

ILFORD

FACT SHEET

DELTA 3200 PROFESSIONAL

EI 3200/36, HIGH SPEED, BLACK AND WHITE PROFESSIONAL FILM FOR SUPERB PRINT QUALITY

ILFORD DELTA 3200 PROFESSIONAL is a high speed, black and white professional film for making quality photographs in difficult exposing conditions. It is ideal for action and available light photography. It is designed to be exposed at EI 3200/36 and given extended development. Recommended developers are ILFORD ILFOTEC DD-X, ILFORD MICROPHEN and ILFORD ID-11.

DELTA 3200 Professional 35mm film is coated on 0.125mm/⁵/₁₀₀₀inch acetate base and is available in 36 exposure cassettes. DELTA 3200 Professional 35mm film is supplied in DX coded cassettes, suitable for all 35mm cameras.

DELTA 3200 Professional rollfilm is coated on 0.125mm/⁵/₁₀₀₀inch acetate base. It is available in 120 lengths and is edge numbered 1 to 19.

EXPOSURE RATING

The recommended meter setting for DELTA 3200 Professional is EI 3200/36, but good image quality can also be obtained at meter settings from EI 400/27 to EI 6400/39. It can be used in all types of lighting.

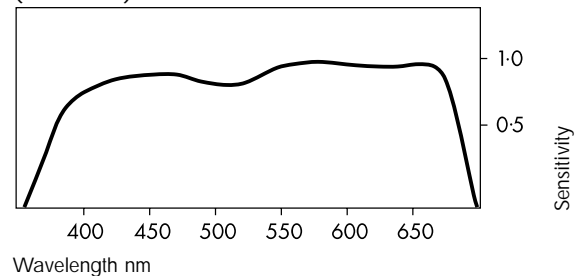
DELTA 3200 Professional is particularly recommended for exposing in the range EI 1600/33 to EI 6400/39. It can be exposed at ratings up to EI 25000/45, but it is important to make test exposures first to ensure the results will be suitable for the intended purpose.

DELTA 3200 Professional has an ISO speed rating of ISO 1000/31° (1000ASA, 31DIN) to daylight. The ISO speed rating was measured using ILFORD ID-11 developer at 20°C/68°F with intermittent agitation in a spiral tank.

It should be noted that the exposure index (EI) range recommended for DELTA 3200 Professional is based on a practical evaluation of film speed and is not based on foot speed, as is the ISO standard.

SPECTRAL SENSITIVITY

Wedge spectrogram to tungsten light (2850K)



HANDLING

DELTA 3200 Professional is a very fast film. Always load and unload the camera in subdued light. At airports, request visual inspection of this film, and carry the film in hand luggage.

FILTER FACTORS

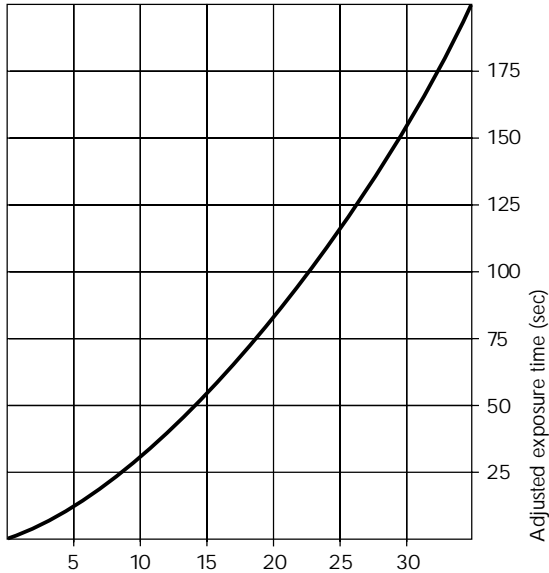
DELTA 3200 Professional film may be used with all types of filters (eg colour, polarising and neutral density filters) in the usual way. Follow the instructions given by the filter manufacturer.

The exposure increase in daylight may vary with the angle of the sun and the time of day. In the late afternoon or the winter months, when daylight contains more red light, green and blue filters may need slightly more exposure than usual.

Cameras with through-the-lens metering will usually adjust the exposure automatically when using filters. With some automatic exposure cameras, the correction given for deep red and orange filters can produce negatives under exposed by as much as 1-1/2 stops.

MAKING LONG EXPOSURES

For exposures between $\frac{1}{2}$ and $\frac{1}{10000}$ second, no adjustments are needed for reciprocity law failure. When exposures longer than $\frac{1}{2}$ second are given, DELTA 3200 Professional, along with other films, needs to be given more exposure than indicated by a meter. Use the graph to calculate the increased exposure time which should be given once the measured time is known.



