

MULTIPLE-BLADE VARIABLE ORIFICE



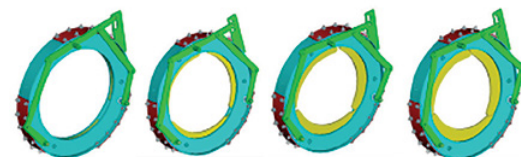
Riley Power
a Babcock Power Inc. company

Variable Orifice is an important device for pulverizer system to balance primary air flow distributed between burner coal pipes. Usually installed in each individual burner coal pipe, the variable orifices control burner pipe pressure drop on-line to change the primary air flow through each burner coal pipe. The conventional variable orifice design, either butterfly valve type or slide gate valve type, currently available for utility and industrial boilers creates a biasing coal flow or deflects coal particles to concentrate against the coal pipe wall when balancing air flow. This non-concentric air and coal flow produces premature wear on the coal pipe downstream of the orifice and causes air and coal flow stratification as well.

The newly developed Riley Power Multiple Blade Variable Orifice is a very unique design that uses multiple blades to truly achieve variable "orifice". Its configuration produces a symmetrical concentric coal and air flow through the variable orifice and thus provides a uniform flow pattern downstream to eliminate the premature wear of the coal pipe and coal flow stratification. Associated with Riley Power Primary Air Balancing Program, these newly developed variable orifices are capable of controlling primary air flow distribution within the range of 3% to 8% deviation from average in a mill. This newly developed orifice combined with a Riley Power PFD (Pulverized Fuel Distributor) or VCR (Variable Coal Riffle) will be an ultimate solution to achieve excellent distribution balance for both coal and air flows between coal pipes to meet low NOx burner performance requirement for combustion efficiency and emission reduction.



Patent Pending



ADVANTAGES OF RILEY POWER MULTIPLE-BLADE VARIABLE ORIFICE:

- True "orifice" design producing symmetrical concentric air and coal flow pattern
- No impact on coal pipe wear life
- No air and coal flow stratification
- Easy and reliable online adjustment
- Valve plates made with wear resistant material and replaceable
- Slim design for minimum installation space requirement
- Customized design to connect with existing coal pipes

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