the year ended December 31, 2023, cash at banks earned a net interest income of € 4.0 million, based on short-term deposit rates.

There were no cash balances on a restricted bank account per December 31, 2023, 2022 or 2021.

13 Equity

Share capital

The share capital of the parent company Materialise NV consists of 59,067,186 ordinary nominative shares at December 31, 2023 (2022: 59,067,186; 2021: 59,063,521) with no nominal but par value of €0.076 in 2023 (2022:€0.076; 2021:€0.076) for a total amount of K€4,487 at December 31, 2023 (2022:K€4,487; 2021:K€4,489).

in 000€, except share data	Total number of ordinary shares	Total shareholders' capital	Total share premium
Outstanding at January 1, 2021	54,169,257	4,096	141,275
Capital increase through exercise of warrants	294,264	22	2,322
Capital increase through exercise of convertible bonds	4,600,000	371	90,235
Equity settled share-based payments expense	-	-	41
Outstanding on December 31, 2021	59,063,521	4,489	233,872
Capital increase through exercise of warrants	3,665	(2)	22
Outstanding on December 31, 2022	59,067,186	4,487	233,895
Equity settled share-based payments expense	-	-	47
Outstanding on December 31, 2023	59,067,186	4,487	233,942

No new shares were issued in 2023.

Share premium

In Belgium, the portion of the capital increase in excess of par value is typically allocated to share premium.

The carrying value of the share premium is $K \in 233,942$ at December 31, 2023 (2022: $K \in 233,895$; 2021: $K \in 233,872$). The change in 2023 is the result of the share-based payments expense of $K \in 47$.

The change in 2022 is the result of the capital increase via exercise of warrants of K€22.

The change in 2021 is the result of the share-based payments expense of K \in 41, the capital increase via exercise of warrants of K \in 2,322 and the capital increase via public offering of K \in 90,235.

Other reserves

The nature and purpose of the other reserves is as follows:

	As	As of December 31,			
in 000€	2023	2022	2021		
Legal reserve	279	279	279		
Other reserves	2,010	1,987	1,987		
Equity-settled share-based payment expense	47	72	72		
Other Comprehensive Income (loss)	(9,682)	(10,606)	(9,087)		
Other reserves	(7,346)	(8,268)	(6,749)		

Based on the statutory result and after final result allocation approved by the annual shareholders meeting the legal reserve is increased by reserving 5% of the yearly statutory profit until the legal reserve reaches at least 10% of the shareholders' capital. The legal reserve cannot be distributed to the shareholders.

The Group did not pay any dividend during 2023, 2022 and 2021.

Other comprehensive loss

Other comprehensive loss consists of the following:

in '000€	Currency Translation Differences & Other	Fair value adjustment equity investments	Total OCI attributable to the shareholder
At January 1, 2021	(8,285)	489	(7,796)
it dunum y 1, 2021	(0,200)	402	(1,170)
Currency translation impact	2,152	_	2,152
		(2.442)	(2.442)
Fair value adjustment	_	(3,443)	(3,443)
At December 31, 2021	(6,133)	(2,954)	(9,087)
Common out top plation impropt	(1.427)		(1.427)
Currency translation impact	(1,427)	_	(1,427)
Fair value adjustment	_	(92)	(92)
44 D	(F. F.(A))	(2.046)	(10, 606)
At December 31, 2022	(7,560)	(3,046)	(10,606)
Currency translation impact	1,255	-	1,255
Fair value adjustment	_	(331)	(331)
At December 31, 2023	(6,305)	(3,377)	(9,682)

Non-controlling interest

As of June 22, 2021, the Group, together with Zhenyuan (Tianjin) Medical Appliances Technology Co., Ltd., incorporated a new subsidiary with the name Tianjin Zhenyuan Materialise Medical Technology Limited Company. This entity will be responsible for all regulatory requirements regarding the Materialise Mimics Enlight Lung Software on the Chinese market. Both Materialise and Zhenyuan will work on development and distribution, in a collaborating manner. Materialise holds 51% of the shares, Zhenyuan 49%. In 2021, in respect of this majority-owned subsidiary, a non-controlling interest has been recognized, which had a carrying value of KE(53) at December 31, 2023 (2022: KE(28); 2021: KE1).

14 Share-based payment plans

Share-based payment plans of the parent

The changes of the year for the warrant plans are as follows:

	2023	2022	2021
Outstanding at January 1	77,709	82,950	407,722
Granted	350,000	_	_
Forfeited / Cancelled	(4,257)	(1,576)	(7,193)
Exercised	-	(3,665)	(317,579)
Outstanding at December 31	423,452	77,709	82,950
Exercisable at December 31	73,452	77,709	78,405

The Group's share-based payment plans are all equity-settled except for the IPO warrants that have been granted to certain employees in certain countries due to legal requirements which are cash-settled. The outstanding amount includes stock appreciation rights ("SARs") issued under cash-settled share-based payment plans.

In all outstanding warrant plans one warrant gives right to one share.

Equity-settled share-based payment plans

The Group has several plans in place which each have slightly different characteristics as described below.

IPO warrant plan

Each warrant gives the right to the holder to one ordinary share of the parent Company. The warrants have a contractual term of 10 years and vested for 25% in the fourth year; 25% in the fifth year; 25% in the sixth year and 25% in the seventh year. Warrants are exercisable as from the month after they have vested and in the subsequent exercise periods. There are no cash settlement alternatives and the Group does not have a practice of cash settlement for these warrants. The warrants have a contractual term of 10 years.

The Group granted 979,898 warrants in July 2014 and 36,151 warrants in November 2014 in the context of the initial public offering to the employees of the Group with an exercise price of €8.81 ("IPO warrant plan"). The Group granted an additional 18,180 warrants to employees in July 2015 under the IPO warrant plan.

The status of the IPO warrant plan at December 31 is as follows:

	2023	2022	2021
Outstanding at January 1	51,781	53,590	236,726
Granted	_	-	-
Forfeited / Cancelled	(4,257)	(944)	(3,372)
Exercised	_	(865)	(179,764)
Outstanding at December 31	47,524	51,781	53,590
Exercisable at December 31	47,524	51,781	49,045

No warrants were exercised in 2023.

Warrant plan 2015

The board of directors decided on December 18, 2015 on a new plan ("2015 warrant plan") by which it can grant up to 1,400,000 warrants to employees. Each warrant gives the right to the holder to one ordinary share of the parent Company. The warrants vested for 10% on the second anniversary of the granting; 20% on the third anniversary of the granting; 30% on the fourth anniversary of the granting; and 40% on the fifth anniversary of the granting, unless otherwise decided by the board of directors or one or more of its representatives granted powers thereto. Warrants are exercisable only after they have vested and only during a period of (i) four weeks following the publication of the results of the parent Company of the second and fourth quarter, or (ii) if no quarterly results are published, during the month March and the month September of every year. There are no cash settlement alternatives and the Group does not have a practice of cash settlement for these warrants. The warrants have a term of ten years.

The Group granted 350,000 warrants in July 2016 to the employees of the Group with an exercise price of ϵ 6.45. The Group granted 2,000 warrants to an employee in May 2018 with an exercise price of ϵ 10.08.

The status of the 2015 warrant plan at December 31 is as follows:

	2023	2022	2021
Outstanding at January 1	14,600	17,400	133,900
Granted	-	_	-
Forfeited / Cancelled	-	_	(2,000)
Exercised	-	(2,800)	(114,500)
Outstanding at December 31	14,600	14,600	17,400
Exercisable at December 31	14,600	14,600	17,400

No warrants were exercised in 2023.

