

# Room

## Messer World



### Messer Group

Messer is one of the leading industrial gas companies, and is active in over 30 countries in Europe and Asia, as well as Peru, with over 60 operating companies. Its international activities are managed from Frankfurt am Main, whilst management of core technical functions – logistics, engineering, production and applications engineering – is undertaken from Krefeld.

From acetylene to xenon, the Messer Group has one of the most diverse product portfolios on the market – it produces industrial gases such as oxygen, nitrogen, argon, carbon dioxide, hydrogen, helium, shielding gases for welding, specialty gases, medical gases, food gases and many different gas mixtures.

The Messer Group has state-of-the-art research and competence centers in which it develops applied technologies for the use of gases in almost every sector of industry, in food technology and environmental technology, medicine as well as research and science.



### ASCO Carbon Dioxide

is a provider of individual and complete CO<sub>2</sub> solutions.



### BIT Analytical Instruments

is a specialist contract manufacturer of medical precision instruments.



### Castolin Eutectic

is a partner for wear protection, repair and fusion technology.



### Messer Cutting Systems

is a supplier of pioneering technologies and services for the metal-working industry.



### Spectron Gas Control Systems

is a specialist in gas supply systems.

# Room

## Messer Group Annual Report 2010

Messer is committed to creating room for development. This applies, for example, to innovative gas applications, expanding our markets and, of course, generating healthy profits.

At the same time, we ensure that there is room for aspects that are not directly expressed in market shares or sales figures. This includes the commitment of Messer's employees, environmental aspects and social projects.

And finally, we made a start on creating new premises for ourselves in 2010: the construction of our new corporate headquarters in Bad Soden marked the beginning of a new chapter in the history of Messer.

# Company

Foreword by Stefan Messer	8
Forecast by Dr. Hans-Gerd Wienands	12
Supervisory Board Report	14
The Mission Statement	15
Corporate Culture	16
Employee Development	18
Corporate Communications	20
Responsibility	22
Information Technology	24
Social Commitment	26
Messer World	28

## Make way for success

This ultimate objective was reached by Messer in all relevant areas in 2010 – with regard to our company, our customers in their particular markets and Messer’s financial result.



# Markets

Report by Adolf Walth: Excellence	36
Technology development and innovations	38
Country Reports: Western Europe	40
Country Reports: Central Europe	54
Country Reports: South East Europe	60
Country Report: China	70
Country Reports: Peru and Vietnam	74
Report by Johann Ringhofer: Growth	78

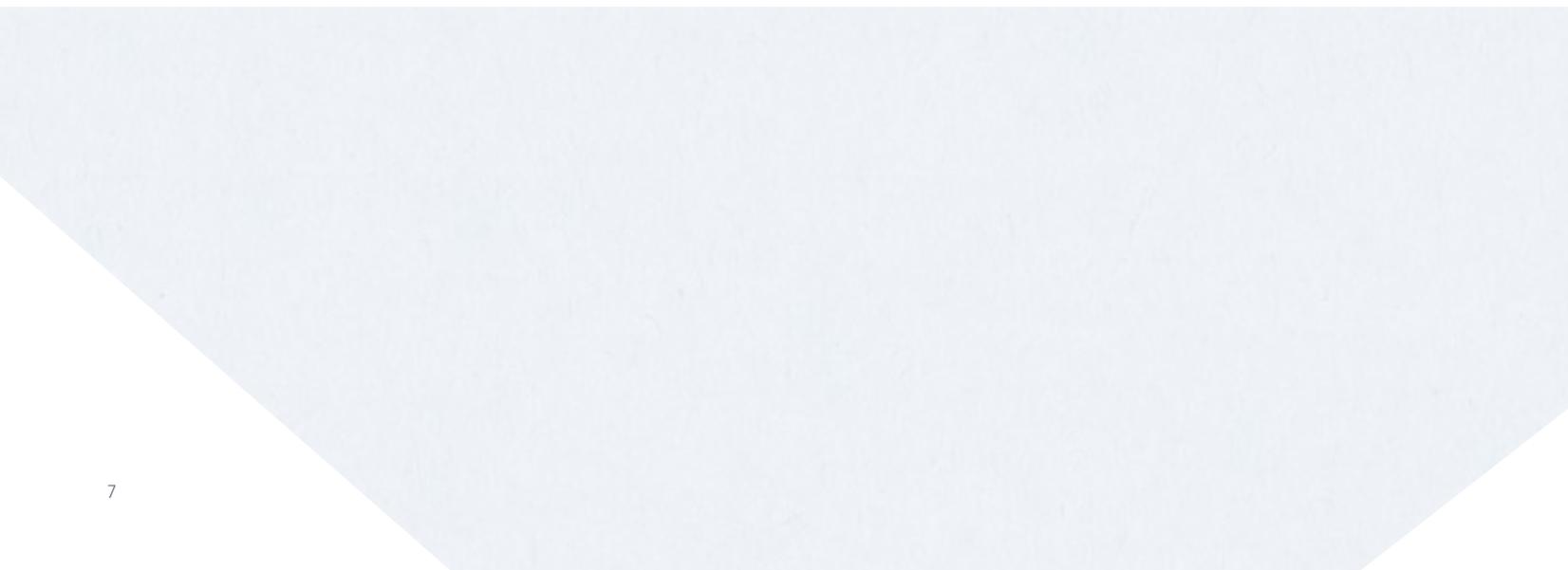
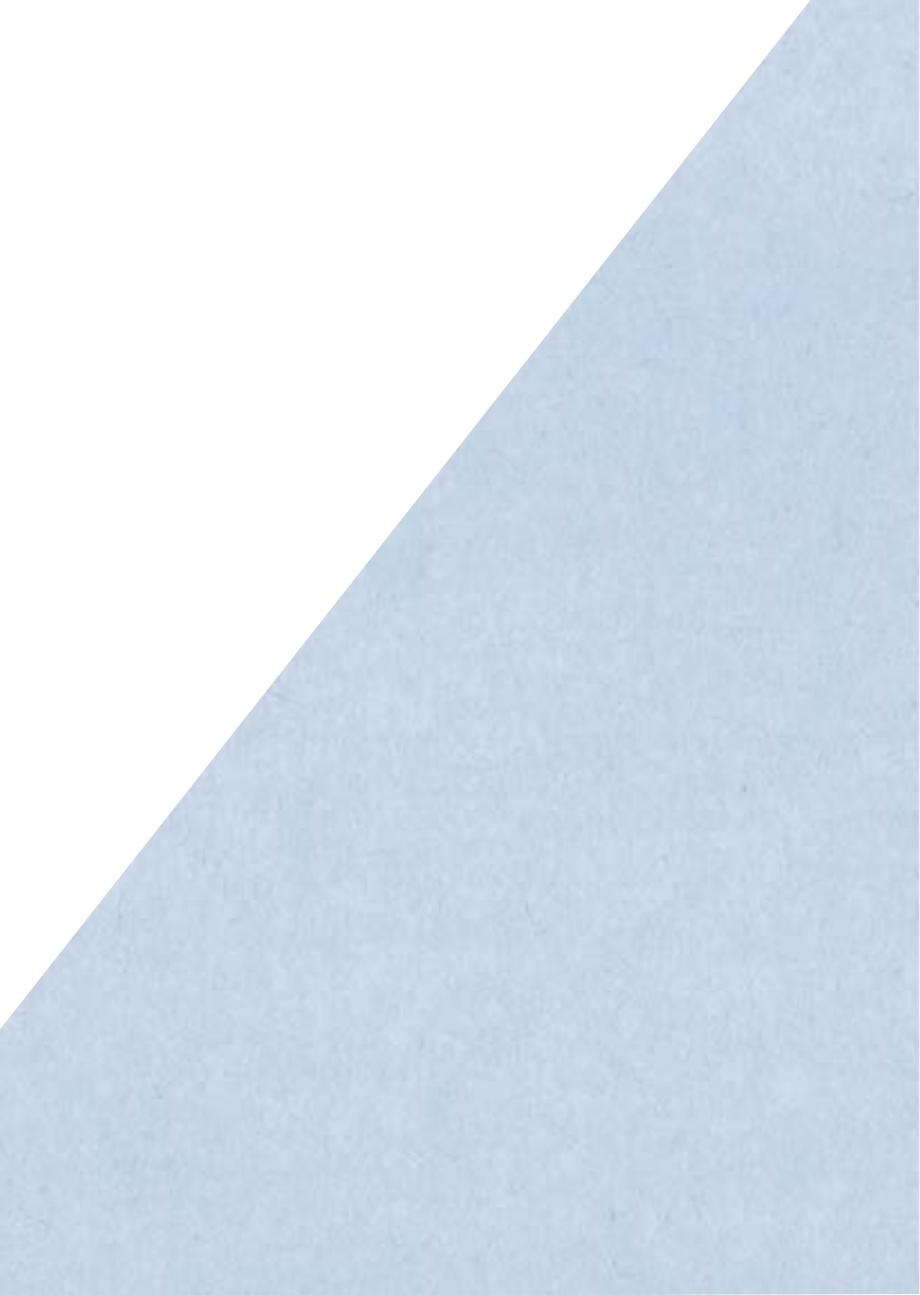
# Financial year

Foreword by Dr. Uwe Bechtolf	82
Messer Group Key figures at a glance	84
Consolidated Balance Sheet	85
Consolidated Income Statement	86
Consolidated Cash Flow Statement	87
The Messer Group worldwide	88
Imprint	89

# Company

The 2010 financial year could be summed up as follows: we managed to create room for success. We were once again able to achieve a record result; we also managed to consolidate our product supply independence and augment our successful re-entry into the German industrial gases market with additional successes.

Besides the positive economic development, there are two very special events which testify to our success: Stefan Messer received both the "Focus for Excellence" business prize and the "2010 Family Entrepreneur of the Year" award.



# Company



Stefan Messer, Owner and Chief Executive Officer

Dear Business Partners,  
Customers and Employees,

After 2009, a year greatly affected by the economic crisis, we ended 2010 with a record result. We may remain behind the 2008 figures in some regions and businesses, but here too there is a clear upward trend compared to the previous year. Our development in China is still proving very exciting: this is a significant component of our double-digit growth at Messer this year.

Looking back at our path to date since becoming independent in the year 2004 we have been very successful. Our jointly drafted mission statement has delivered the right impetus. Courage, passion, trust, respect and honesty are the cornerstones of our cooperation with each other and with our customers and partners.

The strategic objectives of the Messer Group thus far have been to achieve independence in product supply in Europe, to re-enter the German industrial gas market and to expand our activities in China and Vietnam. All have been consistently and successfully achieved. In addition, we have invested over 1 billion EUR in new air separation plants, CO<sub>2</sub> plants, filling and distribution equipment and sales agents in the last seven years, helping increase our sales by over 70 per cent to 909 million EUR in 2010.

In February 2010 our first air separation plant with liquefier was started at our partner Xiangtan Iron and Steel in its new location in Yanjiang in the Guangdong Province. The commissioning of the second plant followed at the end of 2010. With our partner in Foshan, Hong Kong Deli, we will also launch an additional 230 tpd liquefier in Foshan as well as build a 520 tpd air separation plant in the framework of a new joint venture in Shunde, in order to increase our market share in the rapidly growing southern province of Guangdong.

On 6th May 2010, we officially opened our new CO<sub>2</sub> joint-venture plant with our Belgian partner IJsfabriek Strombeek on the site of the INEOS Group in Antwerp. The head office as well as the gas filling plant of Messer Belgium will gradually move from Machelen to this location.

The laying of the foundation stone for our future head office in Bad Soden took place on 8th June. The completion of the whole complex of office buildings and the exhibition area in the Adolf-Messer-forum was in April 2011.

Our joint-venture air separation plant, LIMES, with Linde Gas France in St. Herblain (Brittany) was officially opened on 14th June.

With the completion of several investment projects for air gases and CO<sub>2</sub> in Serbia, Bosnia-Herzegovina, Montenegro and Macedonia we can continue to expand our leading position in the former Yugoslavia. The commissioning of the new air separation plants in Romania and Turkey are the basis for further expansion of our business in these two large countries.

The foundation stone ceremony for the relocation of Messer Medical Austria from Vienna to Gumpoldskirchen was laid on 22nd July. The shareholders and the Supervisory Board agreed a proposal from the management to establish our home care businesses as a separate company outside the Messer Group. The activities of Messer Medical Austria and OxysphAir Belgium are run and developed under the Messer Medical Home Care Holding, which in turn is a subsidiary of MIG Holding GmbH, the holding company of the Messer family. This reflects the special needs of a distinct, service-oriented business model.

In mid-July our second 40,000 cubic meters per hour air separation plant for Xiangtan Iron and Steel at the main site in Xiangtan was started. We also want to commission our first Krypton/Xenon raw gas plant.

With the participation of a business delegation from Hessen we inaugurated our first air separation plant in Vietnam on 6th October. The plant is the largest of its kind in Vietnam and provides the privately-owned integrated Hoa Phat Steel Plant at its site in Hai Duong, North Vietnam, with industrial gases.

From 14th to 16th October we gathered together for our corporate conference in Baden (Austria). The main theme of this year's meeting was to develop a new strategy up to 2020, having achieved the objectives of the first seven years so successfully.

With great excitement on 27th October we were able to celebrate the punctual start of our largest air separation plant in Western Europe at the site of Salzgitter AG in Salzgitter. The plant was constructed by our engineering team in record time and, alongside the supply to Salzgitter Flachstahl GmbH, is an important product source for the further development of our business in Germany.

At the trade fair Euroblech in Hannover from 25th - 30th October we showed what Messer has to offer in the fields of cutting systems, oxy-fuel technology as well as industrial gases. The show was very well attended and brought a lot of impetus for new business.

## Foreword

The MEC group is clearly showing an upward trend again too. So-called 'CastoLabs', workshops in which we carry out repair work on wear-prone parts of our customers' plants using welding consumables from Castolin Eutectic, were set up in Poland, Canada and the U.S. The production of flux cored wire in Dublin has been expanded. We received two awards from Frost & Sullivan for exceptional customer service and product development for welding consumables. Ensuring optimal capacity utilization of our wear plate production in Europe, USA and China, we received a major international contract for the protection of ATMs in Brazil against theft and burglary.

Our business with cutting systems, which slumped in 2008, has recovered slowly and orders are steadily growing again. Our customer training centre in Groß-Umstadt was put into operation and our manufacturing facility in India expanded. Our factory for Oxyfuel and gas supply systems in Frankfurt Griesheim was closed and moved partly to Groß-Umstadt and partly to a new facility in Griesheim. Since January 2011, the area of gas supply systems has been brought under a separate company called Spectron Gas Control Systems GmbH.

At BIT Analytical Instruments many new customers were acquired that will contribute to an expansion of our business in the next few years. In addition to the acquisition of the French firm C2 Diagnostics in Montpellier, the distribution company BIT Analytical Instruments Japan was founded in Japan. In our cutting machine factory in Kunshan (China) BIT started a new manufacturing facility so that we can now produce precision instruments on three continents.

Overall, the MEC group generated sales this year of 432 million EUR. This is, however, still about 25 per cent short of the record year of 2008.

At the turn of the year 2009/2010, our long standing associate and daughter of the firm's founder Adolf Messer, Mrs Erika Heberer, passed away. She thoroughly carried and supported our restructuring process with exemplary loyalty to the company, for which we are exceedingly grateful to her. Her role as an associate in the company has now been taken over by her daughter, Mrs Heidemarie Garrison, along with her two daughters. We will always remember Mrs Heberer as a model and humble associate and look forward to being able to continue our collaboration with her successors.

As part of the "Medium-sized business fair FrankfurtRhineMain" on 28th October 2010, I was awarded the entrepreneur's award "Focus on Excellence" on behalf of our company by the Hessian Minister of Economic Affairs, Dieter Posch. This award is presented annually by the Liberaler Mittelstand Hessen e.V. to companies showing core values of tradition and exemplary entrepreneurship.

A week later on 4th November I was awarded the Family Entrepreneur of the Year 2010 by INTES and the business magazine Impulse at the entrepreneur-success forum held at the Schloss Bensberg. This prize is awarded annually and is also for exemplary entrepreneurial service towards the preservation of family-run businesses.

I gladly accepted both these prizes with pride and joy on behalf of my family and my team of employees. This prominent recognition of our joint achievements shows that we at Messer are most definitely on the right track. It gives us courage and motivation to continue with passion our successful business history.

2010 has been another very eventful year. As it draws to a close Messer has taken another large step forward. Not only the figures but also the honours and awards are evidence that we are a most successful team that sticks together even in difficult times and makes the right decisions. With reason, courage and passion, we will continue to strengthen and expand our business to keep it as the home of our daily efforts for the long term.

I thank all our staff, all our colleagues, our customers and partners and our shareholders, supervisory boards and friends for their trust, understanding and loyalty.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Stefan Messer', with a stylized flourish at the end.

Stefan Messer

# Company Forecast

"Messer Group has already surpassed expectations for 2011. And the general trend at Messer Eutectic Castolin is also positive."



Dr. Hans-Gerd Wienands,  
Chief Financial Officer

## Messer Group

Messer had planned a growth in sales of seven per cent for 2011 – but our expectations were clearly exceeded in the 1st quarter of the year. Consequently we are currently assuming a sales growth of ten per cent. Our activities in Europe on the one hand and in China on the other are contributing equally to this development. The economic and financial crisis now appears to have been largely overcome in Europe, too. Messer's business is not affected by the consequences of the terrible earthquake in Japan.

Thanks to a cross-border product swap with an international competitor we will further increase the utilisation of our air separation plants in Siegen and Salzgitter, Germany, and at the same time secure a long-term product source for our industrial gas business in Belgium and the Netherlands.

Our investments – including so-called IFRIC 4 investments – will total around 249 million euros this year, significantly exceeding the 168 million euros achieved in the previous year. Here we are concentrating on the strategic investments in China of 100 million euros (40 per cent), which will principally be used to expand our business activities in the west, south and east of the country.

We will continue unchanged with the measures for ensuring cost and spending discipline which were introduced in the course of the economic and financial crisis. Particular attention will be paid here to the management our working capital. Despite the consistently high investment volume, our Net Debt / EBITDA ratio will also show a ratio of 2:1 in 2011.

Not only on account of the constantly increasing energy requirements, but also because of the shortage of resources, we anticipate a continuing rise in energy prices.

Renewable energies offer a great opportunity for our business. Expanding their use as an alternative to fossil and nuclear fuels and to enhance energy efficiency will provide significant momentum for growth in the industrial gas sector around the world, both in the medium and long term.

The Chinese government's 12th five-year plan no longer focuses exclusively on high growth, but on balanced and sustainable growth and social targets. This reorientation will make China even stronger, even more independent of its export markets and considerably more competitive in the international environment. Enduring positive effects for our industrial gas business in China can evolve from this.

In the 1st half year of 2011 Messer will presumably early refinance the bank loan which is due for repayment on February 2, 2012, by a new US private placement with a tenor of ten years. This measure accounts for the inflation trends which are generally forecasted for Europe and the corresponding increases in the base interest rates. Parallel to this, we will agree a new syndicated loan with our banks to finance our further growth.

### Messer Eutectic Castolin (MEC)

MEC registered an improvement in the business situation in the NAFTA region and in Asia (excluding Japan) for the MEC business segments Wear and Fusion Technologies and Messer Cutting Systems. To cover the growing demand for flame-cutting machines in India and Brazil, we are currently purchasing plots of land to extend the local production facilities of Messer Cutting Systems. For Japan we assume that in the second quarter the business segment Wear and Fusion Technologies will be affected by infrastructure problems as a result of the earthquake. However, our managers there see growth opportunities in the second half of the year.

In Europe a number of countries are still unable to follow the economic upswing in Germany, which is reflected in the different growth rates on the sales markets of Wear and Fusion Technologies and Messer Cutting Systems. BIT Analytical Instruments, on the other hand, is registering growing sales. The reasons for this are new customers and new products, the takeover of C2 Diagnostics and the foundation of BIT Analytical Instruments Japan. In the course of the worldwide economic upswing, however, all business segments are experiencing painful bottlenecks and delays in obtaining raw materials and pre-products. In conjunction with the increase in the prices of raw materials, this development presents a challenge both for procurement and production. Following a strong first quarter for all three MEC business segments, we are confident that we will be successful throughout the whole of 2011.



