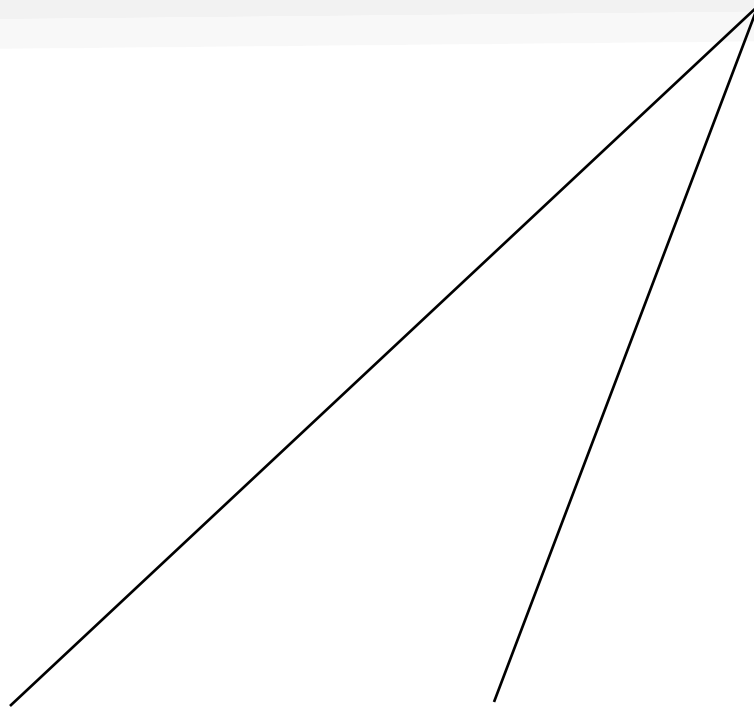


# MARKING METHODS INC.

## **ELECTRO-CHEMICAL MARKING** ***PARTS CATALOG***



301 SOUTH RAYMOND AVENUE, ALHAMBRA, CALIFORNIA 91803-1531

TEL **626-282-8823** FAX 626-576-7564

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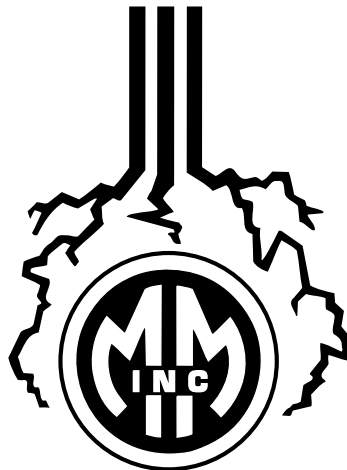
**YOUR MARK OF EXCELLENCE**

## About MARKING METHODS, INC.®

MARKING METHODS, INC.® incorporated in 1954, has grown to become a leader in the field of permanent identification of metals. Our continuing research and development has enabled us to provide STRESS FREE marking for programs from the early F86 and F100 airplanes and Atlas missiles to present jet engines and landing gear components. Each year, we have successfully responded to many new and diverse applications requiring either Electro-Chemical, Laser, and Hot Stamp, Dot Peen (Stylus) Marking, and Pad Printing identification. Today, we provide equipment to mark items from pacemakers to nuclear reactor components, stressing service to meet your individual needs.

MARKING METHODS, INC.® prides itself as a service-oriented company in addition to supplying quality equipment. Our facilities provide the capabilities of producing permanent stress-free marking IN HOUSE on any part. This has been found to be a valuable service to our customers with short run applications or lean staff.

Electro-Chemical Marking  
Laser Marking  
Hot Stamping  
Pad Printing  
Dot Peen (Stylus) Marking



# MARKING METHODS, INC.®

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ALHAMBRA, CALIFORNIA

# WELCOME

to permanent identification for metals with MARKING METHODS, INC.® !

Thank you for choosing Marking Methods as your source for Electro-Chemical Marking equipment, supplies, and service! You will be pleased by the reliability of Marking Methods' equipment, the high-quality supplies, and cheerful, prompt service.

In this catalog, you will find more about Electro-Chemical Marking:

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We appreciate your decision to work with MARKING METHODS, INC.® We look forward to a mutually rewarding relationship!

phone 626-282-8823 ● fax 626-576-7564

# WHAT IS ELECTRO-CHEMICAL MARKING?

## PERMANENT STRESS-FREE MARKING OF METALS

ELECTRO-CHEMICAL ETCHING, ELECTRO ETCHING, ELECTRO MARKING AND ELECTROLYTIC MARKING are all one and the same process for stress-free PERMANENT marking (etching) on all conductive metals.

Since 1943, when electrolytic etching was first introduced to the metal-working industries, continual research and development have progressed. Today, very economical equipment etches from one ten-thousandth of an inch deep (.0001) for feeler and plug gages to ten thousandths of an inch deep (.010) for aircraft landing gear components and aerospace hardware, which require positive traceability throughout the life of the part.

Surgical and dental instruments can now be etched and identified without causing stress to extremely thin wall areas. This same principle is now used for hundreds of other identification purposes where products were previously labeled, ink or steel stamped ... or not identified at all.

Economical, simple, fast and safe best describe Electro-Chemical Marking. The single constraint to this process is that it must be applied to electrically conductive metal surfaces. It will not function on painted metal, already-anodized aluminum or through certain heavy phosphate coatings. However, by deep etching the parts (.002 to .006) prior to any of these non-conductive coatings, the marking shows through very legibly.

