FLEXO TROUBLESHOOTING GUID

Problem	Possible Causes	Possible Solutions
Streaks	Foreign particle trapped under blade	Reduce blade pressure | Install ink filters in ink system | Install magnets in ink system | Change doctor blade
	Nick in doctor blade	Install ink filters in ink system | Install magnets in ink system | Change doctor blade | Check anilox for damage and/or excessive roughness. High or uneven areas from laser engraving | Send worn doctor blade to MDC for evaluation | Use LONGLIFE doctor blade | Check new blade tip for damage (if small, polish with fine polishing paper)
	Abrasive inks and/or solvents	Use LONGLIFE or STARLIFE doctor blade | Use SOFT or Stainless Steel doctor blade | Check with ink supplier for alternative pigments | Check pH balance of ink (water-based)
Uneven Ink Metering	Wavy blades	Clean blade holder and reset blade | Check blade holder for damage and repair | Tighten bolts from center out alternating sides | Replace missing bolts | Provide even tensioning of bolts on holder by using a torque wrench | Ensure blade is not too long for holder | Check end seal placement
	Alignment	Make sure centerline of chamber is parallel to center line of anilox roller | Make sure both blades, top and bottom, contact the anilox roller at the same time | Check blade extension from holder (should be the same through the entire length)
	Vibration	Blade chatter; blade angle too steep | Check gearbox for vibration from press | Bounce from printing plate | Use STABLEFLEX doctor blade
Anilox Wear	Over-pressuring doctor blade	Look for the reasons why excessive pressure is needed and correct | Install stops to limit adjustment to insure the chamber does not contact anilox roller | Metal filings (slivers) from the blade tip. (Excessive pressure causes wiping by back of blade rather than the tip. The blade tip becomes thin and wears through, releasing slivers in inking system. This can cause score lines.)
	Contact area too large	Reduce contact area | Use correct width doctor blade (check with holder manufacturer for correct size | Use reduced thickness tip | Reduce blade thickness if using straight steel | Check blade angles (send worn blade samples to Daetwyler for evaluation)
	Incorrect blade material	Have steel analyzed for purity | Check for excessive roughness on blade tip (use fine polishing paper to correct) | Try alternative blade materials such as MDC SOFT (contact Daetwyler to match blade materials to application)
Excessive Ink Film Thickness	Contact area too large for cell count	Use some form of pre-ground blade to reduce contact area | Incorrect blade angle | Blade material too thick (applied to straight steel or plastic)
	Anilox cell volume or screen doesn't match plate screen	Guideline: Cell count should be 4–6 times larger than screen of plate
Leaking Chamber	Incorrect Chamber alignment	Verify the chamber is parallel to anilox roller and both top and bottom blades are contacting anilox roller at the same time (check empty chamber with a machinist level and a feeler gauge without end seals in place)
	Incorrect end seals or incorrect setting	Check with holder manufacturer for correct material and dimensions | Check blade settings (ensure blade extension is correct to match cut on end seal)
	Wavy blades	Improper seating of blade in holder allows ink to escape holder | Bad holder condition | Missing or worn bolts
	Re-doctoring of ink from containment blade	Reduce excessive blade pressure | Correct ink viscosity | Incorrect containment blade for press, holder or anilox (use a thinner alternative material such as mylar, polyester, or plastic)

DOCTOR BLADES

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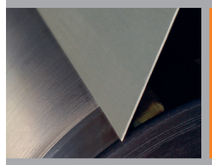


MDC DOCTOR BLADES FOR FLEXO

The Right MDC Doctor Blade Doctor blade life on modern flexo presses, with their combination anilox roller/doctor blade inking systems, is of great importance. The abrasive surface of ceramic anilox rollers requires minimal doctor blade pressure to prevent excessive blade and anilox wear. Equally important for blade life is the relationship between cell configurations (shape/count) and the blade tip thickness. MDC manufactures a wide variety of doctor blades to meet your specifications and applications.

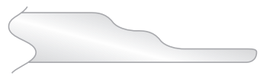
MDC LONGLIFE This is the doctor blade of choice for fighting print defects, such as streaking. It is commonly used for higher line screens where cleaner doctoring is required. This hardened-coating significantly lengthens blade life, therefore reduces the amount of steel contamination in the ink. Fewer blade changes are needed, resulting in reduced downtime and waste.

MDC SOFT This blade is coated with a soft, corrosion-resistant nickel based material. The soft coating provides a more gentle contact point therefore reducing or eliminating the chance of roll scoring. This coating also heals small nicks in the blade edge, reducing lines and streaking as well as steel contamination of the ink.

MDC STARLIFE The hardened coating of this doctor blade is designed to resist wear when wiping abrasive inks, such as Titanium Dioxide white inks. The coating also reduces friction coefficients, which lowers blade and anilox wear. This smooth wearing coating maintains its edge to provide a long-lasting, clean and sharp wipe.

