

# INSPECTIONS KEY TO EFFICIENT SCREENER OPERATION

This article discusses tips to help keep your centrifugal screener operating efficiently and effectively.

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**E**ase of maintenance, inexpensive screens, and occupying significantly less space in a plant or facility are just a few key benefits of opting for a centrifugal screener in your process. There's one critical step in maintaining these screeners to ensure a positive outcome when handling bulk solid ingredients, and that is regularly checking screens.

Centrifugal screeners operate by spinning bulk solid materials in a chamber at high speed. Material to be screened enters the screener from an upstream feeding device. A feeding screw transfers the material into the screening chamber, where centrifugal force is used to move the materials through the screen fabric. The desired mesh-sized particles pass through the screen while oversized particles, contaminants, agglomerates, and other misshapen particles continuously discharge into the "overs" container. A baffle at the end of the screening chamber prevents in-spec material from entering the oversized material container.

Frequent screen inspections help mitigate screen failure risk. They also can help prevent unforeseen screening problems and help ensure longer screen life. Screens in a centrifugal screener should be inspected once per shift, every shift. Even more frequent inspections may be necessary when dealing with highly abrasive materials or more demanding throughputs. There are some facilities that check the condition of their nylon screens every 2 hours.

There simply isn't a surefire way to predict when or how foreign objects or unacceptable material might enter the processing stream, and failing to regularly check screens can present a risk of putting a contaminated product on the market. That's a prime example of why inspecting screens once per shift — during every shift — is so important. Skipping an inspection for an entire shift could result in an entire day's work lost, which can drastically affect the bottom line depending on how much material per hour a plant typically manufactures.

## **Establish a company culture**

Avoiding contamination risks during processing operations will ultimately come down to maintaining a company culture created around great maintenance and safety. Some companies have great culture around safety and maintenance, and some don't. Even if equipment control systems are set up with alerts notifying managers when a screener inspection door has been opened, no one can truly know if an employee actually checked the screen. That's why setting rules for inspections and keeping detailed records are so important. Establish inspection rules and make sure employees know what's expected.

## **Establish a maintenance schedule**

General maintenance, including changing screens and screener cleaning, is also important. Ultimately, general screener maintenance will be based on how many hours or shifts the screener has run. Even when not handling particularly abrasive materials, the screen



Inspect screens on centrifugal screeners at least once every shift to avoid unforeseen problems.

is vibrating at all times during use. Maintenance can depend on the type of material you're running through the screening equipment, as well as on screening media (nylon, monofilament cloth, woven wire, polymers, and others), screen fineness, and material flowrate.

Fraying or stretching of nylon screen media are clear indicators that a screen should be changed. These types of screens will start to look like they're too long. Occasionally, a sinking or drooping in the middle of the screen can become visible. Make sure operators know how to recognize when a screen should be replaced. This should be done at least once a quarter, but it should also be done when operators see tears or significant wear during a routine inspection.

Cleaning the screener unit typically depends on a plant's production schedule. Still, for most processes, screening equipment itself should be completely cleaned annually. If a product change occurs before a screener is annually cleaned, the unit should be completely cleaned before the product is changed. This is recommended because many parts of the screener (groundings, gaskets, screen frame seal, drive coupling clutches, and bearings) are much more accessible during a product change than during routine inspections. Items that can be worn down should be inspected based on the preventive maintenance schedule — possibly after every unloading event.

### **Work with suppliers and be realistic**

Suppliers usually will have a default mesh size idea for different materials such as sugar, flour, and others. Suppliers who can perform material analysis for clients can help them understand what screen size will best match their particle size, but quality assurance departments may also have a preconceived idea for mesh size. Ultimately, customers will decide what mesh size they want to run in their screener. To decide this key factor, they need to understand what their throughput is. Suppliers will then size the screening unit accordingly. And regardless of the bulk solid being screened — even a nonabrasive material like flour — remember that screening material won't last forever. **PBE**

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### **For further reading**

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