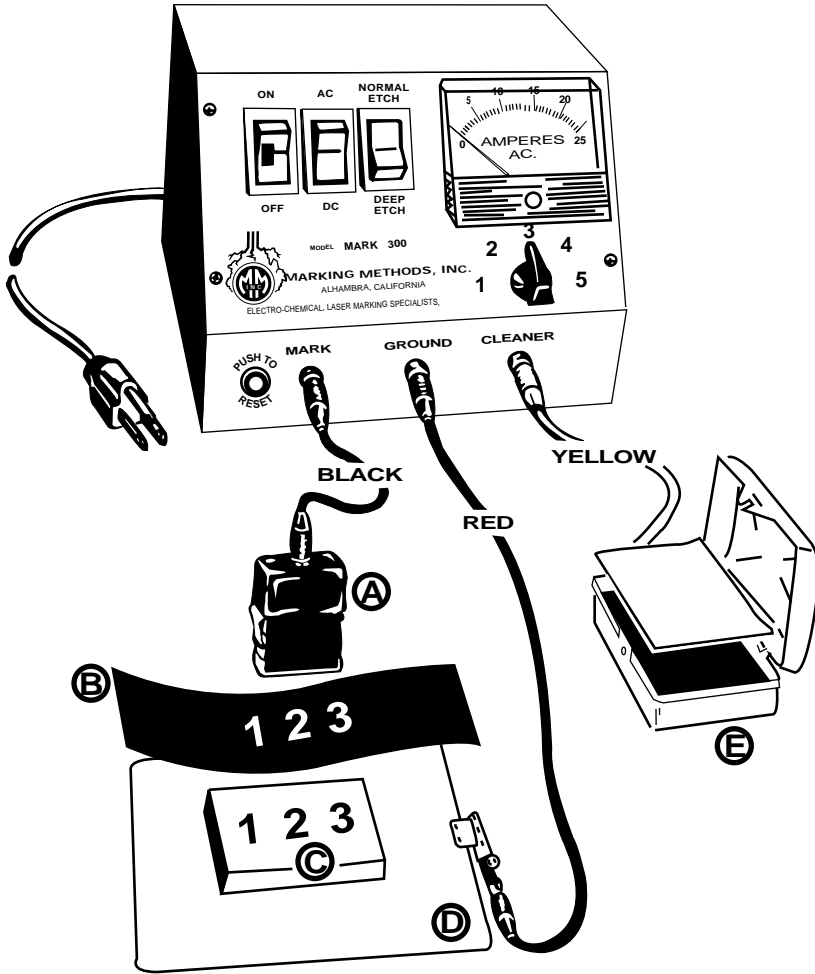
Bare metals, both ferrous (steel alloys) and non-ferrous (aluminum, brass, bronze and copper) and plated metals (chrome, nickel, cadmium and zinc) mark extremely well because they are conductive.

Electro-Chemical Marking incorporates five simple components:

1. Power Unit
2. Marking Applicator
3. Stencil
4. Electrolyte
5. Cleaner

Each of these components is described in detail on the following pages.

# HOW THE PROCESS WORKS



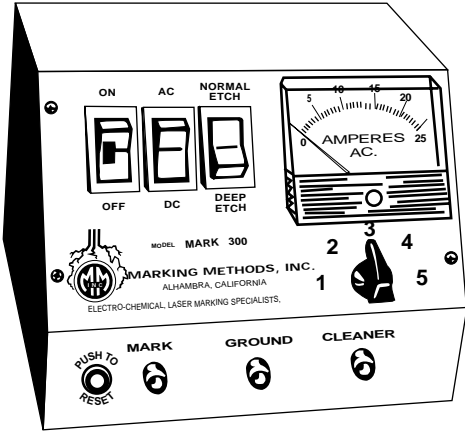
A controlled-depth, permanently etched mark of any design or detail is made by the operator on metal surfaces in a matter of seconds. It is simply made by placing the MARKING APPLICATOR (A) over the STENCIL (B) in contact with the PART (C) to be marked. The part is positioned on a GROUND PLATE (D) to complete the electrical circuit. The current and the electrolyte fluid do the rest in seconds! The result is a permanent mark which can only be removed by buffing or grinding the metal down to the depth of the mark. Occasional blotting of the applicator and stencil in the STENCIL CLEANER TRAY (E) replenishes the electrolyte supply and helps to keep the stencil apertures clean.

**ALL ELECTRICAL CONNECTIONS ARE MADE FROM THE POWER UNIT TO THE APPLICATOR, GROUND PLATE AND STENCIL CLEANER TRAY BY USING THE 3-WIRE COLOR-CODED CORD SET.**

The power unit is equipped with an AC/DC switch. The AC (alternating current) alternately etches out and redeposits a combination of the metal oxide and electrolyte salts, producing a black mark. The DC (direct current) charges the applicator negatively (cathodic) which dissolves metal out, etching a frosted or clear mark. To prevent corrosion, the parts must be thoroughly cleaned after marking to remove any residual salts. No special skill is required to operate the equipment except pride in doing a good job. Electro-Chemical Marking does not deform, weaken or fracture the metal because molecular structure is not altered beyond the depth of the etch. Marking such as steel stamping, dot peen or electric arc etching alter the grain structure of the metal in the area of the mark, causing possible stress or fracture to the parts. Laser marking creates a heat zone around the mark area.

## POWER UNITS

The power units used for Electro-Chemical marking is specifically designed to provide the proper operating voltage and current to the marking applicator.

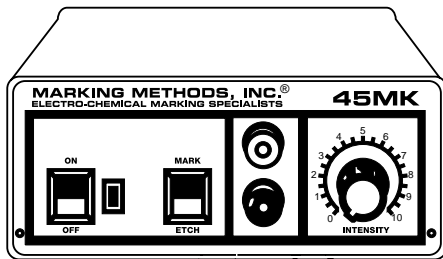
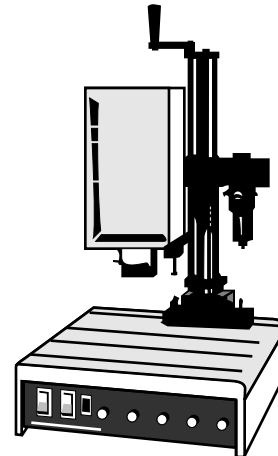


### MODEL MARK 300

The most versatile, manually operated dual-purpose power source available. Solid state circuitry permits extremely fast normal etch and deep etch applications. Five-position current selector. Heavy duty 30 amp, 30 volt maximum output with electrolytic stencil cleaning circuit for obtaining longer stencil life. The Mark 300 operates on a single phase, 100/120 volt, 50/60 Hz, AC power. Controls are provided for power ON/OFF, AC/DC output and variable output current selection. 5 amp circuit breaker protects against overloading. Rugged construction for years of hard work. This unit can be adapted to 23 volt, 50Hz power input using the transformer converter CAT. NO. TC220. Los Angeles city approved.

### MODEL 9000Hp

The 9000Hp is designed to offer increased marking speed with consistent mark quality while reducing operator intervention. Using the Mark 300 power unit, the 9000Hp is a pneumatically operated marking station which runs on semi-automatic and automatic cycles. Omni-directional suspension arm allows marking on various planes from 0° to 360°. Request detailed bulletin for more information.

