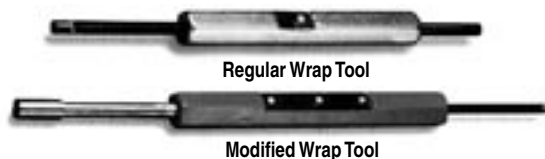


WIRE-WRAP

WRAP / STRIP / UNWRAP TOOLS



- Regular and modified wrap models.
- 22 AWG, 24 AWG, 26 AWG, 30 AWG models.
- Color coded for various wrap sizes.

Part No.	Description	1-9	10+
03HSR30	Regular Wrap 30 AWG	\$16.50	\$15.50
03HSR224	Regular Wrap, 22-24 AWG	21.45	20.65
03HSM24	Modified Wrap, 24 AWG	23.50	22.45
03HSM26	Modified Wrap, 26 AWG	23.50	22.45
03HSM30	Modified Wrap, 30 AWG	16.50	15.50

WIRE WRAP KIT

These complete telecom wire wrap tool kits are designed to provide field service with tools necessary to perform regular wraps, unwrapping and wire stripping in two different gauge sets – 22 and 24 or 24 and 26.



Kit Includes:

- (1) Manual wire wrap gun
- (1) Hand Wrap Tool
- (1) Holster
- (1) Bit and Sleeve Set
- (1) Wire Stripper

Part No.	Description	Price
03KTW224	Wire Wrap Tool Kit – 22-24 AWG	\$189.00
03KTW2426	Wire Wrap Tool Kit – 24-26 AWG	180.00

AC-ELECTRIC POWERED WIRE WRAP TOOL

The 120 Volt 6000 series electric wire wrapping and unwrapping tools have been designed for production and field service operations where wire sizes 18 to 32 AWG are used.



- Fast Operation
- Ergonomically Designed
- Lightweight Lexan Housing
- Unique Positive Indexing Mechanism
- Standard 20 Foot Power Cord
- 90 Day Warranty

Part No.	Description	Price
03SP6021	Wire Wrap Tool	\$235.00
03BR224	22-24 AWG Bit	21.00
03S171	Sleeve For 22-24AWG Bit	13.95
03BR2426	24-26 AWG Bit	22.00
03S159	Sleeve For 24-26 AWG Bit	13.25
03BR30	30-32 AWG Bit	31.50
03S93	Sleeve For 30-32 AWG Bit	16.50

WIRE WRAP TOOL – ECONOMY MODEL



Strips, wrap and unwrap 30 Ga. wire.

Part No.	1-9	10+
03WTE	\$9.75	\$8.90

OK INDUSTRIES INC. WIRE WRAP TOOLS



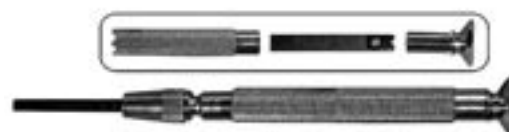
WSU-30 Regular Wrap
WSU-30M Modified Wrap
(One Extra Turn of Insulated Wire)

Hand wrapping, stripping and unwrapping tools. Strips, wraps, and unwraps. For AWG 30 wire on .025" square post.

Part No.	1-9	10+
03WSU-30	\$24.75	\$24.00
03WSU-30M	24.75	24.00

MICRO HAND WRAP TOOLS

INCLUDES WIRE STRIPPER STORED INSIDE HANDLE CAVITY



- Modified wrap and regular wrap models.
- High quality knurled aluminum handle.
- 30 AWG wire stripper included. Stores inside handle cavity by removing swivel cap.
- Bits easily replaced or switched by loosening collet.
- Swivel end cap for comfortable fit in palm. Enables effortless turning.

Part No.	Description	1-9	10+
03MT30M	Modified Wire Wrap Tool	\$17.75	\$15.95
03MT30R	Regular Wire Wrap Tool	17.85	16.10

SQUEEZE SPEED WRAP TOOLS

High quality, cost effective, chuck type collet style manual wire wrapping tools. Select from either aluminum or plastic housing design. Compare and save. Listed bits are for regular wrap. Modified wrap bits also available.



Part No.	Description	Price
03WG100	Wrap Tool – Aluminum Housing	\$81.00
03WG200	Wrap Tool – Plastic Housing	62.00
03BR224	22-24 AWG Bit	21.00
03S171	22-24 AWG Sleeve	13.95
03BR2426	24-26 AWG Bit	22.00
03S159	24-26 AWG Sleeve	13.25
03BR30	30-32 AWG Bit	31.50
03S93	30-32 AWG Sleeve	16.50

PROTOTYPING / IC EXTRACTORS

LEAD BENDING GAUGES



Double-sided. Forms leads quickly. Graduated in .05" increments. Radiused edges eliminate scarring of leads. Model ST accepts 1/4W and 1/2W components. Model PR accepts 1W and 2W.

