

# CHEMICAL PROCESSING

| INNOVATION



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# Consider an Industrial Central Vacuum System

A fixed tubing network simplifies housekeeping, reduces equipment wear and eliminates trip hazards

By Vac-U-Max

Industrial hygiene equipment's value used to be measured solely by the reduction of incident-related and workers' compensation costs. Today, those measurements include impacts on the manufacturing process where shaving seconds off a single process can have a huge impact. In fact, simply shaving 3.2 seconds from a task can reduce direct labor costs by \$29,000 per year, according to the American Society of Safety Engineers' (ASSE's) *ROI of Ergonomic Improvements: Demonstrating Value to the Business*.

Shaving seconds off a cleaning operation not only saves direct labor costs but also results in increased uptime. Industrial vacuum systems have become critical elements in an organization's ability to maintain comfortable profit margins by

contributing to increased product quality, reclaiming materials and reducing wear and tear on equipment, which means fewer repair costs, less downtime for maintenance and, in turn, longer production runs.

Although using vacuums isn't new to industry, many companies have used shop-type vacuums instead of heavy-duty industrial vacuums to clean up dust and debris. They also have found them inadequate under the harsh demands of the industrial environment and noncompliant with safety and combustible dust standards.

In rugged industrial applications in which environmental safety, ergonomics and productivity matter, vacuum cleaners designed specifically to withstand rigorous 24/7 operation can deliver consistent

performance that adds to a company's bottom line.

## INDUSTRIAL VACUUMS

Powerful industrial vacuums deliver three times the vacuum rating of the highest-rated shop-type vacuums on the market today cover more area and pick up finer material. What once took users 2.5–3 hours now can be completed in less than half the time, speeding up overall productivity.

Frustrated with workers dealing with cords and cleaning filters on shop-type vacuums that needed to be emptied often, Mike



### MEETS REGULATIONS

Figure 1. The Vac-U-Max 1040 central vacuum system fits within NFPA standards and OSHA regulations for indoor use without the need to penetrate walls or roofs for explosion vents.

Justice, plant superintendent at Valparaiso, Indiana-based AM Stabilizers, began researching industrial vacuums.

AM Stabilizers is a global supplier of high-quality liquid and powder heat stabilizers for both flexible and rigid PVC applications. The Valparaiso plant produces powder stabilizers by blending raw materials and then packaging the finished product into a variety of containers based on customer's needs. These containers include valve bags, boxes, drums and 1,500-lb. super sacks.

"We produce about 8 million lbs of powder per year, and we needed a better way to keep the plant clean from spillages and airborne dust," says Justice. "The cleaner the area, the easier it is to identify problems in the system and head off any unscheduled downtime."

## CENTRAL VACUUM SYSTEMS

A traditional central vacuum system appeared to be the best solution to a cleaner environment and to eliminate trip hazards that cords and vacuums created on the shop floor, but they also can be cost-prohibitive for smaller organizations, often requiring outdoor air permits as well as construction permits.

Stationary central vacuum systems are ideal for environments requiring continuous 24/7 operation and the simultaneous use

of as many as 20 pickup points. These systems use powerful vacuum producers and high-efficiency filters connected to strategically placed piping throughout a facility connecting hoses to a common line.

While attending a trade show, Justice saw Vac-U-Max's model 1040 stationary industrial vacuum, which he considered an ideal choice for his operation (Figure 1).

Belleville, New Jersey-based Vac-U-Max, manufacturer of industrial vacuum cleaning and pneumatic conveying industries, can handle 10,000+ bulk materials, including powders, flakes, granules, pellets, fibers, capsules, gel caps and tablets. The company manufactures industrial vacuum cleaners for manufacturing and municipal facilities as well as government installations and environmental sites to improve cleanliness, working conditions and safety.

### **CUSTOMIZED, OFF-THE-SHELF SYSTEMS**

Consulting with an industrial vacuum cleaning manufacturer often results in off-the-shelf solutions that are custom-fitted with accessories to meet a customer's housekeeping and budgetary needs.

