



Anilox Basics Care & Maintenance



Flexography is a Process

- Ink
- **Anilox**
- Metering Roll
- Doctor Blades
- Chamber
- End Seals
- Artwork
- Prepress
- Plate
- Mounting Tape
- Substrate
- Printing Press
- *Operator / Printer*

Incoming Inspection

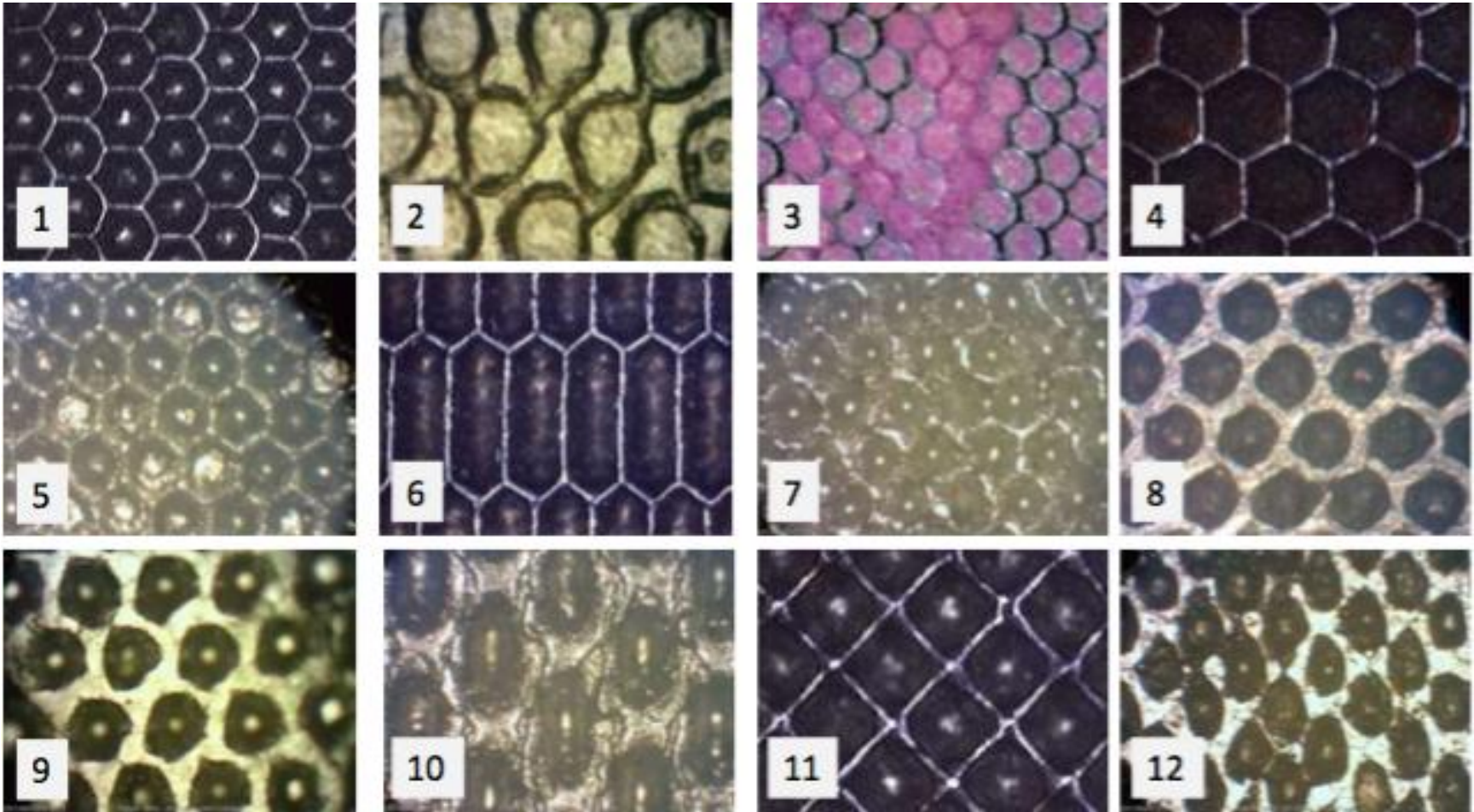
- Inspect crate:
 - Damaged?
 - Take pictures
 - Reject / Do not sign
- Inspect wrapping:
 - Corrugated
 - Kraft paper



