

# Print Quality – The silent killer

The Southern African print market has accepted the existing quality and registration standards for years, but at what cost? Now, Heidelberg has a powerful solution which is a true enabler to uplift quality standards and differentiate a printer from his peers. Printing – as you all know – is all about layering different ink colours on top of one another to create a full-colour image. In the litho market this is usually based on the four process colours, although special colours can also be included. Every ink layer that is put down increases the possibility of mis-register with the chance that this will impact on print quality.



The human eye is capable of picking up very minor variations in register and colour variations. You may wonder just how sensitive it is. Register is measured in 100ths of a millimetre, the human eye can pick up variations as small as 300ths (0.03mm) and smaller. While this small amount will appear as almost negligible, a tenth (0.1mm) of a millimetre will be very clearly distinguishable. But, what are the causes of mis-register?

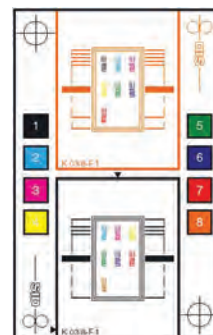
There are actually many possible reasons for mis-register to occur. One of them could be infeed & transfer problems. Then there are others such as flying transfers, wrong transfer gaps settings, wrong packing from blanket and transfer cylinder, ink-form and damper-form roller setting, gear alignment, and of course through to paper quality, paper condition and even paper mis-feed. The difficulty arises in determining the cause of the mis-register. On-press adjustments can be made and regular maintenance can be carried out however with the POS (Passer Optimisation System) Print Test from Heidelberg, Heidelberg technicians will be able to analyse and improve the print quality of a customer's press.

The comprehensive POS test print (Press Registration Evaluation) from Heidelberg can help printers to determine the causes for mis-registration which usually results in short-long-, fan-out-, bow printing, doubling and colour variation. The system uses special test plates, which can be developed onsite or provided and produced by Heidelberg to check the print quality on the press and measure variances in registration from the infeed right through to the last unit on the press, regardless of the number of units.

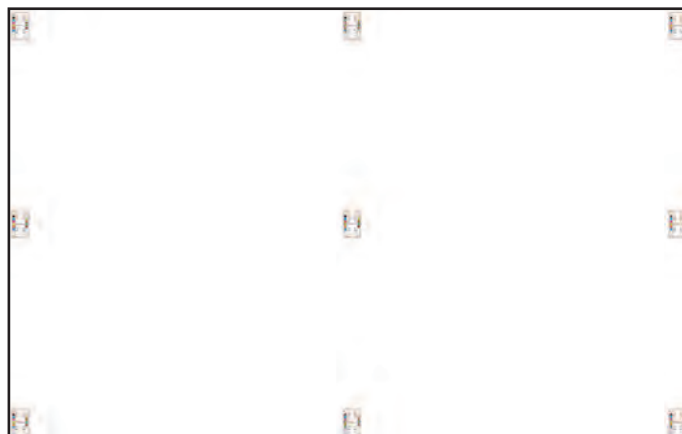
As mentioned before, this print test allows Heidelberg to evaluate the Print quality of the press and at the same time to analyse where adjustments need to be made to achieve optimisation on the press, which will improve the quality and reduce operating costs for the customer in the long run.

According to Hans-Joachim Eichhorn (known as Joe), national service manager at Heidelberg Graphic Systems Southern Africa, the Press Registration Evaluation can be offered to any printer regardless of the type of press because it is based

on actual and measured print results. Joe added, 'The system uses standard measuring equipment and techniques combined with proprietary software from Heidelberg. Here at Heidelberg Southern Africa we have the only system of its kind on the African continent.'



The nine POS elements and how they are positioned on the test plate.



