

## NITROBERG® | OXYBERG®

Oxygen and Nitrogen Generators, Supply your own O2 | N2



## **PSA OXYGEN GENERATOR**

## **OXYBERG®**

BERG® PSA oxygen technology produces oxygen in a purity of 90% up to 95% and quantities of 1 - 280 Nm3/h.

## **PERMANENT O2 SUPPLY**

#### PROCESS:

The OXYBERG® pressure swing adsorption process separates the nitrogen molecules from Compressed air or the oxygen molecules from Compressed air.

The pure oxygen can now be used in a wide range of applications.

#### **BENEFITS**:

- Plug and Play, simple/constant oxygen supply
- Constant measurement of oxygen purity
- Savings from the very first minute
- Low-maintenance, compact design
- Longest Liftime of High quality ZEOLITE
- Less Compressed air and Low energy cost

## **Compressed Air Specification**

Temperature range: +5 to +40°C

Air quality: ISO 8573.1, Class 1: dirt and oil, better than

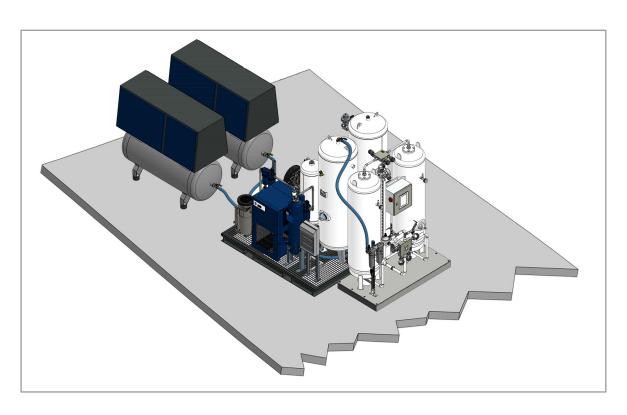
Class 4 water; PDP: +3°Ctd

## The Complete Oxygen Plant, Skid Mounted

- A) Compressed Air Station
- B) Air treatment to ISO 8573-1 Class 1.4.1
- C) Compressed Air Buffer Tank
- D) PSA Oxygen Generator, OXYBERG®
- E) Product Oxygen Tank
- F) Boosting Station / Cylinder Filling Station

### **Ambient Conditions**

- Temperature range: +5°C to +40°C
- Operating pressure: 10 bar
- Electrical connection: 110-230 V/60-50 Hz
- Noise level: from 55 to max. 78 dB(A)
- Certified in accordance with DIN ISO 13485:2003 & in accordance with Pressure Equipment Directive 93/27/EC



## **PSA OXYGEN GENERATOR**

## PRODUCTION PRINCIPLE

The oxygen generator consists of two separating vessels filled with molecular sieve absorbers (zeolite). When pure compressed air pressurizes a vessel, the nitrogen is retained by the molecular sieve and the oxygen goes straight into the oxygen buffer. As soon as the tank approaches nitrogen saturation, the process switches to the second tank and the adsorbed nitrogen in the first tank is released to the ambient air. The OXYBERG® series offers all the advantages of a fully integrated in-house production system.

## **Product Specification**

### **Description**

Twin column, heavy duty, medical oxygen generator made to work 24/7 in demanding healthcare environments with load conditions of up to 100%.

#### Column vessels

Twin vessels manufactured according to the Pressure Equipment Directive and with the stringent German Technically Supervisory Board [TÜV] approval. Vessels are powder coated and calculated for the demanding high load cycle.

#### **Adsorbent material**

High quality, long-life molecular sieve ZEOLITE with industry leading energy air factors resulting in lowest possible differential pressure.

#### **Process valves**

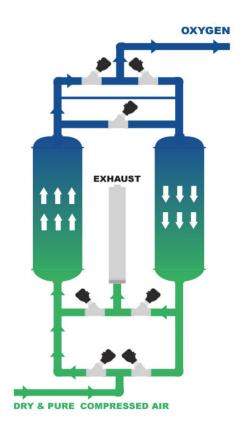
Angle seat pneumatic process valves with stainless steel body and piston stems are used which guarantee a very reliable operation in a long service life.

#### **Piping**

All process piping is in stainless steel, press-fitted pipes for maximum durability and leak free operation.

## Instrumentation & Measurement

- Purity analyzer and sensor with Zirconium sensor
- Outlet pressure sensor displays in HMI
- Pressure indicator on each column vessel
- Pressure indicator at inlet pressure regulator
- · Pressure indicator at outlet pressure regulator
- · Ready to connect with electro cable and plug in



### **Control & Monitoring**

Multifunctional color touch control panel with 4" or 7" HMI offering unique features and controllability is used as an industry leading, state of the art [HMI] Features Made by Siemens include:

- · Automatic, Start Mode and Stop Button
- Display operating and measurement values purity, outlet pressure, operating hours and all other connected measurement sensor values
- Values displayed in metric or imperial values
- Display of trends all measurement values can be displayed as trend for 24 hours
- Alarm management Audit trail of raised alarms, acknowledgement, deleted with time/date stamp and permanent alarm history
- · Change of purities with a push of a button
- Access management with 3 hierarchy levels for access control
- · Automatic service reminders for periodic maintenance
- Long term process data storage
- Automatic start option after power outage as require by ISO 10083

## APPLICATION FIELDS

## For Our PSA Oxygen Generator

## **MEDICAL**

The oxygen generator is producing pure oxygen gas that is safe and ready to use. Oxygen gas produced in the hospital environment. Ready



to use anytime, anywhere. And this method; Compared to external oxygen cylinders. It's really safer and low cost.

