



OIL & GAS

# On stand-by — for your safety!

Whether onshore or offshore – Sauer compressors are used in a wide variety of applications in the oil and gas sector. Designed for 24/7 operation, their robust construction allows them to be used (virtually) anywhere and under extremely difficult environmental conditions, with exposure to saltwater, heat or cold, for example. Sauer compressors easily satisfy the criteria of ABS, DNV-GL and NORSOK, whilst complying with a range of other certification authorities too. Besides our standard products, we also provide complex solutions designed to meet our customers' specific requirements. These include mobile, containerised units, gastight or explosion-proof designs complying with the ATEX Directives, packages featuring diesel or gas engines and even combinations of all of the above.

Sauer compressors always do their job reliably and safely – wether they are in use on a floating platform in the Gulf of Mexico, in the engine room of a ship off the coast of Vietnam or on a heavy goods vehicle in Siberia.





# **Worldwide Sauer Compressors Group**

Every region in the world has its own culture and local technical demands.

Our sister companies, agents and dealers speak the local language and provide solutions adapted to the local needs based on high quality compressors produced by J.P. Sauer & Sohn Maschinenbau GmbH in Germany and Sauer Žandov A.s. in the Czech Republic. HAUG Sauer Kompressoren AG in Switzerland is the centre of excellence for oil-free solutions in the Sauer Compressors Group.

Sauer's own companies **Girodin-Sauer SAS** in France, **Sauer Compressors USA Inc.** in the United States, **Sauer do Brasil – Serviços para Compressores Ltda.** in Brazil and the joint venture **ELGI Sauer Compressors Ltd.** in India provide optimum solutions when it comes to application engineering and customer service.

Our sales and service offices Sauer Compressors UK Ltd. in the United Kingdom, Sauer Compressori S. u. r. l. in Italy, Sauer Compressors China in China, Sauer Compressors CIS in Russia, Sauer Compressors Singapore provide local support and fully understand our customers' needs.



#### J.P. Sauer & Sohn Maschinenbau GmbH

Kiel, Germany

Headquarters and Centre of Excellence of the Sauer Compressors Group Production, Packaging, Sales & Service

#### Sauer Žandov A.s.

Žandov, Czech Republic Production

#### Girodin-Sauer SAS

Paris, France

Production, Packaging, Sales & Service

#### **HAUG Sauer Kompressoren AG**

St. Gallen, Switzerland

Centre of Excellence for oil-free solutions Production, Packaging, Sales & Service

#### Sauer Compressors USA Inc.

Stevensville, Maryland, USA Packaging, Sales & Service

#### **ELGI Sauer Compressors Ltd.**

Coimbatore, India

Production, Packaging, Sales & Service

#### Sauer do Brasil

Serviços para Compressores Ltda.

Rio de Janeiro, Brazil Packaging, Sales & Service

#### Sauer Compressors UK Ltd.

Colchester, United Kingdom Sales & Service

#### Sauer Compressori S. u. r. l.

Lecco, Italy
Sales & Service

### Sauer Compressors China

Shanghai, China Sales & Service

#### Sauer Compressors CIS

Moscow, Russia Sales & Service

#### Sauer Compressors Mexico

Mexico City, Mexico Sales & Service

### Sauer Compressors Singapore

Singapore

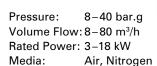
Sales & Representative Office

You will find our authorized partners all over the world:

www.sauercompressors.com

# 4 | 5 Compressor and Capacity Range

# **IIII** Mistral





Pressure: 50-400 bar.g Volume Flow: 30-120 m³/h Rated Power: 10-52 kW

Media: Air, Nitrogen, Helium, Natural Gas, Bio-methane

# **IIII** Passat

Pressure: 10-80 bar.g Volume Flow: 75-315 m3/h Rated Power: 15-90 kW

Media: Air, Nitrogen, Helium,

Natural Gas, Bio-methane

# **|||||**Tornado

Pressure: 50-400 bar.g Volume Flow: 10-25 m³/h Rated Power: 5-15 kW

Media: Air, Nitrogen, Helium,

Natural Gas, Bio-methane

# **|||||**Breeze

Pressure: 10-40 bar.g Volume Flow: 100-390 m³/h Rated Power: 35-90 kW

Media: Air, Nitrogen, Helium,

Natural Gas, Bio-methane

# **|||||** 5000 series

Pressure: 50–400 bar.g Volume Flow: 50–140 m³/h Rated Power: 20–65 kW Media: Air, Nitrogen



