SCREEN PRINTING EQUIPMENT - KEY

1 Color/ 1 Station New Premier Printer Bench Model.

4 Color/ 1 Station New Premier Printer Bench Model. Available as 2 color or 4 color

HALUX
Digital Exposure Unit

Flash Cure
Comes in three models. ASH-1818 (AIR AUTO) SH-1818 (NO AIR AUTO) MSH-1818E (NO AIR MANUAL)

TT-110E Exposure Unit

ASH-1818

MSH-1818E

TT-180D Exposure Unit

New Premier Printers
Floor Model. Fully expandable 2 - 8 colors, 2 - 8 stations, standard and large format. 8 station with strut supports

REten Frames. Fully retensionable. Sizes 10” - 55”. Now available with pre-stretched mesh

King 123 Pin Registration System. Art to Exposure to Print in perfect registration.

2632 Screen Dryer
Holds 8 Screens up to (26”x32”) 120 and 220v.

Vacuum Platen

Vacuum Platen

Vacuum Platen

ASH-1818 (AIR AUTO)
SH-1818 (NO AIR AUTO)
MSH-1818E (NO AIR MANUAL)
I. Introduction- NP Premier Printers

The HIX NP Premier Printer is the fastest manual screen printer in the world, the result of 47 years of engineering excellence. This printer is expandable from 1 to 8 colors and 1 to 8 stations. Screens are leveled and ready to print in a matter of seconds. All Premier Printers come standard with wood boards, back clamps, micro registration, gas springs, and tool-less adjustment.

The Premier Bench Printers can be placed on a bench top, table or mobile cart system and have a totally tool-free design with screen off contact and inclination adjustments built right into them. The bench printers also feature 12” screen back clamps, 15”x15” removable wood shirt boards, rotary stop alignment, and gas springs.

The gas springs allow you to print faster with less operator fatigue since you can let go of the screen as you are lifting and it will glide into the upright position smoothly while you unload the product.

Popular options available for HIX printers:
- Jacket attachments
- Cap attachments
- Dual sleeve/leg boards
- Aluminum boards
- Side clamps
- Air assist kits

II. Manufacturing Process

The HIX “tool-less” Premier Manual Rotary Printer upper print heads, rotary wheels, print arms and optional shirt boards are made from HIX exclusive cast, aluminum alloy. All castings are made from permanent steel cavity molds to ensure dimensionally consistent tolerances on all components.

Floor model and bench model structural components are made from welded .250” gauge steel tubing.

The center shaft is made of hardened 1075 alloy solid bar stock that is welded into the steel vertical support stand. Both upper and lower rotary wheels are centered on the shaft with independent sets of tapered roller bearings, allowing the free movement of both upper and lower units plus superb stability. An adjustable center nut allows periodic adjustments to compensate for any wear that may occur.

Screen frame clamps and cross-tubes are made from steel. These parts are zinc plated for easy clean up and maintenance. Easy-turn, spring-loaded adjusters make loading and removing screens a “cinch.”

To allow the modular interchangeable feature of the print heads and print arms, precision casting and mill work are essential in the manufacturing process. Our in-house aluminum foundry uses state-of-the-art cavity mold casting equipment. The parts then move to computer controlled CNC milling machines where we maintain the tightest ± tolerances in the industry. With this manufacturing approach we can offer consistent interchangeable parts that allow modular construction and expandability with a precision fit.
III. Terminology

Air-assist kit: Additional support system for larger, heavier screens (standard on LF models).

All heads down: The ability to print with all print heads simultaneously, independent of other colors.

Note: Most printers will print at any station, but not independent of the colors or with two or more printheads in the “down” position. This means that all colors must print at that station. This is not true of all heads down printing.

Brake arm: Stops the lower rotary wheel or speed table in the print position.

Brake wheel: Controls braking action of the lower rotary wheel or speed table (printing stations).

Contact registration: Aligning screen directly “on contact” with artwork on printing surface.

Dual sleeve platen: Attaches to print arm to allow printing of two sleeves at the same time.

Gas Spring: Raises screen from print surface to “up” position in a controlled manner.

Flash/Flash Cure: Describe a high intensity IR heating device which is moved over a wet print. The print is flash dried. It is not cured, only ready for a second wet ink to be applied.

“H”-Arm: A rigid cast aluminum ‘H’ design which minimizes deflection and allows true “on contact” registration.