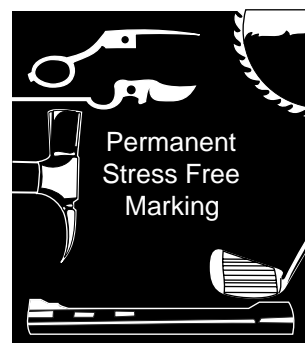


### MODEL 45MK

This power unit answers the needs for medium-to-low-volume applications requiring normal etch capabilities. The 45 MK offers solid-state electronics for efficient marking. Ten-position current selector controls the power unit output. This unit can be adapted to 230 volt, 50Hz power input using our transformer converter model TC220.

### JOB SHOP MARKING SERVICES

Take advantage of our job shop marking services for your metals and plastics. We offer Electro-Chemical, Laser, Hot Stamp marking, Dot Peen (stylus) Marking and pad printing services. Send us your part for your **FREE** sample mark!



# MODEL MARK 300A

ELECTRO-CHEMICAL MARKING KIT FOR NORMAL AND DEEP-ETCH APPLICATIONS



- |   |                  |
|---|------------------|
| 1. Mark 300 Power Unit  | No. MARK300      |
| 2. 3-Wire Color-Coded Cord Set                                  | No. 300          |
| 3. Stencil Cleaner Tray Assembly & Wicks                        | No. CTA2535      |
| 4. Bench Fixture Assembly & Wicks                               | No. BFA1520      |
| 5. Hand Ground (for use with Bench Fixture)                     | No. HG           |
| 6. Hand Pad Assembly 1/2" x 1-1/2" & Screencloths PK/10         | No. HPA515       |
| 7. Hand Pad Assembly 1/4" x 3/4" & Screencloths PK/10           | No. HPA2575      |
| 8. Die-Impression Stencil 2 1/2" x 20" (Blue)                   | No. R02B2        |
| 9. Die-Impression Stencil 2 1/2" x 20" (Green Semi-transparent) | No. R02A2        |
| 10. Electrolyte 2 Quarts + 3-4 oz. Dispensing Bottles           |                  |
| 11. Cleaner 2 Quarts + 1-4 oz. Dispensing Bottle                | No. APC/APC-4oz. |
| 12. APC Parts Cleaning Pre-moistened Wipes                      | No. APCW         |
| 13. Molded Carrying Case for Housing Equipment                  | No. CC           |

THIS COMPLETE UNIT IS THE ULTIMATE IN MANUAL MARKING OF ALL METALS. It includes the necessary equipment and supplies to most effectively mark all parts . . . from tiny semiconductors to massive aircraft and aerospace components.

TO ORDER THIS COMPLETE PACKAGE simply specify as a MARK 300A. Unconditionally guaranteed for one year. The complete unit weighs 42 pounds.

# STANDARD HAND PADS & SCREENCLOTHS

The marking applicator best suited for NORMAL (conventional) marking is a HAND PAD (HP). It is connected to the power unit with the black cord and is constructed of durable plastic with a 300-series solid stainless steel tension strap to firmly hold the replaceable screencloth in position.

The HAND PAD SCREENCLOTH (HPS) is made of 300-series perforated stainless steel with absorbent wicking material wrapped around the marking area of the screen.

The HAND PAD RETAINER RING (HPR) positions the stencil over the screencloth on the hand pad. The alternative method is to place the stencil directly on the part to be marked and use a blotting technique with the hand pad. The latter method is preferable if the exact location of the legend is important.

There are five standard sizes that meet the requirements of most normal hand applications. The catalog numbers designate the dimension of the marking area (width and length):

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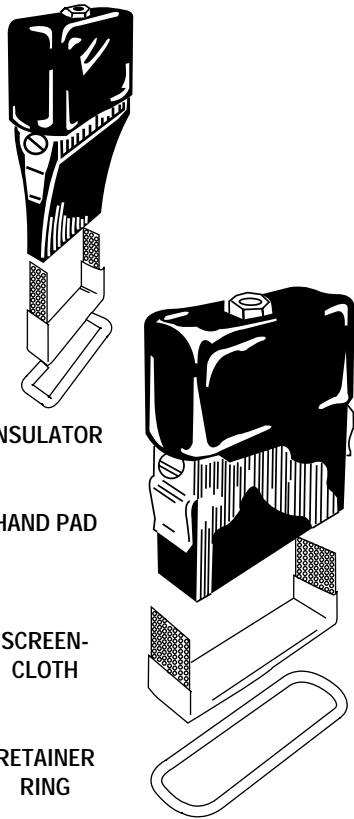
## Hand Pads

	1/8" x 3/4"	1/8" x 1-1/2"	1/4" x 3/4"	1/4" x 1-1/2"	1/2" x 1-1/2"	1" x 2"
ASSEMBLY	HPA12575	HPA12515	HPA2575	HPA2515	HPA515	HPA1020
consisting of : 1 hand pad with 1- screencloth, 1- retainer ring & 1- insulator and a pk/10 screencloths.						

## Replacement Parts

Handpad consisting of 1- hand pad, 1- screencloth, 1- insulator and 1- retainer ring	HP12575	HP12515	HP2575	HP2515	HP515	HP1020
Screencloth*	HPS12575	HPS12515	HPS2575	HPS2515	HPS515	HPS1020
Insulator	HPI01	HPI03	HPI01	HPI03	HPI03	HPI07
Retainer Ring*	HPR01	HPR03	HPR01	HPR03	HPR03	HPR07

\* supplied in packages of 10



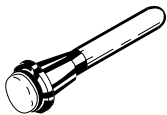
ICM



### INSPECTION CARTRIDGE MARKERS

For inspection department and similar applications, the DF stencil is pre-formed over and permanently sealed on a round graphite marking applicator. It is referred to as an Inspection Cartridge Marker and is used in conjunction with any of the power units. It has an electrolyte reservoir tube included. Any inspection design, such as acceptance, magnetic, penetrant, heat treat, etc., can be supplied in sizes from 1/4" through 1" diameters. H100 required for use.

BCM



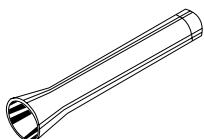
### BLANK CARTRIDGE MARKERS

Similar to an inspection cartridge marker except that a pre-formed wick is used over the graphite face without the DF stencil. This applicator is used in the same manner as a hand pad, usually for marking in a limited access area. H100 required for use.

### CARTRIDGE HOLDER

Used to hold all cartridge markers. It is stainless steel with a plastic outer sleeve for insulation. This holder is connected to the power unit with the black cord.

