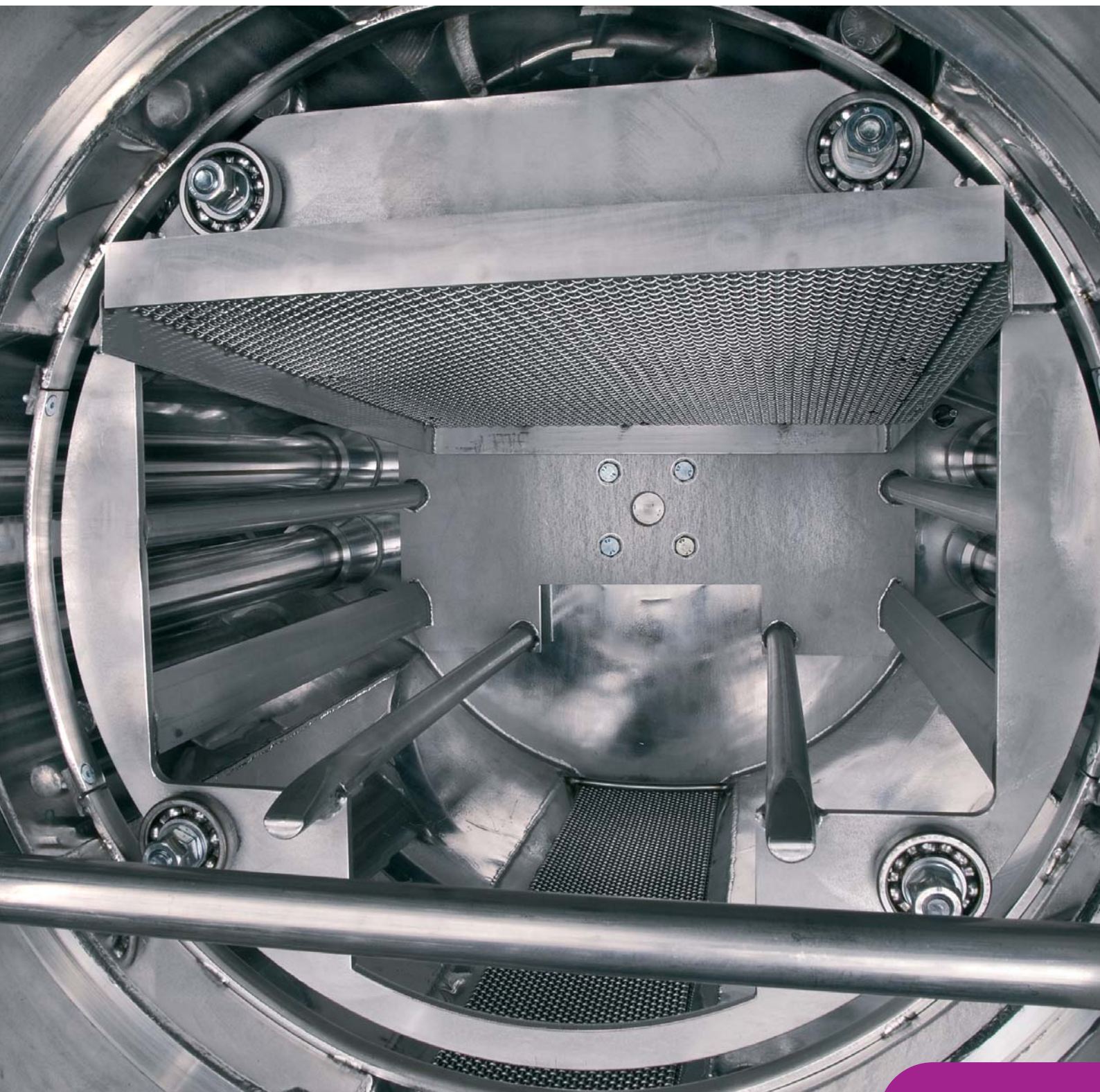


EMO Oberflächentechnik





EMO Oberflächentechnik GmbH— Competence in cleaning

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EMO Oberflächentechnik has been committed to industrial parts cleaning since 1979. Competence in cleaning is the governing principle behind EMO's corporate strategy. We re-invest the know-how we have acquired over the course of decades in the construction of every single EMO system. We are constantly developing and enhancing our technology and service in order to guarantee long-term customer satisfaction. We rely on a quality system certified to ISO 9001:2000 for the development, project planning, manufacture, sale and marketing of our systems.

