

- 5 Printed gloss:** There is a correlation between paper quality and the printed gloss of the final product. Gloss level can be influenced by printing process conditions.
- Avoid excessive dampening and high dryer temperatures that cause avoidable fibre roughening and reduce printed gloss.
 - Match the paper and ink to the type of work being printed. Adjust process conditions according to the paper.
 - Discuss in advance with the customer what is realistically possible to achieve in the printed product

- 6 Tone Value Increase (TVI):** Different paper grades have variable Tone Value Increase (TVI) ranges due to their different absorption qualities (e.g. higher dot gains on lower grade papers). tone value increase should be matched to paper and prepress specified accordingly.

- 7 Printed ink density:** Each paper grade has an optimum ink density range, beyond this any increase of ink film weight has a diminishing influence on increasing the density. Too high densities result in poor print quality from filling in of shadow areas, excessive dot gain and poor trap, plus higher ink consumption.

- Ensure prepress profile and density is matched to paper grade and press.
- Include colour bars and patches for densitometer control.
- Use a densitometer to monitor and control ink film weight to avoid over inking.

- 8 High ink consumption:** In some cases SC and newsprint can consume 100-200% more ink than LWC. This is mostly due to over inking and the use of unsuitable prepress profiles.

- Ensure prepress profile and density are matched to paper grade.
- Use UCA and UCR to avoid local over inking.
- Use densitometer control to avoid over inking.

- 9 Ink/water balance:** Ink/water balance is related to the variable level of paper absorption and coating. Poor balance encourages fibre build-up on the blankets or feedback to the ink dampening solution. Ink/water balance needs special attention during makeready and start-up. It is much easier to balance ink and water early in the production run than try to recover balance after it is out of control.

- 10 Ink feedback:** Mostly found after first print unit. More paper debris feeds back with uncoated paper. If paper pH is high, the dampening solution can become too alkaline affecting printing and drying. Ink feedback on uncoated papers requires adjustment to the dampening solution. Other causes include incompatible ink or too high operating temperatures.

- Ensure dampening solution buffer capacity is adequate. Regularly maintain dampening circulation system and change filters. Maintain dampening solution at sufficiently low temperature. Flow must maintain an even temperature across the width.
- Keep press ink and water settings to a minimum by optimum combination of ink and dampening solution to the various papers being run.
- Many coldset printers print black last (C/M/Y/K) which helps them print good solids and text.

- 11 Fibre feedback:** Mostly found on first print unit where loose paper fibres are more easily picked up from uncoated paper surfaces and then feed back through the roller train to the ink duct. A high ink duct roller speed with ink keys closed down tends to trap these fibres in the ink duct and eventually black ink flow to the roller train.

- When running newsprint reduce ink duct roller speed and open ink keys to reduce fibre flowback.
- To reduce linting on newsprint (heatset and coldset) change the black ink type (if this is the first colour printed).

- 12 Drying difficulties:** Uncoated papers can have 100-200% more ink and dampening solution than coated papers. In the worst case of high ink coverage, the dryer capacity may be exceeded requiring the press to be run more slowly. Blistering may occur on coated papers over 80 gsm (55 lbs) if dryer temperature is too high.

- Adjust dryer zone temperature profiles to each paper grade. Check web temperature by IR measurement. Reduce dampening quantity and temperature.



- 13 Linting, picking, piling:** Different papers behave differently on press and have variable blanket build-up rates which are often unpredictable prior to running. There is significant variability within SC and newsprint grades that may affect printing performance from piling, blanket washing and ink feedback. Piling is more frequent on coated grades when the black ink (from the first unit) piles on to magenta or yellow; other factors include incompatible ink to paper, or incorrectly set inking and dampening systems. Piling can be influenced by different blanket release characteristics.

- Ensure correct ink tacks for different paper grades to minimise the problem.
- Ensure blanket selection and setting are correct.
- Linting on newsprint/printed heatset can be severe on the black unit as this first unit carries all text and most solids. Linting can often be reduced by changing the black ink (tack). Coldset ink sequences are more variable.
- Make sure that the last units do not run dry.
- Excessive linting may require a complete press clean prior to running the next job.

- 14 Web Tension:** Different paper grades have variable tension profiles. Incorrect tension settings result in poor press performance, erratic ribbon control, web breaks and possible dot slurring or doubling. The lighter the paper, the lower the tension requirements.

- Optimise web tension setting throughout the press line: use appropriate blankets which are correctly set.

- 15 Folder:** Different folder settings are often required for different paper weights. Lightweight paper may wrinkle if turner bar air pressure is too high and if nip settings are too tight.

- Turner bar air pressure and nip roll settings should be adjusted for different papers.
- Fold cracking of coated papers can be reduced by correct setting of the chopper folder nip.
- Optimum slitter condition avoids excessive dust and ragged edges which may cause web breaks.

- 16 Signature delivery:** A common problem is an over-crushed pile causing set-off. Many signature delivery problems are caused upstream and operators should look at the overall press operation to avoid poor incoming shingle of signatures, or blocking caused by improperly set ink.

- Reset signature delivery equipment when changing paper grade or weight.
- Evaluate the whole press system for origin of signature handling problems.

- 17 Static:** Common problem on SC that mostly occurs at the infeed, first print unit and on high speed folders and signature delivery systems. Static may occur on LWC if the factory environment is dry or paper is very cold.

- Adjust silicone solution to help eliminate static. Add anti static for SC-A; add fabric softener for LWC during very cold and/or dry weather conditions.
- For serious problems assess devices to remove static in the folder and delivery.

- 18 Transit marking:** Mismatched inks, or poor thermal stability may cause bindery problems and transit marking.

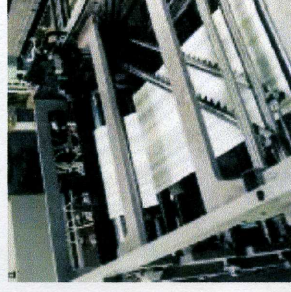
- A wax additive to the silicone solution can significantly reduce marking on gloss and matt coated papers.
- Ensure chill roll heat transfer is correct (temperature and tension)

- 19 Dry back:** Caused by residual solvent subsequently softening the ink resins. A high risk on coated papers over 80 gsm (55 lbs) with extensive ink coverage needing increased drying temperature. Covers that are sheeted for offline UV coating may have problems from solvent retention.

- Match dryer air temperature profiles to paper grade and weight. Avoid excessive peak web temperatures and limit press speed if necessary rather than run too hot.

- 20 Blocking:** Mostly found on SC and occasionally LWC. Usually related to high dryer temperature caused by excessive inking, incorrect dampening, mismatched inks, or inks of poor thermal stability. This problem is worse during the summer in plants without temperature control.

- Ensure printing conditions and consumables allow normal dryer temperature setting.
- Ensure chill roll heat transfer is correct (temperature and tension). Limit press speed if necessary.



- 1. There is a correlation between paper quality and the printed gloss.**

- 2. Ensure prepress profile and density are matched to paper grade and press.**

- 3. Blistering on coated paper.**

- 1. Piling is more frequent on coated papers.**

- 2. Lightweight paper may wrinkle if folder settings are incorrect.**

- 3. Handle signatures gently to avoid transit marking.**