

SOFTWARE

LASER PHOTO PLOTTERS

DIRECT IMAGERS

## Hawk Nano AF-50

Top Notch Very High-resolution Large Format Laser Photo Plotter



- New AutoFocus optics
- Resolutions up to 50,800 ppi
- Compatibility and choices
- Improved registration
- Utmost handling capabilities
- Unrivalled 24/7/52 reliability

### Improved registration

The Hawk series use the patented technology of frequency variation for the "photographic" scaling of inner layers. Together with their new high resolution rotary encoder and new contactless temperature insensitive high resolution linear scale this eliminates micro banding resulting from adding/dropping a pixel and ensures highest geometric accuracy.

### Utmost handling capabilities

The film loading/unloading system is fully automated and on-line connected to the film processor. The film handling mechanism is simple, reliable and very accurate providing stress-free film loading

### Unrivalled 24/7/52 reliability

The Hawk series is engineered for round the clock, long-term reliability. The ultra-stable granite bed, maintenance-free linear motor, air-bearings and the direct-drive drum deliver unparalleled long-term uptime - your guarantee of on-time deliveries, low whole life costs and an optimum return on your investment.

### Very high resolution

With a maximum resolution of 50,800 ppi, the Hawk Nano AF-50 deliver unprecedented line quality and stability. The new AutoFocus optics holds line-width accuracy below 1  $\mu\text{m}$  over the whole film surface. Two unique imaging functions, syntectic modulation and sub-micron pixel-placement, eliminate the rounding errors found on conventional plotters.

### Compatibility and choices

The Hawk series accepts plot instructions directly in Ucam(X)'s DPF, ODB++, Gerber or MDA formats and even images Tiff G4 format, making it an extremely versatile laser photo plotter. With variable plotting resolutions it delivers the optimum setting for every image down to 6-7  $\mu\text{m}$  features.

### Get more out of your photo plotter investment with FlashRip software

- FlashRip provides optimized ripping and plotting of line images in resolutions up to 50800 ppi.
- FlashRip features automatic counter-scaling of all designated features on the plotter without the need to go back to the CAM department.
- FlashRip automatically inserts plot stamps (e.g. plot date) into the plotted image.
- FlashRip supports Geometric Correction System (GCS).  
GCS allows the user to compensate on the photo tool for the linear and non-linear distortions generated on the PCB during various production steps.  
The result is a much improved layer registration, lower scrap and higher yields.
- FlashRip is scalable for multiple processors to convert several jobs simultaneously (optional).

Depending on plotter model and job complexity FlashRip increases throughput with up to 100% and more. For more info please contact your local Ucamco distributor or mail us at [info@ucamco.com](mailto:info@ucamco.com).

#### MARKETS

- Rigid PCB Mfr ✓
- Flex PCB Mfr ✓
- Flex-Rigid PCB Mfr ✓
- HDI PCB Mfr ✓
- PCB Masslam Mfr ✓
- PCB Equipment Mfr
- PCB Traders
- PCB Designers
- PCB Test Centers
- IC Packaging ✓
- Chemical Milling ✓
- High Resolution Graphic Arts ✓
- Flat Panel Display ✓

#### PRODUCT FAMILIES

- CAM
- PreCAM and Engineering
- Electrical Test
- Equipment Front Ends
- Format Converters & RIP's
- OEM Software

- Laser Photo Plotters ✓
- Direct Imagers

# Hawk Nano AF-50

## Technical Data

Resolutions		
Imperial	8,000 up to 50,800 ppi	
Metric	3.18 $\mu\text{m}$ up to 0.5 $\mu\text{m}$	
Min. line width	down to 0.24-0.28 mil / 6-7 $\mu\text{m}$	
Productivity for an 46" x 62" plot (*)		
8,000 ppi (in films / hour)	6.1	
10,160 ppi (in films / hour)	5.1	
16,000 ppi (in films / hour)	3.6	
25,400 ppi (in films / hour)	2.4	
50,800 ppi (in films / hour)	1.3	
Film Requirements		
	Imperial	Metrical
Film format along the drum (**)	30" – 47.2" in ½" steps	762 – 1200 mm
Film format around the drum	63.5"	1612 mm
Max. image format along the drum	0.2" (5 mm) less than film format	
Max. image format around the drum	0.9" (23 mm) less than film format	
Sheet tolerance	± 0.02"	± 0.5 mm
Accuracy		
	Imperial	Metrical
Geometric plotter accuracy	< 0.16 mil	< 4 $\mu\text{m}$
Geometric plotter repeatability	< 0.08 mil	< 2 $\mu\text{m}$
Global positioning accuracy	0.01 mil	0.25 $\mu\text{m}$
Geometric accuracy on film (***)	< 1 mil	< 25.4 $\mu\text{m}$
Line-width accuracy down to (****)	< 0.04 mil	< 1 $\mu\text{m}$
Scaling adjustments in steps of	0.005 mil	0.127 $\mu\text{m}$
Scaling adjustment range	± 5%	
Machine Characteristics		
	Imperial	Metrical
Loading capacity	25 sheets of film	
Light source	Red HeNe laser, 632.8 nm, 5 mW	
Dimensions (W x D)	100.4" x 64.2"	2550 x 1630 mm
Height	72.0"	1830 mm
Weight	4200 lbs	1900 kg
Room temperature during operation	70° F ± 2°	21° C ± 1°
Relative humidity during operation	50% ± 2%, no condensation	
Relative humidity rate of change	Max 6% per hour	
Electrical Power Supply	2 x 230 VAC, 3,000 VA	
Heat dissipation	1,800 W (1,550 kcal/h)	
Compressed air supply	87 – 145 PSI	6 – 10 bar
Compressed air quality	Free of oil and water	0.01 mg/m <sup>3</sup>
Compressed air volume	106 ft <sup>3</sup> /hour	3000 l/hour

(\*) Assuming nominal plotting using factory settings  
 (\*\*) We support max film format and one smaller  
 (\*\*\*) Assuming stable environmental conditions and using GCS if required  
 (\*\*\*\*) Assuming stable film processor conditions at 50,800 ppi

### SOFTWARE

AutoCAM  
 FaultStation 4  
 FixGenius  
 FlashRip  
 Format Converters  
 Geometric Correction System  
 Integr8tor  
 Mult Job Panelizer  
 OEM Software  
 SmartAOI  
 SmartPlate  
 SmartTest  
 Ucam CAD Review  
 Ucam CAM++  
 Ucam Chemical Milling  
 Ucam ET+  
 Ucam SmartView  
 Ucam uFlex  
 UcamX

For more information on any of our products or services please contact us:

By e-mail: [info@ucamco.com](mailto:info@ucamco.com)  
 On the Web: [www.ucamco.com](http://www.ucamco.com)



High resolution linear scale



Linear motor



Granite & Air bearings

Ucamco NV

Bijenstraat 19, 9051 Gent, Belgium

Tel: +32 9 216 99 00 - Fax: +32 9 216 99 12

E-mail: [info@ucamco.com](mailto:info@ucamco.com) - Web: [www.ucamco.com](http://www.ucamco.com)