

VersaPass[®] Best Practices

- OPTIMIZING PRINT QUALITY AND PRINTHEAD LIFE
- ADDRESSING COMMON PRINT QUALITY ISSUES



memjet[®]

Beautiful Precision, Simplicity, and Affordability.

CONTENTS:

Optimizing Print Quality and Printhead Life 3

REPLACE MICROFIBER ROLLER (MFR) WHEN REPLACING A PH
PRINTHEAD MAINTENANCE ROUTINES
BENEFITS OF THE MAINTENANCE ROUTINES
EVALUATE CRITICAL SYSTEMS SETTINGS
MID JOB FREQUENCY
KEEP WET SPITTING (KWS) FREQUENCY

Addressing Common Print Quality Issues 11

PRINTHEAD WEAR OUT: TEXT AND AREA FILL
PRINTHEAD TEST DIAGNOSTIC
STREAKS FROM CONTAMINANTS
DEHYDRATION
PRINT QUALITY IS ABOUT THE SYSTEM

PART 1

OPTIMIZING PRINT QUALITY AND PRINTHEAD (PH) LIFE

The Impact of Maintenance Elements

Regular maintenance and appropriate settings directly impact printhead performance such as print quality and printhead life.

Maintenance elements are primarily user controlled and requires following best practices and adjusting printer system settings as environmental condition variations may warrant.



REPLACE MICROFIBER ROLLER (MFR) WHEN REPLACING A PH

The MFR is a consumable, and as such, it needs to be exchanged for a new one on a regular basis to maintain optimal print quality results. We recommend installing a new MFR every time a new PH is installed.

The MFRs go through a lot of wear and tear, and over time they accumulate more than just ink. They end up collecting dust and debris from the environment and the air, paper fibers and dust from the media running past, and everything that is cleaned off the PH surface.



Always change new MFR and PH together.



Not doing so can result in contaminants, streaking, and compromised print quality.

PRINthead MAINTENANCE ROUTINES

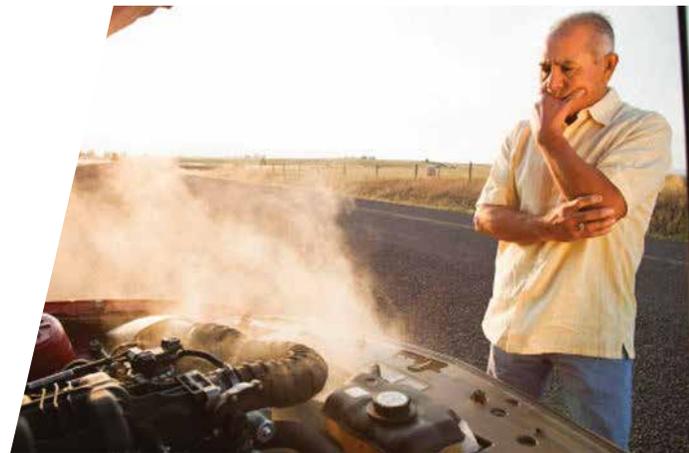
Each of the maintenance routines has a purpose towards keeping the PH nozzles in optimal condition for reliable and consistent printing. It is similar to having oil changes and routine maintenance done on your vehicle to ensure that it will perform reliably and consistently.

Just like with your vehicle, proper PH maintenance and care ensures you get the most miles out of your PH.

- Beginning of Job • End of Job • Mid Job • Keep Wet Spitting • Idle Time Maintenance



VS.



BENEFITS OF THE MAINTENANCE ROUTINES

BEGINNING OF JOB

- Ensures quality printing from the start with clean hydrated nozzles

KEEP WET SPITTING

- Assists in maintaining hydration and cleanliness of unused nozzles throughout printing

MID JOB

- Keeps PH surface and nozzles properly conditioned during the print job

END OF JOB

- Ensures PH nozzles and surface is properly conditioned prior to capping

IDLE TIME MAINTENANCE

- Ensures nozzles and PH surface are maintained during longer idle periods such as overnight, weekend, etc.



