

APPLICATION REPORT : FOOD AND AGRICULTURE INDUSTRY

# Wahl Refractory Solutions Depends Upon 2” Impact and 2” Air Cushioned Vibrators



## CHALLENGE

Wahl Refractory Solutions, based in Fremont, Ohio, was founded more than 90 years ago by Oscar C. Wahl. Since then, the 60-employee company has grown to be a recognized leader in the manufacturing of precise and durable refractory castables and pre-cast shapes. The company develops and manufactures its own alumina-based refractory products, ranging from very small to those that weigh more than 30,000 pounds. Not only does Wahl produce more than 200 types of refractories, but the company also makes a variety of castable material used in the production process. This dry, castable composite material needs precise metering through steel hoppers before the mixing process to ensure that all the dry material flows completely out of the hoppers.

## SOLUTION

Wahl relies on 2” Impact and 2” Air-Cushioned Vibrators from Cleveland Vibrator Company. The 2” Impact vibrators are ideal for moving sticky materials that tend to clog hoppers under continuous vibration. They deliver individual impacts at timed frequencies which can be adjusted to fit the job at hand. Wahl also uses 2” Air-Cushioned vibrators that offer a quieter performance with the same force as the CVC Impact vibrators.

## FEATURED PRODUCT

2” Impact & 2” Air Cushioned Vibrators

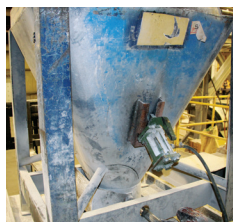
## SPECS



- Piston weight: 2.5 lbs (1.14 kg); overall weight: 16.30 lbs. (both)
- 2” (5.1 cm) piston diameter (both)
- Frequency: 4500 VPM @ 60 psi; 4.1 bar (2” Impact); 2600 VPM @ 60 psi; 4.1 bar (2” Air Cushioned)
- Air consumption: 10 cfm; 283 lpm; @ 60 psi; 4.1 bar (2” Impact); 11 cfm; 311 lpm; @60 psi; 4.1 bar (2” Air Cushioned)

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"We use a specific amount of castable material for each refractory part, so it's vital that all the material is totally out of the hoppers," says Andy Aelker, senior buyer for Wahl. "Plus we don't want to mix composites because we use different materials for each project. That means the hopper must be free of residual contaminants from the last job."



CVC vibrators used at Wahl are ideal for moving sticky materials that tend to clog the steel hoppers.

## PRODUCING MATERIAL FROM SCRATCH

Refractories are more heat-resistant than metals and are needed for heating applications above 1,000 degrees F. They also must withstand physical wear and corrosion by chemical agents. Refractories are used to build structures subjected to these high temperatures, including linings for furnaces, power plant reactors and boilers, as well as ladles, stilts and kilns. Some refractories have also been used as heat shields for the Space Shuttle

"Depending upon the specific job, we can load the hoppers with different material every day," observed Aelker. "Without the vibrators, some material would stick to the hopper walls. That leftover material would then co-mingle with the new, incoming material causing contamination and an inferior castable product."

## CVC VIBRATORS MEET THE CHALLENGE

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Wahl also uses 2" Air-Cushioned vibrators that offer a quieter performance with the same force as the CVC Impact vibrators. The air-cushioned vibrators provide purely linear force to allow the controlled application of directional force on materials. These

vibrators are used as a flow or discharge aid on bins and hoppers, but are also useful on feeders, conveyors, alignment tracks, screeners and compaction tables. The Air-Cushioned vibrators deliver quieter performance with only slightly less force than the Impact vibrators.

Turning dry castables into refractories is accomplished in several steps. In one facility, workers mix the composite material per a customer's order, then meter the material into the steel hoppers, which measure 6' x 6' x 9' and can weigh as much as 2,000 pounds when filled. Wahl has 30 to 40 hoppers in continuous use for various customer orders.

Steel hoppers are transported across the complex to another building where the refractories are produced. With the aid of a forklift, three to four hoppers are placed on top of a conveyor bin where the product is metered into the mixer. Workers place a CVC vibrator into a pre-made channel on the outside of the hopper wall for the most effect.

## SEVERAL SECONDS DOES THE JOB

"The vibrator is only on for few seconds, but it's enough to shake the whole hopper around and knock all the material out," notes Aelker. "Since we use these hoppers for different applications, it's important that all of the product is removed. The hopper then goes back completely empty ready to be filled again."

The vibrators have been put to the test since CVC contacted Wahl two years ago for an initial order. "We had Cleveland Vibrator repair two older vibrators which we put back into service, then purchased two more new units on a trial period," Aelker recalls. "After one month on the trial, we purchased them outright. We now have four vibrators in constant use and have been very satisfied with the performance."

## ABOUT THE CLEVELAND VIBRATOR COMPANY

The Cleveland Vibrator Company has been driving innovations in materials handling since 1923. From our corporate headquarters in Cleveland, Ohio, and in partnership with HK Technologies located in Salem, Ohio, we've met the challenges of more than 15,000 customers all around the globe in a vast array of industries. Our comprehensive product line includes air-piston, rotary electric, electromagnetic, turbine and ball vibrators, as well as a wide variety of fabricated feeders, vibratory screeners, ultrasonic screeners, vibratory conveyers and vibratory tables used for light, medium and heavy-duty industrial applications.