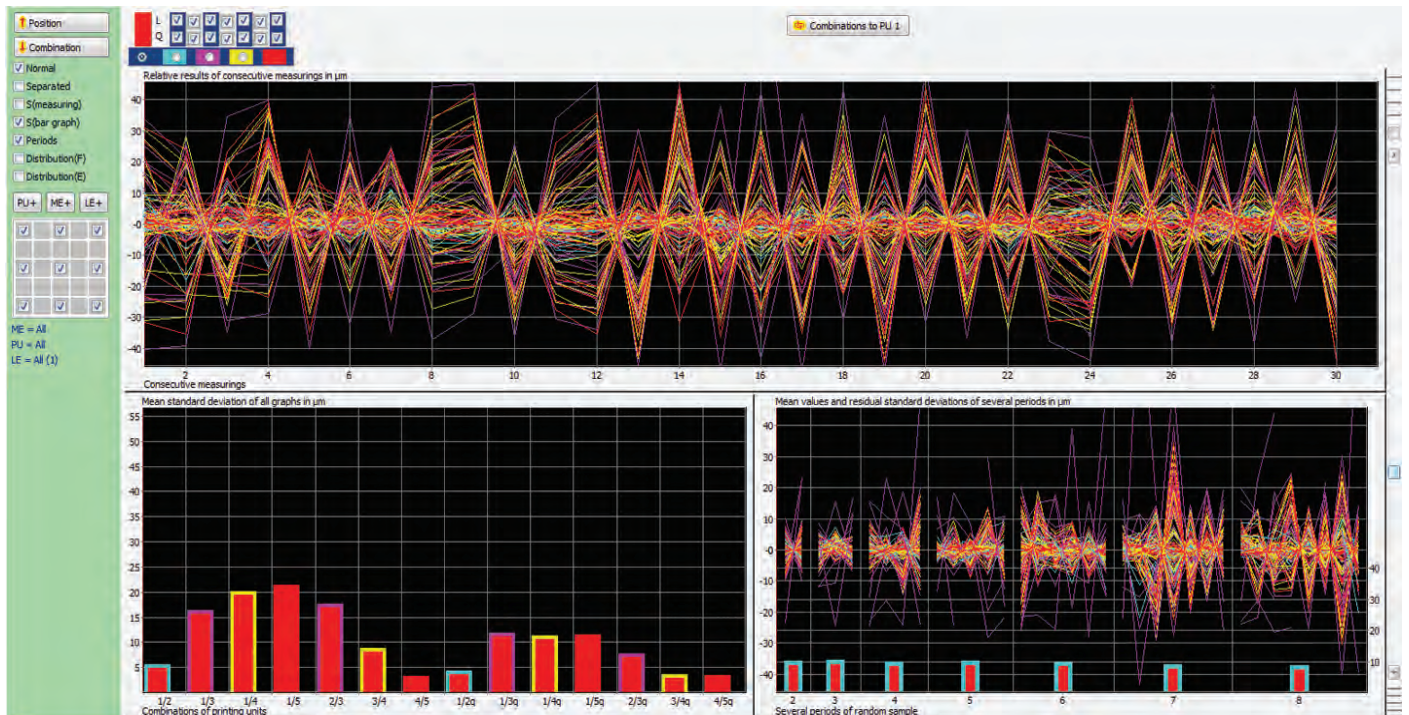
Above are examples of how mis-register can affect an image. The watch on the left is in register, the rest are not.

The system is developed by the Saechsische Intitut fur die Druckindustrie (SID) to measure the variation in sheet position from unit to unit and to produce a visual representation of the variation. The entire test is based on a special print run featuring a specific test pattern on a structured grid. The run is based on an average of 3000 sheets of 135gsm maximum size paper. In order to ensure that the problems being experienced on the press are not related to operator or to wrong settings, the instructor from Heidelberg will replace all the blankets and ensure that they are correctly mounted and packed. Ink-form and damper form rollers will be visually checked and adjusted if needed, all other variables such as fountain solution, are also checked and optimally set by the Heidelberg instructor.

