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## **TMEIC Delivers Complete Set of Electrical Equipment for Continuous Thin-Slab Caster and Hot Strip Mill to Shougang Jingtang Iron & Steel Co., Ltd. in China**

**— Provides High-Precision Automation System for Full Endless Rolling —**

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Toshiba Mitsubishi-Electric Industrial Systems Corporation (hereinafter, "TMEIC"; President & CEO Masahiko Yamawaki) has delivered a motor drive system and an automation system for a cutting-edge hot strip mill facility set up by Shougang Jingtang Iron & Steel Co., Ltd. (hereinafter, "SGJT") in Tangshan City, Hebei Province, China. Final delivery was completed in May 2021.

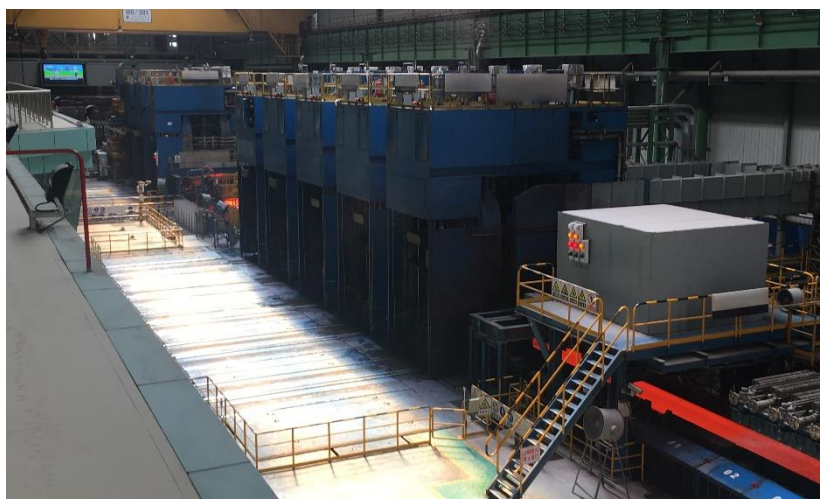
SGJT, a member of the Shougang Group and one of the top steel company groups in China, established a Multi-Mode Continuous Casting & Rolling Plant (hereinafter, "MCCR") as part of the second phase of expansion at its Caofeidian plant. MCCR is a compact, cutting-edge hot strip mill system for the stable and efficient production of ultra-thin materials. The full endless rolling\*<sup>1</sup> capability of the facility is achieved by integrating pre-processed continuous thin-slab casting with a hot strip rolling process.

TMEIC received an order from SGJT and delivered the motor drive system and the automation system for the facility. With full endless rolling successfully achieved in September 2019, the system has since further improved various functions, expanded the type and size of steel being produced and increased production volume\*<sup>2</sup> by utilizing remote support onsite due to COVID-19.

In order to realize full endless rolling, advanced speed control and temperature control are necessary to synchronize and coordinate the continuous casting and rolling processes. The following cutting-edge new functions were developed by TMEIC:

- 1) High-speed synchronous control of the continuous casting process and the rolling process
- 2) Temperature control of the transfer bar between the high-reduction mill and the finishing mill using an induction heating system
- 3) Improved roll wear equalization control over long rolling periods in order to realize stable continuous rolling
- 4) Stable operation and control when a problem arises on the line (synchronous safety stop of continuous casting and rolling processes and residual material removal functions, etc.)

These functions were based on TMEIC's existing advanced technology and many years of experience in steel plant control and automation. They play an important role in modern full endless rolling operation by improving the stability of production of ultra-thin materials, and by improving production yields. The newly developed functions have been incorporated into TMEIC's existing well-proven hot strip mill automation system.



Continuous thin-slab caster and hot rolling mill established by SGJT



SGJT MCCR-DUE Productivity & FAC Achievement Ceremony

“TMEIC has a track record of supplying motor drive systems and automation systems for hot strip mills to many different plants in China, including the Shougang Group, and has provided optimum rolling control befitting the production plans of each client,” stated Kazuhiko Uekusa, Vice President of the Industrial Automation & Drive Systems Division. “We are very honored to contribute to realizing SGJT’s management policy to enhance production efficiency by introducing the full endless rolling system on the back of our control technology and know-how. We intend to continue contributing to greater efficiency and performance at steel plants by delivering the technology we have accumulated to the maximum extent possible.”

\*1 A continuous and efficient process produces hot-rolled coils by seamlessly connecting the rolled material from the continuous caster through the rolling mill and up to the cutting process prior to coiling.

\*2 Achieved monthly production volume of 180,000 tons and exceeded initially assumed facility capacity.

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In order to respond to the needs of manufacturing sites that serve as a foundation for supporting society, TMEIC always sets its eyes on the future of industry, society and the environment as an industrial systems integrator striking a balance between the development of society and a beautiful global environment. TMEIC will contribute to manufacturing and environmental management through leading-edge technologies based on its core technologies of rotating machinery, power electronics and engineering.