Part No.	Description	1-9	10+
0664ST010	1/4W, 1/2W	\$3.95	\$3.75
0664PRO12	1W, 2W	3.95	3.75

IC PIN STRAIGHTENER



Straighten bent pins easily and safely.

- Straighten 8, 14, 16, 18, 20, 24, 28, 40, 48 pin ICs
- Size: 3.3" x 1.5" x 0.4"
- Color: black plastic
- Includes a ground terminal

Part No.	1-9	10+
03ICS-01	\$7.65	\$7.25

RSR COMPUTER TOOL KIT ECONOMY MODEL - 12 PC.

MODEL CTK1

- 2-Slotted, 2 Phillips Screwdrivers
- Torque Screwdriver
- Three-Claw Part Holder
- Assembly Tweezers
- IC Extractor
- 2- Nut Drivers
- Spare Parts Tube
- Carrying Case



MODEL CTK2

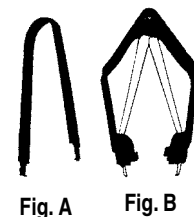
Same as CTK1 with IC inserter and w/o spare parts tube.

Part No.	1-9	10+
3200CTK1	\$8.95	8.25
3200CTK2	9.95	8.25

IC EXTRACTOR

Part No.	Fig	1-9	10+
060400	A	\$1.25	\$0.90
060401	B	3.90	3.40
060404	A	1.30	0.95

(Insulated Handle)



IC INSERTION / EXTRACTION TOOL

Inexpensive and useful tool for inserting and extracting 8, 14, 16, 20 pin ICs.

Part No.	1-9	10+
060402	\$2.25	\$1.95



IC INSERTION TOOL

Inexpensive and useful tool for inserting 14 and 16 pin ICs

Part No.	1-9	10+
060403	\$2.15	\$1.85



CAN WRENCH

Double end CAN socket wrench. 3/8" and 7/16", HEX.

Orange, ergonomic handle. Used in placing fuses in cable terminals and connecting wires to fuses and binding posts. The walls on both sockets are thin enough so they can be used to work locking devices on most terminals and cabinets. 7" long.



Part No. 0601M216CEX • Price: \$11.95

IC INSERTION AND EXTRACTION TOOL KIT

9 PIECES

- Six IC insertion tools for: 8; 14/16; 18/20; 22; 24/28; and 32/40-pin ICs
- Universal extraction tool; PLCC IC extraction tool

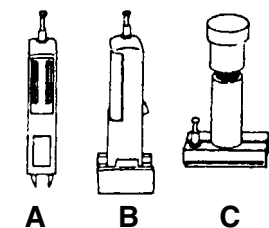


Part No.	1-9	10+
3200CTK6	\$15.95	\$14.95

OK INDUSTRIES INC

IC INSERTER

For sensitive MOS and CMOS IC's. Terminal lug for attaching ground strap (strap not included).



Part No.	Fig.	1-9	10+
03MOS-1416	A	\$16.50	\$15.95
03MOS-2428	B	16.50	15.95
03MOS-40	C	19.95	18.95

ANTI STATIC

ANTI STATIC FIELD SERVICE KIT ECONOMY MODEL

- Provides convenient and effective ESD control workstation for field service applications.
- Durable red vinyl surface provides a highly effective dissipative work mat and can be used as a carrying pouch for PC boards.
- It connects easily with ground cord and an adjustable wrist strap.
- Two sewn-in pockets to hold tools or components
- **Mat Size** – 24" x 26"



Part No	1-9	10+
03UCSK1	\$15.95	\$14.50

ANTI-STATIC WORK MATS



Make your work place safe from static discharge. Made of semi-conductive vinyl that provides adequate discharging.

Part No.	Size / Application	Price
03ASW1	11" x 22" – Keyboard	\$9.25
03ASW2	19" x 23" – CPU	10.95
03ASW3	24" x 24" – CPU & Keyboard	11.95
03ASW4	8" x 11" – Computer Mouse	4.50

ANTI STATIC FINGER COTS

- Finger cots are widely used by technicians who handle sensitive electronic parts.
- **Resistance:** About $10^8 \Omega$ / square
- Packed 100 pcs / bag



Part No	1-9	10+
03UCC1-100	\$2.95	\$2.50

CONDUCTIVE BRUSH

- **Application:** Use to clean IC boards and parts, especially static-sensitive products.
- **Material:** The handle is made of conductive plastic, the comb is made of conductive Nylon.
- **Resistivity:** $10^4 - 10^6 \Omega$



Part No	1-9	10+
03UCBH1S	\$3.50	\$2.95

RSR ANTI-STATIC FOAM

1/4" THICK

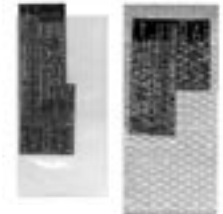
Conductive antistatic foam material for bench or shipping ensures a safe work area.