Proper Anilox Roll Handling

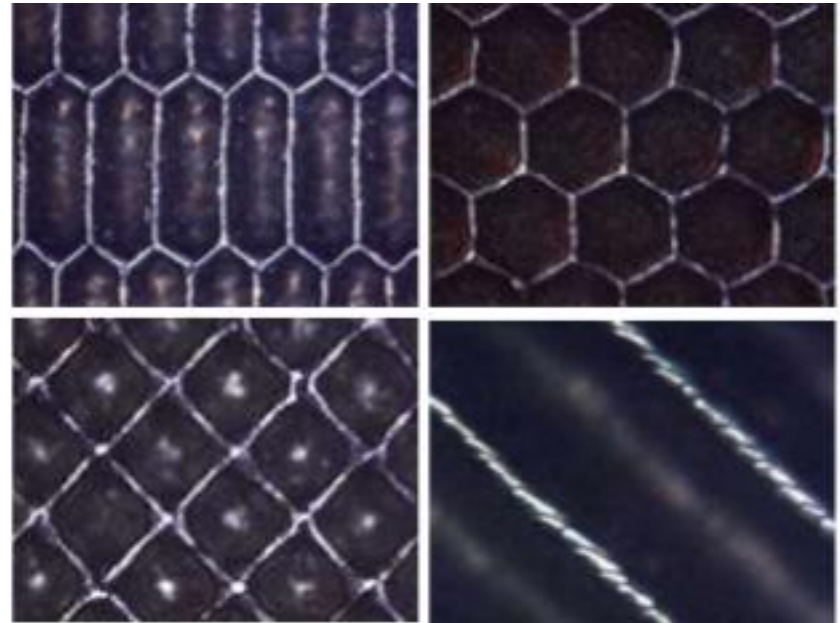
- Keep roll covered
- Measure to center
- Choke with nylon strap
- Check balance
- Move with caution
- Carefully slit tape
- Remove covers
- Inspect surface

What is good engraving?



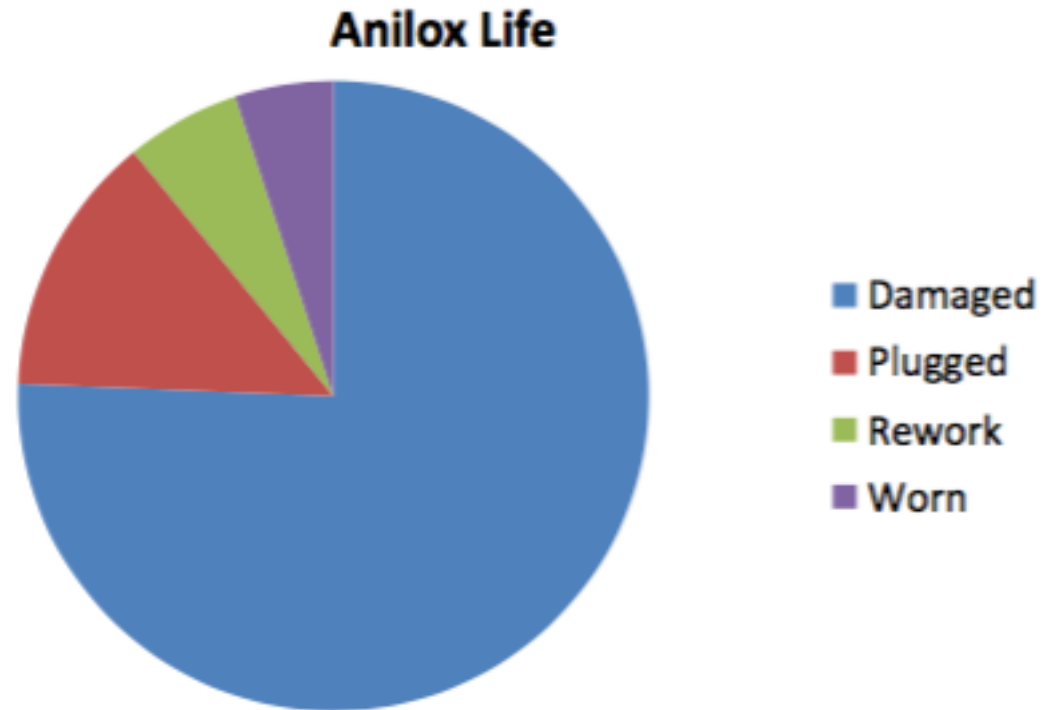
What is good engraving?

