Chemco Vertical Ball Mill Slaking System
(Dry FGD)

Since 1993, Chemco has been providing ball mill slaking systems to "Dry" Flue Gas Desulfurization system suppliers. Chemco's system features the vertical ball mill by Union Process and is shown in Figure 1. The system is designed to automatically slake commercial grade pebble quicklime at feed rates of 5,000 to 27,000 pounds per hour (based on a material bulk density of 55 lb/ft^3) and prepare a 20-30% by weight slurry concentration. The system consists of the following major components:

- Volumetric or gravimetric feeder
- Premix chamber
- Vertical ball mill (also called an attritor) slaker
- Dust and vapor removal system
- Separation tank
- Slurry recirculation pump
- Grit separation screen (optional)
- Grit removal conveyors (optional)
- Slaking system control panel

The volumetric screw feeder, mounted above the vertical ball mill slaker, is typically used for the metering of dry solids into the wetting cone. An optional gravimetric belt feeder can be furnished if desired. Either type of feeder can be supplied with AC or DC motors along with associated variable frequency drive or dc motor controller. When the drive control is set at 100% the feeder delivers quicklime at its maximum feed rate (based on a material bulk density of 55 lb./ft^3) into the premix chamber. Typically, a proximity switch or weight transmitter delivers a signal to the programmable logic controller (PLC) that indicates feeder speed or delivery rate. This signal is used to adjust the amount of slaking water delivered to the premix chamber in order to maintain constant 3.3:1 water to lime ratio at startup until normal operating temperature is reached. Upon reaching operating temperature, the slaking system control panel temperature controller regulates slaking water flow, to maintain temperature to ±2 F setpoint.

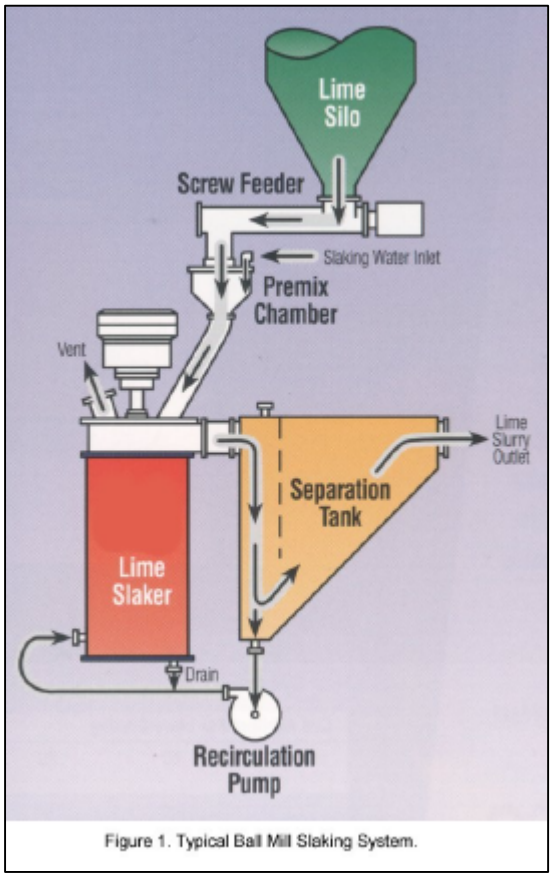

Figure 1. Typical Ball Mill Slaking System.