BACK DOCTORING
CAUSES AND SOLUTIONS FOR BACK DOCTORING ON CENTRAL IMPRESSION PRESSES

INNOVATIVE PROVIDER OF HIGH-QUALITY DOCTOR BLADES.

Innovating print performance since 1972.
It starts seemingly simple enough - with visible ink leakage dripping in the catch pan under the doctor blade chamber.

Yet, when seals and calibration settings are checked there doesn’t seem to be anything wrong. But the proof is right there in the pan and on your equipment.

**Your problem could be due to back doctoring.**

When excess ink remains on the anilox roller, it can cause drips and icicle-like build up that impacts the overall performance of your press. This is particularly common on Central Impression Presses where back-side decks rotate against the containment blade and leave residue.
On a C.I. Press, the chambers and blades are positioned as mirror images from one side to another. On the front side (1 through 4) metering blades are on the bottom and containment blades are on the top. Ink is typically pumped in at the top of the chamber, filling up to the containment blade. The bottom blade (metering) transfers the ink to the plate and then to the substrate. The anilox rolls turn in a clockwise direction with metering blades removing excess ink before it passes to the plate. In this scenario there is rarely enough ink left on the anilox roll to cause back doctoring or icicles.

On the backside, (decks 5 through 8) metering blades are on the top and the containment blades are on the bottom. This is where the challenge typically begins. Press plate cylinders turn counter clockwise while anilox rolls turn clockwise.

If excess ink is left on anilox rolls after transferring to plates, that excess ink rotates around to the containment blade. If the blade is too thick, too tight, or too rigid, it can cause the ink to back doctor and create "ink icicles." These build-up formations dry and hang down from the chamber, causing a mess and impacting print performance.

IS IT BACK DOCTORING? HERE’S HOW TO CHECK.

» Are there any tell-tale icicles forming on the backside of equipment and bottom of the blade holder?
» Does the problem persist even after adjusting pressure settings?
» Are your end seals in proper working order?
» Does the problem persist even after ensuring all chambers and anilox rolls are parallel with one another?

If you answered yes to one or more of these items, you can reduce and prevent back doctoring with the right kind of doctor blades installed on your equipment.
High-speed presses were designed to increase productivity and profitability by increasing output. But the faster rotating anilox roll and sheer centrifugal force of moving components comes with some drawbacks.

For many years, the choice of the chamber manufacturers was steel on the metering side and .015 Mylar (plastic) on the containment side.

With the advent of turbo wash or automated wash up systems, many printers found that they had to run steel blades on both sides to avoid damaging the lighter plastic blades.

The use of steel for containment blades is one of the key causes for the modern-day "back doctoring" phenomenon. The resulting dried up icicles hanging from the bottom of the chamber causes performance issues and downtime to clean and reset equipment, costing print companies time and money.

One of the principle concepts of Flexography is that containment blades should always be thinner than metering blades. This allows any type of debris that might pass through the inking system to circulate back to the thin containment blade and pass gently without restricting it.

In addition, thinner blades would allow debris to pass without lodging behind the blade and potentially scoring anilox rollers.

Observe the ink icicles that dried and the mess that was created by the back doctoring. It is important that a containment blade not be too thin and not to be too stiff.

A containment blade that is too thin can create a wavy pattern blade in the blade, can curl over at contract and allow the ink to leak out excessively as well.

The ideal containment blade is our stepped OptiPro Plus doctor blade. It is not too thin and not too thick. It allows the ink to pass without resisting it, therefore it acts like a check valve. The ink comes in one way, but not out that same way.
Like all businesses, print profitability comes down to a series of choices regarding quality and cost. The best equipment in the world will fail to perform to expectations when inferior components are used.

That can lose you repeat business from customers that are not satisfied with the end results. At the same time, you have to be careful with expenses related to upkeep and maintenance because those cannot be charged to customers if you want to stay competitive in the market.

The solution lies in making smart investments that actually pay for themselves by allowing you to avoid downtime due to washing, repairs, replacement of scored rollers, and constant replacement and reinstallation of cheap, failing doctor blades.

To really prevent back doctoring and the issues it causes, make sure you consider the following:

» In steel applications, specialized coated lamella [stepped] blades are preferable for preventing scoring, ink contamination, and assist in preventing the back-doctoring icicle problem

» Plastic and mylar blades of all kinds may be made to incorrect specifications. Always check your order to make sure the blade is not too thin, too thick, too short, or too long.

Whatever blade you choose, make certain it has a low coefficient of friction, is solvent resistant, and flexible-yet stable. Even though this may result in a slightly higher cost than value-priced blades, they will last longer with fewer problems and expenses over time.
With more than 40 years of superior expertise in the printing industry, Daetwyler Doctor Blades have earned a reputation as the gold standard in excellent print performance.

The case photos featured in this report were taken by an actual client with what was considered a severe back doctoring problem. Thanks to our knowledge and technical skill, we were able to fix this problem by installing our OptiPro Plus doctor blade on the containment side of the chamber.

The following picture is of the same chamber after we installed the OptiPro Plus doctor blades. There was no ink dripping of ink and it lasted for 48 hours with no dripping of ink at all.

These kinds of results can be yours, too. By using Daetwyler’s OptiPro Plus doctor blade or customized steel lamella doctor blade, problems associated with back doctoring, ink contamination, anilox scoring and other things are significantly minimized or eliminated.

Press down time due to clean up and maintenance is minimized, allowing you to produce more jobs in the same amount of time - all with the quality that keeps customers coming back.
The OptiPro Plus is a wiping blade for medium to high line screen process or line work.

With medium flex strength and a thinner tip, this blade provides a clean wipe for printing process colors on higher line screen anilox rollers. The OptiPro Plus contains a special polymer to lower friction reducing both blade and anilox wear.

This special polymer, coupled with our proprietary tip machining process, provides a sharp, consistent tip. This blade has good abrasion resistance, which makes it also ideal for use as a containment blade in chambered systems. The markets using this OptiPro Plus include flexible packaging, labels, folding carton, envelope and some coating applications.

The OptiPro Plus is an acetal-based blade with a built in lubricant. This doctor blade will work for all inks. The most common thickness used is 0.75 mm (.025”), in a 15 degree bevel, thin lamella or straight tip configurations.

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<thead>
<tr>
<th>Blade Thickness</th>
<th>Blade Width</th>
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<tbody>
<tr>
<td>0.025” - 0.035”</td>
<td>0.50” - 2.00”</td>
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<tr>
<td>0.635 - 0.890mm</td>
<td>12.7 - 50.8mm</td>
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Daetwyler can also design a custom steel lamella doctor blade. Contact us at 704-875-1200 to learn more.
White paper written by BOBBY FURR, Flexo Services Manager for Daetwyler.