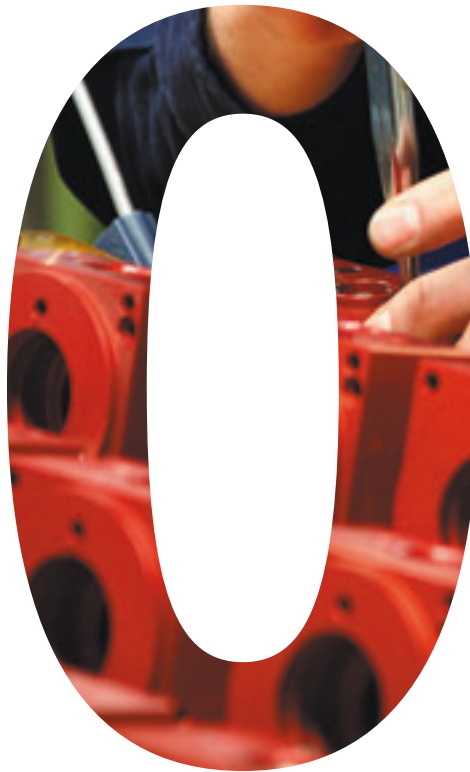




MAXIMATOR[®]

GLOBAL PRESSURE SOLUTIONS

Up to



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Brief Profile

Supreme technical know-how based on German engineering, successful system developer and experienced specialist – MAXIMATOR GmbH is the leading supplier for high pressure and test technology involving hydraulics and pneumatics.

What is crucial for our company's ever-continuing success is the ability to implement ideas, stand-alone and system solutions quickly and safely. We provide expert consultancy, engineering design and delivery of, complex systems for economical solutions to specialized tasks.

Our experienced employees' target-orientated approach is always subject to the highest quality requirements. Knowledge in the area of complex systems and a keen awareness of the customers and the market application requirements guarantee consistent further development of our products and standards.

Expertise based on decades of experience singles our company out with system-based solutions being our strength and aspiration.



The Fascination of High-Pressure Technology

MAXIMATOR GmbH, which has its production locations in Zorge and in Nordhausen, designs, develops and manufactures high-pressure technology products. Our highly skilled and reliable employees guarantee first-class performance in the area of high pressure and test technology involving hydraulics and pneumatics.

Schmidt, Kranz & Co GmbH acts as a holding company for MAXIMATOR. Company sales offices throughout the Federal Republic of Germany and partner companies throughout the world guarantee expert consultancy when selecting and designing our components and systems.

Our performance driven service department ensures the setting up, installing and servicing of our products. All this is supported by a verified and certified quality management system (DIN EN ISO 9001:2000), an essential prerequisite for bringing about successful implementation of technological knowledge and experience in the field of complex systems.



High Objectives and Values

Our objective is for our range of products and services to fulfil the requirements and wishes of our customers in various regions and markets. Our particular focus is on increasing customer benefit optimally and continuously through the use of our products.

Our innovative solutions enable us to set technological standards in our business segment. Our fascination for high-pressure technology and our continual striving to improve and refine our technologies are our driving force and our uppermost objective being our customers' satisfaction.



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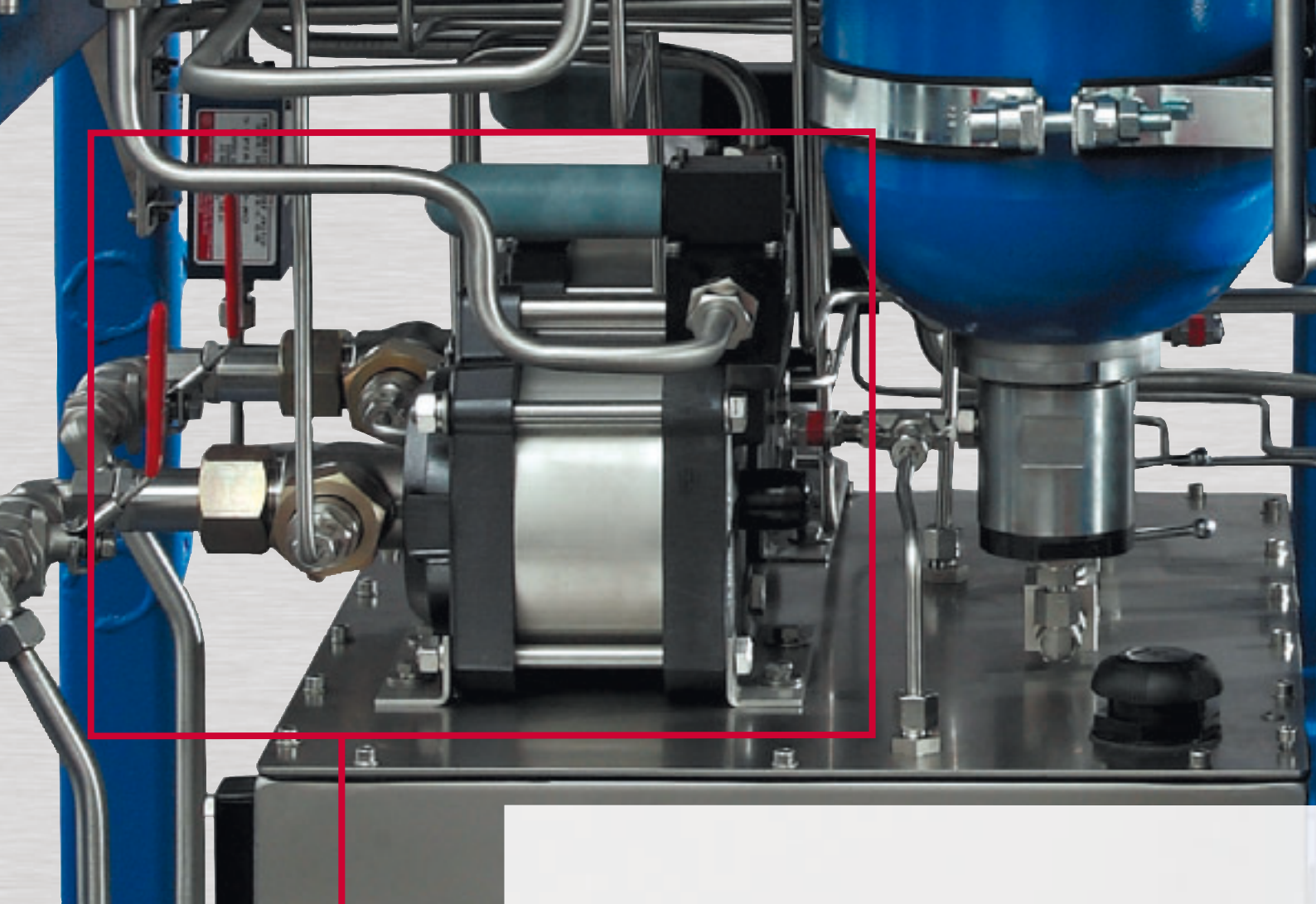
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High Pressure GX Series Pump



