

# Idealine™ HPF

## silver halide phototooling film

### Technical Information

Idealine™ HPF is a new silver halide phototooling film designed specifically to produce high definition images when used on high resolution photoplotters. It is a red sensitive product that exhibits very high contrast and can be handled under blue-green (cyan) safelights.

#### Applications

HPF is well suited for making high quality, first generation phototools and plotted artwork masters imaged on a wide variety of photoplotters that utilize a red laser as the light source.

The following photoplotters are among those for which this film is suitable:

- Mania SilverWriter, BG-7400
- Escher-Grad Equinox, EG-2200
- FFEI FT-303
- First EIE RP Series
- Gerber Crescent, Prism
- Orbotech LP7008, LP9008

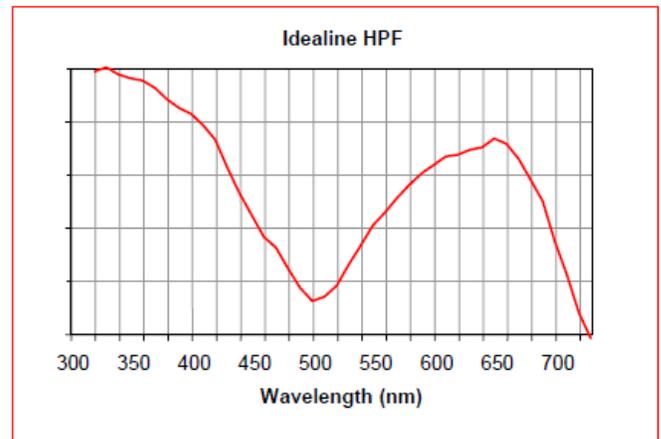
HPF can also be used as a contacting or projection film where a tungsten or quartz lamp is used as the illumination source.

#### Features/Benefits

- Excellent line edge acuity and resolution for high quality phototools with very fine features that produce optimal image transfer to the resist.
- A new single-sided film structure that produces unsurpassed dimensional stability to reduce registration errors.
- A new ultra-pure 7-mil thick polyester that provides lower UV density and fewer black spots in the clear areas of the phototool to minimize resist exposure time and further reduce the already small frequency of black spot defects.

- Scratch and abrasion resistant double overcoat to reduce handling defects and extend phototool life.
- Outstanding process latitude for exceptional line width control.
- Optimized matte surface to insure rapid and complete vacuum drawdown without plotter 'fly-offs' or off-contact printing defects.
- Permanent anti-static protection to resist the attraction of dirt and dust to polyester based films and reduce the defects caused by these contaminants.
- Extremely high image density to eliminate "burn-through" and insure optimal image transfer to the resist.
- Excellent reciprocity characteristics for dependable photoplotting performance.
- Cleanroom compatible packaging to help maintain a cleaner work environment and reduce dirt related defects.

#### Spectral Sensitivity



#### Safelight Recommendations

HPF can be handled under blue-green (cyan) safelight illumination produced by any of the following safelights:  
EncapSulite T20/ND .75  
EncapSulite T20/ND 1.5

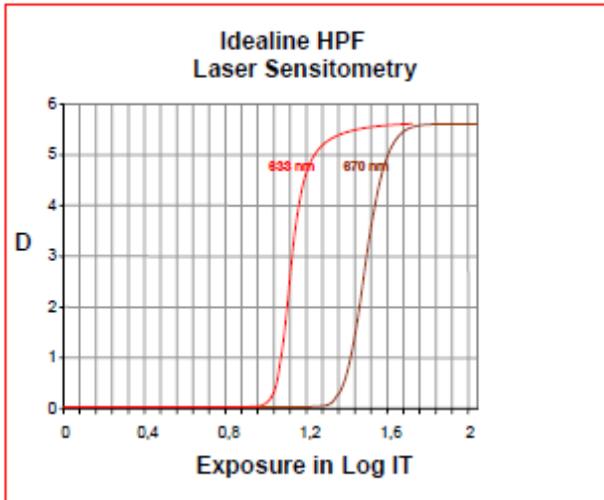


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## Exposure

The correct exposure will vary, depending on the type of plotter and the processor used. HPF will require 30 – 50% more exposure than RPF under the same conditions. You should run a test to check the correct line width and the best line sharpness with the highest possible Dmax. Your DuPont representative will be pleased to give you more information.

## Sensitometric Characteristics



## Processing

The following developer and processing conditions recommended for optimum performance are listed in the following table. The processing latitude of this system will permit the use of a wide variety of other conditions.

Recommended Processing Conditions	
Developer	PDEV (1+2)
Developer Temperature	32–35°C (90–95°F)
Development Time	45 seconds
Fixer	PFIX (1+4)
Fixer Temperature	30–35°C (85–95°F)
Wash Temperature	15–25°C (60–80°F)
Dryer Temperature	35–40°C (95–105°F)

Note: Fixer temperature should be 0–3°C (0–5°F) less than the developer. Fixing time will be determined by the design of the processor, though usually it is the same as the development time.

## Replenishment Rates (50% black area)

	Film Use	Oxidation
Developer PDEV	250 mL/m <sup>2</sup> (23 cc/ft <sup>2</sup> )	2000 mL/day (80 mL/hour)
Fixer PFIX	500 mL/m <sup>2</sup> (45 cc/ft <sup>2</sup> )	500 mL/day (30 mL/hour)

## Packaging

All Idealine films are supplied in special packaging for optimum protection during transportation and storage. The packaging is humidity tight and vacuum sealed for best dimensional stability results. A shrink foil protects the inner packaging against dust and scratches. All of the packaging materials can be recycled. The amount of packaging material used has been reduced.



## Storage

Unprocessed photographic film has a limited shelf life. Unopened boxes can be safely kept until the expiration date mentioned on the label. Film boxes should be stored flat, at a temperature below 75°F (24°C) and below 60% relative humidity. The film should be stored at the same temperature and humidity as the plotter room for at least 24 hours before use. Remove the outer packaging and the shrink foil before taking the film into the plotter room, to avoid dust being dragged into the plotter area.

## Dimensional Stability

The final size of a piece of processed film is dependent on the characteristics of the film, the photolab environment, the environment in the resist print area, and the conditioning of the film to these areas. Pre-conditioning to the photolab environment before use is recommended for all photographic films where maintaining critical size tolerances is required.

Thermal expansion coefficient	Relative humidity coefficient	
	Before processing	After processing
0.0018%/°C 0.0010%/°F	0.0010% %RH	0.0010% %RH

## Effects of Processing

The coefficients of expansion are used to predict film size changes due to environmental conditions. They cannot be used to predict size changes due to processing conditions. The after-processing size change of film that is dried under optimum conditions can be too small to measure, or it can be significant if conditions are not optimized. Run tests to optimize the dryer temperature to insure phototools are produced at the correct size.

For more information on Idealine™ HPF, please contact your local representative:

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