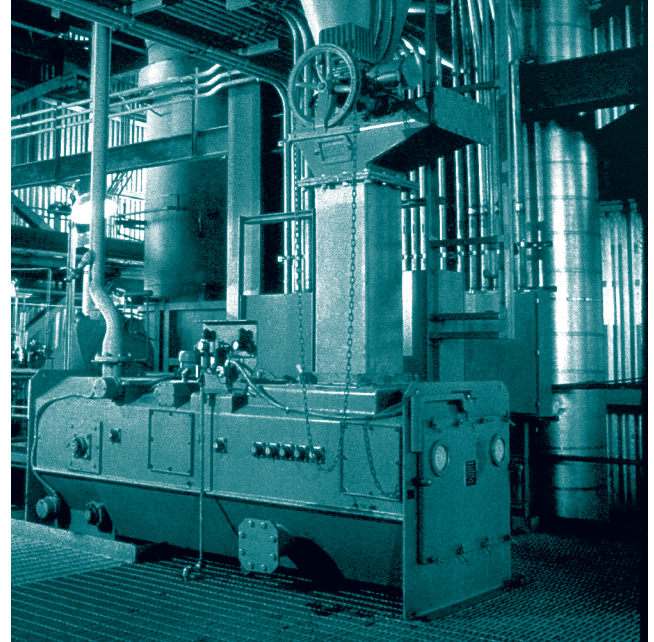


Stock® LPG

Low Pressure Gravimetric Feeder

- Fuel savings through improved boiler efficiency
- Improved combustion efficiency/loss on ignition
- Improved pressure and superheat control
- Less slagging and fouling
- Stability and improved response of combustion controls
- Less NOx through better control of excess air
- Improved pulverizer/cyclone/combustor performance
- Less corrosion
- Reduced operations & maintenance costs

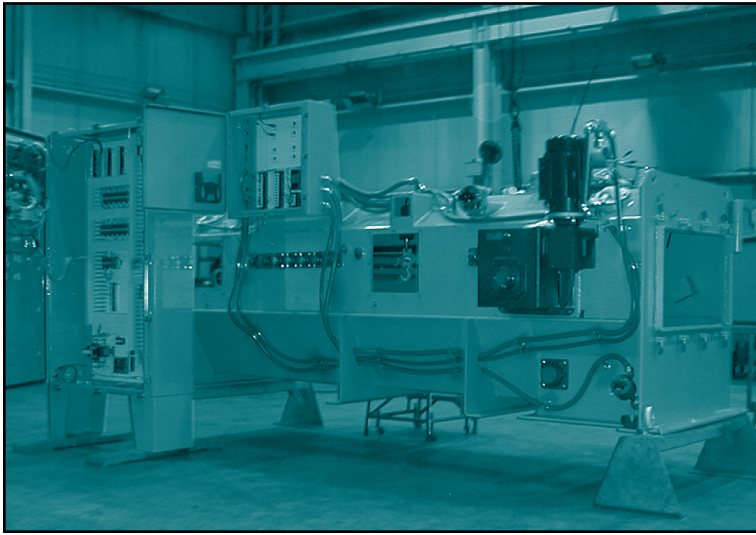


The primary function of the Stock Low Pressure Gravimetric Feeder (LPG) is to provide uniform and precise fuel delivery by weight to the combustor, matching the demand for heat release in the boiler. Accurate fuel delivery ensures stable combustion control and a rapid response to changes in boiler load.

The Stock LPG feeder is designed to provide uninterrupted fuel delivery with a feed rate accuracy of $\pm 1/2$ of 1% as proven in full-scale material tests. In order to achieve this accuracy and reliability, Stock has designed the LPG feeder utilizing rugged components and features which will lend themselves to a system that will operate for the life of the plant in the harsh environments expected. Many of these features are unique in the industry.

With more than 9,000 feeder installations worldwide, Stock has demonstrated the experience and know-how to solve fuel and bulk material handling problems under the worst operating conditions experienced in both industrial and utility plants.

With the knowledge gained in the only full-scale testing facility in the United States, our customers have realized exceptional payback on capital expenditures for Stock bulk material handling equipment. Additionally, our customers have the reassurance that their feed systems have been fully pretested prior to installation and commercial operation. Whether it is a fuel flow problem, a difficult plant arrangement, a requirement to handle an unusual or difficult fuel, or the need for a reliable fuel feed system, Stock has the engineering staff capability, and resources to solve your fuel feed challenges.

