

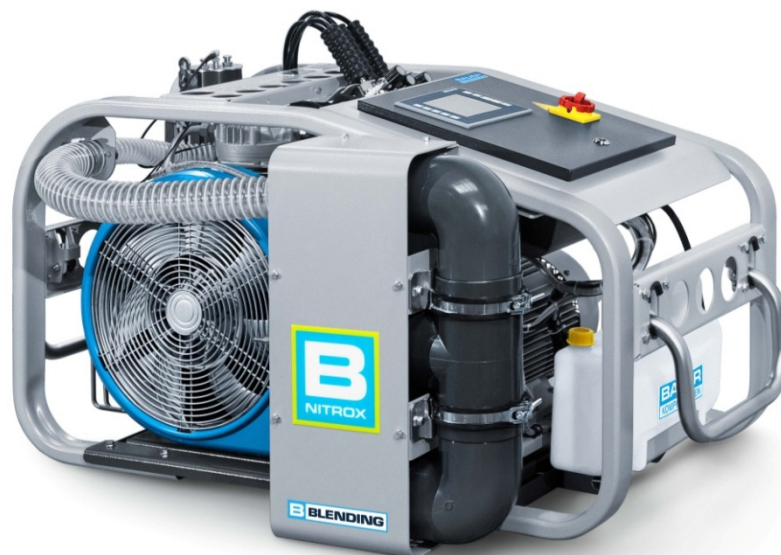
Breathing Air High Pressure Compressor Unit with B-BLENDING Module for Producing Nitrox

Model: Mariner320-E-OX with B-BLENDING

The high-pressure breathing air compressor MARINER320-OX is used for filling pressure vessels with Nitrox and / or breathing air for diving purposes.

The B-BLENDING module produces an optimum gas blend by combining pre-cleaned ambient air with bottled oxygen in the ratio pre-set on the compressor control panel by the user.

The maximum allowable operating pressure (final stage safety valve setting) for MARINER320-E-OX is 225 bar



Mariner 320-OX with B-BLENDING Panel

General	
Medium	Air / nitrox up to 40% O ₂
Intake pressure	Atmospheric
Operating pressure	PN200 (225 bar setting pressure final safety valve)
Allowed ambient temperature	+5...+40°C
Allowed altitude	0...1500 m MSL
Sound pressure level	Approx. 83 dB(A)
Standard operating voltage	400 V; 50 Hz
Different operating voltage	On request
Compressor oil standard	Synthetic
Compressor oil change intervals	Synthetic: 1 x per year / 1000 h

MARINER320-E-OX with B-BLENDING

Compressor unit	Mariner320-OX
Charging rate <i>(measured by tank filling from 0-200 bar ± 5%)</i>	320 l/min (19 m ³ /h)
Filling pressure	PN200
Setting, final safety valve	max. 225 bar
Setting, final pressure sensor (optional)	max. 220 bar
Purification system	P41/350
Power electric motor	7.5 kW
Required cooling air flow, min.	2250 m ³ /h
Max. inclination	15°
Version	Open
Weight in kg	approx. 200 kg (incl. blending module)
Dimensions (LxWxH)	1320 x 820 x 750 mm

B-BLENDING System	
Flame trap/blowback protector	According to EN 730-1 / ISO 5175
Admission	BAM (Federal Institute for Materials Research)
Solenoid valve	24 VDC for 100% oxygen
Overflow valve	Set to 5 - 10 bar (depending on unit) Suitable for 100% oxygen
Proportional valve	24 VDC for 100% oxygen
Pressure sensor	0-1,6 bar abs. G1/4 for 100% oxygen
Oxygen sensor	800 mbar... 5 bar Zirconium dioxide sensor element incl. external interface board, 24 VDC / 600 mA
Connection O ₂ inlet	Pipe connection D6 mm (clamping ring)
Connection nitrox outlet	Hose D40 mm / 60 mm
Connection bleeding O ₂	Hose D6 mm
Dimensions (LxWxH)	approx. 520 x 180 x 650 mm
Weight	approx. 31 kg

B-BLENDING System can be attached at the front of the compressor or mounted on the wall.

