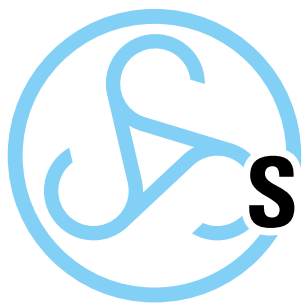




Sauer Compressors

SAUER

HAUG



INDUSTRY

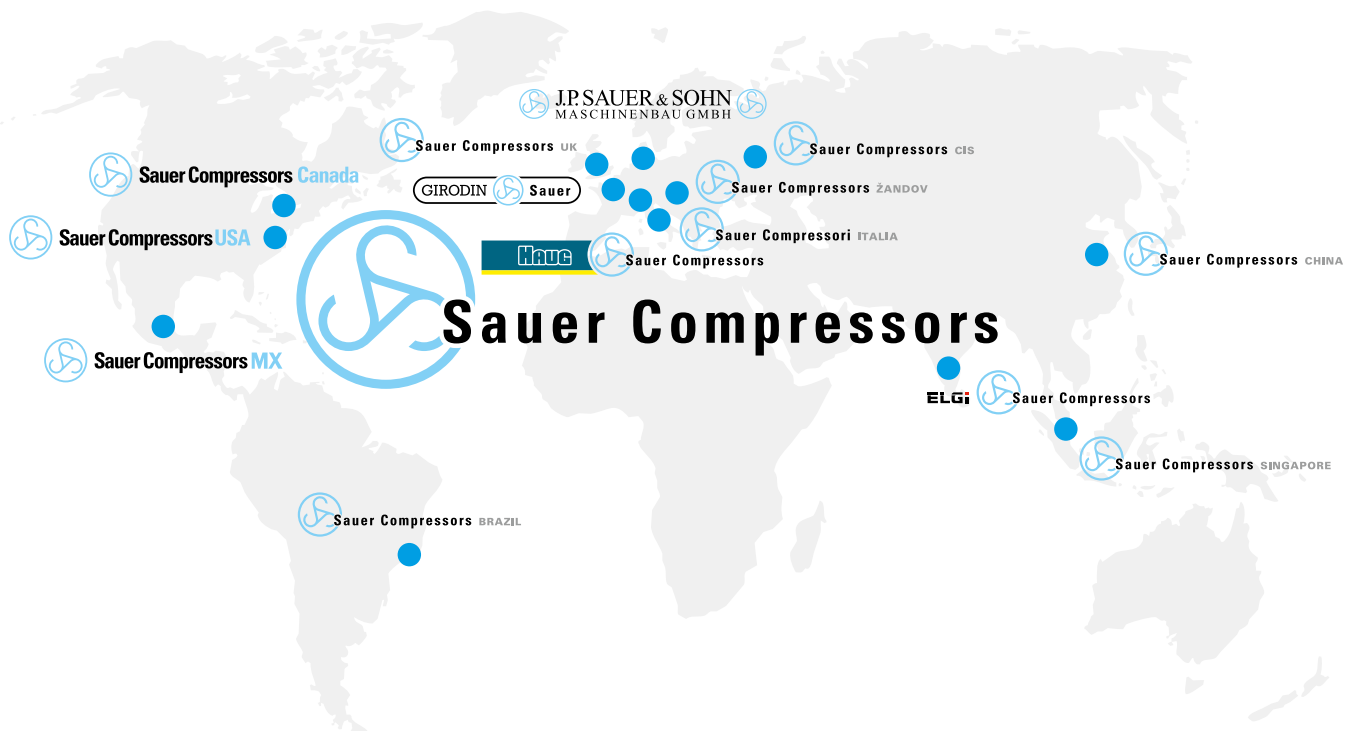
Dependable up to 500 bar – anywhere, anytime, anygas.



Content

5	Applications
6	Performance Overview
10	Products – The modular Concept
14	Controls & Accessories
17	Projects
20	Service

Dependable up to 500 bar – anywhere, anytime, anygas.



For your local contact please visit our website
www.sauercompressors.com

Dependable up to 500 bar – anywhere, anytime, anygas.

Comprehensive industry expertise

With over 85 years of experience in compressed air technology, we know the challenges our customers are facing all over the world. As a global company we keep local requirements in mind: Our companies and partners around the globe know the particular demands in each area and provide exactly the right solutions and services to meet them. Our support knows neither business hours nor time zones – we are available whenever we are needed.

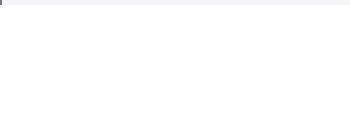
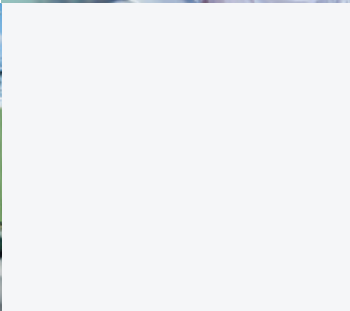
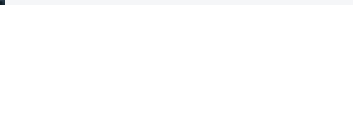
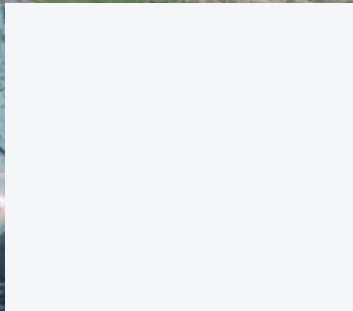
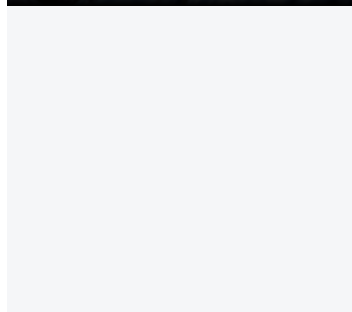
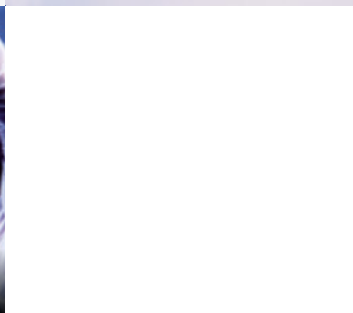
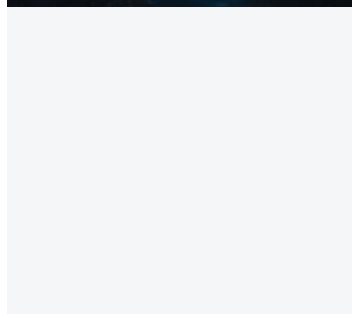
SAUER – High-pressure know-how made in Germany

Our headquarters J.P. Sauer & Sohn in Kiel, Germany, serves as the centre of excellence for our renowned SAUER-range of piston compressors. The oil-lubricated machines are available for pressures up to 500 barg and designed for continuous operation. The reciprocating models allow compression in up to five stages. A total of up to six cylinders are mounted in a star, V or W arrangement. The compressors are the ideal solution for operation at atmospheric suction pressure or to be used as gas-tight boosters with pre-pressures up to 25 barg.

