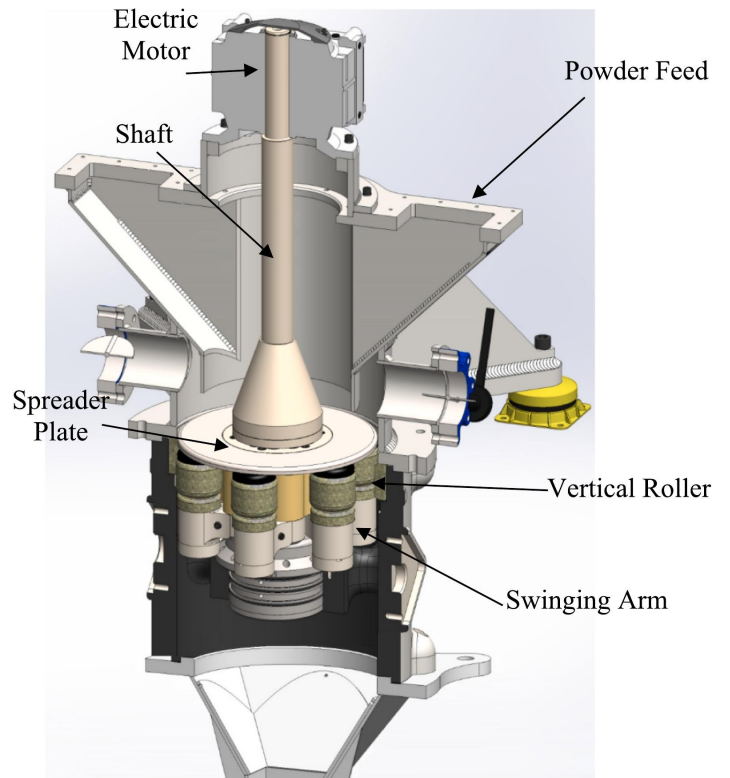


Description of the vertical roller mill

maj 6, 2025



An industrial-scale vertical roller mill (M600) was analysed for air flow in this study. This led to proposed modifications, which were implemented in a new mill design (M350). The M600 mill can operate under continuous mode and is used for fine grinding of materials. The design of this mill is depicted in Fig. 1. It comprises six vertical rollers mounted on swinging arms, which rotate on their own axis in addition to rotation by a central shaft. The latter is rotated at 450 RPM in a typical operation. The resulting centrifugal force presses the rollers against the wall. The feed is entered from the top using two feeding ports to the sides of the mill, introducing the particles to the spreader plate. The spreader plate rotates with the central shaft and spreads the particles towards the wear ring (vertical wall), where the particles get milled by the rotating rollers due to compressive forces. The milled powder rains down and exits from the bottom of the mill. The electric motor driving the mill is located above the feed inlet ports.