# **/////Typhoon**

Pressure: 10–100 bar.g Volume Flow: 85–440 m³/h Rated Power: 15–90 kW Media: Air, Nitrogen

# 

Pressure: 16-500 bar.g Volume Flow: 300-1000 m³/h Rated Power: 120-230 kW

Media: Air, Nitrogen, Helium,

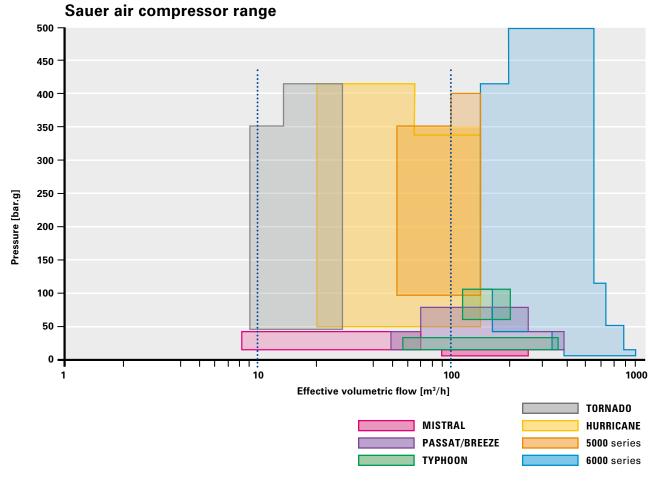
Natural Gas, Bio-methane

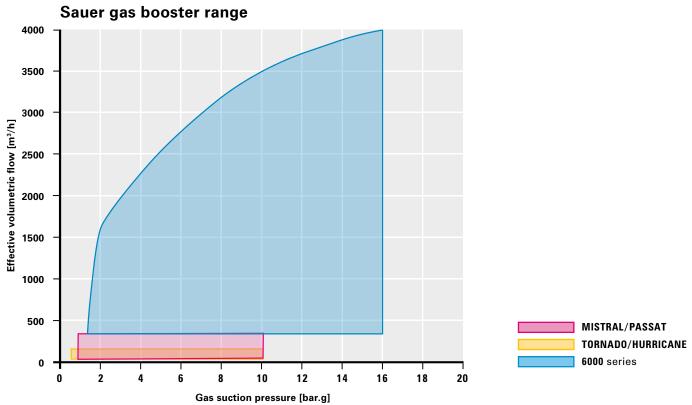


# ///// Harmattan

Pressure: 5–15 bar.g Volume Flow: 50–225 m³/h Rated Power: 8–40 kW Media: Air







# 6 | 7 Our customers benefit from the following advantages:

- State-of-the-art compressors, control systems, compressed air treatment systems and accessories
- Optimum customer services starting with the initial enquiry and extending over the entire life of the product
- Complete compressor check at final pressure including Factory Acceptance Test and Inspection Certificate 3.1
- Manufacturing Record Book (MRB) on request
- Long operating life with guaranteed availability of replacement parts (minimum 25 years)
- Turnkey solutions engineered in accordance with customers' specifications
- Compressors designed for permanent operation (S1 24/7)
- Classification and Certification in accordance with ATEX, ABS, DNV-GL, NORSOK etc.
- Maximum +/-22.5° tilt/roll for mobile applications











# Oil & Gas Applications



### **Upstream**

- Exploration and production in the oil & gas industry
- Includes everything from the search for potential reserves of oil and gas, exploration of promising sources to the final extraction of the resources.
- Seismic exploration
- Motion compensation for semi-submersible rigs
- Underwater hammering
- High pressure nitrogen boosting up to 500 bar



#### Midstream

- All means of transportation, storage, support systems and marketing of oil & gas products.
- Pipeline-related services
- High pressure nitrogen boosting up to 500 bar



