

NITROGEN GENERATORS
N₂

idealMakina[®]
Industrial Solution Supplier...

NITROGEN



GENERATORS

idealmakina.com

Industrial solution supplier Ideal Makina has started its journey in 2004.

We design and manufacture nitrogen generators, oxygen generators, gas mixers and special purifiers for gas generators at our 5000 m2 factory located in Istanbul Turkey.

Ideal Makina serves high quality tailor made solutions to its customers with PSA Gas Generators for industrial and medical applications.

Ideal Makina provides after sales service to gas generators operating in more than 50 countries with its 15 people technical service team and local service partners.

As Ideal Makina, we are specialized in PSA Generator Technology with our innovative, energy efficient technical solutions and cost-effective products.

Ideal Makina designs of high efficiency Nitrogen Generator Systems, provides services at all stages from production to installation and commissioning of the systems for the customers who want to produce nitrogen gas in their own facility.

On the other hand, Ideal Makina provides technical services and periodical maintenance on site.



Before production, Ideal Makina Gas Generators are designed and developed in CAD program by our R&D Engineers. In addition the Software of the PLC Control Systems are designed by our Electronical Engineers.

All pipe welding, mechanical connection and electrical wiring works of Ideal Makina Nitrogen Generators are completed in our factory by our Production Team of 30 people.

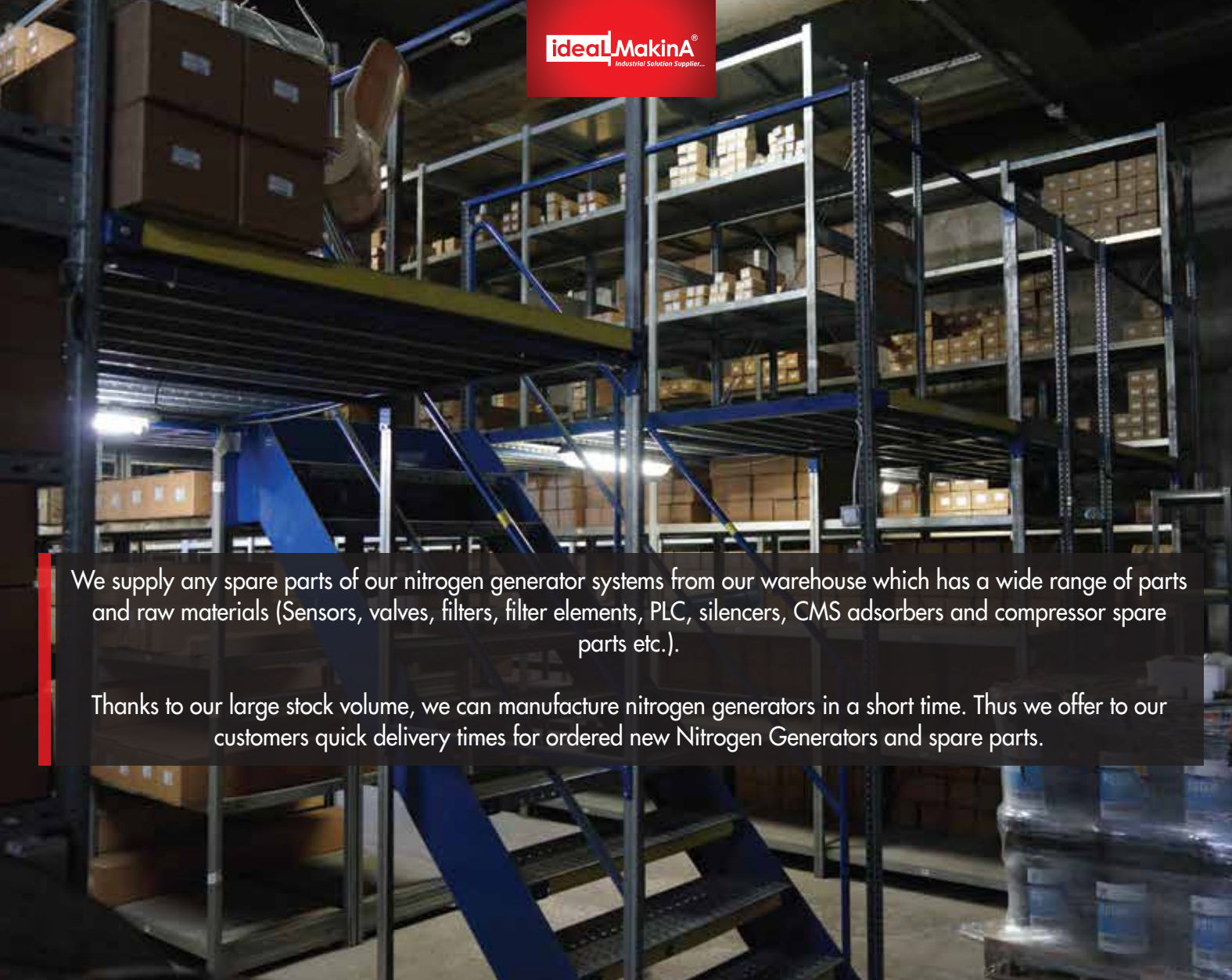




Each manufactured Ideal Makina Nitrogen Generator is tested in our Factory Test Area to confirm the parameters (capacity/performance, purity, pressure, dew point, temperature) of the final product. Based on the results, the relevant test report is prepared.

In case of request, we organise FAT (Factory acceptance test) and SAT (Site acceptance test), then provide their reports.





We supply any spare parts of our nitrogen generator systems from our warehouse which has a wide range of parts and raw materials (Sensors, valves, filters, filter elements, PLC, silencers, CMS adsorbers and compressor spare parts etc.).

Thanks to our large stock volume, we can manufacture nitrogen generators in a short time. Thus we offer to our customers quick delivery times for ordered new Nitrogen Generators and spare parts.



Each nitrogen generator undergoes a packing procedure according to the manufacturer's instructions before shipment to the Customer. If the generators are to be transported by air cargo, they are packed in special wooden crates. For other types of shipping, generators are packed in plastic bubble wrap and black stretch on wooden pallets.





PRODUCE YOUR OWN NITROGEN GAS
WITH IDEAL MAKINA NITROGEN
GENERATORS, **FORGET** ABOUT THE
PURCHASE COST CYLINDER OR LIQUID
NITROGEN!
IN ADDITION TO THESE;

- The amount that you require exactly,
- The level of purity that your production process requires,
- The level of pressure that should be,

All under your own control...

99,999% PURITY

Production of nitrogen gas up to 99.999% purity with PSA technology

Thanks to the PSA technology utilized by **IDEAL MAKINA NITROGEN GENERATORS**, you can produce nitrogen gas with up to **99.999%** purity within the capacity range of 0.5-5000 Nm³/h.

UNINTERRUPTIBLE



PRODUCTION

These generators produce nitrogen from the compressed air available. The air is cleaned by pre-filtration which eliminates impurities, such as humidity, oil vapours, particles and hydrocarbons.

The filtrated compressed air stream is canalized into CMS filled two columns. While the air is passing through the filter, the oxygen and carbon dioxide molecules are removed and the pressure dew point is lowered. The generated nitrogen gas is clean, dry and has high purity so that it can be used for a wide variety of applications.

The parameters such as compressed air temperature, pressure, nitrogen purity and nitrogen pressure are all monitored continuously. **IDEAL MAKINA NITROGEN GENERATORS** guarantee sustainable and high efficiency production.