High Pressure GSF Series Pump



High Pressure MSF Series Pump

High-Pressure Pumps

MAXIMATOR high-pressure pumps are compressed air-driven, reciprocating plunger pumps, which can be used to generate operating pressures of up to 5,500 bar (79,750 psi) in a wide variety of applications.

Using high-quality materials and precise manufacturing methods, we have succeeded in implementing the principle of pressure intensification in a reliable and powerful product.

Our compressed air drive concept allows us to dispense with electrical components completely. This results in a compact design, few components, and hence straightforward operation and ultimately maintenance.

Our high-pressure pumps are extremely easy to handle. The operating pressure is freely selectable and is set by the level of the drive pressure. If the set operating pressure has been reached, our pumps stop due to the equilibrium of forces and they will hold the operating pressure indefinitely without further energy consumption.

Our high-pressure pumps perform their work safely and reliably in a wide variety of oil-based, water-based and other applications. Even aggressive, toxic, critical and combustible fluids can be handled.



High-Pressure Components and Units for Fluids

Hydraulic Systems

MAXIMATOR units for oil, water or aggressive fluids are complete, ready-for-connection hydraulic units for generating operating pressures up to 5,500 bar (79,750 psi).

The units can be used for all kinds of testing and clamping tasks as well as for a wide variety of pressure generation tasks. The modular structure of our units enables us to offer our customers specific solutions for individual assignments.

Our experience in building units, our openness to alternative approaches and the flexibility of our production are the guarantee of our customers' satisfaction.

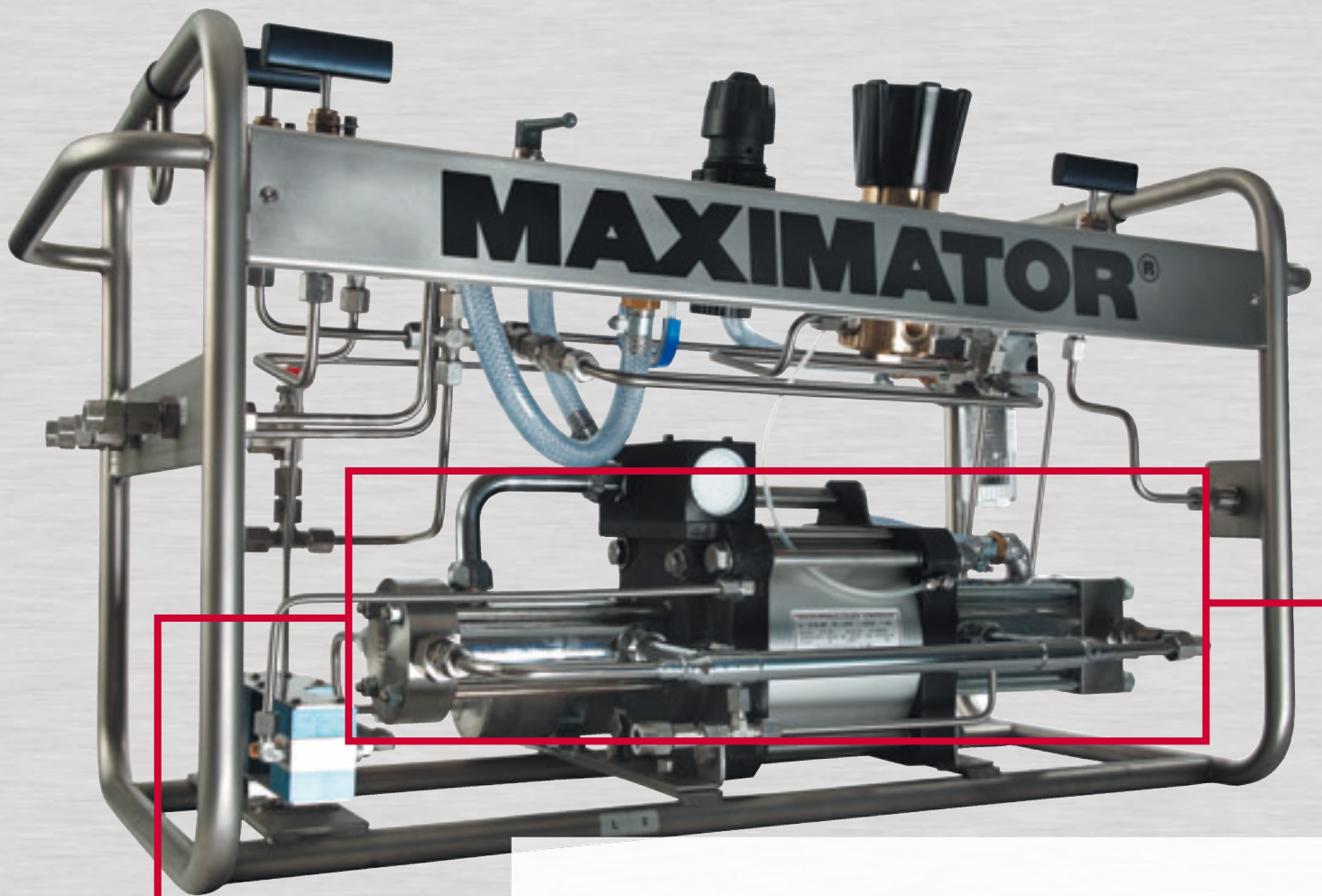
From compact hydraulic units for mechanical engineering to mobile, protection frame-based test units for the chemical industry through to complex HPU's (High Pressure Units) for the offshore industry – our solutions have a mark of quality and are compelling.