The compressor unit consists of the following main components:

- Compressor block
- Drive motor
- Purification system P41/350
- Filling devices for Nitrox
- Carrying frame with fold-out handles
- Automatic condensate drain
- Compressor control B-CONTROL II
- B-SECURUS Monitoring (OPTION)
- Trolley (OPTION)

Standard scope of supply:
› Compressor Block

- Oil pump for pressure lubrication, with oil filter
- Micronic intake filter: 10 µm
- Interstage cooler, air-cooled
- Afterstage cooler, air-cooled, outlet temperature approx. 10-15 °C above cooling-air temperature
- Interstage separator after each compression stage (except stage 1)
- Final separator for oil/water condensate after final stage
- Safety valves after each stage, final pressure safety valve TÜV type-approved
- Pressuriser valve and non-return valve after final compressor stage

Compressor block	IK12.14
Charging rate	320 l/min
Speed	1450 1/min
Number of stages	4
Number of cylinders	3
Cylinder bore 1st stage	105 mm
Cylinder bore 2nd stage	88 mm
Cylinder bore 3rd stage	28 mm
Cylinder bore 4th stage	12 mm
Stroke	40 mm
Direction of rotation (viewed facing flywheel)	left
Engine type	V-belt
Intermediate pressure first stage	4.2 bar
Intermediate pressure second stage	18 bar
Intermediate pressure third stage	85 bar
Amount of oil	2.8 l
Oil pressure	4.5 bar ± 1.5 bar
Suction pressure / inlet pressure	1.0 bar _a
Weight	59 kg

› Drive

Drive (three-phase motor)	E-Motor
Power	7.5 kW
Model	A132S
Version	B3
Type ¹	Cage rotor 50/60 Hz
Rated current	14.2 A (at 400 V/50 Hz)
Speed	2900 1/min
Protection class	IP55 (TEFC)
Weight	50 kg

¹ Different voltage / different frequency available at extra charge on request.

› Purification System P41/350 - Filter with separate oil and water separator

SCOPE OF DELIVERY:

- 1x filter housing with long-life filter cartridge
- Separator unit with final pressure safety valve
- Check valve between separator and micro filter
- Micro filter
- Air bleeder valve with manometer
- Pressurizer / check valve
- Filter key for cartridge renewal



P41/350 purification system (picture similar)

With BAUER purification systems, breathing air quality in accordance with the requirements of EN 12021:2014 is achieved. CO removal is carried out only with special filter cartridges with hopcalite and only up to 25 ppm in the intake air. If the maximum allowable content of CO₂ according to DIN EN 12021:2014 is exceeded in the intake air, the use of BAUER AERO-GUARD system for CO₂ removal is highly recommended!

Purification System	P41/350
Operating pressure (Standard)	PN200 / PN300
Operating pressure max (PS)	350 bar
Pressure dew point	< -20 °C, equals 3 mg/m ³ at 300 bar
Pipe connection	G 3/8" (condensate drain G 1/4")
Filter housing volume	2.1 l
DGRL 97/23/EG	Container category II
Air purification capacity (at ambient temperature 20°C and 300 bar) ¹	1,595 m ³

¹ When using a BAUER P41/350 filter cartridge without hopcalite. When using a cartridge with CO-removal the air purification capacity is reduced. Different values for SECURUS cartridges.

Compressor Control B-CONTROL II

BAUER B-CONTROL II is the advanced version of the B-CONTROL MICRO basic compressor control unit. It features a touch screen display:

- Desired oxygen level is easy to set (up to 40% O₂)
- Fully automatic operation in line with customer-specific parameters
- Monitors all relevant operating data
- Shuts down the system in the case of deviation from defined operating parameters
- Displays operating data, maintenance information, fault messages and trends