H100





## DEEP ETCH HAND PADS & WICKS

The marking applicator best suited for DEEP ETCH marking is a DEEP ETCH HAND PAD. It is connected to the power unit with the black cord and constructed with an insulated acrylic plastic handle for durability and the finest quality graphite for excellent electrical conductivity.

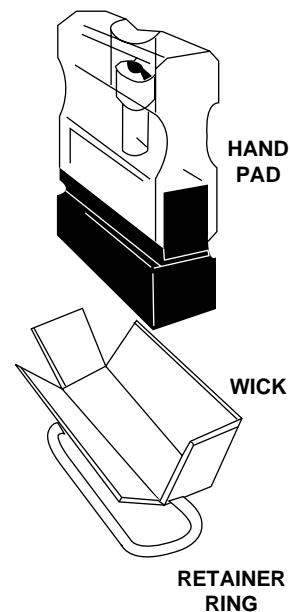
The DEEP ETCH HAND PAD WICK is designed specifically for use with the deep etch hand pad. Unlike a screencloth, the wick is a die-cut heavy, synthetic, absorbent fibrous material capable of holding a generous amount of electrolyte. This is very important in keeping the Electro-Chemical action relatively cool. For most effective results, the wick should be replaced often since the metal etched out of the part loads into the wick fiber rapidly.

The HAND PAD RETAINER RING is used to hold the wick over the graphite marking face of the hand pad. The stencil must be placed directly on the part to be marked so that the legend reads correctly. The operator then blots the hand pad over the stencil a sufficient number of times to obtain the desired depth of etch.

There are several standard sizes that meet the requirements of practically all marking applications. The catalog numbers designate the dimensions of the marking area (width and length).

### Deep Etch Hand Pads

	1/4" x 3/4"	1/2" x 1-1/2"	1" x 2"
<b>ASSEMBLY</b>	HPA2575DE	HPA515DE	HPA1020DE
consisting of 1 hand pad, 1pk/10 wicks and 1 retainer ring			
<b>REPLACEMENT PARTS</b>			
Handpad	HP2575DE	HP515DE	HP1020DE
consisting of 1 hand pad, 1 wick and 1 retainer ring			
Wicks*	HPW2575DE	HPW515DE	HPW1020DE
Retainer Ring*	HPR01	HPR01	HPR07



\* supplied in packages of 10

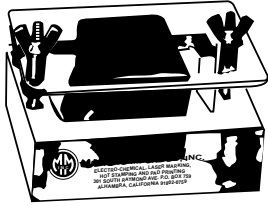
# STANDARD BENCH FIXTURE AND ACCESSORIES

Quality and durability are combined to produce the standard BENCH FIXTURE. It is connected to the power unit with the black cord. Its primary function is high production marking of cylindrical and flat metal parts, such as taps, drills, reamers, bearing, drill bushings, plug and feeler gages.

A clear acrylic plastic forms the base, which is constructed with a reservoir well in which the graphite block is secured. A replaceable WICK is held over the graphite block by a retainer plate. The stencil is positioned so it reads backwards over the pre-moistened wick. If precise positioning of the legend is essential, a locating plate is used over the stencil. This facilitates both speed and accuracy in operation.

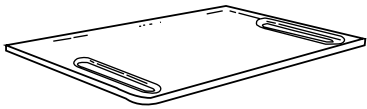
The HAND GROUND is then connected to the red cord after removing the alligator clip. Marking is accomplished by either rolling or placing the part over the legend in the stencil while applying the ground to the part.

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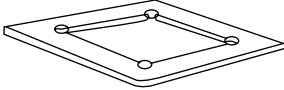


**BFA1520** BENCH FIXTURE ASSEMBLY  
Marking area 1-1/2" x 2" consisting of bench fixture, 1 pk/10 wicks locating plate, wick & stencil retainer ring.

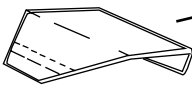
— REPLACEMENT PARTS FOR BFA1520 —



**BF1520** BENCH FIXTURE WITH LOCATING PLATE  
**BF1520-1** LOCATING PLATE  
Made of clear, sturdy acrylic to position stencil and parts to be marked.



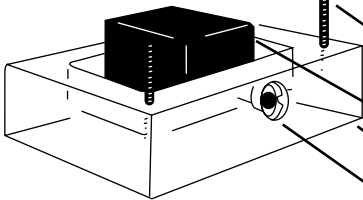
**BF1520-2** RETAINER RING  
For holding wick and stencil in position.



**BF1520-3** BENCH FIXTURE WICK (pkg of 10)  
Made expressly to fit over the graphite block and retain the electrolyte carrying the electrical current from the graphite block through the stencil to the part. (Periodic replacement of wick on fixture ensures sharp, clear, marks).  
See page 8 for illustrations of wick.



**BF1520-PF3** BENCH FIXTURE WICK (pkg of 10)  
Same as BF1520-3 except this wick is designed to limit the flow of electrical current through the stencil apertures (when marking extremely small parts).



**BF-4** WING NUTS (pkg of 2)

**BF-5** BENCH FIXTURE SPACERS (pkg of 2)

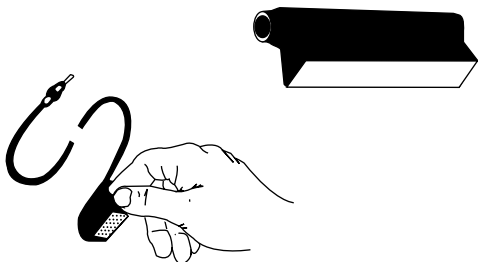
**BF-6** STAINLESS STEEL BENCH FIXTURE SCREWS (pkg of 2)

**BF1520-7** GRAPHITE MARKING BLOCK

**BF1520-8** BENCH FIXTURE BASE

**RB-9** STAINLESS STEEL RECEPTACLE BOLT

— ACCESSORIES FOR BENCH FIXTURES —



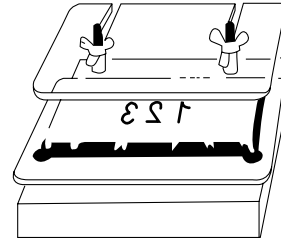
**HG** HAND GROUND  
Anodized aluminum (red) for use with Bench Fixture to complete electrical circuit.

**FG** FINGER GROUND  
Insulated fingertip ground used instead of hand ground. Permits high-speed handling of parts that do not require a rolling operation.

