

WasteWizard® Case Study; Vibratory Deburring

Vibratory Finishing / Mass Finishing

Problem: The customer was finishing both carbon steel and stainless steel parts in four 10 ft³ bowls with ceramic media. The customer was looking to expand the number of Vibratory bowls used in production. To date, this has been impossible since they had no effective method of handling the spent vibratory compound solution. The spent vibratory compound solution cannot be sent to the sewer because it does not meet discharge limits for solids and heavy metals. The spent vibratory compound solution also sets-up like cement and will plug the plant drains over time. This is a very expensive problem to correct. The customer evaluated running a single-pass system, but discovered that would be too expensive with respect to the cost of the vibratory compound solution. The customer was also looking to improve both the appearance of the product being processed in the vibratory bowls and the throughput capacity.

Each vibratory bowl required 550 gallons (2100 l) per day of vibratory compound solution. The current method of treatment was recycling the effluent from the bowls through a set of cyclones (centrifugal separation) followed by settling on a continuous basis, five days a week. On Saturdays, they shut the system down and removed the spent vibratory compound solution from the settling system with shovels and stored it in 55 (208 l) gallon drums. Next, they used a drum heater to reduce the vibratory waste to a powder. This was a very messy and expensive process.

Solution: Ransohoff installed a WasteWizard as a point source recycling system. Each bowl only required 250 (946 l) gallons of recycled vibratory compound solution from the WasteWizard to operate. To date, the WasteWizard has operated for six weeks without a cleaning cycle. The drum needed to be purged of solids after six weeks.

In this application, the solids settled to the bottom, forming a thick paste. Without pushing or completely optimizing the system, the WasteWizard reduced the waste volume over the cyclone and settling system by 48-fold. The WasteWizard significantly reduced the labor and downtime associated with removing the sludge from the cyclone/settling system. The operator noticed an improvement in the appearance of the final product.

This customer is installing four point-source recycling systems for the existing four vibratory bowls. They are now making the final decision on the new vibratory bowls to increase their capacity since the WasteWizard has solved their waste problem. In addition, the customer is placing an order for two WasteWizards for their two parts washers and is budgeting for an additional 2-4 WasteWizards in the upcoming months for their expansion.

Sizing Chart for Vibratory Compound Recycling

FT ³ of Media *	1.0 GPH / FT ³	1.5 GPH / FT ³	2.0 GPH / FT ³
5	WasteWizard 1	WasteWizard 2	WasteWizard 2
10	WasteWizard 2	WasteWizard 3	WasteWizard 4
15	WasteWizard 3	WasteWizard 4	WasteWizard 5
20	WasteWizard 4	WasteWizard 5	WasteWizard 4 ⁺

*Assumes the actual volume of the media in the bowl is 75% of the bowl rating.

+Two required.

Note: For larger bowl sizes, please consult Ransohoff at 513.870.0100 or info@ransohoff.com