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*nitrogen generator*  
*oxygen generator*  
*all-in-one mobile systems*  
*desiccant dryer*  
*gas injection controller*

 **ENKE**  
GAS GENERATORS

*since 2008*

# nitrogen generator

Nitrogen Generator Systems have been designed instead of nitrogen gas, which is supplied by the user by continuous purchase in the form of tubes or bulk liquid. These systems are called PSA generators because they work using the absorb method.

These systems are installed at the customer's address and they produce at the purity and flow rate you need by using only electricity and separating the oxygen and nitrogen in the air.

In this way, up to 70% is saved and nitrogen can be produced and used at the desired purity and flow rate.

It is safer than other methods as it is produced according to the usage pressure.



ENKE NG series nitrogen generators are domestic production. The absorber material is supplied from the German Carbotech company and is highly efficient. Filters are standard at the inlet and outlet of the generator, and additional measures have been taken against the oil and water that may come from the compressors at the inlet and an extra oil separator has been placed. The muffler is specially designed and very quiet. Thanks to the diffuser design in the tower beds, the material does not move and there is no dusting. For this reason, the life of the absorber material is at least 20,000 hours.

The valve group is of stainless piston type and open-closed states can be observed on the screen thanks to special software. Unitronics brand PLC touch screen is used in our generators and the software belongs to our company. Thanks to this software, the generator works with high efficiency and the product is not sent to the system below the set purity.

## ENKE nitrogen generators are us



LASER CUTTING



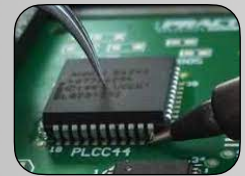
FOOD PACKAGING



WINE MANUFACTURING



HEAT TREATMENT



ELECTRONIC INSTALLATION



CHEMICAL INDUSTRY



GAS INJECTION



CARBONATED BEVERAGE



MARINE



PHARMACEUTICAL INDUSTRY

ENKE	capacity (Nm <sup>3</sup> /h)						
	air: x2,2	air: x2,6	air: x3,1	air: x3,8	air: x4,5	air: x6,5	air: x8,2
	%95	%97	%99	%99,5	%99,9	%99,99	%99,999
NG-274	6,10	4,71	3,31	<b>2,74</b>	1,75	1,07	0,55
NG-400	8,92	6,88	4,84	<b>4,00</b>	2,56	1,56	0,80
NG-779	17,37	13,40	9,43	<b>7,79</b>	4,99	3,04	1,56
NG-1032	23,00	17,74	12,48	<b>10,32</b>	6,60	4,02	2,06
NG-1284	28,64	22,09	15,54	<b>12,84</b>	8,22	5,01	2,57
NG-1558	34,74	26,80	18,85	<b>15,58</b>	9,97	6,08	3,12
NG-2568	57,28	44,18	31,08	<b>25,68</b>	16,44	10,02	5,14
NG-3516	78,40	60,47	42,54	<b>35,16</b>	22,50	13,71	7,03
NG-4526	100,94	77,85	54,77	<b>45,26</b>	28,97	17,65	9,05
NG-5389	120,19	92,70	65,21	<b>53,89</b>	34,49	21,02	10,78
NG-6421	143,19	110,44	77,69	<b>64,21</b>	41,09	25,04	12,84
NG-7705	171,83	132,53	93,23	<b>77,05</b>	49,31	30,05	15,41
NG-9621	214,55	165,48	116,41	<b>96,21</b>	61,57	37,52	19,24
NG-11579	258,21	199,16	140,11	<b>115,79</b>	74,11	45,16	23,16
NG-12842	286,38	220,88	155,39	<b>128,42</b>	82,19	50,08	25,68
NG-15474	345,06	266,15	187,23	<b>154,74</b>	99,03	60,35	30,95
NG-18632	415,48	320,46	225,44	<b>186,32</b>	119,24	72,66	37,26
NG-21053	469,47	362,11	254,74	<b>210,53</b>	134,74	82,11	42,11
NG-25789	575,11	443,58	312,05	<b>257,89</b>	165,05	100,58	51,59
NG-32211	718,29	554,02	389,75	<b>322,11</b>	206,15	125,62	64,42
NG-36000	802,80	619,20	435,60	<b>360,00</b>	230,40	140,40	72,00
NG-42316	943,64	727,83	512,02	<b>423,16</b>	270,82	165,03	84,63
NG-57895	1.291,05	995,79	700,53	<b>578,95</b>	370,53	225,79	115,79
NG-65263	1.455,37	1.122,53	789,68	<b>652,63</b>	417,68	254,53	130,53

\* Compressed air is required at the inlet at min. 8 bar and +3C dew point, free from water and oil.