The patented VAIOS technology is EMO Oberflächentechnik's trademark. VAIOS systems are regarded by professionals as the most innovative cleaning systems in the world. With this process EMO revolutionised the world of industrial parts cleaning back in 1995. We have since consistently enhanced and developed this pioneering technology. Today, the process underpins a broad-spectrum of cleaning systems — from classic standard plants to throughfeed systems and large-scale equipment with aqueous and solvent based cleaning steps inside a cleaning chamber.

We might well have the right solution in our programme for your cleaning task as well? We're pretty sure we have — but why not see for yourself?

Your

Wolfgang Müller
and Team



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An overview of EMO cleaning systems 5

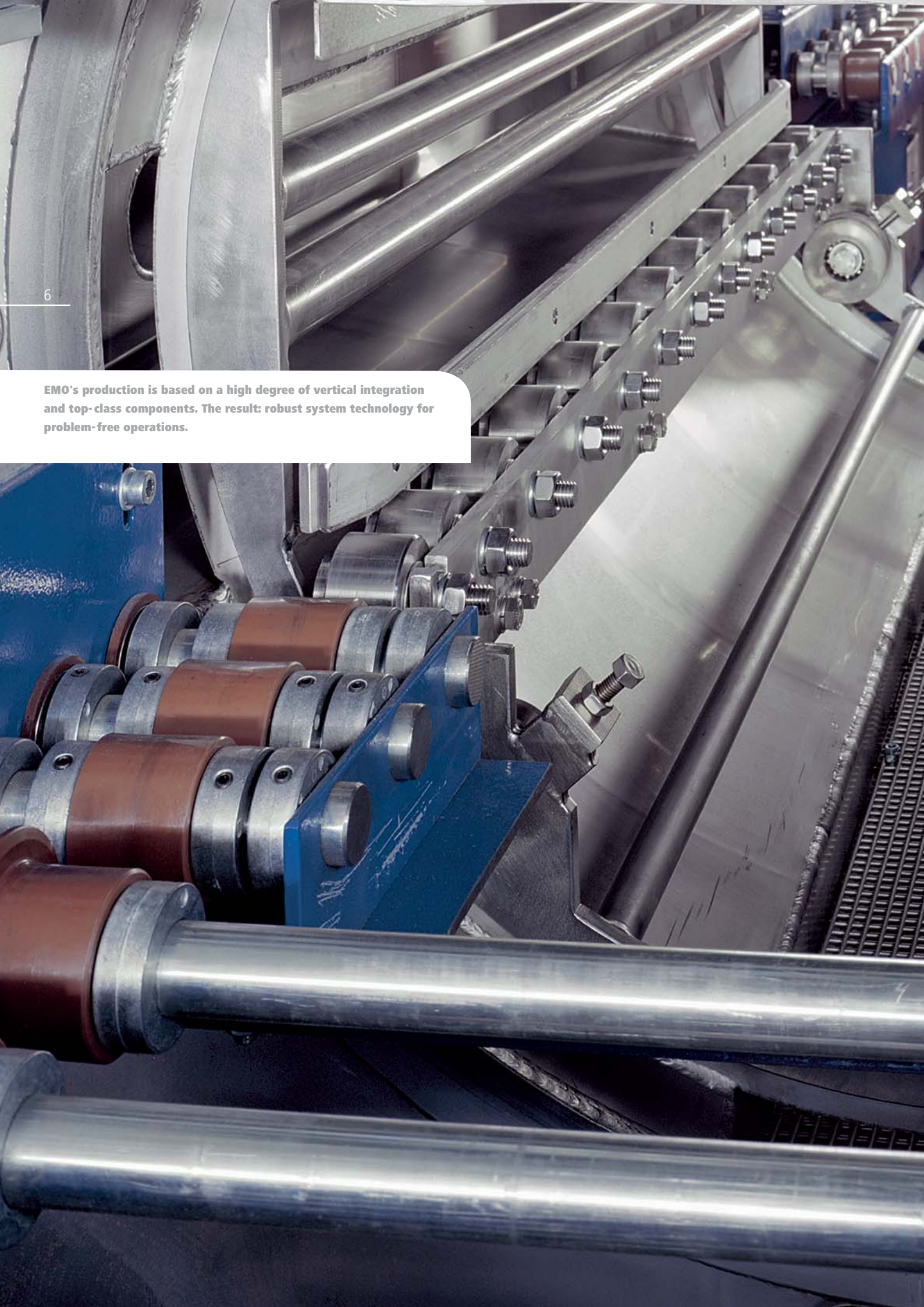
Classic VAIOS cleaning systems [1]: EMO offers classic VAIOS systems in two standard sizes in which the parts to be cleaned are placed in stacking transport boxes in two standard sizes (530 x 320 x 200 mm and 670 x 480 x 300 mm). At a maximum basket weight of 80 or 150 kilograms, the throughput rate of systems such as these is somewhere between six and eight baskets an hour. The core business, however, lies in the realisation of customised sizes. Large batches, bulky goods or customer specific baskets of goods with the dimensions of industrial pallets – EMO meets almost all requirements.

