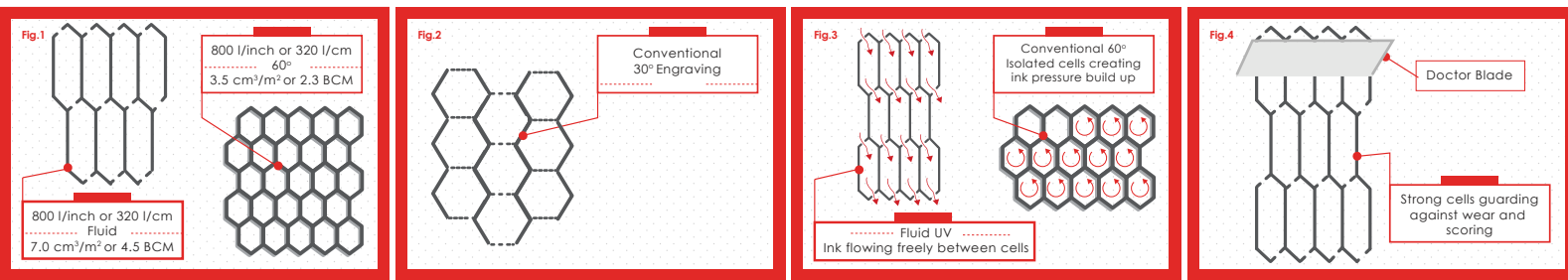


HD & Combination Engraving (Solid and Tone)

- ✓ Elimination / Reduction of UV ink 'spitting'
- ✓ High line counts allowing for HD print capability and lowering dot gain
- ✓ Vibrant HD colours
- ✓ Reducing anilox inventories due to increased print latitude
- ✓ Combining solid and tonal print on one plate unlike 60° engravings
- ✓ Improving solids, improve ink lay and reduce pin-holing
- ✓ Greater release characteristics keeping print cleaner on the run
- ✓ Smoother cells with greater doctor blade support reducing vibration, increasing print consistency and making the engraving more resistant to scoring
- ✓ Increased lifespan on wear against conventional 60° engravings in normal operating conditions
- ✓ Increased cleaning characteristics



Fluid UV - Combination Engraving (Solid and Tone)

Fluid UV is the evolution of our highly successful HVP and iPro engravings developed over 9 months to reduce ink 'spitting' amongst other print benefits. Fluid UV is a semi-channelled engraving which allows an easier and controlled flow of ink between cells whilst maintaining a strong element of cell control.

Enhanced Print Quality

As with the Sandon iPro engraving, Fluid UV is capable of HD quality print. Its cell structure allows for a more robust cell formation which enables our laser engineers to increase the line counts of anilox whilst providing a stronger engraving design. Higher line counts give increased print quality and ink control for fine highlight print with low dot gain and vivid HD colours making Fluid UV ideal for HD print.

Also, like HVP, Fluid UV allows customers to combine good solids and tonal areas on one plate by utilising high line counts and high volume through its unique cell design. This is in contrast to 60° engravings which are only capable of offering either high volume or high line count but not both. This increased print latitude allows customers to decrease their number of anilox specifications helping improve print consistency and press efficiency. The increased amount of cells in a sq/cm give better print resolution as the ink releases from the cells in a more controlled manner leading to an improved all over lay. This control element allows our customers to print vignettes and tonal areas without large deposits of ink bridging in fine areas. Depositing more ink with greater control is why Fluid UV is the perfect combination anilox to help printers reduce their inventory.

Fig.1 A comparison between the cell configuration and capability of a Fluid UV and conventional 60° engraving.

UV Ink 'Spitting'

'Spitting' creates down time and a loss of print efficiency. Fluid UV has been developed specifically to reduce if not eliminate this issue. Often the solution to 'spitting' is for customers to revert back to outdated engraving styles such as channelled 30° cells with poor print characteristics. Fluid UV allows our customers to harness improved print quality and inventory reduction but with the added benefit of reducing or even eliminating ink 'spitting'.

Fig.2 Conventional 30° engraving with poor print characteristics. An outdated solution for ink 'spitting'.

UV ink 'spitting' is caused by a number of factors ranging from ink type, temperature, doctor blade, doctor blade unit and the anilox engraving in use. There are two factors that can cause an anilox specifically to 'spit':

- 1) Isolated cells with too few gaps between each other can cause a build up of ink pressure in individual cells causing inconsistent release resulting in 'spitting'. Fluid UV tackles this by creating an open style engraving preventing the build up of pressure within cells.

Fig.3 The open nature of the Fluid UV engraving with ink flowing easily around all cells stops ink pressure build up in comparison to isolated cells.

- 2) Anilox can cause 'spitting' if its surface finish is inconsistent due to insufficient micro-finishing after laser engraving. Re-cast produced after laser engraving creates inconsistencies on the anilox surface which can create vibration on the doctor blade causing ink to 'spit' between the blade and anilox. The open format of Fluid UV means that we are able to give the cells enhanced micro-finishing, smoothing the cell surface which decreases vibration on the doctor blade and therefore reduces the likelihood of 'spitting'.

If a conventional engraving is given additional micro-finishing it will stop the 'spitting' caused by blade vibration, conversely however, it is likely to still create 'spitting' by producing closed cell walls that increase ink pressure build up. Fluid UV combats both of these factors. The semi channelled nature of the cell allows our operatives to increase the micro-polish on the engraving thus reducing vibration against the doctor blade without closing the cell wall.

This semi-channelled style additionally stops the build up of UV ink pressure.

Increased Cleanability

A major benefit of Fluid UV is that the anilox will stay cleaner for longer as the ink is less likely to become trapped in the cell due to its open nature. If the cell does become blocked with ink, the open nature of Fluid UV allows for easier cleaning with both hand chemicals and mechanical methods. This ability for the anilox to stay cleaner for longer allows improved efficiencies through an increase in volume consistency both during use and after cleaning.

Lifespan

Tests show that lifespan of the anilox is improved due to the increased release characteristics of Fluid UV meaning that ink continues to release well from the cell configuration over time.

Due to the flowing nature of Fluid UV, we are able to increase the automated micro-finishing process that is conducted after engraving. On traditional cells this increased "polish" would create poor release characteristics by creating a closed cell wall. However with the open nature of the Fluid UV design, we are able to increase micro-finishing without compromising cell release characteristics. The major benefit of this is to create a stronger, smoother cell that is more robust against the doctor blade, which makes the cell more resistant to polish and score lines and therefore offers the printer a potential benefit in terms of lifespan. Furthermore the smoother engraving creates less vibration against the doctor blade and therefore improves print consistency.

Fig.4 The extra micro-polishing of the engraving allows for improved resistance to wear and scoring.