OUR NITROGEN GENERATOR MODELS

Models	Capacity (Nm ³ /h)	Nitrogen Purity (%)								
		95,0	97,0	98,0	99,0	99,5	99,9	99,99	99,995	99,999
		Quality Connection O ₂ Contents								
		10.000 ppm	5.000 ppm	1.000 ppm	100 ppm	50 ppm	10 ppm			
IM-GN 25	5,8	4,9	4,2	3,2	2,5	1,6	1,0	0,7	0,5	
IM-GN 50	10,9	8,9	8,0	6,0	5,0	3,2	1,5	1,2	1,0	
IM-GN 80	17,0	13,5	12,1	9,2	8,0	4,9	2,5	1,8	1,4	
IM-GN 100	21,0	17,5	16,0	12,9	10,0	6,5	3,3	2,5	1,9	
IM-GN 150	31,5	26,0	24,0	19,0	15,0	9,5	5,0	3,7	2,5	
IM-GN 250	50,0	40,5	35,8	28,5	25,0	13,0	6,5	5,0	3,5	
IM-GN 400	85,0	60,0	55,0	48,0	40,0	25,0	13,0	9,5	6,0	
IM-GN 500	108,0	85,0	78,0	65,0	50,0	37,8	23,7	16,9	10,7	
IM-GN 700	145,0	120,0	100,0	80,0	70,0	48,3	28,0	21,1	14,3	
IM-GN 1000	215,0	175,0	148,0	115,0	100,0	72,0	42,0	31,6	21,4	
IM-GN 1200	260,0	215,0	190,0	145,0	120,0	87,0	51,0	39,0	27,0	
IM-GN 1700	375,0	310,0	270,0	208,0	170,0	130,0	75,0	56,0	38,5	
IM-GN 2000	445,0	370,0	320,0	242,0	200,0	152,0	89,0	67,0	45,0	
IM-GN 3000	635,0	525,0	460,0	360,0	300,0	217,0	126,0	95,0	65,0	
IM-GN 4000	920,0	760,0	660,0	500,0	400,0	313,0	182,5	137,5	93,8	
IM-GN 5500	1150,0	950,0	830,0	635,0	550,0	392,0	227,0	172,0	116,5	
IM-GN 6500	1380,0	1140,0	990,0	755,0	650,0	470,0	273,0	206,9	140,0	
IM-GN 7500	1600,0	1325,0	1160,0	880,0	750,0	565,0	325,0	245,0	167,0	
IM-GN 8500	1830,0	1515,0	1325,0	1000,0	850,0	625,0	362,0	275,0	186,5	
IM-GN 10000	2300,0	1900,0	1650,0	1260,0	1000,0	740,0	455,0	344,0	232,0	
IM-GN 12500	2750,0	2275,0	1985,0	1500,0	1250,0	945,0	550,0	415,0	282,0	

* All values were measured under 7 bars compressor pressure and +25°C air/ambient temperature.

* Please contact our engineers for different capacity and purity values.

COMPRESSED AIR REQUIREMENTS

Temperature Range +5 ... +50°C

Air Quality ISO 8573.1 Class 1.4.1

Dew Point +3°C

AMBIENT CONDITIONS

Temperature Range +5 ... +40°C

Option -50 ... +60°C

TECHNICAL FEATURES

Max. Working Pressure 11 bar

Power Connection 230V, 50Hz

Noise Level 55 ... max. 85 dB(A)

Energy Consumption 150W

Protection Class IP54

ALTERNATIVE FEATURES OF OUR NITROGEN GENERATOR MODELS

N ₂	IDEAL MAKINA NITROGEN GENERATOR Features	MODELS		
		basic	comfort	pro
1	Siemens S7 1200 PLC	✓	✓	✓
2	Siemens touch control panel	4"	7"	7"
3	Trend graphics	-	optional	✓
4	Stainless steel pipes and process valves	✓	✓	✓
5	Zirconia oxygen sensor	✓	✓	✓
6	Outlet pressure sensor	✓	✓	✓
7	Visual & Audio alarm for low purity	✓	✓	✓
8	Visual & Audio alarm for low pressure	✓	✓	✓
9	Visual alarm for periodical maintenance	✓	✓	✓
10	Automatic start/stop	✓	✓	✓
11	Outlet nitrogen regulator	✓	✓	✓
12	Outlet nitrogen needle valve	✓	✓	✓
13	Advanced energy saving kit	✓	✓	✓
14	Auto purity control	-	✓	✓
15	Auto commissioning valve set	-	✓	✓
16	Inlet dewpoint sensor	-	optional	✓
17	Inlet temperature sensor	-	optional	✓
18	Inlet pressure sensor	-	optional	✓
19	Inlet moisture protection system	-	-	✓
20	Purity dependent energy saving system	-	optional	✓
21	Remote monitoring & control unit	-	optional	✓
22	Inlet filter 0.01 micron	optional	✓	✓
23	Inlet filter activated carbon	optional	✓	✓
24	Outlet filter 3 micron	optional	✓	✓
25	Thermal mass gas flowmeter	optional	optional	✓



NON-STOP PRODUCTION GUARANTEED WITH STAINLESS STEEL VALVE SYSTEM!

Pneumatic valves that ensure regular flow of air and nitrogen during the process are manufactured from AISI 316L noncorrosive material. Owing to its long operation life, it provides problem free production for long years. Moreover, 316L stainless steel valves no need for maintenances.

10 YEARS OF GUARANTEE

Carbon Molecular Sieve material which is one of the most important parts of Nitrogen Generator is capable of absorbing oxygen molecules inside compressed air thanks to the semi-permeable molecular structure. Nitrogen molecules that are free inside the compressed air are stored within the nitrogen buffer tank.

CMS material which is manufactured in Germany is guaranteed for 60,000 operational hours or for a period of 10 years.

TECHNOLOGICAL, INNOVATIVE REMOTE MANAGEMENT SOLUTIONS



You can check your Nitrogen Generator using the internet from any point across the world.



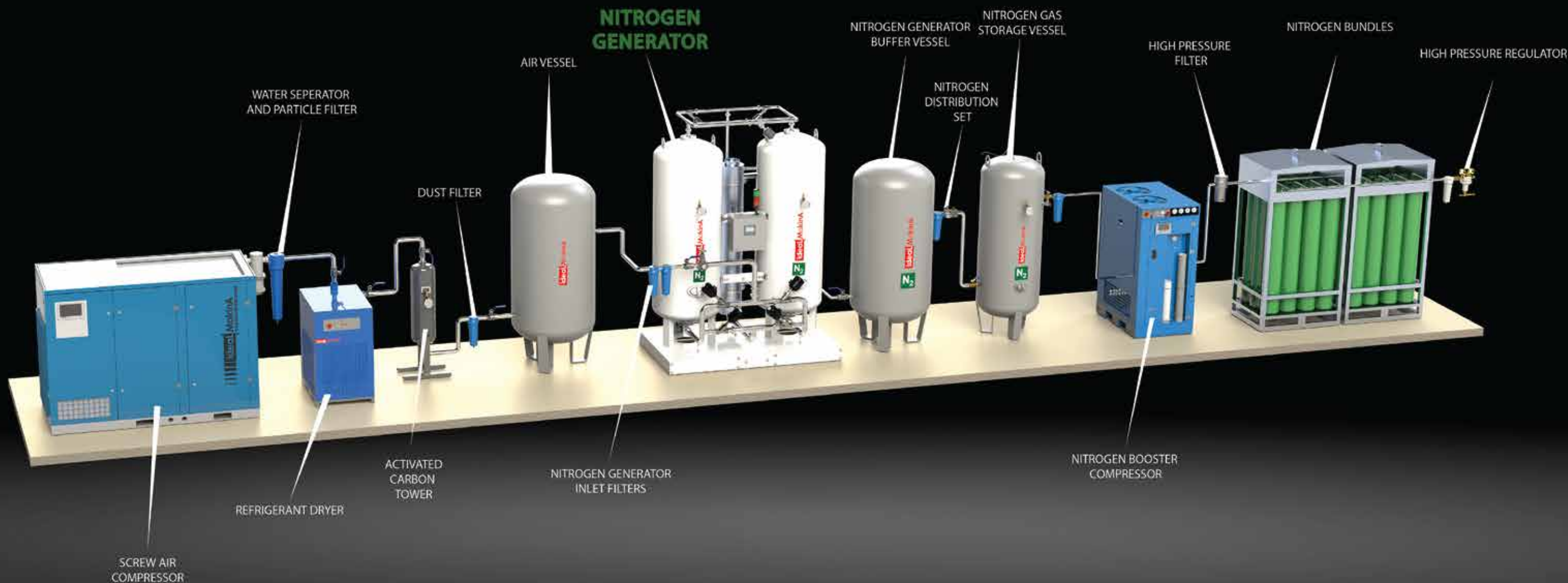
SIMPLE AND EASY MANAGEMENT

With IDEAL MAKINA NITROGEN PRODUCTION SYSTEMS

"Touchscreen Control Panel" enables the generator to operate as fully automated. User-friendly design and ergonomic touchscreen panel ensures that sensitive measurements for all parameters can be displayed instantaneously and you can store these data.

The alarm that will appear on the screen through the sensors which sense deviations apart from the requested parameters warns the user by audio & visual buzzer.

GENERAL LAYOUT OF NITROGEN GENERATOR & CYLINDERS FILLING SYSTEM





SKID MOUNTED NITROGEN GENERATOR SYSTEMS

- MINIMUM SPACE, MAXIMUM EFFICIENCY
- COMPACT DESIGN, ALL IN ONE SKID
- NO INSTALLATION ON SITE, READY TO USE
- SINGLE TOUCH CONTROL PANEL

ALL IN ONE, READY TO USE!

