

BAUER
KOMPRESSOREN

Quality. Our DNA



BAUER PURE AIR
THE CONCEPT FOR PURE BREATHING AIR



PURE AIR SILVER AND GOLD

CERTIFICATION THAT ENSURES SAFE BREATHING AIR

Breathing air is the most important part of equipment, the basic condition for ensuring safe dives.

As the market leader in the breathing air industry, we and our products have always been synonymous with the very best breathing air quality. With high-efficiency purification systems, the AERO-GUARD System to reduce carbon dioxide (CO₂) in compliance with breathing air standards, and B-SECURUS to monitor moisture saturation in filter cartridges. And, above all, with the new B-DETECTION PLUS System for seamless monitoring and logging of breathing air quality that complies with the EN 12021:2014¹ standard.

Our PureAir certification allows this quality to be documented at a glance –for your guests, and above all for you as the system provider. Certification as a BAUER PureAir Station places you a step ahead of other diving centres. This mark of quality distinguishes you as an outstandingly safety-conscious and trustworthy operator. In turn, PureAir certification provides you with legal certainty. You can now document that your breathing air quality was monitored.

To provide the very highest level of reliability, we have now introduced PureAir Gold. This new safety level proves to your customers that you use BAUER's new B-DETECTION PLUS Online Gas Measurement System, and that you seamlessly monitor the quality of your breathing air throughout your operations in compliance with the EN 12021:2014¹ Breathing Air Standard.

Allowing you and your customers to rely on flawless top-quality breathing air in every cylinder.

1 Absolute humidity and residual oil (VOC) monitoring optional. Residual oil measurement based on volatile organic compounds (VOCs) only. Sensor calibration based on isobutene.

OIL

breeding-ground for bacteria,
damages lung functions

H₂O

results in severe damage
to materials from corrosion

CO

can block absorption of
oxygen, with fatal results

CO₂

causes impaired perception
or even unconsciousness

WHY POOR BREATHING AIR QUALITY IS SO DANGEROUS

“The breathing air I use is pure!” It’s great to have full confidence in your equipment before embarking on your next dive. There’s one thing that must never be allowed to happen when you take the plunge into fascinating underwater worlds –and that’s to endanger your health.

Poor-quality breathing air is the biggest risk in that situation, The problem is exacerbated by the rising partial pressure of the individual gases, which increases the overall concentration. Carbon monoxide (CO) is the most deadly of all.

The odourless and tasteless gas prevents oxygen from being absorbed by the blood and can be fatal in high doses. Excessive levels of CO₂ can also cause symptoms of poisoning such as headaches, impaired judgement and even loss of consciousness.

Too much moisture in the air may result in severe damage to materials, corroding metal diving cylinders from the inside. There is also a risk of diving regulators icing up during a dive. Contamination of breathing air by oil residues (aerosols) is also far from harmless; minor consequences include headaches, but when levels significantly overstep threshold limits, they may cause oil residues to be permanently deposited in the lungs, where they damage the alveoli.



PureAir certified:

Atlantis Dive Shop, Berlin | Christian Wendt, General Manager

WHICH PRECONDITIONS HAVE TO BE MET?

For certification as a BAUER PureAir station, you have to fulfill the following preconditions:

- You arrange for the correct installation of the compressor unit according to the operating instructions. Consequent observance of these regulations prevents, for example, the intake air being contaminated with carbon monoxide exhaust from a combustion engine.
- You commit to using original BAUER filter cartridges. Only the manufacturing of these cartridges under industrial conditions enables a consistent standard of quality.
- You monitor the air quality of your BAUER filling centre using an internal or downstream B-SECURUS filter monitoring system, thus preventing overrunning the service life of the cartridge.
- You agree to the annual inspection of your filling centre acc. to EN 12021:2014 by an authorised BAUER PureAir partner.
- Additional requirement for PureAir GOLD certification:
Online measurement of CO, CO₂, O₂ and total oil value (VOCs) with a BAUER B-DETECTION online gas measurement system.