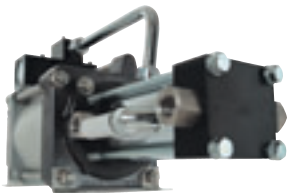
Portable High Pressure Power Pack



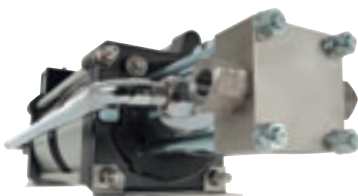
Mobile High Pressure Power Pack



Air Amplifier Type GPLV2



Air Amplifier Type GPLV5



High Pressure DLE Series Gas Booster

Air Amplifiers and Stations

Our amplifiers are suitable for compressing pressurized air or nitrogen, providing an ideal solution for selected pressure increases.

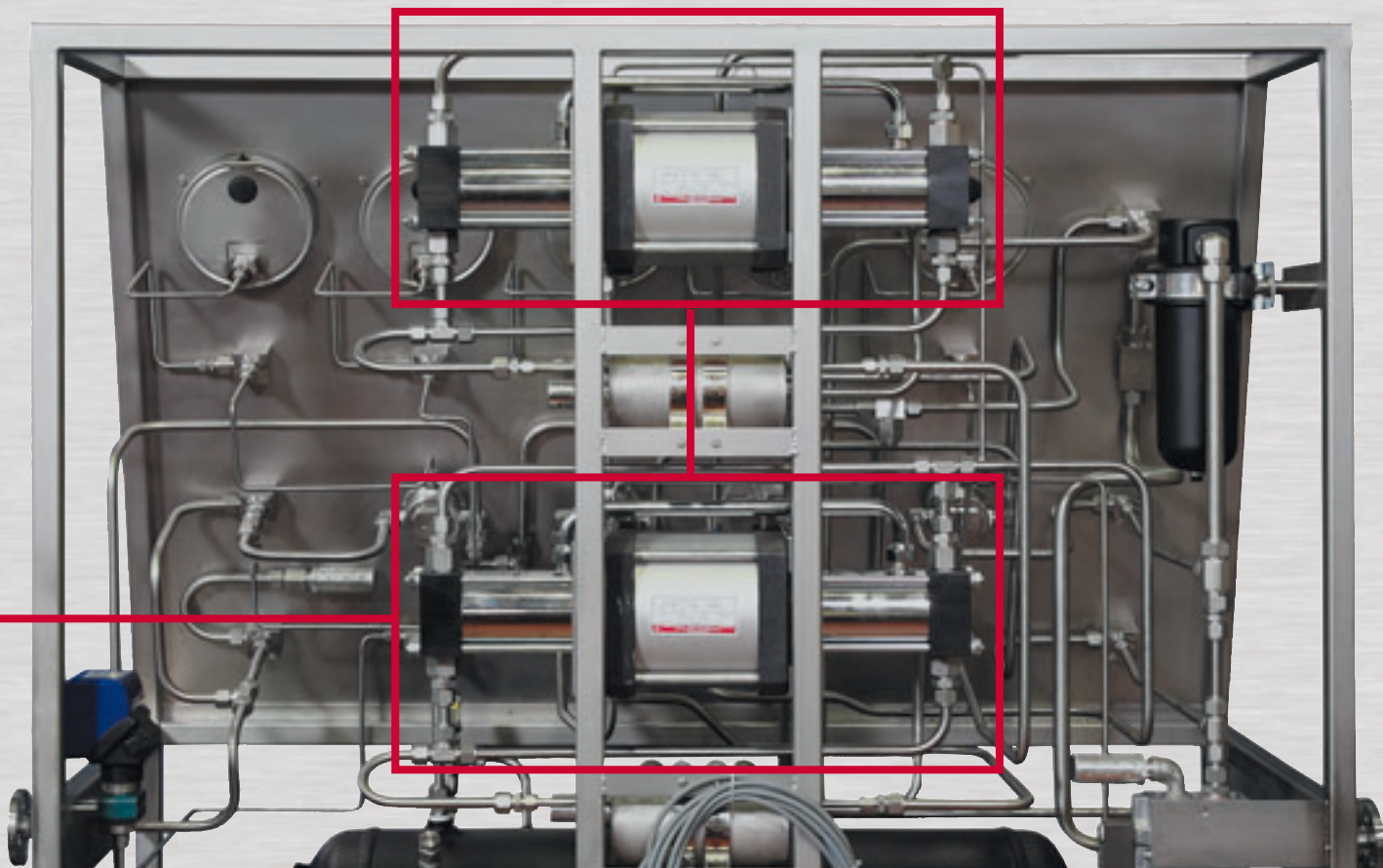
We offer our customers solutions to individual requirements that remove the necessity of investing in their own high pressure pipe networks.