\* Apart from this table, production can be made in desired purity and flow rates.

# oxygen generator

Oxygen Generator Systems have been designed instead of the oxygen gas supplied by the user by continuous purchase in the form of tubes or bulk liquid. These systems are called PSA generators because they work using the absorb method.

These systems are installed at the customer's address and they produce at the purity and flow rate you need by using only electricity and separating the oxygen and nitrogen in the air.

In this way, up to 70% is saved and nitrogen can be produced and used at the desired purity and flow rate.

It is safer than other methods as it is produced according to the usage pressure.



**ENKE** OG series oxygen generators are domestic production. The absorber material is supplied from the Swedish Zeochem company and is highly efficient. Filters are standard at the inlet and outlet of the generator, and additional measures have been taken against the oil and water that may come from the compressors at the inlet and an extra oil separator has been placed. The muffler is specially designed and very quiet. Thanks to the diffuser design in the tower beds, the material does not move and there is no dusting. For this reason, the life of the absorber material is at least 20,000 hours.

The valve group is of stainless piston type and open-closed states can be observed on the screen thanks to special software. Unitrionics brand PLC touch screen is used in our generators and the software belongs to our company. Thanks to this software, the generator works with high efficiency and the product is not sent to the system below the set purity.

## ENKE oxygen generators usage areas:



HOSPITAL OXYGEN SYSTEM



GLASS MANUFACTURING



FISH FARM



OZONE THERAPY



PURIFICATION OF WASTEWATER



HYPERBARIC THERAPY

ENKE	capacity (Nm <sup>3</sup> /h)		
	air: x10	air: x12	air: x13
	%90	%93	%95
OG-034	0,38	0,34	0,32
OG-050	0,56	0,50	0,47
OG-076	0,85	0,76	0,71
OG-126	1,41	1,26	1,18
OG-182	2,04	1,82	1,71
OG-252	2,82	2,52	2,37
OG-400	4,84	4,00	3,76
OG-559	6,27	5,59	5,26
OG-702	7,86	7,02	6,60
OG-853	9,56	8,53	8,02
OG-1004	11,25	10,04	9,44
OG-1253	14,04	12,53	11,78
OG-2000	22,40	20,00	18,80
OG-2503	28,04	25,03	23,53
OG-3001	33,62	30,01	28,21
OG-4000	44,80	40,00	37,60
OG-4517	50,60	45,17	42,46
OG-5524	61,87	55,24	51,93
OG-6643	74,41	66,43	62,45
OG-8000	89,60	80,00	75,20
OG-10000	112,00	100,00	94,00
OG-11500	128,82	115,02	108,12
OG-12500	140,01	125,01	117,51
OG-15000	168,02	150,01	141,01

\* Compressed air is required at the inlet at min. 8 bar and +3C dew point, free from water and oil.

\* Apart from this table, production can be made in desired purity and flow rates.

