MESSER
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Annual Report of Messer SE & Co. KGaA 2023

Content

The Management Board and the Supervisory Board of Messer Management SE and of Messer SE & Co. KGaA in fiscal year 2023

Messer SE & Co. KGaA itself does not have a Management Board. The management of Messer SE & Co. KGaA is the responsibility of the Management Board of the general partner, Messer Management SE. Since Messer Group GmbH was founded in 2004, its management has been monitored by a Supervisory Board that assists it in strategic decisions and constantly demands sustainable action in addition to business success. Since the transformation of Messer Group GmbH into Messer SE & Co. KGaA, this has also been true for the general partner Messer Management SE and the Supervisory Board of Messer SE & Co. KGaA as well as the Management Board of Messer Management SE and its Supervisory Board.

The Supervisory Board of Messer SE & Co. KGaA:

Dr. Jürgen Heraeus, Chairman (until April 26, 2023)
Stefan Messer, Chairman (from April 27, 2023)
Dr. Werner Breuers, Deputy Chairman (until April 26, 2023)
Dr. Johannes Fritz, Deputy Chairman (from April 27, 2023)
Dr. Karl-Gerhard Seifert (until November 13, 2023)
Dr. Nathalie von Siemens (from September 6, 2021)
Heike Niehues (from September 6, 2021)
Maureen Messer-Casamayou (from September 6, 2021)
Sabine Scheunert (from September 6, 2021)
Geoffrey Wild (from November 13, 2023)
Elisabeth Dong (from November 28, 2023)

The Supervisory Board of Messer Management SE:

Dr. Jürgen Heraeus, Chairman (until April 26, 2023)
Stefan Messer, Chairman (from April 27, 2023)
Maureen Messer-Casamayou (from July 1, 2021)
Marcel Messer (from July 1, 2021)

The Management Board of Messer Management SE:

Stefan Messer, CEO (until April 26, 2023)
Bernd Eulitz, Deputy CEO (until April 26, 2023), CEO (from April 27, 2023)
Helmut Kaschenz, CFO (from April 1, 2021)
Dr. Werner Hickel, COO Asia (from November 16, 2023)
Virginia Esly, COO Europe (from January 1, 2023)
Elena Skvortsova, COO Americas (from November 16, 2023)

Report of the Supervisory Board of Messer SE & Co. KGaA

Composition of the Supervisory Board and its committees

In financial year 2023 the Supervisory Board of Messer SE & Co. KGaA initially consisted of eight members and, once the amendment to the Articles of Association took effect with its entry in the commercial register of the company on 28 November 2023, it consisted of nine members elected by the Annual General Meeting. At the end of the reporting year the Supervisory Board consisted of the following members: Stefan Messer (Chairman), Dr. Johannes Fritz (Deputy Chairman), Dr. Werner Breuers, Maureen Messer-Casamayou, Heike Niehues, Sabine Scheunert-Porth, Dr. Nathalie von Siemens, Geoffrey Wild and Elisabeth Dong. Stefan Messer was elected to the Supervisory Board and as Chairman of the Supervisory Board in place of the previous Chairman of the Supervisory Board, Dr. Jürgen Heraeus, who stepped down from his position at the end of 26 April 2023. Dr. Karl-Gerhard Seifert stepped down from his position with effect from the end of the Annual General Meeting on 13 November 2023. Mr. Geoffrey Wild was elected to the Supervisory Board in his place.

The Supervisory Board has established three committees: the Audit Committee, the Investment Committee as well as the Nomination and Remuneration Committee.

Cooperation between the General Partner and the Supervisory Board

In financial year 2023 the Supervisory Board discharged the duties incumbent upon it in accordance with the law, the Articles of Association, and the Rules of Procedure with the necessary care. It supported the General Partner in the management of the company through an extensive exchange of information and advice. In the course of its duties the Supervisory Board ensured the legality, regularity, expediency, and economic efficiency of the company's management at all times. The General Partner consulted the Supervisory Board on all decisions of fundamental importance and provided it with all the information it needed to properly perform its duties in a timely manner. The Supervisory Board was regularly and comprehensively informed regarding the work of the committees by the respective Chairmen. The General Partner also kept the Chairman of the Supervisory Board and the Chairman of the Audit Committee continually informed of important developments between meetings. The Chairman of the Supervisory Board and the General Partner also regularly exchanged information on the current business situation.

The General Partner provided information in written and verbal reports at Supervisory Board meetings as well as between meetings on individual business transactions and events of material importance to the company, the business and financial situation, business development, strategic development and corporate planning as well as the company's risk situation and risk management. At each of its meetings the Supervisory Board or its committees had the opportunity to conduct in-depth discussions on the reports and draft resolutions submitted by the General Partner. This applies in particular to measures requiring the approval of the Supervisory Board and to transactions that are of material significance for profitability and liquidity. Where the General Partner submitted individual measures to the Supervisory Board for approval, the Supervisory Board consistently examined and discussed the transactions in question in detail. The Supervisory Board had the opportunity at all times to discuss any risks and other effects with the General Partner and passed resolutions on these matters. In addition, the Supervisory Board also discussed other measures and transactions that were of material significance to the company without specific approval requirements in connection with the reports and information submitted by the General Partner.

Meetings and resolutions of the Supervisory Board and key aspects of its work; audit of the annual and consolidated financial statements

The Supervisory Board convened for a total of five meetings in the financial year. These were held both in person and in hybrid form. The Supervisory Board also adopted several circular resolutions.

In addition to reviewing the annual and consolidated financial statements, the work of the Supervisory Board was focused on closely monitoring the takeover of the Messer Industries joint venture from minority shareholder CVC Capital Partners Fund VII and the new collaboration with strategic partner GIC.

The Supervisory Board continuously monitored the current business situation of the company and the Group in financial year 2023 as well as the business plan and budget for 2024.

By way of a resolution passed at the Annual General Meeting on 26 April 2023, KPMG AG Wirtschaftsprüfungsgesellschaft, Frankfurt am Main (KPMG) was appointed auditor for the financial year 2023. The appointment also includes the appointment as auditor of the consolidated financial statements for the financial year ending 31 December 2023.

The annual financial statements and the management reports for Messer SE & Co. KGaA and the Group were prepared in accordance with the provisions of the German Commercial Code (HGB) and the German Stock Corporation Act (AktG). The consolidated financial statements were prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union. KPMG audited the annual financial statements of Messer SE & Co. KGaA, the consolidated financial statements and the management reports for Messer SE & Co. KGaA and the Group for the financial year ending 31 December 2023 and issued unqualified audit opinions.

The annual financial statements, the consolidated financial statements, the management reports for Messer SE & Co. KGaA and the Group as well as the audit reports were made available to all members of the Supervisory Board. All documents were discussed in detail at the meetings of the Audit Committee on 24 April 2024 and the Supervisory Board on 25 April 2024. The auditor, KPMG, reported on the key findings of its audit and was available for supplementary questions and information. At the plenary meeting, the Chairman of the Audit Committee also reported in detail on the audit of the annual and consolidated financial statements and the management reports for Messer SE & Co. KGaA and the Group.

The Supervisory Board discussed the annual financial statements, the proposal for the appropriation of earnings, the consolidated financial statements and the management reports for Messer SE & Co. KGaA and the Group. There were no objections to the documents presented. Based on its own review, the Supervisory Board followed the recommendation of the Audit Committee and concurred with the auditor’s findings.

By resolution dated 25 April 2024, the Supervisory Board then approved the annual and consolidated financial statements of Messer SE & Co. KGaA for the financial year prepared by the General Partner. In accordance with Section 286 (1) AktG, the adoption of the annual financial statements of Messer SE & Co. KGaA requires the approval of the Annual General Meeting.

The Supervisory Board would like to thank the General Partner and all employees for their commitment and dedication over the course of the past year.

Bad Soden am Taunus, 25 April 2024

Stefan Messer
Chairman of the Supervisory Board

Consolidated Financial Statements of Messer SE & Co. KGaA, Sulzbach (Taunus), as of December 31, 2023

Consolidated Income Statement

of Messer SE & Co. KGaA, Sulzbach (Taunus), for the period from January 1 to December 31, 2023 (in K€)

	Note	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Revenue	4	2,109,018	1,573,676
Cost of sales	5	(1,218,512)	(936,738)
Gross profit		**890,506**	**636,938**
Selling and distribution expenses	6	(410,879)	(246,576)
Impairment on trade receivables	31	(10,411)	(4,293)
General and administrative expenses	7	(259,327)	(126,399)
Other operating income	8	3,222,240	27,170
Other operating expenses	9	(96,319)	(14,741)
Goodwill impairment	14	(23,219)	–
Operating income		**3,312,591**	**272,099**
Income from investments accounted for using the equity method	10, 16	159,875	146,299
Other investment result, net	10	27	630
Finance income	10	88,974	38,257
Finance costs	10	(114,037)	(43,555)
Financial result, net		**134,839**	**141,631**
Profit before tax		**3,447,430**	**413,730**
Income / (expense) from income taxes	11	6,237	(67,879)
Consolidated net profit		**3,453,667**	**345,851**
Attributable to:			
Shareholders of the parent company		3,404,568	298,013
Non-controlling interests		49,099	47,838

Consolidated Statement of Comprehensive Income

of Messer SE & Co. KGaA, Sulzbach (Taunus), for the period from January 1 to December 31, 2023 (in K€)

	Note	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Consolidated net profit		**3,453,667**	**345,851**
Items that may be reclassified to profit or loss			
Exchange rate differences			
Exchange differences on translation of foreign subsidiaries	29	(60,019)	(22,600)
Reclassification to profit or loss	16, 29	31,656	–
Exchange differences from companies accounted for using the equity method	16, 29	18,808	26,302
Result from the net investment in a foreign operation	29	7,567	–
Reclassification to profit or loss	16, 29	2,110	–
Deferred taxes	11	(1,773)	–
Result from net investment in a foreign operation from companies accounted for using the equity method	16, 29	(1,536)	(5,721)
Derivative financial instruments			
Change in fair value of derivatives used for hedging purposes[1]	31	(49,884)	–
Reclassification to profit or loss	31	(23,526)	–
Deferred taxes	11	11,672	–
Share of companies accounted for using the equity method[1]	16, 29	(31,480)	37,143
		(96,405)	**35,124**
Items that will not be reclassified to profit or loss			
FVOCI equity investments	31	42	29
Remeasurement of net defined benefit obligation for pension plans and other employee benefits			
Change in remeasurement of the net defined obligation for pension plans	24	(87)	13,093
Deferred taxes	11	(104)	3,066
Share of companies accounted for using the equity method	16, 29	1,337	5,927
		1,188	**22,115**
Other comprehensive income		**(95,217)**	**57,239**
Total comprehensive income		**3,358,450**	**403,090**
Attributable to:			
Shareholders of the parent company		3,323,679	359,737
Non-controlling interests		34,771	43,353

(1) Gains / losses on financial instruments in effective hedges

For further information on equity, please refer to the comments on the consolidated statement of changes in equity below and note 29 “Equity” in the notes to the consolidated financial statements.

Consolidated Statement of Financial Position

of Messer SE & Co. KGaA, Sulzbach (Taunus), as of December 31, 2023 (in K€)

ASSETS	Note	Dec. 31, 2023	Dec. 31, 2022
Goodwill	14	4,913,565	272,004
Right-of-use assets	14	202,127	57,456
Other intangible assets	14	2,122,855	70,982
Property, plant and equipment	15	4,783,811	1,302,546
Investments accounted for using the equity method	16	59,549	1,095,069
Equity investments and other financial investments	17	10,869	2,452
Deferred tax assets	11	37,720	17,266
Other financial assets	18	47,958	7,382
Non-financial assets	18	5,846	806
Non-current assets		**12,184,300**	**2,825,963**
Inventories	19	309,819	80,582
Trade receivables	20	590,388	230,494
Current income tax assets		103,878	2,299
Other current financial assets	22	93,144	20,885
Non-financial assets	22	105,611	33,273
Cash and cash equivalents	23	612,704	260,454
Current assets		**1,815,544**	**627,987**
Total assets		**13,999,844**	**3,453,950**

Consolidated Statement of Financial Position

of Messer SE & Co. KGaA, Sulzbach (Taunus), as of December 31, 2023 (in K€)

EQUITY AND LIABILITIES	Note	Dec. 31, 2023	Dec. 31, 2022
Issued capital	29	129,825	100,000
Capital reserves	29	2,089,280	536,937
Other reserves	29	(9,020)	(7,430)
Retained earnings	29	5,104,636	1,779,378
Other components of equity	29	(44,097)	37,982
Equity attributable to shareholders of the parent company		**7,270,624**	**2,446,867**
Non-controlling interests	29	**258,011**	**237,214**
Equity		**7,528,635**	**2,684,081**
Provisions for employee benefits	24	61,950	42,955
Other provisions	25	74,720	5,105
Non-current financial liabilities	26	1,406,131	162,338
Other non-current financial liabilities	27	396,663	100
Non-financial liabilities	27	21,967	1,645
Deferred tax liabilities	11	1,113,815	21,511
Non-current liabilities		**3,075,246**	**233,654**
Other provisions	25	115,760	34,651
Current financial liabilities	26	2,346,113	154,282
Trade payables	31	388,227	170,686
Current income tax liabilities		83,724	30,066
Other current financial liabilities	28	82,207	33,210
Non-financial liabilities	28	379,932	113,320
Current liabilities		**3,395,963**	**536,215**
Total equity and liabilities		**13,999,844**	**3,453,950**

Consolidated Statement of Changes in Equity

of Messer SE & Co. KGaA, Sulzbach (Taunus), for fiscal 2023 (in K€)

		Reserves			Other components of equity					
	Issued capital	Capital reserves	Other reserves	Retained earnings	Currency translation	Hedging reserve	Fair value reserve & result from net investment	Equity attributable to shareholders of the parent company	Non-controlling interests	Total equity
As of Jan. 1, 2022	**100,000**	**536,937**	**(7,430)**	**1,489,820**	**(25,391)**	**17,987**	**5,275**	**2,117,198**	**223,380**	**2,340,578**
Consolidated net profit	–	–	–	298,013	–	–	–	298,013	47,838	345,851
Other comprehensive income	–	–	–	21,613	8,660	37,143	(5,692)	61,724	(4,485)	57,239
Total comprehensive income	**–**	**–**	**–**	**319,626**	**8,660**	**37,143**	**(5,692)**	**359,737**	**43,353**	**403,090**
Dividends	–	–	–	(30,000)	–	–	–	(30,000)	(29,519)	(59,519)
Reclassifications	–	–	–	–	–	–	–	–	–	–
Others	–	–	–	(68)	–	–	–	(68)	–	(68)
As of Dec. 31, 2022	**100,000**	**536,937**	**(7,430)**	**1,779,378**	**(16,731)**	**55,130**	**(417)**	**2,446,867**	**237,214**	**2,684,081**
As of Jan. 1, 2023	**100,000**	**536,937**	**(7,430)**	**1,779,378**	**(16,731)**	**55,130**	**(417)**	**2,446,867**	**237,214**	**2,684,081**
Consolidated net profit	–	–	–	3,404,568	–	–	–	3,404,568	49,099	3,453,667
Other comprehensive income	–	–	–	1,190	4,729	(93,218)	6,410	(80,889)	(14,328)	(95,217)
Total comprehensive income	**–**	**–**	**–**	**3,405,758**	**4,729**	**(93,218)**	**6,410**	**3,323,679**	**34,771**	**3,358,450**
Dividends	–	–	–	(80,500)	–	–	–	(80,500)	(27,907)	(108,407)
Issuance of ordinary shares	29,825	–	–	–	–	–	–	29,825	–	29,825
Deposits less transaction costs	–	1,552,343	–	–	–	–	–	1,552,343	–	1,552,343
Sale of interests without loss of control	–	–	(1,590)	–	–	–	–	(1,590)	6,442	4,852
Increase in equity investments	–	–	–	–	–	–	–	–	7,490	7,490
Others	–	–	–	–	–	–	–	–	1	1
As of Dec. 31, 2023	**129,825**	**2,089,280**	**(9,020)**	**5,104,636**	**(12,002)**	**(38,088)**	**5,993**	**7,270,624**	**258,011**	**7,528,635**

The above consolidated statement of changes in equity should be read in conjunction with the following notes. For further information on equity, please refer to the comments under note 29 “Equity” in the notes to the consolidated financial statements.

Consolidated Statement of Cash Flows

of Messer SE & Co. KGaA, Sulzbach (Taunus), for fiscal 2023 (in K€)

	Note	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Consolidated net profit before taxes		**3,447,430**	**413,730**
Income taxes paid		(90,958)	(54,221)
Depreciation of property, plant and equipment, amortization of intangible assets and impairment	14, 15	291,948	145,590
Income from changes in Group reporting	8, 9	(3,104,694)	–
Losses / (gains) on the disposal of fixed assets		(2,802)	(1,251)
Changes in investments in associates	16	(159,875)	(146,299)
Net interest result	10	(16,932)	6,671
Other non-cash financial result	10	44,393	(9,313)
Changes in inventories		(9,005)	(14,136)
Changes in receivables and other assets		3,479	(44,365)
Changes in provisions		21,073	6,696
Changes in trade payables and other liabilities		32,391	56,351
Cash flow from operating activities		**456,448**	**359,453**
Investments in property, plant and equipment and intangible assets		(330,193)	(262,270)
Investments in equity investments and other non-current assets		(581)	(25)
Payments for the acquisition of subsidiaries and associates		(3,238,898)	(136)
Changes in capital of associated companies		1,000	186
Proceeds from disposals of property, plant and equipment and intangible assets		7,144	4,166
Proceeds from disposals of subsidiaries and loans		–	(54)
Interest received		54,884	3,201
Cash flow from investing activities		**(3,506,644)**	**(254,932)**
Capital increases and dividends to the shareholder of Messer SE & Co. KGaA		1,900,245	(30,000)
Proceeds from non-current financial liabilities	26	1,259,819	29,263
Proceeds from current financial liabilities	26	2,336,659	114,421
Repayments of non-current financial liabilities	26	(17,537)	—
Repayments of current financial liabilities	26	(1,945,697)	(210,980)
Payments for lease liabilities	26	(12,836)	(6,182)
Distributions to non-controlling interests		(27,907)	(29,519)
Reduction / (increase) of majority holdings without loss of control and acquisition of non-controlling interests		5,392	–
Payments to / receipts from non-controlling interests		–	–
Interest paid		(29,634)	(9,344)
Other net finance costs		(54,877)	(3,588)
Cash flow from financing activities		**3,413,627**	**(145,929)**
Changes in cash and cash equivalents		**363,431**	**(41,408)**
Cash and cash equivalents			
at the beginning of the period		**260,454**	**304,215**
Currency translation effect on cash and cash equivalents		(11,181)	(2,353)
at the end of the period		**612,704**	**260,454**

Notes to the Consolidated Financial Statements of Messer SE & Co. KGaA, Sulzbach (Taunus), for fiscal 2023

1. General Information

Messer SE & Co. KGaA (the “Company”) is a holding company with the business address Messer-Platz 1, 65812 Bad Soden am Taunus, and is based in Sulzbach (Taunus), Germany, registered with the Frankfurt / Main Local Court under the number HRB 123982. It is the parent company of the Messer Group (the “Group”), which produces and sells industrial gases (in particular oxygen, nitrogen, argon, helium, carbon dioxide, hydrogen and rare and high-purity gases), processes for their use and systems located on the customer’s property (on site plants) for gas production. The main customers of the Messer Group include important companies from the manufacturing, chemical, steel-producing and pharmaceutical industries, the food industry and waste management.

As of December 31, 2023, Messer Industrie GmbH (Messer Industrie), in which the Messer family has bundled its industrial gases activities, is a shareholder of Messer SE & Co. KGaA through its holding in Messer Holding GmbH. Messer Industrie GmbH is the ultimate parent company in the Group and is required to produce consolidated financial statements. Messer SE & Co. KGaA thus prepares sub-group consolidated financial statements. The requirements of section 315e (3) of the German Commercial Code (Handelsgesetzbuch – “HGB”) for the preparation of the consolidated financial statements of Messer SE & Co. KGaA in accordance with the International Financial Reporting Standards (IFRS), as adopted in the EU, have been satisfied.

The reporting date for Messer SE & Co. KGaA and all the subsidiaries included in the consolidated financial statements is December 31 of the calendar year.

The Company’s consolidated financial statements for the fiscal year ended December 31, 2023 were approved for publication and submitted to the Supervisory Board of Messer SE & Co. KGaA for review by the general partner, Messer Management SE, on April 15, 2024. It is the responsibility of the Supervisory Board to review the consolidated financial statements. The consolidated financial statements are approved by the Annual General Meeting.

Messer GasPack GmbH, Messer GasPack 2 GmbH, Messer Industriegase GmbH, Messer Industries GmbH, Messer Produktionsgesellschaft mbH Salzgitter, Messer Produktionsgesellschaft mbH Siegen, Messer Trademark GmbH, Yeti GermanCo 2 GmbH, Yeti GermanCo 3 GmbH, Messer Trademark GmbH & Co. KG and Messer Griesheim China Holding GmbH, all consolidated domestic subsidiaries, will make use of the exemption provisions pursuant to section 264 (3) HGB and will therefore refrain from disclosing their annual financial statements for 2023 and, for the most part, from preparing the (HGB) notes and management report.

2. Accounting Policies

Basis of preparation

The consolidated financial statements are prepared in euro. Unless stated otherwise, all amounts are rounded to thousands (K€). Differences may arise due to rounding. A comparison of the figures is only possible to a limited extent due to the transaction described in note 3.

Statement of compliance with IFRS

The 2023 consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS), as adopted by the EU, and their interpretations issued by the IFRS Interpretations Committee (“IFRS IC”). The accounting policies on which the 2023 consolidated financial statements are based have been applied consistently.

The consolidated financial statements have been prepared on the basis of historical cost, amortized cost and the fair value from market measurement of available-for-sale financial assets and financial liabilities (including derivative financial instruments). Estimates are required in order to prepare the consolidated financial statements in accordance with IFRS and the Interpretations issued by the IFRS Interpretations Committee, as applicable in the EU. Moreover, the application of uniform Group accounting policies requires management to make discretionary decisions.

New financial reporting standards and interpretations

The following new or revised standards and interpretations are effective for the first time for these consolidated financial statements on January 1, 2023:

- IFRS 17 (including amendments to IFRS 17) – Insurance Contracts
- Amendments to IAS 1 and IFRS Practice Statement 2 – Disclosure of Accounting Policies
- Amendments to IAS 8 – Definition of Accounting Estimates
- Amendments to IAS 12 – Deferred Tax Related to Assets and Liabilities Arising from a Single Transaction
- Amendments to IAS 12 – International Tax Reform – Pillar Two Model Rules

IFRS 17 (including amendments to IFRS 17) – Insurance Contracts

IFRS 17 replaces IFRS 4 and creates, for the first time, standardized requirements for recognizing, measuring and disclosing notes on insurance contracts, reinsurance contracts and investment contracts with discretionary participation features. Under the IFRS 17 measurement model, groups of insurance contracts are measured based on the expected value of discounted cash flows with an explicit risk adjustment for non-financial risk and a contractual service margin that results in the recognition of profit in accordance with performance.

Instead of premium income, insurance revenue is recognized in each period in the income statement that includes all changes in the liability of remaining coverage for which the insurance company receives a premium and the portion of the premiums that covers acquisition expenses. The insurance revenue for a period and the insurance service expenses also introduced with IFRS 17 are the main components of the insurance service result. Payments and receipts from savings components are not recognized as revenue, income or expenses in the income statement. The amounts designated as insurance finance income and expenses result from discounting effects and financial risks. For each portfolio, they can be recognized either in the income statement or in other comprehensive income.

Changes to assumptions not related to interest rates or financial risks are not recognized directly in the income statement but are posted against the contractual service margin and thus allocated over the remaining term of the contract based on the benefits provided under the contract. Changes in estimates are recognized directly in the income statement only in the case of groups of insurance contracts where there is a risk of loss.

IFRS 17 provides a form of approximation for short-term contracts ("premium allocation approach") that models the obligation to provide insurance coverage much like the previous accounting approach for unearned premiums. Under IFRS 17, liabilities for claims that have been reported but not yet settled must be discounted at current interest rates.

IFRS 17 modifies the general measurement model for large parts of the life insurance business with participation features: changes to the shareholder's portion of development in the sources of income underlying the participation features are recognized in the contractual service margin and are allocated over the remaining term of the contract based on the benefits provided under the contract.

With regard to the first-time application of IFRS 17, if retrospective application is not possible, the contractual service margin on the transition date can be determined using a modified retrospective method or by comparing the expected value of the discounted cash flows and risk adjustment with the fair value on the transition date.

As well as deferring the initial application of IFRS 17 (and the exemption for insurers for the initial application of IFRS 9) by two years from January 1, 2021, to January 1, 2023, the amendments from June 2020 relate primarily to the following:

- Accounting for certain payment arrangements (e. g. credit cards) (exemption from scope / break-down) and loans (option to apply either IFRS 17 or IFRS 9), where these include insurance risks
- Collecting profits not only according to the insurance coverage provided but also according to the investment management services rendered
- Allocation of insurance acquisition expenses to expected contractual contract renewals outside the boundary of the original contract
- Taking account of risk management measures for contracts with direct participation features not only for risk mitigation via derivatives but also for risk mitigation via reinsurance or using conventional financial instruments
- Recognizing assets and liabilities from insurance contracts at the portfolio level instead of at the group level of insurance contracts
- Reinsurance of loss-making contracts should be allowed to be recognized as profit wherever the reinsurance covers loss-making contracts
- Accounting for loss obligations assumed as part of a company acquisition before transition to IFRS 17

The minor amendment from December 2021 added the option to apply a classification overlay approach if certain conditions are met. This ensures more meaningful comparative information on the financial instruments in the year prior to the initial application of IFRS 17, i. e. for 2022. Unlike IFRS 17, IFRS 9 does not require retrospective application, which means that without the option to apply the classification overlay approach, the basis of comparison for investments might not be available. The classification overlay approach can be applied if the simultaneous first-time application of IFRS 17 and IFRS 9 with regard to the comparative information of IFRS 9 in 2022 does not result in the restatement of a financial asset. The classification overlay approach bases the classification into IFRS 9 categories on the latest information available on the transition date, i. e. how the entity plans to classify its financial assets when applying IFRS 9 for the first time. The comparative information is disclosed as if the classification and measurement provisions under IFRS 9 had already been applied in the comparative period (with the exception of the impairment rules under IFRS 9, which are not required to be applied by the classification overlay approach). Differences between the previous carrying amount of a financial asset and the amount resulting from the classification overlay approaches must be recognized in the value of equity on the opening statement of financial position on the transition date.

The entity must also disclose the extent to which it uses the classification overlay approach (e.g. whether the approach was applied to all financial assets disposed of in 2022) and whether and to what extent the impairment requirements of IFRS 9 were applied.

The changes have no material impact on these consolidated financial statements of Messer SE & Co. KGaA.

Amendments to IAS 1 and IFRS Practice Statement 2 – Disclosure of Accounting Policies

The amendment to IAS 1 states that only “material” accounting policies must be disclosed in the notes. To quality as material, the accounting policy must relate to material transactions or other events and there must be a reason for the disclosure. For example, reasons include the policy being amended, the policy is an option, it is complex or highly discretionary or it was developed in accordance with IAS 8.10–11. The amendments to Practice Statement 2 provide guidance on how to apply the concept of materiality to accounting policy disclosures. The aim is to focus on company-specific disclosures instead of standardized disclosures in the future.

This has no material impact on these consolidated financial statements of Messer SE & Co. KGaA.

Amendments to IAS 8 – Definition of Accounting Estimates

The amendment to IAS 8 clarifies how companies can better differentiate between amendments to accounting policies and changes in estimates. It states that an accounting estimate is always related to measurement uncertainty for a financial indicator in the financial statements. As well as input parameters, an entity also uses measurement methods to determine an estimate. Measurement methods can be estimation techniques or measurement techniques.

This has no material impact on these consolidated financial statements of Messer SE & Co. KGaA.

Amendments to IAS 12 – Deferred Tax Related to Assets and Liabilities Arising from a Single Transaction

The amendments address current uncertainties in accounting for deferred taxes related to leases and decommissioning or restoration obligations.

If assets and liabilities are recognized for the first time, the "initial recognition exemption" (IAS 12.15) applied under certain circumstances. In these cases, deferred taxes are not to be recognized. In practice, there was uncertainty as to whether this exemption also applied to leases and decommissioning or restoration obligations. A strictly limited amendment to IAS 12 has now been made to ensure that the standard is applied consistently.

Based on this amendment, the initial recognition exemption no longer applies to transactions that give rise to equal deductible and taxable temporary differences on initial recognition even if the other previously valid conditions are met. This is thus a counter-exemption from the initial recognition exemption for a strictly defined group of cases. The amendments mean that deferred taxes, for example, must be recognized on leases recognized by the lessee and on decommissioning or restoration obligations.

This has no material impact on these consolidated financial statements of Messer SE & Co. KGaA.

Amendments to IAS 12 – International Tax Reform – Pillar Two Model Rules

The amendment introduces a temporary, mandatory exemption from the recognition of deferred taxes resulting from the introduction of a global minimum tax. The amendments also provide specific requirements for notes disclosures for affected entities so that users of financial statements can understand the extent to which an entity is (currently and in the future) affected by minimum taxation.

This has no material impact on these consolidated financial statements of Messer SE & Co. KGaA.

New financial reporting standards not yet effective:
The following new standards and amendments to standards were not yet effective for these consolidated financial statements and were therefore not applied, but had already been endorsed by the EU Commission and will be binding from fiscal years starting on January 1, 2024, or later:

- Amendments to IAS 1 – Classification of Liabilities as Current or Non-current (January 2020), Deferral of Effective Date (July 2020) and Non-current Liabilities with Covenants (October 2022)
- Amendments to IFRS 16 – Lease Liability in a Sale and Leaseback

The following new standards and amendments to standards have already been published, but had not yet been endorsed by the EU Commission and were therefore not applied:

- Amendments to IAS 7 and IFRS 7 – Supplier Finance Arrangements (effective from fiscal 2024)
- Amendments to IAS 21 – Lack of Exchangeability (effective from fiscal 2025)
- Amendments to IFRS 10 and IAS 28 – Sale or Contribution of Assets between an Investor and its Associate or Joint Venture (effective date deferred indefinitely)

The Group is not planning early adoption of the new or amended standards and interpretations that become effective in subsequent fiscal years. Unless stated otherwise, the impact on the consolidated financial statements of Messer SE & Co. KGaA is currently being examined.

Consolidation principles

A complete list of the Group's equity investments can be found in the annex to these notes. Material subsidiaries as of December 31, 2023 are:

Name and registered office of subsidiary	Country	Shareholding in percent Dec. 31, 2023	Shareholding in percent Dec. 31, 2022
Messer LLC, Delaware	USA	100 %	–[1]
Messer Canada Inc., Ontario	Canada	100 %	–[1]
Messer Gases Ltda., Sao Paulo	Brazil	100 %	–[1]
Messer France S.A.S., Suresnes	France	100 %	–[1]
Hunan Xianggang Messer Gas Products Co., Ltd., Xiangtan City, Hunan Province	China	55 %	55 %
Messer Polska Sp. z o.o., Chorzów	Poland	100 %	100 %
Messer Hungarogáz Kft., Budapest	Hungary	100 %	100 %
Messer Tehnogas AD, Belgrade	Serbia	82 %	82 %
Messer Haiphong Industrial Gases Co., Ltd., Hai Phong City	Vietnam	100 %	100 %
Messer Colombia S.A., Bogotá	Colombia	100 %	–[1]
Messer Technogas s.r.o., Prague	Czechia	100 %	100 %
Messer Ibérica de Gases S.A., Tarragona	Spain	100 %	–[1]
Messer Industriegase GmbH, Sulzbach	Germany	100 %	–[1]
Sichuan Pangang Messer Gas Products Co., Ltd., Panzhihua, Sichuan Province	China	60 %	60 %
Foshan MS Messer Gas Co., Ltd., Foshan City, Guangdong Province	China	85 %	85 %
Messer Tatragas spol.s.r.o., Bratislava	Slovakia	100 %	100 %

(1) Included in the consolidated financial statements as investments accounted for using the equity method until November 13, 2023. Please refer to the comments under note 3 “Consolidated Companies” for more information about the transaction.

The consolidated financial statements comprise the financial statements of Messer SE & Co. KGaA and its subsidiaries as of December 31, 2023. The financial statements of the subsidiaries are prepared using uniform accounting policies and for the same reporting period as the financial statements of the parent company.

a. Subsidiaries

Messer SE & Co. KGaA and its subsidiaries controlled by Messer SE & Co. KGaA are included in the consolidated financial statements as of December 31, 2023. The parent company controls an entity when it has exposure or rights to variable returns from its involvement with the entity and the ability to utilize its control so as to influence the amount of returns from the entity. Subsidiaries are included in the consolidated financial statements from the date on which control is achieved and until the date on which control ends.

All receivables and liabilities, revenue, income and expenses arising from intra-group transactions are eliminated in the consolidated financial statements. Intra-group transactions are performed on the basis of full cost transfer prices.

Subsidiaries are accounted for using the acquisition method. The cost of the acquisition represents the fair value of the assets transferred, the liabilities incurred or assumed, and the equity interests issued by the acquirer at the transaction date. It also includes the fair value of any recognized assets or liabilities resulting from a contingent consideration arrangement. Assets, liabilities, and contingent liabilities identifiable in conjunction with a business combination are measured at fair value as of the acquisition date on initial consolidation.

Acquisition-related costs are recognized as expenses in the period in which they are incurred unless they relate to the issue of debt or equity instruments.

Goodwill is measured as the excess of the cost of the acquisition, the amount of any non-controlling interest in the acquiree and the fair value of any previously held equity interest at the date of acquisition over the Group's share of the net assets measured at fair value. The option of accounting for goodwill using the full goodwill method is not exercised. If the cost is less than the fair value of the net assets of the subsidiary acquired, the difference is reassessed and then recognized directly in profit or loss. The results of the subsidiaries acquired or sold during the fiscal year are included in the consolidated income statement from the time control is achieved or until control is lost.

b. Transactions with non-controlling interests without loss of control

Transactions with non-controlling interests without a loss of control are treated in the same way as transactions with the Group's equity owners. Any difference arising from the acquisition of a non-controlling interest between the consideration paid and the relevant share in the carrying amount of the net assets of the subsidiary is recognized in equity. Gains and losses arising from the disposal of non-controlling interests are also recognized in equity.

c. Disposal of subsidiaries

If the Group loses control of an entity, the Group's remaining interest is remeasured at fair value and the resulting difference recognized in profit or loss. Furthermore, all amounts reported in other comprehensive income relating to this entity are accounted for as if the parent company had directly disposed of the related assets or liabilities. This means that any profit or loss previously recognized in other comprehensive income is reclassified either to profit and loss or to retained earnings.

d. Associates, joint ventures and joint operations

Investments in entities over which the Group has significant influence but without control or joint control over financial and operating policy and joint ventures over which the Group has joint control are accounted for using the equity method (equity investments). These are initially measured at cost, including transaction costs. Significant influence is assumed if the Group holds 20 % or more of the voting power but does not control the investee. The Group's share in earnings of equity investments is shown under "Income from investments accounted for using the equity method". The carrying amounts of equity investments are written down if impaired. The Group's interest in associates and joint ventures includes the goodwill arising on acquisition (net of accumulated impairment losses).

If the ownership interest in an associate or joint venture is reduced but the investment continues to be an associate or joint venture, only a proportionate amount of the gain or loss previously recognized in other comprehensive income is reclassified to profit or loss, if this would also occur on the disposal of the individual assets and liabilities.

The Group's share of the profit or loss of associates and joint ventures is recognized in profit or loss from the acquisition date. Changes in reserves are recognized pro rata in consolidated reserves. Accumulated changes after acquisition are offset against the carrying amount of the investment. If the Group's share of the loss in an associate or joint venture is equal to or exceeds the Group's share in this investee, including other unsecured receivables, the Group recognizes no further losses unless it has entered into commitments for the associate or joint venture or has made payments for the associate or joint venture.

As of the end of each reporting period, the Group determines whether there is objective evidence that the investment in the associate or joint venture is impaired. If this is the case, the difference between the carrying amount and the recoverable amount is recognized as an impairment loss and reported in the income statement under the income from the investment in the associate or joint venture.

To the extent that a Group entity performs transactions with an associate or joint venture, any unrealized gains or losses are eliminated on the basis of the Group's interest in this entity.

A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement.

The associated assets and liabilities, income and expenses from joint operations are included in the consolidated financial statements according to the economically attributable share.

The Group recognizes its direct rights to the assets, liabilities, revenue and expenses of joint operations and their share in any assets, liabilities, revenue, and expenses jointly managed or incurred. These are included in the financial statements under the corresponding line items. Details of joint operations recognized in the financial statements can be found under note 16 "Interests in Other Entities".

Currency translation

a. Functional currency and reporting currency

The consolidated financial statements are presented in euro, the Group's reporting currency. The functional currency of individual foreign operations is determined by the economic environment in which they operate. The items included in the financial statements of the respective company are measured using this functional currency.

b. Transactions and balances

Foreign currency transactions are initially translated using the spot exchange rate between the foreign currency and the functional currency at the transaction date. Monetary assets and liabilities denominated in a foreign currency are translated into the functional currency at the closing rate. All exchange differences are recognized in profit or loss. This does not include exchange differences from certain intragroup foreign currency borrowings to the extent that they are used to hedge net investments in foreign operations. These exchange differences, and any deferred taxes arising from them, are recognized directly in equity. Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction. Non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined.

Foreign currency gains and losses that essentially result from trade receivables and trade payables denominated in foreign currencies are included in "Other Operating Income" or "Other Operating Expenses".

c. Group companies

The functional currency of foreign operations not based within the area of the European Currency Union (ECU) is the respective local currency. As of the end of the reporting period, assets and liabilities of these subsidiaries are translated into the Messer Group's reporting currency using the closing rate. Income and expenses are translated at average rates for the fiscal year. The resulting exchange differences are recognized through other comprehensive income and included in currency translation reserves within equity unless the currency translation difference is allocated to non-controlling interests. They do not affect profit or loss. When a foreign operation is deconsolidated, the cumulative amount recognized in equity for this foreign operation is reversed to profit or loss.

The following table shows an overview of the exchange rates used for the principal currencies:

		Average rates		Closing rates	
Selected currencies	ISO code	Jan. 1 – Dec. 31, 2023 1 EUR	Jan. 1 – Dec. 31, 2022 1 EUR	Dec. 31, 2023 1 EUR	Dec. 31, 2022 1 EUR
Chinese renminbi	CNY	7.66	7.08	7.85	7.36
US dollar	USD	1.08	1.06	1.11	1.07
Polish zloty	PLN	4.54	4.68	4.34	4.68
Czech koruna	CZK	23.98	24.56	24.72	24.12
Vietnamese dong	VND	25,805.46	24,719.85	26,883.00	25,233.00
Hungarian forint	HUF	382.14	391.27	382.80	400.87
Serbian dinar	RSD	117.27	117.46	117.17	117.30
Canadian dollar	CAD	1.46	1.38	1.46	1.44
Brazilian real	BRL	5.41	5.47	5.36	5.64

Reporting

The companies included in the Western Europe region until the previous year – which comprise the industrial gases activities of ASCO Kohlensäure AG, the business activities of the service company Messer GasPack GmbH and those of Messer SE & Co. KGaA – have been combined under “Corporate” since the start of fiscal 2023.

