LOW-NOX BURNERS
Low NOx burners - rules of operation

- Tertiary air
- Secondary air
- Coal & primary air

\[ \lambda = 0.4 \]
\[ \lambda = 0.7 \]
\[ \lambda \text{ gradually increases to } 1.2 \]
Pulverized coal concentrator
Near-burner area of low-NOx combustion

Figure 7: A low NOx burner
Conventional and Rapid Ignition burners (RI)
Development of low-NOx Babcock-Hitachi (NR) burners
LOW NOx SWIRL BURNERS

Pulverized coal swirl burners

Standard

Low-NOx
LOW-NOX SWIRL BURNER DS TYPE
LOW-NOX SWIRL BURNER DS TYPE

1. turbulence generator
2. outer burner’s tube
3. burner’s casting
4. igniter
5. flame holder
6. inner burner’s tube
7. oil lance
8. pulverized coal
9. core air
10. secondary air
11. tertiary air

Burmeister & Wain Energy

COMBUSTION AND FUELS
LOW NOX JET BURNER - LNCFS TYPE

- pulverized coal nozzle 1
- pulverized coal nozzle 2
- bottom air & oil burner
- OFA1 & oil burner
- core air
- SOFA
- OFA 2
- core air
- pulverized coal
- secondary air & oil burner
Progress in development of low-NOx swirl burners

![Graph showing NOx emissions vs. excess of air for conventional, WS, and DS burners.](image-url)
LOW NOX JET BURNER - DS TYPE
Low-NOx swirl burner of Babcock-Hitachi used as low-NOx jet burner