Part No.	Size	1-9	10+
0302ASF	4" x 5"	\$0.90	\$0.80
0302ASF1	24" x 12"	9.20	8.30

RSR ANTI-STATIC BAGS

Provides static protection for PC boards and components during handling and shipping. 10 pieces per pak.



Part No.	Description	Price / Pak	
		1-9	10+
03ASB1	5" x 10" - Regular	\$1.25	\$1.05
03ASB2	8" x 12" - Regular	1.45	1.25
03ASB3	5" x 10" - Bubble	1.55	1.35
03ASB4	8" x 12" - Bubble	3.10	2.35

ANTI STATIC SHOE GROUNDER WITH SHIN BAND

- Uses an adjustable elastic shin band.
- One mega ohm resistor is molded into the snap for safety.
- **Resistivity:** $10^6 \Omega$



Part No	1-9	10+
03UCHG3	\$7.95	\$6.50

ANTI-STATIC TOUCH PAD

- **Ideal for Keyboards**
- Pad has 1M ohm resistance
- Includes double sided tape install anywhere (keyboard etc.)



Part No.	1-9	10+
03ASTP	4.50	4.25

ANTI STATIC

3M ANTI-STATIC TABLE MAT DISSIPATIVE 3-LAYER

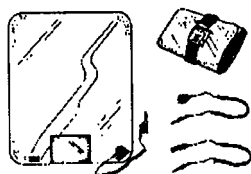
Top layer is durable static-dissipative to discharge static charged conductors. The middle layer is a conductive that provides discharge path to ground. The bottom layer is static-dissipative foam, a durable, nonskid cushion. Includes 2 female snaps and one 15' ground cord.



Part No.	Color	Size	Price
03AS8211	Brown	2' x 4'	\$93.00
03AS8214	Blue	2' x 4'	93.00

3M FIELD SERVICE KIT STATIC-DISSIPATIVE

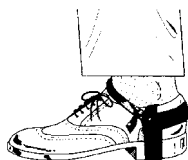
Portable lightweight kit for electronic service technician. Kit includes static dissipative work surface with pocket, adjustable wrist band and ground cords.



Part No.	Description	Price
03AS8501	24" x 24" x .02"	\$69.25
03AS8505	15" x 20" x .015"	77.50

3M STATIC CONTROL SHOE GROUNDING ASSEMBLIES

Static control heel-straps provide static protection while retaining worker mobility. One size fits most shoes. Comfortable elastic ankle strap.



Part No.	Description	Price
03AS2051	Shoe grounding assembly w/resistor	\$9.95

ANTI-STATIC LABELS

Useful to alert personnel handling cartons & bags that the contents are static-sensitive. 500 labels per roll. Size: 1 3/4" x 2 1/2".



Part No.	Description	Price
03ASL7102	Yellow with black type	\$16.45

RSR WRIST STRAP

Protects IC's and other equipment from static discharge. Grounding cord is a coiled cord 6' or 10' long with 1MΩ resistor.



- **Material:** The conductive elastic band is made of polyester, and woven stainless steel / nickel fibers on interior surface.
- **Band Resistivity:** < 50Ω

Part No.	Description	1-9	10+
0302-BWS150	Medium Size – 6' Cord	\$3.50	\$2.75
0302-BWS160	Medium Size – 10' Cord	3.95	3.50
0302-BWS201	Adjustable Band – 6' Cord	3.95	3.50
0302-BWS203	Adjustable Band – 10' Cord	4.50	3.95

CORDLESS* ANTI STATIC WRIST STRAP

- Cordless wrist strap is used in applications where wrist strap is not convenient such as working stations that require standing or walking.
- Uses "SELGLARD" electric halo principle. It discharges body's static electricity through **discharge box**.
- Cordless wrist strap can also be used with the ground cord which can be connected to earth.



* **CAUTION:** Not recommended for dry climate highly static sensitive applications

Part No	1-9	10+
03UCWS4	\$6.95	\$6.25

ANTI STATIC GLOVES

- **Material:** Polyester filament with woven conductive yarn.
- **Application:** Use in different environments such as the laboratory, aerospace, electronics and semiconductor industries.
- **Resistivity:** 10⁸ – 10⁹ Ω
- Slip proof

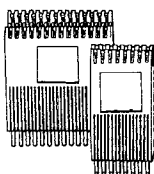


Part No.	Description	Price / Pair	
		1-9	10+
03UC-AG1S	Small	\$2.50	\$1.75
03UC-AG1M	Medium	2.50	1.75
03UC-AG1L	Large	2.50	1.75

PROTOTYPING / TEST CLIPS

DIP IC TEST CLIPS

Designed for easier DIP IC testing and troubleshooting. The heavy duty metal spring provides a firm positive grip to DIP under test.