HAUG – World leading oil-free piston compressors

HAUG compressors are the first choice when it comes to demanding applications that require maximum process purity and safety. The dry-running machines are entirely oil-free, prevent contamination and provide hermetic gas-tightness. The modular and tailor-made design helps to achieve pressures up to 450 barg. High-tech innovations, such as a non-contact magnetic coupling (up to 110 kW) and the high-pressure piston design NanoLoc®, add to the compressors' outstanding performance.

Sauer Compressors for the Industry



Products – Performance Overview

Our compressors are as diverse as our customers' requirements. We provide high-quality compressed air and gas solutions in various capacities and pressure ranges to meet the particular demands of a great number of industries and applications.

SAUER

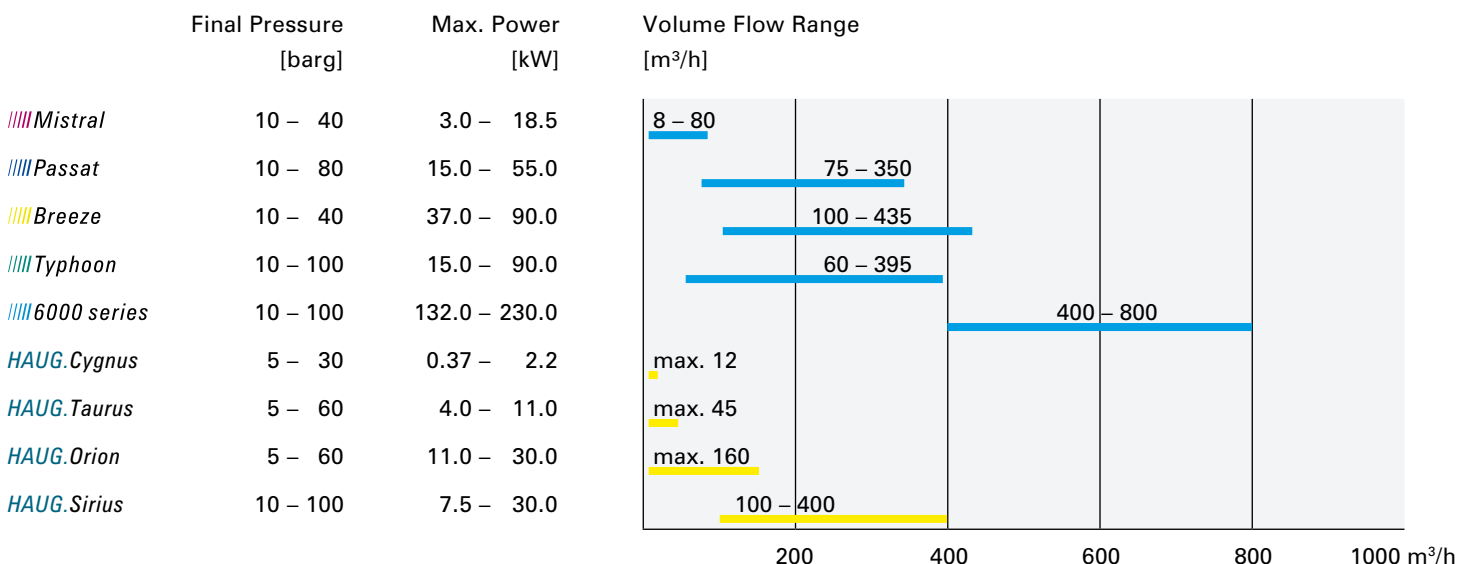
oil-lubricated,
hermetically gas-tight

HAUG

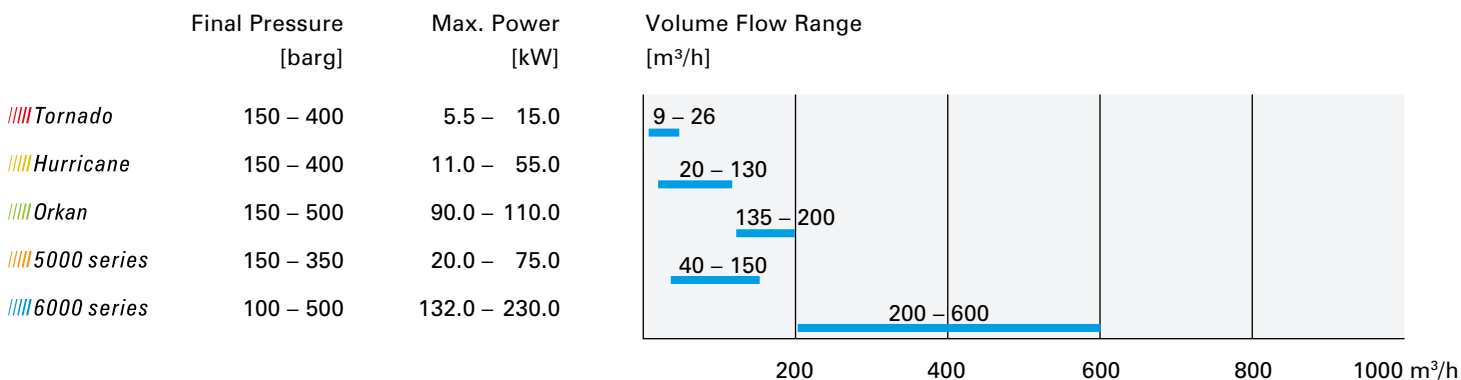
oil-free, dry-running and
hermetically gas-tight

