

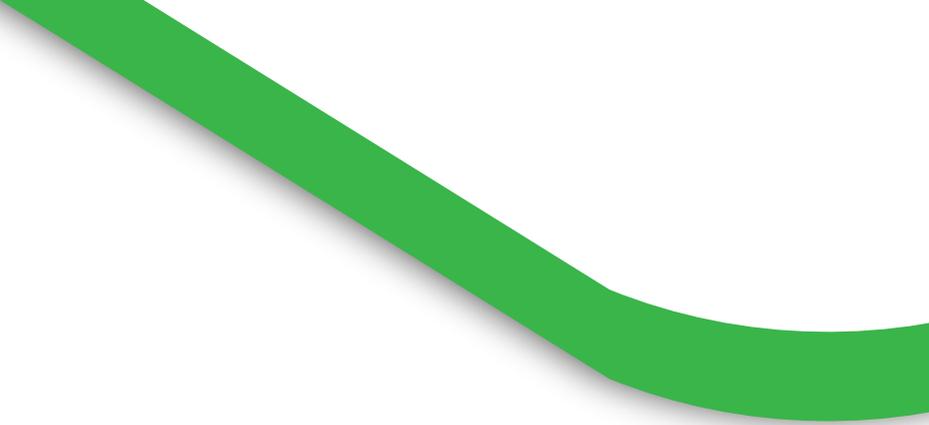
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Natural Gas Saving System

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nost METHODOLOGY

Nost is a four-component control system developed to reduce fuel consumption and increase combustion efficiency in natural gas and LPG combustion systems. In the application area, first the system parameters are analyzed and reference data regarding the combustion process is obtained. Then, the oxygen is purified by the separator module within the system and transferred to the storage unit. The stored oxygen is directed to the combustion chamber with a microcontroller-supported control algorithm in the amount needed at the moment of combustion and according to instantaneous measurements. This controlled oxygen supply ensures more stable combustion of the combustible gas. The system is monitored via the digital control panel throughout the process and remote management can be provided in integration with automation systems when necessary. Thus, both fuel savings are achieved and environmental impact is minimized by reducing.



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WHAT IS NOST?

Nost is a system designed to maximize fuel economy in systems operating with natural gas or LPG. The system processes the air it takes in and produces oxygen. This oxygen is safely stored in a pressure resistant storage tank. The stored oxygen is injected into the combustion chamber in a controlled manner with a microcontroller-based system according to need, thus ensuring more efficient combustion of the combustible gas. This controlled feeding eliminates inefficient combustion, preventing both energy losses and minimizing harmful emissions.

Thanks to Nost's structure, it can be easily integrated into burners of different capacities. In the meanwhile, the system's digital interface provides the user with instant performance data; it can work integrated with smart automation systems with remote access and monitoring. With all these features, Nost increases energy efficiency, reduces operating costs and contributes to environmental sustainability by drastically decreasing return of investment (ROI) period.



HOW DOES NOST SAVE?

- In existing systems, combustion occurs with the combination of air + natural gas. These systems perform the combustion process by mixing the flammable natural gas with the total components of 21% oxygen + 78% nitrogen + 0.9% argon and other gases in the air.
- Thanks to the Nost technology which increases oxygen ratio within the mixture that enables combustion efficiency in the existing combustion process.
- The general working principle of Nost is based on the principle of ensuring better combustion of carbon in the combustible gas by increasing the amount of combustor gas. The increase in calorific value as a result of more heat production is a clear indicator of this result.

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Advantage**

Energy Efficiency: Produces more heat with less gas by optimizing combustion.

Fuel Savings: Provides natural gas savings at between 8–30%.

Low Emission: Reduces the release of harmful gases such as CO and NOx.