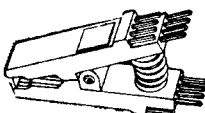
Part No.	Description	Width	Price
03TC16	16-Pin (used for 8, 14, 16 pin IC's)	0.3"	\$6.95
03TC28	28-Pin (used for 24, 28 pin IC's)	0.6"	9.95
03TC40-3M	40-Pin	0.6"	9.90

Pomona Electronics / 3M

SURFACE MOUNT TEST CLIPS

SOIC TEST CLIP

3M brand Small Outline IC test clips. Helical compression springs provide firm, positive contact pressure. Alloy (764) plated.



Part No.	Description	Price
03TCS08N	8-Pin	\$10.95
03TCS16N	16-Pin – Narrow	11.50
03TCS16W	16-Pin – Wide	11.50
03TCS20W	20-Pin – Wide	12.50
03TCS24W	24-Pin – Wide	13.75
03TCS28W	28-Pin – Wide	14.90

PANA VISE PANAVISE JUNIOR

MINI PANAVISE – MODEL 201

Vise head and base combo. Smaller version Panavise with all "tilt, turn and rotate" features of bigger models. Grooved jaws open 2⁷/₈". Three plane head movement (360° rotate, 360° swivel, 210° pivot).



Part No. 03PV201 • Price: \$22.95

PANA VISE

RAPID ASSEMBLY CIRCUIT BOARD HOLDER

MODEL 333

For quick circuit board rotation and component insertion/soldering, nothing beats this work holding tool for speed and versatility.

- Features eight rotating adjustment positions at the head, six positive lock positions in the vertical plane, and variable height adjustment
- Hold circuit boards up to 12" (304.8mm) wide and up to 0.156" (4mm) thick
- Arms move independently and feature "V" shaped grooves
- Notches positioned laterally near the arms' tips securely and conveniently hold small electronic parts
- 5.0 lb Weighted Base is extremely stable
- Height (base to top of vertical shaft): 10" (254mm), Weight: 6.4 lbs. (2.9kg)

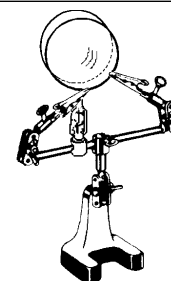


Part No. 03PV333 • Price: \$84.50

RSR

HELPING HAND

Third hand for soldering, gluing, painting, and repairing. Great for holding PC boards. Adjust to any position or angle.



Part No.	Description	1-9	10+
060834	Helping Hand (w/o magnifier)	\$3.50	\$2.95
060836	Complete Set (Helping Hand/Magnifier)	3.95	3.50

PANA VISE

STANDARD PANAVISE COMPLETE COMBINATION

MODEL 301

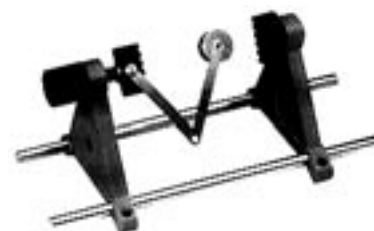
The original! All purpose unit for industrial and hobby applications. Single knob controls "tilt, turn and rotate" function of patented split ball, allowing 360° rotation, 360° swivel and 90° pivot. Features 300 standard base, 303 standard head and 343 nylon jaws.



Part No. 03PV301 • Price: \$42.00

Weller®

CIRCUIT BOARD VISE



- Complete work center for placing, soldering and desoldering printed circuit boards
- Spring clamps hold workpiece in place
- Rotates through 360°, allowing work performance at any convenient angle
- Adjustable features allow handling of variety of circuit board sizes
- Socket key included
- Maximum surface: 6¹/₄" x 9¹/₈"

Part No.	Description	Price
03ESF120ESD	Vise for holding circuit boards ESD safe	\$51.91

PROTOTYPING / PCB DEVELOPMENT

PC BOARD DESIGN AND FABRICATION KIT

This kit includes PCB layout software plus material and instructions to make your own printed circuit boards. No dark room processing needed.



Included in Kit:

- Board Creator Software
- Press-N-Peel image transfer film
- Etching solution
- Copper clad boards
- Software manual
- Complete instructions for making PC boards
- More than 100 hobby circuits on CD

Features of the Board Creator Software included in this kit

- Boards up to 10' x 8' up to 6 layers with 8 masks each
- Built-in print queue up to 10 masks
- User selectable cursor layout grid up to 1 mil resolution. Items not limited to grid
- Full surface mount device support
- Multiple line widths, from 0.001 to 0.255 inches wide
- Up to 10 different pad shapes and sizes
- Locates and displays errors on-screen

Part No. 32AMSPCBDFKIT • Price: \$145.00

® M.G. Chemicals

PHOTOFABRICATION KIT

- Produce professional PC boards
- Develops presensitized copper boards which have been through the exposure process
- Includes
 - (3) single sided, presensitized copper boards (3" x 5", 4" x 6" and 6" x 6")
 - Developer (500 ml)
 - Development tray



- Ferric chloride (500 ml)
- Rubber gloves
- (2) foam brushes
- Instruction sheet

Part No.	Description	Price
03416K	Photofabrication Kit	\$41.50
03416X	Optional Exposure Kit	31.70
03416B	Replacement Exposure Bulb	8.90

POS-NEG FILM FOR ER-4 SYSTEM

This polyester base film is dimensionally stable and is capable of making a negative or positive from either opaque or translucent artwork in one step. No intermediate film is required.