#### **Downstream**

- Refining and processing of oil & gas products into usable products, such as petrol, diesel oil, jet fuel, fuel oils, liquefied petroleum gas (LPG), propane, natural gas, lubricants, plastics and pharmaceuticals.
- High pressure nitrogen boosting up to 500 bar
- Compressed natural gas (CNG) compression



#### **Auxiliaries**

- Applications aside from the usual oil & gas processes
- Cold start compressors
- Breathing air, fire and safety



# **Seismic Exploration**

Seismic air guns are used to find oil and gas underneath the seabed. Towed behind a vessel, air guns are mechanical devices with metal flaps that release high pressure air underwater. The air bubbles expand, generating seismic waves that reach the seabed. The reflections from these waves are received by a 'streamer' which then provides detailed information about the structure of the seabed and possible oil and gas fields.

#### What are Sauer Compressors used for?

Supplying high pressure air for the air gun

#### Who are Sauer Compressors' customers?

- Seismic operators
- Research industries
- Shipyards
- Packagers

#### Which Sauer product ranges are used?

■ Product ranges: HURRICANE, 5000, 6000

■ Variants: Basic

■ Volumetric flow: 120-720 m³/h | 2-12 m³/min | 70-420 scfm

■ Pressure range: 120-207 bar(g) | 1700-3000 psig









# **Motion Compensation for Semi-submersible Rigs**

Deep water drilling requires a rigid connection between the platform/drill-ship and the seabed. In order to keep on drilling in rough weather conditions, the movement of the derrick on the platform needs to be compensated. This compensation is done by wire-line or direct tensioning systems based on hydraulic systems and in order to keep the hydraulic pressure stable in the system, high pressure air or gas is used.

### What are Sauer Compressors used for?

Supplying an air or gas cushion on top of the hydraulic liquid

### Who are Sauer Compressors' customers?

- OEM companies
- Drilling operators
- Shipyards
- Packagers

#### Which Sauer product ranges are used?

Product ranges: 5000, 6000Variants: Special Module

Volumetric flow: 140 m³/h | 2.3 m³/min | 82 scfm
 Pressure range: 207-315 bar (g) | 3000-4600 psig

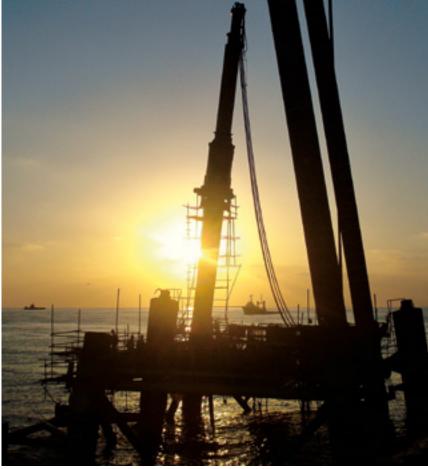
■ Media: Air or Nitrogen



WP5000

Offshore Module inc. Air Dryer







# **Underwater Hammering**

Beside other technologies, deep water ramming is still the most common method for securing platforms to the seabed. The hydro-hammer works under atmospheric conditions, and compressed air is needed to evacuate the hammer underwater for proper operation. The high pressure air is guided to the hammer by umbilicals.

#### What are Sauer Compressors used for?

Supplying air to displace water from submersible equipment

#### Who are Sauer Compressors' customers?

- Subsea operators
- Drilling operators
- Packagers

#### Which Sauer product ranges are used?

■ Product ranges: HURRICANE, 5000

■ Variants: Basic

■ Volumetric flow: 120-360 m³/h | 2-6 m³/min |70-210 scfm

■ Pressure range: 120-350 bar (g) | 1800-5000 psig









# High Pressure Nitrogen Boosting up to 500 bar

Many applications in the offshore world require nitrogen, which is mostly used for blanketing in order to prevent an explosive ambient. Sauer offers a wide variety of boosters for such applications. The nitrogen gas is produced by membranes or PSA systems and Sauer compressors are used to store the gas at a higher pressure.