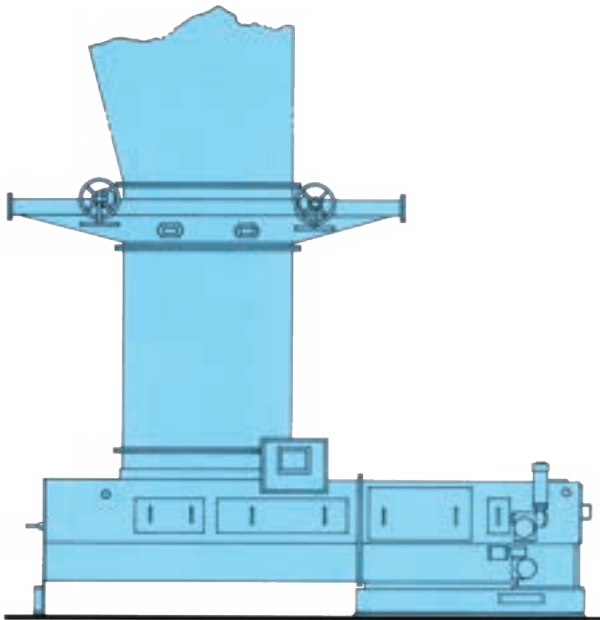


The following are three examples of recent problems encountered and solved by Stock.

Handling Multiple Refuse Fuels with Poor Flow Characteristics in a Pressurized Environment

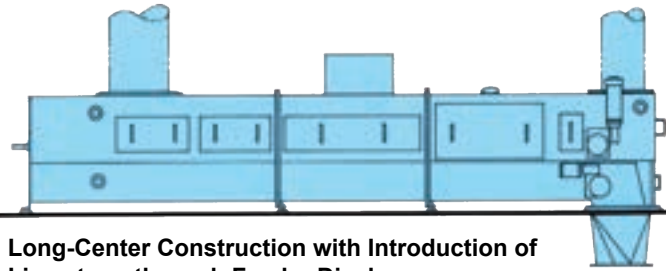
For this arrangement, seven feeders were required to deliver a variety of materials including anthracite coal, anthracite culm, and limestone. The feeder lengths varied between 7'-0" and 12'-6". Maximum feed rates varied between 3,600 lb/hr for the limestone feeder and 150,000 lb/hr for the anthracite culm feeders. The system shown feeds anthracite coal, anthracite culm, and silt at a maximum delivery rate of 140,000 lb/hr.

Based on a thorough analysis of the fuel, Stock recommended and supplied a 24" x 72" rectangular bunker outlet cutoff valve with twin gates and a downspout to the 24" x 72" slot inlet feeder. This arrangement successfully eliminates coal flow interruptions and provides a fully satisfactory installation.



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Long-Center Construction with Introduction of Limestone through Feeder Discharge

This arrangement required two STOCK LPG feeders to deliver anthracite culm and limestone to a circulating fluidized bed boiler at a feed rate of 85 tons/hr. The feeder length from the centerline of inlet to centerline of discharge is 18'-0". The physical arrangement of the culm storage silos and the limestone silo required that the limestone and culm be fed through one feeder which resulted in one less penetration of the boiler wall and a savings to the customer.

A purge air connection provided at the inlet end of the feeder body and an adequate height of downspout above the feeder provided a seal against the backflow of hot air and gases from the combustion system. On this project, the feeders were required to withstand pressures to 42" w.g. without distortion of the feeder body.

Utilization of an Inclined Feeder for Fluidized Bed Boilers

Three feed systems were required for this arrangement with each feeder delivering bituminous coal at a rate of 18,000 lb/hr. The offset between the feeder inlet and feeder discharge is 27'-0".

The final feed system included a Stock shutoff gate at the bunker outlet, a suitable length of downspout, a 27'-0" Stock LPG feeder, a feeder outlet hopper, and a pneumatically operated isolation gate below the feeder discharge. The isolation gate protects the feeder from the hot air and gases discharged from the downstream combustion system.

On the project for which this arrangement was originally designed, steel floor elevations, bunker outlets, and duct work were in place and could not be altered. A downcomer and beam interfered with our ability to provide a standard feeder. The problem was resolved by inclining the feeder to provide additional headroom below the feeder. By doing

this, the feeder discharge flow angle was improved, thus ensuring a reliable fuel flow path to the combustor.