As a manufacturer of integrated system solutions, we have developed a large number of ready for connection amplifier stations, which have decades of a long track record in providing optimal solutions for a wide variety of applications.

Boosters

MAXIMATOR high-pressure boosters have been developed for the oil-free compression of gases and pressurized air. Customary gases like argon, helium, hydrogen and nitrogen can be compressed to pressures up to 1,500 bar (21,000 psi), oxygen up to 350 bar (5,000 psi).

Our extensive model range allows us to provide the optimal solution to our customers' individual requirements. Overall, we have a large number of different compression levels. This enables us to provide our customers with the best solution for their applications for various pressures and flow rates.



High-Pressure Components and Units for Gases

Booster Stations

MAXIMATOR booster stations for technological gases are complete and ready for operation, being able to generate operating pressures of up to 1,500 bar (21,000 psi). The stations can be used for all kinds of testing and filling tasks, and for a wide variety of pressure generation duties.

We provide comprehensive accessories for all our applications. Such accessories include pressure switches and pneumatically or electrically operated valves for automatically switching off the systems. Connecting adaptors, quick-release couplings, pressure filters, high-pressure hoses, as well as shut-off and control valves, and accumulators are part of our scope of delivery.

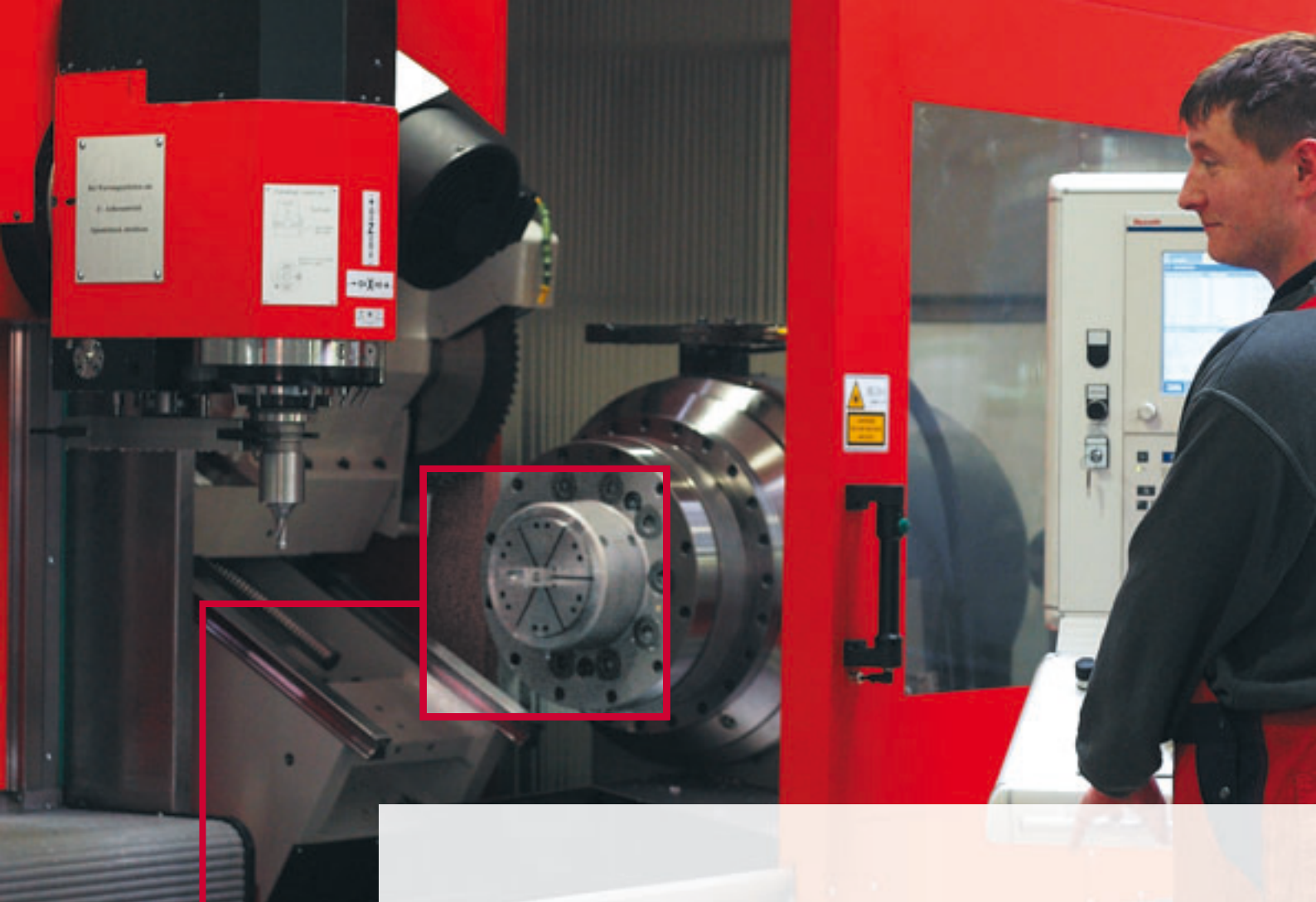
We know what matters most when designing booster stations. We always find the optimal solution for technologically challenging gases. Our long activity in building systems for compressing and controlling gases has enabled us to create a wide network of highly skilled component suppliers. This allows us to match the components optimally and individually to our customers' specific assignments.