MDC STABLEFLEX A specialty doctor blade developed to prevent chatter marks, this tip configuration allows the blade to "ride" with the vibration (from older, unstable presses) or the bounce of the anilox roll when running at higher speeds (on newer, high-speed presses), giving a more precise metering of the ink film and resulting in a better quality print.

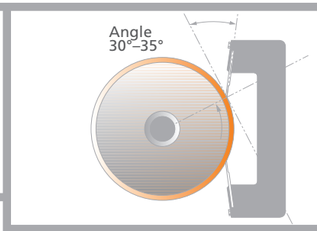
MDC ONE-STEP The tip of this doctor blade maintains the same quality and characteristics of the MDC lamella edge, but the design allows thicker ink to meter normally. The strengthened base decreases blade flex, creating 'consistent ink film metering' without an ink hydroplaning effect behind the blade and eliminating or substantially lessening UV spitting.



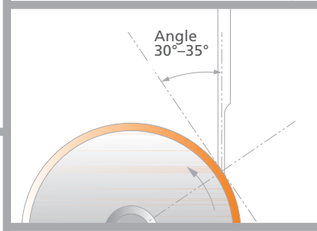
MDC STANDARD The award winning blade with a consistent tip thickness. The contact area remains unchanged throughout the life of the blade, therefore, no changes in tonal value or gradation occur due to wear. The special polished contact zones of these doctor blades guarantee a quick start-up without problems.

MDC GOLDSTAR This doctor blade is manufactured using a specialized coating designed to reduce wear. The reduction in friction has proven to lower the amount of drag on the anilox roller reducing wear as well as providing an energy savings when compared to drag created by other coated doctor blades. This highly durable coating also maintains a sharp edge providing the cleanest wipe for quality printing.

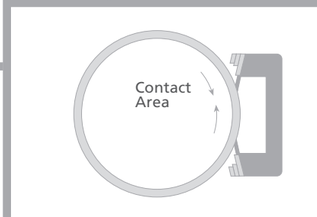
Handling and Storage MDC Doctor Blades should be stored in a dry and clean environment. | Multiple packaging options are designed to assist in safe and convenient blade dispensing. Blades should remain packed until ready for use. | Care should be taken to protect the blade tip. We recommend using the Doctor Blade Safety Shield during set-up, storage, and handling. For more information about our Safety Shield, contact our Customer Service Department. | Pre-honed doctor blades do you require resharpening or honing. | When examining your blade edge, **ALWAYS KEEP IN MIND THAT THE EDGE IS VERY SHARP.** | Safety gloves should be used whenever possible when handling doctor blades. | Clean doctor blade steel can be recycled. **Contact your local recycler.**



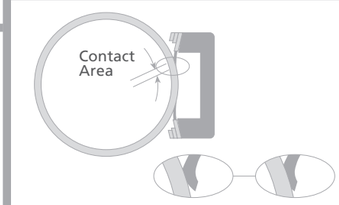
Chamber Doctor Blade Systems There are two distinctly different blade systems; single Reverse-Angle Blade system and the more commonly used Enclosed Doctor Blade System. Angles on an enclosed system are pre-set and for single reverse-angle blade system the industry standard is approximately 30 to 35 degrees. Flat angles create greater contact area, requiring more doctor blade pressure to get a clean wipe. This increase in pressure creates excessive anilox and blade wear.



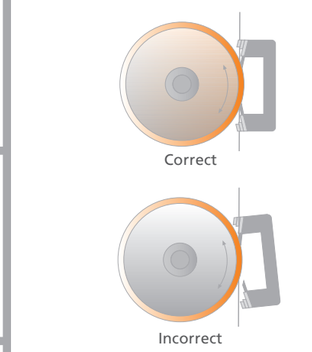
Reverse Angle Doctor Blades Provide excellent printing and wiping. To obtain best results, the blade holder must be cleaned carefully and be in good condition. The MDC Doctor Blade must be mounted absolutely straight and without waves. To prevent waves, tighten bolts in the blade holder from the center out. As always, minimal pressure is the key to successful printing.



The Correct Pressure Minimum pressure ensures consistent blade wear and extended anilox life. The thinner the tip, the less pressure required to achieve a clean and brilliant printing result. It is recommended to use the same material on both sides of the chamber to eliminate uneven pressure. Increased pressure leads to a deflection of the doctor blade, resulting in a reduced angle and therefore in an increased contact area. The actual wiping is done by the back of the blade, leading to excessive anilox and blade wear.



The Incorrect Pressure Or excessive blade pressure creates free floating metal slivers that contaminate ink systems. When a hard particle becomes trapped between the deflected blade tip and the anilox, this particle rides there, effectively destroying rows of cells. These rows of cells appear as thin bands running the circumference of an anilox and are commonly called score lines.



Proper System Alignment For consistent ink metering, best print quality and optimized blade life, an enclosed chamber system requires perfect alignment (both horizontal and vertical) so that both blades have equal amounts of pressure. Incorrect alignment creates uneven blade pressure, blade wear and/or ink leakage. A common error that results from correcting alignment problems is excessive blade pressure. This excessive pressure will lead to a variety of previously discussed problems, like score lines.

Notes: