

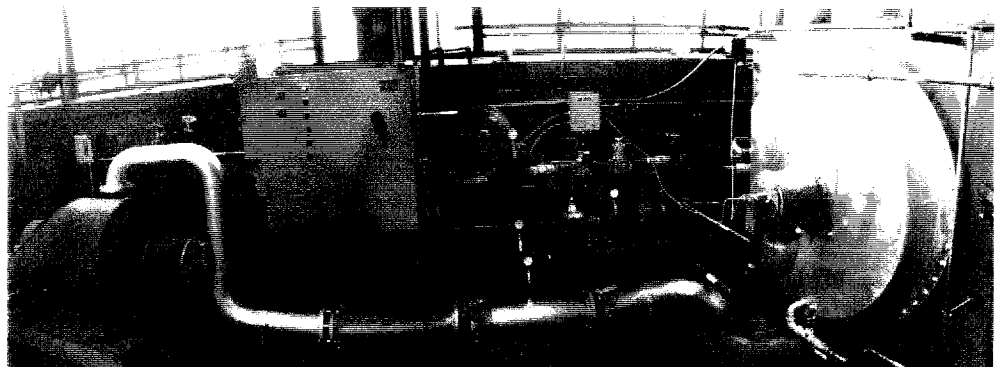
Eclipse Product: Eclipse ThermJet Model TJ500
Submitted by: Bob Lyman, High Degree Technical Services, LLC
Application: Retrofit of exothermic generator
Fuel Type: Natural Gas

Specifications: Ansonia Copper and Brass had purchased an exothermic generator to provide an exothermic gas atmosphere for a large annealing furnace. The generator was built by the Electric Furnace Company in 1969. It's an extremely large piece of equipment designed to produce up to 35,000 CFH of exothermic gas. The original combustion system consisted of 3 Pyronics premix burners on the face of the end plug surrounded by a "plumbers nightmare" of piping. The customer wanted a new, less complicated system and asked us if we could help. I decided that the best way to accomplish this would be to remove the existing combustion system and install a single, new nozzle mix burner and modern NFPA gas train. Since I've experienced success many times with the ThermJet, it only seemed natural to look at the TJ for the job.

I was confident the TJ500 would produce the volume of gas required and operate at higher back pressures than would be necessary. As the photo indicates, we fabricated a new end plug to house the new burner. I used the existing blower, but included two new six inch manual butterfly valves. The new gas train consisted of new regulators, an ESS ratio regulator, FOM metering orifices for fine tuning the air/gas mixture, ALO adjustable limiting orifice valves, KDI manual and auto reset valves and several pressure gauges for monitoring the required pressure drops in the system. A new control panel was installed with an overtemp, NFPA required 1400° F low limit controller, and a VeriFlame burner controller.

Even though I knew the components selected were of the finest quality, I was concerned about this set up working as a system. We also had to make sure the generator would produce an atmosphere with the proper amounts of nitrogen, hydrogen and carbon monoxide which would be verified with a gas analyzer.

Despite a bad blower motor and faulty MRV (both of which were immediately repaired or replaced) the start up took less than a day, the burner fired reliably and we were able to make quality exothermic gas.



Eclipse ThermJet model TJ500 replaces 3 Pyronics premix burners on exothermic generator