

Messer moves forward

Company Presentation

Contents





















Short profile: Messer in brief



Company

Messer is the world's largest privately held specialist for industrial, medical and specialty gases and a highly professional and sustainable global player.



Products

Messer manufactures and supplies oxygen, nitrogen, argon, carbon dioxide, hydrogen, helium, shielding gases for welding, specialty gases, medical gases and food gases as well as many different gas mixtures.



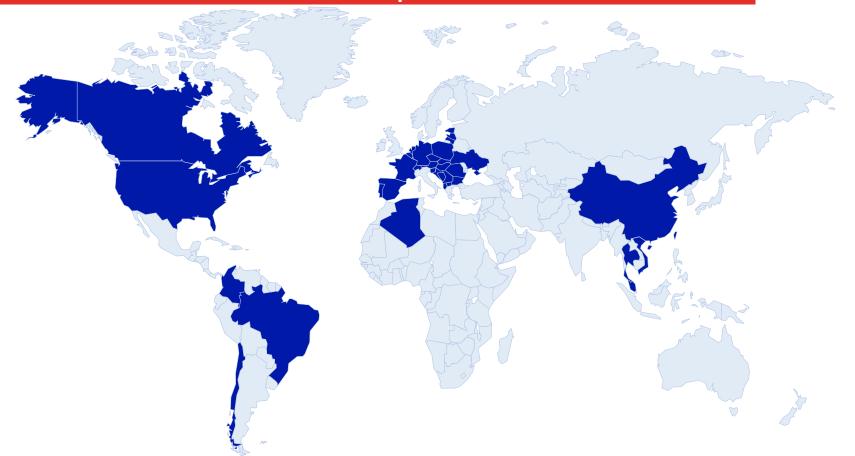
Customers

Our products are used in industry, environmental protection, medicine, the food and beverage sector, welding and cutting technology, 3D printing, construction, and research and science.





Successful in Asia, Europe and the Americas



Optimal division of responsibilities: The Management Board of Messer *





CEO



Helmut Kaschenz CFO



Dr Werner Hickel COO Asia



Virginia Esly
COO Europe



Elena Skvortsova
COO Americas

^{*} Management Board of Messer Management SE as General Partner

Sustainable and responsible

Bernd Eulitz, CEO, and Stefan Messer, Chairman of the Supervisory Board, rely on many years of experience and mutual trust.

The management is supported by a diverse and confident team in the relevant markets in Asia, Europe and the Americas.



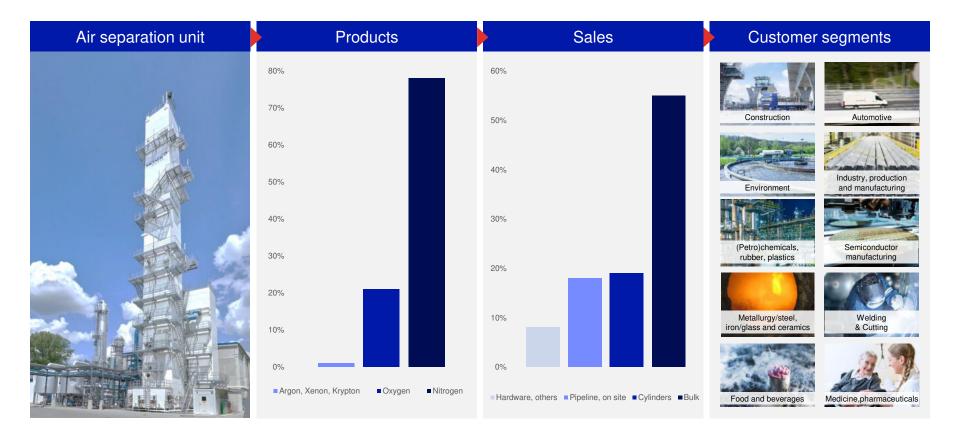


We make the most

out of air

We do this all along the line





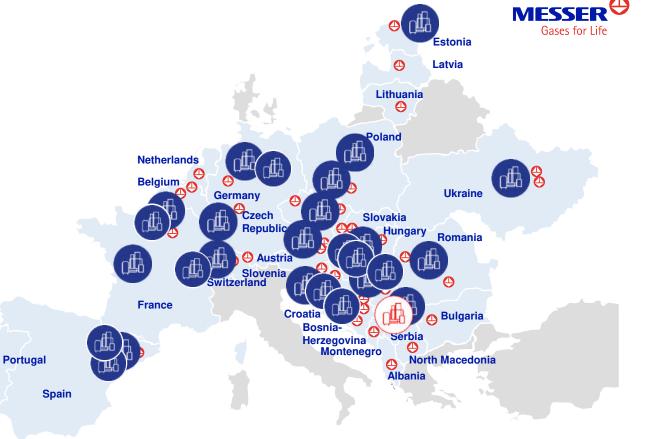


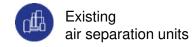




Europe









Air separation units under construction or planned

North America



Virgin Islands







Existing air separation units



Air separation units under construction or planned

South America





Cartagena

Colombia



Existing air separation units



Air separation units under construction or planned



We supply gas just the way you need it

The right solution for every application



Reliable

for smaller jobs

- Cylinders or cylinder bundles
- Local distribution partners or directly from the filling plant





