

Manometer



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- Première at the Hanover Trade Fair
- The ultimate destroyer – “USS Zumwalt”

20 | 2017

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Dear readers,

I would like to take this opportunity of the 20th issue of our customer magazine “Manometer” to take a professional and, at the same time, personal look back and also to look ahead.

Sauer Compressors has experienced incredible development. Just 25 years ago, and mainly operating only in the German shipping and naval market, our 120 employees in Kiel generated a turnover of 13 million Euro. This figure has increased by a factor of almost eight since then. Today, Sauer operates at 12 locations worldwide and has over 600 employees. New market segments such as industry and offshore have been added, while new compressors and series have been successfully developed.

Our compressors described in the magazine, which have been in service for 48 years, were built even before this time. The origins of TGM compressors from our French company go back even further. Personally, I have been privileged to be able to contribute to this development for over 31 years – 26 of them as sales manager.

Standing still is the same as going backwards, and we will not be content with past success. A very visible sign of this is the development of a totally new generation of air-cooled compressors, whose first series for shipping had its première at SMM 2016 in Hamburg.

What is true for products also applies to people. That is why it has been so important to me to ensure our ongoing development by handing over the position of sales manager to someone younger. From now on, I will be concentrating on my duties as sales and technical director, a few projects in naval sales and on supporting the companies in our compressor group, which has recently grown with the acquisition of the Swiss company HAUG, who manufacture oil-free compressors.

I am confident that by taking this decision I have made an important step towards ensuring continuity, and I hope that you will show my successor as sales manager, Mr Dirk Slotke, the same trust you have always placed in me. This trust has been my key motivation to carry out my day-to-day duties over the years.


Yours sincerely,

A handwritten signature in blue ink, appearing to read 'H. Schulz', written over a light blue circular stamp.

HARALD SCHULZ

[SAUER SNAPSHOT]





The Alps in the St. Gallen
region –
the home of HAUG.

HAUG brand strengthens the SAUER product range

Two global family-owned companies have been brought together – the Swiss company HAUG Sauer-Kompressoren AG, the leading manufacturer of oil-free and gas-tight piston compressors is the latest member of the Sauer Group. HAUG special compressors complement the Sauer product range perfectly.

You can read more about HAUG Sauer on p. 12.



Travelling light at ADIPEC 2016

Anyone who has something to offer in the oil and gas industry attends the Abu Dhabi International Petroleum Exhibition & Conference (ADIPEC) in the United Arab Emirates, which is the world's most important trade fair in this market. From November 7 to 10, 2016 Sauer Kompressoren was just one of the impressive figure of over 2000 exhibitors. In terms of the numerous promising contacts established, the fifth appearance at the event was certainly worthwhile.

At what has become their regular space in the Concourse hall, the Sauer team provided customers, partners and other interested visitors with lots of information about current projects and concepts – from standard applications to Heliox systems through to natural gas filling stations. Several CNG boosters assembled as complete container systems attracted particular attention on the stand. No heavy baggage was needed – the compressors could be examined as handy models at a scale of 1:22.5 – find out more on p. 10.

In November 2017 it will be time for the next ADIPEC. We look forward to welcoming you to our stand.

Indestructible Part I: 48-year old breathing air compressor on Madeira

A diving centre on Madeira uses a WP 4321 produced in 1968 for filling its diving tanks with breathing air. The aged but active compressor recently had a brief break for an overhaul, before taking up its day-to-day duties once again. It has plenty more years left in the tank yet.





First Sauer Helium Day in China

In June 2016, the first Sauer Helium Day was held in China in conjunction with our Chinese dealer Grestall at their headquarters in Wuhan and was a great success, attracting 20 representatives from high-ranking research institutions.

The invited decision-makers from various universities and cryogenics research institutions followed the event, including our helium seminar, with great interest and took the opportunity to find out first hand about the benefits and potential applications of Sauer helium compressors.

Neon compressor for Korean gas supplier

The noble gas neon is very rare, extremely difficult to obtain and is therefore exceedingly valuable. Nevertheless, almost everyone is familiar with it, mainly because we use it to fill fluorescent lamps, also known as neon lamps. Other applications of neon are less well-known, for example in liquid form as a refrigerant. Used in this way, it achieves a 40 times higher cooling capacity than liquid helium.

If you need to fill pressure receivers with expensive neon, Sauer neon compressors can reliably perform the job for you. It was for exactly this kind of application that Sauer and its Korean partner recently won the contract for two high-pressure Tornado WP 3215 BasBooster^B compressors.



