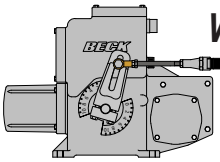

Waste-to-Energy Facility Follows Sister Plant's Lead by Upgrading Actuators

Maryland U.S.A.

A Maryland Waste-to-Energy (WTE) plant had been using pneumatic actuators on all of its fans for several years. There were ongoing problems associated with the control and reliability of the actuators. Since ID fans are a critical part of the combustion process, it was recommended to upgrade the ID fan actuators to Beck actuators.

Declining boiler performance and difficulty controlling had been indicators that the pneumatic actuators required maintenance. A truly responsive actuator is capable of initiating movement within milliseconds by closely tracking signal changes. Pneumatic performance is affected by changing frictional loads in the damper, seal wear, instrument air quality, and the condition of compressed air utility. In contrast, Beck actuators respond instantaneously to a change in demand without being affected by friction and load. Beck actuators operate without lag, coast or overshoot resulting in the ability to track signal changes with a high degree of accuracy and repeatability. The sister plant who initially made the upgrade recommendation had been using Beck actuators since the plant was built in 1994. There are a total of ten Beck actuators at the facility and over the years, there has only been one major maintenance issue.

Figure 1 shows the newly installed Beck actuator connected to an outdoor induced draft (ID) fan. Through a special pipe linkage arrangement, a characterized linkage profile was utilized for this setup. This actuator is rated at 550 lb-ft; however through the mechanical advantage created by the linkage arrangement, it is capable of generating 680-850 lb-ft of torque through the full 76° of ID fan travel. The torque rating is sufficient for the application and the customer expects to receive years of maintenance-free service.

Figure 1

11-409 Beck actuator connected with a pipe linkage to an ID Fan

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