Measured exposure time (sec)

CHOOSING THE BEST ILFORD DEVELOPER FOR THE JOB

DELTA 3200 Professional will give good results in a wide range of developers when exposed at meter settings up to EI 6400/39. At higher speed ratings, ILFOTEC DD-X and MICROPHEN developers are recommended. Further details are given in the table below.

CHOOSING THE BEST ILFORD DEVELOPER FOR THE JOB

Manual processing (eg spiral tank, dish/tray, deep tank) and rotary processors

	Powder	Liquid
Best overall image quality at meter setting		
EI 400/27	PERCEPTOL (stock)	ILFOTEC DD-X
EI 800/30	PERCEPTOL (stock)	ILFOTEC DD-X
EI 1600/33	MICROPHEN (stock)	ILFOTEC DD-X
EI 3200/36	MICROPHEN (stock)	ILFOTEC DD-X
EI 6400/39	MICROPHEN (stock)	ILFOTEC DD-X
Finest grain	PERCEPTOL (stock)	ILFOTEC DD-X
Maximum sharpness	MICROPHEN (stock)	ILFOTEC DD-X
Maximum film speed (up to EI 25000/45)	MICROPHEN (stock)	ILFOTEC DD-X
One-shot convenience	-	ILFOSOL S (1+9) ILFOTEC DD-X
Rapid processing	MICROPHEN (stock)	ILFOTEC DD-X
Replenishable	ID-11	ILFOTEC HC

Machine processing

Dip and dunk	ILFOTEC DD ID-11 ILFOTEC HC	Best overall image quality (liquid) and long tank life Best overall image quality (powder) and long tank life Flexible process time, range of dilutions and economy
Short leader	ILFOTEC RT RAPID ILFOTEC HC	Rapid processing, best overall image quality and long tank life Range of dilutions, flexibility and economy
Roller transport	ILFOTEC RT RAPID	Rapid processing

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DEVELOPMENT TIMES POSTER

This development times poster gives development times for all formats of ILFORD DELTA 3200 Professional film.

DEVELOPMENT TIMES

The table gives development times for both manual and machine processing DELTA 3200 Professional. The development times are based on picture testing and are intended as a guide; they should be altered if a different result is needed.

For manual processing in spiral tanks and deep tanks, the development times are based on intermittent agitation. Where continuous agitation is used for manual processing (as in a dish/tray or

with some types of developing tank), reduce these times by up to 15%. For use in rotary processors without a pre-rinse, reduce the spiral tank development times by up to 15%. A pre-rinse is not recommended as it can lead to uneven processing.

Note Development times may need adjusting to suit individual processing systems and working practices. If an established system is producing good results, adjust the recommended development times until the desired contrast level is obtained. For more contrasty negatives, try the development times for the meter setting above the one used.

35mm film and rollfilm

	Dilution	Meter setting (EI)					
		400/27	800/30	1600/33	3200/36	6400/39	12500/42

Spiral tanks and deep tanks (min/20°C/68°F)

ILFORD developer

ILFOTEC DD-X*	1+4	6	7	8	9-1/2	12-1/2	17
ILFOTEC HC	1+15	-	-	5	8	13	-
	1+31	6	7-1/2	9	14-1/2	-	-
ILFOTEC LC29	1+9	-	-	5	8	13	-
	1+19	6	7-1/2	9	14-1/2	-	-
ILFOSOL S	1+9	6-1/2	8	10-1/2	13	-	-
MICROPHEN*	stock	6	7	8	9	12	16-1/2
ID-11	stock	7	8	9-1/2	10-1/2	13	17
PERCEPTOL	stock	11	13	15	18	-	-

Non-ILFORD developer

Agfa Rodinal	1+25	5-1/2	7	9	11	20	-
Kodak D-76	stock	7	8	9-1/2	10-1/2	13	17
Kodak HC-110	A	-	-	5	8	13	-
	B	6	7-1/2	9	14-1/2	-	-
Kodak Microdol-X	stock	10	11-1/2	13	18	-	-
Kodak T-Max	1+4	5-1/2	6-1/2	7-1/2	8-1/2	11	14
Kodak Xtol	stock	5	6	6-1/2	7-1/2	10	12-1/2

Recommended developers*

Dip and dunk machines (min/24°C/75°F)

ILFOTEC DD	1+4	5-1/2	6-1/2	7-1/2	8-1/2	11	15
Kodak T-Max RS	stock	4	4-1/2	5	6-1/2	8-1/2	10-1/2

ILFOLAB FP40, roller transport and short leader machines (sec/26°C/78-8°F)

ILFOTEC RT RAPID	standard	54	65	73	84	104	-
	modified	95	108	120	153	176	-

Note Development times in other manufacturers' developers are included for your convenience, and are only a general guide. Other manufacturers can and do change their product specifications from time to time, and the development times may change as a result.