Effective

for medium-sized jobs

- Storage tank on site with gas supply from a road tanker
- Small dewar solution, supplied by Messer service vehicles

Optimal

for large jobs

- Gas production at the customer's site
- ✓ Air separation units
- PSA, VPSA or membrane plants
- Hydrogen and synthesis gas production facilities





Perfect

for the biggest jobs of all

 Pipeline systems with a direct connection to the business park or bulk consumer

We make the gases which life can't do without





Shielding und fuel gases, highly developed welding gas mixtures

Welding and cutting gases

- ✓ TIG, MIG and MAG welding
- ✓ Forming
- ✓ Laser welding and cutting
- Gases for additive manufacturing
- Gases for oxy fuel technology
- Gases for surface treatment such as thermal spraying

Specialty gases

- Liquid helium for cooling superconducting magnets in MRI scanners
- High purity process and calibration gases for analytics
- Krypton for insulating glass panels
- ✓ Balloon gas
- Specialty gases fittings and supply systems
- ✓ and much more besides



Our wide range of specialty gases



Medical gases for clinical treatment

Medical and pharmaceutical gases

- ✓ Anesthesia
- ✓ Pain management
- ✓ Diagnosis
- Respiratory therapy
- ✓ Surgery
- Cryotherapy
- Biobanks

Food gases

- Cryogenic freezing
- ✓ Transport refrigeration systems
- Modified atmosphere packaging
- System solutions to optimize mixing and kneading processes
- ✓ High pressure extraction
- ✓ CO₂ enrichment in greenhouses



Pure gases and gas mixtures under the Gourmet brand

In detail: welding and cutting gases





Shielding gases for welding

are sold under standardized, group-wide names which are based on the materials being worked:

Ferroline

for plain and low-alloy steels

Aluline

for aluminum and non-ferrous metals

Inoxline

for high-alloy steels and Ni-based alloys

Addline

for additive manufacturing of metals

Other

welding and cutting gases:

Forming gas

protects the back of the weld against oxidation

Hycut, Nitrocut, Oxycut

for laser cutting

Lasline

for processing laser material and generating the laser beam

Combustion gases

for oxy-fuel technology

In detail: specialty gases



Messer offers an extensive range of pure gases, standard mixtures and (on request) individual gas mixtures produced to each customer's specification.

- ✓ Liquid helium (in dewars)
- ✓ High purity gases (argon, helium, oxygen, nitrogen, etc.)
- ✓ Noble gases (krypton, xenon, neon)
- ✓ Standard mixtures (argon/methane, laser mixtures, etc.)
- Custom-made mixtures (calibration gases)
- Pressure cans
- Hydrocarbons (methane, acetylene, ethylene, etc.)
- Carbon monoxide
- ✓ Inorganic gases (ammonia, chlorine, sulphur dioxide, etc.)
- ✓ Classical and natural refrigerants
- Electronic gases for semiconductor manufacturing
- Specialty gases fittings and supply systems



In detail: medical gases





The most important medical gases at a glance:

- ✓ Oxygen
- ✓ Nitrous oxide
- ✓ Carbon dioxide
- ✓ Nitrous oxide/oxygen mixture (50% / 50%)
- ✓ Nitric oxide

Further medical gases are amongst others:

- ✓ Argon
- ✓ Gas mixtures
- ✓ Helium
- ✓ Air
- ✓ Nitric oxide in nitrogen
- ✓ Nitrogen

Use in these important areas of expertise:

- ✓ Anesthesia
- ✓ Intensive care/emergency medicine
- ✓ Pulmonology
- ✓ Gynecology

In detail: medical gases





In addition, medical gases are used in the following areas of expertise:

- Occupational medicine
- ✓ Nursing Outpatient Clinics
- Biobanks/cryobanks and research institutes
- ✓ Surgery
- Dermatology
- Diabetology

- ✓ Gynaecology
- Obstetrics
- ✓ Haematology
- Cardiology
- Neonatology
- ✓ Ophthalmology
- ✓ Endoscopy

- ✓ Rheumatology
- ✓ Sports medicine
- ✓ Veterinary medicine
- Dentistry
- Pediatrics
- ✓ Radiology
- ✓ Gastroenterology

In detail: gases for pharmaceutical industry





Pharmaline: gases for the pharmaceutical industry:

Messer's Pharmaline range includes specially tested gases that are geared to the needs of the pharmaceutical industry. They are designed to help manufacturers of medicinal products comply with the stipulations of EU Directive 2001/83 and adhere to GMP guidelines (good manufacturing practice).

