Since 1971, B&W has successfully installed more than 82,000 MW of low NOx combustion systems in both new and retrofit boiler applications. B&W’s DRB-XCL® low NOx burner technology has been successfully applied to a broad range of units with varying fuel characteristics and boiler arrangements.

B&W’s DRB-XCL low NOx burner offers you:
- Proven performance
- Superior mechanical reliability and operation
- Rugged construction, integrated design
- Complete shop assembly — ready for installation
- New or retrofit applications
- Plug-in design

The DRB-XCL burner has proven to be the workhorse in achieving past low NOx emissions requirements. In today’s more stringent environment, this burner remains an integral part of achieving optimized NOx reduction solutions.
Each of the design features incorporated in the DRB-XCL low NOx burner is tailored to promote maximum NOx reduction with optimum combustion efficiency.

### DRB-XCL Burner Mechanical Design Features

<table>
<thead>
<tr>
<th>Components</th>
<th>Features/Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Linear actuator</td>
<td>Easily adjusts the secondary air sliding damper position for light-off, full-load and idle/cooling</td>
</tr>
<tr>
<td><strong>2</strong> Sliding air damper</td>
<td>Controls secondary air flow rate to the inner and outer air zones of the burner, independent of swirl</td>
</tr>
<tr>
<td><strong>3</strong> Pitot grid</td>
<td>Provides a relative indication of air flow with a 30 point impact/suction device to balance air flow among burners during commissioning</td>
</tr>
<tr>
<td><strong>4</strong> Fixed spin vanes for outer air zone</td>
<td>Improves peripheral air distribution within the burner and reduces pressure drop</td>
</tr>
<tr>
<td><strong>5</strong> Adjustable spin vanes for outer air zone</td>
<td>Provides proper mixing of the secondary air to the end of the flame</td>
</tr>
<tr>
<td><strong>6</strong> Adjustable spin vanes for inner air zone</td>
<td>Stabilizes ignition at the tip of the coal nozzle</td>
</tr>
<tr>
<td><strong>7</strong> Blade impeller</td>
<td>Beneficial for reducing unburned carbon loss while still promoting low NOx emissions</td>
</tr>
<tr>
<td><strong>8</strong> Burner support system</td>
<td>Allows for differential expansion</td>
</tr>
<tr>
<td><strong>9</strong> Sliding linkage</td>
<td>Heavy-duty, non-binding, lever arm movement to control inner and outer spin vanes settings — position is optimized and fixed during commissioning</td>
</tr>
</tbody>
</table>

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Each of the design features incorporated in the DRB-XCL low NOx burner is tailored to promote maximum NOx reduction with optimum combustion efficiency.
The DRB-XCL burner uses internal staging to promote rapid devolatilization in a sub-stoichiometric environment to reduce NO\textsubscript{x} formation. As fuel particles move through the four reaction zones, both NO\textsubscript{x} reduction and combustion performance are optimized.

Combinations of low NO\textsubscript{x} burners (LNB), overfire air ports (OFA) and selective catalytic reduction (SCR) equipment provide a very flexible system of NO\textsubscript{x} control alternatives. As the graph shows, optimizing the entire combustion system will dramatically reduce the size and capital cost of the SCR system. SCR operating costs are also significantly reduced via this total design approach.

The Value of Proven Experience

The DRB-XCL internally staged, low NO\textsubscript{x} burner offers significant NO\textsubscript{x} reduction capabilities across the full range of wall-fired boiler configurations and combustion firing patterns.

B&W has all the building blocks for your complete integrated low NO\textsubscript{x} compliance solution

B&W’s leadership in the field of low NO\textsubscript{x} reduction technology began in 1962 with the first patented overfire air port system design. That leadership continues with unparalleled experience, proven equipment and innovative technology. Our complete low NO\textsubscript{x} systems are designed to be cost effective, dependable and adaptable to the full range of fuels and boiler arrangements in new or retrofit applications. B&W has the experience and technology to meet the most stringent NO\textsubscript{x} reduction requirements.

Combinations of low NO\textsubscript{x}, burners (LNB), overfire air ports (OFA) and selective catalytic reduction (SCR) equipment provide a very flexible system of NO\textsubscript{x} control alternatives. As the graph shows, optimizing the entire combustion system will dramatically reduce the size and capital cost of the SCR system. SCR operating costs are also significantly reduced via this total design approach.
The optimal NO<sub>x</sub> solution may involve the use of one or a combination of combustion and post-combustion systems. Through extensive research and development, B&W continues to develop innovative improvements in ultra-low NO<sub>x</sub> combustion technology.