PURE AIR SILVER UND GOLD

OUR **TWO CERTIFICATION LEVELS**

“PureAir Silver” certification represents an enormous leap in breathing air safety compared to uncertified diving centres.

Your customers can be secure in the knowledge that installation conditions have been tested, original filter cartridges are used, and our B-SECURUS system is monitoring filter cartridge life and alerting operators when a cartridge needs to be changed.

The new top standard is “PureAir Gold”. The Gold standard includes the conditions applying to PureAir Silver, but additionally requires the use of a B-DETECTION PLUS Gas Measurement System. This ensures that PureAir Gold delivers the very highest safety and security – for your customers, who can verify the purity of the air in their cylinders live at any time, and for yourself. If a problem arises, you can produce the B-DETECTION PLUS operating logs to verify the purity of the air used to fill your cylinders at all times.



MEASUREMENT ONCE A YEAR

of O₂, CO, CO₂, absolute humidity as well as oil¹

MEASUREMENT SYSTEMS:

- › **B-DETECTION PLUS m**
- › **Dräger AEROTEST**
- › **FACTAIR**



CONTINUOUS MEASUREMENT

of O₂, CO, CO₂, absolute humidity as well as oil¹

MEASUREMENT SYSTEM:

- › **B-DETECTION PLUS i/s**

Integrated into the compressor or standalone version, sensors report automatically scheduled calibration and end of their life.

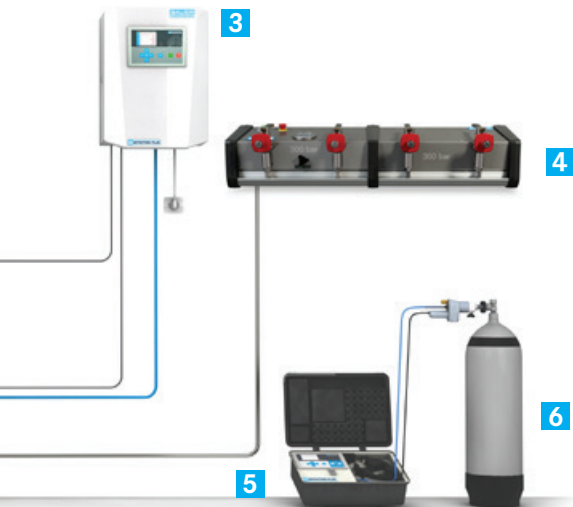
¹ Measurement of total oil value in B-DETECTION only based on volatile organic compounds (VOCs)

SEAMLESS SYSTEM FOR PURE BREATHING AIR

BAUER KOMPRESSOREN supplies a seamless system which transforms ambient air into highly pure compressed breathing air that complies with the EN 12021:2014 Breathing Air Standard. All elements of the system are designed to work perfectly together.



- 1 Breathing air compressor with integrated purification system for producing high-purity breathing air, and B-SECURUS for monitoring filter cartridge life
- 2 AIRBOX
- 3 B-DETECTION PLUS for end-to-end monitoring of breathing air quality
- 4 Filling panel to connect breathing air cylinders
- 5 B-DETECTION PLUS m
- 6 Breathing air cylinder





Gas measuring system B-DETECTION PLUS

B-DETECTION PLUS

SEAMLESSLY MONITORING BREATHING AIR

For complete certainty, the only solution is to monitor breathing air continuously and seamlessly to verify compliance with the EN 12021:2014 Breathing Air Standard. To achieve this, BAUER developed the B-DETECTION PLUS Online Gas Measurement System.

B-DETECTION PLUS measures CO, CO₂ and O₂ as standard and offers options for absolute humidity and the total oil value (VOC)¹. Automatic, continuous and ultra-reliable. The B-CONTROL control unit allows compliance with the threshold limits set forth in the Breathing Air Standard to be monitored at all times. If limit values are exceeded, B-CONTROL displays a visual warning and shuts down the system before contaminated air can pass into the cylinders being filled. In cases where limit values are briefly exceeded, an automatic purging valve (optional) discharges contaminated air to the outside without interrupting operation of the system unnecessarily.