Portable Oxygen Booster Station



Stationary Booster Station



High-Pressure Valves and Fittings up to 10,500 bar (152,000 psi)

Piping technology required for high pressure applications above 600 bar (8,700 psi) places stringent requirements on the quality and reliability of valves and fittings. As a system manufacturer of test and production machines for such high pressure applications up to 15,000 bar (217,550 psi) we set the highest standards for the products within our valve and fitting range.

The design, development and manufacture of the components is carried out in our plants in Nordhausen and Zorge. We label each product with all product specific information. This enables our components to be easily identified.

Our comprehensive product programme includes:

- ☒ Valves
- ☒ Fittings
- ☒ Anti-vibration screw connections
- ☒ Filters
- ☒ Check valves
- ☒ Burst disc holders and burst discs
- ☒ Valve Actuators
- ☒ Ball valves
- ☒ Adaptors and couplings



High Pressure Needle Valve



High Pressure Ball Valve



High Pressure Check Valve



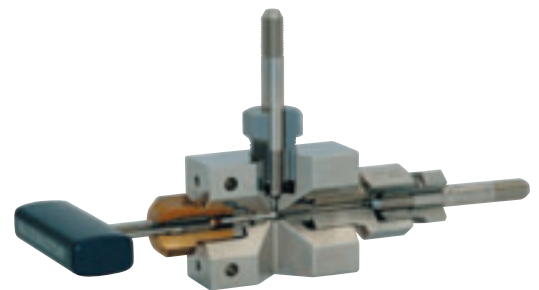
Valves, Fittings and Tubing

High-Pressure Tubing and Tube End Working Tools

In addition to valves and fittings, our product range also includes a broad spectrum of high-pressure tubing. This quality tubing is manufactured from cold-worked, corrosion-resistant stainless steel and is available in all sizes fitting our screw connections up to a diameter of 1".

To work the tube ends, we have developed a special tool, which enables the cone (seal surface) to be manufactured to high quality standards. In addition, our programme includes thread-cutting tools for different tube sizes, tools for deburring the worked surfaces, and reseating female cone seats.

We keep prefabricated tube nipples with worked tube ends in stock in lengths of 2.75" to 12". We can also manufacture tube assemblies for individual applications according to our customers' specifications.



Cut Model 2-Way-Needle-Valve



Cone-cutting Tool



High Pressure Nipples



Offshore Equipment

Our expertise in high-pressure technology and our willingness to explore new avenues for solving challenging tasks mean that our systems can adapt perfectly to often extreme conditions.

We know what it takes to implement special technical standards. Detailed documentation, complex certification operations, and implementation of safety facilities is as much part of our daily routine as adhering to often tight time schedules.

Our credentials:

- ☑ High-pressure pumps and high-pressure boosters for use in Explosion proof areas (ATEX)
- ☑ Gas-driven pumps and boosters
- ☑ Valves and fittings for sour gas applications
- ☑ Booster stations and hydraulic units in stainless steel design
- ☑ Injection units and sampling systems
- ☑ Wellhead control panels with certified frame (Germanischer Lloyd)
- ☑ Customer-specific flushing units for extreme environmental conditions
- ☑ Emergency shutdown (ESD) panels
- ☑ Test benches for sub-sea control modules
- ☑ Supply systems for sub-sea control modules (Hydraulic Power Units)



Wellhead Control Panel

Wellhead Control Panel with ESD Panel



Test System for Sub-sea control modules



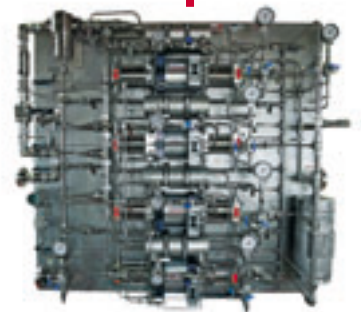
Supply Systems for Mechanical Seals

Our supply systems for fluid and gas sealed mechanical seals are used to generate the required sealing pressure. Our systems are also used for deflecting heat, circulating the sealing fluid and offsetting leakages.

Our systems are remarkable for their high process safety being able to be used in explosion proof areas (ATEX), depending on their design.

We supply:

- ☒ Central feed units for several mechanical seals
- ☒ Air and water coolers for deflecting heat
- ☒ External circulation systems for mechanical seals
- ☒ Booster stations for increasing the sealing pressure for gas sealed mechanical seals
- ☒ Monitoring units for mechanical seals
- ☒ Thermosiphon vessels



Gas seal supply unit



Air heat exchanger



Hydraulic seal supply unit



For decades, MAXIMATOR has been one of the global leaders in test and production systems in the area of high-pressure technology up to 15,000 bar (217,550 psi).