Trade fair dates 2017

- **HANOVER TRADE FAIR ComVac**
Hanover, Germany
24.04. – 28.04.2017
- **NGV GLOBAL 2017**
Rotterdam, Netherlands
20.03. – 23.03.2017
- **INTERMACH 2017**
Bangkok, Thailand
17.05. – 20.05.2017
- **Bari Ship 2017**
Imabari, Japan
25.05. – 27.05.2017
- **NOR-Shipping**
Oslo, Norway
30.05. – 02.06.2017
- **Oil & Gas Asia (OGA)**
Kuala Lumpur, Malaysia
11.07. – 13.07.2017
- **Donsö Shipping Meet**
Donsö, Sweden
05.09. – 06.09.2017
- **NEVA**
St. Petersburg, Russia
19.09. – 22.09.2017
- **TIIE**
Tehran, Iran
October 2017
- **KORMARINE**
Busan, Korea
24.10. – 27.10.2017
- **ADIPEC**
Abu Dhabi, UAE
November 2017
- **Marintec China**
Shanghai, China
05.12. – 08.12.2017



Indestructible Part II: 48 year old helium compressor in India

Generally speaking, 48 is a venerable age for a compressor. But not for a Sauer-Compressor – it is a long way from being classed as a veteran. But what if a Sauer compressor from 1968 had a 35 year break in its operation?

Even in that situation almost anything is possible, as the example of a Sauer type WP 3232 helium compressor at the Indian Institute of Technology in Mumbai demonstrates. It was 35 years ago when the ELGI-Sauer customer decommissioned the compressor, but now they want to operate it again. However, the operator had grave concerns about whether recommissioning would actually be possible and whether the costs involved might be too high.

All their doubts could quickly be laid to rest. All that it needed was a standard 4000 hour service and replacement of a few attachments. After its service, the little compressor passed the subsequent test bench run and commissioning with flying colours.



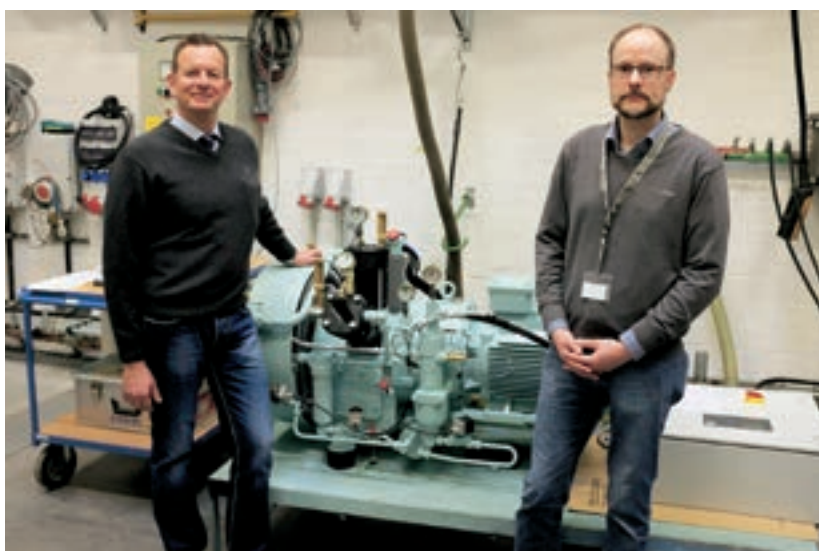
Did you know that ...

... the TGM compressor from Girodin-Sauer was originally designed as an aircraft engine? Instead, the compact and reliable compressors with wobble plate drive developed into the standard product for the French navy and many other navies worldwide.

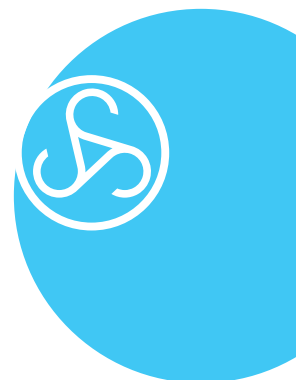
Sauer supplies a further compressor for training purposes

Shipping needs sailors who have had high quality practical training. This is a good reason for Sauer & Sohn to support another leading shipping school by presenting them with a training compressor.

This time, it was the technical college for shipping in Flensburg that benefited and now has access to a 3-stage air-cooled compressor from the Passat series. Mr Hagedorn, the head of the technical department, accepted the donated unit on behalf of the college and was present for the obligatory acceptance test. Installation in the machine laboratory in Flensburg had already been completed.



Tomorrow's compressor operators will now be able to train on today's state of the art technology.



The 500th TGM compressor from Girodin-Sauer

For over 60 years, Girodin-Sauer has been producing powerful TGM compressors for specialist navy applications on submarines, mine-sweepers and frigates.

Designed to meet the most demanding technical specifications and constantly being developed, the compressors now combine the classic wobble plate principle, which ensures perfect mass balancing, with state of the art accessories such as the inter-stage membrane dryer (IMD).

The Girodin-Sauer team is proud to have completed the 500th TGM compressor, a TGM 60/100.





