

Pneumatic  
In-Line

Tru-Balance  
Sifters



Great  
Western  
Manufacturing

## What is the In-Line Sifter?



Though in-line sifting was not invented by Great Western, our In-Line sifters are unique. They are **sifters engineered to work under pressure rather than a pressure vessel adapted to act like a sifter**. Because Great Western put the priority in sifting, our In-Line sifters incorporate the features engineers, sanitarians, maintenance personnel and operators have come to expect in any reliable gravity flow sifter.

The Great Western In-Line Tru-Balance Sifter allows direct insertion into a vacuum or pressure pneumatic conveying line and is intended as a quality assurance tool for removing a small amount of oversized impurities from the product. Placed in pneumatic unloading or transfer systems, the In-Line Tru-Balance eliminates equipment such as cyclone receivers, airlocks, receiving hoppers and blowers which would be required if a standard (atmospheric pressure) sifter were utilized. All product contact surfaces are fabricated of stainless steel which ensures compliance with the most stringent sanitation standards. Our In-Line Tru-Balance Sifters are built in two different models to achieve capacities up to 1,000 lbs/min. of flour.

## Flow Scheme

The In-Line Tru-Balance Sifter works like our multi-sieve gravity flow sifters, except that it operates under the pneumatic conveying line (pressure or vacuum) conditions. The product is gently sieved without being forced through the screens by the conveying air and without any mechanical beaters or impellers. The air is “filtered” separate from the product to ensure that no oversized impurities can bypass the protection of the sifter.

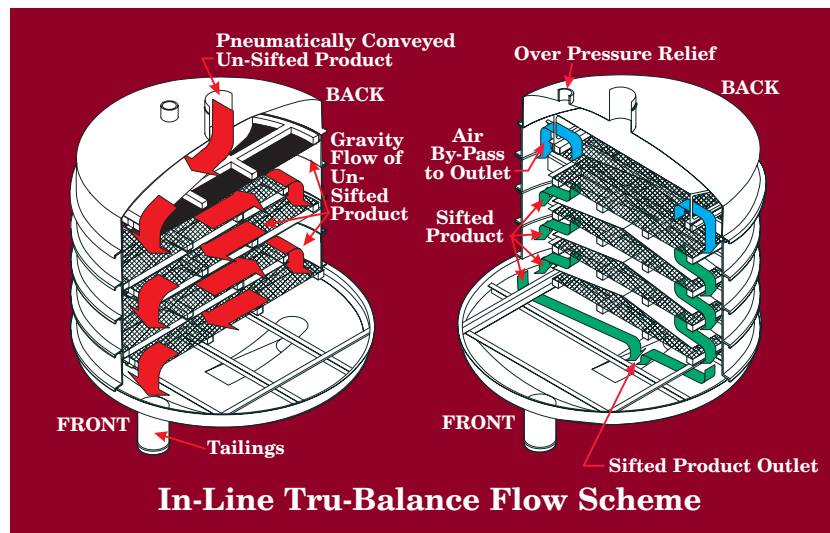
As the product is conveyed into the sifter, it enters an expansion chamber where its velocity decelerates and naturally begins to separate from the conveying air. The product is directed to the sieves and begins to sift through the screens.

As the product is gently sieved, it falls on a stainless steel pan that gathers and directs the sieved product to two side channels - one on each side of the sieve frames. Product and oversize not able to pass through the screen is conveyed on to the next sieves until all fines are removed. The oversized impurities are directed to a sealed tailings container.