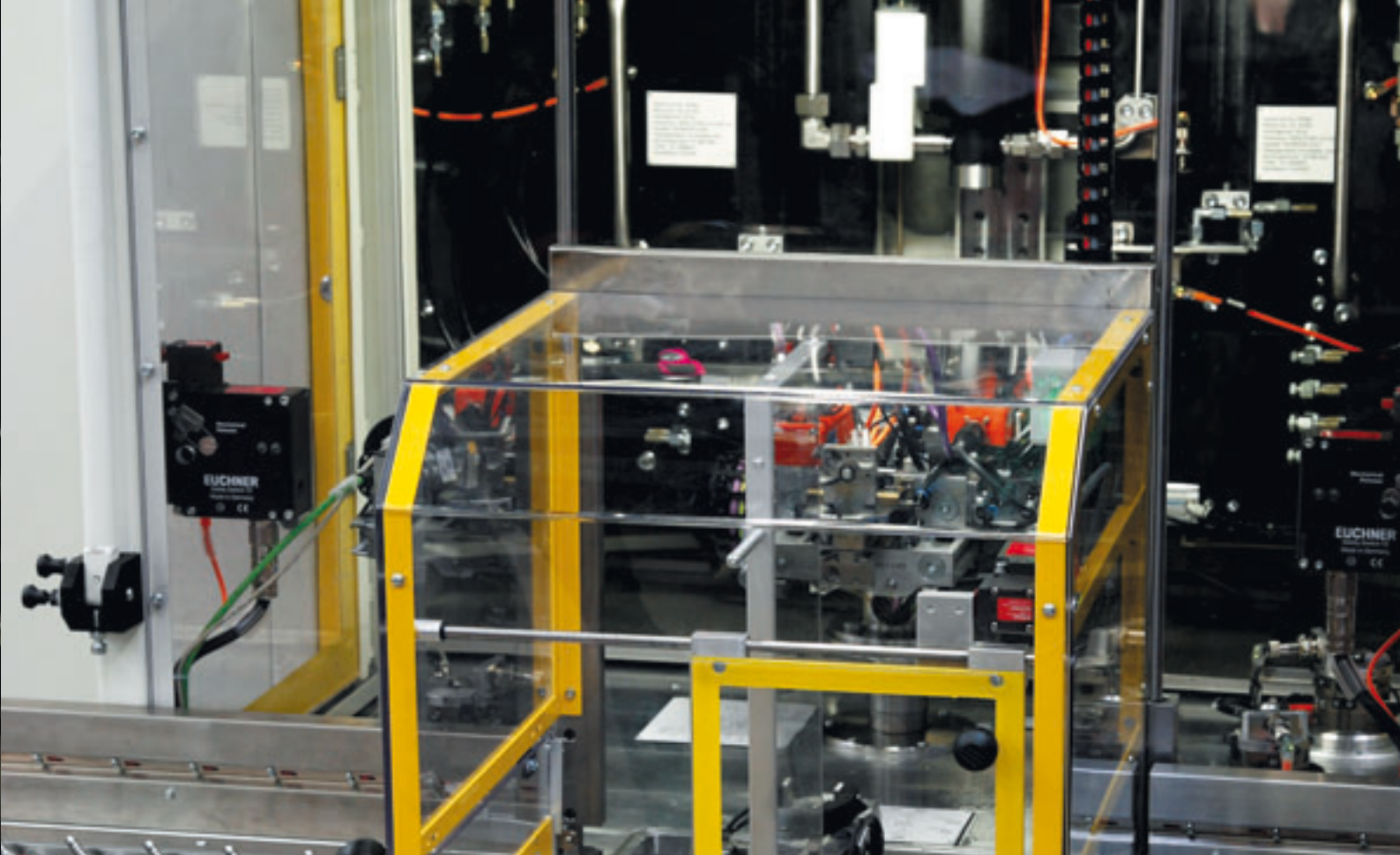
To enable you to solve your test assignments optimally and efficiently, we will accompany you throughout the entire process, from preparation of the performance specification right through to initial start-up and staff training. Our service engineers provide efficient support during the operation of your machines. High pressure technology, control and handling – professionalism in all areas is our watchword.



Our range of services includes:

- ☒ Autofrettage machines
- ☒ Assembly and functional test systems
- ☒ High-pressure internal cleaning stations (flushing technology)
- ☒ Pressure pulse test machines
- ☒ Leakage and burst pressure technology
- ☒ Mandrel extraction machines for the production of hoses
- ☒ Expansion units
- ☒ High-pressure generation units for hydroforming applications
- ☒ Systems for flow rate-controlled filling of airbag shells