B-CONTROL II display

Compressor control unit	B-CONTROL II
Motor drive	Star delta starter
Output	7.5 kW
Control voltage	24 V DC
Type	Semi-automatic
Operating elements	5.7" TFT colour display 240 x 320 pixels; touch screen plus 10 function buttons, clear text display
Standard features	<ul style="list-style-type: none"> ▪ 5.7" TFT colour touch screen display with clear text ▪ Fully automatic monitoring of relevant parameters; compressor shutdown if values exceed permissible ranges ▪ Choice of languages ▪ Oil pressure monitoring protects against incorrect rotation direction ▪ Maintenance information shown in display ▪ Log stores incident history ▪ Password protection for various menu levels ▪ Base load cycle and interconnected operation for up to 4 connected compressors ▪ Integrated data logger ▪ Cycle counter records load cycles of final separator stage ▪ Interface: USB 2.0, Ethernet 10/100, CAN bus Layer 2, Modbus RTU RS485, Profibus DP slave (optional) ▪ Remote On/Off (galvanically isolated) ▪ Centralised alarm (galvanically isolated) ▪ Simple software update via CF card or USB ▪ Measurement and control of O₂ content in the intake air (mixing section)

› Automatic condensate drain system

The automatic condensate drain removes water from the intermediate separator and the final separator automatically during both operation (every 15 minutes) and shutdown.

SCOPE OF SUPPLY:

- Timer for automatic condensate drain device
- Unloaded start integrated (automatically draining at every shut-down of the unit)
- Condensate collecting tank with silencer; for the environmentally friendly disposal of the condensate

Automatic condensate drain system	
Control voltage	24 V DC
Interval operation (closed / open)	15 min / 6 sec
Solenoid valve	normally open (NO)
Condensate collector capacity	approx. 10 l

› Motor protection switch

consisting of:

- On/off switch
- Connection cable, 5m length
- CEE-Plug (only for voltage 400 V / 50 Hz)

› Filling device 225 bar for Nitrox

Filling Device	4 x 225 bar (Nitrox)
Nominal pressure (PN)	200 bar
Valve type	4 filling valves with integrated manometer
Filling hose	4 Unimam high pressure filling hose, 1 m length
Threaded connection	M26x2

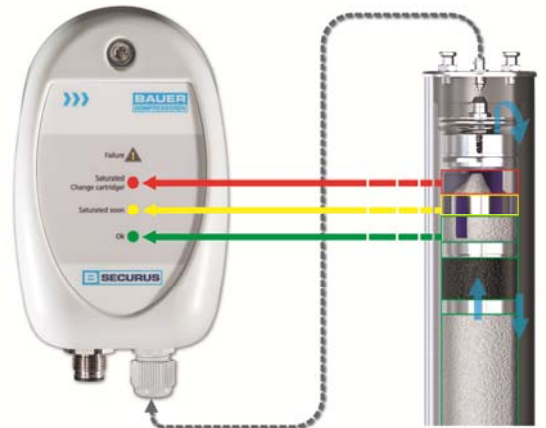
OPTIONS:

› B-SECURUS filter cartridge monitoring system

The B-SECURUS system continuously monitors filter cartridge saturation levels by measuring the moisture in the molecular filter and showing a warning in the display of the B-CONTROL unit when it is time to change the cartridge. When the dryer cartridge is 100% saturated the B-SECURUS automatically shuts down the system.

The following messages are shown on the B-CONTROL display:

- Green segment: Filter cartridge OK
- Yellow segment: Cartridge nearing saturation
- Red segment: Cartridge saturated or contact fault. Compressor is shut down



B-SECURUS Filter Cartridge Monitoring System

Filter cartridge monitoring unit	B-SECURUS
Supply voltage	24 VDC
Power consumption	35 mA at 24 VDC
Protection class	IP 65

› Trolley

Complete with 1 axis and 2 pneumatic wheels, mounted on the compressor frame. The trolley provides an easy and convenient mode of transport for mobile compressor units. Fitted with pneumatic tyres, the trolley maximises mobility.



MARINER-E with trolley

› Additional intermediate separator after the first stage

In the case of operation in locations where air humidity is high (tropical regions, for example), we recommend installing a separator downstream of the first compressor stage. This can extend the service life of the unit and reduce maintenance costs.



Interstage separator

➤ AERO-GUARD-OX CO₂-Adsorber

A sophisticated bypass system conveys air from the compressor intake through AERO-GUARD. Only approximately two-thirds of the air is filtered through the cartridge, which absorbs the CO₂ it contains. The CO₂ content is thus reduced to one-third of that of the intake air, well below the strict requirements of the DIN EN 12021:2014 standard.