- Ceramic
 - Dense
 - Hard
- Thin Cell Walls
- Accurate
- Consistent



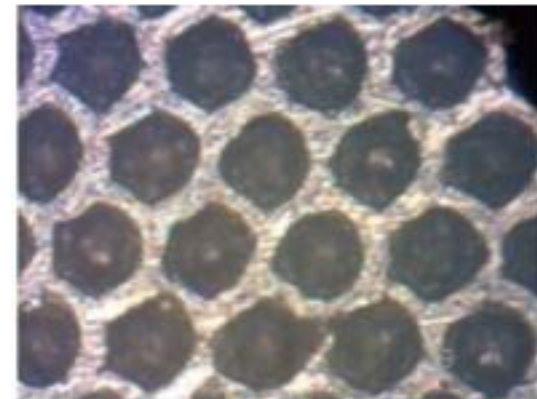
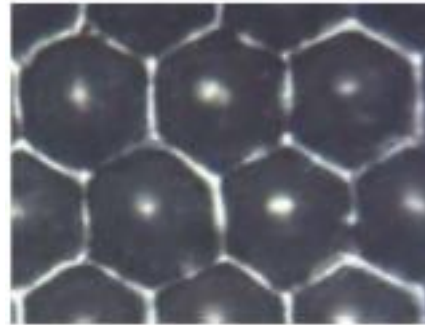
Anilox Roll Life

- Depends on many factors
- Specified, manufactured, used and maintained properly
 - 3 to 5 years
- Premature wear
- Damage
- Plugged rolls



Wear

- As engraving wears:
 - walls get wider
 - surface shines
 - cells get shallower
 - lower volume
 - less color