Index (printhead): Bootheel shaped nylon part located on print arm for gross centering of print head.

Jacket hold down: Adjustable clamping platen to allow printing on jackets, lined or unlined.

Manual cap platen: Attachment for printing caps.

Micro registration: System for controlling fine adjustment of the X and Y axis of the screen to the proof.

Off contact: Distance between printside of screen and printing surface. Parallel alignment of the screen frame to the shirtboard for proper “snap” off the printed substrate.

Pin registration: Screen registration system for precise exposing and registering of printing screens.

Platen: Also referred to as shirtboard.

Printhead: Complete assembly from upper rotary wheel to screen clamp, one per color. Attaches to the upper wheel and accepts either standard or micro registration.
III. Terminology Cont.

Printarm: Holds/supports shirtboard or other types of platens.

Ratchet Handles: Locks the micro registration plates to prevent any movement in registration.

Registration index guide: Device used to line up printhead with printarm.

Screen clamp: Holds screen frame. There are two types: side clamps and back clamps.

Screen inclination: Angle of the screen from front to back in relationship to printing surface.

Sequential lift: A biaxial printhead that lifts straight up (level to the platen), then away from the print.

Vellum: A paper substrate made from plasticized cotton thin enough to be virtually transparent to strong light and used to produce positive images for screen exposure.

Speed table: Lower rotary wheel with printarms and shirtboards.

Spot Cure: See Flash/Flash Cure

Squeegee stop: Device to rest squeegee between print strokes.

Trap (film): Usually refers to the proof positive film which traps, or outlines most of the other colors, or shows the most detail of a design (usually this is the black on a white shirt).

Vacuum platen: Attachment to allow printing on sheet substrates, transfers, vinyls, metals, etc. A wood base platen with a stainless top that includes a built-in vacuum hold-down.
IV. Printer Setup

See Page for Details.

NOTICE: Failing to properly set up printhead level will not allow print to be registered.

THE HIX PRESS MUST BE REGISTERED ON CONTACT!
(Meaning the exposed screen is touching the film/positive on shirtboard.)

WHY? Failing to level this section of the printer will cause an un-even contact from the left to the right or front to rear. This to will cause the screen to “slip” or move when you tighten the ratchet handles.

After initial registration of Printer you can then registered OFF contact. Printer should only have to be registered on contact once.
IV. Printer Setup (See Owners Manual for Details)

If you have large format “bigfoot” side clamps and micro registration slide-plates on each printhead, then pre-center them. Also pre-center the shirtboards so they are all in approximately the same position. These two steps will eliminate later backtracking if all screens have been burned consistently and little movement is required to register each color.

Loading the screens into the printer

Consult with the artist for color sequence (usually lightest to darkest) and load the screens in that order.

Slide each frame all the way into the back or side clamps on each printhead making sure the each design is facing the correct direction.

Tighten the clamps down snugly to prevent frame movement.

Placing the “trap” film/vellum on the platen (Why?)

Always make sure the platen is **clean and cool**! Film/vellum is expensive to replace and can be easily damaged on a dirty/hot platen. The only piece of film/vellum required is one for the “trap” or “outline” of the print (this is the one showing the most detail of the design and outlines most or all of the other colors).

Using a T-square, position the film/vellum so it is “squared” and centered essentially on the platen. Tape the film down lightly with a small piece of tape on each side. Check each frame by bringing it down over the film positive and ensure there is enough movement area on the registration slide-plate to register the print. Some adjustment may be necessary by repositioning the film or pulling the platen further out on the arm.
IV. Printer Setup (See Owners Manual for Details pg.)

Registering Your Print

After positioning your film/vellum, you can begin to actually register your print. Beginning with any screen, lower the screen onto the platen with the film. Keeping all of the clamps and the registration slide-plate tightened, adjust the “off -contact” (the space between the bottom of the screen and the platen surface) so the bottom of the screen is perfectly level and flush with surface of the platen. To adjust the screen so it is level, there are two manual mechanisms.

First, adjust the off contact of the screen with the round knob (about the diameter of a quarter) located on the crossbar of the “H-arm” on the printhead. Clockwise raises, counterclockwise lowers the screen. Lower the screen onto the platen surface. If the screen is not perfectly level with the platen (tilting up or down) the second adjustment is the inclination link between the registration slide-plate and the tower assembly where the gas spring is attached. Turning clockwise tilts the front up, counterclockwise tilts the front down. Adjust the two mechanisms until the screen is perfectly level and flush with the platen surface. Tighten the locking wheel on the inclination link once the adjustments are complete. If you have side to side height differences (between screen and shirtboard), loosen the two hex head nuts on the backside of the cross tube (attaching it to the registration plate). Align and retighten the nuts. You should not have to adjust these again unless you have a warped screen; this adjustment can help you rather than reburn a (flat) screen.

