

Quality control of rubber blankets with a densitometer

Densitometers have already been put into use in many printing works for measurement of ink film thickness. Even if this application is not yet entirely free from problems, at least it makes an important contribution to the maintenance of constant and precise colour in the printing of multi-part posters and cartons. The closer approximation of proof to production sheet is also better achieved with densitometer measurement. Outstanding results have been obtained in comparative measurements of printing inks for their intensity and purity. Not least, the sharpness of image transfer on a press can be tested or compared with another image. In addition, the influence of the blanket covering on image transfer is measurable and can therefore be evaluated objectively. This article is concerned with the testing of blankets with the densitometer for quality control of image transfer.

There has always been a great wealth of sources of blanket supply on the market. One printer would swear by the quality of one make, while another was convinced of the quality of another blanket. The characteristics of a blanket were not measurable but were subject to an instinctive and often arbitrary judgement, and there were many prejudices which could not be overcome, for nearly all visual judgements are without any objective basis. The situation became especially significant in the past few years

through the introduction of 'air-cushion' blankets, whose characteristics are very different because of their compressibility. Image transfer, durability and price vary greatly from one type of blanket to another, so that it is very difficult to evaluate an offset blanket correctly.

The densitometer allowed new methods to be developed in this case as well, allowing an objective comparison to be made at least in relation to the faithful transfer of image from the plate to the paper. The effects of various printing settings can also be measured. Nevertheless, some aspects of blanket quality must still be judged as before. The tests described below give results of lasting value to the printer. Only in this manner can the most suitable blanket be selected, from the wide choice available, for a given factory and a given job.

It is not important which machine is used for these tests but it should be of the largest possible format. A printing plate with unchanging tonal values, e. g. a tri-metal plate, should be used. Naturally the paper, the ink and the damping feed also remain unaltered. For this test a coated paper and black ink are recommended. Time required is 1 to 2 hours per blanket. Before beginning, a table must be prepared in which the main points investigated are listed and the results entered. The table may be as shown in fig 1.

Blankets

1. Make	A	B	C	D	E	F	G	H
2. Solids	cloudy	even	very even	very cloudy	cloudy	even	cloudy	very even
3. Wet density Solids & tone $\frac{Dv - Dv}{Dv}$	1.39	1.43	1.34	1.35	1.28	1.67	1.55	1.60
Contrast $\frac{Dv - Dv}{Dv}$	0.51	0.53	0.49	0.49	0.47	0.59	0.56	0.57
4. Dry density Solids & tone	1.30	1.24	1.30	1.29	1.23	1.60	1.48	1.47
Contrast	0.46	0.45	0.47	0.48	0.48	0.58	0.54	0.55
5. Surface smoothness	bad	moderate	good	very good	good	very good	bad	very good
6. Pressure point 0.5 mm after 50 sheets	clearly visible	visible	invisible	faintly visible	faintly visible	invisible	visible	invisible
7. Print width at sheet-end	+0.50 mm	+0.30 mm	+1.00 mm	+0.50 mm	+0.20 mm	+0.20 mm	+0.30 mm	+0.10 mm
8. Signal Strip at sheet-end	ghosting	faint ghosting	good	good	moderate	very good	good	very good
9. Plate pressure 0.1 mm plus wet contrast	0.40	0.50	0.48	0.48	0.42	0.58	0.49	0.56
10. Signal Strip at sheet-end	strong ghosting	ghosting	good	faint ghosting	ghosting	very good	good	very good
11. Blanket pressure 0.1 mm plus	0.44	0.52	0.48	0.49	0.47	0.58	0.55	0.57
12. Adhesion strength	15 mm	20 mm	10 mm	15 mm	25 mm	10 mm	15 mm	5 mm
Total	19	37	44	37	31	75	44	77

The values are only assumed and do not refer to any particular make

A, B, C, D, E = Conventional blankets
F, G, H = Compressible blankets

1 point = lowest score
8 points = best score