# all-in-one mobile systems

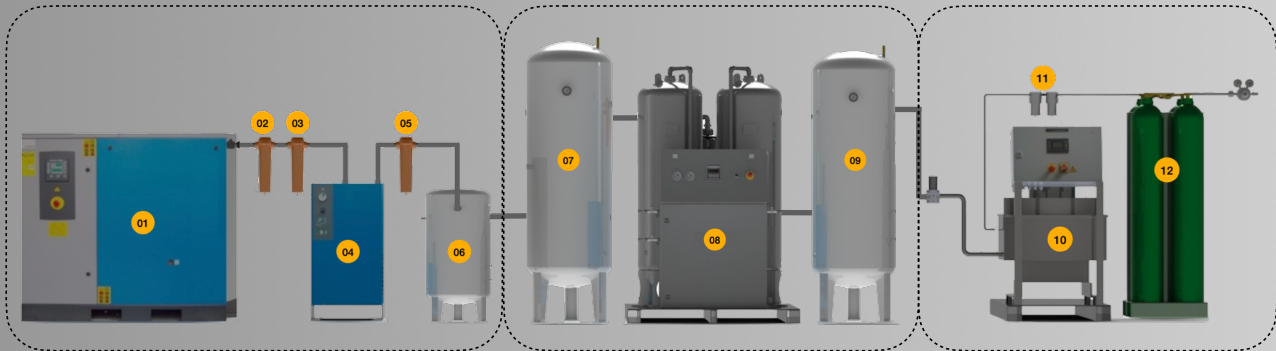


**ENKE** nitrogen and oxygen generators are sold individually. However, at the entrance of the usage area, there is a need for dry compressed air at min 8 bar, dehumidified at +3C. Using this compressed air, oxygen or nitrogen is produced. You can connect these generators to your existing compressed air systems, or you can supply them as a complete separate system from us.

The equipment that should be in the system is indicated in the diagram below. This system can be considered as 3 groups:

- 1- Compressed dry air system:** screw compressor, water separator, air dryer filters, ac tower
- 2- Generator system:** air tank, nitrogen or oxygen generator, nitrogen or oxygen tank
- 3- High pressure system:** high pressure compressor, high pressure filters, high pressure manifold

The need for Group 3 is determined according to the usage pressure. For use up to 10bar, only Group 1 and Group 2 will be required.



1- COMPRESSED DRY AIR SYSTEM

2- GENERATOR SYSTEM

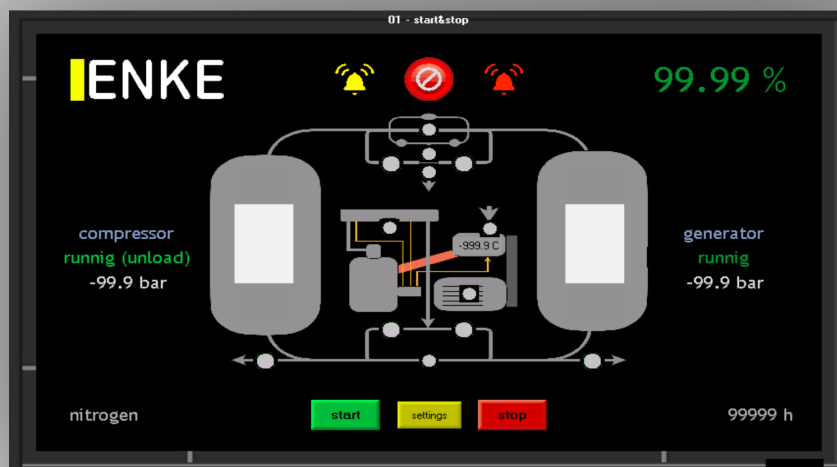
3- HIGH PRESSURE SYSTEM

# *all-in-one mobile systems*

These systems can be installed in the area available at the customer's address, as well as all-in-one mobile systems can be installed in case the place is not available or portable is desired. In these systems, all gas installation and electrical connections have been made, and if electricity is connected to the panel, the system is delivered in working condition. Automation is controlled with a single 12" touch screen and the system is manufactured with all safety precautions taken. It can be manufactured in standard 10", 20", 40" containers, as well as in cabins with special dimensions.



**ENKE** nitrogen and oxygen generators are operated with special software made by our engineers. This software can be updated in line with the customer's demands. Thanks to the most advanced automation, it reaches the required purity within 3-5 minutes even when it is first started and can be ready to give gas to the system. In addition, in case of a decrease in purity for any reason, the output to the system is closed and low purity gas is not sent to the system. This situation can be observed on the screen. If desired, warning and warning lamps can be installed inside the enterprise.



# desiccant dryer

Compressors perform the compression process by absorbing the air in the environment and as a result, they produce compressed air. While producing compressed air, the humidity in the air reaches saturation and passes into the water phase. The compressed air coming out of the compressor is 15-20C above the ambient temperature. In some cases, it can also occur at higher temperatures. When this compressed air comes into contact with a colder surface, liquid water is formed.

For this reason, when installing compressor systems, gas-cooled dryers are usually added after the compressor. These dryers separate the water formed by cooling the compressed air between +3C and +8C. Oil and particulate filtration is carried out with the filters located at the inlet and outlet of the dryer.



However, even in this case, the humidity in the compressed air is likely to turn into water. In addition, microbiological organisms that enter the system with compressor suction reproduce rapidly in case of oxygen, temperature and humidity conditions.

