

**DeNOx - FreeJet gas burner**  
**For energy saving and NOx reduction**

**Technical data**

- Fuel: Natural gas
- Energy output:  
8 Sizes 1: **0,2 ... 8,7 MW (20 ... 750 Nm<sup>3</sup>/h)**
- Purge air:  $\geq 0,3$  bar
- Cooling water: 15-20 l/min
- Fuel connection thread: 1 ¼'' ... 2 ½''

**Application**

- **Underport position** for
  - Regenerative crossfired furnaces
  - Regenerative endfired furnaces

**Basic concept**

The technical concept of the gasburner STiGfree2 is based on the following main ideas:

FreeJet gas burner forms a narrow funnel, just following the opening angle of a **free gas jet** up to the open furnace chamber. This **low turbulence** gas flow is mixing with combustion air and starting combustion much later than conventional burner type, giving the gas enough time and space for self-carburization, too for small carbon particles, which **increases the emissivity** of the gas flame and decreases flame temperature more than 50 K.

Any direct contact of natural gas with the refractory material of the burner block must be eliminated. Considering this, the design of the burner **includes the former function of the burner block**, forming the narrow gas funnel up to the hot end of the burner block, up to the direct contact with the furnace chamber.

This requires cooling of burner heads by cooling air and cooling water and a completely different design of burner block.

**Economical and ecological results**

The burner technology achieves very low NO formation rates:  
Depending on the typ of furnace: **500 ... 800 mg/Nm<sup>3</sup>** at 8 % O<sub>2</sub>

The increasing heat exchange leads to:

- increasing energy efficiency of furnaces
- decreasing crown temperatures
- increasing melting capacity
- increasing lifetime of furnace

# DeNOx Gasburner