The reporting of prior-year disclosures for individual items was adjusted to match the presentation in the fiscal year. This affects note 12 “Personnel expenses”.

Intangible assets and goodwill

The differences between the consideration transferred by the Messer Group for acquirees and the fair value of the assets acquired, liabilities assumed, and contingent liabilities are recognized in accordance with IFRS 3.32 et seq. The remaining goodwill is tested for impairment in accordance with IAS 36 at least once a year.

The other intangible assets such as brands, patents, technologies, licenses, customer relationships, software, etc. are initially measured at cost. Technologies / patents (6 to 33 years), licenses (5 to 10 years), customer relationships (1 to 38 years) and other intangible assets (2 to 11 years) are amortized on a straight-line basis over their expected useful lives. The amortization charge on other intangible assets is reported within the related expense item, usually cost of sales or distribution and selling expenses. The “Messer” brand is established on its market and will be used in the future as well. For this reason, we assume an indefinite useful life for the “Messer” brand. These brands are tested for impairment in accordance with IAS 36 at least once per year. 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 fiscal year.

Property, plant and equipment

Property, plant and equipment are recognized at cost and depreciated over their expected useful lives less their estimated residual values. The cost of acquired property, plant and equipment includes all costs directly attributable to their acquisition. The cost of self-constructed items of property, plant and equipment includes all directly attributable direct costs and an appropriate share of overheads, including depreciation, and are therefore measured taking all costs required to construct the assets into account. In the event of a statutory requirement to restore an item to its original condition, the cost also includes the present value of expected future payments for decommissioning and restoration. When each major inspection is performed, in accordance with IAS 16.14, its cost is recognized in the carrying amount of the item of property, plant and equipment as a replacement if the recognition criteria are satisfied.

Subsequent costs are only recognized as part of the cost of the asset or as a separate asset when it is probable that they will result in future economic benefits to the Group and the costs can be measured reliably.

Expenditure for repairs and maintenance, which does not represent a significant replacement investment, is recognized as an expense in the fiscal year in which it is incurred.

Gains and losses on the disposal of property, plant and equipment are calculated as the difference between proceeds from disposal and the carrying amounts of the assets and recognized in the consolidated income statement.

Depreciation is recognized on a straight-line basis over the following useful lives:

Buildings	10 to 50 years
Plant and machinery thereof air separation units	5 to 20 years 15 years
Other operating and office equipment	3 to 10 years

The residual carrying amounts and useful lives are reviewed at the end of each reporting period and adjusted as necessary. If the carrying amount of an item of property, plant and equipment exceeds the estimated recoverable amount, it is written down to that recoverable amount.

Borrowing costs are recognized as an expense in the period in which they are incurred, except when they relate to qualifying assets. Within the Messer Group, these chiefly relate to air separation units. Borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized as part of the cost of that asset up to the date when substantially all the activities necessary to prepare the qualifying asset for its intended use or sale are complete. A qualifying asset is an asset that necessarily takes a substantial period of time to get ready for its intended use or sale.

Leases

a. Leases in which the Group is the lessee

The Group leases various offices, warehouses, equipment, and vehicles. Leases are generally concluded for fixed periods of one to 13 years for movable assets and for one to 78 years for immovable assets but may have extension options.

At the inception of a contract, the Group assesses whether the contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. The Group uses the IFRS 16 definition of a lease to assess whether a contract includes the right to control an identifiable asset.

Contracts may contain both lease and non-lease components. The Group allocates the transaction price to these components based on their relative stand-alone prices. However, for leases of real estate for which the Group is a lessee, it has elected not to separate lease and non-lease components and instead accounts for these as a single lease component.

Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. Leased assets may not be used as security for borrowing purposes.

Leases are recognized as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Group. Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments, less any lease incentives receivable);
- variable lease payments that are based on an index or an (interest) rate, initially measured using the index or (interest) rate as of the commencement date;
- amounts expected to be payable by the Group under residual value guarantees;
- the exercise price of a purchase option if the Group is reasonably certain to exercise that option; and
- payments of penalties for terminating the lease, if the lease term reflects the Group exercising that option.

Lease payments to be made under reasonably certain extension options are also included in the measurement of the liability. The lease payments are discounted using the interest rate implicit in the lease. Otherwise, and this is typically the case in the Group, the lessee's respective incremental borrowing rate is used.

To determine the incremental borrowing rate, the Group:

uses recent third-party financing received by the individual lessee as a starting point. Lessees are divided into regions according to geographical segments. The financing is divided into groups based on the remaining terms of the contracts (up to 1 year, up to 2 years, up to 3 years, up to 4 years, up to 5 years and longer than 5 years). The calculated average interest rates for each group and region are used in measuring the right-of-use asset and lease liability.

The lease liability is measured at amortized carrying amount using the effective interest method. The Group is exposed to potential future increases in variable lease payments based on an index or rate. These possible changes in lease payments are not taken into account in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset.

Lease payments are allocated between principal and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of the lease liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- estimated costs incurred by the lessee in dismantling or removing the underlying asset, restoring the location where it is to be found or restoring the underlying asset to the condition required in the lease agreement.

Right-of-use assets are generally depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis. If the Group is reasonably certain to exercise a purchase option, the right-of-use asset is depreciated over the underlying asset's useful life.

Depreciation is recognized on a straight-line basis over the following useful lives:

Land	1 to 70 years
Buildings	1 to 78 years
Plant and machinery	1 to 25 years
Other operating and office equipment	1 to 13 years

Payments associated with short-term leases of equipment and vehicles and all leases of low-value assets are recognized as an expense in profit or loss. Short-term leases are leases with a lease term of twelve months or less. These essentially comprise IT equipment and other equipment.

Extension and termination options are included in a number of property and equipment leases across the Group. These are used to maximize operational flexibility in terms of managing the assets used in the Group's operations. These options are taken into account in the measurement of right-of-use assets and lease liabilities when it is reasonably certain that they will be exercised. The assessments of reasonable certainty are only revised if a significant event or a significant change in circumstances occurs that affects this assessment and that is within the control of the lessee.

b. Leases in which the Group is the lessor
If the Group is the lessor, it classifies each lease as either a finance lease or an operating lease at inception of the lease. At the Messer Group this particularly includes certain gas supply contracts, above all those for the gas generation plants rented on a long-term basis.

Leases in which a significant portion of the risks and rewards of ownership transfers to the lessee are classified as finance leases.

In this case, disposal is assumed at the start of the lease term and revenue is recognized in the amount of the present value of the lease payments attributable to the asset. In return, a claim from the customer that is reduced over the term of the contract is recognized. Interest income earned on finance leases is reported as other financial income.

Leases in which a significant portion of the risks and rewards of ownership remain with the lessor, are classified as operating leases. Payments made in connection with an operating lease are recognized as revenue from other sources in the income statement on a straight-line basis over the term of the lease.

Impairment and reversal of impairment on goodwill, right-of-use assets, other intangible assets and property, plant, and equipment

Except for investment property, inventories, and deferred tax assets, the carrying amounts of the Group's non-financial assets are reviewed at the end of each reporting period to determine whether there is any indication that an asset may be impaired. If this is the case, the recoverable amount of the asset is estimated. Goodwill and intangible assets with indefinite useful lives are tested for impairment annually.

In accordance with IAS 36, goodwill is allocated to the smallest cash-generating unit for which goodwill is monitored and tested for impairment at this level by comparing discounted expected future cash flows against the carrying amount of that cash-generating unit. The smallest identifiable group of assets that generate cash inflows from continued use that are largely independent of the cash inflows of other assets or other groups of assets (cash-generating unit) were identified by the companies of the Messer Group operating in the individual countries.

An annual impairment test for goodwill, right-of-use assets, other intangible assets and property, plant and equipment involves comparing the recoverable amount of the asset against its carrying amount to determine whether it must be written down to recoverable amount. In accordance with IAS 36, goodwill is allocated to the smallest cash-generating unit for which goodwill is monitored by management. The recoverable amount is defined as the higher of the asset's fair value less costs to sell and its value in use. Fair value less costs to sell is defined as the amount obtainable from the sale of an asset or cash-generating unit in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal. Value in use is the present value of future cash flows expected to arise from the continuing use of an asset and from its disposal at the end of its useful life. In the event of impairment, existing goodwill is reduced first. If the impairment loss exceeds the carrying amount of goodwill, the difference is typically distributed pro rata among the remaining non-current assets of the cash-generating unit. With the exception of goodwill, impairment losses are reversed when the reasons for the impairment no longer apply. Impairment losses and required reversals are shown together with depreciation and amortization in the statement of changes in assets under additions to cumulative depreciation and amortization, and are reported and explained separately in the notes.

Inventories

Inventories are measured at the lower of cost (using the average cost method) or net realizable value at the end of the reporting period. Their production cost includes all directly attributable direct costs, appropriate portions of materials and production overheads and depreciation.

Trade and other receivables

Trade receivables are recognized from the date they arise. Items that do not contain a significant financing component are initially measured at the transaction price. The corresponding impairment loss is measured at an amount equal to lifetime expected credit losses, based on an analysis of historical default data and forecasts of future economic conditions. Expected credit losses are a probability-weighted estimate of credit losses.

Non-current assets and disposal groups held for sale and discontinued operations

In accordance with IFRS 5 “Non-current Assets Held for Sale and Discontinued Operations”, the Group classifies non-current assets and disposal groups as held for sale if their carrying amounts will be recovered principally through a sale transaction rather than through continuing use. A sale must be planned and practicable with a high probability within the next 12 months.

Immediately before initial classification, the carrying amounts of the asset are measured in accordance with applicable IFRSs. On reclassification, the asset is reported separately in the statement of financial position and measured at the lower of the carrying amount and fair value less costs to sell. Liabilities in connection with assets held for sale are presented separately in the statement of financial position.

In accordance with IFRS 5, a discontinued operation is recognized as such when it is held for sale or has already been sold.

A discontinued operation is a component of the Group’s business comprising operations and cash flows that can be clearly distinguished from the rest of the Group and that:

- represents a separate major line of business or geographical area of operations;
- is part of a single coordinated plan to dispose of a separate major line of business or geographical area of operations; or
- is a subsidiary acquired exclusively with a view to resale.

If an operation is classified as a discontinued operation, the corresponding assets and liabilities are reported in the statement of financial position under “Assets held for sale” or “Liabilities held for sale”. The income statement for the comparative year is restated as if the operation had been discontinued from the start of the comparative year.

A separate amount representing the total of the current profit and the gain or loss on remeasurement / disposal after taxes of the discontinued operation is shown in the income statement. This separate amount must be broken down further and presented, with additional disclosures, in the notes.

In line with standard consolidation procedures, intragroup income is eliminated for the selling / performing operation and the associated expenses are eliminated for the receiving operation. The elimination entries are assigned to the continuing operation in line with the future trade relationships of the Company.

Cash and cash equivalents

Cash and cash equivalents include freely available cash on hand and demand deposits. Cash equivalents also include short-term liquid financial assets with a term of up to three months that can be readily converted into cash. This risk of fluctuations in value is immaterial.

Employee benefits

a. Pension obligations

The Group has both defined benefit and defined contribution pension plans. A defined contribution plan is a pension plan under which the Group pays fixed contributions into a separate non-Group entity (a fund). The Group does not have any legal or constructive obligation to pay any additional amounts if the fund does not have sufficient assets to meet the pension entitlements of all employees for the current and past fiscal years.

Typically, defined benefit plans set out an amount of pension benefits that employees will receive on retirement and that is typically dependent on one or more factors (such as age, length of service and salary).

The Group's obligations from defined benefit pension plans are calculated separately for each defined benefit plan and according to actuarial principles. The benefits earned by employees in the current and prior periods – in return for their service – are initially estimated. The present value of the defined benefit obligation, the gross pension obligation, is calculated by actuaries using the projected unit credit method. Plan assets are deducted from the gross pension obligation at fair value. This results in the net liability or the net asset value to be recognized.

The Group determines the respective net interest expense (net interest income) from the net liability (net asset value) by multiplying the net liability (net asset value) at the beginning of the period by the interest rate with which the defined benefit gross pension obligation is discounted at the beginning of the period.

The interest rate is determined by reference to market yields at the end of the reporting period on high quality corporate bonds. The currency and term of the underlying corporate bonds are consistent with the currency and estimated term of the post-employment obligations.

The calculation of the net liability (net asset) is based on an actuarial report prepared by a qualified actuary as of the end of each reporting period.

If the deduction of plan assets from the defined benefit gross pension obligation results in an excess of plan assets, the amount of the net asset value is limited to the present value of the economic benefits associated with the plan asset surplus, e. g. in the form of reimbursements from the plan or reduced future contribution payments if the Group has control over these economic advantages. Control is assumed to exist if the Group can realize the economic benefit within the term of the pension plan or on settlement of plan liabilities.

The calculation of the present value of the economic benefits of the excess of plan assets takes into account any minimum funding requirements.

The amounts arising on remeasurement comprise actuarial gains and losses arising on the measurement of the defined gross pension obligation on the one hand and the difference between the actual return on plan assets and the rate of return assumed at the beginning of the reporting period on the other. In the event that there is an excess of plan assets, the amounts arising on remeasurement also include the change from applying an asset ceiling, to the extent that this has not been considered as part of the net interest component.

The Group recognizes all amounts arising on remeasurement in other comprehensive income (OCI), while other components of the net pension expense (service cost and net interest component) are recognized in profit or loss. The interest portion of the addition to provisions included in pension expense is reported as interest expense within net finance costs. The cumulative remeasurement effects are reported in retained earnings within equity.

If the present value of a defined benefit obligation changes as a result of a plan amendment or curtailment, the Group recognizes the resulting effect as past service cost in profit or loss. The amounts are recognized when the amendment or curtailment occurs.

Defined benefit plans expose the Group to various risks. In addition to general actuarial risks such as longevity risk and interest rate risk, the Group is exposed to currency risk and capital market/investment risk.

b. Obligations from bonus plans
Obligations for bonus payments are recognized as a liability and as an expense. A provision is recognized in the consolidated financial statements in cases in which there is a contractual obligation or a constructive obligation as a result of past business practices.

Other provisions

Other provisions are recognized for present legal and constructive obligations arising from past events that are likely to result in a future outflow of resources embodying economic benefits, provided that a reliable estimate can be made of the amount of the obligations. If the effect of the time value of money is material, provisions are discounted using a current pre-tax rate that reflects, when appropriate, the risks specific to the liability. When discounting is used, the increase in the provision due to the passage of time is recognized as interest expense.

Government grants

Government grants are recognized where there is reasonable assurance that the grant will be received and all attached conditions will be complied with. When the grant relates to an expense item, it is recognized as income on a systematic basis over the periods that the related costs, for which it is intended to compensate, are expensed. If the grant relates to an asset, it is recognized as deferred income and reversed to profit or loss on a straight-line basis over the expected useful life of the asset.

Financial instruments: principles

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity. A distinction is made between derivative and non-derivative financial instruments.

Derivative financial instruments can be embedded in other financial instruments or non-financial instruments. In accordance with IFRS, an embedded derivative must be separated from the host contract and measured separately at its fair value if the economic characteristics of the embedded derivative are not closely related to those of the host contract. The Messer Group had no separable embedded derivatives in the fiscal year. Compound financial instruments issued that contain both an equity and a debt component must be accounted for separately on the basis of the substance of the instruments. The Messer Group was not party to any hybrid or compound financial instruments in the fiscal year. Regular way purchases and sales of financial instruments are typically recognized by the Messer Group as of the settlement date, while derivatives are recognized as of the trade date.

Financial assets and financial liabilities are initially recognized at fair value, including any transaction costs if necessary. The fair value of a financial instrument is the price that would be achieved between market participants on the measurement date for the sale of the financial instrument.

Financial assets are derecognized fully or in part when the contractual rights to receive cash flows have expired or if control over the financial asset and substantially all the risks and rewards of the asset have been transferred to a third party. Financial liabilities are derecognized when the contractual obligations have been settled, cancelled or have expired.

The measurement categories to be formed in accordance with IFRS 7 are presented below. Furthermore, receivables and liabilities from leases and hedging derivatives in the context of hedge accounting are included in the measurement categories according to IFRS 7.

Financial assets

Financial assets are classified according to the following IFRS 9 measurement categories:

a. Financial assets at amortized cost (AC)
The Messer Group classifies its financial assets as at amortized cost only if both of the following criteria are met:

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

b. Financial assets at fair value through profit or loss (FVTPL)
The Messer Group classifies the following primary financial assets at fair value through profit or loss:

- debt investments that do not qualify for measurement at either amortized cost or fair value through other comprehensive income;
- equity investments that are held for trading; and
- equity investments for which the entity has not elected to recognize fair value gains and losses through other comprehensive income.

The Group has not designated any primary financial assets at fair value through profit or loss.

c. Financial assets at fair value through other comprehensive income (FVOCI)
Financial assets at fair value through other comprehensive income comprise:

- Equity instruments that are not held for trading, and which the Messer Group has irrevocably elected at initial recognition to recognize in this category. These are strategic investments and the Group considers this classification to be more relevant.
- Debt securities where the contractual cash flows are solely principal and interest and the objective of the Group's business model is achieved both by collecting contractual cash flows and selling financial assets.

The results of measuring such investments in equity instruments are reported in other comprehensive income and remain there even in the event of a sale. On disposal of these debt securities, any related balance within other comprehensive income is reclassified to retained earnings.

Financial liabilities

Financial liabilities are classified according to the following IFRS 9 measurement categories:

a. Financial liabilities at amortized cost (AC)
Financial liabilities at amortized cost are non-derivative financial liabilities that are subsequently measured at amortized cost using the effective interest method. Any difference between the amount received and the amount repayable is recognized as income or expense over the term of the instrument. Transaction costs incurred are deducted from the respective financial liabilities and amortized over the term of the underlying liability using the effective interest method. Within the Messer Group, this measurement category includes in particular financial liabilities, trade payables and non-derivative other current and non-current liabilities.

b. Financial liabilities at fair value through profit or loss (FVTPL)
Financial liabilities at fair value are either classified as held for trading or designated upon initial recognition as at fair value through profit or loss. Derivative financial instruments with a negative fair value are also measured at fair value through profit or loss.

These financial liabilities are subsequently measured at fair value, with gains and losses from the financial instruments in this category recognized directly in net finance costs in the income statement.

Derivative financial instruments and hedging

Derivatives are initially recognized at fair value on the date a derivative contract is entered into, and they are subsequently remeasured to their fair value at the end of each reporting period. The instruments are subsequently measured at the fair value determined at the end of the respective reporting period. The accounting for subsequent changes in fair value depends on whether the derivative is designated as a hedging instrument and, if so, the nature of the item being hedged. When entering into a derivative contract, the Messer Group designates it as either:

(1) a hedge of the fair value of recognized assets or liabilities (fair value hedges); or
(2) a hedge of a forecast transaction or firm commitment (cash flow hedge).

The Messer Group exclusively uses derivatives for hedging if this is required by the hedged items. This applies, for example, to risks from energy purchases and exchange rate fluctuations. Hedged items are the obligations contractually entered into to achieve the goals of the Messer Group, receivables and anticipatory transactions.

Derivative instruments are thus exclusively used to safeguard the Messer Group's business performance to the extent stipulated in its Articles or Association. Macro hedging, i. e., the consolidation of individual positions in order to merely hedge the net amount, is not practiced.

Most of the transactions for which this type of hedging could be applied are hedged in full in terms of scope or amount, using a variety of financial instruments. The selection of individual instruments is always a management decision, made in line with the risk profile, i. e., the opportunity for return associated with the respective risk.

Certain financial derivatives, which have been entered into in conjunction with the Group's risk management to hedge risks but do not fully satisfy the formal requirements, are therefore not included in hedge accounting, and are instead recognized as stand-alone derivatives in the IFRS 9 "financial assets and liabilities at fair value through profit or loss" category.

When entering into the transaction, the Group documents the relationship between the hedging instrument and the hedged item in addition to the objective of its risk management and its underlying strategy. In addition, at the inception of the hedge and thereafter, the Group documents its assessment of whether the derivatives used in the hedge are highly effective at compensating for the changes in the fair value or cash flow. Hedge accounting is only maintained as long as its effectiveness can be proven. Evidence of this effectiveness is determined by comparing the contract specifics, maturities and volumes (critical terms match) and by means of a regression analysis.

For those hedges for which hedge accounting is used, the gain or loss on remeasurement is broken down into effective and ineffective portions. The effective portion is the portion of the gain or loss on remeasurement that represents an effective hedge against the risk. For cash flow hedges, this is recognized separately in other comprehensive income. The ineffective portion, where necessary, is immediately recognized in the consolidated income statement.

Derivative financial instruments not subject to hedge accounting are also measured at fair value through profit or loss.

The fair value of financial instruments is determined in accordance with IFRS 13. The fair value is derived from financial instruments quoted on an active market or calculated using standard measurement models (discounted cash flow method) from current market prices. If necessary, the market value provided by a bank can also be used.

a. Cash flow hedges

Changes in the fair values of derivatives classified as cash flow hedges that are a close match for the hedged item are recognized in other comprehensive income. If the forecast transaction or firm commitment results in the recognition of a non-financial asset or non-financial liability, the gains and losses previously deferred in other comprehensive income are removed from other comprehensive income and included in the measurement of the cost of the asset or liability. In all other cases, the gains or losses previously recognized in other comprehensive income are transferred to profit or loss in the same period as that in which the hedged forecast transaction or firm commitment is recognized in profit or loss.

Income and operating cash flow are essentially unaffected by market interest rates, as the Group does not hold any significant interest-bearing assets. Variable interest loans are partially hedged using interest rate swaps (cash flow hedge for future interest payments). This effectively converts loans with floating interest rates into loans with fixed interest rates.

When a hedging instrument expires or is sold, or when a hedging instrument no longer meets the criteria for hedge accounting in accordance with IAS 9, any cumulative gains or losses recognized in other comprehensive income to date remain there and are not removed until the forecast transaction or firm commitment is recognized in profit or loss. However, if the forecast transaction or firm commitment is no longer expected to occur, the cumulative gain or loss that had been recognized directly in other comprehensive income is recognized in profit or loss.

b. Fair value hedges

The changes in the fair value of derivatives that are designated as a fair value hedge and are a close match for the underlying transaction are recognized in the income statement together with the changes in the fair value of the hedged assets or liabilities attributable to the hedged risk.

The fair values of the various derivative financial instruments are listed under note 31 “Other Financial Instrument Disclosures”.

There were only cash flow hedges on December 31, 2023.

Management of financial risks

In conjunction with its operating activities, the Messer Group is exposed to various financial risks, in particular default, liquidity, interest rate and currency risk, which are described in more detail under note 31 “Other Financial Instrument Disclosures”. The Group’s risk management system takes into account the fact that financial market developments are not foreseeable and is intended to minimize any potential negative impact on the Group’s financial position. The Group uses derivative financial instruments to hedge against specific risks.

Risk management is handled by Group Treasury in compliance with guidelines approved by management. Group Treasury identifies, assesses and hedges financial risks. The guidelines contain general principles for risk management and detailed rules for specific areas, such as currency and interest rate risks, the use of derivative financial instruments and the investment of surplus cash.

Please refer to the comments under note 31 “Other Financial Instrument Disclosures” for information on the Messer Group’s approach to calculating expected credit losses.

Use of assumptions, estimates and judgments

The preparation of IFRS financial statements requires management to make certain assumptions, estimates and judgments that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities as of the end of the reporting period and the reported amounts of revenue and expenses for the fiscal year. The estimates and assumptions concern the future. Actual results may therefore differ from these estimates.

Estimates and their underlying assumptions are examined on an ongoing basis. Revisions of estimates are recognized prospectively. If a change in an accounting estimate gives rise to changes in assets and liabilities, or relates to an item of equity, the changes in estimates are recognized by adjusting the carrying amounts of the related assets, liabilities or equity items.

Judgments, assumptions concerning the future and sources of estimation uncertainty that could potentially have the greatest impact on these consolidated financial statements were required in particular for:

a. Assessing whether control, joint control or significant influence applies at companies in which the Messer Group holds fewer than 100 % of voting rights (note 3)

Judgments can be used in assessing whether control, joint control or significant influence applies at companies in which Messer holds fewer than 100 % of the voting rights. It must be assessed whether there are other contractual rights or circumstances that can lead to the Group having decision-making power over the potential subsidiary, or whether it has joint control or significant influence. The assessments are revised whenever the contractual arrangements or circumstances change.

b. Income taxes (note 11)

IFRIC 23 clarifies how to apply the recognition and measurement requirements in IAS 12 when there is uncertainty over income tax treatments and comprises current and deferred tax assets and liabilities. Under IFRIC 23, uncertain tax treatments can be considered separately or together with one or more other uncertain tax treatments. The approach that better predicts the resolution of the uncertainty is to be chosen here. In assessing this, it should be assumed that a taxation authority will examine amounts it has a right to examine and have full knowledge of all related information when making those examinations. If it is considered unlikely that a taxation authority will accept an uncertain tax treatment, either the most likely amount or the expected value is to be applied to each uncertain tax treatment in order to account for the effect of the uncertainty, depending on which approach better predicts the resolution of the uncertainty.

The Group companies are subject to income taxes in a number of countries worldwide. When assessing global income tax claims and liabilities, the interpretation of tax provisions may be subject to particular uncertainty. The possibility that the relevant tax authorities will take a different view concerning the correct interpretation of tax standards cannot be ruled out. Changes to the assumptions underlying the correct interpretation of tax standards, for example as a result of changes in legislation, affect the accounting treatment of uncertain income tax assets and liabilities in the fiscal year in question.

The OECD released technical guidance on its 15 % global minimum tax in March 2022. This guidance explains the application and operation of the Global Base Erosion (GloBE) rules, which were agreed upon and published in December 2021. They provide for a coordinated system to ensure that multinational companies with revenue of more than € 750 million pay a tax of at least 15 % on the income generated in each country in which they operate.

On December 15, 2023, the Bundesrat, the upper house of Germany's parliament, passed the "Minimum Tax Directive Implementation Act" (Mindestbesteuerungsrichtlinie-Umsetzungsgesetz), which will lead to the statutory implementation of globally agreed minimum taxation rules in Germany and will apply to the Group from fiscal 2024.

Taking into account the temporary safe harbor rules, the Group expects to be subject to the minimum tax with respect to its operations in Bosnia-Herzegovina, North Macedonia and Hungary, where the statutory tax rate is 10 %, and with respect to Poland, Puerto Rico and Chile, where the subsidiaries receive government support in the form of additional tax deductions that reduce the effective tax rate to below 15 %. As the new German tax law only stipulates a minimum tax for periods beginning in 2024, there will be no impact on the actual tax expense in fiscal 2023.

The Group took the temporary, mandatory exemption from the recognition of deferred taxes resulting from the introduction of the global minimum tax and is recognizing them as current tax expense / income as they arise. Had the minimum tax rate already applied in fiscal 2023, profits (IFRS / before tax and excluding dividends) from the Group's activities in Bosnia, Chile, North Macedonia, Poland, Puerto Rico and Hungary amounting to K€ 56,307 would have been subject to the minimum tax; the average effective tax rate applicable to these profits was 10.8 % in 2023. The applicable minimum tax would have been in the range of € 3.0 million to € 3.5 million. Due to an exceptionally low effective tax rate in fiscal 2023, profits in the US would also be subject to the minimum tax. However, since this is a one-time effect in 2023 and the effective tax rate is expected to be well above the minimum tax rate of 15 % (26 %) from 2024 onwards, the US was not included in the simulation.

c. Goodwill impairment testing (note 14)
Impairment testing is conducted in accordance with IAS 36 on the basis of the expected future cash flows of these cash-generating units or groups of cash-generating units over the detailed planning period of five years and is subject to estimates made by the Group. Judgments are also required to derive capitalization rates. A change in the factors used when testing goodwill and other intangible assets or property, plant and equipment for impairment may lead to higher, lower or no impairment.

d. Determination of useful lives of property, plant and equipment and when assessing which cost components can be capitalized (note 15)
Group-wide uniform useful lives for items of property, plant and equipment are determined on the basis of past experience and regularly reviewed. As part of the process of assessing whether an item is eligible for recognition as an asset and which components of cost should be taken into account, we make assumptions regarding the expected future usability of the asset.

e. Assessment of the need for and measurement of allowances for doubtful debts (notes 18, 20, 32)
When recognizing allowances for doubtful debts, estimates are made regarding the creditworthiness of individual customers and market segments, and general economic forecasts for the different countries and the history of our bad debts.

f. Measurement of pension obligations (note 25)
Obligations from defined benefit pension commitments are calculated on the basis of actuarial assumptions. These are mainly the discount rate, life expectancy and pension and salary trends. The interest rate is determined by reference to market yields at the end of the reporting period on high quality corporate bonds. Sensitivity analyses with respect to the interest rate used are provided in the notes.

g. Recognition and measurement of other provisions (note 26)
Other provisions are recognized and measured on the basis of an assessment of the probability of a future outflow of benefits, using values based on experience and circumstances known as of the end of the reporting period. The actual outflow of economic resources at a later date could be lower or higher than the amount recognized as a provision. The nature of estimates and judgments used differs for the various categories of provisions.

The recognition and measurement of provisions for legal disputes requires a high degree of judgment as to whether a current obligation exists and whether a future outflow of economic resources is probable and can be reliably estimated. We obtain assessments from in-house and external attorneys to assess these matters. Changes in circumstances may result in adjustments to provisions.

Income taxes

The tax expense comprises current and deferred taxes. Current and deferred taxes are recognized in profit or loss, except to the extent that they are associated with a business combination or with an item recognized directly in equity or other comprehensive income.

The Group has determined that interest and penalties on income taxes, including uncertain tax items, do not meet the definition of income taxes and are therefore accounted for in accordance with IAS 37.

a. Current taxes

Current taxes are the expected tax liability or tax receivable on the taxable income or loss for the fiscal year based on tax rates that are enacted or substantively enacted at the end of the reporting period, plus any adjustments to tax liability for prior years. The amount of the expected tax liability or tax receivable reflects the amount that is the best estimate, taking into account tax uncertainty, if any. Current tax liabilities also include all tax liabilities that arise as a result of dividends being determined. Current tax assets and liabilities are only netted under certain conditions.

b. Deferred taxes

Deferred taxes are recognized, in accordance with the asset and liability method, for all temporary differences at the end of the reporting period between the carrying amounts of assets and liabilities in the statement of financial position and their corresponding tax bases, and on the tax loss and for tax loss carryforwards. In accordance with IAS 12.15 in conjunction with IAS 12.21B, temporary differences arising on the initial recognition of goodwill are not included in the calculation of deferred taxes. Deferred taxes are calculated using currently enacted or substantially enacted tax rates that will apply when the temporary differences are expected to reverse. Deferred tax assets are recognized to the extent that it is probable that future taxable profits will be available against which the unused tax loss carryforwards or asset-side differences between the carrying amounts and the corresponding tax bases can be utilized.

Deferred tax assets and liabilities are only offset if they relate to income taxes levied by the same taxation authority and the entity has a legally enforceable right to offset the tax assets and liabilities.

Income taxes relating to items that are recognized directly in other comprehensive income are also recognized in other comprehensive income and not in profit or loss. Deferred taxes are recognized in other comprehensive income if the underlying transaction is also recognized in other comprehensive income.

Revenue recognition

Revenue includes sales of products (essentially industrial gases) and services as well as rental income, less trade discounts and rebates. Our payment terms vary by contract and typically include payments within a specified period of time after delivery or performance. The transaction price is allocated to separate performance obligations based on the specific circumstances of each contract.

a. Revenue from on-site plant and pipeline sales

Customers requiring large volumes of industrial gases (typically oxygen, nitrogen and hydrogen) and with a relatively constant demand are typically supplied by plants adjacent to or on their facilities, the capacity of which frequently also covers the liquid gas requirements of the surrounding market. These plants are legally owned and operated by the Messer Group. The product supply contracts typically have terms of ten to 15 years and generally include agreements on minimum purchase volumes or minimum prices and price escalation clauses. Revenue is recognized when the gas is delivered to the customer, which is the date on which control of the industrial gases is transferred. If the customer does not take delivery of the minimum purchase requirements, revenue is generally recognized in the amount of the contractual minimum. The same conditions and accounting policies apply to sales via pipelines, with the sole difference that customers are supplied via a pipeline.

Gas supply contracts, in particular those for the gas generation plants rented on a long-term basis, must be examined for the existence of a finance lease in accordance with IFRS 16 and, if necessary, classified as such. In the event of a finance lease in accordance with IFRS 16, disposal is assumed at the start of the lease term and revenue is recognized in the amount of the present value of the lease payments attributable to the asset. Interest income earned on finance leases is reported as other financial income.

b. Revenue from liquefied gases

Liquid products are typically stored in the Group's own tanks, which are rented to customers on their premises. The gases are delivered to customers in tankers, tank trailers or rail cars from which the gases are transferred to the leased tanks. The agreements customary in liquefied products business typically have a term of two to three years. Revenue from liquefied products is recognized on delivery to the tank. Income from the rental of tanks is recognized according to the terms of the lease agreements in accordance with IFRS 16.

c. Revenue from cylinder gases

Customers who need small amounts of gas (especially for most special gases) receive the products in cylinders, which are typically owned by the Group and rented to customers. Cylinder gases are generally sold by individual purchase orders or by contracts, with terms ranging between one and two years in Europe. Revenue from gas sales is realized on delivery to the customer. Income from the rental of cylinders is recognized according to the terms of the lease agreements in accordance with IFRS 16.

d. Construction contracts

Depending on the type of contractual arrangement, revenue from long-term construction contracts in the Engineering division is recognized either at a point in time or over a period of time. The Messer Group uses the input method.

In accordance with IFRS 15, revenue from engineering projects is recognized over a period of time if they satisfy the criteria of IFRS 15.35. In the Messer Group, this typically only applies to customer-specific air separation units. For other engineering projects that do not meet the criteria mentioned, revenue is recognized when the project is completed in accordance with IFRS 15.

3. Consolidated Companies

The consolidated group of Messer SE & Co. KGaA developed as follows:

2023	Germany	Other countries	Total
Consolidated	3	59	62
Equity method	3	3	6
Proportionately consolidated	–	–	–
As of Jan. 1	**6**	**62**	**68**
Additions			
Acquisitions	12	35	47
Companies founded	2	6	8
Reclassifications	2	–	2
Disposals			
Company sales	–	–	–
Mergers / accretions	(4)	–	(4)
Reclassifications	(2)	–	(2)
As of Dec. 31	**16**	**103**	**119**
Consolidated	14	94	108
Equity method	2	7	9
Proportionately consolidated	–	2	2

Initial consolidation

The following companies were founded in the past fiscal year and commenced operations:

- Xiangtan Xianggang Messer Gas Products Co., Ltd., China, 55 %
- Messer Gas Products (Zigong) Co., Ltd., China, 100 %
- Messer Quang Ngai Industrial Gases Co., Ltd., Vietnam, 100 %
- Changde Xianggang Messer Gas Products Co., Ltd., China, 55 %
- Messer Trademark GmbH & Co. KG, Germany 100 %
- Messer Trademark Management GmbH, Germany 100 %
- Chuzhou Messer Gas Products Co., Ltd., China, 100 %
- Hangzhou Messer Gas Products Co., Ltd., China, 100 %

Increase in equity investments

The following companies were acquired or reclassified in the past fiscal year:

- Adamite Investments S.L., Spain, 100 %
- bECO2 B.V.B.A., Belgium, 69.89 %
- Cliffside Helium LLC, USA, 26 %
- Cliffside Refiners LP, USA, 25.74 %
- East Coast Nitrogen Company LLC, USA, 50 %
- East Coast Oxygen Company LLC, USA, 50 %
- General Gases of the V.I. Inc., USA, 100 %

- GreenCO2, Belgium, 35 %
- HyDn GmbH, Germany, 50 %
- Leteira Investments S.L., Spain, 100 %
- Limes S.A.S., France, 50 %
- Litadas Investments S.L., Spain, 100 %
- Messer Air Gases Belgium NV, Belgium, 99.84 %
- Messer Algérie SPA, Algeria, 59.86 %
- Messer B.V., Netherlands, 100 %
- Messer Belgium N.V., Belgium, 99.84 %
- Messer Canada Inc., Canada, 100 %
- Messer Chile Ltda., Chile, 100 %
- Messer Colombia S.A., Colombia, 100 %
- Messer Energy S.A.S. E.S.P., Colombia, 100 %
- Messer Energy Services Inc., USA, 100 %
- Messer France S.A.S., France, 100 %
- Messer Gas Puerto Rico Inc., Puerto Rico, 100 %
- Messer Gases Ltda., Brazil, 100 %
- Messer GasPack 2 GmbH, Germany, 100 %
- Messer Ibérica de Gases S.A., Spain, 100 %
- Messer Indústria de Gases Ltda, Brazil, 100 %
- Messer Industriegase GmbH, Germany, 100 %
- Messer Industries B.V., The Netherlands, 100 %
- Messer Industries GmbH, Germany, 100 %
- Messer Industries USA Inc., USA, 100 %
- Messer LLC, USA, 100 %
- Messer Merchant Production LLC, USA, 100 %
- Messer North America Inc., USA, 100 %
- Messer Produktionsgesellschaft mbH Salzgitter, Germany, 100 %
- Messer Produktionsgesellschaft mbH Siegen, Germany, 100 %
- Messer Produktionsgesellschaft mbH Speyer, Germany, 100 %
- Messer Schweiz AG, Switzerland, 100 %
- MesserGas Distribuicao des Gases Industriais, Unip, Portugal, 100 %
- MG Industries Iberica S.L., Spain, 100 %
- REMEO Medical Services S.A.S., Colombia, 100 %
- Toubkal Investments S.L., Spain, 100 %
- Yeti Americas Management Participation GmbH & Co.KG, Germany, 100 %
- Yeti Europe Management Participation GmbH & Co.KG, Germany, 100 %
- Yeti GermanCo 1 GmbH, Germany, 100 %
- Yeti GermanCo 2 GmbH, Germany, 100 %
- Yeti GermanCo 3 GmbH, Germany, 100 %
- Yeti Management Verwaltungs GmbH, Germany, 100 %
- Yeti Warehouse GmbH, Germany, 100 %

The following other equity investments were also acquired as part of the transaction:

- Lida S.A.S, France, 21.50 %
- Soprogaz S.N.C., France, 50 %

Acquisition summary

Messer SE & Co. KGaA ("Messer") and an investment vehicle of CVC Capital Partners ("CVC"), a global alternative investment manager, entered into a purchase agreement on May 30, 2023, for the acquisition of the shares held by CVC and by other shareholders (45.54 %) in the joint venture Yeti GermanCo 1 GmbH and the shares held by CVC (41.95 %) in the joint management investment company Yeti Warehouse GmbH (the "CVC Transaction"). Messer's operations in the Americas and Western Europe were combined in Yeti GermanCo 1 GmbH (Messer Industries Group).

The CVC Transaction was financed with bank loans that replaced existing loans and with an equity investment in Messer by Elbe Investment Pte. Ltd ("Elbe"), an investment vehicle of GIC (Ventures) Pte. Ltd. ("GIC Venture"). GIC Ventures and its wholly-owned subsidiaries are investment companies for investments managed by GIC Pte. Ltd. ("GIC") or GIC's wholly owned subsidiaries. GIC and GIC Ventures are wholly-owned by Singapore's Ministry of Finance, which is the custodian and manager of Singapore's sovereign wealth. To this end, Messer and its former sole shareholder, Messer Holding GmbH, entered into an investment agreement with Elbe on May 26 / 27, 2023 regarding the acquisition of new shares in Messer for a non-controlling minority interest of Elbe in Messer (the "GIC Transaction" and, together with the CVC Transaction, the "Transactions"), as a result of which GIC currently holds 22.97 % of Messer, subject to a subsequent modification in accordance with an earn-out provision contained in the investment agreement, which may lead to a decrease or increase (never exceeding 25 % minus one share) of Elbe's shareholding. The completion of the GIC Transaction was linked to the completion of the CVC Transaction and vice versa.