# LARGE BENCH FIXTURES AND ACCESSORIES

The large BENCH FIXTURES (BF2045 and BF4060) when connected to the power unit with the black cord performs the same operation as the BF1520. The one difference is in the marking area of the applicator which is 2" x 4-1/2" or 4" x 6" to accommodate much larger legend, such as trademarks on saw and knife blades, plumbing fixtures, stainless steel sinks, large bearings, etc.

**BENCH FIXTURE ASSEMBLY**  
marking area 2" x 4-1/2" & 4" x 6" consisting of bench fixture, locating plate, wicks & stencil retainer ring



— REPLACEMENT PARTS FOR BENCH FIXTURE —

**BENCH FIXTURE WITH LOCATING PLATE**

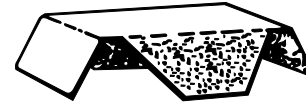
**LOCATING PLATE**  
made of clear, sturdy plastic to position stencil and parts to be marked.



**RETAINER PLATE**  
for holding wick and stencil in position.



**BENCH FIXTURE WICK (pkg of 10)**  
made expressly to fit over the graphite block and retain the electrolyte carrying the electrical current from the graphite block through the stencil to the part. (Periodic replacement of wick on fixture ensures sharp, clear marks). SEE BELOW FOR ILLUSTRATION OF WICK.



**BENCH FIXTURE WICK (pkg of 10)**  
same as BF2045-3 or BF4060-3 except this wick is designed to limit the flow of electrolyte through the stencil apertures (when making extremely small parts).

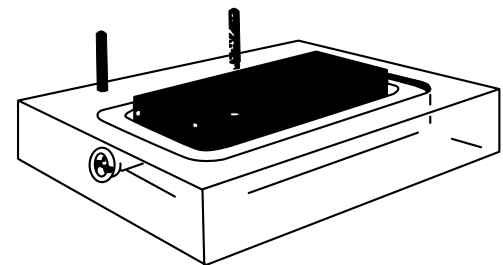


**WING NUTS (pkg of 2)**

**BENCH FIXTURE SPACERS (pkg of 2)**

**STAINLESS STEEL BENCH FIXTURE SCREWS (pkg of 2)**

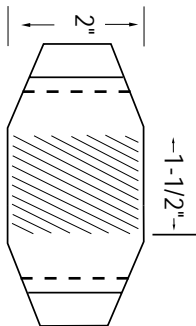
**GRAPHITE MARKING BLOCK**



**BENCH FIXTURE BASE**

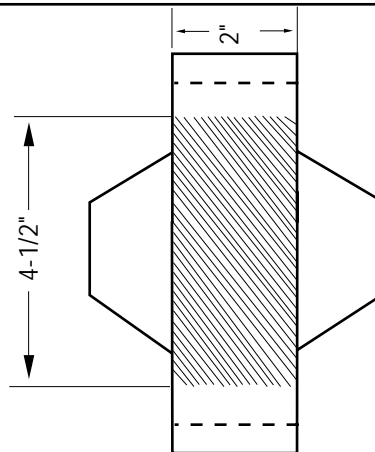
**STAINLESS STEEL RECEPTACLE BOLT**

## BENCH FIXTURE WICKS

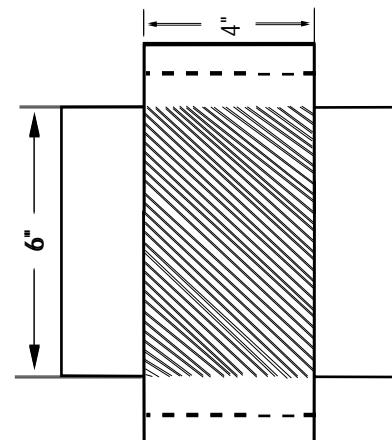


BF1520-3  
BF1520-PF3

STANDARD BENCH FIXTURE WICK



BF2045-3  
BF2045-PF3

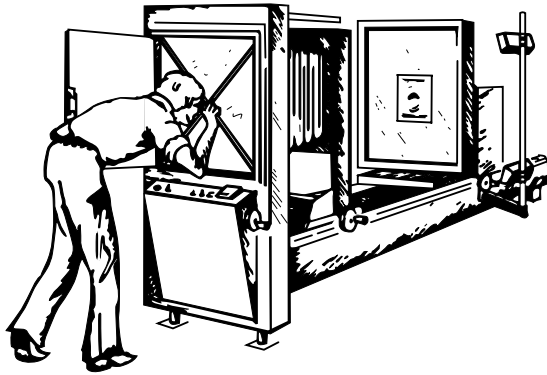


BF4060-3

Diagonal lines indicate usable marking area.

## PHOTO - PROCESSED STENCILS

One of the keys to success of quality Electro-Chemical Marking is using the best possible stencil material. Recent developments in technology have revolutionized the manufacture of photo-processed stencils that we refer to as DF STENCILS. Because they are produced photographically, no limitations restrict the broad range of applications for which they may be used. Our complete art and stencil departments are equipped to produce these NYLON FABRIC STENCILS for your specific requirements. We can work from dimensioned sketches, blueprints, computer disks, and customer furnished artwork. A point to keep in mind is that these stencils cannot be typed or die-impressed.



### Some of the many advantages of DF STENCILS are:

- Extremely long life--up to several thousand marks (as compared to approximately one hundred marks with Die-Impression Stencil described on Page 10)
- Exact reproductions of customer requirements
- Intricate detail of logo, trademarks and inspection designs
- Fine and broad line, small and large characters may be combined on same layout.
- Part numbers, date codes, etc., in curved or complex configurations
- Serial numbers in various sizes, usually 50 numbers per sheet
- Transparency permits exact positioning
- Extremely fast reproduction of stencils, ready for your use immediately upon receipt. (An expedited 24 hour turnaround is possible in emergency situations).

### Some of the many advantages of DL STENCILS are:

In a limited number of applications, extremely small characters (under .030 high) necessitate the use of DL STENCILS. These stencils are similar to DF in processing; however, they are made of a wet strength paper base. Very good life is obtained, although not to the degree of DF stencils.

2-1/2" x 7" Standard Size. Custom sizes also available.

A separate proprietary master plate is made for each design, and kept indefinitely for reorders. A one-time artwork and plate preparation charge is based on the amount of detail and time involved. Submit a print or sketch for quotation.

