Quality Products
for Industry...
Proved by Performance

KINDT-COLLINS
MASTER
PRODUCTS

THE KINDT-COLLINS COMPANY EST. 1914

12651 ELMWOOD AVENUE • CLEVELAND 11, OHIO, U.S.A.

A Pattern Maker
is an exalted craftsman,

the greatest common denominator, as well as the least common multiple of all industrial production. A pattern maker must have the creative conception of a draughtsman designer, the practical ability of a moulder ~ the precise skill of a machinist, the analytical judgment of a metallurgist and the specific exactness of a mathematician. He must create a plan, or design, with vision and ingenuity and build the idea from trade to trade with practical knowledge: thinking and forming inside and out with length, breadth and thickness ~ adjusting accurately all values and dimensions and producing with dextrous finality any conceivable form to be cast in metal. ~ The products of the pattern maker's skill are truly surrounded by an aura of greatness which dignifies his right to assume a place of confidence, trust, and honor in all industrial advance and national progress. ~~ Edward Leslie

Compliments of The Kindt-Collins Company, Cleveland, Ohio

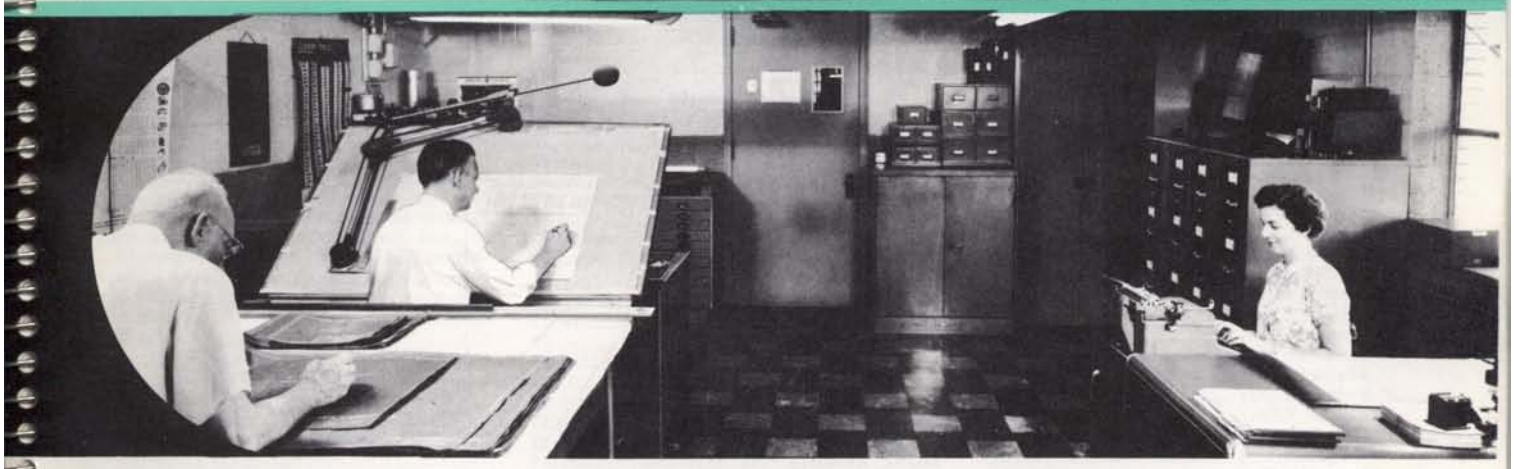
Foreword

The first section of this 16th printing of our catalog features our own trade-marked MASTER Products. They have been designed, engineered and produced by or for us to meet the highest Kindt-Collins specifications. We are proud to have them bear the MASTER trade name and offer them to you as "Quality Products for Industry —Proved by Performance."

The second section, marked by a divider page, features products which we sell but do not manufacture. These products have been tested and especially selected by us to fill the particular needs of industry.

Experience has proved that these products are all fit to bear our "Master Approved Products" label and, consequently, we can sincerely recommend them to you.





CATALOG-R

Since 1914, The Kindt-Collins Company has been dedicated to research, development, and service for the advancement of foundry and pattern shop practices.

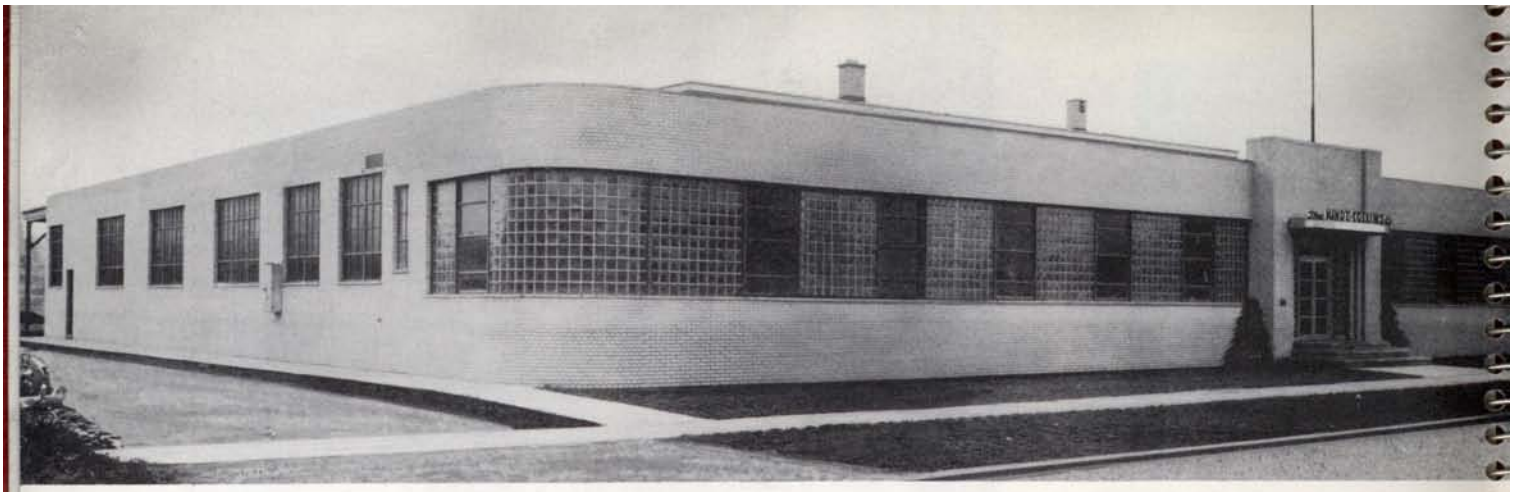
Many of our MASTER trade-marked products, produced by our own research and engineering laboratories, have established high standards of performance in foundries and pattern shops. The reputation of these MASTER Products has spread into other fields, and they now are widely used in the aircraft, automotive, plastic, tool and die, and general industries.

We have well-equipped facilities and are amply staffed with chemists and product engineers. These research and development resources are constantly at work, and are always available to you for the development of new and better products and methods.

THE KINDT-COLLINS COMPANY • 12653 ELMWOOD AVE. • CLEVELAND 11, OHIO

QUALITY PRODUCTS FOR INDUSTRY . . . PROVED BY PERFORMANCE

KINDT-COLLINS MASTER PRODUCTS



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Milwaukee Branch — 2128 W. National Ave., Milwaukee 4, Wisconsin

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The Kindt-Collins Company represents, among others, the following companies:

ADJUSTABLE CLAMP COMPANY
Clamps

ARROW BUTT COMPANY
Rammer Butts

J. C. BLOUNT CO.
Woodworking Lathes

BOICE-CRANE COMPANY
Wood and Metal Working Machinery

CHALLENGE MACHINERY CO.
Surface Plates, Angle Plates, Box Parallels

THE COLUMBIAN VISE & MFG. COMPANY
Vises

THE DUMORE COMPANY
Hand Tools and Grinders

EMMERT MFG. COMPANY
Vises

THE ENTERPRISE COMPANY
Crescent Woodworking Machinery

HINES FLASK CO.
Matchplate Flasks

LUFKIN RULE CO.
Shrink Rules, etc.

MOAK MACHINE & TOOL COMPANY
Woodworking Machinery

NEWMAN MACHINE CO.
Woodworking Machinery

THE PARKS WOODWORKING MACHINE COMPANY
Wood Planers

PORTER-CABLE MACHINE COMPANY
Small Tools

ROOVERS BROS., INC.
Embossing Press

TANNEWITZ WKS.
Bandsaws, Table Saws

TREE TOOL & DIE WORKS
Innermills, Offset Boring Heads, Taper Boring Tools

UNITED STATES GYPSUM COMPANY
Plasters and Gypsum Cements

THE WARDWELL MANUFACTURING COMPANY
Saw Filing Equipment

WETZLER CLAMP COMPANY
Clamps

YATES-AMERICAN MACHINE COMPANY
Woodworking Machinery

TERMS OF SALE • SHIPPING • ETC.

Unless otherwise stated, all quotations made verbally or otherwise are for prompt acceptance, subject to prior sale, and subject to change without notice.

Prices are all FOB Cleveland, Ohio, unless otherwise specified.

We allow one per cent on all supplies and 2% on lumber if the invoice is paid within ten days from date; otherwise thirty days net.

Cash discounts on machinery are subject to quotation. Please include motor specifications in your request for prices.

We fully guarantee all our supplies, machinery and equipment to be absolutely satisfactory and exactly as represented. All machinery and parts not of our manufacture are subject to manufacturer's guarantee only.

We reserve the right to make any changes or improvements in any of our products at any time without obligation to previous purchasers.

Cancellations on special orders are subject to service charges.

When shipping instructions are not given with the order, we will endeavor to ship the cheapest way.

Returns for credit are acceptable only by express permission. Subject to service charges.

On merchandise shipped FOB Cleveland, Ohio, our responsibility ceases when goods are delivered to a carrier. If the merchandise is received in a damaged condition do not accept or sign for same without noting damage on freight bill, etc. We will do our best to help you establish a just claim.

Clerical errors on quotations are subject to correction.

Export packing charges are subject to quotation.

Cable address "KINCO" Bently code.

For the convenience of our customers we will gladly furnish post free order cards. A supply will be sent to you upon request.

QUALITY PATTERN LUMBER

Lumber Research and Quality Control . . .

assure prestige to the entire pattern lumber industry



This photograph shows the use of a moisture meter to determine the percentage of moisture in lumber. We consider it our responsibility to sell only lumber for patternmaking that has been properly cured.

Quality pattern lumber is the most important and expensive material used by the patternmaker. Good pattern lumber which meets every requirement of the patternmaker can be responsible for a job well done . . . for an accurate job . . . and for a profitable job. On the other hand poor lumber is a never-ending source of trouble and expense. Because of the high cost of labor and the high relationship of labor to material, good lumber is vital to the profitable operations of the average pattern shop.

We are specialists in catering only to the quality lumber needs of the patternmaker. For over forty years we have practiced a continuous program of research, experimentation, selection, curing and handling of the pattern lumbers in the world.

The constantly growing shortage of quality domestic lumbers is presenting a serious and costly problem to the patternmaker. To effectively remedy this situation, our personnel is continually investigating the quality pattern lumber resources of the world.

Actual on-the-spot field visits to the forests of foreign countries are being made by Kindt-Collins executives. Native authorities make recommendations; actual lumber samples are shipped to our Cleveland plant; and patternmakers evaluate their worth with many different types of patterns put into daily industrial production service. While we are interested in new woods for the pattern industry, we carry in stock and supply to the trade the very best in selected, long-established domestic lumbers.

Look to Kindt-Collins for the best in quality pattern lumber at all times. Write our Pattern Lumber Department for prices, recommendations to meet your individual problems, and for other details. We will be pleased to serve you.

KINDT-COLLINS MASTER PRODUCTS

MASTER SUGAR PINE LUMBER

Sugar Pine (Pinus Lambertiana) is the most commonly used lumber in the pattern industry today. Native of California and Southern Oregon, it is distinguished by its conspicuous resin ducts and its softness. When properly seasoned it maintains its shape very well. It is a light wood, weighing approximately 2.3 lbs. per board foot. The finest Sugar Pine for pattern work originates in the high altitudes of California. All of our Sugar Pine comes from selected mills in these areas. In the past, Sugar Pine has been extremely plentiful, but the supply is diminishing. For the pattern industry we have available:



SELECT GRADES

Select grades are the top quality pieces from the log and are either clear or characterized by small blemishes such as pin knots, small pitch streaks or pockets, minor season checks or other tiny flaws which do not prevent utilization of the stock as finish material.

Sugar Pine Selects are divided into three grades: No. 1 and 2 Clear, C Select and D Select. Appearance and nature of each individual board determines its category.

Selects are regularly available in 4/4 (1″), 5/4 (1¼″), 6/4 (1½″), 8/4 (2″), 10/4 (2½″), 12/4 (3″) and 16/4 (4″) thicknesses. All thicknesses are usually shipped in random widths and lengths with a relatively small proportion of short lengths and narrow widths.

1 AND 2 CLEAR SUGAR PINE

(B and Better Select)

1 & 2 Clear Sugar Pine is, as its name implies, the finest product of the tree. The largest portion of the grade is entirely clear and can be used almost without waste. In the small, lowline portion of the grade is found an occasional piece containing a small smooth knot or several pin knots. Or there may be a small dry pitch pocket, light (strictly localized) pitch, a fine season check or a small area of light stain. Although Select lumber is graded from the best side, even the backs of 1 & 2 Clear must be of extremely high quality.

1 & 2 Clear Sugar Pine is particularly suited for the finest, most accurate patterns of practically every type and description.

C SELECT SUGAR PINE

C Select Sugar Pine resembles 1 & 2 Clear in appearance, although the admissible characteristics may be somewhat larger or more numerous. Many pieces show a 1 & 2 Clear face with back characteristics too serious to be allowed in the higher grade. Dependent upon size, C Select pieces may contain a few pin knots or fewer small tight knots.

The grade also admits small season checks, small streaks of medium pitch, one or two small pitch pockets and medium stain not over more than one-third its area, provided they do not occur in serious combination.

C Select lumber is also suited for high grade, accurate patterns and has the advantage of being more available and somewhat less expensive.

D SELECT SUGAR PINE

D Select Sugar Pine is the lowest recognized grade of finishing lumber. Fairly smooth in appearance, it resembles the next higher grade, although admissible characteristics are generally larger or more numerous. A piece may contain several small and medium sized tight knots, some season checks, medium stain, pitch or pitch pockets, or equivalent characteristics, but not in serious combination.

A type often found in D Select is a piece showing a clear or nearly clear face with numerous or rather serious imperfections on the back. Another admissible type may contain one defect requiring a cut to eliminate, but the remainder of the piece must be of otherwise high quality.

D Select, while it is considered a high grade of lumber, is not particularly suited for patterns on which much carving is to be done, as the small tight knots and defects would interfere and increase production costs. However, where most of the board is to be used without carving, it is highly recommended as the defects do not interfere and are not disadvantageous.

SPECIAL PATTERN GRADE

We also have available a Special Pattern Grade of Sugar Pine. Write us for details.

COMMON GRADES

Number 2 and Better Common

Number 2 & Better Common is used on the large and medium class of patterns where price of the lumber is a factor and where the whole board is used with very little carving. The sound defects characteristic of this type lumber would not be a disadvantage in this work.

Pattern lumber is available by the board, foot, truckload or carload.

KINDT-COLLINS MASTER PRODUCTS

QUALITY PRODUCTS FOR INDUSTRY . . . PROVED BY PERFORMANCE

MASTER MAHOGANY LUMBER

MAHOGANY

Mahogany is the best known, best liked and best suited of all the hardwoods for pattern use. It is an established standard as the hardwood for the pattern industry.

There are many different types of Mahogany: Philippine, African, Mexican, Honduras, Peruvian and Cuban. Our long experience in the pattern lumber business has established the fact that the Mexican and/or Honduras and Peruvian varieties of Mahogany are the most suited to the requirements of the pattern industry. We therefore specialize in the handling of these types.

All of our Mahogany lumbers come from mills in certain selected areas of Mexico, Honduras and Peru, because they produce a superior lumber of finer grain, texture and quality. Our long experience, close inspection and selective purchasing assure you of the finest in Mahogany lumbers. All of our Mahogany lumber is thoroughly seasoned and kiln-dried.

These lumbers are available in random widths and lengths in 4/4 (1″), 5/4 (1¼″), 6/4 (1½″) 8/4 (2″), 10/4 (2½″), 12/4 (3″) and 16/4 (4″) thicknesses.

MEXICAN AND/OR HONDURAS MAHOGANY

Mexican and Honduras Mahogany originating in Mexico and Honduras are practically one and the same. These lumbers have exceptional ability to resist heat, cold, extremes of dryness and moisture and still maintain their dimensional stability. These lumbers also withstand abrasion and wear exceptionally well. The grain tends to be straight and close and although considered to be a hardwood, it carves easily. It weighs 3.1 lbs. to the board foot.



PERUVIAN MAHOGANY

Peruvian Mahogany originates in the upper Amazon region of Peru and has all the advantages of Mexican and Honduras Mahogany. In addition, it is a closer grained, firmer textured lumber which is slightly harder than the Mexican and Honduras varieties.

It weighs approximately 3.5 pounds to the board foot. We recommend Peruvian Mahogany to those who want the ultimate in a hardwood pattern which will stay straight and true and wear exceptionally well.

GRADES OF MAHOGANY AVAILABLE

FIRSTS AND SECONDS

This is the top grade of mahogany that we offer. This grade contains not less than 35% of Firsts. The Firsts shall be 91⅔ Clear on the face and the Seconds 83⅓ Clear on the face. The defects on the reverse side are of such a minor nature that they would seldom interfere in pattern work and can be practically disregarded. This grade can be recommended for the highest type and most accurate patterns and models of all descriptions such as aircraft engine work and patterns for automobile engines, etc. The dimensions range from six (6) inches and wider and 6 feet to 16 feet. No worm holes are permitted in this grade.

SELECTS

This is the second best grade of mahogany available to the pattern trade. Selects grade the same as Firsts and Seconds on the better face and not below No. 1 Common on the reverse side. The dimensions extend from six (6) inches and wider and from six feet and longer. This is a high grade of lumber and while not as good as Firsts and Seconds can be used in high grade accurate pattern equipment. There would be a tendency to develop more scrap due to defects which would account for the difference in the quality and price of Selects and Firsts and Seconds.

NOA GRADE (Also termed A Grade or A Wormy)

This grade is the same as Firsts and Seconds except that scattered pin worm holes are permitted and are not considered a defect. This grade of mahogany is suitable for most every pattern purpose but more particularly in middle class patterns where price becomes a factor as the lumber is cheaper.

The pin worm holes referred to are easily filled with a wood filler. The widths range from six inches and wider and the lengths from six feet and longer.

N GRADE OR N WORMY

This grade is comparable to a No. 1 Common grade of mahogany except that it permits pin worm holes and other minor defects. It is recommended for the more economical type pattern work where price is a factor but appearance is not. The pin worm holes are easily filled with a wood filler. This lumber would develop slightly more scrap than the grades previously mentioned. The widths range from four inches and wider and the lengths from six feet and longer.

MISCELLANEOUS GRADES — Other grades of mahogany such as No. 1 Common, No. 2 Common, B Wormy Grade and Shorts are available to order as they accumulate. Contact us if you have need or use for these grades as we frequently have excellent values to offer.

HELPFUL HINTS

ON THE BUYING AND HANDLING OF PATTERN LUMBER



Since lumber is the most important material in the production of patterns and accounts for the greater percentage of material cost, extreme care should be given to its purchasing and handling.

Pattern lumber should be purchased far enough in advance to permit storing *within* your plant for a reasonable length of time before it is used. This will permit the wood to acclimate itself to the conditions under which it must be worked in your shop. The ideal way to acclimate pattern lumber is to store it in such a way that air can circulate freely around each board.