The Transactions were subject to the fulfillment of customary conditions in the purchase agreements, including merger clearances and foreign trade approvals. After these clearances and approvals were obtained, the Transactions were closed on November 13, 2023. In order to complete the GIC Transaction, Messer carried out a capital increase in which Elbe subscribed for new shares in Messer. This capital increase was entered in the commercial register on November 28, 2023.

The activities of the Yeti GermanCo1 GmbH Group and the Yeti Warehouse GmbH Group were acquired as of November 13, 2023. In total, Messer SE & Co. KGaA invested around K€ 3,490,413. The acquisition agreement did not include any contingent consideration that Messer SE & Co. KGaA might be required to pay in the future.

By acquiring all the shares in the Yeti GermanCo1 GmbH Group, Messer is leveraging the opportunity to grow more strongly in the North and South American market and consolidate its status as a global player in the industrial gases sector. We have now pooled Messer's industry expertise, strong engineering and application skills and operational competence. We intend to use GIC's global network to further expand the acquired companies and grow worldwide.

The acquired assets and liabilities of the North and South American and Western European businesses and holdings were recognized at fair value as part of the purchase price allocation in accordance with IFRS 3. The acquisition had the following overall effect on the consolidated statement of financial position on the November 13, 2023, acquisition date:

Intangible assets	2,115,891
Right-of-use assets	144,509
Property, plant and equipment	3,513,814
Other non-current receivables and assets	79,475
Deferred tax assets	45,152
Inventories	223,676
Trade receivables	375,268
Current income tax assets	60,014
Other assets	211,916
Cash and cash equivalents	320,783
Assets	**7,090,498**
Provisions for employee benefits	17,925
Other provisions	134,653
Financial liabilities	1,744,454
Lease liabilities	144,509
Other non-current liabilities	22,074
Trade payables	165,225
Deferred tax liabilities	1,197,224
Current income tax liabilities	69,396
Other current liabilities	346,990
of which contingent liabilities	*13,108*
Liabilities	**3,842,450**
Acquired identifiable net assets	**3,248,048**
Amount of non-controlling interest	**(7,488)**
Goodwill	4,629,077
Acquired net assets	**7,869,637**
Fair value of the previously held interest in Yeti GermanCo 1 GmbH and Yeti Warehouse GmbH	(4,379,224)
Consideration transferred / purchase price	**3,490,413**

The purchase price allocation had a significant impact on the statement of financial position and the income statement due to the adjustment of intangible assets and property, plant and equipment to their fair values. Intangible assets consist primarily of customer relationships, brands, licenses, technologies and patents. Property, plant, and equipment consists primarily of plant and machinery, land, tanks, cylinders and vehicles. The adjustments made to the fair values on the date of acquisition as part of the purchase price allocation should be regarded as provisional due to the proximity of the November 13, 2023, business combination to December 31, 2023.

The accounting treatment of the acquisition will be adjusted if, within one year of the acquisition date, new information becomes available about facts and circumstances that existed on the acquisition date that would have led to adjustments to the provisional amounts recognized or to additional provisions.

There was a difference of K€ 4,629,077 between the purchase price and the fair values that was recognized as goodwill. The goodwill is mainly due to the expected synergies from the integration of the US and Western European business activities and the business opportunities presented by the acquirees. The total amount of goodwill is not tax deductible.

Contingent liabilities

Compensation claims totaling K€ 4,515 and contingent liabilities totaling K€ 13,108 were recognized in connection with the acquisition of the North and South American and Western European companies. The compensation claims relate to the acquisition of the South American companies in 2019.

All compensation claims and a large part of the contingent liabilities (K€ 13,014) are attributable to Messer Gases Ltda., Brazil. These contingent liabilities relate to obligations from pending tax (K€ 9,731), employment (K€ 2,256), civil (K€ 1,012) and environmental (K€ 15) litigation. At the time of acquisition, there were a total of approximately 132 outstanding cases in which claims with an uncertain outcome had been asserted against Messer Gases Ltda., Brazil. The remaining contingent liability (K€ 94) relates to a potential claim against Messer Industria de Gases Ltda., Brazil, arising from an employment dispute.

Acquired trade receivables

The fair value of the acquired trade receivables is K€ 375,268. The gross amount of contractually due trade receivables is K€ 400,044, of which K€ 24,776 is expected to be irrecoverable.

Choice in the measurement of non-controlling interests

IFRS allows an accounting policy choice to measure non-controlling interests. They can either be measured at fair value or at the non-controlling interest's proportionate share of net assets of the acquiree. The Messer Group measures all non-controlling interests in the acquirees as the amount of their share of the identifiable net assets acquired.

Contribution to revenue and earnings

Since the acquisition date, the acquirees have contributed K€ 442,250 to the Group's revenue and K€ 6,769 to the net result after taxes.

If the acquisition had taken place on January 1, 2023, consolidated pro forma revenue of K€ 4,391,156 and a profit after taxes of K€ 3,521,140 would have been reported for the fiscal year ended December 31, 2023. These amounts were calculated from the results of the acquired subsidiaries.

Consideration transferred

The fair value of the consideration transferred at the time of acquisition is as follows:

Cash	3,571,859
Settlement of pre-existing relationship	(81,446)
Consideration transferred	**3,490,413**

Transaction costs of K€ 126,827 were incurred in connection with the acquisition of the North and South American and Western European companies. Of this amount, K€ 33,585 was used to raise equity and debt capital to finance the transaction. This was reported in the statement of financial position with K€ 10,410 attributed to non-current financial liabilities, K€ 13,638 to current financial liabilities and K€ 9,537 to equity. In addition, transaction costs of K€ 93,242 were recognized under "General and Administrative Expenses", "Other Operating Expenses" and "Financial Result, Net" in the consolidated income statement. In the statement of cash flows, these costs are included in cash flows from operating and financing activities.

Goodwill

Goodwill was recognized as a result of the acquisition as follows:

Consideration transferred	3,490,413
Non-controlling interests based on the share of identifiable net assets of Yeti GermanCo 1 GmbH	7,488
Fair value of the previously held interest in Yeti GermanCo 1 GmbH and Yeti Warehouse GmbH	4,379,224
Fair value of the identifiable net assets acquired	(3,248,048)
Goodwill	**4,629,077**

As a result of the acquisition of the shares held by CVC, Messer has gained control over the Yeti GermanCo 1 GmbH Group and the Yeti Warehouse GmbH Group. The remeasurement of the existing 54.46 % interest in the Yeti GermanCo 1 GmbH Group and the 58.05 % interest in the Warehouse Group to their fair value resulted in a gain of K€ 3,186,140 (K€ 4,379,224 less the K€ 1,193,084 carrying amount of the company accounted for using the equity method at the date of acquisition). This amount is reported under other operating income (see note 8 “Other Operating Income”). Upon payment of the total purchase price, Messer SE & Co. KGaA also reacquired the right to use the Messer brand name, which had been granted to Yeti GermanCo 1 GmbH as part of the purchase price allocation for a period of ten years in 2019. IFRS 3.51 requires an acquirer to assess whether there is a pre-existing relationship on the acquisition date. If this pre-existing relationship has terms that are more or less favorable than market terms on the measurement date, the settlement amount (settlement loss or gain) of the pre-existing relationship must be accounted for as a separate transaction. The fair value measurement on the reporting date based on a license model resulted in a settlement loss of K€ 81,446, which was recognized in the income statement under “Other Operating Expenses”.

Sale of interests without loss of control

In January 2023, Messer Griesheim (China) Investment Co. Ltd., China, reduced its majority interests in Shaoxing Messer Gas Products Co., Ltd. (“Shaoxing”) and Messer Sunshine (Ningbo) Gas Products Co. Ltd., (“Ningbo”) by 30 % from 100 % to 70 %. In conjunction with the reduction of majority interests, there was a notional positive difference of K€ 2,156 for Shaoxing and a notional negative difference of K€ 566 for Ningbo, which were offset against the Group’s other reserves in other comprehensive income.

Others

Yeti Warehouse GmbH, Germany, was merged into Messer SE & Co. KGaA, Germany, with retroactive effect from October 31, 2023. Yeti GermanCo 1 GmbH, Germany, was merged into Messer SE & Co. KGaA, Germany, with retroactive effect from November 30, 2023. Yeti Americas Management Participation GmbH & Co. KG, Germany, and Yeti Europe Management Participation GmbH & Co. KG, Germany, were also merged by way of accrual as of December 1, 2023. Neither the mergers nor the accruals have any impact on the consolidated financial statements.

Notes to the Consolidated Income Statement

4. Revenue

	Jan. 1 – Dec. 31, 2023		Jan. 1 – Dec. 31, 2022	
From contracts with customers	1,975,283	94%	1,499,529	95%
From other revenue sources	133,735	6%	74,147	5%
Total	**2,109,018**	**100%**	**1,573,676**	**100%**

Revenue is mainly generated by the sale of liquefied products, cylinder gases and on site and pipeline sales.

Revenue breaks down among the individual sales channels as follows:

	Jan. 1 – Dec. 31, 2023		Jan. 1 – Dec. 31, 2022	
Liquefied gases	931,904	44%	591,760	38%
Pipeline / on-site	574,144	27%	546,120	35%
Cylinder gases	355,071	17%	274,203	17%
Hardware / other	114,164	6%	87,446	5%
From contracts with customers	**1,975,283**	**94%**	**1,499,529**	**95%**
From other revenue sources	133,735	6%	74,147	5%
Total	**2,109,018**	**100%**	**1,573,676**	**100%**

Revenue breaks down among the individual regions as follows:

	Jan. 1 – Dec. 31, 2023		Jan. 1 – Dec. 31, 2022	
China	682,001	33%	712,171	45%
Central Europe	405,118	19%	331,124	21%
Southeast Europe	382,668	18%	322,013	20%
North America	297,618	14%	–	–
ASEAN	129,220	6%	136,036	9%
Western Europe	78,881	4%	–	–
South America	65,751	3%	–	–
Corporate	67,761	3%	72,332	5%
Total	**2,109,018**	**100%**	**1,573,676**	**100%**

5. Cost of Sales

In addition to directly attributable costs, such as materials purchasing, energy and personnel expenses, the cost of sales also includes overheads attributable to the production process, including depreciation on air separation units.

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Goods purchased	177,207	133,681
Production costs		
Energy	569,037	518,630
Depreciation and amortization	163,082	93,869
Personnel expenses	98,735	73,558
Maintenance	29,994	16,341
Raw materials and supplies	84,153	23,797
Others		
Hardware	37,648	28,713
Services	16,888	11,325
Taxes and other fees	9,852	8,358
Security and insurance	6,353	6,192
Other	25,563	22,274
Total	**1,218,512**	**936,738**

6. Selling and Distribution Expenses

Selling and distribution expenses also include the costs of all sales departments and logistics activities.

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Transportation costs	121,837	90,483
Personnel expenses	118,127	62,800
Depreciation and amortization	93,007	42,505
Maintenance	20,376	11,617
Warehousing costs	11,773	8,754
Insurance	1,857	1,391
Advertising	3,020	1,777
Other	40,882	27,249
Total	**410,879**	**246,576**

7. General and Administrative Expenses

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Personnel expenses	150,916	54,331
IT services	13,510	17,742
Administration expenses of related parties	15,983	10,197
Depreciation and amortization	12,353	9,216
Legal and consulting expenses	15,571	7,356
Insurance and assurance services	6,970	3,614
Rent	1,959	1,395
Other	42,065	22,548
Total	**259,327**	**126,399**

8. Other Operating Income

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Income from changes in Group reporting	3,186,140	–
Gains on the disposal of non-current assets	5,081	2,545
Exchange rate gains from operating activities	4,676	4,525
Subsidies	4,089	3,580
Income from related parties	3,788	3,992
Other reimbursements	3,431	3,684
Insurance claims	1,761	4,293
Other prior-period income	968	390
Change in the fair value of derivatives through profit or loss	388	–
Other	11,918	4,161
Total	**3,222,240**	**27,170**

Please refer to note 3 “Consolidated Companies” in the notes to the consolidated financial statements for more details on the income from changes in Group reporting.

9. Other Operating Expenses

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Exchange rate losses from operating activities	5,538	5,029
Losses on the disposal of non-current assets	1,558	1,216
Related party expenses	1,345	2,491
Prior-period expenses	378	128
Bank charges	338	473
Other taxes	104	18
Loss due to changes in Group reporting	81,446	–
Other legal and consulting expenses	82	501
Change in the fair value of derivatives through profit or loss	–	1,835
Other	5,530	3,050
Total	**96,319**	**14,741**

Please refer to note 3 "Consolidated Companies" in the notes to the consolidated financial statements for more details on the expenses from changes in Group reporting.

10. Financial Result, Net

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Income from investments accounted for using the equity method	**159,875**	**146,299**
Other investment result, net	**27**	**630**
Finance income	**88,974**	**38,257**
Interest income from		
Bank balances	59,235	2,233
Leases	231	297
Income from the interest effect of provisions	20	262
Others	2,529	443
Foreign currency gains	26,412	28,635
Gain or loss from the measurement of derivatives	527	5,840
Other finance income	20	547
Finance costs	**(114,037)**	**(43,555)**
Interest expense from		
Liabilities to banks	(37,542)	(8,943)
Leases	(2,002)	(836)
Expenses from the interest effect of provisions	(2,488)	(440)
Capitalized borrowing costs	3,077	630
Others	(6,128)	(317)
Foreign currency losses	(59,356)	(31,954)
Gain or loss from the measurement of derivatives	(4,493)	–
Other finance costs	(5,105)	(1,695)
Total	**134,839**	**141,631**

For more information on interest expenses for our bank financing and derivatives, please refer to note 26 “Financial Liabilities” and note 31 “Other Financial Instrument Disclosures”.

11. Tax Result

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Current income taxes	(31,790)	(58,107)
Deferred income taxes	38,027	(9,772)
Total	**6,237**	**(67,879)**

Current taxes include tax expenses for previous years amounting to K€ 9,507.

Deferred income taxes relating to items charged or credited directly to other comprehensive income:

	Dec. 31, 2023	Dec. 31, 2022
Deferred taxes related to gains or losses from the remeasurement of hedges	11,672	–
Deferred income taxes on net investments in foreign operations	(1,773)	–
Deferred taxes on results of financial assets held for sale	(22)	(22)
Deferred taxes relating to the remeasurement of net defined benefit obligations	3,615	3,719
Deferred taxes relating to the initial application of IFRSs	89	89
Deferred tax assets / (liabilities) recognized in other comprehensive income	**13,581**	**3,786**

The following reconciliation summarizes the individual calculations of deferred taxes for specific companies using the respective tax rates specific to their countries, taking consolidation adjustments into account. The expected tax expense is reconciled to the effective reported tax expense. To calculate the expected tax expense, the income tax rate for the Group in fiscal 2023, based on the tax rate for the parent company of 30 % (previous year: 30 %), is multiplied by the profit before tax.

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Tax rate	30.00 %	30.00 %
Profit before tax	**3,447,430**	**413,730**
Expected income tax expense	(1,034,229)	(124,119)
Goodwill impairment	(3,483)	–
Impairment loss / non-recognition of deferred taxes on temporary differences	1,218	(5,747)
Impairment loss / non-recognition of deferred taxes on current losses	(797)	(8,112)
Change in impairment loss / non-recognition of tax loss carryforwards	27,172	1,043
Effect of tax credits	2,938	3,188
Non-deductible interest expenses	(2,202)	(410)
Non-deductible withholding tax / other taxes	(3,062)	(6,281)
Effect of changes in tax rates	179	(645)
Tax (expense)/ income for previous years	(9,507)	1,486
Tax-free income	15,644	258
Non-deductible expenses for tax purposes	(3,172)	(8,017)
Tax rate differences at Group companies	33,399	34,637
Associates accounted for using the equity method	49,209	43,938
Effects from changes in Group reporting	925,121	–
Others	7,809	902
Effective tax income / (expense) from operating activities	**6,237**	**(67,879)**
Effective tax rate	**(0.18 %)**	**16.41 %**

Please refer to note 3 “Consolidated Companies” and note 8 Other Operating Income” in the notes to the consolidated financial statements for more details on the effects from changes in Group reporting.

Impairment loss / non-recognition of tax loss carryforwards includes deferred tax income of K€ 25,476 in connection with the initial recognition of deferred tax assets on domestic loss carryforwards.

As of December 31, 2023, within the Messer Group there were tax loss carryforwards of 433 Mio. EUR (previous year: 186 Mio. EUR) and credit for offsetting in the form of interest carryforwards of K€ 53,623 (previous year: K€ 46,357).

The Group’s loss carryforwards will expire as follows:

Expiring within	Dec. 31, 2023	Dec. 31, 2022
1 year	3,068	5,985
2 years	4,713	2,623
3 years	5,560	5,514
Indefinite	419,914	172,169
Total	**433,255**	**186,291**

For Group companies that had losses in the current or the previous period, a deferred tax asset of K€ 2,118 (previous year: K€ 663) was capitalized, the realization of which is dependent on future taxable profits that are higher than the effects of the reversal of existing taxable temporary differences. This mainly relates to two Chinese companies. The recognition of the deferred tax asset is justified by the fact that it is likely to be realized due to positive tax planning.

Deferred taxes were not recognized for tax loss and interest carryforwards of K€ 145,092 (previous year: K€ 193,373), unused tax credits of K€ 1,657 (previous year: K€ 0) or temporary differences of K€ 35,206 (previous year: K€ 30,539) as it is assumed – on the basis of planning for tax purposes – that it will not be possible to utilize the tax loss carryforwards or temporary differences.

While the interest carryforwards of K€ 53,623 without deferred tax assets and temporary differences of K€ 35,206 are considered indefinite, the loss carryforwards without deferred tax assets will expire as follows:

Expiring within	Dec. 31, 2023	Dec. 31, 2022
1 year	2,652	2,544
2 years	4,449	2,096
3 years	5,560	5,095
Indefinite	194,349	137,281
Total	**207,010**	**147,016**

In accordance with IAS 12.39, deferred taxes on the difference between the pro rata equity of a subsidiary recognized in the consolidated statement of financial position and the carrying amount of the investment in that subsidiary must be included in the parent company's tax accounts (outside basis differences) if they are expected to be realized. These differences essentially relate to the retained earnings of German and foreign subsidiaries. Deferred taxes are not recognized for these retained earnings as they are re-invested indefinitely or are not subject to corresponding taxation. Distributions by subsidiaries would be subject to dividend taxation. Distributions from abroad could also trigger withholding tax. As of December 31, 2023, deferred tax liabilities for outside basis differences were not taken into account for planned dividend payments as their realization is not planned.

Deferred taxes are attributable to the following statement of financial position items as of December 31, 2023:

	Dec. 31, 2023	Dec. 31, 2022	Recognized in the income statement[1]	Recognized in equity	Change in Group reporting
Deferred tax assets					
Tax loss carryforwards and tax credits	70,843	9,979	33,587	–	27,277
Intangible assets and property, plant and equipment	13,095	9,098	3,997	–	–
Inventories	2,202	1,600	602	–	–
Trade receivables	4,865	2,759	(245)	–	2,351
Provisions for employee benefits	8,767	6,089	205	(104)	2,577
Non-current financial liabilities	315	326	(1,307)	–	1,296
Non-current lease liabilities	33,358	3,684	6,015	–	23,659
Short-term provisions	6,533	2,974	1,275	–	2,284
Current lease liabilities	4,504	1,065	1,480	–	1,959
Other current liabilities	27,352	7,635	5,652	–	14,065
Miscellaneous	28,765	1,404	3,000	1,117	23,244
Total	**200,599**	**46,613**	**54,261**	**1,013**	**98,712**
Offsetting	**(162,879)**	**(29,347)**			
Deferred tax assets, net	**37,720**	**17,266**			
Deferred tax liabilities					
Right-of-use assets	(39,024)	(4,895)	20,916	–	(55,045)
Intangible assets	(515,689)	(20,195)	(141,379)	–	(354,115)
Property, plant and equipment	(673,126)	(16,385)	120,499	–	(777,240)
Other non-current receivables and assets	(1,493)	(1,923)	510	–	(80)
Inventories	(22,906)	(358)	6,979	–	(29,527)
Other current receivables and assets	(2,731)	(2,666)	(157)	11,672	(11,580)
Non-current and current financial liabilities	(5,084)	(854)	(3,456)	–	(774)
Short-term provisions	(2,700)	—	2,151	–	(4,851)
Miscellaneous	(13,941)	(3,582)	926	–	(11,285)
Total	**(1,276,694)**	**(50,858)**	**6,989**	**11,672**	**(1,244,497)**
Offsetting	**162,879**	**29,347**			
Deferred tax liabilities, net	**(1,113,815)**	**(21,511)**			
Total deferred taxes, net	**(1,076,095)**	**(4,245)**	**61,250**	**12,685**	**(1,145,785)**

(1) Of which exchange rate changes recognized in other comprehensive income: K€ 23,223

Deferred tax assets and liabilities, after offsetting at the individual companies, break down as follows:

Deferred taxes	Dec. 31, 2023	Dec. 31, 2022
Deferred tax assets	37,720	17,266
Deferred tax liabilities	(1,113,815)	(21,511)
Deferred tax liabilities, net	**(1,076,095)**	**(4,245)**

Deferred tax assets and liabilities in the statement of financial position and deferred taxes in the income statement are reconciled as follows:

	Dec. 31, 2023	Dec. 31, 2022
Change in deferred tax assets in the statement of financial position	20,454	(949)
Change in deferred tax liabilities in the statement of financial position	(1,092,304)	(5,310)
Difference	(1,071,850)	(6,259)
of which:		
Through profit and loss	38,027	(9,772)
Change in Group reporting	(1,145,785)	–
Offset against other comprehensive income	9,795	3,066
Offset against capital reserves	2,890	–
Exchange rate changes	23,223	447

12. Personnel Expenses

Personnel expenses consist of wages and salaries, social security contributions and other employee benefits (e. g. pensions).

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Personnel expenses	366,541	186,427

The above amount includes wages and salaries of K€ 304,128 (previous year: K€ 153,861), expenses for pensions and other employee benefits in the amount of K€ 3,324 (previous year: K€ 3,476) and social security expenses in the amount of K€ 59,089 (previous year: K€ 29,090). The expenses for defined contribution plans, which essentially relate to statutory pension insurance in Germany, amounted to K€ 2,436 in total for fiscal 2023 (previous year: K€ 2,037).

13. Number of Employees (Annual Average)

The average number of employees breaks down as follows:

By region	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
China	2,399	2,407
Southeast Europe	1,308	1,316
Central Europe	798	777
ASEAN	595	533
North America	514	–
South America	352	–
Corporate	281	267
Western Europe	139	–
Total number of employees	**6,386**	**5,300**

By function	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Production and filling	2,504	2,039
Logistics	1,280	1,040
Administration	1,036	915
Sales and marketing	784	600
Engineering	782	706
Total number of employees	**6,386**	**5,300**

Notes to the Consolidated Statement of Financial Position

14. Intangible Assets

Goodwill

	2023	2022
Cost		
As of Jan. 1	**359,226**	**364,404**
Additions	–	–
Change in Group reporting	4,629,077	–
Exchange rate changes	34,307	(5,178)
As of Dec. 31	**5,022,610**	**359,226**
Cumulative depreciation		
As of Jan. 1	**(87,222)**	**(87,478)**
Additions	(23,219)	–
Exchange rate changes	1,396	256
As of Dec. 31	**(109,045)**	**(87,222)**
Net carrying amount as of Jan. 1	**272,004**	**276,926**
Net carrying amount as of Dec. 31	**4,913,565**	**272,004**

Goodwill is tested for impairment as of December 31 each year. The Messer Group companies operating in each country have been identified as cash-generating units. If production and distribution companies within a country complement each other economically, they are combined to form a cash-generating unit. These cash-generating units specifically exist for Poland, Serbia and its bordering countries, Czechia, Vietnam, the Foshan and Ningbo regions in China and a unit of companies with a focus on specialty gases, also in China.

The following table shows the breakdown of goodwill as of December 31, 2023:

	Dec. 31, 2023	Dec. 31, 2022
Hunan Xianggang Messer Gas Products Co., Ltd., China	45,912	48,987
Messer Hungarogáz Kft., Hungary	44,078	42,091
Czechia cash-generating unit	41,390	42,435
Poland cash-generating unit	26,857	24,633
Messer Tatragas spol. s.r.o., Slovakia	22,516	22,516
Serbia cash-generating unit	19,444	19,422
Messer Austria GmbH, Austria	9,782	9,782
Foshan, China, cash-generating unit	9,345	9,970
Messer Croatia Plin d.o.o., Croatia	9,025	9,025
Messer Romania Gaz S.R.L., Romania	6,543	6,578
Specialty Gases cash-generating unit	6,216	6,632
Messer Slovnaft s.r.o., Slovakia	3,200	3,200
Ningbo cash-generating unit	1,882	2,008
Messer Mostar Plin d.o.o., Bosnia-Herzegovina	345	345
Universal Industrial Gas. Sdn. Bhd., Malaysia	196	212
Yunnan Messer Gas Products Co., Ltd., China	–	24,168
Allocated goodwill	**246,731**	**272,004**
Unallocated goodwill	4,666,834	–
	4,913,565	**272,004**

The recoverable amount for an individual operating company is based on calculations of its respective value in use. The value in use is the present value of the estimated future cash flows expected from the continuing operations of each company. The cash flow forecast is based on the most recent financial plans of the respective cash-generating unit that have been approved by management. Starting with the analysis of past results, values in use were calculated on the basis of detailed forecasts of long-term cash flows through 2028. Cash flows for periods after the detailed planning period were based on the final fiscal year of the detailed planning period (using the terminal value model). Forecast cash flows were discounted to their present value at the measurement date using an appropriate capitalization rate specific to that country. The capitalization rate is calculated using the capital asset pricing model (CAPM) after first being broken down into the components of basic interest rate and risk premium. An inflation differential and a country risk premium are also taken into account. The risk-free basic interest rate was derived from yields on long-term government bonds taking into account the respective country rating (Moody's). The risk premium was obtained by multiplying the market risk premium by the beta factor that reflects the relative risk of a given stock compared to the market as a whole. The beta factor was calculated on the basis of an analysis of a peer group of listed companies for the Messer Group.

As of December 31, 2023, there is still unallocated goodwill in the amount of K€ 4,666,834. An in-depth analysis cannot be completed in a timely and appropriate manner due to the proximity of the November 13, 2023, business combination to December 31, 2023, and the provisional classification of the purchase price allocation.

The capitalization rates after tax for the specific countries are as follows:

	Dec. 31, 2023	Dec. 31, 2022
Bosnia-Herzegovina	13.77 %	13.93 %
Serbia	10.76 %	11.34 %
Hungary	10.13 %	10.27 %
Romania	10.85 %	9.75 %
Poland	9.06 %	8.26 %
Croatia	8.88 %	9.12 %
Malaysia	8.25 %	8.82 %
Slovenia	8.19 %	8.56 %
Slovakia	8.08 %	8.30 %
China	7.86 %	8.61 %
Czechia	7.70 %	7.96 %
Austria	7.77 %	7.81 %

The detailed forecasts up to 2028 used to calculate the values in use of the cash-generating units are based primarily on the assumptions for revenue growth, the development of the EBITDA margin and the long-term growth rate after the detailed planning period.

These assumptions for the material cash-generating units with a share of allocated goodwill of at least 5 % are as follows:

Cash-generating unit	Carrying amount Dec. 31, 2023		Significant planning assumptions 2023		
			Revenue growth (CAGR)	Trend in EBITDA margin[1]	Growth rate[2]
Hunan Xianggang Messer Gas Products Co., Ltd., China	45,912	18 %	Moderate increase	Significant decrease	1.5 %
Messer Hungarogáz Kft., Hungary	44,078	18 %	Moderate increase	Moderate increase	1.5 %
Czechia cash-generating unit	41,390	17 %	Moderate increase	Significant increase	1.5 %
Poland cash-generating unit	26,857	11 %	Moderate increase	Significant increase	1.5 %
Messer Tatragas spol.s.r.o., Slovakia	22,516	9 %	Moderate increase	Significant increase	1.5 %
Serbia cash-generating unit	19,444	8 %	Moderate increase	Significant increase	1.5 %
Miscellaneous companies	46,534	19 %			
Messer Group	**246,731**	**100 %**			

(1) End of the detailed planning period compared to the current fiscal year
(2) Growth after the detailed planning period

Cash-generating unit	Carrying amount Dec. 31, 2022		Significant planning assumptions 2022		
			Revenue growth (CAGR)	Trend in EBITDA margin(1)	Growth rate(2)
Hunan Xianggang Messer Gas Products Co., Ltd., China	48,987	18 %	Slight increase	Slight decrease	1.0 %
Czechia cash-generating unit	42,435	16 %	Significant increase	Moderate increase	1.0 %
Messer Hungarogáz Kft., Hungary	42,091	15 %	Significant increase	Slight decrease	1.0 %
Poland cash-generating unit	24,633	9 %	Significant increase	Significant decrease	1.0 %
Yunnan Messer Gas Products Co., Ltd., China	24,168	9 %	Moderate increase	Significant decrease	1.0 %
Messer Tatragas spol.s.r.o., Slovakia	22,516	8 %	Moderate increase	Moderate increase	1.0 %
Serbia cash-generating unit	19,422	7 %	Significant increase	Moderate decrease	1.0 %
Miscellaneous companies	47,752	18 %			
Messer Group	**272,004**	**100 %**			

(1) End of the detailed planning period compared to the current fiscal year
(2) Growth after the detailed planning period

The growth rate for extrapolating cash flows beyond the planning period is uniformly 1.5 % (previous year: 1.0 %). The only exception is the Vietnam cash-generating unit, where the growth rate was 2.0 % (previous year: 1.0 %).

The impairment test 2023 carried out at one operating company resulted in an impairment requirement of K€ 23,219. The reason for the impairment at Yunnan Messer Gas Products, Co., Ltd. in China is a change in the assessment of the future earnings situation. The main reason for the impairment is the discontinuation of operations by the main customer. The impairment losses were recognized in the income statement under goodwill impairment.

The following three scenarios were simulated in conjunction with a sensitivity analysis:

(a) Increase in the capitalization rates for each country by 1 percentage point.
(b) The long-term growth rate after the detailed planning period is reduced from 1.5 % to 0.0 %.
(c) Planned EBIT of the cash-generating units consistently falls short of forecasts by 10 % throughout the entire planning period and thereafter from fiscal 2028 onwards.

None of these scenarios would result in any goodwill impairment in the cash-generating units with a significant share of goodwill.

Right-of-use assets

Right-of-use assets relate to assets capitalized in conjunction with leases in accordance with IFRS 16. These consist of the following:

2023	Land and buildings	Plant and machinery	Other operating and office equipment	Total
Cost				
As of Jan. 1, 2023	**69,980**	**11,592**	**278**	**81,850**
Additions	81,790	77,404	237	159,431
Reclassification	2,380	–	–	2,380
Disposals	(1,183)	(1,550)	(1)	(2,734)
Exchange rate changes	(3,876)	(1,353)	7	(5,222)
As of Dec. 31, 2023	**149,091**	**86,093**	**521**	**235,705**
Cumulative depreciation				
As of Jan. 1, 2023	**(18,861)**	**(5,346)**	**(187)**	**(24,394)**
Additions	(6,510)	(5,723)	(84)	(12,317)
Reclassification	(83)	–	–	(83)
Disposals	1,134	1,322	1	2,457
Exchange rate changes	651	105	3	759
As of Dec. 31, 2023	**(23,669)**	**(9,642)**	**(267)**	**(33,578)**
Net carrying amounts as of Jan. 1, 2023	**51,119**	**6,246**	**91**	**57,456**
Net carrying amounts as of Dec. 31, 2023	**125,422**	**76,451**	**254**	**202,127**

Additions to right-of-use assets (K€ 159,431) include K€ 144,509 from changes in Group reporting.

2022	Land and buildings	Plant and machinery	Other operating and office equipment	Total
Cost				
As of Jan. 1, 2022	**66,506**	**9,801**	**286**	**76,593**
Additions	5,112	3,677	10	8,799
Reclassification	–	(390)	–	(390)
Disposals	(650)	(1,382)	(15)	(2,047)
Exchange rate changes	(988)	(114)	(3)	(1,105)
As of Dec. 31, 2022	**69,980**	**11,592**	**278**	**81,850**
Cumulative depreciation				
As of Jan. 1, 2022	**(15,283)**	**(4,411)**	**(148)**	**(19,842)**
Additions	(4,269)	(2,466)	(53)	(6,788)
Reclassification	–	187	–	187
Disposals	510	1,306	15	1,831
Exchange rate changes	181	38	(1)	218
As of Dec. 31, 2022	**(18,861)**	**(5,346)**	**(187)**	**(24,394)**
Net carrying amounts as of Jan. 1, 2022	**51,223**	**5,390**	**138**	**56,751**
Net carrying amounts as of Dec. 31, 2022	**51,119**	**6,246**	**91**	**57,456**

Interest expenses of K€ 2,002 (previous year: K€ 836) were recognized in connection with leases. Furthermore, the following expenses were recognized that were not taken into account in the measurement of right-of-use assets and the corresponding liability:

	2023	2022
Expenses for leases for low-value assets	96	304
Expenses for short-term leases	895	320
Expenses for variable lease payments	533	438
	1,524	**1,062**

In total, leases resulted in cash outflows of K€ 14,736 (previous year: K€ 7,555) in the year under review. The Messer Group estimates that potential future lease payments, if extension options are exercised, would increase the lease liability by K€ 7,083.

Other intangible assets

2023	Customer relationships	Technologies / patents	Licenses	Miscellaneous intangible assets	Total
Cost					
As of Jan. 1, 2023	**95,956**	**–**	**56,324**	**34,520**	**186,800**
Additions	–	–	–	5,713	5,713
Change in Group reporting	1,694,644	173,495	158,489	89,263	2,115,891
Reclassification	–	–	–	991	991
Disposals	220	–	–	(943)	(723)
Exchange rate changes	(32,075)	(6,766)	428	(1,448)	(39,861)
As of Dec. 31, 2023	**1,758,745**	**166,729**	**215,241**	**128,096**	**2,268,811**
Cumulative depreciation					
As of Jan. 1, 2023	**(77,470)**	**–**	**(7,991)**	**(30,357)**	**(115,818)**
Additions	(23,856)	(1,825)	(31)	(4,423)	(30,135)
Reclassification	–	–	–	–	–
Disposals	(220)	–	–	944	724
Exchange rate changes	(474)	39	(404)	112	(727)
As of Dec. 31, 2023	**(102,020)**	**(1,786)**	**(8,426)**	**(33,724)**	**(145,956)**
Net carrying amounts as of Jan. 1, 2023	**18,486**	**–**	**48,333**	**4,163**	**70,982**
Net carrying amounts as of Dec. 31, 2023	**1,656,725**	**164,943**	**206,815**	**94,372**	**2,122,855**

2022	Customer relationships	Technologies / patents	Licenses	Miscellaneous intangible assets	Total
Cost					
As of Jan. 1, 2022	**96,139**	**–**	**56,027**	**33,837**	**186,003**
Additions	–	–	–	902	902
Reclassification	–	–	–	509	509
Disposals	(19)	–	–	(618)	(637)
Exchange rate changes	(164)	–	297	(110)	23
As of Dec. 31, 2022	**95,956**	**–**	**56,324**	**34,520**	**186,800**
Cumulative depreciation					
As of Jan. 1, 2022	**(74,162)**	**–**	**(7,694)**	**(28,554)**	**(110,410)**
Additions	(3,672)	–	–	(2,513)	(6,185)
Reclassification	–	–	–	(3)	(3)
Disposals	19	–	–	607	626
Exchange rate changes	345	–	(297)	106	154
As of Dec. 31, 2022	**(77,470)**	**–**	**(7,991)**	**(30,357)**	**(115,818)**
Net carrying amounts as of Jan. 1, 2022	**21,977**	**–**	**48,333**	**5,283**	**75,593**
Net carrying amounts as of Dec. 31, 2022	**18,486**	**–**	**48,333**	**4,163**	**70,982**

The customer relationships predominantly result from the purchase price allocation carried out as of November 13, 2023, in conjunction with the acquisition of the Messer Industries Group. The useful life of the customer relationships is not more than 38 years. They are higher than the original maximum contract term of 15 years since the renewal options are highly likely to be exercised by customers. The amortization expense for the fiscal year is recognized in selling and distribution expenses.

Technologies mainly include patents in software, oil and gas, energy, food, and healthcare. The net carrying amounts of the patents as of December 31, 2023 are K€ 164,943 (previous year: K€ 0) in the US.

The licenses include the rights to the “Messer – Gases for Life” brand including the reacquired right to use the brand (K€ 204,157, previous year: K€ 48,333) and “REMEO” (K€ 2,658, previous year: K€ 0) brands. The carrying amount of the “ASCO” brand was written down in full in previous years.

The “Messer – Gases for Life” and “REMEO” brands are intangible assets with an indefinite useful life as referenced by IAS 38; they are not amortized but rather tested for impairment at least once per year in accordance with IAS 36. The brands are tested for impairment using the relief-from-royalty method. The impairment test for the “Messer – Gases for Life” brand including the reacquired right to use the brand was based on an asset-specific capitalization rate of 7.82 % (previous year: 7.32 %). No impairment test was carried out this year for the write-ups of the “Messer – Gases for Life” and "REMEO" brands due to the provisional nature of the purchase price allocation.

For all companies in the Group, the value in use determined in accordance with the principles described above exceeded the net assets of the cash-generating units. Thus, there were no impairment requirements on other intangible assets in fiscal 2023.