Warrant plan 2023

The board of directors decided on September 25, 2023 on a new plan ("2023 warrant plan") by which it can grant up to 500,000 warrants to employees, directors or management companies performing services to the Company. Each warrant gives the right to the holder to one ordinary share of the parent Company. The warrants vested for 10% on December 31, 2025; 20% on December 31, 2026; 30% on December 31, 2027; and 40% on December 31, 2028, unless otherwise decided by the board of directors or one or more of its representatives granted powers thereto. Warrants are exercisable only after they have vested and only during a period of (i) four weeks following the publication of the results of the parent Company of the second quarter, or (ii) if no quarterly results are published, during the month March of every year. There are no cash settlement alternatives and the Group does not have a practice of cash settlement for these warrants. The warrants have a term of seven years.

The Group granted 325,000 warrants in October 2023 with an exercise price of \in 4.87. The Group granted another 25,000 warrants in November 2023 with an exercise price of \in 5.09.

The status of the 2023 warrant plan at December 31 is as follows:

	2023	2022	2021
Outstanding at January 1	-	_	_
Granted	350,000	-	_
Forfeited / Cancelled	_	-	_
Exercised	_	-	-
Outstanding at December 31	350,000	_	_

Exercisable at December 31 - -

Fair value

The fair value of the warrants is estimated at the grant date using the Black-Scholes option pricing model, taking into account the terms and conditions upon which the warrants were granted.

The following table provides the input to the Black-Scholes model for the IPO warrant plan, 2015 warrant plan and the 2023 warrant plan:

	2023 (Nov)	2023 (Oct)	2015 (Sept 16)	2015 (Nov)	IPO 2014 (Nov)	IPO 2014 (June)
Return dividend	0%	0%	0%	0%	0%	0%
Expected volatility	64%	64%	47%	47%	50%	46%
Risk-free interest rate	3.19%	3.50%	0.24%	1.17%	1.12%	1.70%
Expected life	5.59	5.59	4.30	5.50	5.50	5.50
Exercise price (in €)	5.09	4.87	6.45	8.81	8.81	8.81
Stock price (in €)	5.60	5.15	6.42	8.08	8.67	8.81
Fair value warrant (in €)	3.44	3.12	2.41	3.30	3.94	3.83

The above input for the Black-Scholes model have been determined based on the following:

- the dividend return is estimated by reference to the historical dividend payments of the Group. Currently, this is estimated to be zero as no dividends have been paid since inception;
- expected volatility is estimated based on the average annualized volatility of the Group's stock (until September 2016: of a number of quoted peers in the 3D printing industry and the volatility of the Group's stock);
- risk-free interest rate is based on the interest rate applicable for the 10Y Belgian government bond at the grant date;
- estimated life of the warrant is determined to be until the first exercise period which is typically the month after vesting; and
- fair value of the shares is determined based on the share price of the Group on Nasdaq at the date of valuation. For the grants prior to the initial public offering, the fair value of the shares was estimated based on a discounted cash flow model with 3-year cash flow projections and a multiple of EBITDA determined based on a number of quoted peers in the 3D printing industry.

The expense arising from share-based payment transactions for the warrant plans mentioned above was K€47 in 2023 (2022: K€0; 2021: K€41).

The weighted average fair value for the warrants outstanding at the end of 2023 was \in 3.19 (2022: \in 3.41; 2021: \in 3.39). The weighted average exercise price for the warrants outstanding at the end of 2023 was \in 5.39 (2022: \in 8.12; 2021: \in 8.07).

Cash-settled share-based payment plans

The Group has issued 215,688 SARs in July 2014 towards certain employees in certain countries due to legal requirements with similar terms and conditions as the IPO warrant plan except that the SAR will be settled in cash. The exercise price of the SAR is \in 8.81.

The status of this plan is as follows:

	2023	2022	2021
Outstanding at January 1	11,328	11,960	37,096
Granted	_	_	_
Forfeited / Cancelled	_	(632)	(1,821)
Exercised	-	_	(23,315)
Outstanding at December 31	11,328	11,328	11,960
Exercisable at December 31	11,328	11,328	11,960

The SAR plan grants the bearer the right to a cash payment equal to the difference between the exercise price and the stock price at the exercise date. This plan is considered a cash settled share based payment and is as such recorded as a liability (see Note 16).

The SARs have a contractual term of ten years and vested for 25% in the fourth year; 25% in the fifth year; 25% in the sixth year and 25% in the seventh year. SARs are exercisable as from the month after they have vested and in the subsequent exercise periods.

The fair value of the SAR is estimated at each reporting date using the Black-Scholes option pricing model, taking into account the terms and conditions upon which the warrants were granted.

The following table lists the input used for the Black-Scholes model:

	2023	2022	2021
Return dividend	0%	0%	0%
Expected volatility	46%	60%	80%
Risk-free interest rate	2.68%	3.20%	0.18%
Expected life	0.25	0.25	0.25
Exercise price (in €)	8.81	8.81	8.81
Stock price (in €)	5.95	8.25	21.05
Fair value SAR (in €)	0.03	0.78	12.26

The expense arising from share-based payment transactions for the SARs plan was K \in 9 in 2023 (2022: K \in (140) ;2021: K \in (874)). The carrying value of the liability at December 31, 2023 amounts to K \in 0 (2022: K \in 9; 2021: K \in 147). The total intrinsic value of the liability for warrants currently exercisable at December 31, 2023 amounts to K \in 0 (2022: K \in 9; 2021: K \in 147).

Share-based payment plans of RapidFit+

The subsidiary RapidFit+ has issued a warrant plan on August 23, 2013 where a maximum of 300 warrants can be offered to management with an exercise price of €553.90. In January 2014, a total of 199 warrants were granted and accepted.

The changes for the year for the RapidFit+ warrant plan are as follows:

	2023	2022	2021
Outstanding at January 1	33	186	186
Granted	_	-	-
Forfeited / Cancelled	(33)	(153)	_
Exercised	_	-	-
Outstanding at December 31	-	33	186
Exercisable at December 31	_	33	186

No warrants were outstanding at the end of 2023.

The following table lists the input to the Black-Scholes model for the RapidFit+ warrant plan:

	2014
Return dividend	0%
Expected volatility	50%
Risk-free interest rate	2.29%
Expected life	5.5
Exercise price	553.9
Fair value warrant	262.7

The expense arising from share-based payment transactions for RapidFit+ warrant plan was $K \in 0$ in 2023 (2022: $K \in 0$; 2021: $K \in 2$).

15 Loans and borrowings

The loans and borrowings include the following:

	As of December 31,		
in 000€	2023	2022	2021
K€50,000 KBC credit facility	-	-	_
K€35,000 EIB bank loan	21,667	27,500	33,333
K€28,000 acquisition bank loan	10,000	12,559	15,604
K€17,700 secured bank loans	14,904	16,165	16,592
K€12,300 bank loans ACTech	3,546	5,860	8,160
K€5,000 other facility loan	1,496	1,881	2,248
Bank investment loans - top 20 outstanding	4,778	8,828	12,852
Bank investment loans - other	-	606	1,569
Lease liabilities	7,943	7,485	8,621
Related party loan	64	96	128
Total loans and borrowings	64,398	80,980	99,107
Current	25,483	19,960	21,202
Non-Current	38,915	61,020	77,905

K€50,000 *KBC* credit facility

In October 2022 the Group entered into a credit facility agreement with KBC which allows for a € 50 million delayed draw. The credit facility foresees a first draw between October 2022 and April 2025, reimbursable at once in April 2030, with an interest rate of 3.56% A second draw is foreseen between October 2022 and June 2025, reimbursable at once in June 2031, with an interest rate of 3.81%. And a third and final draw can be made between October 2022 and June 2026, reimbursable at once in June 2032, with an interest rate of 3.87%. As per December 31, 2023 the credit line remains unused.