We recommend the use of the highest grade of lumber compatible with your work. Remember it costs just as much to manufacture lumber with many defects and knots as it does to manufacture clear stock and it costs just as much to transport low grades as it does the high grades. However, a superior pattern is obtained with the higher grades. In addition, there is less scrap and there is considerably less labor involved in cutting and carving to shape.

The best method of obtaining good pattern lumber is to purchase it from a reputable dealer who knows and understands your requirements.



FACILITIES FOR STORAGE AND HANDLING OF PATTERN LUMBER

Pictured above is our lumber-storage building, one of the largest in the country devoted exclusively to pattern lumber. More than 750,000 board feet of Master Pattern Lumber can be stored here under the most ideal conditions. All handling equipment is kept neat and clean, and the building itself is clean, dry and well-ventilated.

Also shown above is one of our trucks, with which we make fast delivery of lumber within a radius of 250 miles. The bodies are fitted with roll-off equipment, which speeds handling considerably. Our drivers are thoroughly experienced in the careful handling of lumber.

In addition to our own trucks we use common carriers as the occasion demands. We can ship from one board to a carload with equal facility.

KILN DRYING — All of our lumber, whether Sugar Pine, Mahogany or other, is thoroughly and carefully kiln-dried by experts to a low moisture content. However, all lumber should be stored in your plant before using to permit it to acclimate itself to local moisture conditions. Lumber coming in from the cold should never be used immediately.

NOTE:

1. Special widths and thicknesses of lumber are available to order. Delivery of special widths and thicknesses require approximately 60-90 days.
2. We consider 5,000 feet of lumber a truckload for our own truck, and will deliver same anywhere within a radius of 250 miles of Cleveland.
3. A truckload to be delivered by a commercial carrier consists of 8,000-8,500 board feet. A carload consists of approximately 16,000 to 25,000 board feet. Lumber weighs approximately 2,400 lbs. per 1,000 board feet.
4. We can furnish lumber surfaced 2 sides on request. We cannot furnish lumber finished 4 sides.

We invite your inquiries on lumber and requests for solution of any pattern lumber problems you may have.

MASTER 24″ DISC GRINDER

and Sander for Wood, Metal and Plastics

A sturdy, accurate grinder with exceptional capacity and unusual flexibility.

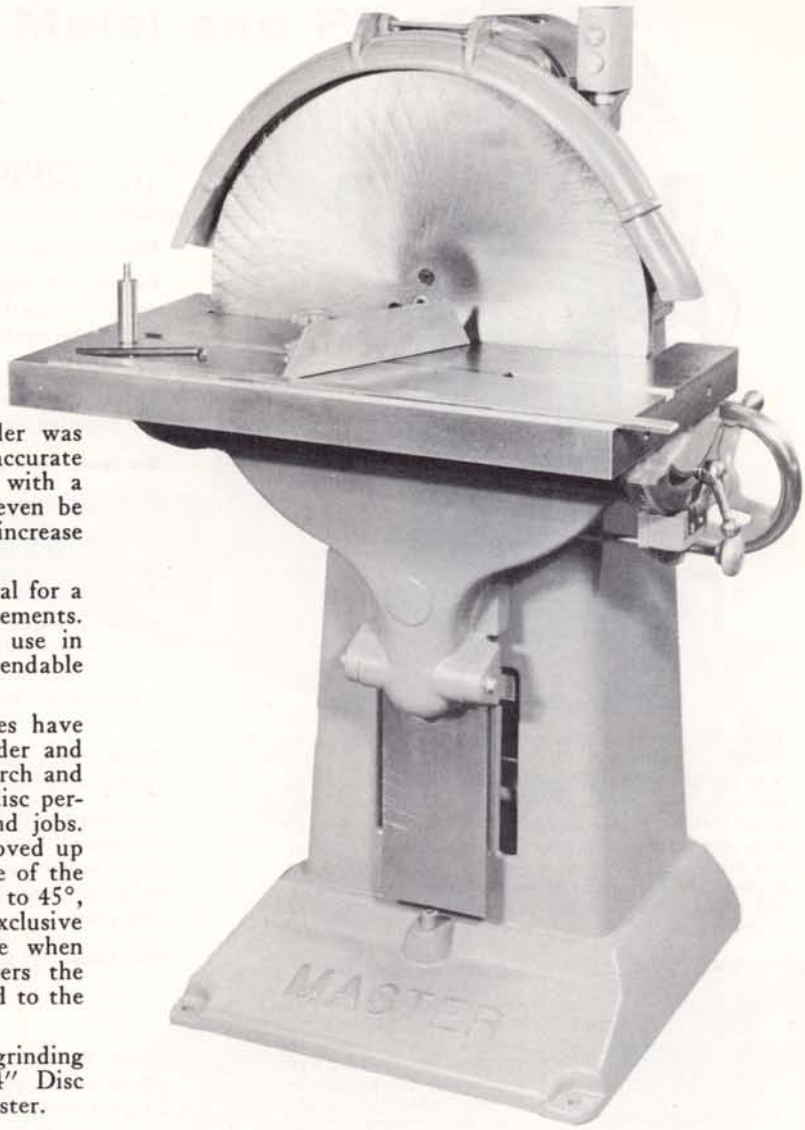
- **Reversible Disc**
- **Operates in either direction**
- **Table adjusts to any angle**
- **Can be moved up and down**
- **Adequate dust collecting facilities**
- **Easy, accurate settings**

The Master 24″ Disc Grinder and Sander was developed to meet today's needs for speedy, accurate grinding of wood, metal and plastic jobs with a minimum of effort. In some cases it can even be used on production machining. Proper jigs increase its utility substantially.

Its versatility and adaptability make it ideal for a wide variety of grinding and sanding requirements. Years of study, development and actual use in many types of shops are behind the dependable performance of this ruggedly-built machine.

Several outstanding and important features have been built into the Master 24″ Disc Grinder and Sander, as the result of Kindt-Collins research and development. For example, the reversible disc permits efficient grinding of right-and-left-hand jobs. The completely adjustable table can be moved up or down 11 inches, exposing the entire face of the disc. The table also tilts up to 30° or down to 45°, and can be very accurately set. The exclusive Master centering pin feature saves time when changing abrasives as it accurately centers the abrasive discs when they are being attached to the steel disc.

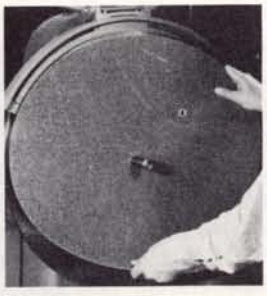
If you do any kind of wood, metal or plastic grinding or sanding in your shop, the Master 24″ Disc Grinder and Sander will do it better and faster.



This picture shows the 24″ Disc Grinder with insert bar, centering pin for accurately applying abrasive disc to machine, miter gauge and wrench for the disc screws.

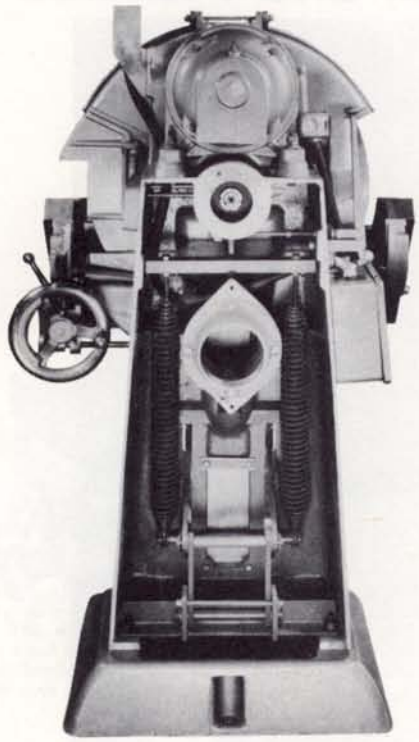
CENTERING PIN FEATURE





These pictures illustrate the new, easy method developed by The Kindt-Collins Company for accurately lining up the abrasive disc when it is to be attached to the steel disc. It is not necessary to remove the steel disc for this operation. A 1″ diameter pin is furnished, which fits into a hole in the center of shaft which aligns the steel disc on the machine. The abrasive discs are furnished with a corresponding 1″ diameter hole through which the centering pin fits, thus accurately aligning the abrasive and steel discs. Use Master Disc Cement for attaching abrasive discs. (See Index.)

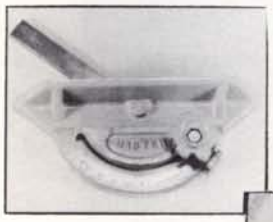
MASTER 24" DISC GRINDER AND SANDER



This view shows a grinder with the back cover removed.

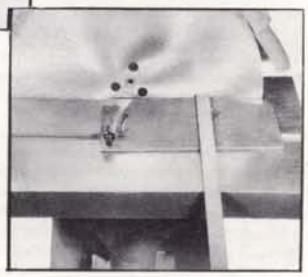
Note the heavy spring mechanism that counterbalances the table. This permits the operator to adjust the table to any desired height instantly with minimum effort.

Note also the simple, strong construction and design of this machine. The circular opening in the center is a 5" diameter dust outlet which is more than adequate and which can be attached to any house suction system or dust collector unit.



◄ MITER GAUGE

A heavy, large sized miter gauge for sanding angles is furnished as standard equipment. The degrees on the gauge are widely separated to insure an accurate setting.



CIRCULAR AND CORE PRINT FIXTURE ►

The above illustrates the new type circular and coreprint fixture. This fixture fits in the same table slot as the miter gauge.

Round coreprints, straight or tapered, are easily sanded to accurate size and can be duplicated exactly without resetting.

Note that fixture utilizes either the common or shrink rule in setting. Its use saves considerable time.

Coreprints from ¾" to 14" in diameter can be accurately finished.

SPECIFICATIONS

Motor: Standard—2 H.P. 220/440 or 550 volt, 3 phase, 60 cycle AC, 1725 RPM, ball bearing open type with Nema frame. (Motors of other specifications available to order.)

Drive: Multiple V Belts.

Controls and Wiring: Push-button mounted at eye level with magnetic starter and overload protection. All electrical specifications in accordance with Nema standards.

Disc: Boiler plate steel 24" diameter x ½" thick, normalized, ground and statically balanced. Attached by three hardened hollow hex head screws and centering pin.

Disc Speed: Standard—1300 RPM. Other speeds to order.

Shaft: Heavy steel with disc collar an integral part.

Bearings: Heavy ball bearings at front and rear of shaft.

Table: Normalized, cast iron box-type table, 13" x 30". In normal position is 37" from floor. Table may be lowered 11" to within 26" of floor by means of counterbalancing springs, exposing full surface of disc. Tilts up 30° or down 45°. Clamps tightly in any position. Degrees are engraved on arm and include vernier protraction to permit setting within 10 minutes of 1°. Table has milled slot 5/16" x 1" full length and parallel to face of disc for miter gauge or other accessories.

Guards: Disc totally guarded above and below table. Guards can be easily swung out of way to permit use of entire surface of disc.

Dust Collecting Facilities: Efficient dust stream channels are an integral part of machine. Provisions for connection to house dust collecting system or individual dust collecting unit are in rear of machine through 5" outlet. Model 550 Master Dust Collector is an ideal collector for this machine. (See Index).

Floor Space: 33" x 33"; shipping weight approximately 925 lbs.

STANDARD MACHINES

Model B: Equipped with standard motor as above, wired to Nema standards, and includes 1 steel disc, 1 wrench for removing disc, 1 miter gauge, 1 fill-in bar, 2 garnet paper discs 1½ grit, 1 centering pin to aid in applying discs, and 1 qt. Master Disc Cement, 1 tube Bearing Grease.

Model R: As above, but with reversing mechanism.

EQUIPMENT, EXTRAS, ETC.

Motors: Motors with specifications, other than list, are available to order.

Controls and Wiring: Can be furnished to JIC Standards.

Extension Tables: Available for either side of table. Size 6" x 17".

Circular and Core Print Fixture: For producing circular pieces and core prints mechanically (See description at left).

Master Dust Collecting Units designed specifically for use with the MASTER 24" Disc Grinder and Sander, as well as other dust-producing machines, are available. (See index.)

Adjustable Light: 110 volt with a 100 watt lamp and shade is available.

KINDT-COLLINS MASTER PRODUCTS

MASTER 30" AND 36" DISC GRINDERS AND SANDERS
for Wood, Metal and Plastics

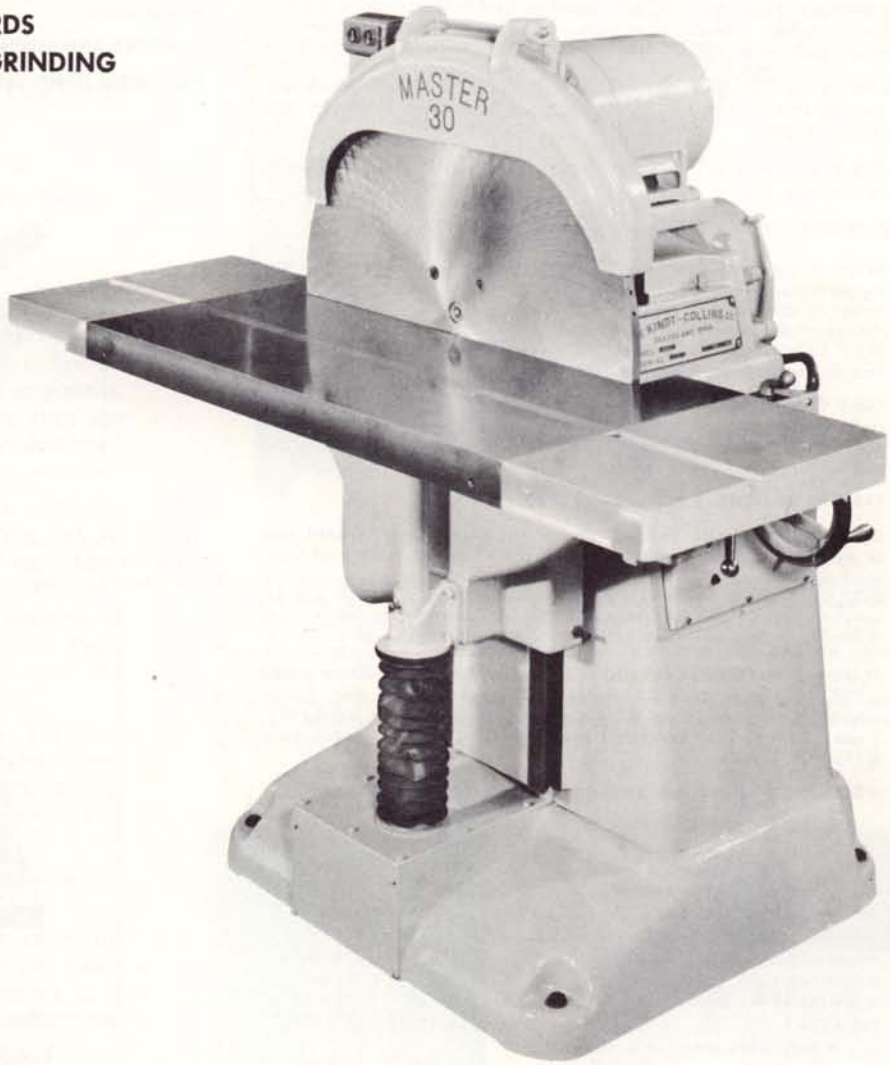
A HEAVY-DUTY MACHINE
RUGGEDLY CONSTRUCTED TO HIGHEST PRECISION STANDARDS FOR EXTREMELY ACCURATE GRINDING

The Master 30" Disc Grinder and Sander is available in the standard model and also in the reversible disc model (see specifications). The table is raised or lowered by means of a conveniently located lever controlling a reduction motor operating through gears. The vertical travel of the table may be stopped and locked at any desired level. When the table is completely lowered a grinding area 26" high by 30" wide is available. Table can be tilted as required.

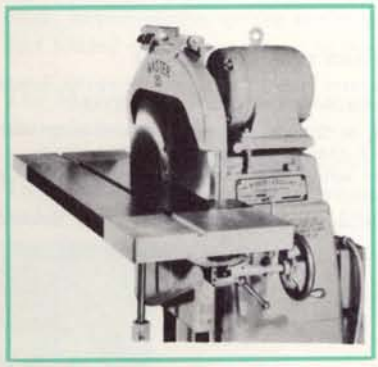
Table extensions which increase the table size 10" on either side are standard equipment.

Ample guard can be swung out of the way to completely expose the face of the disc. The guard also serves to collect dust. Unusually adequate dust-collecting facilities are provided (6" opening). Models 550 and 1050 Master Dust Collectors are ideally suited for collecting dust from this machine. (See Index).

Abrasive discs are easily changed and aligned by using Master Disc Cement and Centering Pin (see Index).



The view above shows the complete machine including eye-level starting switch and guard. Note the heavy, rugged machine tool construction.



View at left shows the lever controlling the raising and lowering of the table, the handwheel and protractor controlling the setting of the table and the 10" table extensions. The table extends 3⅝" beyond the back of the disc for right-angle work.

MASTER 30" AND 36" DISC GRINDERS AND SANDERS

Reversing and Non-Reversing

SPECIFICATIONS

DRIVE: V-Belts.

CONTROLS: Push button mounted at eye level with magnetic starter and overload protection feature. All electrical specifications in accordance with NEMA standards.

DISC: Heat-treated steel plate, 11/16" thick, accurately machined and balanced. Attached by 4 flat-head heat-treated screws and centering pin.

SHAFT: Steel with 10" diameter flange. Total length, 18⅝". Diameter at bearings, 2⅝".

BEARINGS: Timken Roller at front and rear of shaft.

TABLE: Normalized cast iron, box type. Will tilt 45° down, 15° up, supported and locked on each end. Table can be lowered 11" below center of disc, and slides away 2" from face of disc, permitting a change of abrasives without removing steel disc. Height from floor, 37½" fully raised. Extends 5¼" beyond edge and 3⅝" back of disc face for supporting L-shaped pieces.

TABLE CONTROL: Table is tilted manually by hand wheel located on right side of machine, range 45° down, 15° up. Degrees are engraved on right hand arm. A vernier permits settings within 10' of 1°.

TABLE EXTENSIONS: Extend 10" either side of table.

GUARDS: Disc totally guarded above and below table. Guard can be easily swung out of way to permit use of entire surface of disc.

DUST COLLECTING FACILITIES: Efficient dust stream channels are an integral part of the machine, and can be connected to house dust collecting system or individual dust collecting unit through 6" outlet.

STANDARD MACHINE: Equipped with standard motor as above wired to NEMA standards and includes 1 fill-in bar, 1 steel disc, 1 disc wrench, 1 centering plug, 2 table extensions (right and left-hand), 1 quart Master Disc Cement, 1 protractor and 2 garnet paper discs #1½ grit.

MODEL R: As above, but equipped with reversing mechanism.

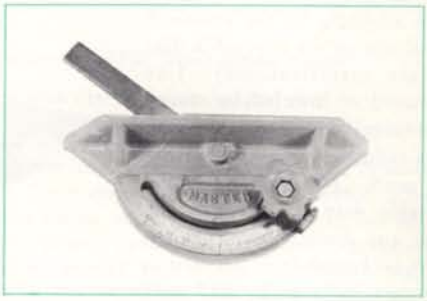
	30" DISC GRINDER	36" DISC GRINDER
Width with Table Extensions	58½"	64½"
Width without Table Extensions	43"	49"
DEPTH—Standard Machines	40"	40"
Equipped with JIC	45"	45"
Height without Light	57½"	60½"
Height with Light	65"	68"
Approximate Shipping Weight	2170#	2575#
Table Size	15 x 38½"	15 x 44½"
Disc Motor: 220/440/550 volt, 60 cycle, 3 Phase	3 HP	5 HP
Special Motors Available To Order		
Table Control motor with gear reduction— 220/440/550 volt, 60 cycle, 3 Phase	⅓ HP	⅓ HP
Disc Speed	950 RPM	850 RPM
Disc Diameter	30"	36"
Disc Thickness	11/16"	11/16"

EQUIPMENT, EXTRAS, ETC.