It is possible to produce your own nitrogen gas at indoor area in your plant with special designed Plug & Play, Skid Mounted Ideal Makina Nitrogen Generator Systems!

It is ready to use! All components of the system, including compressed air set, Nitrogen Generator, vessels and high pressure booster are installed onto the skid, mechanical and electrical connections are completed. The function and capacity tests of the systems are performed at Ideal Makina Factory. Operators can easily control the system from the main control panel.



CONTAINERIZED NITROGEN GENERATOR SYSTEMS

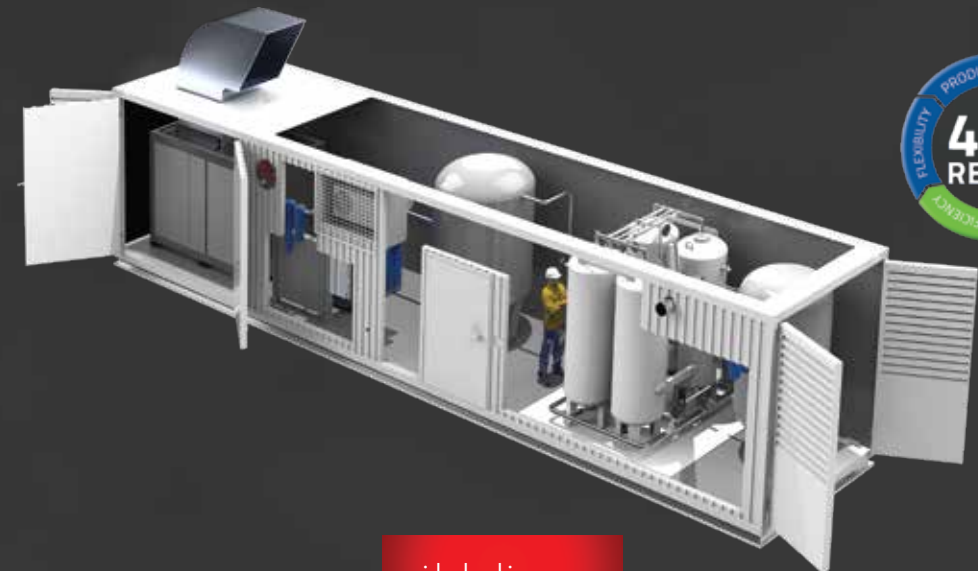
- NO NEED FOR INDOOR AREA
- COMPACT DESIGN, ALL IN ONE CONTAINER
- HEAVY DUTY, MOBILE CONTAINER
- SINGLE TOUCH CONTROL PANEL

ALL IN ONE CONTAINER, READY TO USE!

Ideal Makina mobile, heavy duty, sound and heat insulated, ISO locked Containerized Nitrogen Generator Systems provide nitrogen production in any place you need.

It is ready to use! All components of the system, including compressed air set, Nitrogen Generator, vessels and high pressure booster are installed into the 10 ft, 20 ft, 30 ft, 40 ft or tailor-made designed containers, mechanical and electrical connections are completed. The function and capacity tests of the systems are performed at Ideal Makina Factory. Operators can easily control the system from the main control panel.

Thanks to our strong structural design, our systems can be easily transported to anywhere in the world by sea, road or air. Air conditioner, heater and rockwool insulation options enable the Nitrogen Generator System to operate in harsh climatic conditions.



SECTORS

Nitrogen gas has several practical uses in the industrial applications due to its inert nature. It is used for purposes such as improving the quality or shelf life of a product or preventing a reaction with oxygen.



**CHEMICALS
INDUSTRY**



**FOOD
INDUSTRY**



**LASER CUT
INDUSTRY**



**HEAT TREATMENT
INDUSTRY**



**WIRE AND CABLING
INDUSTRY**



**ELECTRONICS
INDUSTRY**



**VEGETABLE OIL
INDUSTRY**



**AVIATION
INDUSTRY**



**MARITIME
INDUSTRY**



**MINING
INDUSTRY**



**POWER AND ENERGY
INDUSTRY**



**GAS SPRING
INDUSTRY**



**PLASTIC INJECTION
INDUSTRY**



**PHARMACEUTICAL
INDUSTRY**



**OIL & GAS
INDUSTRY**

CHEMICALS INDUSTRY

Nitrogen gas is most commonly used within the chemicals industry during the inertization, sweeping and blanket procedures of flammable and explosive chemicals by preventing their contact with air or oxygen.

- ▶ **Blanketing**
During tank blanketing, nitrogen is frequently used to reduce the risk of burning highly flammable materials, to prevent the oxidation of the materials that are stored and to eliminate product losses which occur as a result of vaporization. Moreover, it is also used to protect the chemicals from other factors coming from the air such as humidity and particles and to prevent the harmful vapor from spreading into the atmosphere air that we breathe.
- ▶ **Transfer**
High pressure nitrogen gas is used to transfer chemical products from one tank to another tank in a safe manner.
- ▶ **Sweeping**
Nitrogen is used to remove atmosphere residue oxygen and humidity found in procedure areas such as tanks, silos and pipelines in a safe manner. Sweeping procedure protects areas from contamination and chemical reactions.
- ▶ **Production**
Practices such as drying and mixing processes which cause oxidation reactions in chemical production areas can be taken under control with an atmosphere comprised of nitrogen.
- ▶ **Cooling**
Reactors can be cooled with nitrogen in a rapid manner in order to control the reactions and to guarantee product quality. Moreover, the nitrogen used here can be reused in the system.

OUR REFERENCES

Akkim Kimya A.Ş.	Yalova - Turkey	
Konya Şeker	Konya - Turkey	
İba Valresa	Ankara - Turkey	
İba Kimya	Ankara - Turkey	
MKE Barut Fabrikası	Kırıkkale - Turkey	
Aksa Akzilik	Yalova - Turkey	
Akdeniz Kimya	İzmir - Turkey	(3 Systems)
Organik Kimya	İstanbul - Turkey	(2 Systems)
Orgachem2	İstanbul - Turkey	
Türk Henkel A.Ş.	Kocaeli - Turkey	(2 Systems)
Hayat Kimya	Kocaeli - Turkey, Iran	(3 Systems)
Ravago Petrokimya	Kocaeli - Turkey	
Eyyap Sabun	İstanbul - Turkey	
PPG Kimya	Bursa - Turkey	
Gübretaş Gübre	İzmir - Turkey	
Bak Ambalaj	İzmir - Turkey	
Koruma Klor	Kocaeli - Denizli, Hatay- Turkey (4 Systems)	
Ece Boya	İstanbul - Turkey	
Mayr Melnhof Packing	Iran	
Boeclacher Kimya	Manisa - Turkey	
Esan Eczacıbaşı	Eskişehir - Turkey	
Ece Boya	İstanbul - Turkey	(2 Systems)
Pulcra Kimya	Kocaeli - Turkey	
Hamamcaşılı (Sakarya Gas Field Project)	Sakarya - Turkey	(4 Systems)
Eke Endüstri (Sakarya Gas Field Project)	Sakarya - Turkey	
Sotas Kimyevi Maddeler	Sakarya - Turkey	
	Izmir - Turkey	



FOOD INDUSTRY

Nitrogen is a popular gas in the food industry. It is used in order to prolong the shelf life of food packages in a healthy manner and to protect them from microorganisms or to protect the fluid raw material during production. As Ideal Makina, we continue our leadership within the industry with the systems that we established in Turkey and surrounding countries.

Packaging-MAP

A modified atmosphere is created inside the package in order to prolong the shelf life whilst packaging foods such as dry nuts and potato chips. Here unwanted elements such as oxygen, air, humidity are removed and nitrogen gas is filled inside the package. In the end, oxidation is prevented in the environment and products remain fresh for a long period of time. Moreover, as nitrogen gas cannot be metabolized and adsorbed by microorganisms, they protect the existence in the environment and the creation of a vacuum environment inside the package is prevented. Dry nuts, chips, confectionary, coffee, tea and dried foods are among the examples to be given in this field.

MAP - Food Gas

As different than packaging dry nuts, food gas applications use nitrogen gas produced in the generator to mix with CO2 and to send to the packages. Due to the bacteriostatic and fungal static properties of CO2 gas, microorganisms are prevented from developing on products such as meat, chicken and dairy products which have been subject to advanced procedures. By preventing microorganisms to develop on the food, fungus and bacteria effect is not observed inside the packages. This practice is used for packaging products such as pastry dough, chicken-meat which have undergone advanced procedures, milk and dairy products, ravioli, sausages-salami.

