KIWO®ExpoCheck

Exposure calculator

The KIWO ExpoCheck consists of two separate film positives of different resolution – and a 9-step grey filter film. This combination does not only allow the determination of the exact exposure time and exposure tolerances, but also the degree of printability of any artwork on the respective mesh.

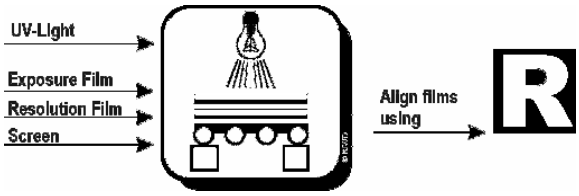
Instructions for use

1. Choice of the appropriate resolution film

Chose the resolution film which comes closest to the artwork used in production.

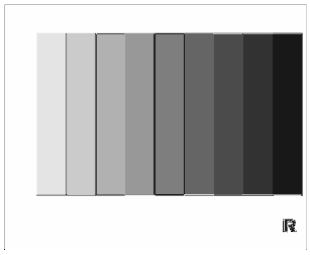
Pattern	no. of threads / cm
Resolution mesh count >77	77 and more
Resolution mesh coung <77	77 and less

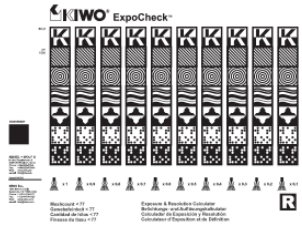
2. Positioning of the films



Place the grey filter (Exposure film) and the resolution film on the screen, aligning the “R” fixing sign, so that the emulsion side of the resolution film (artwork legible) contacts the coated surface of the screen (see diagram)

The screen is now ready for the test exposure and can be placed in the exposure unit.





3. Determination of the test exposure time

First calculate the approximate exposure time. This can be, for instance, the average exposure time currently used in production, or the average exposure time indicated by the producer of the emulsion.

ESTIMATED EXPOSURE TIME X 2 = TEST EXPOSURE TIME

Example: estimated exposure time = 80 s; 80 x 2 = 160; <u>test exposure time = 160 s</u>

4. Test exposure, developing and drying

Note: Exposure, developing and drying have to take place under production conditions, i.e. parameters like lamp intensity, lamp distance, water pressure, water temperature, drying temperature, etc. should be the same as the values used in normal production.

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5. Determination of the exposure time regarding full stencil hardness

Check the ten differently exposed steps on the test stencil. Determine the area in which the colour is identical to colour of the emulsion and note the factor found above the line (x 0.1 – x1)

6. Determination of the exposure time regarding the optimum resolution

Evaluate resolution, edge definition and mesh bridging for all 10 exposure areas and determine the area with the best reproduction of the resolution film. Note the value found on this area.

NOTE:
An overexposure can be established if fine negative details (e.g. picture elements) get smaller or disappear due to undercutting of the film positive, i.e. the details cannot be developed any more, fine lines lose edge definition.

In the case of underexposure where the emulsion could not react sufficiently with the UV light, uncured emulsion will be washed out when developing. The consequence is insufficient fixture of the emulsion in the mesh, fine details fall out and resistance to long print runs is insufficient.

7. Determination of the optimum exposure time under production conditions

Determine the exposure time according the following formula:

TEST EXPOSURE TIME X FACTOR = OPTIMUM EXPOSURE TIME

Example: test exposure time = 160 s; factor = 0,4; 160 x 0,4 = 64; <u>optimum exposure time = 64 s</u>

It is possible that the optimum curing time and the optimum resolution exposure time differ slightly. For the final determination of the production exposure time, the requirements of the artwork should be the deciding factor, because: optimum curing = high resistance to long print runs, optimum resolution = finest detail quality.

We recommend a proof copy in order to gain final security.

8. Procedure at limiting values

If the exposure gives a factor value of 0,1 or 1, the test exposure time that was chosen is too high or too low. A new test should be made with the exposure time calculated in paragraph no.7 and the procedure repeated.