35mm film and rollfilm

Meter setting (EI)

400/27 800/30 1600/33 3200/36 6400/39 12500/42

Spiral tanks and deep tanks (min/24°C/75°F)

-	5	6	7	9	12
-	-	-	5-1/2	8-1/2	-
5	6	7	10-1/2	-	-
-	-	-	5-1/2	8-1/2	-
5	6	7	10-1/2	-	-
5-1/2	6-1/2	8	10-1/2	-	-
-	5	6	7	9-1/2	13-1/2
6	7	8	9	11	13-1/2
9-1/2	10-1/2	12	15-1/2	-	-
-	-	5-1/2	7-1/2	15	-
6	7	8	9	11	13-1/2
-	-	-	5-1/2	8-1/2	-
5	6	7	10-1/2	-	-
7	8	9	12	-	-
-	5-1/2	6-1/2	7-1/2	9-1/2	13
-	5-1/2	6	7	9	11

METER SETTINGS OF EI 12500/42 AND ABOVE

When using meter settings of EI 12500/42 and above, it is important to make test exposures first to ensure the results will be suitable for the intended purpose. A guide to development times for meter setting EI 12500/42 is given in the development times tables. For exposures at EI 25000/45, use the guide in the following table.

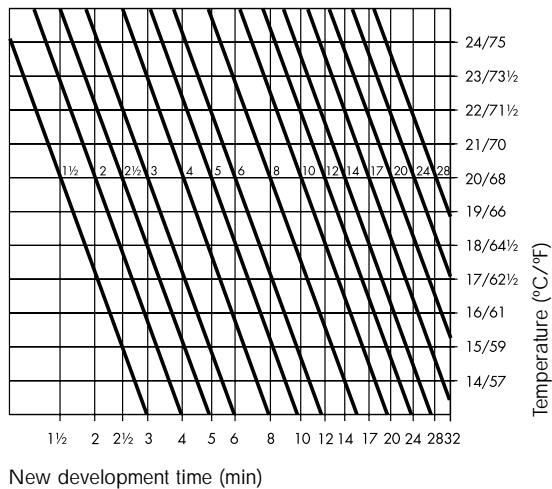
Meter setting EI 25000/45 manual processing

Dilution	20°C/68°F min	24°C/75°F min
ILFOTEC DD-X 1+4	25	17
MICROPHEN stock	22	17-1/2

PROCESSING AT DIFFERENT TEMPERATURES

DELTA 3200 Professional film can be processed over a range of temperatures. A guide to development times at temperatures other than 20°C/68°F is given below.

For example, if 12 minutes at 20°C/68°F is recommended, the time at 22°C/71.1/2°F will be 10 minutes and the time at 18°C/64.1/2°F will be 15 minutes.

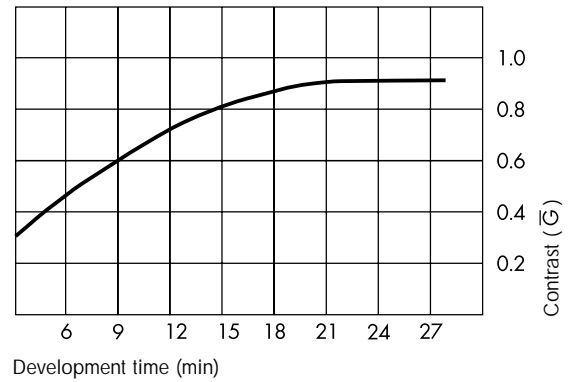


Note Fahrenheit temperatures are given to the nearest half degree.

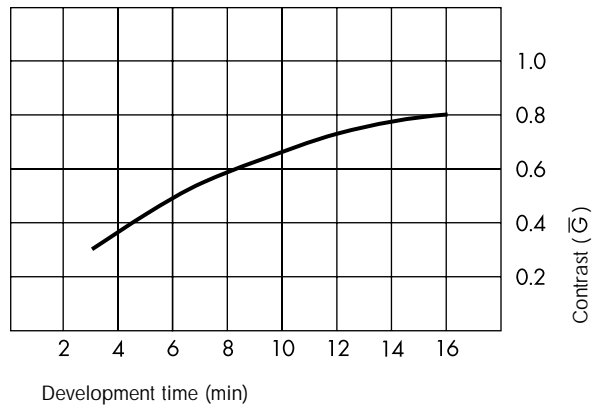
Note The chart can only be a guide because different developers and processing techniques can vary the results.

CONTRAST-TIME GRAPHS

The following Professional negatives when developed over a range of development times.