Air Compressor Range

Low and Medium Pressure

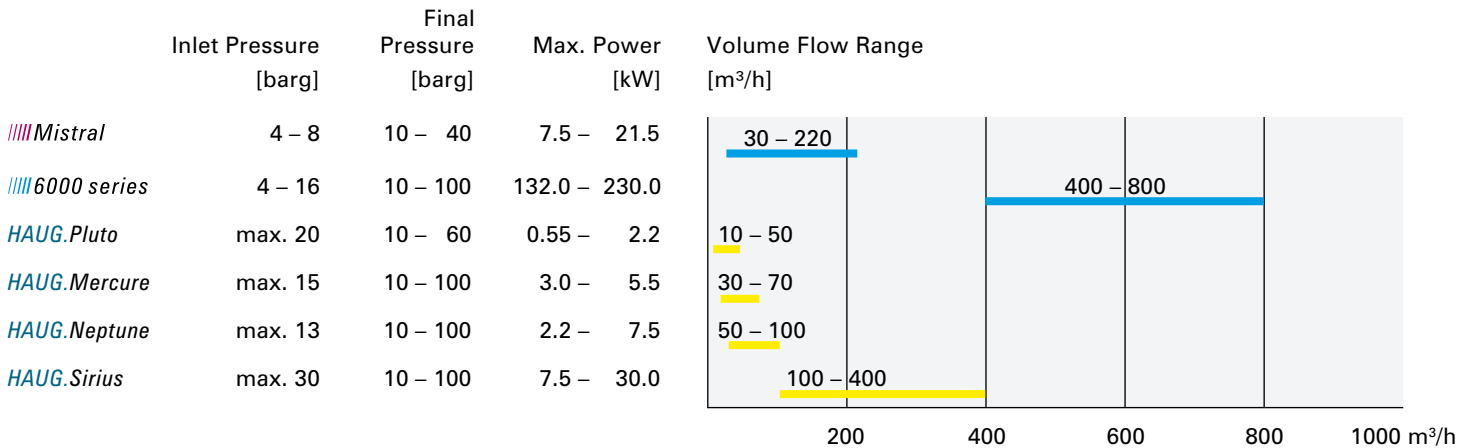


High and Highest Pressure

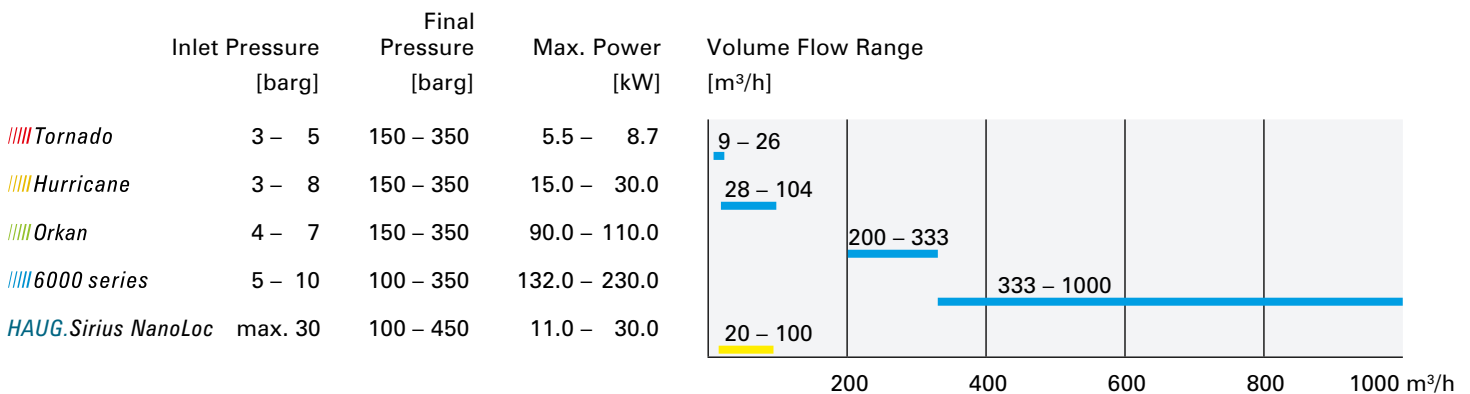


Air and Nitrogen Booster Range

Low and Medium Pressure

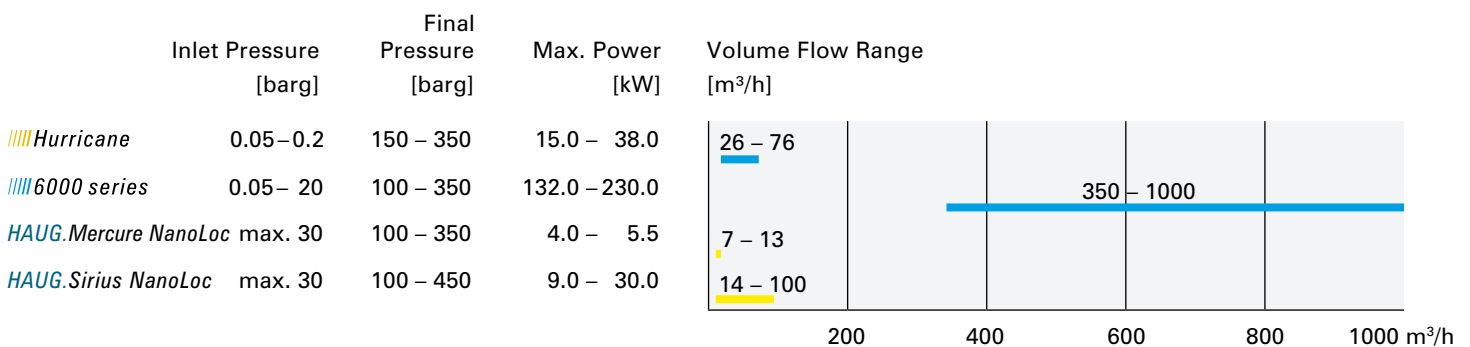


High and Highest Pressure



Hydrogen Compressor Range

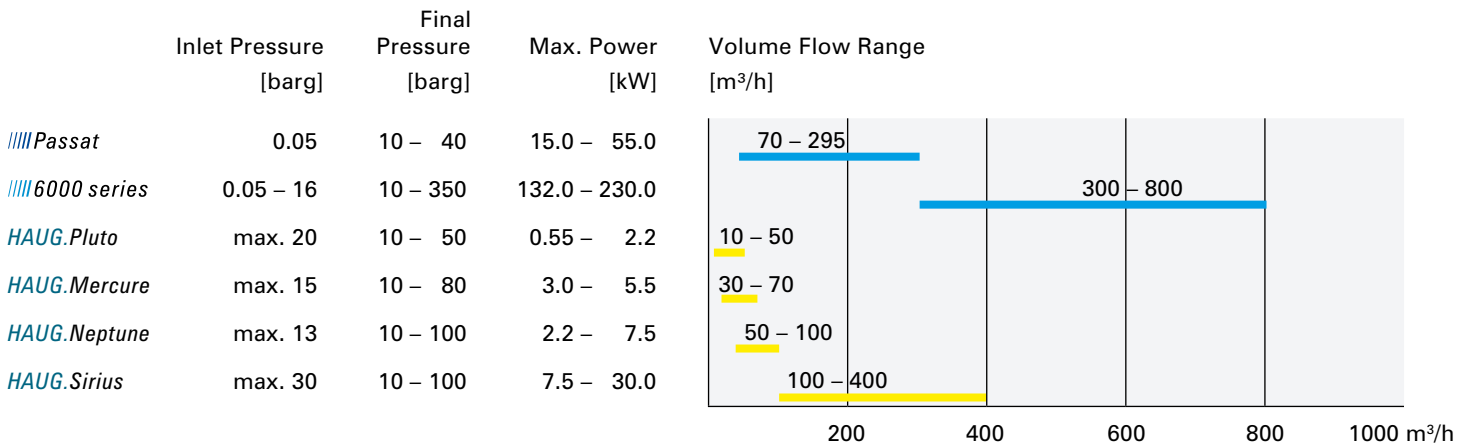
High and Highest Pressure



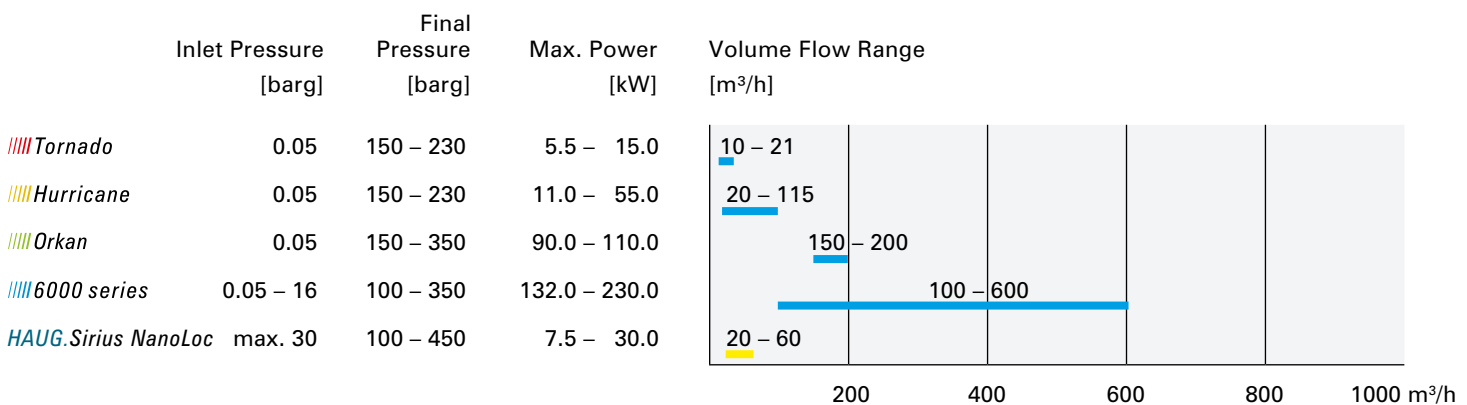
Conversion of volume flow into kg/h: 1 m³/h (20°C, 1,013 hPa) = 0.083 kg

