For feeding biomass and alternative fuels, including woody biomass, agricultural or refuse derived fuels into boilers and kilns.

Features/Advantages

Fuel Feed Systems

Jeffrey Rader brand boiler fuel feed systems are made up of a combination of storage, reclaim, conveying and feeding equipment. We work closely with you to ensure that our feed systems are designed to meet the storage, metering and feed rate requirements for your boiler, whether it is feeding 100% biomass or co-firing biomass with coal. Our systems are in operation today at fuel feed rates of 3 to over 200 tons per hour.

Typical equipment can include:

- Boiler front day bins, silos and hoppers
- Distribution screws and conveyors
- Metering screws
- Robbing screws
- Expansion joints
- Isolation valves
- Feed chutes
- Rotary airlock feeders
- Fine grinding systems for PF boilers
- Pneumatic injection systems
- Gravimetric and volumetric feed controls

Depending on the boiler fuel specifications and design criteria, our system of equipment can be customized to achieve the objectives of the project. Inherent in our system design is the capability to react quickly to changes in fuel demand.

Jeffrey Rader offers pneumatic injection systems for the following types of utility or industrial boilers and kilns:

- Circulating fluidized bed boilers (CFB)
- Bubbling fluidized bed boilers (BFB)
- Cyclone boilers
- Cement or lime kilns and pre-calciners
- Wall fired pulverized coal utility boilers

Fuel Storage, Distribution and Metering

The typical boiler or kiln feed system will include fuel storage, distribution and metering to the required number of feed points on the boiler or kiln. Fuel storage prior to injection is usually provided with day bins (silos, bunkers or bins near the face of the boiler). Day bins can be circular screw reclaimers in the bottom of silos, full live bottom screws, stokers or chains.

Fuel from the day bins can be discharged directly into the boiler feed spout or to a metering screw conveyor for feeding to a single boiler feed point for mechanical or pneumatic injection. Distribution to multiple feed points can be accomplished with distribution conveyors (screw or chain), robbing screws and metering feed screws. A sophisticated control system utilizing level controls, variable frequency drives, and in some cases gravimetric feeders, works in concert with the boiler house DCS to optimize the distribution and delivery of fuel to the boiler feed point.

FEATURES/ADVANTAGES CONT.:

Pneumatic Injection Systems

Jeffrey Rader pneumatic systems can be used to inject fuels into cyclone, fluidized bed or pulverized coal (PC) type boilers or kilns. Pneumatic injection is generally used where the fuel must be burned in suspension and is commonly used in cement/ lime kiln feed systems as well as for pulverized fuel applications commonly found in power plants.

At the discharge point from the storage and metering system, fuel will be introduced into the pneumatic system through our standard rotary airlock feeder (ATEX compliant, if necessary). Once in the pneumatic system, the material can be discharged into the boiler through the pulverized fuel line, or directly into a burner.

Jeffrey Rader pneumatic systems are designed to the application taking into account the fuel characteristics, conveying distances, elevations and pressures to overcome in the pulverized fuel lines or boiler. Using positive displacement blowers and dilute phase conveying technology, our pneumatic systems can deliver fuel directly to multiple points along the face of the boiler consistently and reliably from distances of over 900 feet (300 meters). This makes them a good choice as well for retrofit applications where mechanical systems are difficult to integrate.

Fine Grinding for PF Injecting

Secondary processing of fuels just prior to pneumatic injection is common in utility PF boilers where fuel specifications call for finely ground material at low moisture contents. We can offer this technology along with the boiler feed system in order to achieve the objectives of the project.

Portable Systems

Our portable boiler feed systems are designed for customers looking to test burn alternative fuels in their existing boiler. For those applications, the system is designed to fit on a standard flat bed truck, allowing it to be moved to various locations. This is a very economical way to get good accuracy when feeding while providing plenty of flexibility in handling a variety of fuels.

Our portable system is skid-mounted with a hopper system for loading the material. A twin screw will feed the material, either directly into a pneumatic system, or onto a weigh belt feeder when greater accuracy is required. The material is then blown directly into a boiler or kiln, or discharged through a cyclone (when a mechanical feed is used).

The system comes with an optional control system for “plug and play” capability. Other options include a walking floor trailer system that eliminates the manual loading of the hopper by a front end loader.

OUR FLAGSHIP BRANDS

GUNDLACH CRUSHERS
JEFFREY RADER
Pennsylvania Crusher Since 1905
ELGIN