MOTORS: Motors with specifications other than standard are available to order.

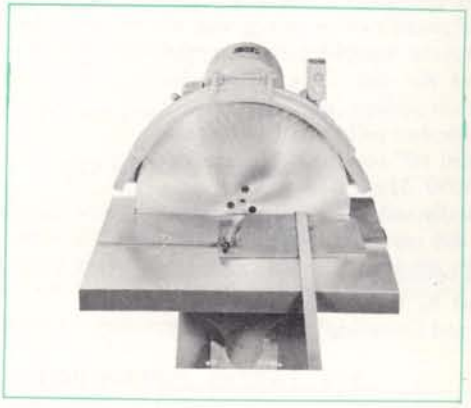
CONTROLS AND WIRING: Can be furnished to J.I.C. standards.

ADJUSTABLE LIGHT: 115-volt, 100-watt lamp and shade is available.



MITER GAUGE

Heavy, large sized miter gauge for sanding angles, furnished as standard equipment. The degrees are far enough apart to insure an accurate setting.



CIRCULAR AND CORE PRINT FIXTURE

The above illustrates the new type circular and coreprint fixture. This fixture fits in the same table slot as the miter gauge.

Round coreprints, straight or tapered, are easily sanded to accurate size and can be duplicated exactly without resetting.

Note that fixture utilizes either the common or shrink rule in setting. Its use saves considerable time.

Coreprints from ¾" to 14" in diameter can be accurately finished.

MASTER SPINDLE SANDER

FOR WOOD, METAL AND PLASTICS

STANDARD MODEL

especially developed for high-precision contour sanding or grinding

FEATURES

Exceptional Accuracy and Flexibility
Tilting Arbor — Two Speeds
Large Rigid Table 24″ x 30″
Oscillating and Non-Oscillating
Built-In Safety — Extreme Accuracy
Dust Collecting Facilities
New Corebox Attachment

New standards of speed, accuracy and economy are available to you with this new Master Spindle Sander. It sands or grinds wood, metal or plastics, better, faster, and with greater accuracy than any other machine of its type that has been developed heretofore!

Irregular shapes, inside curves, curves, contours, templates and many other types of work can be precision shaped on this machine eliminating laborious handwork. Grinds and sands tapers on coreboxes and other work where taper is required as readily as it grinds right angles. Degree of taper easily and accurately set by worm and gear and large protractor.

Note that the arbor of this machine tilts. The table remains permanently horizontal. This makes it easy to hold big work in position for accurate sanding without fear of the work sliding off the table, as in the case of a sander with a tilting table.

Savings made possible by the Master Spindle Sander will pay for it in a short time.

The dust collecting features of this machine are unique. The base of the machine is dust-proof and it is only necessary to attach a dust collector or a house suction system to the outlet to eliminate the dust hazard and its annoyance to the operator.

The Master Spindle Sander is again available with the unique and ingenious Corebox Attachment for producing coreboxes to 8″ in diameter mechanically. This method of producing coreboxes increases accuracy materially and saves considerable time. See page 11 for details.

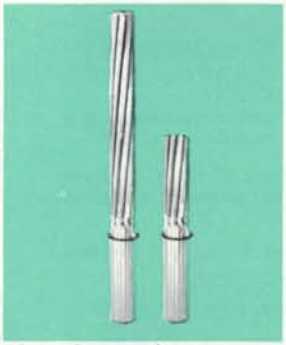


This picture shows the Master Spindle Machine with the dovetail ways. These slides facilitate the use of the corebox fixture shown on page 11. The dovetail ways are extra equipment.

Note the aluminum expanding cylinder which is true and accurate over entire area when the proper size abrasive sleeves are used.

Both abrasive sleeves for wood and metal can be quickly applied and removed without any sticking whatsoever which is so prevalent when using rubber expanding adapters.

NEW ACCESSORY

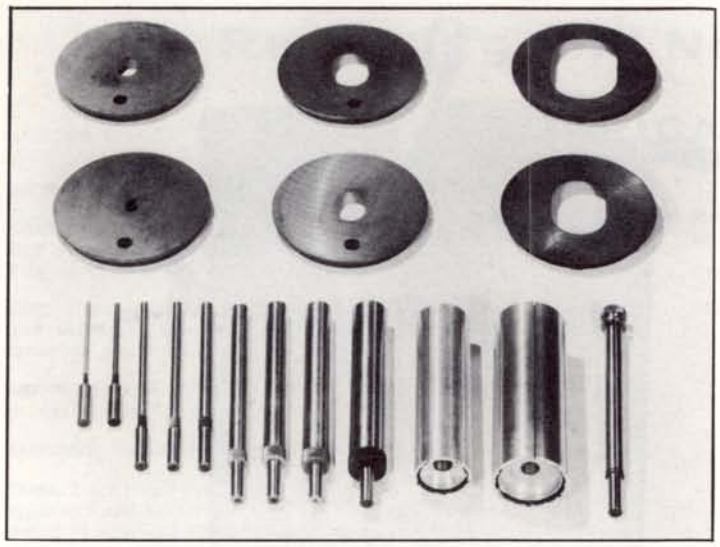


Pictured above is a new type cutting tool for wood and soft metals. Available in ½″, ¾″ and 1″ diameters by either 2″ or 5″ lengths. This tool cuts readily, smoothly, maintains its sharpness for long periods and can be resharpened. Write for details.



Tapered ribs are easily and accurately produced by means of an adjustable fence which locks into the dovetail in the table.

MASTER SPINDLE SANDER



STANDARD MODEL

Abrasive Sleeve Adapters and Insert Plates

The MASTER Spindle Sander offers a wide range of abrasive sleeve adapters, from ¼" diameter x 6" high to 4" diameter x 11" high. The adapters to 1½" are machined from tool steel, properly hardened and carefully ground for extreme accuracies. The 1½" and 2" adapters are also machined from steel but are hollowed for lightness. The 3" and 4" adapters are especially designed to facilitate the application and removal of the abrasive sleeves and to minimize vibration. The 3" and 4" adapters require a special arbor (see picture). The adapters lock tightly in place by means of a split collet and nut. They cannot come loose in operation, but they can be easily and quickly changed—another important feature. Abrasive sleeves are also easily and quickly changed and can never stick.

SPECIFICATIONS

DRIVE MOTOR: Standard—2 HP 220 or 440 or 550 volt, 3 phase, 60 cycle AC two speed (1750 and 3500 RPM) constant HP totally enclosed ball-bearing.

OSCILLATING MOTOR: Fractional HP with 18 to 1 reduction, controlled by separate switch. Provides ⅝" oscillation at rate of 96 times per minute.

DRIVE: V Belt.

ARBOR SPEEDS: Standard—2 speeds. RPM Low, 2000; RPM High, 4000. Other speeds to order. Also available with single speed.

WIRING AND ELECTRICAL CONTROLS: To Nema standards.

CABINET & BASE: Sturdy, reinforced welded sheet steel with 3 point suspension. Overall dimensions 26" x 36" x 37½" high. 5" diameter outlet in cabinet for attaching to dust collecting systems.

TABLE: 24" x 30" x 2" thick. Cast iron, heat treated. Surface accurately ground. Has 8¾" hole in center for cast iron insert plates to accommodate grinding wheels, tools, or abrasive sleeves of various sizes.

SPINDLE: Hardened and precision ground. Runs in accurately machined quill in grease-sealed precision ball-bearings. The quill oscillates in housing sealed at both ends with neoprene bellows to prevent dust and grit from entering either quill or housing. Spindle accommodates ⅜", ½", ⅝" or ¾" collets.

TILTING MECHANISM: Spindle tilts from 0° to 45° by means of a worm and gear. Can be clamped in place.

PROTRACTION: Extremely accurate. Reads from 0° to 45°. Degree of tilt is read from the top of the table by means of a lighted periscope.

BEARINGS: Extra heavy, precision pre-loaded duplex ball-bearings for radial and thrust load.

LUBRICATION: Grease sealed bearings require no lubrication.

CAPACITY: Will accommodate abrasive sleeves from ¼" dia. x 6" to 4" dia. x 11" and abrasive grinding wheels to 5" dia. x 5" long.

SAFETY DEVICE: A safety lever which is an integral part of machine makes it impossible to use grinding wheels or abrasive sleeves over 3" in diameter at high speed.

WEIGHT: Net—650 Lbs. Shipping—750 Lbs

STANDARD MACHINE & EQUIPMENT

Consists of machine proper, equipped with 2 HP 220 or 440 or 550 volt, 3 phase, 60 cycle, AC two speed, constant HP totally enclosed ball-bearing motor; separate motor controlling oscillation, 24"x30" ground table with plain lighted periscope for determining degree of tilt, ¾" collet, collet nut and wrench for same, wired to Nema standards.

EQUIPMENT, EXTRAS, ETC.

MOTORS: Motors other than standard, including single speed, available.

ELECTRICAL EQUIPMENT: Available to JIC Standards.

TABLE: With dovetail and slide for use with corebox attachment and fence.

ADAPTERS FOR USE WITH ABRASIVE SLEEVES:

¼" x 6"	⅝" x 9"	1¼" x 11"	*3" x 11"
⅜" x 6"	¾" x 9"	1½" x 11"	*4" x 11"
½" x 9"	1" x 11"	2" x 11"	

*—Require special arbor.

ABRASIVE SLEEVES: Garnet paper, cloth and aluminum oxide paper and cloth abrasive sleeves to fit above adapters are available in a wide variety of grits for wood, metal or plastic grinding.

INSERT PLATES: (Plain ground) for use with various diameter Adapters as listed:
No. 1 for ¼"—⅜" and ½" diameters
No. 2 for ⅝"—¾" and 1" diameters
No. 3 for 1¼" and 1½" diameters
No. 4 for 3" diameters
No. 6 for 2" diameters
No. 7 for 4" diameters

COLLETS: ⅜", ½", ⅝" and ¾".

SPECIAL LONG SPINDLE: See page .....

FENCE: Usage requires table with dovetail.

PORTABLE CARRIAGE: Ball Bearing—3 point suspension—equipped with foot locking device.

COREBOX ATTACHMENT: For producing straight and tapered coreboxes mechanically (see page 11 for details). Use requires dovetail and slide.

MASTER SPINDLE SANDER

FOR WOOD, METAL AND PLASTICS



SOLID LONG SPINDLE MODEL

Where maximum height capacity in spindle sanding operations is required our solid spindle model will accommodate jobs 16″ high measured from the table surface in the vertical position.

This precision engineered machine utilizes abrasive sleeves as follows:

1¼″ diameter x 17″ long
With adapters: 3″ diameter x 16¾″ long, and
4″ diameter x 16¾″ long

With the exception of the spindle described above the specifications of the solid long spindle model are the same as those of the standard model described on the previous page.

MASTER COREBOX ATTACHMENT

The newly designed corebox attachment saves time and improves accuracy. This fixture should be of real interest to the pattern manufacturer who is interested in cutting costs in the production of straight and tapered coreboxes where extreme accuracy and speed of manufacture are of the essence.

This fixture is used in conjunction with the Master Spindle Sander with a slide and dovetail way on the table of the spindle sander.

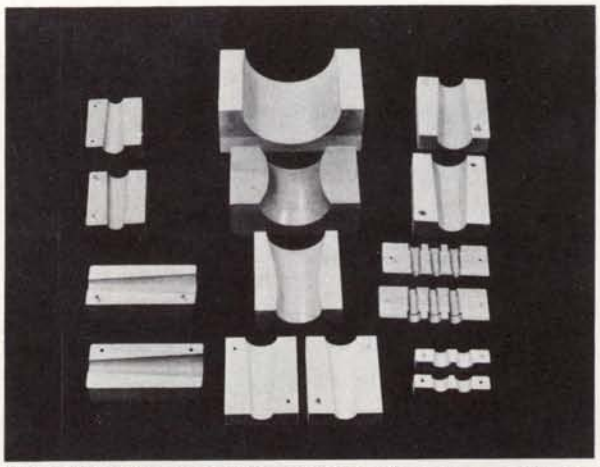
This fixture eliminates tedious hand work, materially reduces the time involved and greatly improves the accuracy. It makes possible precision duplications on this class of work. It can also be used for making gang boxes.

Certain types of straight and tapered aluminum coreboxes can also be ground to precision with this fixture by utilizing the proper abrasive metal cutting sleeves.

The utility of the Master Corebox Attachment is limited only by the ingenuity of the operator.

Capacity: Standard Model—from ½″ to 8″ dia. hole by 8″ high.

Long Spindle Model—from 1½″ to 8″ dia. hole by 15″ high.



Illustrations of various types and sizes of coreboxes which can be produced by the MASTER Corebox Attachment, in a fraction of the time required by conventional methods. The MASTER Corebox Attachment is a real time-saver by any standards.

MASTER Corebox Attachment in Operation



The MASTER Corebox Attachment can be easily handled and set up for action in a few minutes by one man. Full and easily understood operating instructions are furnished.

QUALITY PRODUCTS FOR INDUSTRY . . . PROVED BY PERFORMANCE

MASTER VENTOMATIC AIR CONTROL VALVE

For Improving the Efficiency of Air Suction Systems and Dust Collectors

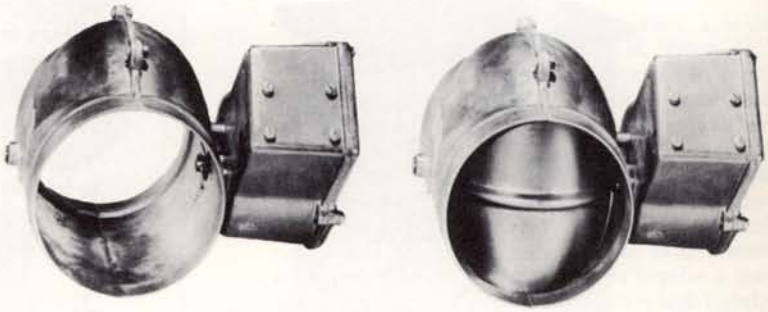
Ideal for use on such units as metal grinding and polishing machines; wood jointers, planers, sanders, table- and band-saws; and other machines producing dust, shavings or lint.

The Ventomatic Air Control Valve has two outstanding features: (1) it operates automatically, concentrating the suction of the collector only at the machines in operation, thereby improving efficiency, and (2) it presents an absolutely unobstructed passage for the air stream when open, entirely eliminating clogging.

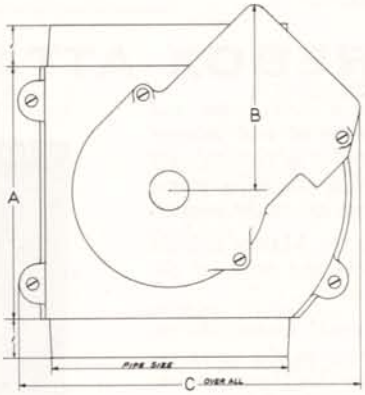
The valve is actuated by a fuse-protected solenoid, which is wired directly to the starting switch of the machine on which it is used. When the switch is ON, the valve opens instantly and completely. When the switch is OFF, the valve closes. The suction is therefore concentrated only on those machines that are being used, greatly increasing the efficiency of the dust-collecting unit. For this reason, the proper use of Ventomatic Air Valves permits the use of smaller, less expensive dust-collecting equipment and yet insures a high degree of efficiency. The use of these valves will also improve the efficiency of existing dust-collecting systems that are presently overloaded.

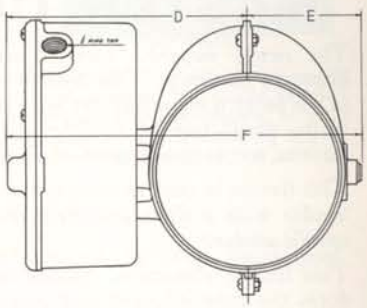
Important heat-saving economies during cold weather are assured by the Ventomatic Air Control Valve, where dust-collecting units are installed on the outside of buildings. The valve permits the air to be drawn only from the machine in use, greatly reducing the amount of heated air dispelled from the room and correspondingly the amount of unheated air drawn into the room.

Ventomatic Air Control Valves are compact, simple in design, and ruggedly constructed. Long and intensive performance tests have proved their ability to stand up in heavy service. Available for 115, 230, 460 and 575 volt AC current only, to fit 3″, 4″, 5″, 6″, 7″, and 8″ diameter pipes.



Views of valve showing damper in open and closed position.





DIMENSIONS

	PIPE SIZE	A	B	C	D	E	F
*	3	7 3/8	4 3/4	7 5/8	6 1/2	2 5/8	9 1/8
	4	4 3/8	4 3/4	7 5/8	6 1/2	2 5/8	9 1/8
	5	5 3/8	4 3/4	8 1/8	7	3 1/8	10 1/8
	6	6 3/8	4 3/4	8 5/8	7 1/2	3 5/8	11 1/8
*	7	11 1/2	5 3/8	11 5/8	8 5/8	4 5/8	13 1/4
	8	8 1/2	5 3/8	11 5/8	8 5/8	4 5/8	13 1/4

* WITH ADAPTERS

MASTER DUST COLLECTOR

Model 1050

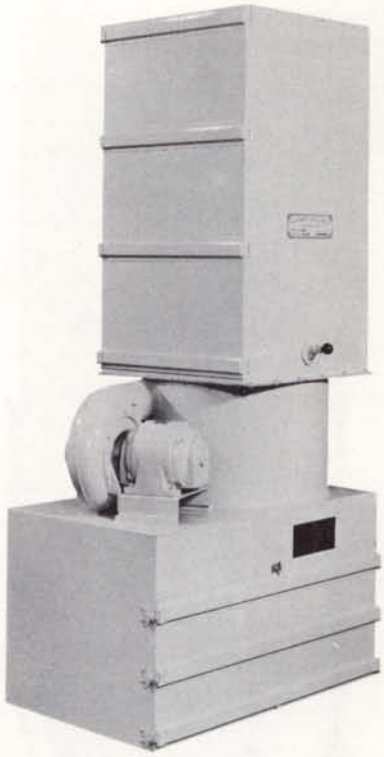
A Highly Efficient Separator Type Unit with Filter Bags for Indoor Use for Wood, Metal and Plastic Dust and Shavings

FEATURES

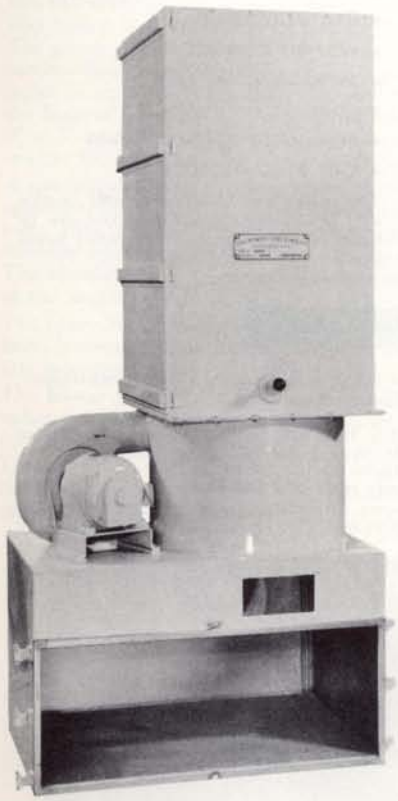
- **Built to comply with codes.**
- **Large capacity — 1050 cfm at 5260 fpm.**
- **Occupies minimum floor space.**
- **Neat appearing — streamlined — an asset to any shop.**
- **Large shaving and dust compartment.**
- **Highly efficient cyclone separator with 250 sq. ft. of filter bag (4 to 1 ratio)**
- **Does not dissipate heated air from room in winter — lowers fuel costs.**
- **Returns clean filtered air to room.**
- **Has 6" inlet. Will handle pipe combinations (shown below) with the corresponding fpm velocity without shut-off valves.**
- **The number of machines that the Model 1050 will handle satisfactorily can be increased substantially by using Ventomatic Air Control Valves. (See Index.)**

RECOMMENDED STANDARD
3900 to 4600 FT. VELOCITY PER MINUTE

Pipe Combinations Dia.	Resulting Velocity FPM	Pipe Combinations Dia.	Resulting Velocity FPM
1-6"	5260	1-7"	4000
1-4" | 1-6"	3900	5-3"	4200
		1-3" | 1-6"	4300
2-4" | 2-3"	3900		
		1-5" | 2-3"	4500
1-3" | 1-4" | 1-5"	3950	1-4" | 1-5"	4600
3-4"	4000	2-5"	3950



The sturdy, rugged construction of the MASTER Dust Collector assures constant money-saving performance under the most severe service conditions.