Dirk Slottke takes over as head of sales and marketing

Since December 1, 2016, Dirk Slottke (40) has been the new head of sales and marketing at the Kiel headquarters of J.P. Sauer & Sohn Maschinenbau GmbH. He has taken on this new management position in addition to his responsibilities as team leader in industry export sales and marketing.

In the key position of head of sales, he replaces Harald Schulz who, in his 26 years in the position, has had a crucial influence on the company's successful development and the excellent market position that Sauer Compressors enjoys today. In future, Mr Schulz will be concentrating on his varied duties in sales, project planning and coordination of the worldwide Sauer Group in his role as Chief Executive.



Thomas Heumesser is new technical manager

The technical side of J.P. Sauer & Sohn Maschinenbau GmbH is under new management. Thomas Heumesser (58) joined the company as the new technical manager in September 2016. The engineering graduate thus replaces Roland Tittel who, after over ten years in this position, has taken over as chief executive at a company in the process industry.

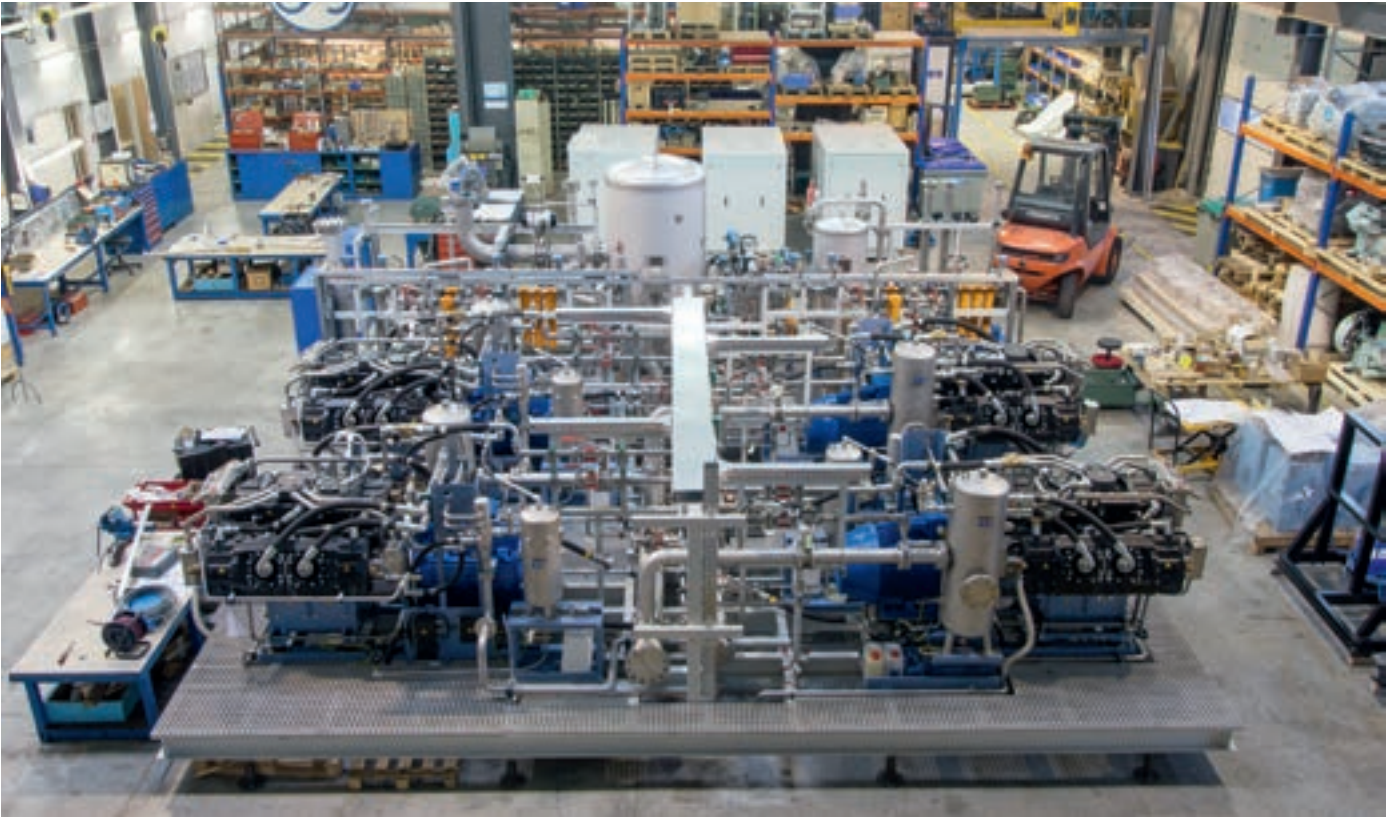
A specialist in the field of compressor technology, Thomas Heumesser previously held a senior position with an Austrian compressor manufacturer. Since joining Sauer, he has expanded the technical division, consisting of engineering, research and development, projects, documentation, quality assurance and testing. "I am delighted to be able to support an innovative company like Sauer Compressors in designing forward-looking solutions and opening up new markets", said Heumesser. His many years of experience will be particularly important in developing new compressor technologies in the special gases segment.