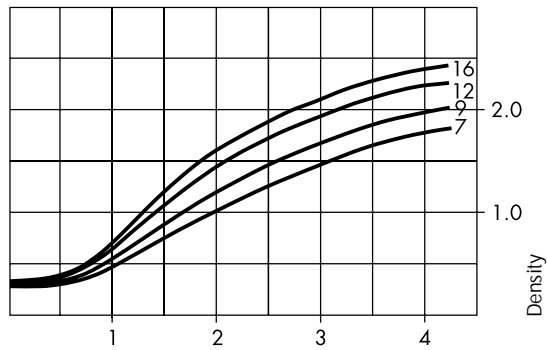


DELTA 3200 Professional film developed in ILFORD ILFOTEC DD-X 1+4 at 20°C/68°F.



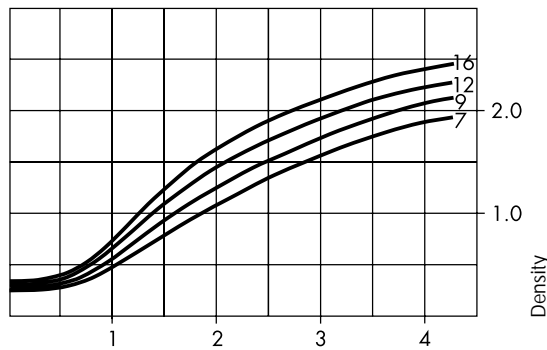
DELTA 3200 Professional film developed in ILFORD MICROPHEN stock at 20°C/68°F.

CHARACTERISTIC CURVES



Relative log exposure

DELTA 3200 Professional film developed in ILFORD ILFOTEC DD-X 1+4 for 7, 9, 12 and 16 minutes at 20°C/68°F with intermittent agitation.



Relative log exposure

DELTA 3200 Professional film developed in ILFORD MICROPHEN stock for 7, 9, 12 and 16 minutes at 20°C/68°F with intermittent agitation.

PROCESSING

DELTA 3200 Professional can be processed in all types of processing equipment including spiral tanks, rotary processors, dishes/trays, deep tanks and automatic processors. Standard capacity figures and replenishment rates can be maintained. When fixing DELTA 3200 Professional, however, slightly longer times than used with conventional film are recommended for best results.

Handling

DELTA 3200 Professional must not be handled under any safelighting. Handle the film in total darkness.

Agitation

Intermittent agitation is recommended for use in spiral tanks and deep tanks. Continuous agitation is recommended in dishes/trays. With spiral tanks, invert the tank four times during the first 10 seconds, then invert the tank four times again during the first 10 seconds of each further minute. Otherwise, follow the recommendations given by the processing equipment manufacturer.

Fixation

After development, rinse the film in water or an acid stop bath (ILFORD ILFOTOP or ILFOTOP PRO) and fix in ILFORD HYPAM or ILFORD UNIVERSAL RAPID fixer (1+4) for 3–5 minutes at 20°C/68°F. A hardener is recommended only when processing at high temperatures (above 30°C/86°F) or in a roller transport processor.

Washing

Where a non-hardening fixer, such as HYPAM or UNIVERSAL RAPID, has been used, wash the film in running water for 5–10 minutes at a temperature within 5°C/9°F of the processing temperature.

For spiral tank use, when a non-hardening fixer has been used, the following method of washing is recommended. This method of washing is faster, uses less water yet still gives negatives of archival permanence.

- 1 Process the film in a spiral tank.
- 2 Fix it using HYPAM or UNIVERSAL RAPID fixer.
- 3 After fixation, fill the tank with water at the same temperature as the processing solutions, and invert it five times.
- 4 Drain the water away and refill. Invert the tank ten times.
- 5 Drain and refill it for the third time and invert the tank twenty times. Drain the water away.

A final rinse in water to which ILFORD ILFOTOL wetting agent has been added (1+200) will aid rapid and uniform drying.

DELTA 3200 Professional

Drying

To avoid drying marks, use a clean squeegee or chamois cloth to wipe DELTA 3200 Professional film before hanging it to dry. Dry DELTA 3200 Professional at 30–40°C/86–104°F in a drying cabinet or at room temperature in a clean dust-free area.

STORAGE

Store DELTA 3200 Professional in a cool (10–20°C/50–68°F), dry place in its original packaging.

Exposed film

Once exposed, process DELTA 3200 Professional as soon as practical. Images on exposed but unprocessed film will not degrade for several months when stored as recommended.

Negatives

Store processed negatives in a cool (10–20°C/50–68°F), dry place, in the dark. Suitable storage sleeves include those made of cellulose triacetate, Mylar or paper (pH6.5–7.5) or inert polyester.

A wide range of fact sheets is available which describe and give guidance on using ILFORD products. Some products in this fact sheet might not be available in your country.