

B&W Roll Wheel™ Pulverizer Modifications Improve Performance and Reliability

The Babcock & Wilcox Company (B&W) continually develops new technologies to improve the reliability and overall performance, and to reduce operating and maintenance costs of its B&W Roll Wheel™ pulverizer. Our many design innovations and improvements have proven effective in applications worldwide.

Several of these improvements are described in this brochure. Also, many of these enhancements have more detailed literature available. The item number is indicated after the appropriate section. These items are available through your regional B&W Sales or Service office, or by visiting our website at www.babcock.com.

Hi-spin stationary classifier

The hi-spin stationary classifier retrofit is for louver sections originally supplied with straight top housing pulverizers. This modification allows the same fineness with less air resistance compared to the original classifier. The retrofit is performed inside the pulverizer and does not require removal of the roll wheels or loading frames.



Redesigned classifier cone discharge assembly

The redesigned classifier cone discharge assembly includes redesigned hoppers to allow free movement and improved sealing of the discharge doors (Figure 1). Conical baffles minimize blow back of air and oversized coal particles when the discharge doors swing open. (Order Item # PS-195)

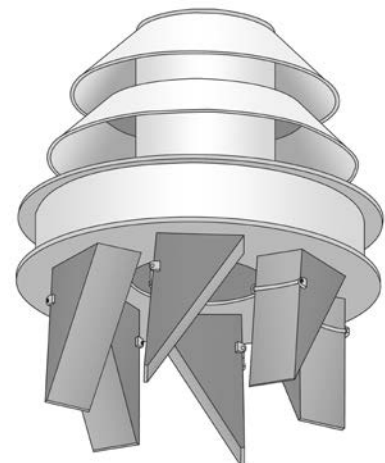
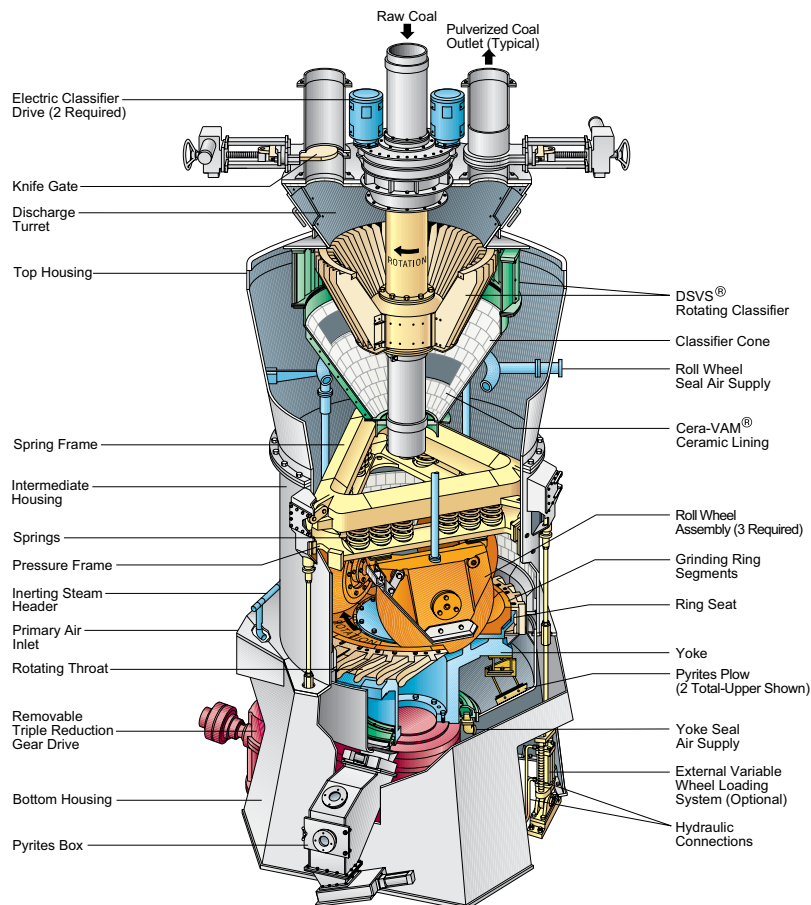


Figure 1

DSVS® rotating classifier

The DSVS® rotating classifier provides a means to increase coal fineness and/or throughput (Figure 2). This mill retrofit goes well beyond the improvements achievable with stationary classifier retrofits, especially when 80+%/200 fineness is required. Rotating classifier pressure drop is lower than that of stationary classifiers. In addition, grinding zone pressure drop is lower with the rotating classifier because it does not recirculate as many fine particles back to the grinding zone as is the case with stationary classifiers. Even when higher throughput is required at the expense of 200 mesh fineness, the rotating classifier has the ability to maintain a very high percent passing 50 mesh fineness. (Order Item # E101-3136)