Helium Compressor Range

Low and Medium Pressure

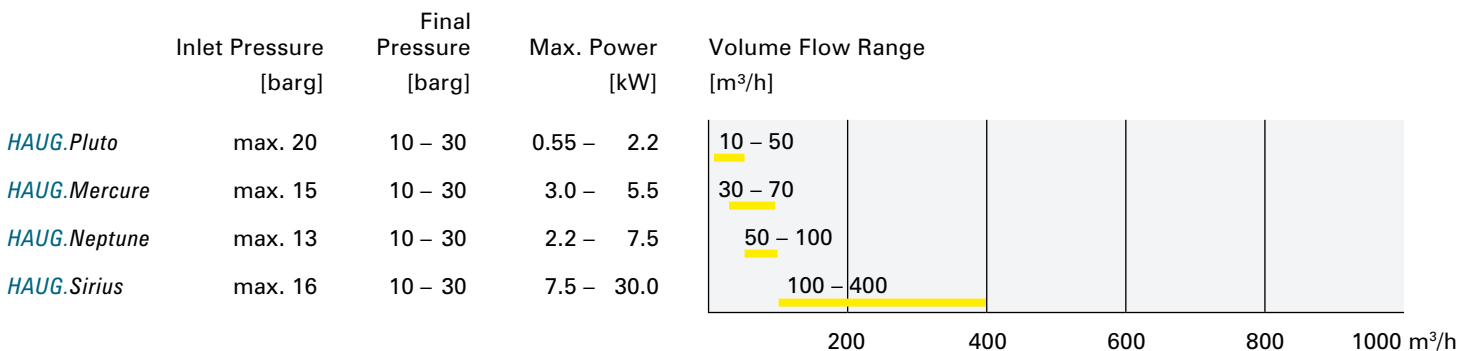


High and Highest Pressure



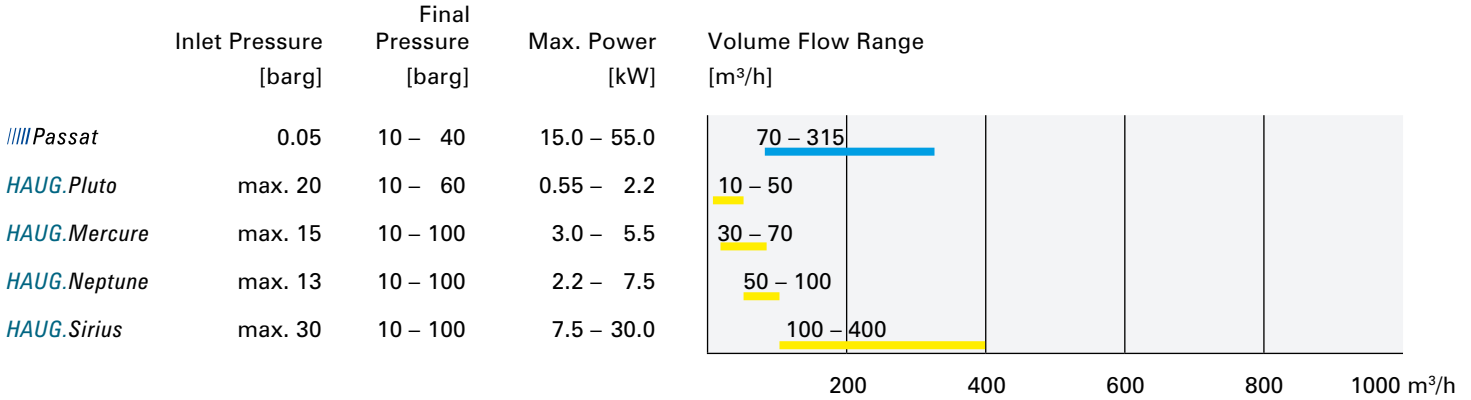
Oxygen Compressor Range

Low and Medium Pressure

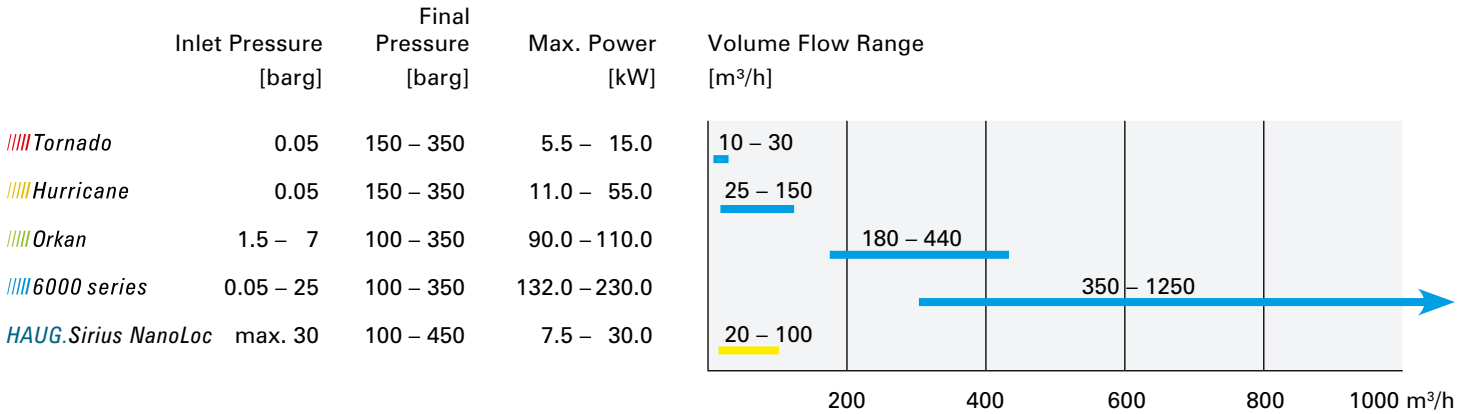


CNG Compressor Range

Low and Medium Pressure

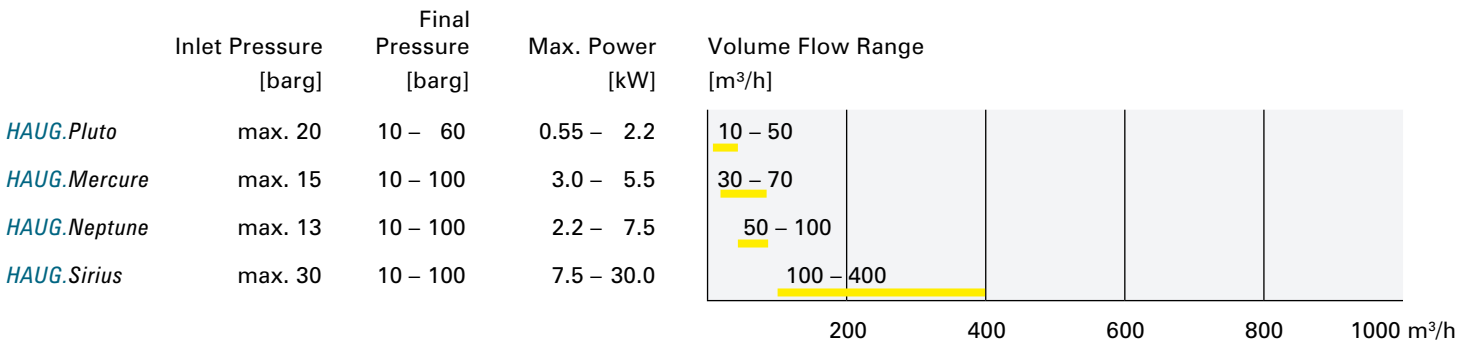


High and Highest Pressure

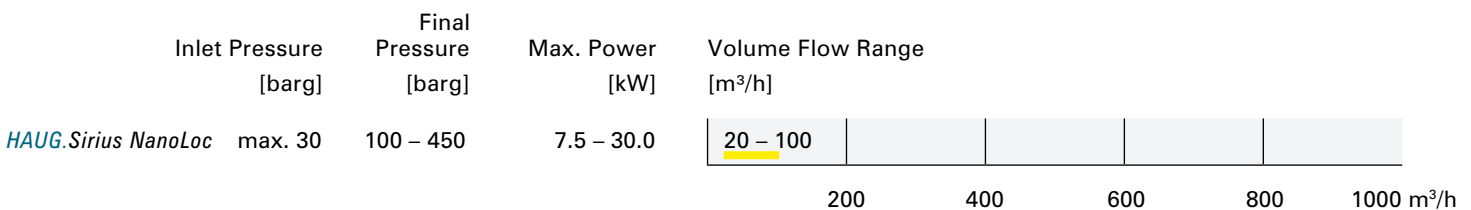


“Anygas” Compressor Range

Low and Medium Pressure



High and Highest Pressure



Modular design for maximum versatility

SAUER compressors

Due to their modular design, our SAUER compressors can easily be expanded to accommodate specific requirements – from the affordable “Basic”-variants to complete systems, consisting of a sound-proof canopy, an integrated SAUER compressor control, a condensate management and an integrated high-pressure adsorption dryer.

SAUER Basic variants

	Mistral	Passat	Breeze	Tornado	Hurricane	Orkan	Typhoon	5000 series	6000 series
Basic	✓	✓	✓	✓	✓	✓	✓	✓	✓
BasDiesel (E/FA)	✓	✓	–	–	✓	–	–	–	–
BasBooster	✓	✓	–	✓	✓	–	✓	✓	–
BasSeal ^{He}	–	✓	–	–	✓	✓	–	–	✓
BasSeal ^{CNG}	–	✓	–	–	✓	✓	–	–	✓



//// Hurricane WP4351 BasSeal^{CNG}



//// Hurricane WP4331 BasDiesel

- Basic

Air compressor with e-motor
- BasDiesel

Air compressor with diesel engine
- E: Electric start, manual operation | FA: Full automatic start and operation
