

THE BAUER B-TROX SYSTEM

Nitrox with TÜV certified safety

- › Nitrox up to 40 %
- › 260 - 450 l/min
- › TÜV CERTIFIED SAFETY EX WORKS
- › BAUER „PUREAIR“ COMPLIANT
- › COST-EFFECTIVE



B-TROX - The safe Nitrox from BAUER

With the TÜV (German Technical Inspection Authority) certification of high pressure compressor for Nitrox and reliable oil removal by the ETC Converter BAUER offers a Nitrox membrane system for high performance.

All components are perfectly matched for providing a maximum of safety. Manufactured for reliable Nitrox supply of stationary professional diving centres, safari boats, liveaboards, yachts and cruise liners as well as for commercial diving missions.

B-TROX - The safe Nitrox from BAUER

In BAUER'S product philosophy, safety for the user always ranks first. Especially when it comes to the development of a complete nitrox system. The result of this philosophy is B-TROX. Created for professional users, for whom the question of safety is as important as for us.

NITROX - ADVANTAGES AND RISKS

Nitrox, oxygen-enriched air exceeding the natural proportion (21%), offers numerous advantages thanks to the reduced nitrogen content:

- › Longer zerohours for diving
- › Shorter decompression times due to the reduced nitrogen content in the breathing air
- › Reduction of the necessary time at surface
- › Less stress when rising and diving frequently

At the same time, inappropriate generation of Nitrox involves an increased risk!

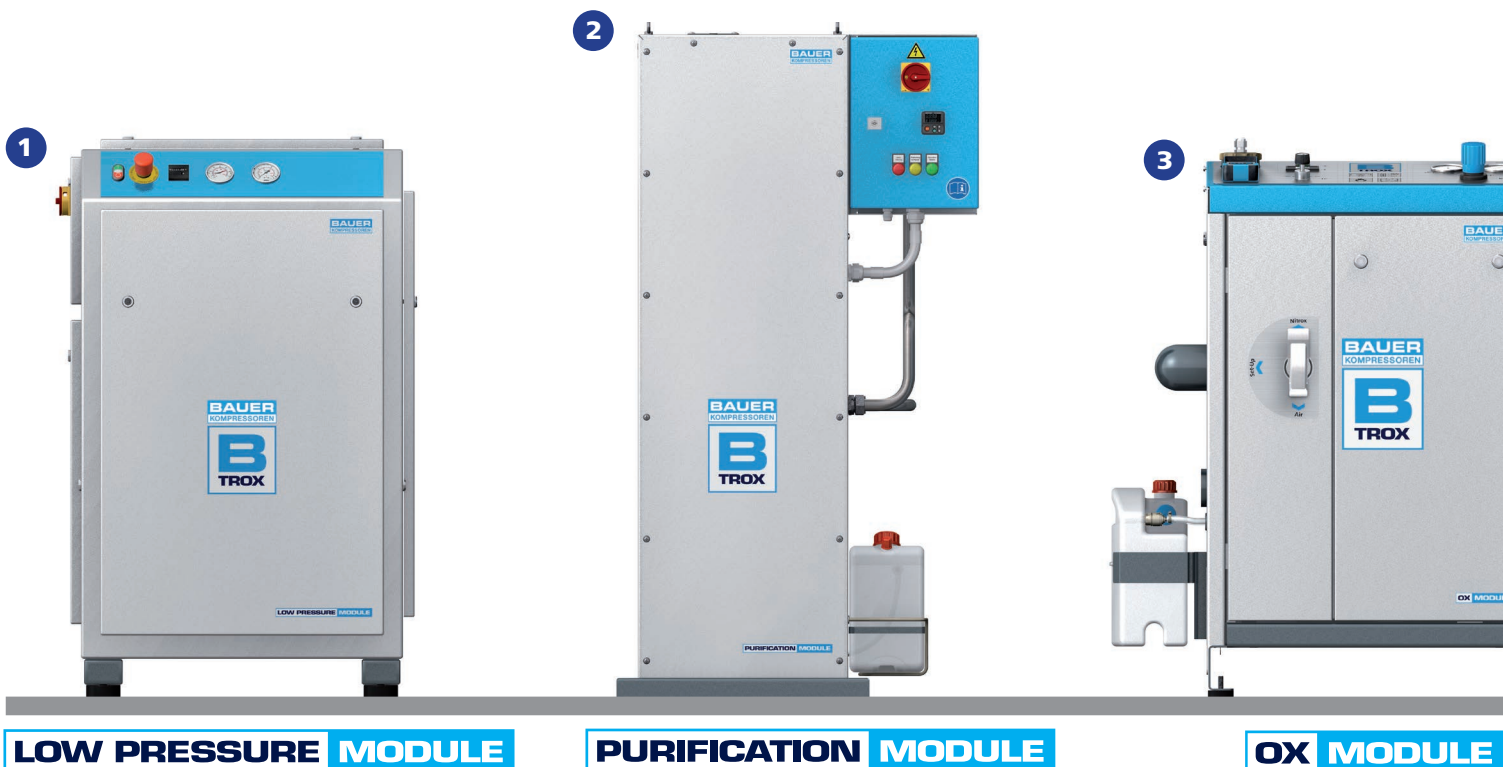
- › Due to the use of inappropriate compressor units or from operating errors, the increased proportion of oxygen can lead to auto-ignition or even explosions during the production of Nitrox.



