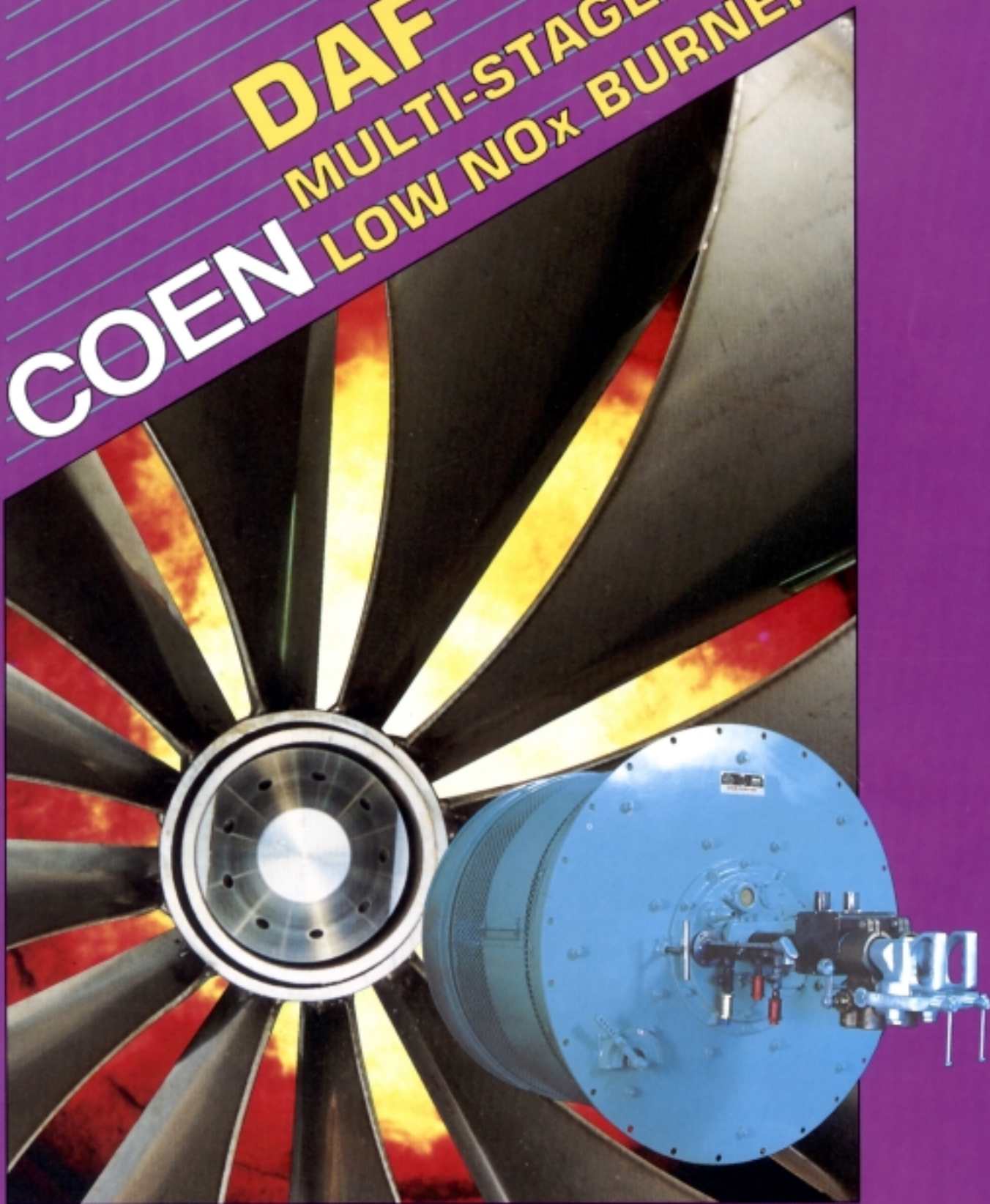
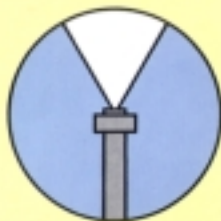


COEN **DAF**
MULTI-STAGED
LOW NO_x BURNERS



...for single or multiple burner units





Engineered For NO_x Reduction

The DAF's Distributed Air Flow multi-staging ability to reduce NO_x with minimum flame length is particularly important. Competitive designs which introduce fuel or air around the main flame body can result in excessively long flame lengths in today's modern boiler design. The DAF burner, on the other hand, was specifically designed with high space heat release/limited boiler furnace lengths in mind.