- BasBooster

Nitrogen booster with e-motor
- BasSeal^{He}

Hermetically gas-tight helium compressor with e-motor
- BasSeal^{CNG}

Hermetically gas-tight CNG compressor with e-motor

SAUER Complete variants

	 Mistral	 Passat	 Breeze	 Tornado	 Hurricane	 Typhoon	 5000 series	 6000 series
ComSilent	✓	✓	–	✓	✓	–	–	–
ComDry	✓	✓	–	✓	✓	–	–	–
ComBooster	✓	✓	–	✓	✓	–	–	–
ComSeal ^{He}	–	✓	–	✓	✓	–	–	–

 Hurricane WP4351 ComSeal^{He} Tornado WP3251 ComBooster

- ComSilent** Air compressor with e-motor in sound proof canopy incl. SAUER electronic compressors control
- ComDry** Air compressors with e-motor in sound proof canopy incl. SAUER electronic compressors control and integrated adsorption dryer
- ComBooster** Nitrogen booster with e-motor in sound proof canopy incl. SAUER electronic compressors control
- ComSeal^{He}** Hermetically gas-tight helium compressor with e-motor in sound proof canopy incl. SAUER electronic compressors control

Maximum process purity and safety

compressors

Oil-free, dry-running & hermetically gas-tight: these remarkable features characterise HAUG compressors. All HAUG series are available in different variants, ranging from compressor blocks for OEM customers up to complex solutions according to customer’s specifications including controls, sound proof canopies, storage systems and many more.