15. Property, Plant and Equipment

2023	Land and buildings	Plant and machinery	Other operating and office equipment	Construction in progress	Total
Cost					
As of Jan. 1, 2023	**304,158**	**2,041,856**	**330,350**	**233,615**	**2,909,979**
Additions	6,447	44,701	13,856	257,132	322,136
Change in Group reporting	239,849	2,740,538	216,462	316,965	3,513,814
Reclassification	21,078	253,198	4,167	(281,814)	(3,371)
Regrouping	–	10,134	(9,579)	(229)	326
Disposals	(7,876)	2,704	(18,401)	(206)	(23,779)
Exchange rate changes	(9,200)	(116,060)	(13,855)	(17,585)	(156,700)
As of Dec. 31, 2023	**554,456**	**4,977,071**	**523,000**	**507,878**	**6,562,405**
Cumulative depreciation					
As of Jan. 1, 2023	**(138,066)**	**(1,236,679)**	**(230,946)**	**(1,742)**	**(1,607,433)**
Additions	(14,937)	(186,077)	(25,186)	(77)	(226,277)
Reclassification	49	(18,236)	18,270	–	83
Regrouping	–	(7,886)	7,741	–	(145)
Disposals	7,292	(6,179)	18,135	18	19,266
Exchange rate changes	2,748	28,981	4,078	105	35,912
As of Dec. 31, 2023	**(142,914)**	**(1,426,076)**	**(207,908)**	**(1,696)**	**(1,778,594)**
Net carrying amounts as of Jan. 1, 2023	**166,092**	**805,177**	**99,404**	**231,873**	**1,302,546**
Net carrying amounts as of Dec. 31, 2023	**411,542**	**3,550,995**	**315,092**	**506,182**	**4,783,811**

2022	Land and buildings	Plant and machinery	Other operating and office equipment	Construction in progress	Total
Cost					
As of Jan. 1, 2022	**274,039**	**1,847,882**	**316,268**	**268,883**	**2,707,072**
Additions	2,753	40,826	15,061	200,936	259,576
Reclassification	30,836	188,923	12,097	(231,975)	(119)
Disposals	(644)	(9,992)	(10,129)	(2,170)	(22,935)
Exchange rate changes	(2,826)	(25,783)	(2,947)	(2,059)	(33,615)
As of Dec. 31, 2022	**304,158**	**2,041,856**	**330,350**	**233,615**	**2,909,979**
Cumulative depreciation					
As of Jan. 1, 2022	**(129,426)**	**(1,160,536)**	**(223,098)**	**(2,045)**	**(1,515,105)**
Additions	(10,331)	(103,585)	(18,547)	(154)	(132,617)
Reclassification	(24)	221	(381)	–	(184)
Disposals	438	9,107	9,392	423	19,360
Exchange rate changes	1,277	18,114	1,688	34	21,113
As of Dec. 31, 2022	**(138,066)**	**(1,236,679)**	**(230,946)**	**(1,742)**	**(1,607,433)**
Net carrying amounts as of Jan. 1, 2022	**144,613**	**687,346**	**93,170**	**266,838**	**1,191,967**
Net carrying amounts as of Dec. 31, 2022	**166,092**	**805,177**	**99,404**	**231,873**	**1,302,546**

Borrowing costs of K€ 3,077 (previous year: K€ 630) were capitalized for qualifying assets in the fiscal year. The average interest rate was 6.6% (previous year: 2.6%).

Total impairment on property, plant and equipment in China of K€ 6,887 was recognized in fiscal 2023. This is included in the additions to depreciation on land and buildings (K€ 1,543), plant and machinery (K€ 5,145), other operating and office equipment (K€ 123) and construction in progress (K€ 76) for the fiscal year. The impairment is reported under “Cost of sales” in the income statement.

Additions to plant and machinery include a net amount of K€ 108 (previous year: K€ 0) that was capitalized in accordance with IFRIC 1 on the basis of measurement changes in restoration obligations.

In addition, property, plant and equipment includes technical equipment, including tanks and gas cylinders, from operating leases in which the Messer Group acts is the lessor.

The lease payments to be received from customers from such operating leases in the future break down as follows:

	Dec. 31, 2023	Dec. 31, 2022
Due within 1 year	105,264	40,453
Due between 1 and 5 years	228,358	128,068
Due after more than 5 years	90,789	86,516
	424,411	**255,037**

Income of K€ 125 (previous year: K€ 107) from variable lease payments under operating leases was recognized in the reporting period.

16. Interests in Other Entities

Investments accounted for using the equity method

As of December 31, 2023, the following interests in associates and joint ventures were recognized on the basis of the proportionate equity held in the relevant entity:

Name and registered office of the company	Shareholding (%)		Carrying amount	
	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Significant companies				
Yeti GermanCo 1 GmbH, Sulzbach (Taunus) / Germany	–	54.46	–	1,012,060
Non-significant companies				
Elme Messer Gaas A.S., Tallinn / Estonia	50.00	50.00	39,990	38,112
Limes S.A.S., Saint-Herblain / France	50.00	–	5,807	–
HyDN GmbH, Jülich / Germany	50.00	–	3,320	–
Sichuan Meifeng Messer Gas Products Co., Ltd., Mianyang City / China	50.00	50.00	3,269	3,201
Mahler AGS GmbH, Stuttgart / Germany	25.00	25.00	2,854	2,854
Cliffside Refiners LP, Delaware / USA	25.74	–	1,817	–
GreenCO2 N.V., Zwijndrecht / Belgium	34.95	–	1,491	–
Messer Medica LLC, Obiliq / Kosovo	49.00	49.00	967	967
Cliffside Helium LLC, Delaware / USA	26.00	–	34	–
Yeti Warehouse GmbH, Sulzbach (Taunus) / Germany	–	58.05	–	37,875
			59,549	**1,095,069**

Effective November 13, 2023, the Messer Group acquired all shares in Yeti GermanCo 1 GmbH, Germany, and Yeti Warehouse GmbH, Germany, both of which were subsequently merged into Messer SE & Co. KGaA after the transaction. The pro rata results of both companies are recognized up to the date of acquisition. The disposal of the residual carrying amounts is shown in the reclassifications.

As part of the transaction, the following companies were added as investments accounted for using the equity method:

- GreenCO2, Belgium, 35 %
- HyDn GmbH, Germany, 50 %
- Limes S.A.S., France, 50 %
- Cliffside Helium LLC, USA, 26 %
- Cliffside Refiners LP, USA, 25.74 %

Please refer to note 3 “Consolidated Companies” for more information about the transaction.

Elme Messer Gaas A.S. is the parent company of our equity investments in the Baltic states, Ukraine and Russia. The group produces and sells industrial gases in these regions and has its own production facilities.

Interests in associates and joint ventures developed as follows:

	2023	2022
Cost		
As of Jan. 1	**1,095,069**	**884,955**
Additions	12,452	2,814
Pro rata results	159,875	146,460
Reclassifications	(1,193,085)	–
Disposals	–	(203)
Dividends	(1,000)	(3,000)
Pro rata changes in statement of comprehensive income	(12,871)	63,651
Exchange rate changes	(891)	392
As of Dec. 31	**59,549**	**1,095,069**
Cumulative depreciation		
As of Jan. 1	**–**	**–**
Reversals of write-downs	–	–
Disposals	–	–
As of Dec. 31	**–**	**–**
Net carrying amount as of Jan. 1	**1,095,069**	**884,955**
Net carrying amount as of Dec. 31	**59,549**	**1,095,069**

Pro rata gains / (losses) from our equity investments in Ukraine of K€ 190 (previous year: K€ 132) have not been recognized as the pro rata remaining loss exceeds the carrying amount of the equity investments.

The table below shows the combined consolidated financial data in accordance with IFRS, as adopted in the EU, of the significant joint venture Yeti GermanCo 1 GmbH. Yeti GermanCo 1 GmbH was the parent company of our indirect equity investments in Western Europe and North and South America until November 13, 2023. The group produces and sells industrial gases in these regions and has its own production facilities.

	Yeti GermanCo 1 GmbH	
	2023	2022
Revenue for the period from Jan. 1 to Nov. 13, 2023 / Dec. 31, 2022	**2,341,039**	**2,590,456**
Net profit for the year	287,230	229,193
Other comprehensive income	(23,582)	117,060
Total comprehensive income for the period from Jan. 1 to Nov. 13, 2023 / Dec. 31, 2022	**263,648**	**346,253**
Attributable to:		
Shareholders of the parent company	262,860	345,116
Non-controlling interests	788	1,137
Non-current assets	4,095,130	4,056,079
Current assets	1,141,980	1,031,948
Non-current liabilities	729,335	2,563,432
Current liabilities	2,456,527	735,876
Net assets for the period from Jan. 1 to Nov. 13, 2023/Dec. 31, 2022	**2,051,248**	**1,788,719**
Net assets less non-controlling interests	**2,047,685**	**1,784,825**
Attributable to:		
Messer Group's share of net assets	1,115,173	972,020
Shares of joint venture partners	932,512	812,805

The additional financial information for the significant joint venture Yeti GermanCo 1 GmbH is combined in the following table:

	Yeti GermanCo 1 GmbH	
	2023	2022
As of Nov. 13, 2023 / Dec. 31, 2022		
Cash and cash equivalents	317,975	167,370
Non-current financial liabilities	113,594	1,916,289
Current financial liabilities	1,763,526	35,584
For the period from Jan. 1 to Nov. 13, 2023 / Dec. 31, 2022		
Depreciation and amortization	(331,207)	(390,486)
Interest income	31,942	11,279
Interest expenses	(88,070)	(70,796)
Income (expense) from income taxes	(82,849)	(78,718)

	Yeti GermanCo 1 GmbH	
	2023	2022
Group's share in net assets as of Jan. 1	**972,020**	**784,069**
Pro rata total comprehensive income	143,154	187,951
Dividends received	–	–
Pro rata equity contributions / reductions	–	–
Write-down on carrying amount	–	–
Group's share in net assets as of Nov. 13, 2023	**1,115,174**	**972,020**
Others	(2)	(2)
Share of assets in excess of shareholding	40,042	40,042
Change in Group reporting	(1,155,214)	–
Net carrying amount as of Nov. 13, 2023 / Dec. 31, 2022	**–**	**1,012,060**

The following table shows the summarized, pro rata financial data of the individually immaterial associates and joint ventures:

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Net profit for the year	4,987	24,060
Other comprehensive income	(826)	461
Total comprehensive income	**4,161**	**24,521**

Joint operations

Messer LLC, USA, holds a 50 % interest in joint arrangements named East Coast Nitrogen Company LLC, Delaware, USA, and East Coast Oxygen Company LLC, Delaware, USA, which were formed as partnerships with Air Products, USA, to produce liquid nitrogen, oxygen and argon for selected partners of the joint arrangement.

The associated assets and liabilities, income and expenses from joint operations are included in the consolidated financial statements according to the economically attributable share.

The following table shows the summarized pro rata financial data of the individually immaterial joint arrangements:

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Net profit for the year	(479)	–
Other comprehensive income	(1,212)	–
Total comprehensive income	**(1,691)**	**–**

17. Equity Investments and Other Financial Investments

“Equity investments” comprises equity investments in various companies that are neither consolidated nor accounted for using the equity method.

Other financial investments are investment securities; information on their measurement can be found under note 31 “Other Financial Instrument Disclosures”.

Non-current loan receivables include a loan granted to the non-consolidated Messer Hellas S.A. i.L., Greece, that has been written down in full.

18. Other Non-Current Receivables and Assets

	Dec. 31, 2023	Dec. 31, 2022
Other receivables	44,264	1,974
Finance lease receivables	3,417	4,960
Trade receivables	267	438
Miscellaneous financial assets	10	10
Financial assets	**47,958**	**7,382**
Miscellaneous non-financial assets	5,846	806
Non-financial assets	**5,846**	**806**
Total	**53,804**	**8,188**

Other receivables mainly relate to deposits amounting to K€ 37,976 that are deposited by a Brazilian company to a court escrow account and used to offset court fees or, in the event of a lawsuit going against Messer, for payments to the opposing party.

The finance lease receivables relate to the long-term letting of gas generation plants, which are recognized at the present value of the future lease payments.

The present value of the lease payments is derived from the lease agreements and is shown in the following table:

	Dec. 31, 2023	Dec. 31, 2022
Gross investment	**5,213**	**6,996**
Due within 1 year	1,623	1,693
Due between 1 and 5 years	3,482	5,118
Due after more than 5 years	108	185
Unearned finance income	(337)	(574)
Net investment	**4,876**	**6,422**
Due within 1 year	1,459	1,462
Due between 1 and 5 years	3,312	4,782
Due after more than 5 years	105	178

19. Inventories

	Dec. 31, 2023	Dec. 31, 2022
Raw materials and supplies	58,796	27,993
Work in progress	28,886	7,029
Finished goods and goods for resale	222,137	45,560
Total	**309,819**	**80,582**

Of the inventories recognized on December 31, 2023, K€ 33,356 (previous year: K€ 10,377) were measured at their net realizable value. There are impairment losses of K€ 22,004 (previous year: K€ 3,606) on the net realizable value. The impairment losses were recognized in the cost of sales. The amount of inventories recognized as an expense in the reporting period is K€ 372,368 (previous year: K€ 279,149).

20. Trade Receivables

	Dec. 31, 2023	Dec. 31, 2022
Trade receivables	641,011	271,232
Write-downs on receivables	(50,623)	(40,738)
Total	**590,388**	**230,494**

Please refer to the comments under note 31 “Other Financial Instrument Disclosures” regarding write-downs on receivables.

21. Contract Balances

All work relating to engineering contracts was billed in fiscal 2023 and 2022 and the corresponding amounts were reported in trade receivables.

Performance obligations from contracts with customers

The following table shows the Group’s performance obligations from long-term gas supply contracts with customers:

	Dec. 31, 2023	Dec. 31, 2022
Due in 1st year	526,853	107,620
Due in 2nd year	532,933	123,515
Due in 3rd year	550,289	144,896
Due after more than 3 years	2,575,177	510,349
Total	**4,185,252**	**886,380**

The amounts shown above essentially relate to contractually agreed fixed payments, known as take-or-pay installments. Variable obligations were not taken into account. Revenue is recognized on delivery of the gases.

22. Other Current Financial and Non-Financial Assets

	Dec. 31, 2023	Dec. 31, 2022
Other receivables from operating activities	13,429	383
Derivative financial instruments in hedges	12,658	–
Financial receivables from related parties	8,044	1,766
Deposits and guarantees	6,128	3,890
Lease receivables	1,459	1,462
Receivables from employees	908	668
Derivative financial instruments not in hedges	712	8,163
Outstanding deposits	–	2,718
Miscellaneous	49,806	1,835
Financial assets	**93,144**	**20,885**
Other tax receivables	77,161	14,492
Deferred expenses	21,440	8,786
Prepayments	6,819	7,903
Non-financial receivables from related parties	191	57
Miscellaneous	–	2,035
Non-financial assets	**105,611**	**33,273**
Total	**198,755**	**54,158**

Please refer to note 31 “Other Financial Instrument Disclosures” for more details on derivative financial instruments.

The “miscellaneous” item under financial assets includes a US company’s receivables from insurance companies in connection with legal disputes. Please refer to note 30 “Contingent Liabilities” for more information.

The largest portion, K€ 48,249, of other tax receivables results from the claims brought by a Brazilian company against the local authorities that are still pending a final court decision.

Deferred expenses consist of deferrals of IT costs, rent and various other items.

23. Cash and Cash Equivalents

	Dec. 31, 2023	Dec. 31, 2022
Cash, bank balances and checks	612,669	260,426
Cash equivalents	35	28
Cash and cash equivalents	**612,704**	**260,454**

The Group holds cash and cash equivalents of K€ 612,704 as of December 31, 2023 (previous year: K€ 260,454). Where possible, cash and cash equivalents are invested with banks and financial institutions with an investment grade rating or better. The ratings are based on a rating from Standard & Poor's or a comparable rating from another respected rating agency.

Based on the external ratings for the banks and financial institutes, it is assumed that cash and cash equivalents have a low risk of default.

Impairment amounts to K€ 0 as of December 31, 2023 (previous year: K€ 0).

24. Provisions for Employee Benefits

	Dec. 31, 2023	Dec. 31, 2022
Pension provisions	58,137	39,585
Provisions for other employee benefits	3,813	3,370
Provisions for employee benefits	**61,950**	**42,955**

Pension benefits are provided to employees in a number of countries through both defined benefit and defined contribution pension plans. The benefits vary according to legal, fiscal and economic circumstances of each country. Plan benefits are based on years of service and the level of employee compensation. Provisions for other employee benefits mainly relate to company or statutory severance benefits and early retirement benefits. Some of the obligations under defined benefit pension plans are covered by plan assets held in independent trust funds. The net assets of these funds are predominantly invested in real estate, fixed-income securities and negotiable equities.

The amount recognized in the statement of financial position is derived as follows:

	Dec. 31, 2023	Dec. 31, 2022
Present value of pension benefits funded by provisions	51,181	38,502
Present value of funded pension benefits	106,530	9,767
Present value of all pension benefits	**157,711**	**48,269**
Fair value of plan assets of all funds	(99,574)	(8,684)
Net liability recognized	**58,137**	**39,585**

The present value of the pension commitments funded by provisions relates predominantly to pension plans of Messer SE & Co. KGaA in the amount of K€ 33,735 (previous year: K€ 35,545). The present value of the funded pension commitments includes pension plans of Messer Canada Inc. in the amount of K€ 64,221 (previous year: K€ 0).

Messer SE & Co. KGaA utilizes defined benefit plans designed to pay beneficiaries an annual pension of 42 % of the total contributions paid in at the end of employment. The defined benefit pension plan consists of a basic pension and an additional pension. The basic pension includes the employee's regular remuneration up to the income threshold in the statutory pension scheme. The additional pension is granted for the portion of regular remuneration that exceeds the income threshold and is provided by the Company. Both are paid as a retirement pension once the employee retires after reaching the age of 60. The plans are available to all employees who were with Messer SE & Co. KGaA on May 7, 2004, and previously had a valid employment contract with Messer Griesheim GmbH.

Messer Canada Inc. operates a funded pension plan that grants members benefits in the form of a guaranteed lifetime pension. The amount of this pension is based on average income and is linked to age and length of service. In Canada, the defined benefit component of the plan has been closed to new entrants since January 1, 2005. Newcomers join a defined contribution plan. In the defined benefit pension plan, future service recognition was discontinued for the remaining employees, with final recognition ending on June 30, 2022.

The Canadian pension plan is managed by a pension committee and its assets are held in a pension fund that is legally independent of the company. The assets cannot be used for any purpose other than the payment of pension benefits and related administrative fees.

The minimum funding requirements in Canada require the company to make special payments to amortize any shortfalls in plan assets in relation to the relevant funding objectives. Instead of these special payments, collateral in the form of letters of credit up to a maximum of 15 % of the actuarial liability used to determine the funding objective is permitted. The company does not currently use any letters of credit.

In accordance with Canadian law, any remainder after accrued benefits have been provided to plan members and after the plan has ended may be returned to the company. Pension legislation in Canada may require the company to make a proposal to members and beneficiaries regarding the allocation of excess assets. Part of this surplus can be used by the company to reduce future contributions or to pay refundable administrative expenses.

The company also offers a limited number of active employees and retirees employer-paid life insurance and post-retirement health plans. The post-retirement benefit plan is not funded.

The defined benefit plans are managed by a mutual insurance pension fund that is legally independent from the Group. Defined benefit plans expose the Group to various risks. In addition to general actuarial risks such as longevity risk and interest rate risk, the Group is exposed to currency risk and capital market / investment risk. The risk exposures from the respective plans are not materially different.

The following table shows the reconciliation of the funding of defined benefit plans to the amounts recognized in the consolidated financial statements as of December 31, 2023 / 2022:

	2023		2022	
	Pension commitments funded by provisions	Pension commitments funded by funds	Pension commitments funded by provisions	Pension commitments funded by funds
Change in the present value of the defined benefit pension plans				
Present value of all pension benefits as of Jan. 1	**38,502**	**9,767**	**49,426**	**10,913**
Current service cost	287	240	751	234
Past service cost	361	–	454	–
Interest expense on obligations	1,622	842	431	56
Employee contributions	–	237	–	231
Actuarial losses / (gains)	(2,411)	8,350	(11,789)	(1,087)
Pension payments	(1,214)	(1,320)	(762)	(863)
Exchange rate changes	39	1,397	(9)	340
Change in Group reporting	13,995	87,057	–	–
Others	–	(40)	–	(57)
Present value of all pension benefits as of Dec. 31	**51,181**	**106,530**	**38,502**	**9,767**
Change in plan assets of all funds				
Fair value of plan assets of all funds as of Jan. 1	**–**	**8,684**	**–**	**8,424**
Interest income / (losses)	–	831	–	47
Income / (losses) (not including interest income / losses)	–	5,852	–	217
Contributions paid in – employer	–	399	–	378
Contributions paid in – employees	–	237	–	231
Pension payments	–	(1,339)	–	(863)
Unrecognized excess of plan assets	–	–	–	–
Exchange rate changes	–	1,230	–	250
Change in Group reporting		83,697	–	–
Others	–	(17)	–	–
Fair value of plan assets of all funds as of Dec. 31	**–**	**99,574**	**–**	**8,684**

The fair value of plan assets breaks down among the individual asset classes as follows. The amounts shown are weighted averages:

	Dec. 31, 2023 Fair value		Quoted on an active market	Not quoted on an active market	Dec. 31, 2022 Fair value		Quoted on an active market	Not quoted on an active market
Equity instruments / funds	43,464	44 %	5,763	37,701	1,513	17 %	–	1,513
Bonds	34,339	34 %	7,778	26,561	1,571	18 %	1,571	–
Qualifying insurance policies	7,265	7 %	–	7,265	–	–	–	–
Real estate	6,485	7 %	1,375	5,110	1,269	15 %	–	1,269
Cash funds	926	1 %	926	–	222	3 %	222	–
Other assets	7,095	7 %	1,050	6,045	4,109	47 %	–	4,109
Total	**99,574**	**100 %**	**16,892**	**82,682**	**8,684**	**100 %**	**1,793**	**6,891**

Plan assets are held exclusively to fulfill defined benefit obligations. The funding of these obligations constitutes a reserve for future cash outflows. This is based on statutory regulations in some countries and is voluntary in others. Given the diversity of pension benefits within the Group, the interest rate is not hedged using financial instruments. Following guidelines stipulated by local management, the bodies responsible for the various pension funds decide on the best possible investment strategy commensurate with the age of beneficiaries and the timing of future payments, in accordance with applicable legislation. Most of the plans are not intended to maximize profit, but rather to ensure optimal provision for the companies and employees concerned. Our biggest fund in Switzerland adheres to the principle of sustainability. The capital entrusted to it is invested in accordance with ESG criteria. Funds held to pay future benefits are invested responsibly.

Actuarial losses / (gains) arising on the remeasurement of the present value of pension benefits comprise the following:

	Jan. 1 – Dec. 31, 2023		Jan. 1 – Dec. 31, 2022	
	Pension commitments funded by provisions	Pension commitments funded by funds	Pension commitments funded by provisions	Pension commitments funded by funds
Experience adjustments	(3,553)	(122)	3.324	336
Change in financial assumptions	1,142	8,472	(15,113)	(1,423)
Change in biometric assumptions	–	–	–	–
Actuarial losses / (gains) arising on the remeasurement of the present value of pension benefits	**(2,411)**	**8,350**	**(11,789)**	**(1,087)**

The following items were recognized in profit or loss in the reporting period:

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Current service cost	527	985
Past service cost	361	454
Interest expense on obligations	2,464	487
Expected return on plan assets	(831)	(47)
Others	(57)	(57)
Total amounts recognized in profit and loss	**2,464**	**1,822**

The calculation of obligations and, in certain cases, the related plan assets are based on the following actuarial parameters (reported as a weighted average):

	Dec. 31, 2023 in percent	Dec. 31, 2022 in percent
Discount rate	4.15	3.65
Expected rate of salary increases	2.74	3.76
Expected return on plan assets	4.38	2.86
Expected rate of pension increases	1.11	2.19

The 2018 G Heubeck mortality tables were used to measure the pension obligations for the German Group companies. The pension obligation in Switzerland was measured using the BVG 2020 GT mortality tables. The CPM 2014 tables were used to measure pension obligations in Canada. Mortality tables specific to each company were used to measure the pension obligations for other Group companies.

The present value of the defined benefit obligation relates to the following groups of beneficiaries:

	Dec. 31, 2023		Dec. 31, 2022	
Active beneficiaries	88,766	56%	34,487	71%
Beneficiaries who have left the company	13,430	9%	4,265	9%
Retired employees	55,515	35%	9,517	20%
Total	**157,711**	**100%**	**48,269**	**100%**

The weighted average term of the defined benefit obligation as of December 31, 2023 is 10.1 years (previous year: 14.0 years).

An increase or decrease in the discount rate by 50 basis points would have the following effect on the present value of pension obligations as of December 31, 2023:

Change in discount rate in basis points	- 50	-/+ 0	+ 50
Present value of all pension benefits	167,861	157,711	148,969

The sensitivity calculations are based on the average term of the pension obligations calculated as of December 31, 2023. The calculation was made for the discount rate, the actuarial parameter classified as material. As the sensitivity analysis is based on the average duration of the expected pension obligations and therefore the expected payment dates are not taken into account, it only produces approximate information or trend statements.

The Group anticipates contributions to the defined benefit plans of K€ 11,374 in 2024.

25. Other Provisions

2023	Litigation	Restoration obligations	Environ-mental risks	Personnel	Miscella-neous	Total
As of Jan. 1, 2023	**3,183**	**693**	**450**	**17,484**	**17,946**	**39,756**
Addition	7,314	785	441	28,595	15,293	52,428
Utilization	(2,086)	(300)	(339)	(15,261)	(6,492)	(24,478)
Unused amounts reversed	(902)	(31)	–	(2,504)	(5,863)	(9,300)
Interest effect	–	854	–	(19)	–	835
Change in Group reporting	52,652	34,684	18,879	19,682	8,756	134,653
Transfer	–	–	–	–	–	–
Currency translation	(1,457)	(1,210)	(726)	(65)	44	(3,414)
As of Dec. 31, 2023	**58,704**	**35,475**	**18,705**	**47,912**	**29,684**	**190,480**
Non-current	**15,361**	**34,998**	**14,386**	**8,766**	**1,209**	**74,720**
Current	**43,343**	**477**	**4,319**	**39,146**	**28,475**	**115,760**

Contracts for which provisions have been recognized essentially have a broad range of remaining terms of between one and 10 years.

The provisions for litigation essentially relate to the areas of antitrust, HR and civil litigation. For more information on two provisions for litigation risks in the US and Spain, please refer to note 30 “Contingent Liabilities”.

The provisions for contractually agreed restoration obligations for existing plants essentially relate to Messer LLC, USA. Messer North America Inc., USA, and Airco Gases of Canada, Canada, accounted for a significant portion of the provisions for environmental risks, which were recognized for long-term plant cleaning obligations. Reversals of restoration obligations include an amount of K€ 6 that, in accordance with IFRIC 1, was recognized as a negative effect in additions to plant and machinery on the basis of measurement changes in restoration obligations.

The long-term provisions for staff as of December 31, 2023 primarily comprise anniversary obligations. The short-term provisions for staff predominantly relate to bonus payments and outstanding vacation.

Current “miscellaneous” provisions essentially include amounts for transportation and diesel costs as well as follow-up costs for customer orders, risk provisions for legal matters. Please refer to the comments under note 30 “Contingent Liabilities”. The item also includes a provision to a non-consolidated affiliate of K€ 4,372.

26. Financial Liabilities

We concluded a syndicated multi-currency term, revolving and bridge facilities agreement (RFA I) on May 27, 2023, to acquire CVC’s shares in Yeti German Co 1 GmbH. The RFA I was executed by BNP Paribas, Deutsche Bank Luxembourg S.A., JP Morgan Chase Bank N.A., London Branch and UniCredit Bank AG (now UniCredit Bank GmbH) as appointed principal brokers, with UniCredit Bank AG (now UniCredit Bank GmbH) acting as the agent. Other financial institutions are available as lenders under RFA I. The RFA I consists of five lines:

- EUR Term Loan Facility (Term Facility 1) for € 600 million maturing on November 13, 2028; the interest rate is EURIBOR (Euro Inter Bank Offered Rate) plus the margin. This is dependent on the ratio of net debt to EBITDA.

- USD Term Loan Facility (Term Facility 2) for USD 700 million maturing on November 13, 2028; the interest rate is Term SOFR (Secured Overnight Financing Rate) plus the margin. This is dependent on the ratio of net debt to EBITDA plus a premium depending on the term of the interest period.

- Revolving facility of € 600 million with a maturity date of November 13, 2028, and an option to extend it by one or two years with the consent of the lenders. The interest rate on the revolving facility is based on Term SOFR or EURIBOR in the currency in which the facility is drawn, plus a margin. This is dependent on the ratio of net debt to EBITDA.

- EUR Bridge Term Loan Facility (EUR Bridge Facility) for € 1,450 million with a maturity date of November 13, 2024, and up to two extension options of six months each that the Messer Group can exercise unilaterally. The interest rate for the EUR Bridge Facility is made up of EURIBOR plus the margin. The margin automatically increases every three months.

- USD Bridge Term Loan Facility (USD Bridge Facility) for USD 900 million with a maturity date of November 13, 2024, and up to two extension options of six months each that the Messer Group can exercise unilaterally. The interest rate for the USD Bridge Facility is made up of Term SOFR plus the margin plus a premium of 0.20 %. The margin automatically increases every three months.

The Company must comply with a financial covenant in conjunction with RFA I. Thus, the ratio of net debt to EBITDA must not exceed a defined level.

The Messer Group was financed by two credit facilities until November 13 / 16, 2023:

- Revolving facilities agreement (“RFA II”) of € 200 million with a maturity date of December 18, 2023, and an option to extend it by one or two years. The outstanding balance was € 50 million. The lenders were UniCredit Bank AG, Bayerische Landesbank, ING Bank a Branch of ING-DiBa AG and Landesbank Hessen-Thüringen Girozentrale. The respective interest rate for RFA II consisted of the Interbank Offered Rate (IBOR) in the currency of utilization plus the margin. The margin depended on the ratio of net debt to EBITDA. RFA II was terminated and replaced in full on November 13, 2023.

- US private placement (“USPP III”) provided by an insurance company (Pricoa). The USPP (€ 87.8 million at 1.49 % p. a.) had a term of five years with a bullet payment due on January 29, 2024. USPP was terminated and replaced in full on November 16, 2023. The outstanding balance was € 87.8 million.

The Messer Group temporarily assumed the existing financial liabilities of Messer Industries GmbH and Messer Industries USA, Inc. through the acquisition of the shares in Yeti German Co 1 GmbH on November 13, 2023 (“closing”). This was a credit agreement with a banking group led by Citibank N.A. that contained three facilities:

- Facility B1 for an original amount of USD 2,225 million, with a term until March 1, 2026. The borrower was Messer Industries USA, Inc. The loan was outstanding at the time of closing with a nominal amount of USD 1,584,875,000 and was repaid in full on November 16, 2023.

- Facility B2 for an original amount of EUR 540 million, with a term until March 1, 2026. The borrower was Messer Industries USA, Inc. The loan was outstanding at the time of closing with a nominal amount of EUR 245,000,000 and was repaid in full on November 16, 2023.

- Revolving facility for USD 450 million, with a term until March 1, 2024. The borrowers were Messer Industries GmbH and Messer Industries USA, Inc. At the time of closing, the loan had only been utilized for guarantees. Some of the guarantees were released or rolled into the Messer Group’s new financing. The revolving facility was terminated in full on November 16, 2023.

The unutilized credit facilities amount to € 508.2 million as of December 31, 2023 (previous year: € 67.9 million).

The loan balances and maturities are as follows as of December 31, 2023, and December 31, 2022:

2023	Interest rate p. a.	Credit facility	Utilization	Due date
€ 600.0 million, RFA I – Term Facility 1	5.532 %	600,000	600,000	Flexible until November 13, 2028
€ 1,450.0 million, RFA I – EUR Bridge Facility	4.607 %	1,450,000	1,450,000	Flexible until November 13, 2024
$ 700.0 million, RFA I – Term Facility(1)	7.478 %	633,484	633,484	Flexible until November 13, 2028
$ 900.0 million, RFA I – USD Bridge Facility(1)	6.208 %	814,480	814,480	Flexible until November 13, 2024
€ 600.0 million, RFA I Revolving Facility	–	368,228	–	Flexible until November 13, 2028
€ 40.0 million, RFA I – ancillary facility(2)	–	37,741	–	Flexible until November 13, 2028
€ 15.0 million, RFA I – ancillary facility	4.900 %	15,000	13	Flexible until November 13, 2028
€ 27.9 million, RFA I – ancillary facility(3)	–	10,766	–	Flexible until November 13, 2028
€ 40.0 million, RFA I – ancillary facility(4)	–	10,762	–	Flexible until November 13, 2028
€ 40.0 million, RFA I – ancillary facility(5)	–	10,272	–	Flexible until November 13, 2028
€ 37.4 million, RFA I – ancillary facility	–	37,415	–	Flexible until November 13, 2028
€ 30.0 million, RFA I – ancillary facility(6)	6.857 %	30,000	12,675	Flexible until November 13, 2028
€ 1.5 million, RFA I – ancillary facility(7)	–	691	–	Flexible until November 13, 2028
Other local loans(8)	5.188 %	98,960	98,960	Various
Lease liabilities(8)	4.708 %	n / a	164,384	Various
		4,117,799	**3,773,996**	
Transaction costs			(21,752)	
		4,117,799	**3,752,244**	

(1) Foreign currencies were translated using the rate as of December 31, 2023
(2) K€ 2,259 was utilized as a guarantee; foreign currencies were translated using the rate as of December 31, 2023
(3) K€ 17,091 was utilized as a guarantee; foreign currencies were translated using the rate as of December 31, 2023
(4) K€ 29,238 was utilized as a guarantee; foreign currencies were translated using the rate as of December 31, 2023
(5) K€ 29,728 was utilized as a guarantee; foreign currencies were translated using the rate as of December 31, 2023
(6) Weighted interest rate as of December 31, 2023; foreign currencies were translated using the rate as of December 31, 2023
(7) K€ 809 was utilized as a guarantee; foreign currencies were translated using the rate as of December 31, 2023
(8) Weighted interest rate as of December 31, 2023; foreign currencies were translated using the rate as of December 31, 2023

2022	Interest rate p. a.	Credit facility	Utilization	Due date
€ 87.8 million, USPP III	1.490 %	87,758	87,758	January 29, 2024
€ 114.3 million, RFA II	2.490 %	114,287	90,000	Flexible until December 18, 2023
€ 10.0 million, RFA II – ancillary facility(1)	2.330 %	4,858	31	Flexible until December 18, 2023
€ 20.0 million, RFA II – ancillary facility(2)	11.250 %	20,000	17,732	Flexible until December 18, 2023
€ 21.5 million, RFA II – ancillary facility	2.390 %	21,500	11,721	Flexible until December 18, 2023
€ 14.0 million, RFA III – ancillary facility	0.000 %	14,000	–	Flexible until December 18, 2023
€ 11.0 million, RFA II – ancillary facility(3)	0.750 %	10,580	5,826	Flexible until December 18, 2023
€ 8.0 million, RFA II – ancillary facility	0.000 %	8,000	–	Flexible until December 18, 2023
€ 1.2 million, RFA II – ancillary facility(4)	0.000 %	–	–	Flexible until December 18, 2023
Other local loans(5)	6.714 %	79,424	79,424	Various
Lease liabilities(5)	3.212 %	n / a	24,616	Various
		360,407	**317,108**	
Transaction costs			(488)	
			316,620	

(1) K€ 5,142 was utilized as a guarantee
(2) Interest rate (PLN) as of December 31, 2022; foreign currencies were translated using the rate as of December 31, 2022
(3) K€ 420 was utilized as a guarantee; weighted interest rate (PLN) as of December 31, 2022; foreign currencies were translated using the rate as of December 31, 2022
(4) K€ 1,218 was utilized as a guarantee; foreign currencies were translated using the rate as of December 31, 2022
(5) Weighted interest rate as of December 31, 2022; foreign currencies were translated using the rate as of December 31, 2022

Transaction costs relate to the arrangement fees paid to the financing banks and various legal and advisory costs directly attributable to the new financing. These costs are recognized as an expense over the terms of the liabilities using the effective interest method in accordance with IFRS 9.

The following table provides an overview of the Group's financial liabilities:

	Dec. 31, 2023	Dec. 31, 2022
Non-current		
Liabilities to banks / insurance companies	1,280,878	140,189
Lease liabilities	133,934	19,336
Miscellaneous	1,435	2,834
Less transaction costs	(10,116)	(21)
	1,406,131	**162,338**
Current		
Liabilities to banks / insurance companies	2,324,295	147,915
Lease liabilities	30,450	5,280
Miscellaneous	3,004	1,554
Less transaction costs	(11,636)	(467)
	2,346,113	**154,282**
Total financial liabilities, net	**3,752,244**	**316,620**
Liabilities with a fixed interest rate	210,223	115,208
Liabilities with variable interest rates (hedged)	–	–
Liabilities with variable interest rates (not hedged)	3,563,773	201,900
Total financial liabilities, gross	**3,773,996**	**317,108**
Weighted average nominal interest rates for liabilities:		
To banks / insurance companies including interest rate hedges	5.67 % p. a.	4.01 % p. a.
Leases	4.71 % p. a.	3.21 % p. a.
Other loans	3.09 % p. a.	0.92 % p. a.

The average interest rate on financial liabilities was 5.62 % p. a. as of December 31, 2023 (previous year: 3.91 % including interest rate swap agreement).

Financial liabilities (not including transaction costs) are due as follows:

2024	2,357,749
2025	50,287
2026	26,768
2027	22,984
2028	1,262,572
After 2028	53,636
	3,773,996

	2023	2022
Non-current financial liabilities as of Jan. 1	**162,338**	**158,936**
Cash changes		
New debt raised	1,259,819	29,263
Payments of principal	(17,537)	(27)
Non-cash changes		
Net change in lease liabilities	136,420	6,048
Changes in maturities	(113,084)	(30,450)
Currency translation	(3,525)	452
Exchange rate changes	(14,055)	(2,350)
Change in Group reporting	5,929	–
Transaction costs	(10,174)	466
Non-current financial liabilities as of Dec. 31	**1,406,131**	**162,338**

	2023	2022
Current financial liabilities as of Jan. 1	**154,282**	**227,926**
Cash changes		
New debt raised	2,336,659	114,421
Payments of principal	(1,958,533)	(217,135)
Non-cash changes		
Net change in lease liabilities	18,307	824
Changes in maturities	113,084	30,450
Currency translation	62	(886)
Exchange rate changes	(45,014)	(1,347)
Change in Group reporting	1,738,525	–
Transaction costs	(11,259)	29
Current financial liabilities as of Dec. 31	**2,346,113**	**154,282**

27. Other Non-Current Liabilities

	Dec. 31, 2023	Dec. 31, 2022
Miscellaneous liabilities	4,734	100
Obligations in connection with the issue of equity investments	391,929	–
Financial liabilities	**396,663**	**100**
Government grants	1,338	1,645
Investment grants	20,629	–
Non-financial liabilities	**21,967**	**1,645**
Total	**418,630**	**1,745**

Government grants are reversed to other operating income in the income statement.

Investment grants mainly include rights of customers to obtain a product from the Speyer production site (K€ 11,663) and Messer Industriegase GmbH (K€ 7,500).

The obligation relates to the settlement of the earn-out provision in connection with the capital increase (“GIC transaction”).

28. Other Current Liabilities

	Dec. 31, 2023	Dec. 31, 2022
Interest payable	10,749	1,533
Liabilities to related companies	8,349	3,710
Deposits received for hardware	5,332	5,276
Other liabilities to customers	4,296	329
Derivative financial instruments with an effective hedge	3,767	–
Derivative financial instruments without an effective hedge	1,139	1,550
Miscellaneous liabilities	48,575	20,812
Financial liabilities	**82,207**	**33,210**
Deferred income and other deferred liabilities	177,738	46,255
Payroll liabilities	84,292	22,927
Other taxes liabilities	45,726	11,216
Liabilities to social security providers	29,683	19,262
Advance payments received on orders	27,555	13,579
Prepayments received from related parties	1,800	81
Other financial obligations	13,138	–
Non-financial liabilities	**379,932**	**113,320**
Total	**462,139**	**146,530**

Interest payable in the amount of K€ 10,749 mainly results from bank financing. Please refer to note 26 “Financial Liabilities” for more information in this context.

Liabilities to Messer Holding GmbH of K€ 6,485 make up the largest share of liabilities to related companies.

Please refer to note 31 “Other Financial Instrument Disclosures” for more details on derivative financial instruments.

Miscellaneous financial liabilities include K€ 7,801 (previous year: K€ 11,366) for outstanding dividends to Chinese joint venture partners and € 32 million in liabilities owed by a US subsidiary to Linde, which were assumed as part of the acquisition of the Messer Industries Group in November 2023. These liabilities are based on a sale and purchase agreement for the North and South America business acquired by the Messer Industries Group from Linde and Praxair in 2019.