#### **GLASS & NEON FACTORY**



With the production of oxygen, there is no problem of running out of gas, so the operation does not stop. Absolutely affordable, It is safe, the last



thing to worry about is the explosion of the high-pressure cylinder, it also plays an important role in the quality of the product and the removal of bubbles from the work surface.

It's well known in the aquaculture industry that oxygen generation is extremely beneficial for fish farms and hatcheries. Oxygenizing the

**ECOLOGY FISH FARMING** 



water leads to healthier fish with better appetites, which means bigger fish to sell when the time comes.

#### **BIOGAS PLANTS**



02

Reuse of products such as animal manure, municipal waste, food waste, and other dual products from various food processing industries has



been established as a sustainable way to generate energy. A simple yet effective way to remove hydrogen sulfide is to add gaseous oxygen to the biogas fermentation.

#### **METAL INDUSTRY**



High-purity oxygen is used in cutting and burning processes to run automatic cutoff torches, as well as in the cutting of crops and



other forms of mill scrap. In particular, oxygen is used for enrichment or two-run oxy-burners, like blast furnaces and rotary furnaces, respectively.

#### MINING AND MINERAL PROCESSING



In silver and gold extraction oxygen is one of the key elements used for ore processing as pressure oxidation and cyanidation.



Oxygen significantly increases recovery and ore throughput. Furthermore, it reduces cyanide costs and waste products.

## **PHARMACEUTICAL**



Specific process steps are performed in the manufacture of drugs, antibiotics, additives, biopolymers, or acids in fermentation reactors, which



require oxygen. Enrichment of fermented air with oxygen enables faster reproduction of aerobic organisms in a controlled atmosphere.

#### **DRINKING-WATER TREATMENT**



Oxygen assists various processes used in the treatment of drinking water. It is possible to clean water by adding oxygen. Furthermore,



oxygen can be used to treat groundwater. The addition of oxygen causes bacteria to multiply in the dirty water. Such bacteria are activated and assist with water treatment.

## **OXYGEN PLANT OXYBERG Compact**

## **OXYBERG Compact systems**

The special OXYBERG® technology - Pressure Swing Adsorption (PSA) or pressure swing adsorption - offers innovative solutions and processes when it comes to oxygen generation.

This reliable and cost-effective method of on-site oxygen generation is primarily used in medical care (hospitals), pharmacy and water treatment.

The PSA technology and specially developed adsorbents (zeolites) separate the ambient air (oil-free compressed air) into its components nitrogen and oxygen. Oxygen is therefore available to you in delivery quantities of 1 - 280 Nm3/h and purity of 90 - 95% for further use.

### **GENERATOR FOR MEDICAL 02**

The unique advantages of the OXYBERG® Med series: Energy-optimized oxygen generation for medical facilities with guaranteed constant oxygen quality.

## European Pharmacopoeia & Directive 93/42/EEC

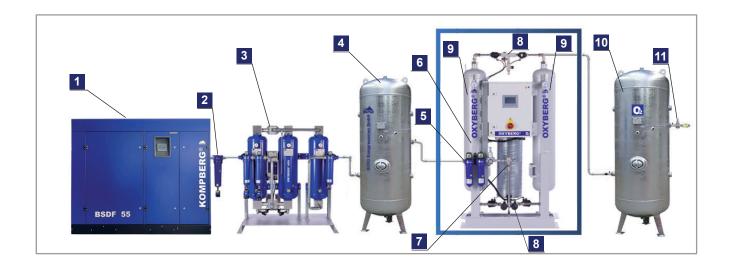
 ${
m O_2}$  purity up to 95%  $\pm$  3% volume from 1 - 280 Nm³/h OXYBERG® oxygen generators meet the standards of the European Pharmacopoeia (pharmacopoeia) 93%  $\pm$  3% for medical applications with an oxygen purity of OXYBERG® = 95% according to the guidelines ISO 7396-1:2016 and ISO 13485:2016 according to the guideline 93/42/EWG .

## **ADVANTAGES:**

- Customized solutions
- CO2 / CO and O2 measurements
- Standard systems in a compact design
- Automatic operation
- Mobile oxygen supply
- Digital surveillance
- Ideal if there is no infrastructure
- Reduced operating costs
- Optimum availability
- Return on Invest in less than 36 months

### O2 Plant sample installation

- 1. Compressor
- 2. Pre filters
- 3. Adsorption Dryer heatless oil free DRYBERG® AD CT
- 4. Compressed air tanks
- 5. Filtration
- 6. Temperature and Pressure Sensor
- 7. Pressure dew point measurement
- 8. Control valve
- 9. CMS
- 10. Oxygen tanks
- 11. Pressure regulation