Container systems in miniature format

Mobile container systems from Sauer? Of course! But these one-off products can be transported conveniently by hand. Five CNG boosters, designed as complete systems in a container construction, can now be studied as models at a scale of 1:22.5.

The mini-boosters had their first successful use as demonstration objects and eye catchers at ADIPEC in Abu Dhabi.





Delivery of largest Sauer system for ITER imminent

In the last issue of the magazine, we reported on the ITER fusion plant in Southern France and the contribution that Sauer Compressors is making to this ambitious construction project, which is intended to help solve future energy problems.

For the project, which involves more than 30 nations, Sauer is building the helium recovery system. Its task is crucially important as it recompresses large quantities of helium, which is used for cooling superconductive magnets. The magnetic fields generated by these magnets enable fusion to be risked in the reactor environment by allowing the fusion plasma, which is too hot for contact with any material, to float in the reactor.

For this application, a total of five helium compressors on an 8 x 8 metre base frame make up the largest connected system that Sauer has ever constructed. Now almost completed after six months of construction, the system fills the entire assembly hall at Girodin-Sauer. It will be delivered to the customer on schedule in the first half of 2017.

[SAUER HIGHLIGHTS]

HAUG Sauer Kompressoren AG – A new member of the Sauer Compressors family

As part of its ongoing strategic development, Sauer Compressors Holding (J.P. Sauer & Sohn Beteiligungsgesellschaft mbH) has acquired a 100 % stake in HAUG Kompressoren AG from St. Gallen/Switzerland and all its sites. The company, which has been renamed HAUG Sauer Kompressoren AG, specialises in the development and production of oil-free compressors in the 0.5 – 110 kW output range, and employs around 40 staff at its St. Gallen site. Like Sauer Compressors, HAUG is also a family company with global operations.

In the compressor technology sector, HAUG is well-known as a specialist in state of the art oil-free and gas-tight piston compressors for compression of air and a variety of gases.

The HAUG brand will be retained as part of Sauer Compressors. The previous managing director, Beat Frefel, will continue in his position. Franck Lallart, managing director of Girodin-Sauer SAS, will be his co-director. The St. Gallen site in Switzerland will be developed as a centre of expertise for oil-free technology within Sauer Compressors.

This partnership holds significant growth potential and profit opportunities for both companies. HAUG's oil-free compressors, which are held in such high regard around the world, are the perfect complement to Sauer's established range of oil-lubricated compressors.





[SAUER SPECIAL]



Trade fair launch for Generation 45XX at SMM

As one of the world's most important shipping trade fairs and, at the same time, Sauer Compressors' in-house trade fair, SMM (Shipbuilding, Machinery & Machine Technology) in Hamburg was the perfect venue for a première, as the latest series of air-cooled starting air compressors – the Generation 45XX – was presented to the public for the first time.

“Making something good even better” was the slogan for the development work on this innovative project, which lasted more than four years. The challenge was to improve the output and efficiency of the 3-stage air-cooled starting air compressors, while maintaining what the machines have made an industry standard in the past 40 years – their unrivalled reliability and ease of maintenance.

Every target was achieved – and the Generation 45XX is definitely “Bigger, Better, but still Basic”. The numerous visitors to the trade fair stand were able to discover the many advantages for themselves using a sectional model and a close-to-production prototype. For direct comparison, a WP 370 from 1975 and a current PASSAT WP311L – predecessors to the new starting air compressor – were also on display.

Sauer Compressors would like to thank all guests at the trade fair for their encouragement and huge interest.

Do you want to experience the new compressor series at first hand? If so, visit Sauer this year at one of the major shipping trade fairs in Norway, Japan, Korea or China.

GENERATION 45XX



BIGGER
BETTER
BUT STILL BASIC

Experience the advantages of evolution!



Sauer at

SMM

6–9 Sept 2016, Hamburg/
Germany

Stand A3 – 223

[SAUER SPECIAL]

Our 3-stage air-cooled models – Over 40 years on board

It was 1975 when the world's largest railway ferry – the Railship I – entered service as the first ship with 3-stage air-cooled Sauer-Compressors. For a long time, it plied the Travemünde–Hanko (Finland) route. While the ferry is long since a thing of the past, almost certainly broken up and its parts used on some new ship, you can still buy a replacement block for the WP 100L used back then from Sauer Compressors.

We recently supplied genuine Sauer spare parts for the sister ships Railship II and III, which we also originally fitted out and are now sailing under the Russian flag. Their size of almost 200 m in length, quite respectable for the time, makes them look as small as toys next to today's ULCVs (ultra large container vessels). Nevertheless, not much has changed in the fundamental functioning of the compressors in 40 years. The diesel engines are still started with 30 bar compressed air (for comparison – Railship III: twin-engine system, 16,500 kW; MSC Jade, the largest current container ship: single-engine system, 75,570 kW).