This view shows the exceptional capacity of the dust and shaving compartment, and large area of filter bags for maximum efficiency.

SPECIFICATIONS

Construction: Heavy sheet metal with hinged door on filter bag compartment and a removable door on dust compartment.

Motor: Standard—2 HP 3500 RPM, 220/440 or 550 volt, three phase, 60 cycle, AC open type NEMA frame. Motors with other specifications are available.

Blower: Directly connected to motor. Maximum capacity 1050 cfm at 5260 fpm velocity.

Inlet Pipe: 6-inch diameter.

Dust & Shaving Separator: Cone shaped — centrifugal acting.

Filter Bags: 14 in number—250 sq. ft. in area—made of flame and mildew resistant cotton cloth—easy to clean.

Filter Bag Shaker: Hand operated—shoulder high.

Exhaust: Returns clean air to room—no heat loss.

Floor Space: 32" wide x 50" long x 8'8" high.

Dust & Shaving Compartment: 31" wide x 48" long x 30" high—25 cu. ft. capacity.

Shipping Weight: Approximately 760 lbs.

MASTER DUST COLLECTOR

Model 550

for use with individual machines
for collecting wood, plastic and metal dust or shavings



A TRULY EFFICIENT UNIT

HIGH NET OUTPUT . . . the only true measure of dust collector efficiency . . . was the prime objective in designing this new machine. Consider the actual NET OUTPUT of the Model 550 MASTER: 550 cfm at 4032 fpm with the filter bag connected (772 cfm at 5664 fpm without bag)! Compare this with any other similar unit, and you will see why the Model 550 MASTER Dust Collector is such an outstanding value.

The Model 550 will do a highly efficient job of collecting wood, plastic and metal dust or shavings from saws, grinders, buffers, polishers, and similar machines. It is adaptable to individual machines with dust outlets to 5" in diameter, or it can accommodate combinations not to exceed 5".

MAJOR FEATURES:

CENTRIFUGAL AIRCHAMBER: This outstanding feature removes a large percentage of the solid material from the air before it enters the filtering bag, and deposits it into the dust receptacle.

SELF-CLEANING FILTER BAG: Each time the MASTER Dust Collector is stopped, the filter bag collapses and the dust is automatically shaken loose and drops into the dust receptacle at bottom. Thus the bag is always clean and filters the air at maximum efficiency. The bag is of a new type flame-resistant cloth.



NO HEAT LOSS: The clean filtered air is passed from the bag into the room, without loss of heat. This is an important fuel-economy factor in cold weather.

- LOW IN PRICE
- EASY TO CONNECT
- INTEGRAL METAL BASE
- COMPACT
- DETACHABLE DUST CONTAINER
- CAN BE CASTER-EQUIPPED

The motor and blower assembly on this unit is available separately and can be used as a booster on overloaded house suction systems.

SPECIFICATIONS

CONSTRUCTION:	Heavy sheet metal with detachable dust compartment. Base also of heavy sheet metal.
MOTOR:	Standard—1½ HP, 110/220 volt, one phase AC or 220/440 volt, three phase AC. Other motors to order.
BLOWER:	Cast iron body with steel bladed impeller directly connected to motor. Maximum capacity through filter bag 550 cfm at 4032 fpm. (772 cfm at 5664 fpm without bag)
INLET PIPE:	5" diameter.
DUST AND SHAVING COMPARTMENT:	Detachable—19" dia. x 13" high (2 cu. ft. capacity).
DUST AND SHAVING SEPARATOR:	Cone shaped—centrifugal acting—cyclone type.
FILTER BAG:	New type flame resistant fabric—unusually large capacity—has large opening for easy cleaning.
EXHAUST:	Returns clean filtered air to room with no heat loss
FLOOR SPACE:	22" wide x 36" long x 91" high.
SHIPPING WT.:	Approximately 300 pounds.

KINDT-COLLINS MASTER PRODUCTS

MASTER PROFILER and CONTOUR GRINDER

for the speedy, accurate, free-hand grinding of sectional dies and master templates

- **OSCILLATING AND NON-OSCILLATING**
- **HEAVY DUTY**
- **VERSATILE**
- **RUGGEDLY CONSTRUCTED**
- **AMPLY POWERED**
- **LARGE CAPACITY**
- **EASILY ADJUSTED TILTING SPINDLE**

The Master Profiler and Contour Grinder is an original Kindt-Collins development. It is a heavy-duty precision machine tool especially designed and manufactured to fill a long-felt need in the tool and die shop for the fast, accurate removal of metal from steel punch or heavy press die sections.

Free-hand rough and finish profiling, a basic necessity in modern die-producing procedures, is routine with this machine tool which will grind large and small die sections to close tolerances and precision die clearances. It greatly reduces the time ordinarily required by the die maker for this operation.

The precision spindle, which is integral with and actuated by a 2 H.P. totally enclosed motor, is supported by a heavy column and adjustable over-arm. The spindle serves as the mounting for the grinding wheel. Wheels (including cup type) ranging in size up to 6 in. diameter by 4 in. high can be used.

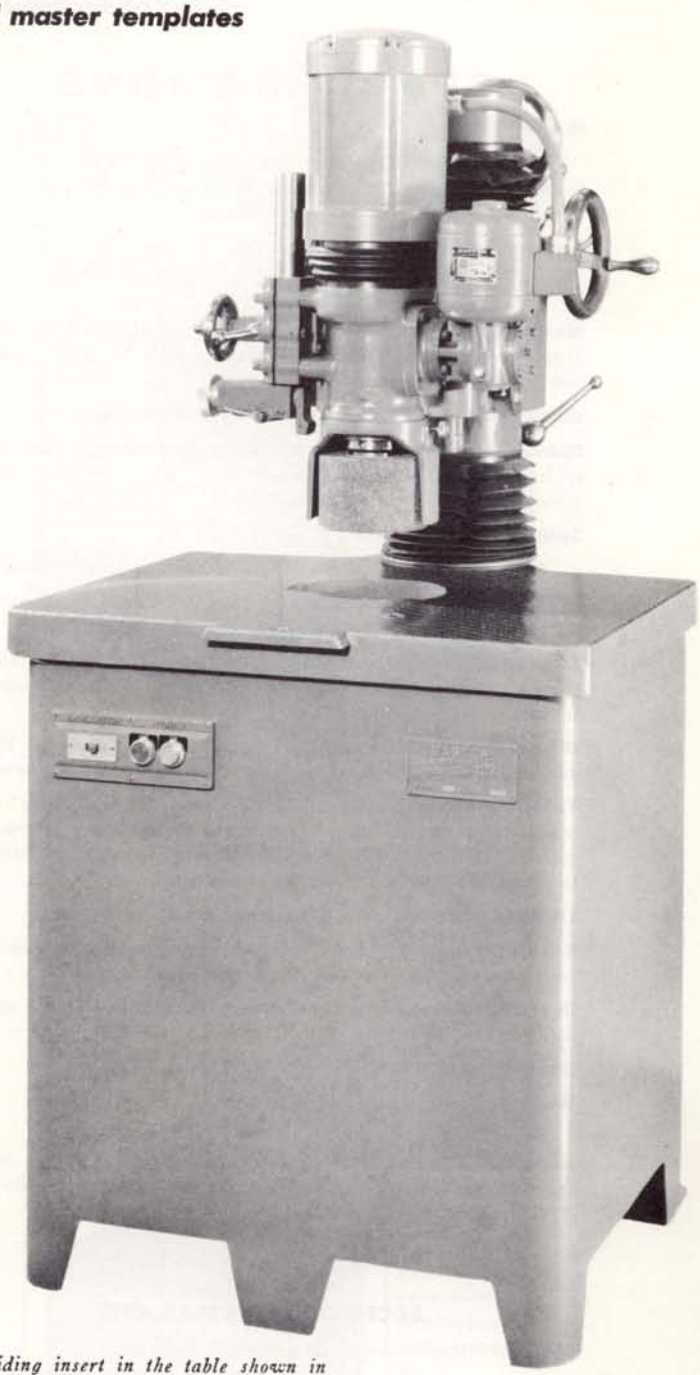
All wearing surfaces are protected against dust and grit by plastic bellows. The spindle is equipped with grease-sealed super-precision ball bearings, requiring no lubrication. The remote start and stop button is conveniently located on the front of the cabinet. The grinding wheel is oscillating (⅜ in. stroke at 72 o.p.m.) or non-oscillating at the option of the operator. The oscillating motor is separate and is also controlled by a remote starter on the front of the cabinet. The grinding wheel can be tilted from 0° to 5° by means of a hand-wheel and can be raised from table level to 10″ above table level by means of a hand-wheel.

A specially-designed grinding wheel guard which swivels on the spindle quill and locks in any desired position is standard equipment. Fast, accurate dressing of the wheel is accomplished by a diamond wheel dresser which is an integral part of the machine. The wheel can be dressed without changing elevation of the head or the degree of tilt.

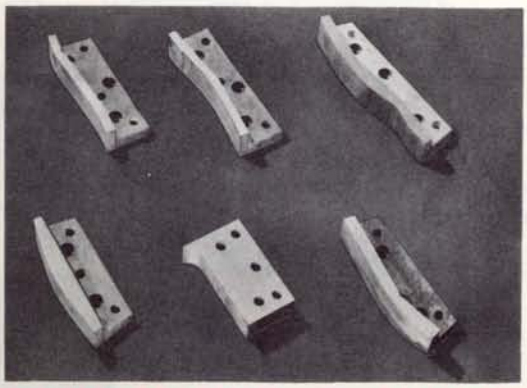
The heavy 24 by 30 in. cast iron table stands 37½ in. from the floor. It remains permanently horizontal and is serrated to facilitate movement of the parts to be ground.

The Master Profiler and Contour Grinder may be connected to either a house dust collecting system or a separate individual collector.

This is truly a quality machine tool which will produce exceptionally fine results wherever an accurate, heavy-duty profiler or contour grinder is required.



Note sliding insert in the table shown in above picture to compensate for wheel wear and allow operator to grind small sections or parts without danger of lodging between table and wheel. Insert can be locked in desired position.



Picture at left shows a few of the many types of quick, accurate profile and contour grinding jobs that are possible with this efficient Master Grinder.

MASTER PROFILER and CONTOUR GRINDER

for the speedy, accurate, free-hand grinding of sectional dies and master templates

SPECIFICATIONS

Motors:

Drive Motors: Motor and quill are an integral unit. Standard motor—2 H.P., 230/460 volt, 3 phase, 60 cycle AC, 3600 RPM, totally enclosed precision ball bearing.

Oscillation Motor: Separate gearhead motor, 1/20 H.P., 230 or 460 volts, 3 phase, 60 cycle AC, 1750 RPM with shaft output of 72 RPM.

Electrical Wiring: Standard machine is wired to NEMA Standards with 115 volt remote starter. Wiring to JIC Standards is available to order at extra cost.

Quill: Plated with hard chrome. Ground to close tolerances.

Spindle: 1⅛″ diameter x 3⅜″ long to accommodate cup wheels 6″ in diameter by 4″ high. Runs in super precision ball bearings, permanently lubricated and dust-tight.

Spindle Adjustments:

Vertical Travel: 10″ above table by means of hand wheel.

Tilt: from 0° to 5° by means of hand wheel. Lugs stop spindle at 90° to table top.

Oscillation: Separate oscillating motor controlled by separate remote starter on front of cabinet—⅜″ stroke at 72 oscillations per minute.

Wheel Dresser: Integral part of machine, utilizes diamond. Wheel can be dressed without changing elevation of head or degree of tilt.

Table: Cast iron, heavily ribbed. 24″ deep x 30″ wide x 2½″ thick with 8″ diameter opening in center to permit entry of grinding wheels. Table top is 37½″ from floor. Surface is ground and serrated to facilitate movement of parts to be ground.

Throat Capacity: 11¼″ from center of spindle to column.

Base and Cabinet: Heavy fabricated steel, totally enclosed but with access door on one side, three point suspension.

Dust Facilities: 5″ pipe connection in back of cabinet for attachment to dust collecting system.

Dimensions: Overall, 32″ wide x 37″ deep x 72″ high.

Weight: Net—approximately 1500 lbs.
Shipping—approximately 1650 lbs.

Standard Machine: As listed above with standard motor wired to NEMA standards and with the following accessories:
1 Spanner Wrench for Spindle
1 Socket Wrench for Spindle
1 Standard 6″ diameter x 4″ high Cup Emery Wheel

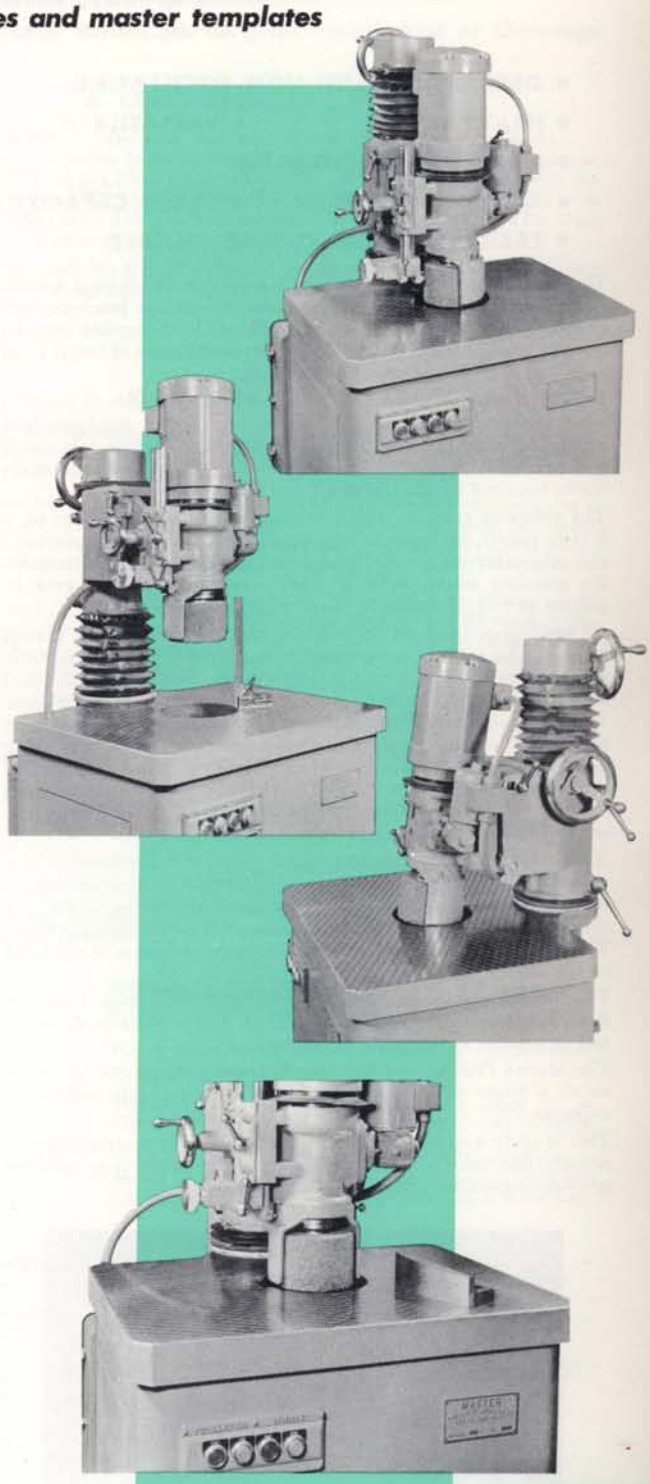
ACCESSORIES, EXTRAS, ETC.

Motors: Other than standard available to order.

Electrical Wiring: Available to JIC Standards.

Grinding Wheels: Available to order.

Diamonds: Available to order.



MASTER PROFILE GRINDER

A Handy, Economical, Utilitarian Contour Grinder

Features

- TILTING ARBOR
- LARGE RIGID SERRATED TABLE (24" x 30")
- AMPLE 2 HP MOTOR
- BUILT-IN SAFETY
- TWO SPEEDS
- LARGE CAPACITY (2" to 5" dia. x 5" high wheels)
- ACCURATE PROTRACTION
- DUST COLLECTOR OUTLET
- OSCILLATING and NON-OSCILLATING

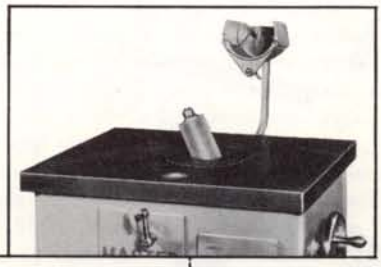


The Master Profile Grinder is designed to meet a long felt industrial need for a heavy duty machine for the fast, accurate removal of metal. It is particularly adapted to the grinding of die sections, sectional punches, trimming dies, cams, templates, contour gages, jigs, fixtures, special machine parts, etc. In fact, it is ideal for practically any type of irregular contour or profile grinding. Accuracy is one of the outstanding features of this grinder.

Heavily constructed, the grinder is engineered for years of trouble-free service with a minimum of attention. The large, rigid, permanently horizontal table (serrated to facilitate movement of work and eliminate grindings) will support heavy work without operator fatigue. Grinding wheel can be easily tilted (from 0° to 45°) with perfect accuracy. The precise degree of protraction is read from the top of the table by means of a lighted, dust-proof periscope. Quickly and easily set up it is a cinch to operate on fussy, accurate jobs.

The design of this grinder permits the use of a wide range of grinding wheels, abrasive sleeves and cutting and burring tools which are ingeniously safeguarded in accordance with safety codes. A 2 HP, two speed, totally enclosed constant HP motor insures maximum efficiency with full power from both speeds. The Master Profile Grinder readily lends itself to production grinding by use of fixtures, etc. Its versatility is limited only by the ingenuity of the operator.

Without a doubt the Master Profile Grinder is the most flexible, the most accurate, and the most productive grinder of its type available. The steadily increasing list of satisfied users (names available on request) is substantial proof of our contention.



Showing spindle tilted with the guard removed.



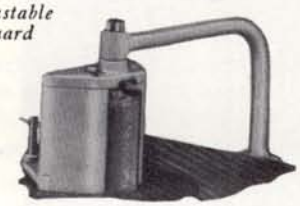
Showing the convenient hand wheel and control panel.

MASTER PROFILE GRINDER

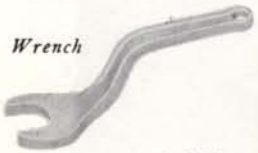
Wheel Dresser



Adjustable Guard



Wrench

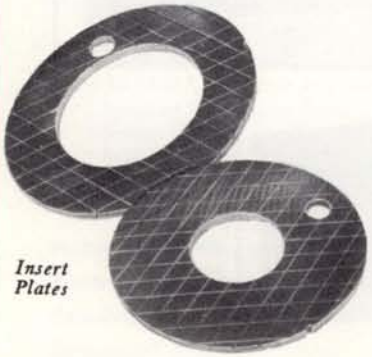


Grinding Wheel





Adapters and Arbors



Insert Plates

SPECIFICATIONS

DRIVE MOTOR: Standard—2 HP 220, 440 or 550 volt, 3 phase, 60 cycle AC two speed (1750 and 3500 RPM) constant HP totally enclosed ball-bearing.

OSCILLATING MOTOR: Fractional HP with 20 to 1 reduction—controlled by separate switch. Provides ⅜" oscillation at rate of 86 times per minute.

DRIVE: V Belt.

