

# HTNR Burner



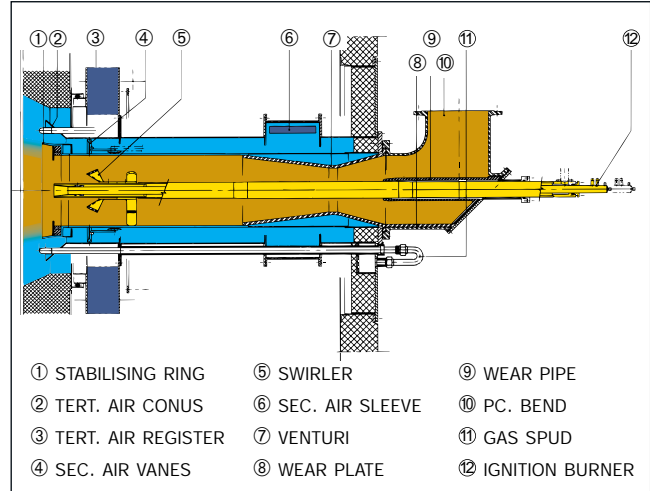
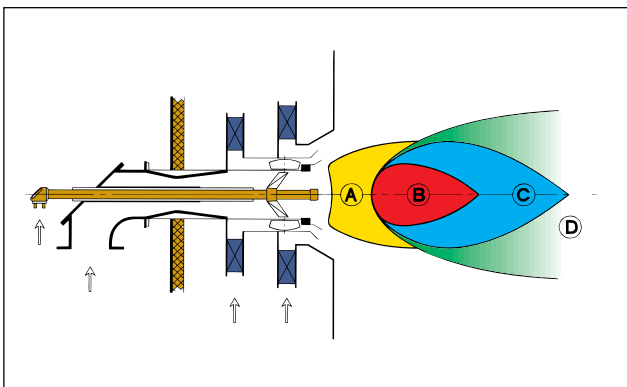
# HTNR Burner

## General

The HTNR Burner ('High Temperature NOx Reduction) belongs to the so called second generation Low NOx burners. The main feature by which these burners can be distinguished from the first generation is the use of chemical NOx reduction in the flame. The HTNR Burner could also be called 'In Flame NOx Reduction' burners. The Stork Thermeq HTNR Burner is a proven design for the combustion of pulverised coal. In Poland for example the first time the new 170 g/GJ NOx emission standard was attained with the Stork Thermeq HTNR Burner (single stage combustion).

## Combustion principle

The aim in the development of this second generation burner was to reduce NOx in the flame, in zone A, close to the burner, very high temperatures prevail which promote fast devolatilisation and initial combustion. In zone B, with a low O<sub>2</sub> concentration, reducing species are produced. These species create a reducing zone C in which almost all the NOx produced in zone A is reduced to N<sub>2</sub>. After mixing with an outside air layer (tertiary air), in zone D, the combustion, of mainly the char, is completed at relatively low temperatures.



## Application

- Power station boilers
- Industrial boilers
- Retrofit to low NOx

## Technical data

Fuel	main:	Coal:	hardcoal, lignite
	auxiliary:	Gas:	natural gas, refinery gas hydrogen gas process gas
	auxiliary:	Oil:	light oil, heavy oil residual oil bitumen, pitch
Heat input range			5 - 60 MWth
Guaranteed turn down ratio		Coal:	1 : 2
		Gas:	1 : 4
		Oil:	1 : 4

## Emissions

In general it can be stated that the HTNR Burner reduces the NOx emission with about 40 - 50% compared with conventional burners, with the same CO and UBC levels. This burner type is in operation in retrofits and new power plants up to 600 MWe. In new boilers, in combination with two-stage combustion, NOx emissions of lower than 300 mg/Nm<sup>3</sup> (110 mg/MJ) can be achieved.

Stork Thermeq B.V.  
P.O. Box 33, 7550 AA Hengelo, The Netherlands

Visiting address:  
Langelermaatweg 12, 7553 JD Hengelo, The Netherlands  
Tel.: +31 74 240 1724  
Fax: +31 74 242 4790  
e-mail: office@thermeq.storkgroup.com  
Website: www.thermeq.storkgroup.nl