

PERISTALTIC PUMPS & THE HUMAN FACTOR

INK PUMPS REQUIRE PROPER CARE & MAINTENANCE

■ By Bill Mason

Picture the dying murmurs of a pressroom on a Friday night, as presses shut down and cleanup begins. The sharp smell of solvent permeates the air, or the thick scent of water-based ink, UV and cleaning agents drift past gleaming multicolor frames and silver anilox rolls. Forklifts roar through defined yellow pathways, and men shout comments, as all look

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forward to the weekend ahead. In other printing factories, the incessant roar of the presses continues 24-7 as the public's demand for packaged goods appears—thankfully!—to never be satisfied.

Whatever your work situation, cleanup is a necessary evil of the printing world. Right in the middle of this unpleasant task stand the forlorn ink pumps. These small but vital parts of the printing process have seen little change in many years. What does not change is the printer's quest for the easiest-cleaning pump on the market. In his search for this elusive animal in an industry that imbues everything with a stain of color, the peristaltic pump has been pushed as a potential savior for the press operator.

Peristaltic Positives

Picture the brand new peristaltic tube pump being pulled with joy out of its box as the excited press operators and the skeptical maintenance men and women crowd around and open doors, stretch hoses, click but-

PUMP DIFFERENCES

Briefly stated, the differences between the three main printing ink pumps are as follows:

- **The peristaltic, or "tube," pump** works by pressure and release of rollers bearing down onto a special resilient tube. The ink never touches the pump, unless the pressman uses the wrong tubing or neglects to lube the tube.

- **The diaphragm pump** is also a positive-displacement type of pump. It is run for the most part by a series of valves in the "air end," located usually in the center of the pump. Liquid moves through the suction-and-discharge manifold and outer chambers, where the diaphragms are located. This area is called the "wetted end." The pumps are self-priming

and can handle a variety of liquids. Find a high-viscosity liquid, and you can usually find a diaphragm pump to pump it.

The vigilant operator cleans by flushing cleaning agents or solvent through the pump to make sure ink does not dry inside the diaphragm chambers. Use of a surge suppressor is essential on enclosed doctor blade chambered presses to avoid the pulsation common with all diaphragm pumps.

- **The centrifugal pump** is the standard bearer. It has been used for many years and still is persistently used by many printers. It is simple and easy to use. Immersed in ink pails of various sizes, these pumps stand to attention by each press station, ready for duty, like multi-colored warriors in the packaging world.

Cleaning must be done on a regular basis to avoid ink buildup, and a bypass system allows the press operator to flush out the pump after the print run has ended. Ink viscosity is the only limitation for these pumps, but they are the most effective for enclosed doctor-blade chambers because of their smooth, uninterrupted flow, provided by an impeller at the bottom pump housing.

—Bill Mason



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tons on and off. "It'll never work!" cries one who has seen it all before. The foreman, however, says, "It's easy! Look: You slip a new hose in here and close the door—like this—and you're ready for the next job." It is that simple, too!

Peristaltic pumps have a lot of positives attached to them. Having been around for many years in the medical industry, over the past 10 years or more they have gradually squeezed their way into many printing companies throughout the global printing market. Color changes are easy: You take one piece of hose out and fit another one in.

The peristaltic pump is a positive displacement pump, and can handle a wide range of viscosities. It is also a godsend for water-based-ink users who have often complained about the sheer sensitivity of some inks. Look down at the ink pail holding a peristaltic unit, and you will notice that there is little movement in the ink. (Many printers add a small air mixer that can gently mix the ink as the pump does its job.)

Care & Maintenance

The press is set up, humming and glittering; the pressmen are proud of their achievement. The last thing they want to see is a streak of magenta ink sprayed across those enameled cabinets. Be warned, friends: Before you invest in peristaltic pumps, take note of the human factor.

The "human factor" looks at the pump controls and assumes that the faster the pump goes, the more ink will flow. Unfortunately, this belief is one of the myths of the peristaltic tube pump. Faster is not better in tube pumps! What makes the peristaltic pump successful is not so much its design, but the way it is used and maintained.

Make sure your press operators realize that the installation of peristaltic ink pumps requires a new learning discipline, and that peristaltic pumps act differently than centrifugal or diaphragm models.

The tubing for the peristaltic pump, for example, has to be the right size. It must also be compatible with the ink you are using. In addition, care must be taken to

control the speed of the unit, and not run the pump too fast. The bigger the flow rates required, the larger the pump head needed. Tube lubrication is an important part of maintenance that must not be forgotten, as it will extend the life of your tube by reducing friction.

The added feature of AC inverters for the electric models means that fingertip control panels allow the press operator to control the speed and direction. This feature can fit right into the increasing computerization of the printing presses.

The peristaltic pump can come with a hefty price tag! Be aware that the bigger pumps need enough room to be placed press-side, and carts or stands are a necessary addition to the crowded pressroom equipment. It is recommended that you first try out a peristaltic model to make sure this type of ink pump is going to fit successfully into your pressroom operation.

Peristaltic pumps are enjoying a successful run as the pump of choice for many printers, and once operators achieve a certain level of familiarity with the pump's features and maintenance requirements, it can be a very attractive addition to your printing operation. ☐

About the Author:

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