

30 per cent productivity boost for heavy castings



Based in Suzhou near Shanghai in China, the Suzhou Ishikawa Iron Manufacturing Co. Ltd (SIIM) took delivery of a DISA 231-X vertical moulding machine in 2012. This time, however, the new machine came with the new Double Index mould transport system from DISA, enabling extended pouring time, higher yield and even better castings quality.

Founded in 1994, Japanese owned SIIM based its production of ductile iron castings for the automobile industry as well as railway parts on a DISA 230-A from 2002. When the company expanded with a second foundry shop in 2005 in Suzhou, the DISA 230A was supplemented with a DISA 230B.

The foundry soon needed a third moulding machine to keep pace with rising demand both in China and abroad and in 2012 a new DISA 231-X was installed, capable of producing 510 moulds an hour with dimensions of 535 x 750 mm and a mould thickness of 150 to 395 mm.

Heavy castings mean lower speed

“A significant part of our output of 72,000 tons of ductile iron parts a year consists of heavy castings,” says SIIM Chairman Mr Gaishi Shiotani. “This meant a frequent need to extend pouring time with the result that we were unable to exploit the full productivity potential of our existing DISA 230-B.”

Finding a way to realize the full mould capacity of the new DISA 231-X was top of the list in the discussions with the local DISA sales manager, Jack Yu, and a DISA expert from Denmark.

It was decided to supplement the new moulding machine with an innovative mould transport solution recently

developed by DISA for the production, for example, of power generation and automotive components.

DISA Double Index – up to 30 per cent faster

“The DISA Double Index mould transport system basically adds an extra lane at the entrance to the motorway,” Jack Yu explains. “This means that SIIM can fully exploit the enormous mould capacity of the DISA 231-X.”

“The Double Index mould transport system means that we can extend pouring time while the DISA 231-X is running at high speed, giving us an average productivity boost of up to 30 per cent,” Mr Gaishi Shiotani continues. “This is only half of the story, however.”

A double Shuttle Synchronous Belt Conveyor acts as a buffer for the higher number of moulds exiting the Automatic Mould Conveyor in order to provide sufficient cooling time.



DISA 231 – vertical pattern



DISA 231 – vertical line with shuttle system

New pouring system



Exceptional precision

The Double Index mould transport system synchronizes perfectly with the DISA 231-X moulding machine and the Automatic Mould Conveyor. According to Mr Gaishi Shiotani, the exceptional 0.1 mm mismatch of the DISA 231-X moulding machine, longer pouring time and perfect synchronization of the moulding line enable the foundry to combine higher yield with the same unmatched excellence in castings quality.

“Our motto is quality first and intensive cost control,” Mr Gaishi Shiotani states. “As part of our best-in-class production line, the DISA 231-X and Double Index combine with our focus on precision, scientific management and excellent after-sales service to enhance our position as a trusted partner for our customers as a supplier of quality products at competitive prices,” he concludes.

Jack Yu adds that DISA provided electrical and mechanical training for the operators of the new DISA 231-X moulding machine and the innovative Double Index mould transport system, which is fully integrated with the DISA 231-X automation system.

The extended pouring time requires a modified pouring solution. If pouring is too fast, there is a risk of an unacceptably rough surface on the castings. The DISA Double Index System enables customers to pour much more slowly than they are used to in a regular DISAMATIC process. By pouring two moulds at the same time, the foundry fully utilizes the additional pouring time.

“Our solution was simply to place two pouring units together, enabling us to pour 2 kg/sec simultaneously into two moulds,” Mr Gaishi Shiotani explains. “By doubling our pouring capacity, we were able to increase moulding productivity by as much as 30 per cent for some heavy castings. Currently we are producing about 3,000 tons a month of heavy castings, such as housings, on the new line.”



DISA 231-X - core setting area



Double pouring