EVALUATE CRITICAL SYSTEM SETTINGS

Before Changing Out PHs for PQ Issues

ADJUST:

- Mid Job Maintenance (MJ) frequency AND/OR
Keep Wet Spitting (KWS) frequency

TO HELP MAINTAIN PH HEALTH THROUGHOUT PRINT JOB

AND

TO ENSURE OPTIMAL PRINT QUALITY WHEN IMPACTING FACTORS CHANGE

- Ambient temperature and humidity
- Environmental cleanliness
- Media cleanliness
- Media material
- Ink profiles
- Printed image content, page coverage
- Job content and job length
- Print quality requirements



MID JOB FREQUENCY

Counter Balances External Variations

NEEDED LESS FREQUENTLY WHEN:

- Media is cleaned and environment is controlled
- Using more absorbent media

NEEDED MORE FREQUENTLY WHEN:

- RH <~40% OR >~60%
- Low dot gain media/low media porosity
- Media with high recycled content, more fibers, dusty and not cleaned
- Environment not controlled for dirt, dust, pollen, pollution and contaminants
- Temperature is high and/or duty cycle is high
- High coverage print content or very low coverage



KEEP WET SPITTING (KWS) FREQUENCY COUNTERBALANCES PRINT CONTENT VARIATION

NEEDED LESS FREQUENTLY WHEN:

- High level of random, frequent and consistent nozzle usage across entire PH
- RH > ~ 60%
- Well controlled environment (temp, RH, cleanliness)
- Well controlled media cleanliness

NEEDED MORE FREQUENTLY WHEN:

- Low level of random, frequent and consistent nozzle usage
- Low print coverage
- Primarily using only a section of the PH
- RH < ~40%
- Varying and fluctuating conditions
- Uncontrolled media and printing environment cleanliness (dirt, dust, pollen, pollution and contaminants)



PART 2

ADDRESSING COMMON PRINT QUALITY ISSUES

Learn how to identify and remedy common print quality issues using our best practices.

The overall goal is to help you minimize down time by providing the tools and information needed to adequately address print quality issues.



PRINthead WEAR OUT

Like tires on a car, the VersaPass printhead is a consumable and requires replacement when it wears out.



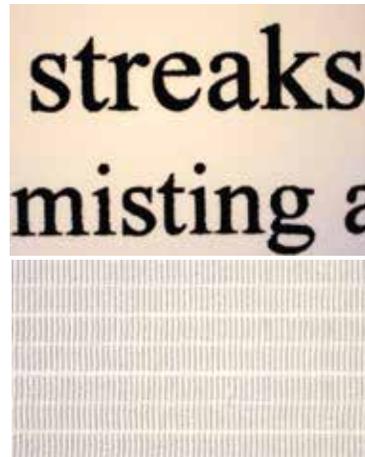
The printhead's useful life is often dependent on how it is used and cared for.

PRINthead WEAR OUT – TEXT

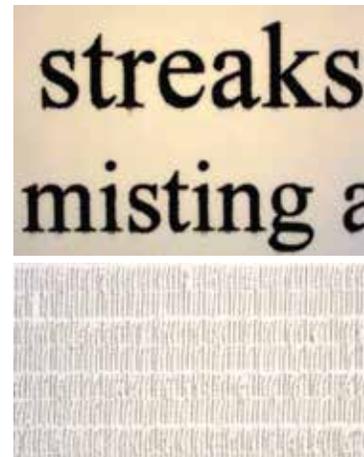
In the beginning of a printhead's life the dot placement is very precise. The image on the left shows sharp text and excellent dot placement in the nozzle pattern.

As the PH is used, the nozzles wear and the dot placement becomes less accurate leading to artifacts, as shown in the image in the middle.

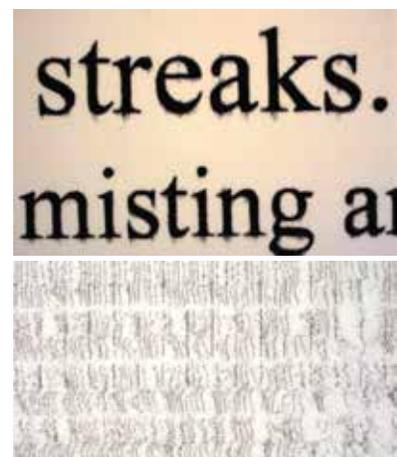
When the PH reaches the end of life phase, the print artifacts are more severe. Inkjet drop tails are more obvious in the text and more frequent. The nozzle patterns from the PH also display severe misdirection. At this point the printhead needs to be replaced.