Autofrettage machine for serial production



Production Plants and Test Systems

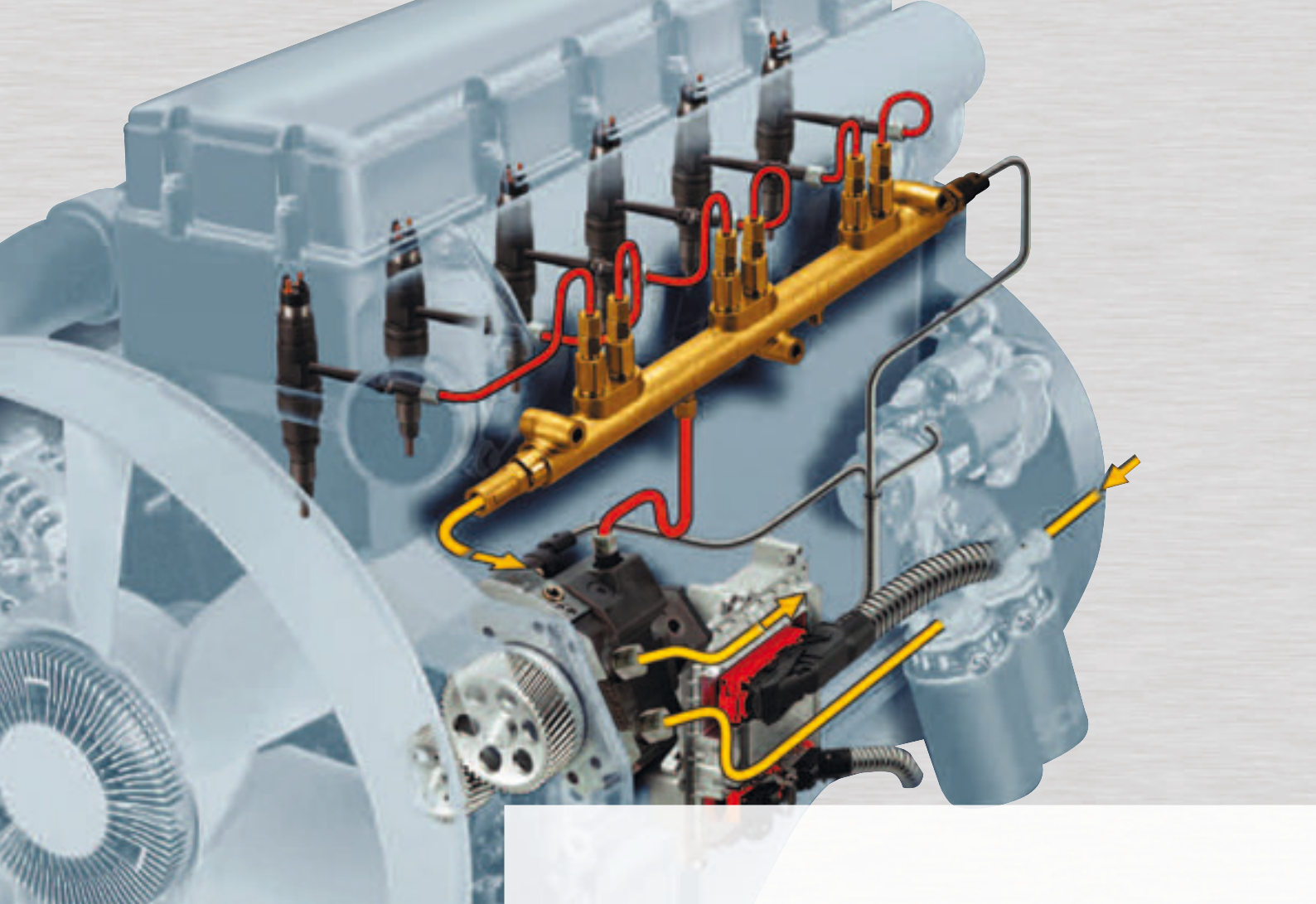
Autofrettage Machines

MAXIMATOR offer Autofrettage machines and Autofrettage high pressure components with a pressure of up to 15,000 bar (217,550 psi). With the use of innovative technologies, such as our proportional clamping technology, this enables the components to be processed optimally and reliably.

High pressure components that are exposed to constant change between high and low pressure include, in specifically, diesel injection technology components (rail, injection jets, pump housing etc.), components for Waterjet cutting technology and components of high-pressure and ultra pressure technology (tubing and fittings).



Autofrettage machine for prototypes



High-Pressure Internal Cleaning Stations (Flushing technology)

MAXIMATOR high-pressure internal cleaning stations are suitable for clean rooms and generate a high degree of cleaning, e.g. in diesel injection system components.

