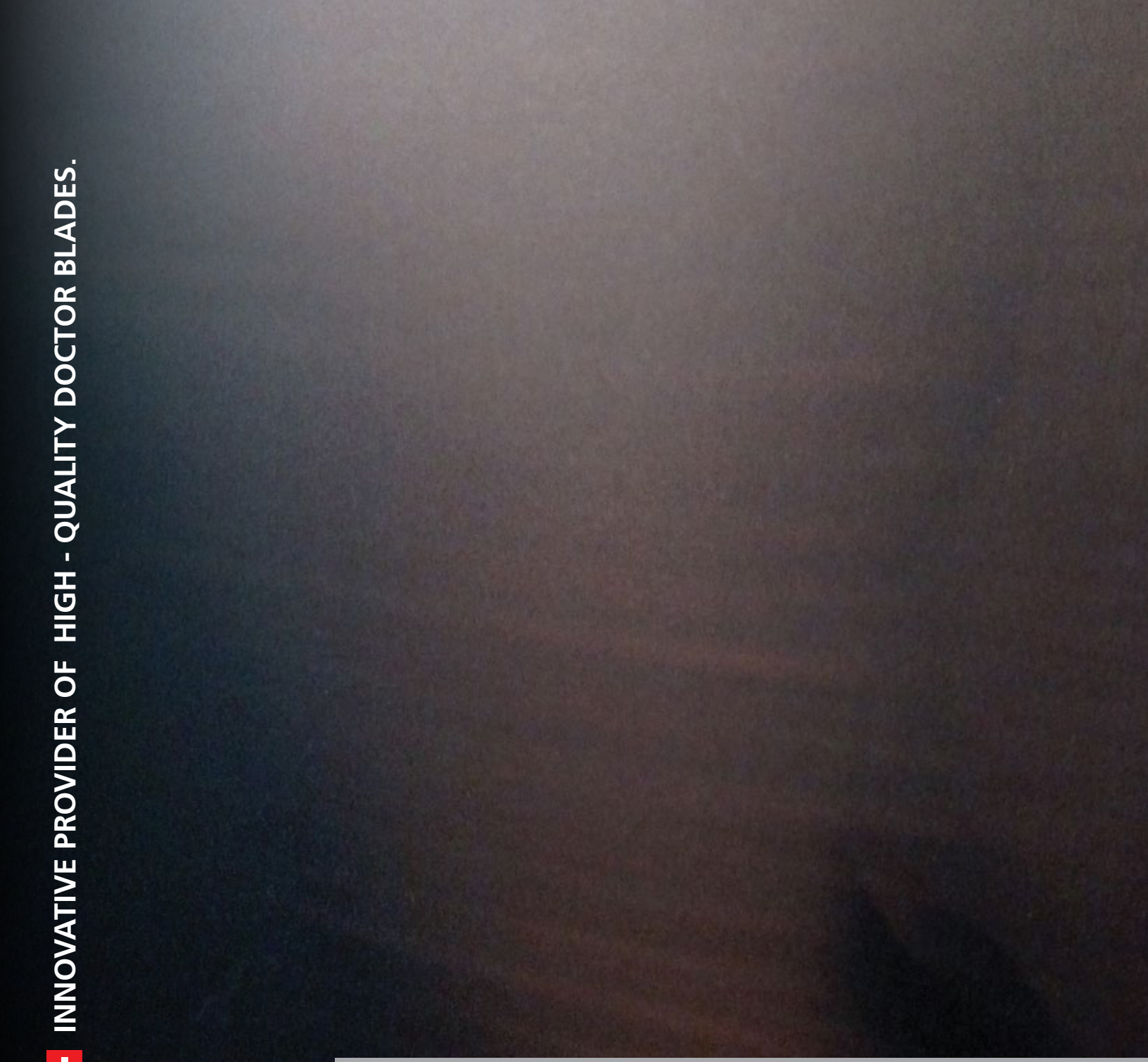
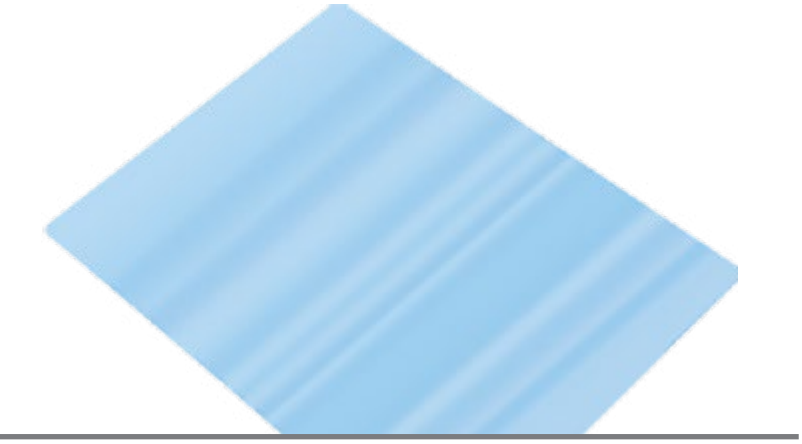