Reservation cost for all 3 tranches amounts to 0.15% per year.

K€35.000 EIB bank loan

On December 20, 2017 the Group entered into a finance contract with the European Investment Bank, or EIB, to finance future research and development programs. As part of a first tranche, an amount of $K \in 10,000$ was drawn in the course of 2018. The agreement foresees a first two-year period without loan reimbursements. Loans under the contract are made at a fixed rate, based on the Euribor rate at the time of the borrowing, plus a variable margin. The interest rate for this loan is 2.40%. The contract contains customary security, covenants and undertakings. A second tranche of $K \in 25,000$ was drawn in the course of 2019 with an interest rate of 2.72%. Pledges have been given on moveable assets as well as over the shares.

On June 29, 2020, the European Investment Bank temporarily waived the compliance obligation of the covenants "Total gross Debt to Adjusted EBITDA" (until December 31, 2022), and "Adjusted EBITDA to Net financial charges" (until 31 December 2020) under the condition that the covenant "Total net debt to Adjusted EBITDA" will be met for the period. In addition, the European Investment Bank agreed not to recalculate the interest rate until January 3, 2022 for the first tranche and until January 17, 2022 for the second tranche. Finally, the European Investment Bank waived "the subsidiary financial indebtedness" covenant for the calculation period ending on June 30, 2020. For the periods thereafter this covenant has been eased.

These covenants were waived in order to allow the Group to continue investing in its growth programs, even under stressed COVID-19 scenarios. At December 31, 2023, The Group was in compliance with all debt covenants.

K€28,000 Acquisition loan

This bank loan has been concluded in October 2017 to finance the acquisition of ACTech. The loan includes a portion of $K \in 18,000$ reimbursable monthly during seven years, and a bullet portion of $K \in 10,000$, reimbursable at once in October 2024. The interest rate is fixed for the duration of the loan, and amounts to 1.1% on average for both portions. The bank loans are secured with a business pledge mandate, a share pledge on Materialise Germany GMBH, and debt covenants.

K€17,700 secured bank loans

The K \in 17,700 loan has been concluded in 2016 in two agreements to finance the construction of new facilities in Leuven (Belgium) and in Poland, both maturing in 2032. The agreement for the Belgian facility financing amounts to K \in 11,700; and for this tranche, reimbursements have started in June 2023. The agreement for the Polish facility financing amounts to K \in 6,000, and reimbursements have started in June 2019. The average interest rate of both agreements amounts to 1.2%. The bank loan is secured with a mortgage mandate on the Belgian facility buildings.

K€12,300 bank loans

In March 2018, three bank loans originating from the acquired ACTech Group were refinanced entirely for the amount of $K \in 9,300$, with adjusted maturity to May 2025 and first reimbursements in August 2020. The interest rate has been fixed at approximately 1.6%, and pledges have been granted including a $K \in 4,650$ mortgage on ACTech's facilities and a guarantee of Materialise NV. In addition, a new investment credit of $K \in 3,000$ was obtained in June 2018, repayable as from January 2019 and with a fixed interest rate of 1.5%.

$K \in 5,000$ - Other facility loan

This facility loan was contracted in 2012 for the construction of Leuven office and production facilities. The balance of this loan amounts to K€1,496 per December 31, 2023. The loan has a repayment schedule of 15 years and interest rate is fixed at 4.61%.

Miscellaneous investment loans

The 20 largest of these loans outstanding as of December 31, 2023 amount to a balance of K€4,778. They have been agreed in 2020 and in the years before to finance various investments in machinery, printers, equipment, and software tools. The vast majority of the loans have a reimbursement period over seven years, and are at fixed interest rates with weighted average below 1%.

K€7,943 Lease liabilities

The Group has several lease obligations mainly with financial institutions and related to the financing of buildings and various other items of plant and equipment such as 3D printers. As of December 31, 2023 the balance of these lease agreements amounts to $K \in 7,943$, and are mostly at fixed interest rates with weighted average below 1%.

The total cash outflow from the lease liabilities amounts to K€3,549 in 2023, K€3,379 in 2022 and K€3,775 in 2021.

Related party loan

Lunebeke NV, a related party of the Group as discussed in Note 26, has granted the Group a loan of $K \in 400$ at fixed interest rate of 4.23% that matures in 2025. The purpose of the loan is to finance the purchase of a building in France. The amount outstanding as of December 31, 2023 is $K \in 64$ (2022: $K \in 96$; 2021: $K \in 128$). The interest expense for the year ended December 31, 2023 is $K \in 36$ (2022: $K \in 96$; 2021: $K \in 96$).

Changes of liabilities for financing activities:

The following table presents the changes of the liabilities for financing activities:

	For the year ended December 31		
in 000€	2023	2022	2021
At January 1,	80,980	99,107	115,110
Repayment of loans & borrowings	(16,723)	(17,708)	(14,277)
New leases	3,919	2,871	2,355
Repayment of leases	(3,549)	(3,379)	(3,775)
Loans acquired from business combination	_	100	_
Net foreign exchange movements	(229)	(11)	(306)
At December 31,	64,398	80,980	99,107

16 Other non-current liabilities

The other non-current liabilities consist of the following:

	As	As of December 31,			
in 000€	2023	2022	2021		
Advances received on contracts	-	-	1,500		
Provisions	1,430	1,611	667		
Other	315	-	_		
Total	1,745	1,611	2,167		

Provisions mainly relate to retention bonuses for our employees.

The advances received on contracts as of December 31, 2021 related to advances received from a customer in the context of a long term contract for medical devices.

The other amount relates to a commitment for a multi-year license contract.

In Belgium, the Group contributes to a Sector Plan for eligible employees and to a "Branch 21" pension plan for a limited group of management staff. Under both plans, the Group pays contributions expressed as a percentage of a reference salary. These plans are administered by third party insurance companies and are not material to the consolidated financial statements.

17 Tax payables

The tax payables amount to K€1,777 as per December 31, 2023 (2022:K€1,246; 2021:K€783).

18 Deferred income

Deferred income consists of the following:

	As of December 31,			
in 000€	2023	2022	2021	
Deferred maintenance and license revenue	44,905	42,780	34,287	
Deferred (project) fees	5,485	7,285	3,537	
Deferred government grants	1,102	933	435	
Total	51,492	50,998	38,259	
current	40,791	41,721	33,307	
non-current	10,701	9,277	4,952	

The deferred maintenance and license revenue consists of maintenance and license fees paid up-front which are deferred and recognized in earnings over the maintenance period or the duration of the license, respectively. Deferred maintenance and license revenue grew to K€44,905 as per December 31, 2023 from K€42,780 in December 31, 2022. The deferred (project) fees consist of one-time and advance payments received which are deferred in accordance with the revenue accounting policies. The deferred government grants are recognized as income under "other operating income".

We refer to Note 22.1.2 for more detail on the contract liabilities.

19 Other current liabilities

Other current liabilities include the following:

	As of December 31,			
in 000€	2023	2022	2021	
Payroll-related liabilities	12,786	15,192	11,836	
Non-income tax payables	1,139	2,016	2,058	
Accrued charges	927	1,718	1,170	
Advances received	289	795	276	
Derivatives	_	_	118	
Cash settled share-based payment plan	_	9	147	
Other current liabilities	562	227	367	
Total	15,703	19,957	15,972	

The non-income tax payables mainly relate to VAT payables and payroll taxes.

