



Ten seconds before the end of the processing step, lift the rack out of the solution and drain for the remainder of the time.

Gaseous agitation

As a general rule, follow the recommendations given by the processor manufacturer. A common recommendation is a two second gas burst every ten seconds. Reducing agitation may slightly increase the sharpness and grain of the film. Developer agitation can be reduced to one nitrogen burst of one second duration every alternate second for 11 seconds in each minute. However, care must be taken to avoid uneven agitation in some equipment. The same amount of agitation, with air instead of nitrogen, can also be used with the other solutions.

Gaseous agitation is not recommended when processing film on spirals.

ROTARY PROCESSORS

Rotary processors, such as those made by Jobo, have very similar processing conditions to spiral tank processing by hand, except they process with small amounts of solution and can be pre-programmed. For black and white processing, the temperature is usually around 20°C. Follow any guidance given by the processor manufacturer when adjusting processing times for these types of processors. As a general guide, reduce standard development times by up to 15% in rotary processors without a pre-rinse because of the continuous agitation given in these processors. Do not decrease the fixing times.

Alternatively, if using a pre-rinse, use the development times for spiral tank processing as a guide. Generally, however, a pre-rinse is not recommended as it can lead to uneven processing.

Rotary processing, with its constant agitation, does not give as sharp results as standard spiral tank processing. However, it does give finer grain.

DIP AND DUNK MACHINES

Dip and dunk machines generally operate in the temperature range 20–24°C. ILFORD ILFOTEC DD is specially designed for use in dip and dunk machines. Other ILFORD developers are also suitable – see ‘Film developer applications’.

ILFOLAB FP40

The ILFORD ILFOLAB FP40 floor standing processor with ILFORD ILFOTEC RT RAPID chemicals is recommended for processing ILFORD black and white films. Further details are available from ILFORD.

SHORT LEADER PROCESSORS

Short leader processors usually operate at 24–26°C. ILFOTEC RT RAPID is the recommended developer for use in short leader processors, usually at 26°C. Alternatively, ILFORD ILFOTEC HC diluted 1+11 can be used, normally at a lower temperature, such as 24°C.

ROLLER TRANSPORT PROCESSORS

The processing temperature in roller transport processors is normally 27–30°C. ILFORD ILFOTEC RT RAPID is the recommended developer for use in roller transport processors.

FIXATION

Use the standard ILFORD recommendations for agitation when fixing ILFORD films – see above. For best results it is advisable to give DELTA films slightly longer fixing times than usual.

After development, the use of a water rinse or an acid stop bath (ILFORD IN-1) is recommended to extend the life of the fixer, if a tank is available. IN-1 stop bath also stops development immediately and helps to maintain the correct pH of the fixing bath.

Fix films in ILFORD HYPAM (1+4). A fixer hardener is not needed or recommended in deep tanks, rotary processors, dip and dunk machines and short leader processors, unless processing is above 30°C. A fixer hardener is needed only when processing in roller transport processors. When roller transport processing, add 1 part of ILFORD RAPID HARDENER to every 40 parts of working strength HYPAM fixer. Hardener protects the film during the remainder of the roller transport processing sequence.

As a general rule, fixing temperature and agitation are often tied to development temperature and agitation on processors; this will usually give adequate fixation and no harm can be done by over-fixing the film. As a guide, fix film in ILFORD HYPAM for 2–4 minutes at 20°C. For best results with ILFORD 100 DELTA and 400 DELTA film, fix