Part No.	Description	1-11	12+
03ER5	Six sheets 5" x 6"	\$7.90	\$7.25
03ER9	Two sheets 8" x 11"	7.80	7.20

PRESS-N-PEEL

Printed circuit board transfer film. Works with plain paper copiers and laser printers. Eliminates darkrooms, chemicals, negatives and copy cameras. Make PC Boards from CAD or magazines.

4 EASY STEPS:

1. Print or Copy Layout
2. Iron On
3. Peel Off (PNP-Blue)
Soak Off (PNP-Wet)
4. Etch



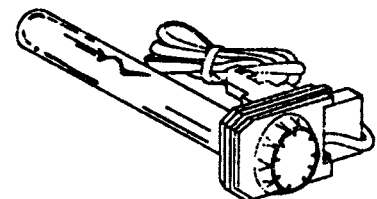
PNP-Blue: For high precision, professional layouts. Adds extra layer of resist for super fine lines (<5 mil) and solid ground planes on single and double sided copper clad.

PNP-Wet: Easy, hobby quality PCB's. Transfers printer or copier toner as resist to single and double sided copper clad

Part No.	Description	Price
03PNPB5	PNP Blue 5 Sheet Hobby Pack	\$9.90
03PNPW5	PNP Wet 5 Sheet Hobby Pack	9.90
03PNPB20	PNP Blue 20 Sheet Pro Pack	28.95
03PNPW20	PNP Wet 20 Sheet Pro Pack	28.95
03PNPB40	PNP Blue 40 Sheet Super Pack	55.00
03PNPW40	PNP Wet 40 Sheet Super Pack	55.00
03PNPB100	PNP Blue 100 Sheet Pack	119.00
03PNPW100	PNP Wet 100 Sheet Pack	119.00

ETCHING SOLUTION HEATER

Fits in tank and heats solution up to 100°F (38°C). Used to further reduce etching time. Built-in adjustable thermostat controls temperature continuously to 100°F (38°C). 120V AC / 100 W Max.



Part No. 03ESH • Price: \$16.75

COPY AND REVERSING KIT

Gives you the capability to copy a circuit pattern from a textbook or magazine with the copy film and reverse the pattern with the reversing film. Copy film works with all plain paper copiers. Reversing film requires no darkroom, tank, trays or fixers.

Kit includes:

- 1 — 8 1/2" x 11" sheet of copy film
- 1 — 10" x 24" piece of reversing film
- 1 — 1 oz. developing solution,
- Sponge
- Instructions

Part No. 03CR705 • Price \$11.95

PROTOTYPING / PCB DEVELOPMENT

DATAK

DIRECT ETCH RESIST PEN



This pen is filled with a lacquer ink that is impervious to aqueous PC etch solutions. Ideal for photo resist pattern touch-up or for direct-etched boards with tight spaces.

Part No.	1-11	12+
03ER15	\$1.95	\$1.85

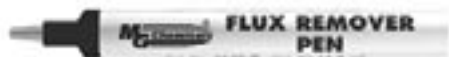
DRAFTING FILM FOR PC ARTWORK

A polyester base general purpose drafting film. One side is matte to accept pencil or ink. Used to make original PC art masters.

Part No.	Description	1-11	12+
03MS21	2 sheets 8 1/2" x 11"	\$2.95	\$2.50

® **M.G. Chemicals**

FLUX REMOVER PEN – 11.5ML FOR PRECISION FLUX REMOVAL



Effectively removes organic rosin flux and ionic soils found in post solder applications.

- Safe on most plastics
- Pen tip allows controlled application
- Flammable
- Keep out of reach of children

Part No.	Description	Price
254140-P	11.5ml Felt Tip Pen	\$5.75

® **M.G. Chemicals**

ETCHING PROCESS KIT MODEL 416-E

Complete with tank, heater and pump. Etches copper clad circuits professionally. Accommodates two 8" x 12" double sided boards.