20 Fair value

Financial assets

The carrying value and fair value of the financial assets as of December 31, 2023, 2022 and 2021 are as follows:

	Ca	rrying value		Fair value		
in 000€	2023	2022	2021	2023	2022	2021
Financial assets						
Financial assets measured at amortized cost						
Trade receivables (current)	52,698	51,043	41,541	52,698	51,043	41,541
Other financial assets (non-current)	493	404	2,696	493	404	2,696
Other current non-trade receivables	643	2,021	1,696	643	2,021	1,696
Cash & cash equivalents		,	,		,	
· ·	127,573	140,867	196,028	127,573	140,867	196,028
Total financial assets measured at amortized cost	181,407	194,335	241,961	181,407	194,335	241,961
Financial assets at fair value through profit or loss						
Derivatives	139	261	1,770			
Convertible loan	3,744	3,494	3,560			
Total financial assets measured at fair value through						
profit and loss	3,883	3,755	5,330			
Financial assets at fair value through OCI						
Non-listed equity investments	_	307	399			
Total financial assets at fair value through OCI	_	307	399			

The fair value of the financial assets has been determined on the basis of the following methods and assumptions:

- the carrying value of the cash and cash equivalents and the current receivables approximate their fair value due to their short term character;
- the fair value of the derivatives has been determined based on a mark-to-market analysis prepared by the bank based on observable market inputs (level 2 inputs);
- other current non-trade receivables are being evaluated on the basis of their credit risk and interest rate. Their fair value is not different from their carrying value on December 31, 2023, 2022 and 2021
- other non-current financial assets are being evaluated on the basis of their credit risk and interest rate which are considered as level 2 inputs. Their fair value is not considered different from their carrying value given the related interest rate is revised on a regular basis.
- for the non-listed equity investment in AM Flow, as of December 31, 2023, Materialise recorded a remeasurement of fair value to zero through OCI (K€307).

- for the non-listed equity investment in Essentium, as of December 31, 2021, Materialise recorded a remeasurement of fair value to zero through OCI (K€3,443).
- the convertible loan granted to Fluidda is measured at fair value. As of December 31, 2023, management determined the fair value based upon level 3 inputs as follows:
 - o The Group determined that the fair value of the convertible loan as of December 31, 2023 amounted to K€3,802. Fluidda is a private start-up company which offers turnkey contract research services for drug development and medical device development. The convertible loan has a duration of 7 years with a 10% annual interest rate which are capitalized. The Group has applied a discount factor of 13.32% that is based on the estimated WACC of Fluidda reflecting the uncertainty in relation to the success of the company and the applied estimates by the Group.

In assessing the fair value, the Group has made significant estimates with regard to the discount rate, the probability of each repayment and conversion scenario and related timing, the amount of the qualified capital increase. Changes in the assumptions may lead to a significant increase/decrease in the fair value of the convertible loan. A increase/decrease in the applied discount rate for Fluidda by 1% would lead to a change in fair value by $K \in (51)/K \in (52)$. As the carrying value is not materially different from the fair value, the Group has not made an adjustment to the carrying value.

Financial liabilities:

The carrying value and fair value of the financial liabilities as of December 31, 2023, 2022 and 2021 can be presented as follows:

	Carrying value		I	Fair value		
in 000€	2023	2022	2021	2023	2022	2021
Financial liabilities measured at amortized cost						
Loans & Borrowings including lease liabilities	64,398	80,980	99,108	63,062	78,848	100,417
Trade payables	21,196	23,230	20,171	21,196	23,230	20,171
Other liabilities excl. written put option on NCI	335	330	485	335	330	485
Total financial liabilities measured at amortized cost	85,929	104,540	119,764	84,593	102,408	121,073
Financial liabilities measured at fair value	35,72	10 1,0 10	115,.01	0 1,2 > 0	102,100	121,010
Financial nabilities measured at fair value						
Cash settled share based payments	_	9	147			
Derivatives	_	_	118			
Total financial liabilities measured at fair value	_	9	265			
Total non-current	38,915	61,020	79,905			
Total current	47,014	43,529	40,124			

The fair value of the financial liabilities has been determined on the basis of the following methods and assumptions:

- The carrying value of current liabilities approximates their fair value due to the short term character of these instruments;
- Loans and borrowings are evaluated based on their interest rates and maturity date. Most interest bearing debts have fixed interest rates and their fair value is subject to changes in interest rates and individual creditworthiness;
- The fair value of the derivatives has been determined based on a mark-to-market analysis prepared by the bank based on observable market inputs (level 2 inputs);

- The fair value of the written put option on non-controlling interest has been determined based on the present value of the redemption amount (level 3 inputs);
- The fair value of the cash-settled share based payments has been determined based on a Black-Scholes model using inputs that are level 1 (stock-price and risk-free interest rate) as well as level 2 (e.g. volatility). We refer to Note 14.

Fair value hierarchy

The Group uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique:

- Level 1: quoted (unadjusted) prices in active markets for identical assets and liabilities;
- Level 2: other techniques for which all inputs which have a significant effect on the recorded fair value are observable, either directly or indirectly; and
- Level 3: techniques which use inputs that have a significant effect on the recorded fair value that are not based on observable market data.

Fair value hierarchy 3 evolution

Convertible Loans Ditto & Fluidda	Fair Value Evolution		
in 000€	2023	2022	2021
As of 1 January,	3,494	3,560	6,203
Addition	_	_	_
Remeasurement	_	(316)	_
Capitalized interest	250	250	_
Reimbursement Ditto convertible loan	_	_	(2,643)
As of 31 December,	3,744	3,494	3,560

Written Put Option on NCI RapidFit+	Fair Value Evolution			
in 000€	2023	2022	2021	
As of 1 January,	-	-	875	
Remeasurement	_	_	_	
Payout put-option PMV	-	_	(875)	
As of 31 December,	_	_	_	

21 Segment information

For management purposes, the Group is organized into segments based on their products, services and industry and has the following three reportable segments:

- The Materialise Medical segment, which develops and delivers medical software solutions, medical devices and other related products and services:
- The Materialise Manufacturing segment, which delivers 3D printed products and related services; and
- The Materialise Software segment, which develops and delivers additive manufacturing software solutions and related services.

The measurement principles used by the Group in preparing this segment reporting are also the basis for segment performance assessment and are in conformity with IFRS. The Chief Executive Officer of the Group acts as the chief operating decision maker. As a performance indicator, the chief operating decision maker controls the performance by the Group's revenue and Adjusted EBITDA.

