



HOW TO BUY A BAG-FILLING MACHINE

Things to consider when buying a bagging machine for mulch, compost, sand and other aggregates

When a person or company decides it is time to improve their bagging process, they usually start by searching online using keywords like “automatic bag filler.” There are many great solutions out there, but for someone who has never purchased or even used a bagging machine, it can be difficult to sort through the results and determine whether the equipment will actually work for their needs.

This guide covers the process of choosing a machine that fills open-mouth bags such as woven polypropylene, clear polyethylene, and burlap, or similar bags typical for sand, soil, mulch, compost, gravel, etc. It is intended to help potential bagging-machine purchasers make the most informed decision possible, not to endorse any specific tool, machine or company.



(There are many other kinds of bags that this guide does not cover, including valve, bulk, food-grade, and form-fill.)

Take the following factors into account when making your choice:



Budget.

For starters, cost should be considered. Automating a bagging process can be accomplished with as little as a hundred dollars, while full-blown factories can be set up to the tune of millions.

a. Scoop-and-Funnel Systems.

These hand-held tools require no power, and can usually be built with common construction materials.

b. Heavy-Equipment Attachments.

Loader buckets can be fitted with hydraulic augers to dispense material from the side of the machine, or with bag holders to dispense material into several bags at once. These machines tend to cost from \$4,000 to \$9,000 and should provide around four times the production speed of hand-filling.

c. Stand-Alone Bagging Machines.

Usually consisting of a hopper and bag spout, these machines are built to dispense material one bag at a time. From powerless gravity-fed hoppers to fully-electric, computer-controlled belt systems, there are many great options in this category. Prices range from \$7,000 to \$50,000+.



d. Custom-Built Bagging Line.

If your budget exceeds \$100,000 you should consider a fully-customized bagging line. Several companies will meet with clients and design a bagging system to perfectly suit their needs. While not generally mobile, these large-scale machines can produce faster than anything else. Prices start at \$100,000+, and the lines will require several months to several years to fully assemble.



2.

Capability.

Now that you have an idea of what type of equipment you are shopping for based on your budget, it's time to consider the capabilities any given machine has.

Here is a list of the most common things to consider:

a.

Material. What Can It Bag? Does the machine bag wet, sticky sand? How about light, fluffy material such as mulch or feed? Ensuring that the material you want to bag can feed through the machine is important. For example, many bagging machines allow wet sand to bridge over the opening, forcing manual shoveling and essentially dashing any hope of high-production bag-filling.

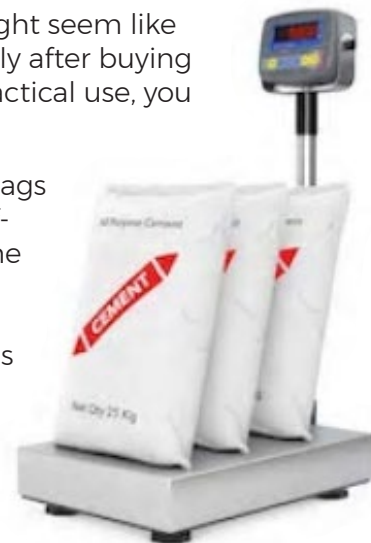


Once you are expertly bagging your existing material, will you want to bag something else? The use of most bagging machines will create in-house expertise that can be sold to other companies. Bagging gravel into mesh bags for the local erosion-control community, for example. The more materials your bagging machine can handle, the greater your future revenue potential.

b.

Control. Can you easily control the amount of material in each bag? Some bagging machines might seem like a great idea; once you realize, however (only after buying them), that every bag is way too full for practical use, you might feel scammed.

Consider the example of sandbags. Sandbags used for flooding should only be filled half-full so they can be properly stacked into the berm. Sandbags used for weight, such as holding road signs down in the wind, can be filled almost fully. Gravel-filled sandbags used for erosion are typically filled two-thirds full. In this instance, a company selling one simple product — sandbags — will still need a machine with fill-level control.



Machine Capability and Ease of Use

The fill material in most bags is the most expensive part of the process. Controlling the exact dispense in each cycle allows for proper cost analysis and inventory planning.

C.

Bag-Closing. Open-mouth bags have one little problem once they are filled – namely, the mouth on them is still open! Closing bags should always be kept in mind, as high-speed filling requires high-speed closing to keep up.