|                        | of PSA Oxygen Gener            |               |               |               |               |               |
|------------------------|--------------------------------|---------------|---------------|---------------|---------------|---------------|
| Model                  | Oxygen Purity                  | 90%           | 92%           | 93%           | 94%           | 95%           |
|                        | O2, Nm <sup>3</sup> /h         | 2.9           | 2.5           | 2.1           | 1.9           | 1.8           |
| OXYBERG® 500           | Comp.air, Nm <sup>3</sup> /h   | 31.9          | 27.5          | 23.1          | 20.9          | 19.8          |
|                        | Oxygen vessel                  | 90            | 90            | 90            | 90            | 90            |
|                        | Comp. air vessel               | 150           | 150           | 150           | 150           | 150           |
|                        | O2, Nm³/h                      | 3.9           | 3.4           | 2.9           | 2.8           | 2.6           |
| OXYBERG® 600           | Comp.air, Nm <sup>3</sup> /h   | 42.9          | 37.4          | 31.9          | 30.8          | 28.6          |
|                        | Oxygen vessel                  | 90            | 90            | 90            | 90            | 90            |
|                        | Comp. air vessel               | 150           | 150           | 150           | 150           | 150           |
| OXYBERG® 700           | O2, Nm³/h                      | 4.9           | 4.5           | 4.2           | 3.9           | 3.8           |
|                        | Comp.air, Nm <sup>3</sup> /h   | 53.9          | 49.5          | 46.2          | 42.9          | 41.8          |
|                        | Oxygen vessel                  | 150           | 150           | 150           | 150           | 150           |
|                        | Comp. air vessel               | 250           | 250           | 250           | 250           | 250           |
|                        | O2, Nm³/h                      | 6.3           | 5.7           | 5.5           | 5.2           | 4.9           |
| OXYBERG® 800           | Comp.air, Nm³/h                | 69.3          | 62.7          | 60.5          | 57.2          | 53.9          |
| 57(1 <u>5</u> 21(6 000 | Oxygen vessel                  | 250           | 250           | 250           | 250           | 250           |
|                        | Comp. air vessel               | 350           | 350           | 350           | 350           | 350           |
|                        | O2, Nm³/h                      | 8.1           | 7.3           | 6.7           | 6.4           | 6.2           |
| OXYBERG® 900           | Comp.air, Nm³/h                | 89.1          | 80.3          | 73.7          | 70.4          | 68.2          |
| -                      | Oxygen vessel                  | 350           | 350           | 350           | 350           | 350           |
|                        | Comp. air vessel               | 500           | 500           | 500           | 500           | 500           |
| OXYBERG® 1000          | O2, Nm³/h                      | 10.6          | 9.4           | 9.1           | 8.5           | 8.1           |
|                        | Comp.air, Nm³/h                | 116.6<br>500  | 103.4<br>500  | 100.1<br>500  | 93.5<br>500   | 89.1<br>500   |
|                        | Oxygen vessel Comp. air vessel | 750           | 750           | 750           | 750           | 750           |
|                        |                                |               |               |               |               |               |
| OXYBERG® 1100          | O2, Nm³/h                      | 13.6          | 13.3          | 12.7          | 11.8          | 11.4          |
|                        | Comp.air, Nm <sup>3</sup> /h   | 149.6         | 146.3         | 139.7         | 129.8         | 125.4         |
|                        | Oxygen vessel                  | 500           | 500           | 500           | 500           | 500           |
|                        | Comp. air vessel               | 750           | 750           | 750<br>14.2   | 750<br>13.6   | 750<br>12.9   |
|                        | O2, Nm³/h<br>Comp.air, Nm³/h   | 15.7<br>146.7 | 13.8<br>146.6 | 14.2          | 143.0         | 141.9         |
| OXYBERG® 1200          | Oxygen vessel                  | 750           | 750           | 750           | 750           | 750           |
|                        | Comp. air vessel               | 1,000         | 1,000         | 1,000         | 1,000         | 1,000         |
|                        | O2, Nm <sup>3</sup> /h         | 23.4          | 22.2          | 21.1          | 20.1          | 19.3          |
|                        | Comp.air, Nm <sup>3</sup> /h   | 257.4         | 244.2         | 232.1         | 221.1         | 212.3         |
| OXYBERG® 1300          | •                              |               |               |               |               |               |
|                        | Oxygen vessel                  | 750           | 750<br>1,500  | 750           | 750           | 750           |
|                        | Comp. air vessel O2, Nm³/h     | 1,500<br>32.5 | 31.9          | 1,500<br>30.2 | 1,500<br>28.9 | 1,500<br>27.6 |
|                        | Comp.air, Nm <sup>3</sup> /h   | 357.5         | 350.9         | 332.2         | 317.9         | 303.6         |
| DXYBERG® 1400          | Oxygen vessel                  | 1,000         | 1,000         | 1,000         | 1,000         | 1,000         |
|                        | Comp. air vessel               | 2,000         | 2,000         | 2,000         | 2,000         | 2,000         |
|                        | O2, Nm <sup>3</sup> /h         | 44.6          | 42.8          | 41.1          | 39.9          | 38.8          |
|                        | Comp.air, Nm <sup>3</sup> /h   | 490.6         | 470.8         | 452.1         | 438.9         | 426.8         |
| OXYBERG® 1500          | Oxygen vessel                  | 1,500         | 1,500         | 1,500         | 1,500         | 1,500         |
|                        | Comp. air vessel               | 3,000         | 3,000         | 3,000         | 3,000         | 3,000         |
|                        | O2, Nm³/h                      | 53.4          | 51.4          | 49.3          | 47.4          | 46.2          |
|                        | Comp.air, Nm³/h                | 587.4         | 565.4         | 542.3         | 521.4         | 508.2         |
| OXYBERG® 1600          | Oxygen vessel                  | 2,000         | 2,000         | 2,000         | 2,000         | 2,000         |
|                        | Comp. air vessel               | 4,000         | 4,000         | 4,000         | 4,000         | 4,000         |
|                        | O2, Nm³/h                      | 64.7          | 63.4          | 61.6          | 60.3          | 58.8          |
| 010/0=000/=00          | Comp.air, Nm <sup>3</sup> /h   | 711.7         | 697.4         | 677.6         | 663.3         | 646.8         |
| DXYBERG® 1700          | Oxygen vessel                  | 2,000         | 2,000         | 2,000         | 2,000         | 2,000         |
|                        | Comp. air vessel               | 4,000         | 4,000         | 4,000         | 4,000         | 4,000         |
| OXYBERG® 1800          | O2, Nm³/h                      | 89.1          | 85.2          | 82.2          | 79.7          | 77.1          |
|                        | Comp.air, Nm <sup>3</sup> /h   | 980.1         | 937.2         | 904.2         | 876.7         | 848.1         |
|                        | Oxygen vessel                  | 3,000         | 3,000         | 3,000         | 3,000         | 3,000         |
|                        | Comp. air vessel               | 5,000         | 5,000         | 5,000         | 5,000         | 5,000         |
|                        | O2, Nm <sup>3</sup> /h         | 105.4         | 101.7         | 97.8          | 93.8          | 91.4          |
| 0VVDED 0 @ 4000        | Comp.air, Nm <sup>3</sup> /h   | 1,159.4       | 1,118.7       | 1,075.8       | 1,031.8       | 1,005.        |
| DXYBERG® 1900          | Oxygen vessel                  | 4,000         | 4,000         | 4,000         | 4,000         | 4,000         |
|                        | Comp. air vessel               | 6,000         | 6,000         | 6,000         | 6,000         | 6,000         |
|                        | O2, Nm <sup>3</sup> /h         | 129.6         | 126.9         | 123.4         | 120.7         | 117.4         |
| 214,222,03             | Comp.air, Nm <sup>3</sup> /h   | 1,425.6       | 1,395.9       | 1,357.4       | 1,327.7       | 1,291.        |
| OXYBERG® 2000          | Oxygen vessel                  | 5,000         | 5,000         | 5,000         | 5,000         | 5,000         |
|                        | Comp. air vessel               | 8,000         | 8,000         | 8,000         | 8,000         | 8,000         |