Dr. Hans-Gerd Wienands

# Supervisory Board Report



Supervisory Board of Messer Group  
(from left: Dr. Karl-Gerhard Seifert,  
Dr. Bodo Lüttge, Petra Messer, Dr.  
Jürgen Heraeus, Peter Wilhelm Storm  
van's Gravesande)

## Company performance and projects

During the reporting period, the supervisory board has performed the tasks incumbent on it in accordance with the statutory provisions and the articles of association by providing support and advice to the management. The management has reported to the supervisory board, both verbally and in writing, concerning the performance and situation of the company within the framework of regular meetings on April 30, 2010 and November 24, 2010. Furthermore, the supervisory board was informed about important business transactions and decisions. Legal transactions requiring the board's approval were submitted to the board for its decision. The supervisory board has satisfied itself in the plenum that the bookkeeping, the annual financial statement of Messer Group GmbH and the group accounts for the year ending December 31, 2010, as well as the management report from Messer Group GmbH and the Messer Group have been

audited and certified by the auditing company KPMG AG Wirtschaftsprüfungsgesellschaft, Essen. The audit reports were discussed at the board meeting on April 19, 2011 with the assistance of the auditors. The supervisory board had no objections and is in agreement with the auditor's results.

The supervisory board would like to thank the management as well as all employees of the Messer Group for their efforts and successful work in the 2010 financial year.

Sulzbach, April 19, 2011  
Supervisory board

Dr. Jürgen Heraeus, Chairman

## Our vision

Messer is an important industrial gases group in its core markets of Europe and China. Messer is and will remain an independent family-run business. We think and act decisively for a long term and measure ourselves by our sustained success. Together with our partners and associated companies in the field of wear, fusion, and cutting technologies as well as precision instrumentation we develop synergies and meet our customers' needs expertly, reliably and with a flair for innovation. This is what makes us the first choice for our customers and employees.



## Our mission

As an owner-managed family business with a rich tradition we are focused on the future whilst taking into account the different conditions in our existing markets. We also use our experience and expertise to building up our position in new markets. Ranging from acetylene to xenon we offer our customers a wide range of technical and medical gases and food and specialty gases. Our product range is completed by our excellent services and state-of-the-art technical plants and equipment. In our highly modern technology centers we work together with our customers to develop application technologies for the use of gases in almost every industry, in food technology, medicine, science and research. Our efficient and dedicated employees, our flexibility and the closeness we feel to our customers in local markets makes us their preferred partner. Through entrepreneurial flair, farsighted thinking and the continuous improvement of our processes, we create added value for our customers and so secure our mutual success in the long term. Solid finances and fair profits guarantee our independence and support sustainable growth.



## Our values

### Customer orientation

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

### Employee orientation

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

### Responsible behavior

We take our social responsibilities towards our employees and to society very seriously:

- Safety: we are committed to the safety of our staff and the safe production, handling and use of our products.
- Health: we set working standards that ensure sound health and well-being for every individual.
- Environment: as a member of the wider society, we are committed to protecting the environment.

### Corporate responsibility

By responsibly managing our resources and applying the talents of our employees we are increasing the worth of our company in the long term.

### Excellence

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

### Mutual trust and respect

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



# Corporate Culture

## Our actions are based on values

Sustainable entrepreneurial action is an integral part of our business policy and helps safeguard our long-term success. Our mission statement takes account of environmental, human and social factors as well as economic success. Our commitment to integrity is not only confined to our products and applications, it governs all our actions as a company and forms the basis of our mission statement and our strategy.

Cooperation within the Messer Group is based on reliability, sincerity, transparency and open communication. We respect the cultural and social customs and differences in the countries in which we operate. The Messer Group is committed to honesty, thereby building a credible reputation among its customers, partners and the public as a trustworthy company. Our corporate mission statement is based on six guiding principles, which are complemented by a code of conduct and guidelines that apply to all employees and which form the basis for business processes throughout the Messer Group.

Messer's welding centre at the Hochschule Niederrhein in Krefeld promotes exchange of expertise.



## Close contact between practice and science

Another important element of our corporate culture is a close connection between practice and science: our welding centre in Germany has been integrated into the facilities of Niederrhein University in Krefeld. We want to work together with Germany's tenth-largest university to develop technical synergies in joining technology. The proximity of our Krefeld location to the university, combined with the latter's infrastructure, offers Messer the ideal conditions for a collaborative partnership. The close contact with the Department of Material and Joining Technology at the university is intended to further strengthen the exchange of expertise as well as collaboration on innovation projects.

## Awards for exemplary entrepreneurship

As an expression of corporate culture put into practice, Stefan Messer, owner and CEO of Messer Group GmbH, was awarded the "Focus for Excellence 2010" business prize for his entrepreneurial achievements. This award is presented annually by business association Liberaler Mittelstand Hessen e.V. to entrepreneurs and businesses for practising exemplary entrepreneurship and a tradition of values. According to the association, this includes "sustainability in action as a fundamental concept in dealing with people, processes and products, exemplary business policy for the development of products and services, or examples of overcoming difficult market situations and practising successful entrepreneurship".



Stefan Messer was presented with the "Focus for Excellence 2010" award by Dieter Posch (l.), the minister of trade and industry for the state of Hesse.

Stefan Messer has also been honoured as “Family Entrepreneur of the Year”. The prize is awarded by the INTES Business Success Forum in association with ‘impulse’ business magazine. The nine-strong judging panel, made up of business and media representatives as well as partners of the INTES Academy for Family Businesses, was particularly impressed with the strategic return of the company into family ownership and the practice of “good governance”. Virtues such as responsibility, perseverance and entrepreneurial action have for generations been the cornerstones of the Messer family’s socially responsible way of doing business.

### Stefan Messer appointed EIGA President once again

Stefan Messer has once again been appointed President of the European Industrial Gases Association (EIGA). His term of office will run until the end of December 2012. Stefan Messer had previously held the post of EIGA President from November 2007 onwards, but stepped down in November 2008 due to his serious illness.



A highlight in 2010: Stefan Messer being named “Family Entrepreneur of the Year”

### Implementation of company-wide code of conduct

In the 2010 financial year, the Management Board adopted the Compliance Code with immediate effect for all employees of the Messer Group. The Compliance Code consists of the Code of Conduct, the Group Guidelines and the Compliance Guidelines. The Compliance Guidelines have been supplemented with, among other things, a list of local Compliance Officers and a description of the reporting procedure in the case of Compliance Code violations. Messer Group employees can now contact the relevant designated contact person in the national subsidiary directly if they have any questions or concerns regarding the Compliance Code. They also have the option of contacting the Messer Group’s Corporate Compliance Officer (CCO). As part of the process of introducing and strengthening the Group-wide compliance structure, a written statement was obtained from all the first and second-level managers, confirming that they have read and will observe the Compliance Code.



The executives of the Messer Group are also responsible for ensuring that the Compliance Code is adhered to.

The managers are responsible for ensuring that the staff in their organisational area have access to and are familiar with the Compliance Code, and also observe it. On 23 November 2010, a general training course was held for all Compliance Officers.

# Employee Development

## Our employees

In late 2010, there were 5,288 employees worldwide contributing to the success of our Group with their extensive knowledge, ideas and abilities, their many years of experience in some cases, their high level of motivation and their commitment and active involvement. In the previous year, size of our workforce was 5,211 at year's end. The increase is largely attributable to the Chinese growth market.

We harness our employees' experience and foster their professionalism in order to ensure that we continue to have well-trained staff and attract young people to our business in the future. We encourage the necessary willingness among employees by means of performance and profit-related income components and remuneration systems, internal and external training measures as well as company pension scheme options, among other things.

## Education and training are important investments

We recognise that our success depends on the commitment and competence of our staff. In order to start early with employee development, the Messer Group is particularly committed to training young people. For the Messer Group, the education and training of the young generation is an important investment in the future and competitiveness of the company and Germany as a business location. We train committed high-school graduates, who have higher education entrance qualifications, as industrial clerks, office communication management assistants, mechatronics technicians, IT officers and IT specialists. Furthermore, we have once again intensified our search for university graduates in Germany. In Serbia, Messer is performing its educational function through the welding school it has established at the University of Belgrade with the aim of addressing the shortage of skilled labour.



One of the aims of employee development is to inspire young people about Messer.



Messer promotes intercultural staff exchanges.

## International networking of employees

On 31 December 2010, around 90 per cent of our workforce was employed outside the German-speaking countries. In a company with global operations, a network of contacts is therefore particularly important. All newly appointed managing directors and executives complete several weeks of training in preparation for their future work. This involves them spending time in different companies and divisions. In addition to providing an insight into the activities of the Group, this approach promotes international networking among employees as well as intercultural competence. Our trainees spend time working in different locations as well, in some cases abroad.

### Guidelines on ideas management

The Messer Group has adopted a uniform guideline on ideas management. A key concern of this guideline is to make use of improvement proposals internationally for the whole Group. In addition to performing their designated tasks, all employees are expected to bring their experience and knowledge to bear in the form of improvement proposals. This is supposed to aid the search for and implementation of new opportunities in our business. An Ideas Management Team has been formed for the Messer Group and tasked with checking whether proposals emanating from the national subsidiaries can be applied in other areas. In some countries, including Germany, there is also the possibility to submit proposals directly via an IT tool. Proposals may be rewarded with attractive bonuses.



Dr. Jürgen Herrmann (r.) is responsible for employee development at Messer.

### Employee job satisfaction survey expanded

In the 2010 financial year, the employee job satisfaction survey which had been started in 2009 was extended to another 19 Messer Group locations worldwide. In addition to statistical information, the survey also covered "information and communication", "work situation and work-life balance", "staff development and involvement", "job satisfaction and cooperation", "management" and "company". The results were published internally via the Messer intranet. Further projects aimed at fostering talent management and strengthening employees' commitment to the company are planned for the coming 2011 financial year. "Employer branding" is to be used to make Messer even more attractive to applicants in the labour market.

# Corporate Communications



## Practice-oriented brand management increases level of awareness

The activities in the field of Corporate Communications in 2010 fully reflect the brand strategy. In contrast to many other companies, the Messer company name is not a constructed name: the Messer family name gives an identity to both the company and its products. An appropriate strategy aims to strengthen the brands of the Messer entrepreneurial family, promote the level of awareness of Messer, increase the recognition value and consolidate the links between brand, performance and product.

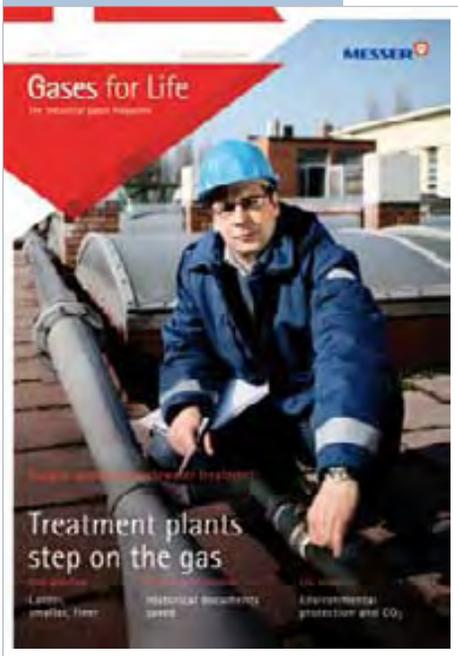
Certain measures connected to this were initiated and/or implemented during the financial year. The company slogan "Gases for life" is intended to illustrate the proximity of the Messer brand to products from day-to-day life that are manufactured using gases or in the production of which gas applications are used.

The Messer brand gives the company its identity.

## New communications channels for increased customer proximity

As part of the objective to be even closer to our customers and the public, the customer magazine "on air" that has existed since 2005 was superseded by a new concept. The new magazine entitled "Gases for life" shows customers, partners and the general public why industrial gases, foodstuffs gases, speciality gases and medical gases are just as important as water and electricity in production processes.

The first issue of the "Gases for Life" magazine



"Gases for life" is published four times a year and reflects typical strengths and values of the Messer Group, such as trust, transparency, flexibility, experience, competence and sustainability. The text is supported by an authentic visual language and easily understood info graphics.

Simultaneously, "www.GasesforLife.de" represents an internet platform which gives educational facilities, journalists, customers and curious members of the public the opportunity to learn more about the diverse uses of gases using examples of products and processes. We demonstrate over eight areas of life – food, environmental protection, communication, mobility, health, science, free time and living – that gases play an important role almost everywhere.

### Room for communication and presentation

For the conception, planning and implementation of an event centre that was established in an auxiliary building of the new company headquarters of Messer in Bad Soden, Taunus, Messer Group and Messer Eutectic Castolin (MEC) joined together to form one network. In the Adolf Messer forum – named after the founder of the company – one of the most modern permanent exhibitions about the manufacture of gases and their uses has been established. In addition, application technologies such as welding, cutting and anti-wear protection are showcased. The centrepiece of the exhibition is a restored historic production facility for industrial gases from the 1950s. Among other things, it consists of a piston compressor with a large flywheel, the round heat-exchanger box, the nearly 10-metre tall gas separation column and several voluminous gas tanks.

### Public relations work further reinforced

Through targeted media and press relations work, the level of awareness of Messer among customers, partners and the public could be further consolidated. Special events such as the ceremonial laying of the foundation stone of the new company headquarters in Bad Soden in June 2010, the awarding of the “Focus for Excellence 2010” accolade and the “Family Entrepreneur of the Year” prize to Stefan Messer, led to a slight increase in publications in print media. In comparison to the previous year, in which we reached a television audience of 4.27 million viewers as a result of TV reports about our “A smile says it all” campaign against swine flu, TV interviews with Stefan Messer broadcast in 2010 reached 14.6 million viewers.



Gas separation column being moved into the new Adolf Messer Forum



Laying of the foundation stone for the new corporate headquarters

# Responsibility

## Safety, environment and quality

Safety, environmental protection and quality are top priorities for the Messer Group and firmly enshrined in corporate policy. Thus the company is committed to employee protection and the safe manufacture, use and handling of its products. The environment must be protected at all times and in all places. The labour standards used are continuously being improved in order to prevent danger to people or the environment as much as possible. A safe and healthy business environment that meets the needs and requirements of our customers and employees and complies with all the legal requirements is the only way in which we will be able to achieve all our work safety objectives in the future.

## EIGA safety awards

At both the summer and winter conferences of the European Industrial Gases Association (EIGA) in 2010, the Messer Group repeated its success of recent years by winning a number of safety awards for exemplary work safety. Messer Croatia Plin d.o.o., Croatia, received a Gold safety award for 15 years of accident-free work at two locations. Silver safety awards went to Messer Technogas s.r.o., Czech Republic, Messer Tehnogas AD, Serbia, Messer Polska Sp. z o.o., Poland, Messer Austria GmbH, Austria, Messer Aligaz Sanayi Gazları A.S., Turkey, Elme Messer Latvia SIA, Latvia, and Elme Messer K.OOO, Russia, for one location each. Bronze safety awards were presented to Messer Croatia Plin d.o.o., Croatia, Messer Hungarogáz Kft., Hungary, and Messer B.V., Netherlands.



The Messer Group once again received various work safety awards in 2010.

## Accident rate up, but accident severity down

The accident rate was 2.9 industrial accidents per million hours worked compared with the previous year's figure of 1.9. As a result, the number of days lost was also up at 480 compared with 436 in the previous year. Accident severity was down, however, at 47.5 days lost per million hours worked compared with 49.2 in the previous year.



Safety first – including when transporting gases by tanker.

## Corporate SHEQ audits and commitment to road safety

In the 2010 financial year, nine corporate SHEQ audits were carried out in three countries – one risk analysis was also carried out. The Messer Group has been a member of the action group for the European Road Safety Charter since June 2008. By being a signatory to this charter, Messer is committed to supporting the common objective of this EU action programme, which is to further reduce the number of traffic fatalities on European roads. Since a large part of the Messer Group's products are transported by road, the aim of continuously increasing safety awareness and enhancing knowledge of risks is just as important as that of strengthening safety measures. The activities aimed at improving safety on Europe's roads form part of Messer's corporate philosophy.

### Energy efficiency remains a target

The efficient and environmentally friendly use of resources is a major priority for the Messer Group. Our products and processes help our customers increase the energy efficiency of their own products. The new air separation units are built with energy efficiency in mind, and we are constantly working on improving the average specific energy consumption.

The target set in 2008 of reducing average energy consumption in our air separation units in Europe by seven percent by the year 2010 has been reached. The next target is to improve the energy efficiency of the air separation units in Europe by an average of 0.5 percent per year through the year 2020. This is to be achieved through better capacity utilisation of the units, through targeted projects for energy optimisation, and through energy optimisation and the new construction of more efficient units. The Corporate Department for Logistics also intends to commit itself to improving energy efficiency – by optimising vehicle technology and providing relevant driver training, through a joint IT solution for route planning in all Messer companies, and with cross-border optimisation of routing. Our customers should be among the beneficiaries of the technologies and products we provide to help improve their resource efficiency.

This company-wide commitment to the environment is also borne out by the certified ISO 9001 and ISO 14001 management systems. They serve as a tool for the continuous development and intensification of customer and employee relationships as well as environmental protection measures. At present, 13 Messer companies are certified according to ISO 14001 under EMAS (Eco-Management and Audit Scheme).

### SHEQ Meeting reflects diversity of topics

The Messer Group's 4th SHEQ Meeting took place in March 2010. Topics included a globally harmonised system for classifying and labelling chemicals, including gases, as well as the introduction of LISAM, a software program for producing safety data sheets. Overall, Messer has been able to successfully complete a large number of SHEQ projects in the last two years, including the standardisation of cylinder labels, the production of safety data sheets in the Messer Group and the manual for drivers. Messer's SHE manual has become an even more important safety tool with the addition of the "Messer Group General Procedure". In 2011, further SHEQ audits and risk analyses are planned at our subsidiaries, as is the preparation of operating permits and laboratory documentation. Our strong commitment in this area takes account of our belief that safety and environmental protection will become an even more important focal point of industrial activities in the coming years.



From a lofty height: the air separation unit in Siegen, Germany



SHEQ projects and risk analyses help to further improve work safety.

# Information Technology

## Messer Group's IT environment

Since the middle of 2006, the Messer Group's IT support has been provided by Messer Information Services GmbH ("MIS"), a joint-venture with the Messer Eutectic Castolin ("MEC") Group based in Groß-Umstadt. As an IT service provider, this company covers the full range of requirements of both Groups. The day-to-day business of MIS therefore focuses on building and developing the IT infrastructure for the Messer Group and the MEC Group.

## Integration of other companies into the global infrastructure

Other companies have been integrated via the "Server Based Computing Rollout", a strategic IT project that integrates the Messer Group's and the MEC Group's national subsidiaries into the global infrastructure of MIS. The consolidation of databases and tools as well as the use of a uniform office landscape in the Citrix technology used by the Messer companies lead to cost savings while at the same time optimise IT security and infrastructure for the entire Group. From the start of the project in 2005 to its end in 2010, the number of employees getting and using their data and IT applications via the new Citrix infrastructure increased from 300 to over 1,650.

## SAP Harmonisation in the Messer Group progressing

SAP Harmonisation in the Messer Group is another important part of the overall IT strategy. In 2010, the new harmonised SAP system was rolled out to a further two companies, which meant that some 1,000 users were working on the harmonised platform by the end of 2010. Our Turkish subsidiary (20 employees) was the first company to introduce an 'SAP Light' version (one client with a few modules for small companies). When SAP Harmonisation is completed, around 25 European companies of the Messer Group will be working with a uniform SAP system. The standardisation of production and logistics creates the conditions for lasting cost reductions within the Group. It means that Messer will provide uniform service quality to its customers across national borders and offer an enhanced level of service and greater delivery reliability.

The SAP system was rolled out to another two Messer Group companies in 2010.



## e-Invoicing expanded further

As part of the "e-Invoicing" project, further European subsidiaries of the Messer Group made the switch from traditional invoicing based on printed invoices to an electronic invoicing by e-mail in the course of 2010. The Messer Group and its customers benefit greatly from paperless invoicing, as does the environment. For example, customers can view and edit invoices at any time of day. By November 2010, some 2,000 customers were taking part in e-Invoicing.

The Messer Group is increasingly relying on paperless administration and processing for incoming invoices as well. This system is currently being used by six European Messer subsidiaries, Messer Industriegase, Messer Produktions-GmbH Salzgitter and Messer Produktions-GmbH Siegen. The documents that are received in hard copy are scanned centrally, recorded electronically and checked and approved in the SAP system. The advantages of this simplified method of processing incoming invoices are increased transparency and significantly reduced invoice auditing times.

### CRM program now also available in Switzerland

In 2010, the harmonised Customer Relationship Management (CRM) program was successfully introduced in Switzerland as well. The new web-based tool allows all the specific business processes – including for sales and marketing – to be portrayed centrally via the Messer Information Services data processing centre. It facilitates comprehensive support for sales processes, ranging from customer acquisition to optimal support and improved service. The CRM system has now been successfully introduced at Messer Industriegase in Germany as well. This means that it is presently being used in the Messer companies in Austria, Slovakia, Switzerland and Germany.