Now that the off-contact distance has been eliminated, loosen both of the handles (1/4 to 1/2 turn) that secure the registration slide-plate (some models will have “T”-handles, some will have ratchet handles). Hint: well placed registration marks on each piece of film exposed into all of the screens will significantly reduce registration time! When the screen has been positioned in perfect register with the film, gently tighten the handles (a hard twist or jar could knock the design out of registration) making sure they are secure. After double checking your register, adjust the off-contact to the desired height for your particular print (off-contact will vary according to the thickness or cushion of the item being printed, the tension of the screen, the ink you are using and the detail of the print).
IV. Printer Setup

Reusable Corner Dams & Tape The Screens

A poorly taped screen can cause printing delays and result in spoiled garments and an unnecessarily time consuming and messy cleanup. Insert corner dams in each corner. Using two-inch wide masking or screen tape, begin by taping the inner surfaces of the screen frame. Next, use corner dams; make sure the corners where the mesh attaches to the frame are secure to prevent ink from seeping out of the edges of the frame. Hint: get close enough to your design to prevent any excess ink from oozing outside the edges of the emulsion, but stay far enough away from the design (3/4") so you are not pulling across the tape as your squeegee travels across the screen. Be sure to tape out your registration marks after you have done your proof print and before you print your first production item.

Ink The Screens

Stir your ink completely making sure the consistency is easy enough to work with and will cover the item adequately. Ink manufacturers have products that will thin, reduce, thicken or alter the tack of the ink to fit your particular job. Make sure the right color goes in the right screen! Do not put more ink in your screen than you can efficiently work with. Remember, you can quickly add more ink, but it is a chore and a mess to work with a screen that is overflowing with excess ink and all over the squeegee. Less is better!
IV. Printer Setup

Select The Right Squeegee

Choose a squeegee that is clean, smooth (no nicks) and straight! Because of the hard, smooth surface of the aluminum platens, we recommend using a squeegee with a durometer between 50 and 70.

Making The Test Print

After all screens are registered, filled with the proper amount of ink and a squeegee has been selected, you’re ready to test print. After spraying the platen with adhesive, place a pellon square or scrap garment on the platen. Pull the screen containing the first color down onto the square. For the initial print only, flood twice, then keeping an adequate amount of ink between the squeegee and the near side of the frame, pull (or push) the squeegee over the image area in one consistent stroke. Lift the squeegee and return it to the squeegee stop. Lift the screen and rotate to the next color. Repeat until all colors have been printed. Check print for registration, color sequence, trap and density and adjust if necessary. When these factors are satisfactory, tape off your register marks and you’re ready to begin production!
A. Comparative Analysis

The following article is a reprint from “Screen Printer’s Newsletter” written by Rick Whyte, a screenprinter from Escondido, California.

It’s no secret that the most important piece of equipment in your shop is the printer. Consider the following features on the HIX Premier Printer and compare them to your current capabilities. If you are not measuring up, please give us a call: six color registration easily done in five minutes, no matter how difficult the print registration.

Off contact adjustment done after registration, no more guess work or pushing down around the registration marks in the screen to see if you are in register. Pneumatic cylinders assisting the lift of the screens after print stroke is complete. Just begin the lift of the screen, let go and the screen automatically lifts out of the way. This feature saves 2 to 3 seconds per print per color, or 15 minutes of production time on one order of 100 four-color shirts (one operator).

All print heads working independently allowing you to add people to the printer to increase productivity.

A typical run of 144 four-color shirts would take less than 30 minutes from setup to breakdown. Most manual printers on the market take 30 minutes just to do the setup.

The HIX Rotary Printer is capable of producing 10 four-color shirts a minute, or 600 shirts per hour (four operators). We regularly have 2-4 operators on each HIX press.

If you could triple your daily production, shouldn’t you take a serious look at the HIX printer?

If you were making a profit of $1.00 per shirt and could produce 600 shirts per hour, why not consider leasing a six-color, six-station HIX printer $125 per month? One half hour of production will pay the cost of the monthly payment.