

SEVEN STEPS TO CLEANING YOUR PRESS EFFECTIVELY



Proper cleaning and maintenance of a press is one of the easiest and most effective ways to ensure it operates with optimum performance. To help stop unnecessary wear and untimely press failure, a thorough cleaning guide for tablet press systems is recommended. If not already using the methods discussed below, implementation should begin immediately.

1. VACUUM OFF ALL EXCESS FORMULATION

Excess formulation should be vacuumed off a press. Never use compressed air to blow it off as this will force product into crevices, bearings, shaft housings and other areas where powder does not belong. Figure 1 shows a turret well, which is under the upper cam body. This photo depicts contaminated product forced into this area by using compressed air or pressurized water to clean the press. This will eventually break away and may contaminate the tooling lubricants or tablets. Figure 2 shows a turret's spindle bearing contaminated with formulation, which can cause it to fail prematurely.

2. EVALUATE THE CONDITION OF PARTS AND TOOLING

During the cleaning process inform maintenance about any wear or damage to parts or tooling. Cleaning damaged parts wastes time as these parts will need to be repaired or replaced.

Figure 1. Excess formulation on die table.



3. USE PUNCH-GUIDE BRUSHES AND DIE-SEAT CLEANERS PROPERLY

Stiff nylon brushes are recommended for removing debris from the punch guides. Never push a punch-guide brush past the punch scraper seals; this will reduce their effectiveness and cause excess oil leakage while running.



FIGURE 2. RUSTED UPPER TURRET SECTION

Use a special die-seat cleaning tool to clean the die pockets. Apply downward pressure to the die seat cleaner with one hand and rotate it with the other. Lower punch guides should be covered during this process to prevent debris from accumulating. If the press is equipped with lower punch retainers, they also should be removed for cleaning.

“ Be sure to follow standard safety procedures and wear appropriate PPE.”



DOUG KIRSCH

Technical Service Manager of Tablet Presses
Natoli Engineering Company

4. USE PROPER CLEANING AGENTS

To clean a press correctly, use a non-alkaline cleaning solution such as 95 percent isopropyl alcohol (IPA), a Steris agent, or even common dish-washing detergent. After choosing your noncorrosive cleaner, test the solubility to ensure the product will be removed. Don't get stumped by something simple. For example, sugar-based products can be removed easily with warm soapy water!

A common detrimental cleaning practice is washing presses with pressurized water. This cleaning method can severely damage a tablet press by forcing corrosive agents into isolated bearings and enclosures. It greatly increases the likelihood of seizing, contamination, and premature component failure.

5. RINSE ALL PREVIOUSLY WASHED PARTS WITH HOT WATER AND ISOPROPYL ALCOHOL

After washing with an appropriate cleaning solution, use a mixture of 95 percent IPA and hot water to rinse all removable parts. Test the solubility of the product to ensure any residual contaminants will be removed.

For paddle feeders with enclosed gear and bearing assemblies, do not submerge in water or dry with compressed air. This will cause moisture ingress into the enclosed spaces, leading to corrosion and shortened service life.

6. WIPE OFF ALL PARTS AND SURFACES WITH IPA

Use a lint-free cloth to wipe the tablet press with pure IPA. The cloth should be dampened with IPA, but not soaked. Be sure to cover all exposed surfaces and remove any residual product that may remain.

7. DRY ALL COMPONENTS IMMEDIATELY

It is imperative that all components and surfaces are dried immediately to prevent corrosion and/or discoloration of the press, its components, and tooling. Figure 3 shows an upper turret section that rusted because water was used and the section wasn't properly dried.

Figure 3. Contaminated spindle bearing.





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“ Cross-contamination is always a concern, especially in the pharmaceutical industry. To prevent this, dedicate a set of brushes, lint-free cloths, and vacuum tools to each press.”

LUBRICATION WHEN NECESSARY

If a press or tooling will sit idle for more than a week, apply a light coating of food-grade oil to the turret, tooling, and other parts that could rust; this will help prevent corrosion damage due to environmental conditions.

Developing a thorough and structured cleaning procedure for your tablet presses involving these seven steps will help maintain the quality and reliability of your compression equipment and extend their service life.

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