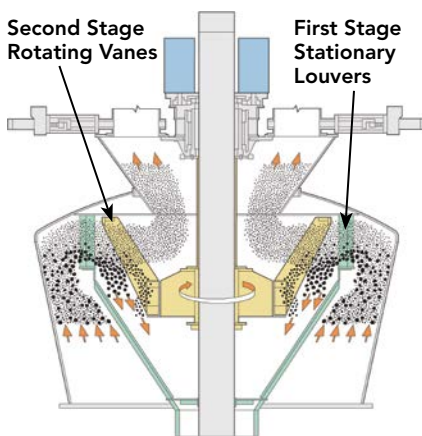


Figure 2

Rotating throat improvements

The low pressure drop rotating throat can be properly sized for current coal quality and operating conditions to assure proper air flow, with minimum coal rejects and throat wear. Worn or mis-sized throats typically require increased air flow to prevent rejects, and this causes lower fineness and higher erosion throughout the system. The modified throat design has lower air resistance, and this available air resistance margin can be converted to higher pulverizer capacity, either as increased fineness or increased coal flow.

B&W also offers a *boxed rotating throat*. This design combines the best performance enhancements of our stationary boxed throat and our low pressure drop rotating throat and features throat segments that are welded to the ring seat. This new standard design is widely used across our customer base.

Wearesistor® asymmetric tires

The patented Wearesistor® asymmetric tire design places additional wear material in the high wear area of the tire to provide increased wear life and ultimately, more time between tire replacement. These tires are compatible with standard profile grinding segments. (Order Item # PS-373)

Wearesistor asymmetric low-profile (LP) tires and grinding segments

The Wearesistor LP tire design combines the Wearesistor asymmetric material pattern with low-profile geometry (Figure 3). This new design can provide a reduction in pulverizer power consumption with no reduction in fineness, capacity or turndown. The grinding profile of the Wearesistor LP requires replacement of the standard grinding segments with low-profile grinding segments. These new segments have a significantly greater amount of material and are designed for longer wear life. This additional material in the grinding segments will position the roll wheels and loading frames at a higher elevation inside the mill and require modifications to the roll wheel seal air pipes and loading cables. (Order Item # PS-373)



Figure 3

Wearesistor wide-profile tires

Available for sizes 89N and 89K, B&W's asymmetric low-profile wide-tire design offers an approximate 17% increase in grinding surface area compared to a standard profile roll wheel tire. Field results indicate a potential for both a capacity increase and a reduction in pulverizer power consumption (results vary with different operating conditions and coal types). For boilers which have five or more operating pulverizers, the increased capacity could result in reaching full load boiler capacity with one pulverizer utilized as a spare.

These new wide-profile roll wheel tires are compatible with existing B&W roll wheel assemblies and ring seats. The retrofit consists of replacement tires, grinding segments and wedge bolts. Minor modifications to the seal air piping, loading system and roller brackets may also be required. (Order Item # PS-475)

Segmented yoke air seal carrier and replaceable labyrinth segments

The original yoke air seal housing and labyrinth seals was a one-piece design that required removal of the gear drive for maintenance. B&W's latest design includes a segmented air seal housing which may be used in combination with the segmented labyrinth seals (Figure 4). This latest design provides more clearance between the windbox seal ring and the carrier, so it is more

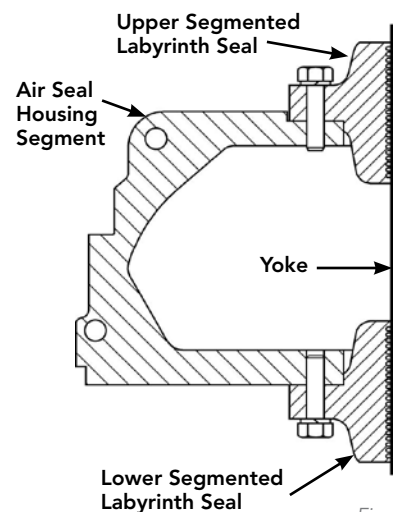


Figure 4

tolerant of thermal distortion and surface corrosion. Maintaining the labyrinth seals in good condition will conserve seal air fan power. The segmented air seal housing and labyrinth seals can be installed without removing the gear drive allowing easier and less costly maintenance. (Order Item # PS-248)

Auto-Spring™ wheel loading system

B&W's Auto-Spring™ automatic wheel loading system allows for variable adjustment of the spring load exerted down against the roll wheel assemblies (Figure 5). When operating at low coal flows, spring pressure is automatically reduced to minimize mill vibration. At high coal flows, spring pressure increases to improve grinding efficiency. The Auto-Spring loading system also allows continuous spring adjustment as tires and segments wear.

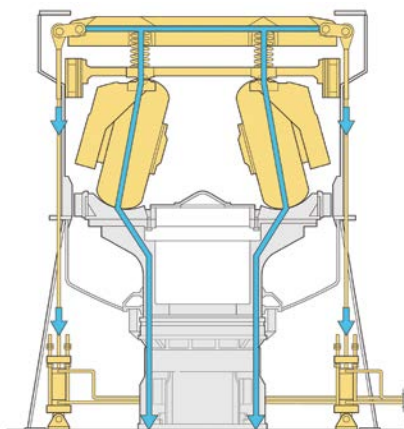


Figure 5

Heavy duty coil springs

Heavy duty coil springs are made of larger diameter wire to exert greater force onto the roll wheels for a given amount of compression. When operating at higher spring loads, these heavy duty springs will have more space between adjacent coils to provide more margin should the rolls ride over a large rock or piece of metal. The design provides greater spacing between each end coil and the adjacent coil. This additional spacing prevents contact between these coils to promote greater spring

life. The springs can also be supplied with a PVC plastic coating to prevent corrosion and pitting of the coil surface for even longer spring life.