In the world of bag-filling it is ideal to physically handle the filled product only once. Filling bags, then later sealing them, then still later stacking them onto pallets is far more work than doing all three in one step. More capable bagging machines have built-in solutions for bag closing, creating a production-line process of filling, closing, and palletizing.

Some common methods of closing open-mouth bags are:

- **Tie strings and draw strings – usually attached to the bag.**
These often require some level of hand-tying and are generally considered the slowest method.
- **External closure device such as ring or zip-tie.**
Some handy tools can be used to apply hog rings, twist ties, or other closures to the bag.
- **Impulse-sealing or heat-welding.**
These are an excellent method for closing many clear PE bags quickly. Clamp-style impulse sealers as well as continuous in-line (band) sealing machines are staples in the bagging world.
- **Sewing bags closed.**
This is a more modern method that has started to replace impulse sealing in many applications. While impulse-sealing requires careful heating and cooling of plastic to create a bond, sewing bags uses a mechanical device (thread) to hold the bag closed. This system does not require adjustment for different kinds of bags and the closure strength is not affected by dust, temperature or bag thickness.

3.

Ease of Use.

A machine that requires someone to stand on one leg or stoop down under a hopper will not allow for high levels of production. When machine operators are uncomfortable, sustainable production levels become impossible.



.TIP

Look for videos of potential machines in use.

Do operators look comfortable and does filling appear to be a smooth, repeatable process? Or instead do workers seem rushed and production chaotic? Videos are a great way to determine the burden running a particular machine may require.

Speed of Production and Maintenance

4.

Speed of Production.

Let's face it, if you have made it this far in the guide then you have a genuine interest in increasing your bagging output. It might be surprising that speed of production is the fourth-recommended consideration instead of the first, but it actually makes sense. How quickly a machine can fill bags matters only if (1) you can afford the machine; (2) the machine is capable of filling your bags; and (3) the bags can be closed as fast as they can be filled.



When considering filling, closing and palletizing, you can expect the following bagging speeds:

- Scooping Methods as well as Heavy-Equipment Attachments will bag at speeds of 100-250 bags per hour.
- Stand-Alone Bagging Machines bag at speed of 400-1,400 bags per hour.
- In-Line Bagging Factories can bag as fast as 2,000 bags per hour, per line! Now that's incredible.

TIP

Videos and in-person demonstrations are excellent research tools. Remember to consider whether the video shows comparable material to yours being bagged and whether those bags are being closed at the production speed you are seeking. For more expensive bagging machines, it is completely common to request from the manufacturer an unedited video of 100 bags being filled. Don't count on the production output a company might claim; be sure to visually verify the bagging speed.

5.

Maintenance.

A bagging line tends to have many moving parts and the chaos of bagging soils and aggregates can lead to break-downs. Engines and hydraulic components do not store well unused for long periods, while electronic equipment and motors can be susceptible to inclement weather. Bearings, rollers, and any hinged point must be routinely oiled.

Be sure to consider the maintenance schedule, availability of replacement parts, and any obtainable warranty provided with your new bagging equipment.



6.

Other Considerations.

Here are a few other factors to think about:

- a. **Training.** What is the learning curve to operate the equipment?
- b. **Support.** Is there sufficient customer service behind the bagging machine you are buying? Remember, if all goes as planned, you are going to become a bagging powerhouse and may need urgent support if your machine fails.

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- c. Safety.** Bagging aggregates can be dangerous. The high densities of soil, sand, and stone mean that your bagging machine (and the ground it sits on) will be holding a lot of weight. Heavy equipment will be dumping material from an elevated position. Can the hopper be filled safely while bags are being filled simultaneously? Try to map out the process and consider a machine that promotes safe operation.
- d. Mobility.** Does the machine have a trailer mount for towing? Can it be loaded on and off a trailer easily? How difficult is the equipment to crate up and ship to another location?
- e. Self-Powered.** Does the equipment require external sources of power, air, or hydraulic fluid? Many machines include an onboard generator, air compressor, and hydraulic systems for a “just add fuel” solution.

Very often the right bagging machine will pay for itself within months of purchase and continue to provide a lasting return on investment while reducing workload. Hopefully you are now a little better prepared to purchase that great bagging solution for your organization. Considering price, capability, ease of use, productivity and maintenance are critical to that effort.



About the Author.

Christopher Haas is the President and co-founder of The Sandbag Store, a leading manufacturer of sandbags and sandbag-filling machines. Since 2005 Chris has helped set up hundreds of bagging operations around the globe.