- 7 litre heavy duty polyethylene etching tank
- Sturdy mounting bracket
- Clear acrylic lid
- Heavy duty air pump
- 3-way adjustable airline manifold
- Triple line sparging unit
- 200 watt side mounting immersion

heater with quartz element and adjustable temperature control

- Adhesive digital thermometer
- Bag of vinyl gloves
- Complete instructions

Part No. 03416E • Price: \$165.00

PRESS-N-PEEL

Printed circuit board transfer film. Works with plain paper copiers and laser printers. Eliminates darkrooms, chemicals, negatives and copy cameras. Make PC Boards from CAD or magazines.

4 EASY STEPS:

1. Print or Copy Layout
2. Iron On
3. Peel Off (PNP-Blue)
Soak Off (PNP-Wet)
4. Etch



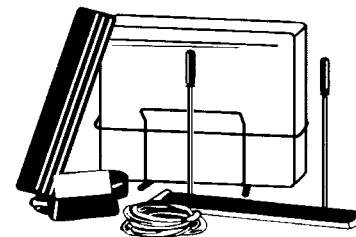
PNP-Blue: For high precision, professional layouts. Adds extra layer of resist for super fine lines (<5 mil) and solid ground planes on single and double sided copper clad.

PNP-Wet: Easy, hobby quality PCB's. Transfers printer or copier toner as resist to single and double sided copper clad

Part No.	Description	Price
03PNPB5	PNP Blue 5 Sheet Hobby Pack	\$9.90
03PNPW5	PNP Wet 5 Sheet Hobby Pack	9.90
03PNPB20	PNP Blue 20 Sheet Pro Pack	28.95
03PNPW20	PNP Wet 20 Sheet Pro Pack	28.95
03PNPB40	PNP Blue 40 Sheet Super Pack	55.00
03PNPW40	PNP Wet 40 Sheet Super Pack	55.00
03PNPB100	PNP Blue 100 Sheet Pack	119.00
03PNPW100	PNP Wet 100 Sheet Pack	119.00

PROFESSIONAL PC ETCHING TANK

A semiautomatic etching device for use in labs, schools, prototype shops. Reduces etching time to minutes. Air pump agitates solution for fast, very even etches. Handles up to two 8" x 10" PC boards at a time, either single or double sided.



KIT CONTAINS:

- 1 Etching Tank and Reservoir Lid
 - 12"H x 1 1/2"W x 10 1/2"L (Molded Polyethylene – ABS PC Board Holder).
 - Capacity – 1.25 Gallons of Etching Solution.
- 1 Etch-O-Matic Power Agitating Pump, 120V AC Operation.
- 1 Permanent or Portable Tip-Free Base.
- 1 PC Board Holder and Handle.
- 4 Feet of Supply Hose.

Part No: 03ETPCB • Price: \$82.50

**YOU ALWAYS GET
THE LOWEST PRICES
AT ELECTRONIX EXPRESS!**

PCB DEVELOPMENT

NEGATIVE PHOTO RESIST – ER-71

A liquid cinnamate resist in bottle with pump sprayer. May also be flowed on. The coated board is exposed to UV through a negative of the circuit pattern, then developed in ER-8 liquid. One bottle coats 1700 square inches.

Part No.	1-11	12+
03ER71	\$9.50	\$8.50

NEGATIVE RESIST DEVELOPER

A solvent blend that will develop ER-71 and other negative-acting photo resists. 16 oz.

Part No.	1-11	12+
03ER8	\$5.50	\$4.50

POSITIVE TYPE DEVELOPER CONCENTRATE

For developing Datak precoated PC boards. Developer is mixed 3 parts tap water to 1 part concentrate. Ten fully diluted ounces will develop between 12 and 22 square feet of precoated board (depending upon circuit density). This mild sodium hydroxide solution with additives may be flushed down drain after use.

Part No.	Description	Price
0312-402	2 Ounce Concentrate	\$5.95
0312-404	4 Ounce Concentrate	9.95

DATAK TINNIT™ TIN PLATE

Tinnit™ will plate a copper clad board with a bright tin plate approx. .0004" thick. Enhances solderability, resists oxidation. Also use on card edge contact fingers. Supplied as a dry concentrate; just add water. One pint plates up to 600 sq. inches of copper. May be used to plate some other metals such as brass, bronze, iron; anything more active than tin. Plating is complete in about 10 minutes in a fresh solution, Tinnit™ is supplied as a dry mixture with indefinite shelf life. When mixed with water, the solution has approximately a 2 month life.

Part No.	Description	1-11	12+
03ER18	1 Pint Size	\$6.50	\$5.50
03ER181	1/2 Gallon Size	16.00	14.00

®M.G. Chemicals EXPOSURE KIT

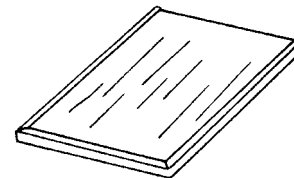
Includes major components needed to expose presensitized copper-clad boards. Comes complete with stand, light fixture and exposure tube.



