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## CARBON REGENERATION SYSTEMS



**50 lb/Hour Regeneration Kiln**

A carbon regeneration kiln process uses heat, time and tumbling to regenerate exhausted carbon. The carbon is regenerated by rotating and tumbling the carbon particles at high temperature over time. Residence time in the kiln is determined by a combination of the rotating speed of the tube and by the pitch of the tube. Increasing the rotating speed and/or increasing the pitch of the tube will decrease the residence time (increase the rate the carbon travels through the kiln). The units are furnished with a variable speed drive on both the kiln tube and on the screw conveyor.

Exhausted carbon is transported to the kiln feed hopper. The carbon is then fed into the kiln tube using a dewatering screw conveyor. The carbon then moves down the kiln tube using the tube rotation, the lifting flights, and the pitch of the tube. The carbon moves into the combustion chamber portion of the tube raising the temperature of the carbon to temperature. In this stage, steam and volatile impurities are gassed off and exit the kiln tube through the top of the discharge breech. The carbon continues to tumble down the tube, cooling gradually in the last stage of the tube, after the combustion chamber. The carbon continues to move down the tube, fully regenerated, until it drops off the end of the tube in the discharge breech and drops out the bottom of the breech, usually into a quench tank.

**Denver Mineral Engineers** offers indirect-fired rotary kilns for carbon regeneration. Gas and/or fuel oil may be fired in the insulated kiln furnace. Kiln temperature is controlled by approved combustion controls, varying the fire with the load. Available capacities range from 50 pounds per hour to 400 pounds per hour.