The Messer Information Services team

### New websites for e-Sales

Two out of a total of ten application-specific websites were put online in 2010 with the aim of raising the internet profile of Messer application technology and products and ultimately boosting sales. The range of search terms was expanded and the relevance of the pages for search engines optimised in order to make the pages easier to find. Users receive precise answers to their questions, with application-specific feedback forms narrowing down the target group and facilitating the categorisation of submitted enquiries. The next website is planned for products, with an online shop for balloon gas due to be launched in parallel.

# Social Commitment

## Social commitment has many facets

A look at our corporate mission statement shows that Messer takes social responsibility very seriously. As well as clearly laying out our vision and mission, it also firmly establishes our values, including employee orientation, corporate responsibility and responsible behaviour, as well as trust and respect. These values, which underpin our actions, have a long tradition in the company, dating back to its founder Adolf Messer. The staff survey that was carried out in the Messer Group clearly shows that they are respected and put into practice.

Most of the companies in the Messer World are involved in social and environmental projects, whether it be by donating money or goods to social institutions, schools or hospitals, by taking part in action days or by sponsoring events. There is a great variety of projects, each tailored to the needs of the country in question.

## "Children's Day" and "Padel" league foster cooperation

At Messer Cutting Systems, social culture is fostered with a traditional "Children's Day". For the sixth time, the management invited the entire workforce and their children to the plant to take part in games and sports competitions, thereby strengthening the sense of community. Messer Ibérica has formed a "padel" league, again with the aim of encouraging sports activities and teamwork. Some 30 employees are enthusiasts of this relatively new sport, a cross between tennis and squash. Irrespective of the outcome of the league, one victor has already emerged, and that is team spirit.

## JCC project gives young people a chance

The companies of the Messer World are also committed to social responsibility beyond the workplace – and this sometimes involves the use of courageous and unusual methods. One such example is the support provided to the "JCC – Jovens Construindo a Cidadania" project ("Young people will shape the society of tomorrow"), a Brazilian youth project being carried out by the police in cooperation with local companies. The aim of the project is to help young people from the poorer quarters of Jundiá to make the transition from school into employment, to develop their talents and integrate them socially in order to steer them away from a life of violence and drugs. The

project has been a success, as the example of Erick de Paulo Carvalho shows: the 20-year-old has been working at Messer Cutting Systems do Brasil for two-and-a-half years. He owes his job to the JCC project.

## Dr. Hans Messer Social Foundation

The Dr. Hans Messer Social Foundation helps people worldwide who find themselves in need through no fault of their own. The foundation is financed by the revenue generated from the foundation's endowment fund as well as from donations. The Dr. Hans Messer Social Foundation's latest project was Minjiang Primary School in Dujiangyan, China. A donation of some 19,000 euros made it possible to build and equip the school's "Messer Library", which was officially opened on 18th June 2010.

Schoolchildren at Minjiang Primary School in Dujiangyan, China, are delighted about the new "Messer Library".



The name Messer also stands for support for young scientists: every year, the Frankfurt/Main Chamber of Industry and Commerce awards the Hans Messer Prize to graduates of Frankfurt/Main University of Applied Sciences for their outstanding academic achievements. In 2010, the winners were Andreas Kopp and Leander Paries. As part of his final year project, Andreas Kopp developed an image-based control system for coating processes. Just how closely research and industry collaborated in this case is evidenced by the fact that a company is already using the newly developed process in production. In his Bachelor thesis, Leander Paries explored the question of whether it is legally possible, within the framework of corporate restructuring, to satisfy the creditors' claims by means of a debt equity swap instead of quota payments. The legislature is now also considering this legal question – a draft law on further facilitation of corporate restructuring has been drawn up.



2010 prizewinners: Andreas Kopp and Leander Paries (2nd and 3rd from left)

### Adolf Messer Foundation

The Adolf Messer Foundation supports the research and teaching work of scientists who have distinguished themselves through the excellence of their work. To this end, the Adolf Messer Foundation annually awards two advancement awards, among other things.

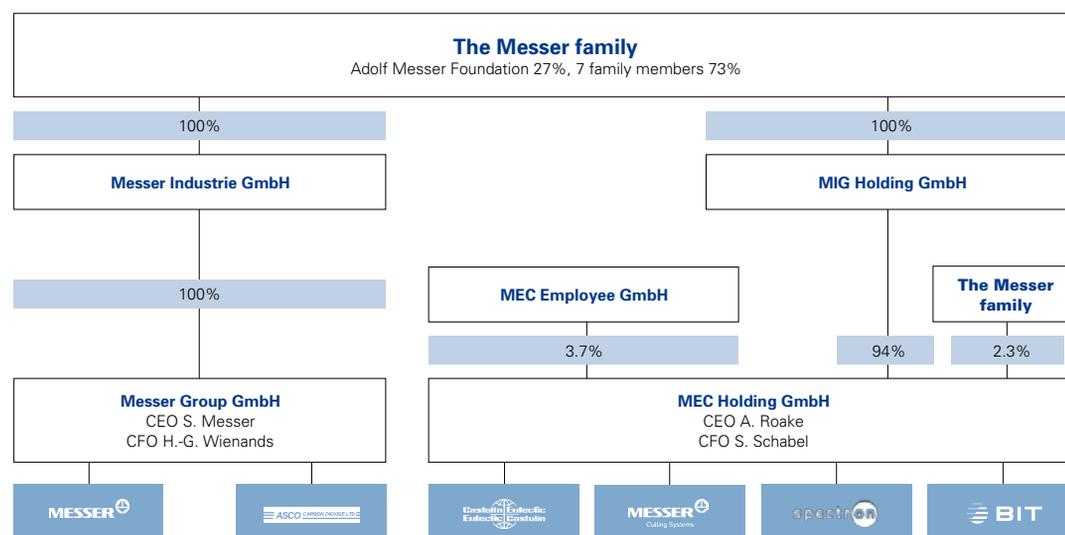
Dr. Tobias Meckel, a research associate at TU Darmstadt, received the prize, worth 50,000 euros, for his research programme, the purpose of which is to observe individual proteins in living cells. This makes it possible to detect the smallest deviations from the norm in cellular processes. On the one hand, this leads to a greater understanding of the processes themselves, and on the other it facilitates the detection of possible false regulations which can lead to illness.

The prize money, which is earmarked specifically for research projects, will allow Tobias Meckel to take the next important step in which the cells to be examined are not only cultivated in natural, three-dimensional environments, but the position, concentration and activity of individual proteins – i.e. their dynamics in space and time – are recorded in all three dimensions.

# Messer World

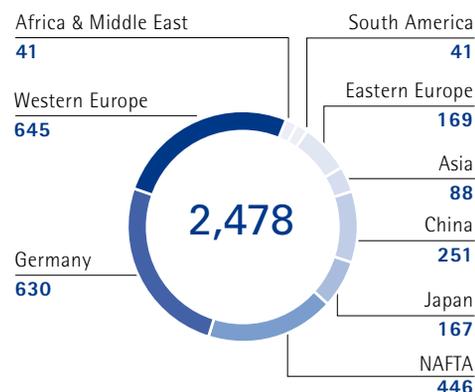
Besides Messer and ASCO Carbon Dioxide, the sister companies Messer Cutting Systems, Castolin Eutectic, BIT Analytical Instruments and also Spectron Gas Control Systems, which was hived off from Messer Cutting Systems on 1st January 2011, are all "Part of the Messer World". They all offer application-specific know-how and products which help to optimise production processes, extend the operational life of the means of production or significantly improve quality. The competencies and business development of these companies are presented on the following pages.

## Organisational structure

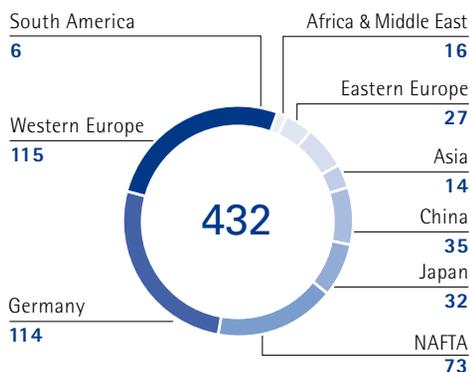


## Key figures 2010

Numbers of employees of MEC Group by region



Net sales of MEC Group by region in million Euro



## ASCO Carbon Dioxide

### Profitable growth

We have used our opportunities for profitable growth in the CO<sub>2</sub> plant business, especially by increasing the shareholding in ASCO Carbon Dioxide Ltd, Switzerland, and ASCO Carbon Dioxide S.a.r.l., France, to 100 per cent.

### Long-term effects

The plant construction business of ASCO Carbon Dioxide Ltd, Switzerland, was affected by the long-term fallout from the previous year's global economic crisis as well as the volatility of exchange rates, which resulted in a slightly below-target sales performance.

### Broad product range

ASCO Carbon Dioxide is a provider of individual and complete CO<sub>2</sub> solutions. The product range includes automatic dry ice production machines, CO<sub>2</sub> production and recovery units, dry ice blasting units, CO<sub>2</sub> storage tanks, CO<sub>2</sub> cylinder filling systems, CO<sub>2</sub> vaporisers and other CO<sub>2</sub> accessories. Product development and service are based on two strong pillars: firstly, on more than 80 years of practical experience in every aspect of CO<sub>2</sub> and dry ice, and secondly, on the company's highly skilled and extremely loyal and committed workforce. Thanks to this know-how and the breadth of the product range, customers benefit from complete and individual solutions from a single source.

By acquiring Swiss-based ASCO Carbon Dioxide Ltd, Messer has expanded its product portfolio by adding the complete spectrum of CO<sub>2</sub>-related technologies, especially in dry ice production and application. Thus the Romanshorn site is available to the entire Messer Group as a CO<sub>2</sub> competence centre. Messer is the second-largest supplier of carbon dioxide and dry ice on the Swiss industrial gases market and continues to expand its share of that market on a sustained basis with ASCO application technology processes.

[www.ascoco2.com](http://www.ascoco2.com)



Complete CO<sub>2</sub> and dry ice solutions from a single source



Under the ASCOJET brand, ASCO also offers tailor-made complete solutions in dry ice blasting technology.



ASCO is available to the entire Messer Group as a competence centre for CO<sub>2</sub>.





A strong R&D team develops IVD instrumentation for global OEMs.



Complex system production based on the KAIZEN philosophy

BITSMARTSOLUTIONS: OEM instrument solutions on a vertical and horizontal product platform



## BIT Analytical Instruments

### Continued growth

BIT Analytical Instruments (BIT) won its largest number of new customers and projects to date in 2010. New instruments will be developed and produced in the coming years, ensuring the company's continued growth. Business development was very successful in the past financial year with sales growth of over 15 per cent. Profits also rose.

### Comprehensive service provider

BIT Analytical Instruments is the leading full-service provider for a wide range of diagnostic and medical equipment.

We are an international company operating from locations in Germany, France, Japan, USA and China and delivering our services worldwide. Our long-standing clients include young companies as well as world market leaders.

BIT offers the full range of contract development and manufacturing services as well as equipment after-sales service to medical, diagnostic and industrial OEMs. We are the independent market leader in Europe for high-quality IVD analytical systems for the high-end OEM market.

### Individual solutions

Individual contract development and manufacturing of medium to complex instrumentation systems and customised automation solutions. Instrumentation for Life – your partner of choice for product development, manufacturing and after-sales service. Always applying the highest quality standards in compliance with ISO 13485 and ISO 9001, and also FDA registered.

[www.bit-companies.com](http://www.bit-companies.com)



## Castolin Eutectic

### Strong sales and profit growth

In the past financial year, sales were increased by more than 15 per cent compared with the previous year, and the EBITDA was moderately increased. The worldwide expansion of CastoLab® Services activities is continuing apace and will remain a strategic element of the company's growth in the future. New markets in Eastern Europe, Russia and Asia were opened up successfully and have already yielded some excellent successes in the past financial year.

### Specialist for Wear and Fusion

Castolin Eutectic is the worldwide leading provider of professional solutions in the areas of repair, maintenance and anti-wear protection. We provide products with application know-how to customers and have been awarded for our service-based business. More than 100 years of experience in welding, brazing and thermal spraying technologies means that we stand for professional and innovative solutions.

### Solutions from a single source

Our products and services prolong the lifetime of your machinery and equipment, increase productivity and reduce costs. Castolin Eutectic is a one-stop solution provider with the most comprehensive range of products in this sector, including maintenance operations and readymade components. The main focus of our applications technology expertise is on industry. In over 100 countries, Castolin Eutectic employs 1,500 people, of which 700 are highly qualified engineers and international applications specialists working in this field.

[www.castolin.com](http://www.castolin.com)

[www.eutectic.com](http://www.eutectic.com)



Professional application carried out in one of our CastoLab® Services workshops



Complete Castolin Eutectic product range



The STARCUT hand cutting torch for flame cutting material of up to 500 mm in thickness and for gouging



Process optimisation with solutions from MesserSoft

## Messer Cutting Systems

### Good results

The geographical expansion into new markets over the past few years is yielding good results and consolidating the Messer Cutting Systems brand in the South American and Asian markets as well. In China, Messer Cutting Systems has been operating successfully for many years. In the established markets of Europe and North America, the cost-cutting measures that were implemented during the crisis have put us in a good position as the economy picks up again. The number of offers made, orders received and orders on hand is improving all the time, and this points to continued business growth.

### Pioneering technology and services

Messer Cutting Systems is a supplier of cutting-edge technology and services for the metalworking industry, and we set standards worldwide. As the industry pioneer, the company is active in more than 50 countries, with more than 800 employees in five main locations. The product range includes oxyfuel, plasma and laser cutting systems, from hand-guided machines right through to special machines for shipbuilding, as well as plant and equipment for oxyfuel welding, cutting, brazing and heating. Spare parts, repairs and modernisation services round off the programme. The subsidiary Messer EnviroTec supplies the environmental equipment for the systems. MesserSoft offers software solutions for the optimisation of processes involving machines and in production engineering in cutting shops. Messer Cutting Systems focuses on intensive dialogue with customers – the modern Training and Application Center reinforces this claim.

[www.messer-cs.com](http://www.messer-cs.com)



Messer Cutting Systems – synonymous with excellent cutting technology

## Spectron Gas Control Systems

### Excellent order situation

Spectron Gas Control Systems, which was hived off from Messer Cutting Systems on 1st January 2011, is to be run as a separate division, reflecting its status within the Group. The order situation was excellent in 2010, and Spectron's status as a separate division is expected to lead to another growth surge in 2011.

### Continuing spectrum of products

Spectron Gas Control Systems is the specialist for gas supply systems. The Spectron brand represents a large range of products comprising just the right regulators, valves and manifolds for a broad spectrum of gases. They cover the full range of applications extending from a simple valve all the way through to gas cylinder cabinets for semiconductor gases. Spectron also includes alarm and control systems for gas applications and gas-purification systems for ensuring the purity of gases. Spectron provides its customers with the highest levels of performance, quality, reliability and technical expertise.

With an additional production site in Great Britain and its worldwide network of distributors, the company is globally well-positioned and always close to its customers.

[www.spectron.de](http://www.spectron.de)



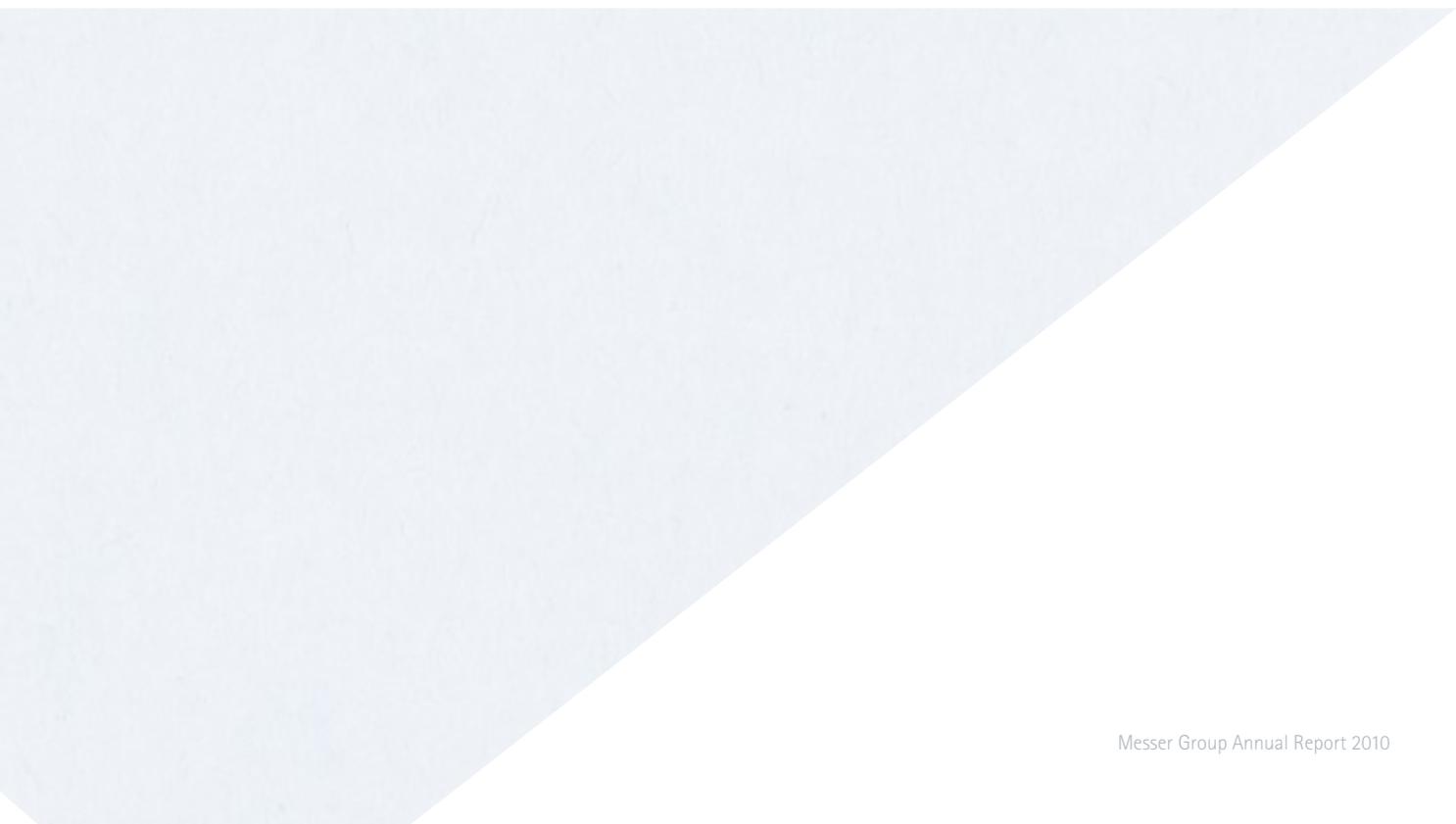
Tapping points for high-purity gases



Tapping points for industrial gases



Gas cylinder cabinet for the photovoltaic industry



# Markets

In 2010, we successfully expanded economic spheres with great future potential. We did this by, among other things, increasing our product capacities in areas where there is strong demand for industrial gases.

We particularly value the relationship we have with our customers. We create room for trust through transparency, knowledge and reliability, and use this to develop long-term business relationships through continuity and proximity.

# Markets

“Successful projects, innovative ideas and strategic business development are key elements in Messer’s success.”



Adolf Walth, Executive Vice President  
Sales & Marketing Europe

## Development of the markets

The focus on our core competencies in Application Technology has confirmed our success – with outstanding results in winning new customers. We were able to post new contracts for 218 million cubic metres of gases. The Metallurgy team exceeded the goals they were set by a particularly significant margin. The new contracts provide a good basis for further organic growth in the bulk segment of Messer.

We were also able to achieve a good annual result with specialty gases. Business with helium, high-purity gases and gas mixtures continued to develop extremely successfully. The quantities purchased by our major customers Livbag in France and Johnson Controls in Poland contributed greatly to this result. Sales of inert gases, in particular krypton, grew significantly compared to the previous year.

Based on Messer’s new strategic orientation, the Specialty Gases sales team redefined our future market position. Central products and market segments have been defined, as have the success factors, and they will now be put into practice with concrete projects and campaigns.

International Key Account Management (IKAM) has for years supported the Coca-Cola Hellenic Bottling Company (CCH) in ten countries. Here we supply around 38,000 tonnes of carbon dioxide and 4,000 tonnes of nitrogen per year; sales amount to some five million euros. In late 2010 the national subsidiary Messer Italia concluded a new local exclusive agreement with CCH Italia to supply 13,500 tonnes of carbon dioxide. The gas is needed to supply all Italian CCH filling plants which do not have their own CO<sub>2</sub> production. CCH’s faith in Messer was also further confirmed by very good ratings in the quality ranking.