<sup>\*</sup>All values apply at 7 bar inlet pressure and 20°C ambient temperature.
\*If the bigger size or customized plant is needed, please contact us.

## **PSA NITROGEN GENERATOR**

## **NITROBERG®**

BERG® PSA nitrogen technology produces a purity of 95% up to 99.9999% and quantities of 0.9 - 2200 Nm3/h.

## **PERMANENT N2 SUPPLY**

#### PROCESS:

The NITROBERG® pressure swing adsorption process separates the nitrogen molecules from Compressed air or the oxygen molecules from Compressed air.

#### **BENEFITS:**

- Plug and Play, constant nitrogen supply
- Constant measurement of nitrogen purity
- Savings from the very first minute
- Low-maintenance, compact design
- Ultra Pure N2 => up to 99.9999% (1ppm O2)
- Longest lifetime of High quality CMS

## Compressed air specification

Temperature range: +5 to +40°C

Air quality: ISO 8573.1, Class 1: dirt and oil, better than

Class 4 water; PDP: +3°Ctd

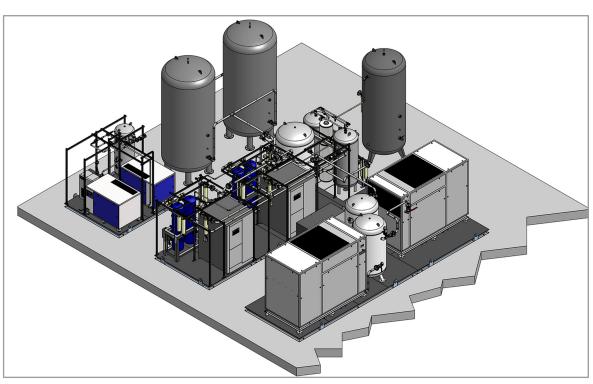
## The Complete Nitrogen plant, Skid mounted

- A) Compressed Air Station
- B) Air treatment to ISO 8573-1 Class 1.4.1
- C) Compressed Air Buffer Tank
- D) PSA Nitrogen Generator, NITROBERG®
- E) Product Nitrogen Tank
- F) Boosting Station / Cylinder Filling Station

#### **Ambient conditions**

- Temperature range: +5°C to +40°C
- Operating pressure: 10 bar
- Electrical connection: 110-230 V/60-50 Hz
- Noise level: from 55 to max. 78 dB(A)
- Certified in accordance with ISO 9001:2008 and in accordance with Pressure Equipment Directive 93/27/EC

| Calculation of the compressed air requirements |     |     |     |     |        |        |        |         |  |  |
|--|-----|-----|-----|-----|--------|--------|--------|---------|--|--|
| Nitrogen content (%)                           | 95% | 97% | 98% | 99% | 99.50% | 99.90% | 99.99% | 99.999% |  |  |
| Air factor                                     | 1.9 | 2.1 | 2.3 | 2.5 | 2.9    | 3.9    | 5.5    | 6.8     |  |  |



## **PSA NITROGEN GENERATOR**

## PRODUCTION PRINCIPLE

The Nitrogen generator is also composed of two separation vessels, but is filled with carbon molecular sieve (CMS) oxygen is adsorbed in molecular sieve and Nitrogen is passing through CMS to the nitrogen buffer. As soon as the PSA tank approaches oxygen saturation, the process switches to the second PSA tank and the adsorbed Oxygen in the first PSA tank is released to the ambient air. The NITROBERG® series offers all advantages of a fully integrated in-house production system.