The DAF burner consists of two separate air zones. The primary air stream establishes a strong, central recirculating air zone directly downstream of the Coen "isokinetic" spinner, which aids in burner stability throughout the burner firing range. The secondary air zone employs adjustable swirl which is used in shaping the burner flame to optimize furnace conditions and NO_x levels.

Coen's "isokinetic" spinner generates a strong recirculation zone, assisting in NO_x reduction. This zone is essentially a source of flue gas that results in local entrainment of gases by fuel jets which, in addition to proprietary gas nozzle designs, help reduce thermal NO_x . . . hence the term "DAF" multi-stage burner.

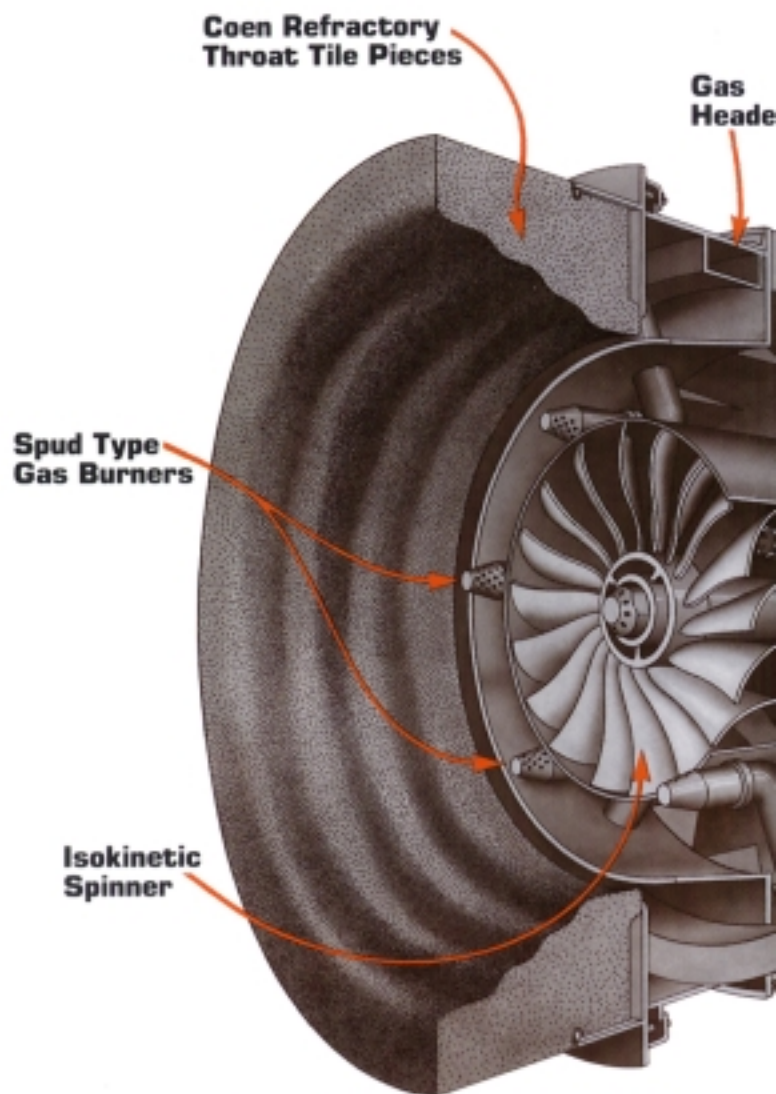
Coen DAF Low NO_x Burner

The Coen DAF multi-staged low NO_x Burner is designed for low NO_x applications on single or multiple burner units. For many applications, the burner is capable of firing over a 10:1 range.

Combining selected features of Coen's DAZ register and CPF low excess air burner, the new DAF's multi-staged design can deliver up to 60% thermal NO_x reduction. When combined with other Coen low NO_x techniques, reductions of 80% or more are possible.

