



S a u e r

C o m p r e s s o r s

for the Navy

- **reliable**
- **competent**
- **references**



Sauer Compressors for the Navy

- **High-Pressure Compressors**
- **Medium-Pressure Compressors**
- **Low-Pressure Compressors**
- **Non-magnetic Compressors**

Sauer Compressors for the Navy are developed on the basis of the philosophy that for the maritime market and especially for the navy market special demands exist. This is the reason that maritime or navy users require different solutions compared to industrial ones.

Due to this opinion Sauer Navy compressors were developed especially for use on submarines and naval combat ships. During this development it was referred to the long time expertise in the production of navy compressors as well as to the long experience in the production of commercial compressors.

The main requirements of development are:

- small space requirements,
- light weight,
- reduction of noise and vibration,
- high shock resistance,
- high reliability,
- long maintenance intervals,
- easy service



Sauer Compressors for the Navy are the answer to these requirements as they incorporate all special features which are vital for naval applications.

Constant innovation, such as the development of the WP 5000 range with 100% balanced free inertial forces, ensures the technical leadership necessary for future naval applications.



More than 16 Aircraft Carriers, e. g. the **USS Dwight D. Eisenhower** equipped with 4 x WP 5000



More than 104 Destroyers and Frigates, e. g. the Italian **Francesco Mimbelli** equipped with 2 x WP 4262



Used by more than 50 Navies Worldwide

J.P. Sauer & Sohn Maschienbau GmbH & Co. (formerly Poppe Compressors) have been building special compressors for the navy for over 50 years.

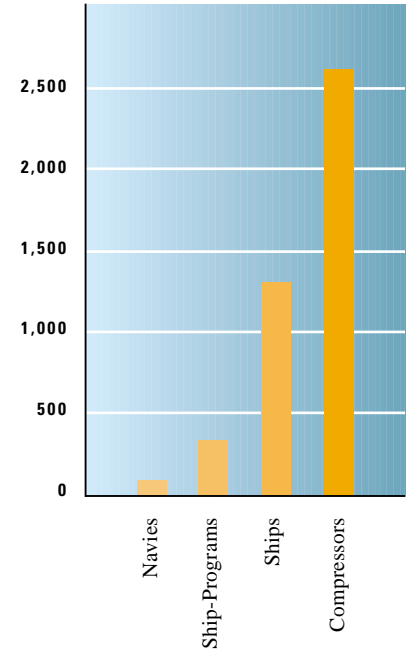
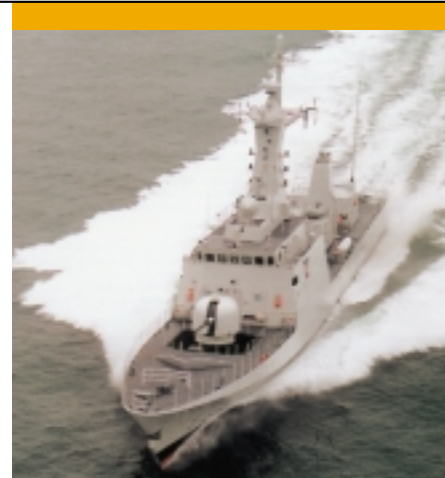
Starting as supplier to the German Navy with its high demands in technology and quality, Sauer quickly gained a high reputation as a reliable manufacturer of navy compressors.

Today more than 50 navies worldwide use Sauer compressors onboard their fighting and auxiliary vessels.

The reasons for this success is:

- knowledge of the special demands,
- reliability of the compressors,
- credibility of the company.

Together with the company Girodin-Sauer belonging to the group since 1989, and its special knowledge in the design of swash plate compressors which are in use e. g. in the French nuclear submarines, Sauer today is the world market leader for submarine compressor.



Upon request Sauer can provide you a full reference list



More than 191 submarines, e. g. the German **U 212** equipped with 1 x WP 5000 and 1 x WP 3232



More than 638 Corvettes and Fast Attack Crafts, e. g. the Brazilian **Inhauma** equipped with 2 x WP 4262



More than 182 Miscellaneous Vessels, e.g. the Royal British Navy **Wave Knight** with 2 x WP 200 and 2 x WP 4330



More than 130 MCMV, e.g. the German **MJ 332** equipped with 2 x WP 3232-600

Sauer HP compressors water-cooled

The Sauer Navy compressors of the series WP 5000 have been specially designed for the use on combat ships destroyers, frigates or submarines. They are available with AC- or DC-motor and can be delivered for surface ships or special high sophisticated submarine versions.

Their special feature is the vertical crankshaft with the 4 cylinders radially arranged around it with the motor direct coupled on top of the compressors.

