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Advancements and Applications of Steel Coil Transportation Equipment Technology in Modern Steel Strip Plants

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With the increasing demand for green and intelligent development in the steel industry, technological innovation in steel coil transportation systems has become particularly crucial. This paper reviews the technological advancements in steel coil transportation equipment in recent years, particularly their applications in hot rolling and cold rolling production plants. These include tray transportation systems, contactless power supply transport vehicle systems, supercapacitor-powered transport vehicle systems, sliding contact line transport vehicle systems, automated guided vehicles (AGVs), and minimal turning radius steel coil transport vehicle systems. The significant advantages of supercapacitor-powered steel coil transportation technology are elaborated in detail. Practical production data demonstrates that compared with traditional tray transportation methods, this system reduces energy consumption by 72%, achieves remarkable annual energy savings and CO₂ emission reductions, and for the first time realizes plane-crossing transportation of steel coils with roadways and unmanned warehouse management. The new generation of steel coil transportation equipment demonstrates distinct advantages in enhancing production efficiency, reducing energy consumption, and enabling intelligent management, providing crucial technical support for process reengineering in the green and intelligent transformation of the steel industry.

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