Over the years, the first 3-stage air-cooled compressor types – WP 100L, WP 120 L and WP 150L – have been continuously developed and adapted to changing requirements.

The new WP 180L, WP 275L, WP 320L and WP 460L types recently launched mean that there are now fundamentally revised compressors with a very high output on the market, although at their core they are still – and will remain – 3-stage air-cooled units. Thanks to the greater output of up to 460 m³/h, even very large engine systems can be fitted with just three compressors, instead of four or even five as in the past.

This means that Sauer Compressors is well set up for the future, without forgetting its roots.

Dipl.-Ing. Stephan Behrens, Sales Team Leader, Shipping



The railway ferry Railship II, launched in 1984 in Bremerhaven, has been sailing the Baltic since 1998 under the name "Baltiysk" with a home port of Kaliningrad.



[SAUER SPECIAL]

Première at the Hanover Trade Fair

The most important date on the calendar is approaching, not just for Sauer Compressors but for the entire compressed air and vacuum technology industry – from April 24–28, 2017 the leading international trade fair ComVac will welcome visitors as part of the Hanover Fair.

The numerous innovations that Sauer will be presenting at the event need to be shown off appropriately. On our 300m² stand, visitors can experience new and established products alike in maximum comfort, and get expert advice from our on-site experts.

Three particular highlights await visitors this year:

The BREEZE series – the next generation of air-cooled Sauer-Compressors is based on a modular system, with up to five cylinders and an impressive nine cylinder/piston combinations providing the perfect solution for any application. In addition to classic air compressors with final pressures up to 500 bar.g, there will be booster versions with primary pressures up to 16 bar.g, as well as special gas-tight versions for gases such as helium, natural gas and hydrogen.

The first representative of the new series is a 3-stage air-cooled air compressor with a flow rate of 390 m³/h at a final pressure of 40 bar.g.

We are also celebrating the première of our expanded product range, which now includes oil-free HAUG compressors. As well as presenting oil-lubricated Sauer-Compressors, the comprehensive new range of oil-free and gas-tight HAUG compressors is one of the most important innovations at Sauer. Thanks to the integration of HAUG into the Sauer Compressors Group, we have considerably expanded our product range, and it can be seen in full for the first time on a single stand.

A new era in compressor controls begins with the Sauer ecc 4.0. Another trade fair première, Sauer is launching its completely newly developed control family. Equipped with a 7-inch touch screen display and featuring an innovative operating concept, the Sauer ecc 4.0 is the first model and sets new standards in reliable compressor operation.

But there is plenty more to discover too. A visit is sure to be worthwhile – find out for yourself! You are welcome at any time in Hall 26 on Stand B 39. Of course, this includes our traditional stand party on Thursday evening.



//// Breeze



Register now for
your free trade
fair ticket



HANNOVER
MESSE

ComVac

Haug



Sauer Compressors



Heliox with Sauer ComBox: Square, practical, excellent

Breathing air compressors – many people will think of their last beach holiday and the little compressor at the hotel diving club, which is used to fill the 6-litre diving tanks with normal ambient air at 300 bar.

But while small units tend to be used by amateur divers, Sauer technology is also in demand for professional diving. For deep-sea diving, normal breathing air cannot be used, as otherwise the narcotic effect of what is sometimes known as “rapture of the deep” can occur. The excessive nitrogen partial pressure triggers disturbances in the central nervous system, which leads to cognitive limitations and a potentially life-threatening sense of euphoria. For depths greater than around 40 metres, heliox – a mixture of oxygen and helium – is therefore used as the breathing gas. The percentages of the two gases are mixed according to the dive depth. Typical users of heliox include deep-sea divers in the offshore industry, e.g. for carrying out maintenance on drilling platforms.

Sauer Compressors has supplied a complete box including a heliox booster for this kind of application. The customer based in the United Arab Emirates needed a compact, mobile solution. As requested, Sauer planned a solution that the customer can quickly lift onto the deck of their support vessel and house conveniently in a warehouse when not in use. The system is protected against sea water and is easily accessible through the large maintenance hatches.

The WP 4341 BasSeal^{He-B} Sauer-Compressor inside takes in the mixed heliox and compresses it to 200 bar. It is then filtered and purified with a cartridge dryer to maintain the breathing gas quality complying with DIN ISO 12021.

All components are integrated in the compact Sauer ComBox, which has been inspected and approved by the classification body ABS in Kiel.