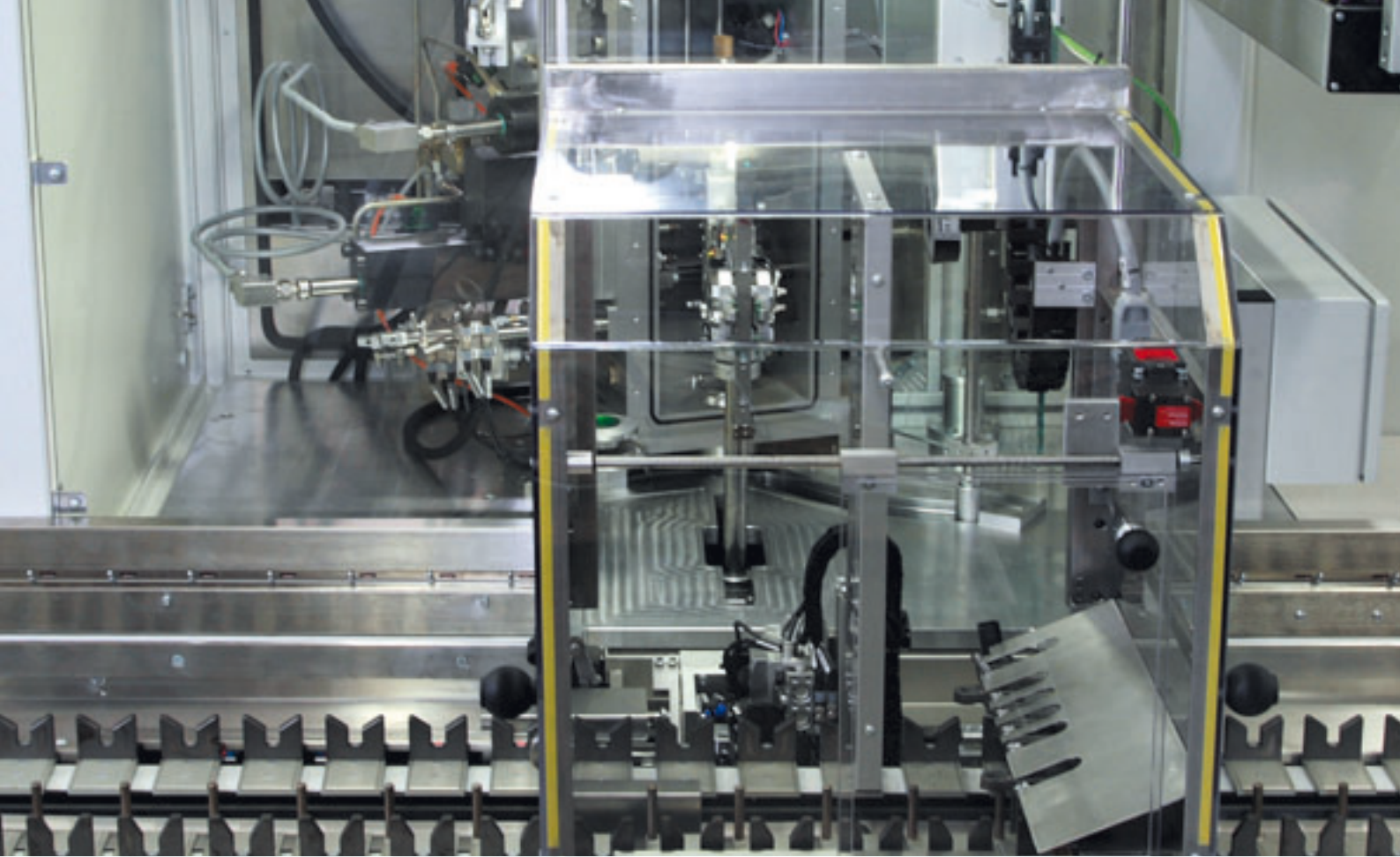


Assembly and Functional Test Machine

Assembly and Functional Test Machines

With the installation of diesel injection components and the functional testing of these assemblies specifically in mind, MAXIMATOR has developed machines that combine both workstations in one system.

Flexible installation tools, clean room suitability, and component-protective proportional clamping technology are but a few of the characteristics that make this machine technology unique.



Production Plants and Test Systems

Leakage and Burst Pressure Technology

Our test benches enable various tests to be performed in one system only. Our leakage and burst pressure testing technology is used, for example, to test pipes, tubes, containers, brake pipes, and cooling system and fuel injection components.

Pressure Pulsation Test Machines

To determine the operating and fatigue strength of internally pressurized components we supply pressure pulse machines up to 4,500 bar (65,000 psi) and 15 Hz.

In addition to carrying out individual tests, our test machines have proved their high reliability in a large number of locations for quality assurance of ongoing production methods.

According to the test specifications we can offer our machines with temperature-controlled fluid and air-conditioned test chamber.



Pressure Pulsation Test Machine



Compressor control module



Gas proportioning Station

Gas Injection Moulding Technology

This special method in plastic injection moulding technology opens up innovative possibilities for plastics manufacturers when designing their products. In addition, this method enables material to be saved and moulds to be manufactured with low warpage.

MAXIMATOR specializes in pressure generation and control of the required gas. Our highly dynamic 3/3-way proportional valve allows us to control the process variables of pressure and through-flow precisely, quickly and continuously. We have developed various control and compression systems, as well as combinations of the two, which work safely with all injection moulding machines.

Gas Proportioning

Physical foaming is a special method that enables cellular foam plastic to be manufactured by mechanically dispersing a gas in the polymer melt. To introduce the gas to the polymer melt at the required pressure and volume flow we have developed a gas proportioning station with exact flow rate control. Automatic adjustment to extruder pressure enables production fluctuations to be reduced, given the same product, material and process conditions.

A further area of application for our gas proportioning station is the milk powder manufacturing process as well as in the food, beverage and tobacco sector.



GID / WID

Water Injection Moulding Method

Water injection moulding technology is a special discipline for manufacturing plastic components. The residual wall thickness of the plastic components can be significantly reduced by using water as a displacement fluid. In addition cycle times can be shortened and operating costs reduced.

We are the only suppliers to have developed a machine that combines two concepts in one system by linking volume and pressure control.

The main applications of this method include production of radiator pipes for the automotive domain.



Water Assisted System



Service Department

Your success is our first priority. Our service team is available to you at all times, both nationally and internationally, for professional maintenance, inspection, refitting and repair of your systems and test machines.

Overview of MAXIMATOR services:

- ☒ Setup, initial start-up and induction
- ☒ Inspection service
- ☒ Training service
- ☒ Problem analysis via modem / Internet (remote control)
- ☒ Maintenance contracts
- ☒ Installing and laying pipes
- ☒ Review of pressure gauging instruments
- ☒ Overhauling, relocating and upgrading machines



MAXIMATOR TEST LLC / USA



MAXIFES / Germany

“On Demand” Testing

We perform pressure pulse tests, leakage and burst pressure tests and Autofrettage services for you in our test laboratories in Germany and the USA.

This service offers you the unique possibility of determining the performance parameters and quality features of your products under real conditions as early as the prototype phase.

MAXIMATOR Test Laboratories

Our test laboratories MAXIFES (Germany) and MAXIMATOR Test LLC (USA) offer you innovative and cost-efficient services for solving your high-pressure test assignments.

We can perform a large number of different tests for you at our machine park.

- ☒ Pressure pulse tests
4,500 bar/15 Hz (65,000 psi/15 Hz)
- ☒ Leakage and burst pressure tests
up to 15,000 bar (217,550 psi)
- ☒ Autofrettage up to 15,000 bar (217,550 psi)
Tests in temperature-controlled environments
- ☒ (-40°C up to +200°C)



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