INNOVATIVE PROVIDER OF HIGH - QUALITY DOCTOR BLADES.

CEASING THE CHATTER

IDENTIFYING AND ADDRESSING BOUNCE, GEAR MARKS, AND BANDING ON PRESS

Daetwyler



A sample of typical "chatter" or "bounce" on a printed field

AN UNEVEN PLAYING FIELD

Impression cylinders, plate cylinders, anilox rolls, drive rolls, and idler rolls must be aligned and parallel.

There are many ways to describe chatter: bounce, gear-marks, banding, and stripes of uneven ink application on the printing field. But whatever name it goes by, the common attribute is that chatter often shows up with little or no warning once on press.

Causes can range from design, plate stagger, platemaking, or raw materials, all of which leave press operators with limited options for address once they reveal themselves on the print job. However, there are a number of issues that are completely within the control of press operators that can successfully eliminate chatter without the involvement of other support groups or departments.

BEGIN BY ADDRESSING POSSIBLE MECHANICAL ALIGNMENT ISSUES

While parallelism and balance are equally important to minimize or eliminate unwanted chatter effects, parallelism is more easily controlled by press operators. Impression cylinders, plate cylinders, anilox rolls, drive rolls, and idler rolls must be aligned and parallel.

Rolls that are not parallel are easily identified and should be corrected to ensure the press continues to operate with minimal friction or vibration.

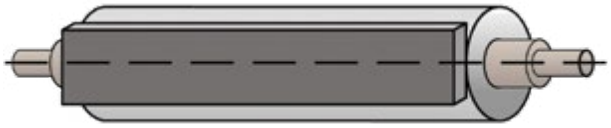
Vibration is one of the most common contributors to bounce and banding.

There are several common effects of vibration on press, not all of which are strictly related to chatter and visual inconsistencies. Overall print quality can be impacted in a number of ways.

- Excessive plate wear
- Excessive bearing wear — barring/chatter
- Excessive roll wear
- Uneven print impressing
- Resonant vibration of other parts of the press
- Gear wear — gear marking
- Cylinder deflection

Much of this could be avoided by simply inspecting, cleaning, and lubricating these parts on a regular basis.

Horizontal Chamber Alignment Issues



Correct

Incorrect

Of special concern, the anilox roll and doctor blade chamber (or rubber roll) must be aligned with one another and the print cylinder, for uniform ink metering and ink transfer.

Misaligned impression rolls and print cylinders can often be identified visually by uneven impression across the web. Other rolls can cause the web to drift or pull to one side or the other. In extreme cases, these rolls can be identified audibly, but are more commonly identified by gauging or by visual means.

Within the print station, common contributors to bounce, gear-marks, and banding include potentially worn or dirty deck screws and keyways, which can cause impression setting and repeatability problems.

Worn plates, anilox bearings, and bushings often make setting impression challenging or even impossible. Plates must then be over-impressed to help hide or minimize bounce caused by play in the worn bearings.

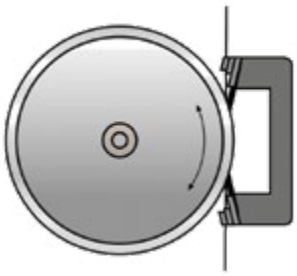
This can result in slurred dots and banding. Much of this could be avoided by simply inspecting, cleaning, and lubricating these parts on a regular basis.

CHECKING FOR ROLLER AND PRINT CYLINDER DEFLECTION

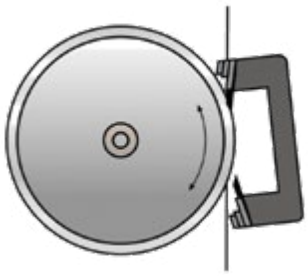
Both proper blade pressure and angle are important, but equally important are the blade material and thickness.