Primary air chamber access door

Access to the primary air chamber area of the roll wheel pulverizer for pyrites plow maintenance was originally available only through the access door in the primary air duct at the inlet to the mill. An access door is available for installation in the lower housing which provides direct, easier and safer access to the air chamber (Figure 6). (Order Item # PS-211)

Cera-VAM® erosion protection

Internal pulverizer components can be protected from erosion by using Cera-VAM lining, a high-density alumina ceramic. Ceramic-lined panels are available for the pulverizer housing, turret, classifier cone and roll wheel brackets (Figure 7). Special panels can be made to protect just about any internal pulverizer component. New design burner pipe swing valve assemblies, including ceramic lined seats, are also available. (Order Items # PS-296 and PS-301)

Wear plate gap protective covers (awnings)

Hardened wear plates on the pressure frame and intermediate housing keep the roll wheel assemblies centered in the mill, but still allow vertical motion. If debris gets jammed between these plates, it restricts the vertical sliding, hindering the spring loading system and causing unusual loading and vibration of the pressure frame and mill housing. This can lead to cracking of the pressure frame and housing, and reduced grinding efficiency. B&W has designed special covers or awnings that fit over the gap between the pressure frame wear plate and the housing wear plate to help prevent debris from contaminating this gap. This simple upgrade can prevent several significant problems in your roll wheel pulverizer at minimal cost.

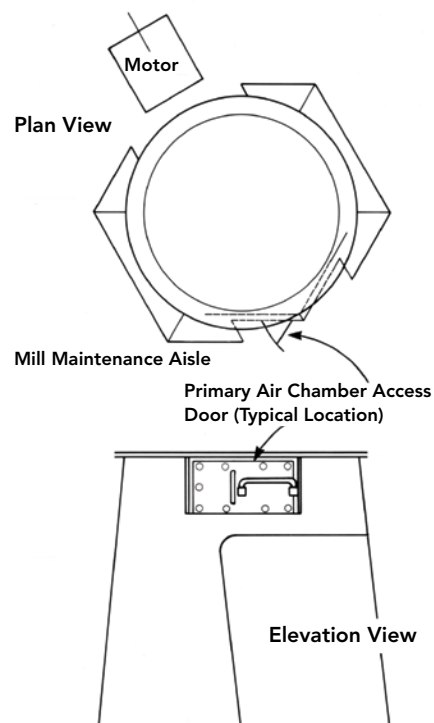


Figure 6

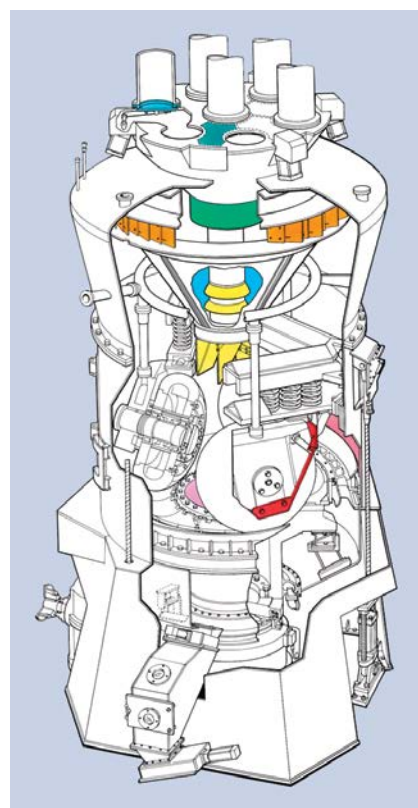


Figure 7

The B&W Roll Wheel pulverizer has set the standard for high availability, reliable operation and low maintenance. B&W continually develops new technologies and design enhancements to further improve performance and reliability.



For additional information on any of the modifications included in this brochure, contact your nearest B&W Sales or Service office or:

Call: 800-354-4400 (U.S.)
+1 330-860-1460 (outside U.S.)
Fax: +1 330-860-9350
Email: oemparts@babcock.com

Babcock & Wilcox

1200 E Market Street, Suite 650
Akron, Ohio, U.S.A. 44305
Phone: +1 330.753.4511

www.babcock.com    



LITERATURE

The information contained herein is provided for general information purposes only and is not intended nor to be construed as a warranty, an offer, or any representation of contractual or other legal responsibility.

B&W Roll Wheel, DSVS, Wearresistor, Cera-VAM and Auto-Spring are trademarks of The Babcock & Wilcox Company.



Established in 1867, Babcock & Wilcox is a global leader supplying safe, reliable energy and environmental technologies and services for power and industrial applications.

For more information or to contact us, visit our website at www.babcock.com.