To ensure highly accurate measurement results, BAUER uses high-quality temperature and pressure compensating sensors.

The integrated flow monitor automatically switches the compressor off if flow is interrupted (e.g. in the case of a kinked hose). Altogether, this sophisticated array of features guarantees consistently reliable measurements. A data logger function enables all measurement values within a defined period to be logged and exported as an Excel file, using an SD card for archiving and evidence.

¹ Absolute humidity and residual oil (VOC) monitoring optional. Residual oil measurement based on volatile organic compounds (VOCs) only. Sensor calibration based on isobutene.



AERO-GUARD for CO₂ reduction

AERO-GUARD

EFFECTIVELY LIMITING CO₂ LEVELS IN BREATHING AIR

Unfavourable environmental influences are responsible for permanently rising CO₂ concentrations in the air. As a result, operators of breathing air filling stations are experiencing increasing problems in complying with the mandatory threshold limits specified in the EN 12021:2014 Breathing Air Standard.

AERO-GUARD is the reliable way to ensure that CO₂ levels in compressed breathing air never exceed the permissible limit.

To do this, the system uses a sophisticated bypass system which routes the air from the compressor intake through the AERO-GUARD before it is compressed. Part of this air passes through a special filter cartridge, reducing its CO₂ content to around one-third of that of the intake air – far lower than even the strict limits set forth in the Breathing Air Standard¹.

¹ Provided the maximum CO₂ concentration of the air at intake is not exceeded.

BAUER PURIFICATION SYSTEMS

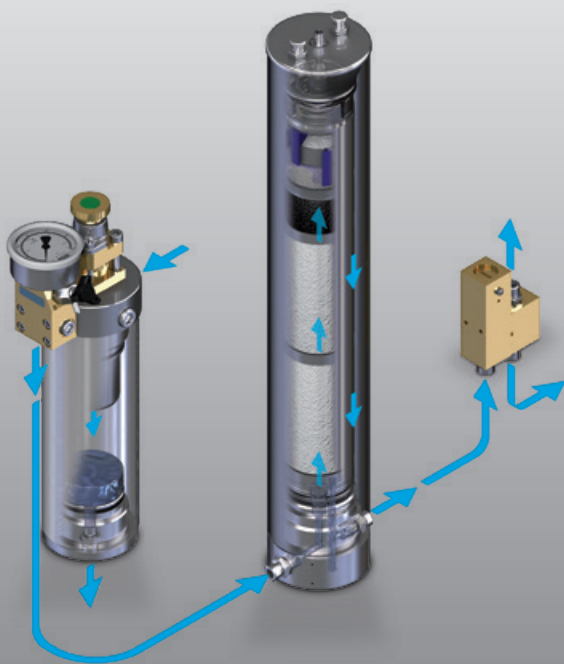
PERFECT AIR PURIFICATION FOR YOUR SAFETY

BAUER has spent decades perfecting its air purification systems. The filter system is at the heart of every BAUER breathing air compressor.

To ensure that the threshold limits specified in the EN 12021:2014 Breathing Air Standard¹ are complied with, the filter housing must be correctly dimensioned and the individual filter media in the cartridge must be perfectly aligned with each other. This European standard defines the purity of compressed air for breathing equipment.

A special filter cartridge is supplied for use with petrol- or diesel-driven compressors. In this case an additional catalytic converter is needed to counteract any critical rise in CO from an accidental intake of exhaust gas. Original BAUER filter cartridges are filled under industrial conditions with high-quality materials in an optimum blend, sealed in moisture-tight vacuum packs and then tested for leak-tightness.

1 CO removal only with a BAUER special cartridge up to a max. concentration of 25 ppm CO in intake air. The compressed purified air then contains no more than 5 ppm CO. The CO₂ content of the intake air must not exceed the value stated in EN 12021:2014! Local TLVs are ignored.