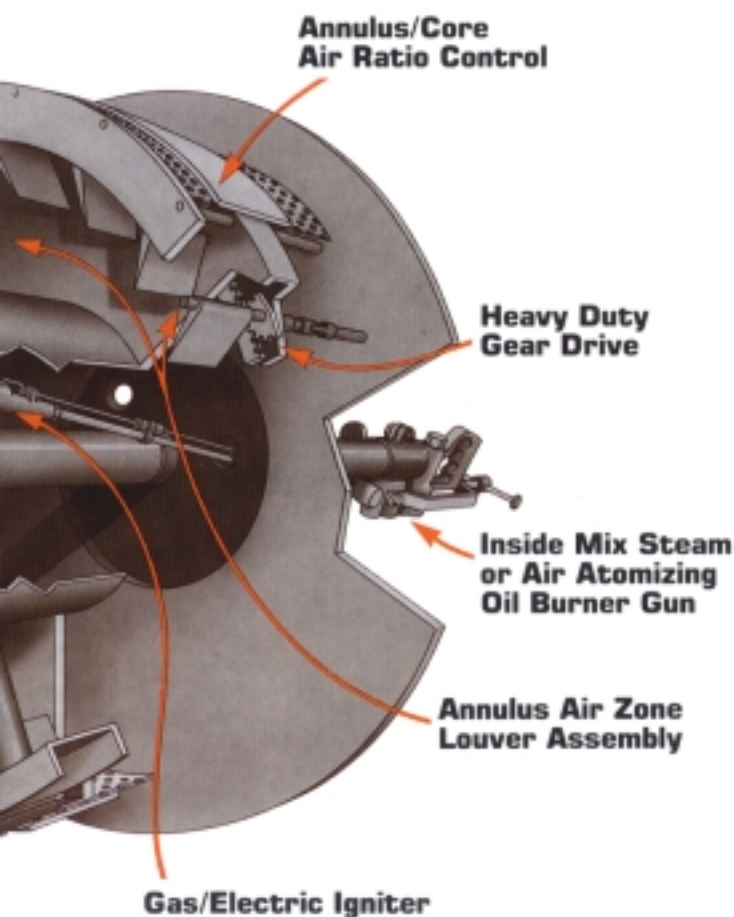
Design features

- DAF can be used with other Coen Low NO_x techniques such as flue gas recirculation, and front or side wall NO_x ports for oil firing.
- Adaptable to burning gaseous and/or liquid fuels such as natural gas, refinery gas, hydrogen, coke oven gas, landfill gas, light and heavy fuel oils, refinery pitch, coal/water slurries, and waste fuel streams.

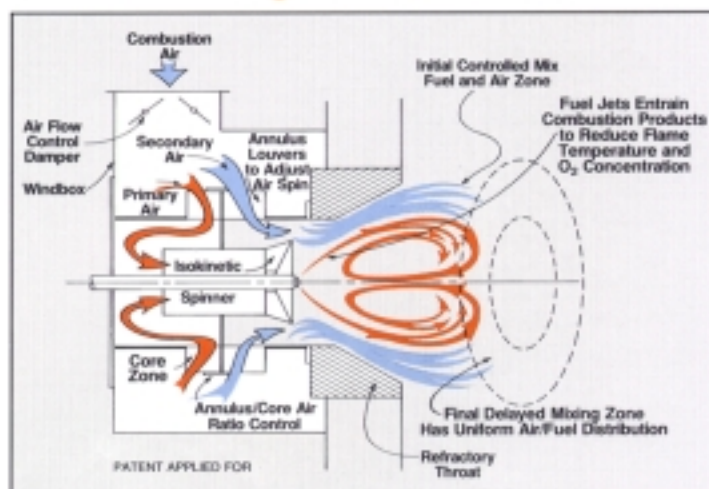


- Can be packaged with wind box, forced draft fan, piping, burner management and controls for both integrated multi-burner set up or in Coen's "Fyr Compak" single or dual burner configuration.
- Particulates will typically be well below the EPA required 0.1 pound/million BTU with fuel oils containing 0.1 ash or less. Guarantees can be made based on analysis of furnace/fuel conditions by Coen application engineers.
- A wide variety of atomizers are available for liquid fuels such as light grade fuel oil to heavy fuel oils and coal/water slurries, employing steam, air or natural gas atomization.
- For remote operation on multi-burner applications, atomizers can be equipped with pneumatically-operated automatic retract assemblies.