Technical data:

Series:	HURRICANE
Type:	WP 4341
Design:	BasSeal ^{He-B}
Pressure:	200 bar.g
Flow rate:	56 m ³ /hr
Gas quality:	DIN ISO 12021



**Comment:**

As the name suggests, Sauer helium compressors are specially designed for compressing helium. They are not optimised air compressors, but are specially manufactured for this specific application. Their features include a special and unique shaft seal, gas-tight safety valves and recirculation of the gas from the condensate separators. Sauer tests everything on a special helium test bench using helium under real-world conditions. Static and dynamic leakage rates are determined and can be certified on request.

[SAUER MARKETS]



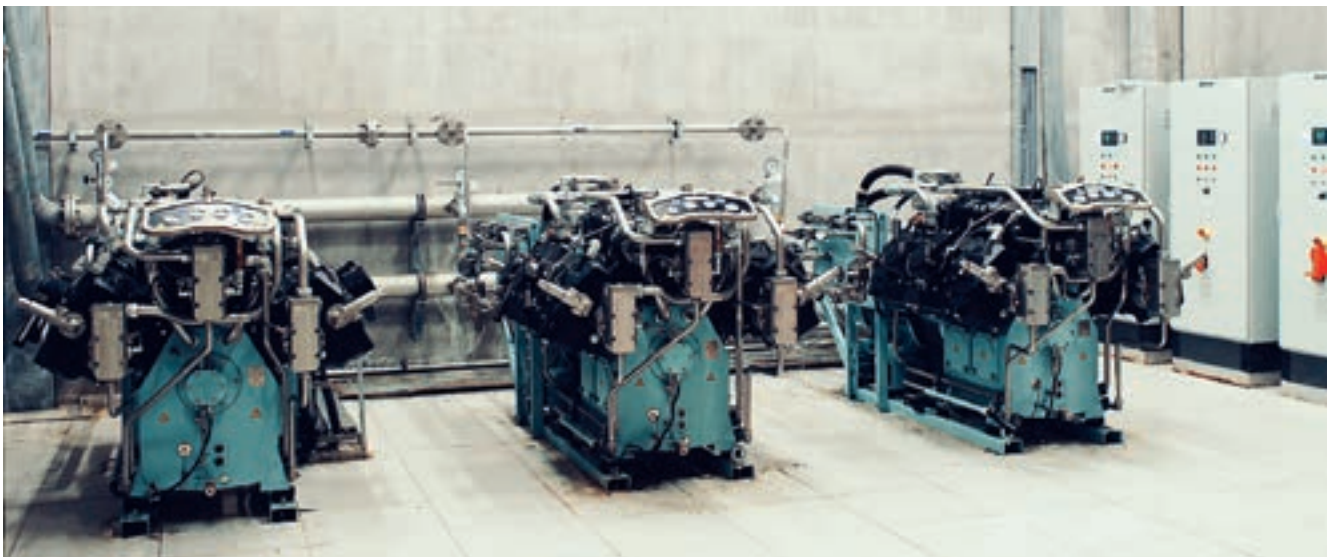
Compressors support water power

An energy source that people used to power mills and sawmills back in the pre-industrial age now accounts for more than 15% of all power generated worldwide. Among renewable energies, water power is the undisputed leader, making up around 75% of total output.

This success is down to hydroelectric power plants, in which the kinetic energy of water is converted into electrical power using turbines and generators. Compressors also perform important tasks in this process. The many types of power plant are normally differentiated into low, medium or high pressure plants according to the effective head of the water, or based on their operating principle, e.g. running water and storage (water) power plants.

Three Sauer-Compressors operate at what is currently the largest storage power plant in Turkey – Beyhan-1 in Elazig province in the east of the country. In this type of power plant, water is stored in a reservoir and the energy from the water is converted into power as required. It is the first of three planned storage power plants that will be constructed as a cascade on the mountainside along the River Murat. With an output of 582 MW, it supplies more than 400,000 households in the region with power.

The hydroelectric power plant is equipped with type WP6310 Sauer-Compressors. The three water-cooled machines achieve a combined flow rate of more than 1200 m³/h at a final pressure of 64 bar. The compressed air they generate is required to control the turbines and to blow out the water for operating the phase shifter. Both applications are crucially important in generating energy using water power.



[SAUER MARKETS]

The ultimate destroyer – “USS Zumwalt”

In December 2015, the “USS Zumwalt” – the world's most modern and largest destroyer – left the Bath Iron Works shipyard in the US state of Maine for its first sea trials. The leading ship in the new Zumwalt class has the dimensions of a cruiser, but can make itself almost invisible.

How can a destroyer 182.9 m long, 24.6 m wide and with a displacement of more than 15,000 t shrink to the size of a harmless fishing boat on radar screens? It's possible because the “USS Zumwalt” is equipped with revolutionary cloaking/stealth technology, which is also responsible for the futuristic design.

Meanwhile, its capabilities – over 80 launching platforms, four cannons of different types and four launch pads for helicopters or drones – are anything but harmless. Additional weaponry is still in development, but the facilities needed to operate the very latest weapon systems such as laser cannons are already in place.