Blanket - Fruit Juice and Carbonated Beverages

Blanket applications are mostly used at fruit juice and carbonated beverage packaging facilities. Nitrogen is used to remove the oxygen inside the packaged bottle and a modified atmosphere is created as a result. This way, product's shelf life is also prolonged. Moreover, compressed nitrogen gas prevents the package from deflating.

Production

While transferring fluid raw materials such as hot cacao, nitrogen gas is given to prevent burning or spoiling as a result of contact with oxygen in the pipeline. This way, whilst production continues without any raw material loss, transfer of the fluid is supported as a driving power.

OUR REFERENCES

Dry Nuts

Malatya Pazarı A.Ş.
Papağan Kuruyemiş A.Ş.
Sarçoğlu Kuruyemiş
Nefis Kuruyemiş A.Ş.
Elmas Gıda Kuruyemiş
An Gıda(Sera Food)
Tiryaki Agro Gıda A.Ş.
Sevilen Kuruyemiş
Çelik Kuruyemiş
Aydın Kuruyemiş
Transtest SRL Kuruyemiş
Gilan Holding
Hilal Kuruyemiş
Meyna Kuruyemiş
Okullu Gıda Ltd. Şti.
Alhintop Kuruyemiş
An Gıda A.Ş.
Dadash Barader
Güngör Gıda Ltd. Şti.
Azersun
Al-Qerat Snack Food
Isiger Müh.

İstanbul - Turkey
Çerkezköy - Turkey
Samsun - Turkey
Gaziantep - Turkey
Aydın - Turkey
Aydın - Turkey
Gaziantep - Turkey
Antalya - Turkey
Antalya - Turkey
Siirt - Turkey
Moldavia
Azerbajjan
Iraq
Osmaniye - Turkey
Balıkesir - Turkey
Denizli - Turkey
Aydın - Turkey
Iran
Bursa - Turkey
Azerbajjan
Iraq
Saudi Arabia

Dry Nuts

T.L.P. Gıda Ltd. Şti.
Muhieddine Hammoud Co.
Novac Makine San.
Pinar Kuruyemiş A.Ş.
Oltan Gıda A.Ş.
Adalılar Kuruyemiş
Ateşler Kuruyemiş
Milhans Gıda
Ülker Çikolata San. A.Ş.
Dr.Oetker

Gaziantep - Turkey
Lebanon
Sakarya - Turkey
Konya - Turkey
Sakarya - Turkey
Sakarya - Turkey
Mersin - Turkey
Kocaeli - Turkey
İstanbul - Turkey
İzmir - Turkey

Chocolate

Ferrero (Nutella, Kinder)
Ülker Çikolata 1. Fab.
Şölen Çikolata A.Ş.
Şölen Çikolata A.Ş.
Ülker Önem Gıda A.Ş.
Çağla Şekerli Mam. San.

Manisa - Turkey
İstanbul - Turkey
İstanbul - Turkey
Gaziantep - Turkey
Sakarya - Turkey

Pastry Dough

Darin Gıda (Atillo) Ltd.
Öz-El Unlu Gıda Ltd.
Nivpa Gıda(Yu-Ka) Ltd.
Unifo Gıda A.Ş.
Özsoy Unlu Mamülleri Ltd.
Özalp Unlu Mamülleri Ltd.

İstanbul - Turkey
Kayseri - Turkey
İstanbul - Turkey
Kocaeli - Turkey
Tekirdağ - Turkey
Kayseri - Turkey

Crisps & Dairy Products

Doğuş Cay A.Ş.
Kraft Gıda - Doğuş Cay A.Ş.
Gürsüt A.Ş.
Altanea Gıda A.Ş.
Aral Gıda A.Ş.
Pal Food
Altparmak Gıda A.Ş.
Freşa İçecek A.Ş.

İstanbul - Turkey
Aksaray - Turkey
İzmir - Turkey
İstanbul - Turkey
Mersin - Turkey
Azerbajjan
İstanbul - Turkey
Bursa - Turkey

Wine & Drinks

Freşa İçecek San.
Nova Fruşt International
A+CO
Alaverdi Wine Ltd.

Bursa - Turkey
İzmir - Turkey
Azerbajjan
Georgia



LASER CUT INDUSTRY

Nitrogen gas is a popular gas in the food industry. It is used in order to prolong the shelf life of food packages in a healthy manner and to protect them from microorganisms or to protect the fluid raw material during production. As Ideal Makina, we continue our leadership within the industry with the systems that we established in Turkey and surrounding countries.

CO2 Laser Counters

Laser beams in CO2 laser machines are created with a mixture of gases where CO2 gas forms the majority. Nitrogen gas is used to clean the particles, other gases and water vapour inside the beam path within the counter and it is also used as a cooler. Moreover, oxidation and similar reactions can be prevented while cutting thanks to the compressed nitrogen gas and clinker does not form on the cutting surface. CO2 counters can be used to cut thicker and harder metals compared to other types of counters with nitrogen.

Fiber Laser Counters

Fiber laser cutting counters have become more widespread over the past years. Compared to CO2 counters, thinner metals are processed on these counters which are faster. As the laser beams are transferred with the help of fiber cables, there is no need to clean the beam path here. Whilst the compressed nitrogen gas is directly transferred to the cutting area, cutting quality is increased. Another advantage of the nitrogen gas is the possibility to carry out faster cuts compared to other gases thanks to the repelling force.

Impact of Nitrogen Gas on the Material

It is possible to deduct the following conclusions with regards to Ideal Makina Nitrogen Generators based on our experience within the industry as Ideal Makina.

- **Stainless Steel** While transferring fluid raw materials such as hot cacao, nitrogen gas is given to prevent burning or spoiling as a result of contact with oxygen in the pipeline. This way, whilst production continues without any raw material loss, transfer of the fluid is supported as a driving power.
- **Soft Steel (Black Sheet, DKP)** It prevents tarnishing on the cutting surface of the material. Cutting surface blisters the dye while painting and black sheets are removed. For the materials which exceed a certain thickness, we recommend compressed nitrogen gas that has high purity levels as Ideal Makina.
- **Aluminum sheet** is softer compared to other types of sheets, therefore oxygen in the environment causes the cutting surface to turn yellow whilst cutting. Moreover, nitrogen gas is used while cutting to cool the cutting surface and blurring on the surface is prevented.

Advantages of Ideal Makina Nitrogen Generator

- Non-stop, low cost gas production
 - Reduced cutting costs that will allow you to quote lower cutting offers and to obtain more work.
 - You can store the nitrogen gas generated within 230 barg compressed manifolds.
 - Increase productivity and cutting speed.
 - Prevent corrosion, oxidation and clinker formation
 - Manufacture your own manifold with approximately 14 \$ costs!
- Do not lose time for procedures such as changing tubes.

OUR REFERENCES

Teknogon Teshir
Sımya Metal
Demircioğlu Makine
Nuri Kriştalan
Teknik Lazer
Mysilo
Zeenni Steel
Bilge İnoks
Öz-Sac İmalat
Teknikel Lazer
PSL Fiberli Elektronik
Akyürek Kardeşler
Tınsoy
Diktas Soğutma
Genç Boyraklar
Poyraz Paslanmaz
Pirge (Yeşilyayla Kesici Aletler)

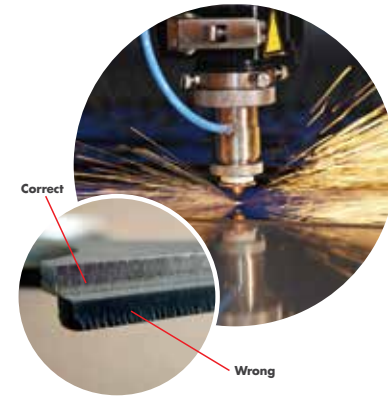
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Bursa - Turkey
İstanbul - Turkey
Aksaray - Turkey
Lebanon
Dilovası - Turkey
Çorlu - Turkey
İzmir - Turkey
Antalya - Turkey
Mersin - Turkey
Sakarya - Turkey
Ankara - Turkey
Bursa - Turkey
İstanbul - Turkey
Bursa - Turkey

Kocaksac
Örneç Makina
Güleçler Metal
Uğur Soğutma
Silopart (Mysilo)
MLPS LTD.
Zeenni Steel
Target Metal
Dzneneni
Kaymed-Kayseri Metal
Hakan Sac Metal
MyWood Palomka
RZK-Arcelor Mittal
Mader
Dener Makina
Durmazlar Makina

Konya - Turkey
Gaziantep - Turkey
Adana - Turkey
Aydın - Turkey
Aksaray - Turkey
Bulgaria
Lebanon
Qatar
Bosnia
Kayseri - Turkey
Ankara - Turkey
Slovakia
Kocaeli - Turkey
Germany
Kayseri - Turkey
Bursa - Turkey

OUR REFERENCE COUNTERS

- Bystronic / Switzerland
- Trumpf / Germany
- Nukan / Turkey
- Durma / Turkey
- Ermaksan / Turkey
- LVD / Belgium
- Prima Power / Italy
- Amada / Japan
- Mazak / Japan
- MVD / Turkey
- Dener / Turkey



HEAT TREATMENT INDUSTRY

Due to the structure of the metals which is appropriate for creating compounds during heat treatment procedure as a result of high temperatures, nitrogen gas is used to prevent harmful effects such as oxidation, corrosion, rust etc.