At the same time, filter life is significantly extended. Humidification of the air at the bottom of the tank optimizes filter effectiveness under all conditions – even in the driest climates!



AERO-GUARD-OX

Model	Suitable for supply charging rates ¹	Dimensions (L x W x H)	Weight (Including filter cartridge and filling of 10 l water)
	l/min	cm	
Aero-Guard-OX-L	240 – 320	50 x 46 x 72	26 kg
Aero-Guard-OX-XL	330 – 450		

¹ Charging rates of connected compressed measured by tank filling from 0 – 200 bar ± 5%

Dimensions, weight and connection

Model	AERO-GUARD-OX
Medium	NITROX (max. 40 Vol% O ₂), pressurised air
Ambient temperature	+5 to +45°C
Intake air temperature	+5 to +45°C
Rel. humidity of intake air	10 to 60 %
CO ₂ intake air concentration	max. 2000 ppm _v CO ₂
CO ₂ output air concentration	approx. 1/5 of intake concentration = approx. 400 ppm _v CO ₂ at 2.000 ppm _v intake concentration CO ₂
Designed for compressor charging rate	260 – 450 l/min
Filter life	approx. 37 system operating hours (at 450 l/min output volume and 1000 ppm intake concentration of CO ₂) or 1 year of operating hours are lower
Maximum daily operating time:	5 h
Cartridge filling:	Approx. 9 kg special carbon dioxide absorber per cartridge
Pressure loss	Approx. 20 mbar
Max. permissible tilt	15°
Permissible altitude	0 - 2000 m AMSL
Finish	Container blue, cover black/silver, PVC pipes grey RAL7011

➤ Pressure reducer for oxygen cylinder

To connect the system to the oxygen bottles and reduce pressure to the defined inlet pressure of the B-BLENDING system. Available in 200 bar and 300 bar versions.

Pressure Reducer	
Pressure reducer for 100% oxygen	As per DIN EN ISO 2503
Inlet pressure	Max. 200 bar / max. 300 bar
Outlet pressure	Can be set from 0-10 bar
Outlet	G1/4 RH screw thread
Admission	BAM (Federal Institute for Materials Research)

➤ Oxygen hose

- For connection between the pressure reducer and the oxygen inlet of the B-BLENDING system. Approved for up to 100% oxygen. Length: 3 m including 6 mm pipe brackets.
- For bleeding (where oxygen is released from the compressor room into the air). Approved for up to 100% oxygen. Length: 3 m.

Relevant EC Directives (where applicable)

- EC Machinery Directive (2006/42/EC)
- EC Pressure Equipment Directive (97/23/EC)
- EC Low Voltage Directive 2006/95/EC
- EC Electromagnetic Compatibility (EMC) 2004/108/EC

Applied national standards and technical specifications, in particular

- Betriebssicherheitsverordnung (German Industrial Safety Regulation) of 27 September 2002
- AD 2000
- Technische Regeln Druckgase (TRG; **Technical Regulations for Compressed Gases**): TRG 400, 401, 402 (w/o permanent premises) and TRG 790
- Unfallverhütungsvorschrift (BGR; German Accident Prevention Regulations) BGR 500
- All BAUER filter housings are designed, manufactured and tested in line with Accident Prevention Regulations and regulations under AD-2000 provisions and DGRL97/23EG.

Documentation: 1x operating manual and parts list with exploded view drawing on DVD

Design: In line with the state of the art according to DIN, VDE, TÜV and Accident Prevention regulations

Testing: In line with Bauer Standard as per DIN EN 10204 - 3.1

Quotation drawings: 170820-01 Quotation drawings; M320-OX-E BLENDING

Piping Diagram: 166823-01-RLS Piping Diagram; Blending system; V5/M320-OX
167219-01-RLS M320-OX; P41/350;
167219-02-RLS M320-OX; P41/350; SEC;

Signage plan: 167641 signage (Blending-System)

Otherwise the **General Terms and Conditions of BAUER KOMPRESSOREN (AGB)** in the version valid at the time of contract conclusion apply. These Terms & Conditions can be viewed and downloaded at the website www.bauer-kompressoren.com, or sent by BAUER on request.

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