Anilox Roll Damage

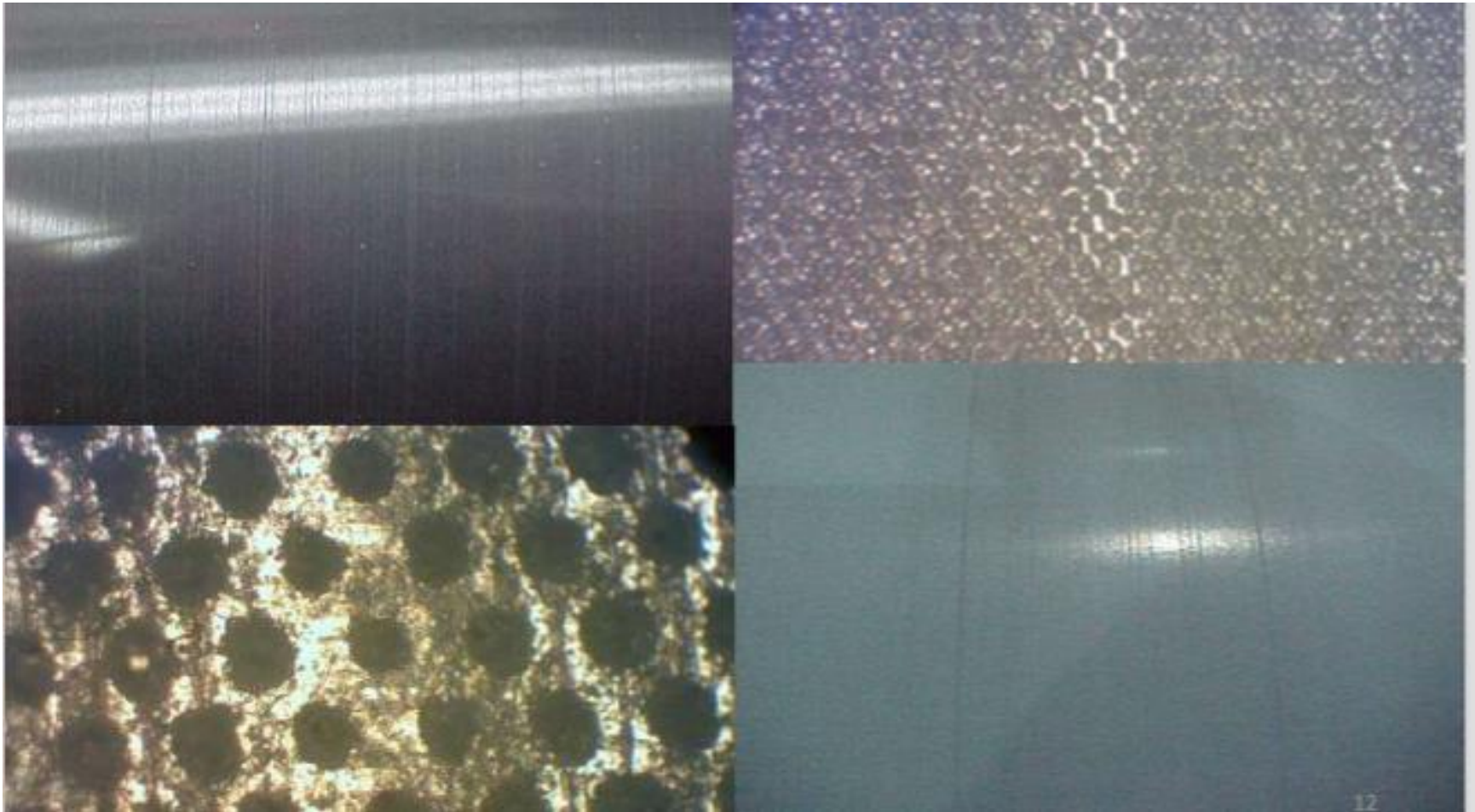
75%? *Of all anilox rolls are
damaged!*

Before they wear out!

Anilox Roll Damage

- Impact
 - ceramic very hard / brittle
- Improper Handling
- Improper Cleaning
- Contamination / Score lines
- Premature Wear

Anilox Roll Damage Score Lines



Housekeeping

*Well maintained
press rooms, printing presses
and anilox rolls
have fewer maintenance and
print issues*

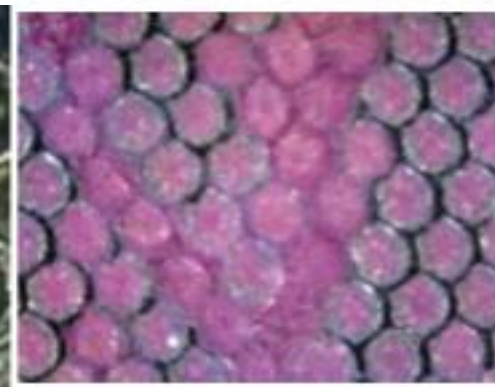
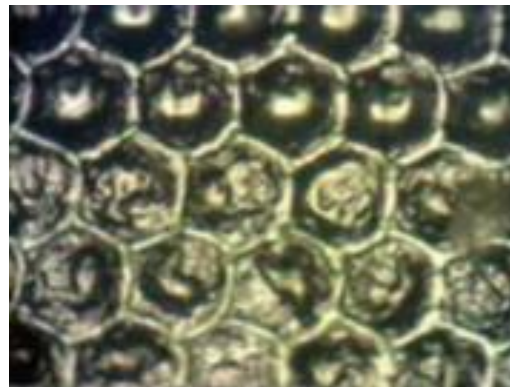
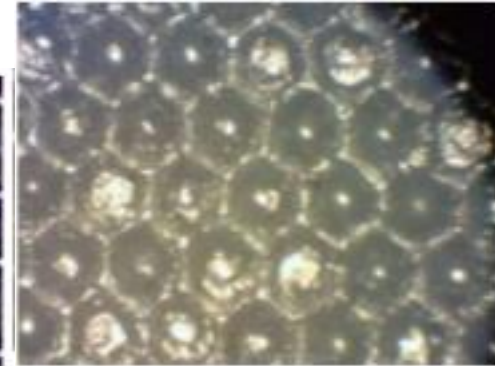
Anilox Care & Maintenance

Any scratch, spot or stain on the engraved ceramic surface will typically show in the print whether structural or cosmetic!

