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**BURNERS : OIL, GAS-OIL AND GAS**



**NEW FUNCTIONALITY WITH THE APPLICATION  
OF MAGNETIC CATALYZER SUPER CATALYZER**

Designed to improve the combustion and increase engine power, the **Super Catalyzer** also prevents the formation of engine deposits because it exercises a cleaning action.

## SCIENTIFIC PRINCIPLE

### Effect of the magnetic field on fuels

Hydrocarbons may be defined as a group of chemical compounds composed only of carbon and hydrogen, bonded together by the sharing of valency electrons with accompanying bond energy. The action of the magnetic field which the **Super Catalyzer** exerts on the fuel, prior to the combustion process, leads to the reduction of the bond energy between carbon-carbon atoms and carbon-hydrogen atoms. This reduction leads to greater availability of carbon and hydrogen atoms in a highly reactive form defined as “radical”. With this combination, during the combustion process, intermediate compounds, namely “peroxides”, are formed with the oxygen from the atmosphere. These in turn react with the unburnt elements bringing more energy to the system, with an increase in speed of combustion and consequently in thermal efficiency.

### Effects of the **Super Catalyzer** on the combustion process

Following the formation of the highly active radical compounds which increase the rate of reaction, the following objectives are achieved :

- total oxidation of the unburnt elements (HC, CO and C) into carbon dioxide and water
- total recovery of the chemical energy still available in the unburnt elements
- reduction in the floating particles which cause the opacity of the fumes
- less excess air in the process of combustion
- decrease in the formation of nitric oxides due to the lower concentration in atmospheric nitrogen available
- reduction of specific consumption.

### Average experimental specifications

- beginning from 10% (approx.) reduction in fuel consumption.
- 80% (approx.) reduction in air pollution.
- No substitution or maintenance of the cartridge required.
- With regard to the exhaust gas, it is anti-polluting, reduces the floating particles which cause the opacity of the fumes, and results in less air pollution.

### Principle of operating

It is basically a high potential (approx. 10.000 Gauss) permanent magnetic field. As the fuel molecules pass through it they are transformed as described above, thus increasing the combustion's efficiency and the life of its components, preventing the formation of incrustations from solid residues and, above all, significantly decreasing the emission of toxic substances from the chimney flue.

## Installation

The “**Super Catalyzer**” cartridge must be installed as follows :

- **burners working on heavy-oil and diesel oil** between the pump and the combustion head of the burner.  
This system enables the magnetic field to change the superficial tensions of the fuel by a consequent increasing and improvement of the flame and better stability of it on the head of combustion. On every ignition the burner has a better atomising of the fuel increasing the speed and quality of the flame, as well as a better thermic return, resulting in a greater reduction of the unburnt elements. In the meantime the magnetic field operates as viscosity regulator, which is able to maintain a long-lasting and better combustion with any fuel and at any fuel temperature. In this way, maintenance costs and regulation costs of the burner are reduced.
- **burners working on methane-gas and GPL** after the stabilising valves, before the burner.  
This system works in such a way that the action of the magnetic field on fuel and on its chemical compounds, mainly carbon and hydrogen atoms, reduces the link energy between them. This reduction changes the fuel into very reactive and dynamic compounds, which react with the unburnt elements giving much more energy to the system and consequently better efficiency to the burner. This system and its functioning achieves a saving of fuel. Therefore a stoichiometric combustion is achieved, burners and boilers are perfectly cleaned and the pollution is reduced.