▶ Tempering

The stretching of materials is preventing during tempering procedures and their mechanical properties are improved. During the procedure, the material which reaches high temperatures should be separated from oxygen, humidity and other air elements. By preventing oxidation and formation of rust or corrosion layer and in order to create high quality surfaces, a nitrogen atmosphere is created with Ideal Makina Nitrogen Generator inside the stove. Normalization tempering uses this procedure continuously.

▶ Soldering

Nitrogen atmosphere is required to establish high quality levels on the combination surfaces of the soldering material which melts at high temperatures inside soldering stoves.

▶ Carburization and Cementation

Within thermochemical processes, for example during cementation, steel material's surface is infused with carbon at a temperature between 850-950°C and it is hardened as a result. During this procedure, water vapour, oxygen and CO2 gas in the environment is removed with the help of the nitrogen gas to prevent decarburization on the surface.

▶ Hardening

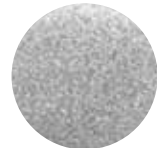
You can also use Ideal Makina Nitrogen Generators for hardening procedures to create a nitrogen atmosphere that would prevent oxidation and decarburization as in the case of carburization.

▶ Galvanization

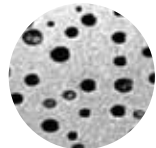
Galvanization procedure uses nitrogen to scrape the excessive zinc on the surfaces that are galvanized. Nitrogen gas generated with Ideal Makina Nitrogen Generators can be given to these systems via manual or automatic systems.

▶ Degasification

Oxygen molecules are present inside the aluminum found as melted mostly at aluminum melting mines. The structure of aluminum allows creating compounds with oxygen at high temperatures. Here nitrogen atmosphere is created inside the stove to prevent oxidation. Moreover, air bubbles are prevented from being created inside the solid aluminum thanks to the nitrogen atmosphere.



N₂ Degasification



Air Bubbles



Air Bubbles

OUR REFERENCES

Tusaş Tai Havacılık	Ankara - Turkey	Teknik Bağlantı El.	Adana - Turkey
Yılmaz Redüktör	İstanbul - Turkey	Birler Çelik	Bursa - Turkey
Kardeş Elektrik	İstanbul - Turkey	Norm Civata	İzmir - Turkey
Samsun Yurt Savunma	Samsun - Turkey	Norm Somun	İzmir - Turkey
Kanca El Aletleri	İstanbul - Turkey	Norm Salihi	Manisa - Turkey
Eti Alüminyum	Konya - Turkey	Sistem Teknik	Kocaeli - Turkey
Akış Asansör	Konya - Turkey	Temel Tel	Kocaeli - Turkey
Has Çelik Halat	Kayseri - Turkey	Gemciler Güven Metal	Kahramanmaraş - Turkey
Steel Structures	Azerbaycan	Özer Metal	Tekirdağ - Turkey
Sistem Teknik	Kocaeli - Turkey	Nural Teknoloji	Ankara - Turkey
Sistem Alüminyum	Russia		



(3 Systems)

WIRE AND CABLING INDUSTRY

Cable and wire production is one of the growing industries both in Turkey and across the globe. Nitrogen gas is used both during cable production and wire coating processes. Another field of use for the nitrogen gas during wire manufacture is the process of galvanized coating. Ideal Makina continues its industrial leadership for cable and wire production.

▶ Cable Manufacturing

During cable manufacturing, air, humidity and oxygen particles should not enter between the coating material and the wire when the wire is being coated. Therefore, when coating material is being injected on the wire, nitrogen gas generated by Ideal Makina systems create a closed nitrogen atmosphere.

▶ Wire Coating

Galvanization refers to the coating of the iron dipped into zinc that is melted at 450-455°C temperature. Here zinc forms strong bonds with the iron and increases its resistance against the oxidation of metals. Galvanized wires taken out of the zinc bath are then sprayed with nitrogen gas to remove the residual liquid zinc on them. During the process, this procedure has two advantages: Galvanized coating thickness becomes homogeneous for the entire diameter of the wire. Together with this procedure, residue zinc material is returned to the bath and significant amounts of the material are saved.

▶ Copper Wire Tempering

In order to increase the resistance of the copper wire material and to increase its flexibility, they are subject to tempering procedures. During this tempering process, nitrogen gas is injected inside the stove to prevent oxidation at high temperatures created inside the stove. The result clearly shows that nitrogen atmosphere is successful in preventing oxidation.

▶ Heating - Cooling

Climatization, air conditioning and industrial heating-cooling devices use copper pipes. In order to perform a leakage test on the copper wires, nitrogen gas is given for checking purposes.

OUR REFERENCES

Elsan Elektrik Gereçleri A.Ş.	Denizli - Turkey	
Has Çelik A.Ş.	Kayseri - Turkey	(4 Systems)
Güney Çelik A.Ş.	Adana - Turkey	
Hes Kablo A.Ş.	Kayseri - Turkey	
İlke Çelik A.Ş.	Denizli - Turkey	(2 Systems)
IMC Galvaniz A.Ş.	Osmaniye - Turkey	
Erikoğlu Emaye Bakır Tel A.Ş.	Denizli - Turkey	(2 Systems)
Aslan Bakır San. ve Tic. A.Ş.	Kocaeli - Turkey	
Seval Kablo A.Ş.	Denizli - Turkey	(3 Systems)
Güney Çelik A.Ş.	Adana - Turkey	
Özler Kablo A.Ş.	Gebze - Turkey	
CSM Metalurji	Albania	
Beyazıt Tel	Halay - Turkey	
CRT Metal	Osmaniye - Turkey	
Ersa Demirçelik	Denizli - Turkey	
Mekoson Makina	Algeria	



ELECTRONICS INDUSTRY

Nitrogen gas is used within the electronics and communication industry to prevent oxidation by ensuring an oxygen-free environment during the assembly of circuit cards, packaging and soldering procedures and it ensures superior quality products are obtained. Moreover, it is used in various cleaning procedures applied inside the ovens. Nitrogen gas ensures that several errors are eliminated.

Lead-free Soldering

During lead-free soldering, nitrogen gas is used to eliminate a number of errors. It is possible to prevent the oxidation layer on metal surfaces. The resistance of joint points of the solders are increased. Less clinker is accumulated on the surfaces where the procedures take place. One of the most important mistakes which causes Head-In-Pillow problem can be prevented. And together with all of these advantages, workmanship costs are reduced for production.

Soldering After Remelting

Nitrogen gas is used inside remelting ovens to reduce a number of errors. It is possible to prevent the oxidation layer on metal surfaces. Resistance of the joints on the solders are increased. Less clinker is accumulated on the surfaces where procedures take place. One of the most crucial mistakes, which is the Head-in-Pillow problem can be prevented via this method. And together with all of these advantages, workmanship costs related to production are also reduced.