Anilox Plugging

50% of ink remains after impression
(hydraulics, pneumatics, surface tension & rheology)

- Poor ink maintenance
- Poor cleaning practices
- Keep fans off print stations
- Engraved too deep
- Poor cell shape



Cleaning a Ceramic Anilox Roll

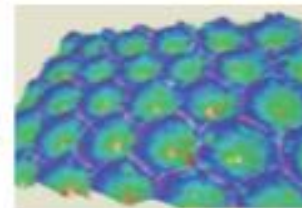
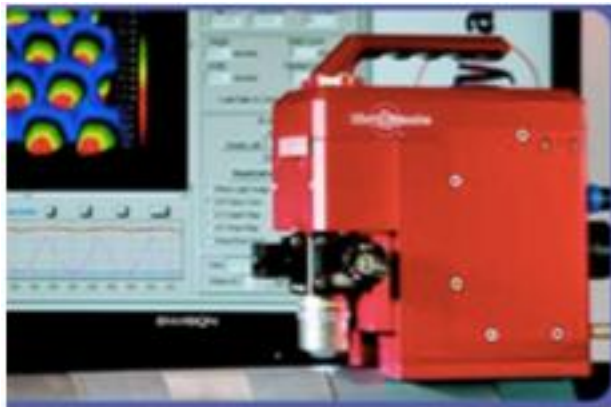
If you cannot see and inspect the engraved surface of the anilox roll....

- *How do you know it is plugged?*
- *How do you know if it is clean?*
- *How do you know if manual cleaning worked?*
- *How do you know if standard off press cleaning procedures are required?*
- *How do you know that you are not damaging the engraved surface?*

Cleaning a Ceramic Anilox Roll

Inspection Capability

- 60-100 x hand held scope
- 10 – 200 / 500x USB Microscope camera
- Gravure microscope
- Interferometric measurement system



Cleaning a Ceramic Anilox Roll

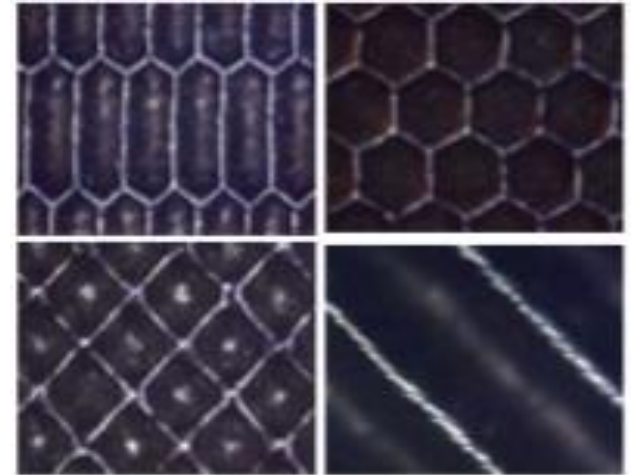
- **When** should I clean my anilox rolls?
- **How** should I clean my anilox rolls?
- **Who** should clean my anilox rolls?
- **What** should I use to clean my anilox rolls?
- How frequently should I clean my anilox roll?

Cleaning a Ceramic Anilox Roll

- Stainless Steel Brush
- Cleaners / Chemistry
- On-Press cleaning systems
- Off-Press cleaning systems
- *Inspect Before and After*

Cleaning & Inspection

- Know the original cell characteristics
 - Incoming inspection
- High power magnification
- Inspect before cleaning
- Inspect after cleaning
- Document condition over time



Cleaning a Ceramic Anilox Roll

Cleaning the anilox roll while the ink is wet will minimize or eliminate the need for off-press cleaning systems.

Off press cleaning processes should be a supplement to good on press cleaning procedures!

Cleaning a Ceramic Anilox Roll

Stainless Steel Brush

- 0.003” Bristles (300 / 79)
- Keep clean and in good condition
- Scrub with appropriate detergent
- Scrub in a circular motion
- Inspect before and after
- Clean after each use
 - Brass brushes are for chrome rolls



Cleaning a Ceramic Anilox Roll

On Press Cleaning

- Manual
 - Stainless steel brush
- Auto wash up cycles
 - Detergent
 - Solvent
- Off Press Cleaning
 - As required

Standard operating procedures must be developed internally

Cleaning a Ceramic Anilox Roll

Off Press Cleaning Systems

Sodium Bicarbonate Blast

Ultrasonic Tank

Flexowash

MicroClean

Dry Ice Blast

Laser

Standard operating procedures must be developed internally.