#### What are Sauer Compressors used for?

Boosting nitrogen to a higher pressure level

#### Who are Sauer Compressors' customers?

- OEM companies
- Shipping companies
- Drilling companies
- Packagers

### Which Sauer product ranges are used?

■ Product ranges: All

■ Variants: BasBooster

■ Volumetric flow: 20-400 m³/h | 0.3-6.6 m³/min | 12-230 scfm

■ Pressure range: 40-500 bar(g) | 580-7250 psig

■ Medium: Nitrogen







# Pipeline-related services

Sauer compressors are not limited to searching for and producing oil and gas – they are involved in transporting these substances via pipelines too. Mobile compressor solutions (e.g. installed in a 20' container) are used during the construction and subsequent operation of these supply lines. Available as customised solutions for nearly every environment, Sauer compressors offer important advantages that make them a popular choice.

#### What are Sauer Compressors used for?

- Cleaning pipelines
- Checking pipelines

#### Who are Sauer Compressors' customers?

- Petrochemical industry
- Oilfield suppliers

#### Which Sauer product ranges are used?

■ Product ranges: PASSAT, BREEZE, HURRICANE, 6000

■ Variants: Basic, ComSilent

■ Volumetric flow: 30-2000 m³/h | 0.5-33 m³/min | 18-1180 scfm

■ Pressure range: 30-400 bar(g) | 435-5800 psig



# Compressed Natural Gas (CNG)

Compressed Natural Gas (CNG) has the potential to fuel millions of vehicles throughout the world, with significant economic, safety and environmental benefits. High pressure CNG boosters from Sauer are specially equipped for CNG compression. From single units for OEMs to customised solutions, Sauer CNG boosters represent a reliable, safe solution for CNG filling stations.

#### What are Sauer Compressors used for?

- Vehicle Filling Stations
- Pipeline Gas Injection
- Natural Gas Engine Testing

#### Who are Sauer Compressors' customers?

- OEM companies
- Packagers

#### Which Sauer product ranges are used?

■ Product ranges: PASSAT, HURRICANE

■ Variants: BasSeal

■ Volumetric flow: 120-360 m³/h | 2-6 m³/min | 70-210 scfm

■ Pressure range: 40-350 bar(g) | 580-5000 psig

Medium: Natural Gas



**|||||**Hurricane

HURRICANE WP4351 BasSeal<sup>CNG-B</sup> 140 m<sup>3</sup>/h @ 350 bar







# **Cold Start Compressors**

Compressors for starting air have been Sauer's bread and butter business for more than 80 years. Being the leading manufacturer in the Shipping and Navy industry Sauer knows exactly what it takes to build dependable compressors for starting large diesel engines, no matter if they are onshore or offshore.

### What are Sauer compressors used for?

Starting air

## Who are Sauer Compressors' customers?

- OEM companies
- Packagers
- Diesel engine manufacturers

## Which Sauer product ranges are used?

■ Product ranges: MISTRAL, PASSAT,

BREEZE, TYPHOON

■ Variants: Basic, ComSilent

■ Volumetric flow: 10-480 m³/h

0.2-8 m³/min 6-280 scfm

■ Pressure range: 20-40 bar (g)

290-520 psig







# **Breathing Air, Fire and Safety**

In situations where safety depends on high product availability, robust high-pressure compressors are imperative. This is precisely why Sauer compressors are used for applications such as supplying breathing air for deep divers or diving chambers or for fire-extinguishing systems, where they may be required to operate at any time under the most extreme conditions. Rather than making compromises, customers rely on the certified quality of Sauer Compressors.

### What are Sauer Compressors used for?

- Stationary fire-extinguishing systems
- Supplying breathing air
- Supplying Nitrox
- Supplying Heliox

#### Who are Sauer Compressors' customers?

- Manufacturers of fire systems
- Platform equipment suppliers
- Manufacturers of diving chambers

#### Which Sauer product ranges are used?

■ Product ranges: PASSAT, BREEZE, HURRICANE,

TORNADO, 6000

■ Variants: Basic, BasBreath,

BasSeal, ComSilent, ComBreath, ComSeal

■ Volumetric flow: 10-2000 m³/h

0.2-33 m<sup>3</sup>/min | 6-1200 scfm

■ Pressure range: 40-400 bar (g)

80-5800 psig

■ Media: Air, Nitrogen, Argon,

Heliox, Nitrox

# 16 | 17 Customised Solutions

When standards do not cover your needs we design a customised solution exactly for your application. From modules on a skid to complex offshore containers including dryer, air storage, air management and advanced industry controls, we offer dependable turnkey solutions designed specifically to withstand the tough environments in the oil & gas industry.

