

B-NITROX MEMBRANE SYSTEM

LOW-MAINTENANCE METHOD FOR LARGE-VOLUME NITROX PRODUCTION

With TÜV certified high-pressure nitrox compressor and reliable oil removal by the ETC Converter (Purification Module), BAUER's nitrox Membrane System is designed to comply with the strictest standards.

All components are exactly matched for maximum safety. The system is designed for reliable nitrox supply to stationary professional diving centres, safari boats, liveaboards, yachts and cruise ships and for commercial diving missions.

The B-NITROX Membrane System is ideal for professional diving centres that prioritise safety, high free air delivery, low maintenance and low operating costs.

- › **260 – 450 l/min**
- › **Nitrox up to 40 % O₂**

FEATURES

- › **TÜV-certified safety of the nitrox compressor ex works**
- › **Cost-effective**
- › **BAUER PureAir Certification available**
- › **B-CONTROL II compressor control unit makes it easy to set the desired oxygen level**



B-NITROX MEMBRANE SYSTEM

TECHNICAL SPECIFICATIONS

Charging rate HP-Nitrox compressor	LOW PRESSURE MODULE	PURIFICATION MODULE	NITROX MODULE	HIGH PRESSURE MODULE	
l/min	kW	kW	kW	Typ	kW
Oxygen content up to 36 %					
260	7.5	1.2	1.2	V12.14-OX-5.5-5	5.5
320	7.5	1.2	1.2	V12.14-OX-7.5-5	7.5
450	11	2.5	1.6	V15.1-OX-11-5	11
Oxygen content up to 40 %					
260	11	2.5	1.6	V12.14-OX-5.5-5	5.5
320	11	2.5	1.6	V12.14-OX-7.5-5	7.5
450	18.5	2.5	2.2	V15.1-OX-11-5	11

1 Measured by cylinder filling from 0 - 200 bar, ± 5 %.

2 For further data see page 14/16.

HOW THE MEMBRANE SYSTEM WORKS

For nitrox production and filling to be safe and reliable, all system components must be designed to function with each other and be perfectly matched – as BAUER quality systems naturally are.

The membrane system separates out the amount of nitrogen required for the breathing air to reach the desired oxygen content.



LOW PRESSURE MODULE

Energy-efficient low-pressure compression module reliably achieves the intake pressure required by the NITROX membrane.

- › Screw-type module with high-efficiency rolling profile from our in-house production
- › Extra-silent operation at only 62 to 71 dB[A]¹ (depending on unit type) with efficient Super Silent housing
- › Free air delivery and primary pressure of the unit range are perfectly aligned to the free air delivery of the corresponding HIGH-PRESSURE MODULE.

PURIFICATION MODULE

Production of oil-free air based on a catalytic process

- › The innovative ETC converter separates the oil into pure water and small quantities of CO₂
- › Oil free in accordance with Class 0 (0.0025 mg/Nm³) as per ISO 8573.
- › Economical in continuous operation as regular filter changes are not necessary, unlike conventional activated carbon filters
- › In contrast to conventional activated carbon filters, the residual oil content is independent of the oil content, humidity and temperature of the compressed air



¹ +/- 2 dB[A], measured at 1 m distance.

HOW THE PURIFICATION MODULE WORKS

The PURIFICATION MODULE is based on an ETC converter



- 1 The compressed air is fed from the LOW PRESSURE MODULE to the PURIFICATION MODULE with an oil charge of approx. 3-5 mg/Nm³.
- 2 The air, already preheated in the integrated heat exchanger to approx. 190°C, is now further heated to approx. 210° C in the ETC converter using an electric heater and fed through the ETC catalytic filling.
- 3 The oil molecules in the air are separated off in the catalytic filling and oxidised there into CO₂ and water in a similar process to an automotive catalytic converter.
- 4 The catalytically purified air now leaves the converter with a maximum residual oil content of 0.0025 mg/Nm³ (equivalent to one cube of sugar dissolved in the tanker volume of 10 super tankers). Now optimally purified by the heat exchanger and downstream particle filter, it is fed into the NITROX MODULE.

NITROX MODULE

The OX MEMBRANE separates N₂ from the breathing air and thus increases the oxygen content.

- › Freely adjustable oxygen content up to 40 %
- › A new type of cooling system uses the nitrogen separated by the membrane to maintain constant process temperature during operation, irrespective of changes in outside temperature. This ensures that the pre-set composition of the nitrox blend is reliably maintained.



HIGH PRESSURE MODULE

The high-pressure compressor, optimised for compression up to Nitrox EAN 40, delivers reliable and economical operation.

- › Charging rate from 260 to 450 l/min
- › Available as open-unit and Super Silent versions
- › The low thermal stress of the four-stage blocks ensures a high level of safety during nitrox compression and maximises service life.
- › An online temperature monitoring system at all stages and in the oil and water separator automatically shuts down the system if temperatures exceed the pre-set limits, ensuring maximum operating safety.