Part No.	Description	Price
03416X	Exposure Kit	\$31.70
03416B	Replacement Exposure Bulb	7.95

DATAK CONTACT EXPOSURE FRAMES

A contact frame is needed to hold films during exposure. Large format spring-loaded ER-10 steel contact frame will accept 8.5" x 11" artwork originals, photocopy film and sensitized printed circuit boards. Smaller frame is ideal for hobby projects. Both frames come complete with glass, backboard, yellow POS-NEG filter and instruction manual.



Part No.	Description	1-11	12+
03ER10	9" x 12" Exposure Frame	\$23.50	\$22.50
03ER56	5" x 6" Exposure Frame	14.25	13.25

DATAK DRY CONCENTRATED ETCHANT

Anhydrous Ferric Chloride in vapor-tight package. The 1/4 lb. package produces 1 pint which will etch approx. 200 sq. inches of standard copper board.

Part No.	Description	1-11	12+
03ER3	1/4 lb.	\$4.95	\$4.75
03ER21	1 lb.	11.95	10.95

DATAK POWER ETCH PUMP



The etch pump and distributor tubing may be used to accelerate etching and free you from some of the constant agitating of the etch solution. Bubbles provide both agitation and also some oxygen which enhances the process.

Part No.	1-11	12+
03ER12	\$9.95	\$8.95

DATAK SPECIAL LIGHT BULB PHOTOFLOOD BULB FOR POS-NEG



Part No.	1-11	12+
03ER2000	\$12.50	\$11.00

PCB DEVELOPMENT

PRINTED CIRCUIT BOARD DEVELOPMENT SYSTEM

CREATE YOUR OWN PC BOARDS WITH FEWER CHEMICALS USING THIS COMPLETE PACKAGE



Contains essential items to create printed circuit boards. This special package of prototyping tools, instructions and supplies offers substantial savings when compared to buying each of these items individually. This system is perfect for an instructor setting up a lab for students to create their own printed circuit boards. It is also ideal for prototype designers and anyone needing to produce boards quickly. The system is based on creating circuit boards using PRESS-N-PEEL transfer film, and includes a high quality HIX heat transfer press along with other items listed below. Laser printer and some form of circuit design software are needed to use this system.

The following are included:

- 20 sheet Pro Pack of PRESS-N-PEEL (blue), and 20 sheet Pro Pack of PRESS-N-PEEL (wet) with instructions
- High quality HIX 9"x 12" heat transfer machine
- PC board etching tank, lid, pump, hose, board holder and gloves
- 4 litre (1 gal.) liquid ferric chloride etching solution
- 10 pieces of 3" x 4" single sided copper clad
- 10 pieces of 5" x 6" single sided copper clad
- 10 pieces of direct etch resist pens for touch ups prior to etching
- One silver conductive pen in case any final repairs are necessary after etching
- Deluxe, custom version with 4 times consumable items. Contains one each of the tank and heat press plus 4 times everything else.

Part No.	Description	Price
32PCBDS	Regular Version	\$542.00
32PCBDSCUSTOM	Custom Version	895.00

ULTRA VIOLET EXPOSURE FRAME

FEATURES:

- Installed with self contained vacuum system.
- Double sided UV light source.
- Digital timer with re-expose function.
- Mask area: 220mm (8.6") x 370mm (14.5").
- Can be used for single or double sided boards



Used for professional exposure of photosensitive coatings. Vacuum system guarantees accurate positioning. Top and bottom lights can be controlled independently. **Power source:** 115 Vac; **Weight:** 30 lbs.

Part No: 03UVEF Price: \$795.00



HEAT TRANSFER PRESSES

OPENS WIDER THAN SHOWN

In addition to using for creating circuit boards, these presses have many very popular uses. Create custom T-shirts, mouse pads, magnetic material, clipboards, dry erase boards, canvas, beverage insulators, placemats, calendars, puzzles, name badges, placques, sweatshirts, sport and golf bag tags, pennants, jeans, notebooks and more. Great for fund raisers and tournaments!

HOBBY LITE MODEL

- 9" x 12" flat, even-heat area
- Economical and perfectly suited for inkjet applications, sublimation and transfers
- Lightweight and portable. 23 lbs.
- Swing away design for easy layout away from heat
- Full range pressure control for items up to 1" thick
- Temp control from 0 – 400°F
- Heat indicator light, easy to use pressure lever and sturdy support base



SWINGMAN 15 MODEL

- 15" x 15" flat even-heat area
- Transfers items up to 1 1/2" thick
- Temp control 0 – 450°F
- Full range pressure adjustment
- Indicator light goes off when set temp is attained
- Sturdy, but portable at 58 lbs.
- Applies all types of transfers. Great for laying out numbers and letters
- 120V, 12.5A, 1500W



PRESTO 15 MODEL

- 15" x 15" heat area sizes.
- Applies all types of transfers
- 47 lbs. 120V (220V available special order item)
- Individual, numbered and repeatable pressure settings give the correct pressure time after time
- Easy-to-use temp control 0 – 450°F with heat indicator light.