Assuming that all mechanical components are in proper alignment with each other, another cause of chatter may be deflection. Roller and print cylinders may deviate from a straight line or plane when a force is applied.

Vertical Chamber Alignment



Correct



Incorrect

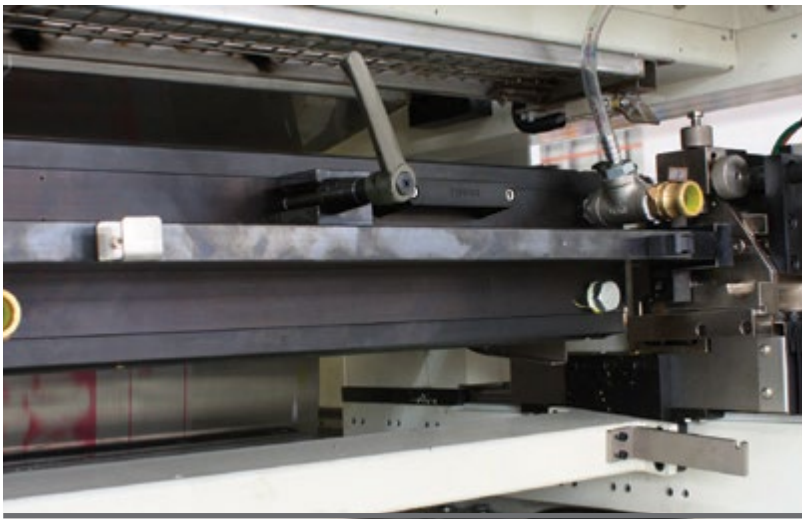
This shifting is called deflection and can be a root cause of chatter. However, there are several reasons why deflection may occur, and each variable contributes to the level of deflection experienced on press. Fortunately, a good number of these can be controlled or at least minimized by the press operator. These include:

- Weight of cylinder (more weight = more deflection)
- Web tension (higher tension = more deflection)
- Impression loading (increased impression = more deflection)
- Cylinder imbalance (greater imbalance = more deflection)
- Length of cylinder (longer = more deflection)
- Material used to construct the cylinder or roll

Chatter marks visible in the final print are also a common problem for flexo printers, especially when operating older geared presses or even newer sleeved presses running at higher speeds. As press speeds increase, the ink supply to the enclosed chamber is also increased to avoid ink starvation. Over-pressurization of the ink chamber, along with improper blade to anilox roll pressure can result in a pulsating of the blade to anilox. Both proper blade pressure and angle are important, but equally important are the blade material and thickness.

Improper blade pressure or angle typically results in slower press speeds, increased waste, and excessive wear of doctor blades and end seals. However, even when the chamber is properly set and aligned and flow is optimized, chatter can still occur from blade to roll when vibration is generated from worn gears, bushings, or bearings.

TAKING CORRECTIVE ACTIONS



Too much blade pressure or too much stiffness within the doctor blade can be a huge contributing factor to this problem. Once the source of your chatter problem has been identified, it is common to discover parts that need to be serviced, cleaned, or replaced.

Daetwyler created the Stableflex and Multiblade tip configuration for added flex in a custom doctor blade solution. This gives the blade the ability to flex and ride with the bounce or chatter allowing the press operator to run at maximum press speeds with little or no resulting chatter marks. As a result, the right Daetwyler doctor blade allows for reduced downtime, increased press speeds, optimum customer satisfaction, and a significant cost savings for the press.

STABLE-FLEX

- Reduces or eliminates blade-vibration streaks
- Guaranteed even and clean doctoring
- Compensates for vibration streaks on older machines
- Reduces pressure plate vibration streaks on high-speed machines

Products with a Stable-Flex configuration:

- STANDARD STEEL

MULTIBLADE

- 3°-Multiblade, greater stability, lower bending at high pressure
- Narrow blade contact zone reduces hazing

Products with a Multiblade configuration:

- OPTILIFE PLUS
- OPTILIFE
- LONGLIFE PLUS
- LONGLIFE
- ULTRALIFE
- IBOSTAR
- SOFT
- STAINLESS STEEL
- STANDARD STEEL
- BLUE STEEL

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White paper was written by Bobby Furr, flexo services manager for Daetwyler. He is responsible for sales and technical support of Daetwyler's existing pressroom products and managing new products that focus on the flexo printer. He is also involved in the research and development of both products for the flexo and gravure industries. He has authored several technical articles and he lectures and conducts training seminars on the latest pressroom technical data. Furr has been in the Flexo industry for 31 years.