Deferred income and other deferred liabilities include liabilities for outstanding invoices of K€ 125,638 (previous year: K€ 6,606). The remainder relates to deferred revenue (K€ 11,903), deferred rental income for gas cylinders (K€ 11,150), government grants (K€ 278) and other deferrals (K€ 28,769).

Other non-financial obligations consist mainly of contingent liabilities of K€ 13,014 owed by Messer Gases Ltda., Brazil that were recognized as part of the purchase price allocation. Please refer to note 3 “Consolidated Companies” in the notes to the consolidated financial statements for more information.

29. Equity

Issued capital

The issued capital was increased by 29,824,844 shares (22.97 %) amounting to K€ 29,825 by way of a notarially recorded capital increase resolution dated November 13, 2023. The capital increase was entered in the commercial register on November 28, 2023. Issued capital was K€ 129,825 as of December 31, 2023.

Capital reserves

The capital reserves contain contributions from the shareholders and were increased by K€ 1,950,920 by a resolution dated November 13, 2023. Of this amount, K€ 391,929 is deferred as other non-current financial liabilities until the earn-out requirements are met. Pro rata equity procurement costs of K€ 6,648, net of deferred taxes, were deducted. The capital reserves were K€ 2,089,280 as of December 31, 2023.

Other reserves

In fiscal 2005, Messer SE & Co. KGaA acquired further shares in Messer Tehnogas AD, Serbia-Montenegro, amounting to around 14 %, from non-controlling shareholders. In conjunction with the consolidation of these additional shares, there was a notional negative difference of K€ 5,905 that was recognized in other reserves.

In fiscal 2011, we increased our majority interest in Messer Haiphong Industrial Gases Co. Ltd., Vietnam, to 100 %. In conjunction with the consolidation of these additional shares, there was a notional positive difference of K€ 1,798 that was offset against the Group’s other reserves in other comprehensive income.

In fiscal 2013, we increased our majority interest in Messer MOL Gáz Kft., Hungary, to 100 %. In conjunction with the consolidation of these additional shares, there was a notional positive difference of K€ 462 that was offset against the Group's other reserves in other comprehensive income.

In fiscal 2014, we reduced our 100 % interest in ASCO Kohlensäure AG, Switzerland, to 70 %. In conjunction with the consolidation of these non-controlling interests, there was a notional positive difference of K€ 1,317 that was offset against the Group's other reserves in other comprehensive income.

In fiscal 2015, Messer SE & Co. KGaA acquired the remaining 50 % of shares in Messer Information Services GmbH, Groß-Umstadt, from Messer Investment Holding GmbH (formerly: MEC Holding GmbH), Bad Soden. As both Messer SE & Co. KGaA and Messer Investment Holding GmbH (formerly: MEC Holding GmbH) are ultimately controlled by the same party before and after the acquisition, this was not a business combination as referred to by IFRS 3, but rather a transaction under joint control. In conjunction with the consolidation of these additional shares, there was a notional positive difference of K€ 2,400 that was recognized in other reserves.

In fiscal 2016, Messer Griesheim (China) Investment Co. Ltd., China, increased its majority interests in Shaoxing Messer Gas Products Co., Ltd. ("Shaoxing") and Messer Sunshine (Ningbo) Gas Products Co. Ltd., ("Ningbo") to 100 %. In conjunction with the consolidation of these additional shares, there was a notional negative difference of K€ 474 for Shaoxing and a notional positive difference of K€ 357 for Ningbo, which were offset against the Group's other reserves in other comprehensive income.

In November 2018, Messer Griesheim (China) Investment Co. Ltd., China, reduced its majority interests in Shaoxing Messer Gas Products Co., Ltd. ("Shaoxing") and Messer Sunshine (Ningbo) Gas Products Co. Ltd., ("Ningbo") by 30 % from 100 % to 70 %. In conjunction with the reduction of majority interests, there was a notional positive difference of K€ 336 for Shaoxing and a notional negative difference of K€ 1,737 for Ningbo, which were offset against the Group's other reserves in other comprehensive income.

In January 2019, Messer Griesheim (China) Investment Co. Ltd., China, acquired all shares in Chongqing Pangang Messer Gas Products Co., Ltd. from Sichuan Pangang Messer Gas Products Co., Ltd., in which Messer Griesheim (China) Investment Co. Ltd. holds 60 %. In conjunction with the increase in the majority interest, there was a notional positive difference of K€ 7,066 that was offset against the Group's other reserves in other comprehensive income.

In March 2020, Messer increased its majority interests in Universal Industrial Gas Sdn. Bhd. ("UIG"), Malaysia, and Messer (Thailand) Co., Ltd. ("Thailand"), Thailand, to 75 % and 100 %, respectively. The consolidation of these additional shares resulted in a notional positive difference of K€ 286 for UIG and a notional positive difference of K€ 197 for Thailand, which were offset against the Group's other reserves in other comprehensive income.

In November 2020, Messer Griesheim (China) Investment Co. Ltd., China, increased its majority interests in Shaoxing Messer Gas Products Co., Ltd. ("Shaoxing"), China, and Messer Sunshine (Ningbo) Gas Products Co. Ltd., ("Ningbo"), China, to 100 %. In conjunction with the consolidation of these additional shares, there was a notional negative difference of K€ 150 for Shaoxing and a notional positive difference of K€ 1,158 for Ningbo, which were offset against the Group's other reserves in other comprehensive income.

In December 2020, Messer Romania Gaz S.R.L., Romania, acquired the minority interests held by the Romanian joint venture partner Energomontaj in Messer Energo Gaz S.R.L. (“Energo”), Romania, and now holds 100 % of its shares. In conjunction with the consolidation of these additional shares, there is a notional positive difference of K€ 19 for Energo that was also offset against the Group’s other reserves in other comprehensive income.

In January 2023, Messer Griesheim (China) Investment Co. Ltd., China, reduced its majority interests in Shaoxing Messer Gas Products Co., Ltd. (“Shaoxing”) and Messer Sunshine (Ningbo) Gas Products Co. Ltd., (“Ningbo”) by 30 % from 100 % to 70 %. In conjunction with the reduction of majority interests, there was a notional positive difference of K€ 2,156 for Shaoxing and a notional negative difference of K€ 566 for Ningbo, which were offset against the Group’s other reserves in other comprehensive income.

Retained earnings

Retained earnings comprise the undistributed past earnings of consolidated companies and the effects of the remeasurement of the net defined benefit pension liability, net of deferred taxes. In accordance with section 150(2) AktG, K€ 2,982 (previous year: K€ 2,357) of the net income for the year (HGB) was transferred to the legal reserve. The legal reserve of K€ 12,982 is shown in the consolidated financial statements as a component of retained earnings.

Due to the discontinuation of equity method accounting for Yeti GermanCo 1 GmbH as of November 13, 2023, the amounts previously recognized in other comprehensive income related to the remeasurement of the net defined benefit obligation have been reclassified to retained earnings, net of deferred taxes.

Other components of equity

This item is used to report changes in equity in other comprehensive income, to the extent that such changes do not relate to equity transactions with shareholders (e. g. capital increases or distributions). This includes the difference in currency translation (through other comprehensive income), the result of net investments in foreign operations of K€ 5,794 (previous year: K€ -574), the results of measuring equity investments of K€ 199 (previous year: K€ 157) and changes in the fair value measurement of derivatives used for hedging purposes.

Due to the discontinuation of equity method accounting for Yeti GermanCo 1 GmbH as of November 13, 2023, the amounts previously recognized in other comprehensive income have been reclassified to the income statement, net of deferred taxes.

Non-controlling interests

This item comprises the shares held by other shareholders in the equity of consolidated subsidiaries. Key non-controlling interests are held by other shareholders in China and Serbia.

Besides the distributions of prior-year results, the dividend payments to other shareholders include payments to other shareholders under company law in proportion to their interests.

The following companies have material non-controlling interests:

Name and registered office of subsidiary	Country	Shareholding in percent	
		Dec. 31, 2023	Dec. 31, 2022
Hunan Xianggang Messer Gas Products Co., Ltd., Xiangtan City, Hunan Province - subgroup	China	45 %	45 %
Sichuan Pangang Messer Gas Products Co., Ltd., Panzhihua, Sichuan Province - subgroup	China	40 %	40 %

The following table shows the summarized financial data of the significant subsidiaries with material non-controlling interests:

	Hunan Xianggang Messer Gas Products Co., Ltd. - subgroup		Sichuan Pangang Messer Gas Products Co., Ltd. - subgroup	
	2023	2022	2023	2022
Revenue	**220,786**	**233,011**	**144,681**	**145,348**
Net profit for the year	42,672	45,188	43,344	41,242
thereof attributable to non-controlling interests	19,419	19,125	18,253	17,419
Other comprehensive income	(17,009)	(6,302)	(11,693)	(4,220)
Total comprehensive income	**25,663**	**38,886**	**31,651**	**37,022**
thereof attributable to non-controlling interests	12,702	16,629	13,575	15,732
Non-current assets	206,863	197,667	67,604	70,674
Current assets	146,891	153,607	160,687	168,107
Non-current liabilities	3,211	2,867	2,075	2,450
Current liabilities	43,789	60,003	27,304	36,428
Net assets	**306,754**	**288,404**	**198,912**	**199,903**
thereof attributable to non-controlling interests	83,608	81,548	56,878	58,653
Distributions to non-controlling interests	**(7,051)**	**(7,623)**	**(13,057)**	**(14,399)**
Cash flow from operating activities	32,296	44,831	37,859	33,183
Cash flow from investing activities	(30,945)	(19,779)	(5,564)	2,053
Cash flow from financing activities	(7,643)	(18,692)	(32,974)	(36,386)
Changes in cash and cash equivalents	**(6,292)**	**6,360**	**(679)**	**(1,150)**

Proposal for the appropriation of profits by the parent company

The Management Board proposes to distribute K€ 40,000 from net income to the shareholders and carry the remainder forward to new account.

Capital management

A strong capital base is a key requirement for Messer SE & Co. KGaA for ensuring the continued existence of the Company and the Messer Group as a going concern. The items reported in the statement of financial position are considered equity. Other items with the legal status of equity or other instruments similar in nature to equity are not used.

The owners, the Management Board and the Supervisory Board ensure that the trust of the lending banks and insurance companies, creditors and the market in general in the Messer Group is maintained by a strong capital base. The new loan agreements no longer include an obligation to maintain minimum capital. Equity, including non-controlling interests, amounts to K€ 7,528,635 as of December 31, 2023 (previous year: K€ 2,684,081).

The Management Board and the Supervisory Board regularly review compliance with targets under loan agreements and report on this to the lending banks / insurance companies.

30. Contingent Liabilities

Guarantees

Obligations from issuing guarantees were as follows:

€ million	Dec. 31, 2023		Dec. 31, 2022	
	Maximum potential obligation	Amount reported as a liability	Maximum potential obligation	Amount reported as a liability
Guarantees	175.1	–	16.4	–

Financial guarantees essentially relate to commitments to cover the contractual obligations of the respective principal debtors. Pledges given to secure the liabilities of Group companies were eliminated in consolidation and are thus not included in the above table.

Other financial obligations

The Group has undertaken to invest in the acquisition, construction and maintenance of various production facilities. Obligations of this kind relate to the future purchase of plant and equipment at market prices. There are also long-term contracts giving rise to obligations. The commitments under orders, investment projects and long-term contracts amounted to K€ 759,237 as of December 31, 2023 (previous year: K€ 163,952).

Litigation

The Group recognizes provisions for legal disputes for court proceedings to the extent that the Group determines that an unfavorable outcome is probable and the amount of the loss can be reasonably estimated. For the other legal disputes, the Group considers the occurrence of a loss to be improbable, or the loss – or the framework of the potential loss – cannot be reasonably estimated at the current time. The outcome of legal disputes is always difficult to predict and results can differ from the current assessment.

On January 28, 2021, six employees from the Foundation Food Group (“FFG”, previously Prime Pak Foods) in Gainesville, Georgia, USA, suffocated while they worked in a freezer room of a FFG poultry processing plant, after liquid nitrogen leaked from a tank in freezing equipment supplied by Messer LLC. Eleven further persons were taken to hospital. Others may have come into contact with nitrogen but were not taken to hospital.

Messer leased the freezing equipment operated with liquid nitrogen and the related equipment to FFG and installed it in December 2020. Messer also sold nitrogen, which was stored in an external tank, to FFG, to operate the freezing equipment. In the framework of the product supply and lease agreement with Messer, FFG is responsible for operating and maintaining the freezing equipment.

Separate suits were filed against Messer by the families of the six dead and individual FFG employees claiming for injuries. Due to the current legal situation and the pending proceedings, Messer estimated the expenses resulting from the incident and recognized an appropriate provision for possible plaintiff claims. As of December 31, 2023, all civil lawsuits for wrongful death and personal injury had been settled. Settlement amounts and legal costs are covered by insurance.

Disclosing the exact amount recognized as a provision / for the settlement could seriously negatively impact Messer’s position in the pending legal proceedings. For this reason, Messer is not disclosing this information.

On December 1, 2020, two employees at the Golden West Food Group (“GWFG”) in Vernon, California, USA, suffocated while working in a freezer room with Cryowave freezing equipment. The freezing equipment in question had been installed at GWFG in 2014 and, under the relevant contract, GWFG was responsible for operating and maintaining the freezing equipment. The relatives of the two deceased employees initially took legal action against the employer, GWFG, expanding this to Messer several months later. The two wrongful death cases were merged and are making slow progress. Messer is taking action against these claims and denies any liability.

In November 2022, an employee at a cleaning company that provided cleaning services to GWFG filed a complaint against Messer alleging claims for damages for personal injury allegedly suffered as a result of the accident. Messer is also taking action against this claim and denies any liability.

The discovery process is ongoing. Messer has recognized provisions for the two wrongful death lawsuits. No provision has yet been recognized for the most recent claim by an uninvolved employee as assessing the claim would be premature. Disclosing the exact amount recognized as a provision for the wrongful death claim could jeopardize Messer’s position in the pending legal proceedings. For this reason, Messer is not disclosing this information.

Legal and settlement costs are covered by insurance. The insurance company is actively involved in the defense and has paid all related attorney costs that exceed the deductible. Messer thus believes that the insurance company will continue to pay or reimburse all legal and settlement costs and has recognized corresponding claims to repayment in the statement of financial position. Publication of the exact amount recognized as a claim to repayment could seriously and negatively impact Messer’s position in the pending court case. For this reason, Messer is not disclosing this information.

A search was conducted at Messer Ibérica de Gases S.A., Spain, in November 2017. In this context, documents were confiscated relating to permits to build and operate our air separation units and a donation for the renovation of a city hall. A decision on whether an action will be filed is still pending.

It is currently assumed that the probability of a criminal conviction is low. We consider it likely that fines will be imposed in administrative proceedings initiated separately at a later date. The Company has recognized a provision of € 5 million in accordance with IFRS.

After the Spanish regulator issued the Spanish power utility Endesa with a payment order for its grid usage fee, Endesa invoiced Messer Ibérica de Gases S.A. for an additional charge in the same amount of € 35.6 million for allegedly underpaying its grid usage fee in the period 2008 to February 2021. In the opinion of our local Spanish lawyers, both Endesa and Messer Ibérica de Gases S.A. have strong arguments for successfully defending against the claim for payment made by the Spanish regulator in its initial notice in an appeal, and thus also against the claim made by Endesa against Messer Ibérica de Gases S.A.

Even if a claim to payment were assumed, our local lawyers believe there are good arguments for reducing the amount claimed to less than € 10 million on the basis of the statute of limitations and the only partial utilization of electricity by Messer Ibérica de Gases S.A.

Messer Ibérica de Gases S.A. has recognized a provision of € 5.4 million for any fines for applications not made in accordance with the proper formal requirements and thus any permits not formally in place.

A third investigation is pending. The investigative records have not yet been disclosed; hence the subject and target of the investigation are still not yet known.

The proceedings are expected to take up to five years.

Other legal matters

Companies of the Messer Group are party to or involved in court and arbitration proceedings in various countries. Appropriate risk provisions have been recognized for these proceedings, provided that the obligation is reasonably certain.

31. Other Financial Instrument Disclosures

The following table shows the carrying amounts and fair values of the individual financial assets and financial liabilities for each class of financial instruments as of December 31, 2023. It does not contain any information on the fair value of financial assets and financial liabilities not measured at fair value when carrying amount is a reasonable approximation of fair value.

	Measurement category as per IFRS 9	Carrying amount as of Dec. 31, 2023	Measurement in accordance with IFRS 9			Measurement in accordance with IFRS 16	Fair value as of Dec. 31, 2023
			Amortized cost	Fair value through OCI	Fair value through profit or loss		
Financial assets							
Non-current loan receivables	AC	1	1	–	–	–	1[1]
Miscellaneous financial investments	FVOCI	376	–	376	–	–	376[1]
Other non-current receivables and assets	AC	44,541	44,541	–	–	–	44,464[1]
Non-current lease receivables	n/a	3,417	–	–	–	3,417	5,549[1]
Trade receivables	AC	590,388	590,388	–	–	–	
Other current receivables and assets	AC	78,315	78,315	–	–	–	
Current lease receivables	n/a	1,459	–	–	–	1,459	
Derivative financial assets							
Derivatives without an effective hedge	FVTPL	712	–	–	712	–	712[1]
Derivatives in an effective hedge	n/a	12,658	–	–	–	–	12,658[1]
Cash and cash equivalents	AC	612,704	612,704	–	–	–	

(1) Hierarchy level 2

	Measurement category as per IFRS 9	Carrying amount as of Dec. 31, 2023	Measurement in accordance with IFRS 9			Measurement in accordance with IFRS 16	Fair value as of Dec. 31, 2023
			Amortized cost	Fair value through OCI	Fair value through profit or loss		
Financial liabilities							
Non-current financial liabilities	**AC**	**1,272,197**	1,272,197	–	–	–	**1,413,718**(1)
Non-current lease liabilities	**n/a**	**133,934**	–	–	–	133,934	
Other non-current liabilities	**AC**	**4,734**	4,734	–	–	–	**4,734**
Current financial liabilities	**AC**	**2,315,663**	2,315,663	–	–	–	
Current lease liabilities	**n/a**	**30,450**	–	–	–	30,450	
Trade payables	**AC**	**388,227**	388,227	–	–	–	
Other current liabilities	**AC**	**77,301**	77,301	–	–	–	
Derivative financial liabilities							
Derivatives without an effective hedge	**FVTPL**	**1,139**	–	–	1,139	–	**1,139**(1)
Derivatives in an effective hedge	**n/a**	**3,767**	–	–	–	–	**3,767**(1)
Financial obligation in connection with meeting the requirements of the earn-out provision	**FVTPL**	**391,929**	–	–	391,929	–	**391,929**(2)

(1) Hierarchy level 2
(2) Hierarchy level 3

The following table shows the carrying amounts and fair values for each class of financial instrument in accordance with IFRS 9 as of December 31, 2022, in accordance with IFRS 9:

	Measurement category as per IFRS 9	Carrying amount as of Dec. 31, 2022	Measurement in accordance with IFRS 9			Measurement in accordance with IFRS 16	Fair value as of Dec. 31, 2022
			Amortized cost	Fair value through OCI	Fair value through profit or loss		
Financial assets							
Non-current loan receivables	AC	24	24	–	–	–	24(1)
Miscellaneous financial investments	FVOCI	125	–	125	–	–	125(1)
Other non-current receivables and assets	AC	2,422	2,422	–	–	–	2,263(1)
Non-current lease receivables	n/a	4,960	–	–	–	4,960	8,050(1)
Trade receivables	AC	230,494	230,494	–	–	–	
Other current receivables and assets	AC	11,260	11,260	–	–	–	
Current lease receivables	n/a	1,462	–	–	–	1,462	
Derivative financial assets							
Derivatives without an effective hedge	FVTPL	8,163	–	–	8,163	–	8,163(1)
Derivatives in an effective hedge	n/a	–	–	–	–	–	–
Cash and cash equivalents	AC	260,454	260,454	–	–	–	

(1) Hierarchy level 2

	Measurement category as per IFRS 9	Carrying amount as of Dec. 31, 2022	Measurement in accordance with IFRS 9			Measurement in accordance with IFRS 16	Fair value as of Dec. 31, 2022
			Amortized cost	Fair value through OCI	Fair value through profit or loss		
Financial liabilities							
Non-current financial liabilities	AC	143,002	143,002	–	–	–	138,742(1)
Non-current lease liabilities	n/a	19,336	–	–	–	19,336	
Other non-current liabilities	AC	100	100	–	–	–	100
Current financial liabilities	AC	149,002	149,002	–	–	–	
Current lease liabilities	n/a	5,280	–	–	–	5,280	
Trade payables	AC	170,686	170,686	–	–	–	
Other current liabilities	AC	31,660	31,660	–	–	–	
Derivative financial liabilities							
Derivatives without an effective hedge	FVTPL	1,550	–	–	1,550	–	1,550(1)
Derivatives in an effective hedge	n/a	–	–	–	–	–	–

(1) Hierarchy level 2

The Messer Group uses the following hierarchy of inputs to measure fair value:

- Level 1: Prices quoted in active markets accessible to the entity for identical assets or liabilities on the measurement date.
- Level 2: Inputs other than the quoted prices listed in Level 1 that can be observed either directly or indirectly for the asset or liability.
- Level 3: Unobservable inputs for the asset or liability.

Non-current receivables, non-current lease receivables, other non-current assets, non-current financial liabilities and trade payables are discounted to present value. For these purposes, the measurement model is based on interest rate curves and exchange rates for the respective maturities applicable as of the end of the reporting period.

Given their short remaining terms, the carrying amounts of current receivables, trade payables and cash funds are approximately their fair value.

The fair value of forward exchange contracts is determined by considering the default risk, using quoted forward prices as of the end of the reporting period and calculations of net present value based on yield curves with high ratings in corresponding currencies. The fair value is the difference between the forward rate as of the end of the reporting period and the rate quoted at the time of purchase.

For interest rate swaps, the fair value is calculated as the present value of the estimated future cash flows. Estimates of the future cash flows from variable interest payments are based on quoted swap rates and interbank interest rates. The estimated cash flows are discounted using a yield curve constructed from a similar source that reflects the relevant benchmark interbank interest rate as used by market participants when pricing interest rate swaps. The estimate of the fair value is adjusted for the default risk reflecting the default risk of the Group and the counterparty. This is calculated on the basis of credit spreads derived from credit default swap prices or bond prices.

For energy swaps the fair value is calculated on the basis of the forward electricity prices quoted on the electricity exchange. The market value results from the difference between the exchange price as of the closing date and the price quoted at the time of purchase.

Net gains and losses on financial instruments include the effects on earnings of financial instruments. These essentially include gains or losses on remeasurement from currency translation, adjustments to fair value, impairment losses and their reversals.

The following table shows the effects on earnings of financial instruments by IFRS 9 measurement category:

2023	From interest	Net gains and net losses			
		At fair value	Currency translation	Reversal of impairment / (impairment)	From disposals
Financial assets and financial liabilities at fair value through profit or loss	(69)	(3,552)	43	–	–
Financial liabilities at amortized cost	(3,457)	–	3,155	–	313
Financial assets at amortized cost	2,807	–	(5,351)	(10,411)	–
Financial assets at fair value through OCI	20,436	–	–	–	–

The following table shows the effects on earnings of financial instruments by IFRS 9 measurement category in 2022:

2022	From interest	Net gains and net losses			
		At fair value	Currency translation	Reversal of impairment / (impairment)	From disposals
Financial assets and financial liabilities at fair value through profit or loss	–	4,005	–	–	–
Financial liabilities at amortized cost	(9,430)	–	(2,650)	–	2
Financial assets at amortized cost	1,205	–	(1,142)	(3,751)	–
Financial assets at fair value through OCI	–	–	(228)	–	–

Derivative financial instruments

The Messer Group essentially uses derivative financial instruments to hedge currency and raw material exposures and variable interest payments in order to reduce the related risks. Foreign currency risks from posted transactions are largely hedged. The exposure for raw material and currency hedges is derived from production requirement planning and the future purchases necessary over the hedged period, which are therefore highly probable. Interest hedges are based on a loan with a floating interest rate. The risk and its assessment are monitored continuously. The Messer Group currently uses standard currency forwards, non-deliverable forwards (NDFs), interest derivatives and electricity swaps as hedging instruments.

Hedges are entered into only with partners of good credit standing; any potential ineffectiveness resulting from them, if material, would be reported separately in profit or loss.

The Group currently uses derivative financial instruments to hedge future payments for electricity purchases in the United States, and currency hedges for future USD payments from foreign currency liabilities in Canada and Germany, for future EUR payments from foreign currency liabilities in the United States and for future CNY payments from foreign currency liabilities in Germany. It also uses derivative financial instruments to hedge future variable USD interest payments. The average hedge rate for electricity purchases is USD 38.53 (EUR 34.87) per megawatt hour, for currency hedges USD 1.35 / CAD or EUR 1.22 / USD and USD 1.10 / EUR. The Group designates all components. Consequently, there are no inefficiencies.

Furthermore, cash flows hedged outside hedge accounting are mainly hedged in the currencies BRL, CZK and EUR; the instruments used are FX forwards, an NDF and an interest rate swap.

There are currently no derivative financial instruments in the Group that qualify as fair value hedges or hedges of a net investment in foreign operations.

Furthermore, hedges are entered into outside hedge accounting. These hedges nevertheless comply with the principles of risk management from an economic perspective.

Financial derivatives	Assets			
	Dec. 31, 2023		Dec. 31, 2022	
	Fair value (carrying amount)	Nominal amount	Fair value (carrying amount)	Nominal amount
Currency forwards				
not in hedges	712	70,939	7,891	92,510
as a cash flow hedge	9	3,757	–	–
Energy swaps				
not in hedges	–	–	–	–
as a cash flow hedge	12,649	58,333	–	–
Interest derivatives				
not in hedges	–	–	272	18,141
as a cash flow hedge	–	–	–	–
Other transactions				
not in hedges	–	–	–	–
as a cash flow hedge	–	–	–	–
	13,370	133,029	8,163	110,651

Financial derivatives	Equity and Liabilities			
	Dec. 31, 2023		Dec. 31, 2022	
	Fair value (carrying amount)	Nominal amount	Fair value (carrying amount)	Nominal amount
Currency forwards				
not in hedges	(1,013)	73,346	(1,473)	24,981
as a cash flow hedge	(126)	8,271	–	–
Energy swaps				
not in hedges	–	–	–	–
as a cash flow hedge	(3,641)	33,080	–	–
Interest derivatives				
not in hedges	(126)	15,087	(77)	1,950
as a cash flow hedge	–	–	–	–
Other transactions				
not in hedges	(391,929)	391,929	–	–
as a cash flow hedge	–	–	–	–
	(396,835)	521,713	(1,550)	26,931

Other transactions include the obligation in connection with meeting the requirements of the earn-out provision in connection with the capital increase (“GIC transaction”).

The nominal volume of derivative financial instruments consists of the total nominal amounts of the individual contracts. The nominal amount of electricity swaps is 2,621,808 MWh. By contrast, the fair value is calculated from the measurement of all contracts at prices on the measurement date. It shows how the result would have changed if the derivative contracts had been closed immediately as of the end of the reporting period.

We are subject to a credit risk for asset OTC derivatives. We minimize the risk by only entering into derivatives with international financial institutes with an investment grade rating.

The effective portion of the changes in the value of derivative financial instruments, which was recognized before taxes in the OCI in the reporting period, is K€ -90,387 (previous year: K€ 108,632). The amount that was reclassified from equity to the income statement in the context of hedge accounting in the reporting period is K€ -380 (previous year: K€ -60,357) and is essentially shown in cost of sales. The ineffective portion of the change in market value is recognized directly in profit or loss.

No significant ineffective portions of the change in the fair value of hedging instruments were identified in the fiscal year.

The following table shows when the cash flows from cash flow hedges occur and how they affect fair value in the income statement.

	Fair value (carrying amount) Dec. 31, 2023	Nominal amount	up to 1 year	1 to 5 years	Over 5 years
Currency forwards					
Assets	9	3,757	3,757	–	–
Equity and Liabilities	(126)	8,271	8,271	–	–
Energy swaps					
Assets	12,649	58,333	19,157	39,176	–
Equity and Liabilities	(3,641)	33,080	9,880	23,200	–

	Fair value (carrying amount) Dec. 31, 2022	Nominal amount	up to 1 year	1 to 5 years	Over 5 years
Currency forwards					
Assets	–	–	–	–	–
Equity and Liabilities	–	–	–	–	–
Energy swaps					
Assets	–	–	–	–	–
Equity and Liabilities	–	–	–	–	–

The Messer Group uses derivatives in accordance with the International Swaps and Derivative Association (ISDA) Agreement. This agreement does not meet the criteria for offsetting in the consolidated statement of financial position, as it only provides for offsetting rights for future events, such as default or insolvency of the Group or counterparty.

The following table shows the potential financial impact of offsetting the agreement described, regardless of whether the items are offset in the consolidated statement of financial position in accordance with IAS 32.42.

	Dec. 31, 2023			Dec. 31, 2022		
	Gross amounts of derivatives in the Consolidated Statement of Financial Position	Amounts from netting agreements	Net amounts	Gross amounts of derivatives in the Consolidated Statement of Financial Position	Amounts from netting agreements	Net amounts
Derivative assets	13,370	(536)	**12,834**	8,163	(1,550)	**6,613**
Derivative liabilities	4,906	536	**5,442**	1,550	1,550	**3,100**

Management of financial risks

In conjunction with its operating activities, the Messer Group is exposed to various financial risks, in particular default, liquidity, interest, electricity price and currency risks, which are described in more detail below. The Group's risk management system takes into account the fact that financial market developments are not foreseeable and is intended to minimize any potential negative impact on the Group's financial position. The Group uses derivative financial instruments to hedge against specific risks.

Risk management is handled by Group Treasury in compliance with guidelines approved by management. Group Treasury identifies, assesses and hedges financial risks. The guidelines contain general principles for risk management and detailed rules for specific areas, such as currency and interest rate risks, the use of derivative financial instruments and the investment of surplus cash. Further information on risk management can be found in the risk report section of the Group management report.

Credit risk

Credit risk is the risk of financial losses if customers or the counterparty to a financial instrument do not meet their contractual obligations.

There are no impairment losses for other financial assets and financial investments such as bank balances, securities and derivatives that are assets, as the credit risk is classified as remote. Such risks are limited by Group Treasury by selecting counterparties of good credit standing and by limiting the investment amounts.

Credit risk in the Messer Group mainly arises from trade receivables.

The corresponding impairment loss is measured at an amount equal to lifetime expected credit losses, based on an analysis of historical default data and forecasts of future economic conditions. Expected credit losses are a probability-weighted estimate of credit losses.

Credit risk in the Messer Group is primarily influenced by customers' individual characteristics.

For risk management purposes, the credit rating of each customer is first analyzed individually before the respective Group company offers its standard delivery and payment terms. Where available, the analysis comprises annual financial statements, information from credit agencies, sector information and, in some cases, credit reports from banks. Specific limits are set individually for each customer. These represent the maximum outstanding amount. The limits are reviewed at least once a quarter.

Due regard is also given to whether the customer is a natural person or a legal entity. Other factors taken into account are geographical location, market sector, the aging structure of receivables and the occurrence and duration of payment problems.

The expected credit loss over the total term of the respective receivables is taken into account in the measurement of the receivables. The Messer Group uses the simplified impairment model for this.

In order to assess the expected credit risk, receivables are grouped on the basis of the existing credit risk and maturity structure of the receivables concerned. Customers are also divided into groups to monitor the risk of default. The groups of customers with comparable credit risks to be taken into account for the Messer Group result from the business areas and registered office of the respective customers.

If there is objective evidence that the forecast future inflows are impaired, a receivable is classified as impaired. Examples of such evidence include impending insolvency or breach of contract due to default. Default occurs if it is unlikely that a debtor will be able to settle its liabilities in full.

Each company in the Messer Group therefore performs an analysis to determine whether there are objective indications of impairment for customers whose receivables are past due by a certain number of days, indicating an increased credit risk. The analysis takes into account information on past events, current conditions and forecasts of future economic conditions. At the latest, there is an increased credit risk when the amount of the receivable past due is higher than the average turnover. This is usually 90 days, with some companies going up to 270 days.

The following table provides information on the estimated credit risk and the expected credit losses for trade receivables as of December 31, 2023, calculated according to the default event:

2023	Receivables	Default rate in percent	Expected credit loss
Impairment due to expected credit losses according to current conditions	259,441	17.0 %	43,985
Collectively impaired in accordance with default event			
Days past due:			
Not past due	292,240	0.4 %	1,297
between 1 and 30 days	62,352	1.9 %	1,195
between 31 and 60 days	14,903	5.7 %	853
between 61 and 90 days	3,602	14.4 %	517
between 91 and 120 days	1,629	31.1 %	507
between 121 and 180 days	2,042	26.4 %	540
between 181 and 270 days	2,406	17.7 %	427
more than 271 days	2,663	48.9 %	1,302
	641,278		**50,623**

Impairment losses on non-current and current trade receivables developed as follows:

	2023	2022
As of Jan. 1	**40,738**	**41,413**
Net change in impairment recognized in profit or loss	10,411	4,293
Amounts written off as uncollectible in the fiscal year	(362)	(4,959)
Change in Group reporting	–	14
Exchange rate changes	(164)	(23)
As of Dec. 31	**50,623**	**40,738**

The impairment loss relates to trade receivables and was calculated exclusively on the basis of lifetime expected credit losses.

The following table provides information on the estimated credit risk and the expected credit losses for trade receivables as of December 31, 2022:

2022	Receivables	Default rate in percent	Expected credit loss
Impairment due to expected credit losses according to current conditions	115,214	30.4 %	35,069
Collectively impaired in accordance with default event			
Days past due:			
Not past due	103,639	0.9 %	953
between 1 and 30 days	33,786	3.0 %	1,007
between 31 and 60 days	11,491	5.5 %	629
between 61 and 90 days	3,054	16.8 %	512
between 91 and 120 days	690	44.3 %	306
between 121 and 180 days	808	56.8 %	459
between 181 and 270 days	577	55.6 %	321
more than 271 days	2,411	61.5 %	1,482
	271,670		**40,738**

Liquidity risk

Liquidity risk, i. e., the risk that the Messer Group cannot meet its financial obligations, is limited both by creating the necessary financial flexibility and by effective cash management. In addition to cash funds, the Messer Group also has access to long-term, freely available credit facilities to safeguard its liquidity. There are no indications that any of the credit facilities granted are not fully available. Liquidity risks are monitored regularly and reported to management.

Trade payables and other current liabilities have remaining terms of less than one year. Information relating to the maturities of financial liabilities can be found in note 26 “Financial Liabilities”. Other non-current liabilities have remaining terms of between one and five years.

The following table shows the expected cash flows for financial liabilities:

Description	Carrying amount Dec. 31, 2023	Expected cash flow	Cash flows 2024		Cash flows 2025 - 2028		Cash flows from 2029	
			Interest	Payment of principal	Interest	Payment of principal	Interest	Payment of principal
Financial liabilities at amortized cost	**4,058,122**	**(4,620,790)**	**(220,006)**	**(2,792,941)**	**(320,176)**	**(1,281,087)**	**(735)**	**(5,845)**
Financial liabilities[1]	3,587,860	(4,150,528)	(220,006)	(2,327,413)	(320,176)	(1,279,619)	(735)	(2,579)
Other non-current liabilities	4,734	(4,734)	–	–	–	(1,468)	–	(3,266)
Trade payables	388,227	(388,227)	–	(388,227)	–	–	–	–
Other current liabilities	77,301	(77,301)	–	(77,301)	–	–	–	–
Financial liabilities at fair value through profit or loss	**(4,906)**	**(4,906)**	**–**	**(2,801)**	**(126)**	**(1,979)**	**–**	**–**
Currency forwards[2]	(1,139)	(1,139)	–	(1,139)	–	–	–	–
Interest rate swaps	(126)	(126)	–	–	(126)	–	–	–
Electricity swaps[2]	(3,641)	(3,641)	–	(1,662)	–	(1,979)	–	–
Lease liabilities	**164,384**	**(194,647)**	**(6,362)**	**(30,450)**	**(15,422)**	**(82,415)**	**(8,479)**	**(51,519)**

(1) The transaction costs for financing were already reported as cash outflows and are therefore not a component of future cash flows.
(2) Repayments of principal for financial derivatives are contractual cash flows.

This includes all instruments that were in the portfolio on December 31, 2023 and for which payments were already contractually agreed. Forecast figures for future new liabilities are not included. Foreign currency amounts were translated using the rate as of December 31, 2023. The net interest payments for the interest swap cash flow were calculated using the yield curves provided by the banks.

Description	Carrying amount Dec. 31, 2022	Expected cash flow	Cash flows 2023		Cash flows 2024 - 2027		Cash flows from 2028	
			Interest	Payment of principal	Interest	Payment of principal	Interest	Payment of principal
Financial liabilities at amortized cost	**494,450**	**(512,876)**	**(9,629)**	**(351,815)**	**(8,309)**	**(143,123)**	**–**	**–**
Financial liabilities[1]	292,004	(310,430)	(9,629)	(149,469)	(8,309)	(143,023)	–	–
Other non-current liabilities	100	(100)	–	–	–	(100)	–	–
Trade payables	170,686	(170,686)	–	(170,686)	–	–	–	–
Other current liabilities	31,660	(31,660)	–	(31,660)	–	–	–	–
Financial liabilities at fair value through profit or loss	**1,550**	**(1,611)**	**(47)**	**(1,076)**	**(90)**	**(397)**	**(1)**	**–**
Currency forwards[2]	1,473	(1,473)	–	(1,076)	–	(397)	–	–
Interest rate swaps	77	(138)	(47)	–	(90)	–	(1)	–
Lease liabilities	**24,616**	**(30,372)**	**(722)**	**(5,280)**	**(1,750)**	**(11,812)**	**(3,284)**	**(7,524)**

(1) The transaction costs for financing were already reported as cash outflows and are therefore not a component of future cash flows.
(2) Repayments of principal for financial derivatives are contractual cash flows.

Interest risk

Interest risk can arise when interest-bearing liabilities are not hedged in terms of maturity or amount by either corresponding assets or derivative instruments. The objective is to optimize the net interest result and minimize interest risks. The Company has currently hedged 6 % of its total financial liabilities against interest rate changes through fixed interest rate agreements and derivatives. The high level of variable-rate financial liabilities resulted from investment financing, which is intended to be financed primarily through fixed-interest financial instruments.

Variable financial instruments are subject to a cash flow risk with regard to the uncertainty of future interest payments. The cash flow risk is measured using a sensitivity analysis. The sensitivity analysis assumes a shift in the yield curves for all currencies by + / - 100 basis points as of December 31, 2023.

The changes in interest rate derivatives are recognized in profit or loss using the current market interest at the end of the reporting period. If market interest rates had been 100 basis points higher (lower) as of December 31, 2023, consolidated net profit would have been K€ 275 (previous year: K€ 404) higher or K€ -261 (previous year: K€ -401) lower.

For variable financial liabilities and our financial investments, an interest rate level 100 basis points higher (lower) as of December 31, 2023, would have produced a lower (higher) result of K€ 29,511 (previous year: higher (lower) result of K€ 586). The exposure to interest rate risk was K€ 2,951,067 as of December 31, 2023 (previous year: K€ -58,552).