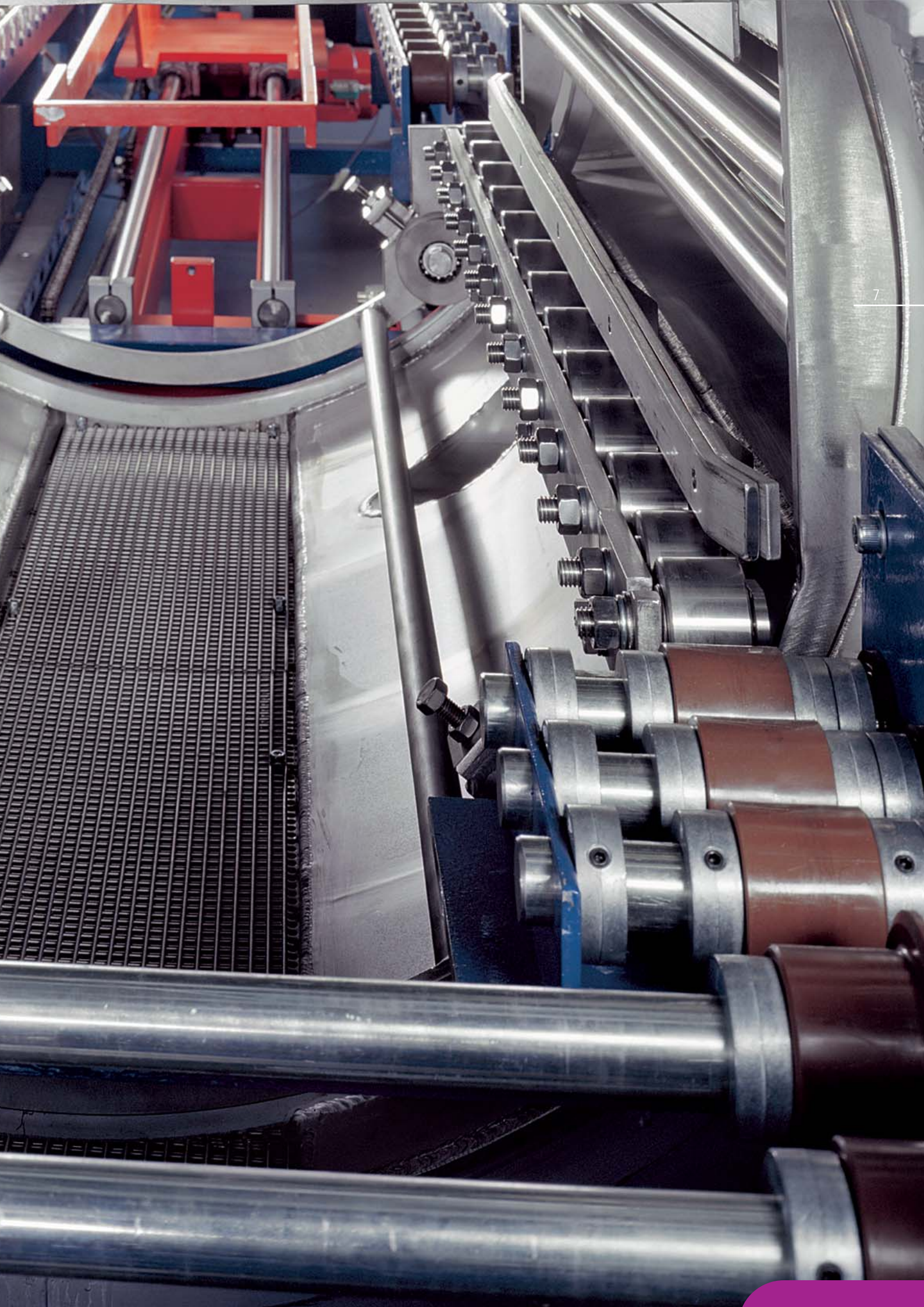
VAIOS systems with aqueous media and solvents [2]: The combined systems of the latest generation also work along familiar VAIOS lines. EMO specialists have achieved the seemingly impossible: sophisticated new process technology enables aqueous media and solvents to be combined inside a single treatment chamber for the first time. The user is able to put together any kind of combination of aqueous and solvent-based cleaning steps. This makes true multi-talents out of our systems which are well-qualified to tackle any of a number of different process steps from degreasing, cleaning, preservation and drying for the optimal cleaning of organic and inorganic contamination.