B-250: CAP PRESS

- Turn caps into walking advertising for your customers, teams, and more!
- Lightweight and portable for use at malls, flea markets, shows, and more.
- Sturdy design with a strong support base.
- Interchangeable lower platen for ball, golf (standard), or youth caps.
- Features include pressure adjustment, 60 second auto-reset timer, thermostat (from off to 450 degrees F), heat indicating light, and handy cap holding device.



Part No.	Description	Price
03HOBBYLITE	Hobby Lite heat press 9" x 12"	\$375.00
03SWINGMAN15	SwingMan 15 heat press 15" x 15"	695.00
03PRESTO15	Presto 15 heat press 15" x 15"	695.00
03B250	Cap Press	595.00

Call for pricing on any other HIX products not listed here

PCB DEVELOPMENT

PRECISION MULTI-6 SHEAR

Hand operated tool designed to cut circuit board laminates through .125" thick and sheet metal up to a thickness of .040". Cutting widths of 12.125" are possible. It utilizes a hardened tool-steel blade and requires a bench space of only 15" wide by 13" deep. It is supplied with transparent plastic blade guards, a precision machined side squaring gauge for accurate shearing.



Part No.	Description	Price
03MS6	Multi-6 Shear	\$560.00

PC BOARD DESIGN AND FABRICATION KIT

This kit includes PCB layout software plus material and instructions to make your own printed circuit boards. No dark room processing needed.



Included in Kit:

- Board Creator Software
- Press-N-Peel image transfer film
- Etching solution
- Copper clad boards
- Software manual
- Complete instructions for making PC boards
- More than 100 hobby circuits on CD

Features of the Board Creator Software included in this kit

- Boards up to 10' x 8' up to 6 layers with 8 masks each
- Built-in print queue up to 10 masks
- User selectable cursor layout grid up to 1 mil resolution. Items not limited to grid
- Full surface mount device support
- Multiple line widths, from 0.001 to 0.255 inches wide
- Up to 10 different pad shapes and sizes
- Locates and displays errors on-screen

Part No. 32AMSPCBDFKIT • Price: \$145.00

® **M.G. Chemicals**

PRINTED CIRCUIT BOARD ETCHING TANK

MODEL 416-ES

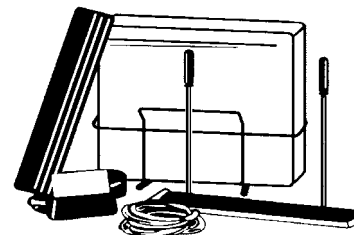
- Accommodates two 8" x 9" 2-sided boards
- Inexpensive – Great for students
- 5 litre
- Etching tank and lid
- Air hose
- Air pump
- Sparging unit
- Latex gloves
- Complete instructions



Part No.	Price
03416ES	\$35.95

PROFESSIONAL PC ETCHING TANK

A semiautomatic etching device for use in labs, schools, prototype shops. Reduces etching time to minutes. Air pump agitates solution for fast, very even etches. Handles up to two 8" x 10" PC boards at a time, either single or double sided.



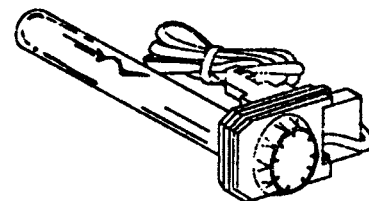
KIT CONTAINS:

- 1 Etching Tank and Reservoir Lid — 12"H x 1 1/2"W x 10 1/2"L (Molded Polyethylene – ABS PC Board Holder).
- Capacity – 1.25 Gallons of Etching Solution.
- 1 Etch-O-Matic Power Agitating Pump, 120V AC Operation.
- 1 Permanent or Portable Tip-Free Base.
- 1 PC Board Holder and Handle.
- 4 Feet of Supply Hose.

Part No: 03ETPCB • Price: \$82.50

ETCHING SOLUTION HEATER

Fits in tank and heats solution up to 100°F (38°C). Used to further reduce etching time. Built-in adjustable thermostat controls temperature continuously to 100°F (38°C). 120V AC / 100 W Max.



Part No. 03ESH • Price: \$16.75

COPY AND REVERSING KIT

Gives you the capability to copy a circuit pattern from a textbook or magazine with the copy film and reverse the pattern with the reversing film. Copy film works with all plain paper copiers. Reversing film requires no darkroom, tank, trays or fixers.

Kit includes:

- 1 — 8 1/2" x 11" sheet of copy film
- 1 — 10" x 24" piece of reversing film
- 1 — 1 oz. developing solution,
- Sponge
- Instructions

Part No. 03CR705 • Price \$11.95