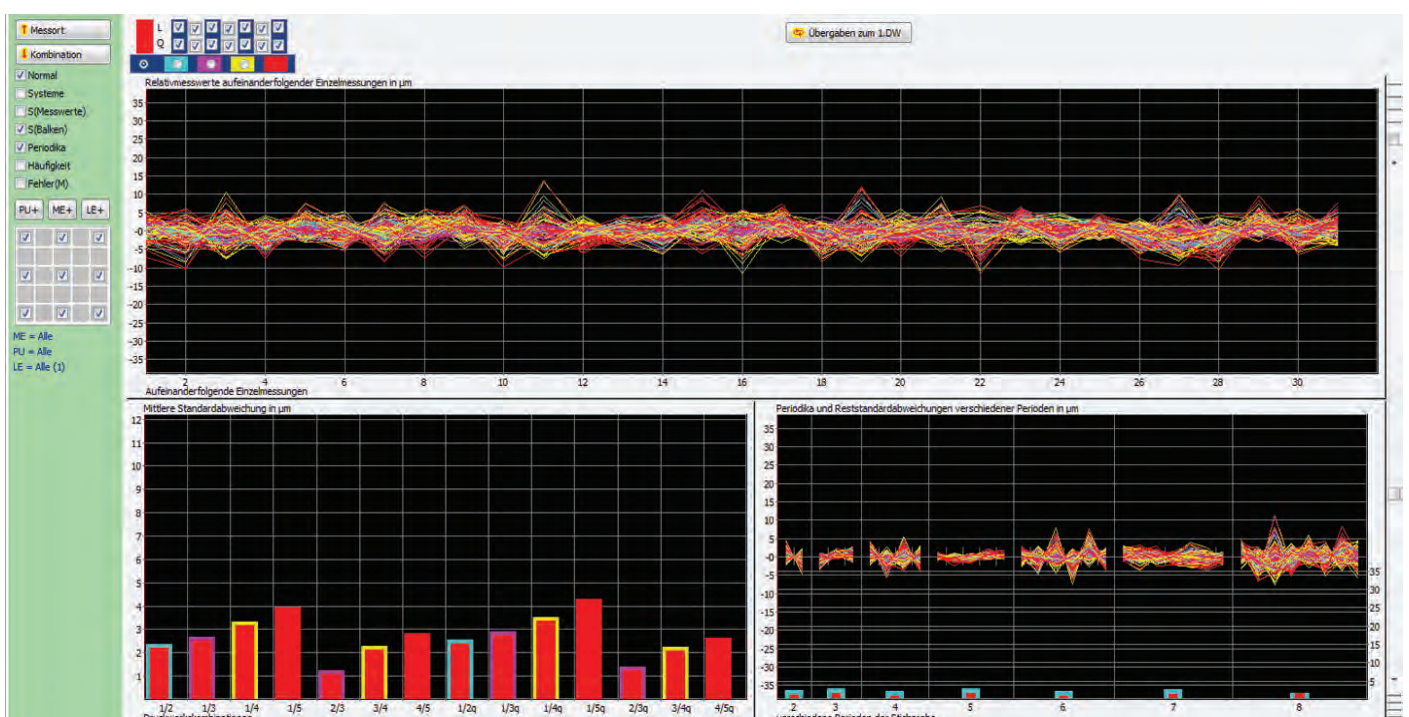
The print test run is then completed at 85 percent of maximum press speed, if

possible. Once completed, a sequence of 30 sheets is selected and these are the ones that will be measured and evaluated. The sheets feature nine reference points which are scanned and the data analysed. The compiled data shows the extent of the variation and can also give an indication of where the greatest variation occurs allowing the specialists at Heidelberg to determine where the problem may be situated. Register is checked first, both individually from unit to unit in the lateral and circumferential directions and at the same time the entire press undergoes an evaluation.

Joe commented, 'The comprehensive analysis and report will allow us to inform the customers of the possible reason(s) for the variation and allow them to take the necessary steps to correct the problem(s). We can provide Heidelberg press



The image above is captured from test sheets printed before service intervention and corrective measures have been taken. The image below is after intervention to show that registration has been corrected.



