



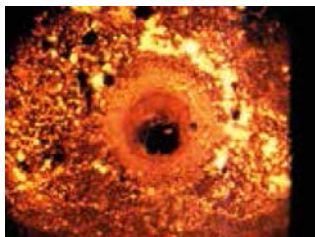
Steel Melting Plant

Automatic EBT Sand Feeding

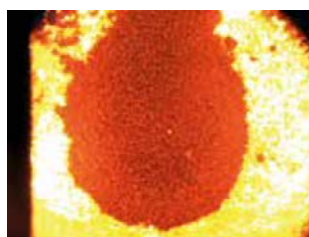
TAP HOLE INSPECTION & SAND FILLING

After each tapping, the EBT (eccentric bottom taphole) of an EAF (electric arc furnace) needs to be refilled with sand in order to seal it before starting the next heat. Often this operation is done manually. The operator has to climb on the EBT balcony and exposing himself to a dangerous and time-consuming operation. With the aim of avoid this, Sarralle has developed an EBT filling tool for safe and efficient EBT sealing controlled from the EAF Control Room.

The system is composed of a sand storage hopper installed in the EAF roof (EBT hole area). Sand will be charged inside the hopper by means of big-bags. EBT sand feeding could be made in semiautomatic mode or automatic mode



**EBT AFTER
TAPPING**



**EBT AFTER
SANDING**

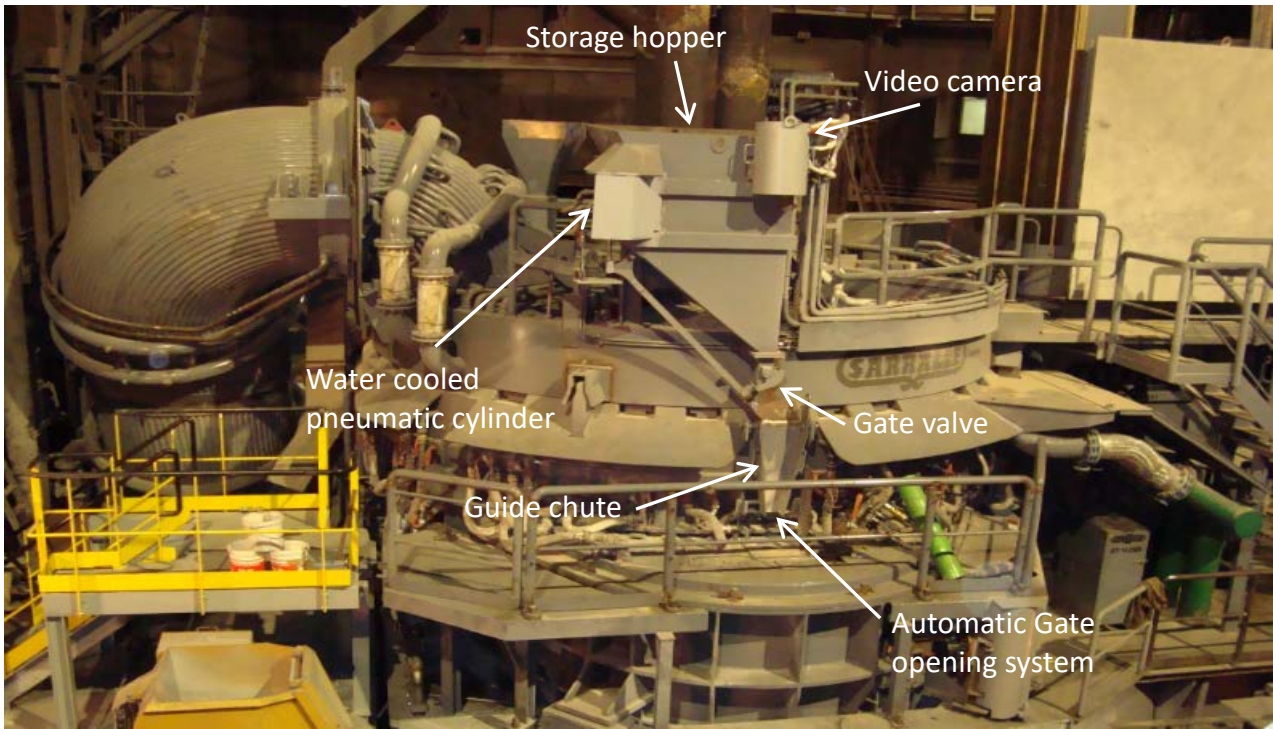
DESIGN AND DETAILS

Semiautomatic mode

After every tapping, the furnace will be tilted in backwards position (-3° approx.) for allowing the EBT hole sand feeding. By means of a water-cooled tele-camera installed in the hopper, the operator will monitor the EBT hole status in a dedicated screen from the Control room, and will actuate on the hopper opening cylinder. Once the EBT is successfully filled, the hopper will be closed and the furnace will be ready for the next heat

Automatic mode

- During the cold tests, time for filling the complete EBT hole with new and worn EBT refractory rings, should be tested
- Quantity of heats new rings need to last from installation until ring replacement will be agreed between Sarralle and Customer
- The automation program to be designed accordingly. The sand feeding time shall be increased heat by heat, from new rings installation until EBT ring replacement
- After each tapping, the furnace will be tilted in backwards position (-3° approx.) for allowing the EBT hole sand feeding. By means of a water-cooled tele-camera installed in the hopper, the operator, for safety reasons, will monitor the EBT hole status in a dedicated screen from the Control room, and will actuate on the program described above.



Automatic EBT Sand Filling System Fix Type

SELECTED REFERENCES

- ALPA – Riva Group
- ArcelorMittal BERGARA
- SIDENOR BASAURI
- GSW (Celsa Group)
- TENARIS TAMSA (TEKINT Group)

MAIN BENEFITS

- Greater operational safety- none operator in dangerous locations
- Increased reliability thanks to the better and user friendly EBT filling practice
- Shorter power-off times thanks to the quick and accurate filling operations
- Tap to tap reduction time
- Possible to evaluate the refractory rings status