IKAM was also able to significantly enhance the relationship with Johnson Controls Automotive Division in conjunction with regional Sales. The delivery of helium for special welding work in the production of car seats in Poland, was optimised logistically by switching to trailers and is now at the heart of an international network of relationships. This network includes locations in France and Germany, which is advantageous both for Johnson Controls and for Messer. Good contacts at all levels and the use of innovative technologies, among other things for saving energy (hot brine cooling) ultimately proved convincing. Sales figures of more than two million euros in Europe are expected to increase further in the coming years.

### Application development – from the Technical Centre to the customer

In 2009 Messer launched an internal innovation prize. A total of 29 ideas relating to gas applications were submitted from the fields of industrial refrigeration, transport refrigeration for foods, health, paper production, recycling, climate and environmental protection, production procedures and energy recovery. The ideas that were awarded prizes were worked on intensively in the year under review.

Some ideas for processes were verified in procedural terms on a Technical Centre scale and will be tested in practice with customers in 2011. Other processes already underwent implementation on the market in 2010: At various production locations of the paper industry, adding CO<sub>2</sub> to the water circuit enabled the consumption of fresh water and also chemicals to be significantly reduced. The use of oxygen in fluidised bed combustion of sewage sludge and hazardous waste will – once it has been tested on a Technical Centre scale – then be implemented for an operator of a communal incinerator plant. The development of burner technology also made progress. The focus here lay on oxygen burners and flameless combustion, which offer more efficient use of energy and better emission values. This project will be financially backed by public funding from the Austrian Forschungsförderungsfonds (FFG – Research Promotion Fund) for the next three years.



The Messer Innovation Prize also attracted ideas for the use of gases in paper production.

### Medical gas business re-orientated

The home-care activities of Messer will be outsourced to an independent home care company. The new company will tailor its business model to the requirements of the home care market in order to act successfully on this growing future market. The institutional care and B2B activities for medical gases will continue to be run by Messer's foreign subsidiaries.

Adolf Walth



Messer Medical sells equipment for the home care sector.

# Technology development and innovations

Work was carried out on numerous development projects in 2010. The 2009 Innovation Prize proved particularly successful in putting new areas of development on the agenda, with intensive work being carried out on the prize-winning ideas over the past year. In total, 30 projects have been worked on in the past year, predominantly in cooperation with customers or market partners. The high level of innovation in the Messer Group continued in 2010 with 20 invention disclosures. Patents have been granted for 17 inventions in the past year.

Test with the new flameless combination burner



## Market launch for oxyfuel combination burner

Over the past few years, the Metallurgy group in Gumpoldskirchen has been developing a flameless combination burner which allows the level of oxygen enrichment to be freely adjusted between 21 and 100 per cent. This is of great interest, particularly for melting processes in the furnaces of the non-ferrous industry. The flameless state makes it possible – for the first time – to comply with the statutory emission requirements even at high levels of O<sub>2</sub> enrichment. The burners have been designed and optimised for combustion with ambient air as well as preheated air, and the combustion ratio can be set with great precision. Two customers were persuaded to use this technology in 2010.

## Increase in the efficiency of an aluminium hearth furnace

Measures for increasing the efficiency of an aluminium hearth furnace were implemented for an Austrian customer in 2010. This led to efficiency being increased by more than 20 per cent as well as natural gas consumption being reduced to 45 standard cubic metres per day.

## Oxygen enrichment in fluidised bed processes

In the past few years, Messer Austria has built a pilot-scale fluidised bed reactor. The unit, which attracted considerable public funding, is being used to investigate oxygen enrichment in the kind of fluidised bed processes that are used in thermal waste treatment, refineries and the paper industry. In the first phase, only O<sub>2</sub>-enriched air and hard coal were initially used as fuel, with the unit designed to facilitate flue gas circulation. When operated with pure oxygen, this makes it possible to achieve CO<sub>2</sub> concentrations of up to 85 per cent. The next step examined the burning of alternative fuels, primarily sewage sludge. The Institut für Verfahrenstechnik (Institute for Chemical Engineering) at TU Wien (Vienna University of Technology) was a partner in this project.

The easy-to-use subcooler optimises cold grinding.



## Improved quality and reduced costs of cold grinding

For physical reasons, the supply of liquid nitrogen into cold grinding units always results in the formation of gas bubbles (flash gas). This can be prevented by connecting a subcooler upstream of the cold grinding unit. This process, for which a patent application has been filed, offers several advantages. For example, fluctuations in the power consumption of the mill motors are avoided, allowing greater grinding throughputs to be achieved. The heat transfer in the product cooler is improved, thus saving liquid nitrogen. In addition, the grinding unit load is reduced, thereby further increasing the grinding capacity. Another advantage is the specific coolant saving, which has been demonstrated through systematic tests at the cold grinding centre in Krefeld.

Market research has shown that the process is particularly recommended for contract grinders and powder recyclers with high cost pressure and three-shift production operations.

### Helium cooler for Karlsruhe Research Centre

As part of the development of cryo-vacuum pumps for the "ITER" fusion reactor, the Karlsruhe Institute of Technology required a special cooler that allows gaseous helium to be cooled very precisely to between -193 °C and -173 °C. Messer developed a liquid nitrogen cooler for this purpose, consisting of a spiral heat exchanger immersed in a liquid nitrogen bath. The nitrogen is contained in a vacuum-insulated pressure vessel. The cooling temperature is controlled by means of the vessel's internal pressure as the boiling temperature of the nitrogen depends directly on the vessel pressure. The nitrogen evaporating from the vessel is used to precool the helium. This reduces the nitrogen requirement by approximately 40 per cent and further increases the precision of the temperature setting due to the reduced heat flux density in the main heat exchanger.

### DuoCondex becomes more compact

The cryocondenser and thermocontroller are the main heat exchangers in a DuoCondex unit. A special design makes it possible to accommodate the function of both heat exchangers in one unit. The design is so sophisticated that a special device patent has been granted for it. This has led to a cost-effective version of the DuoCondex process – called "DuoCondex Compact" – which can be used for emission sources from laboratories, small tanks and solvent tank facilities. The detail engineering was carried out as part of an initial customer project. This led to the creation of a prototype unit, which was tested extensively during commissioning. In the meantime, a second customer order has already been placed for the "DuoCondex Compact".

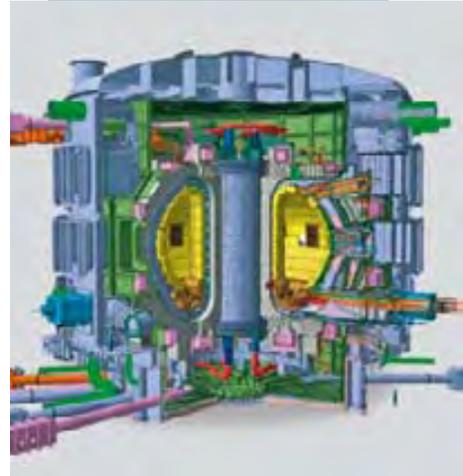
### Plasma powder surfacing for wear protection

In a publicly funded 3-year joint project with Castolin, Busatis and other technology companies in Austria, Messer is seeking to optimise the plasma powder surfacing process. One of the aims is to achieve higher-quality coatings and/or lower-cost coatings. Besides process parameters such as the welding current, welding voltage and welding speed, a particularly important role is played by the gas mixtures that are used. Another aim is to develop cost-effective alternatives to the hardfacing alloys that are used. Here, too, the gases used, as well as the welding parameters, ensure stability in the alloy systems. Cooling is also to be investigated as an additional application. Messer has extensive experience in this area through its work with thermal spraying.

### GMA brazing with Ferroline X

Inert gases with small amounts of oxygen and/or CO<sub>2</sub> are particularly suitable for GMA brazing. The solder being used also has a bearing on the optimum gas mixture. The influence of the shielding gas on established and newly developed solders was examined in 2010. The results showed that copper-silicon alloys can be easily processed with small amounts of oxygen, which ensures flat weld formation and good flow characteristics. Copper-aluminium alloys, on the other hand, have a considerably greater oxygen affinity, which leads to increased oxidation. In this case, small amounts of CO<sub>2</sub> are more suitable. Based on this experience, Messer has brought a gas mixture onto the market that is specifically optimised for GMA brazing: Ferroline X. It consists of 0.5 per cent oxygen in argon. This takes account of the fact that copper-silicon alloys are particularly widespread on the market.

Schematic representation of the ITER fusion generator with a human figure shown for scale comparison (bottom right)



Plasma-powder surfacing is a computer-controlled process.

# Markets in Western Europe

Compared to the previous year, Messer was able to increase sales in the Western European national subsidiaries by eleven per cent. The largest contribution here was made by the business activities in Germany, where sales almost trebled compared to the previous year. In August Messer Industriegase in Salzgitter commissioned the second air separation plant in Germany with an investment volume of around 50 million euros. The industrial gas activities in Belgium, France and Switzerland recorded an almost uniform sales growth of four per cent compared to the previous year (adjusted for exchange rate effects). In May the first CO<sub>2</sub> plant from Messer in Belgium with an annual production capacity of 150,000 tons was started up. This will ensure an independent CO<sub>2</sub> supply for the future. The clearest recovery was demonstrated by the industrial gas activities in Italy and Spain, which also suffered the largest drops in sales in the previous year. The plant construction business of ASCO Carbon Dioxide LTD Switzerland, on the other hand, is still suffering from the previous year's global economic crisis and significant negative variations in the exchange rate, and posted a slight decrease in sales compared to 2009.

Official opening of the CO<sub>2</sub> liquefaction plant on site at Ineos Oxide.



## Belgium

### „Green gas“ obtained

In 2010 Messer placed a state-of-the-art CO<sub>2</sub> liquefaction plant in service at the British company Ineos Oxide in Zwijndrecht by Antwerp, Belgium, which has an annual production capacity of 150,000 tonnes of carbon dioxide. This production plant recovers some 20 tonnes of CO<sub>2</sub> per hour from industrial exhaust air and enables it to be recycled. The CO<sub>2</sub> is collected from Ineos's chemical plants, where ethylene reacts with oxygen to form ethylene oxide and carbon dioxide is produced as a by-product.

The gas is freed of water and impurities in several steps, and finally liquefied by means of cooling and compression and stored in tanks. The liquid gas is then filled in tankers which transport it to the customer. The CO<sub>2</sub> which would otherwise be pumped into the atmosphere is reused commercially as a “green gas”. Messer operates the company's largest CO<sub>2</sub> plant together with IJsfabriek Strombeek under the name of the joint venture “bECO<sub>2</sub>”, of which Messer owns a

70 per cent share. bECO<sub>2</sub> has invested a total of 17 million euros. Messer utilises a good two-thirds of the plant capacities to supply its customers – who include companies from the food processing, drinks manufacturing and water industries – with carbonic acid, dry ice, and gaseous and liquefied carbon dioxide. The remainder is supplied to IJsfabriek Strombeek.

### Transport cooling using the Siber System

The largest customer in the transport cooling sector, Colruyt in Halle, has used the Siber System for more than ten years. In 2010 the plant was equipped with nine additional Siber filling pistols.

### Inerting mixing systems

Messer Benelux concluded a contract with Dekker Tankopslag in Ouderkerk in 2010. The Dekker Group is active in the fields of logistics, transport and intermediate storage of, among other things, oils, fats, cocoa mass and animal food. At the Ouderkerk plant there are 100 heatable containers with a capacity of between 30 and 500 cubic metres, some of which incorporate mixing systems. Some of these are now operated with nitrogen from Messer in an inert gas atmosphere. In addition, inerting processes have been established at AllessaSyntec in Germany, at Beauté Recherche & Industries in France and at Natex in Austria.

### Fresh water with CO<sub>2</sub>

Sip Well is a provider of water coolers which supply drinking water from 22-litre plastic bottles in companies, hospitals and similar institutions. The water is a reverse osmosis filtrate to which a defined mixture of minerals is added and which is set to the correct pH value with CO<sub>2</sub>. CO<sub>2</sub> is also used during the filling process to inert the supply container. Carbon dioxide has a bacteriostatic effect and thus offers advantages over inerting with nitrogen.

### Breeding algae with carbon dioxide

SBAE in Sleidinge, Belgium, is a biotechnology company which specialises in aquaculture, the industrial production of microalgae and technology transfer for breeding algae. At the “World Biofuels Conference” in Amsterdam in March 2010, SBAE won an award for technological innovation in the breeding of algae. SBAE has obtained CO<sub>2</sub> in cylinders from Messer for algae production for the last three years. In the previous year the company expanded its production capacities in Belgium and switched to tanker supply in May 2010.



The top section of the Siber container is filled with dry ice snow.



The delicate structure of the microalgae is visible under the microscope.

### Transport cooling for delicatessens

Because of its good experience with existing delicatessen food customers, Messer Belgium was able to gain a further location with the tried and tested technology of the Siber System: Louis Delhaize Delfood signed a supply contract for liquid carbon dioxide. At Colruyt, Messer Belgium's largest Siber customer, a new location was equipped with Siber technology within just one month. The branch is called "Collect and Go" and is situated in Zaventem near Brussels.



The Belgian Princess Elisabeth Station in Antarctica

### Noble gas protects against Antarctic cold

The company Van Geystelen Eurotherm uses krypton from Messer for double-glazed windows. The windows are used, for example, at Belgium's Princess Elisabeth Station in the Antarctic. Insulating glass windows in which the space between the panes is filled with noble gases achieve significantly better heat insulation and appreciable savings in heating costs compared with double-glazed windows which are filled with air. Furthermore, heavy noble gases such as krypton or xenon improve the noise insulation.

## Germany

### Liquid gases for refining crude oil

Germany's largest refinery, MiRO in Karlsruhe, refines crude oil to manufacture high-quality products such as petrol, diesel, heating oil, propylene and bitumen. In accordance with a contract signed in 2010, Messer supplies liquid oxygen and liquid nitrogen to MiRO. Eight tank farms were set up at five points of use for this purpose. The oxygen is used in the Claus plant, when desulphurising the sewage treatment plant and for cooling water treatment of the ozone plant. The nitrogen is required for inerting and cooling.

### Oxygen for major customers

Since August 2010 the major customer Salzgitter Flachstahl GmbH has been supplied with industrial gases from Messer's largest production plant in Europe. From pure air it generates 28,000 standard cubic metres of gaseous oxygen for use in steel production. When necessary, up to 36,000 standard cubic metres of oxygen can be supplied to the steel plant per hour. In addition, Messer produces oxygen, nitrogen and argon for the local market. Thanks to its integrated gas liquefier, the new plant consumes around five per cent less electrical energy than conventional air separation plants. Like the entire production system, the state-of-the-art energy management of Messer and Salzgitter is officially certified.

### Medical gases certified

Since February 23, 2010, Messer Industriegase has been entitled to produce medical oxygen in Germany in the air separation plant in Siegen-Geisweid at the location of Deutsche Edelstahlwerke. As early as April 2009 the license to produce oxygen for medical purposes in accordance with paragraph 13 of the German Medicines Law was issued by the regional authority Arnsberg for the gas filling plant in Siegen, Kaan-Marienborn. With the enhancement of the Good Manufacturing Practice Management System (GMP) for air separation plant's oxygen production Messer Industriegase has satisfied all EU legal requirements for the two locations in Siegen. It was thus possible once more to establish a basis for further activities in the strictly regulated medical gas sector in Germany.

### Oxipyr burners help in expanding production

Küttner GmbH & Co. KG in Essen is regarded as being at the cutting edge in the field of plant technology for melting plants. In 2010 the company commissioned Messer to supply oil-oxygen burners to expand production at the melting plants of Aurubis AG in Lünen. These also included a burner with a performance of more than 20 megawatts. The project is based on the development and optimisation of an oil burner with oxygen atomisation.

### DuoCondex purifies exhaust air and saves on resources

In the production system at Evonik an exhaust air flow is created which is loaded with alcohols and fatty acids. To purify the effluents, Messer designed a DuoCondex plant which was tailored specifically to the customer. The plant enables the steam to be condensed with liquid nitrogen and to be re-introduced to the production system as raw materials. Evonik can re-use the reclaimed materials, which protects the environment and improves the carbon footprint.



Salzgitter in Germany is home to Messer's largest production facility in Europe.



Tailor-made: DuoCondex unit for Evonik



Photo: VPA TePla AG

Silicon crystals of the type required for solar collectors are produced with the aid of industrial gases.

### Argon and nitrogen for solar cell production

In its Solar Systems division, PVA TePla AG produces systems for producing high-quality silicon crystals for the photovoltaic industry. For this purpose the company, which is based in Wetzlar, Hesse, uses argon and nitrogen from Messer. To avoid cracks in the crystals, the production process (crucible pulling process) must take place in an inert atmosphere. The argon is used here as a carrier gas: It transports boil-off products away from the system's core zone. The purity and dryness of the gas are particularly important here, because impurities would mix with the silicon and have a negative influence on the quality of the end product – the solar cells. The nitrogen is used as a cooling and purging gas for applications in the crystal growing units and in vacuum sintering plants for producing hard metal.



Starter cultures are deep-frozen in this immersion freezer with nitrogen from Messer.

## France

### Nitrogen freezes starter cultures

The conglomerate Cargill began marketing frozen starter cultures in 2010. For transport this requires a cold chain at minus 60 degrees Celsius, but makes time-consuming freeze-drying unnecessary. Messer, together with its project partner CES from Belgium, designed a special immersion freezer for this new application. This enables starter cultures to be frozen in small aluminium bowls. In June 2010 Messer France started supplying nitrogen for operation of the plant.

### Perfect consistency for minced meat

Messer France was able to agree on a new contractual volume of liquid carbon dioxide with the French producer Bigard Socopa in L'Isle-sur-Sorgues. When minced meat is produced, the CO<sub>2</sub> is injected into the process at the appropriate

place when the meat, which requires a certain consistency and temperature, is cooling in the cutter. Liquid CO<sub>2</sub> is particularly suitable for this task.

CO<sub>2</sub> helps to turn old paper into new.



### New start at Vertaris

Following a company takeover by three former senior executives, the Vertaris paper factory, which had been closed down, saw production begin again in the first quarter of 2010. Vertaris produces paper from 100 per cent waste paper. The special feature of the recycled paper is that it is as bright white as newly produced paper, which makes it almost unique in the world. CO<sub>2</sub> is used here for reducing stickies and regulating the pH. Messer France supported Vertaris in its new start not only by leasing the necessary equipment, but also in the production area.

### Helium allows artistes to float

In June 2010 Messer France supported the space travel event “Le Rêve d'Icare” in Royan by supplying helium. The noble gas lifted acrobats and musicians into the air. For example, at dusk on the beach in Royan an accordion player floated over the audience as he played. The event was created by the company Aérosculpture.



### Securely sealed with Neurotherm

Valeo Thermique Habitacle in La Suze develops system components for the automotive industry in Europe and supplies renowned car manufacturers such as PSA Peugeot Citroën and Volkswagen. The company plays its part in increasing efficiency in air-conditioning technology with its intelligent heating, cooling and air-conditioning systems which enhance the driver's and passengers' comfort and at the same time reduce energy consumption. Messer France supplies the Valeo production location for air-conditioning systems in La Suze with liquid nitrogen, which is used for the Neurotherm process. It is not necessary to add additional small amounts of hydrogen because flux materials are employed as a soldering aid. The nitrogen is used in continuous annealing lines in which aluminium heat exchangers are soldered. For this special application an extremely low oxygen content of  $\leq 50$  vpm  $O_2$  must be implemented in the solder zone so that all solder points are completely connected. The complex design of the heat exchangers requires a reliable soldering process, because a single leak results in the component being scrapped.

Music from high above –  
thanks to helium from Messer



Liquid nitrogen is used for crust-freezing fruit custards and blancmanges.

### Nitrogen helps make perfect blancmange

Plaisirs Pâtisiers belongs to the Champador-Group and is a long-standing customer of Messer France. In 2010, Messer France supplied liquid nitrogen for a new project at the location Mallemort sur Corrèze – the freezing of fruit creams and blancmanges in moulds.

### Protective gas keeps salad crisp

The company Soleco Florette leads the way in the field of vegetables and fresh salads in Europe. It is part of the AGRIAL vegetable group, an agricultural cooperative in the west of France which has its headquarters in Lessay (Manche). The company would like to improve its competitive position and increase its market share in a fiercely contested economic environment.

Florette has chosen Messer as its sole gas supplier for modified atmosphere packaging (MAP) at the production locations Raillencourt, Isle-sur-Sorgue and Lessay. A protective gas mixture of N<sub>2</sub> and CO<sub>2</sub> is used there.

### Bubbling freshness with CO<sub>2</sub>

The Société Européenne d'Embouteillage bottles the well-known soft drink Orangina at its southern location in Chateaufort de Gardagne. A Messer production location for liquid carbon dioxide is situated not far from there in Lavéra. Messer France has been able to strengthen its position by increasing the CO<sub>2</sub> deliveries to this location.