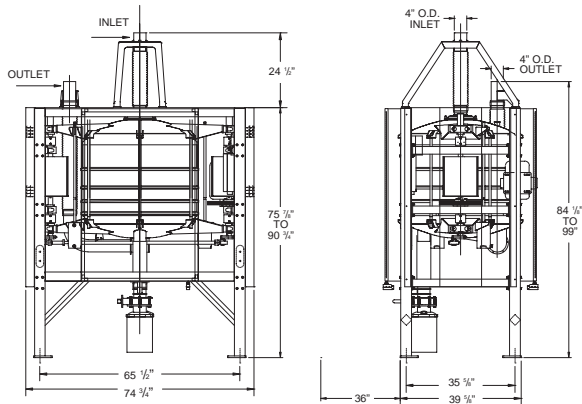
The product being screened forms a layer on the sifting screens that creates a resistance to the flow of air through the screens. Naturally, the conveying air seeks the path of least resistance, which is found through the air bypass screen positioned directly above sieve #1. Typically, the air bypass screen is covered with the same screen mesh as is used for sieving the product but acts more like an air filter than a sieve. The filtering effect of the air bypass arrangement actually allows the air pressure to equalize on both sides of the sifting screens so that no pressure differential would force product through the sifting screen.

The chamber above the air bypass screen is connected with the two side channels common to the lower intermediate sieve frames. The “filtered” low velocity conveying air travels down these side channels, re-entraining the sifted product, and then conveying the product out of the sifter.

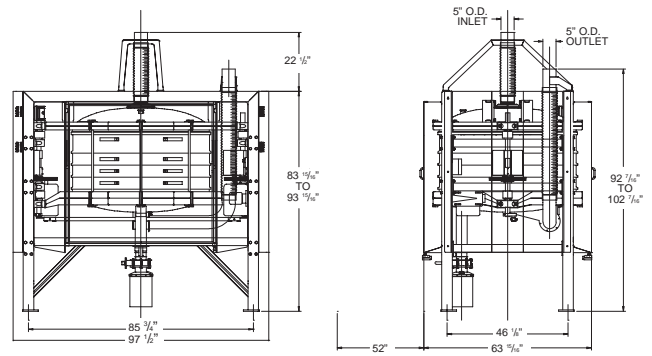
To protect the sifter housing from over pressure conditions (or low pressure conditions for vacuum systems) the sifter is equipped with an appropriate spring-loaded relief valve.