VAIOS throughfeed systems for high rates of throughput [3]: EMO Oberflächentechnik also offers VAIOS through-feed parts cleaning systems. The new plant technology is available in one or two track models and cleans, degreases and preserves in familiarly outstanding cleaning quality. Compared with conventional systems which have to be loaded and unloaded for each and every cleaning operation, it makes sense to use throughfeed systems whenever the customer is looking for highest levels of throughput and the smooth integration of cleaning systems in production lines whilst simultaneously making a clear separation between the dirty and clean side.

VAIOS cleaning systems for tubes [4]: EMO now offers new system technology for cleaning and degreasing tubes. The technical highlight of this closed system is the ability to tip the treatment chambers (which can be up to 30 m long) which significantly supports the cleaning process as well as ensuring fast flooding and emptying of the chambers. The cleaning process is divided into a fast rough cleaning process and final precision cleaning with ultrasonic support. This is followed by steam degreasing and drying. All cleaning processes take place in a vacuum according to the familiar VAIOS principle. The benefit of this process is that tubes are cleaned to the very highest standards – quickly and with economic efficiency. EMO builds its new tube cleaning systems to precise, customer-specific stipulations.

EMO's production is based on a high degree of vertical integration and top-class components. The result: robust system technology for problem-free operations.





Individual system solutions from a single source

EMO Oberflächentechnik is your competent partner whenever it comes to parts cleaning: from the concept and planning through to construction and commissioning of the system and lifelong maintenance and repair, we are your reliable partner. With decades of know-how and experience from numerous projects, we build systems which meet your precise ideas and requirements. Individual system solutions guarantee future-proof, flexible, ecological and economic operation – for many, many years to come.

Identifying residual contamination in the laboratory: Low particle cleaning is on everyone's lips. Extremely high cleaning requirements are being made in more and more areas of industry. EMO systems help you get the very best cleaning results – that's our guarantee. In our laboratories you can convince yourselves of the performance of our systems before you make an investment. Identification of residual contamination on your trial parts before and after the cleaning process document the efficiency of our systems – if need be, down to the very last particle.

Development and concept: Once all the relevant factors, such as parts spectrum, throughput, cleaning quality and similar factors are clearly defined, EMO begins work on the development and design of the system. The experience of our engineers, designers and programmers, as well as permanent communication with the production team, lay the groundwork for successful project work. While your system is being built, you are kept up-to-date on progress, milestones are constantly monitored and any modifications you might want are implemented. As a result your system reflects exactly your wishes.