### Transport cooling with Siber

In 2010 ED Carrefour decided to employ the Siber transport cooling with support from Messer France at two further locations, namely Rognac and Louviers. The Siber stations are used there for the dosing of dry ice snow, thus ensuring compliance with the legally prescribed temperatures for the transport of deep-frozen goods. Large volumes of liquid carbon dioxide are required each year for this purpose.

### Nitrogen for photonics

The medium-sized company 3S Photonics, a former subsidiary of ALCATEL, produces optoelectronic components for communication networks. Nitrogen is used to preserve the components, especially laser diodes. Enormous market potential is forecast for photonics, which is the science of light. It could be as important for the 21st century as electronics was for the 20th.

### Argon in the service of medicine

Poly-Shape is a small, innovative company which specialises in the rapid development and production of prototypes and their production in small quantities. The know-how of Poly-Shape is unique in Europe. The company works above all with titanium and aluminium alloys, titanium being the top



Nitrogen makes perfect preservation of optoelectronic components possible.

material which will enable Poly-Shape to stand out in the long term. As it is highly reactive when in contact with oxygen, argon is used to keep the titanium stable throughout the entire laser fusion process.

Anatomical implants are a new trend which permits Poly-Shape to make itself securer against financial crises and to expand further through innovative business activities. The additional benefit of these implants is immense: They shorten the preparation for complex surgical procedures, increase the patients' comfort, and at the same time help reduce costs.

### Variomix mixer cooling at Moypark

The company Moypark in Henin Beaumont operates five lines on which chicken and pork products are processed. In the future liquid carbon dioxide from Messer France will be used as the coolant to cool the large meat mixers. A new type of three-level freezer is also to be installed at the Marquise location. Messer France will also supply liquid nitrogen for this freezer.

### Specialty gases in the fight against doping

In 2010 Messer France supplied the anti-doping laboratory of Chatenay Malabry by Paris with specialty gases and liquid nitrogen. The French laboratory is known above all for its checks on racing cyclists.

## Italy

### Savings through 300-bar technology

Bordignon Silvano SpA makes use of the 300-bar technology from Messer. This renders the pre-compressor unnecessary when filling pneumatic cylinders with nitrogen. For years Bordignon SpA had searched for such an alternative and finally found it at Messer.

Messer is the only industrial gas specialist in Italy who can offer this technology. A large number of new customers in the laser and food processing industries are already profiting from the 300-bar filling technology which, thanks to its increased pressure, offers 50 per cent more storage capacity than the normal 200-bar gas cylinders.

### Carbon dioxide helps produce light croissants

The Italian firm Fresystem SpA supplies, among other things, frozen breakfast products to the catering trade. These include cornettos and croissants. In order to ensure that these rise nicely during baking, it is essential to maintain a certain temperature when kneading the pastry, a process that generates heat. Fresystem does this by using liquid carbon dioxide from Messer. The temperature of the dry ice that is produced when the liquid gas expands is minus 78.9 degrees Celsius. This ensures optimum temperature control and guarantees a breakfast of pure enjoyment.

300-bar technology is used at Bordignon Silvano.



Dry ice makes croissant pastry nice and light.

## Markets in Western Europe



Parma ham is packed using Gourmet gases from Messer.

### Gourmet gases

Messer Italia was the main sponsor at two conferences on the topic of ham – in San Daniele in April and in Parma in October. Both regions are world-famous for their ham specialities, in particular for cured ham. In San Daniele Messer Italia informed the leading ham producers about the benefits of gas applications and the products of the Gourmet line. One of the producers, Devodier Prosciutti, is already a Messer customer and profits from the quality enhancement when using protective gases for packaging. The famous Parma hams have been produced at Devodier since 1960 – 100,000 packs each day. Gases from Messer ensure they remain fresh and tasty for longer.



Thanks to rapid cooling with liquid nitrogen, fresh pasta keeps for up to 18 months – without any loss of quality.

### Nitrogen keeps pasta fresh for longer

Zini Prodotti Alimentari S.r.l., which has its head office in Cesano Boscone, near Milan, is regarded as one of the most important producers of fresh and frozen pasta in Italy. Cooperation with Messer Italia led to a contract being signed in 2010 for the supply of liquid nitrogen. Messer's technical expertise and professional attitude resulted in Zini choosing fast cooling with liquid nitrogen for the plant in which frozen pasta is produced. Only with this technology is it possible to achieve a shelf life of 18 months without having to compromise the quality of the pasta. As this application not only enhances the internal processes but also results in more efficient use of the gas, Zini was able to further improve its competitive capability on the Italian market.



Cold grinding ensures best results when grinding wheat and food ingredients.

### Cold grinding for lifestyle products

Lipofoods is the food division of the company Lipotec, which is based in Gavà, 15 km from Barcelona. The company is known for the development and production of functional additives and lifestyle products for the food and drinks industry. One of Lipofoods' most important factories is located in Turin, Italy where mainly fats and food ingredients are produced. Messer Italia was able to win a new gas contract for the supply of liquid nitrogen. The liquid nitrogen is used to grind wheat and food ingredients efficiently and to the required high quality.

### Pelletising starter cultures

The starter culture producer CSL (Centro Sperimentale del Latte), which belongs to the Italian Granarolo Group, uses Messer's Cryogenic Rapid Pelletiser process to quick-freeze its products. Following extensive experiments which the customer conducted in their own laboratory with the support of Messer Italia, a pilot plant was installed in July 2010. This covers the current requirements and will also be used for further experiments. CSL wants to increase its production systematically by 2012 and, with Messer's support, to set up an additional production line.



Pilot plant for the cryogenic rapid pelletising process at CSL

## Netherlands

### Oxygen against biofilm

With the help of Messer, waterworks operator Vitens has optimised the filtering methods in its waterworks in Spannenburg in order to remove sources of nourishment for biofilms from the drinking water network. There Vitens purifies 25 million cubic metres of drinking water annually. The aim of the project was that conversion of the ammonium contained in the water into nitrate should no longer take place in the final filtration stage, but in the first one, thereby minimising the amount of organic material and depriving the biofilm of food. This requires pure oxygen to be dissolved in the water. In one of the waterworks 15 pre-filters Messer carried out tests on modifications to the filter structure and operation as well as the injection of pure oxygen – with success: This method facilitates the complete conversion of the ammonium in the first filtration stage, while at the same time permits highly effective oxygen injection. Vitens therefore decided to convert all pre-filters to this approach which is unique worldwide.

Even fat can be atomised with the aid of carbon dioxide.

### Clean water for Amsterdam

At the waterworks in Amsterdam it was decided that CO<sub>2</sub> should be used for the purpose of pre-treatment in drinking water purification. Messer installed the metering equipment and supplies carbon dioxide.

### DAMCO uses spray crystallisation

Damco, a producer of bakery ingredients, had to change one of its special products – coated icing sugar – in a recipe. This makes it necessary to spray the sugar with warm, liquid fat in the mixer. CO<sub>2</sub> then stabilises the coating. Thanks to Messer's know-how and its partner WAM in Belgium, good results were achieved with a trial mixer which were integrated into production.





The Dutch Oceanic Institute uses nitrogen and specialty gases for its research work.

### Using gases to examine the oceans

The Royal Netherlands Institute for Sea Research (N.I.O.Z.) is using liquid nitrogen and specialty gases from Messer to examine oceans and coastal waters. The N.I.O.Z. has signed a long-term supply agreement with Messer for a project which began in mid-2010. The pure gases are employed to examine how various processes in the sea intermesh, and how people and industry influence the quality of the seven seas and their coastal regions. The composition of sediments will also be analysed.

Messer is the second company in Switzerland to be accredited as a "manufacturer of reference gases".



## Switzerland

### Certified for food safety

Messer Schweiz has been certified by the Swiss Association for Quality and Management Systems (SQS) in accordance with ISO 22000:2005. With this certification Messer Schweiz was able to prove that it complies with all standard requirements which apply for the quality management system for food safety for companies which are involved in a food chain. The certificate applies for filling and marketing liquid and gaseous food processing gases of the "Gourmet" brand. Messer Schweiz thus ensures it has access to the food industry.

### Gourmet C for water dispensers

From January 2011 Messer Schweiz will fill some 5,000 Gastro cylinders per year with Gourmet C for CHRIST Aqua. CHRIST Aqua AG is the market leader in Switzerland in the field of water treatment and drinking water dispenser systems. It operates around 3,500 drinking water dispensers throughout Switzerland. The company chose Messer as its new supplier on account of Messer's services in the sector of food processing gases and food processing applications and its delivery reliability.

### Certificate for reference gases and calibration centre

The Specialty Gases department of Messer Schweiz AG received accreditation as a "producer of reference gases" according to the ISO Guide 34 standard from the Swiss Accreditation Body (SAS). At the same time it was re-accredited as a "calibration centre for the mole fraction in gas mixtures" in accordance with the ISO 17025 standard. The audit of the SAS was passed without deviations. Messer is the second company in Switzerland to have been accredited according to this new standard.

### Messer gains major nitrogen customer

Thanks to the ecological and cost-optimised supply strategy by rail using tank containers and the new air separation plant in Visp, it was possible to convince DuPont to cover its nitrogen requirements with Messer. Professional consulting and a qualitatively balanced sales and logistics strategy enabled Messer to establish the basis for a long-term partnership with DuPont.

### Accreditation for "medical air"

On April 19, 2010, Messer Schweiz AG received the official certificate of approval to market breathable air as a medicinal product in gas cylinders with a pressure of 200 bar and 300 bar from the Swiss Agency for Therapeutic Products (Swissmedic). Since then Messer Schweiz has been authorised to offer the medicinal product "Atemluft medizinial" (medical air) on the market. Since 2002 Messer Schweiz has had manufacturing and wholesale dealer's authorisation for medicinal products. In addition to the approval obtained in April 2010, Messer Schweiz has since January 2010 been in possession of three permits for "Sauerstoff medizinial" (medical oxygen) in gaseous form for cylinders and in liquid form for mobile and stationary containers. The manufacturing authorisation was also renewed by including the new production location in Visp. Messer Schweiz is consequently right up to speed in terms of the pharmaceutical law.

### Bubbling freshness from Zurzach

Right at the start of 2010 Messer Schweiz was able to acquire the Mineralquelle Zurzach AG (MQZ) (Mineral Spring Zurzach) as an important customer for the food processing gases "Gourmet C" and "Gourmet N". With an annual production of some 100 million units, MQZ is one of the largest drink and fruit juice producers in Switzerland and the main supplier for, among other customers, Aldi Suisse, Aldi Süd and other large discount chains. Liquid carbon dioxide is used to carbonise drinks such as mineral water, lemonade, cola, etc. MQZ employs liquid nitrogen to stabilise the pressure (cryogen injector) of filled PET bottles in order to permit them to be labelled and stacked immediately.



Sparkling freshness at the push of a button: drinking water dispenser from CHRIST Aqua



"Medical respiratory air" is available in 200 and 300-bar cylinders.

## Markets in Western Europe



Dry ice is needed in wine production.

### Dry ice for wine growers

Last year Messer supplied wine growers in the Swiss canton of Wallis with dry ice during the grape harvest. To cover short-term requirements, a tank for carbon dioxide and a pelleting machine from ASCO Carbon Dioxide were installed in Charrat. The dry ice lowers the mash temperature, thereby slowing down the fermentation process and preventing the growth of unwanted bacteria. In addition, cold fermentation enables the ingredients and aromatic substances in the grapes to be retained better.

## Spain

### Messer Ibérica's First International Industrial Seminar

On the occasion of its 40th anniversary, Messer Ibérica organised an Industrial Seminar in June 2010 which focused on the paper industry, chemicals and petrochemicals and was conducted with the support of the partner companies Ozonia, Ekato, PNS, Black&Veatch and ASCO. The topics at this event were, among other things, gas applications for purifying exhaust air and waste water, and also gas applications which are aimed at increasing the capacity of plants, reducing emissions and optimising chemical processes. For the Paper & Pulp division, gas technologies for reducing fresh water and energy consumption and for enhancing production and cleaning processes were presented to the participants. In April and May Messer Ibérica organised courses dealing with all aspects of Messer's new protective gases for enhancing quality when welding. The customers showed great interest in the practical demonstrations of the gases. These courses were made possible by the Welding & Cutting Applications Division of the Messer Group, several gas centres and Castolin Ibérica, as well as by close cooperation with manufacturers of welding and cutting equipment, such as Cloos, Selco and ESAB.

### Messer supports respiratory medicine

Messer showcased its extensive artificial respiration portfolio at the Annual Congress of the European Respiratory Society (ERS) in Barcelona in September 2010. As a certified full-service provider for this type of care, the company offers a comprehensive range of gases for use in clinics and other areas of health care under the Messer Medical brand. Gases are playing an increasingly important role in medicine. Messer Medical has many years of experience and proven expertise in this market segment.

This integrated supply approach is constantly being optimised in collaboration with experts from the fields of medical and medical technology research and practice. Messer uses events such as the ERS Annual Congress to maintain a dialogue with the medical experts. This allows Messer to expand its know-how, develop its portfolio further and deliver even better patient care. Demographic trends are leading to an increase in age-related illnesses, and the use of medical gases is becoming increasingly important in treating these conditions. Lung diseases caused by environmental factors or the long-term consequences of smoking, as well as the constantly growing number of operations being performed under anaesthetic ensure that demand is increasing – and Messer is meeting this demand with its wide-ranging expertise and extensive capacities.

Messer showcased its products at the European Respiratory Society in Barcelona.



### Gases for high speeds

Metalúrgica del Deza (Metaldeza) is a specialist for metal structures, for example for building apartments and bridges and for industrial plants. Messer Ibérica has been supplying Metaldeza with gases in cylinders since 2004 – with growing success: The sales figures for the previous year were already exceeded in the first half of 2010. The company is thus one of the most important cylinder customers of Messer Ibérica. Metaldeza is also involved in constructing bridges and extending the tracks for the Spanish high-speed train AVE.

### Carbon dioxide promotes bubbling sales

Messer Ibérica has for many years supplied the drinks manufacturer Sanmy, which was founded in Barcelona in 1895, with liquid carbon dioxide. The unusual product strategy of this lemonade and soda water producer means that its CO<sub>2</sub> requirements increase each year: Sanmy introduces four or five new products on the market each year because the family-owned company is aware that it can only compete with its multinational competitors through innovation.

### Nitrox makes diving safer

CIOMAR in Spain lays drinking water pipelines from reservoirs to waterworks. Messer Ibérica supplies the breathing gas mixture Nitrox for underwater work at a depth of 30 metres. If the divers breathed normal air, so much nitrogen would collect in their bodies that they would have to spend 1.5 hours in a decompression chamber after each dive. Thanks to Nitrox, which contains less nitrogen than air, 20 minutes is sufficient.



Metaldeza uses cylinder gases in bridge construction.



Thanks to the breathing gas mixture Nitrox, the professional divers from CIOMAR only need to spend a short time in the decompression chamber after their dives.

# Markets in Central Europe

In comparison with the same period in the previous year, there was an increase in turnover of almost nine per cent in Central Europe. With the exception of our business activities in Austria, there was a rise in turnover in all countries over the previous year. The greatest strength was shown by the economic recovery in industrial gas activities in the Czech Republic and in the Baltic states. The region was also positively supported by the slow recovery of the local currencies, which had been severely devalued during the financial crisis of 2009.

The new air separation unit which is due to be built in Narva (Estonia) produces nitrogen for use in shale oil production.



## Estonia

### Nitrogen for high grade fuels

Messer is constructing a new air separator in Narva, Estonia, which is due to start operating in the summer of 2012. This new production plant for atmospheric gases will supply the Estonian energy enterprise Eesti Energia Õlitööstus with nitrogen for the production of shale oil. At the same time, the joint venture Elme Messer Gaas will manufacture oxygen, nitrogen and argon for customers in the Baltic states and North-West Russia. Eesti Energia Õlitööstus uses the nitrogen for the inertisation of production processes – nitrogen helps to displace reactive or explosive gases. The company manufactures high grade liquid fuels; the raw material oil shale is delivered by conveyor belts from the adjoining open-cast mine.



The UAB Ponoras brewery in Lithuania uses carbon dioxide from Messer.

## Lithuania

### Flavour and sparkling freshness thanks to CO<sub>2</sub>

UAB Ponoras is a brewery in Lithuania. Since 2010, the company has been using CO<sub>2</sub> from Messer for carbonisation. A delivery contract for liquid carbon dioxide has been concluded with UAB Ponoras.

## Austria

### Oxygen helps to melt aluminium

Speedline Aluminium Gießerei GmbH in Schlins (Tirol) produces aluminium bars with a length of six metres and a diameter of fifteen centimetres. For this purpose, aluminium scrap is melted in a furnace and then cast in moulds. Thanks to Speedline's good order situation, the existing furnace had reached the limit of its capacity. With a customised solution using oxygen for enhanced burner performance, Messer Austria was able to increase the capacity of the furnace by approx. 25 per cent.



Aluminium scrap is melted in a furnace.

### Clean laundry and shiny dishes thanks to nitrogen

The firm MELECS is Hungary's leading manufacturer of electronic assemblies for so-called white goods, household appliances such as washing machines, dish washers and mixers amongst others. MELECS will rely in the future on the competence and know-how of Messer to maintain its leading role in this segment. In its search for process and cost optimisations, MELECS had already had intensive discussions with Messer in 2009. These led in 2010 to the signing of a delivery contract for nitrogen which MELECS requires for its establishments in Siegendorf, Austria, and Győr, Hungary.

### Secure foundations

In 2010, Messer Austria delivered a cement cooling plant and liquid nitrogen to the transport concrete works of the firm Cemex in Vienna, which is providing the concrete for the construction of the new Central Station in Vienna. Through the addition of nitrogen, the temperature of the transport concrete remains at a constant 22 °C, preventing temperature cracking.

The first concrete types cooled with liquid nitrogen have meanwhile been used successfully in the construction, so Cemex is planning to make cement cooling by Messer the state of the art throughout their Group. CEMEX is the largest manufacturer of transport concrete in Austria and operates 40 works.



Photo: Roland Schlager / picturedesk.com

Thanks to nitrogen from Messer, the new main station in Vienna is built on solid foundations.

### Nitrogen for a biomass heating power plant

While several biomass plants in Austria already used nitrogen from Messer for inertisation purposes, the biomass heating power plant in Villach was also won as a customer in 2010. The nitrogen is used, firstly, for inertisation during the transport of wood chips and, secondly, for the regular cleaning of the filter units.

Nitrogen from Messer stabilises thin-walled beverage containers.



## Poland

### Liquid nitrogen stabilises drinks packaging

Kofola S.A. is an important company for non-alcoholic beverages in Central and Eastern Europe. The Group, formed through a merger, uses nitrogen from Messer in Poland for the stabilisation of thin-walled drinks packaging. Droplets of liquid nitrogen are dosed through injectors into the drinks packaging, where, after evaporating, they ensure a stable pressure. Messer Polska secured a new contract for liquid nitrogen in 2010.

### Gases and know-how optimise steel production

HSJ-Stahlhütte is part of the Zlomrex Group, the Polish market leader in the field of scrap processing and the production of quality steels. Since 2006, Messer Polska has been cultivating close contacts with HSJ. As a competent partner in process optimisation, Messer has already successfully supervised two project phases for the company. Since the start of the third phase in March 2010, Messer has also been supplying the customer with liquid argon. In the fourth and last phase up to now, the customer's own air separation unit was closed down. HSJ-Stahlhütte's requirements of liquid oxygen and argon have since been covered by deliveries from Messer Polska. HSJ is currently planning further modernisation projects in which gases from Messer will also play a prominent role.

The 95,000-litre tank being transported to its destination.



### Thousandth tank installed

In 2010, Messer, now represented for 18 years in Poland, installed its thousandth gas tank on customer premises. Not only the number 1,000, but also the location was rather special: The hydrogen tank was installed in Rybnik, near Messer's first air separation unit in Poland. It stands on the site of the electricity works in Rybnik and is used for the cooling of a generator.

### Quality and freshness – ice-cold frosted with nitrogen from Messer Polska

Interfinance Enterprise Polska is specialised in the slaughter and boning of beef cattle. The firm also produces kosher meat of the highest quality. The firm now freezes processed and sliced raw meat with nitrogen from Messer.

### Poland's largest abattoir relies on CO<sub>2</sub> from Messer

Poland's largest and Europe's third largest abattoir, Pini-Polonia, started operations at the beginning of 2010. It is located in Kutno and has an annual capacity of four million slaughters. With the support of Messer Hungarogáz, Messer Polska succeeded, against hard competition, in concluding new delivery contracts for CO<sub>2</sub> with this firm. Deliveries started in April 2010. For the future, Pini-Polonia is planning other projects in the field of product packaging which could further increase the demand for gases.



The freshly processed meat is frozen with nitrogen in freezers like this.

