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Electrifying Steelmaking: Next-Level Performance with EAF Ultimate MOVE, EAF Quantum, and Breakthrough Innovations

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The steel industry is accelerating toward decarbonization, and electric arc furnace (EAF) technology stands at the forefront of this transformation. Primetals Technologies introduces a portfolio of advanced solutions that redefine efficiency, sustainability, and operational flexibility: EAF Ultimate, EAF Quantum, and the innovative Ultimate Move.

EAF Ultimate represents the pinnacle of high-power steelmaking, delivering up to 1,500 kVA/t energy input and ultra-short tap-to-tap times. Its modular design, advanced automation, and integrated Active Power Feeder system ensure dynamic grid control, reduced energy consumption, and minimal flicker. With full raw material flexibility—from 100% scrap to hot metal and DRI—the EAF Ultimate is positioned as a viable replacement for traditional BOF converters, enabling steel producers to meet stringent environmental targets without compromising productivity.

Complementing this, EAF Quantum sets a global benchmark for energy efficiency and throughput. Leveraging patented shaft preheating technology and optimized off-gas utilization, it achieves tap-to-tap times under 30 minutes and energy consumption below 280 kWh/t, reducing conversion costs by up to 20%. Its proven track record of more than a dozen installations underscores its role as the most efficient EAF in operation today.

Building on these foundations, Ultimate Move introduces a revolutionary concept: combining the best features of moveable lower shell, top lance blowing and slag free tapping in a compact footprint. This innovation enables smaller crane capacity & support structures in charging bay, power-on tapping, reducing downtime and accelerating production cycles, while maintaining easier noise isolation and operational safety.

Together, these technologies deliver a quantum leap in performance, sustainability, and cost efficiency—empowering steel producers to achieve green steel goals and maintain competitiveness in an evolving market.

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