B-TROX: NITROX, BUT SAFE!

The BAUER B-TROX SYSTEM is the result of years of development and trial in the factory-owned test center:

- › Through its construction and by using tested components, the high pressure compressor has been optimised to provide uncompromised safety with Nitrox use.
- › The easy and safe operating concept prevents application errors.



LOW PRESSURE MODULE

PURIFICATION MODULE

OX MODULE

B-TROX - Safety with system

Safety during filling and reliable operation with Nitrox can only be achieved if all system components are designed to function with each other and are perfectly matched. As in the case of the TÜV certified BAUER B-TROX system.

1 LOW PRESSURE MODULE

The LOW PRESSURE MODULE compresses the ambient air taken in to about 10 bar, so that the OX MODULE is supplied with the required air quantity / pressure for separating off the nitrogen.

2 PURIFICATION MODULE

The ETC converter in the PURIFICATION MODULE removes the oil contained in the pre-compressed air totally, using a catalytic process. This is necessary as otherwise the oxygen membrane in the OX MODULE would be damaged permanently by polluted air.

3 OX MODULE

The oxygen membrane of the OX MODULE separates the required quantity of nitrogen from the breathing air until the predefined proportion of oxygen of the selected nitrox mixture is achieved.

4 HIGH PRESSURE MODULE

The Nitrox mixture generated from the OX MODULE is reliably compressed in the HIGH PRESSURE MODULE to a filling pressure of 200 bar.

5 SAFE FILLING MODULE*

The steel chamber of the SAFE FILLING MODULE B-SAFE 300 offers attendant persons increased protection during the filling process. *optional



HIGH PRESSURE MODULE



SAFE FILLING MODULE

B-TROX - Safety in detail



LOW PRESSURE MODULE

Energy-efficient low-pressure compressor for reliably producing the necessary intake pressure for the OX membrane.

- › Screw-type module with particularly efficient „rolling profile“ from our own production
- › Particular silent operation with - depending on the type of unit - only 62 to 71dB(A)* owing to an efficient super silent housing
- › The F.A.D. and primary pressure of the unit range is perfectly adapted to the F.A.D. of the corresponding HIGH PRESSURE MODULE.

* (+/- 2 dB(A), measured at the distance of 1 meter)