## **Product Specification**

## **Description**

Twin column, heavy duty,

Nitrogen generator made to work 24/7 in demanding with load conditions of up to 100%.

#### Column vessels

Twin vessels manufactured according to the Pressure

#### **Equipment**

Directive and with the stringent German Technically Supervisory Board [TÜV] approval.

## Adsorbent material

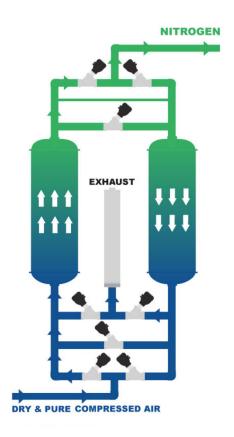
High quality, long-life Carbon molecular sieve CMS with industry leading energy air factors resulting in lowest possible differential pressure as well as most economic m³ air to oxygen ratios. Our molecular sieve has an expected lifetime of more than 10 years and is not classed as a consumable exchange

#### **Piping**

All process piping is in galvanized steel, press-fitted pipes type MAPRESS for maximum durability and leak free operation.

## **Instrumentation & Measurement**

- Purity analyzer and sensor with Zirconium sensor for long lifetime and high accuracy displays in HMI
- Outlet pressure sensor displays in HMI
- Pressure indicator on each column vessel
- Pressure indicator at inlet pressure regulator
- Pressure indicator at outlet pressure regulator
- · Ready to connect with electro cable and plug in



## **Control & Monitoring**

Multifunctional, color touch control panel with 4" HMI offering unique features and controllability is used as an industry leading, state of the art Human Machine Interface [HMI] Features include:

- · Automatic, Continuous Mode Start & Stop Button
- Display operating and measurement values purity, outlet pressure, operating hours and all other connected measurement sensor values
- · Values displayed in metric or imperial values
- Display of trends all measurement values can be displayed as trend for 24 hours
- Alarm management Audit trail of raised alarms, acknowledgement, deleted with time/date stamp and permanent alarm history
- · Change of purities with a push of a button
- Access management with 3 hierarchy levels for access control
- · Automatic service reminders for periodic maintenance
- Long term process data storage

## **APPLICATION FIELDS GENERATOR**

## For Our PSA Nitrogen Generator

#### **FOOD AND BEVERAGE**



Nitrogen gas is a popular gas in the food industry. It is used to extend the shelf life of food packages in a healthy way and to protect them against



microorganisms or to protect fluid raw materials during production. Nitrogen is also used to remove oxygen from the packaged bottle, resulting in a modified atmosphere. In this way, the shelf life of the product is longer.

## **OIL AND GAS INDUSTRY**



In this area of nitrogen gas to ensure the rigidity of the mechanical seal of turbochargers, cleaning, and prevention of corrosion and



rust if not using boilers and piping, and accurate calculation of the calorific value of raw materials such as coal before combustion and cleaning From other cases. Factors such as moisture and oil are used.

#### **CHEMICALS INDUSTRY**



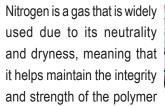
Nitrogen gas is most commonly used in the chemical industry during the inerting, sweeping, and blanketing processes of



flammable and explosive chemicals by preventing their contact with air or oxygen.

#### MANUFACTURING PLASTIC INDUSTRY







in the production of plastics and also prevents any discoloration / oxidation that may occur. Gives help. In the form of oxygen contact molding, it can lead to discoloration and oxidation. Nitrogen replaces any oxygen in the mold.

#### **VEGETABLE OILS**



Thanks to nitrogen gas processes, the structure of the oil is best preserved and remains at its best. In fact, nitrogen gas creates an



inert atmosphere in storage tanks, ensuring that oxygen and moisture are removed. The products remain stable and are stored in an environment without moisture and without change in acidity, and their taste does not change.

#### LASER CUTTING INDUSTRY



Nitrogen gas used in the laser cutting industry to get a high-quality cut surface is used to remove oxidation due to its inert gas property and



remove burrs under machine pressure. cut thicker and harder metals than other types thanks to nitrogen.

## **ELECTRONICS AND COMMUNICATION**



Nitrogen gas is used in the electronics and communications industries to prevent oxidation by ensuring an oxygen-free environment



during PCB assembly, packaging, and soldering processes, and it ensures the highest quality products are obtained.

#### **PHARMACEUTICAL**



High-pressure nitrogen gas is used to ensure the safe transport of chemical products from one tank to another, as well as to



clean the process of removing oxygen and water vapor in the lines and removing airborne contaminants such as moisture and bacteria, thus creating Inert space and protection of products and prevention of mass formation are the advantages of this gas.