Dot placement is good.



Nozzle wear, dot placement is less accurate.



Printhead need to be replaced.

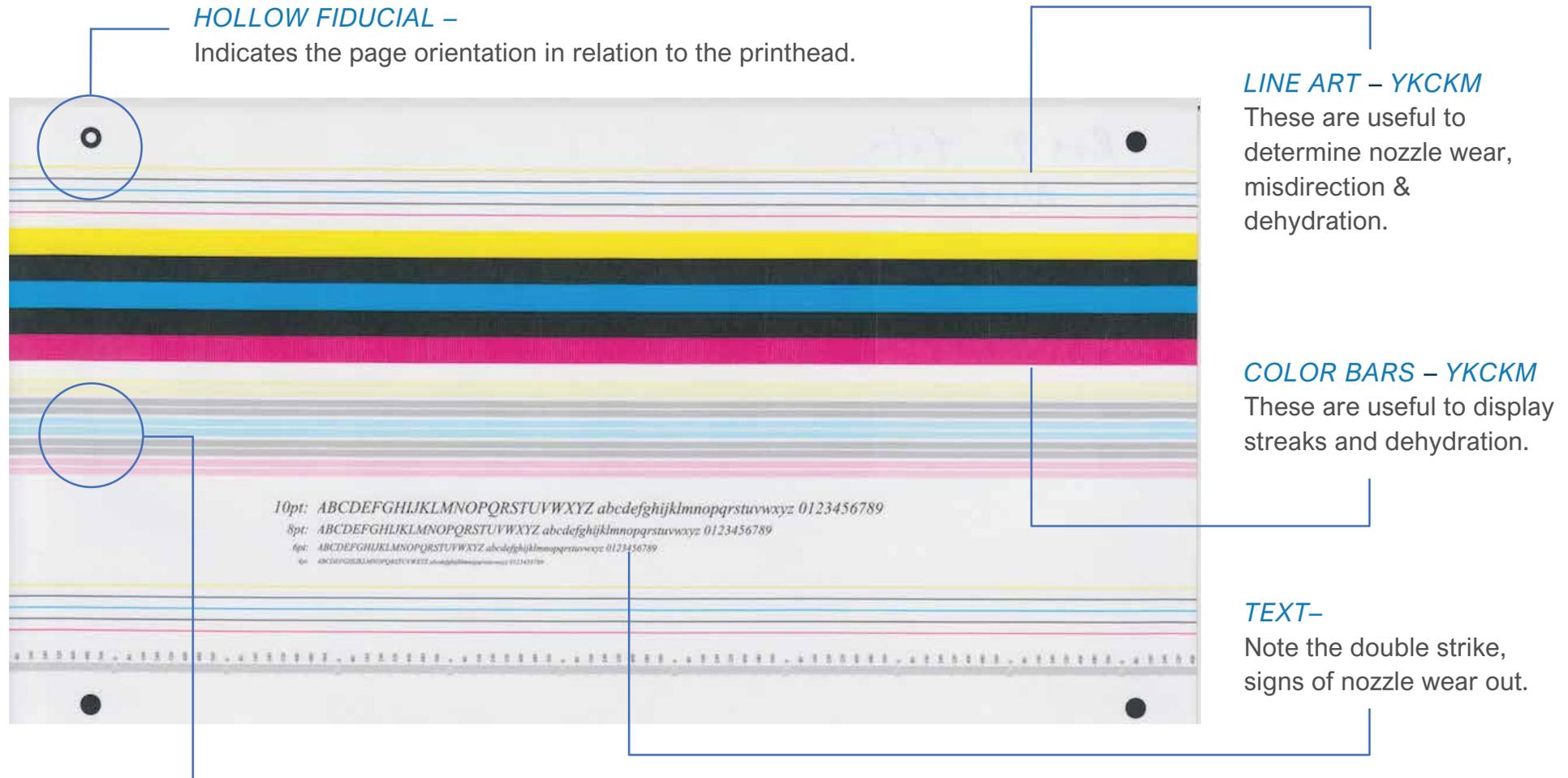
PRINthead WEAR OUT – AREA FILL

Wear out and misdirection look a little different for applications that use area fills, in this case, usage and nozzle wear will display as fine streaks and density shifts across the printhead.