# Model 611



# Model 621

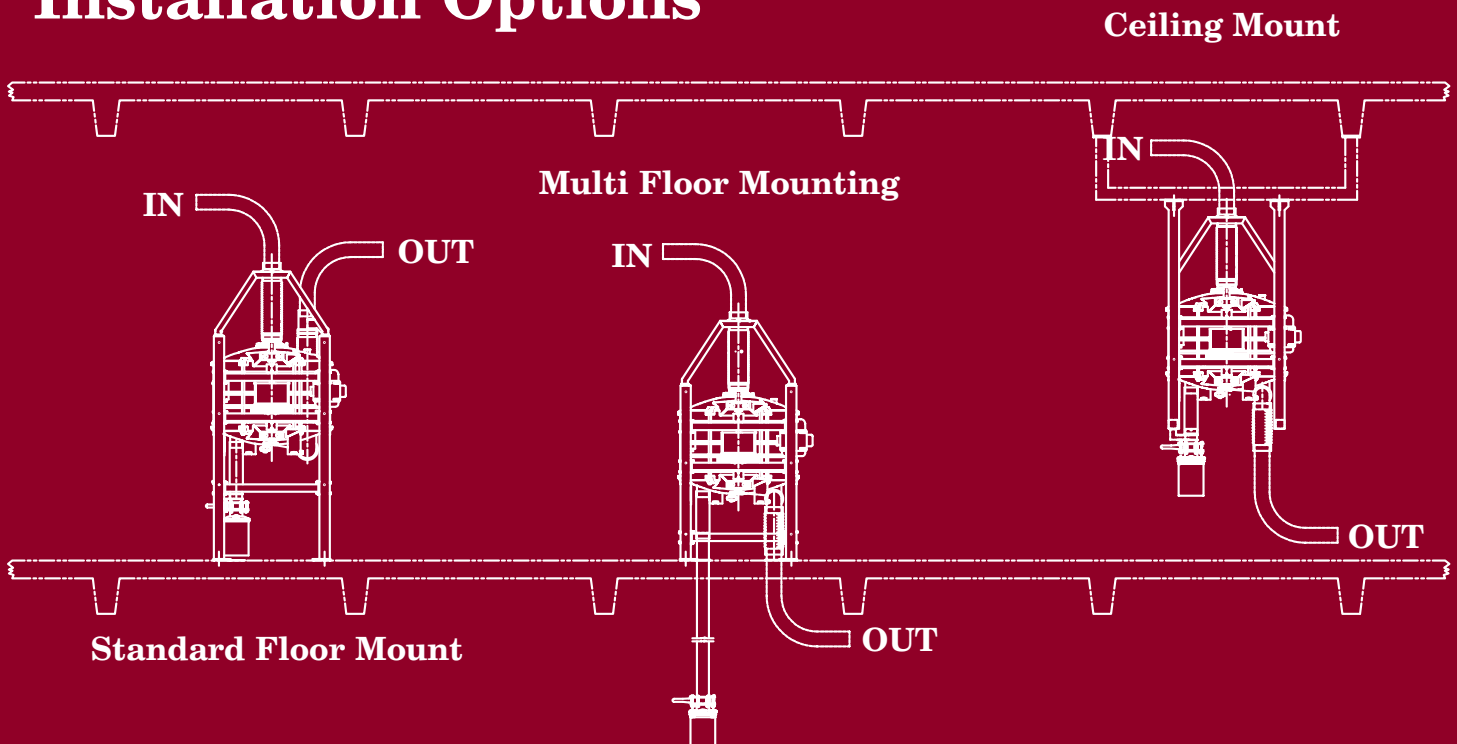


- Sieve size: 36" diameter
- Net cloth area 3.8 ft<sup>2</sup> / sieve
- Models with 2 to 7 sieves
- Net sieving area from 7.6 to 26.6 ft<sup>2</sup>
- One - 1½HP motor with V-belt drive
- Drive guards
- 2" through 6" Ø conveying lines
- Inlet and discharge support brackets
- Tailings container with optional manually operated butterfly valve
- Rates to 500 lbs/min on hard wheat flour with 30 mesh screens

- Sieve size: 52" diameter
- Net cloth area 8.8 ft<sup>2</sup> / sieve
- Models with 7 sieves
- Net sieving area 61.6 ft<sup>2</sup>
- Two - 1½HP motors with V-belt drive
- Drive guards
- 4", 5" or 6" Ø conveying lines
- Inlet and discharge support brackets
- Tailings container with optional manually operated butterfly valve
- Rates to 1200 lbs/min on hard wheat flour with 30 mesh screens