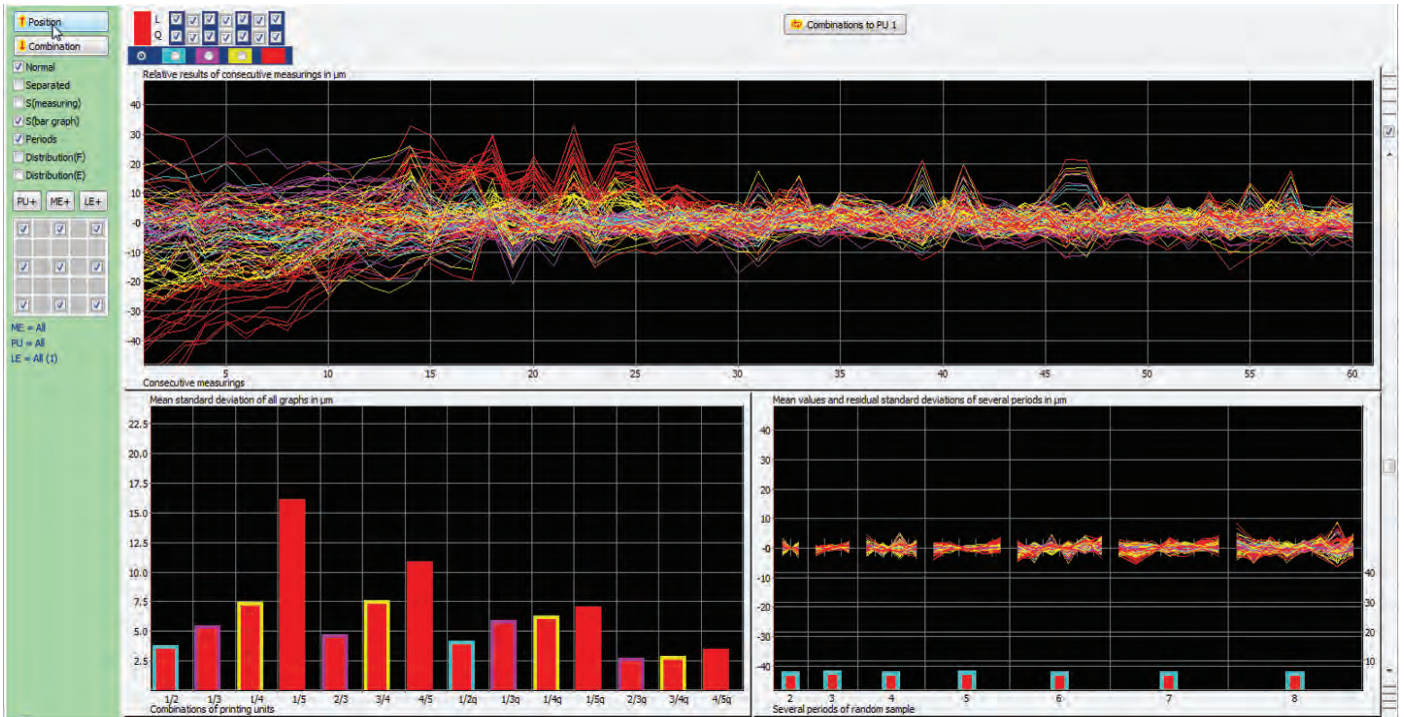


users with the necessary service required to bring their presses up to full factory specification once again. However, for non-Heidelberg users, we can give them the same in-depth report but won't be able to do the necessary repairs. This system will allow companies to improve their print quality and at the same time reduce makeready time and costs, reducing waste due to poor register and ensuring customer satisfaction.'

