

Application**brief**

Eclipse Product: ThermJet Burners and Extern -A- Therm Recuperators.
Submitted by: Bruce Anderson - The W.H. Kay Company
Application: Reduce Fuel Consumption on Aluminum Die Casting Crucible Furnaces
Description: **Topic:**

Empire Die Casting Saves Money by Reducing Fuel Consumption with Eclipse Burners and Extern-a-therm Recuperators

Primary Objective:

Lower operating costs by increasing furnace efficiency and lowering fuel consumption.

Application:

Aluminum die casting crucible furnaces. Operating temperature is normally 1,450°F. Normal operation is 24 hours per day, 5 days per week.

Proposed Solution:

Add an Eclipse Extern-a-therm Heat Exchanger to the exhaust of each furnace, along with an Eclipse ThermJet Burner to heat the furnace using preheated air from the heat exchanger.

Equipment Proposed:

(See page 2)

Results:

The customer has measured pre-heated air temperatures of 700°F. This indicates a fuel savings of 20%. This means a payback time of less than 2 years, based on the amount of time the furnace is used and a fuel cost of \$7.00 per 1,000 cubic feet of natural gas.

This customer has already upgraded two furnaces and has five left to upgrade. The next furnace upgrade is planned for March 2005.

Equipment

Item #	Qty	Description
1	1	THERMJET BURNER ASSEMBLY: Eclipse model TJ150 version 2.00 Burner Assembly (natural gas) with Integral Air and Gas Flow Metering Orifice Plates, Spark Ignition Plug, UV Scanner Port, Threaded Air & Gas Connections, Pressure Test Fittings, Alloy Tube & Mounting Gasket.
		GAS TRAIN COMPONENTS:
2	2	1-1/2" NPT, Cast Iron Gas Cock.
3	1	1-1/2" NPT, Main Gas Pressure Regulator, 243-12-2.
4	1	1-1/2" NPT, Eclipse Manual Reset Gas Shutoff Valve.
5	1	1-1/2" NPT, Solenoid Gas Shutoff Valve with Valve Seal Over travel and Valve Closed Position Switch.
6	1	Low/High Combination Gas Pressure Switch, RHLGP-A.
7	1	1-1/2" NPT, Adjustable Limiting Orifice Valve.
8	1	1-1/2" NPT, Gas Butterfly Valve.
9	1	Actuator Mounting Kit.
10	1	4 -20 mA Barber-Coleman Electric Actuator.
11	1	1/2" NPT, Pilot Gas Pressure Regulator, 043-182.
12	2	1/2" NPT, Pilot Gas Solenoid Shutoff Valve.
13	1	1/2" NPT, Adjustable Gas Cock.
14	1	1" NPT, Dungs Gas Proportionator Valve.
		COMBUSTION AIR COMPONENTS:
15	1	JD-2 Low Air Pressure Switch.
16	1	3" NPT, Manual Air Butterfly Valve.
		HIGH TEMPERATURE AIR-TO-AIR EXHAUST HEAT RECUPERATOR:
17	1	Eclipse model 1500M Extern-a-therm Recuperator with "ST" housing.
		IGNITION & FLAME MONITORING CONTROLS:
18	1	Eclipse model VF560522XA Veriflame Flame Monitor.
19	1	Veriflame Mounting Base.
20	1	Eclipse UV Scanner, 90-degree angle.
21	1	Spark Ignition Transformer, Full-wave, 6,000 volt secondary.



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