---

### SUGGESTIONS FOR ORDERING PROCESSED STENCILS

- Whenever possible, indicate the overall area (height and length) in which the legend must fit.
- If legend is curved to fit a part, determine the O.D. and I.D. Please specify whether the dimensions shown are those of the part or the legend itself.
- Should line 1, such as the company name, be larger than balance of copy?
- Double check punctuation. For example, should the legend read: PART NO. or P/N? SER. NO. or SERNO? U S A or U.S.A.? PAT PEND. or PATENT PENDING?
- Only show quotation marks, parentheses or dashes when they are to be part of the actual legend.
- If a part is particularly complicated by hole positions, chambers, bevels, compound radii, etc., send us a sample part to ensure the right results. Your part will be returned with the stencil order.
- Because of our many years of experience in preparing thousands of layouts, we have found that when you furnish us the copy and specify that it is to fit within a given area, you will be completely satisfied with the finished stencils.

## DIE - IMPRESSION STENCILS

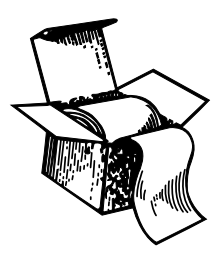
DIE-IMPRESSION STENCIL is made specifically for the customer to process in-plant to meet short run requirements while still obtaining quality results from Electro-Chemical Marking. It is particularly popular when frequent changes are required.

Comparatively fine line legend should be used, such as made with a typewriter, computer printer, steel die or stylus. Broad line characters or designs will not die-impress satisfactorily because the stencil coating must be displaced for the electrolyte to flow through the stencil openings.

CUSTOM DIE-IMPRESSION STENCIL can be furnished with a comparatively fine line trade mark or design. Additional information, such as a part or lot number, may then be typed in by the customer.

DIE-IMPRESSION STENCILS are stocked in both rolls and flat sheets in the sizes and types listed below:

ROLLS				BOXES (100 sheets per box)				
Sizes		Cat. No.	Sizes		Cat. No.	Sizes		Cat. No.
Inch	Feet		Inch	Feet		Inch	Inch	
2-1/2	x 20	R02B2	3-3/4	x 750	R12B2	3	x 6	L07B2
2-1/2	x 750	R05B2	4-1/2	x 100	R10B2-01	2-1/2	x 7	L01B2
3	x 100	R03B2-01	4-1/2	x 250	R11B2-01	3-3/4	x 7	L08B2
3	x 250	R04B2-01	4-1/4	x 750	R13B2-01			
3	x 750	R06B2-01	6-1/2	x 750	R14B2-01			
3-3/4	x 20	R09B2						

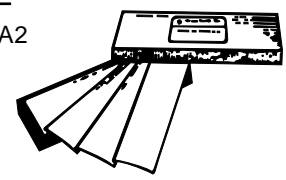


BLUE heavy duty, opaque stencil affords maximum life. The finest quality "Do It Yourself" stencil material available.

NOTE: Catalog numbers ending with -01 can be fed through computer tractor feed.

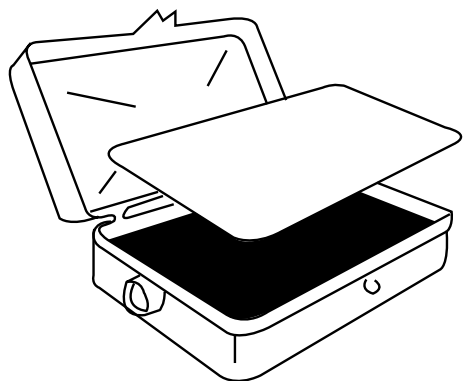
2-1/2 inch x 20 feet R02A2

2-1/2 inch x 7 L01A2



GREEN semi-transparent stencil permits easy positioning. Gives good quality typewritten reproduction.

## STENCIL CLEANER TRAY AND WICKS



### STENCIL CLEANER TRAY (CT2535)

A very important advancement in Electro-Chemical Marking has been the development of the Stencil Cleaner Tray. It is connected to the power unit with the yellow cord. The tray is made of polyethylene with a graphite block insert on which the cleaner tray wick is placed. Electrolyte is saturated in the wick and serves as a reservoir for production on marking. When the stencil is blotted with the hand pad in the tray, reverse polarity electrolytically flushes the oxides out and replenishes the hand pad wick with fresh electrolyte. This procedure is mandatory for extended stencil life. It produces far superior and consistent results in deep etch applications.

### STENCIL CLEANER TRAY WICK (CT2535-3)

Made of a synthetic fiber expressly for the cleaner tray. It holds electrolyte in suspension and permits proper electrolytic cleaning. Frequent replacement is necessary for best results. Supplied in packages of 10.

### YELLOW CORD FOR CLEANER TRAY (100Y)

NOTE: BOTH THE STENCIL CLEANER TRAY AND WICK SHOULD BE FLUSHED OUT THOROUGHLY WITH COLD WATER AFTER USE EACH DAY.

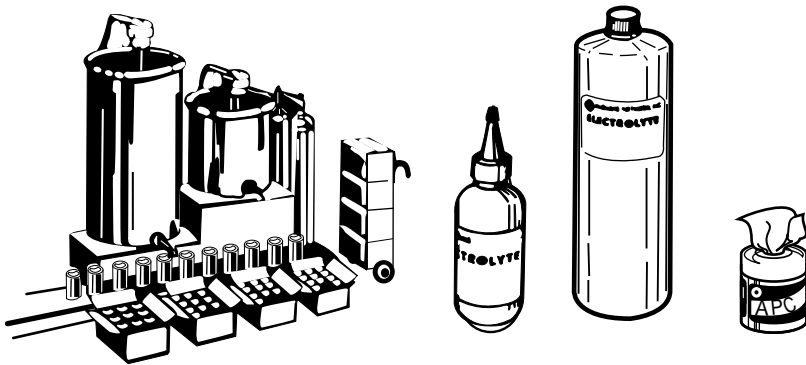
# ELECTROLYTES

MARKING METHODS' laboratory controlled electrolytes are the result of many years of research and development. They are carefully formulated and cataloged by formula and batch number to mark various metals and surface treatments.

The appropriate Electrolyte fluid is applied to the wicking material used in any application and functions:

1. To act as the conducting medium for the etching current.
2. To provide the necessary metallic salts to etch the metal and, when using AC output from the power unit, to redeposit the metallic oxide to the part causing a black or contrasting mark.
3. To serve as a heat dissipant.
4. To provide the necessary inhibitors, depolarizers, surfactants and stencil cleaning media for maximum stencil life.
5. To assure infinite depth control of marks in production applications.