The most important gases and applications:

Pharmaline A: Argon (Ar)

e.g. for inertisation

Pharmaline C: Carbon dioxide (CO₂)

e.g. for the production of drugs in powder form

Pharmaline N: Nitrogen (N₂)

e.g. for packing in modified atmosphere

Many more, highly diverse applications exist for gases in the pharmaceutical industry in addition to those mentioned here.

In detail: food gases



Gourmet is the brand name under which Messer supplies pure gases and gas mixtures for the food industry.

Gourmet gases meet the highest quality requirements and fulfill all food regulations, such as those contained in the European regulations for EU countries or the FDA guidelines for the USA. In addition to the above examples, a wide range of food-grade gas mixtures is available.



Name	Gas	E-No.
Gourmet C	Carbon dioxide	E 290
Gourmet A	Argon	E 938
Gourmet He	Helium	E 939
Gourmet N	Nitrogen	E 941
Gourmet L	N₂O, Nitrous oxide	E 942
Gourmet B-n/iso	n/Isobutane	E 943 a/b
Gourmet P	Propane	E 944
Gourmet O	Oxygen	E 948
Gourmet H	Hydrogen	E 949



Hydrogen: climate-friendly energy supplier



We focus on developing technologies that make our customers' production processes more efficient and environmentally friendly. This includes clean (green, renewable) **hydrogen** (H_2) as a key lever for decarbonizing industry and mobility.

Our solutions for the use of hydrogen

- ✓ H₂ On Site Concept Demand-driven, cost-effective on site H₂ generation, including use/marketing of all by-products (e.g. O₂ as well as network services) for optimized plant operation.
- ✓ H₂ One Stop Shop
 Comprehensive operating solution for hydrogen-powered buses in
 collaboration with the Toyota Group
- ✓ H₂ Refueling Solution
 Comprehensive services and high-performance technology for refueling fuel cell-powered vehicle fleets (e.g. buses and industrial trucks)
- ✓ On-demand delivery of green, blue and gray H₂ by trailer



Hydrogen: Examples of applications



Emissions-free logistics processes

Since 2004, Messer has been the technology and hydrogen supplier for one of the largest fleets of forklift trucks and other industrial handling equipment in the USA.





Emissions-free inner cities

Since 2011, Messer has been the technology and hydrogen supplier for one of the largest fleets of fuel cell-powered electric buses (FCEBs) in the USA.



Gases are found in almost all industries





Environmental Technology

Our technologies and gases help with decarbonization, wastewater treatment in sewage treatment plants, recycling yards, or exhaust air purification in large industrial facilities.



Chemical industry

Messer supplies gases for chemical and synthetic processes, for example for reactor cooling and inerting.



Paper production

Carbon dioxide from Messer reduces chemicals in pulp washing, pH control and is used for environmentally friendly removal of stickies. Ozone helps with pulp bleaching and reduces wastewater pollution.



Plastics, rubber

Messer supplies gases for the processing, refining and recycling of plastics, for the rubber-producing industry and liquid nitrogen for the production of ultra-fine plastic powders for 3D printing.



Gases are found in almost all industries



Construction industry

To cool down fresh concrete and cement before processing or to reliably stabilize soil during drilling work, we supply the liquid nitrogen.



Mobility

We supply gases for airbags, air conditioning and tires, for emission control and cleaning, and for fuel cell powered electric buses (FCEB) and industrial trucks.



Research

We support research institutes, universities and development centers with our high purity and laboratory gases, test gases, operating gases and gas mixtures.



Microtechnology

Our portfolio also includes gases that are used as filling or protective gases in tablet displays or processor boards.



Gases are found in almost all industries





Food

Under a modified atmosphere, foodstuffs in their packaging retain their shelf life for longer. In addition, gases preserve optimum product properties during cooling and freezing, and ensure a perfect cold chain during transport and delivery of food "to the door".



Beverage industry

Messer supplies carbon dioxide to make lemonade or beer fizz refreshingly and keep for longer.



Medicine and pharmaceuticals

Gases of the highest purity are needed for a wide variety of medical applications. Ultra-pure gases are also required for pharmaceuticals and medical products, for applications in the pharmaceutical industry, as process aids and inactive ingredients. Messer supplies them.







Metalworking industry

Messer supplies, for example, shielding gases and gas mixtures for material processing and finishing, 3D printing of metals, thermal spraying, laser welding and cutting, and MAG welding of unalloyed steels.