## **NITROGEN PLANT NITROBERG Compact**

## **NITROBERG Compact Systems**

NITROBERG® Compact systems produce nitrogen with a purity of up to 5.0 or 6.0 at delivery rates of 20 – 100 Nm³/h. All components are combined on a compact platform to form a plug & play system. This ensures easier transport, immediate installation and immediate start-up on site with extremely low power & compressed air consumption.

## **PROCEEDINGS**

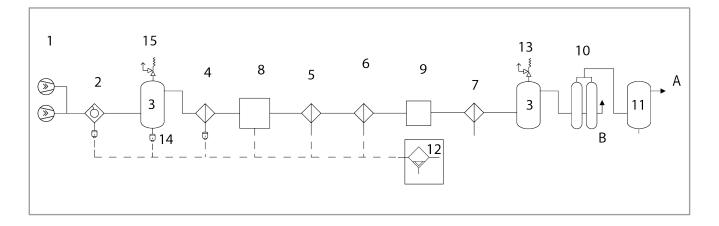
The interaction of the NITROBERG® generators with the energy-saving NKat system maximizes the efficiency of nitrogen production. The nitrogen obtained from the NITROBERG® system is enriched with a small amount of hydrogen, cleaned in the NKat catalyst and the N2 purity is increased to up to 6.0. Thanks to our innovative PN KomPact system, you can produce ultra-pure nitrogen with significantly smaller air compressors!

## ADVANTAGES:

- Plug & Play system immediately operational
- Increased efficiency, low-maintenance design
- High quality, worldwide service
- Small footprint, easy handling
- NKAT technology
- Automatic blending Air factor 2.9 at 99.5% (1 Nm3 N2 = 2.9 Nm3 compressed air )
- Constant measurement of N2 purity and the outlet pressure
- Trend display, recipe management
- Data backup, multilingualism Remote Control,
   Query & Control, E-mail alert, Industry 4.0

### **N2 Plant sample installation**

- 1. Screw Compressor
- 2. Water Separator
- 3. Compressed air tanks
- 4. Pre filter
- 5. Fine filter
- 6. Super fine filter
- 7. Dust filter
- 8. DRYBERG Refrigeration Dryer
- 9. Activated Carbon Tower
- 10. NITROBERG® PSA Nitrogen Generator
- 11. Compressed Nitrogen tanks
- 12. OWAMAT® Oil / Water Separator
- 13. Safety valves
- 14. BEKOMAT®
- A. Compressed Nitrogen
- B. Oxygen- enriched air outlet





