

What features make a screener easy to clean and maintain?

Properly cleaning sizing screens has become increasingly more difficult in light of the more stringent sanitation standards in the food, dairy, and pharmaceutical industries. For these industries, the goal is to have all equipment surfaces accessible by both sight and touch.

For particle sizes above 0.09 inches, the best choice is to use perforated sheet metal where the screens and integral supports and stiffeners are continuously welded to eliminate cracks and crevices and make spray washing and soaking effective. For particle sizes below 0.09 inches, open areas, screening efficiencies, and metal thickness all start working against you. Woven wire mesh screens are typically the most-used screens, but cleaning them can be a challenge. The weave's overlapping strands make it almost impossible to ensure complete screen cleaning using simple spraying or soaking. In addition, these screens have edges that are sometimes merely crimped in place. To ensure complete cleaning for sanitation purposes, woven wire mesh screens should be sterilized at high temperatures to eliminate harmful biohazards and contaminants.

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Evaluate the following four features to determine whether a screener will be easy to clean and maintain:

1. Construction materials and fabrication standards: Easy-to-clean sanitary screeners, meaning they are in compliance with one or more sanitary standards set forth by a governing body such as the FDA, are generally constructed of Type 304 or Type 316 stainless steel in 2B mill finish with optional #4 or higher polish. Internal welds and angles should have large radii that are ground and polished in 150 to 320 grits. The support structure can be constructed to the same specifications as the screening chamber interior, but is more typically constructed of stainless steel finished to lesser standards or carbon steel coated with epoxy or other durable finishes to withstand frequent washdowns. For the most demanding applications, four-post open base configurations with stainless steel motor enclosures are specified, allowing thorough exterior washdowns.
2. Screener design: It's important to note that ground and polished stainless steel alone doesn't qualify a screener as sanitary or easy to clean. The design must also be devoid of corners, crevices, dead spots, or other areas where material can lodge. Most sanitary screeners are equipped with domed lids and screen frame sections that can be quickly disassembled using circular quick-release clamps. Gap-free designs are the most

effective at minimizing or eliminating areas in which material can become trapped, and are therefore easiest to clean thoroughly.

3. Clean-in-place (CIP) capability: The easiest-to-clean screener is one that cleans itself. This is accomplished by using CIP spray nozzles that are strategically placed to emit cleaning solutions, rinsing solutions, or steam for sanitizing the screening chamber's interior without opening or otherwise disassembling the unit. Perforated, ball-shaped, stainless steel nozzles are positioned at the end of stainless steel pipes that extend outward from the screen deck frames and upward from the top surfaces. The flanged connections ensure leak-free connection to hoses carrying cleaning solution.
4. Interior accessibility: Regardless of whether a screener is constructed of suitable materials, fabricated to the most rigorous sanitary standards, or equipped with a CIP system, it must also provide easy access to the screener interior to confirm CIP effectiveness and perform maintenance. Interior screener access is necessary to reach and remove screens for cleaning and to cleanse the chamber interior. To this end, the screener should be equipped with a device that readily separates the screen frames, allowing one operator to remove screens and access all material contact surfaces.

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The key feature that makes a screener easy to clean and maintain is the ability to quickly and easily disassemble components. Screen frames that are mounted using a rod and tensioning screws allow an operator to replace the entire mesh quickly. In contrast, a stretch and glue screen requires an operator to scrape all the existing glue and wire off the frame or use harsh chemicals to dissolve the glue.

Being able to remove the screen mesh from the insert frame allows better cleaning and sanitation and adds the capability of changing the screen mesh in-house with basic tools. It also allows screener cleaner balls and cubes to be changed out without replacing the entire mesh. Tensioning screws allow tension to be added as the screen stretches during use, increasing capacity and screen life. The screener should have easy access to all of grease points and use basic tools for in-house maintenance.

Installing inspection view ports also aids visual screen inspections any time the unit isn't operating. Make sure the screener and components are constructed of materials that allow complete washdowns during cleaning and sanitizing.

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Here's a checklist of screener features that aid cleaning and maintenance:

- ✓ Simple access that doesn't require wrenches or special tools
- ✓ Easy screen removal
- ✓ Rugged, long-life seals
- ✓ All areas available for inspection
- ✓ Lightweight components
- ✓ Easy-to-remove connectors
- ✓ Smooth internal surfaces to prevent material buildup
- ✓ Standard motors
- ✓ Reliable continuous-duty drives
- ✓ Cleanable exterior
- ✓ Convenient access to lubrication points

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