With a wide range of gases and applications, Messer helps improve productivity in the production of iron, glass, steel, copper and aluminum, as well as other non-ferrous metals. Our Oxipyr burners, with both oxyfuel and H_2 - O_2 combustion, help decarbonize processes.



Annealing, hardening, tempering, carburizing or sintering - processes based mainly on the application of nitrogen - give metals the properties required by the stringent standards in this industry.



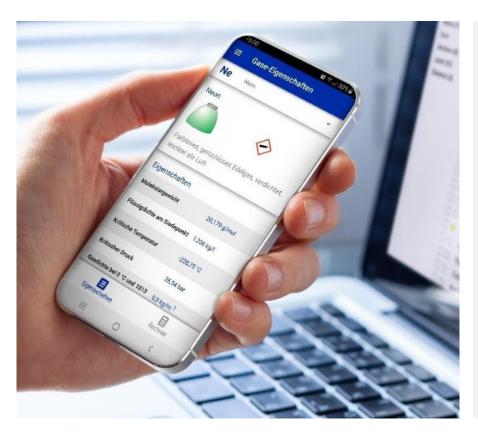
Concentration on competence





Messer E-Services

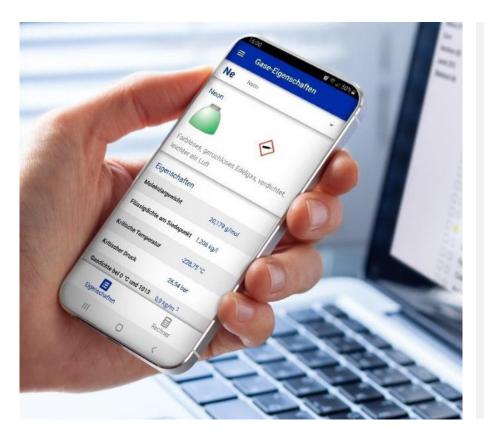




- ✓ E-Order: Easy reordering of gases, anytime and anywhere, on the web or via app
- ✓ E-Invoice: Personal portal for paperless invoicing processes
- ✓ E-Connect: EDI solution for exchanging all relevant information
- ✓ E-Stock: Messer-internal solution for monitoring cylinder and bundle movements as well as warehouse management on the network or via app
- ✓ E-ccts: Customer Cylinder Tracking System for cylinder and bundle movements also on customer side
- ✓ E-Monitor: Monitoring the fill level of gas tanks
- ✓ MyLab: Customer portal for specialty gases
- ✓ E-Profiles: Online management of your customer profiles
- ✓ E-Reminder: The "Messer thought support" for your orders
- ✓ E-Shop: Online offers for selected product areas

Messer E-Services





- ✓ E-feedback: Online solution for feedbacks, questions, complaints or callback requests
- ✓ Shareview: Use of smartphone camera to remotely review and resolve technical concerns
- ✓ Other online tools and apps: e.g. from the areas of welding & cutting, food technology, specialty gases or general safety topics
- ✓ Newsletter: Product & Technology information by mail

All about CO₂: ASCO CARBON DIOXIDE











Provider of individual and complete CO₂ solutions

CO₂ Recovery Plants ("Carbon Capture"):

- ✓ CO₂ Recovery from Stack Gas
- ✓ CO₂ Recovery from Gas-By-Products
- ✓ CO₂ Recovery from Dry Ice Productions

CO₂ ancillary equipment and accessories:

- ✓ Transfer pumps, vaporizers
- ✓ Detectors, flowmeters
- ✓ CO₂ testers
- ✓ CO₂ storage tanks, both stationary and transportable

Dry Ice

- Dry ice production technologies for pellets, slices and blocks
- Automated dry ice packaging and dosing solutions
- ✓ ASCO dry ice blasting equipment and accessories



Social responsibility

If you work with a vitally important substance and earn your living with it, you inevitably bear a special responsibility.

We are committed to:

Work safety

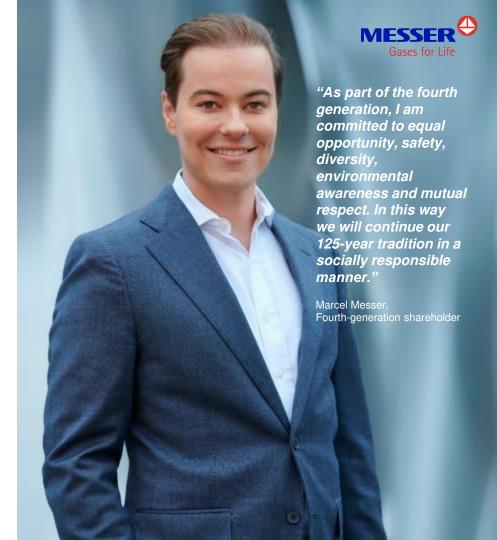
Equal opportunity and diversity

Energy efficiency

Decarbonization

Social projects

Environmental protection



If you work with volatile substances, you need enduring values

Лосьеп

Our Mission Statement

Messer is the largest privately-owned industrial gas specialist and present in the relevant markets in Asia, Europe and the Americas.

