



# Design Update Bulletin

Combustion Systems

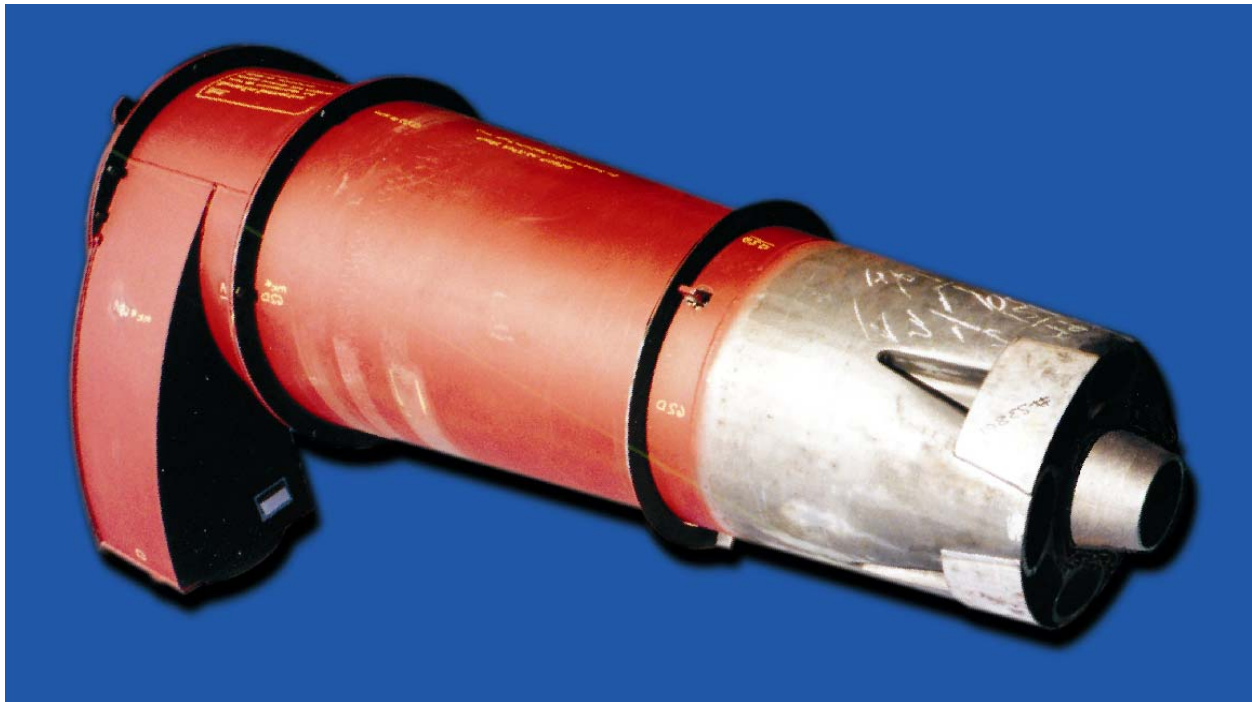
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No. 103.1

**FW coal nozzle upgrade for wall fired burners eliminates burner coking ...**

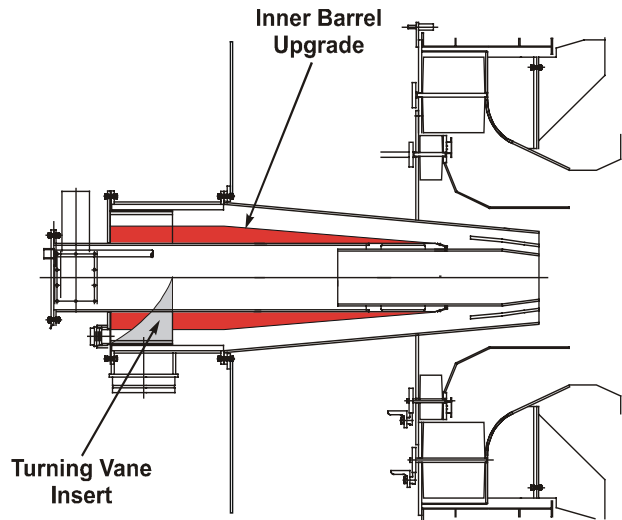
## **“Coal Nozzle Scroll Insert and Inner Barrel Upgrade”**

- Prevents burner coking and/or burner fires.
- Extends burner component life and reduces maintenance costs.
- Extends long term unit operational and emission performance flexibility.



# FWPG's Coal Nozzle Scroll Inserts and Inner Barrel Upgrade No. 103.1

Burner coking can severely damage combustion equipment reducing its service life, preventing the unit from achieving full load and its full emission and operational performance. Numerous factors can lead to burner coking including changes in coal characteristics, particle size, lower primary air flow, inadequate air / coal ratios, burner aerodynamics, etc. Inadequate coal transport conditions inside the coal nozzle have been determined by FW to be one of the more common causes for coal nozzle coking and/ or pluggage. In order to improve transport conditions, FW has been offering an upgrade for its "scroll inlet" type coal nozzles. This modification was developed based on extensive CFD and two phase flow laboratory work has been confirmed by long term field results as the solution for coking associated with inadequate coal nozzle conditions. The result is a high value solution that can be installed without removing the coal nozzles or burner registers.



## Application and Design Features

- Eliminates coal layout inside nozzle
- Eliminates burner coking associated with coal layout
- Maintains the proper coal axial velocity profile throughout the coal nozzle
- Controls velocity profile throughout the coal nozzle
- Contoured design has little impact on system resistance
- Can be installed without removing coal nozzle or register

## Cost Saving Benefits

- Extends the operating service life of nozzle tips and registers
- Reduces capital and installation costs
- Maintains optimum fuel / air mixing performance longer
- Helps assure combustion efficiency over extended periods

The information presented above is continually updated. Please contact your local Foster Wheeler Power Group office for specific details.

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