

Application**brief**

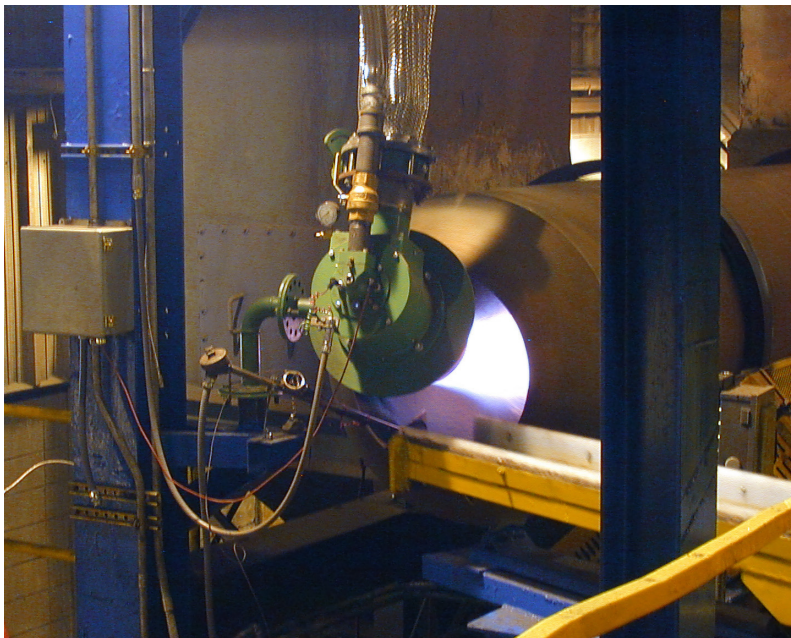
Eclipse Product: RatioMatic Burner, Valve Train and Valve Proving System

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Application: Metal shot dryer

Description: The rotary dryer is used to dry metal “shot” that has previously been stored in a wet pit after production by a water jet casting process. Metal shot is dragged out of the pit by a magnet and is fed into the dryer by means of chute and vibrating table. The application here is particularly challenging because there is no bin storage currently available, making the water content in the shot high and varying from one charge load to the next. The burner is mounted in the charge end of the dryer while a draft is maintained by a baghouse fan at the discharge. Dust and fines are pulled off to the baghouse, while dry product is ultimately dumped to a conveying system that sends it to temporary storage in preparation for later hardening and separation.

The old burner had been in existence for over 30 years – it is not clear exactly who made the old burner, but the plant has been repairing and modifying the burner themselves for as long as anyone can remember. The controls were also of the same vintage and were in desperate need of an upgrade. Third party safety inspections performed by AC Technical Services, Inc. resulted in finding some of the safety switches malfunctioning, as well as a fuel train that did not meet current standards. These findings in addition to a poorly performing burner in need of repair motivated the customer to pursue a complete replacement. The customer estimated that the burner was consuming between 3 to 7 MMBtu/hour. Based on this as well as an observed fairly luminescent, “bushy” flame on the old burner, made the obvious choice for replacement a RatioMatic burner. Because the real Btu input was a mystery, the full capacity of the 7 MMBtu Burner coupled with a high turn-down, and solid ratio control instilled confidence in the customer and allowed us to win the order (all other burners in the facility are North American).

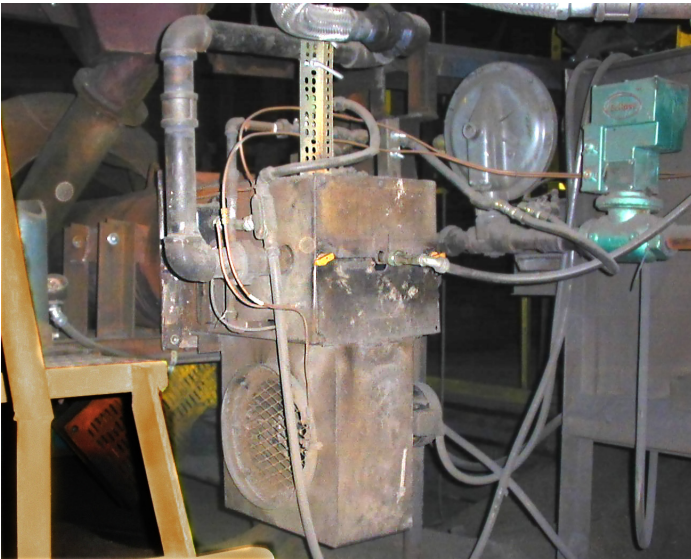


RM0700 RatioMatic Burner firing Ascast Rotary Dryer

The original burner and controls were all mounted in close proximity to the charge end of the dryer. This made maintenance on the equipment difficult to access and hazardous due to occasional falling shot from the nearby magnet. The customer's desire was to move the controls to a safer remote location. There was also a need to make the turnaround installation in short order due to production concerns. We were able to provide an excellent solution by building a pre-fabricated skid that housed the fuel train, remote blower, and control panel. Field installation time was significantly reduced, allowing for more time during start-up to experiment with various burner settings.

Another concern was the short dwell time of the product in the dryer due to its length. The customer wanted to have a means of directing the firing angle of the burner towards the product without direct impingement. To accomplish this an articulating burner mount was designed to allow the burner to be angled in two directions. Testing during start-up helped to prove the benefit of directing the burner towards the shot, allowing for faster heat transfer with no impingement.

New Burner Management, Temperature Controls, and the use of a Valve Proving System to test for Safety Shutoff Valve leakage on start-up and shut down have improved the customer's confidence and have eliminated nuisance shutdowns. Reliable, repeatable light off has been the most significant improvement for plant production personnel. The larger burner has also allowed for an increase in production when needed. Just another satisfied Eclipse customer!



View of previous installation



Remote Combustion Air Blower and Panel

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