| Technical Data  | of PSA Nitrogen                   | Genera            | tor NIT        | ROBER          | G® - Ca        | pacity         | (Nm³/h)        |                |                |
|-----------------|-----------------------------------|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                 | Nitrogen Purity                   | 97%               | 98%            | 99%            | 99.5%          | 99.9%          | 99.99%         | 99.995%        | 99.999%        |
| Model           | Quality grade<br>Residual O2(PPM) | -                 | -              | 2.0<br>10000   | 2.5<br>5000    | 3.0<br>1000    | 4.0<br>100     | 4.5<br>50      | 5.0<br>10      |
| NITROBERG® 500  | N2, Nm <sup>3</sup> /h            | 17.3              | 14.9           | 12.6           | 9.2            | 5.1            | 2.8            | 2.1            | 1.4            |
|                 | Comp.air, Nm <sup>3</sup> /h      | 39.8              | 34.3           | 32.8           | 26.7           | 18.4           | 14.3           | 12.0           | 9.7            |
|                 | Nitrogen vessel                   | 90                | 90             | 90             | 90             | 90             | 90             | 90             | 90             |
|                 | Comp. air vessel                  | 150               | 150            | 150            | 150            | 150            | 150            | 150            | 150            |
| NITROBERG® 600  | N2, Nm <sup>3</sup> /h            | 25.9              | 22.6           | 18.1           | 13.4           | 7.2            | 3.9            | 2.9            | 2.1            |
|                 | Comp.air, Nm <sup>3</sup> /h      | 59.6              | 52.0           | 47.1           | 38.9           | 25.9           | 19.9           | 16.5           | 14.5           |
|                 | Nitrogen vessel                   | 90                | 90             | 90             | 90             | 90             | 90             | 90             | 90             |
|                 | Comp. air vessel                  | 150               | 150            | 150            | 150            | 150            | 150            | 150            | 150            |
| NITROBERG® 700  | N2, Nm³/h<br>Comp.air, Nm³/h      | 37.3<br>85.8      | 33.6<br>77.3   | 27.3<br>71.0   | 20.8           | 11.6<br>41.8   | 6.1<br>31.1    | 4.5<br>25.7    | 3.1<br>21.4    |
|                 | Nitrogen vessel                   | 150               | 150            | 150            | 150            | 150            | 150            | 150            | 150            |
|                 | Comp. air vessel                  | 250               | 250            | 250            | 250            | 250            | 250            | 250            | 250            |
|                 | N2, Nm³/h                         | 49.6              | 44.6           | 36.3           | 27.6           | 15.4           | 8.2            | 5.9            | 4.1            |
| NITDODEDO® CCC  | Comp.air, Nm <sup>3</sup> /h      | 114.1             | 102.6          | 94.4           | 80.0           | 55.4           | 41.8           | 33.6           | 28.3           |
| NITROBERG® 800  | Nitrogen vessel                   | 150               | 150            | 150            | 150            | 150            | 150            | 150            | 150            |
|                 | Comp. air vessel                  | 250               | 250            | 250            | 250            | 250            | 250            | 250            | 250            |
|                 | N2, Nm³/h                         | 59.3              | 53.3           | 46.1           | 37.4           | 23.0           | 11.6           | 8.7            | 5.7            |
| NITROBERG® 900  | Comp.air, Nm³/h                   | 136.4<br>350      | 122.6<br>350   | 119.9<br>350   | 108.5<br>350   | 82.8           | 59.2<br>250    | 49.6<br>250    | 39.3<br>250    |
| THINGSERG GOO   | Nitrogen vessel Comp. air vessel  | 750               | 750            | 750            | 750            | 250<br>500     | 500            | 500            | 500            |
|                 | N2, Nm <sup>3</sup> /h            | 83.2              | 75.2           | 63.4           | 51.5           | 37.2           | 23.4           | 16.6           | 10.6           |
| NUTDODEDOS 1000 | Comp.air, Nm <sup>3</sup> /h      | 191.4             | 173.0          | 164.8          | 149.4          | 122.8          | 110.0          | 86.3           | 67.8           |
| NITROBERG® 1000 | Nitrogen vessel                   | 750               | 750            | 750            | 750            | 500            | 500            | 500            | 500            |
|                 | Comp. air vessel                  | 1,000             | 1,000          | 1,000          | 1,000          | 1,000          | 1,000          | 1,000          | 1,000          |
|                 | N2, Nm <sup>3</sup> /h            | 115.8             | 97.2           | 79.2           | 67.3           | 47.7           | 27.6           | 20.8           | 14.1           |
| NITROBERG® 1100 | Comp.air, Nm <sup>3</sup> /h      | 223.6             | 205.9          | 195.2          | 157.4          | 129.7          | 108.2          | 90.2           | 94.5           |
|                 | Nitrogen vessel                   | 750               | 750            | 750            | 750            | 750            | 750            | 750            | 750            |
|                 | Comp. air vessel<br>N2, Nm³/h     | 1,000<br>139.9    | 1,000<br>127.8 | 1,000<br>107.7 | 1,000<br>87.5  | 1,000<br>63.2  | 1,000<br>39.6  | 1,000<br>28.2  | 1,000<br>18.1  |
|                 | Comp.air, Nm <sup>3</sup> /h      | 321.8             | 293.9          | 280.0          | 253.8          | 208.6          | 186.1          | 146.6          | 115.8          |
| NITROBERG® 1200 | Nitrogen vessel                   | 750               | 750            | 750            | 750            | 750            | 750            | 750            | 750            |
|                 | Comp. air vessel                  | 1,000             | 1,000          | 1,000          | 1,000          | 1,000          | 1,000          | 1,000          | 1,000          |
|                 | N2, Nm <sup>3</sup> /h            | 212.9             | 186.1          | 141.6          | 118.9          | 89.5           | 50.0           | 38.1           | 26.2           |
| NITROBERG® 1300 | Comp.air, Nm <sup>3</sup> /h      | 489.7             | 428.0          | 368.2          | 344.8          | 295.4          | 235.0          | 198.1          | 167.7          |
| WITHOBENO 1000  | Nitrogen vessel                   | 1,500             | 1,500          | 1,500          | 1,500          | 1,000          | 1,000          | 1,000          | 1,000          |
|                 | Comp. air vessel                  | 2,000             | 2,000          | 2,000          | 2,000          | 1,500          | 1,500          | 1,500          | 1,500          |
|                 | N2, Nm <sup>3</sup> /h            | 304.9             | 267.3          | 209.9          | 181.7          | 126.7          | 73.4<br>345.0  | 55.4<br>288.1  | 37.6<br>240.6  |
| NITROBERG® 1400 | Comp.air, Nm³/h Nitrogen vessel   | 701.3<br>2,000    | 614.8<br>2,000 | 545.7<br>2,000 | 526.9<br>2,000 | 418.1<br>1,500 | 1,500          | 1,500          | 1,500          |
|                 | Comp. air vessel                  | 3,000             | 3,000          | 3,000          | 3,000          | 2,000          | 2,000          | 2,000          | 2,000          |
|                 | N2, Nm³/h                         | 367.3             | 319.8          | 239.6          | 198.9          | 149.5          | 88.7           | 66.9           | 45.8           |
| NITROBERG® 1500 | Comp.air, Nm <sup>3</sup> /h      | 844.8             | 735.5          | 623.0          | 576.8          | 493.4          | 416.9          | 347.9          | 293.1          |
| NIIROBERG° 1300 | Nitrogen vessel                   | 3,000             | 3,000          | 3,000          | 3,000          | 2,000          | 2,000          | 2,000          | 2,000          |
|                 | Comp. air vessel                  | 4,000             | 4,000          | 4,000          | 4,000          | 3,000          | 3,000          | 3,000          | 3,000          |
|                 | N2, Nm <sup>3</sup> /h            | 441.2             | 382.9          | 287.5          | 238.6          | 179.6          | 106.5          | 81.1           | 55.1           |
| NITROBERG® 1600 | Comp.air, Nm³/h                   | 1,014.8           | 880.7          | 747.5          | 691.9          | 592.7          | 500.6          | 421.7          | 352.6          |
|                 | Nitrogen vessel Comp. air vessel  | 4,000<br>6,000    | 4,000<br>6,000 | 4,000<br>6,000 | 4,000<br>6,000 | 3,000<br>4,000 | 3,000<br>4,000 | 3,000<br>4,000 | 3,000<br>4,000 |
|                 | N2, Nm <sup>3</sup> /h            | 536.8             | 462.4          | 346,5          | 288.2          | 224.6          | 128.4          | 94.9           | 64.4           |
|                 | Comp.air, Nm <sup>3</sup> /h      | 1,234.6           | 1,063.5        | 900.9          | 835.8          | 741.2          | 603.5          | 493.5          | 412.2          |
| NITROBERG® 1700 | Nitrogen vessel                   | 4,000             | 4,000          | 4,000          | 4,000          | 3,000          | 3,000          | 3,000          | 3,000          |
|                 | Comp. air vessel                  | 6,000             | 6,000          | 6,000          | 6,000          | 4,000          | 4,000          | 4,000          | 4,000          |
| NITROBERG® 1800 | N2, Nm³/h                         | 694.9             | 606.8          | 459.6          | 378.8          | 295.8          | 167.2          | 122.6          | 85.1           |
|                 | Comp.air, Nm <sup>3</sup> /h      | 1,598.3           | 1,395.6        | 1,195.0        | 1,098.5        | 976.1          | 785.8          | 637.5          | 544.6          |
|                 | Nitrogen vessel                   | 5,000             | 5,000          | 5,000          | 5,000          | 3,000          | 3,000          | 3,000          | 3,000          |
|                 | Comp. air vessel                  | 8,000             | 8,000          | 8,000          | 8,000          | 6,000          | 6,000          | 6,000          | 6,000          |
| NITROBERG® 1900 | N2, Nm³/h                         | 894.6             | 777.4          | 575.7          | 478.6          | 359.7          | 213.8          | 161.6          | 109.8          |
|                 | Comp.air, Nm³/h                   | 2,057.6           | 1,788.0        | 1,496.8        | 1,387.9        | 1,187.0        | 1,004.9        | 840.3          | 702.7          |
|                 | Nitrogen vessel                   | 6,000             | 6,000          | 6,000          | 6,000          | 4,000          | 4,000          | 4,000          | 4,000          |
|                 | Comp. air vessel<br>N2, Nm³/h     | 9,000<br>1,057.70 | 9,000<br>921.1 | 9,000<br>689.4 | 9,000<br>572.8 | 9,000<br>435.3 | 9,000<br>259.8 | 9,000<br>192.6 | 9,000<br>133.6 |
|                 | Comp.air, Nm <sup>3</sup> /h      | 2,432.7           | 2,118.5        | 1,792.4        | 1,661.1        | 1,436.5        | 1,221.1        | 1,001.5        | 8,55.0         |
| NITROBERG® 2000 | Nitrogen vessel                   | 6,000             | 6,000          | 6,000          | 6,000          | 4,000          | 4,000          | 4,000          | 4,000          |
|                 | Comp. air vessel                  | 10,000            | 10,000         | 10,000         | 10,000         | 10,000         | 10,000         | 10,000         | 10,000         |