The following table summarizes the segment reporting for each of the reportable periods ending December 31. Corporate research and development, headquarters' function, financing and income taxes are managed on a Group basis and are not allocated to operating segments. As management's controlling instrument is mainly revenue-based, the reporting information does not include assets and liabilities by segment and is as such not available per segment.

in 000€	Materialise Software	Materialise Medical	Materialise Manufacturing	Total segments	Unallocated	Consolidated
For the year ended December 31, 2023						
Revenues	44,442	101,376	110,310	256,127	-	256,127
Segment Adjusted EBITDA	7,450	26,544	7,537	41,530	(10,133)	31,397
Segment Adjusted EBITDA %	16.8%	26.2%	6.8%	16.2%		12.3%
For the year ended December 31, 2022						
Revenues	43,688	84,846	103,489	232,023	_	232,023
Segment Adjusted EBITDA	1,514	18,822	8,229	28,565	(9,551)	19,014
Segment Adjusted EBITDA %	3.5%	22.2%	8.0%	12.3%		8.2%
For the year ended December 31, 2021						
Revenues	42,902	73,368	89,180	205,450	-	205,450
Segment Adjusted EBITDA	15,705	20,669	6,275	42,649	(10,159)	32,490
Segment Adjusted EBITDA %	36.6%	28.2%	7.0%	20.8%		15.8%

The segment Adjusted EBITDA is reconciled with the consolidated net profit (loss) for the year as follows:

	For the year ended December 31,			
in 000€	2023	2022	2021	
Net profit (loss) for the year	6,695	(2,153)	13,145	
Share in loss of joint venture	-	_	-	
Income taxes	78	975	591	
Financial income	(5,019)	(6,114)	(5,620)	
Financial expenses	3,865	4,420	4,101	
Operating (loss)/ profit	5,619	(2,872)	12,217	
Impairments	4,228	-	177	
Other operating income (expense)	(3,077)	(2,693)	(3,527)	
Corporate headquarter costs	10,464	9,504	10,317	
Corporate research and development	2,785	2,600	2,948	
Depreciation, amortization and impairment	21,511	22,026	20,516	
Segment Adjusted EBITDA	41,530	28,565	42,649	

The Group has 1 individual customer that represents sales larger than 10% of the total revenue in 2023 (2022: 1; 2021: 1). The total amount of revenues from this customer for the year 2023 was $K \in 39,868$ (2022: $K \in 31,338$; 2021: $K \in 26,772$), and these revenues are reported within the Medical segment.

Entity-wide disclosures.

The revenue by geographical area is as follows:

	As of	As of December 31,			
in 000€	2023	2022	2021		
United States of America	90,350	79,380	69,140		
Americas other than USA	7,049	7,544	6,297		
Belgium	8,265	7,407	6,947		
Germany	33,172	30,039	20,442		
France	19,053	16,237	12,964		
Switzerland	20,780	16,918	13,643		
United Kingdom	15,153	11,062	8,836		
Italy	11,412	8,124	6,520		
Netherlands	7,977	6,621	7,310		
Other Europe	22,928	28,731	33,816		
Asia Pacific	19,988	19,960	19,535		
Total	256,127	232,023	205,450		
1 VIIII	450,147	202,020	200,700		

The total revenue realized in the country of domicile (Belgium) in 2023 amounts to $K \in 8,265$ (2022: $K \in 7,407$; 2021: $K \in 6,947$).

The total non-current assets, other than financial instruments and deferred tax assets, by geographical area are as follows:

	As o	As of December 31,		
in 000€	2023 _	2022	2021	
United States of America (USA)	12,329	12,048	4,237	
Americas other than USA	3,023	3,812	3,276	
Belgium	85,150	91,690	67,865	
Germany	61,520	60,374	55,712	
Poland	12,000	11,640	12,756	
Rest of Europe	8,024	8,591	10,019	
Asia-Pacific	1,578	2,012	1,739	
Total	183,625	190,167	155,604	

The totals of the above table include goodwill, intangible assets, property, plant & equipment and Right-of-Use Assets as disclosed in the consolidated statements of financial position.

22 Income and expenses

22.1 Revenue

22.1.1 Disaggregated revenue information

		For the year ended December 31, 2023				
in 000€	Materialise Software	Materialise Medical	Materialise Manufacturing	Total segments	Unallocated	Consolidated
Geographical markets						
United States of America (USA)	15,451	53,748	21,151	90,350	_	90,350
Americas other than USA	488	5,673	888	7,049	_	7,049
Europe (without Belgium) & Africa	17,708	34,082	78,686	130,476	-	130,476
Belgium	130	1,155	6,980	8,265	_	8,265
Asia Pacific	10,665	6,718	2,605	19,988	_	19,988
Total revenue from contracts with customers	44,442	101,376	110,310	256,127	-	256,127
Type of goods or service						
Software revenue (non-medical)	44,442	-	_	44,442	-	44,442
Software revenue (medical)	_	31,700	_	31,700	_	31,700
Medical devices and services	-	69,676	_	69,676	-	69,676
Manufacturing	_	_	110,310	110,310	_	110,310
Other	-	-	_	_	-	_
Total revenue from contracts with customers	44,442	101,376	110,310	256,127	_	256,127
Timing of revenue recognition						
Goods/Services transferred at a point in time	14,844	73,750	105,205	193,799	_	193,799
Goods/Services transferred over time	29,598	27,626	5,105	62,329	_	62,329
Total revenue from contracts with customers	44,442	101,376	110,310	256,127	_	256,127

For the year ended December 31, 2022

in 000€	Materialise Software	Materialise Medical	Materialise Manufacturing	Total segments	Unallocated	Consolidated
Geographical markets						
United States of America (USA)	14,946	45,929	18,505	79,380	-	79,380
Americas other than USA	523	5,752	1,269	7,544	-	7,544
Europe (without Belgium) & Africa	17,148	24,468	76,116	117,731	-	117,731
Belgium	247	1,003	6,158	7,408	-	7,408
Asia Pacific	10,825	7,694	1,441	19,960	-	19,960
Total revenue from contracts with customers	43,688	84,846	103,489	232,023	-	232,023
Type of goods or service						
Software revenue (non-medical)	43,688	-	-	43,688	-	43,688
Software revenue (medical)	-	27,074	-	27,074	-	27,074
Medical devices and services	_	57,772	_	57,772	-	57,772
Manufacturing	-	_	103,489	103,489	-	103,489
Other	-	-	-	-	-	_
Total revenue from contracts with customers	43,688	84,846	103,489	232,023	-	232,023
Timing of revenue recognition						
Goods/Services transferred at a point in time	16,067	61,884	98,580	176,531	-	176,531
Goods/Services transferred over time	27,621	22,962	4,909	55,492	-	55,492
Total revenue from contracts with customers	43,688	84,846	103,489	232,023	-	232,023

The revenue per type of good or service including the previous years is as follows:

	For the year	r ended Decei	ecember 31		
in 000€	2023	2022	2021		
Software revenue (non-medical)	44,442	43,688	42,902		
Software revenue (medical)	31,700	27,074	22,887		
Medical devices and services	69,676	57,772	50,481		
Manufacturing	110,310	103,489	89,180		
Total	256,127	232,023	205,450		

22.1.2 Contract balances

The following table provides information about receivables, contracts in progress (contract assets) and deferred income (contract liabilities) from contracts with customers.

	As of Decemb		er 31,	
in 000€	2023	2022	2021	
Trade receivables, included in 'trade and other receivables'	53,505	51,443	42,814	
Contract assets / contracts in progress	637	643	495	
Contract liabilities / deferred income / advances received on contracts	50,390	50,065	39,324	

We refer to Note 18 for a detail of the deferred income. Note 18 includes a split of the deferred income in current and non-current. Non-current deferred income, representing mainly maintenance contracts with terms more than one year and certain contracts with up-front fees which are allocated to performance obligations that will be satisfied over more than one year, may be recognized as revenue between one to three years. Total revenue recognized during 2023 that was included in the contract liability at the beginning of the year amounts to K€41,721.

