

Your Advantages by using

*Sauer 3 - Stage*

*Air-cooled*

*Compressors*

- lower temperatures
- less maintenance costs
- easy installation



# Your Advantages as a shipowner

Rising demands of the shipowners to reduce maintenance and crew costs were the reasons for Sauer & Sohn to develop in the beginning of the 70ties starting-air compressors in 3-stage air-cooled design for shipboard applications.

Due to the physical laws air is heated during compression. The final compression temperature is dependant on the compression-ratio in each stage. By dividing up the total compression-ratio into 3 stages, lower compression temperatures in the cylinders and valves can be achieved compared to 2-stage water-cooled compressors.

## ... lower temperatures

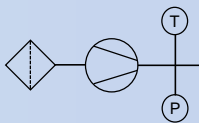
Due to the lower compression temperatures the thermal cracking of the lubricating oil will not be reached and consequently the compressor valves will not be soiled by oil coke. Thus Sauer & Sohn can guarantee maintenance intervals of 2000 hours for the valves which reduce the maintenance costs compared to 2-stage water-cooled compressors.

The reduced compression temperatures allow the use of standard mineral oil SAE 30 as it is used e. g. in 2- and 4-stroke diesel engines. The use of expensive synthetic oil ist not required for proper performance.

## ... less maintenance costs

By abolishment of the cooling water circuit with its flanges, packings, fittings and cooling water pumps a higher reliability and an easier control and supervision of the compressors is achieved.

The simple way of cooling is also the reason for more and more shipyards to prefer air-cooled compressors. In addition to the fact that an auxiliary with less interfaces is installed, the weight and space is smaller thus enabling lighter and less expensive foundations. The total ventilation of the ship has not to be increased. The compressors have only to be taken into consideration in arrangement of the ventilation.

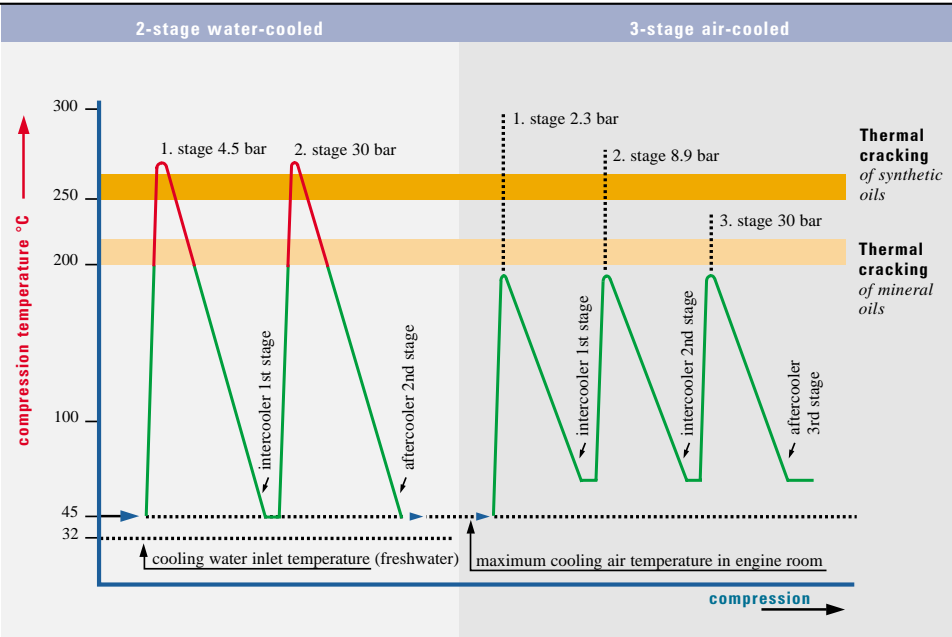


## ... easy installation

### Special Features of 3-stage air-cooled compressors by Sauer & Sohn:

- Available from 66 up to 360 m<sup>3</sup>/h capacity
- Final pressure max. 45 bar
- Suitable for continuous running 24 hours by 24 hours
- Low piston speed due to short stroke design
- Cylinders in W-arrangement for lowest vibration
- Suitable for standard mineral oils SAE 30
- More than 3500 units sold since 1977

# and as a shipbuilder ...



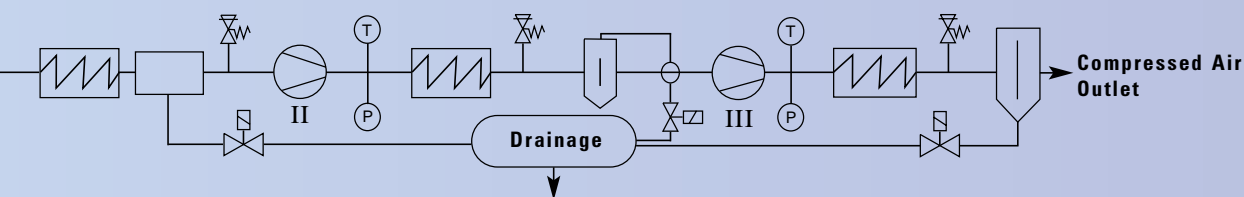
Temperature rises of air during compression. Temperatures calculated based on the physical laws and technical regulations. Above mentioned temperatures occur in the cylinders/valves and can not be compared with temperatures displayed on compressors by standard thermometers.

- 2000 hours checking intervals for the compressor valves and life time up to 6000 hours
- Reduced crew-costs by easy maintenance
- Long warranty period of 2 years
- Reduced spare part consumption due to lower compression temperatures
- High reliability by missing cooling water system
- No need of synthetic oils for proper performance
- Designed and tested for 60°C ambient temperature
- Better air quality and reduced risk of condensation in the lube oil sump, due to additional separator after the 2nd stage



2nd stage water-cooled valve after 800 hours

3rd stage air-cooled valve after 2.500 hours



- No installation of cooling water lines and fittings
- Reduced costs for supervision and control by missing cooling water system. Up to \$ 5.000 cost savings per ship.
- Reduced weight and space compared to low-speed water-cooled compressors
- Up-to-date ship design as the running costs of the shipowner will be reduced

No interfaces for cooling water required

Firms of high reputation around the world rely on Sauer 3-stage air-cooled compressors



Upon request, Sauer & Sohn will provide you with further information and references. Please contact us by Fax +49 (0) 431/39 40-24 or e-mail: sales@sauersohn.de

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