

PILLARD LONOxFLAM[®] G2

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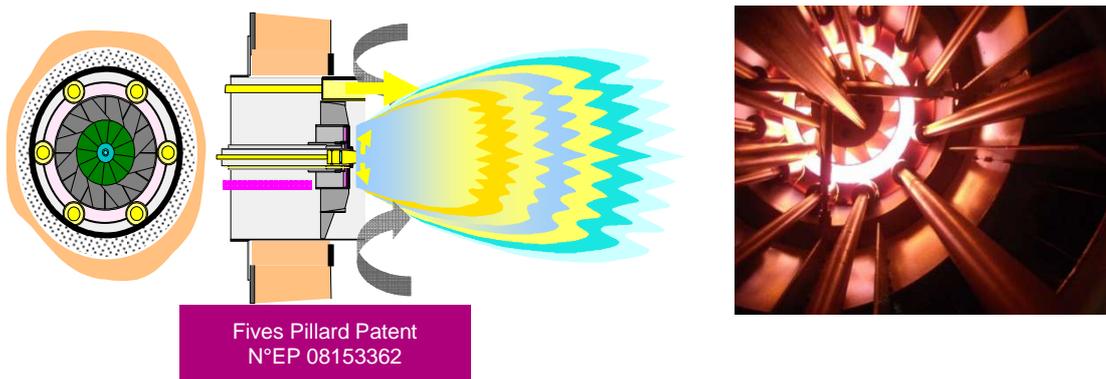


Abstract :

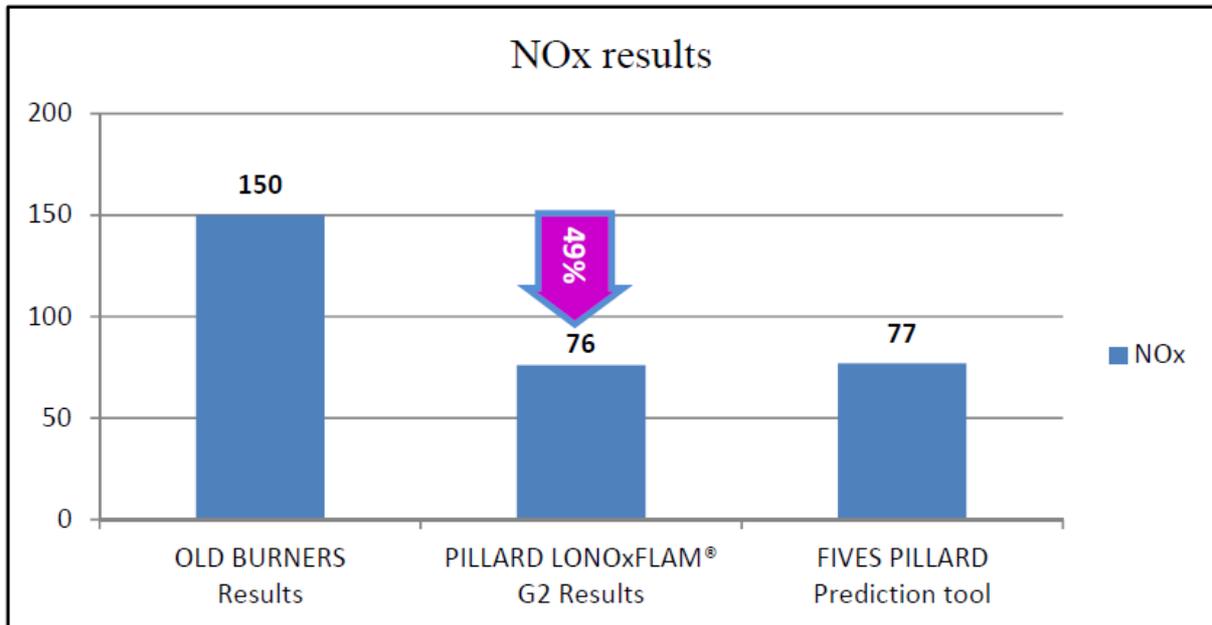
Roquette Frères is one of the world leaders in the starch and starch derivatives industry. The group owns 18 industrial sites around the world including 5 units in France. In 2015, Fives Pillard provided 4 PILLARD LONOxFLAM[®] G2 natural gas burners of 17 MW each, to fit one 90 t/h Stein Energy water tube boiler (Boiler N°6). The main target of this revamping project was to match with the environmental French regulation, especially NOx and CO pollutants (< 100 mg/Nm3@3%O2). The commissioning results are **NOx = 76 mg/Nm3@3%O2**, CO = 0 mg/Nm3@3%O2.

Technology :

The PILLARD LONOxFLAM[®] G2 is a new generation of low-NOx burners dedicated to the low-NOx combustion of gaseous fuel uses the expansion energy of the gaseous fuel under pressure, mainly injected peripherally into the main combustion airflow, to draw some flue-gas from the combustion chamber, to mix it with the gaseous fuel before it enters the heart of the flame. This technique enables an accumulation of effects : a decrease in the flame temperature and in the oxygen partial pressure, similar to low-NOx burners of the previous generation; but also a decrease in the fuel partial pressure, drastically reducing the peak temperature within the flame and contributing to a further reduction of thermal NOx.



Results :



Emissions				Boiler Load
Natural gas	NOx (mg/Nm ³ @3%O ₂ dry basis)	CO	O ₂ (%)	
Guaranted	100	100	≤ 3	100
Measured	76	0	2,7	

Development status:

The PILLARD LONOxFLAM® G2 burner is a mature technology which is applied on more than 350 installations around the world.

- 1995 – 2006 : first design of burner technology (NOx < 100 mg/Nm³@3% O₂)
- 2006 – 2012 : second design including 10% NOx reduction (NOx < 90 mg/Nm³@3% O₂)
- 2013 : latest design “first industry” in Thailand
- 2014 : launch on the market of the latest design
- 2013 – 2017 : latest design including 10% NOx reduction and cost effectiveness (NOx < 80 mg/Nm³@3% O₂)

Applicability :

This technology can be used in several industrial sectors such as urban heating boilers, sugar plants boilers or refinery furnaces.

It can operate with natural gas, fuel gas, biogas, pure hydrogen or carbon monoxide.