

The Fundamentals Of Flash Cures

Here are the key considerations to evaluate when choosing a flash cure unit for your shop.

By Deborah Sexton

In a little more than two decades, flash-cure units have evolved from a specialty item to a shop staple. It's no wonder. By making it possible to cure plastisol ink while the garment is still on the press, flash-cure technology has played a key role in the advancement of nylon, dark-garment, multicolor, and many other types of textile screen printing.

Flash-cure units enable printers to:

- * Print light-colored inks on dark grounds by first laying down—and quickly curing—a light-colored underbase.
- * Create highlights, add brightness, increase opacity, and produce other special effects.
- * Print colors on top of other colors cleanly and efficiently for particular types of ink and substrate combinations, for example nylon jackets.

As the applications have grown, so have flash-cure offerings. A manual press flash cure unit ranges in price from about \$500 to \$2,000. An automatic flash cure unit starts at around \$1,500 and goes up to \$8,000. As with any equipment purchase, weighing your needs against the options is key.



The CapMax flash cure unit has a curved element design that provides even and thorough flash curing on all types of caps. It comes as a free-standing floor model or a bench-top slide model. Photo courtesy of Workhorse Products.

Manual or Automatic

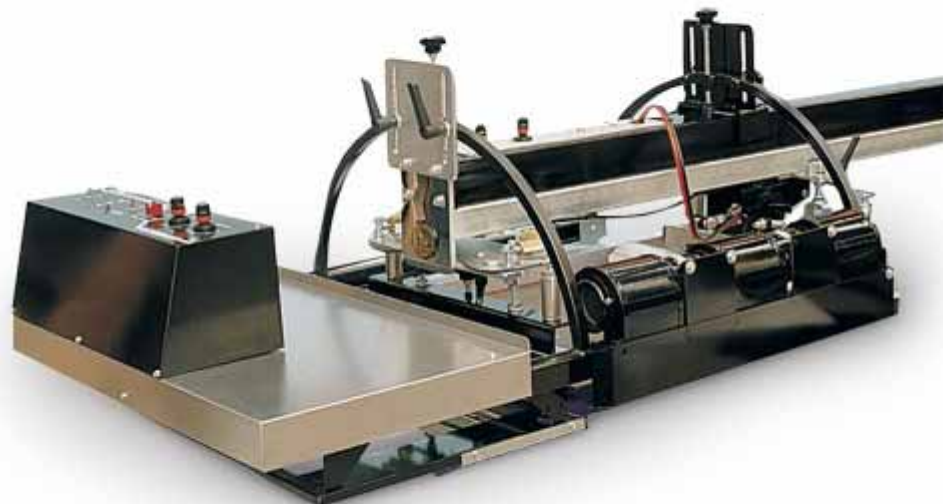
Most flash-cure units are designed specifically for a manual or an automatic press. A manual flash-cure unit physically won't fit into an automatic press, even if it's the same size as the corresponding automatic unit, and there are mechanical issues as well. However, there are units that are interchangeable.

Typically, flash-cure units for manual presses are more mobile. They have wheeled stands and are designed to fit under the press screens. (When

shopping, note that some manual models come standard with locking casters, while on others, it's an extra.)

The height of manual and automatic units can be adjusted to work with the press. This is important because it enables you to get the flash as close to the garment as possible. On a manual press, it also offers a way to control garment temperature. Some of these units are designed to swing above and away from the press pallet automatically.

There are several types of flash-cure units for automatics. An intercolor flash cure unit is positioned over a platen and takes up a print station. With this type, you sacrifice the ability to print another color. Some intercolor flash cure units clamp onto the press like a screen. Others slide in and out or on and off the pallet.



The Tuf Flashback allows you to print, flash, and cool all on the same head. The Flashback uses a shuttle system to automatically slide its thin quartz element between the garment and screen. Photo courtesy of Workhorse Products.

