

FOTECFILM 5020 RUBIN

Red, Indirect Photo Stencil Film, gelatine based

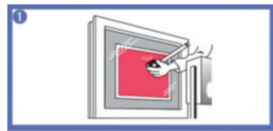
1. DESCRIPTION

The **FOTECFILM** has a protective coating allowing processing under all climatic conditions. The film is based on 50 µm polyester carrier foil and appropriate for all inks except those containing water. On meshes from 100-40 (white or yellow) and up, **5020 RUBIN** creates a stencil thickness of approx. 2 µm with an Rz-value of 2 µm.

2. HANDLING

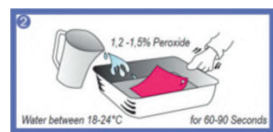
EXPOSURE

- Use a right reading, high quality film positive. Expose in a vacuum frame through the film carrier.
- Light sources and exposure times are indicated on reverse side.
- Always make a step-wedge exposure to determine the right exposure time. Overexposure is dangerous.



DEVELOPMENT - HARDENING

- After exposure, evenly immerse the photo stencil film in the hardening solution for 90 seconds. This should be at a temperature of 18-24°C and hardener solution ideally made from Developer Powder **FOTECHEM 2200 A+B** (instructions see below mentioned). Hydrogen Peroxide can also be used. Recommended concentration is 1.5 % and the same temperatures and time apply.



WASH-OUT

- Wash the film with a soft spray of warm water (35-40°C) and continue until all openings are free. Rinse intensively with cold water. It is possible to wash-out in a tray as long as it is rocked continuously and the film rinsed afterwards with cold water. Scum is caused by insufficient wash-out.
- Make sure that the film has good contact between emulsion and mesh. Place film, emulsion upwards, on a glass plate smaller than the inside measurements of the frame.



ADHERING

- The mesh must be degreased properly. New polyester and nylon fabrics should be pre-treated mechanically.
- **FOTECHEM 2023** is ideal for combined abrasion and degreasing. Place the moist mesh over the film emulsion. Then blot off excess water with one or two sheets of absorbent, lint-free paper (unprinted newsprint), using rubber roller with slight pressure. It is advantageous to work with a staple of newsprint. Change the paper until the last sheets remain dry.



DRYING AND PEELING OFF THE BASE

- After adhering wait a few minutes. Then dry. Use **FOTECHEM** fillers to block-out the open mesh area. Dry at room temperature. Once the stencil is dry, the plastic carrier can be released easily.
- Touch-ups can be made after drying. If possible, let stencil dry for a few hours before printing.



STENCIL REMOVER

- Remove ink residues with solvent first. For a speedy and complete removal, degrease stencil first with **FOTECHEM 2003**. Then wet stencil from both sides with very hot water and let stand for a few minutes.
- Washout the film and screen filler with a brush and hot water.
- If not successful use enzymes or a bleach.



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3. EXPOSURE TABLES

Carbon arc lamps	Distance (cm)	Exposure-time in Sec.
40 amps. 2 carbons	100	300
60 amps. 2 carbons	100	190
60 amps. 3 carbons	100	115
110 amps. 2 carbons	100	105

Metal halide lamps	Distance (cm)	Exposure-time in Sec.
800 watt	100	190
2000 watt	100	75
3000 watt	100	50
4000 watt	100	40
5000 watt	100	30
7000 watt	100	25

Weak light sources	Distance (cm)	Exposure-time in Minutes
Tubes TLK-UVA 40W/05	8-10	1,5
Mercury Vapor HPL-R 125W	60	4
Mercury Vapor HPL-R 400W	60	6
Osram ULTRA VITALUX 300W	60	8

5kW MH lamp	Distance (cm)	Exposuretime in Sec.
Mesh 120/34 µm	120	43

For other Distances than 100 cm multiply the exposure times by the following factors	Distance (cm)	Factor
	50	0,25
	60	0,36
	70	0,49
	80	0,64
	90	0,81
	110	1,21
	120	1,44
130	1,69	

For other Distances than 100 cm multiply the exposure times by the following factors	Distance (cm)	Factor
	140	1,96
	150	2,25
	160	2,56
	180	3,24
	190	3,61
	200	4,00
	220	4,84

4. DEVELOPING

Developing with FOTECHEM 2200 A+B Developer Powder

- **FOTECHEM 2200 A+B** makes together 4-liter developer. Fill container with water (18-24°C).
- Start with powder A, stir well and add Powder B. Stir well until both powders are completely dissolved.
- Put developer into tray.
- It is important that during development the surface of the film is uniformly and rapidly wetted to avoid differences in stencil thickness.
- Wrinkling of the film emulsion during washout can be caused by spoiled developer. Protect developing bath against light. Discard bath regularly.

Developing with hydrogen peroxide (H₂O₂)

- 100 volumes or 30% H₂O₂
- 1 part H₂O₂ + 19 parts water = 1,5 % developer
- 10 volumes or 3 % H₂O₂
- 1 part H₂O₂ + 1 part water = 1,5 % developer
- Bottle H₂O₂ only in a brown glass bottle protected from light. H₂O₂ is not stable: The concentration decreases rapidly. The film will only be developed correctly if the developer has the right concentration, the film is covered by at least 1,5 cm developer; the tray is rocked continuously; no air bubbles show up in the developer or the stencil surface; fresh solution is made up every day. The water quality used to make the developer is critical. Mineral salts destroy the peroxide solution and the concentration of the developer decreases to a point where no hardening takes place. Light destroys the H₂O₂ solution.

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5. RULES FOR EXPOSURE

- Double distance = 4 x exposure time.
- Half the distance = $\frac{1}{4}$ of the exposure time.
- The better the light quality and the higher the light intensity, the better the quality and resistance of the stencil.
- Minimum distance between lamp and film:
Diagonal of the film to be exposed x 1,5.
- For shorter exposure times than 1 min., use a light integrator.
- Metal halide lamps: Strong lamps need a distance of at least 120 cm.
- If the exposure time is still below 30 seconds, set lamp on half power. Step-wedges are difficult to be executed if the exposure time is too short. In this case, increase distance.
- **FOTECFILM** has a very transparent red color and should not be over-exposed.
- It is recommended to make a step-wedge exposure with the available light source. The exposure times mentioned in the table are theoretical values. Each light source is different. Therefore, use the theoretical value and make 2 over and 2 under-exposures at 20% intervals each. Then print and decide.
- The exposure time can be increased for metal mesh by 30-50 %. If film negatives are used, the exposure time should be increased by 10-20 %.
- Longer exposure results in a thicker film that generally has less adhesion.
- A shorter exposure gives a thinner film with excellent adhesion that can be used for halftone and fine line work.
- The choice of the right exposure time and a perfect mesh preparation is important to get best adhesion characteristics of the film, the printing quality and the resistance.

6. INK SUITABILITY

All types of inks, including standard UV-inks, with the exception of water-based inks or inks containing water can be printed. Low-price cleaning agents can contain aggressive solvents and water and should be avoided.

7. BLOCK-OUT

FOTECHEM

2060 blue standard screen filler

2066 green economic screen filler

2070 red high contrast

2010 green heavy duty for coarse or metal mesh