### Oxygen makes river water into drinking water

In the summer of 2010, after years of renovation and enlargement work, Poland's largest waterworks, MPWiK Warschau Centralny, returned to full operation. The oxygen required in the plant comes from Messer Polska. The Centralny Waterworks, located in the centre of Poland's capital, now produces about 300,000 cubic metres per day of high quality drinking water which originates in the River Weichsel. An important role in the treatment of the river water is played by the new ozone plant, which oxidises dissolved organic impurities, making them available for biological degradation in the following active charcoal filters.



The largest waterworks in Poland uses oxygen for the purification of drinking water.

Through its continuity and the quality of its customer service, Messer is today regarded in Poland as the absolute market leader for gases in the drinking water business. Since the first delivery contract for a waterworks in March 2000, 13 more have followed.

### Two new establishments for Siber Transport Cooling

The marketing chain Jeronimo Martins continues to rely on the innovative Siber Transport Cooling from Messer: In the fourth quarter of 2010, Messer Polska won two new locations for the Siber transport cooling system with CO<sub>2</sub>. Both establishments were equipped with two Siber dosing stations.



The Siber transport refrigeration system ensures that fresh products are still fresh when they reach the shops.

## Slovakia

### Messer Tatragas and Messer Slovnaft: Manufacturers of medical gases

On 11th February 2010, Messer Tatragas received approval for the manufacture of medical gases for the Bratislava production unit and the certificate for medicament approval from the Health Ministry of the Slovakian Republic. With its introduction of a Good Manufacturing Practice (GMP) management system for the production of medical gases, Messer Tatragas now fulfils all EU requirements.

The manufacturing process for gases for medical and pharmaceutical purposes is subject to strict EU directives. The quality of medical gases is regulated by the reference work for the quality control of medicaments in Europe, the European Pharmacopoeia (Ph. Eur.). By a decree of the Slovakian Health Ministry, Messer Slovnaft has been authorised since 24 February 2010 to manufacture medical gases in Slovakia in the air separation unit and in the gas filling works in Bratislava. With its gas production according to GMP (Good Manufacturing Practice), Messer Slovnaft fulfils all legal regulations and EU requirements. In addition to a certified management system according to IMS (Integrated Management System), Messer Slovnaft is certified according to HACCP (Hazard Analysis and Critical Control Points) and also, as the only firm in Slovakia, according to EMAS (Eco Management and Audit Scheme). EMAS is a community system for environmental management and environmental auditing.

Enterprises which take part in EMAS undertake to comply with all relevant legal regulations and to organise a continuous improvement process for their own environmental performance.

### Oxygen helps to save energy costs

At the Slovakian magnesite processor SMZ, not only is the required operating temperature reached in the furnace, but the natural gas consumption has been reduced by approx. ten per cent through the use of oxygen. A corresponding delivery contract with Messer for oxygen was signed at the beginning of April 2010 and deliveries began in June last year.

Directly after this order, Messer Tatragas was able to conclude another delivery contract with SMZ in 2010. The oxygen is required for the company's second furnace.

### Success for DuoCondex

The second DuoCondex plant for electro-recycling constructed on behalf of MeWa in Slovakia went into operation in February 2010. As a result, this Messer customer can now work three shifts, where only ten hours per day were previously possible.

### Sparkling fresh drinks with CO<sub>2</sub>

With the drinks manufacturer Aqua Mineral s.r.o., Messer Tatragas was able to win another customer from the drinks sector in 2010. Gourmet C (liquid carbon dioxide) is used for carbonisation of the mineral water Santovka, known for its healthy effects.

Medical gases must meet the highest standards.



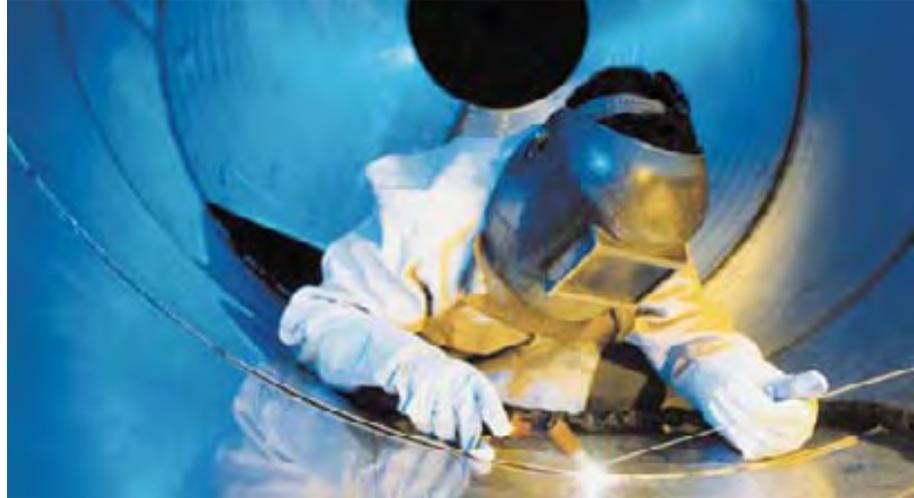
Second DuoCondex unit for MeWa in Slovakia



## Czech Republic

### Cost savings with Aluline He50

The firm CCI manufactures large, thick-walled valves from a wide variety of heat resistant steels. TIG narrow gap welding with argon-helium mixtures is to be used in the future on a new automatic machine. For this purpose, in 2010, trial welds were carried out on pipes in a turning mechanism to find out whether welding argon, Aluline He30 or Aluline He50 was best suited as a shielding gas. Afterwards, the welding tests were comparatively examined by a cost analysis. The result: With Aluline He50 it was possible to achieve cost savings of 16 per cent. Messer Tehnogas will also oversee further tests in the future.



Aluline He50 ensures significantly lower welding costs.

### Ferroline on the world's tallest building

Messer has also made a contribution to the tallest building in the world: 14 elevators, each with a lifting height of 400 metres, which were used for the construction of the Burdsh Chalifa in Dubai, were welded with the welding gas Ferroline from Messer. Eight of these elevators transported people and material to a height of 425 metres. Four so-called transfer lifts moved the material 250 metres further. During the four year construction period, they transported several million tonnes of material.

The elevators were completely constructed in the Czech Republic. Particular attention had to be paid, because of the sway of the building, to the material and the manufacturing process, especially the welding. The shielding gas mixture Ferroline, composed of 82 per cent argon and 18 per cent carbon dioxide, produced excellent mechanical and visual characteristics and a very fine, low-splash seam pattern in the welded joints of these elevators, which currently hold the world height record.

Steel structures and lifts used in the construction of the world's tallest building were welded with Messer gases.



# Markets in South East Europe

As in Central Europe, the economic recovery in 2010 also made it possible to achieve an increase in turnover over the previous year in South East Europe. However, the countries in this region did not show such a uniform pattern as those in Central Europe. While our business activities in Serbia and Romania recorded growth, the companies in Hungary, Croatia, Slovenia, Bulgaria and Bosnia-Herzegovina continued to suffer from the effects of the economic crisis, but were able to maintain the level of turnover of the previous year with reduced margins. In June, the new orientation of our business strategy in Turkey was actively implemented, with the commissioning of our first air separation unit.



ArcelorMittal uses burner technology from Messer.

## Bosnia-Herzegovina

### Burners for ArcelorMittal

In July 2010, following long negotiations, the contract was signed for the delivery of a double pan firing system with two burners and a maximum capacity of 1.5 MW. Because ArcelorMittal Zenica had production obligations, the system for the two 130 tonne pans was implemented in January 2011. Trial operation of the assembled burners is currently in progress and the staff of ArcelorMittal Zenica are being trained in the operation of the systems installed.

### Liquid oxygen for the water works in Brčko

In the water works at Plazulje, near Brčko, trial operation was officially started in 2010. With a capacity of 330 litres per second, the water works treat the water for the population in the town and surrounding area and for local industry. For completion of the production system, the water works in Brčko require liquid oxygen for use in the clarification of the water from the River Sava.

### Nitrogen for high precision support rollers

RFK-“Valjčići”, a specialist in high precision support rollers, has been using nitrogen from Messer since 2010 for thermal treatment in the production of the support rollers. In the first phase, the nitrogen is only used for one of the three furnaces. Then, in the following phases, the existing endogenerators are to be closed down, considerably increasing the demand for nitrogen. The technology used by RFK-“Valjčići” permits series production in compliance with the highest European standards. RFK-“Valjčići” Konjic is known as a pioneer in support roller technology and has been an FAG member of the Schaeffler Group since 2001.

### Strategic partnerships agreed

Messer Mostar Plin has concluded a contract with Presal Extrusion for the supply of nitrogen. This manufacturer of aluminium products in Široki Brijeg is part of the Italian Predieri Group. The liquid nitrogen tank, installed in September 2010, is integrated in Messer's Incal process for cooling of the aluminium extrusion presses.



Nitrogen from Messer is used for cooling during aluminium extrusion.

## Bulgaria

### Certificates for Messer Bulgaria

The Quality Management of Messer Bulgaria was certified in accordance with ISO 17025 in 2010. That guarantees the laboratory's customers faultless work and gives Messer a great advantage in the sale of testing and special gases. At the same time, the company was recertified according to ISO 9001. Messer Bulgaria already possesses a marketing licence for medical oxygen from the Bulgarian Agency for the Evaluation of Medicinal Products and certification for reference materials. This makes Messer Bulgaria the most comprehensively certified company in the country.



Additional certification for Messer Bulgaria: ISO 17025

## Croatia

### Glasshouse fertilisation

Three new customers were acquired in 2010 for glasshouse fertilisation with carbon dioxide. CO<sub>2</sub> in Croatia is producing higher yields at the plant nursery OPG Romea FJ. Messer Croatia has received a delivery contract for 120 tonnes of liquid carbon dioxide per year. At Flóratom Kft (Szeged), CO<sub>2</sub> from Messer is also ensuring the healthy growth of plants. Here, Messer Hungarogáz was able to obtain a delivery contract for 100 tonnes of liquid carbon dioxide per year. Flóratom Kft uses the CO<sub>2</sub> for growing tomatoes. The Serbian firm Doline also uses CO<sub>2</sub> for the fertilisation of tomatoes in its 5.5 hectares of glasshouses. A small section is used for the breeding of gerberas. Here, Messer Tehnogas concluded a delivery contract for 350 tonnes of liquid carbon dioxide per year. The CO<sub>2</sub> supply was commissioned in March 2011.



Carbon dioxide is used as "fertiliser" for greenhouse tomatoes.

## Macedonia

### Carbonic acid deliveries to Coca-Cola

The Coca Cola Company's quality assurance management team for the Central and South-East Europe region has audited and certified our new CO<sub>2</sub> production source in Bitola. We are therefore able to offer our bulk customer Coca-Cola Hellenic Bottling Co. even greater CO<sub>2</sub> product availability for the filling of non-alcoholic beverages at their production plants in South-East Europe.

## Romania

### Engagement further extended in Romania

Since 1 February 2010, with the start-up of the air separation unit at its Resita works, Messer Romania Gaz has been able to provide its customers with an even better supply of nitrogen, oxygen and argon.

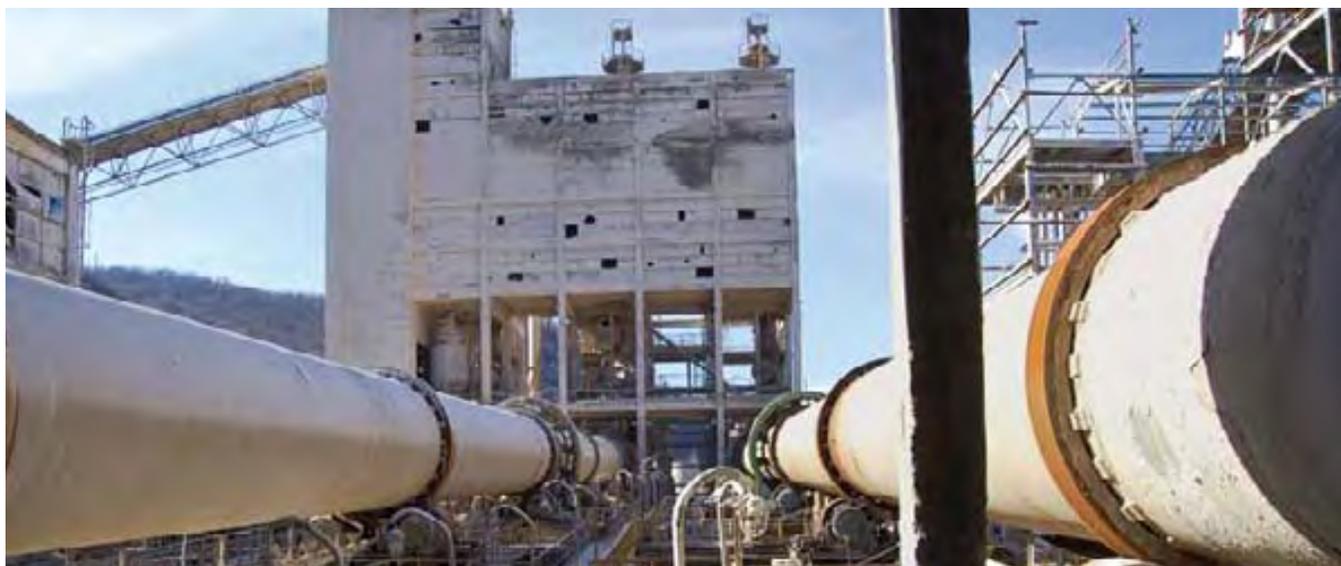
The first product source of its own in Romania will allow Messer to continue to expand its position as a reliable supplier of gases in the region.

### Gases for an 85-metre long rotary lime kiln

For the manufacture of lime in an 85-metre long rotary kiln by Uranus Junior, Messer Romania Gaz succeeded in winning contracts both for the supply of gases and for the delivery of a twelve-megawatt burner system. Thanks to the technical competence and quick reaction of the Metallurgy and Sales team, Messer Romania Gaz was able to prevail over the competition. For Messer Romania Gaz, this very large and demanding engineering project marks its entry into a new market segment.



The new air separation unit in Resita, Romania, ensures an even better supply for customers



New market segment in Romania: gases for lime production

### Matolux supplies dry ice for Plus

The production of dry ice for transport cooling at Plus in Romania will in the future be carried out by the firm Matolux. Matolux is purchasing liquid CO<sub>2</sub> from Messer Romania Gaz for this purpose.

Dry ice keeps food fresh.



### Nitrogen for "heavy water"

Messer concluded a delivery contract for liquid nitrogen with the state firm R.A.A.N. in 2010. This is used in the production of heavy water for cooling and inertisation.

### Nitrogen for chemicals

Donauchem manufactures basic chemicals at five different locations in Europe, including Bucharest. Here, within the framework of service work on the pipeline system, Messer Romania Gaz won a delivery contract for liquid nitrogen.



Liquid nitrogen is a key component in the production of chemicals.

## Serbia

### Messer again Serbia's strongest foreign brand

For the fifth time in a row, Messer was presented with the award "Best of Serbia" as the best foreign company brand in Serbia. The Messer brand has been developed in Serbia in recent years into an important instrument for the positioning of products and for the preservation of market share. In 1997, Messer acquired the local gas supplier Tehnogas and, for the last 12 years, has been producing and selling technical and medical gases under the Messer brand. The "Best of Serbia" award was presented for the sixth time in December by the Serbian Ministry for Trade and Services and the Chambers of Industry and Trade in association with the Serbian daily paper Privredni Pregled. This prize is awarded to market oriented companies which make a sustained contribution to the strength of the Serbian economy.

300-bar technology: same volume with more contents



### Approval for 300 bar technology

On the initiative of Messer Tehnogas, on 22 April 2010, the Serbian regulations in the Technical Standards for moveable and closed pressure vessels were amended. From now on, the legal regulations also include the filling of 300 bar pressure vessels. This means that Messer Tehnogas can offer gas cylinders on the market with more content but the same volume and further consolidate its position in the region.

### Double success with carbon dioxide

In June 2010, Messer signed a three-year delivery agreement for liquid carbon dioxide with Sinalco Kosova. Messer Tehnogas

handled the negotiations and also provided the installation team for the project planning and tank installation. The supply of the product is undertaken by Messer Vardar Tehnogas. At the same time, Messer succeeded in winning another new customer in Kosovo, the VEV Group in Petja. Since July 2010, the VEV Group has been supplied with liquid carbon dioxide by Messer. The simultaneous acquisition of Sinalco and a corresponding dimensioning of the tanks permit optimised tour planning: Full trailers can be driven into Kosovo from the natural CO<sub>2</sub> source in Macedonia and completely unloaded.

Carbon dioxide from Messer adds sparkle to fruit juices and mineral water.



### Sparkling freshness with CO<sub>2</sub>

Since 2010, the Serbian soft drinks manufacturer Frutti in Šabac has been carbonising its fruit juices and mineral water with CO<sub>2</sub> from Messer. Messer Tehnogas won a contract for the delivery of 200 tonnes per year. The CO<sub>2</sub> storage tank has already been installed. Frutti works for the German firm Sinalco.

## Slovenia

### Cement cooling with liquid nitrogen

Since July 2010, Messer has been supplying the cement works Rokava d.o.o. with liquid nitrogen for cement cooling. The cement is used in the production of concrete for the new Markovec Tunnel near Koper. The tunnel construction project shall be completed by 2012.



The volume of liquid nitrogen can be controlled precisely during cement cooling.

### CO<sub>2</sub> prevents lime build-up in water

Messer Slovenija succeeded in concluding a contract with the paper manufacturer Vipap d.d. for the supply of CO<sub>2</sub>. With the use of CO<sub>2</sub> it has been possible to achieve a stable pH value and, as a result, less lime scaling in the vacuum pumps. Following the successful completion of trials, approximately 20 tonnes of CO<sub>2</sub> per year have been delivered to Vipap d.d. for each paper machine.



Carbon dioxide optimises paper production.

### Concrete cutting avoids structural damage

Together with the specialist bridge-building companies SGP POMGRAD – GNG d.o.o. and Messer Cutting & Welding Autogentechnik, Messer Slovenija employed concrete cutting in the repair of a motorway bridge between Peračica and Podtabor. Cutting with an oxygen lance avoided strong vibrations which could have led to damage to the supporting columns of the bridge if mechanical crushing techniques had been used.



Concrete cutting with oxygen lances generates temperatures of up to 2,500 degrees centigrade.



Inert gases protect the quality of Slovenian wine.

### Wineries making increasing use of inert gases

The wineries in Slovenia are becoming more modern, year after year. This is also shown by the increasing use of inert gases for the protection of wine. In 2010, Messer supervised one of the most demanding projects in this sector, the inertisation of new wine cellars for the company VINAG d.d. in Maribor, for which argon and dry ice are used. At P&F JERUZALEM ORMOŽ d.o.o., another project for the protection of wine was completed in 2010 with the installation of two tanks for N<sub>2</sub> and CO<sub>2</sub>. P&F JERUZALEM ORMOŽ d.o.o.'s subsidiary P&F LJUTOMERČAN was also supplied with a tank for CO<sub>2</sub>.

### Emo Frite Celje

The firm Emo Frite Celje specialises in the development, production and sale of frit and enamel for the enamelling industry and frit and glazes for the ceramics industry. Here, Messer has installed an Oxypry-Plon burner and regulating equipment for oxygen dosing in frit production. The results in the trial phase showed clear advantages over competitive products, so long-term contracts were concluded for the delivery of liquid oxygen.



Oxypry-Plon burner for oxygen dosing in frit production

## Turkey

### Systematic growth on the Bosphorus

With the commissioning of an air separation unit and a new filling works for cylinder gases in Kartepe, Messer has underpinned its claim to offer its customers comprehensive system solutions for gases and application technologies. The plant is designed for the liquefaction of a total of 5,000 normal cubic metres of oxygen, nitrogen and argon per hour. It is intended to ensure the supply of industrial gases to the largest growth market in the South East Europe region. In Turkey, Messer gases are mainly supplied to industrial furnace operators, shipyards and automobile manufacturers. A new reference customer was also won recently in the ceramics sector. The gas improves the heating performance of the furnaces and helps to save fuel.



Haluk Tuncer, Managing Director of Messer Turkey (I.), and Plant Manager Adem Aykac in front of the new plant in Kartepe.

## Hungary

### Ice-cream wafers stay crisp

Unilever has developed a new process for the manufacture of its popular Cornetto ice-cream: To prevent the moisture in the ice-cream from softening the cornet, it is coated inside with a waterproof layer of warm chocolate at 40 °C. This, however, must not have an adverse effect on the crispness of the cornet. The chocolate is therefore cooled very rapidly to 10 °C with the help of nitrogen from Messer at a temperature of minus 196 °C.