## Example #1:

### 20' Offshore Container for Underwater Hammering

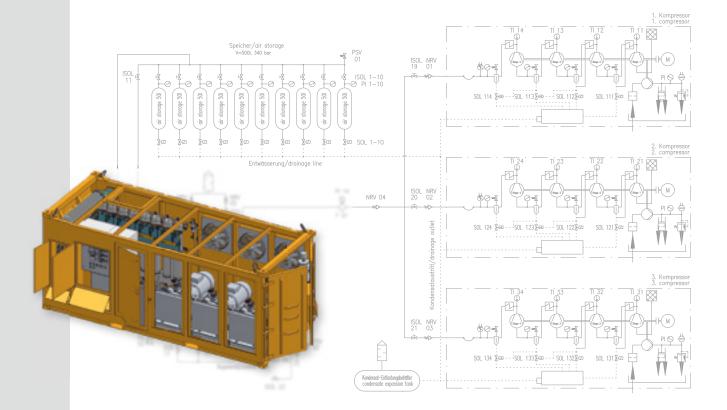
- Equipped with 3x Hurricane WP4351 Basic
- 500 I Air Storage
- Customised Air Management System
- Certified according to DNV standard No. 2.7-1

#### **Technical Data**

Volumetric flow: 360 m<sup>3</sup>/h | 6 m<sup>3</sup>/min | 212 scfm

Max. Pressure: 350 bar (g) | 5000 psig









#### Example #2:

#### **Custom Crashframe for Underwater Hammering**

# PASSAT series - WP311L Basic

Rigid Crashframe

■ 1000 I Air Receiver

■ Stainless Steel Control Panel IP56

■ Certified according to DNV 2.7-1

#### **Technical Data**

Volumetric flow: 320 m<sup>3</sup>/h | 5.3 m<sup>3</sup>/min | 190 scfm

Max. Pressure: 30 bar(g) | 435 psig

#### Example #3:

## WP5000 Offshore Module for Motion Compensation

## 5000 series - WP 5000 Basic

- Integrated Air Dryer
- Compliant with NORSOK, DNV Offshore and ABS CDS 2011 Cat. 01
- Installed at over 100 offshore platforms already

### **Technical Data**

140 m³/h | 2.3 m³/min | 83 scfm Volumetric flow:

350 bar(g) | 5000 psig Max. Pressure:



WP5000 Basic Offshore Module inc. Air Dryer





### Example #4:

# **Complete System for Seismic Exploration**

## 6000 series - WP 6442 Basic

- 4x WP6442 Basic inc. Blower
- Air Management Module with integrated Fisher Valve Control
- Installed on one of the most modern and sophisticated research vessels worldwide

#### **Technical Data**

Volumetric flow: 720 m³/h | 12 m³/min | 420 scfm

Max. Pressure: 207 bar(g) | 3000 psig



////6000 series

**6000 SERIES – WP 6442 Basic** 720  $m^3/h$  @ 207 bar



### Example #5:

# 20' Offshore Container for Seismic Exploration

### 6000 series - WP 6442 Basic

- Mobile solution for different research vessels
- Certified according to DNV 2.7-1

# **Technical Data**

Volumetric flow: 600 m³/h | 10 m³/min | 350 scfm

Max. Pressure: 207 bar(g) | 3000 psig





Your local partner:

# J.P. Sauer & Sohn Maschinenbau GmbH P.O. Box 9213, 24157 Kiel/Germany

PHONE + 49 431 3940-0 FAX + 49 431 3940-24

E-MAIL info@sauercompressors.de www.sauercompressors.com

We reserve the right to make technical changes without prior notice.

Please visit **www.sauercompressors.com** for the latest version of the brochure.

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