Over the past several years, the chrome anilox roll has been nearly phased out and the laser-engraved ceramic anilox has become the anilox roll of choice. With the end user requiring more and more detail in the graphics, the anilox line screen has gone from 360 lines per inch to 550, 800, even as high as 2000 lines per inch.

While flexography can consistently match or provide even better print quality than offset and gravure, our investment is quite expensive. While some of us have played the stock market at one time or another, in some of these cases we have been skeptical on just how secure our investment was. Within the flexographic realm, we can – with the right program – protect our investment.

A typical press can cost in excess of $1 million dollars. Your ink investment can sometimes easily exceed hundreds of thousands of dollars. Depending on how many presses you have, the anilox investment can run into the hundreds of thousands of dollars, as well.

Protecting your anilox investment should be a science, not an art. Printers who have an anilox protection program in place estimate annual cost savings of tens of thousands of dollars.

The press should be routinely maintained and cleaned on a weekly basis. Letting ink stay on the press, the gears, the hoses and the anilox can ultimately hinder your operation and can cause delays due to inadequate operation.

When a new anilox is received, a quality certification document should be kept on file with a photograph of the engraving and the correct line screen and volume as it was received. This is important because, should you have density problems on press, you can analyze the anilox roll as it is and reference back to when the roll was purchased. If the anilox is clean and you have had a significant decrease in depth of the engraved cells, this could tell you that the engraving is worn and it is time to replace the anilox roll. If the engraved cells show visual dried ink pigment and clogging of ink or coating in the cells, then the roll is plugged and is probably the reason you are losing color on the press.

Protecting your anilox investment should be standard within your facility. First and foremost, all anilox rolls should be covered with protective roll covers. I can’t tell you how many times I’ve seen a press operator – who obviously knows nothing about the delicate engraved cells and ceramic coating on an anilox roll – playing drums on the anilox roll with a wrench. Sound far-fetched? It’s true; it happens all the time. That person has just damaged a very expensive anilox roll. With a minimal investment in protective roll covers, the return is huge.

Look at Press Conditions
To further ensure protection of your anilox roll, examine your press conditions. Believe it or not, the majority of rolls that are reconditioned are not worn out – they are damaged. The most common reasons why rolls are damaged are severely plugged with ink (left) and damaged by a caustic cleaner (right).
in the press are improper blade pressure, inferior blade material and inadequate filtration of the inking system.

Doctor blade particles, improperly ground ink particles and ceramic particles are the most common cause of anilox score lines. These particles circulate through the ink train and lodge behind the doctor blade. A grinding effect from the particle occurs and causes shiny lines on the anilox roll.

Filtration and magnets within the inking system should be mandatory. Most printers will mount the filter canister – which includes an internal magnet – to the out-feed of the pump or somewhere within the in-feed line. The filter should be between 20- and 40-mesh screen size. The magnet should have a minimum pull rate of 2 lbs. for presses of 20 inches and smaller; and up to 8 lbs. for presses of more than 20 inches. The filters and magnets should be cleaned after each run. It takes about three minutes to clean the pictured filter and magnet. Some filter canisters are harder to get to and take longer to clean up.

High-Quality End-Seals

Another common problem is end-seal leaking. Something as small as an end seal can result in major problems and major dollar expenditure. A good analogy is buying a car. If you bought a new Cadillac and you had to pay extra for the tires, would you put used tires on it? You probably would buy a high-quality, name-brand tire that would last a long time.

We pay millions of dollars for the press; its parts should be of good quality. Most printers will try to save money on the material cost of the end-seal. In many cases, the end-seal will be of a foam material, which is the least expensive. This results in the end-seal leaking severely, so the operator cranks down on the chamber system or increases the air-loaded pressure. By doing this, he has already started prematurely wearing out his anilox roll, increasing the ink leakage and wearing out the seals even faster. For a couple of dollars, a good-quality end-seal could be the determining factor in protecting your anilox investment and saving thousands of dollars.

Cleaning and Maintenance

One of the most important steps to protect your anilox investment is cleaning and maintaining your anilox roll. A common question is, “How do you recommend that we clean our anilox rolls?”

Printers spend tens of thousands of dollars replacing anilox rolls that don’t need to be replaced because they think that the engraved cells are worn out. Press operators sometimes neglect cleaning the anilox roll properly when they change colors because they don’t have the right on-press cleaner, steel brush or automated wash-up solutions.

The reality is that chemical cleaners are in daily use in the flexo printing industry, and – for the most part – they work. Many of these cleaners are caustic to permit fast and thorough cleaning.

A standard practice when using a chemical cleaner is to use a stainless steel brush to agitate the cleaner. The finest bristles on a brush are .003 diameter. The bristles can only reach the bottom of the cell in engravings of 280 line screen (cell opening of 85 microns = 3.34 thousandths) or less. This does not mean that because you have a 700-line screen anilox roll, you cannot use a stainless steel brush. On the contrary, it is good to agitate the surface of the ceramic as well as the tops of the cell walls to loosen the ink. A steel brush will not damage the anilox roll.

Precautions should be taken when choosing a specific cleaning solution. More times than not, an anilox roll is damaged because of the pH of the chemical solution. The normal pH of the cleaner for water-base ink is between 8.5 and 9.4 pH. Having a pH meter on hand is definitely a plus. In order to be effective, the pH of a chemical cleaner should always be higher than the pH of the ink. In most situations, corrosion is most likely to occur at a pH below 4 and above 11.8. Although extremely effective, anilox cleaners outside this range can damage engravings if exposure is prolonged.

The last step in protecting your anilox investment is storing your anilox rolls correctly. Anilox rolls should not be stored in boxes or crates. Too many times, the roll gets bumped while it is taken out or put into a box or crate. For a minor investment, roll storage racks can be obtained and mounted in the pressroom or, depending on the size of the anilox rolls, can be placed on roll storage racking systems and made to be easily maneuvered or actually rolled to the press.

To summarize, protecting your anilox investment should be a science, not an art. Printers who have an anilox protection program in place estimate annual cost savings of tens of thousands of dollars. An anilox protection program will minimize waste, minimize downtime, minimize anilox roll reconditioning and keep your investment protected.

About the Author...
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