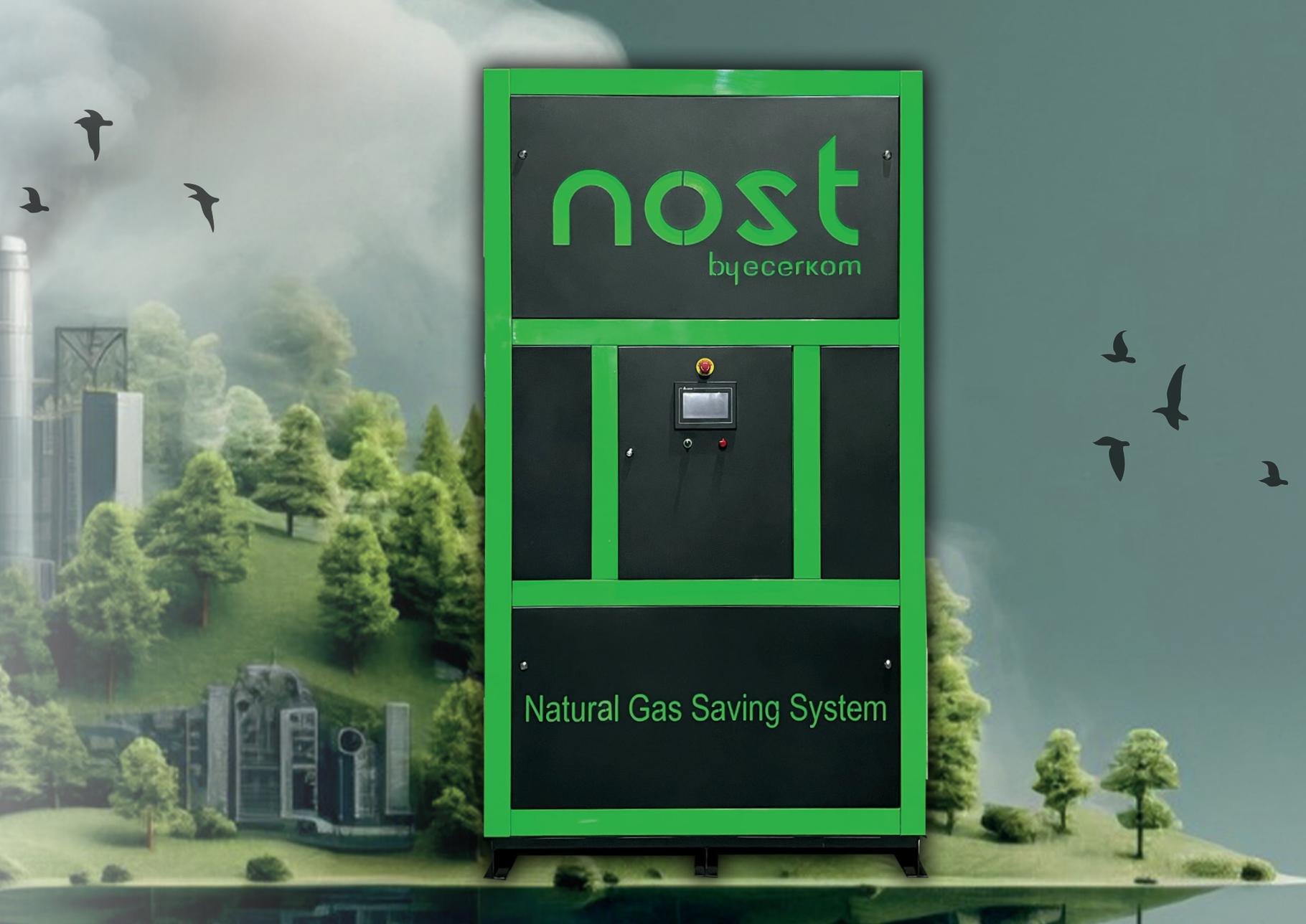
Digital Control: Compatible with automation systems by instantaneous and remote monitoring.

Easy Maintenance: Automatic breakdown notification and low maintenance requirements.

Complete Combustion: Controlled oxygen supply ensures more efficient burning.

Modular Structure: Provides easy integration into different systems.

Fast Amortization: It provides a quick return on investment.