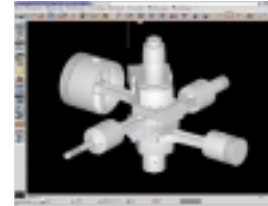
Technical Data

Water-cooled compressors series WP 5000										
Final pressure 250 bar										
Type	Stages	Cylinder	Speed rpm	Charging Capacity m ³ /h (FAD)	Power required kW	Weight kg	Length mm	Width mm	Height mm	Frequenzy Hz
WP 5500	4	4	1170	53	14,2	930	970	810	1325	60
			1470	66	21,6					50
			1770	81	26,0					60
WP 5000	4	4	1170	105	28,5	1650	1215	1095	1570	50
			1470	133	43,2					60
			1770	162	52,0					50
Final pressure 350 bar										
Type	Stages	Cylinder	Speed rpm	Charging Capacity m ³ /h (FAD)	Power required kW	Weight kg	Length mm	Width mm	Height mm	Frequenzy Hz
WP 5500	4	4	1170	52	15,3	930	970	810	1325	60
			1470	65	23,3					50
			1770	80	28,0					60
WP 5000	4	4	1170	100	30,7	1650	1215	1095	1570	50
			1470	130	46,5					60
			1770	160	56,0					50

Water-cooled & axial swash plate type compressors series TGM (Girodin-Sauer)										
Final pressure 250 bar										
Type	Stages	Cylinder	Speed rpm	Charging Capacity m ³ /h (FAD)	Power required kW	Weight kg	Length mm	Width mm	Height mm	Frequenzy Hz
TGM 15/30	4	4	1070	15	6,5	360	1000	650	780	50/60
TGM 60/100	4	4	620	60	20	1100	1135	940	1300	50/60
			850	80	28	1100	1135	940	1300	50/60
TGM 150/250	4	4	680	150	45	2000	1800	940	1500	50/60

Performance data with 5% tolerance, referred to 20° C and an air pressure of 1013 mbar.
Charging Capacity according to international navy standards.

Series up to 350 bar



Vertical arrangement of the crankshaft with cylinders radial round it ensures lowest vibration and structure borne noise values

Direct drive by AC or DC motors via an elastic coupling

Special suction and delivery dampers available for lowest air borne and pipe noise

If requested the compressor can be equipped with a low maintenance Interstage Membrane Dehydrator (IMD) or traditional dessicant dryer in a module

Material selection for cooling water circuit suitable for most aggressive seawater conditions. Avoidance of dissimilar material combination in all parts of the circuit

High efficient valves for longest maintenance intervals – prearranged in the valves covers for easy and quick maintenance

Sophisticated integrated drainage system for lowest drain noise



Submarine versions designed for cooling water pressure up to 50 bar



Straight cooler tubes, drawable to both sides of the cooler for easy cleaning and installation. The floating design prevent heat stress in the bundle and consequential damages

Dry cylinder liners and hermetic separation of the water circuits from the oil – and air circuits for highest reliability



High-efficient separators after each cooler for best air quality. Oil content in the high-pressure air of less than 1 ppm