Wave Soldering

Nitrogen gas is used during wave soldering to reduce the amount of clinker formed significantly. Operator spends less time on pieces that contain lead. The errors on the solder are reduced completely. As a result of all of these advantages, this equation is obtained: Minimum Error = Minimum Costs

Protective Atmosphere During Assembly

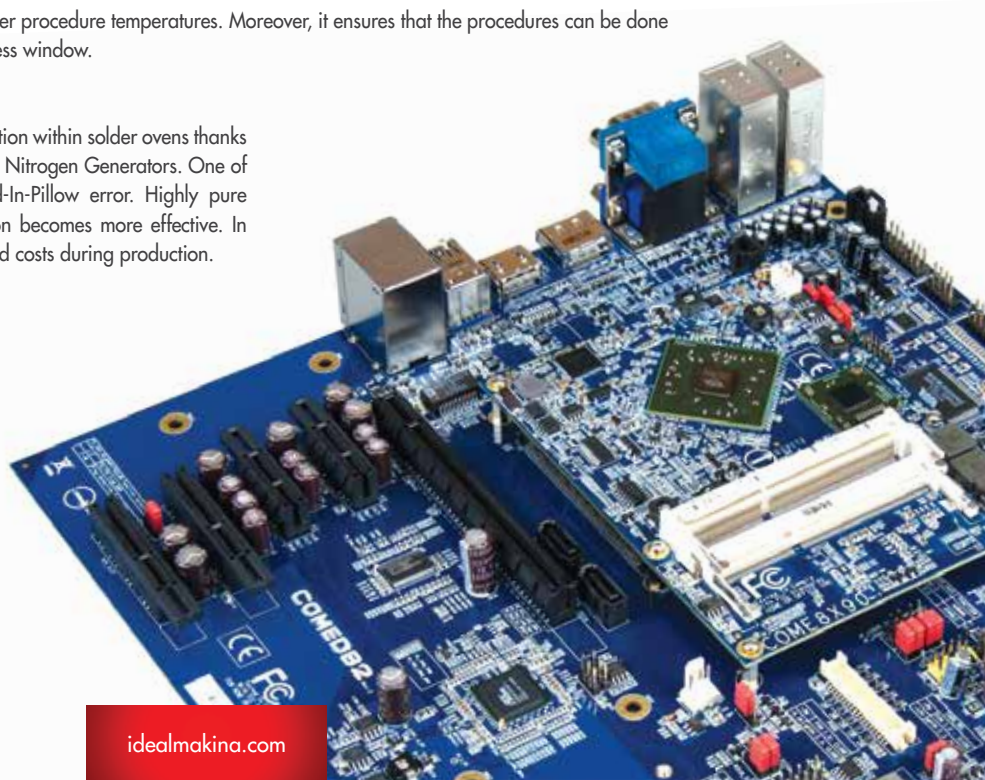
The nitrogen gas used during assembly allows lower procedure temperatures. Moreover, it ensures that the procedures can be done with ease and allows the creation of a wider process window.

Effective Production with Ideal Makina

Ideal Makina reduces the rate of erroneous production within solder ovens thanks to the systems that it establishes with Ideal Makina Nitrogen Generators. One of the primary errors in this sense is called Head-In-Pillow error. Highly pure nitrogen gas prevents these errors and production becomes more effective. In general, it is possible to save time, temperature and costs during production.

OUR REFERENCES

Karel Elektronik A.Ş.	Ankara - Turkey
Ortem Elektronik A.Ş.	İstanbul - Turkey
Arcelik Beyaz Eşya A.Ş.	Manisa - Turkey
Assan Elektronik A.Ş.	İstanbul - Turkey
Simpro Elektronik Ltd.	Kocaeli - Turkey
Siemens Türkiye A.Ş.	İstanbul - Turkey
Vestel Beyaz Eşya A.Ş.	Manisa - Turkey
Arcelik Beyaz Eşya A.Ş.	South Africa
Na-De Elektronik San. Tic. A.Ş.	Eskişehir - Turkey
Naftaline Enterprise	İstanbul - Turkey
Tübitak Mam	Malaysia
Grup ARGE	Kocaeli - Turkey
Meriç PCB	İstanbul - Turkey
Samsung Electronics	İstanbul - Turkey



VEGETABLE OIL INDUSTRY

When vegetable oils come into contact with oxygen, they become especially prone to spoiling. Atmospheric oxygen causes a chemical reaction when fatty acid attacks triglyceride molecules. Oxygen and humidity are removed from the environment thanks to nitrogen gas practices and oil's structure is preserved.

Blanket

Nitrogen gas creates an inert atmosphere inside the storage tanks and ensures that the oxygen and humidity is removed. Products remain stable and they are stored in a humid free environment without changing the amount of acidity and the taste does not change. The pressure of the nitrogen gas compressed into blanket tanks is increased to help with the transfer of the oil.

Line Cleaning

Due to the hygiene requirement in food processes, this application type that is constantly applied keeps equipment and pipelines free of any microbiological contamination and oxygen increase (rust) and they are swept with compressed nitrogen gas for this purpose.

Bottle Cleaning and Drying

Prior to the commencement of the bottling procedure, it is important for the bottles to be clean. Before oil is filled, bottles are filled with dry and clean nitrogen to remove any gas and dusts inside the bottle. This way, oxidization reactions are prevented. After the bottles are filled, the space left at the top is filled with nitrogen gas. During storage and packaging stages, this procedure is carried out to prevent any contact with oxygen and to keep the products fresh ensuring that the shelf life is prolonged.

OUR REFERENCES

İskul Gıda (Zeytin İskelesi Ltd Şti.)	İzmir - Turkey
Lütfü Yüksel Yağ Ltd. Şti.	Eskişehir - Turkey
Polimeks İnşaat A.Ş.	Türkmenistan
Ülker Çikolata 1 Fab.	İstanbul - Turkey
Felda İFFCO Gıda A.Ş.	İzmir - Turkey
Trakya Yağ Yem San. A.Ş.	Kırklareli - Turkey
Ferrero Çikolata	Manisa - Turkey
Şölen Çikolata	Gaziantep - Turkey
Savola Gıda San. ve Tic. A.Ş.	Balıkesir - Turkey
Unat Yağ	Mersin - Turkey



AVIATION INDUSTRY

N₂ is used as a reliable gas within the aviation industry to fulfill various requirements such as and including inflating tires and landing gears.

Inflating Tires

The air inside the tires starts to condense at high altitudes and very low temperatures due to the humidity inside the air and it starts to damage the structure of the tire. Nitrogen gas is used to prevent condensation oxidation. Moreover, the tires filled with nitrogen gas lose their pressure 3 times slower compared to the tires with air.

Filling Gas

Emergency slides in airplanes, inflatable boats and life jackets are all inflated with nitrogen gas. Moreover, nitrogen gas is used inside the shock absorbers of the landing gears of airplanes. As ideal Makina, we render services with Tube Filling Stations that store nitrogen gas generated at the requested purity and dryness level inside high compression tubes.

OUR REFERENCES

Türk Hava Yolları Teknik A.Ş.
Türk Hava Yolları Teknik A.Ş.
Türk Hava Yolları Teknik A.Ş.
TAI (TUSAS)
Yardımcılar Ltd. Şti.
Uz-Tur Otel İnş. Taah. Tic. Ltd. Şti.

Atatürk Airport / Istanbul - Turkey
Sabiha Gökçen Airport / Istanbul - Turkey
Istanbul Airport / Istanbul - Turkey
Ankara - Turkey
Ashgabat Airport / Turkmenistan
Ankara - Turkey

(3 Systems)



MARINE INDUSTRY

Nitrogen gas is used essentially during blanket applications when the hazardous materials carried by tankers are stored.

Blanket

For blanket applications, the air inside the warehouses is removed and the environment is turned into an inert state with nitrogen gas. Nitrogen blankets are indispensable for fuels such as chemical substances, LNG-LPG which are flammable.

Sweeping, Scraping

Maritime industry prefers nitrogen gas also for the cleaning and transportation of fluids such as oils.

OUR REFERENCES

Veysel Vardal Denizcilik A.Ş.
MRC Semiramis Akaryakıt Tankeri
MRC Emirhan Akaryakıt Tankeri
Dearsan Gemi İnşaat A.Ş.
Denizsan A.Ş.
Akva Tek Su Ürünleri
Lider Gemi Sanayi (White Rose Shipping Ltd.)

Istanbul - Turkey
Istanbul - Turkey
Istanbul - Turkey
Turkmenistan
Istanbul - Turkey
Izmir - Turkey
Istanbul - Turkey

MRC Hatice Ana Akaryakıt Tankeri
Genka Denizcilik
Emden Denizcilik
Akbasoğlu Holding
Düzgüç Gemi İnş. San. A.Ş.
Armona Denizcilik

Istanbul - Turkey
Istanbul - Turkey
Istanbul - Turkey
Istanbul - Turkey
Istanbul - Turkey
Istanbul - Turkey



MINING INDUSTRY

The ores mined within the mining industry are purified from soil and other additives by using nitrogen gas. As İdeal Makina, we offer the most appropriate solutions for the processes within the industry.

Ore Purification

In order to mine the raw material that is underground and to process it, certain additives or chemicals are used. These chemicals should not have any risk of oxidation and should not damage the ore therefore removing them with nitrogen gas is the most suitable method.

Ore Processing

While starting to process the ore that has been mined, an inert environment is created with nitrogen gas and oxidation is prevented.