The unit that Justice saw at the show features a powerful positive displacement pump designed specifically for high-volume recovery (as much as 5 tons per hour) and can support three operators at one time.

Because the system's filter separator and collector (or "dirty volume") are less than 8 ft<sup>3</sup>, it fits within National Fire Protection Association (NFPA) standards and Occupational Safety & Health Administration (OSHA) regulations for use indoors without the need to penetrate walls or roofs for explosion vents. The entire unit is grounded and bonded and is fitted with static-conductive filters per NFPA 77 for use with combustible, nonmetallic dusts.

The compact central vacuum system avoids much of the installation costs and delays of a traditional central vacuum system with its plug-and-play design and complete



#### **VACUUM INSTALLATION**

**Figure 2. The Vac-U-Max vacuum system is easy to install and includes recommended setup schematics and a copy of its best practices booklet for piping.**

UL-certified control panel, while still providing the convenience of a multi-inlet central vac, allowing multiple users in simultaneous operation.

Justice says the selection process was easy. “After some initial phone conversations, the rep came out, I showed him what I wanted, and he sent a print with a basic layout of what they recommended and how it should be run.”

## VACUUM SYSTEM LAYOUT AND SETUP

“It is small and compact enough with a 5 x 5 ft<sup>2</sup> footprint that it sits right at the side of our production line. It isn’t in the way of anything,” says Justice.



### INCREASED PRODUCTIVITY

**Figure 3. With the Vac-U-Max central vacuum system in place, AM Stabilizers has increased production because staff members no longer need to leave their stations several times a day to dump and clean the shop-type vacuum.**

Justice set up 10 strategically placed pickup points throughout the facility, spanning two floors, with the bulk of them in production, a couple in the warehouse to handle raw materials spills, one near a mixer and another out by the loading docks. He also positioned several sets of hoses throughout the facility, ensuring no one needs to drag hoses around in key areas.

“Vac-U-Max provided several types of cleaning tools with the hoses, from vacuuming the floor to real thin angled pieces to get you into the corners and the nooks and crannies. It is all lightweight aluminum, so it is light and easy to handle,” says Justice.

Although the vacuum is designed to handle two operators using the system simultaneously (three when less than 200 ft of tubing is run), Justice says that the “vacuum performs better than what the salesman told me.” On occasion, three operators use the system at the same time. He says that although “the suction doesn’t pull as hard as it can with only two users, it is still better than a shop vac pulling dust, powder and dirt from all around.”

The vacuum manufacturer provided schematics for recommended setup and also a copy of its “Piping Network Best Practices” booklet (Figure 2). Justice says the system was “very simple to install with one person. It took me three or four days to install working on it a few hours a day.

“It is a great unit. It is a huge perk for us to be able to change from electrical cords and vacuums everywhere to where we just plug in with a 1.5-in. hose and vacuum up what we need right away,” says Justice.

## **RISING PRODUCTIVITY**

In fact, he says his staff members are “more productive because they no longer need to leave their stations several times a day to dump and clean the shop-type vacs. We are saving roughly 30 minutes per day.”

Instead, the unit is equipped with a 30-gal. drum that is dumped at the end of each shift into a containment box that is managed by an industrial waste management company that disposes of it according to environmental regulations (Figure 3). The vacuum manufacturer also offers additional material handling choices for collected debris.

When asked about any surprises with the system or its installation aside from the increased performance, Justice noted the system is very quiet. The 1040 system is equipped with noise mufflers and guards so sound levels are less than 79 dbA, below OSHA’s limit for an 8-hour period. “We still don’t have to require hearing protection, and that is a big benefit,” he says.

“I would recommend this Vac-U-Max system to anyone who does small manufacturing and has a lot of dust and debris they need to clean out,” Justice says.

**VAC-U-MAX** designs and manufactures pneumatic conveying systems for bulk material handling and industrial vacuum cleaning systems for high volume recovery of many types of materials including powders and combustible dusts. For more information visit [www.vac-u-max.com](http://www.vac-u-max.com).

