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Moving to next EAF digital furnace: first heat at Hybar with SMS's group X-Pact AURA

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The paper presents the new EAF digital furnace implemented at Hybar's new 630,000 tpy rebar micromill in Osceola, Arkansas. The X-Pact® AURA was pre tuned before delivery using advanced development and testing methods with RTDS simulations (Real Time Digital Simulator), which allowed it to be commissioned in two days only and the EAF to be ramped up in only four heats. The X-Pact AURA family of IGBT based power modules is capable of feeding EAFs from 5 MVA up to 350 MVA. This fully modular technology provides the required efficiency, dynamic control, and flexible power to meet the needs of the green steel transformation and grid code requirements. Using this innovative technology and proprietary control algorithms, which take full advantage of power electronic capabilities, ensures the highest power transfer and the lowest impact on grid, especially regarding flicker limits. Hybar's steelmaking facility operates entirely on renewable energy, made possible by the seamless integration of a solar farm with X Pact AURA's clean and flexible EAF power supply. Moreover, EAF performance has been improved by the addition of fault ride through capability, which demonstrated power supply resilience and enhanced plant availability by avoiding EAF stoppages.

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