An alternative type, sometimes referred to as an intracolor flash, is an in-line unit. It works from underneath the screen, allowing the same station to be used for printing and flashing, thereby not taking the place of a color.

This type of unit also has a blower system that cools the ink. Also, it's not necessary to use the printing station that follows the flash unit for cooling; so you're not losing the ability to print a color there, either. This can be important,

depending on the size of your press and the number of garments and colors in your typical jobs.

The Heating Element

Flash-cure units also vary by the type of heat they employ, with the basic options being ceramic and quartz. The type of heating element is a primary factor in the cost of a flash-cure unit. In general, quartz tubes have a higher wattage and offer a more intense, faster cure. However, ceramic heating units are less expensive. When choosing, don't just look at the price tag, also consider the potential value of each unit to your shop in terms of productivity.

Watt density and overall wattage are other considerations. Flash-cure units vary greatly in wattage. A manual unit might be 1,500 watts, while a top-of-the-line quartz unit might be 8,000 watts. A higher watt density gives more heat, which translates to less curing time. This is particularly important relative to automatic presses, where faster flashing allows for faster indexing and cooling.

There are two types of quartz flash-cure units. In one, the elements are stationary, and it is important there are enough of them to cover the curing area. When shopping, investigate features such as zoned heating, which allows certain elements to be turned off for applications such as pocket printing.

In the second type of quartz unit, the elements move linearly over the image, making it possible to adjust the travel distance to minimize heat buildup on the garment and enable quicker cooling to speed production. With this type, the number of elements is not as important as the watt density.

How an element is insulated is also worth a look, particularly on manual units that may be moved frequently. On some flash-cure units, the outside gets hot and can burn you; on others, heat shields keep the outside cool.

Size

Size is another consideration. Manual flash-cure units range in size from about 16 by 16 to 18 by 24 inches, and automatic units from about 18 by 20 inches to 24 by 36 or more inches, depending on the print size of the press.



The Mercury flash cure features an 18-by-18-inch oversized heating panel and a heavy-duty on/off breaker switch. The louvered hood is designed to keep electronic components cool while the locking casters make it convenient to move around the shop. Photo courtesy of Workhorse Products.

Your flash-cure unit should be a couple of inches larger than your maximum printing image. There are several reasons for this. First, it ensures that the full image receives an optimal cure. (The air at the outside edges of the unit tends to be cooler than the air in the middle.) Also, placement is less critical with a larger flash, as there is some “forgiveness” when the flashing area is not identical to the print size.

Control

The controls of the flash-cure unit are another thing to consider. You want to be able to adjust the flash-curing time so it's long enough to cure the print, but not so long that it scorches the garment. Almost all flash-cure units use infrared heat, which is sensitive to time and distance. This makes it easy to scorch a garment or even burn a pallet if you're printing too slowly, especially on a manual press.

Some manufacturers offer temperature and a few, time controls on their units. An example of one configuration is combining an analog timer with an automatic reset on a manual-press flash-cure unit. When the foot switch is depressed, the unit moves over the pallet for whatever time has been set, then moves off. This takes the guesswork out of timing and provides a consistent, predictable flash-curing time. It eliminates worry about undercuring or scorching.

Timers for most types of flash-cure units on automatics are controlled by the press, and in most cases, the dwell time of the flash is dictated by the printing dwell time. The in-line type unit, however, offers independent time control.

Temperature controls are found more often on automatic than on manual-press flash-cure units. On manual presses, in particular, temperature controls usually aren't necessary because you're flashing for a short period of time and moving quickly. Similarly, on an automatic press, you want the flash to be as hot as possible so it cures as quickly as possible. Because of this, it is usually more important to be able to control the duration of the flash than its temperature. The exception would be if for some reason you are printing very slowly on an automatic with a clamped-in flash unit and have to be concerned with scorching.

Your choice of a flash-cure unit will impact the quality of your printing and your productivity. It pays to do your homework and choose the best unit you can afford. Hopefully, some of these guidelines will assist you in making the best choice for your shop.