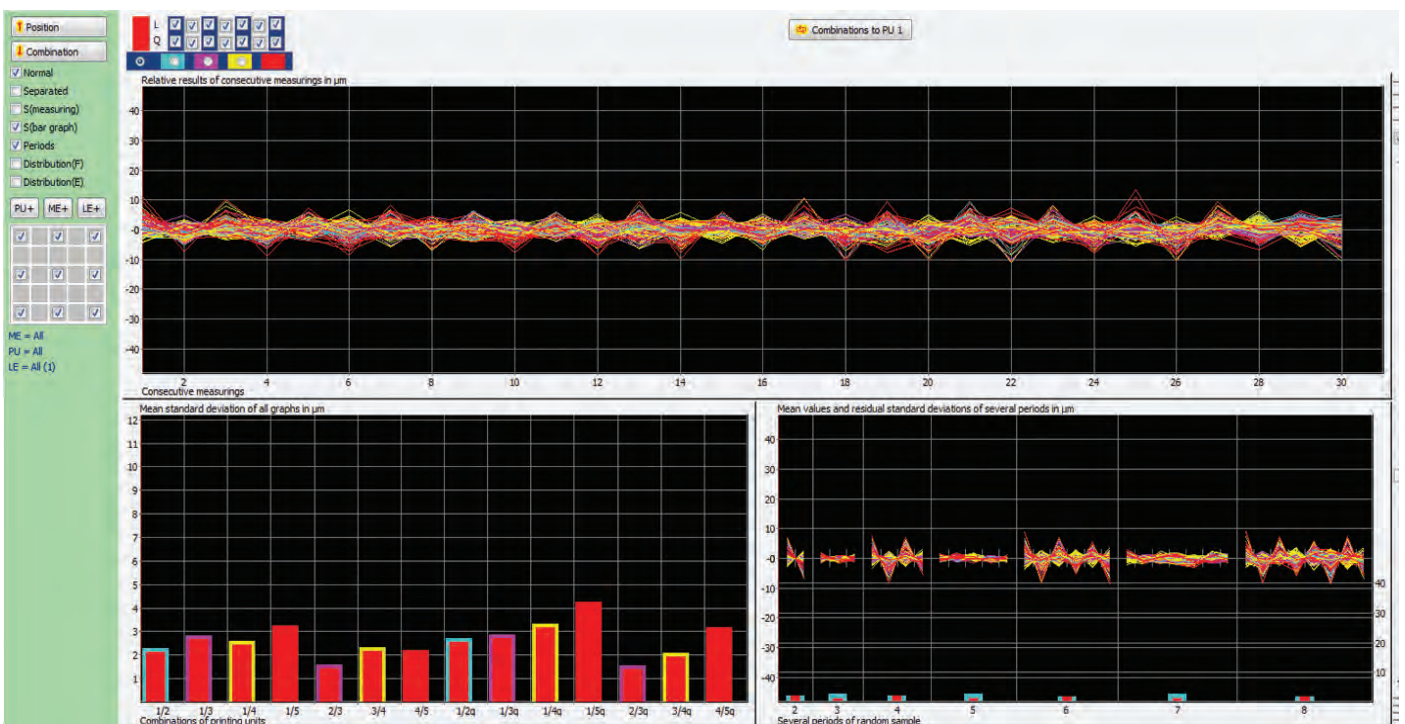
Evaluation of the data is done at the Heidelberg head office in Johannesburg. This evaluation is based on extensive training given to Heidelberg service staff in

the use of the system. The print test on a six-colour press will approximately take a full day from start of press set-up to completion. The more units on the press, the longer the test will take. The scanning and evaluation of the data is therefore, done off-site to reduce the amount of downtime on each press.

Joe added, 'We do not want to interfere with customers' productivity so we will schedule the print test at a time which is convenient and will have the least impact. We can even schedule the test to be done over a weekend when it is easier for the company to hand the machine over to us.'



The image above shows the effect of poor paper condition or quality of the paper. The image below is printed using good paper in good condition.

