

Balers

Your guide to using baling equipment safety in transfer station recycling.

Why You Should Use a Baler

Balers condense recyclables into manageable and stackable units. Small balers are commonly used for cardboard and aluminum cans, but balers with stronger and more expensive compaction equipment can be used for plastics and metals. The condensed materials are more marketable, take up less space, and cost less to transport. Selecting a baler requires understanding your collected material stream to determine the required capabilities and baler type to best perform the task.

Baler Types

✓ Horizontal balers

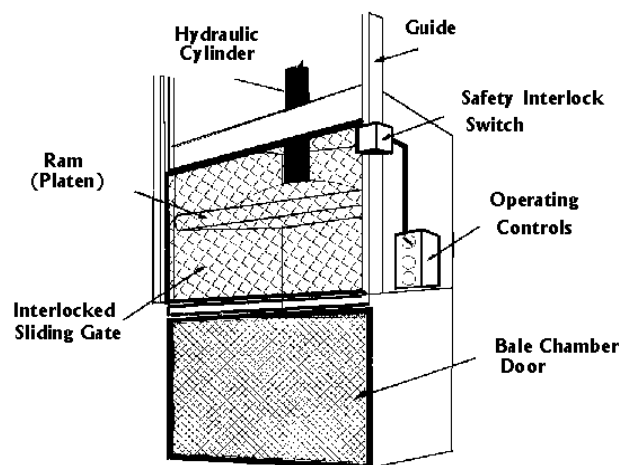
Compared to vertical balers, horizontal balers have more capacity and are more expensive. Horizontal balers can be open-end balers that automatically tie the materials, or closed-end balers that often require manual tying. Horizontal balers are usually top loaded with a hopper feeding system.

✓ Vertical balers

Vertical balers are less expensive, use less floor space, are for limited materials, and make smaller bales.

Single ram balers are typically used for one material type requiring less compaction (e.g., paper and other fibers). Two-ram balers are typically used for a variety of materials. The larger the ram cylinder, the more force the baler can use to compact the material, allowing compaction of a wider range of materials.

Based on the material compacted and the baler used, finished bale sizes and weights can vary significantly. When selecting a baler for your operations, determine whether your partnering entities have any bale size limits – bale weights can vary from 70 pounds to over a ton.



Components of a vertical baler

Selecting a Baler

A baler should address both short-term needs and long-term needs to ensure your investment benefits your operations for years to come. Before you purchase a baler, determine if your facility meets the specified electrical requirements or if an electrical upgrade is necessary to meet the electrical demand. While single-phase power is usually suitable for smaller balers, larger balers may require three-phase power.

When selecting a baler, consider the following conditions:

- ✓ Will the baler be used for a single type of material or multiple materials?
- ✓ Does the site have a convenient, covered space to accommodate the baler?
- ✓ Is sufficient power available to operate the baler?
- ✓ What is your budget?
- ✓ Will loading be automated or manual?
- ✓ Who can repair it and what is the availability of parts?
- ✓ What baling wires will be used, and how will they be attached?
- ✓ What are the market limitations on bale size?
- ✓ Are there any additional factors to consider, such as the bale feed system or the price of bale removal?

For more information, consult with other facilities and review manufacturer recommendations.

Costs

Smaller vertical balers (e.g., balers used for cardboard only) can cost around \$5,000. Larger balers (e.g., balers used for multiple materials) can cost \$25,000 or more. When determining the total budget for a baler, account for shipping and installation costs in addition to the purchase price as these costs may be significant. Some suppliers offer balers leased for a fixed monthly charge, and often maintenance contracts can be negotiated.

Maintenance

For the baler to operate properly, you must perform regular maintenance. Train staff members on routine maintenance including cleaning, changing hydraulic fluid levels, tightening bolts, inspecting parts, greasing moving parts, and changing fluid filters. You should also perform preventative maintenance per the schedule (e.g., weekly, monthly, and annual tasks) recommended by the manufacturer of the baler. Before purchasing a baler, consider the availability of contracted service personnel and spare parts.

Even with proper maintenance, balers can be out of service for extended periods of time. Have a back-up plan for alternative management of materials. A back-up plan may include long-term storage or another location that receives loose materials.

Other Considerations

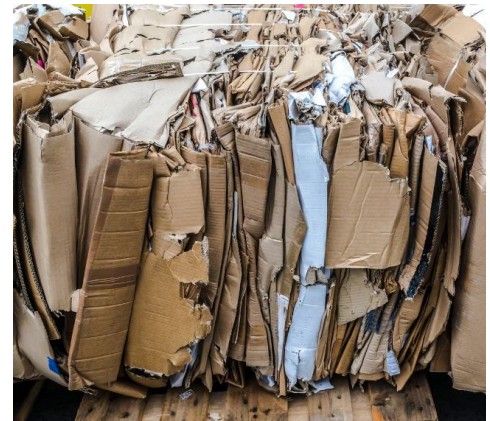
Install balers on a sturdy surface, usually concrete engineered for the weight of the baler and the baled materials. Covered locations can provide protection from the weather for the baler, baled materials, and operator.

More expensive balers automatically secure the bales as opposed to balers that require manual loading of the baling wires. Manual balers require training to get the bales to stay together. Bale strapping materials are typically steel or other metals, but they may be composed of polyester cables. The baler manufacturer specifies the allowable strapping materials.

Baler Safety

Balers can be dangerous equipment if not operated properly. Train staff members on proper use and manufacturer-specified safety precautions. Never operate a baler without using all manufacturer recommended safety equipment, maintenance schedules, and instructions. Serious injuries can occur when using a baler that is not properly closed or if bale straps come loose.

Staff should carefully clean incompatible materials from the finished bales since bales can burst. Workers cleaning the finished bales should wear hand and eye protection. A common safety measure is to place a traffic cone on top of the bales being cleaned to increase visibility of staff working behind and around the bale.



Organized cardboard bales

Bales awaiting shipment can be stacked, but make sure bales do not topple over onto staff or other passersby. Stack bales on a level and stable surface and, if possible, against a stable wall. Overlapping bales can create a more stable stack but may require additional time and handling for removal. To mitigate the risk of crushing injuries, space stacked bales relatively close together so that staff cannot go between the stacks. Stacks more than three bales high can create unstable piles and may also create a fire hazard. Indoor storage of baled combustible materials may require fire suppression systems.

Bales stored outside are subject to weathering, which can affect the stability and marketability of the materials. For example, recyclers often reject wet bales of cardboard due to poor quality and loss of fiber strength. Rejected materials require landfilling.

Moving Bales Safely

Completed bales can weigh thousands of pounds depending on the baler and the materials. Use a pallet jack, forklift, or skid steer to safely move the bales to the storage area. When stacking bales, always use a forklift. Be conscious of stacking bales correctly to avoid the stack becoming unstable and collapsing, causing life-threatening injury.

Additional Resources:

- [Waste & Recycling, Baler 101](#)
- [Recycling Today, Baler Basics](#)
- [Health & Safety Authority, Safety Alert - Stacking of Baled Recycled Material in the Waste Sector](#)

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