This example shows that black is the most used channel so we see the fine streaks and uneven density in the black channels across the page. With equivalent usage, the other colors would show a similar effect.



PRINTHEAD TEST DIAGNOSTIC



YKCKM NOZZLE PATTERNS – very good for assessing dot placement, overall nozzle health, wear and random contamination & non-ejecting nozzles.

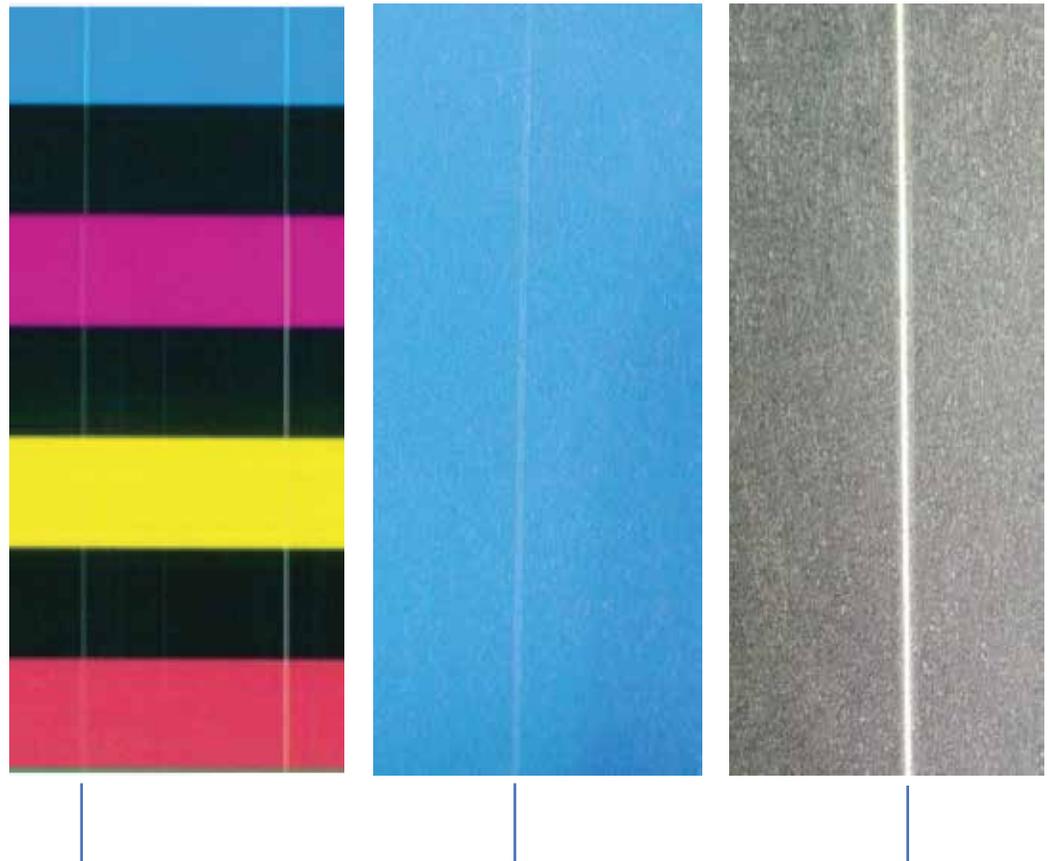
STREAKS FROM CONTAMINANTS

These streaks develop as droplets of aerosol and condensation accumulate on or near the nozzles during printing and block a localized group of nozzles.

Once the droplet gains enough volume it drips off the nozzle face and onto the printed output.