Anilox Care & Handling

- Handle rolls carefully
- No sharp or hard tools
- Keep rolls circulating (fresh ink)
- Clean rolls thoroughly – every time used
- Use correct brush
- View cells with magnification (before/after)
- Keep rolls covered (when not in use)
- Store rolls safely (crate or rack)

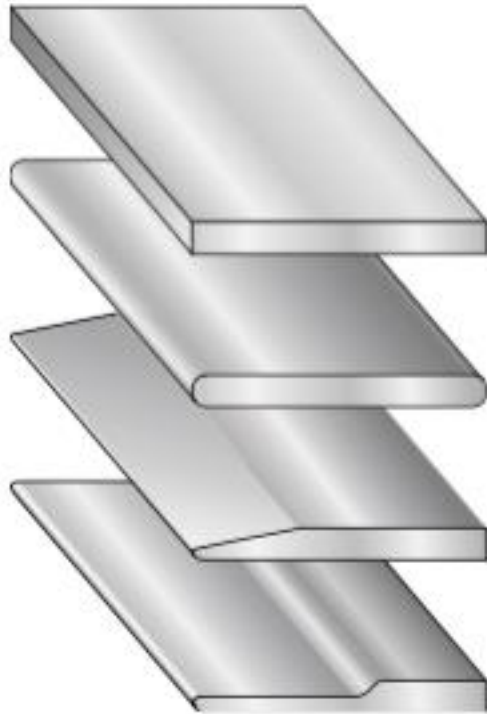
Doctor Blade Material

- Carbon steel
 - Water, Solvent & UV Ink Systems
- Plastic
 - Corrugated Industry
 - Retaining Blades
 - Safety
- Composite
- Stainless steel
 - Corrosive environments

Doctor Blade Thickness

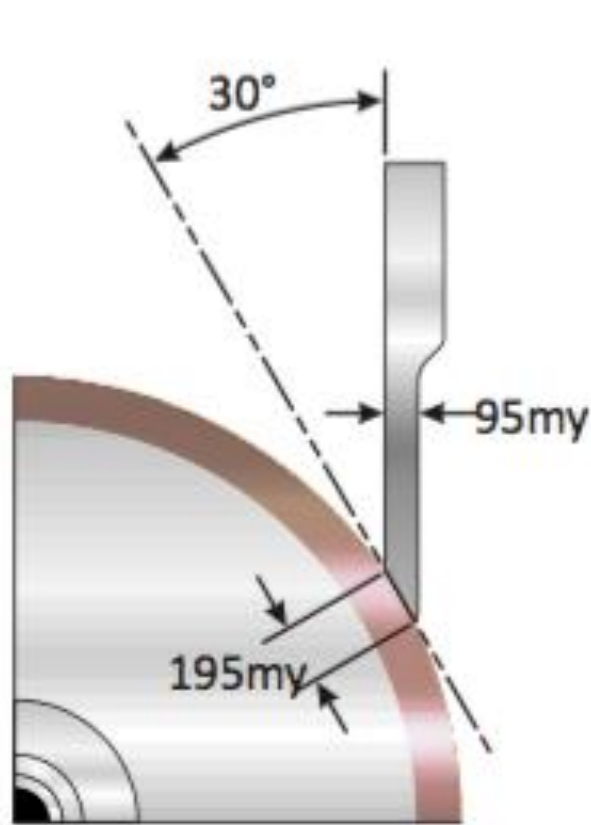
- Application determines appropriate thickness
 - Process, combinations, solids or coatings
- In theory, thinner is better (process)
- Thinner blades wipe more efficiently
- Thinner blades more easily over-impresed
- Is thinnest best?
- Thicker blades allow thicker film of ink