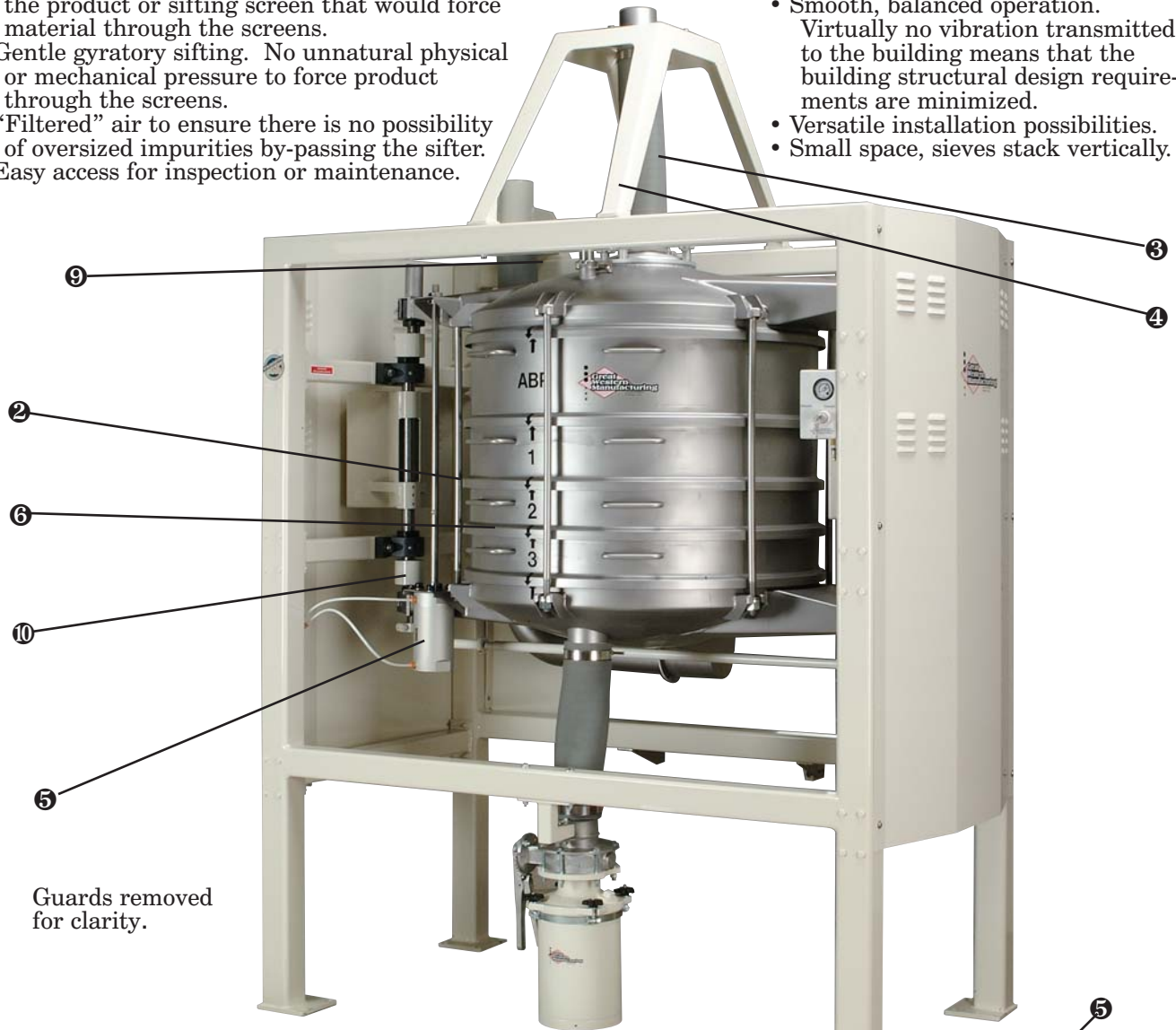
Indicative dimensions for typical arrangements shown. Contact Great Western for exact dimensions for your application.

## Installation Options



## Our In-Line Tru-Balance Sifters provide:

- Direct insertion into pressure or vacuum pneumatic conveying lines. This eliminates the need for receivers, airlocks and additional blowers.
- Equalized air pressure above and below the sifting screens. No differential air pressure is exerted on the product or sifting screen that would force material through the screens.
- Gentle gyratory sifting. No unnatural physical or mechanical pressure to force product through the screens.
- “Filtered” air to ensure there is no possibility of oversized impurities by-passing the sifter.
- Easy access for inspection or maintenance.
- Mechanically reliable design. No expensive gear boxes to leak or maintain. No knuckles to wear out.
- Standard motors and reduced power costs.
- Smooth, balanced operation. Virtually no vibration transmitted to the building means that the building structural design requirements are minimized.
- Versatile installation possibilities.
- Small space, sieves stack vertically.



Guards removed for clarity.

## Pneumatic sieve compression system, used to elevate as well as lower the upper dome assembly, provides:

- **Rapid access for sifter inspection.** The machine can be opened effortlessly in seconds enabling sieve removal for inspection, cleaning, or maintenance.
- **No heavy domes to lift or hoist.** The pneumatic cylinders elevate and support the upper dome while the machine is being serviced.
- **Accelerated sifter closing.** The pneumatic cylinders bring the upper dome down quickly enabling the desired compression of the sifter body to be achieved more rapidly.



