



FOR ALL YOUR THERMAL PROCESS REQUIREMENTS

CASE STUDY

Tundish Drying and Pre-Heating

Over a number of years Magma Combustion Engineering have created new and modified existing tundish dryers and pre-heaters. Typical of these projects are those carried out for a major Stainless Steel manufacturer.

AIM

Various projects were undertaken to create and develop tundish drying and pre-heating infrastructure over a number of years. These were made necessary as the continuous casting plant was modified from solely slab casting to combi-casting (slabs and blooms) and ultimately billet casting.

SCOPE OF THE WORK

The original single strand slab caster required tundish dryers and pre-heaters including submerged entry nozzle heaters. The dryers were in the repair bay and used a single high velocity burner on each unit operating with fixed air modulating fuel (Natural Gas) with "T" outlets to achieve the necessary low temperature control required for drying. The multi-burner pre-heaters were on the casting floor positioned to allow the tundishes to be pre-heated in-line for rapid transport by the turret into the casting position. The dryer and pre-heater lids are manipulated pneumatically. Simple pre-mix SEN burner nozzles were used. In due course the casting machine was developed for casting either single strand slab or twin strand blooms. This required a revised tundish design with three outlets; the centre one for slabs and the outer two for blooms with weirs. This required the dryers and heaters to be re-designed. The dryers were re-fitted with three burners and a revised lid. The pre-heaters lids were re-modelled to include slots for three stopper mechanisms with covers and air knives to seal the appropriate slots that were not required depending on operations. A further development was to incorporate a six strand billet caster. Both the billet caster dryers and pre-heaters were fitted with five burners with the pre-heater lids having six stopper cut-outs. Both types of lid are manipulated hydraulically. As all these developments progressed the systems used incorporated enhanced levels of safety and controls to economise on energy consumption.

BENEFITS

- Improved safety for people and plant
- Ease of operation due to improved operator interfaces
- Improved manufacturing performance
- Modernised plant

CONTACT US

Want to know more about how Magma can help you?

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PHOTOS

A selection of photos from this case study.



Fig. 1 Slab Dryers with "T" Outlet Burners.

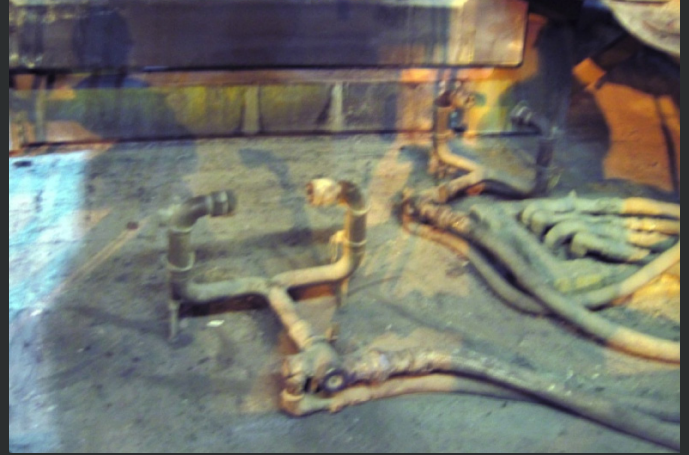


Fig. 2



Fig. 3 Modified Combi-Caster Dryer with 3 Burners.



Fig. 4

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