

Screen dots are influenced upon at each stage of production

There are many reasons for tone displacements and, as a consequence, colour discrepancies in offset printing. If we look at the limited working phases from screening to production run only, not considering therefore the process of colour selection, there are still more than a dozen factors left which by themselves or in combination affect tone and quality.

Table 1, although incomplete, briefly lists these factors.

Criteria for evaluation of print quality

If they are not measured, the various factors which influence print reproduction are usually misjudged. Consequently, every effort towards quality control is a waste of time and money. It has been presumed for a long time for example that colour discrepancies in the production run were mainly caused by colourmetric differences and by ink film thickness, and exaggerated hopes were placed in printing ink normalization, as this has been done by the European Scale for example. Many printshops bought reflection densitometers in order to be able to measure ink film thickness against solids and to keep thickness constant. But since tone displacements in printed illustrations usually occur in the screen and not in the solids, many false conclusions were drawn from exclusive measurement of solids. As a result, many of those densitometers fell into disuse and got dusty in some hidden corner of the printshop.

Perception of tone displacements and colour deviations

The Brunner System, which has been in use in Switzerland since 1969, gained wide acceptance in most European countries and gave new impulses to offset quality steer-control. The incorporation of a control element consisting of fine screens and coarse screens enables direct densitometrical measurement of screen dot enlargement without slide rule or log tab. As experience has shown many times, the most frequent and most serious reason for tone displacements and colour deviations is screen dot enlargement. In