MARKING METHODS Electrolytes are buffered salt solutions, pH balanced and are completely harmless to parts and surrounding equipment when used as directed. They contain certain metallic salts, wetting agents, and in most cases, ingredients to keep the metallic oxides in suspension to prevent them from clogging the stencil apertures.



PLEASE REFER TO PAGE 12 FOR OUR ELECTROLYTE CHART THAT LISTS THE RECOMMENDED FORMULAS FOR MARKING APPLICATIONS.

ELECTROLYTES, CLEANERS & PROTECTANTS  
4oz. DISPENSING BOTTLE  
QUART BOTTLES  
12 QUART CASE  
2 GALLON CUBE  
55 GALLON DRUM

# CLEANERS AND PROTECTANTS

It is impossible to over emphasize the importance of cleaning parts AFTER marking. This is necessary to remove the Electrolyte remaining on the part, as well as the excess oxides from the mark itself. If this residue is not removed by either a vigorous wiping action with the cleaner or allowing the marked parts to soak in the cleaner for at least 5 to 10 minutes, corrosion will occur. A popular misconception is that actual etching into the metal will continue if the part is not cleaned immediately. This is not correct. However, the Electrolyte residue, because it is hydroscopic, will absorb moisture from the atmosphere and cause corrosion, especially to highly corrosive steel alloys that must normally be kept in an oiled condition to prevent rusting. In such extreme cases, the best procedure to follow is (1) pre-clean parts, (2) mark, (3) thoroughly clean with cleaner, (4) dry parts, and (5) apply protective oil film before packaging or storing them. Remember all instances of rusting or corrosion can be traced back to an improper cleaning procedure. Two very popular cleaning solutions have been formulated to avoid any corrosion problems:

- |   |               |
|---|---------------|
| APC CLEANER (a light amber color)   | CAT. NO. APC  |
| An ALL PURPOSE CLEANER for use on all metals (ferrous and non-ferrous) and on plated metal surfaces. Used for either wiping or immersing the marked parts. APC Cleaner does not leave a film on the metal.                                  |               |
| APC PARTS CLEANING WIPED  | CAT. NO. APCW |
| Parts cleaning wipes, container of (60) 3" x 7" wipes pre-moistened with APC CLEANER (see above)  |               |
| NO. 90 CONCENTRATED CLEANER (a milky white color)   | CAT. NO. NO90 |
| May be used on all metals and plated surfaces for either wiping or immersion of parts. No. 90 Cleaner has a light oil base that leaves a light protective film on the parts. It is recommended for use when cleaning corrosive metal parts. |               |
| CORROSION PREVENTATIVE OIL  | CAT. NO. CPO  |
| An excellent in-plant light oil for protection of parts after they have been marked, cleaned and dried. Only necessary for use on parts that require protection from normal atmospheric conditions.   |               |
| WATER SOLUBLE PROTECTANT  | CAT. NO. WSP  |
| Used in same application as CPO but has no solvent base.  |               |

# ELECTROLYTES

MARKING METHODS' laboratory controlled Electrolytes are the result of research and development. They are carefully formulated and cataloged by formula and batch number to mark varied metals and surface treatments. The Electrolytes are buffered salt solution, pH balanced, that are completely harmless to parts and surrounding equipment when used as directed.

METALS, ALLOYS & PLATINGS	ELECTROLYTE FOR NORMAL ETCH	POWER UNIT SETTING	COLOR OF MARK	ELECTROLYTE FOR DEEP ETCH*	COMMENTS
Aluminum (most alloys)	A10	DC	Black	MSC1	Allow a few seconds for color to develop before cleaning
Aluminum with high magnesium or silica	MSC1, MSC5	DC	White	MSC1	Black not possible unless lacquer filled
Aluminum (to be anodized)		DC	Black	MSC1	Deep etch BEFORE anodizing (minimum .002)
Aluminum Bronze	B20, B10	AC	Black	MSC3, MSC5	
Beryllium	B20, MSC7, F10	AC	Black	MSC3, MSC5	Reduce amperage if blurring occurs
Beryllium Copper	B20	AC	Black	MSC3, MSC7	
Black Oxide on Steel	MSC3, F30	DC	White		Use low amperage, oil part after cleaning
Black Oxide on Stainless	MSC1	DC	White		Use low amperage
Black Phosphate	F30	DC	White		If coating is heavy, parts should be deep etched
Brass & Bronze	B20, MSC5, B10	AC	Black	MSC3, MSC5	
Cadmium Plate on Steel	MSC5,B20, B10, F20	AC	Black		Allow time for oxide to stabilize before cleaning
Carbides	C30, C10, MSC4	AC	Black	F30	
Chrome Plate-hard	MSC1, MSC7	DC	Clear	F30	Blotting action improves frosted contrast
Chrome Plate-decorative	MSC1, MSC4, MSC7	AC	Black		
Cobalt Alloys, Stellites	MSC1, F10, F30, MSC7	AC	Black	MSC7, MSC4	
Copper & alloys	B20,B10,MSC3,MSC5	AC	Black	MSC5, MSC3	
Copper Nickel ( cupro-nickel)	MSC5, F30, F20, B20	AC	Black		
Damascus	C10 , MSC4	AC	Dark	C10, MSC4	
Discaloy	MSC4, F30	AC	Black		
Dow coating (Parkerized)		DC	Clear	C10	Deep etch BEFORE unless coating is very thin
Electroless Nickel Plate	MSC7 OR F30	AC	Dark		
Gold and Gold Plate	MSC1, F10, C10	AC	Dark		Dark mark usually not stable
Gold and Gold Plate		DC	Clear	MSC1,F10,C10	
Hastelloy	MSC4, MSC3, F20	AC	Black	MSC4	
Haynes 25 (Stellite)	MSC7, MSC1, MSC4	DC	Clear	MSC7	
Haynes 188	MSC5, F10	AC	Black	MSC7	
Inconel	MSC4, C10, F20	AC	Black	MSC4	
Inconel 718 & 750	MSC4, F30, F10	AC	Black	MSC4, 59NC	
Invar	MSC4, MSC7, MSC1,F30	AC	Dark		
Iron	MSC4, F10	AC	Black	MSC4	
Lead and alloys	MSC3, F30	AC	Black		
Magnesium & alloys	MSC5, MSC1	AC	Clear	MSC1	Use minimum amount of Electrolyte (work dry)
MolyBDenum	F10, C10	AC	Black		
Monel & K Monel	MSC1, C10	AC	Black		
Nickel & alloys	MSC7, F30	AC	Black		
Nickel Plating on Brass & Copper	MSC7, B20, C10	AC	Black		
Nickel Plating on Steel & Aluminum	MSC4, F30, F20	AC	Black		
Nickel Silver	MSC5, B20, F20	AC	Black		Use high amperage
Niobium	MSC3, T10	AC	Dark		
Nitraloy	MSC4, C10	AC	Black		
Silver & Sterling		DC		B10	
Silver Plate	MSC8, B10	AC	Black	B10	Use low amperage, work dry, wait before cleaning
Sintered Copper Tin	B10, B20	AC	Black		
Stainless Steel (300 & 400 series)	MSC1, MSC4, MSC7,B20	AC	Black	MSC1,	
Steels-low carbon & mild	MSC4, MSC1, C10, B20	AC	Black	MSC4, C10, MSC1	
Steels-high alloy, tool & saw steel	MSC4, C10, C50	AC	Black	MSC4, C10	
Tin & Tin Plate	MSC5, F20	AC	Black		
Titanium	T10, MSC7, C10	AC	Dark	B10,59NC, MSC3, F30	Use low amperage & minimum Electrolyte
Tungsten (pure)	T10, F20, C30	AC	Dark		Use DC if AC not dark enough & minimum Electrolyte
Tungsten Carbide	C30, MSC4	AC	Dark		Use DC if AC not dark enough
Waspaloy	MSC3, B10	AC	Dark		
Zinc & Zinc Plate	MSC2, MSC1, B10, F20	AC	Black		
Zirconium	T10, C10	AC	Dark	MSC1	Allow time for oxide to stabilize before cleaning