## General Operation

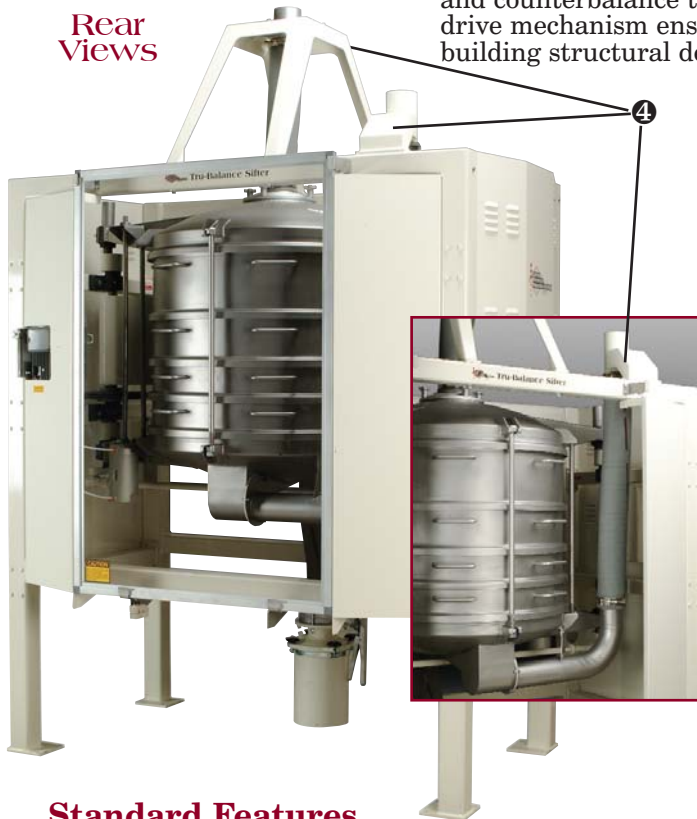
The In-Line Tru-Balance Sifter is a precision-built sifting machine used for finished product rebolt (re-sifting) applications, and designed for direct insertion in a pneumatic conveying line for the removal of a small amount of oversized impurities. It is usually constructed for floor mounting, but can also be built to be suspended from a ceiling. No massive support foundations are required.

The machine is built to be easily opened ⑥ for inspection, cleaning or maintenance. Nest-together sieve frames are stacked one on top of the other on the lower dome drive frame. The number of sieves required is based on the product, conveying rate and sieve mesh size for each application.

A pneumatic sieve compression system ⑤ and tie rods compress the stack of sieves between the upper and lower dome drive frames to create a pressure-tight unit. The drive frames are supported within a tubular frame and are connected to the drive components on the two ends of the machine.

The In-Line Tru-Balance Sifter uses standard T-frame motors and V-belts to turn the two counterweights positioned on the left and right sides of the machine. These weights straddle the machine's center of gravity and counterbalance the mass of the rotating sifter housing. This unique drive mechanism ensures a smooth, balanced operation and minimizes building structural demands. The shake stays in the sifter!