We act sustainably to meet our customers' needs in accordance with our collective responsibility for people, progress and the environment.

Our Values



Customer orientation

We are focused on the individual requirements of our customers and we help them to improve their competitiveness and performance.





Excellence

Our actions are based on technical expertise, innovation, flexibility and the ability to make quick decisions.

Employee orientation

We train, develop and encourage motivated and efficient employees with integrity. We expect our people to be resourceful and responsible team players.



Our Values





Mutual trust and respect

We believe that cooperation is based on dependability, sincerity, transparency and frank communication. We respect and abide by the cultural and social customs of the countries in which we work.





Corporate responsibility

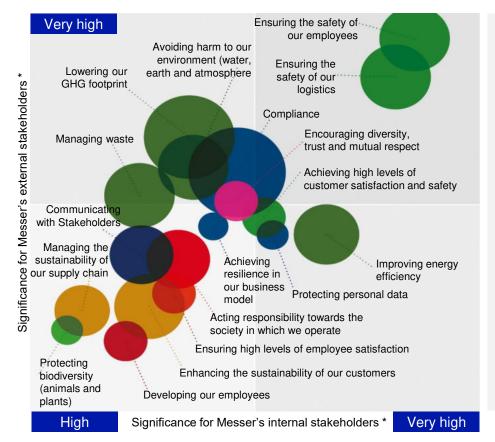
By managing our resources responsibly and applying the talents of our employees, we add to the value of our family firm in the long term.

Responsible behavior

We take our responsibility towards our employees and towards society in general very seriously.

Materiality matrix and ESG goals





At Messer, we currently have three main goals:

✓ Safety:

To achieve zero accidents among our employees, in logistics and among our customers.

✓ Environmental protection:

To reduce the emissions intensity of our activities worldwide by 40 percent by 2030 compared with 2019. This ratio is measured in kg CO₂e per euro of EBITDA.

✓ Diversity:

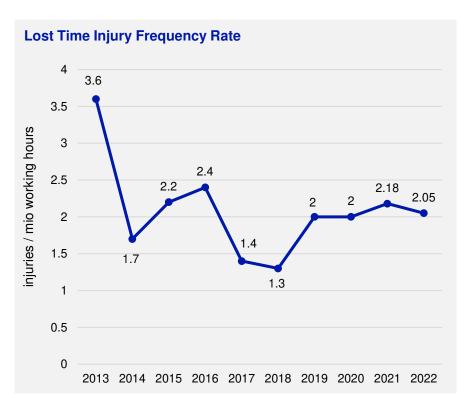
To increase the proportion of women to 30 percent in the first and second levels of management by 2030.

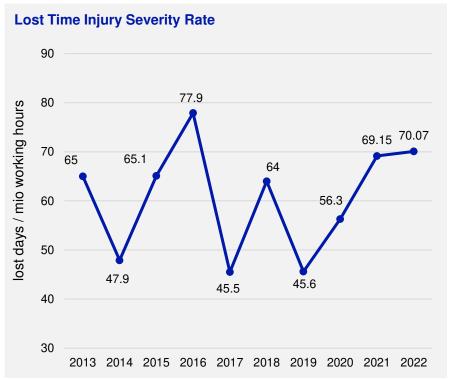
External stakeholders: such as customers, suppliers, journalists and followers on social media

^{*} Internal stakeholders such as management and employees

Development of our safety goals





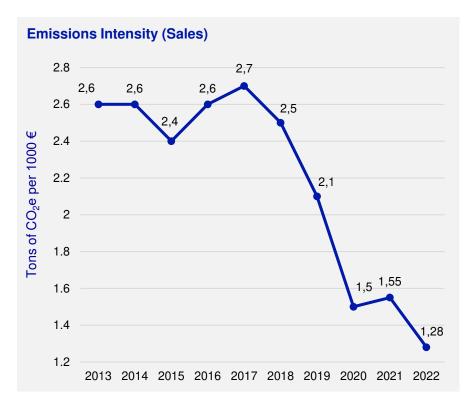


From 2019 onwards, figures include Messer's activities in the Americas, since their acquisition in March.

The figures comparable with the previous year for Messer Group plus Western Europe are 2.22 and 66.3 respectively.

Development of our environmental goals





We act at various levels to continuously improve our own processes and reduce our carbon footprint:

✓ Digitalization

Digital solutions help develop and implement more efficient processes. e.g.: optimization of route planning for gas deliveries; energy savings in the operation of our air separation units.