Total cost of ownership: The design, construction and commissioning of systems, as well as the investment costs, are only one side of the coin – the tip of the iceberg, as it were. Much more important than supposedly low start-up investment costs are the running costs for the system – especially as these add up over a period of years. Bearing these aspects in mind, what might at first appear to be a cheap solution can soon turn into a real cost trap. EMO has put a lot of thought into total cost of ownership over the years – what the system actually costs throughout its operational lifetime. EMO systems consist exclusively of the best parts and components available on the market – unbeatable operating reliability and low maintenance expense are the benefits for users. Thanks to the continuous developments in the VAIOCS technology, our cleaning systems, which are tailored precisely to customer requirements, guarantee supreme economic efficiency. The result: Top marks for „Total Cost of Ownership“.



Tank 1
1250 Liter

10

View of an EMO system: Clearly structured design and solidly crafted workmanship guarantee minimum maintenance and maximum output.



Patented VAIOCS technology – High- tech for critical cleaning

The VAIOCS – Vacuum Assisted Inorganic Organic Cleaning System – technology developed and since patented by EMO is regarded as a milestone in industrial parts cleaning. This innovative process provides a degree of flexibility which was unheard of just a few years ago. VAIOCS enables chlorinated hydrocarbons, hydrocarbons and modified alcohols to be used in one and the same system for the first time. In order to achieve the best results when cleaning with hydrocarbons and modified alcohols these systems function at a higher temperature level well above the flashpoint of these cleaning media. However, the danger of fire or explosion is excluded because the whole cleaning process takes place under a vacuum. The higher temperature level not only ensures optimum degreasing results, but also fast and residual-free drying.

EMO is now going a step further by offering this process technology in combination with aqueous cleaning levels. These systems are some of the most powerful on the world market. Users can combine aqueous and solvent-based cleaning steps as they require; and typically for VAIOCS, the whole process works under a vacuum. This makes true multi-talents out of our systems which are equally well fitted to tackle any of a number of different process steps from degreasing, cleaning, preservation and drying. It goes without saying that the cleaning process can also be supported in any of a number of different ways by means of ultrasonic and/or turning or oscillating movements. This process technology is suitable for cleaning tasks which require economic efficiency and the very highest levels of cleanliness.

Another decisive benefit of this combined process technology is its total flexibility. Regardless of whether the parts spectrum or the requirements change, with patented VAIOCS technology you are on the safe side and can adapt to almost any conceivable conditions. And all this at very modest investment costs: combined VAIOCS systems can replace investments in two separate systems for aqueous and solvent-based cleaning processes.

The process technology also offers state-of-the-art green technology. It functions with practically no waste water or exhaust air. The cleaning media are returned to the cycle with practically no losses at all. Permanent purification of cleaning liquids using filters and distilling processes guarantee long system service lives and also ensures economic and environmentally friendly operation.

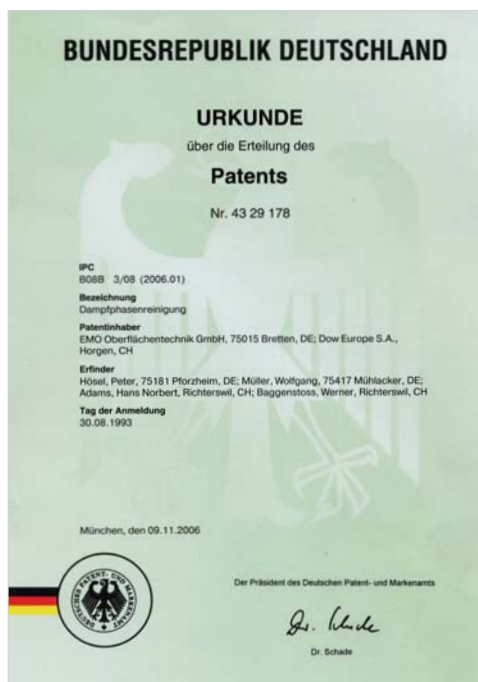
EMO service takes the strain

Advice, service and customer service are just as important as performance itself for a highly economic parts cleaning process. EMO offers system operators an all-round parts cleaning service package which provides optimum support prior to your investment, during the planning phase and throughout the entire system lifecycle. We rely on a quality system certified to ISO 9001:2000 for the development, project planning, manufacture, sale and marketing of our systems.