BAUER P-Purification System

B-SECURUS

MONITORING YOUR FILTER CARTRIDGE

Even the slightest risk is too high. Therefore, each BAUER PureAir station must be equipped with B-SECURUS, the filter monitoring system from BAUER or with B-DETECTION PLUS with dew point sensor.

B-SECURUS indicates in good time when the cartridge needs be changed and shuts down the unit automatically as soon as the cartridge is saturated. Unlike conventional systems, B-SECURUS measures the humidity content of the compressed air right from the cartridge. This excludes two of the main causes for polluted breathing air: use of self-filled filter cartridges and belated cartridge replacement.

As the unit only shuts down as soon as the filter is saturated, every cartridge can be completely used – eliminating the need for premature replacement for safety reasons. Thus, B-SECURUS offers you not only safety, but also additional cost-effectiveness.

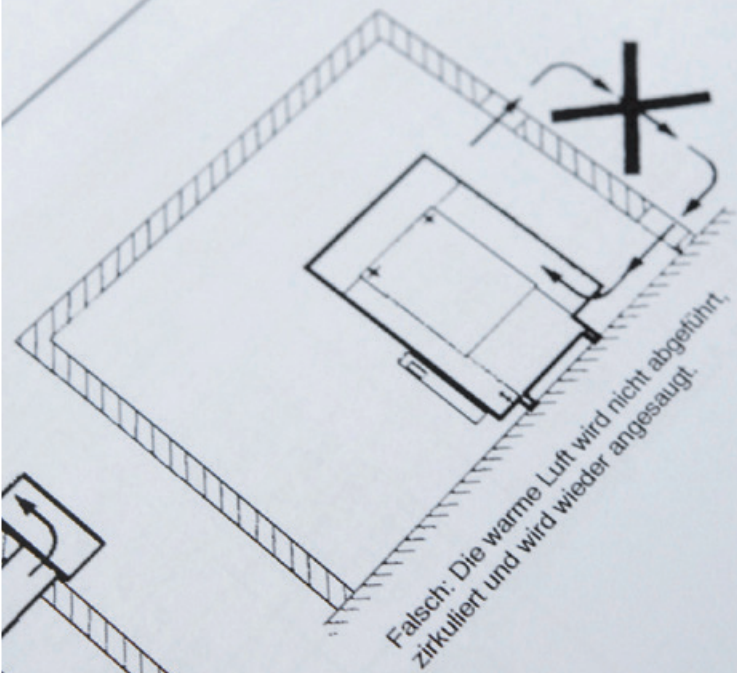


INSTALLING YOUR **COMPRESSOR** CORRECTLY

The first step to BAUER PureAir certification of your diving centre:

- › The floor must be even, dust-free and suited for the weight and vibration load imposed by the compressor.
- › The intake hose - maximum length 3 m, kink-proof and with sufficiently large section - has to be suspended high, dry and facing against the wind.
- › The cooling air flow of the fan and the wind must have the same direction.
- › Faultless air intake and exhaust air during compressor operation must be guaranteed. Re-aspiration of exhaust gas must be avoided under all circumstances. Particularly, proximity to roads with heavy traffic.
- › The ambient temperature must be between 5°C and 45°C.
- › We also recommend measuring your ambient air to exclude generally high CO or CO₂ levels.

Betreiberhand





HOW TO BECOME A BAUER PURE AIR STATION

If you are operating a BAUER filling centre with B-SECURUS monitoring system, you can apply for BAUER PureAir certification. Only authorised BAUER partners with successfully completed PureAir training at the BAUER headquarters in Munich are granted this certificate. Inspection verifies the correct installation and the air quality of the compressor unit.

The water content and the oil, oxygen, carbon dioxide and carbon monoxide concentrations in the breathing air are measured acc. to EN 12021:2014. This European standard defines the purity of compressed air for breathing equipment. Correct observance of the maintenance intervals is also checked, and the result is registered in a test log.

