JOHN ZINK™
A KOCH ENGINEERED SOLUTIONS BUSINESS

DEEPSTAR® BURNER

DESIGN

Heat Release

- Natural draft heat release from 1.5 to 4.5 MW (5.1 to 15.4 MMBTU/hr)
- Higher heat release of up to 8 MW (27.3 MMBTU/hr) available for forced draft

Design Features

- When firing gas, the DEEPstar burner combines fuel staging and flue gas recirculation entrainment to reduce the formation of NOx
- When firing oil, the DEEPstar burner combines air staging and flue gas entrainment with our proprietary process for fuel NOx reduction
- The MKI version offers a very compact burner design that allows retrofit of many conventional burners with little to no modifications
- The MKII version offers an improved design to provide the lowest NOx emissions
- Features the HERO® oil gun, a patented phased-atomization technology that deliver a strategically sized and distributed oil spray to the burner system to control NOx and particulates while reducing the steam consumption

Ease of Operation

- Operation on oil only, gas only or combination firing
- Independent control of primary and staged air allows optimal settings for mode of operation
- Damper access can be located to allow operation from grade
- All gas tips individually removable

Adaptable Design Platform

- Natural or forced draft
- Up-fired and horizontal
- Common plenum or individual

Global industry looks to John Zink to develop advanced, clean combustion systems that are renowned for reliable, cost-efficient operation.

Now, the experts at John Zink have engineered the DEEPstar burner, a patented, revolutionary burner designed to reduce steam consumption, reduce NOx emissions, reduce particulate emissions, and create compact flame patterns. The DEEPstar burner is designed for a full range of industrial process furnace applications and can operate under natural, forced or induced draft without sacrificing burner performance.

The DEEPstar burner's breakthrough zonecontrolled combustion employs a proprietary NOx-control strategy to minimize emissions where they form.

More than 1,100 Patents Earned

At John Zink, our first priority is meeting our customers' needs. Sometimes, that means creating a better solution than what currently exists. And with unrivaled design, engineering and testing expertise in-house, we're able to do exactly that. *Let us put our innovation to work for you.*

TYPICAL APPLICATIONS

- Crude and vacuum heaters
- Horizontally fired platformers
- Hot oil heaters, charge heaters, etc.

PERFORMANCE

Emissions

- Gas NOx levels as low as 40 ppm
- Oil NOx emissions as low as 150 ppm (based on 0.1% Fuel Bound Nitrogen)
- Minimal particulate emissions
- Noise controlled as low as 72 dB(A)

Reliability and Efficiency

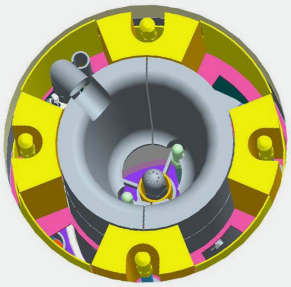
- 30% reduction in steam consumption compared to traditional oil guns
- Minimal excess air operation due to optimized air staging and independent damper control
- Very stable over a wide range of fuels and furnace operating conditions

Turndown

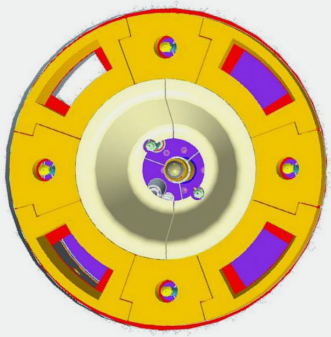
- 5:1 turndown and higher based on application when firing gas
- 3:1 turndown when firing oil

MKI Burner Full Oil Firing

MKII Burner Full Oil Firing



MKI Burner Tiles



MKII Burner Tiles

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