Currency risk

Currency risk for the Messer Group arises from both financing and operating activities in an international environment. Foreign currency risks are hedged to the extent that they have a significant influence on the Group’s cash flows.

Foreign currency risks relating to financing activities result from foreign currency financial liabilities and loans for the financing of Group companies. Group Treasury hedges these risks. Currency derivatives are used to convert financial obligations and intragroup loans denominated in foreign currencies into the functional currency of the Group companies.

As far as operating activities are concerned, the individual Group companies predominantly conduct their business in their own functional currency. The Messer Group’s currency risk from operating activities is therefore considered remote overall. However, a number of Group companies are exposed to foreign currency risks in connection with operational transactions not denominated in their own functional currency. This mainly relates to payments in conjunction with a long-term supply agreement and payments in conjunction with investments. The Messer Group also uses currency derivatives to hedge these risks.

Currency risks as referred to by IFRS 7 result from financial instruments that are denominated in a currency other than the functional currency and that are monetary in nature; exchange rate differences arising from the translation of financial statements into the Group currency are not taken into account.

Currency risk is measured on the basis of sensitivity analyses. The currency analysis assumes an appreciation (depreciation) of all currencies by 10 % compared to the euro.

If the euro appreciates (depreciates) by 10 % against the major currencies, this would produce a hypothetical result K€ 32,574 lower (higher) (previous year: K€ 13,788).

The net currency risk from statement of financial position exposures was as follows:

K€, as of Dec. 31, 2023	CNY	CZK	HUF	RSD	USD	VND	BRL	CAD
Change in foreign currency exposures as a result of a 10 % appreciation of the euro	284	2,461	(1,950)	(15,969)	(5,510)	533	389	(12,812)

Electricity price risk

Electricity price risk represents the uncertainty arising from potential changes in the price of electricity. It is mainly caused by the volatility of electricity prices in the energy markets, which are influenced by various factors such as supply and demand, political decisions, weather conditions, market regulations and geopolitical events.

Electricity price contracts are concluded to hedge the risk of fluctuations due to changes in electricity prices. Electricity price derivatives are used as hedges.

Electricity price risk is measured on the basis of a sensitivity analysis. The sensitivity analysis assumes a change in market value of + / - 10 percent.

A 10 percent change in market values is reflected in equity. Equity would have been K€ 901 higher (lower) as of December 31, 2023.

32. Related Parties

Transactions with the following entities and individuals are treated as related party transactions.

Related companies

The ultimate controlling company is Messer Industrie GmbH. The ultimate controlling party is the Messer family. Associated companies, joint ventures and non-consolidated subsidiaries classified as related parties are shown in the list of shareholdings.

- Messer Holding GmbH
  Messer Holding GmbH is the parent company of Messer SE & Co. KGaA and held 100 % of the shares from January 1, 2016, until November 12, 2023. Since November 13, 2023, it has held 77.03 % of the shares in Messer SE & Co. KGaA.

The following companies are considered related parties:

- Elbe Investment Pte., Ltd.
  Elbe Investments Pte., Ltd. has held 22.97 % of the shares in Messer SE & Co. KGaA since November 13, 2023.

- GIC (Ventures) Pte., Ltd.
  GIC (Ventures) Pte. Ltd. holds 100 % of the shares in Elbe Investment Pte., Ltd.

- GIC Pte., Ltd.
  GIC Pte. Ltd. holds 100 % of the shares in GIC (Ventures) Pte., Ltd.

- Messer Management SE
  Messer Management SE is the general partner (SE) of Messer SE & Co. KGaA.

- Cultro GmbH
  Cultro GmbH, founded in 2022, is a subsidiary of Messer Industrie GmbH.

- MIG Holding GmbH and Messer Eutectic Castolin Group (MEC Group)
  100 % of the shares in Messer Investment Holding GmbH (formerly: MEC Holding GmbH) are held by MIG Holding GmbH, an affiliate of Messer Industrie GmbH with the same ownership structure.

- Messer Medical Home Care Holding GmbH (Home Care Group)
  The Messer Group has spun off its home care activities into an independent group since 2011. The parent company of this Group, Messer Medical Home Care Holding GmbH, is wholly owned by Messer Investment Holding GmbH (formerly: MEC Holding GmbH), whose interest is held by MIG Holding GmbH.

- Stefan Messer GmbH
  Stefan Messer, Managing Director and co-shareholder of Messer Industrie GmbH, is also a Managing Director and co-shareholder of Stefan Messer GmbH.

- Hardtberg Grundstücks GmbH
  Stefan Messer is the sole shareholder of Hardtberg Grundstücks GmbH. Messer SE & Co. KGaA rents its head office in Bad Soden am Taunus from Hardtberg Grundstücks GmbH. The contract satisfies the lease criteria of IFRS 16 and was reported as a right-of-use asset in the consolidated statement of financial position. The lease liability for the remaining lease term of three years amounts to K€ 2,548 as of December 31, 2023. Messer SE & Co. KGaA and Messer Investment Holding GmbH (formerly: MEC Holding GmbH) are joint owners of the investment in the facilities at the head office in Bad Soden.

The following transactions were performed with related companies:

	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Revenue and services provided		
Ultimate controlling company	31	17
Parent company	101	86
Associates / joint ventures	47,706	59,502
Non-consolidated subsidiaries	624	456
Other related parties	2.713	1,728
	51,175	**61,789**
Purchased goods and services		
Ultimate controlling company	64	54
Parent company	7,843	4,612
Associates / joint ventures	5,413	6,158
Non-consolidated subsidiaries	–	–
Other related parties	9,444	6,579
	22,764	**17,403**

	Dec. 31, 2023	Dec. 31, 2022
Trade receivables		
Ultimate controlling company	–	–
Associates / joint ventures	913	5,904
Non-consolidated subsidiaries	1,007	1,291
Other related parties	600	375
	2,520	**7,570**
Other financial and non-financial assets		
Ultimate controlling company	–	608
Associates / joint ventures	7,183	–
Non-consolidated subsidiaries	354	49
Other related parties	–	383
	7,537	**1,040**
Trade payables		
Ultimate controlling company	–	8
Associates / joint ventures	597	1,639
Non-consolidated subsidiaries	–	16
Other related parties	401	341
	998	**2,004**
Other financial and non-financial liabilities		
Parent company	–	3,702
Associates / joint ventures	804	82
Other related parties	316	7
	1,120	**3,791**

The receivables from related parties result from service agreements and sales transactions with varying maturities. The receivables are not secured by collateral and do not bear interest.

There were no impairment losses on receivables from related parties (previous year: K€ 0) and no uncollectible receivables from related parties recognized as an expense for the period (previous year: K€ 0).

	Dec. 31, 2023	Dec. 31, 2022
Loans granted to		
Other related parties	–	–
Non-consolidated subsidiaries	698	801
	698	**801**
Loans received from		
Associates / joint ventures	804	24
Other related parties (interest 0.01 % p. a.)	316	1,530
	1,120	**1,554**

Related persons

Members of management in key positions

Management Board

The following individuals were on the Management Board of Messer SE & Co. KGaA during the year:

- Stefan Messer, Chief Executive Officer, Bad Soden am Taunus (until April 26, 2023)
- Bernd Eulitz, Deputy Chief Executive Officer (until April 26, 2023), Chief Executive Officer (from April 27, 2023), Munich
- Helmut Kaschenz, Chief Financial Officer, Frankfurt am Main
- Virginia Esly, Chief Operating Officer Europe, Pöcking (from January 1, 2023)
- Dr. Werner Hickel, Chief Operating Officer Asia, Shanghai (from November 16, 2023)
- Elena Skvortsova, Chief Operating Officer Americas, Moorpark (from November 16, 2023)

The total remuneration of the Management Board pursuant to section 314 HGB and IAS 24 amounted to K€ 8,118 in the fiscal year (previous year: K€ 6,535).

Of this amount, fixed remuneration including benefits in kind and other fringe benefits amounted to K€ 4,990 (previous year: K€ 2,771). The total amount of variable short-term remuneration was K€ 3,099 (previous year: K€ 3,386) and is linked to the achievement of certain performance indicators. Post-employment benefits for members of management in key positions amounted to K€ 29 in the current fiscal year (previous year: K€ 378).

Pension provisions of K€ 8,600 (previous year: K€ 0) and post-employment benefits of K€ 273 (previous year: K€ 0) paid during the year relate to former members of management in key positions.

Supervisory Board

The members of the Supervisory Board of Messer SE & Co. KGaA in fiscal 2023 were:

- Dr. Jürgen Heraeus, Chair, business graduate (until April 26, 2023)
- Stefan Messer, Chair, entrepreneur (from April 27, 2023)
- Dr. Werner Breuers, Deputy Chair (until April 26, 2023), chemist, Managing Partner of ICB Deutschland GmbH
- Dr. Johannes Fritz, Deputy Chair (from April 27, 2023), management consultant
- Dr. Karl-Gerhard Seifert, chemist, Managing Director of Cassella GmbH (until November 13, 2023)
- Dr. Nathalie von Siemens, philosophy graduate, member of the Supervisory Board of Siemens AG
- Heike Niehues, economics graduate, member of the Management Board of Webasto Thermo & Comfort SE
- Maureen Messer-Casamayou, teacher
- Sabine Scheunert-Porth, CIO and economics graduate, consultant
- Geoffrey Wild, CEO (retd) (from November 13, 2023)
- Elisabeth Dong, Head of Industrial and Services, Private Equity Europe GIC (from November 28, 2023)

The Supervisory Board received total remuneration of K€ 574 for the fiscal year (previous year: K€ 350).

The members of the Supervisory Board of Messer Management SE in the fiscal year were:

- Dr. Jürgen Heraeus, Chair, business graduate (until April 26, 2023)
- Stefan Messer, Chair, entrepreneur (from April 27, 2023)
- Maureen Messer-Casamayou, teacher
- Marcel Messer, Managing Director of Messer Investment Holding GmbH (formerly: MEC Holding GmbH), Messer Industrie GmbH and Messer Holding GmbH

Audit Committee
The members of the Audit Committee in fiscal 2023 were:

- Dr. Johannes Fritz, Chair, management consultant
- Heike Niehues, economics graduate, member of the Management Board of Webasto Thermo & Comfort SE
- Dr. Jürgen Heraeus, business graduate (until April 26, 2023)
- Stefan Messer, entrepreneur (from April 27, 2023)
- Geoffrey Wild, CEO (retd) (from November 16, 2023)

The Audit Committee received total remuneration of K€ 70 for the fiscal year (previous year: K€ 40).

Investment Committee
The members of the Investment Committee in fiscal 2023 were:

- Stefan Messer, Chair, entrepreneur (from November 16, 2023)
- Geoffrey Wild, CEO (retd) (from November 16, 2023)
- Dr. Johannes Fritz, entrepreneur (from November 16, 2023)
- Elisabeth Dong, Head of Industrial and Services, Private Equity Europe GIC (from November 28, 2023)

The Investment Committee received total remuneration of K€ 3 for the fiscal year (previous year: K€ 0).

Nominations and Remuneration Committee
- Elisabeth Dong, Chair, Head of Industrial and Services, Private Equity Europe GIC (from November 28, 2023)
- Stefan Messer, entrepreneur (from November 16, 2023)
- Dr. Nathalie von Siemens, philosophy graduate, member of the Supervisory Board of Siemens AG (from November 16, 2023)

The Nominations and Remuneration Committee received total remuneration of K€ 2 for the fiscal year (previous year: K€ 0).

33. Events after the Reporting Period

The following companies have been founded since the end of the reporting period and have commenced operations:

- Messer Hydrogen Mobility Services GmbH, Germany, 100 %
- Messer IP License GmbH, Germany, 100 %

Messer IP License GmbH, Germany, entered into a domination and profit transfer agreement with Messer SE & Co. KGaA, Germany, on March 13, 2024. The domination and profit transfer agreement was entered in the commercial register on March 22, 2024.

On March 22, 2024, Messer SE & Co. KGaA, Germany, sold 50 % of the shares in Messer Hydrogen Mobility Services GmbH, Germany, to Toyota Tsusho Europe SA. Following registration, Messer Hydrogen Mobility Services GmbH will be renamed SympH2ony GmbH.

On November 20, 2023, Messer SE & Co. KGaA, Germany, signed an agreement with Delta Holding d.o.o., Serbia, for the acquisition of 25.1 % of the shares in Resity Technologies d.o.o., Serbia. Resity Technologies d.o.o. is a Serbian SAP consulting company. The acquisition is subject to approval by the local antitrust authorities, which is expected in April 2024. The acquisition does not have a material impact on the consolidated financial statements.

On February 26, 2024, Messer SE & Co. KGaA, Germany, published its intention to make a public takeover offer for all shares in Messer Tehnogas AD, Serbia. Messer Tehnogas AD is listed on the Serbian stock exchange BELEX. The Serbian Security Exchange Commission confirmed the validity of the public takeover offer on March 22, 2024. Following the acquisition of 1,551 shares on February 22, 2024, Messer SE & Co. KGaA currently holds 850,947 shares (82.08 %). The total number of shares issued is 1,036,658.

The contract documents for the GIC Transaction provide for the establishment of a management participation program comprising a combination of real and virtual participation in the Company. The program is expected to be implemented in the first half of 2024.

On March 25, 2024, Messer Industries USA Inc., USA, (guaranteed by Messer SE & Co. KGaA, Germany) issued a USD 1.1 billion US private placement (“USPP”). The transaction consisted of three tranches: USD 300 million due in March 2031; USD 400 million due in March 2034 and USD 400 million due in March 2036. The weighted interest rate of the USPP tranches averages 5.64 % p.a. The proceeds from the issue were mainly used to repay the existing USD Bridge Facility of USD 900 million on March 28, 2024. The remaining amount is used to finance the general development of the Company.

The Bureau of Land Management of the U.S. Department of the Interior has accepted an offer from Messer LLC, USA, for the Federal Helium System as part of a competitive bidding process and is now subjecting Messer to further regulatory reviews required for the acquisition of the assets. The Federal Helium System was auctioned by the General Services Administration (GSA) on January 25, 2024, pursuant to the Helium Stewardship Act of 2013. The Act required the Bureau of Land Management to cease management of the system and sell it in an orderly process. The helium system includes helium molecules stored in the caverns in Amarillo, Texas, as well as the Cliffside field, wells and collection systems, the raw helium pipeline and other operating facilities. The accepted offer is now subject to a requisite antitrust review by the Department of Justice. The Company will also work with regulators in several states to comply with local laws and regulations. The payments for the offer with a total volume of USD 423 million are divided into several tranches, 20 % of which have been paid since the end of the reporting period.

Yunnan Messer Gas Products Co, Ltd, China, (“YMG”) had to close its plant in Anning in 2018 because it was not a safe distance from the Kunming Vocational and Technical College of Industry (“KVTCI”), which was built later. In January 2022, YMG filed a lawsuit against KVTCI for violating the safe distance and demanded compensation of CNY 130 million for lost profits. In July 2022, the court of first instance ruled that KVTCI must pay CNY 80 million in compensation. Both parties appealed, but the second instance upheld the decision in November 2022. KVTCI did not pay, so YMG applied for execution of the judgment in May 2023. Although KVTCI’s bank balance was frozen by the court, KVTCI objected to the execution on the grounds that the balance was earmarked for educational purposes and the court was therefore not legally entitled to the execution. This was confirmed by YMG’s lawyers. KVTCI was recently transferred from Kunming Iron & Steel Group to Kunming Municipal Education Department. As a condition of the transfer, KVTCI had to resolve all outstanding legal issues. Messer subsequently collected the full amount of CNY 81 million (plus court costs) in March 2024. The amount will be recognized as operating income in fiscal 2024.

The construction of a new subway line is forcing the air separation unit of Messer Sunshine (Ningbo) Gas Co., Ltd., China, to relocate beginning in mid-2024. The expected compensation payment exceeds the residual carrying amounts of the unit and the land.

The Bundesrat, the upper house of Germany's parliament, approved the mediation result for the Growth Opportunities Act on March 22, 2024. The Act is designed to improve the framework conditions for more growth, investment and innovation in Germany and to this end includes extensive tax relief that will apply from the 2024 assessment period. The Act has no impact on the consolidated financial statements of Messer SE & Co. KGaA for fiscal 2023. The change of relevance to Messer SE & Co. KGaA mainly relates to the temporary increase in the annual loss carryforwards, thereby increasing the realizability of the tax loss carryforwards for Messer SE & Co. KGaA. However, there are no changes since deferred tax assets have already been recognized in full on the tax loss carryforwards.

34. Prior-Year Financial Statements

On April 26, 2023, the Annual General Meeting approved the consolidated financial statements of Messer SE & Co. KGaA as of December 31, 2022.

35. Auditors' Fees

The fee for the auditor of the German Messer companies broke down as follows (in K€):

	2023	2022
Audits of financial statements	926	286
Other assurance services	–	2
Tax advisory services	–	–
Other services	2,939	437
	3,865	**725**

Bad Soden am Taunus, April 15, 2024

Messer SE & Co. KGaA,
represented by: Messer Management SE, general partner

Bernd Eulitz Helmut Kaschenz

Dr. Werner Hickel Virginia Esly Elena Skvortsova

List of shareholdings

of Messer SE & Co. KGaA, Sulzbach (Taunus), as of December 31, 2023 (section 313 HGB)

Country	Name	Registered office	Equity (in K€)	Direct / Indirect	Share-holding in %	Net result after tax (in K€)
Affiliated companies included in the consolidated financial statements						
Albania	Messer Albagaz SH.P.K	Korça	5,627	I	81.94	710
Algeria	Messer Algérie SPA	Alger	3,943	I	59.86	2,532
Belgium	bECO2 B.V.B.A.	Zwijndrecht	127	I	69.89	(21)
	Messer Air Gases Belgium NV	Zwijndrecht	32	I	99.84	(30)
	Messer Belgium N.V.	Zwijndrecht	42,920	I	99.84	5,799
Bosnia-Herzegovina	Messer Tehnoplin d.o.o.	Sarajevo	27,396	I	100.00	1,925
	Messer BH Gas d.o.o.	Sarajevo	21,879	I	81.94	1,495
	Messer Mostar Plin d.o.o.	Mostar	3,865	D	100.00	588
Brazil	Messer Gases Ltda.	Sao Paulo	201,084	I	100.00	61,456
	Messer Indústria de Gases Ltda	Sao Paulo	13,648	I	100.00	1,969
Bulgaria	Messer Bulgaria EOOD	Sofia	9,676	D	100.00	286
Chile	Messer Chile Limitada	Santiago	26,800	I	100.00	2,873
China	Changde Xianggang Messer Gas Products Co., Ltd.	Changde City, Hunan Province	2,547	I	55.00	–
	Changsha Xianggang Messer Gas Products Co., Ltd.	Changsha, Hunan Province	2,357	I	55.00	152
	Chengdu Chenggang Messer Gas Products Co., Ltd.	Chengdu	347	I	60.00	808
	Chongqing Messer Gas Products Co., Ltd.	Chongqing, Sichuan Province	16,538	I	100.00	(7,021)
	Chuzhou Messer Gas Products Co., Ltd.	Chuzhou, Anhui Province	3,898	I	100.00	–
	Dongguan Moral Strength Messer Gas Co., Ltd.	Dongguan, Guangdong Province	15,246	I	60.00	2,570
	Foshan MS Messer Gas Co., Ltd.	Foshan City, Guangdong Province	101,403	I	85.00	4,808
	Foshan Sanshui MS Messer Gas Co., Ltd.	Suzhou, Jiangsu Province	12,820	I	85.00	1,545
	Foshan Shunde MS Messer Gas Products Co., Ltd.	Foshan City, Guangdong Province	55,219	I	60.00	2,967
	Hangzhou Messer Gas Products Co., Ltd.	Hangzhou, Zhejiang Province	18,114	I	100.00	–
	Hengyang Xianggang Messer Gas Products Co., Ltd.	Suzhou, Jiangsu Province	7,676	I	55.00	907
	Hunan Xianggang Messer Gas Products Co., Ltd.	Xiangtan City, Hunan Province	214,520	I	55.00	41,374
	Kunming Anning Messer Gas Products Co., Ltd.	Anning, Yunnan Province	9,870	I	100.00	1,812
	Kunming Messer Gas Products Co., Ltd.	Kunming, Yunnan Province	(2,424)	I	77.16	(42)
	Liuyang Xianggang Messer Gas Products Co., Ltd.	Liuyang City, Hunan Province	3,037	I	55.00	243
	Messer (Wuhu) Gas Products Co., Ltd.	Wuhu City, Anhui Province	9,445	I	100.00	–
	Messer Gas Products (Chengdu) Co., Ltd.	Chengdu City, Sichuan Province	16,234	I	100.00	–
	Messer Gas Products (Nanjing) Co., Ltd.	Nanjing, Jiangsu Province	15,704	I	100.00	1,186
	Messer Gas Products (Zhangjiagang) Co., Ltd.	Zhangjiang City, Jiangsu Province	64,646	I	100.00	6,139
	Messer Gas Products (Zigong) Co., Ltd.	Zigong, Sichuan Province	9,426	I	100.00	–
	Messer Griesheim (China) Investment Co., Ltd.	Shanghai	322,548	I	100.00	69,883
	Messer Griesheim (Kunming) Gas Products Co., Ltd.	Kunming, Yunnan Province	19,573	I	100.00	2,719
	Messer Management Consulting (Shanghai) Co., Ltd.	Shanghai	22,842	I	100.00	669
	Messer Specialty Gases (Chuzhou) Co., Ltd.	Chuzhou, Anhui Province	6,889	I	100.00	(1,862)
	Messer Specialty Gases (Meishan) Co., Ltd.	Mianyang City, Sichuan Province	5,815	I	100.00	(2,488)
	Messer Specialty Gases (Suzhou) Co., Ltd.	Suzhou, Jiangsu Province	22,614	I	100.00	6,249

Country	Name	Registered office	Equity (in K€)	Direct / Indirect	Share-holding in %	Net result after tax (in K€)
Affiliated companies included in the consolidated financial statements						
China	Messer Sunshine (Ningbo) Gas Products Co., Ltd.	Ningbo, Zhejiang Province	7,422	I	70.00	298
	Mianyang Messer Gas Products Co., Ltd.	Mianyang	5,325	I	100.00	1,318
	Ningxiang Xianggang Messer Gas Products Co., Ltd.	Ningxiang, Hunan Province	14,905	I	55.00	3,228
	Shaoxing Messer Gas Products Co., Ltd.	Shaoxing City, Zhejiang Province	8,761	I	70.00	1,625
	Sichuan Messer Gas Products Co., Ltd.	Chengdu	67,107	I	100.00	8,673
	Sichuan Pangang Messer Gas Products Co., Ltd.	Panzhihua, Sichuan Province	174,621	I	60.00	44,744
	Wujiang Messer Industrial Gas Co., Ltd.	Wujiang, Jiangsu Province	7,307	I	100.00	1,769
	Xiangtan Xianggang Messer Gas Products Co., Ltd.	Xiangtan, Hunan Province	8,917	I	55.00	–
	Xichang Pangang Messer Gas Products Co., Ltd.	Xichang City	128,348	I	60.00	18,980
	Yunnan Dianzhong Messer Gas Products Co., Ltd.	Suzhou, Jiangsu Province	4,114	I	65.00	(616)
	Yunnan Messer Gas Products Co., Ltd.	Kunming, Yunnan Province	26,062	I	100.00	(4,924)
	Zhuzhou Xianggang Messer Gas Products Co., Ltd.	Zhuzhou City, Hunan Province	4,202	I	55.00	–
Germany	Messer GasPack GmbH	Sulzbach	57,698	D	100.00	–
	Messer GasPack 2 GmbH	Krefeld	83,201	I	100.00	4,177
	Messer Griesheim China Holding GmbH	Sulzbach	178,322	D	100.00	–
	Messer Industriegase GmbH	Sulzbach	68,940	I	100.00	(375)
	Messer Industries GmbH	Sulzbach	1,083,263	I	100.00	(14,002)
	Messer Produktionsgesellschaft mbH Salzgitter	Sulzbach	8,533	I	100.00	–
	Messer Produktionsgesellschaft mbH Siegen	Sulzbach	9,224	I	100.00	(6)
	Messer Produktionsgesellschaft mbH Speyer	Bad Soden am Taunus	15,530	I	100.00	1
	Messer SE & Co. KGaA	Sulzbach	3,310,980		100.00	85,040
	Messer Trademark GmbH & Co. KG	Sulzbach	833	D	100.00	–
	Messer Trademark Management GmbH	Sulzbach	25	D	100.00	–
	Yeti GermanCo 2 GmbH	Sulzbach	1,093,387	D	100.00	–
	Yeti GermanCo 3 GmbH	Sulzbach	1,093,282	I	100.00	–
	Yeti Management Verwaltungs GmbH	Sulzbach	7	D	100.00	(3)
France	Messer France S.A.S.	Suresnes	144,861	I	100.00	17,060
Canada	Messer Canada Inc.	Ontario	135,977	I	100.00	32,776
Colombia	Messer Energy S.A.S. E.S.P.	Bogotá	334	I	100.00	118
	Messer Colombia S.A.	Bogotá	70,675	I	100.00	11,487
	REMEO Medical Services S.A.S.	Bogotá	1,672	I	100.00	608
Croatia	Messer Croatia Plin d.o.o.	Zapresic	28,113	I	99.96	5,691
Malaysia	Universal Industrial Gas Sdn. Bhd.	Senai	2,284	D	75.00	208
Netherlands (the)	Messer B.V.	Moerdijk	16,204	I	100.00	3,411
	Messer Industries B.V.	Moerdijk	141,569	I	100.00	(37)
North Macedonia	Messer Vardar Tehnogas d.o.o.	Skopje	10,377	D	100.00	1,838
Austria	Messer Austria GmbH	Gumpoldskirchen	105,835	D	100.00	10,122
Poland	Eloros Sp. z o.o.	Chorzów	10,070	I	99.97	2,326
	Messer Polska Sp. z o.o.	Chorzów	57,631	D	99.97	9,766
	MP Production Sp. z o.o.	Chorzów	9,090	I	99.97	3,455
Portugal	MesserGas Distribuicao des Gases Industriais, Unip	Lisbon	1,729	I	100.00	626
Puerto Rico	Messer Gas Puerto Rico Inc.	San Juan	10,955	I	100.00	5,375
Romania	Messer Romania Gaz S.R.L.	Bucharest	21,043	I	100.00	6,551

Country	Name	Registered office	Equity (in K€)	Direct / Indirect	Share-holding in %	Net result after tax (in K€)
Affiliated companies included in the consolidated financial statements						
Switzerland	ASCO Kohlensäure AG	Romanshorn	2,952	D	70.00	(381)
	Messer Schweiz AG	Lenzburg	37,531	I	100.00	6,057
Serbia	Messer Tehnogas AD	Belgrade	218,583	D	81.94	22,918
Slovakia	Messer Slovnaft s.r.o.	Bratislava	3,866	D	51.00	485
	Messer Tatragas spol.s.r.o.	Bratislava	25,387	D	100.00	7,643
Slovenia	Messer Slovenija d.o.o.	Ruse	53,053	I	81.23	6,948
Spain	Adamite Investments S.L.	Tarragona	6,721	I	100.00	919
	Leteira Investments S.L.	Tarragona	126,388	I	100.00	48,000
	Litadas Investments S.L.	Tarragona	27	I	100.00	(4)
	Messer Ibérica de Gases S.A.	Tarragona	34,188	I	100.00	8,581
	MG Industries Iberica S.L.	Tarragona	122,609	I	100.00	14,436
	Toubkal Investments S.L.	Tarragona	9,060	I	100.00	(8)
Thailand	Messer (Thailand) Co., Ltd	Bangkok	5,637	D	100.00	218
Czechia	Messer Technogas s.r.o.	Prague	62,558	D	100.00	32,657
	MG Odra Gas spol.s.r.o.	Vratimov	30,491	D	70.00	5,629
Hungary	Messer Hungarogáz Kft.	Budapest	85,090	D	100.00	25,703
USA	ASCO Carbon Dioxide Inc.	Jacksonville	566	I	70.00	(23)
	General Gases of the V.I. Inc.	St. Croix	9,389	I	100.00	502
	Messer Energy Services Inc.	Delaware	(4,321)	I	100.00	(1,390)
	Messer Industries USA Inc.	Delaware	233,974	I	100.00	(8,600)
	Messer LLC	Delaware	2,372,248	I	100.00	347,881
	Messer Merchant Production LLC	Delaware	4,023	I	100.00	(1,199)
	Messer North America Inc.	Delaware	(52,293)	I	100.00	(84,960)
Vietnam	Messer Binh Phuoc Industrial Gases Co., Ltd.	Binh Phuoc Province	2,757	D	100.00	(136)
	Messer Haiphong Industrial Gases Co., Ltd.	Hai Phong City	117,608	D	100.00	11,814
	Messer Quang Ngai Industrial Gases Co., Ltd.	Quang Ngai Province	27,585	D	100.00	31
	Messer Vietnam Industrial Gases Co., Ltd.	Binh Duong	9,629	D	100.00	297
Companies accounted for using the proportional consolidation						
USA	East Coast Nitrogen Company LLC	Delaware	50,075	I	50.00	(5,408)
	East Coast Oxygen Company LLC	Delaware	4,760	I	50.00	(558)

Country	Name	Registered office	Equity (in K€)	Direct / Indirect	Share-holding in %	Net result after tax (in K€)	
Companies accounted for using the equity method							
Belgium	GreenCO2 N.V.	Zwijndrecht	(99)	I	34.95	(67)	
China	Sichuan Meifeng Messer Gas Products Co., Ltd.	Mianyang City, Sichuan Province	5,308	I	50.00	442	
Germany	Mahler AGS	Stuttgart	3,968	D	25.00	2,644	
	HyDN GmbH	Jülich	6,272	I	50.00	(118)	
Estonia	Elme Messer Gaas A.S.	Tallinn	48,248	D	50.00	5,788	
France	Limes S.A.S.	Saint-Herblain	4,907	I	50.00	2	
Kosovo	Messer Medica LLC	Obiliq	2,096	I	49.00	34	
USA	Cliffside Helium LLC	Delaware	146	I	26.00	35	
	Cliffside Refiners LP	Delaware	2,943	I	25.74	2,503	
Affiliated companies not included in the consolidated financial statements							
Bosnia-Herzegovina	Plin Sarajevo d.d.	Sarajevo	2,737	I	100.00	47	(1)
France	Lida S.A.S	St.Quentin Fallavier	–	I	21.50	–	(1)
	Soprogaz S.N.C.	Beauvais	–	I	50.00	–	(1)
Gibraltar	Messer Primeco FZE Limited (Gibraltar)	Gibraltar	–	D	51.00	–	(1)
Greece	Messer Hellas S.A. i.L.	Athens	–	D	100.00	–	(1)
	Tehnogas-Hellas Ltd.	Athens	–	I	40.97	–	(1)
Kosovo	Messer GTM LLC	Kosovska Mitrovica	452	I	81.94	202	(1)
Malaysia	Excel Gas Solutions Sdn. Bhd	Kuala Lumpur	–	I	25.80	–	(1)

(1) Affiliated companies not included in the consolidated financial statements owing to immateriality for the net assets, financial position and result of operations

Group Management Report of Messer SE & Co. KGaA, Sulzbach (Taunus), for fiscal 2023

General Information on the Group

Overview of the Messer Group

Messer SE & Co. KGaA (the “Company”) is a manufacturer of industrial gases company based in Sulzbach (Taunus) near Frankfurt / Main with a business address in Bad Soden am Taunus. It operates as a management holding company and, together with its subsidiaries, associates and joint ventures, forms the Messer Group (the “Group”).

Founded in 1898, Messer is today the world’s largest family-operated specialist for industrial, medical and specialty gases. Products and services are offered in Asia, Europe and the Americas under the ‘Messer – Gases for Life’ brand.

From acetylene to xenon, the Messer Group offers an extensive product portfolio – the Company produces and sells industrial gases such as oxygen, nitrogen, argon, carbon dioxide, hydrogen, helium, welding shielding gases, specialty gases, medical gases, food gases and many different gas mixtures.

Messer’s Gases for Life are used in manufacturing, environmental protection, the medical and food sectors, welding and cutting equipment, 3D printing, construction, research and science.

In its own centers of competence, the Messer Group develops application technologies for using gases in almost all industrial sectors, not to mention food technology, medicine, research and science.

Messer SE & Co. KGaA and an investment vehicle of CVC Capital Partners (“CVC”), a global alternative investment manager, entered into a purchase agreement on May 30, 2023, for the acquisition of the shares held by CVC in the joint venture Yeti GermanCo 1 GmbH and the shares held by CVC in the joint management investment company Yeti Warehouse GmbH (the “CVC Transaction”). Messer’s operations in the Americas and Western Europe were combined in Yeti GermanCo 1 GmbH (Messer Industries Group).

The CVC Transaction was financed with bank loans that replaced existing loans and with an equity investment in Messer by Elbe Investment Pte. Ltd (“Elbe”), an investment vehicle of GIC (Ventures) Pte. Ltd. (“GIC Venture”). GIC Ventures and its wholly-owned subsidiaries are investment companies for investments managed by GIC Pte. Ltd. (“GIC”) or GIC’s wholly owned subsidiaries. GIC and GIC Ventures are wholly-owned by Singapore’s Ministry of Finance, which is the custodian and manager of Singapore’s sovereign wealth. To this end, Messer and its former sole shareholder, Messer Holding GmbH, entered into an investment agreement with Elbe on May 26 / 27, 2023 regarding the acquisition of new shares in Messer for a non-controlling minority interest of Elbe in Messer (the “GIC Transaction” and, together with the CVC Transaction, the “Transactions”), as a result of which GIC currently holds 22.97 % of Messer, subject to a subsequent modification in accordance with an earn-out provision contained in the investment agreement, which may lead to a decrease or increase (never exceeding 25 % minus one share) of Elbe’s shareholding. The completion of the GIC Transaction was linked to the completion of the CVC Transaction and vice versa.

The Transactions were subject to the fulfillment of customary conditions in the purchase agreements, including merger clearances and foreign trade approvals. After these clearances and approvals were obtained, the Transactions were closed on November 13, 2023. In order to complete the GIC Transaction, Messer carried out a capital increase in which Elbe subscribed for new shares in Messer. This capital increase was entered in the commercial register on November 28, 2023. Please refer to note 3 “Consolidated Companies” in the notes to the consolidated financial statements for more information.

Research and development

One of the main focuses of our research and development activities is new application technologies for using gases. All research in this field aims to develop and optimize customer processes to maintain and improve our competitive standing. To achieve this customer-specific solutions are developed at our centers of competence. The second focus is on the Engineering division, which is responsible for the development and construction or conversion of plants for the production of technical and medical gases. It primarily operates in Europe. The extensive experience gained from building and operating existing plants is used to continuously improve the efficiency of our plants and to use high-quality, durable, and energy-efficient components. Research and development thus plays an important role. Costs are not recognized separately and development costs are not capitalized.

Application technologies

In its own centers of competence, the Messer Group develops application technologies for using gases in almost all industrial sectors, not to mention food technology, medicine, research, and science. Messer combines its expertise in application technology at individual locations and operates two competence centers of its own in Krefeld, Germany, and Gumpoldskirchen, Austria. These centers of competence test technologies for gas applications in the areas of food, industrial cryogenic applications, metallurgy, welding and cutting, chemicals and the environment. The primary focus is on a forward-looking alignment of our application technologies, based on the needs of our customers, and the optimization of customer processes in collaboration with cooperation partners such as universities and institutes or directly with our customers. Most projects take more than a year to complete. The focus of many projects is on decarbonizing processes.

Engineering

The Engineering division represents Messer's internal plant engineering department for the construction of gas generation plants and is represented at the German sites in Krefeld and Bad Hönningen as well as in Belgrade, Serbia, and Shanghai, China. Engineering employees are centrally responsible for the design and construction of plants for the generation of air gases (oxygen, nitrogen, argon) and higher noble gases, as well as plants for the production of CO_2 and hydrogen. This is done in close coordination with the national subsidiaries. In addition, filling units for filling the gases into cylinders are being executed.

Changes in Group reporting in fiscal 2023

Messer SE & Co. KGaA, the parent company of the Messer Group, acts as a management holding company. It holds, directly or indirectly, the shares of the companies belonging to the Messer Group. Including Messer SE & Co. KGaA, 108 companies are fully consolidated in the consolidated financial statements. We recognize two joint operations on a pro rata basis and account for nine companies using the equity method.

Please refer to note 3 "Consolidated Companies" in the notes to the consolidated financial statements for more details on the changes in Group reporting.

Financial performance indicators

The Messer Group uses control parameters derived from operating performance indicators to manage its business. The most significant performance indicators are revenue, EBITDA, capital expenditure, net debt and ROCE. Further explanations and a breakdown of indicators can be found in the sections on financial performance and financial position.

To make it easier to compare the performance indicators with those of the previous year, the performance indicators for the 2023 fiscal year are also presented below, adjusted for the effects of the acquisition of the Messer Industries Group and the release of hidden reserves as part of the purchase price allocation. The text section for each performance indicator also provides additional details.

Non-financial performance indicators[1]

Safety, health, environmental protection and quality (SHEQ) have been firmly embedded in the family-operated Messer's guiding principles since its inception in 1898, and continue to be its top priority today. Messer is aware that well-organized safety and quality guidelines form the basis for handling operational risks safely and for improving operational performance. For this reason, the health and safety of our employees and environmental protection are an integral part of global quality management, which is reflected in various standards of the Messer Group.

The Messer Group has introduced corporate social responsibility management (CSRM) in order to accommodate the growing importance of a sound environment, social justice and good corporate governance. The CSRM adheres to a long-term approach and contributes towards Messer's sustainable development. To this end, the Messer Group also continued to refine its SHEQ indicator system.

[1] The content of this section is voluntary and unaudited, but has been read critically by the auditor.

In the past fiscal year, 804 (previous year: 995) SHEQ inspections were carried out in the Messer Group that led to a large number of improvements.

Furthermore, employees in the Messer Group submitted 139 (previous year: 312) ideas and suggestions for improvements.

The six material aspects of our CSRM are described in more detail below.

Occupational health and safety

Occupational safety is of great importance to the Messer Group. Messer's safety guidelines reflect our position: "All work-related illnesses, injuries and accidents are avoidable."

Messer uses its global management system to identify and control possible operational risks. The principles of this system are documented in a SHEQ manual and cover all relevant safety-related areas, such as risk management, safety training, safety tests, personal protective equipment, communication safety and accident investigation. The SHEQ manual is a part of compliance management at the Messer Group and is updated and improved regularly.

In order to measure the success of the safety measures and initiatives, the following performance indicators are determined annually: work accidents with lost days and frequency of accidents (number of work-related accidents with lost days per million working hours) and accident severity rate (missing days per million working hours).

There were 24 reported work accidents with lost days in 2023 (previous year: 17). The accident frequency rate per million hours worked declined from 1.7 in the previous year to 1.4. By contrast, the number of days lost (accident severity) per million hours worked increased from 51.9 in 2022 to 83.4 in 2023.

	2019	2020	2021	2022	2023
Working accidents with lost days	16	21	21	17	**24**
Accident rate	1.7	2.2	2.2	1.7	**1.4**
Accident severity	52.3	86.7	104.2	51.9	**83.4**

Messer is an active member of the European Industrial Gases Association ("EIGA"), the International Oxygen Manufacturers Association ("IOMA"), the Asia Industrial Gases Association ("AIGA") and the Compressed Gas Association ("CGA") as well as the American Chemistry Council ("ACC") in the Americas. Our experts regularly share experiences in order to learn from incidents in the industrial gas sector.

