









3-203-KEW

Krebs Coal Classifying Cyclones

Overview

Classifying cyclones are used to classify solid particles into different sizes. Particles within the cyclone are exposed to two forces: the induced g-forces caused by the rotational movement and drag forces caused by the up-rising current of the liquid exiting through the vortex finder. The larger particles, having more mass, are forced to the outer rotational path adjacent to the liner wall and spiral toward the bottom of the cyclone exiting out the apex. The finer particles are more affected by the drag forces and flow through the vortex finder. The higher the g-forces, the finer the separation; that is why small diameter cyclones with inherently higher rotational velocities produce finer separations. Many variables can affect the separation size such as: cyclone diameter, vortex finder size, pressure drop, cone angle, cyclone length and feed solids. Consult with a Krebs Sales Engineer or representative to confirm what is the best combination to achieve your sizing needs. For coal, the most commonly used classifying cyclones have the following features and operate under the identified parameters:

-  Ceramic or occasionally urethane lined.
-  10.5 or 20 degree cone angle
-  10, 15, 20 inch are most popular sizes of classifying cyclones for coal, with separation sizes of 200 (75 micron), 100 (150 micron) and 60 mesh (250 micron), respectively.
-  Feed density <10% solids; underflow density of 40-50% solids are normal for coal applications
-  Raw Coal Classifying Cyclones: Because different coal sizes are cleaned more efficiently by different devices, a great deal of sizing takes place within a typical coal preparation plant requiring the use of classifying cyclones for fine fractions.
-  A relatively new trend is to “double classify”.
-  Clean Coal Classifying Cyclones: Thickening and desliming ahead of dewatering devices.
-  Effluent Cyclones: Recover solids from centrate streams



Applications

Raw Coal Classifying at 100 Mesh (.15mm)

Due to their higher capacity, the 15 and 20 inch (381 and 508 mm) cyclones are very well suited for this duty (fewer cyclones to maintain and less complex manifolds result). Usually a 15 inch (381 mm) design will be recommended if no flotation circuit is included in the flowsheet.

Clean Coal Classifying & Effluent Recovery

Due to the higher recovery rates of the 10 and 15 inch (381 and 508 mm) T-Series Classifying Cyclones, all the fine coal particles that are washed will be recovered from a dilute stream and transported to downstream dewatering equipment.

