



# SNS COLLEGE OF TECHNOLOGY



## AIR SCREEN CLEANER

The screens used in combination with air blast performs satisfactory cleaning and separation operations for most of the granular materials. The air-screen cleaner uses three cleaning systems: blowing or aspiration, scalping screens and grading lower screens. The air-screen grain cleaner can be classified in two distinct types: (i) vibratory screen, (ii) rotary screen, based on movement of the screening surface.

**Vibratory air-screen cleaner:** The screening unit is composed of double or multiple (up to 8 number) screens. These screens are tightened together and suspended by hangers in such a manner that these have horizontal oscillating motion and slightly vertical motion. These two motions in combination move the grain down the screen and at the same time toss sufficiently above the screen so that the bed of grain is properly stirred. The slope of the screen is adjustable to control the rate of downward travel of the grain. The screens are available in various shapes like; round, triangular or slotted holes as discussed earlier. Sometimes the holes of the screen are clogged when the machine makes fine degree of sorting. To avoid the clogging, the screens are generally fitted with a brush which moves under the screen and pushes the clogged material back through the screen. Other such devices can also be used for this purpose. A simple vibratory type air-screen cleaner.

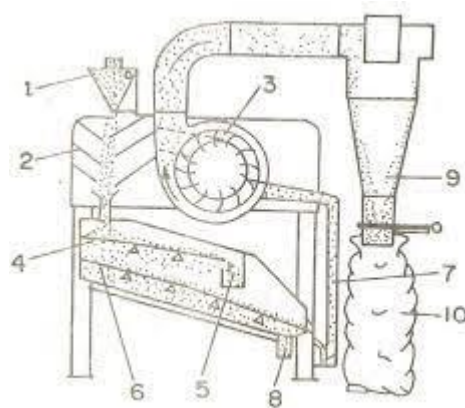


Figure 3.2: Schematic diagram of a vibratory air screen cleaner. 1) Feed Hopper, 2) Baffle plate, 3) Blower, 4) Upper screen, 5) Discharge channel, 6) Sand sifter, 7) Ascending separator, 8) Discharge funnel, 9) Centriclone, 10) Dust Bag

Rotary screen cleaner: The rotary screen cleaner has normally circular decks. Their motion is circular in horizontal plane. These have either single or double drum. A single drum rotary screen cleaner is shown in Figure 3.3. The machine consists of a rotary screen, aspirator and hopper and equipped with an electric motor, which gives drive to the rotary screen and the aspirator. The mixture is fed into the hopper. The sound grains pass through the screen perforation into the centre of the screen drum, whereas oversized material is retained above and pass out though an outlet. The sound grains come out at the centre side of the screen drum rotating at low speed and fall onto the vibratory screen which remove the dirt particles. The light particles like straw and dust are sucked away by the aspirator and discharged through the aspirator outlet. The cleaned grains are delivered through the discharge chute.

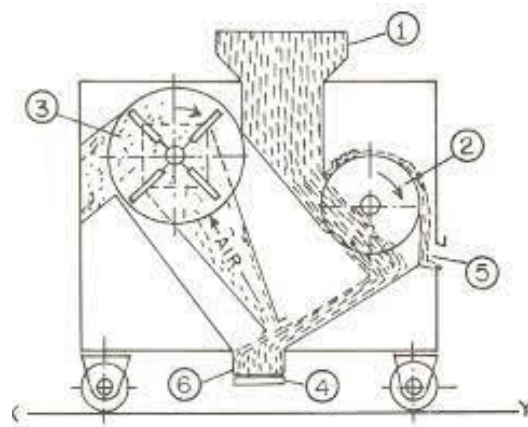


Figure 3.3: Diagram of a single drum rotary screen cleaner. 1) Feed hopper, 2) Rotary screen, 3) Aspirator, 4) Discharge chute, 5) Over size foreign matter outlet, 6) Vibratory screen