The ship has a standard crew of 158 and was designed for coastal patrols and attacking targets on land. On the open seas, it can reach a top speed of more than 30 knots. The all-electric engine is supplied by a total of four gas turbines with a combined output of 78 MW.

Powerful technology was also needed for the compressors. For the first stealth destroyer, Sauer Compressors USA Inc. supplied a total of four Sauer-Compressors in a special navy design.

There are plans for two more ships in the new destroyer class, which is named after General Elmo R. Zumwalt, an important figure in the Vietnam War. Appropriately for a ship that looks like something from a science fiction film, the “USS Zumwalt” is commanded by Captain James Kirk.





[SAUER SERVICE]



Efficient savings with the Sauer ECO⁺ add-on kit

In today's shipping industry, there is an increasing focus on "Ship Energy Efficiency Management" (SEEM). This is also true at Sauer Compressors – the specially developed Sauer ECO⁺ add-on kit offers an uncomplicated method of saving energy, compressed air and costs.

The new kit enables operation of the compressed air system to be adapted to the current ship mode and optimally adjusted. For example, the compressors can be operated at a lower final pressure if the ship is at sea and does not need the 30 bar required to start the main engines. Simply by pressing a changeover switch, the kit automatically goes from "manoeuvre mode" to "ECO⁺ mode".

Energy-saving operation not only protects the environment, resources and the compressors themselves, which are subjected to less strain at a lower final pressure. It also reduces the compressors' operating hours. The positive effect of this is that it extends the maintenance intervals and thus cuts the annual maintenance costs. These are impressive benefits, and many German shipping companies and ship managers have already opted to install the Sauer ECO⁺ add-on kit on their ships.

Installation and handling are easy. The T-connection opens the pressure line and the additional pressure switches are attached. The choice between "manoeuvre mode" and ECO⁺ mode is made using an additional switch on the control panel. One additional pressure switch is required for each main compressor.

For further information, contact the Sauer-Service team:

service@sauercompressors.de

**Sauer
Eco⁺**



The T-connection opens the pressure line and the additional pressure switches can be installed. The choice between sea mode and manoeuvre mode is made using an additional switch on the control panel. One additional pressure switch is required for each main compressor.

[SAUER SERVICE]

Tips and tricks for shipping compressors



1. Maintenance

The most important tip enables you to achieve the biggest positive effects on your Sauer-Compressors: It is maintenance using genuine Sauer spare parts (preferably using "Sauer Easy Care" maintenance kits). Never exceed the recommended maintenance intervals. This can result in damage to the compressors and will invalidate the "Sauer Easy Care" guarantee, which covers up to 4000 hours of operation.

2. Water-cooled compressors

On water-cooled Sauer-Compressors, always stop the cooling water flow at the same time as the compressor. Make sure that the outlet temperature of the cooling water is between 40 and 50 °C. This prevents condensation in the crankcase due to overcooling. Condensation in the air system can result in valve and other damage, and can even lead to loss of the entire compressor.



3 Compressor starts

Do not start your Sauer-Compressors more frequently than 6 times per hour. Otherwise, overheating of the electric motor can occur due to the high starting current during the start process.



4. Start relief

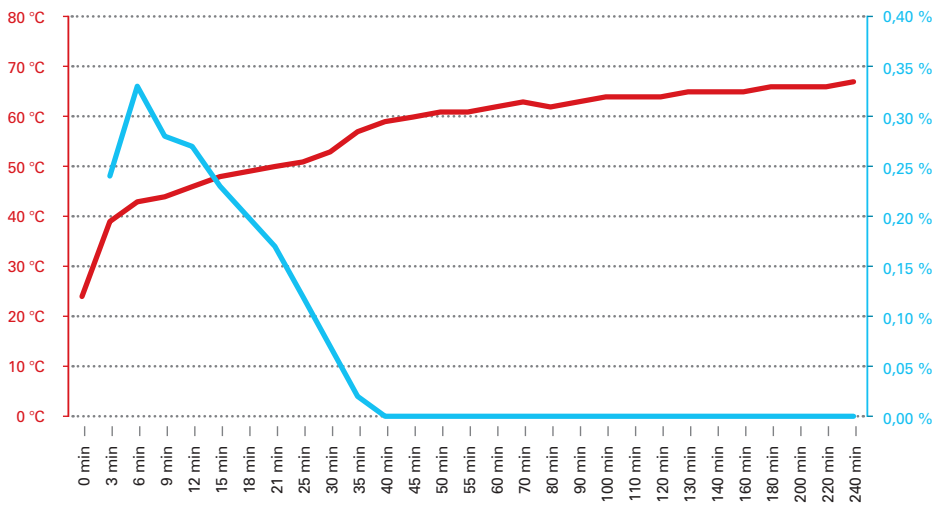
Sauer recommends a start relief time of 15 seconds for its compressors, to allow the electric motor to start without high load. During this time, the solenoid drain valves are opened. The same applies when the compressors are stopped.