ARBOR SPEEDS:	*Low*	*High*
(RPM) with standard	2000	4000
drive motor as above—	2150	4300
choice of any of these	2650	5300
groupings: —→	3100	6200
	3600	7200

WIRING AND ELECTRICAL CONTROLS: To Nema standards.

CABINET & BASE: Sturdy, reinforced welded sheet steel, affording 3 point suspension. Over-all dimensions 26" x 36" x 37½" high —5" opening in cabinet for attaching to Dust Collecting Systems.

TABLE: 24" x 32" x 2" thick—cast iron—heat treated. Surface accurately ground and serrated. Has 8¾" hole in center for cast iron insert plates to accommodate various sized grinding wheels or tools.

SPINDLE: Hardened and precision ground. Accommodates ⅜", ½", ⅝" or ¾" collets and correspondingly sized removable arbors. ¾" collet, standard equipment, is held in place by nut.

TILTING MECHANISM: Spindle tilts from 0° to 45° by means of a worm and gear. Can be clamped in place.

PROTRACTION: Extremely accurate — reads from 0° to 45°. Degree of tilt is read from the top of the table by means of a lighted periscope.

BEARINGS: Extra heavy, precision pre-loaded duplex ball-bearings for radial and thrust load.

LUBRICATION: Bearings are sealed in grease. Require no lubrication. This is a new feature.

CAPACITY: Will accommodate grinding wheels up to 5" diameter by 5" high.

SAFETY DEVICE: A safety lever which is an integral part of machine makes it impossible to use grinding wheel over 3" in diameter at high speed.

WEIGHT: Net—650 Lbs. Shipping 750 Lbs.

Standard Machine

Consists of machine proper, equipped with 2 HP 220 or 440 volt, 3 phase, 60 cycle, AC two speed, constant HP totally enclosed ball-bearing motor, separate motor controlling oscillation, 24" x 30" serrated table, lighted periscope for determining degree of tilt, ¾" collet, collet nut and wrench for same, wired to NEMA standards. 3600 RPM and 7200 RPM are considered standard speeds.

Equipment, Extras, Etc.

MOTORS: Motors other than standard, including single speed, available.

ELECTRICAL EQUIPMENT: Available to JIC standards.

TABLE: Plain—without serrations.

COLLETS: ⅜", ½" and ⅝".

ARBORS: ½" x 5" & ¾" x 5"—include flanges, spacers and nuts. Both Arbors fit ¾" collet.

INSERT PLATES: (Serrated or plain) for use with various diameter grinding wheels as listed.

No. 1 for ¼"—⅜" and ½" diameters
No. 2 for ⅝"—¾" and 1" diameters
No. 3 for 1¼" and 1½" diameters
No. 4 for 3" diameters
No. 5 for 5" diameters
No. 6 for 2" diameters
No. 7 for 4" diameters

GUARD: Efficient adjustable guard attaches to table by an arm—swings out of way when not in use. Accommodates grinding wheels from 1¾" to 5" in diameter and 5" high.

WHEEL DRESSER: Attaches to table. Handle controls rack and gear for ease of dressing. Dresses wheel to any angle to 45°.

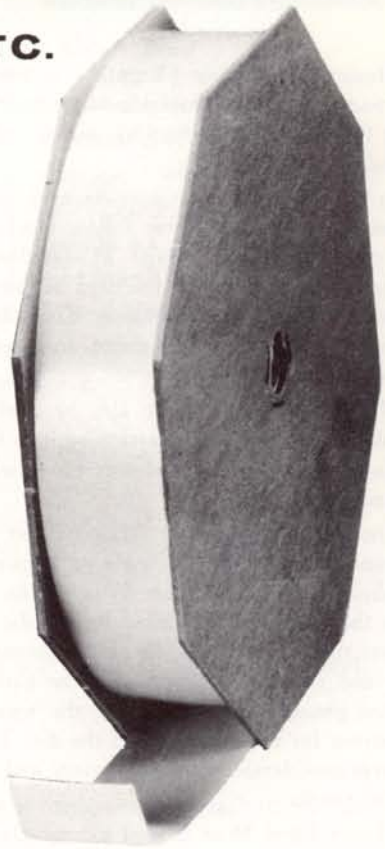
DIAMONDS (Mounted): For use with Wheel Dresser.

PORTABLE CARRIAGE: Ball Bearing—3 point suspension—equipped with foot locking device.

SPINDLE: Available with solid spindle.

MASTER WAX SPECIALTIES

SHEETS–RIBBONS–EXTRUSIONS–ETC.



The Kindt-Collins Company has specialized in the manufacture, formulation and production of wax products for many years. We pioneered such items as sheet waxes, wax fillets, true core vent waxes, sheet waxes with pressure sensitive adhesive on the back, high temperature sheet waxes, etc., which are being used in quantity by the aircraft industry, the plastics industry, the pattern shop and the foundry.

Our laboratories have also formulated many other types and kinds of waxes with many different and varied characteristics.

With the extensive knowledge of waxes that we have accumulated over the years, we feel qualified to solve your wax problems.

Write us giving us all the pertinent details of your wax problems and we will endeavor to help you. We can offer wax formulations with an extremely wide range of properties such as the following:

Melting Point: From 100° F to 300° F.

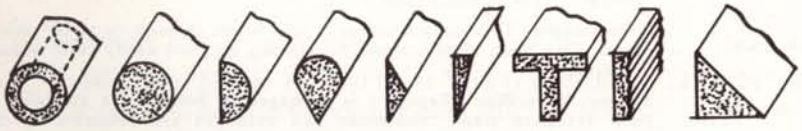
Hardness: From the consistency of grease to a hardness approaching plaster.

In addition to our special service in the formulation of various and sundry waxes, we also have production facilities for mixing waxes, casting waxes, extruding waxes and forming waxes in practically any shape or size, including sheets, tubes, rods, strips, wedges, half rounds, blocks, etc.

Note picture at right of ribbon or strip wax on a roll. This is available in thickness from .010" and up and in widths to 3".

Our services are available on request.

Typical Extruded Shapes Which Can Be Produced In Wide Variety



MASTER SHEET WAXES (SEE FOLLOWING PAGES FOR AVAILABLE TYPES)

Master Sheet Waxes have many uses in many industries. They are useful in the pattern shop, in the tool and die shop, in the aircraft industry, and in the plastics industry. In the pattern industry they are used effectively for making shell patterns by forming over follow blocks or the making of the core and lagging it with sheet wax. This latter method requires plaster corebox but saves considerable time and assures an absolutely uniform metal thickness. Master Sheet Wax can be used to add metal thickness to patterns and to line coreboxes which have been made too large. It conforms to practically any shape (compound curves, etc.) by proper warming and shaping.

In the tool and die shop Master Sheet Waxes may be used as a metal thickness in the production of dies. A male or female die or pattern for same is produced. Master Sheet Wax of the thickness of the metal to be formed is then shaped over the die completely covering it and conforming exactly. Plaster or gypsum cement is then poured over the top of the wax to produce a Keller form or a casting for the other half of the die. This process saves considerable time and money and produces excellent results. It may also be used to test dies instead of lead sheets. It does not damage the die when used in this manner.

In the aircraft industry, Master Sheet Wax serves again as a metal thickness in the production of big stamping or draw dies for the fuselage and wing sections of a plane. The wax conforms perfectly to compound curves, odd shapes, etc., and produces an exact metal thickness. Again this process saves time and money.

In the plastic industry Master Sheet Wax also serves as a material thickness in the forming of dies. In addition, Master HT 260 Sheet Wax (High Temperature Sheet Wax) can be used to laminate or cast a hollow core in a plastic piece. The plastic is formed around the wax. The plastic is then cured. After curing the temperature is raised to 300° F, the HT 260 Wax melts and can be poured from the plastic piece.

There are, of course, many other uses for Master Sheet Wax, depending upon the ingenuity of the user.

The various types of Master Sheet Waxes which The Kindt-Collins Company produces are described in the following pages.

MASTER SHEET WAX (Regular)

Versatile — Accurate — Economical

Master Sheet Wax (Regular) is the original sheet wax. It is highly adaptable for a multiplicity of uses in the pattern shop, foundry, plastic industry and tool and die shops.

In the pattern shop it may be used for making shell patterns by forming over follow blocks or by making a core and lagging it with Master Sheet Wax corresponding to the metal thickness required. The use of this method requires Plaster Core Boxes but saves considerable time and assures an absolutely uniform metal thickness.

Master Sheet Wax may also be used to add metal thickness to patterns by attaching it to the surface, and also to line the inside of core boxes which have been made too large.

Another application for Master Sheet Wax is in the manufacture of dies. A male or female die pattern is fabricated, Master Sheet Wax of the same thickness as the metal to be formed by the die is then placed over the surface of the die pattern, completely covering it and conforming exactly to the surface. Plaster is then poured over the top of the wax to produce a pattern for the other half of the die. This process also saves considerable time and money and produces excellent results.

Master Sheet Wax is used extensively in the aircraft industry.



TECHNICAL DATA

Melting Point: Approximately 160° F.

Penetration: 10 5/50/76°

Color: Light Yellow

Flexibility: A 3/16" thick piece may be bent around a ¼" mandrel at average room temperature.

Availability: In thicknesses from .007" to .750". Standard sized sheets 8" x 12" and 12" x 24".

Accuracy: Plus or minus .001".

Translucency: This quality makes it easy to see through up to ⅛" thicknesses. Fine lines, identification, dimensions, etc., are easily read without distortion.

Master Sheet Wax (Regular) is packaged in boxes or is available in bulk. Standard sizes, thicknesses and packages are indicated by the following table. Also available in decimal sizes.

STANDARD SIZES, THICKNESSES AND PACKAGES

THICKNESS	8" x 12" Sheets SHEETS PER BOX	12" x 24" Sheets SHEETS PER BOX	THICKNESS	8" x 12" Sheets SHEETS PER BOX	12" x 24" Sheets SHEETS PER BOX
1/64"	10	5	13/64"	3	2
1/32"	8	4	7/32"	3	2
3/64"	7	4	15/64"	3	1
1/16"	6	3	1/4 "	2	1
5/64"	4	2	17/64"	2	1
3/32"	4	2	9/32"	2	1
7/64"	4	2	19/64"	2	1
1/8 "	4	2	5/16"	2	1
9/64"	4	2	21/64"	2	1
5/32"	4	2	11/32"	2	1
11/64"	4	2	23/64"	2	1
3/16"	3	2	3/8 "	2	1

In addition to the above sizes and thicknesses, Master Sheet Wax (Regular) is available to order in decimal thicknesses from .007" and thicker. When ordered by the box intermediate thicknesses are packaged in accordance with the next heavier thickness as indicated above.

MASTER SHEET WAX (Regular)

WITH PRESSURE SENSITIVE ADHESIVE ON THE BACK

Master Sheet Wax (Regular) in the thicknesses and sizes listed above is also available with a pressure sensitive adhesive on the back.

This permits quick and easy attachment to practically any oil-free surface by hand pressure alone. It is particularly effective where compound curves are involved, holding the sheet firmly in place.

See above list for packaging and availability.



MASTER HT-260 SHEET WAX

The Efficient High Temperature Sheet Wax



Master HT-260 Sheet Wax is a completely new type wax, developed for use with casting and laminating resins that either require or give off heat during curing. Master HT-260 Sheet Wax is a scientific blend of materials that provides a flexible sheet that melts at approximately 260°F., far higher than the normal temperatures for waxes. After it reaches its melting point, it turns into a free flowing liquid that is easily drained from a surface or cavity, thus lending itself to usage as a core. Master HT-260 Sheet Wax is used in the same manner as Master Sheet Wax (Regular) as a material thickness in the manufacture of plastics, dies, plastic molds, etc.

PHYSICAL PROPERTIES

	Sheet Form	Extruded Form
Melting Point:	Approximately 260°F.	Approximately 270°F.
Penetration: 5/50/76°	15	15
Color:	Brown	Light brown
Flexibility:	Very flexible	A 3/8" x 1/8" cross section will bend around a 1/2" mandrel

Accuracy: Plus or minus .001".

Availability: Master HT-260 Sheet Wax is available in 12" x 24" sheets in thicknesses from 1/64" to 3/8" as follows, or in decimal thicknesses from .010" to .375":

1/64"	1/32"	3/64"	1/16"	5/64"	3/32"	7/64"	1/8"
9/64"	5/32"	11/64"	3/16"	13/64"	7/32"	15/64"	1/4"
17/64"	9/32"	19/64"	5/16"	21/64"	11/32"	23/64"	3/8"

Available by the sheet

MASTER HT-260 SHEET WAX

WITH PRESSURE SENSITIVE ADHESIVE ON THE BACK



This is essentially the same sheet wax as regular Master HT-260 Sheet Wax described above. It has all the same distinctive advantages, and is available in the same range of sizes.



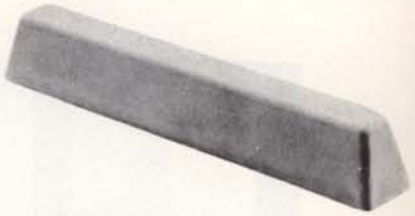
The pressure-sensitive adhesive on the back permits quick and easy attachment to practically any oil-free surface by hand pressure alone. This is a very convenient time- and money-saving feature, particularly effective when covering compound curves.

Available by the sheet as above

MASTER HARD PATTERN WAX

An old favorite in the pattern shop for filling nail holes, small dents, etc., in wood patterns. Remarkably easy to use in conjunction with an alcohol lamp and a putty knife. Does not soften when in contact with warm sand in the foundry. Master Hard Pattern Wax can be coated with shellac, Master Kincote, Master Patkote or any recognized pattern coating. It is very light tan in color.

Available in one pound bars



MASTER ALUMINUM HARD PATTERN WAX

This wax has the same properties as Master Hard Pattern Wax, except that aluminum powder has been induced into it. Ideal for filling holes and defects in aluminum patterns or castings. Hardens instantly and can be machined. Its aluminum color makes it imperceptible.

Available in one pound bars



MASTER BEESWAX

Master Beeswax is a pure grade of beeswax, completely refined and free of foreign material. It is very light in color. It is suitable for a variety of purposes.

Packed in boxes containing a one pound cake



MASTER BAYBERRY WAX

This wax is widely used to protect iron castings and to prevent rust and corrosion. The wax is melted and applied over the entire surface to be protected. Easy to use and very effective.

Available by the pound



MASTER SAW LUBRICATOR

Increases the life and accuracy of saw blades

Master Saw Lubricator is a scientifically compounded product made from mineral waxes and lubricants. When applied to a saw blade (for wood or metal) it prevents the accumulation of wood pitch or metal chips. It serves to keep the saw blade clean and sharp, acts as a lubricant, increases the life of the blade, makes the sawing easier and freer, thereby increasing production. Try it and be assured of improved results.

Available in boxes consisting of 12 sticks



Each stick measures 1″ dia. by 8″ long—very handy and easy to use.

KINDT-COLLINS MASTER PRODUCTS

MASTER UNIVERSAL FILLET

THE PERFECTED PLASTIC FILLET

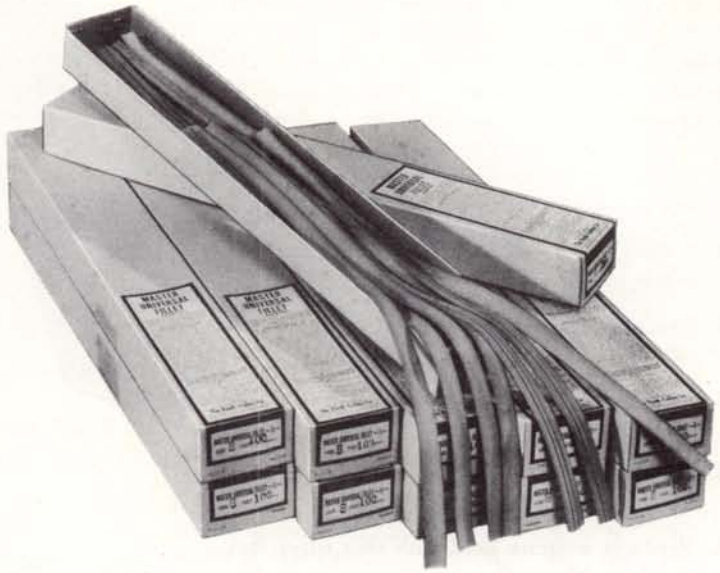
FOR USE ON WOOD OR METAL PATTERNS AND CORE BOXES

Made from a revolutionary plastic formula developed in our own laboratory, and tested and proved by its performance in the foundry. Master Universal Fillet can save you as much as 50% over the cost of materials you may have been using. In addition, it saves valuable time in application.

To insure precision results, Master Universal Fillet is die-formed to extremely accurate dimensions. Edges are paper-thin, to blend smoothly into the pattern or core box leaving no marks or ridges in the casting. Adapts readily to obtuse or acute angles, conforms to inside or outside curves without the necessity of cutting edges.

Remarkably easy to use. Simply apply Master Universal Adhesive to back of the fillet and to the corner of pattern or core box. Let dry to the touch, then press fillet in place with fingers. Can be coated with Master Pat-Kote, Master Kincote, shellac, lacquer or any good pattern coating.

Not affected by moisture, core oils or liquid partings. Does not dry out and loosen in storage, does not become brittle with cold, maintains dimensions under any normal foundry temperature.



PACKED IN BOXES AS FOLLOWS:

	Size No.	Rad.	Feet per Box
TWO FOOT STRIPS	2	1/8"	200
	3	3/16"	200
	4	1/4"	200
	5	5/16"	100
	6	3/8"	100
	7	7/16"	100
	8	1/2"	100

	Size No.	Rad.	Feet per Box
THREE FOOT STRIPS	10	5/8"	100
	12	3/4"	100
	14	7/8"	100
	16	1"	100
	20	1 1/4"	100
	24	1 1/2"	50
	28	1 3/4"	50
	32	2"	50

MASTER UNIVERSAL ADHESIVE AND SOLVENT





For Attaching Master Universal Fillet

A quick-acting, ruggedly adhesive, waterproof cement that speeds the work of applying Master Universal Fillet. Properly applied, it forms an instant and fixed bond between fillet and pattern surface. Not affected by moisture, lacquers, shellacs or any acceptable pattern coatings. Also works exceptionally well as a cement for leather and wood fillets.

Available in one quart containers.

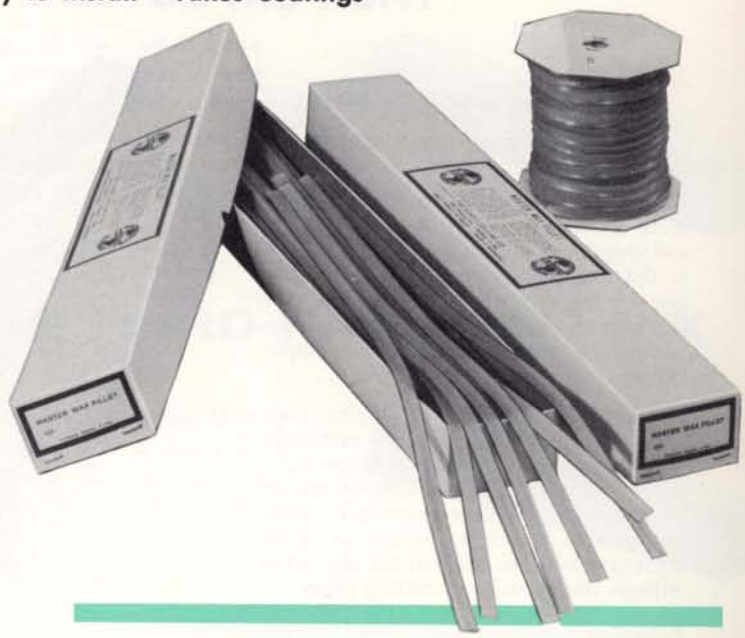
Master Universal Adhesive Solvent, for thinning Master Universal Adhesive, is also packaged in quarts.