Based on a flexible modular concept, all compressor types can be configured exactly to the customer’ demands.

Basic variants

	HAUG.Cygnus	HAUG.Taurus	HAUG.Orion	HAUG.Pluto	HAUG.Mercure	HAUG.Neptune	HAUG.Sirius
Block	✓	–	–	✓	✓	✓	✓
Incomplete	✓	–	–	✓	✓	✓	✓
Basic	✓	✓	✓	–	–	–	–
BasSeal	–	–	–	✓	✓	✓	✓



HAUG.Pluto | Block



HAUG.Mercure | Incomplete



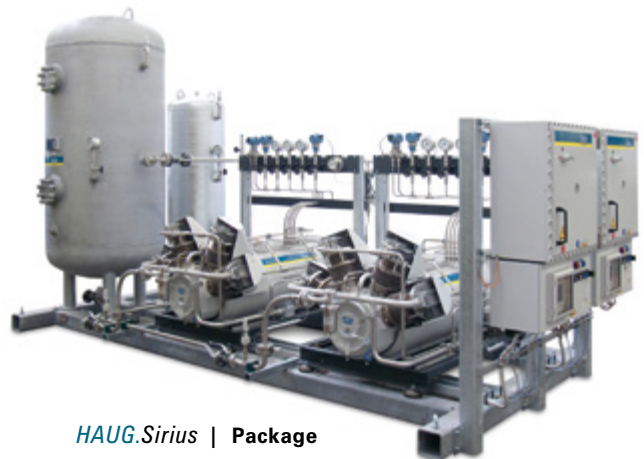
HAUG.Neptune | BasSeal

- Block**
- Air / Gas compressor block with e-motor (excl. piping and coolers)
- Incomplete**
- Air / Gas compressor block with e-motor (incl. piping and coolers)
- Basic**
- Air compressor with e-motor (incl. piping, coolers, instrumentation, wiring and connection box)
- BasSeal**
- Gas compressor with e-motor (incl. piping, coolers, instrumentation, wiring and connection box)



Complete variants

	<i>HAUG.Cygnus</i>	<i>HAUG.Taurus</i>	<i>HAUG.Orion</i>	<i>HAUG.Pluto</i>	<i>HAUG.Mercure</i>	<i>HAUG.Neptune</i>	<i>HAUG.Sirius</i>
ComControl	✓	✓	✓	✓	✓	✓	✓
Package	✓	✓	✓	✓	✓	✓	✓

*HAUG.Sirius* | ComControl*HAUG.Sirius* | Package

ComControl Air / Gas compressor module (incl. instrumentation and electronic compressor control)

Package Customised solution with features such as sound proof canopies, container installation, storage systems and many more.



NanoLoc® high-pressure variants

	<i>HAUG.Cygnus</i>	<i>HAUG.Taurus</i>	<i>HAUG.Orion</i>	<i>HAUG.Pluto</i>	<i>HAUG.Mercure</i>	<i>HAUG.Neptune</i>	<i>HAUG.Sirius</i>
NanoLoc®	–	–	–	–	✓	–	✓

*HAUG.Sirius NanoLoc*

Due to the unique and patented NanoLoc® piston design, final pressures up to 450 barg are possible.

Controls

Sauer ecc 4.0: State-of-the-art compressor control

We pride ourselves on being a single-source manufacturer of both the compressor and the control unit. Even the software is developed in-house. This allows for the best possible performance, maximum compatibility and easy integration. Equipped with state-of-the-art microprocessors and communication technology, our intelligent controls enable highly accurate monitoring and control of compressed air and gas generation and supply. In this way, operators can rest assured that the system is running at maximum efficiency at all times.

- Compressor, control and software from a single source
- Compatible with all standard interfaces
- Easy integration and operation
- Expandable and ready for a smart future



- ✓ Fully automatic compressor control
- ✓ PPLC (pre-programmed logic control) for simple operation
- ✓ Modular system with easy extensibility
- ✓ 7" resistive, industrial touch display
- ✓ Intuitive interface design acc. to DIN EN ISO 9241-110:2006
- ✓ Intelligent maintenance instructor
- ✓ Embedded guides for fast parameter setting and safe updates

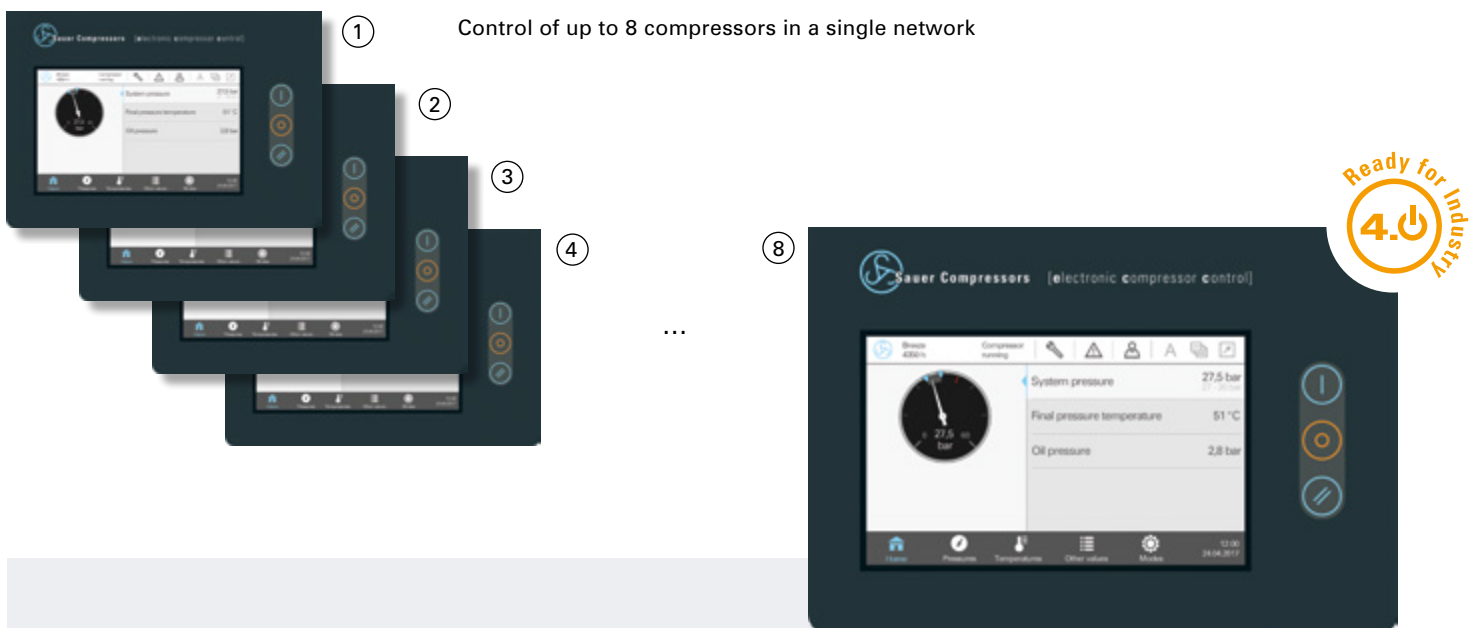
Maximum connectivity

- Compatible with all state-of-the-art bus technologies, e.g. Profibus and Modbus
- Standard potential-free contacts like Running, Off and Master Fault
- Easy integration into higher level controls, e.g. plant controls
- Complete monitoring ensures outstanding performance and minimum down time