✓ Use of renewable energy

Either through PPAs or by building new facilities, like in McGregor, Texas, USA, that are powered by a renewable energy source directly on site.

✓ Sustainable sites

Thanks to targeted investments, we modernize existing production facilities and filling centers. We also implement reliable environmental management systems. In 2021, 61 consolidated companies were certified to ISO 14001 or RCMS.

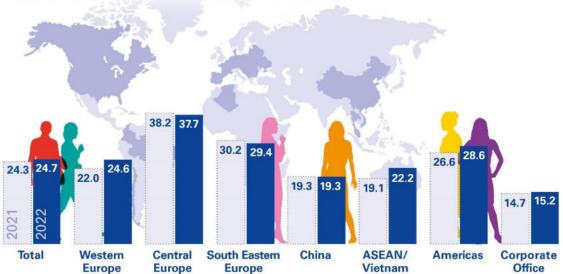
Figures until 2019 represent only Messer Group plus Western Europe. Comparable figures for Messer Americas are only available since 2020.

Development of our diversity goal



Mixed management teams





We support mixed management teams in the company and set clear targets for more diversity and equal opportunities.

Proportion of female staff at Messer:

- √ 27.8 % overall proportion
- √ 24.7 % at first and second levels of management (see chart)

Diversity and equal opportunities

MESSER Gases for Life

- Since 2019, Messer Group has held the Total E-Quality award for equal opportunities, which was extended for a further three years in 2022.
- Messer is a member of the "Diversity Charter", an initiative to promote diversity in companies and institutions.
- In the USA, Messer is a signatory to the "CEO Action for Diversity & Inclusion" charter, which aims to drive measurable action and meaningful change in the workplace.



We are setting a strong example of our commitment to diversity and tolerance and sending a clear signal that all our employees are valued irrespective of:

- ✓ Generation (also referred to as "age")
- ✓ Gender
- ✓ Sexual orientation
- Physical and mental abilities (also referred to as "disability")
- ✓ Ethnic origin/nationality
- ✓ Religion/world view
- ✓ Social background



Messer is more

than you expect

Sales and number of employees 2022



Francisco	

		Messer Group	Messer Industries	Total*
Sales	in million. euro	1,574	2,590	4,164
EBITDA	in million. euro	418	749	1,168
EBITDA-Margin	in percentage	27	29	28
Investments	in million. euro incl. IFRIC4	265	360	625
Employees	Contractual employment relationships in FTE**	5,349	5,910	11,259

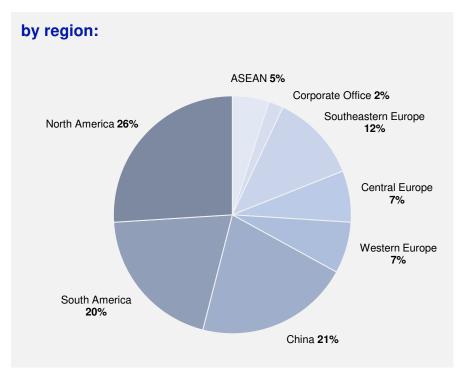
^{*} Total of Messer Group and Messer Industries, which includes the at equity investment Messer Industries at 100 % from March 1, 2019

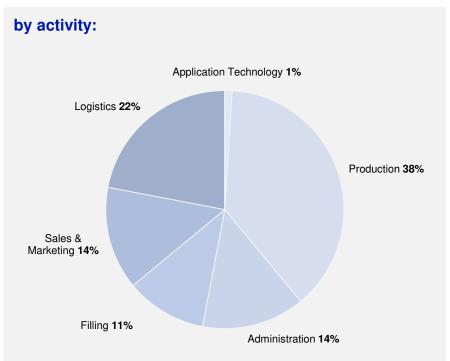
^{**} Full Time Equivalent

Good staff are crucial wherever we are



2022: 11,259 employees worldwide



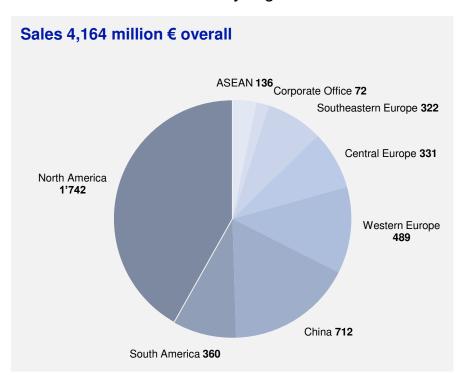


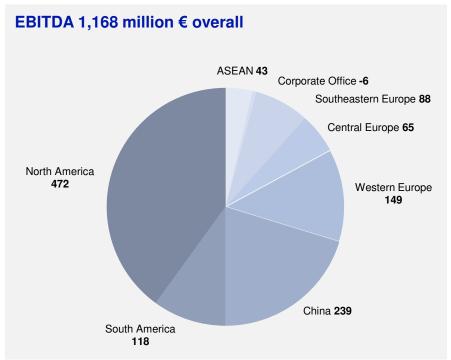
Messer Total is a purely mathematical sum of Messer Group and Messer Industries that includes 100% of the at-equity investment in Messer Industries.