MASTER WAX FILLET

Accurate — Easy to Install — Takes Coatings

Master Wax Fillet is specially designed and formulated to give the patternmaker a quality product which is easy to use, produces accurate results, and is relatively inexpensive. It is primarily used for master patterns. Master Wax Fillet offers the following advantages:

1. Conveniently packed—remains fresh and pliable indefinitely.
2. Does not become sticky in the summer or brittle in the winter.
3. Easily applied with heated fillet tool of proper size.
4. Adheres to bare wood or coated surfaces without glue or adhesives.
5. Bends around corners, fits to angles and shapes to contours.
6. Produces accurate radii with thin edges that blend into the pattern.
7. Costs less than other fillets.
8. Can be coated with any recognized pattern coating without affecting drying time of coating.



PHYSICAL PROPERTIES

Melting Point:	Approximately 160°F.
Penetration:	14 5/50/76°.
Color:	Light yellow.
Flexibility:	A ¼" radius fillet can be easily formed around a ¼" mandrel.

Master Wax Fillet is available in one pound rolls or two pound boxes. In the roll form the wax is wound on a handy spool with hexagon ends, packed in a corrugated container. The two-pound boxes contain straight pieces 24" long.

SPECIFICATIONS AND PACKAGING

Boxes — Straight Pieces			Roll Fillet		
Number	Radius Inches	Approx. Feet in Box	Number	Radius Inches	Approx. Feet in Roll
1-R*	1/16	3000	00-R*	1/32	1500
2	1/8	900	0-R*	1/16	1500
3	3/16	450	2	1/8	450
4	1/4	270	3	3/16	225
5	5/16	160	4	1/4	135
6	3/8	140	5	5/16	80
7	7/16	115	6	3/8	70
8	1/2	90	7	7/16	58
10	5/8	50	8	1/2	45
12	3/4	42	10	5/8	25
16	1	30	12	3/4	21

*Round. No. 00-R is put up in ½ lb. rolls. All other sizes put up in 1 lb. rolls or 2 lb. boxes.

MASTER STEEL FILLET TOOLS



These tools are particularly designed for installing wax and leather fillets. They are absolutely accurate as to size and produce an excellent job when properly used. They are available as individual tools or in complete sets of four tools as follows:

Number 1 for 1/16" and 1/8" radii
Number 2 for 3/16" and 1/4" radii
Number 3 for 5/16" and 3/8" radii
Number 4 for 1/2" and 5/8" radii

MASTER LEATHER FILLET

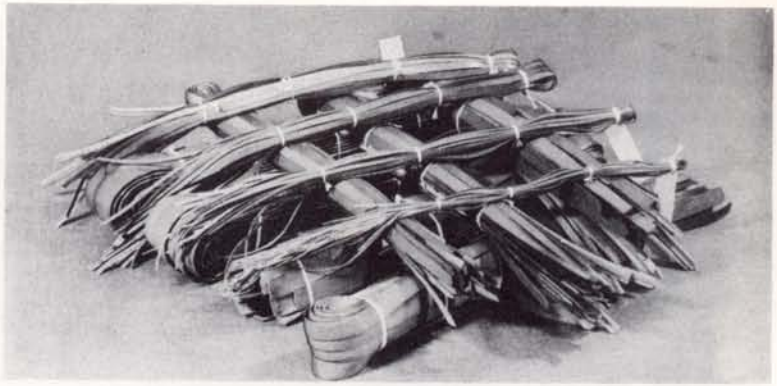
A Quality Product for Quality Results

Master Leather Fillet is produced from the very highest grades of leather. It is shaped to exact size, is extremely pliable and has thin straight edges that blend readily with the surface of the pattern. The back is slightly notched to permit shaping to various radii and contours. Master Leather Fillet is easily applied by the use of Master Fillet Cement and the proper size fillet tool.

Order by the size or number.

100 feet constitutes a bundle in sizes from No. 1 through No. 14. Sizes 20 (1¼"), 24 (1½"), 32 (2") are available to order.

50 feet constitutes a bundle in size 16. Sizes 20 (1¼"), 24 (1½"), 32 (2") are available to order.



Number	1	2	3	4	5	6
Size of Radius	1/16"	1/8"	3/16"	1/4"	5/16"	3/8"
Width of Flat Face	3/32"	1/16"	1/16"	3/8"	1/2"	9/16"

Number	7	8	10	12	14	16
Size of Radius	7/16"	1/2"	5/8"	3/4"	7/8"	1"
Width of Flat Face	21/32"	3/4"	21/32"	1 3/32"	1 3/8"	1 9/16"

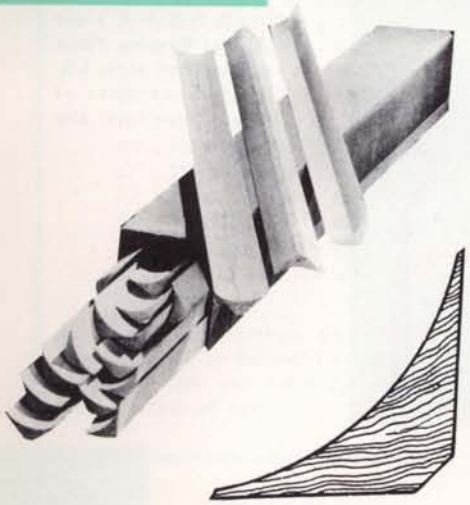
MASTER FILLET CEMENT AND SOLVENT

For Attaching Leather and Wood Fillets

Can be used for Leather and Wood Fillets. Sand will not stick to edges of a fillet on which it has been used. When cement is dry and hard it is impervious to heat up to 175°, and moisture-proof to foundry sand. Will not curl the edges of wood fillet. Solvent is available for thinning, and for removing excess solvent. See Index for reference to Master Universal Adhesive, which assures the highest possible standards of performance on all types of fillets including Master Universal Fillet (Plastic).

Both cement and solvent available in 1-qt. cans

MASTER WOOD FILLET



Master Wood Fillet is accurately manufactured from clear selected kiln-dried pine, free from sap and blemishes. Master Wood Fillet is easier to apply and produces a more accurate radius. The sides are obtuse, cut to slightly more than 90°, permitting the thin edges to adhere tightly to the pattern. The heel of the fillet is trimmed to allow room for excess adhesive and to facilitate a tight fit (note sketch at left).

Master Fillet Cement is excellent for applying this fillet.

Order by size or number.

Packed in sturdy corrugated cartons as indicated at right.

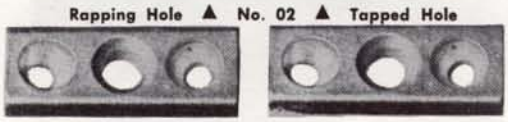
Packaging		
Number	Radius	Feet Per Box
4	1/4"	100
6	3/8"	100
8	1/2"	100
10	5/8"	100
12	3/4"	100
14	7/8"	100
16	1"	100
20	1 1/4"	50
24	1 1/2"	50
28	1 3/4"	50
32	2"	50

MASTER RAPPING PLATES
ANOTHER INDUSTRY STANDARD

Actual Sizes of Nos. 02, 03 and 04



Rapping Hole ▲ No. 02 ▲ Tapped Hole



No. 03 ▲ Rapping Hole No. 04 ▲ Tapped Hole

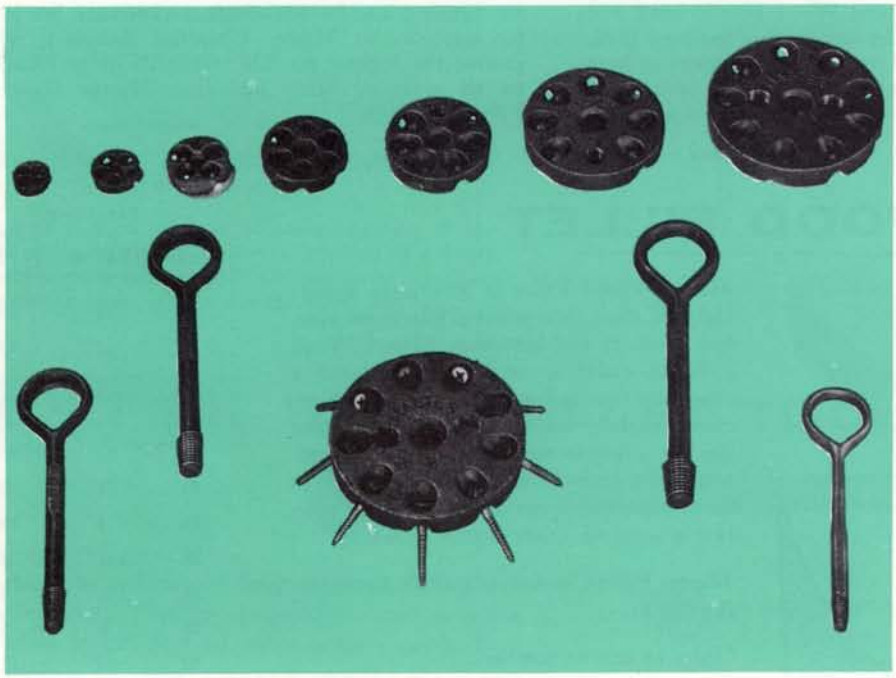
SPECIFICATIONS

Number	Size	Thickness	Screw Sizes	Lifting Screw Sizes
04	1 5/16" x 1/2"	3/16"	6	3/8"
03	1 5/16" x 1/2"	3/16"	6	—
02	2 3/16" x 3/4"	1/4"	8	3/8"
0	1" dia.	5/16"	6-8	3/8"
1	1 1/4" dia.	3/8"	6-8	3/8"
2	1 3/4" dia.	1/2"	12-14	3/8"
3	2 3/8" dia.	9/16"	12-14	1/2"
4	3" dia.	5/8"	14-16	1/2"
5	4" dia.	11/16"	14-16	5/8"
6	5" dia.	3/4"	14-16	3/4"

You'll produce a better quality of work—at reduced costs—by standardizing on MASTER Rapping Plates in your shop. They offer the following advantages:

1. They're easier to insert because of simplified design. The 1° taper on the side assures a tight driving fit.
2. Thicker, consequently they have greater contact surface on the wood for solid anchorage.
3. Diagonal screws give considerably more holding power than if screws were driven in straight. This diagonal direction also permits the use of longer screws in the same thickness of wood.
4. Longer life—cast from high-grade malleable iron.
5. Will eliminate, to a large degree, the present-day maintenance cost of Rapping Plates. If screws come loose through continued hammering, the old screws can be extracted, the Rapping Plate given an eighth of a turn, and all new screw holes will again anchor the plate as tight as it was originally.
6. 10 sizes—from No. 04 to No. 6 inclusive, in sizes 1 5/16" by 1/2" oblong to 5" diameter by 3/4" thick—to cover all Rapping Plate applications.

Available by the dozen or by the hundred.

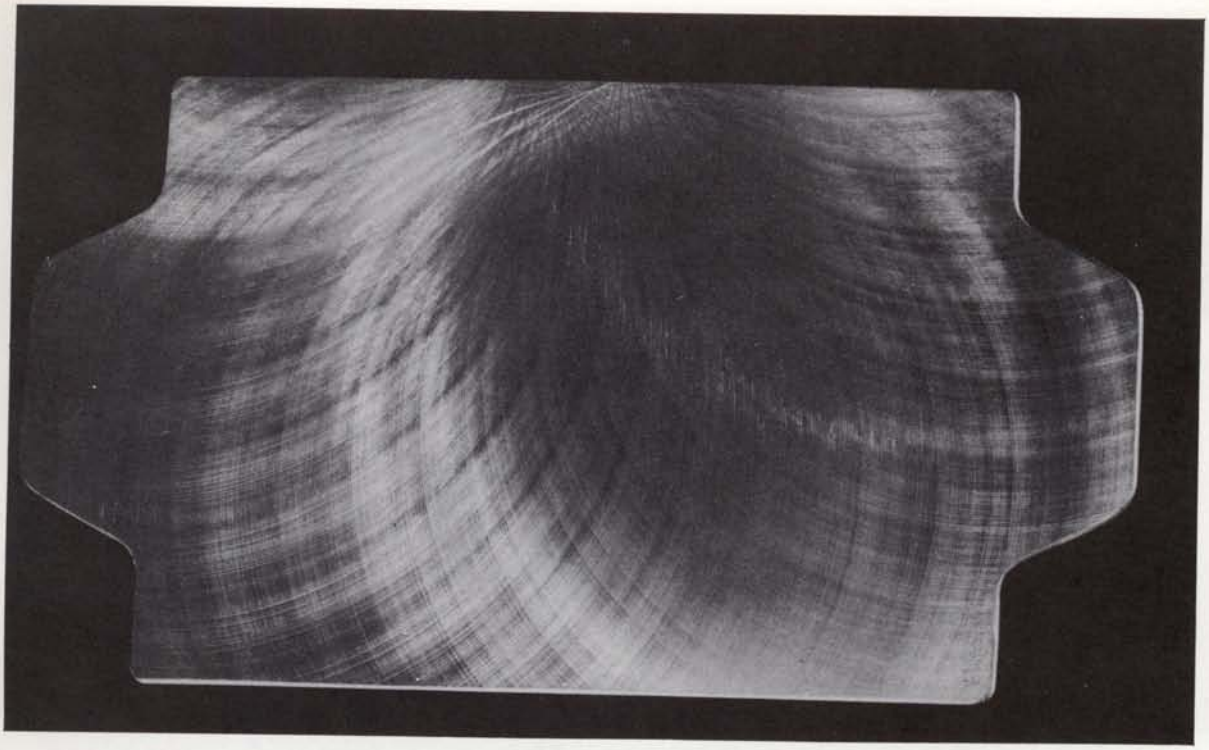


Sizes 0, 1, 2, 3, 4, 5 and 6 Master Rapping Plates are illustrated at the left. The various sizes of lifting Screws are also pictured.

Ask for full size detail blueprint covering all sizes of Master Rapping Plates and Lifting Screws.

KINDT-COLLINS MASTER PRODUCTS

MASTER FLAT ALUMINUM PLATE
CAST AND GROUND



- **The Standard of the Industry for Quality and Performance**

Master Cast and Ground Flat Aluminum Plates are available from stock in the following flask sizes in 1″ gradations:

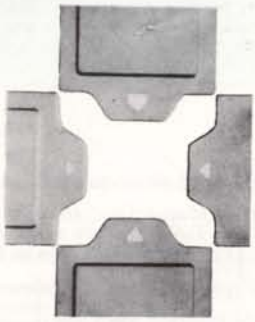
10″ x 10″ through 10″ x 30″
11″ x 11″ through 11″ x 30″
12″ x 12″ through 12″ x 30″
13″ x 13″ through 13″ x 30″
14″ x 14″ through 14″ x 30″
15″ x 15″ through 15″ x 30″
16″ x 16″ through 16″ x 30″
17″ x 17″ through 17″ x 30″
18″ x 18″ through 18″ x 30″
19″ x 19″ through 19″ x 30″
20″ x 20″ through 20″ x 30″
in 3/8″, 7/16″, 1/2″, 5/8″ and 3/4″ thicknesses

Sizes, shapes, thicknesses, etc., other than listed can be furnished to order. Available with cast holes for flask pins. See copy at right.

This is the standard line of MASTER matchplates, which has been made by Kindt-Collins for many years, and which has been proved for quality and high performance in every type of foundry service. The plates offer exceptional quality at low cost.

These special features incorporated into MASTER Cast and Ground Flat Aluminum Plates help reduce foundry costs:

1. Cast of special Aluminum Pattern Alloy. High tensile strength. Every plate is sound, strong, and accurate.
2. Accurately ground to .003″ plus or minus in thickness and parallel.
3. Satin finish with "invisible teeth" to prevent ram-offs.
4. Full 1″ margin all around to accommodate flask.
5. Standard 3″ ears permit fitting of any type guide and vibrator.
6. All corners and edges rounded for immediate, safe handling.
7. Plate is live and responds to vibrating.



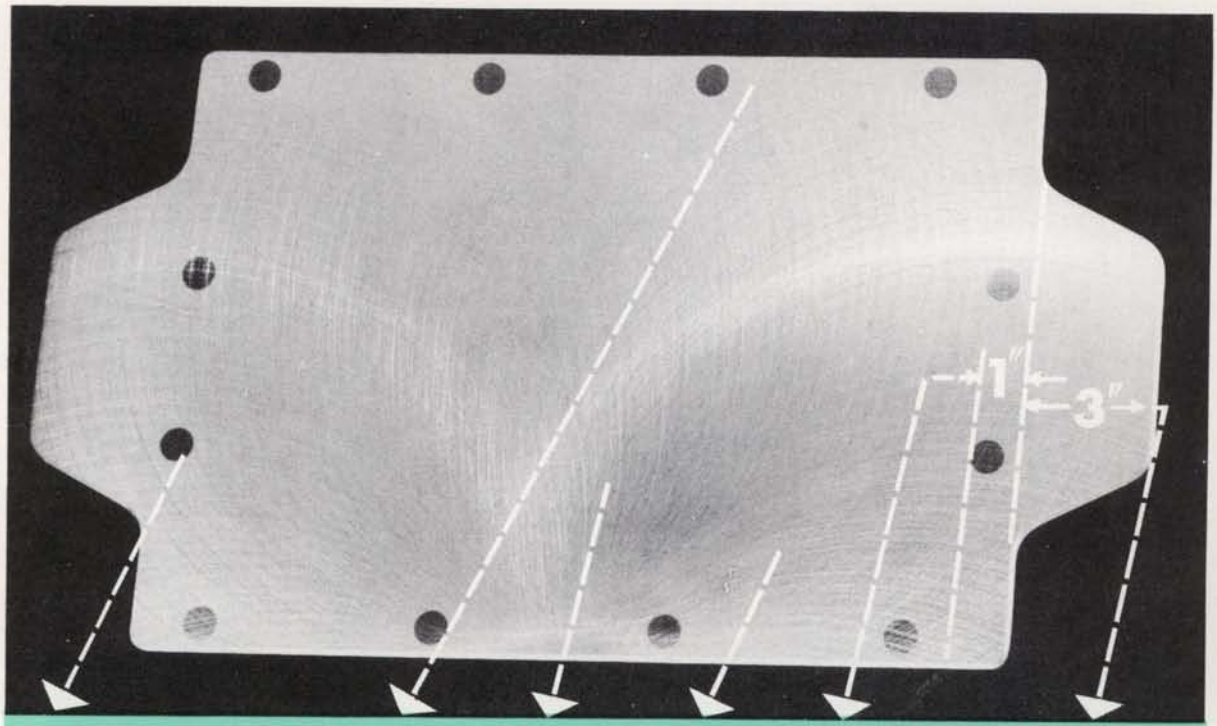
Cast Holes for Flask Pins

Convenient . . . Money-Saving
Available on All Types of Plates

Cast holes for flask pins, as shown above, can be cast in any type of the plates listed at a slight additional charge. Detailed specifications showing location and shape of holes are necessary when ordering. Please be sure to give us this required information.

MASTER TUFF-PLATE

THE GROUND PLATE WITH THE STEEL INSERTS



1 Tough knurled steel inserts cast integrally into the plate — reduce wear by flask to a minimum — greatly increase plate life.

2 Steel inserts are so placed as to effectively distribute and equalize wear at flask contact point.

3 Surface specially ground to prevent sand slippage.

4 Entire unit accurately ground to plus or minus .003".

5 One-inch allowance all around for flask strip.

6 Three-inch ears standard — to accommodate all types of flask-pin guides. Edges rounded for easy handling.

• The Finest Pattern Plate Available

Master Cast and Ground Flat Aluminum Tuff-Plates are available from stock in the following flask sizes in 1" gradations:

10" x 10" through 10" x 30"
11" x 11" through 11" x 30"
12" x 12" through 12" x 30"
13" x 13" through 13" x 30"
14" x 14" through 14" x 30"
15" x 15" through 15" x 30"
16" x 16" through 16" x 30"
17" x 17" through 17" x 30"
18" x 18" through 18" x 30"
19" x 19" through 19" x 30"
20" x 20" through 20" x 30"
in 3/8", 7/16", 1/2" thicknesses.