Blade Types: Tip Configurations

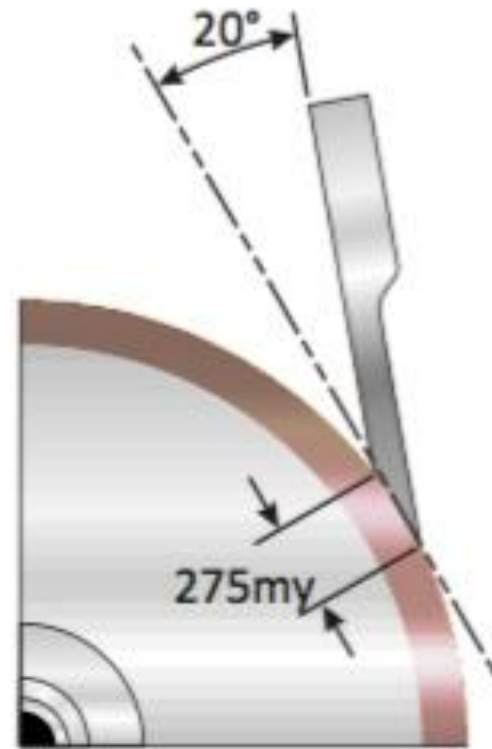


- Square Edge
- Radius Edge
- Beveled Edge
- Stepped Tip

Correct Blade Application Angle

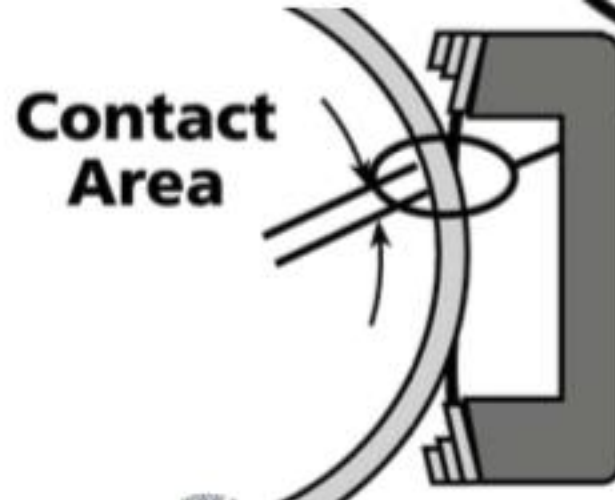


Correct

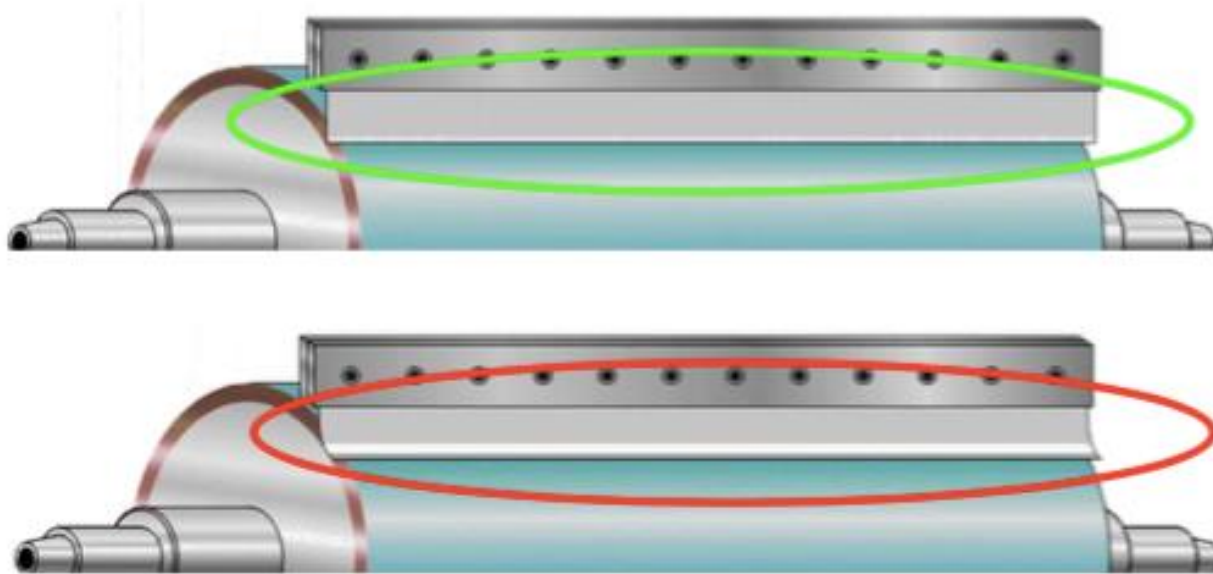


Incorrect

Incorrect Blade Pressure

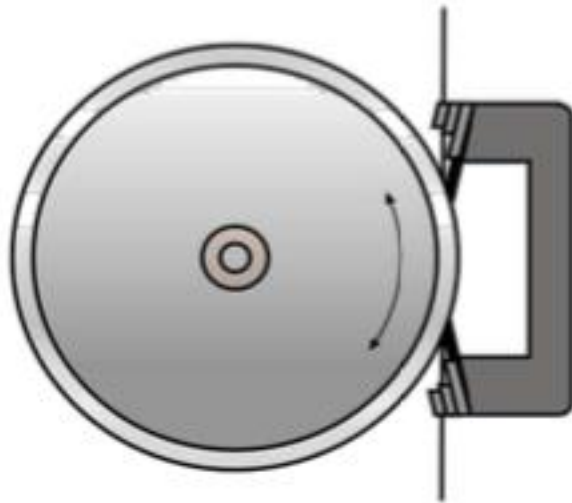


Correct Pressure Shears Contamination

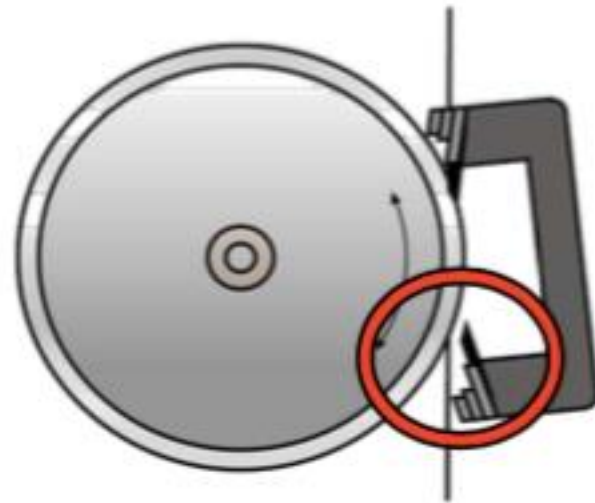


- Excessive pressure traps foreign particles
- Causing streaks and score lines!

Vertical Chamber Alignment



Correct

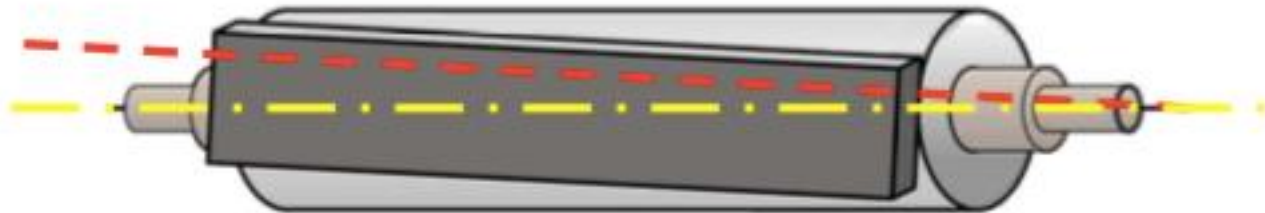