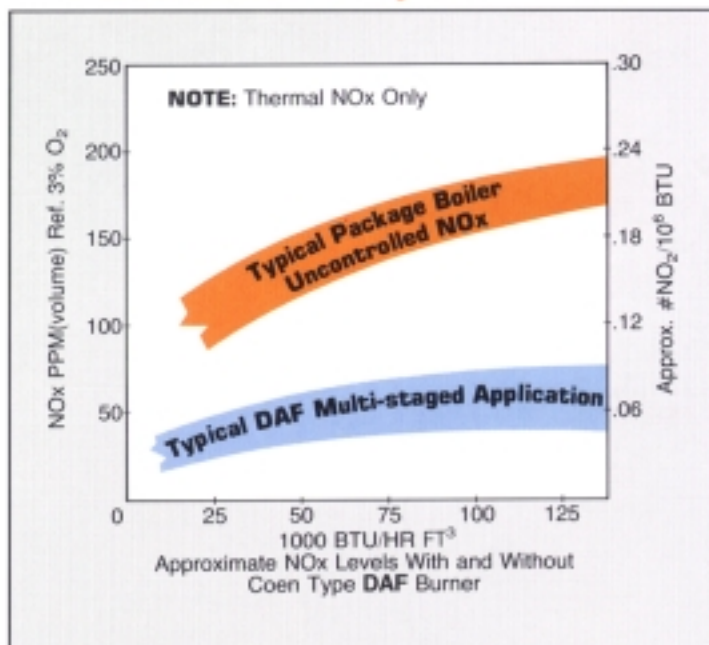
Solve Your Emission Problems



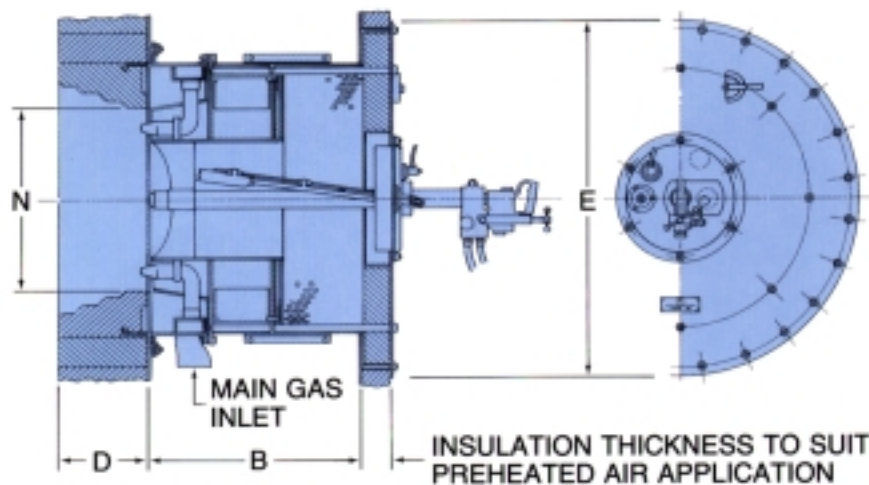
Coen Type DAF Operation of Multi-Staged Low NOx Burner



Performance Comparison Chart



- For automatic operation on multi-burner applications, DAF can be equipped with a pneumatically-operated sliding barrel damper assembly to prevent combustion air from bypassing through non-operating burners.
- Can simultaneously fire liquid and gaseous fuels for reducing operating expenses.
- Multiple gas spuds arranged in an axial position to minimize NOx formation. Each spud has a screwed connection facilitating spud adjustment at start up or spud replacement if fuel conditions change at a later date. External cane-type spuds can be used for dirty gas applications. They can be fitted with individual shut-off cocks for changing or cleaning without system shut down.



DAF Burner Dimensions

	N (Nominal Burner Size)											
	14-15	16 1/2	18-20	22	24	26	28	30	32	34-36	39	42-45
B-Min. Burner Length	20	21	23	27	32	32	32	35	35	38	37	48
D-Throat Depth	13 1/2	13 1/2	13 1/2	13 1/2	13 1/2	13 1/2	13 1/2	13 1/2	13 1/2	13 1/2-22 1/2	22 1/2	22 1/2
E-Front Plate Dia.	31 3/4	36	36	36-40	48	48	48	48	58	58	65	65

NOTES: 1. All dimensions are in inches.
2. Throat depths are typical, actual depth may vary with application.

Other Coen Low NOx Design Techniques

Side Wall Ports: Located in the boiler side walls, this form of air staging is particularly useful at reducing fuel bound NOx from high nitrogen content fuel oils.

Front Wall Ports: Used on single or multiple burner applications where generous furnace dimensions are available. Provides moderate thermal NOx reduction. Ports located around periphery of burner.

Biased Firing: Employed on multiple burners only, oftentimes with other types of low NOx techniques. Some burners fired fuel rich, some lean. Moderate NOx reduction.

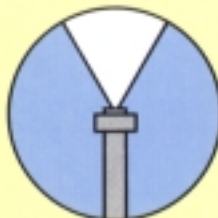
Flue Gas Recirculation: Extremely effective at reducing thermal NOx, commonly used on gas only/light oil applications for maximum NOx reduction.

Coen is dedicated to being the leader in low emission burners for the boiler/burner industry. Coen's unparalleled years of experience in industrial/utility markets has led to the development of a multitude of low NOx burner techniques unmatched in our traditional boiler markets. Whether for a new boiler application or a retrofit, Coen engineers will provide the low NOx technique most economical for your

installation, while maintaining minimum emission levels of NOx, CO, hydrocarbons and particulates.

Since 1912, Coen Company has specialized in the design, manufacture servicing and maintenance of burner equipment and combustion systems. With over 10,000 installations world-wide, Coen equipment and systems provide optimum performance.

For more information on Coen burners and combustion systems, contact:



COEN

COMPANY, INC.