

Selecting the Right Strapping Machine for Your Application

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The selection of the proper strapping machine for your packaging application is a critical decision. Ultimately, no matter how effective your quality control is, and how timely your delivery is, if the finished product doesn't get packaged properly and on time, it won't satisfy your customer's need.

Here are some of the critical decision points to consider.

How automated do you want to be?

There is a tremendous amount of confusion between what constitutes a semi automatic versus an automatic strapping machine. Let's set the record straight. There are 3 basic types of strapping machines, and they are:

- Semi – Automatic Machines – Also known as “table top “ machines, semi automatic strappers are the entry level strapping machines for low volume operations. They are usually about the size of a small desk (36” long x 24” wide x 30” high). With a semi automatic machine, the operator takes a loose end of strap that has been fed from the machine, loops it around the package, and hand feeds it into the strapping and sealing area. The machine automatically tensions the strap according to a per-set tension; heat seals the ends together, and feeds out a pre set length of strap for the next cycle. Semi automatic machines are relatively inexpensive (expect to pay \$1000 to \$2000, depending on brand and features), and can be very versatile. They can be used as both the primary strapper in low volume operations, and for back up, or off line strapping.
- Arch Machines – Arch machines are more automated than semi automatic machines, but still require an operator to position the package, and press an activation button (or foot switch) to start the strapping operation. With an arch machine, the strap travels around an “arch” creating a loop before activation. When the operator activates the strapping sequence, the strap tensions, heat seals, and pre-feeds the strap for the next cycle. Many Arch machines can also be activated by a photocell or limit switch built into the top. While these devices will automatically activate the cycle, the operator will still position the package for strapping and remove it when the cycle is completed. Arch size is critical with an arch machine, since package size is limited to what will fit under the arch. Arch machines are much faster than semi automatic machines, less operator dependant, and, of course, more expensive. The cost of a new arch machine will probably be in the range of \$5000 to \$10,000, once again depending on brand and features.
- Fully Automatic Machines- Similar to arch machines, fully automatic strappers have built in conveyor systems to carry your product through the strapping machinery, and are activated by an automated device, usually a photocell. Fully automatic machines do not require an operator. As with arch machines, they must be sized properly. The additional features on a fully automatic machine will drive the cost up to the \$15,000 and up range, depending on features and arch size.

How fast do you need to strap?

Your strapping application should match the production and packaging rate of the rest of your process. You don't want bottlenecks at the strapping center, nor do you want to pay for speed that is not necessary. Generally, increased speed will mean increased costs; so before you begin shopping, make sure you know how much speed is really needed. Here are strap rates for the various types of strapping machines.

- Semi Automatic Machines – 10-15 straps per minute, depending on the skill level of the operator.
- Arch Machines – 30-70 straps per minute.

- Fully Automatic Machines - These units will strap at the same rate as arch machines. However, the critical factor with fully automatic machines will be the total strap rate, which includes transit time through the conveying system. The conveyor speed of your strapper must be as fast as your existing conveyors, preferably faster. Don't design a strapping bottleneck into your product flow.

What features do I really need?

There are a few options available on semi automatic machines, but they are usually applicable to specific types of applications such a very low or high tension. If you are shopping for a semi, and you need these features, they are available in different models at a modest cost premium. There are, however, a host of options available on both arch and fully automatic units. Selecting which are appropriate for your application will determine the machine you need and your purchase cost. More features will translate into a higher initial cost, but may also mean lower total operating costs. Some of the most common features are:

- Auto Feed – Auto feed enables the operator to load the strap coil on the dispenser, and by pressing the feed switch, have the strap automatically thread through the machine. Without autofeed, strap loading can be extremely cumbersome. Do you need it? If you are changing a coil every month, it's not necessary. Changing a coil every day, and it definitely worth the investment.
- Jam Free Auto Re-feed. This feature will refeed the strap and reset the strapper in the event of any jam or misfeed. If you don't have it, you will have to manually re-set the machine if a jam occurs.
- Loop Ejection - If your strapper is activated without a package in it, without this feature, you may have to pull it out of line for a manual re-set. With this feature, your machine will "kick out" a small loop and reset itself for the next cycle. It's a great feature for high volume applications.
- Arch Size – The conventional wisdom is usually to use your largest package as a guide when sizing your arch. That's not a bad idea, but if your largest package is a small percentage of your total volume, it may be more cost effective to size your arch for your largest volume package, and strap your larger packages off line with a semi automatic strapper, which is not limited by arch size. Very large arches get quite expensive, and the actual cost a smaller arch and a semi automatic machine together, may be less than the cost of an extremely large arch. A second semi automatic strapper also gives you a back up in the event your primary unit is down.
- Strap Width – This is a critical question. Size the strap first based on package weight, handling characteristics, and shipping methods. Then buy the strapper that that runs the strap size you have selected. Common sizes are 5mm, 6mm, 9mm, and 12, (and their corresponding US equivalents). Keep in mind that strapping machines are set to run a certain width, and changing to a different width, if it can be done, requires considerable time and expense.

How do I maintain my strapping machine?

Like any piece of industrial equipment, a strapper will require a certain amount of maintenance. Good maintenance procedures on a strapping machine include documented preventative maintenance, checking all belts, switches, connections, and wear parts. Beyond that, there are three key areas that will maximize up time.

1. Use good strap. For consistent operation you need strap that is consistent in width and gauge, and has minimal camber (curve). Many machine problems can actually be strap problems.
2. Polypropylene and Polyester dust is the enemy of strapping machines. A certain amount of dust is normal. To minimize its impact on the strapping machine, blow it out with compressed air, **daily**.

3. Stock critical parts. Every manufacturer or distributor should be able to give you a list of recommended spare parts. Even if you get overnight parts service, stocking critical parts is recommended. Most repairs are relatively simple, and having the parts can get you up and running in minutes rather than hours.

Strapping is a very cost effective, efficient way to package your product. Use these checkpoints to select the right strapper and maintain it properly, and you will build a solid foundation for years of trouble free performance.