In partnership for the optimum solution: The way forward to ecological and economic operation of a parts cleaning system is defined even before the system is bought. This is why EMO explores every single avenue during the advice phase to find the best way of developing a system concept which meets all the customer's requirements. Assuming parts cleaning needs to be performed as economically as possible, individual system solutions are required. EMO relies on dialogue and a cooperative partnership with its customers. All the issues relating to complex customer-specific tasks are discussed during initial consultancy sessions. Trial cleaning runs using the company's own technology follow. The subsequent analysis of the cleaned parts in the laboratory provides indisputable evidence of the cleaning quality achieved. As soon as all the facts have been ascertained, building your system to your precise specifications is more or less a routine task for EMO. Individual system solutions are the bread and butter of EMO's daily business and secure optimum parts cleaning combined with high availability and business efficiency.

Safety training: Our service range includes professional on-site system commissioning and understandable technical documentation. System users can take part in training courses at EMO before the cleaning systems are even delivered. This ensures that systems are operated properly from day one. User-friendly and simple cleaning system controls mean that training outlay can be kept to a minimum.

Maintenance and repair: EMO systems are durable, provide top availability and operational reliability as well as low service and maintenance outlay. EMO engineers draft a maintenance plan for the minor work which needs to be performed at defined intervals and subsequently provide reliable support maintaining your system. If, against all expectations, a problem should occur in the system, our EMO service ensures that you receive all the help you need. Qualified office and field service engineers are ready to provide advice and support on our service hotline at any time. Our fully stocked spare parts facility at EMO guarantees that the most important parts can be delivered ex-stock. This all-around service package, patented VAIOCS technology and high quality, top performance cleaning systems turn your decision for EMO into a pioneering investment in the future.



Surface Alliance – Combined competence

Three highly reputable European specialists in the field of industrial parts cleaning: EMO Oberflächentechnik GmbH, Hösel GmbH and LPW Reinigungssysteme GmbH have pooled their know-how in a unique expert partnership. Surface Alliance is one of the biggest and most innovative suppliers in the European parts cleaning market.

The product range offered by the Alliance partners is mutually complementary. This creates a broad spectrum of individual system solutions which offer the right solution for almost every cleaning task. In the field of precision and critical cleaning the Surface Alliance offers an optimum solution for every conceivable need. Whether water or solvent-based – whether part of a stand-alone solution or production line – whether for small parts or tubes up to 30 metres in length – the Surface Alliance provides the solution you need from a single source.

Synergy effects for maximum customer benefits: The basis of our success is the consistent exploitation of synergy effects in the fields of research and development, purchasing, production, sales and service whilst maintaining the market-oriented independence of each of the members of the Surface Alliance. Pioneering technological developments by Surface Alliance are regarded as milestones in industrial parts cleaning. The strategic partnership and all its activities are firmly focused on the customer. Everything the alliance does is geared towards a single, clearly-defined goal: enhancing customer benefits.

Benefits for the customer: Close collaboration within Surface Alliance at every link in the value chain has created a high-performance group capable of meeting customer wishes optimally in every possible field. Combined know-how and the lessons learned from thousands of completed products have found their way into every system which now leaves the production plants of all the alliance partner companies. Customers are supplied with tailored cleaning systems which match their requirements precisely and which are based on technological solutions proven in hundreds of applications as well as on totally reliable components. Once an order is placed one thing is absolutely clear: the system is guaranteed to meet customer requirements for many, many years with maximum operating reliability and economic efficiency. Another advantage is the decentralised structure which enables the alliance to respond quickly and flexibly to customer requirements. Whatever task needs to be mastered – you can rely on the Surface Alliance as your partner.



EMO Oberflächentechnik GmbH



Hösel GmbH



LPW Reinigungssysteme GmbH

Our current German and international partners and representatives can be found at www.emo-ot.de.

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MEMBER OF  **SURFACE ALLIANCE**