

Washer Types

Part washing systems come in a variety of styles to accomplish a wide range of goals. These different variations allow customers to select a washing system designed for their specific needs, rather than settling for generic one style fits all models. After a thorough analysis of their manufacturing process, engineers can design a custom model that is created specifically for their individual part.

Production cleaning systems can be aqueous or solvent based. They can vary from cabinet style spray washers to flow through ultrasonic tanks. They can use rotating basket immersion systems, return to operator overhead conveyor systems, flat wire belt conveyors, fixtured indexing units with part specific spray manifolds, robotically operated high pressure deburring spray operations or auger drum systems. All have custom options available and are suitable to achieve specific goals.

The rotating table, cabinet style washer can feature a smaller footprint than other washers. It also has a single point loading and unloading area which requires only one operator to run the cell. The cabinet washer works well in a low production manufacturing plants. It handles large parts, along with baskets of parts, however this style does have its drawbacks. It runs slower than other models and requires a labor intensive setup system. The process also makes it very difficult to keep tank solution distinct from each other as they are moved through the washer, so most often this style is limited to a simple wash and blow off. Cabinet cleaners also run in a batch process, which may be inappropriate for parts that need to be individually washed.

Ultrasonic and immersion systems are able to clean parts with small holes and other complex geometries. Ultrasonic cleaners use sound waves to remove particles from contaminated parts. By manipulating these waves, the cleaner can operate in a number of different manners. The cavitation process created by ultrasonic cleaning is able to remove debris and soil from parts efficiently. Ultrasonic washers, however, can be expensive to build and maintain. Specifically, ultrasonic washers require the customer to invest in technology such as a transducer and generator in order to create the ultrasonic waves that clean the parts. These washers are efficient, but may be inappropriate for a part that does not feature the complex design they are most useful for.

Rotary and auger drum washers operate continuously or in a batch process, giving them flexibility for a customer. These washers do an excellent job cleaning parts, as they utilize both spray and immersion stages in the cleaning process. This combination makes them useful for small parts, which may need to undergo both steps in order to be effectively cleaned. They are also simple to load and unload, making them easier to implement on the floor. However, these flow through washers cannot assure the manufacturer that all parts will be processed through the system prior to introduction of the next batch of parts. This leads to fears regarding the lack of lot integrity that is unacceptable in many applications.

A belt conveyor is a highly flexible type of washing system. It is modular in design, so it can be manipulated and installed to fit the floor plan of the customer quite easily. The flexibility extends to the washing process, where the part orientation and material handling operations can be manipulated in a simple manner. That flexibility means that the belt conveyor can be modified to fit another part if necessary, with a minimum of hassle. This simple and reliable material handling process cuts down on

maintenance and production slowdowns. Disadvantages of the belt conveyor include the constant motion of the part. When the part is constantly on the move, it can be difficult to ensure that the spray jets are able to direct their impingement at the most critical areas of the parts for the necessary length of time.

A fixtured, indexing wash system is another option for those with complex parts to clean. Indexing washers hold the part in a specific orientation, so they are suited well for complex part configurations which can include bores, drilled holes or blind holes. Indexers are also flexible in what type of parts they can handle. The most attractive feature of this style of system is the manner in which the part is transported through the system to enable single piece flow along with the ability to wash the critical areas of the part's design. They also feature a reduced footprint for those concerned with space on the production floor. Unlike other washers, the indexing units cannot handle multiple styles of parts. New parts require new fixture nests and new part specific spray manifold designs

A return to operator system, as implied in the name, returns the cleaned part to the operator at the load area via an overhead conveyor. A single operator can load and unload parts. This style system is most suitable for large parts like dashboard frames or dunnage trays that must hang, rather than lay flat to allow for proper cleaning and proper draining prior to the blow off of the part.

Equipment selection should take place last in your washer customization process. After the load and unload method is determined, the manufacturing floor footprint is allotted, the part cleanliness level has been agreed to and the cleaning chemistry has been determined, the customer has all the necessary information to pick a washer that will work for them, rather than the other way around. A careful consideration of the pro and con of each washing system as it relates to the specific process of the customer will yield a machine that efficiently and effectively completes its designed task.