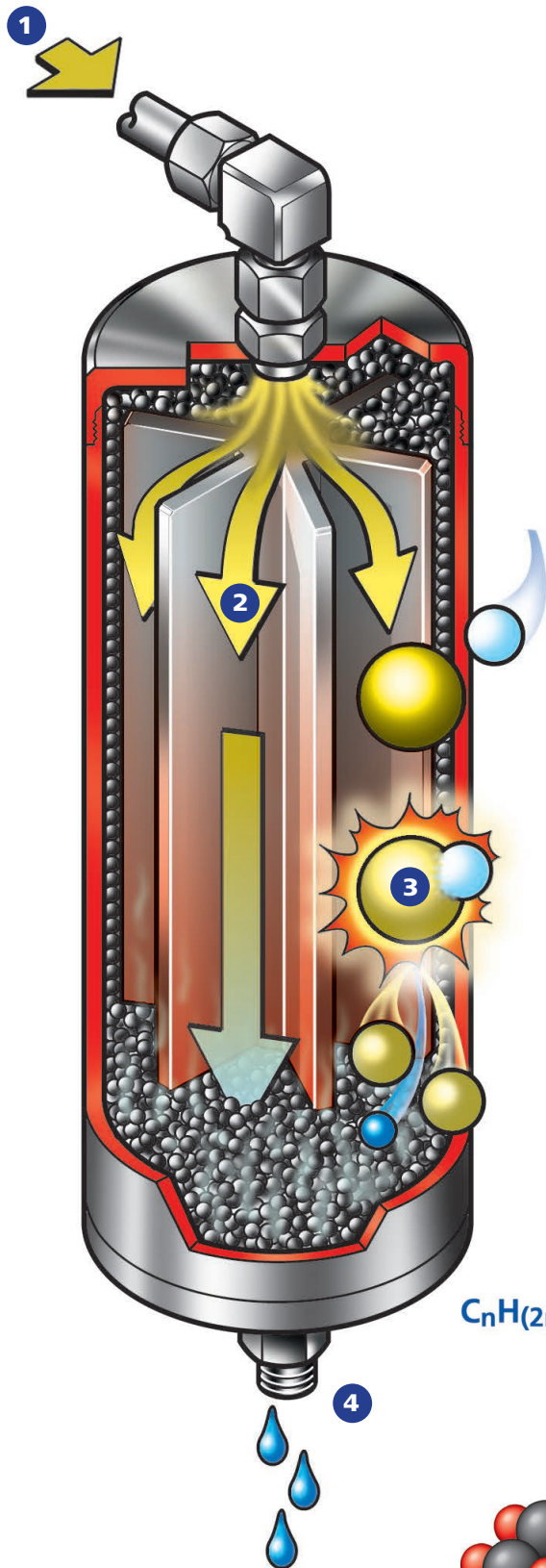


PURIFICATION MODULE

Production of oilfree air on the basis of a catalytic process

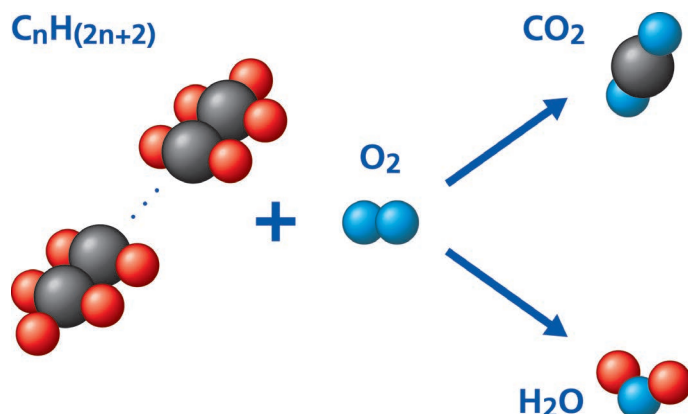
- › Environmentally friendly: The trendsetting ETC converter separates the oil into pure water and small quantities of CO₂. No special waste is generated in the form of oil-water-condensate.
- › Oil-free according to class 0 (0,0025mg/Nm³) in compliance with ISO 8573-1,-2,-5
- › Economic continuous operation, because, in contrast to the conventional activated carbon filters, regularly changing of the filter is not necessary.
- › In contrast to conventional activated carbon filters, the residual oil content is achieved independent of the oil charge, the humidity and the temperature of the compressed air.

Functionality of the PURIFICATION MODULE



The core of the PURIFICATION MODULE is the patented ETC-Converter.

- 1** The compressed air is supplied from the LOW PRESSURE MODULE to the PURIFICATION MODULE, containing an oil charge of 3-5mg/Nm³.
- 2** The temperature of the air already preheated to 190°C in the integrated heat exchanger is raised to approx. 210°C in the ETC converter using an electric heater and is fed through the ETC catalytic filling.
- 3** The oil molecules contained in the air are separated off in the catalyst and oxidized - comparable to the principle of a catalytic converter in a car - into CO₂ and water.
- 4** The catalytically purified air now leaves the converter containing a concentration of residual oil of a maximum of 0,0025mg/Nm³ (this corresponds to 1 sugar cube dissolved in the shipping volume of 10 supertankers) and is fed, optimally purified by the heat exchanger and the downstream particle filter, to the OX MODULE.



B-TROX - Safety in detail



OX MODULE

The oxygen membrane separates N_2 from the breathing air generating a higher proportion of oxygen.

- › Freely adjustable oxygen content up to 40%
- › A newly developed cooling system using the nitrogen separated by the membrane provides for a constant process temperature during continuous operation independent of the varying outside temperatures. This ensures that the defined percentage of the Nitrox mixture is reliably maintained.