The relation between the timing of satisfaction of the performance obligations and the timing of billing resulting in contract assets and liabilities is as follows:

- Maintenance services: maintenance services are typically billed at the beginning of the maintenance period resulting in deferred income that is recognized on a straightline basis over the maintenance period.
- Software licenses: certain software licenses may have been billed prior to the delivery of the software key or time-based software licenses may have been billed up-front resulting in a deferred income balance.
- Certain agreements in the medical segment include up-front fees such as step-in fees or milestone payments which are billed at inception of the contract but which are allocated to performance obligations which are satisfied at a later time in the contract term or which have not been recognized considering the revenue constraint (i.e. may have to be credited when customer achieves certain volume targets). In addition, certain contracts include prepaid fees for volume "Plan Only" purchases for which the purchased services are only delivered during a one year period. Those fees result in deferred income which are recognized as revenue when services/products are delivered and revenue is not constrainted.
- Certain development services are satisfied while the services can only billed at certain pre-defined points in time or when the services are fully satisfied resulting in contracts in progress / contract assets.

22.2 Cost of sales

Cost of sales includes the following selected information:

	For the year	he year ended December 31		
in 000€	2023	2022	2021	
Purchase of goods and services	(53,747)	(51,597)	(38,691)	
Amortization and depreciation	(11,298)	(11,174)	(11,296)	
Payroll expenses	(46,678)	(42,718)	(38,499)	
Work in Progress	727	2,234	1,208	
Total	(110,996)	(103,255)	(87,278)	

22.3 Research and development expenses

Research and development expenses include the following selected information:

	For the year	or the year ended December 31		
in 000€	2023	2022	2021	
Purchase of goods and services	(4,759)	(5,930)	(3,770)	
Amortization and depreciation	(1,459)	(1,454)	(1,821)	
Payroll expenses	(31,900)	(30,184)	(21,300)	
Other	20	-	_	
Total	(38,098)	(37,568)	(26,891)	

22.4 Sales and marketing expenses

Sales and marketing expenses include the following selected information:

	For the year	r ended Decer	December 31		
in 000€	2023	2022	2021		
Purchase of goods and services	(10,437)	(11,802)	(6,704)		
Amortization and depreciation	(2,285)	(2,541)	(1,892)		
Payroll expenses	(45,100)	(47,782)	(40,555)		
Total	(57,822)	(62,125)	(49,151)		

22.5 General and administrative expenses

General and administrative expenses include the following selected information:

	For the year	For the year ended December 31		
in 000€	2023	2022	2021	
Purchase of goods and services	(7,211)	(6,240)	(11,248)	
Amortization and depreciation	(2,361)	(1,710)	(2,987)	
Payroll expenses	(27,496)	(27,193)	(19,080)	
Total	(37,068)	(35,143)	(33,315)	

22.6 Net other operating income

The net other operating income can be detailed as follows:

	For the year ended December 31		
in 000€	2023	2022	2021
Government grants	4,853	4,932	4,466
Amortization intangibles purchase price allocation	(4,012)	(5,146)	(2,521)
Allowance for doubtful debtors	(448)	390	(58)
Capitalized expenses (asset construction)	_	_	223
Tax credits	1,360	887	746
Arbitration settlement	(5,189)	_	-
Impairment of intangible assets (Note 6) and PP&E (Note 7)	(3,054)	_	(177)
Impairment of goodwill (Note 5)	(1,175)	_	-
Indemnity fee from commercial agreement	_	506	_
COVID support Germany	-	681	_
Other	1,141	946	723
Total	(6,524)	3,196	3,402

The Company has received government grants from the Belgian federal and regional governments and from the European Community in the forms of grants linked to certain of its research and development programs and reduced payroll taxes.

In May 2023, the Belgian Center for Arbitration and Mediation issued a decision in the arbitration proceedings filed by ZimmerBiomet against Materialise, pursuant to which we were ordered to pay an amount of ϵ 5.2 million, including interests, to ZimmerBiomet.

22.7 Payroll expenses

The following table shows the breakdown of payroll expenses for 2023, 2022 and 2021:

	For the year ended December 31		
in 000€	2023	2022	2021
Short-term employee benefits	(117,443)	(115,169)	(93,850)
Social security expenses	(19,430)	(19,002)	(17,076)
Expenses defined contribution plans	(1,586)	(1,463)	(1,250)
Other employee expenses	(12,715)	(12,241)	(7,259)
Total	(151,174)	(147,875)	(119,435)
Total registered ampleyees at the end of the period	2 437	2 430	2 222
		, , ,	

22.8 Financial expenses

Financial expenses includes the following selected information:

	For the year ended December 31		
in 000€	2023	2022	2021
Interest expense	(1,751)	(2,047)	(2,435)
Foreign exchange losses	(1,770)	(1,645)	(1,258)
Other financial expenses	(344)	(728)	(408)
Total	(3,865)	(4,420)	(4,101)

22.9 Financial income

Financial income includes the following selected information:

	For the yea	For the year ended December 31			
in 000€	2023	2022	2021		
Interest income	4,450	1,332	658		
Foreign exchange gains	563	4,778	4,904		
Other finance income	6	4	58		
Total	5,019	6,114	5,620		

22.10 Income taxes and deferred taxes

Current income tax

The following table shows the breakdown of the tax expense for 2023, 2022 and 2021:

	As	of December 3	1,
in 000€	2023	2022	2021
Current income tax	(2,355)	(2,000)	(1,252)
Deferred income taxes	2,277	1,025	661
Total income taxes for the period	(78)	(975)	(591)

The current tax expense is equal to the amount of income tax owed to the tax authorities for the year, under the applicable tax laws and rates in effect in the various countries.

Deferred tax

Deferred tax is presented in the statement of financial position under non-current assets and non-current liabilities, as applicable. The following table shows the breakdown of the deferred tax assets, deferred tax liabilities and the deferred tax expense for 2023, 2022 and 2021:

	Asset/(liability)			Income/(expense)		
in 000€	2023	2022	2021	2023	2022	2021
Tax losses, patent and innovation income deduction, and other tax credits	3,199	3,134	2,162	-	-	_
Amortization development assets and other intangible assets	400	328	136	-	-	-
Depreciation property, plant & equipment	224	40	55	-	_	_
Leases	53	72	35	_	_	_
Other items	343	_	274	_	_	_
Total deferred tax assets	4,220	3,574	2,662	3,623	4,580	687
Property, plant & equipment	(569)	(274)	(850)	-	-	_
Intangible assets	(3,664)	(5,470)	(5,757)	_	_	_
Deferred income	(743)	(778)	_	_	-	_
Investment grants	(172)	(178)	(199)	_	_	_
Inventory valuation	_	_	_	-	-	_
Total deferred tax liabilities	(5,148)	(6,700)	(6,806)	(1,345)	(3,554)	(26)
Netting	1,422	2,388	2,435	-	-	_
Total deferred tax assets, net	2,797	1,186	227	_	_	_
Total deferred tax liabilities, net	(3,725)	(4,312)	(4,371)	_	_	_
Total deferred tax income (expense)	_	_	_	2,277	1,025	661

The Group has unused tax losses carried forward and Innovation Income Deduction of $K \in 91,753$ for 2023 (2022: $K \in 87,558$; 2021: $K \in 48,648$) of which $K \in 46,533$ for 2023 (2022: $K \in 45,245$; 2021: $K \in 35,578$) relating to Materialise NV.

Under the Belgian Innovation Income Deduction system, companies can deduct up to 85% of their net innovation income from the taxable basis.

With respect to the tax losses carried forward and Innovation Income Deductions carried forward we recognized at December 31, 2023 a deferred tax asset of ϵ 0.1 million for Materialise NV (2022: ϵ 0.2 million, 2021: ϵ 0.0 million) and ϵ 1.0 million for Materialise USA (2022: ϵ 1.6 million, 2021: ϵ 0.0 million).