OUR REFERENCES

Tüprağ Alın Madeni	İzmir - Turkey	Esan Eczacıbaşı A.Ş.	Eskişehir - Turkey
Kuzey Ege Bakır Madeni	Balıkesir - Turkey	TKİ Kurumu	Kütahya - Turkey
Tüprağ Alın Madeni	Uşak - Turkey	Polyak Eynez	Manisa - Turkey
Kuzey Ege Bakır Madeni	Balıkesir - Turkey	Değış Madencilik (Demir Export)	Manisa - Turkey
Mng Gold	Liberia	MNG Orko	Burkina Faso
Türkiye Taşkömürleri	Zonguldak - Turkey		



POWER AND ENERGY INDUSTRY

There are several processes taking place inside the Thermal Power Plants where electric energy is generated. Using nitrogen gas at different points inside this structure has several advantages. These plants which are generally established at those locations far away from the cities need nitrogen gas where İdeal Makina provides significant advantages by offering these plants the possibility to generate their own gas "on-site".

- ▶ Blanket is created on demineralized water tanks with nitrogen gas and water's conductivity is prevented from increasing.
- ▶ Nitrogen gas is used to ensure that the mechanical seals of turbo compressors are leakproof.
- ▶ Nitrogen gas is used to wash and prevent corrosion and rusting when the boilers and pipelines are not in use.
- ▶ In order to calculate the calorific value of raw materials such as coal before they burn accurately and to purify them of other factors such as humidity and oil, nitrogen gas is used.

OUR REFERENCES

Aksa Enerji A.Ş.	Antalya - Turkey	
Çalık Enerji A.Ş.	Türkmenistan	(3 Systems)
Enka İnşaat A.Ş.	North Iraq	(2 Systems)
Enka İnşaat ve San. A.Ş.	Libya	(2 Systems)
Enerjisa Enerji Üretim A.Ş.	Kayseri - Turkey	
Eke Endüstri Ltd. Şti.	İstanbul - Turkey	
Gebze Elektrik Üretim Ltd. Şti.	Kocaeli - Turkey	
Sakarya Elektrik Üretim Ltd. Şti.	Sakarya - Turkey	
İzmir Elektrik Üretim Ltd. Şti.	İzmir - Turkey	
Enka İnşaat ve San. A.Ş.	Libya	
Aksa Enerji A.Ş.	Uzbekistan	(2 Systems)
Mass Energy Group	Jordan	
Azerenergy	Azerbaijan	
Mass Energy Group	Iraq	
Wien Energy	Austria	



GAS SPRING INDUSTRY

For the production of gas-filled shock absorbers, gases are used to absorb impact rather than springs. High pressure nitrogen gas filled shock absorbers are used in several fields ranging from aviation, furniture, automotive, vacuum-press machines.

Gas-Filled Shock Absorbers

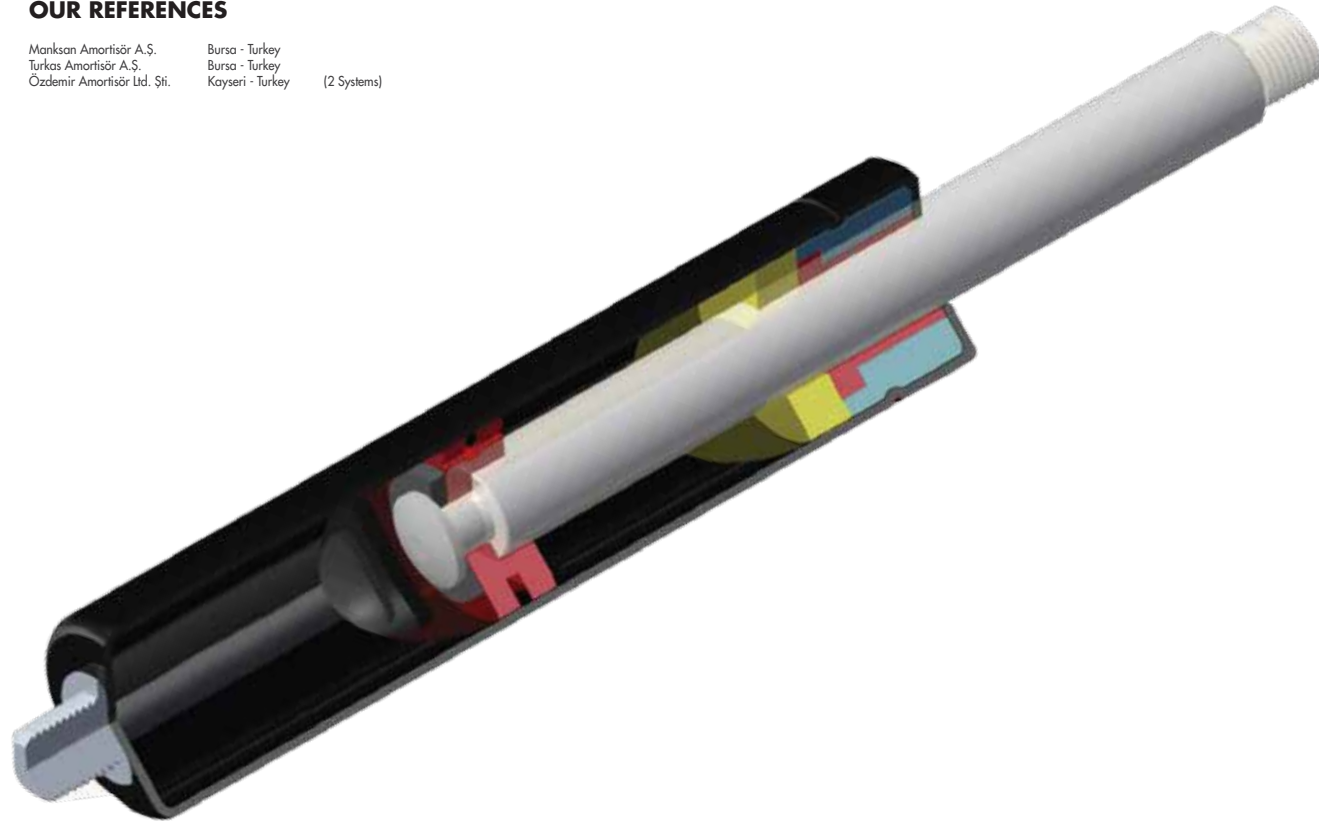
Gas-filled shock absorbers fulfill certain functions such as lifting weights, carrying, pulling and damping owing to the damping capability of approximately 200 bars of nitrogen gas inside. As ideal Makina, we offer 6-7 bar nitrogen gas that we generate at the generators for use and store at 200 bars thanks to the special compressors.

Heat Treatment

The pistons which are the most important part of the shock absorbers filled with 200 bars of nitrogen gas are subject to heat treatment through the ovens. During the heat treatment, nitrogen gas is used to create an inert atmosphere inside the oven to prevent oxidation at high temperatures. Pistons have a higher resistance and sensitive surface tolerances after heat treatment.

OUR REFERENCES

Mankon Amortisör A.Ş.	Bursa - Turkey	
Turkas Amortisör A.Ş.	Bursa - Turkey	
Özdemir Amortisör Ltd. Şti.	Kayseri - Turkey	(2 Systems)



PLASTIC INJECTION INDUSTRY

The nitrogen gas produced by ideal Makina Nitrogen Generators is used to render services to the plastics industry on a number of different products ranging from stadium seats to white appliances at different points across the globe.

Production

Plastic manufacturers use highly pure nitrogen gas during the production of the raw material to prevent any kind of oxidation on the pieces. For example, the parts that people frequently come into contact with such as the door holder of a refrigerator, are prevented from turning yellow due to the contact of the fatty acids on people's hands and oxygen.

Injection

Nitrogen gas injected inside plastic pieces help them to take the shape of the mold. Compressed gas ensures that less bubbles are formed inside the plastic. Moreover, they create a space inside the molds creating lighter and more resistant structures. This way, assembly and raw material costs are reduced as well.

OUR REFERENCES

Alp Plastik A.Ş.	Bolu - Turkey	
Yücel Büro Mobilyaları	Gaziantep - Turkey	(2 Systems)
Savas Plastik A.Ş.	Istanbul - Turkey	
Murat Plastik San. Tic. Ltd. Şti.	Gaziantep - Turkey	
Farpas Otomotiv A.Ş.	Kocaeli - Turkey	
Rainbow Mobilya	Kayseri - Turkey	
Arçelik Beyaz Eşya A.Ş.	Egypt	



PHARMACEUTICAL INDUSTRY

Transfer

High pressure nitrogen gas is used to ensure that the chemical products are carried from one tank to the other in a safe manner.

Purging

The equipment used during production and for analytical assays may be cleaned by purging with nitrogen gas to remove the oxygen and water vapour within process lines.

Blanket

Blanket with nitrogen prevents contamination from the air such as humidity and bacteria, creates an inert atmosphere, protects the products and prevents any lumps to be formed.