5 Drainage times

For shipping compressors from Sauer, the recommended drainage times are: every 5 minutes for 3 seconds (previous setting was every 15 minutes for 15 seconds). With the new settings, it is possible to reduce the operating time by around 2%.



Water content and temperature at @ 1,780 rpm



As can be identified in this typical diagram, the water content of the oil rises in the first few minutes, until an oil temperature of approx. 45°C is reached. The water then begins to evaporate. Depending on the oil temperature, a compressor should be operated for at least 20 minutes.

Oil temperature
Water quantity in %

6. Operating time

The operating time of Sauer-Compressors should be at least 20 minutes, in order to ensure that an oil temperature of 45°C is reached. Only at this point is it possible for condensation to evaporate. You can extend the operating time by changing the start/stop settings (increasing the start-stop pressure delta).

7. Temperature alarm

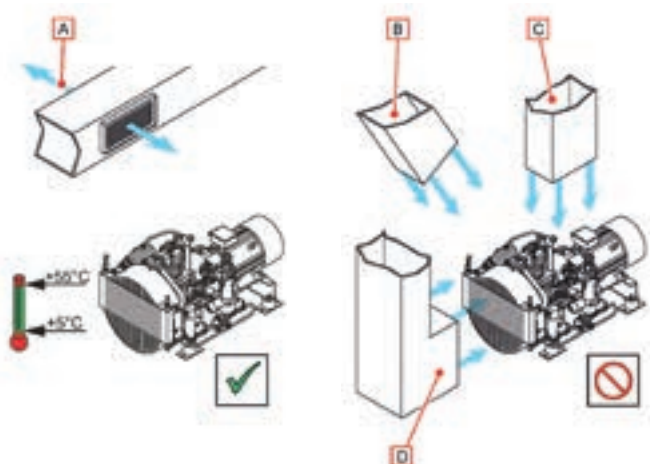
In the event of a temperature alarm, first check the sensor settings. The alarm should currently be set to 90°C as recommended by the certifying body DNV/GL. (The limit temperature was previously set to 80°C.) You should also clean the finned cooler with a solvent to increase the cooling capacity and prevent coking of the valves.



8. Ventilation and direct air flow

Prevent a direct air flow to your Sauer-Compressor by closing or diverting the air ducts. A direct air flow produces condensation in the crankcase and cylinders and – as described in Tip 2 – can damage the valves and other parts.

Extract from the installation instructions:



Correct and incorrect arrangement of auxiliary ventilation

- A **Correct:** Installation of an air duct over a Sauer-Compressor with lateral opening for room ventilation.
- B **Incorrect:** Installation of an air duct obliquely in front of a compressor.
- C **Incorrect:** Installation of an air duct above a compressor.
- D **Incorrect:** Installation of an air duct in front of a compressor.

[SAUER FAMILY]

Tradition is the trump card – Sauer skat group

Pass ... What's your bid? ... I pass too ... I think you're stonewalling ...

These phrases will be very familiar to anyone who has ever played the traditional German card game skat. Unfortunately, it's a tradition that seems to be dying out.

In the past, skat nights were all the rage everywhere from sports clubs to fire stations, but these days you hardly ever come across them.

Although there are various skat platforms online, there is a lack of new players coming through, and very few young people learn the game from their parents these days.

But at Sauer, tradition is valued. This applies to compressors and also to playing skat. At the test bench, every lunch break – without exception – sees hard-fought skat games, and this has been going on since 1984. Back then they were held in the break area, now they take place in the Sauer canteen.

They play to modern Skat rules and with a French deck. Initially, the players were a committed group from the test bench, but now other old hands who want to keep the skat tradition alive can join in. New colleagues are welcome, but first they have to prove that they have more than just a basic understanding of the game and can really play.

Two tables in the canteen are permanently reserved for skat games, which are always very competitive and often involve high stakes. It's all about winning as many points as possible – there are no casual games here! All winnings go into a pot and, when it's full, the money is used to organise trips for the players.

In the past, they have travelled to Oslo and Trelleborg. Never without their skat cards in their bags, of course.

Since 2007, an annual skat tournament has also been organised and all Sauer skat fans are invited to take part – even those who are not part of the regular skat group. It attracts a colourful mix of entrants – from apprentices to senior management. And, surprisingly, it is not always one of the old hands from the test bench group who wins.

To date, there has never been any need to trouble the international skat authorities in Altenburg, as any controversial situations are sorted out fairly at the table in the traditional way.

It's a good deal all round.

Trivia

The game of skat has its origins at the beginning of the 19th Century. It is said to have been developed between 1810 and 1817 at Altenburg in Thuringia. This is also where the first skat congress was held in 1886, where the official German skat rules were approved. Skat is one of the most popular card games in Germany and the German Skat Association regularly holds skat congresses to this day.



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