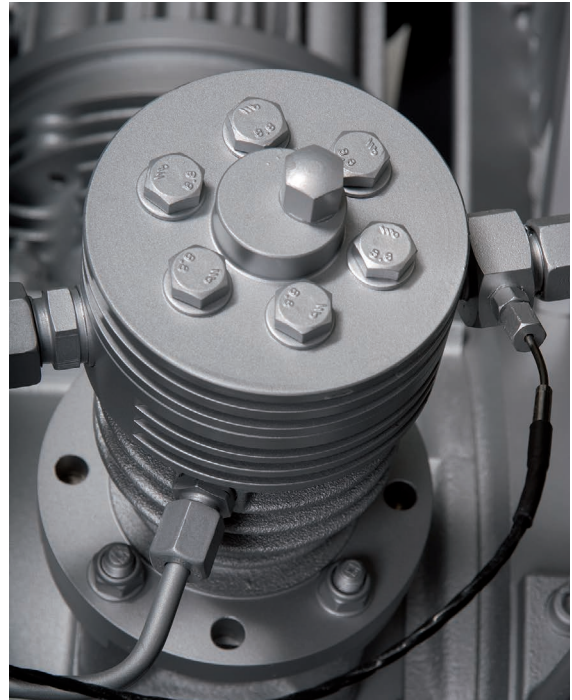


HIGH PRESSURE MODULE

The high pressure compressor optimised for compression up to Nitrox EAN 40 provides for a reliable and economic operation.

- › F.A.D. range from 260 to 450 l/min.
- › Available as open unit version (KAP) and as Super Silent version (V5)
- › The low thermal stress of the 4-stage blocks provides a high degree of safety during the compression of nitrox and maximum life to the unit.
- › An online temperature monitoring system at all stages switches off the unit automatically in case of overheating. This provides high operational safety.
- › The easy-to-use „state of the art“ control with a large 7-inch touch screen displays all unit data clearly and allows configuration of the most important parameters.
- › Hardened cylinders with special plateau honing as well as high-tech polymer piston rings in the final stage for minimum oil consumption and wear.

- › Robust low pressure oil pump with oil filter for both extended life and oil change intervals
- › Robust industrial roller bearings suited for continuous operation for 30,000 operating hours and more
- › Corrosion resistant interstage and afterstage coolers made of stainless steel
- › P61 purification system with particularly long filter life ensuring reliable supply of pure Nitrox.
- › The filter monitoring system SECURUS continually checks the degree of saturation of the cartridge by humidity and indicates in due time when a filter change is necessary. When the cartridge is saturated, the unit shuts off automatically.



Temperature monitoring at the final stage

SAFE FILLING MODULE*

During the filling process, the safety chamber B-SAFE 300 raises the safety of persons and environment.

- › Increased protection, e.g. against severed filling hose connections due to safety chamber made of steel
- › Automatic locking of the doors during the filling process *optional



Technical Data

Model	Number of stages	F.A.D ¹	R.P.M	Filling rate ²	Drive		Purification system	Dimensions (app. cm) ³			Weight net. approx. ⁴
					kW	HP		L	W	H	
max 200 bar		l/min	min⁻¹	min	kW	HP	P-range				kg
V 12.14 – OX - 5,5-5	4	260	1185	0,8	5,5	7,5	P 61	114	83	152	305
V 12.14 – OX - 7,5-5	4	320	1450	0,6	7,5	10	P 61				310
V 15.1 – OX - 11-5	4	450	1320	0,4	11	15	P 61				350

¹ Cylinder filling from 0 to 200bar

³ Dimensions for open version, Dimensions silent version: 148 x 83 x 152 cm

² Filling rate for 1l cylinder capacity from 0 to 200 bar

⁴ Weight for open version, weight silent version: +90 kg

Free gas delivery of the compressor	LOW PRESSURE MODULE	PURIFICATION MODULE	OX MODULE	HIGH PRESSURE MODULE	
l/min	Output performance of the individual unit components in kW				
Oxygen content up to 36 %					
260	7,5	1,2	1,2	V 12.14 – OX - 5,5-5	5,5
320	7,5	1,2	1,2	V 12.14 – OX - 7,5-5	7,5
450	11	2,5	1,6	V 15.1 – OX - 11-5	11
Oxygen content up to 40 %					
260	11	2,5	1,6	V 12.14 – OX - 5,5-5	5,5
320	11	2,5	1,6	V 12.14 – OX - 7,5-5	7,5
450	18,5	2,5	2,2	V 15.1 – OX - 11-5	11