Transport safety

The transportation of gases and equipment by road and customer deliveries are activities that have high risk potential in the gas industry. The Messer Group therefore pays special attention to the area of transport safety.

Most of the driving staff who work for Messer in Europe are employed by external transport companies. These companies are responsible for training the drivers in accordance with the ADR (European Agreement concerning the International Carriage of Dangerous Goods by Road). In China gases are largely transported using the Company's own fleet. To ensure transport security, drivers and support personnel receive training in accordance with the local laws and regulations at regular intervals.

There were 12 avoidable accidents when transporting cylinder gases in 2023 (previous year: 0). For every million kilometers driven, this corresponds to an increase in the frequency rate from 0.0 in 2022 to 1.5 in 2023. The number of avoidable accidents when transporting liquefied gases increased from 8 in 2022 to 44 in fiscal 2023. Consequently, the frequency rate per million kilometers driven also increased from 0.1 in 2022 to 0.9 in 2023. Unavoidable accidents are those caused by external factors beyond the driver's control. All other accidents are considered avoidable.

Accidents are to be reduced further in the future with the help of suitable supplier management, information on defensive driving and load safety. Messer also operates its own modular driver training package. The main issues covered by the training are:

- Statutory regulations (European and national regulations for the transport of dangerous goods by road)
- Technical aspects (hazards arising from product, vehicle and tank technology, vehicle checks, safety technology)
- Accident avoidance
- Defensive, economic driving

In addition, all drivers receive a manual specifically tailored to their work (bulk, cylinder or service vehicles). This ensures that the drivers have all the key information about their work to hand at all times.

Digitalization / IT security

At Messer the Group IT Security Officer is responsible for coordinating security measures, creating standards and cultivating the corresponding expertise for all the individual companies. IT security supports the sustainability of our digitization and the physical security of our information, in addition to helping to ensure that our key business processes can be carried out by safeguarding the necessary availability of our systems. IT security services are devised by the IT Security team and its international members.

As part of the European IT security campaign, four phishing simulations were organized for employees this year. Employees were actively trained in the dangers of cybercrime using an awareness platform to improve their knowledge and reduce potential IT risks. A pilot project added a phishing button to Outlook for a large number of users so that they could report suspected phishing attacks with a single click. If the system detects dangerous e-mails, a notification is sent and the e-mail is simultaneously quarantined. The quarantine may be extended to other recipients if necessary. Fraudulent senders are placed on a blacklist, which prevents any further delivery of e-mails from the same sender. This approach is yet another important security component with respect to security risks.

IT Security in China is run centrally from Shanghai. Compliance with IT security guidelines is also monitored from there. Each national subsidiary also has its own IT department to guarantee a quick response to attacks, vulnerabilities or emerging threats.

In Europe Kyndryl Deutschland GmbH has been operating the European cloud data center with centrally provided applications in line with the latest globally established standards since 2021. The firewalls in the data center and at the individual sites are managed centrally, as are the servers, client PCs and mobile end devices, and the deployment of standardized software. We continued the standardization process for Messer companies that were not yet fully integrated in fiscal 2023. Additional measures to ensure the availability, confidentiality and integrity of information were implemented in 2023, including additional backups for Microsoft cloud applications SharePoint, OneDrive, and Exchange Online. There were also many local, regional and central digitalization initiatives. At the same time, the Management Board approved a new version of the IT security guideline, focusing on defining the responsibilities of data and application owners, for example. The focus and application of this guideline for the Americas and Asia is done in a constructive exchange and in compliance with regional requirements.

In the Americas, cyber security is embedded in the general risk management program. This includes regular audits and checks on the part of third parties to assess the general cyber security situation and timely compliance with targets. The Americas management team is informed by the Chief Information Officer on the current status of cyber security as part of a formal presentation. This allows us to monitor target achievement and agree and approve the necessary funding for additional tools and resources.

As part of redesigning the general management of the “cybersecurity roadmap,” Messer in the Americas is currently closely aligning itself with the “NIST Cybersecurity Framework”. Within the IT environment, Messer carries out checks and implements technologies to protect itself against cyber-attacks and threats. These technologies include numerous cross-sector tools to monitor and protect end user devices, servers, business applications and cloud platforms. Members of the infrastructure and security organization monitor them regularly to ensure that potential vulnerabilities are addressed. This also guarantees a quick response to attacks or emerging threats. The current IT security guidelines and processes are designed to ensure appropriate control and management of infrastructure, user access and data protection. Raising awareness among staff and providing training are important aspects of the local cyber security program. This is achieved on the basis of a combination of training, communication and the use of online tools. Social engineering concepts heighten employee awareness and thus reduce potential vulnerability for threats and attacks.

Digitalization is one of the most important pillars of Messer’s operating strategy in the Americas and provides a fundamental framework for using IT to drive growth at the companies. Management is responsible for increasing efficiency within information services, providing technologies which support the business strategy, while at the same time ensuring excellent service. The identification and prioritization of digitalization projects is what guides the IT strategy when selecting and implementing business software and flexible technology infrastructure. In the current technology landscape, platforms by leading providers such as SAP, Salesforce and Microsoft are used to help transform business processes, automation and data management. The use of cloud-based technology platforms is also an increasingly important element of the IT strategy to promote digitalization, ensure flexibility and speed and at the same time meet our cybersecurity obligations.

Data protection

Messer is committed to compliance with the applicable data protection regulations. Corresponding structures are therefore created to guarantee a high level of data protection at Messer in the long term.

The Group Privacy Officer (“GPO”) is responsible for coordinating the central data protection department at Messer and also oversees compliance with the General Data Protection Regulation at the European national companies. The GPO also provides a number of templates and processes to ensure a uniform standard of data protection within Europe.

Using a list of questions and audit report developed by the GPO, a total of five (previous year: seven) basic audits of European national subsidiaries were carried out in 2023 to determine the basic level of data protection at the respective company. Four follow-up audits were also carried out.

In 2023 separate internal and external privacy notices were developed in the Americas to replace the data protection policy for the United States and Canada. These privacy notices supplement the data protection policies set out in the US supplement to the Messer Group Code of Conduct and are covered in an e-learning module on “Ethics and Code of Conduct”. The current data protection policies in Brazil, Colombia and Chile remain in force.

In North America, Colombia, and Chile employees from the Legal and Compliance and Human Resources departments are responsible for data protection matters and inquiries. In Brazil an external law firm was engaged to respond to data protection matters and requests.

Environmental management

Ensuring the highest level of environmental protection is of the utmost importance to Messer. Messer employs a global management system to live up to this commitment. The internal environmental protection policies are documented in the Messer Group’s SHEQ Manual. These policies and the environmental management systems of all subsidiaries are consistent with the international ISO 14001 standard and the recommendations of the European Industrial Gases Association (e.g. EIGA IGC Doc. 107 – Guidelines on Environmental Management Systems). In 2023 19 of our subsidiaries had their environmental management systems externally certified. In 2022 this figure was also 19 companies. Until 2023 Messer in the Americas continued to follow the American Chemistry Council’s “Responsible Care Management System (RCMS)”, which 28 sites in the United States were certified to. In 2023, however, Messer in the Americas switched from RCMS to ISO14001. ISO 14001 certification for sites in the United States (and two in Canada) was obtained in October 2023. As of January 1, 2024, Messer will no longer be RCMS certified in the US. As in the previous year, both air separation units and the CO_2 production site in Colombia and four of nine sites in Brazil were certified to ISO 14001.

The efficient use of energy is in Messer’s own interests. Pursuing the main goal of reducing costs and conserving resources, energy management is an ongoing process that also helps to reduce our carbon emissions. Our energy management system is certified according to ISO 50001 at all Messer production sites in Germany and Spain.

At its production sites Messer uses atmospheric air and electricity as the main raw materials for producing air gases such as nitrogen, oxygen, and argon. Production by air separation units accounts for more than 75 % of total energy consumption. The focus here is on the ongoing enhancement of energy efficiency. Messer has engaged a Global Energy Officer (GEO) specifically to improve the energy efficiency of air separation units.

The continuous monitoring of unit performance means that deviations in energy consumption can be detected and potential for improvement identified. In cooperation with local managers, projects to improve energy efficiency are being initiated on an ongoing basis.

The volume of the gases produced in ASEAN, China and Europe decreased 3.7 % year on year in 2023. Specific energy consumption, measured as the energy consumption per cubic meter of gas sold, was unchanged year on year.

To reduce transport costs for liquefied gas supplies and associated carbon emissions, we commissioned further on-site facilities in 2023 as well. These facilities will enable us to boost on-site gas production and at the same time save around 900 truck transports and thus 400 tons of carbon per year. Local customers benefit from even greater flexibility and security of supply.

Being a member of the European Clean Energy Alliance and the H2BZ-Initiative e. V., Messer can contribute its comprehensive expertise in the field of industrial gases in the interests of the efficient and effective use of clean hydrogen with partners throughout Europe.

Customer satisfaction / quality

Taking the opinions and satisfaction of our customers into account is self-evident for Messer as a responsible company, which is why we measure customer satisfaction in systematic surveys and integrate the results into our management processes. The analysis is repeated every two years at every European national company.

We conducted customer satisfaction surveys in our companies in Asia (China and Vietnam) and in Europe (Slovenia, Slovakia, Spain and France) within the Messer Group in 2023. None of the local operating companies in the Americas conducted a survey in 2023; customer surveys are planned for the second half of 2024.

We wrote to a total of 8,712 customers (previous year: 4,925). On average, 14.4 % (previous year: 5.2 %) completed the mailed questionnaires in full. As a result, we were able to analyze a total of 1,257 (previous year: 255) questionnaires.

The results of the various surveys are summarized by region. On a scale from 1 for very dissatisfied to 10 for very satisfied, the Messer Group's overall performance is between 8.2 and 9.8. This puts its overall results at a high level. Potential for improvement was identified in the individual countries and implemented.

Messer China was responsible for the highest response rate of 55.9 % and an overall performance rating of 9.8 in 2023. Its 12 operating companies and SG (Specialty Gases) units completed the standardized survey format.

Economic Report

General economic conditions

The various industrial gases offered by the Group and the associated services and technologies are used in almost all industrial sectors, not to mention food technology, medicine, research and science. Gross domestic product (GDP), as it applies to all sectors and to the economy at large, is therefore a relevant indicator for the performance of the Messer Group.

Oxford Economics Ltd.[2], an independent economic research and advisory firm, stated that global GDP was 2.7 % – much higher than expected at the start of 2023 (1.5 %). The International Monetary Fund (IMF) estimates GDP slightly higher at 3.4 %. The economy proved to be very stable despite many crises such as the war in Ukraine, relatively high inflation, a sharp rise in financing costs and deglobalization. This was driven by factors such as very robust consumption and investment in the US and resilient economic performance in emerging and developing economies.

There were considerable regional differences for GDP in 2023, with industrialized nations growing by 1.6 % (previous year: 2.6 %) and emerging markets by 4.2 % (previous year: 3.7 %). GDP growth within the industrialized nations in the eurozone came to 0.5 % in 2023 (previous year: 3.4 %), lower than the US figure of 2.5 % (previous year: 2.1 %). Higher growth in emerging markets compared to industrialized nations is primarily due to India, which picked up by 7.0 % (previous year: 6.9 %). China generated growth of 5.2 % (previous year: 3.0 %), Brazil generated 2.9 % (previous year: 3.0 %). This means that economic output grew in most countries despite numerous geopolitical risks. Except for the eurozone, these countries exceeded the expectations established in the course of the year.[3]

GDP in the eurozone grew by 0.5 % in 2023 compared to 3.4 % in the previous year. Nearly all relevant indicators were below the 2022 figures, such as consumer spending +0.5 % (previous year: +4.2 %), investments +0.7 % (previous year: +2.8 %) or industrial production -2.6 % (previous year: + 2.1 %). Inflation was 5.4 %, lower than the previous year (+8.4 %), mainly due to the fall in energy prices. This was heavily affected by developments in Germany, the eurozone's largest economy. High interest rates, high inflation and a decline in exports (-1.5 %) led to a fall in consumer spending (-0.9 %) and industrial production (-1.6 %). GDP shrank by -0.21 % year on year. Within the eurozone, however, the performance of individual countries varied considerably. While GDP increased in Spain (+2.4 %), France (+0.8 %), Portugal (+2.2 %), Belgium (+1.4 %) and Italy (+0.7 %), Austria (-0.7 %) and Finland (-0.4 %) joined Germany in recession.[4,5]

Eastern European countries experienced different trends in economic growth. In Poland and Slovakia, real GDP grew by 0.6 % and 1.1 %, respectively. Czechia, on the other hand, is in a recession with a GDP of -0.5 % and achieved the lowest result within the EU. Economic output grew significantly in Southeastern European countries such as Serbia (+2.6 %), Croatia (+2.5 %), Slovenia (+1.4 %) and Bosnia-Herzegovina (+0.7 %).[6,7] This is due to positive developments in consumer spending and investment on the one hand, and lower inflation rates as a result of interest rate hikes on the other.

[2] Oxford Economics Ltd. – World Economic Prospects, January 2024
[3] Oxford Economics Ltd. – World Economic Prospects, January 2024
[4] Oxford Economics Ltd. – World Economic Prospects, January 2023
[5] Oxford Economics Ltd. – Country Economic Forecast, December 2023 / January 2024
[6] Oxford Economics Ltd. – World Economic Prospects, January 2024
[7] Oxford Economics Ltd. – Country Economic Forecast, December 2023 / January 2024

China's GDP grew by 5.2 % in 2023, compared to +3 % in the previous year. Once the pandemic measures came to an end at the turn of 2022 / 2023, China experienced an economic upswing that was chiefly due to higher industrial production, higher foreign trade and higher consumer spending. All these factors have increased following the end of China's COVID measures but are still below pre-pandemic levels. Among the factors weighing on economic sentiment in China are high youth unemployment and the continuing problems in the Chinese real estate market, which is only making slow progress in restructuring.[8]

In the US, GDP was up 2.5 % (previous year: 1.9 %), significantly exceeding the expectations set at the beginning of 2023 (0.0 %). Reasons for the increase include robust consumer spending of 2.2 % (previous year: 2.5 %, forecast 0.5 %), higher exports (+2.7 %; forecast: -4 %) and a slight increase in industrial production (+0.2 % compared to the previous year) even though a decline of -1.6 % was projected at the start of 2023. Inflation was 4.1 %, below the previous year's figure of 8.0 %. The Fed raised the key interest rate to 5.38 % (previous year: 4.38 %), the highest level since the first quarter of 2001. Unemployment is at 3.63 %, one of the lowest levels in the last 20 years.[9]

Brazil increased its GDP to 2.9 % compared to the previous year (3.1 %) primarily due to stable consumer spending (+3.2 %), resilient industrial production and monetary and fiscal policies that reduced inflation from the previous year to 3.6 %.[10]

Business performance

Industrial gases business is defined by a pronounced and highly varied diversification across economic sectors, customer segments and national activities. Furthermore, industrial gases business is locally structured, which means that it is not directly dependent on global supply chains. The economic recovery that continued in 2023 thanks to the easing of pandemic restrictions resulted in rising demand for industrial gases on many of our relevant markets, especially in Europe.

At the beginning of the year, business was still impacted in Europe by rising energy prices, which had already had a significant impact on 2022. High inflation had caused economic activity in the region to slow, with a corresponding impact on demand for industrial gases. Volume growth remains low in Europe. Successful pricing measures and normalizing energy costs resulted in strong revenue growth, while EBITDA and margins also increased in 2023.

The Chinese economy has not yet been able to return to pre-pandemic levels. Problems in the real estate sector persisted, putting a strain on steel production. Prices were affected by lower demand for certain industrial gases. Nevertheless, Messer was able to achieve significant sales growth in China by using new and existing plants to capacity. On the other hand, the CNY exchange rate had a negative impact on earnings of consolidated companies (reported in euros).

[8] Oxford Economics Ltd. – World Economic Prospects, January 2024
[9] Oxford Economics Ltd. – World Economic Prospects, January 2024
[10] Oxford Economics Ltd. – Country Economic Forecast, December 2023

In the ASEAN region, negative demand effects due to a weak steel market in the first six months were slightly overcompensated by higher demand for liquefied gases, driven mainly by business performance in Vietnam.

The macroeconomic effects of the war in Ukraine shaped fiscal 2023 not only for the Messer Industries Group but also for the global economy in general and Europe in particular. The strong demand for liquefied gases and hardware in North America did not decline slightly until the fourth quarter. Business in Western Europe also performed well despite the general economic situation. South American business activities also remained strong over the entire year of 2023, with rising demand for both medical and industrial gases. Particularly the Brazilian economy continued to prove robust across most markets.

In challenging economic circumstances overall in our relevant economic areas and sectors, the Messer Group's business proved resilient in 2023, nearly meeting the forecast of a steep increase in revenue compared to fiscal 2022. Adjusted for the effects of the acquisition of the Messer Industries Group, revenue increased markedly by around 6 % to € 1,667 million, partly due to positive exchange rate effects. EBITDA at the Messer Group was also far better than expected. EBITDA was forecast to fall sharply in 2023. However, after adjusting for the effects of the acquisition of the Messer Industries Group and the release of hidden reserves as part of the purchase price allocation, it actually increased by just over 6 % to € 443 million compared to the previous year (€ 418 million). This was mainly due to the higher depreciation of property, plant and equipment, amortization of intangible assets and impairment compared to the prior year, which amounted to € 189 million on an adjusted basis (previous year: € 146 million) and improved EBITDA due to their elimination. In contrast, the adjusted operating profit (EBIT) of € 253 million in 2023 is mainly impacted by transaction costs and is below the previous year's figure of € 272 million.

After adjusting for the effects of the acquisition of the Messer Industries Group and the release of hidden reserves as part of the purchase price allocation, investments in intangible assets and property, plant and equipment were below our forecast at around € 233 million. On December 31, 2023, the Messer Group's net debt amounted to € 3,140 million (previous year: € 56 million), which is in line with our forecast (strong increase). The main reasons for this increase are the acquisition of the Messer Industries Group and the associated refinancing of the Group. Please refer to the "Financing" section under "Overall situation of the Group" for more information. As a result of strong business performance and investments that reflected our forecast, ROCE, after adjusting for the effects of the acquisition of the Messer Industries Group and the release of hidden reserves as part of the purchase price allocation, was 17 %, significantly higher than our forecast (strong decrease). ROCE is slightly below the previous year's level due to one-time transaction-related effects that had a negative impact on operating profit.

Overall situation of the Group

Results of operations

In fiscal 2023, the Group generated global revenue of K€ 2,109,018 (previous year: K€ 1,573,676), which breaks down among the individual regions as follows:

Revenue	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022	Change in 2023
China	682,001	712,171	(4.2 %)
Central Europe	405,118	331,124	22.3 %
Southeast Europe	382,668	322,013	18.8 %
ASEAN	129,220	136,036	(5.0 %)
Corporate	67,761	72,332	(6.3 %)
Revenue (adjusted)(1)	1,666,768	1,573,676	5.9 %
North America	297,618	–	–
South America	65,751	–	–
Western Europe	78,881	–	–
	2,109,018	**1,573,676**	**34.0 %**

(1) After adjusting for the effects of the acquisition of Messer Industries Group

Fiscal 2023 shows an increase in revenue of 34.0 % compared to the previous year; after adjusting for effects from the acquisition of the Messer Industries Group, this results in an increase of 5.9 %. Business activities in the various regions developed as follows:

China

China experienced an economic upturn once the strict pandemic restrictions came to an end. However, problems in the real estate sector continued in 2023, negatively impacting demand in the steel industry. Business with large on-site customers in the steel industry was mixed but largely positive. Business with customers in other sectors and with specialty gases performed according to plan. The revenue downturn in China was driven chiefly by an unfavorable currency effect. After adjusting for currency effects, revenue was up slightly on the previous year's currency-adjusted revenue despite the continuing tough economic environment.

Central Europe

Revenue in the Central Europe region increased by 22.3 % compared to the previous year. This trend was again driven by high energy prices in 2023, which were passed on to customers in the form of price increases.

Southeast Europe

The Southeast Europe region increased revenue by 18.8 % year on year. This resulted primarily from passing on far higher energy costs to customers. Revenue from specialty gases also contributed to the increase and compensated for the normalization in demand for medical gases. Demand for medical gases had been strong in the previous years due to the COVID-19 pandemic. Lower inflation rates also led to an increase in economic output in the region, which contributed to an increase in demand for industrial gases.

ASEAN

Revenue in the ASEAN region declined by -5.0 % in 2023. This decline is primarily due to revenue growth in Vietnam (-5.5 %; after adjusting for currency effects: -1.3 %). Performance was driven by the year-on-year decline in revenue with our pipeline customer Hoa Phat and the continued normalization of revenue with liquefied and specialty gases. The decrease was partially offset by the performance of the remaining business and higher liquefied gas prices.

Our other activities in the ASEAN region, with companies in Malaysia and Thailand, contributed € 9.6 million to total revenue (previous year: € 9.5 million).

Corporate and Western Europe

The companies included in the Western Europe region until the previous year – which comprise the industrial gases activities of ASCO Kohlensäure AG, the business activities of the service company Messer GasPack GmbH and those of Messer SE & Co. KGaA – have been combined under “Corporate” since the start of fiscal 2023. The revenue of these companies decreased by -6.3 % compared to the previous year.

The companies acquired as part of the acquisition of the Messer Industries Group in the Western Europe region in November 2023 contributed K€ 78,881 to revenue. The companies in France and Spain as well as Messer Industriegase GmbH in Germany, with its production sites in Siegen, Salzgitter and Speyer, contributed more than 70 % to this figure.

North America

The companies in the North America region acquired as part of the acquisition of the Messer Industries Group in November 2023 contributed revenue of K€ 297,618 to total revenue. Of this amount, K€ 244,340 is attributable to companies in the US and K€ 48,692 to companies in Canada.

South America

The newly acquired companies in Brazil, Colombia and Chile form the South America region and have contributed K€ 65,751 to consolidated revenue since their addition. Of this amount, K€ 43,152 is attributable to the Brazilian subsidiaries.

The Group generated global EBITDA of K€ 3,605,289 in fiscal 2023 (previous year: K€ 418,391).

EBITDA	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2023 (adjusted)(1)	Jan. 1 – Dec. 31, 2022
Operating profit (EBIT)	3,312,591	253,470	272,099
Depreciation of property, plant and equipment, amortization of intangible assets and impairment	291,948	188,914	145,590
Dividend income(2)	750	750	702
EBITDA	**3,605,289**	**443,134**	**418,391**
Revenue	2,109,018	1,666,768	1,573,676
Margin	**170.9 %**	**26.6 %**	**26.6 %**

(1) After adjusting for the effects of the acquisition of the Messer Industries Group and the release of hidden reserves as part of the purchase price allocation
(2) Dividend income from non-consolidated companies

After adjusting for the effects of the acquisition of the Messer Industries Group and the release of hidden reserves as part of the purchase price allocation, operating profit (EBIT) fell by -6.8 % in the past fiscal year. This decline is partly due to the increase in depreciation of property, plant and equipment, amortization of intangible assets and impairment and partly due to transaction costs in fiscal 2023. By contrast, the adjusted EBITDA margin remained unchanged compared to the previous year.

Income from investments improved by K€ 13,576 compared to the previous year. This essentially includes the pro rata results of the Messer Industry Group, which is accounted for using the equity method, of K€ 156,021 (previous year: K€ 146,299). Its companies were fully included in the consolidated financial statements of the Messer Group on the acquisition date of November 13, 2023.

Net finance income and expenses amounted to K€ -25,063 (previous year: K€ -5,298) as of December 31, 2023. The main items in finance income and expenses are foreign currency gains and losses and net interest result. In the year under review, foreign currency gains of K€ 26,412 were offset by foreign currency losses of K€ -59,356, compared to K€ 28,635 and K€ -31,954, respectively, in the previous year. The net interest result of K€ 16,932 improved on the previous year's figure of K€ -6,671. This was partly due to interest income from a US company from the reversal of interest rate hedges. This is mainly offset by interest expenses due to (re)financing. Financial liabilities increased year on year from K€ 3,435,624 to K€ 3,752,244 Further information on this can be found under "Financial position".

In total, consolidated net income including non-controlling interests of K€ 3,453,667 (previous year: K€ 345,851) was generated in fiscal 2023. Of this, K€ 3,404,568 (previous year: K€ 298,013) relates to the shareholders of the parent company. This amount is primarily the result of income from changes in Group reporting of K€ 3,186,140. Please refer to note 3 "Consolidated Companies" in the notes to the consolidated financial statements for more information.

Financial position

Messer's Group Treasury is responsible for overall liquidity, interest rate and currency management. The most important objective for Group Treasury is to ensure that the Group has a minimum level of liquidity to guarantee solvency at all times. High levels of cash funds improve our flexibility, security and independence. We can generate additional liquidity as necessary through various other unutilized credit facilities amounting to € 508.2 million.

Financing

A syndicated multi-currency term, revolving and bridge facilities agreement (RFA I) was concluded with a syndicate of banks on May 27, 2023. The RFA I was executed by BNP Paribas, Deutsche Bank Luxembourg S.A., JP Morgan Chase Bank N.A., London Branch and UniCredit Bank AG (now UniCredit Bank GmbH) as appointed principal brokers, with UniCredit Bank AG (now UniCredit Bank GmbH) acting as the agent. Other financial institutions are available as lenders under RFA I. The RFA I consists of five lines:

- EUR Term Loan Facility (Term Facility 1) for € 600.0 million maturing on November 13, 2028; the interest rate is EURIBOR (Euro Inter Bank Offered Rate) plus the margin. This is dependent on the ratio of net debt to EBITDA.

- USD Term Loan Facility (Term Facility 2) for USD 700.0 million maturing on November 13, 2028; the interest rate is Term SOFR (Secured Overnight Financing Rate) plus the margin. This is dependent on the ratio of net debt to EBITDA plus a premium depending on the term of the interest period.

- Revolving facility of € 600.0 million with a maturity date of November 13, 2028, and an option to extend it by one or two years with the consent of the lenders. The interest rate on the revolving facility is based on Term SOFR or EURIBOR in the currency in which the facility is drawn, plus a margin. This is dependent on the ratio of net debt to EBITDA.

- EUR Bridge Term Loan Facility (EUR Bridge Facility) for € 1,450.0 million with a maturity date of November 13, 2024, and up to two extension options of six months each that the Messer Group can exercise unilaterally. The interest rate for the EUR Bridge Facility is made up of EURIBOR plus the margin. The margin automatically increases every three months.

- USD Bridge Term Loan Facility (USD Bridge Facility) for € 900.0 million with a maturity date of November 13, 2024, and up to two extension options of six months each that the Messer Group can exercise unilaterally. The interest rate for the USD Bridge Facility is made up of Term SOFR plus the margin plus a premium of 0.20 %. The margin automatically increases every three months.

Net debt amounted to € 3,139.5 million (previous year: K€ 56,166) as of December 31, 2023, and is calculated as follows:

	Dec. 31, 2023	Dec. 31, 2022	Change in 2023
Financial liabilities	3,752,244	316,620	>100 %
Cash and cash equivalents	(612,704)	(260,454)	>100 %
Net debt	**3,139,540**	**56,166**	**>100 %**

The net debt of the Messer Group increased by € 3,083.4 million year on year as a result of the acquisition in 2023. The ratio of existing financial liabilities (€ 3,752.2 million) to total assets (€ 13,999.8 million) was 26.8 % in the fiscal year (previous year: 9.2 %).

The change in financial liabilities is shown below:

Gross financial liabilities as of Jan. 1, 2023	**316,620**
Cash changes:	
New debt raised	3,596,478
Payments of principal	(1,976,070)
Non-cash changes:	
Additions to lease liabilities	154,727
Changes due to currency translation	(62,532)
Change in Group reporting	1,744,454
Other non-cash changes	(21,433)
Gross financial liabilities as of Dec. 31, 2023	**3,752,244**

Statement of cash flows

The statement of cash flows is as follows:

Condensed version in K€	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
Profit before tax	3,447,430	413,730
Cash flow from operating activities	456,448	359,453
Cash flow from investing activities	(3,506,644)	(254,932)
Cash flow from financing activities	3,413,627	(145,929)
Changes in cash and cash equivalents	**363,431**	**(41,408)**
Cash and cash equivalents		
at the beginning of the period	**260,454**	**304,215**
Currency translation effect on cash and cash equivalents	(11,181)	(2,353)
at the end of the period	**612,704**	**260,454**

Profit before tax, after adjusting for income from investments accounted for using the equity method, rose by € 3,020.1 million on the previous year. This is mainly due to the net income from changes in Group reporting in 2023 (€ 3,104.7 million). Without this one-time effect, profit before tax after adjusting for investment income would have decreased by 31.6 % to K€ 182,861 in 2023. This decline is mainly due to the increase in depreciation of property, plant and equipment, amortization of intangible assets and impairment and the one-time transaction costs incurred in fiscal 2023. Cash flow from operating activities of € 456.4 million was above the previous year's level due to the positive impact of the Messer Industries Group and good working capital management.

The development in cash flow from investing activities is not comparable with the previous year due to the payment for the acquisition of the Messer Industries Group. Please refer to note 3 "Consolidated Companies" in the notes to the consolidated financial statements for more information. Excluding the one-time payment, cash flow was once again dominated by the Messer Group's ongoing investment activity. A significant portion of the capital expenditure related to investments in property, plant and equipment in 2023.

At € 3,413.6 million, cash flow from financing activities shows a year-on-year increase in cash inflow of € 3,559.6 million. This is due, among other things, to the effects and costs of refinancing and the related repayment of existing financial liabilities of € -1,976.1 million as well as new borrowings of € 3,596.5 million to finance the purchase price. In addition, cash flow was influenced by the cash effects of the capital increase of € 1,980.7 million and the dividend payout of € 80.5 million (previous year: € 30.0 million). Interest paid primarily for financing resulted in cash outflows of K€ 29,634 (previous year: K€ 9,344), which were offset by interest income from the reversal of interest rate derivatives.

The cash funds of the Messer Group amounted to K€ 612,704 as of December 31, 2023.

In fiscal 2024, existing debt will be refinanced and further funds will be required to finance the steady expansion of operating activities, carry out planned investments and acquisitions, pay interest and distribute dividends. These funds are generated from the cash flow from operating activities, available cash and unutilized credit facilities as well as newly raised financial liabilities.

The Group has undertaken to invest in the acquisition, construction, and maintenance of various production facilities. Obligations of this kind relate to the future purchase of plant and equipment at market prices. There are also long-term contracts giving rise to obligations. The commitments under orders, investment projects and long-term contracts amounted to K€ 759,237 as of December 31, 2023 (previous year: K€ 163,952).

Capital expenditure

Capital expenditure continues to focus on safeguarding existing business and exploiting profitable growth potential. In line with business principles, we primarily invest in projects that safeguard our product supply or that offer opportunities for profitable growth. We also regularly invest in the modernization of production systems and distribution channels.

The Messer Group invested around € 233 million in intangible assets and property, plant, and equipment in 2023, after adjusting for the effects of the acquisition of the Messer Industries Group. This essentially related to the construction of air separation units and other production facilities in China, Vietnam, Austria, Czechia, Serbia, and Poland. In addition, around € 100 million was invested in companies of the former Messer Industries Group in the Americas and in Western Europe in the last two months of the year. This brings the total amount invested in 2023 to around € 333 million.

Capital expenditure broke down by region as follows:

Capital expenditure	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2022
China	86,612	125,979
ASEAN	62,183	31,043
Central Europe	40,188	42,799
Southeast Europe	35,349	54,041
Corporate	8,314	11,393
Capital expenditure (adjusted)(1)	**232,646**	**265,255**
North America	70,009	–
South America	11,693	–
Western Europe	18,792	–
	333,140	**265,255**

(1) After adjusting for the effects of the acquisition of Messer Industries Group

In China the focus in 2023 was again primarily on investment projects that will further strengthen our position in the liquefied natural gases market and thus – in addition to ongoing investments in capacity expansion for existing on-site customers – promote balanced customer diversification within the existing business model. We also focused on investing in systems for the production or processing of specialty gases, in particular to supply customers in the electronics industry. Other investments were made in generators, hydrogen and filling systems.

The ASEAN region continues to be dominated by investments in Vietnam, including the expansion of production capacity to serve the liquefied natural gases market in the south of the country in addition to traditional air separation for on-site customers. Messer aims to further diversify in Vietnam by building a nitrous oxide plant and investing in generators for new customers, particularly in the photovoltaic industry. Ground was also broken for the first air separation unit in Thailand in 2023.

Investing activities in Central and Southeast Europe continue to center around distribution channels and selective growth projects. Selected growth projects in fiscal 2023 included investments in carbon dioxide extraction plants in Czechia, Austria, Serbia and Poland. In addition, investments were made in an air separation plant in Serbia, a filling plant in Romania and various VPSA plants and generators.

The companies included in the Western Europe region until the previous year – which comprise the industrial gases activities of ASCO Kohlensäure AG, the business activities of the service company Messer GasPack GmbH and those of Messer SE & Co. KGaA – have been combined under “Corporate” since the start of fiscal 2023.

The projects in the Americas are located almost exclusively in the US and are primarily focused on expanding existing business, i.e., air separation units in the liquefied gases sector as well as business with on-site customers in individual cases. The focus in 2023 was on the plants in Texas and Ohio. Various generator projects and investments in the helium business are also worth mentioning. A nitrogen liquefier is being built in Brazil and a carbon dioxide generation and purification plant is going up in Chile.

In Western Europe investments focused on Belgium (air separation unit to serve the liquefied natural gases market), Spain (air separation unit to serve pipeline customers in the Tarragona chemical park as well as a filling plant and other smaller projects) and Germany (completion of the air separation unit in Speyer and the filling plant in Siegen). Smaller amounts were also invested in projects in France.

Net assets

Total assets increased by € 10,545.9 million in the reporting year and stood at € 13,999.8 million as of December 31, 2023. This development is mainly due to the acquisition of the Messer Industries Group on November 13, 2023, and the resulting effects of the purchase price allocation; for further information, please refer to note 3 “Consolidated Companies” in the notes to the consolidated financial statements.

At 87.0 %, non-current assets again account for the largest share of total assets (previous year: 81.8 %).

As in the past, the largest item on the assets side is capital assets (property, plant and equipment, right-of-use assets and intangible assets), which account for 85.9 % (previous year: 49.3 %) of total assets and increased by € 10,319.4 million compared to the previous year. The change is mainly due to the additions resulting from the acquisition of the Messer Industries Group on November 13, 2023, and the resulting effects of the purchase price allocation. For example, as a result of the change in Group reporting, goodwill increased by € 4,629.1 million, other intangible assets by € 2,115.9 million and property, plant and equipment by € 3,513.8 million as of December 31, 2023. As a result of the acquisition and, in particular, the takeover of all shares in Yeti GermanCo1 GmbH, investments accounted for using the equity method decreased to € 59.5 million (previous year: € 1,095.1 million). Please refer to note 3 “Consolidated Companies” in the notes to the consolidated financial statements for more information about the acquisition. Other influencing factors were investing activities in the current fiscal year, reduced by the effect of depreciation and amortization.

The equity ratio, including non-controlling interests, fell year-on-year to 53.8 % (previous year: 77.7 %). This was mainly due to the acquisition of the Messer Industries Group and the associated financing activities, which resulted in an increase in total assets. This is offset by the net profit for the year of € 3,453.7 million (previous year: € 345.9 million), which is also strongly impacted by the acquisition, as well as contributions from the shareholders (less pro rata costs of raising equity, less deferred taxes) of € 1,552.3 million (previous year: 0 million).

Financial liabilities increased by € 3,435.6 million in the fiscal year, driven by the acquisition of the Messer Industries Group, and accounted for 26.8 % (previous year: 9.2 %) of total assets as of December 31, 2023. The Group’s net debt (financial liabilities less cash) amounted to € 3,139.5 million at the end of the reporting period (previous year: € 56.2million). Further information on this can be found under “Financial position”.

Another significant item on the liabilities side during the fiscal year was deferred tax liabilities, which increased by € 1,092.3 million to € 1,113.8 million, primarily as a result of the acquisition and the release of hidden reserves as part of the purchase price allocation.

Return on capital employed

The return on capital employed (ROCE) is calculated as follows:

ROCE	Jan. 1 – Dec. 31, 2023	Jan. 1 – Dec. 31, 2023 (adjusted)[1]	Jan. 1 – Dec. 31, 2022
Operating income	3,312,591	253,470	272,099
Goodwill impairment	23,219	23,219	–
Adjusted operating profit	**3,335,810**	**276,689**	**272,099**
: Average capital employed	4,580,215	1,589,801	1,505,486
ROCE in %	**72.83 %**	**17.40 %**	**18.07 %**
Calculation of capital employed from the statement of financial position:			
Right-of-use assets, other intangible assets and property, plant and equipment	7,108,793	1,459,360	1,430,984
Lease receivables	4,876	4,876	6,422
Net working capital	482,625	151,230	126,730
Capital employed	**7,596,294**	**1,615,466**	**1,564,136**

(1) After adjusting for the effects of the acquisition of the Messer Industries Group and the release of hidden reserves as part of the purchase price allocation

Operating assets

Net working capital breaks down as follows:

Operating assets	Dec. 31, 2023	Dec. 31, 2022
Inventories	309,819	80,582
Trade receivables	590,388	230,494
Trade payables	(388,227)	(170,686)
Prepayments received	(29,355)	(13,660)
	482,625	**126,730**

Compared to the previous year, operating assets increased by K€ 355,895 to K€ 482,625 at the end of the fiscal year. The increase in inventories and trade receivables is partially balanced by the increase in trade payables.

The ratio of inventories, less prepayments received, and trade receivables to trade payables (plus liabilities for outstanding invoices) remained unchanged from the previous year at around 2:1. The ratio of operating assets to revenue was 22.9 %, compared to 8.1 % in the previous year.

Overall statement on the economic situation

After adjusting for the effects of the acquisition of the Messer Industries Group, the Messer Group's revenue increased by 5.9 % compared to the previous year due to sustained demand. In Europe higher energy and commodity prices were passed on to our customers. In China revenue declined due to negative exchange rate developments. After excluding this effect, however, there was slight growth as our plants continued to operate at full capacity.

After adjusting for the effects of the acquisition of the Messer Industries Group and the release of hidden reserves as part of the purchase price allocation, the EBITDA margin remained constant in 2023 year on year at 26.6 %, with the Messer Group's adjusted EBITDA increasing to around € 443 million compared to around € 418 million in the previous year.

The return on capital employed (ROCE), once adjusted for the effects of the acquisition of the Messer Industries Group and the release of hidden reserves as part of the purchase price allocation, was 17.4 %, slightly below the previous year's level (18.1 %). This was mainly due to a decline in operating profit accompanied by one-time effects related to the transaction.

The net debt of the Messer Group as a whole increased by € 3,436 million compared to the previous year as a result of the acquisition of the Messer Industries Group in 2023 and amounted to € 3,752 million at the end of the reporting period. Further information on this can be found under "Financing".

Adjusted for the effects of the acquisition of the Messer Industries Group, the companies of the Messer Group invested € 233 million in fiscal 2023, down € -33 million from the previous year. Expressed as a percentage of total revenue, capital expenditure amounted to 14.0 %, compared to 16.9 % in the previous year.

The highly positive overall business performance is confirmation of the Company's business model, which is geared towards stability and sustainability. The Messer Group has an international presence with its two former main regions of China and Europe and is regionally diversified within these two core regions in a large number of countries and provinces. Weak demand on individual markets or downturns in specific industries can therefore often be compensated. With the integration of the business activities operating under Messer Industries until October 2023 and thus the addition of the business on the American continent, more attention is being paid to diversification across markets and geopolitical characteristics.