Incorrect

Horizontal Chamber Alignment



Correct

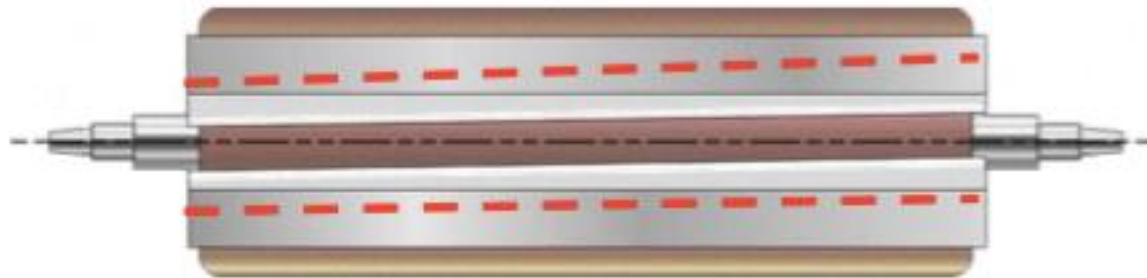


Incorrect

Check Used Blades



Even Wear



Uneven Wear

Doctor Blade: Application

- Set / maintain parallel
- Set / maintain application angle
- Minimal pressure to get clean wipe
- Know when to change blades
- Reset impression after change-out
- Keep blade holders clean
- Clamp blades without waves
- Inspect used blades

Wavy Blades

- Dirty holder
- Damaged holder
- Wrong tightening sequence
- Blade too long for holder
- Missing bolts
- Wrong blade material



Thank You