The deferred tax liability of K€5,148 as at December 31, 2023 mainly relates to the intangibles that have been recognized in connection with business combinations (mainly ACTech).

Relationship between Tax Expense and Accounting Profit

<u>-</u>	For the year ended December 31		
in 000€	2023	2022	2021
Profit (loss) before taxes	6,772	(1,178)	13,736
Income tax at statutory rate of 25%	(1,693)	295	(3,432)
Effect of different local tax rate	(416)	39	12
Tax adjustments to the previous period	(63)	84	88
Non-deductible expenses	(324)	(431)	(354)
Research and development tax credits	203	177	398
Innovation income deduction	2,560	_	2,847
Non recognition of deferred tax asset	(1,815)	(1,706)	(407)
Recognition of previously unrecognized tax losses	1,186	548	_
Non-taxable income	450	406	350
Use of previous years' tax losses and tax credits for which no			
deferred tax assets were recognized	_	243	163
Taxes on other basis	(232)	(149)	(71)
Other	66	(481)	(185)
Income tax benefit (expense) as reported in the consolidated income statement	(78)	(975)	(591)

23 Earnings per share

Basic earnings per share amounts are calculated by dividing the net profit (loss) for the year attributable to ordinary equity holders of the parent company by the weighted average number of ordinary shares outstanding during the year.

Diluted earnings per share amounts are calculated by dividing the net profit (loss) attributable to ordinary equity holder of the parent company by the weighted average number of ordinary shares outstanding during the year plus the weighted average number of ordinary shares that would be issued on conversion of all warrants and the weighted average number of ordinary shares that would be issued on conversion of the convertible debt. If there is a net loss after taxes, the number of diluted shares is equal to the basic shares.

The net profit (loss) for the year used for the basic and diluted earnings per share are reconciled as follows:

<u>-</u>	For the year ended December 31		
in 000€	2023	2022	2021
Net profit (loss) attributable to ordinary equity holders of the parent for basic earnings	6,722	(2,123)	13,154
Net profit (loss) attributable to ordinary equity holders of the parent adjusted for the effect of dilution	6,722	(2,123)	13,154

The warrants are dilutive at December 31, 2023. The warrants were antidilutive as per December 31, 2022 and were dilutive as per December 31, 2021.

The following reflects the share data used in the basic and diluted earnings per share computations:

	For the year ended December 31		ber 31
in 000	2023	2022	2021
Weighted average number of ordinary shares for basic earnings per share	59,067	59,064	56,685
Effect of dilution:			
Warrants	18	-	158
Weighted average number of ordinary shares adjusted for effect of dilution	59,085	59,064	56,843

The earnings per share are as follows:

	For the year	For the year ended December 31		
	2023	2022	2021	
Earnings per share attributable to the owners of the parent				
Basic	0.11	(0.04)	0.23	
Diluted	0.11	(0.04)	0.23	

24 Commitments and contingent liabilities

Mortgages and pledges

The Group has several loans secured by a mortgage on the building. The carrying value of related property, plant & equipment (including buildings under construction) is $K \in 22,165$ (2022: $K \in 23,560$; 2021: $K \in 25,582$). The total outstanding mortgages and pledges are $K \in 100,755$ in 2023 (2022: $K \in 100,978$; 2021: $K \in 103,685$).

Included in the above, the Group also has pledges on the business goodwill ("fonds de commerce") of the Company for a total amount of $K \in 69,300$ in 2023 (2022: $K \in 69,300$; 2021: $K \in 69,300$) and pledges on other fixed assets for a total amount of $K \in 219$ (2022: $K \in 442$; 2021: $K \in 1,399$).

Other commitments

At December 31, 2023, the Group has outstanding non-cancellable contracts with a future commitment of $K \in 22,267$ (2022: $K \in 25,385$; 2021: $K \in 7,043$), mainly related to purchase commitment for raw materials, energy and gas; and of $K \in 9,330$ (2022: $K \in 0$; 2021: $K \in 0$) related to property, plant & equipment.

Legal Proceedings

The Group is currently not a party to any legal or arbitration proceedings, which, in the opinion of the management, is likely to have or could reasonably possibly have a material adverse effect on the business, financial position or results of operations.

25 Risks

Foreign exchange risk

The Group transacts business globally and is subject to risks associated with fluctuating foreign exchange rates. The geographic areas outside of the Eurozone to which it sells its products and services are generally not considered to be highly inflationary. In the years ended December 31, 2023, 2022 and 2021, 34%, 39% and 35% of our revenue, respectively, were derived from sales in a currency different from the euro. Receivables denominated in a foreign currency are initially recorded at the exchange rate at the transaction date and subsequently re-measured in euro based on period-end exchange rates. Transaction gains and losses that arise from exchange rate fluctuations are charged to income.

The Group has primarily exposure to the USD, GBP, BRL, PLN and JPY as foreign currency. The exposure on MYR and CZK is limited. There is only a limited portion of turnover in local currency.

If the U.S. dollar (rate for \in 1) would have appreciated by 10%, the net result would have been \in 0.9 million higher, excluding the effect of the cash and term accounts held in U.S. dollars. If the U.S. dollar (rate for \in 1) would have depreciated by 10%, the net result would have been \in 0.8 million lower, excluding the effect of the cash and term accounts held in U.S. dollars.

To limit the exposure to foreign currency rate fluctuations on the U.S. dollar, the Group has entered into currency rate swaps. As of December 31, 2023 the Group had hedge agreements in place for \$ 11.2 million, all maturing before year-end 2024. We refer to note 20 for the related fair value of these derivatives.

Inflation risk

We transact business globally and are subject to risks associated with fluctuating inflation. The risk exists that, if inflation increases our costs of remuneration, materials, services, energy, and capital expenditures, we may not be able to offset such costs fully by increasing our selling prices. As such, in a high inflationary environment, our results of operations and financial condition may be adversely affected.

Liquidity risk

The liquidity risk is that the Group may not have sufficient cash to meet its payment obligations. This risk is countered by day-by-day liquidity management at the corporate level. The Group has historically entered into financing and lease agreements with financial institutions to finance significant projects and certain working capital requirements. At December 31, 2023, we held cash and cash equivalents of \in 127.6 million, while \in 25.5 million of our \in 64.4 million gross debt was short term. At December 31, 2023, we had an undrawn credit line of \in 50 million as more fully described in Note 15 to the consolidated financial statements.

The range of contracted obligations are as follows (incl. interest) :

in 000€	Less than 1 year	2 to 3 years	4-5 years	More than 5 years	Total
At December 31, 2023					
Loans & borrowings	23,858	19,668	8,257	7,084	58,867
Lease liabilities	2,895	3,010	1,951	876	8,732
Trade payables	21,196	_	_	_	21,196
Other liabilities	650	315	-	-	965
Total	48,599	22,993	10,208	7,960	89,760

	Less than 1	More than 5		an 5	
	year	2 to 3 years	4-5 years	years	Total
At December 31, 2022					
Loans & borrowings	18,156	35,131	15,017	8,627	76,931
Ü					
Lease liabilities	3,080	2,725	1,289	1,425	8,519
Trade payables	23,230	_	_	_	23,230
Other current liabilities	339	_	_	_	339
Total	44,805	37,856	16,306	10,052	109,019

	Less than 1 year	2 to 3 years	4-5 years	More than 5 years	Total
At December 31, 2021			•		
Loans & borrowings	19,081	41,590	19,587	14,901	95,159
Lease liabilities	3,496	3,790	946	1,102	9,334
Trade payables	20,171	_	-	_	20,171
Other current liabilities	750	_	-	_	750
Total	43,498	45,380	20,533	16,003	125,414

Interest rate risk

Although the Group mainly has loans outstanding with a fixed interest rate, some of the loans have been contracted with variable interest rates. The most significant loans with variable interest rates have been secured by means of a variable to fixed interest rate swap. We therefore believe that the Group is not subject to immediate changes in interest rates.