Sizes, shapes, thicknesses, etc., other than listed can be furnished to order. Available with cast holes for flask pins.

The most extreme plate requirements of the foundry industry . . . unusual toughness, flatness, and high tensile and torsional strength . . . are amply met in the special design and construction features of MASTER Cast and Ground Aluminum Tuff-Plates. Higher earning capacity per plate is assured to the foundryman through the use of this Kindt-Collins product.

Outstanding features of the Tuff-Plate are the knurled steel inserts cast in along the flask contact line. These are staggered in position to distribute wear on the flask and substantially increase plate life, reducing replacements and delays.

The special "Flat-Grind" finish on Tuff-Plates assures extreme flatness and prevention of sand slippage.

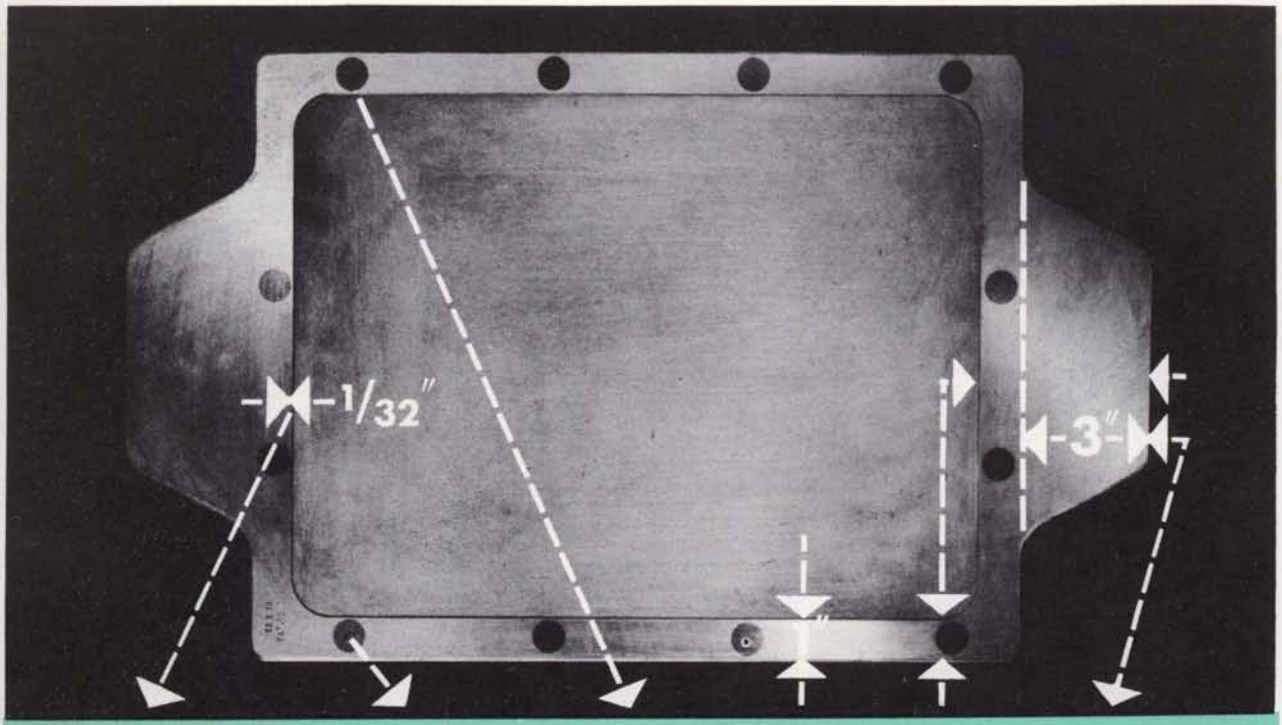
Note all the important MASTER Tuff-Plate advantages described above. Use these special features in your plant to secure greater efficiency, production, and accuracy, at a very nominal cost.

MASTER Tuff-Plates have been in constant use by many of the nation's leading foundries for over ten years. In this service they have earned their reputation as "The Finest Pattern Plate Available."

KINDT-COLLINS MASTER PRODUCTS

MASTER RECESSED PLATE

CAST AND GROUND ALUMINUM



1 Standard recessed depth is 1/32" with 1" edge all around. Recessed part has cast surface, while 1" edge on which flask rests is ground. Reverse side of plate is specially ground absolutely flat to prevent sand slippage and improve accuracy.

2 Tough knurled steel inserts along flask line are an integral part of the cast plate — they reduce wear by flask to a minimum—greatly increase plate life.

3 Steel inserts are so placed as to effectively distribute and equalize wear at flask contact points.

4 One-inch allowance all around for flask strip.

5 Ground surfaces on both sides of plate are accurately parallel to plus or minus .003" tolerance.

6 Three-inch ears standard—to accommodate all types of flask pin guides. Edges rounded for easy handling.

• A Specialized Plate for a Specialized Purpose

Master Cast and Ground Aluminum Recessed Plates are available from stock in the following flask sizes in 1" gradations:

10" x 10" through 10" x 30"
11" x 11" through 11" x 30"
12" x 12" through 12" x 30"
13" x 13" through 13" x 30"
14" x 14" through 14" x 30"
15" x 15" through 15" x 30"
16" x 16" through 16" x 30"
17" x 17" through 17" x 30"
18" x 18" through 18" x 30"
19" x 19" through 19" x 30"
20" x 20" through 20" x 30"
in 3/8", 7/16", 1/2" thicknesses.

Sizes, shapes, thicknesses, etc., other than listed can be furnished to order. Available with cast holes for flask pins.

This is another original Kindt-Collins development that helps the foundryman increase the quality and quantity of production.

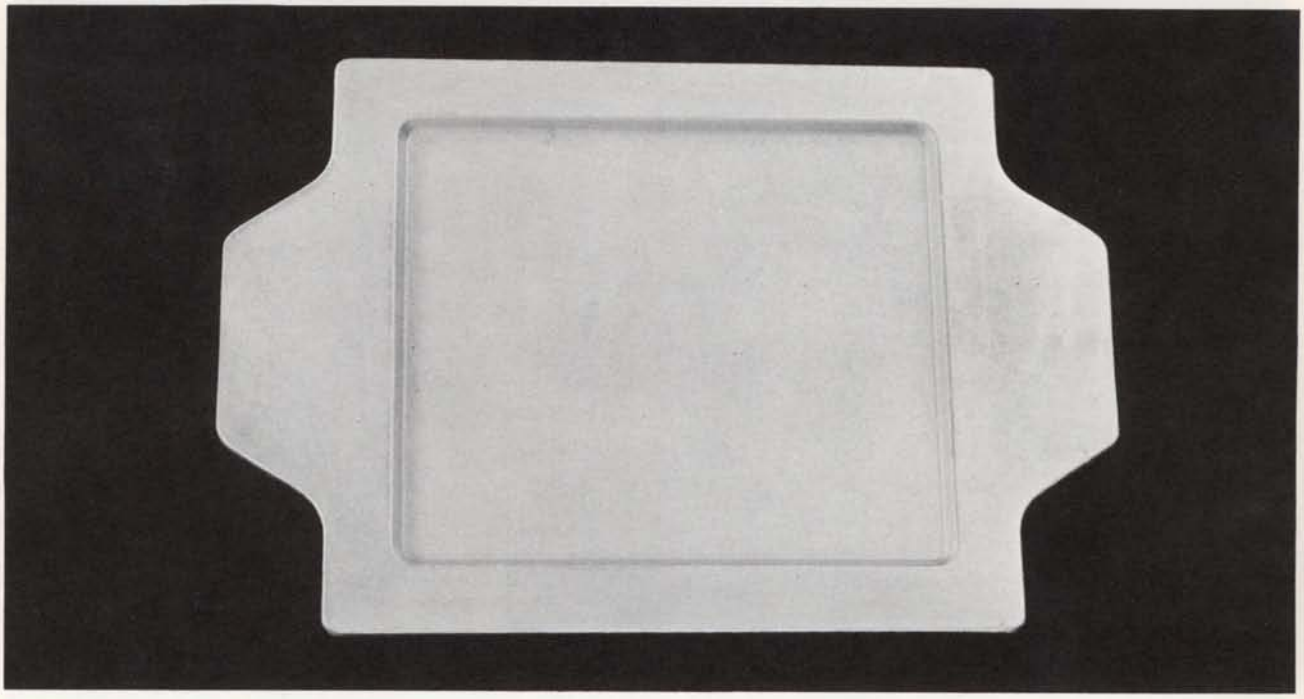
MASTER Recessed Cast and Ground Aluminum Plates are unique in design, having a cast recessed area 1/32" deep on one side of the plate beginning at the flask line. This permits the sand in the cope and drag halves of the flask to meet and form a perfect joint. Finning, with its necessary cleaning costs, and costly scrapping of imperfect casts, are practically eliminated. This plate also features cast-in steel inserts along the flask line to increase plate life.

A wide variety of manufacturers are using MASTER Recessed Plates to assure a steady, high production of precision castings with a minimum of waste and plate replacement. Increase your profit by cutting down on finishing room operations, with the aid of MASTER Recessed Cast and Ground Aluminum Plates in your foundry.

KINDT-COLLINS MASTER PRODUCTS

MASTER OFFSET PLATE

CAST ALUMINUM



Master Cast Aluminum Offset Plates are available from stock in the following flask sizes: 3/8", 7/16" and 1/2" thicknesses.

10 x 10	12 x 13	14 x 15
10 x 12	12 x 14	14 x 16
10 x 14	12 x 15	14 x 17
10 x 15	12 x 16	14 x 18
10 x 16	12 x 17	14 x 19
10 x 17	12 x 18	14 x 20
10 x 18	12 x 19	14 x 22
10 x 19	12 x 20	14 x 24
10 x 20	12 x 22	14 x 30
10 x 21	12 x 24	15 x 15
10 x 22	12 x 26	15 x 16
10 x 24	12 x 30	15 x 17
11 x 13	13 x 13	15 x 20
11 x 14	13 x 14	15 x 21
11 x 15	13 x 15	16 x 16
11 x 16	13 x 16	16 x 18
11 x 17	13 x 17	16 x 20
11 x 18	13 x 18	16 x 28
11 x 19	13 x 19	16 x 30
11 x 20	13 x 20	20 x 20
11 x 21	13 x 21	20 x 26
12 x 12	13 x 22	24 x 24
	14 x 14	

Sizes, shapes, thicknesses, etc., other than listed can be furnished to order.

• Eliminate Mold Shift

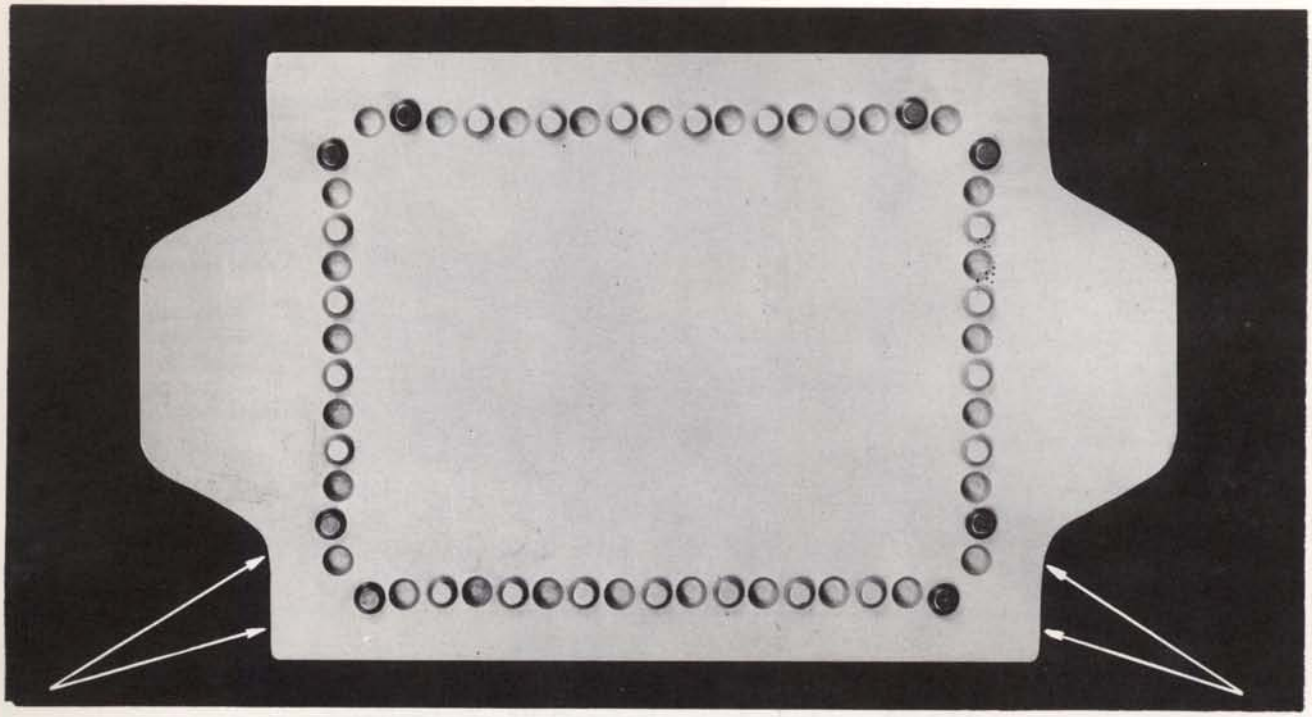
Designers worked with practical foundrymen and patternmakers to secure maximum strength and greatest pattern mounting space in these offset matchplates. The offset eliminates mold shift and tends to produce more accurate castings. MASTER Cast Aluminum Offset Plates are made from the same high-tensile alloy as are all MASTER Matchplates. All surfaces are cast. Standard height of the offset is 3/8" with a 30° taper, insuring rigidity for greater precision casting and allowing maximum mounting surface.

All corners are rounded with fillet to match the corners on the opposite side. The ears are of standard design.

While in some cases offset plates do aid in the elimination of mold shift, we direct your attention to our new Master Sure-Lock Plate as described on page 31 for a greatly improved method of eliminating this problem.

MASTER SURE-LOCK PLATE

LOCKS COPE AND DRAG MOLD IN ALL DIRECTIONS



NOTE: Special steel lock buttons on the cope side of the plate act as "safety bumpers" that prevent damage to aluminum buttons while positioning plate into flask.



NOTE: Special steel buttons protrude ⅛" beyond the aluminum buttons. Cut away view through lock buttons (left) illustrates hairline fit between cope and drag.

• Assures Highest Possible Accuracy in Casting

MASTER SURE-LOCK PLATES ARE AVAILABLE IN THE FOLLOWING SIZES:

Flask Size	Thickness
12" x 14"	½"
12" x 16"	½"
12" x 18"	½"
12" x 20"	½"
13" x 16"	½"
13" x 18"	½"
14" x 14"	½"
14" x 16"	½"
14" x 18"	½"
14" x 20"	½"

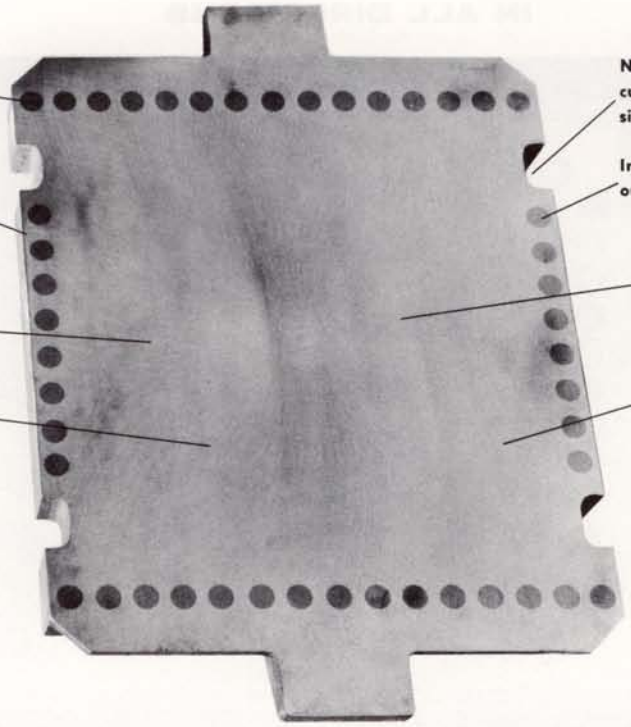
Special sizes and thicknesses available to order only.

The fool-proof button and socket principle incorporated in this advanced design locks cope and drag with no shift in any direction. It completely eliminates mold shift, with consequent loss of accuracy and resultant scrap.

The cast-in buttons around the entire plate, and the eight special steel buttons offset at each corner fit with non-shift snugness into the companion sockets in the drag. The hairline fit of these interlocked plates when placed in working position guarantees a high degree of accuracy in the castings.

Master Sure-Lock Pattern Plates are made from a special aluminum alloy, cast to a minimum tolerance. They are available in standard flask sizes, ½" thickness only. There is a 1" allowance all around the plate for the flask. Ears extend outward from plate 3".

MASTER TUFF-PLATE . . . . . .



Standard placement of steel inserts is approximately ¼" from edge.

Sizes listed hereon are standard flask sizes. Standard flask allowance is 1" all around. If otherwise desired please specify.

Standard plates are 2½" thick when finished.

Plates ground on top and bottom and are guaranteed to be straight and parallel.

If steel inserts are not wanted please specify.

Plate comes to you ready for mounting of pattern and flask pins.

Notches cast into plate to customer's order. Give dimension center to center.

Inserts will not loosen or come out for life of plate.

In event of long production jobs where plates are worn, all that is needed is to have plates reground.

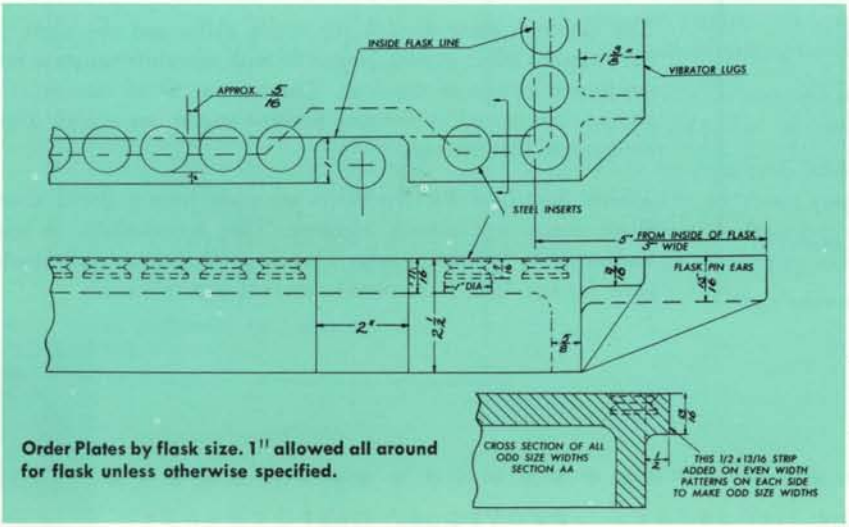
Maintenance less than any other aluminum plate.

Master Tuff-Plate Cope and Drag Match Plates are specially designed for your unusual heavy-duty requirements on jolt stripper or jolt rollover machines. They are available in (1) high grade cast aluminum alloy, with or without steel inserts, or machined to take steel wearing strip, (2) high grade cast iron, either plain or machined to take steel wearing strip. Both cast iron and aluminum plates are ground to close tolerances and are guaranteed flat and parallel.

Either type represents the ultimate in durability for your service requirements.

The Master Aluminum Tuff-Plate Cope and Drag Plates are cast of high grade alloy that is strong and wear resistant. Tough steel inserts are integrally cast in along the flask line, greatly reducing wear and increasing the life of the plate. These durable steel inserts also eliminate the necessity for the milling, drilling, countersinking and tapping operations required when steel strips are placed along the edges.