### Rear Views

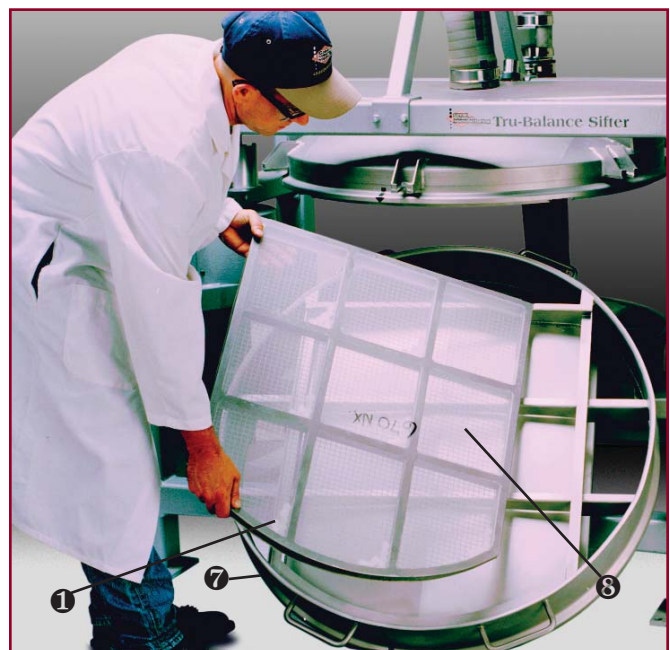


Mechanically, there are no gear boxes that can leak, and no sifter knuckles to wear out.



## Standard Features

- Engineered to handle high capacity quality assurance sifting applications gently and efficiently.
- ① Ball or cube cleaners prevent blinding.
- ② Stainless steel construction of all product contact areas.
- ③ Standard top vertical inlet and discharge simplifies installation.
- ④ Standard inlet and discharge support brackets eliminate custom fabrications.
- ⑤ Pneumatic sieve compression system with tie rods securely seal the nest-together sieve rings.
- ⑥ Nest-together sieve frames eliminate the need of a housing, and enables the machine to be quickly and completely dismantled in minutes.
- ⑦ Individual sieve rings contain a lift-out tray frame which has mechanically stretched and glued-on clothing for the utmost in performance and sanitation.
- ⑧ Lift-out tray frames can be re-screened indefinitely.
- ⑨ Over-pressure relief valve eliminates expensive single-use rupture disks.
- ⑩ Reliable Tru-Balance drive straddles the sifter's center of gravity, and keeps the sifting motion in the machine.



# Our Customers Say..

“We were referred to Great Western, and are glad we were! They proved to be very helpful to us. We have been very impressed with the durability and reliability of the in-line sifter. We’d definitely recommend them.” Jim Blackmon, Bulkmatic a portable rebolt sifter service.

“Did Great Western’s in-line sifter meet my expectations? You bet! There is no better product than Great Western. Not only did the in-line sifter fit into our space constraints, but greatly improved the sanitary condition of our product. Their service and support are superb. Great Western has a lot of skilled people, a lot of expertise, and are always able to solve problems.”

Hank Heinrich, Bay State Milling Company.

“We had virtually no room for installation in our pneumatic transportation system, but the Great Western was able to fit. We were so pleased with its performance that we’ve ordered another one.” Victor Kun, Mill Engineer, Reid Milling Company

“It’s very quiet, reliable, and does a great job. We bought the in-line Tru-Balance sifter as a replacement. The sifter we had from another company was a nightmare to maintain. With Great Western we’ve had no problems whatsoever.”

A major West Virginia bakery.

“We were interested in the in-line Tru-Balance sifter because it is easy to clean and maintain. We only had the weekend to install it, and it was running fine on Monday! They do what they say they’ll do!” A Kansas frozen dough production plant.

“We’ve bought four, and are planning to buy two more!” A frozen dough facility in Tennessee.



## Who Are We?

Great Western Mfg. Co., Inc., designs and manufactures custom industrial processing machinery. Our line of sifters, the Company’s primary product, are used for scalping, grading and fines removal from dry, free-flowing powders and granular materials. We serve the cereal grain processors, mix plants, bakeries and snack food producers, spice processors, and the pet food, chemicals and plastics, and mineral industries.

**Design Engineering**—Each of our sifters is engineered for the customer’s specific application. Many options are available that allow the sifters to be customized to meet his specific need.

**Test Lab**—We maintain a complete testing laboratory to evaluate product samples and make equipment recommendations. There is no charge or obligation for this service. Contact Great Western to discuss testing requirements.



P.O. Box 149  
2017 S. 4th Street  
Leavenworth, KS 66048-0149  
(913) 682-2291  
Fax: (913) 682-1431  
Web Site: [www.gwmfg.com](http://www.gwmfg.com)  
E-Mail: [sifter@gwmfg.com](mailto:sifter@gwmfg.com)

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