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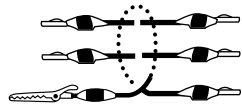
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NUCLEAR GRADE ELECTROLYTES (non-chloride or halogen free) can be furnished that contain less than 250 ppm of chlorides (halogens), sulfur, mercury, copper, zinc, and lead. These Electrolytes can be certified to meet MIL STD's 767 and 792 when requested. Use a light oil film prior to marking on sand or grit blasted surfaces to prevent blurring. Oil fills the open grain surface of the metal. This procedure is also very effective before marking metals or plating that stain easily. Do not use gold (DF2) stencil for this application. Submit sample parts to our laboratory for Electrolyte evaluation of particularly difficult applications. \*NOTE: POWER UNIT SETTINGS FOR ALL DEEP ETCH MARKING SHOULD BE DC AND DEEP ETCH WITH RHEOSTAT AT 3 OR HIGHER. AMPLE ELECTROLYTE MUST ALWAYS BE USED. DEEP ETCHING MAY PRODUCE A FUZZY OR BLURRED MARK. A LIGHT BUFFING AFTER CLEANING WILL SHARPEN THE LINE OF DEFINITION.

# ACCESSORY ITEMS

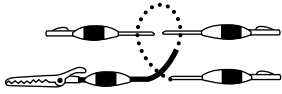
CATALOG NUMBER

ITEM DESCRIPTION



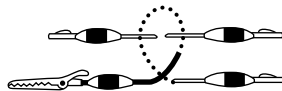
300

3-WIRE COLOR-CODED CORD SET CAT. NO. 300  
Black (marking) red (ground with slip-on applicator clip), yellow (cleaner tray) cords. Standard length 3-1/2 feet. May be ordered longer by specifying 300-6 for 6-foot length or-8 for 8-foot length, etc.



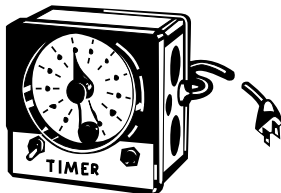
200

2-WIRE COLOR-CODED CORD SET CAT NO. 200  
Black (marking) and red (ground with slip-on alligator clip) cords. May also be ordered in longer lengths as noted above.



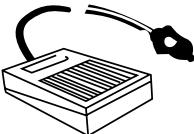
200S

STACK 2-WIRE COLOR-CODED CORD SET CAT NO. 200S  
Allows use of two separate cord sets from the same power unit for simultaneous operation of two separate applicators.



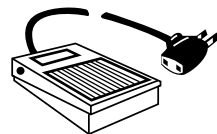
P72

AUTOMATIC TIMER UNIT CAT NO. P72  
Provides 0 to 60 seconds accurate timing cycle for use with all power units. Especially affective for applications requiring precise duplication of depth of etch. (Use FS59 Footswitch).



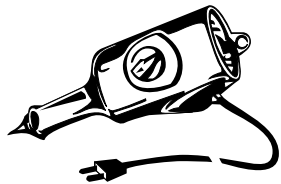
FS59

FOOT SWITCH CAT NO. FS59  
For use with P72 Timer power units to activate the timing cycle and permit operator to use both hands for handling parts to be marked.



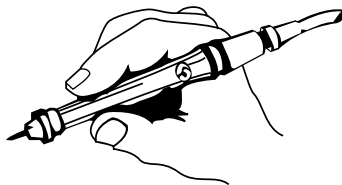
FS30

FOOT SWITCH CAT NO. FS30  
For use with most units to act as an ON-OFF switch. (This model is not used with the Automatic Timer Unit), It plugs directly into the 120V line and the power unit is then connected to the footswitch line. Excellent for applications requiring exact positioning of mark before current is applied.



290

DREMEL ELECTRIC ENGRAVER CAT NO. 290  
For permanent marking on non-conductive surfaces such as plastics, glass, ceramics, etc., this light-weight compact engraver has proven very popular. It has a 5-speed calibrated stroke adjustment to regulate depth. Furnished with a replaceable carbide point. Diamond engraving points can be supplied for heavier duty requirements. This is also available in 220 volt, catalog NO. 292.



CP9361

AIR SCRIBE CAT NO. CP9361  
For heavy-duty permanent marking on rough castings, forgings and applications with non-conductive surfaces. This very durable engraving tool operates on compressed air power. It incorporates a calibrated sleeve-type throttle that regulates the force of impact. An 8-foot air hose is included, and replaceable carbide stylus points are available. The entire Air Scribe unit weighs only 4 ounces and reduces operator fatigue. Also available with chisel accessory kit, catalog NO. CP936-1.



VCR1

INSTRUCTIONAL VIDEO TAPE CAT NO. VCR1  
This 45 minute video tape explains the Electro-Chemical Marking process in detail and is recommended for all customers buying their first power unit.