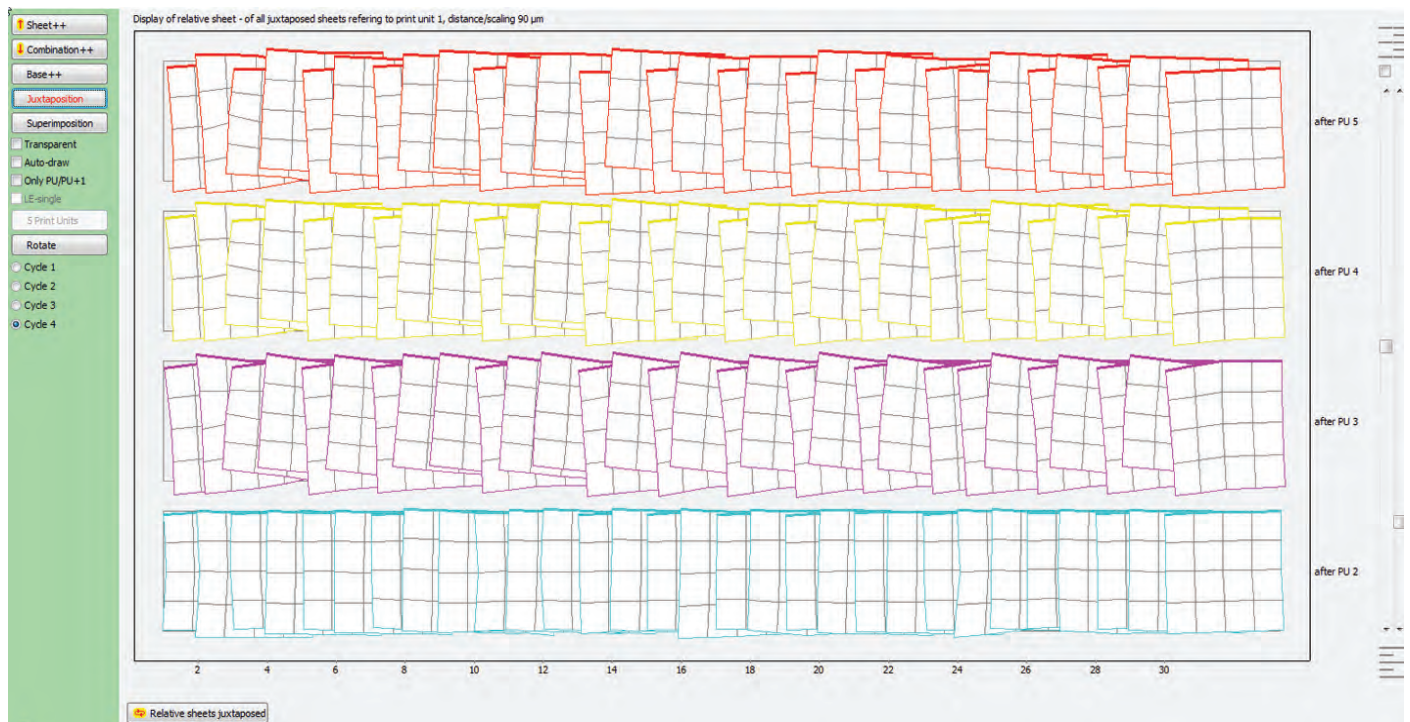




For customers with Heidelberg preventative maintenance contracts, the POS test is included for one test per year. This ensures that presses covered by the contract consistently achieve optimum performance. Joe recommends that all presses undergo the test at least once a year. Even new presses should be checked annually. He added, 'We specifically recommend this test for new presses because correcting any problems early can extend the life of the machines by ensuring that they operate correctly and do not suffer from unnecessary wear.' In saying this older machines are equally important especially when a client is looking to make a purchase of a remarketed press. Without the print test having been done printers never truly know how the machine performs prior to dismantling and how it is performing after

commissioning. It has allowed Heidelberg SA to expose fundamental problems on so called "refurbished" presses installed in the market. Considering that Heidelberg SA is the only supplier who is able to offer this service it has strengthened our position in this arena. To conclude, it offers printers the ability to improve quality, eliminate problems and save costly repairs by preventing breakdowns. This is evidenced by one of Heidelberg's customers having recently conducted the test and as a result has saved up to 20 percent in makeready time, improved print quality and increased productivity enormously.

For further information and booking a print test, contact Heidelberg Southern Africa on [HZA.service@heidelberg.com](mailto:HZA.service@heidelberg.com)



These images show the sheet position in relation to proper register. The one above is before corrective measures have been taken and the one below is after, showing how the sheets all fall within acceptable parameters.