### Gases help to make cellulose from straw

Dunacell is the last production works in Europe making cellulose from straw. As a result of a number of research projects, Messer has been able to convince Dunacell of the advantages of CO<sub>2</sub> in the production. The gas increases the dewatering efficiency in cellulose production.

### Carbonic acid for an "infernal" drink

For a new plant of the firm Hell Energy Magyarország Kft. near Szikszó, Messer Hungarogáz won an order for the supply of CO<sub>2</sub> for carbonisation of the energy drink "Hell". Hell was founded in Hungary in 2006 and, by 2010, thanks to a dynamic market strategy, had established itself among the energy drink manufacturers in many European countries (Hungary, Romania, Russia, Serbia and Spain).

### Accelerated waste water purification with pure oxygen

The Hungarian waste water industry has undergone a powerful burst of development in the last decade. In the course of entry to the EU, the infrastructure was adjusted to match the standards of the Union in 2004 and has been modernised in many parts of the country. At the same time, however, there has been a great change in the requirements. Partial oxygen gasing (POG) from Messer is helping the sewage treatment works to increase the efficiency of existing plants with low investment costs.



Photo: Unilever

The Cornetto ice cream cone stays crispy thanks to nitrogen.



Extreme refreshment: CO<sub>2</sub> from Messer is used in Hell Energy Drink.



The addition of oxygen increases the efficiency of wastewater treatment plants.

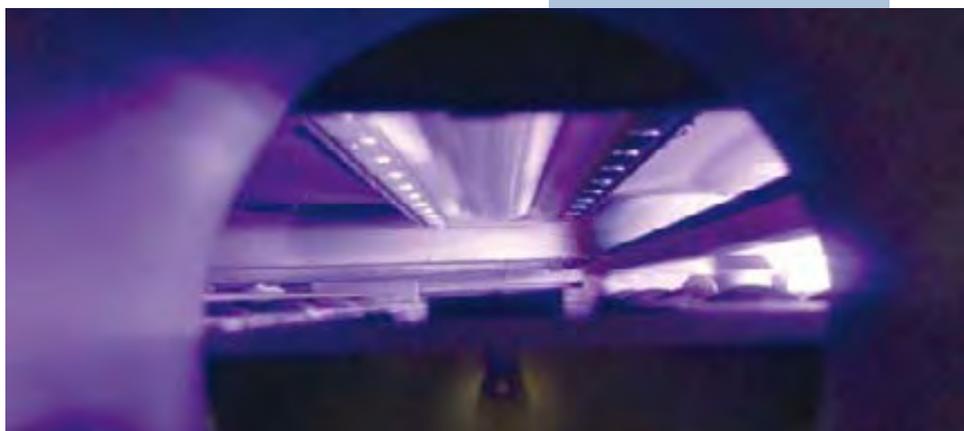
Hungarians are much more economical with their drinking water today – consumption has fallen by a quarter since the early 1990s. The volume of waste water has also fallen correspondingly, but its relative pollution has risen sharply. The sewage treatment plants frequently face large fluctuations in their load. Varying volumes of waste water, often with a high concentration of pollutants, have to be treated according to requirements; and strict limits adhered to.

The partial oxygen gassing (POG) developed by Messer, pumps pure oxygen instead of simple air into the aeration tanks, increasing the activity of aerobic bacteria and greatly accelerating the biological breakdown processes. The liquid oxygen is stored in tanks directly on the customer's premises.

### More know-how and gases for Green Solar

At the end of 2010, the firm Green Solar built a research and development establishment for the development of thin films for solar cells. This also gave Messer Hungarogáz an opportunity to extend its gas supply and gas warning system. The most important process in the manufacture of solar cells is the treatment of the cell with a mixture of gases introduced to the production operation through a network of pipelines; this produces a semiconductor effect on the surface. The photo-sensitive layer is produced by a technology similar to that used by semiconductor manufacturers. The silicon coating in these cells is composed of gaseous silane, boron and phosphorus.

Gas mixtures are used in the treatment of cell surfaces.



# Markets in China

Messer China achieved a strong performance in its core markets, profiting in particular from the good economic situation in the steel sector. Sales figures in China rose by 28 per cent over the previous year and all eleven operational companies participated in this achievement. With Pangang Messer, a new joint venture incorporated in September 2009, the core region of Western China experienced a fast geographical expansion in 2010. In Southern China, three new ASUs successfully came on stream which contributed greatly to the whole capacity of Messer China. In the east enhanced collaboration between the three companions ensured a stable market share. The development of the electronic gases sector will be continued in 2011.



Leshan Radio Company mainly manufactures semiconductors.

## Gas mixture via pipeline

Sichuan Messer (SiMG) supplies nitrogen by pipeline to Leshan Radio Company (LRC). The customer's major products are semiconductors. LRC now plans to expand its product line and is currently constructing a new plant in the Chengdu Export Zone. The new plant is located close to SiMG's Chengdu site.

SiMG has entered into a long contract with LRC to supply the gas by pipeline.

## New contract with SMIC

In June 2010, a new gas contract was signed between CMG, Messer's subsidiary in Chengdu, South West China, and SMIC, one of the biggest semiconductor manufacturers in China. The new contract will continue Messer's three-year collaboration with SMIC, and reinforces its competitiveness in China's electronic gas market. The current gas supply system will be updated and meet the increasing gas demand of SMIC's new production line.



Messer is meeting the rising gas demand for SMIC's new production line.

### Gas applications for water treatment are booming

In 2010, three new drinking water treatment plants in southern China, all of which are to use the ozone-biological activated carbon process, issued an invitation to tender for their on-site oxygen supply. An increasing number of new drinking water treatment plants are switching from chlorine to ozone.

One of three new drinking water treatment plants that will be using ozone in future.



Surface water treatment is also currently a hot topic in China which is resulting in several projects such as Taihu Lake on the outskirts of Shanghai. This provides Messer with many business opportunities, for example for liquid oxygen and the on-site oxygen injection system as well as for applications with Biox-N and Oxysohv. In the waste water treatment sector, due to China's huge economic stimulus plan and tighter emissions restrictions, 2,063 waste water plants, both municipal and industrial, were under construction all over the country in 2009. For comparison, that year there were only 1,572 plants actually in operation.

The line drawing shows the size and position of the new air separation unit.

### Oxygen and Nitrogen for Yuxi Xinxing Steel

Yunnan Messer (YMG), Messer's wholly owned subsidiary, has signed the third long-term contract with Yuxi Xinxing Steel (YG) to supply on-site oxygen and nitrogen gases to its new facility located in Yuxi, Yunnan Province, Western China. YG is a subsidiary of Kunming Steel (KG), the largest steel producer in Yunnan province, and the site will be KG's second largest steel project in Yunnan.

Yunnan Messer will build and operate an oxygen plant to meet the specific requirements of oxygen enrichment for YG's furnaces in line with this company's expansion plans. Meanwhile high purity oxygen and nitrogen shall be supplied by two existing ASUs. The new plant is expected to come on stream in early 2012.





The team at Foshan Shunde MS Messer Gas Co. Ltd. (SMS)

### Messer China's 12th company established

At the end of 2010, Messer China celebrated the birth of its 12th company – Foshan Shunde MS Messer Gas Co., Ltd. (SMS). SMS is a joint venture between Messer Group and Hong Kong Moral Strength Gas Investment Ltd. and will invest 30 million USD for the first phase to build a new liquid air separation plant with a daily output of 600 tons in a new industrial park in Shunde. This is to meet the increasing demand for industrial gases by the customers in Shunde and its surrounding areas. It is expected to be on stream during the first half of 2012. The Guangdong area is one of the biggest gas markets in China. Thanks to rapid economic development, the demand for liquid gases has increased greatly in recent years in the Pearl River Delta. Messer will operate the new plant alongside the two sites in Guangdong it already runs, in Foshan and Yangjiang respectively.

New air separation units at the Pangang Group's site in Xichang



### Three ASUs under construction by Pangang Messer

In the first half of 2010, Pangang Messer laid the foundation stones for three new ASUs at two sites of its Chinese partner, Pangang Group (PG). PG is the largest manufacturer of steel for railway construction in China, with sites in Panzhihua and Xichang in the Sichuan Province.

In April, the construction of two ASUs with respective capacities of 30,000 standard cubic meters per hour started at PG's new site in Xichang city. It is expected that the Xichang steelworks will be supplied with industrial gases from these two state-of-the-art facilities starting in the second half of 2011.

One month later, construction of another 40,000 standard cubic meters per hour air separation plant kicked off in Panzhihua, where the headquarters of PG are based. With a long-term supply contract, Messer will supply this steelworks with oxygen, nitrogen and argon for its steel making process. The plant is scheduled to go on stream in November 2011.

### Go-ahead for two new ASUs

In January and December 2010, respectively, two ASUs were put into operation in XMG's Yangjiang Branch in south China's Guangdong province with a total production capacity of 35,000 standard cubic meters per hour. The major pipeline customer of the plant is Yangchun New Steel Company, a subsidiary of the Xianggang Group which is currently Messer's biggest customer in China – and already has a JV with Messer in its home base in Hunan province.

### XMG puts ASU No. 6 into operation

With ASU No. 6 and Liquefier No. 2 successfully put into operation in June 2010, Messer has taken another firm stride in Hunan Province in southern China. The new units are capable of producing 40,000 standard cubic meters of oxygen per hour and 230 tons of liquefied oxygen and nitrogen per day; this is sufficient to meet the demand of the pipeline customer Xiangtan Iron and Steel Group, which is planning an expansion of its yearly production. It also enables Xianggang Messer to overcome the bottleneck in its production capacity in the market for liquid gases.



The new air separation units have a total capacity of 35,000 standard cubic metres per hour.

The new air separation units at Xiangtan Iron and Steel produce 40,000 standard cubic metres of oxygen per hour.



# Markets in Peru and Vietnam

Thanks to a positive movement in the liquid and cylinder gas market, business activities in Peru recorded an increase in turnover of more than 25 per cent over the previous year. In Vietnam, Messer nearly doubled its turnover in 2010 over the previous year. A major contribution to this success came from the air separation unit commissioned in October in the north of Vietnam. This air separation unit, Messer's first in Vietnam, provides the on-site supply for a steelworks customer, while at the same time, ensures an independent product supply for Messer's liquid market activities.



The Peru LNG project is one of the country's largest industrial projects.

## Peru

### Specialty gases for Peru LNG S.A.

The Peru LNG Project plays a central role in the future energy strategy of the Peruvian government. It proposes, over a period of 20 years, to export the natural gas which is surplus to its domestic requirements as a sustainable product. The project, started in January 2007, is one of the largest industrial projects ever carried out in Peru. In 2010, after negotiations lasting several weeks, Messer Peru received an order for the delivery of high purity gases (helium, hydrogen etc.) and various calibration gases which are used in production. The contract runs for a year.

### Cryogenic shrinking 4,200 metres above sea level

Compañía Minera Antamina is an opencast mining complex in the Central Andes at an altitude of 4,200 metres above sea level. Copper, zinc, silver, molybdenum and bismuth deposits are mined here. By volume of production, Antamina is one of the ten largest mines in the world. Messer supplies Antamina with a wide variety of gases, including pure argon, for the laboratories and the large-scale maintenance operations. In 2010, Messer supplied Antamina with liquid nitrogen and all



Cryogenic nitrogen played a vital role during the assembly of this gigantic main axle for an excavator.

cryogenic accessories to “Shrink and Fit” in place a hollow shaft of 3.15 meters length and a diameter of 0.56 meters, of a new giant P&H shovel that was being assembled for their mine expansion investment. The assembly was a complete success and took less than three hours. In addition to the delivery of gases and equipment, Messer also provided engineering know-how, among other things for the design of the nitrogen reservoir, and supervised the work on the site.

### Messer wins important bulk customer

The firm Alicorp manufactures mass consumer products, industrial products and animal feed supplements. The firm fulfils international quality and competition standards in all its production processes. In recent years, Alicorp has raised its production level and, in this way, has consolidated its leading position in various categories. In December 2010, Messer Peru signed a contract for the delivery of liquid nitrogen to Alicorp for its facilities in Callao, near the port of Lima. Messer first carried out the provisional installation of an ISO tank with two evaporators in record time. The final installation of the vertical cryogenic storage tank was completed by the end of February 2011. In addition, Messer undertook the gas installation in Alicorp’s laboratory and the design of the foundation for the new liquid nitrogen tank. Messer also supplied all the technical gases for the laboratory.

Alicorp relies on “nitrogeno” from Messer.



### Welding gases for 2,000 buses

New gas mixing units are helping the Peruvian bus manufacturer Modasa to save time and money in its welding procedure. Messer has supplied an innovative concept for the supply of welding gases in Peru. The new gas mixing units are fed with 20 per cent liquid carbon dioxide and 80 per cent liquid argon. The system transports the gases through more than 750 metres of pipeline to the about 170 MIG welding machines. This makes the logistics and cylinder management appreciably less complicated. Modasa is using the new technology for the construction of 2,000 buses which will be used by the City of Lima’s new metropolitan transport system and by other bus companies in the country. Modasa has been the leading manufacturer of transport vehicles in Peru since 1994.

Inspecting the Modasa buses on site (l. to r.): Juan Bedoya, Hugo Gálvez, Peter Wilhelm Storm van’s Gravesande and Stefan Messer



## Vietnam

### Messer secures access to CO<sub>2</sub> source

Messer concluded a contract in 2010 securing access to a source of CO<sub>2</sub> in the southern Vietnamese province of Binh Phuoc. This gave it access to 200 tonnes per day of raw carbon dioxide, produced as a by-product in a bio-ethanol plant in Bu Dang District. Messer will built a carbon dioxide liquefaction plant with an initial capacity of 70 tonnes per day, which is later to be enlarged to produce 200 tonnes per day. The CO<sub>2</sub> liquefaction plant was delivered and assembled by the CO<sub>2</sub> Competence Centre ASCO Carbon Dioxide LTD. With this new CO<sub>2</sub> investment project, Messer is extending its activities in Vietnam and offering potential investors in Vietnam access to a secure, long-term supply of carbon dioxide.



Stefan Messer and Victor Lim, Messer Vietnam, opened the gas source together.



Stefan Messer (5th from left) surrounded by Messer's team in Vietnam.

### First air separation unit in Vietnam

On 6 October 2010, Messer officially opened its first production plant for industrial gases of the country. With a capacity of 300 tonnes of oxygen and 510 tonnes of nitrogen per day, the plant is currently the largest air separation plant in Vietnam. It covers the entire gas demand of the newly constructed integrated steelworks of Hoa Phat Steel in Kinh Mon Town in the province of Hai Duong. Messer has invested 20 million US dollars in the production plant. The production operations of many different sectors in northern Vietnam will also be supplied with the gases produced.



Official opening of the new air separation unit

### Oxygen for the flame polishing of glass

Messer Hai Phong began to supply Viet Tiep Crystals with liquid oxygen for flame polishing at the end of April 2010. Viet Tiep Crystals is 100 per cent Vietnamese owned and manufactures glasses, vases and other glass and crystal products for the domestic and export markets. Because of Messer Hai Phong's new air separation unit and liquefier, which came online in March 2010, Viet Tiep was sure of receiving a high level of reliability and service from Messer. Messer Hai Phong plans, with the help of the department Application Technology in Germany, to conduct a technical review of the processes used by Viet Tiep and to point out any possible ways of increasing efficiency.



Liquid oxygen is used for flame polishing.

### Ethylene increases the yield of rubber trees

Messer Vietnam has extended its product range to include the product "ethylene", which increases the yield of latex from rubber trees. The product was introduced in the second quarter of 2010 and is used, among others, by the major customer Greenyard Berhad from Malaysia. Greenyard Berhad is one of the few firms which masters the technique of applying ethylene in the scratches on the trees to tap latex. The ethylene supply contract runs for two years.

### Advantages of bulk over cylinder

Thai Summit, an original equipment manufacturer for the motorcycle manufacturers Honda and Yamaha, was supplied by Messer Hai Phong for over a year with a premixed argon/CO<sub>2</sub> welding mixture in gas cylinders. When it became clear what advantages a bulk liquid supply with an on-site mixer would have for Thai Summit, the gas supply was changed accordingly. The bulk liquid supply with an on-site mixer began in February 2010.



Thai Summit now obtains its gases from cryogenic storage tanks.

# Growth

"The Messer Group has continued its planned investment programme in production facilities in order to safeguard the financial success of the company going into the future."



Johann Ringhofer, Executive Vice  
President Engineering & Production

Despite the difficult economic times in 2009 and the slow recovery in the year under review, the Messer Group has continued its planned programme of investment primarily in production facilities for air gases and liquid carbon dioxide.

July 2010 marked the on-schedule start of operations for the air separation facility in Salzgitter, which is important to the growth of the business in Germany. The air separation unit on the site of Salzgitter Flachstahl GmbH, with a total production capacity of 850 tonnes of oxygen per day, provides the steel works with up to 28,000 cubic metres of oxygen per hour and each day produces 300 tonnes of refrigerated liquefied oxygen and nitrogen, as well as argon, for sale.

This gives secondary support to the supply of our German customers in addition to the air separation unit in Siegen, which started production last year.

In June 2010, a new air separation facility and a filling plant for bottled gases started operations at the new site in Kartepe, near Istanbul. The standalone facility produces 160 tonnes of refrigerated liquefied air gases per day. These are mainly supplied to customers using tanker lorries, but

they are also delivered in filled steel gas cylinders. Messer's own production plant in Turkey plays an important role in helping us successfully handle the market, which offers great potential for growth.

Product supply in France was further expanded through the air separation facility in Saint-Herblain in Brittany, which has a daily output of 300 tonnes.

Overall, Messer currently operates approx. 20 air separation facilities throughout Europe, with a total daily production capacity of 13,000 tonnes of gaseous products, especially oxygen and nitrogen. They are supplied directly to our major customers via pipelines. The total production capacity for refrigerated liquefied gases is 3,500 tonnes per day, which equates to 175 tanker deliveries each day. A reliable supply to our customers is ensured through a storage capacity for 37,300 tonnes in total, which represents 1,850 tanker deliveries. The availability of liquid carbon dioxide was further expanded as a result of starting operation of a CO<sub>2</sub> purification and liquefaction plant at the INEOS site in the Belgian city of Antwerp. With this additional output of 150,000 tonnes per year, more than 500,000 tonnes of self-produced product are available to the Messer Group companies across Europe.

## Growth

Despite the global economic crisis, China nevertheless demonstrated considerable growth in comparison to previous years. Messer started operations at several air separation facilities in China and was therefore able to participate fully in the strong growth of the industrial gases market.

Worthy of particular mention is the XMG No. 6 plant at the Xiangtan site. With a plant output of 40,000 standard cubic metres of oxygen per hour (which equates to 1,300 tonnes per day), the plant covers the rapidly increasing demand of the steel works.

At the same site, XMG has started operation of the existing XMG No. 2 air separator with a condenser and a daily capacity of 230 tonnes in order to improve supply to meet the demand from bulk customers in the surrounding area.

In Yangjiang, Xianggang Messer Gas Products Co Ltd. started operation of the first air separator at the start of the year. It has an production capacity output of 15,000 cubic metres per hour, which is supplied directly to the new steel works that has been built there. Furthermore, the plant has been equipped with a condenser with a capacity of 150 tonnes per day. This additionally allows the rapidly increasing demand for liquid products in Hunan province to be served.

The early expansion of production capacity in the steel works resulted in the need for us to increase our air separation capacity in parallel. In December 2010 we therefore started operation of the second plant No. 2, which has a capacity of 20,000 cubic metres per hour (or 700 tonnes per day).

Overall, during 2010 Messer China increased its production capacity by 2,500 tonnes per day, thus cementing its position in the fast-growing Chinese market.

Through continued investment in the coming years we will continue to expand our own production capacity and thereby increase the autonomy of Messer in the core regions of Europe and China, which will ensure economic success.



