



## Mechanical ghosting

### Appearance

Mechanical ghosting is a typical fault that can arise under certain circumstances in the heatset web offset process. It manifests itself in fine halftone areas and as a rule only in areas with in parts greater ink coverage on the reverse side. After several thousand revolutions, these areas with greater ink coverage on the reverse become visible in the halftone area, producing as a darker, more intensive image definition.

### Where can mechanical ghosting arise?

In principle, mechanical ghosting can arise in any – top or bottom – printing unit; magenta is the colour most affected, while yellow is practically never affected.

### Cause

This defect is always the result of non-uniform releasing of the paper web from the rubber blanket, caused by differing adhesion in fine halftone areas and image areas with greater ink coverage. The problem becomes apparent through the colour, but the potential causes are far more complex. For instance, the following factors can promote mechanical ghosting:

- layout of the forme
- absorption capacity of the substrate
- release characteristics of the blanket
- tack of the ink
- setting characteristics (speed) of the ink
- web tension
- reference colour.

To be able to pinpoint the origin of a case of mechanical ghosting, the following questions have to be answered:

- Which ink (colour) is causing mechanical ghosting?
- Is the fault occurring in the top or bottom printing unit?
- Does the blanket being used support good release of the web?
- When was the blanket last changed?
- Is the tack of the ink suitable for the substrate?
- Is the setting speed of the ink suitable for the substrate?
- Does mechanical ghosting occur in the reference colour?

### Remedy

Experience shows that in most cases it is an accumulation of several factors that is responsible for mechanical ghosting. Just as diverse are the potential solutions to be tried out. The remedial measures stated below would appear at first sight to contradict each other, but they depend upon the design-related tear-off angle of the web (rubber cylinders of the top and bottom printing units verti-

cally one above the other, top cylinder offset to the front or back.) Depending upon the constellation, making the following modifications to parameters can bring about improvements:

- using a less tacky ink in the printing unit with the greater ink coverage
- using a slower-setting ink (pay attention to drying)
- using a blanket with better release
- increasing the web tension
- reducing the web tension
- reducing the fountain solution delivery to a minimum
- changing the reference colour (e.g. to yellow).

Use of alternative fountain solution additives – with or without isopropyl alcohol (IPA) – has so far not proven to bring about any improvements. As regards stocks, light-weight grades are more susceptible to mechanical ghosting.