Messer sales – breakdown



2022: Sales and EBITDA by region



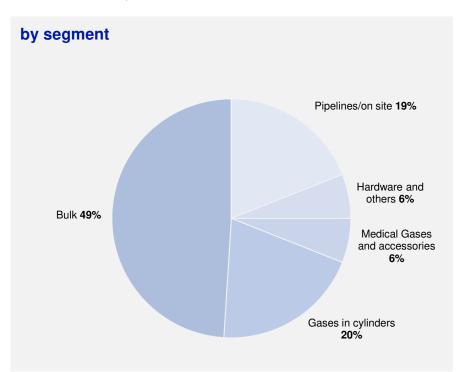


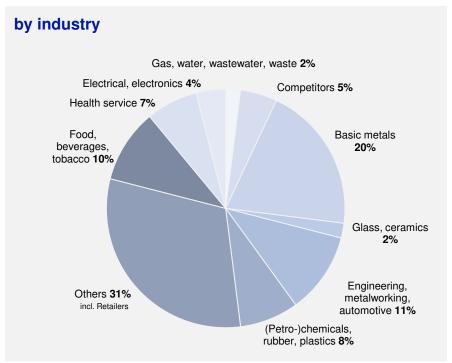
Messer Total is a purely mathematical sum of Messer Group and Messer Industries that includes 100% of the at-equity investment in Messer Industries.

Messer sales – breakdown



2022: Sales 4,164 million € overall





Messer Total is a purely mathematical sum of Messer Group and Messer Industries that includes 100% of the at-equity investment in Messer Industries.



A global player needs more than just the one head

1898 - 2023: 125 years of entrepreneurship





Beginning and rapid growth

1898 Adolf Messer founds the Frankfurter Acetylen-Gas-Gesellschaft Messer & Cie. in Höchst for the manufacture of acetylene developers and light fittings.



Entry into the industrial gases business

Birth of Messer Griesheim GmbH under Hans Messer. Merger of Adolf Messer GmbH with parts of Knapsack-Griesheim AG owned by Hoechst. Entry into the Industrial Gas Business.



Way back to the family and independence

Under the leadership of **Stefan Messer**, Messer owned 100 % by the family. Exit of Hoechst, Partnership with Goldman Sachs and Allianz and regain 100% of the shares. Stefan Messer is Chairman of the Supervisory Board of Messer Gases for Life.



Fourth generation of the family

Marcel Messer is
Managing Shareholder of
MEC Holding GmbH, a
company majority-owned
by the Messer family,
Marcel Messer is also
Managing Shareholder of
other holding companies
of the Messer family.















Deputy Chairman

Ready to meet any challenge: The Supervisory Board of Messer







Dong





Scheunert



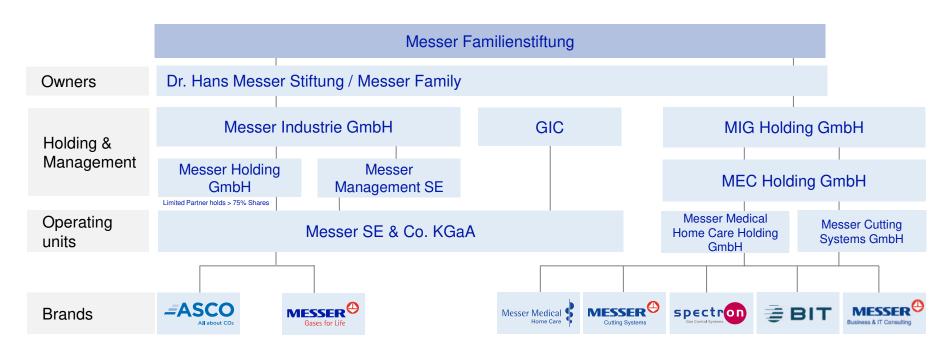
von Siemens



Maureen Messer-Casamayou

Messer World business structure *





^{*} Simplified presentation as for general information

Partnership for profitable Growth



GIC is a leading global investment firm established in 1981 to secure Singapore's financial future. As the manager of Singapore's foreign reserves, GIC takes a long-term, disciplined approach to investing and is uniquely positioned across a wide range of asset classes and active strategies globally.