Master Controls

Connectivity: Control management of up to 8 compressors in a single network

With the Sauer ecc 4.0 it is possible to connect a total of eight Sauer compressors via the integrated Modbus protocol. In this case, a single controller takes over the master function so that no separate master control is needed. Overall optimisation of the system can be achieved via lead-lag control, by priority setting or through operation within a pressure band. To create detailed schedules, the control comes with an easy-to-use table function.



- ✓ No separate master control needed
- ✓ Lead/Lag Control to optimize running hours for better service intervals
- ✓ Easy connection with all common interfaces (e.g. Modbus, Profibus, etc.)
- ✓ Integrated table schedule – different load/unload settings possible
- ✓ Wizard assistant for easy parameter settings
- ✓ Flexible integration into higher level systems

Connection to an external SCADA system

Sauer ecc 4.0 units can be connected to an external master control, e.g. SCADA, via common communications protocols. The controller comes with an integrated Modbus gateway. Other protocols such as Profibus or DeviceNet are also available. This type of protocol enables all important data, such as pressure and temperature, to be displayed on the SCADA system. This ensures the network's safe operation and helps to optimise costs and availability.

Accessories



Air and gas treatment

In addition to our compressors, we offer a wide range of downstream equipment, such as filters for air and gas purification as well as refrigeration and desiccant type dryers. These solutions are available for pressures ranging from 40 to 400 barg.

- Sauer Refrigeration Dryers (SRD)
- Sauer Desiccant Dryers (SDD)



Condensate management

To prevent traces of oil and other contaminants from being released into the environment, we provide a variety of condensate collection pots for use with our oil-lubricated compressors.



Air and gas storage

When it comes to storing the compressed media, Sauer customers can choose from a variety of options. The portfolio includes both vertical and horizontal pressure vessels for pressures up to 40 barg as well as high-pressure bottle racks with capacities of up to 600 l for pressures up to 350 barg.

- Sauer BasRack 2–12
- Sauer PureRack 2–12



Air and gas distribution

To ensure optimal air and gas distribution, the right pressure is essential. Our efficient Reduflex pressure reducing stations offer maximum reliability and present the ideal addition to any compressor station.

- Sauer Reduflex



Water to water heat exchanger

When using fresh water cooled compressors, it can be necessary to protect the cooling circuit from harmful cooling water. The heat exchanger from Sauer Compressors separate the primary water circuit from the secondary circuit, resulting in highest operational reliability regardless of water conditions.

Sauer Compressors Projects

In addition to offering a wide range of turnkey solutions, Sauer Compressors is ideally equipped to meet highly individual demands. We achieve this by either customising our standard products or by literally going back to the drawing board to design the required specification. We provide explosion proof designs or options that are in accordance with NORSOK, ASME and many other standards.

- Completely new customer specific designs
- Specifications in accordance with international standards
- Standard products easily adapted to customers' needs

SAUER

Sauer ComBox container solutions:

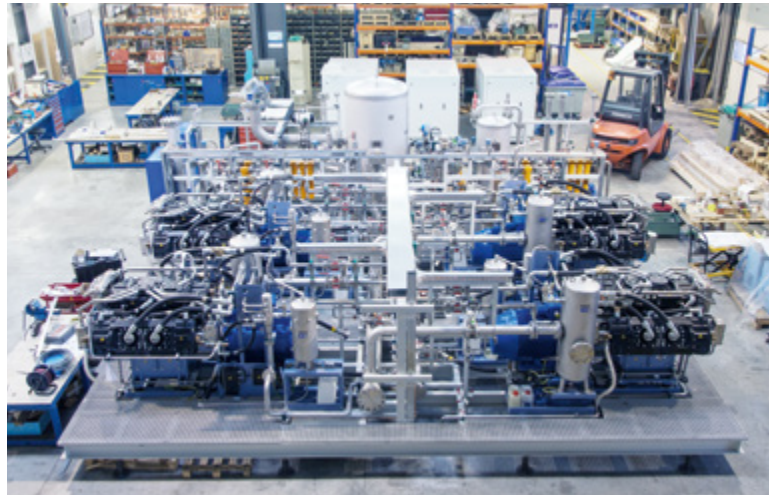
With our ComBox container toolkit we can provide individual high-end container solutions in the shortest time. As Basic, Plus or Offshore version with CSC certification in 10" or 20".



SAUER

Replicating the sun's fusion energy: The ITER project

Modelled on the sun, the ITER (International Thermonuclear Experimental Reactor) fusion reactor uses nuclear fusion to generate energy in order to secure humanity's supply of electricity in the future. One of the biggest challenges is the high temperature inside the reactor. Technology by Sauer Compressors is a key factor in cooling the reactor: we supplied the world's largest system for helium recovery. Four SAUER WP6305 BasSeal^{He} helium compressors ensure recompression of the helium used for cooling. Sauer also supplied all components of the recovery plant, including buffer tanks, filtration system and controls as well as a further SAUER Passat WP156L BasSeal^{He} helium compressor. This is used to recompress any leaks occurring at mechanical seals in the helium circuit.



Hydrogen for the space industry

There is a high demand for large quantities of hydrogen, especially for the test benches of rocket engines. As this is mainly in liquid form, much of the valuable gas is lost in the necessary cooling process.

Our turnkey solution including two SAUER Hurricane WP4341 BasSeal^{H₂} recovers 100% of the boil-off gas, compresses it to 350 barg and thus makes it available for various purposes on site. For this innovative installation, we were able to draw on our many years of experience in helium recovery.

Another solution to provide hydrogen for the rocket engine test stands comprises a SAUER WP4335 BasSeal^{H₂} from the 6000 series, mounted on a transportable base frame together with a filtration system and other accessories.