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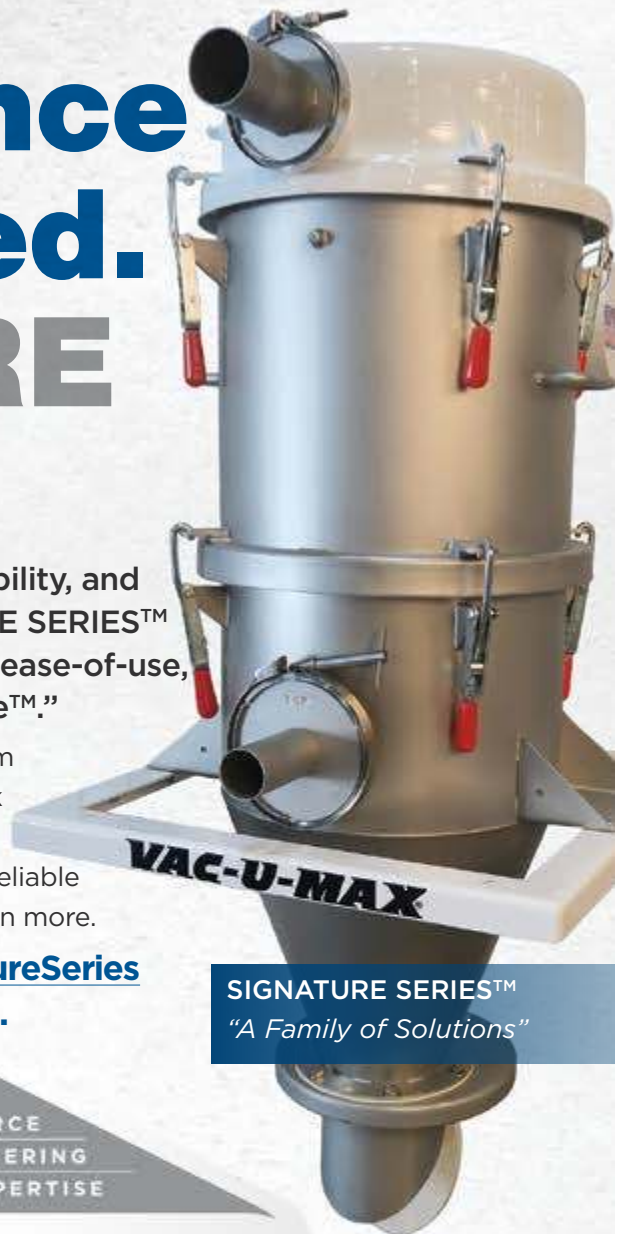
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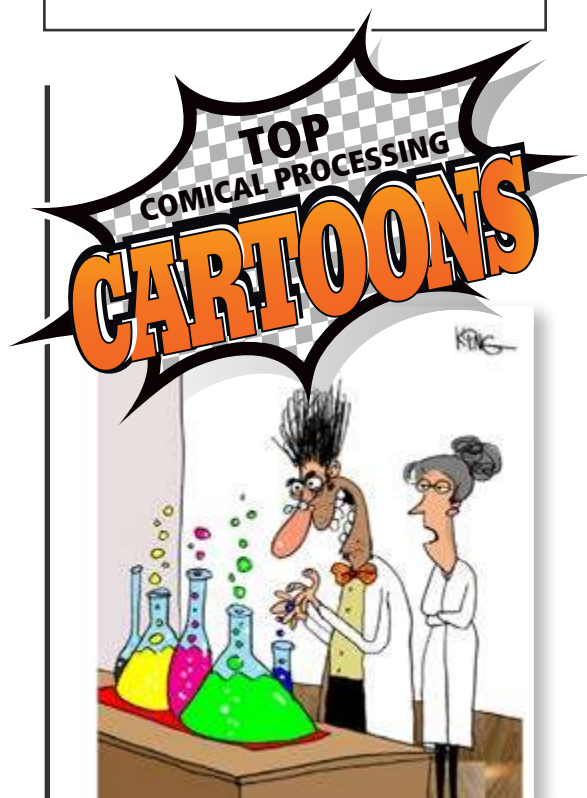
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