In 2023, GIC became a strategic partner and long-term minority shareholder in Messer. GIC has a track record of





A whole world for more opportunities

Messer World

The Messer World and its brands



ASCO Carbon Dioxide is a globally operating provider of complete CO₂ and dry ice solutions.



BIT is a development, manufacturing and service partner for diagnostic medical technology.



Messer Cutting Systems is a global supplier of oxyfuel, plasma and laser cutting systems and a partner for metalworking industrial companies in these fields.



Messer is the world's largest privately held specialist for industrial, medical and specialty gases.



Messer Medical Home Care Holding develops products and services to enable patients to be looked after in their home environment.



Spectron Gas Control Systems is a leading technology provider for gas supply systems.

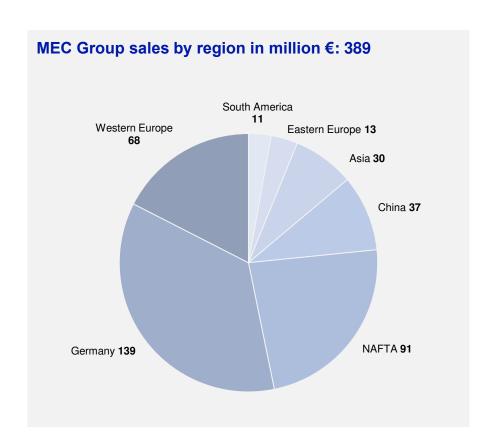


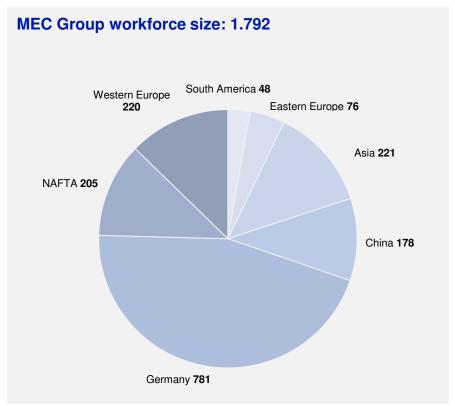
Messer Business & IT Consulting offers IT solutions for different business requirements



Strong group, good figures 2022







Part of the Messer World:

Messer Cutting Systems









One of the world's leading suppliers of metal cutting technologies and innovative solutions for the metalworking industry

- ✓ Oxy-fuel, plasma and laser cutting machines
- Solution provider for all metalworking industries
- Our CNC controls and software allow the machine to be integrated into the customer's software environment.
- ✓ Worldwide on site customer service and complete service combined with training courses offer customers comprehensive know-how and support for all aspects of the systems and processes.

900 employees in more than 50 countries

Part of the Messer World: Spectron











International gas supply systems specialist with the highest standards of performance, quality, reliability and technological expertise

Product portfolio:

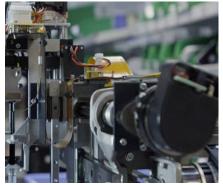
- Complete product family from valve for autogenous industrial applications to high-purity laboratory applications
- Coverage of the entire gas-processing-cycle regulation, monitoring, control
- ✓ Purification systems to improve or secure the purity of the gases

100 employees, most of them in Germany

Part of the Messer World: BIT Group











Partner to leading manufacturers of medical instruments: development and production of diagnostic devices

- Specific expertise in the fields of hematology, clinical chemistry, immunoassays, coagulation, life sciences, infectious diseases, microbiology, molecular diagnostics and genetics
- ✓ Global development of in-vitro diagnostic devices
- Lifecycle support from development to obsolescence management
- ✓ Worldwide after-sales service, support and spare parts
- Highest quality standards, certification to ISO 13485 and FDA 21 CFR 820-30

More than 340 employees at facilities in Germany, France and China, approx. one third of whom are engaged in development work

Part of the Messer World:

Messer Business & IT Consulting











Solution provider for business IT requirements

- ✓ IT Solutions f
 ür Supply Chain Management and Finance
- ✓ Data Analytics
- ✓ Infrastructure
- ✓ Project Management & Requirements Engineering

More than 40 employees in Germany

Part of the Messer World:

Messer Medical Home Care



Home Care









European specialist in respiratory therapies and care services in home care

Respiratory Therapies:

- Oxygen therapy: services including mobile oxygen concentrators, liquid oxygen systems, medical oxygen cylinders and accessories
- ✓ Sleep apnea: equipment and services for sleep diagnostics and sleep therapy (CPAP, AutoCPAP, accessories...)
- ✓ Ventilation: equipment and services for NIV ventilation (noninvasive ventilation) as well as training for family caregivers and nursing staff on optimal application

More than 400 employees providing home-based respiratory therapy to patients in eight European countries.



Messer moves on:

We look forward to working with you