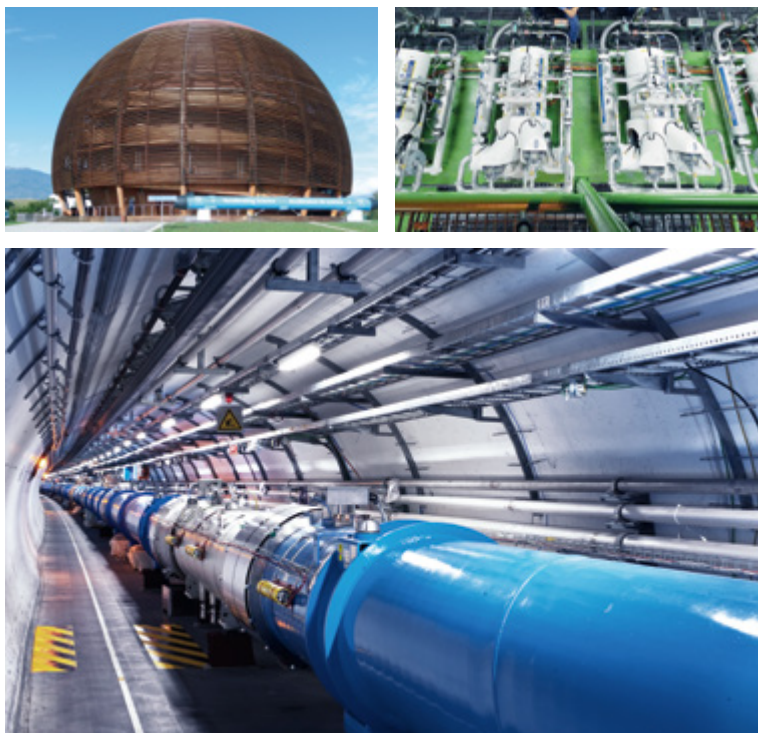




Circuit compressors for refrigerant C3F8 for fundamental research at CERN

CERN, the European Organization for Nuclear Research in Geneva/Switzerland, operates the largest particle physics laboratory in the world and with the Large Hadron Collider (LHC) the most powerful particle collider. Detectors investigate the energetic collisions of the LHC and analyse them. One of these detectors is ATLAS (A Toroidal LHC ApparatuS), which focuses on high-energy proton-proton collisions and searches for evidence of new physical phenomena, including the origins of mass and extra dimensions.

Seven 2-stage HAUG.Sirius compressors with combined water- and air-cooling assure the compression of the perfluoropropane (C3F8) in the refrigeration circuit providing the cooling of the detector down to -20 °C.



Producing carbon-neutral e-kerosene

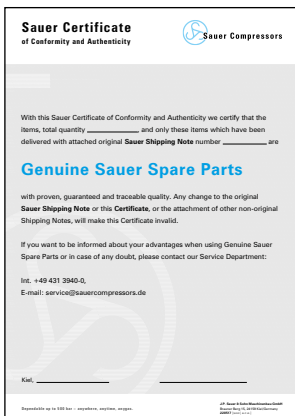
To make the dream of climate-neutral air travel come true, aviation fuel can be produced using renewable energies as well as CO₂ and H₂.

In the world's first (pilot) plant of this kind, a HAUG.Neptune is used to compress the atmospheric CO₂ as raw material for the green kerosene to a final pressure of 4.5 barg. The CO₂ must not be contaminated under any circumstances. Therefore the unique advantages of the HAUG product line – oil-free, dry-running and hermetically gas-tight – are particularly effective.



Our Service – As individual as your needs!

We are in it for the long haul! At Sauer Compressors our commitment to our customers does not stop at delivery. Our support spans our products' entire operating life. In this way, we make sure our customers get the most out of their compressed air system – low running costs and maximum reliability. Our highly skilled service technicians, representatives and servicing stations in over 60 countries guarantee an efficient, expert customer service wherever and whenever it is required.



Genuine Spare Parts

- Extensive central warehouse (all maintenance and regular spare parts in stock)
- Global warehouses strategically located for short delivery times
- High quality genuine spare parts to ensure proper operation and performance of your compressor
- Interchangeability is guaranteed even if technical changes have been made due to technical developments
- Spare parts are guaranteed for at least 35 years after the delivery of your compressor
- All parts come with a "Sauer Certificate of Conformity and Authenticity"

Technical After Sales Services:

- Full service contracts
- Maintenance contracts
- Inspection contracts
- Maintenance at client's facility or in our workshop
- Complete compressor overhauls at our workshop
- Support and advice while changing from third party to our product range

Rental Solutions

Sauer Compressors offers an efficient, straightforward compressor hire service for customers who require compressed air or gas immediately or over a fixed period. From standard compressors to customised modules, no matter if you need to handle temporary orders, unforeseen outages or simply to bridge waiting times, with our worldwide network we have the right solution for virtually every application. All compressors are immediately available, easy to set up and can be pre-set in our factory according to our customers' needs. You receive a flexible all-inclusive package with individual monthly rates.

for rent

By choosing Sauer Rental Solutions, customers benefit from:

- Worldwide rental fleet
- Compressors ranging from 20–500 barg immediately available
- All-inclusive package – no maintenance, no extra cost
- Most up-to-date compressor technology without long delivery times
- Attractive buying option throughout the entire rental time

Sauer Training

To keep your technical knowledge up-to-date, Sauer offers numerous comprehensive and practical training courses. The courses can take place either in one of our world-wide training centres or on-site with your own compressor. Divided into various categories, the training provides users, operators, maintenance personnel and service technicians with the knowledge they need – all tailored to your specific requirements.

Training options

- In-house training
- On-site training
- On-the-job training
- Train the trainer seminars
- Sauer Training Container



service@sauercompressors.de

Sauer Service-Stationen:
www.sauercompressors.com



Anywhere, anytime, anygas – anything else?

In addition to high-quality compressors, control systems, accessories and services, Sauer Compressors customers benefit from:

Engineering assistance

Through our local representations we can assist engineering teams locally and offer support with regard to integrating our products. In this way, we ensure our customers make the most of their installation.

Documentation – Integrated Logistics Support (ILS)

High-value products and solutions require high-quality documentation. This includes the whole range of Integrated Logistics Support (ILS).

Factory acceptance tests and third-party inspection

For Sauer Compressors, quality is not a promise – it's a fact! All our compressors are subjected to a 12-hour endurance test at final pressure and issued a high level 3.1 inspection certificate after the final inspection. Upon request, third-party inspections can be performed.

For our helium compressors, we have devised an extensive 16-hour test procedure that is unprecedented in the industry. Both static and dynamic leak rates are tested with the noble gas itself. As a result, operators benefit from 'true' helium compressors providing unparalleled leak tightness.

Installation and commissioning

Even the best product's performance will suffer if the installation is faulty. Upon request, our expertly trained service technicians will set up the newly acquired Sauer product and integrate it into established systems at our customer's facility. Thanks to our local representations, this service is available anywhere in the world. After the initial setup, the installation is thoroughly tested and finally commissioned. To ensure maximum performance, low operating costs and a long service life, we offer in-house trainings for the operating staff.

Certifications

ISO 9001:2015







Find your local partner at our global website

www.sauercompressors.com

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HAUG Sauer Kompressoren AG
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Switzerland
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