Forecast Report

General economic development

Oxford Economics assumes that GDP growth will shrink to 2.3 % for 2024, lower than the 2.7 % seen in the previous year. This forecast is more cautious than that of the IMF, which anticipates growth of 2.9 %. Inflation will slow to 4.1 % in the second half of 2024 (previous year: 6 %), mainly driven by a decline in core inflation; however, this is still above the average levels of the 2010s (2.5 %-3 %). As inflation returns to target corridors, central banks will begin to cautiously lower policy rates in 2024. An end to the war in Ukraine is still not in sight. The political tensions between Russia and the West will continue, as will the current sanctions, even if there is a theoretical ceasefire. However, energy prices are not expected to rise, especially not in Europe. There are also no expectations that the amount of energy in Europe will be regulated. Current global trade barriers between China, the US and Europe will not be reduced. In addition to these risks, financial tensions may arise from steep interest rate increases of the past and high debt levels in parts of the financial system, especially if policy rates are lowered later than the market expects. In addition, geopolitical and supply-side uncertainties may flare up again and create economic risks.[11]

Oxford Economics expects GDP growth in the eurozone to remain weak at 0.6 %, which is only slightly higher than the previous year's figure (0.5 %). Inflation will continue to abate over the course of the year, averaging 1.6 % for the year as a whole (previous year: 5.4 %). The main reasons for the low growth rate are the still-restrictive monetary policy and low consumer spending as a result of high inflation. The robust labor market has helped to counteract these effects. As interest rates are lowered early in the second half of the year, consumer confidence will improve, buoying up the economy. Within the eurozone, GDP growth is expected to vary widely across member states.[12]

China is expected to generate growth of 4.4 % in 2024 as a whole. This is lower than the previous year's growth of 5.2 %, which was driven by higher consumer spending following the elimination of the country's COVID measures. Government stimulus programs will provide only modest support to consumer spending in 2024. However, they may help revive manufacturing activity. High levels of regional debt and ongoing problems in the real estate market continue to weigh on GDP growth. These effects are somewhat mitigated by political actions such as the incentivization of infrastructure projects, investment in the economy and a looser monetary policy.[13]

GDP growth in the US is estimated at 2.0 % (previous year: 2.5 %). Inflation will decline to 2.4 % from 4.1 % a year ago, partly because consumer and energy prices are expected to fall slightly. The labor market continues to be stable; the unemployment rate will remain low. The Fed is expected to cut interest rates to up to 2.25 %. The level and timing of these measures will depend heavily on US inflation.

Brazil is expected to see much weaker growth of 0.4 % of GDP compared to 2.9 % in 2023. This is due to problems in the value chain, volatile commodity prices and a sharp decline in consumer spending, among other things.[14]

GDP growth in Colombia is forecast at 0.2 %, which is lower than in the previous year (1.1 %). The decline is due to high unemployment (9.9 %) and a high inflation rate (7.2 %) resulting from the El Niño climate phenomenon.[15]

[11] Oxford Economics Inc. – World Economic Prospect, January 2024
[12] Oxford Economics Inc. – Country Economic Forecast, January 2024
[13] Oxford Economics Inc. – Country Economic Forecast, December 2023
[14] Oxford Economics Inc. – Country Economic Forecast, December 2023
[15] Oxford Economics Inc. – Country Economic Forecast, December 2023

Outlook for the Messer Group

Despite geopolitical challenges and the sharp rise in inflation and interest rates, the Messer Group again exceeded its forecasts for almost all key financial performance indicators as of December 31, 2023. The medium-term planning of the Messer Group is still defined by efforts to boost profitability while at the same time achieving a moderate development in net debt. Through suitable investment, we intend to further increase revenue and the Messer Group's profitability.

The forecast figures were prepared in fall and winter 2023 and are therefore based on forecasts of economic performance in the planning period that were prepared at this time. The forecasts included macroeconomic conditions in all regions. Economic growth in the Americas, Europe and Asia is expected to be subdued overall in 2024.

Business in the US, Canada, Brazil and Colombia / Chile will be fully consolidated in the Messer Group's results for the entire year for the first time in 2024. These countries were included for around two months in fiscal 2023. As a result, relevant performance indicators will be significantly higher than in the previous year. In addition, we expect moderate organic growth from new sales markets and efficiency improvements. The outlook for the Americas is for strong revenue growth in fiscal 2024 despite a moderate economic forecast. The growth will mainly be driven by the US and the Colombia / Chile sub-region, while Canada's targeted growth is slightly lower and Brazil's will be moderate. In contrast to the previous year, which was characterized by inflationary price adjustments, particularly in the helium business, half of the growth in 2024 is expected to come from price increases and half from the sale of additional volume. We expect EBITDA to grow strongly as revenue increases and additional productivity measures take effect. This increase is particularly high in the US due to a one-time effect from transaction-related costs in 2023. The expected depreciation of local currencies and the associated currency losses against the euro will be more than offset by inflation-driven price hikes and the associated improvement in performance indicators.

Following the energy crisis in Europe as a result of Russia's war of aggression against Ukraine, energy prices are expected to continue to fall, bringing about a corresponding decline in inflation; however, expected economic activity in the region can be classified as moderate. Falling energy prices are having a negative impact on sales prices for certain customers with price escalation clauses. However, our business activities in Europe will continue to focus on stabilizing profitability and margins, as well as optimized utilization of the new production capacity created in recent years, selected customer projects and targeted capacity expansion. For Europe, we expect moderate sales growth through 2024, driven by volume and price increases of a similar magnitude. We still expect EBITDA to decline slightly compared to the strong fiscal 2023, which is mainly due to higher costs, inflation and sales.

The past year was characterized by difficult economic conditions in Asia, particularly in China and increasingly in Vietnam, including a decline in the demand for steel, which was largely driven by significant problems in the local real estate sector. As in the previous year, available cash exceeds our financial liabilities. These figures corroborate the ongoing significance of our Chinese activities for the total revenue, profitability and internal financing of the Messer Group. Despite the difficult overall economic situation in China and the ASEAN countries at present, we continue to expect strong future market growth compared to the rest of the world. We will participate in this across the entire breadth of our sales profile through our diversification process, which is highly advanced in China and has been initiated in Vietnam. China's policy efforts to achieve an increasingly significant position in the global economy, for example through the infrastructural measures accelerated for this reason, should lead to consistently high production levels in heavy industry and, in particular, the steel industry that matters most to us. However, in conjunction with our forecast, we expect to see an ongoing normalization on the selling side of the liquid market in 2024 with the high market prices seen in recent years continuing. Weaker economic performance is also expected for the next fiscal year. The strong revenue growth expected in Asia is primarily attributable to the capacity utilization of new and existing plants. The planned strong EBITDA growth is directly linked to revenue growth and the associated efficiency improvements.

Plans for the developments of the most important financial performance indicators of the Messer Group for 2024 are as follows. It should be noted that these developments are strongly influenced by the one-time effects in 2023 from the acquisition of the Messer Industries Group and the release of hidden reserves as part of the purchase price allocation. Accordingly, the Group's EBITDA for 2023 includes positive one-time effects from the transaction, while the Group's forecast differs from the outlook for the individual regions.

	2024 vs. 2023
Revenue	strong increase
EBITDA	strong decrease
Capital expenditure	strong increase
Net debt	moderate decrease
ROCE	strong decrease

The Messer Group anticipates high revenue growth. This is due to the increasing capacity utilization of newly commissioned plants, particularly in Asia, as well as increased utilization of existing plant capacity and higher sales volumes in all three regions, particularly in the Americas. Selling price increases are expected to drive revenue growth to a much lesser extent than in 2023. The Group feels it is economically well positioned but is fundamentally cautious in its short-term expectations. The decrease in EBITDA forecast for 2024 is mainly due to one-time effects in 2023. Excluding these effects, we expect EBITDA to increase only slightly in 2024, mainly due to currency effects. After adjusting for currency effects, the 2024 plan again shows a moderate increase in EBITDA. A rather ambitious profit forecast in Asia and America contrasts with a conservative performance forecast in Europe amid the expected weak macroeconomic environment. The expected decline in ROCE is driven by the sharp drop in operating profit (analogous to EBITDA).

We will make future investment decisions in line with an appropriate development in the net debt of the Messer Group. The investment activities appropriate to this objective are carried out to a chosen degree to support the solid, long-term earnings development of the Messer Group. About half of our investments are in the Americas, particularly in the US. The other half can be split almost equally between Europe and Asia, with major investments planned in Western Europe and Vietnam in 2024. There are also suitable opportunities for the selective expansion of our production capacity in China and Eastern Europe.

Forward-looking statements

This forecast contains forward-looking statements based on management's current appraisal of future developments. The statements should not be interpreted as a guarantee that these expectations will actually occur. The future business performance and earnings of the Messer Group are dependent on a number of risks and uncertainties and can therefore diverge significantly from the forward-looking statements made here.

Report on Opportunities

As an international supplier of industrial gases, Messer has opportunities arising from the versatile applications for industrial gases in the manufacture of products in many countries around the world. In many areas of our lives, industrial gases are just as important as water and electricity. Through our investments, we seize the corresponding opportunities to tap new business potential and to maintain and expand our market position. We leverage the additional opportunities offered by internationalization and the potential of emerging markets by establishing or further expanding our operations in these countries. One of the results of this will be access to selected new markets with long-term growth potential.

Specifically, the following opportunities in particular could be significant to business development and to financial position and financial performance of the Messer Group.

Two of the Messer Group's key opportunities are:

Market opportunities

Messer continuously monitors markets and competitors and evaluates growth opportunities as they arise. Changing requirements are analyzed, opportunities identified and our actions aligned accordingly.

We continue to expect market growth in the Americas and ASEAN, though without assuming further market price momentum in the forecast for 2024, which would otherwise have a positive impact on our revenue and results. We expect growth momentum in Europe to be subdued. If the economic performance is more dynamic in individual countries or in general, this could have a positive effect on our revenue and results. A further reduction in the current high energy prices and inflation rates, particularly in Europe, could benefit industrial production and thus demand for our products.

Opportunities through industrial gas applications

Our products are used in a variety of production processes worldwide. In the field of application technology, the Messer Group continuously analyzes processes to enhance production efficiency for our customers through the use of industrial gases. New applications identified in this way could open up corresponding business potential with a positive impact on revenue and earnings.

Other opportunities may arise from the following circumstances:

Opportunities through our employees

Our employees are a key component of our Company's success. We provide our employees with a safe and attractive work environment that is responsive to the changing world of work. Working from home has grown in significance and established itself as a suitable form of work. Messer develops models that enable a hybrid work environment and shared workstations. By increasing the number of flexible working models, we also want to bolster employee loyalty and satisfaction. Messer's aim is to retain employees in the long term. Messer promotes ideas and prospects management throughout the Group, allowing our employees to suggest improvements across all national borders. In addition, we support the active development and use of our employees' potential through systematic personnel development programs and training. We firmly believe that investing in the development of our employees promotes our corporate culture as a whole and can have a positive effect on revenue and results.

Opportunities through sustainable practices

Sustainability is a complex issue that permeates all areas of an organization – from product development and HR issues to digitalization and climate neutrality. The Messer Management Board is committed to sustainability. For this reason, sustainability management at Messer is embedded throughout the Company and executed globally by a number of specialist functions and experts. To do justice to the requirements of our stakeholders, sustainability must be reflected in our actions and attitudes. Messer values the responsible use of all resources, especially energy. Messer continuously invests in projects that help to sustainably increase the energy efficiency of our production facilities. The installation of solar modules on our production facilities allows us to use renewable energy sources and reduce carbon emissions. A further significant contribution to decarbonization is the use of clean hydrogen, which will be a key area for our capital expenditure over the coming years.

Opportunities through digitalization

Digitalization and networking have to keep progressing in the Company if it is to remain competitive. It is therefore essential to improve employees' understanding of cyber and technology risks on an ongoing basis. Regular training sessions are held to educate and raise awareness among our employees. This enables us to create a strong, digital corporate culture. We have laid the groundwork for this with the reorganization of our IT infrastructure to create a multi-cloud environment. We work with reliable technology partners and attach great importance to globally established standards at all our national subsidiaries to secure the operation of our central IT systems and applications. This also applies to protecting the data and information provided by such systems. Our tools used to support our production, bulk and cylinder gases management are subject to continuous improvement, which has wide-ranging impact on the value-added chain of our Company and our customers. New, coordinated digital processes with optimized plant management reduce the use of electrical energy and improve our tour planning. This makes a positive contribution to environmental protection, while at the same time reducing our production and operating costs, which could have a positive effect on our bottom line.

General economic opportunities

The overall economic environment generally influences our business activities, our financial position and financial performance and our cash flows. Our forecast for 2024 is based on the expectation that the future economic framework will be consistent with the information presented in the forecast section of this management report. If the global economy as a whole or in regions/countries relevant to our business develop better than shown in this forecast, our revenue and earnings could outperform the forecast.

Risk Report

As an international supplier of industrial gases, we face risks with that are inextricably linked to our entrepreneurial activity. In addition to fluctuating demand for industrial gases and the related products, future earnings development is also dependent on economic trends in individual countries that are beyond the Group's control.

The introduction of the Corporater ERM software at the end of 2023 has expanded the list of available risk categories. The risks outlined in the risk report are allocated to these risk categories and assessed in terms of EBITDA on the basis of their probability of occurrence and potential negative impact on projected financial targets. Risks are generally recorded in gross terms; mitigating factors are only taken into account after they have been implemented. Risks are categorized as low, medium or high based on a combination of probability of occurrence and potential negative net impact.

Each of the risks described below can have an adverse impact on our business development and thus on our financial position and financial performance.

Geopolitical risks

The conflict between Russia and Ukraine in the Central and Eastern European (CEE) region, which began on February 24, 2022, continues to have an impact. The European Union and The United States are continuing to impose harsh economic sanctions on Russia in response to the conflict. If the conflict were to spread territorially or escalate in any other way, Messer's investment in a production plant in Ukraine and / or the Baltic States could be affected. The risk relates to a short to long-term suspension of operating business and damage to these production facilities.

We consider this geopolitical risk to be medium, particularly in the CEE region. The spillover effects of this conflict are described in the following risk categories.

Ongoing tensions between China and Taiwan could lead to an escalation or open conflict between the parties in the region. Such a conflict could, for example, disrupt semiconductor production in Taiwan and cause a global economic crisis. We consider this risk to be generally high.

Economic risks

Messer's business success also depends to a certain extent on economic factors since an economic downturn can reduce purchasing power in the market in question. The Messer Group supplies a wide range of industries and sectors, including steel production and metal processing, the chemicals industry, petrochemicals industry, food and beverage industry, the glass industry and healthcare. It does so on the basis of long-term supply agreements running from up to 15 years in Europe, up to 20 years in the Americas and up to 30 years in Asia.

Russia's war in Ukraine prompted a surge in energy costs and rising inflation in the eurozone in 2022. The eurozone entered a very mild recession in the second half of 2023. However, there are early signs that momentum has stabilized rather than worsened. Given the further decline in the headline inflation forecast, we therefore expect eurozone growth to gradually pick up, especially in the second half of 2024.[16] Messer's strong positioning in the Europe region, which accounts for over 41 % of total revenue, increases the risk of being unable to fully compensate for the negative effects of economic down phases with better performance in other markets.

The ASEAN and China regions as a whole are expected to continue to grow as the headline inflation forecast for Asia continues to decline. Some sectors in China, however, are experiencing demand-driven inflationary momentum. The largest sequential declines were seen in housing-related goods (household electronics and building materials), among others. Price deflation may intensify due to the combination of above-average supply and relatively weak demand. Although the Chinese economy experienced a rapid recovery following the lifting of the strict coronavirus restrictions at the end of 2022, the ongoing weakness of the real estate sector continues to slow down the overall economic recovery. If the Chinese construction sector continues to contract as a result of overcapacity[17], demand for construction steel and other products could fall further.[18] However, this can be partially equalized by the positioning of Messer production facilities in the different provinces, which are regionally distinct within China. A significant reduction in market demand in any of these key industries or sectors could adversely affect future earnings. Messer's strong positioning in Asia, which accounts for more than 38 % of its total revenue and a large share of its earnings, increases the risk of being unable to fully compensate for the negative effects of economic down phases in China with better performance on other markets.

Inflation rates in the Americas are declining again in 2023. Only Colombia is seeing a very slow decline in inflation.[19] In the region's most important market, the US, momentum is positive, the likelihood of a recession has diminished and further growth is expected.[20] Messer's strong position in the Americas, which accounts for more than 17 % of its revenue and a large share of its earnings, could offset the negative impact of economic down phases in other markets. We currently rate economic risks as medium to high.

[16] Oxford Economics, Country Economic Forecast, Eurozone January 11, 2024
[17] World Steel Association, November 2023 crude steel production, published December 21, 2023
[18] Oxford Economics, Country Economic Forecast, China December 21, 2023
[19] Quelle: https://tradingeconomics.com/
[20] Oxford Economics, Country Economic Forecast, US January 16, 2024

Market risks

Industrial gases business is subject to competition that was exacerbated by globalization. The highly competitive landscape could reduce future earnings and cash flows. Messer operates in a large number of countries, and it is therefore exposed to local political, social and economic conditions and the resulting risks. A significant reduction in market demand in any of Messer's key industries or sectors, for example due to production relocation, insolvencies, persistently high local energy costs or global surplus capacity in the steel industry at this time, could adversely affect future earnings.

Russia's invasion of Ukraine led to a steep rise in energy costs, particularly in Europe. These risks remain for Messer even though energy costs are falling again in some countries. This is particularly true for countries where energy supply is dependent on natural gas, and for energy-intensive companies that halt or sharply curtail their production. We currently rate market risks as medium to high.

Financial risks

We also require debt capital for our growth and investments. We are dependent on a stable and, in particular, liquid financial sector. Messer relies on cash from current business activities to settle the obligations under its borrowing operations, including compliance with the covenant. This depends to a large extent on a positive operating cash flow.

Messer has recognized goodwill. Applying IAS 36, that is, testing for impairment, can lead to impairment losses on goodwill if the market and business prospects of a subsidiary, associate or a cash-generating unit deteriorate significantly compared to their original measurement date. In the event of impairment becoming necessary, this could have a significant impact on earnings and accounting ratios. In conjunction with planning, the discernible uncertainty has been taken into account by corresponding write-downs on receivables and adjusted business assumptions. As a result of the military conflict between Russia and Ukraine and the associated sanctions, the Messer Group initiated the sale of its interest in subsidiaries in Russia.

Global economic collapse or downturns are a recurrent threat in conjunction with financial or debt crises. Messer closely monitors current developments in order to take countermeasures, if necessary, in the form of cost and investment saving programs. The possible deterioration in the credit ratings of our customers entails the risk of bad debts and delays to joint projects.

At the end of 2023, financing agreements consisted almost entirely of a syndicated loan agreement. It comprises a revolving credit facility, two loans in EUR and USD and two short-term bridge loans in EUR and USD. Compliance with the covenants of the syndicated loan agreement must be ensured. In particular, Messer's net debt (financial liabilities less cash funds) / EBITDA covenant must be upheld. Financial risks can also arise for Messer from changes in exchange rates and interest rates. The management of interest rate, currency and liquidity risks is handled by Corporate Finance & Treasury based on the guidelines set out by management. Corporate Treasury calculates and measures financial risks and hedges against them. Messer currently uses standard currency forwards and interest rate swaps as hedging instruments. The Treasury guidelines contain principles for general risk management required here and individual regulations for specific areas, such as currency and interest rate risks, the use of derivative financial instruments and the investment of surplus cash. The risks are monitored at all times and the extent of protection is adjusted if necessary.

Income and operating cash flow are essentially unaffected by market interest rates, as the Group does not hold any significant interest-bearing assets. At the end of the reporting period, there are exclusively derivative financial instruments entered into with international financial institutes with investment grade ratings. The interest rate risk arising from the syndicated loan agreement is minimized by refinancing the bridge facilities with predominantly long-term fixed-rate financial instruments. These variable bridge facilities are expected to be refinanced in the course of 2024. We currently rate potential financial risks as medium to high.

Price risks

In individual countries, the highly competitive environment could lead to unexpected, disproportionate price trends that could reduce Messer's future revenue and earnings. In particular, the market environment in China is characterized by intensive competition, which can affect the selling prices of certain product lines. We currently rate price risks as medium to high.

Cost risks

Regulatory or governmental changes or intervention in the energy sector can lead to rising energy prices in individual countries. Rising energy requirements are causing considerable volatility in oil and energy prices with corresponding implications for the operating materials and precursors required by Messer. The conflict between Russia and Ukraine has led to a sharp rise in the price of natural gas. This is particularly noticeable in Europe, where natural gas is also used to generate electricity. Energy prices are highly volatile in some European countries.

Overall, demand for energy is rising across the globe, in turn driving energy prices on the international stage. Purchase prices for individual significant products can thus fluctuate considerably. Management is implementing measures to contain these commodity risks, including the electricity price risk arising from electricity purchases for operating activities. The aim is to hedge these risks as far as possible and reasonable.

Messer can pass electricity price increases on to customers through price escalation clauses or mitigate them with long-term procurement contracts. Nevertheless, price increases for energy and external procurement costs can cut into profitability. Higher prices for fuel such as diesel also make it more expensive to transport our products. In view primarily of the halt in the supply of natural gas and fuel from Russia, we currently rate cost risks as medium.

Product procurement risks

Messer's ability to serve clients with a broad range of products and services depends not only on our own production, but also on the products and services that we obtain from internal and external suppliers. The main objective is to be able to deliver to clients reliably and with appropriate quality at all times. The availability of appropriate quantities of products and services at appropriate prices is the key to achieving this goal. Nevertheless, there is a risk of supply difficulties or breakdowns as a result of product shortages, particularly for helium or raw carbon dioxide, or the loss of individual suppliers. Furthermore, procurement from an alternate source could lead to a cost risk if products and services can only be obtained at higher prices or higher transport costs.

Messer counters this risk on the basis of a broad supplier network and strict monitoring of product availability. Furthermore, we are always on the lookout for additional alternative suppliers. We currently rate product procurement risks as medium, also on account of the negative impact on various areas of supply chains.

Transportation risks

One of Messer's aims is to supply its clients with the required quantity and quality of products at the right time and the right place. To do this, we deploy internal and external distributors that transport our products to clients, generally by truck. On the other hand, we are also dependent on the distributors of our suppliers to ensure that products are available in sufficient quantities at all times. When using truck transportation, there is the risk of product losses resulting not only from unsuitable product storage but also inadequate transport safeguards or accidents. What is more, closure of relevant transportation routes can result in delays, and thus higher costs.

There is currently a shortage of skilled drivers in many of the countries in which Messer operates. This poses the risk of not being able to hire enough drivers to meet demand. Furthermore, there is a cost risk that higher demand for drivers could result in higher wages. The shortage of drivers, particularly in Europe, has been exacerbated by the start of the Russian invasion of Ukraine and may adversely affect our product distribution.

In the US in particular, Messer operates its own truck fleet and employs its own drivers. Messer counters this risk by carefully selecting and relying on a broad network of distributors. We also monitor the resources that are required and available on an ongoing basis. We currently rate transportation risks as medium.

Operational risks

Business interruption due to unexpected infrastructure disruptions caused by accidents, sabotage, criminal activities or climate-related events (such as heat waves, flooding, hurricanes or other natural disasters) and other unpredictable adverse factors may lead to manufacturing and supply disruption at our production facilities. Messer's production facilities are regularly maintained and continuously monitored. In the event of business interruption, we have emergency and contingency plans in addition to other tools to mitigate the financial consequences for our customers. Messer works continuously to improve delivery reliability and flexibility as well as storage options to safeguard delivery capability for our customers even in the event of an emergency. The range and quality of our services are also dependent on the availability of required hardware and the production equipment used (e. g. cylinders and tanks), and on the service quality of suppliers and business partners. We currently rate operational risks as low to medium.

Personnel risks

Messer is highly dependent on the commitment, motivation and skills of its employees. Many countries in which Messer operates are at full employment and so there is a shortage of skilled staff. The lack of skilled workers and managers and lengthy recruitment processes for finding replacement personnel in key positions could strain operating processes and increase hiring costs. In the future, Messer's long-term success will also depend on its ability to compete with other companies to find and retain qualified employees, regardless of demographic challenges. Country and sector-specific turnover risks are identified and addressed with targeted measures. Messer counters these risks through personnel development and succession processes and annual salary reviews. Accordingly, we currently rate personnel risks as low to medium.

Acquisition risks

Messer continues to evolve strategically. In addition to the expansion and strengthening of our existing business, and the constant optimization of sourcing and logistics processes, we are striving to grow both organically and through acquisitions. We enter into new partnerships in the form of joint ventures, consolidate existing markets and divest activities that no longer belong to our core business. However, downstream risks can arise within the Group as a result of the sale of companies or business activities. Provisions are recognized if risks seem probable. Decisions to proceed with acquisitions or to enter into new partnerships are subject to the risk of having incorrectly judged future market potential and the assumptions for project feasibility. There are potential risks associated with financing these projects. Messer therefore has internal bodies that analyze the strategic potential of further development prior to approval and prepare the information needed for the decision-making process. In M&A projects, experienced employees in the relevant departments always perform due diligence prior to any acquisition to ensure as much certainty as possible regarding the future development potential of the M&A project. We also reduce the risk with corresponding agreements in purchase contracts. We currently rate acquisition risks as low to medium.

IT risks

The use of state-of-the-art information technology plays a key part in handling and securing business processes within the Messer Group, but also entails corresponding risks.

The outage of critical IT applications or IT system outages at entire locations could considerably disrupt processes within the Messer Group and lead to business interruptions. IT systems can also be vulnerable by the abuse of digital technologies to commit new types of crimes, known as cybercrime (e-crime). As well as disrupting IT systems or causing outages, phishing or cyber-attacks can also result in confidential data being leaked to third parties and thus constitute a risk.

The security and compliance of the information systems are key issues in our IT organization. On this basis, we are constantly designing, implementing and reviewing measures to protect data, applications, systems and networks. This process takes both preventive and corrective measures into account.

Third parties regularly carry out checks on central European infrastructure to identify vulnerabilities and prioritize how to address these. A malware breach analysis and a data center compromise assessment were added to the vulnerability scans during the past reporting year. Access to key cloud solutions was secured by way of multi-factor authentication. Additional measures to reduce IT risks are being prepared and will be implemented in 2024.

Companies like Messer are exposed to ever-greater risk across all regions, which will result in us having to take increasingly far-reaching measures to avert danger in the future.

Despite extensive training and awareness campaigns, the likelihood of an attacker obtaining at least part of an employee's credentials through a successful phishing attempt due to the employee's carelessness is currently considered high. We currently rate this risk as medium. The measures that are planned for 2024 or are already being implemented will further reduce the risk on a regional basis. The same is true for threats that do not result directly from a successful phishing attempt.

Currency risks

Transaction risks that can arise when exporting products are largely hedged when entering into a contract. As far as the operating activities of the Messer Group are concerned, the individual Group companies predominantly conduct their business locally in their functional currency. The overall currency risk from transaction risks is thus considered low overall. However, a number of Group companies are exposed to foreign currency risks in connection with operational transactions not denominated in their own functional currency. This mainly relates to payments for product or service imports and are hedged as far as possible. Like all market participants, we could unexpectedly encounter appreciation in a functional currency that weakens the country's international competitive capability for exports and our local activities. We see currency risks from translating foreign currency exposures into euro (functional currency) as a standard part of doing business. Exchange rate losses against the euro could lead to lower consolidated net profit and less consolidated equity. We rate currency risks as medium at this time.

Legal and contractual risks

Time and again, businesses are confronted with allegations that they have infringed industrial rights or legal obligations, delivered defective products of failed to comply with environmental protection laws. Regardless of their chances of success, such claims can result in very high defense costs. Tax laws and competition regulations can also give rise to business risks. The Messer Group relies on the support of both in-house and external experts to handle such matters.

In connection with two accidents in the USA, the Group recognized provisions that are fully covered by existing and recognized insurance claims. In connection with investigations in Spain, the Group still has two provisions of around € 5 million each. Further information on these investigations can be found in note 30 "Contingent liabilities" in the notes to the consolidated financial statements.

In a large number of countries, our business activities in many countries are subject to specific environmental laws and regulations, for example on air emissions, groundwater pollution, the use and handling of dangerous substances and soil analysis and detoxification. This can give rise to liability risks in conjunction with either past or current operations. Above all, new environmental requirements – and those updated in line with EU directives – necessitate the adjustment of our standards. This could result in higher production costs and modifications to the production process. However, the recent past shows that the integration of stricter environmental regulations results in a more efficient production process and higher quality product. We currently rate legal and contractual risks as medium.

Overall conclusion

The assessment of the overall risk situation is the product of a consolidated analysis of all significant individual risks on the basis of the Messer risk management system, taking into account local, regional and global considerations. Messer's risk strategy is outlined in more detail in its principles of risk policy. These are intended to ensure that risks are identified in full and presented and evaluated in a way that is transparent and comparable. They require risk managers to proactively manage and monitor risks.

With the introduction of the Corporater ERM software at the end of 2023, we created the framework to be able to be informed about potential risk situations at an early stage. If significant new individual risks are identified or if there are significant changes in the assessment of known individual risks, the Management Board and, if necessary, the Supervisory Board are immediately informed through ad hoc reporting outside the half-yearly risk reporting cycle.

These are not the only risks to which Messer is exposed. Some risks, which have not yet been identified or which are not considered significant today, could possibly have an adverse effect on Messer's operating activities if the overall conditions were to change. Messer is also dependent on economic trends in individual countries or geopolitical risks that are beyond Messer's control.

Messer believes that the economic developments in the Chinese and European markets, unexpected and disproportionate price developments in individual countries and the political and financial consequences of the Russian invasion of Ukraine represent the greatest challenges to its business activities. However, no risks have been identified for fiscal 2024 that, individually or in the aggregate, could significantly influence Messer as a going concern.

Our vigilant, active risk management system, as described below, helps us to limit risk. The current risk situation has increased considerably compared to previous fiscal years. Even with the existing risks, Messer continues to see no threat to the Company as a going concern due to its global positioning.

Risk Management

The principles of risk policy are defined by the Messer SE & Co. KGaA Management Board in the Risk Management Guideline and additionally in the Messer Group Guidelines. Risk management is designed to ensure that the Group remains a going concern and to increase its enterprise value. It is therefore a key component of all decision-making and business processes. Messer risk management is defined as an ongoing business activity.

We define risks as potential future events that may cause negative deviations from anticipated targets. The management structure and the reporting processes in place ensure that not just the events and developments that could threaten the Group as a going concern, but also developments that could pose a threat to corporate targets (such as EBITDA), are reported to the appropriate persons promptly and regularly. This allows management to initiate measures to mitigate any operating or financial risks early on.

The Corporater ERM software from Corporater Inc., a digital tool for the early identification, analysis, management and documentation of risks, was launched across the Group in fiscal 2023. Like Messer's risk management system, the Corporater ERM structure is based on the guidelines of the international risk management standard ISO 31000:2018. This meets the requirement under the revised audit standard IDW PS 340 (as amended) to calculate internal capital adequacy by way of a Monte Carlo simulation. Following the introduction of Corporater ERM, reports will be prepared every six months, i. e., in the middle of the year and at the end of the year. This ensures that the reports are up to date and increases their informative value. However, we cannot say with absolute certainty that all risks will be fully identified and managed.

Messer's risk management covers Messer SE & Co. KGaA and its subsidiaries as well as majority-owned companies that are not included in the financial statements. Decentralized risk managers who safeguard the local reporting processes have been appointed at the individual subsidiaries. A risk assessment was conducted at the end of the 2023 fiscal year to provide a general overview. It reflects events / developments that could occur in fiscal 2024 and 2025. This is documented in the Corporater ERM risk register.

In collaboration with the decentralized risk managers, the risk officers and the respective managing directors, the Messer SE & Co. KGaA risk manager prepares a Group-wide risk report that is submitted to the Management Board and the Supervisory Board. The risks outlined in the risk report are allocated to risk categories and assessed in terms of EBITDA on the basis of their probability of occurrence and potential negative impact on projected financial targets. Risks can be rated low, medium or high.

Risk management at Group level is a function of Group Controlling, Planning and Risk, which reports to the Chief Financial Officer of Messer SE & Co. KGaA. This area is responsible for designing and refining the risk management systems, methods and processes for identifying and evaluating risks and for supporting the decentralized risk manager.

The Messer Group has arranged for adequate insurance for potential losses and liability risks, which ensures that the possible financial consequences of risks that occur are largely contained or eliminated entirely. The extent of this insurance cover is continuously optimized based on the specific requirements of the companies in each country.

The Messer Group's risk strategy is outlined in more detail in its principles of risk policy. These are intended to ensure that risks are identified in full and presented and evaluated in a way that is transparent and comparable. They require risk managers to proactively manage and monitor risks. The principles of risk policy are defined by the Messer SE & Co. KGaA Management Board in the Risk Management Guideline and additionally in the Messer Group Guidelines. The Messer risk management manual also sets out all methodological and organizational standards related to risks.

State-of-the-art technologies are used in IT to minimize risks in this area. Unauthorized access to data and systems, as well as significant data losses, have therefore been ruled out as far as possible. The efficiency, availability and reliability of systems are constantly being monitored and improved. The security concept also comprises detailed contingency planning. All technologies used are regularly tested as to whether they ensure the security of IT-based business processes so as to minimize risks of all kinds.

Tax laws and competition regulations can also give rise to business risks. The Company relies on the advice of both in-house and external experts.

Income and operating cash flow are essentially unaffected by market interest rates, as the Group does not hold any significant interest-bearing assets. Floating-rate loans are partially hedged using interest rate swaps (cash flow hedges for future interest payments). This effectively converts loans with floating interest rates into loans with fixed interest rates. In conjunction with interest swaps, the difference between fixed contractual interest rates and floating interest rates, in relation to an agreed amount, is calculated and settled at set intervals. At the end of the reporting period, there are exclusively derivative financial instruments entered into with international financial institutes with investment grade ratings.

Compliance Management

With the Messer Compliance Management System (Messer CMS), we have implemented an organizational concept that describes our value system and defines its practical implementation and the related responsibilities. The aim of the organizational concept is to prevent breaches of the Messer Code of Conduct before they even arise. It represents a binding framework of action to deal with conflicts of interest as well as complying with applicable laws, regulatory regulations and the local and corporate operating rules in all our business areas. The Messer CMS is supported by a clear commitment from the Management Board, executives and officers, and serves as an instrument for building trust.

Messer SE & Co. KGaA has issued binding compliance guidelines for its companies. In particular, these include the Code of Conduct, the Business Partner Code of Conduct and the Group Guidelines. Management and employees receive regular information and training on the content and any changes to these guidelines, other policies and rules of conduct.

The Management Board is responsible for monitoring the Messer CMS. This organizational concept is binding for all Messer executives, managers and employees. In line with the applicable statutory regulations, the executives are responsible for implementing this organizational concept in their own national subsidiaries and ensuring that it is complied with. The Management Board appointed a Chief Compliance Officer (COO) to support the executives and the supervisory bodies. The CCO is supported by the Corporate Compliance department. In addition, local compliance officers are appointed by the regional management in coordination with the respective executives for that country. The group of compliance officers is supported by central compliance officers in the Corporate Office. The Management Board has defined the duties, rights and obligations of the compliance officers in a compliance officer policy.

Potential vulnerabilities within Messer have been identified on the basis of a risk analysis incorporating all national subsidiaries and central departments. Measures were defined to address vulnerabilities. In addition to classroom training, webinars and e-learning can be held on different areas of the Messer Code of Conduct. The central departments and the local executives and departments determine the content of training and the employees to be trained. They design and carry out training, if necessary, with the assistance of external service providers, and ensure the proper documentation. In addition, the Management Board can specify binding training courses and training content as well as the group of employees who should have this training.

The implementation of the Compliance Policy, in particular the Group Guidelines, is monitored at all the national subsidiaries using internal compliance audits. Group Compliance comments on key compliance areas such as compliance culture, compliance objectives, compliance risks, compliance program, compliance organization, compliance communication, and compliance monitoring and improvement. Any identified areas for improvement and corrective measures are implemented through a continuous follow-up process.

The Messer Integrity Line is Messer's communication platform that makes it easy to report information and (potential) grievances. Employees can contact defined persons to comment on or report suspected compliance violations – simply, legally and confidentially. Compliance breaches are followed up and dealt with appropriately. They are also taken as an opportunity to consider preventive measures to stop the associated risk from occurring again in the future if possible. The whistleblower channel is also available to business partners and is presented on the local company's website.

Each year, the Chief Compliance Officer prepares a global Compliance Report for the Management Board, which is also presented to the Supervisory Board.

In the Americas, Messer also follows the Messer Group Code of Conduct and a Code Supplement applicable to Messer Americas. The basic documents are supplemented by additional guidelines on compliance with antitrust law, anti-corruption regulations, business partner compliance and corresponding data protection guidelines for the US, Canada, Brazil, Colombia and Chile.

The Messer Integrity Line is also used in the Americas. In addition, all relevant reports that are centrally received at a separate e-mail address for compliance issues are forwarded to Messer Americas. The reported issues are documented and treated as Integrity Line cases if deemed appropriate by the Messer Americas Integrity Line Committee (consisting of representatives from Legal and Compliance, Human Resources and Internal Audit).

Compliance training is a key element of the compliance program in the Americas. In collaboration with the HR department, e-learning courses are tailored by the Legal and Compliance department to the specific circumstances of the local unit. Two of these courses, which deal with respectful workplace interaction and with ethics and the code of conduct, must be completed by all employees. Additional courses on combating bribery and corruption and on anti-trust law are mandatory for certain employees depending on their professional tasks and expected interactions with third parties. In summary, employees in the Americas receive annual training on various compliance-related topics that are covered in the Ethics and Code of Conduct course. Employees are required to complete refresher training on the other courses every two years, with the training content of all courses being updated regularly.

Internal Audit

In fiscal 2023, Messer SE & Co. KGaA's Internal Audit and the central organization of Messer China conducted a total of 16 (previous year: 14) status audits (all follow-up audits, eight of which in Europe, two in Vietnam and eight in China as well as one initial audit in Thailand) at Messer Group companies. There were also follow-ups on all the audits performed in 2022.

All Internal Audit audits include advisory activities with the objective of passing on best-practice information and organizing assistance across national borders. This is done in line with the respective current standards of the companies in the individual countries. If necessary, other central functions are also consulted on an advisory basis (including SHEQ, Corporate Logistics, Central Sales functions). Compliance with Corporate Guidelines is audited and documentary spot checks and mass data analyses from the SAP systems are performed within the various processes to monitor the effectiveness and efficiency of these processes as well as the accuracy and reliability of financial reporting. Findings can be investigated and suggestions can be made on how to improve the transparency of business processes. The Audit Committee and Supervisory Board of the Messer Group regularly assess the quality and appropriate intensity of audits.

The internal audit duties at Messer Americas are performed by Messer Americas Internal Audit. Internal audits include operational, compliance and advisory audits. In fiscal 2023, audits were conducted in the US, Brazil, Colombia, Canada and Puerto Rico. These audits assess the adequacy and effectiveness of existing guidelines and procedures on the basis of spot checks on transactions. They also monitor compliance with company guidelines and specifications. Based on these audits, observations are noted and recommendations made regarding the effectiveness and efficiency of processes and controls. A total of 16 compliance and four advisory audits were conducted in 2023.

Bad Soden am Taunus, April 15, 2024

Messer SE & Co. KGaA,
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