In the laboratory examinations, when the humidity in the compressed air is lower than -26C, this growth stops completely. For this reason, chemical dryers working with the absorption method are used in some compressor systems. In this way, the amount of humidity in the compressed air can be kept at -40C and -70C values.

Chemical dryers manufactured as twin towers absorb the moisture in the compressed air and produce dry air. Moisture is first absorbed in Tower 1. After a certain period of time, when saturation is reached, the 2nd Tower is activated and the moisture in the 1st Tower is thrown out of the system and made ready for production. Automation is controlled by PLC.

## Application areas of ENKE chemical air dryers:



LASER CUTTING



MEDICAL MEDICINE



FOOD INDUSTRY



ENKE	capacity (-40 C)	
	m3/h	m3/min
DD-89	89	1,48
DD-133	133	2,22
DD-200	200	3,33
DD-267	267	4,44
DD-311	311	5,19
DD-378	378	6,30
DD-444	444	7,41
DD-578	578	9,63
DD-689	689	11,48
DD-867	867	14,44
DD-1000	1.000	16,67
DD-1267	1.267	21,11
DD-1556	1.556	25,93
DD-1889	1.889	31,48
DD-2222	2.222	37,04
DD-2778	2.778	46,30
DD-3222	3.222	53,70
DD-3667	3.667	61,11
DD-4444	4.444	74,07
DD-5000	5.000	83,33
DD-6333	6.333	105,56
DD7222	7.222	120,37
DD8889	8.889	148,15
DD10889	10.889	181,48

\* It is valid for 35 C ambient temperature, 7 bar inlet pressure.

\* Apart from this table, production can be made in desired purity and flow rates.

# gas injection controller



Injection molding is one of the most common technologies used for processing polymer products. Although injection molding is used to process different types of resins, most injection molded polymers are thermoplastics.

In recent years, in the production of thermoplastic parts; Fluid-assisted production methods, which allow gain from material, improvement of part quality, reduction of cycle time, freedom in design and reduction of material joining lines, are considered as innovative technologies.

In Gas Assisted Injection Technology (GIT), which is the basis of fluid assisted production technology, pressurized (Nitrogen) and/or C gas is sent to the plastic part that has not solidified yet, thereby creating a controlled space inside the part. With this technology, lower injection pressures, lower material usage, less shrinkage and depression traces and higher surface quality parts can be produced. Therefore, it reduces the cost by about 25%. Gas injection manufacturing also provides a lot of flexibility in part design. Main advantages:

1. Freedom in design
2. High rigidity
3. Very good homogeneity in the shrinkage of the part
4. Reduction in dents caused by gas pressure or material build-up
5. Use of injection machine with lower locking force
6. Easy to fill to the most extreme point
7. Reduction in material joining lines
8. Lower internal stress formation in amorphous thermoplastics.
- 9- Material gain around 30-50%
10. Shorter cycle times than injection molding methods

# gas injection controller



With the modification to your molds, you can quickly start using **ENKE** gas injection panels. It will be enough to make the gas connections by placing the gas panels, which are very simple to use, next to your injection machines.

The gas panels, which are activated automatically with the signal coming from afar, reach the desired pressure quickly and remain constant at that pressure. It goes to the target pressures throughout the cycle, and then the outlet pressure is reset to become ready for the next cycle.

## Main features of ENKE gas injection control cabinets:

- 1- Stainless 300 bar inlet filter
- 2- 250bar input, 0-200bar output, special regulator with diaphragm
- 3- Unit with 1 or 2 outlets as needed
- 4- Wheeled special kiosk with socket connection
- 5- 7" or 12" touch screen depending on the number of outputs
- 6- Signal delay and 8 step pressure and time adjustment
- 7- Cycle start and valve cleaning with remote signal
- 8- High pressure valve cleaning button
- 9- Control with inlet and outlet pressure sensors
- 10- Reaching target pressure quickly with proportional valve
- 11- Keeping the pressure constant even if there is a leak in the mold
- 12- Cut off the gas in case of power cut or when the emergency stop is pressed
- 13- Easily accessible spare parts and 24/7 service support



ENKE	Inlet Pressure (Bar)	Outlet Pressure (bar)	Screen Size	number of outputs	Proportional valve
GIC-1	250	0-200	7"	1	1
GIC-2	250	0-200	12"	2	2

*quality, experience  
confidence..*

*since 2008*



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