Johann Ringhofer

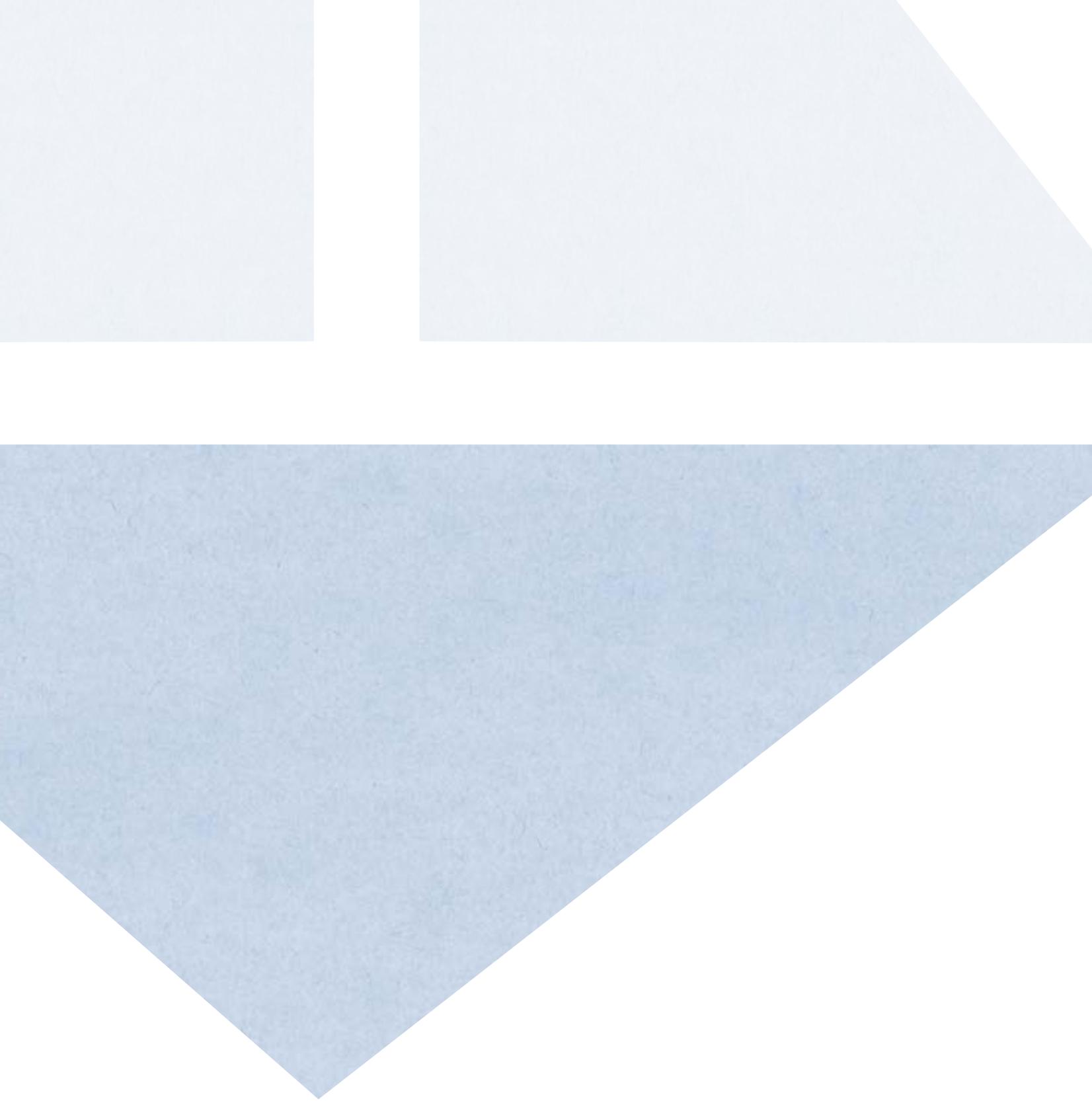
Product supply in China

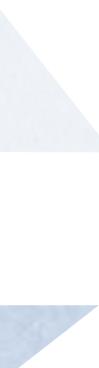


- Air separation unit
- Air separation unit under construction
- ⊕ Messer Subsidiary



Product supply in Europe





# Financial year

Messer successfully achieved growth in terms of all its financial key performance indicators in 2010. This gives us room to further consolidate our success as an independent family-run industrial gases business. We also benefit from the fact that we offer a wide range of products and spread our activities over many countries. This makes us better able to weather economically difficult periods and allows us to benefit more quickly from economic upturns.

# Financial year

"Fiscal 2010 was characterised by clear recovery trends which became apparent at different geographical locations and times within our international organisation."



Dr. Uwe Bechtolf,  
Executive Vice President Controlling /  
Accounting & Strategy

Against the background of the global economic situation in 2010, the statistics provided by the International Monetary Fund show that the world economy is recovering with an unexpectedly high GDP growth of five per cent. This also occurred much more quickly than was to be anticipated after the recession in 2009, which saw a decrease in the GDP of 0.5 per cent. Here the talk is most appropriately of a "world or recovery at two speeds". The economic region of the EU and the USA, for example, experienced slow to moderate GDP growth of 1.8 and 2.8 per cent respectively, whereas China and India recorded dynamic GDP growth of 10.3 and a good eight per cent respectively. Given the cautious recovery in Europe, Germany stands out with GDP growth of 3.6 per cent. Here an economy which is focused on exports and German companies were able to profit directly from the economic dynamism and the resultant demand from the emerging markets. This global development pattern is also reflected in the Messer World. Fiscal 2010 was characterised by clear recovery trends which became apparent at different geographical locations and times within our international organisation.

In Europe an appreciable increase in economic activities began in March 2010 which then demonstrated a rapidly increasing dynamism, above all in Germany. The improvement in the economic situation commenced earlier in the western and northern European countries than in southern and eastern Europe. However, the fourth quarter of the year was then marked by business dynamics throughout Europe.

Once again the situation was different in the emerging markets – once again because this seemingly separate development could be recognised in 2009 and was consequently not so very surprising. China above all enjoyed dynamic economic development at the start of the year, and this increased again strongly in the second half of the year. The continuously increasing share of our China business and the slower but constantly increasing economic recovery in the European business resulted in a new record growth in sales for Messer in 2010 of 14 per cent compared to the previous year.

It is particularly pleasing here that the various figures for earnings were not only able to keep pace with this development, but actually to exceed it. This meant that we were also able to increase our profit margins, from the end operating result (+0.9 per cent), to the EBITDA (+0.7 per cent), right through to the net income (+0.5 per cent). What pleases me most, however, is the improvement in a performance indicator which is extremely informative and decisive for us – the Return on Capital Employed (ROCE). This shows the ratio of the operating result to the non-operating assets. In other words, ROCE shows how profitable our investments are, and it is no secret how high these need to be in the industrial gases industry! Here Messer was able to grow to almost ten per cent, compared to 7.3 per cent in 2009. The fact that the ROCE is almost a double-digit figure is an initial major step, but we want to increase this even further.

Finally it must be stated that within two years the Messer Group has passed an almost model practical test. The diversification of products and countries has successfully contributed to the Messer Group being relatively well cushioned when economic downswings occur and being able to profit well when the upswing sets in.

It also seems important to me that the diversification is accompanied by the requisite balance. This also applies for our financial indicators: In 2010 we grew successfully in all areas – but also in terms of our net debt. However great the success, it is important to bear in mind here that investments can lead to greater debts and must therefore always be in a balanced ratio to our earnings power.



Dr. Uwe Bechtolf

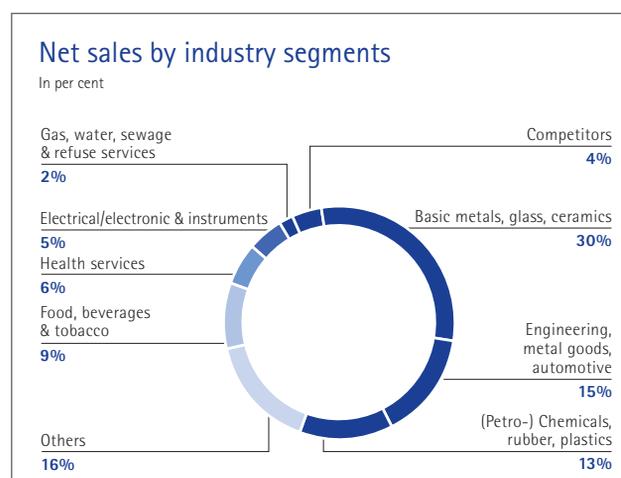
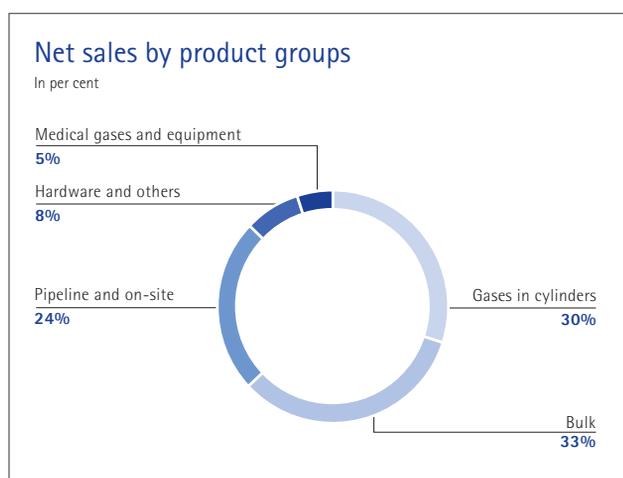
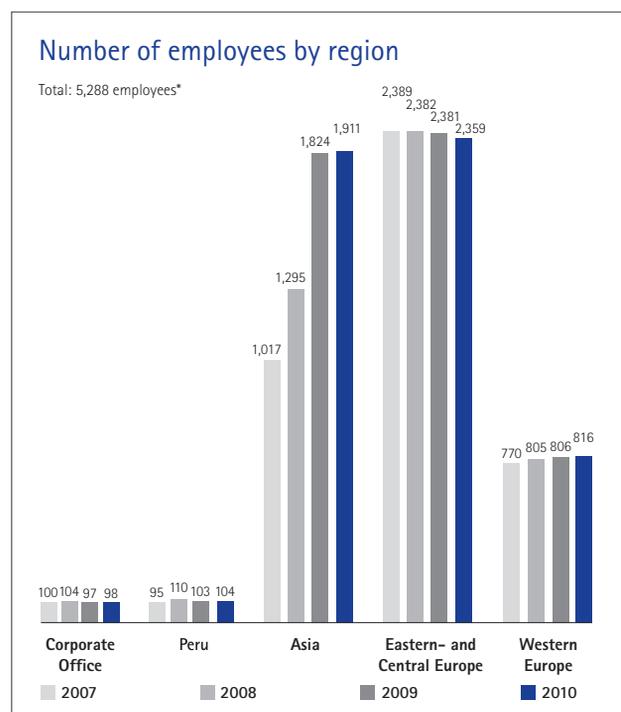
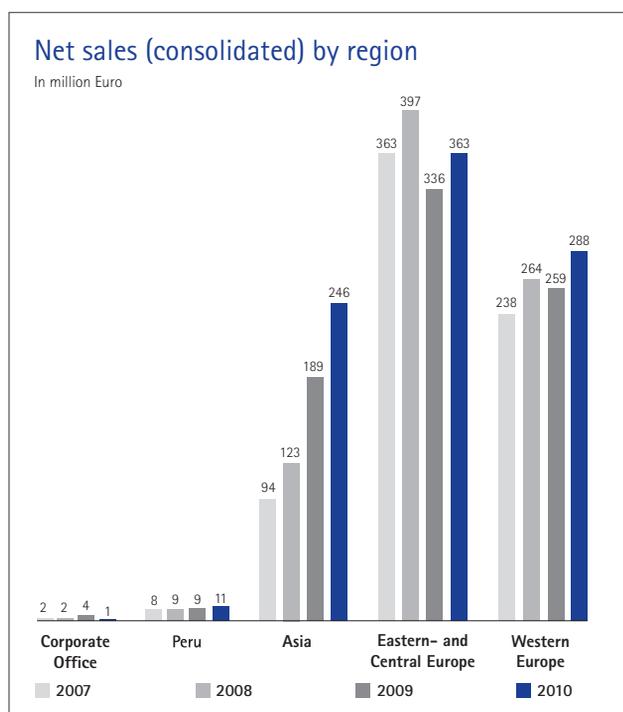
Please note that the following pages only contain excerpts from the Group's financial statement. The full financial report and consolidated financial statement are available as PDF files on the internet and can be downloaded at <http://annualreport.messergroup.com>

# Messer Group Key figures at a glance

As of 31.12.2010

		2007	2008	2009	2010
Net sales	<i>in million Euro</i>	705	795	797	909
EBITDA	<i>in million Euro</i>	154	172	175	207
EBITDA margin	<i>in per cent</i>	22	22	22	23
Investments	<i>in million Euro**</i>	173	194	202	168
Employees*		4,380	4,696	5,211	5,288

\*contractual employments \*\*incl. IFRIC4



## Consolidated Balance Sheet

in K€		Dec. 31, 2010	Dec. 31, 2009
<b>Assets</b>			
	Intangible assets	479,087	497,561
	Property, plant and equipment	905,081	847,242
	Investments accounted for using the equity method	13,924	10,451
	Investments in other companies and financial investments	12,418	6,065
	Deferred tax assets	10,506	13,729
	Other non-current receivables and assets	54,885	49,264
	<b>Non-current assets</b>	<b>1,475,901</b>	<b>1,424,312</b>
	Inventories	84,040	44,354
	Trade receivables	166,155	145,299
	Assets held for sale	6,941	1,255
	Income tax assets	2,765	3,360
	Other receivables and other assets	34,813	40,603
	Cash and cash equivalents	101,762	81,257
	<b>Current assets</b>	<b>396,476</b>	<b>316,128</b>
	<b>Total assets</b>	<b>1,872,377</b>	<b>1,740,440</b>
<b>Equity and Liabilities</b>			
	Share capital and additional paid-in capital	671,855	669,855
	Other reserves	5,905	5,905
	Retained earnings	199,680	181,546
	Profit after income taxes	30,066	22,634
	Fair value reserve	4,223	3,015
	Currency translation reserve	24,156	(5,865)
	<b>Equity attributable to shareholders of the parent company</b>	<b>935,885</b>	<b>877,090</b>
	<b>Minority interests</b>	<b>127,071</b>	<b>96,145</b>
	<b>Equity</b>	<b>1,062,956</b>	<b>973,235</b>
	Provisions for employee benefits	19,711	18,465
	Other provisions	12,766	14,750
	Non-current financial debt	421,372	364,394
	Deferred tax liabilities	44,204	42,484
	Other non-current liabilities	7,458	13,971
	<b>Non-current liabilities</b>	<b>505,511</b>	<b>454,064</b>
	Other provisions	20,575	16,592
	Current financial debt	56,454	63,905
	Trade payables	127,354	134,947
	Income tax liabilities	6,763	3,484
	Other current liabilities	91,377	94,213
	Liabilities held for sale	1,387	-
	<b>Current liabilities</b>	<b>303,910</b>	<b>313,141</b>
	<b>Total equity and liabilities</b>	<b>1,872,377</b>	<b>1,740,440</b>

## Consolidated Income Statement

in K€	Jan. 1 - Dec. 31, 2010	Jan. 1 - Dec. 31, 2009 restated
Net sales	909,020	796,749
Cost of sales	(479,605)	(417,392)
<b>Gross profit</b>	<b>429,415</b>	<b>379,357</b>
Distribution and selling costs	(252,086)	(241,620)
General and administrative costs	(83,463)	(73,521)
Other operating income	21,527	16,434
Other operating expenses	(6,099)	(6,072)
Impairment losses on goodwill	(22,435)	(5,200)
<b>Operating profit</b>	<b>86,859</b>	<b>69,378</b>
Result from equity method investments	2,333	1,657
Other investment results, net	(53)	(129)
Interest income	2,160	2,353
Interest expense	(20,195)	(21,327)
Other financial result, net	2,340	(7,611)
<b>Financial result, net</b>	<b>(13,415)</b>	<b>(25,057)</b>
<b>Profit before income taxes</b>	<b>73,444</b>	<b>44,321</b>
Income taxes	(24,504)	(8,138)
<b>Profit after income taxes</b>	<b>48,940</b>	<b>36,183</b>
of which attributable to:		
shareholders of the parent company	30,066	22,634
minority interests	18,874	13,549

## Consolidated Cash Flow Statement

in K€	Jan. 1 - Dec. 31, 2010	Jan. 1 - Dec. 31, 2009 restated
<b>Profit before income taxes</b>	<b>73,444</b>	<b>44,321</b>
Income taxes paid	(16,685)	(10,854)
Depreciation and amortization of property, plant and equipment and intangible assets	120,065	97,948
Impairment losses on non-current financial assets	–	15
Other non-cash income	(5,015)	(1,555)
Changes in investments in equity method investments	(2,333)	(2,795)
Interest result, net	18,006	17,578
Other non-cash financial result	(2,340)	7,108
Changes in assets resulting from finance lease arrangements	(30,965)	(43,836)
Changes in inventories	(10,897)	(2,063)
Changes in receivables and other assets	350	4,563
Changes in provisions	3,468	738
Changes in trade payables and other liabilities	(3,686)	27,857
<b>Cash flow from operating activities</b>	<b>143,412</b>	<b>139,025</b>
Purchase of property, plant and equipment and intangible assets	(122,994)	(165,157)
Purchase of investments and other non-current assets	(6,773)	(439)
Acquisition of subsidiaries	(9,072)	(218)
Acquisition of shares of other shareholders	–	(211)
Proceeds from disposals of property, plant and equipment and intangible assets	7,641	4,708
Proceeds from disposals of investments and loans	33	18,422
Interest and similar income	2,163	2,353
<b>Cash flow from investing activities</b>	<b>(129,002)</b>	<b>(140,542)</b>
Changes in capital by shareholders of the parent company	(2,500)	–
Proceeds from non-current financial debt	48,002	100,384
Proceeds from current financial debt	6,926	–
Repayment of non-current financial debt	(12,574)	(58,354)
Repayment of current financial debt	(22,406)	(2,318)
Dividends paid to minority shareholders	(10,979)	(5,407)
Contributions by minority shareholders	16,433	10,020
Interest and similar expenses paid	(20,265)	(19,235)
Other financial result, net	(368)	(7,470)
<b>Cash flow from financing activities</b>	<b>2,269</b>	<b>17,620</b>
<b>Changes in cash and cash equivalents</b>	<b>16,679</b>	<b>16,103</b>
<b>Cash and cash equivalents at the beginning of the period</b>	<b>81,257</b>	<b>65,863</b>
Exchange rate impact on cash and cash equivalents	4,501	(709)
Cash and cash equivalents classified as held for sale	(675)	–
<b>at the end of the period</b>	<b>101,762</b>	<b>81,257</b>

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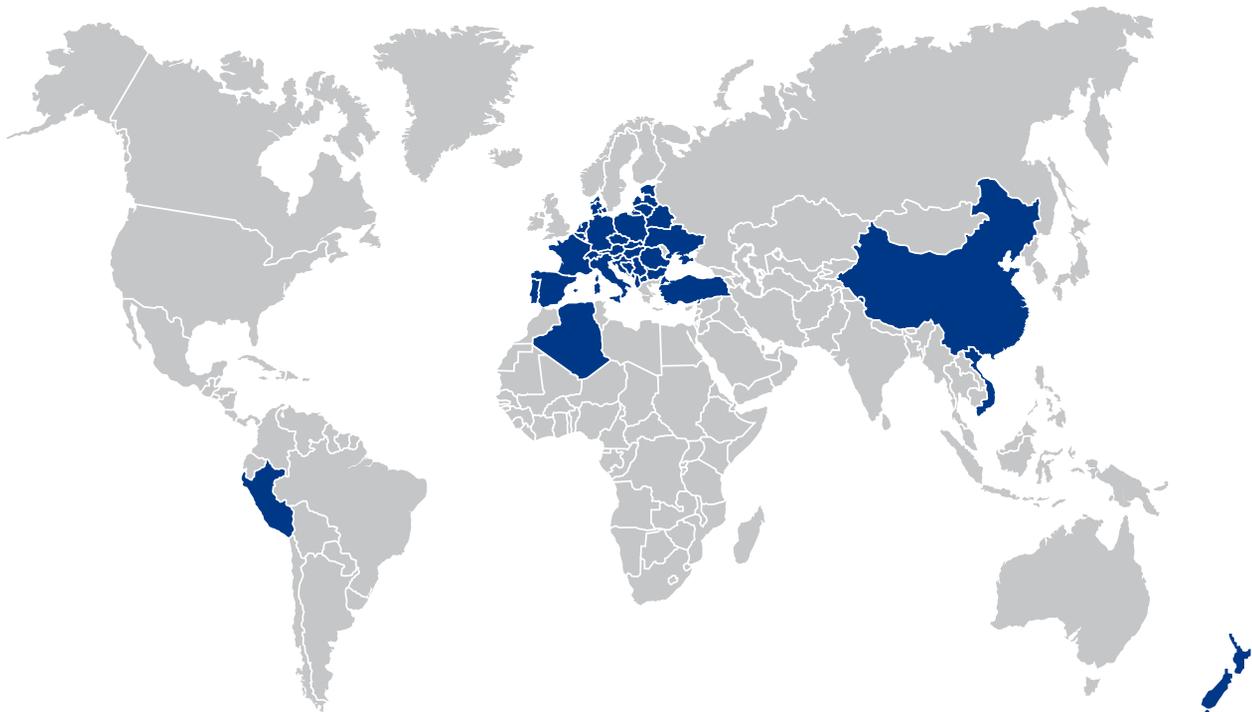
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Part of the Messer World 