BEST PRACTICES TO AVOID WHITE STREAKS:

- Increase mid job maintenance interval frequency
- Change out the Microfiber Roller (MFR) as recommended
- Keep the printzone clean and free of debris
- Add a media cleaner to the system



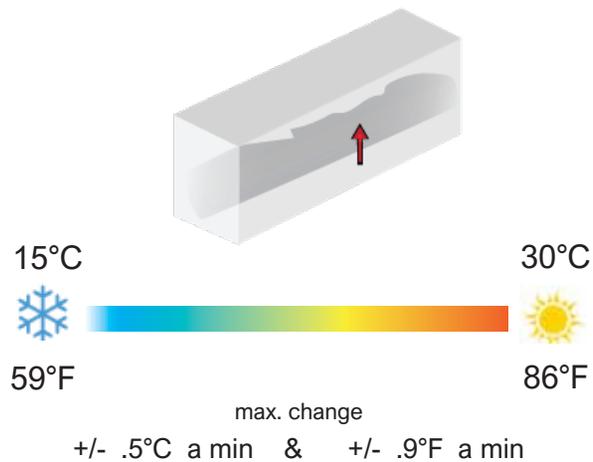
DEHYDRATION

The printhead also has a preferred “comfort level” that we call the operating range specification.

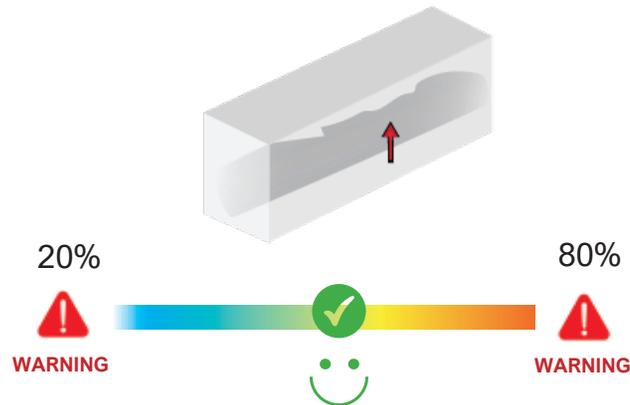
For optimal results, similar to your vehicle, the printhead needs to be used within the operating specifications.



OPERATING TEMPERATURE



OPERATING RELATIVE HUMIDITY

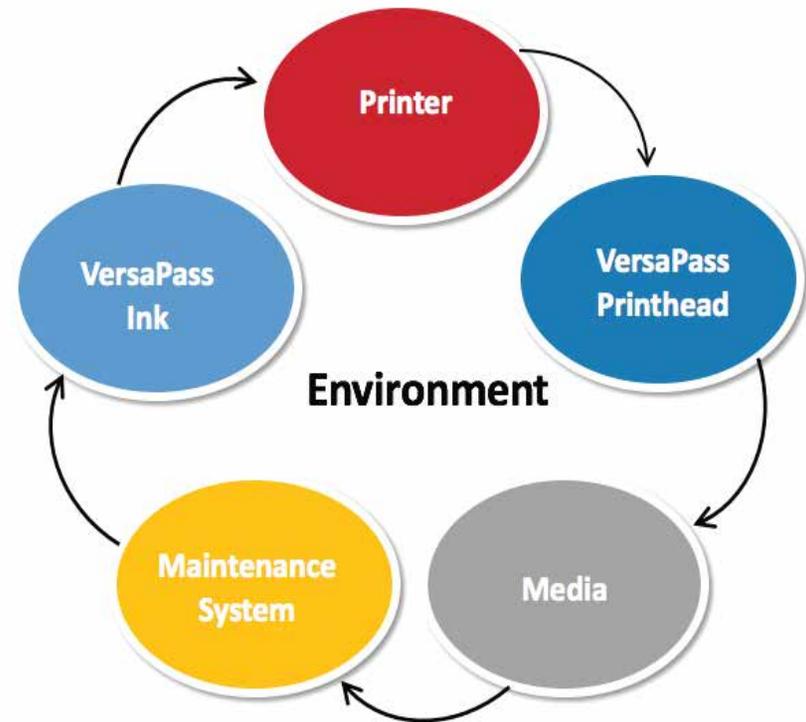


PRINT QUALITY IS ABOUT THE SYSTEM

FINAL THOUGHTS:

Your printer is a complex eco-system with various sub-systems and external environmental factors all interacting to produce printed output.

Your print quality is the net result of these sub-systems and external factors performing together.





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