

## APPLICATION SHEET

# COPYING

## COPYING USING ILFORD FILM

This application sheet gives general guidelines for exposing and processing ILFORD films for copy work, together with some tips on the use of filters. The following table illustrates some copying applications with recommended ILFORD films. The choice of film will depend on the techniques and equipment used. For example, if long exposures are difficult, choose a fast film. The recommendations below give a good starting point, however, optimum results for a particular application can only be determined by trial.

**Note** In addition, ORTHO Plus sheet film can be used in all applications using B&W originals. The ability to work in safelight conditions can be an advantage. Full details on this film are given in the ORTHO Plus fact sheet, available from the ILFORD website [www.ilford.com](http://www.ilford.com).

Application	ILFORD film	Comments
Copying B&W photographs using B&W negatives	DELTA 400 PROFESSIONAL FP4 Plus HP5 Plus	Overexpose and under develop
Copying faded photographs using B&W negatives	PAN F Plus	Process to give high contrast eg, in PHENISOL
Duplication of B&W negatives	FP4 Plus	Overexpose and under develop
Archiving pencil sketches and etchings onto B&W negatives	100 DELTA PROFESSIONAL	Expose and process as normal
Archiving architects' plans	FP4 Plus	Underexpose and over develop in PQ UNIVERSAL
	PAN F Plus	Process to give high contrast eg, in PHENISOL
Copying colour transparencies to B&W negatives	DELTA 400 PROFESSIONAL HP5 Plus	Overexpose and under develop. Beware of flare from slide highlights
Copying toned photographs using B&W negatives	PANF Plus	Overexpose and under develop
Archiving oil paintings onto B&W negatives	DELTA 400 PROFESSIONAL	Overexpose and under develop
	XP2 Super	Overexpose. Standard C41 processing
Archiving water colours onto B&W negatives	FP4 Plus 100 DELTA PROFESSIONAL	Expose as normal and over develop
Archiving colour photographs onto B&W negatives	FP4 Plus DELTA 400 PROFESSIONAL HP5 Plus	Overexpose and increase development by about one-third
Copying X-rays onto negatives	FP4 Plus	Overexpose and under develop
Recording CCTV display	DELTA 400 PROFESSIONAL HP5 Plus	Slow shutter speed. Process as normal

**SAFELIGHTING**

All the films in the table on the previous page should be handled in total darkness, except for ORTHO Plus copy film which can be used under a dark red safelight, such as the ILFORD 906. A 15W bulb is recommended with this safelight. For direct lighting do not expose the film for more than 4 minutes and the distance between the film and the safelight should be a minimum of 1.2m (4ft).

**RELATIVE FILM SPEEDS**

In the table below, the nominal exposure index is a guide when exposing ILFORD film to daylight. The actual exposure can only be determined by trial because illumination and processing affect film speed.

ILFORD film	Nominal exposure index (EI)
PAN F Plus	50/18
ORTHO Plus copy film	80/20
100 DELTA PROFESSIONAL	100/21
FP4 Plus	125/22
DELTA 400 PROFESSIONAL	400/27
HP5 Plus	400/27
XP2 Super	400/27

**Note** For most applications requiring overexposure, rate the ILFORD film at two stops below its nominal exposure index.

**FILTERS**

To mask discoloration in the original, select a filter of the same colour as the discoloration.

To cut down unwanted reflection, use a polarising filter over the light source.

**CONTRAST CONTROL AT EXPOSURE**

to increase the contrast when copying a B&W original, use a blue filter.

To lower contrast, pre-flash using a neutral density filter or use reflecting white card to give an overall exposure.

**PROCESSING**

For all ILFORD films, except ILFORD XP2 SUPER, ILFORD ID-11 is a good all-round developer for most copy work. For some applications, especially when using HP5 Plus, ILFOTEC HC developer is a better choice as it can improve contrast in the highlights.

**Note** For applications needing under development of the copy film a reduction in development of about one-third gives good results.

XP2 SUPER is processed in colour negative (C41) chemicals.

**Reversal processing**

PAN F Plus and ORTHO Plus copy film are the best choice for reversal processing because they have the highest contrast.

**High contrast processing**

Use ILFORD PHENISOL or ILFORD PQ UNIVERSAL developer for obtaining high contrast from ILFORD PAN F Plus and ORTHO Plus copy films.

**EXAMPLE**

In copying, individual users tend to have their own favoured methods, often handed down by previous users. There is not single 'correct method' but techniques are adopted to suit equipment, materials and the desired image qualities.

The following describes one method for copying colour transparencies to give B&W negatives:

Use Delta 400 Professional or HP5 Plus film in the same format as the colour transparency. Ensure good contact between the copy film and the original and expose at EI 100/21 ie overexpose by 2 stops. Process Delta 400 Professional in ID-11 stock solution at 20°C/68°F for 7 minutes, HP5 Plus for 5½ minutes.

**PRINTING**

ILFORD MULTIGRADE papers are the best choice for printing as they have a wide contrast range and give excellent results from a very wide range of negative types.

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