Credit risk

Credit risk is the risk that third parties may not meet their contractual obligations resulting in a loss for the Group. The Group is exposed to credit risk from its operating activities (primarily trade receivables) and from its financing activities, which are mainly deposits with financial institutions. The Group limits this exposure by contracting with credit-worthy business partners or with financial institutions which meet high credit rating requirements. In addition, the portfolio of receivables is monitored on a continuous basis.

Trade receivables and contracts in progress

Customer credit risk is managed by each business unit subject to the Group's established policy, procedures and controls relating to customer credit risk management.

An impairment analysis is performed at each reporting date per company and using a provision matrix per company to measure expected credit losses. The provision rates are based on days past due for groupings of various customer segments with similar loss patterns (i.e., by legal entity).

The calculation reflects the probability-weighted outcome, the time value of money and reasonable and supportable information that is available at the reporting date about past events, current conditions and forecasts of future economic conditions. Generally, trade receivables are written-off if past due for more than one year and are not subject to enforcement activity. The maximum exposure to credit risk at the reporting date is the carrying value of each class of financial assets at amortized cost or fair value through OCI as disclosed in Note 20. The Group does not hold collateral as security.

The Group evaluates the concentration of risk with respect to trade receivables as low, as its customers are located in several jurisdictions and industries and operate in largely independent markets.

Set out below is the information about the credit risk exposure on the Group's trade receivables using a provision matrix:

			Less than 30				More than
in 000€	Total	Non-due	days	31-60 days	61-90 days	91-180 days	181 days
December 31, 2023	52,698	41,895	7,053	1,213	983	935	619

December 31, 2022	51,043	41,764	5,451	2,212	656	458	502
December 31, 2021	41,541	34,002	4,199	1,634	426	611	669

Capital management

The primary objective of the Group's shareholders' capital management strategy is to ensure it maintains healthy capital ratios to support its business and maximize shareholder value. Capital is defined as the Group shareholder's equity.

The Group consistently reviews its capital structure and makes adjustments in light of changing economic conditions. The Group made no changes to its capital management objectives, policies or processes during the years ended December 31, 2023, 2022 and 2021.

26 Related party transactions

The compensation of key management personnel of the Group is as follows:

	For the year	For the year ended December 31			
in 000€		2022	2021		
Short-term employee benefits	2,554	2,736	2,832		
Post-employment benefits	73	75	93		
Total	2,627	2,811	2,925		
Warrants granted	350,000	_	_		
Warrants outstanding	350,000	_	4,545		

The amounts disclosed in the table are the amounts recognized as an expense during the reporting period related to key management personnel (senior management and executive committee members). In the year ending December 31, 2023, a total of 350.000 warrants were granted to key management personnel. Compensation expense recognized in the year ending December 31, 2023 related to share-based payment arrangements, amounted to K \in 47 (2022: K \in 0; 2021: K \in 132).

The following table provides the total amount of transactions that have been entered into with related parties for the relevant financial year:

in 000€	Sale of goods to	Purchases from	Depreciation	Interest expense	Right-of- Use Assets	Receivables	Lease liabilities	Other liabilities
Non-executive directors of the Group								
2023	_	172	_	_	_	_	-	64
2022	_	163	_	-	_	_	_	86
2021	-	122	_	_	_	_	_	58
Shareholders of the Group								
2023	-	97	-	3	-	-	-	64
2022	_	104	-	5	_	-	-	96
2021	-	37	-	6	-	77	-	60
Joint ventures								
2023	_	_	_	_	_	_	_	-
2022	_	-	_	-	_	_	_	_
2021	_	-	-	_	-	-	-	_
Non-controlling interests								
2023	_	_	_	-	_	_	_	_
2022	-	-	_	-	-	_	-	-
2021	_	-	-	_	_	_	_	_

Related party - Lunebeke NV / Ailanthus NV

Lunebeke NV is owned by a shareholder and director of the Group and was established on December 29, 2020 following a partial demerger of Ailanthus NV (a former related party of the Group that merged with Materialise NV subsequent to a partial demerger). The activities taken over by Lunebeke NV through the partial demerger of Ailanthus NV were taken over from Ailanthus NV with retro-active effect as of October 1st, 2021. The Group rents apartments on a regular basis from Lunebeke NV in order to host our employees from foreign subsidiaries who are visiting our headquarters in Leuven. The total amount paid to Lunebeke NV for rent in 2023 was $K \in 97$ (2022: $K \in 104$; 2021: $K \in 37$).

27 Events subsequent to the statement of financial position date

No events subsequent to the date of the statement of financial position have occurred that would require adjustment to, or disclosure in, the consolidated
financial statements.

28 Overview of consolidated entities

Name	Country of incorporation	% equity interest*		
		2023	2022	2021
Materialise NV	Belgium	100%	100%	100%
Materialise SAS	France	100%	100%	100%
Materialise GmbH	Germany	100%	100%	100%
Materialise Japan K.K.	Japan	100%	100%	100%
Materialise s.r.o.	Czech Republic	100%	100%	100%
Materialise USA, LLC	United States	99%	99%	99%
OBL SAS	France	100%	100%	100%
Materialise Austria GmbH	Austria	100%	100%	100%
MATERIALISE SDN. BHD	Malaysia	100%	100%	100%
Materialise Ukraine LLC	Ukraine	100%	100%	100%
RapidFit NV	Belgium	100%	100%	100%
Meridian Technique Limited	United Kingdom	100%	100%	100%
OrthoView Holdings Limited	United Kingdom	100%	100%	100%
Materialise SA	Poland	100%	100%	100%
Materialise Colombia SAS	Colombia	100%	100%	100%
Materialise Motion NV	Belgium	100%	100%	100%
Materialise Shanghai Co. Ltd	China	100%	100%	100%
Engimplan Engenharia de Implante Industria E Comércio Ltda	Brazil	100%	100%	100%
Engimplan Holding Ltda	Brazil	100%	100%	100%
Materialise Limited	South-Korea	100%	100%	100%
Materialise Australia PTY Ltd	Australia	100%	100%	100%
Materialise S.R.L.	Italy	100%	100%	100%
ACTech GmbH	Germany	100%	100%	100%
ACTech Holding GmbH	Germany	100%	100%	100%
ACTech North America, Inc.	United States	100%	100%	100%

Tianjin Zhenyuan Materialise Medical Technology Lt	d China	51%	51%

The entities Materialise GmbH, Gilching, Germany, ACTech Holding GmbH, Freiberg / Saxony, Germany and ACTech GmbH, Freiberg / Saxony, Germany, have taken advantage of the exemption regulations of § 264 (3) HGB (German Commercial Code) for the financial year ending December 31, 2021, 2022 and 2023.

51%

29 Non-GAAP Measures

EBITDA and Adjusted EBITDA is used in the Note 21 Segments as one of the basis of the Segments performance measurement. We calculate EBITDA as net profit plus income taxes, financial expenses (less financial income), depreciation and amortization, and share in loss of joint venture. Adjusted EBITDA is determined by adding back share-based compensation expenses, acquisition-related expenses of business combinations, impairments and fair value remeasurements due to business combinations to EBITDA.

^{*}The overview provides the equity interest held as of 31 December of each respective year.