



by Gardner Denver

Power Generation Overview



Electric Power Applications

- Condenser Exhausting
- Geothermal Gas Removal
- Vacuum Priming
- Fly Ash Conveying
- Wet Flue Gas Desulfurization
- Turbine Gland Exhausting
- Vacuum Deaeration
- Condenser Initial Evacuation (Hogging)
- IGCC – Gasifier Combustion & Tail Gases
- Explosives Dust Controls – Coal Dust Housekeeping
- CFB – Loop Seal & Cooling Air Blowers



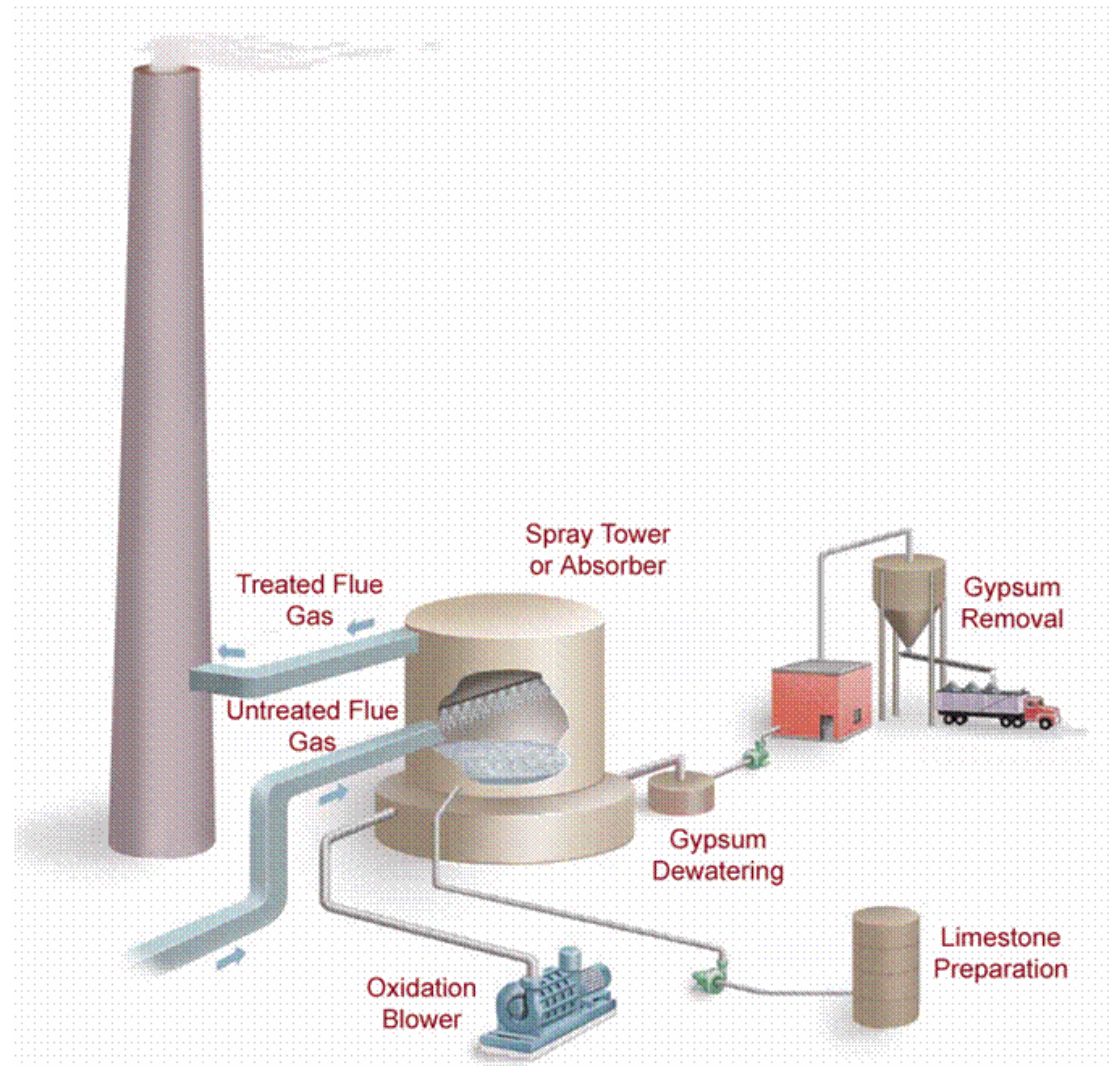
Flue Gas
Desulfurization
Blowers



NASH TC
Condenser
Exhauster
Package

Wet Scrubber – Forced Oxidation

- Designed for 100% utilization of power producing boiler.
- Scrubber designed to operate at or near 100% capacity at all times.
- Utility desire to maximize power production, expect only minor variations in compressor flow.
- Typical performance range is 4000-25000 cfm and 8-20psig.



Blower Selection Criteria

Key Considerations

- Capital/Installation Costs
- Lifecycle Costs
- Reliability of Equipment
- Maintenance Requirements
- Experience of Vendor
- Local Service & Support
- Parts Availability



Multistage Centrifugal Blower

- Direct connect
- Rugged, reliable, proven design
- No pressure lube requirements
- Low noise level, typically 85 dBa at 3 ft.
- 3600 RPM operating speed
- Patented efficiency improvements



Single vs. Multistage

	GDI Multistage	Single Stage
Capital Cost	Moderate	More Expensive
Installation Cost	Low	Higher due to subsystems
Design Efficiency*	79%	79%
Operating Speed	3600 RPM Direct	>8,000 RMP
Tip Speed	<600 fps	>1000 fps
Bearings	(2) Ball: Field Changeable	(5) Sleeve: Not Field Changeable
Gear Increaser	None	Yes – Vertical Split Casing
Other Utilities	None	Cooling Water
Instrumentation	Simple	Complex due to design & subsystems
Noise Level	85 dBA	>95dBA

Experience

- Over 200,000 Installed Hoffman & Lamson Multistage Units World-Wide
- GDI has more then 60 FGD-FOX Blower units installed. Average Size > 1000 HP
- Hoffman & Lamson FGD Clients include;
 - Suncor – Fort McMurray
 - Georgia Power – Wansley, Gaston, Bowen, Yates, Scherer
 - Alabama Power – Barry, Gorgas, Hammond
 - NRG Texas Power - Limestone
 - Gulf Power – Crist Station
 - Duke Energy Indiana
 - SIGECO – Culley Station
 - TVA – Kingston
 - IPALCO – Harding Street Station
 - Lakeland Electric Co-op
 - China – Wuhan Kaidi Electric Power - Zhanjiang AOLIYOU Power Plant
- For Multistage centrifugal blowers, insist on Gardner Denver
 - Experience
 - Reliability
 - Performance