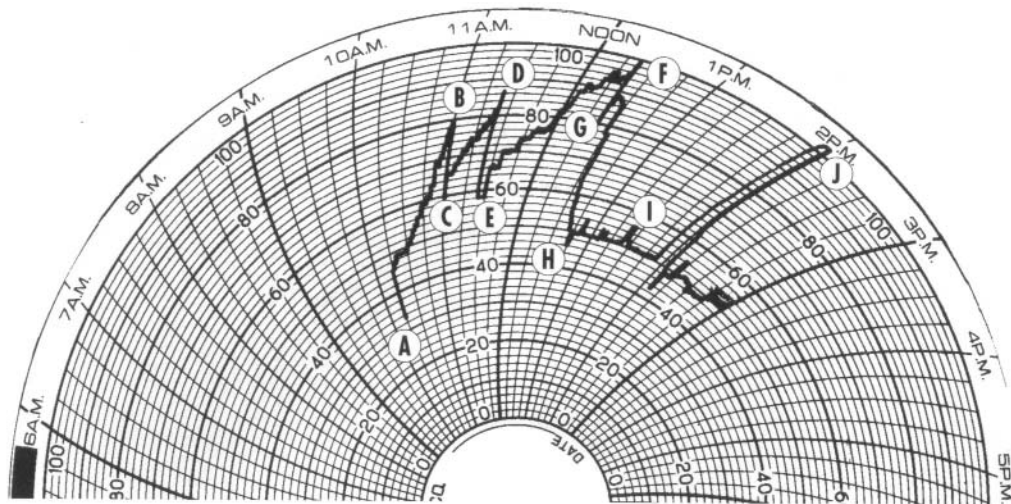


## Automated Control

Reprint 155

### Automated Viscosity Control Trial Study



#### Objective

To compare the level of control over ink viscosity achieved manually by a print operator using a Zahn Cup with that achieved by the Norcross automatic viscosity control system.

#### Procedure

The Norcross automatic control system was set up on an Olympia 736 CI press. The system consisted of an MP90 control unit and an ISM8B0 measuring element. In turn, this equipment was connected to a circular chart recorder, which would record ink viscosity over a period of several hours. The measuring element was installed on an ink tank containing white ink and the controller put into manual mode to record the control over viscosity achieved by the operator. After several hours, the Norcross system was put into automatic mode and the results similarly recorded. These results can be seen on the above paper chart.

Point A denotes a starting point viscosity of 19.6 Zahn 2 seconds (actual job specified viscosity 20). Over the following 50 minutes, a steady increase in viscosity is shown up to 21.6 seconds (point B), at which point the operator added solvent to correct the discrepancy, bringing the viscosity down to 20.7 (point C). The following 40 minutes show a rise to approximately 22.1 (point D), at which point the operator made a solvent addition bringing the viscosity down to 20.4 (point E).

The next 70 minutes show a steady rise in viscosity up to 22.3 (point F), at which point the operator added both solvent and ink bringing the viscosity down to 21.6 (point G). After a further 15 minutes, the operator added more solvent, which brought the viscosity down to the specified figure of 20 seconds (point H) and put the Norcross system into 'automatic' mode.

The following 4 hours show the Norcross system controlling the viscosity to between 19.9 and 20.4 Zahn 2 seconds by making automatic addi-

tions of solvent whenever the viscosity exceeded the systems control range, which in this instance was set at 2%. The only exceptions being points I and J when the operator made additions of ink which were clearly out of spec, causing an increase in viscosity which was then corrected by the viscosity control system.

The use of a Norcross system as an integral part of the press and printing process would give a level of control not achievable by an operator using a Zahn Cup. Control to within 2% of set point has been shown by these tests to be achievable. The use of a Shell Cup rather than the less accurate Zahn Cup should form part of the viscosity control system and would help to ensure that 'in spec' ink is added to the ink tank when topping up.

This illustration, coupled with actual ink usage test conducted during this trial, revealed savings in the region of 22%. In addition to the cost savings, there was a simultaneous improvement in product quality and consistency.