POWER FLAME PROJECT SHOWCASE

CSB Ultra Low NOx Burners for University of Houston, TX.

In 2010, the University of Houston decided to upgrade their main boiler plant with the purchase of three (3) 45,000 lb/hr D type water tube packaged boilers from Victory Energy. The boilers are located in an EPA designated non-attainment area and are subject to BACT (Best Available Control Technology) as defined by the Texas Air Resources Board. The boilers were designed to fire natural gas and meet sub 9 PPM NOx emissions corrected to 3% excess oxygen. Power Flame CSB550-G-30 natural gas fired, ultra low NOx burners were selected due to the known ability of these burners to perform in single digit NOx emissions and the affordable nature of the simplistic design.

The CSB burner is a windbox/register design developed primarily for large water tube boiler applications. It is a 100% premix burner utilizing the same fiber matrix head as our Nova Plus burners. Through the original designer of the CSB burner (Alzeta Inc.) there are over 60 CSB windbox burners in service today. All are meeting sub 9 PPM NOx emissions or lower. In addition there are over 300 NVC burners in service meeting NOx emissions as low as 5 PPM. The fiber matrix, premix burner is a well proven ultra low NOx product that does not require flue gas recirculation. The premix burners generally require less blower motor horsepower than the partial premix, high FGR diffusion type burners, resulting in significant energy savings over the life of the equipment.

Power Flame fabricated and assembled the complete burner which includes the windbox, blower assembly, air filter, mixing spool, refractory front plate, fiber matrix head, main and pilot gas trains. The Allen-Bradley PLC based combustion controls required by the specification were provided by Victory Energy. The burners have been mounted on the boilers and shipped to the jobsite for installation/start-up this summer.

One of the unique aspects of this project is the custom paint job of the boiler and burner which are in the University of Houston school colors – red & white.

The CSB burner offers Power Flame another product to compete in the larger water tube boiler market. The CSB windbox style burner is available in sizes up to 125 MMBH. The NVC gun style burner is available in sizes up to 63 MMBH. Both are sub 6 - 9 PPM NOx burners. The Cmax gun style burner and the Vector windbox style burner are available in sizes up to 94 MMBH and 63 MMBH respectively. Both will meet sub 20 PPM NOx on natural gas in a water tube boiler.