A positive result will lead to your filling station being certified. Your certification is valid for one year maximum. Thereafter, you will require further visits from quality controllers at regular intervals, and after 12 months at the latest. This procedure ensures that BAUER PureAir is the worldwide seal of quality for breathing air filling stations using BAUER units.

If you use a B-DETECTION PLUS online gas measurement system to monitor your breathing air, you can apply for BAUER PureAir Gold Basis certification. Conditions for this certificate include annual functional testing of your B-DETECTION system, including sensor testing after replacement of the electrochemical sensors by a registered BAUER partner. Retrofitting is straightforward and can be performed with all BAUER systems.



The owner of the indoor diving centre Y-40, Emanuele Boaretto (centre) together with his family team Giovanni Boaretto (right) and Antonio Gomiero (left)

WHAT MADE **PURE AIR** THE RIGHT CHOICE FOR Y-40, ONE OF THE WORLD DEEPEST INDOOR DIVING POOL?

When architect Emanuele Boaretto embarked on the quest to make his vision of the world's deepest thermal diving pool a reality, he brought to it the keen sense of perfectionism he had honed in his chosen profession. Nothing but the best would do.

And nowhere did this matter more than in the quality of the most important equipment in the entire pool: the compressors that would provide pure breathing air in line with EN 12021:2014. Two high-performance BAUER compressors featuring B-SECURUS filter monitoring were his choice – and the PureAir certification that was purposely chosen for Y-40 provides divers with that extra layer of safety.

Using only the most expensive materials, the Y-40 pool was erected in Abano-Montegrotto Terme, Italy, as a veritable temple to diving designed to cater to a highly discerning clientele. The facility's centrepiece is a vertical deep-water diving section that plunges a whopping 42 metres into the ground – making it the world's deepest, as documented in the Guinness Book of Records.

PUREAIR – **ESTABLISHING GLOBAL PRESENCE - DIVING**

Diving sports fans will find everything they need to know about PureAir on the website bauerpureair.com.

The interactive world map displays all BAUER PureAir Stations holding current certificates, including BAUER PureAir-certified diving schools, diving centres and filling centres. As a newly certified BAUER PureAir Station, you will automatically be added to the website. This is our free service for diving stations participating in the certification program.

Diving sports enthusiasts can quickly call up an overview of PureAir stations in specific individual regions, or even search for your newly certified station by name. They can read more details about their chosen station by clicking the flag. A further click takes them to your website or enables them to contact you by email.

In addition, we provide you with your personal PureAir certificate and the latest PureAir Starter Packs, to advertise the responsibility you practise as a PureAir station to diving fans and customers. You can use the PureAir seal for promotional purposes such as advertising or catalogue entries.

 bauerpureair.com

PUREAIR STATIONS WORLDWIDE

Auf der Karte sehen Sie identische Füllstationen, die mindestens als offizielle PureAir Stationen zertifiziert sind.

Zum Zoomen der Karte, klicken Sie die Navigationsinstrumente im linken Bereich benutzen. Um den Kartenmaßstab zu ändern, klicken Sie bitte auf die Karte und ziehen Sie sie dann in die gewünschte Richtung.

Wenn Sie mehr Informationen zu einer Füllstation erhalten möchten, klicken Sie bitte auf die entsprechende Markierung / Flagge.

Stationen die einen PureAir Gold Status haben, d.h. bei welchem eine kontinuierliche Messung von Sauerstoff, Kohlenmonoxid, Kohlendioxid, O₂ und Feuchte erfolgt, erkennen Sie nach dem Anblicken an dem Logo „Gold certified“.

*Messung von absoluter Feuchte und Sauerstoff (PPO) optional. Feuchtemessung nur auf Basis der feuchten Kohlenmonoxid- (PPO-CO) -Sauerstoffmessung auf wetterbeständig.

Find PureAir Stations

Filter





Get yourself certified!

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BAUER Pure Air - For Operators EN

N39438

12.2018

Subject to technical change
without notice