<sup>\*</sup>All values apply at 7 bar inlet pressure and 20°C ambient temperature. \*If the bigger size or customized plant is needed, please contact us.



## SPECIAL PLANT

## **BERG® SPECIAL PLANT**

All platform concepts reflect our definition of "solution engineering".

In each of our projects, our competent team is committed to achieving optimal results and providing high-performance services.

## **SKID Engineering**

## **ONSITE N2 and O2 Plant**

Self-generated N2 and O2 directly ONSITE.

The Possible Feature and engineering option:

STAINLESS STEEL DESIGN

**EX-PROTECTION / ATEX-DESIGN** 

IP 66 / ASME / MARINE DESIGN / BRITISH STANDARD

**BACK-UP-SYSTEM** 

PRESSURE BOOSTER UP TO 1000 BAR

REMOTE MONITORING BOX / INDUSTRY 4.0

**CONTAINER REALISATION** 

PLUG AND PLAY

## **CONTAINER Engineering**

## **ONSITE N2 and O2 Plant**

Self-generated N2 and O2 directly ONSITE. we supply a full feature complete and flexible system with compressed air technology, N2 or O2 generation, frequency control, heat recovery, control system and visualization, including a service alarm modem. our CONTAINER solution can be set up anywhere ONSITE according to the customer's wishes. As a rule, no installation or building permit is required.



## **N2**

Plug and play N2 package to produce high purity 99.999% low flow N2 for use in a university laboratory in Turkey, made in Germany

## **N2**

A Full nitrogen package as mobile N2 system in aviation applications for continues production of Nitrogen for government of Bangladesh , proudly made in Germany



## **SPECIAL PLANT**



## O2 Med

Full feature oxygen package made to use for patient in hospital and equip with oxygen filling station, proudly made in Germany, installed in Ghana,

## O2 Med

Plug and play medical oxygen package for a small clinic in Jordan, the most reliable, user-friendly, and independent oxygen supply, Made in Germany





## 02

Not just a small and beautiful plug-and-play complete oxygen package, but also very high performance with very low energy costs, for on-site industrial application, Made in Germany,



# BERG Kompressore n GmbH Compressed Air Technology | Air Separation







BERG Kompressoren GmbH Medienstraße 35, 47807 Krefeld, Germany www.berg-kompressoren.de







Wir investieren in Qualität!