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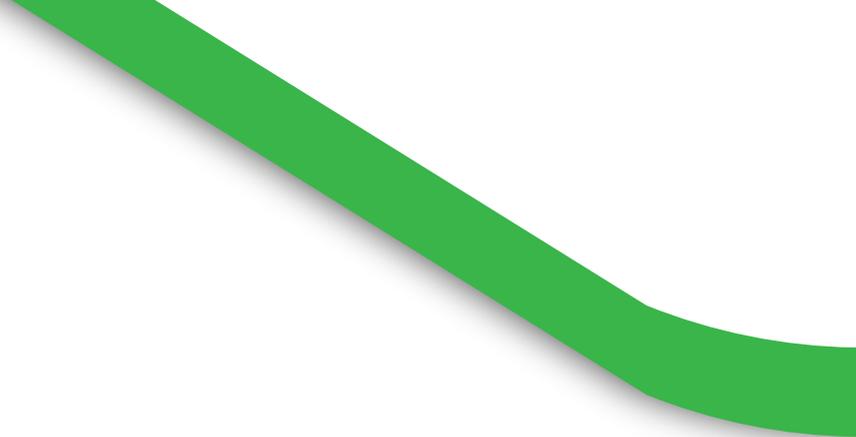
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A close-up photograph of a vibrant green leaf with several clear water droplets resting on its surface. The leaf is positioned in the foreground, partially overlapping a blurred background that features a glowing, blue and white globe of the Earth. The overall scene is set against a dark, deep green background, creating a sense of freshness and environmental focus.

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**Same Heat with Less Gas,
Cleaner Future!**





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COMBUSTION WITH ENRICHED OXYGEN

1. Combustion Efficiency Increases

When oxygen concentration increases:

- Flame temperature increases → higher thermal efficiency.
- Combustion will be faster and complete.
- Provides the same heating effect with less natural gas consumption.

2. Flame Temperature Increases

- Flame Temperature: At %21 O₂ → ~1.950 °C
- At %100 O₂ (oxygen combustion) → ~2.800 °C

A thick green decorative graphic that starts as a curved shape on the left and tapers into a straight diagonal line extending towards the top right corner of the page.

3. Reduces Nitrogen Dilution – Cleaner Combustion

- Since normal air contains 78% nitrogen, this nitrogen cools the flame during combustion.
- As the oxygen content increases, this cooling effect decreases because the nitrogen load is reduced.

Result:

- More compact flame, higher heat transfer.
- Combustion products have less volume → exhaust gas flow rate is reduced.

4. Changes in Emissions

- CO and unburned hydrocarbons (UHC) are reduced.

5. Provides Fuel Savings

- Thanks to more efficient combustion, natural gas consumption decreases.
- Especially in large industrial furnaces, it provides fuel savings of 8-30%.

6. Energy Recovery Becomes Easier

Since the flow rate and heat capacity of exhaust gas decreases:

- Waste heat recovery (economizer, recuperator) can be done more efficiently.
- Exhaust gas becomes hotter → its usability increases.

Application Areas

- Applied wherever there is flame.
- Metal heat treatment furnaces.
- Ceramic firing furnaces.
- Waste incineration system.
- Petrochemical processes.

Parameter	Combustion Standard	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Combustion Efficiency	0,8	0,85	0,9	0,93	0,95	0,96	0,97
Energy Required (KW)	1250	1176,47	111,11	1075,27	1052,63	1041,67	1030,93
Natural Gas Consumption(Nm ³ /h)	112,5	105,88	100	96,77	94,74	93,75	92,78
Fuel Savings (%)	-	5,88	11,1	13,98	15,79	16,67	17,53

As it can be seen in the table, as oxygen ratio increases:

- Fuel consumption decreases (more efficient combustion).
- Exhaust gas flow rate decreases (less nitrogen is carried).
- Flame temperature rises significantly (heat transfer increases).

This provides a significant advantage in terms of both energy saving and increasing production capacity, especially in industries operating at high temperatures.

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