Drug Manufacturing

Nitrogen gas is used to manufacture API (Active Pharmaceutical Ingredient) and to manufacture final drug products.

Sterile Packaging

It is used to create the appropriate atmosphere during sterile packaging and during filter control tests.

OUR REFERENCES

Oubari Pharma
Immu-Nat Bitkisel İlaç
Naturan İlaç San.Tic. Ltd. Şti.
Farmatek İlaç A.Ş.
Alvimedica Tıbbi Ürün A.Ş.
Biota Bitkisel İlaç

Syria
Muğla - Turkey
İzmir - Turkey
Kırklareli - Turkey
Tekirdağ - Turkey
İstanbul - Turkey



SOME OF OUR NITROGEN GENERATOR REFERENCES



SOME OF OUR NITROGEN GENERATOR REFERENCES



SOME OF OUR NITROGEN GENERATOR REFERENCES



SOME OF OUR NITROGEN GENERATOR REFERENCES



SOME OF OUR REFERENCE PROJECTS



SOME OF OUR REFERENCE PROJECTS



İSTANBUL - TURKEY



İSTANBUL - TURKEY



KOCAELİ - TURKEY



- 1- İZMİR - TURKEY, 2019
- 2- İZMİR - TURKEY, 2021
- 3- MANİSA - TURKEY, 2021
- 4- MANİSA - TURKEY, 2022
- 5- MANİSA - TURKEY, 2022

SOME OF OUR REFERENCE PROJECTS

SOME OF OUR REFERENCE PROJECTS



SAKARYA - TURKEY
GAS FIELD PROJECT



ROMANIA



SOME OF OUR REFERENCE PROJECTS



QATAR



GERMANY

SOME OF OUR REFERENCE PROJECTS

POYRAZ PASLANMAZ
San. ve Tic. Ltd. Şti.

İSTANBUL - TURKEY



YILMAZ
SAC PROFİL SAN. TİC. LTD. ŞTİ.

KAYSERİ - TURKEY



yemtar

BALIKESİR - TURKEY



TURKISH AIRLINES

İSTANBUL - TURKEY

SOME OF OUR REFERENCE PROJECTS

SOME OF OUR REFERENCE PROJECTS



GERMANY



DENİZLİ - TURKEY



AKSA
Akris Kimya Sanayi A.Ş.

YALOVA - TURKEY



CALIK ENERJİ

TURKMENISTAN

SOME OF OUR REFERENCE PROJECTS

ENKA

NORTH IRAQ



HASÇELİK

KAYSERİ - TURKEY



HAYAT

KOCAELİ - TURKEY



GÜNEY ÇELİK

ADANA - TURKEY



SOME OF OUR REFERENCE PROJECTS



KONYA - TURKEY



İSTANBUL - TURKEY



SOME OF OUR REFERENCE PROJECTS



İSTANBUL - TURKEY




ANKARA - TURKEY

SOME OF OUR REFERENCE PROJECTS



ÖZDOĞAN

BALIKESİR - TURKEY



akınal
tekstil

GAZİANTEP - TURKEY



SOME OF OUR REFERENCE PROJECTS



Simya Metal
Aer teknolojisi, yüksek kapasite, düşük maliyet

İZMİR - TURKEY



İTİK
İTİK KURUMSAL İZLİM

ZONGULDAK - TURKEY

SOME OF OUR REFERENCE PROJECTS



LIBERIA



İSTANBUL - TURKEY



İSTANBUL - TURKEY



KÜTAHYA - TURKEY

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MYSiLO
TANIIL DEPOLAMA SİSTEMLERİ
GRAIN STORAGE SYSTEMS

AKSARAY - TURKEY



MRC
MERCAN GROUP

İSTANBUL - TURKEY



MM
KARTON AG

İRAN



DIKTAS

ANKARA - TURKEY

SOME OF OUR REFERENCE PROJECTS

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J&P STEEL

LEBANON



tekniket
LAZER

İZMİR - TURKEY

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petlas®

KIRŞEHİR - TURKEY



AYVAZ

İSTANBUL - TURKEY



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ESKİŞEHİR - TURKEY



NURLU YATIRIM

TURKMENSTAN



BOSNIA AND HERZEGOVINA



HATAY - TURKEY

SOME OF OUR REFERENCE PROJECTS

TIRSAN

- 1. SAKARYA - TURKEY, 2019
- 2. SAKARYA - TURKEY, 2021
- 3. SAKARYA - TURKEY, 2023



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BİLE ENJİNERİ TESİSLERİ A.Ş.

İSTANBUL - TURKEY

SOME OF OUR REFERENCE PROJECTS



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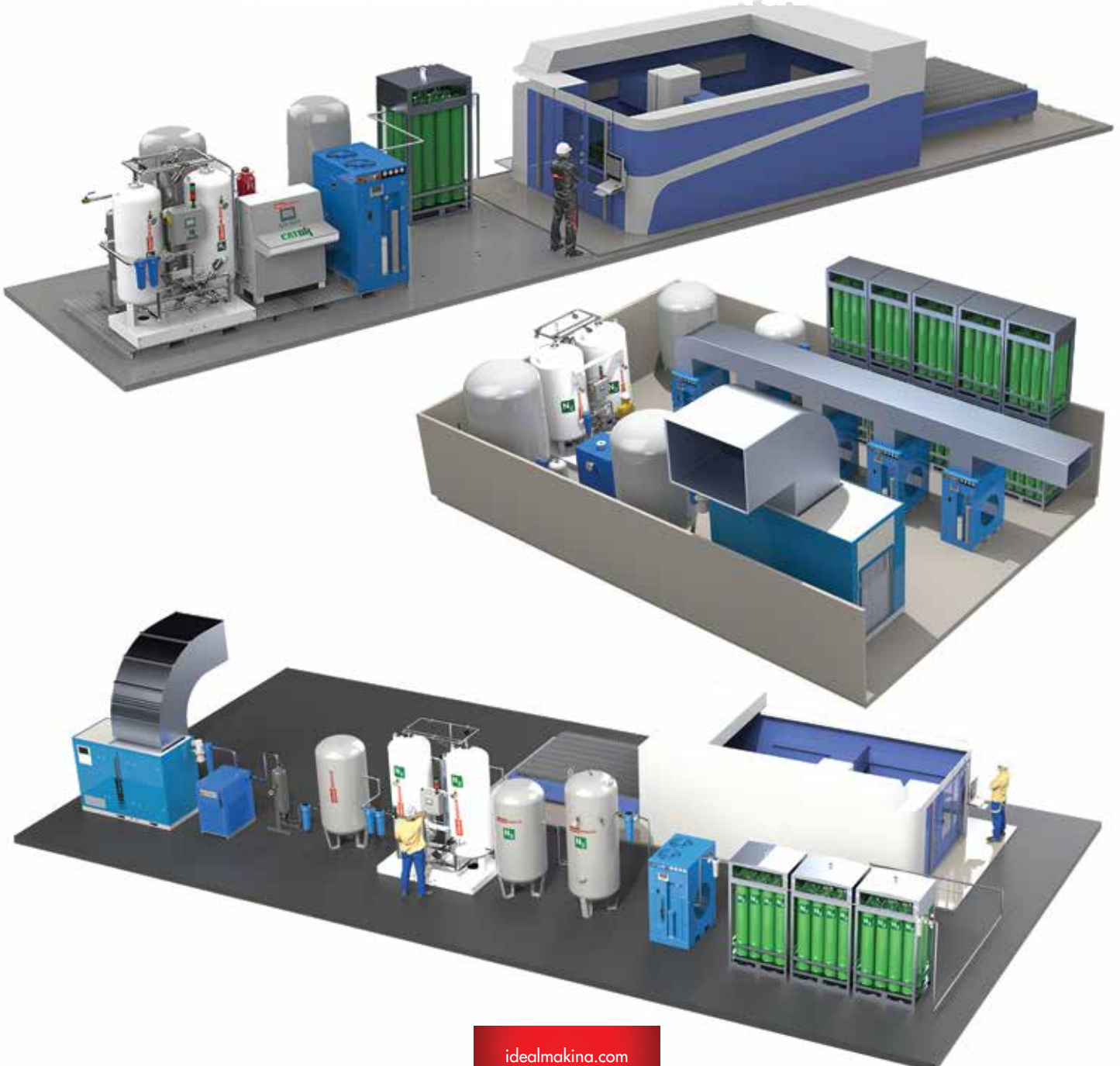
nuri körüstan

BURSA - TURKEY

PROJECT DESIGN AND PRODUCTION SAMPLES



PROJECT DESIGN AND PRODUCTION SAMPLES



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