Sauer HP compressors air-cooled

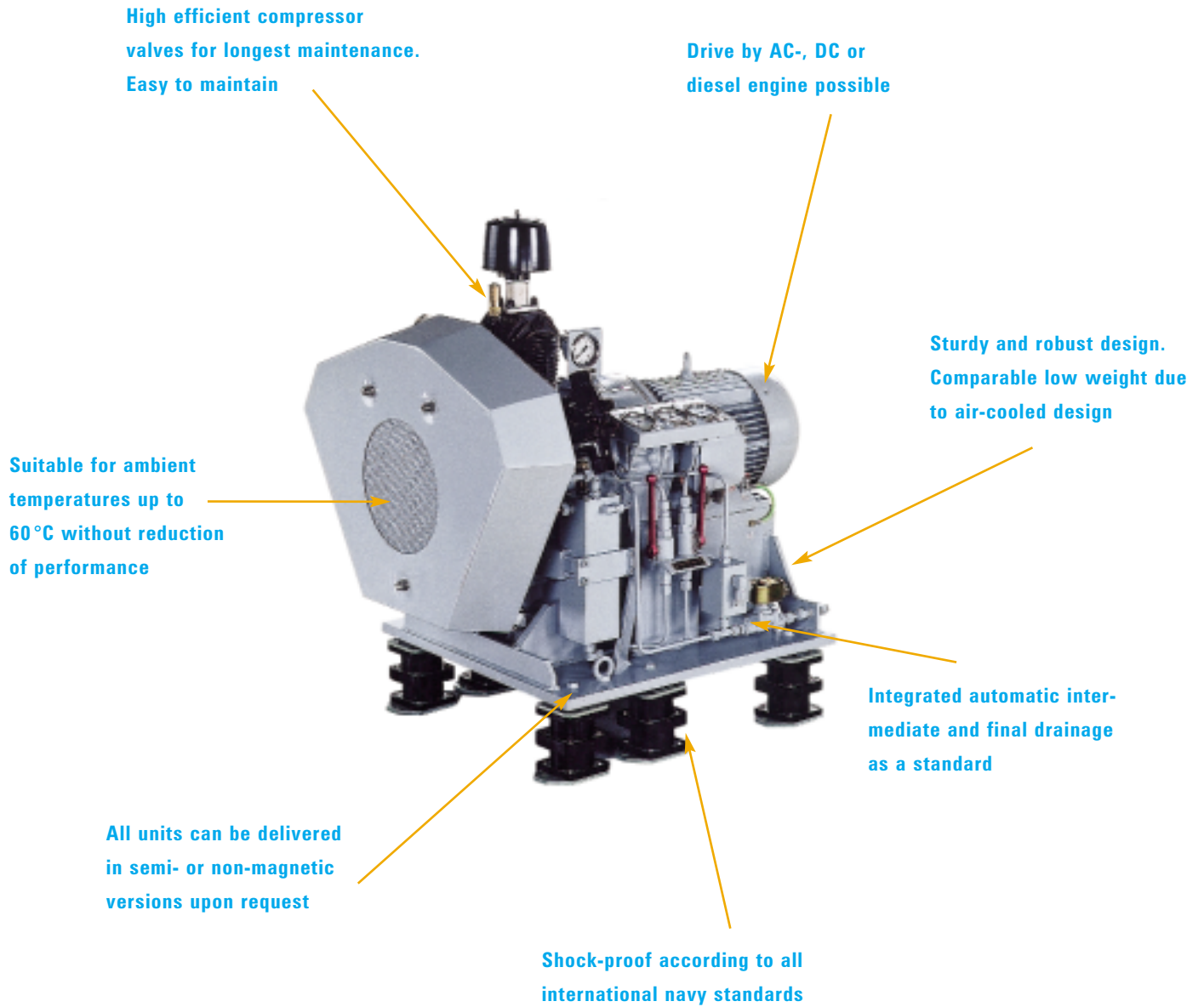
In the year 1955 Sauer delivered the first air-cooled light weight HP compressors 3231N, which is still to be seen in the German Museum in Munich as first of its kind. Since then Sauer delivered more than 1000 air-cooled HP compressors for navy applications which due to their special design, work to full satisfaction of the users. Main features of Sauer air-cooled HP compressors are:

- Light weight
- Robust design
- Suitable for ambient temperatures up to +60°C
- Low and easy maintenance
- To be delivered in non-magnetic version upon request
- Suitable for breathing air supply
- Drive by AC-, DC- or diesel engine
- Available in semi- or non-magnetic design
- Maximum pressure 350 bar

Technical Data

Air-cooled compressors										
Final pressure 40 bar										
Type	Stages	Cylinder	Speed rpm	Charging Capacity m ³ /h	Power required kW	Weight kg	Length mm	Width mm	Height mm	Frequenzy Hz
WP 22 L	2	2	1150	15,9	3,7	120	812	600	630	60
			1450	20,0	4,6					50
			1750	24,0	5,7					60
WP 45 L	2	2	1170	38,0	8,0	310	1210	745	820	60
			1450	48,0	10,0					50
			1750	58,0	12,0					60
WP 81 L	3	3	1170	63,0	13,7	415	1345	945	900	60
			1470	79,0	15,8					50
			1770	96,0	18,9					60
Final pressure 250 bar										
Type	Stages	Cylinder	Speed rpm	Charging Capacity m ³ /h	Power required kW	Weight kg	Length mm	Width mm	Height mm	Frequenzy Hz
WP 3232	3	3	1170	11,0	5,3	291	920	710	970	60
			1470	14,2	6,8					50
WP 4331	4	4	1470	30,0	14,2	480	1350	720	930	50
			1770	36,0	17,2					60
WP 4341	4	4	1470	54,0	20,5	530	1350	860	860	50
			1770	65,0	24,1					60

Performance data with 5% tolerance, referred to 20° C and an air pressure of 1013 mbar. Charging Capacity according to international navy standards. Performance data on final pressure deviating from above pressures upon request. Maximum pressure 350 bar.



Your local agent:



Ein Mitglied der
SAUER-Gruppe

J.P. Sauer & Sohn Maschinenbau GmbH

P.O. Box 92 13
D-24157 Kiel
Phone +49 (0) 4 31/39 40-0
Fax +49 (0) 4 31/39 40-24
e-mail: info@sauersohn.de
Internet: <http://www.sauersohn.de>

Sales Department Compressors

Phone +49 (0) 4 31/39 40-82
39 40-85
Fax 39 40-24
e-mail: sales@sauersohn.de

Customer Service/Spare Parts

Phone +49 (0) 4 31/39 40-86
39 40-87
Fax 39 40-89
e-mail: service@sauersohn.de

24 h emergency service

Phone +49 (0) 172-4 14 63 94