Order plates by flask size. Standard plates 1" allowed all around for flask unless otherwise specified. The price of plates other than those listed will be quoted upon receipt of your specifications.



Order Plates by flask size. 1" allowed all around for flask unless otherwise specified.

CAST IRON PLATES

MASTER Aluminum Alloy Tuff-Plate Cope and Drag Match Plates described here are also available in cast iron without inserts cast in, and with or without milled-out edge for wearing strips. Identical to Aluminum Alloy Plates as to ribbing and other details.

Write for prices on Cast Iron Plates, giving size requirements and depth of milled-out channel for wearing strip.

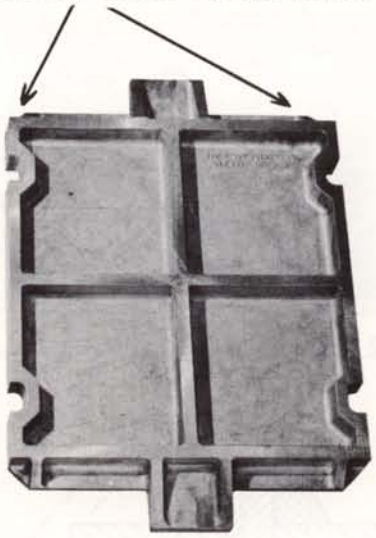
COPE AND DRAG MATCH PLATES

STANDARD RIBBING

These ribs are in addition to the outline ribbing

Sizes 14″ to 21″ wide up to 20″ long	1 rib lengthwise 1 rib crosswise
Sizes 14″ to 21″ wide up to 30″ long	1 rib lengthwise 2 ribs crosswise
Sizes 14″ to 21″ wide from 31″ to 40″ long	1 rib lengthwise 3 ribs crosswise
Sizes 22″ to 33″ wide from 21″ to 30″ long	2 ribs lengthwise 2 ribs crosswise
Sizes 22″ to 33″ wide from 31″ to 40″ long	2 ribs lengthwise 3 ribs crosswise

VIBRATOR LUGS BOTH ENDS



FLASK SIZES

Available in 1″ Gradations—length and width

14″ x 14″ through 14″ x 40″	21″ x 21″ through 21″ x 40″	28″ x 28″ through 28″ x 38″
15″ x 15″ through 15″ x 40″	22″ x 22″ through 22″ x 40″	29″ x 29″ through 29″ x 36″
16″ x 16″ through 16″ x 40″	23″ x 23″ through 23″ x 40″	30″ x 30″ through 30″ x 36″
17″ x 17″ through 17″ x 40″	24″ x 24″ through 24″ x 40″	31″ x 31″ through 31″ x 34″
18″ x 18″ through 18″ x 40″	25″ x 25″ through 25″ x 40″	32″ x 32″ through 32″ x 34″
19″ x 19″ through 19″ x 40″	26″ x 26″ through 26″ x 40″	33″ x 33″
20″ x 20″ through 20″ x 40″	27″ x 27″ through 27″ x 38″	

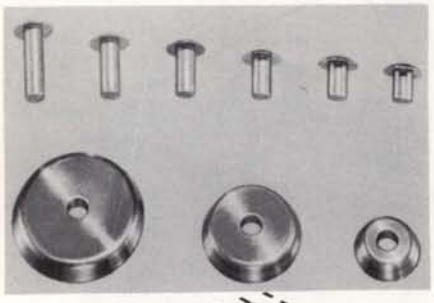
Sizes, shapes, thicknesses, other than listed, can be furnished to order.

SPECIAL PATTERN PLATES

As indicated in the previous several pages, we manufacture many types and sizes of pattern plates. However, if your requirements are not covered by the various plates described, we are qualified to manufacture special plates to your specific requirements. If you will send us a sketch or blueprint, we will be glad to send you our quotation.

MASTER COPE and DRAG LOCK BUTTONS

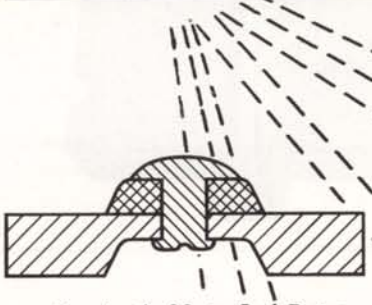
Eliminate Mold Shifts on New or Old Matchplates



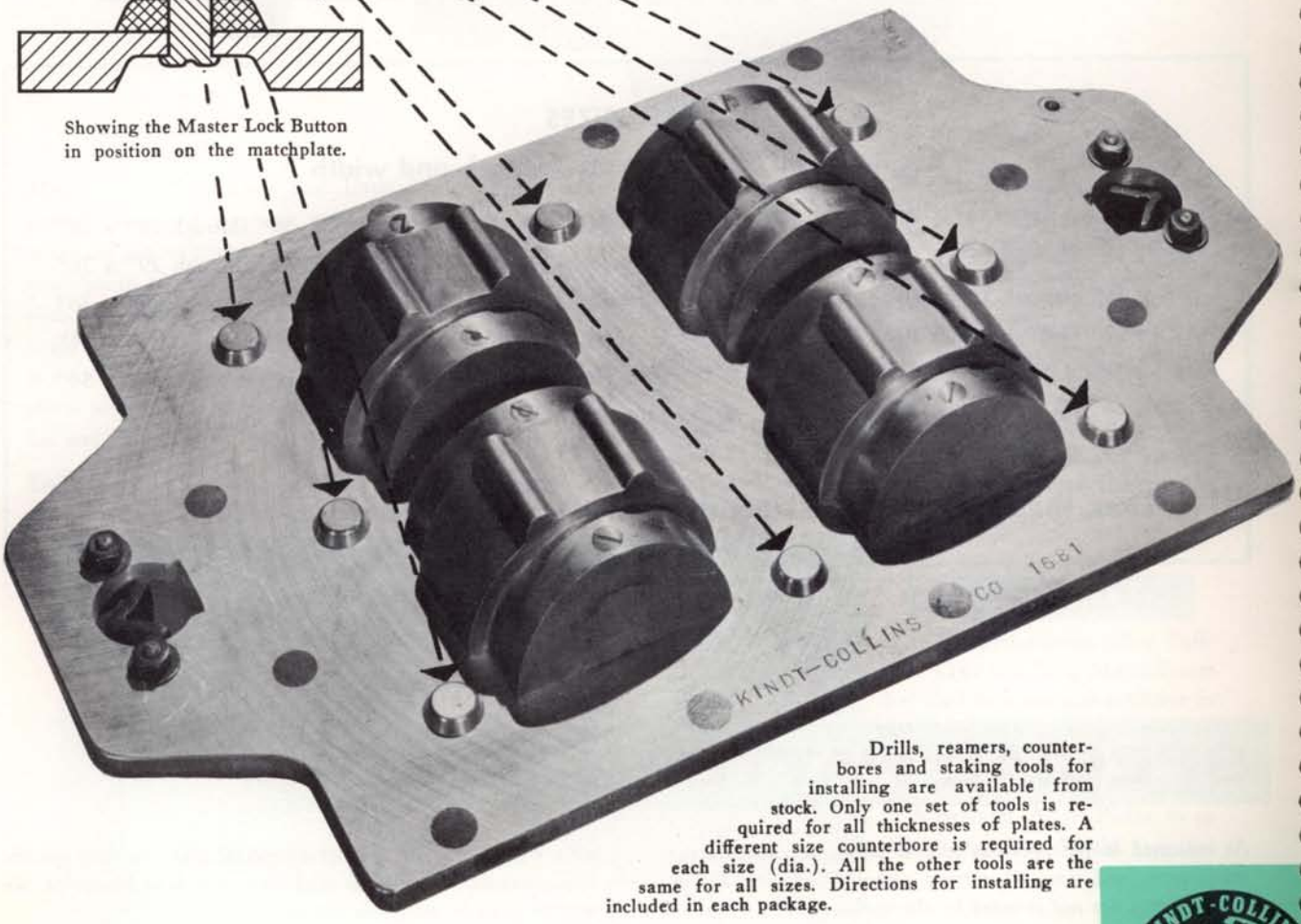
Master Cope and Drag Lock Buttons installed on old or new matchplates will definitely eliminate shifts in the mold. They line up the cope and drag perfectly, assuring maximum production and quality castings with a minimum of scrap. By eliminating shifts they also cut cleaning room costs. In addition, when properly used with Cast and Ground Flat Aluminum plates, they offer all the advantages of an offset plate plus greater accuracy and larger pattern area. Master Cope and Drag Lock Buttons are easily installed on either old or new matchplates by use of a drill, reamer, counterbore and staking tool. Master Cope and Drag Lock Buttons are made of solid aluminum, and are held in place by aluminum rivets.

They are available in three sizes: 1″, 1½″ and 2″ in overall diameter, by ¼″ thick. Rivets for matchplates of 3/8″, 7/16″, 1/2″, 5/8″, 3/4″ and 1″ thicknesses are available from stock. Sizes and thicknesses other than those listed are available to order. Specify quantity, size (dia.), thickness of plate and number of rivets required.

Standard packages consist of 100 buttons or 100 rivets.



Showing the Master Lock Button in position on the matchplate.



Drills, reamers, counterbores and staking tools for installing are available from stock. Only one set of tools is required for all thicknesses of plates. A different size counterbore is required for each size (dia.). All the other tools are the same for all sizes. Directions for installing are included in each package.

KINDT-COLLINS MASTER PRODUCTS

QUALITY PRODUCTS FOR INDUSTRY . . . PROVED BY PERFORMANCE

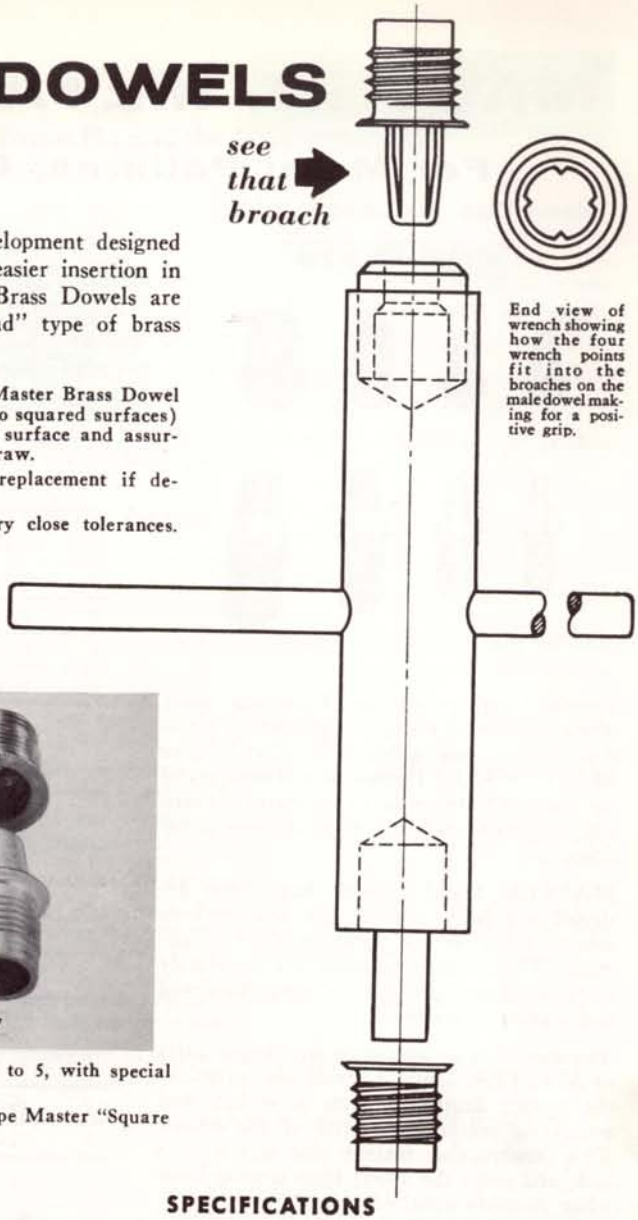
MASTER BRASS DOWELS

(Broach Type)

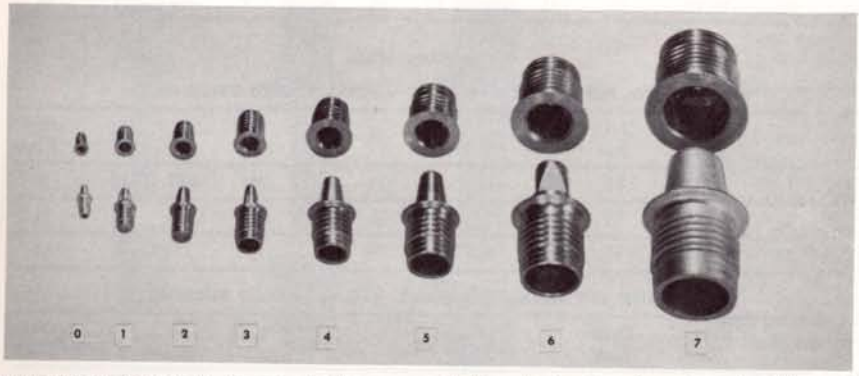
For Wood Patterns and Core Boxes

Master Brass Dowels (broach type) are an exclusive patented development designed to meet the patternmaker's need for stronger holding power and easier insertion in both hard and soft wood patterns. These new improved Master Brass Dowels are a substantial improvement over our original Master "Square Head" type of brass dowels. They offer the following advantages:

1. Do not twist off in hard wood. Insertion is made easier and more positive by the distinctive design of the broached head of the male part.
2. A tighter hold especially in soft woods is attained by special type threads.
3. The pin of the male Master Brass Dowel is completely round (no squared surfaces) offering more bearing surface and assuring a more accurate draw.
4. Easily removed for replacement if desired.
5. Precision-made to very close tolerances.



End view of wrench showing how the four wrench points fit into the broaches on the male dowel making for a positive grip.

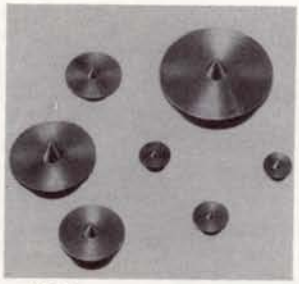


Master Brass Dowels in the new design are available only in sizes from 1 to 5, with special wrenches to fit each size. Sizes 0, 6 and 7 are available as previously.

Note: Master Brass Dowels (broach type) are identical in size with the old type Master "Square Head" Brass Dowels.

CENTERS FOR BRASS DOWELS

Used to locate the hole for the male half of the dowel. When it is not possible to bore holes through the pattern, the female socket half must be inserted first. The steel centers are then placed in the female sockets and by placing the cope half of the pattern or corebox over the drag half, the exact center of the pin part of the dowel



will be accurately located. Two centers of a size constitute a set.

SPECIFICATIONS

No.	Overall Length	Length of Male	Length of Male Pin	Length of Female	Dia. of Pin	Dia. of Flange of Male and Female	Bit Size
0	9/16"	15/32"	3/16"	9/32"	7/64"	13/64"	1/8"
1	11/16"	5/8"	9/32"	11/32"	5/32"	9/32"	3/16"
2	27/32"	49/64"	11/32"	27/64"	3/16"	21/64"	1/4"
3	1-1/32"	15/16"	27/64"	33/64"	13/64"	27/64"	5/16"
4	1-7/32"	1-9/64"	17/32"	39/64"	19/64"	39/64"	7/16"
5	1-7/16"	1-3/8"	21/32"	23/32"	13/32"	47/64"	9/16"
6	1-7/8"	1-47/64"	51/64"	15/16"	9/16"	1"	3/4"
7	2-3/8"	2-1/8"	15/16"	1-3/16"	13/16"	1-5/16"	1"

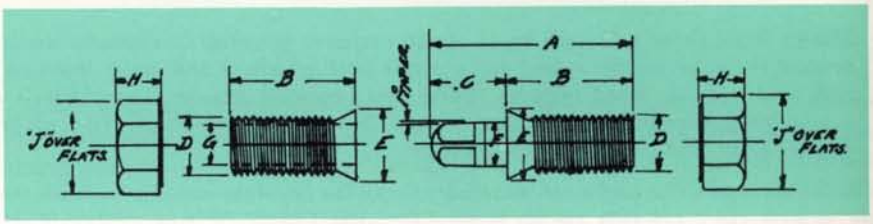
A complete dowel consists of one male and one female part. Individual male or female parts may be ordered as required. Standard packages are as follows:
Nos. 0, 1, 2 and 3 packed 100 complete dowels per box.
Nos. 4, 5 and 6 packed 50 complete dowels per box.
No. 7 packed 20 complete dowels per box.

MASTER METAL DOWELS (STEEL)

For Metal Patterns, Core Boxes and Driers

STANDARD SIZES





Sustained high production of precision work is the keynote of profit in the modern foundry. Heavy responsibility is placed upon MASTER Metal Dowels, which must stand up under continuous use in the metal patterns and coreboxes used in high-production foundries.

MASTER Metal Dowels have been designed and built to meet this need, and to deliver extra service under extreme conditions. These quality dowels are accurately machined from special alloy steel, *hardened* and *treated* to prevent rust.

The shoulders on both male and female parts of MASTER Metal Dowels are turned to the proper degree to form a wedge, and accurately center both parts of the dowel. This construction feature also serves as a lock, and keeps the dowel from coming loose when properly installed.

Special design and efficient operation assure a minimum of maintenance cost and unnecessary delays in the foundry if MASTER Metal Dowels are used. MASTER Metal Dowels are easy to replace when worn.

MASTER Metal Dowels are available in a variety of sizes, including long bodies as well as long pins. See table at right.

Standard packages consist of 50 complete dowels (male and female). Individual parts may be ordered separately if desired.

NOTE: MASTER Metal Dowels and MASTER Sure-Lock Dowels are identical in size.

STANDARD SIZES

STD. PIN — STD. BUSHING

NO.	Thread Size	Drill Size	A	B	C	D	E	F	G	H	J Over Flats
1	3/8-24	19/64	1 1/4	33/32	17/32	3/8	1/2	.249	.252	13/64	5/16"
2	7/16-20	11/32	1 11/32	33/32	5/8	7/16	9/16	.310	.313	1/4	5/8"
3	1/2-20	13/32	1 1/2	1 1/8	1 1/16	1/2	5/8	.373	.376	5/16	3/4"
4	5/8-18	17/32	1 13/32	1 3/16	33/32	5/8	3/4	.497	.500	3/8	15/16"

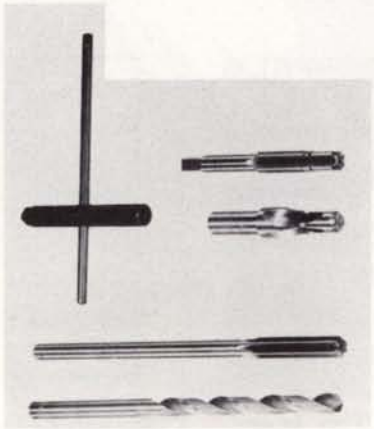
SPECIAL SIZES

STD. PIN WITH LONG BODY — LONG BODIED BUSHING

NO.	Thread Size	Drill Size	A	B	C	D	E	F	G	H	J Over Flats
1	3/8-24	19/64	1 17/32	1	17/32	3/8	1/2	.249	.252	13/64	5/16"
2	7/16-20	11/32	1 5/8	1	5/8	7/16	9/16	.310	.313	1/4	5/8"
3	1/2-20	13/32	1 11/16	1	1/16	1/2	5/8	.373	.376	5/16	3/4"

LONG PIN WITH LONG BODY — LONG BODIED BUSHING

NO.	Thread Size	Drill Size	A	B	C	D	E	F	G	H	J Over Flats
1	3/8-24	19/64	2 1/4	1	1 1/4	3/8	1/2	.249	.252	13/64	5/16"
2	7/16-20	11/32	2 1/4	1	1 1/4	7/16	9/16	.310	.313	1/4	5/8"
3	1/2-20	13/32	2 1/4	1	1 1/4	1/2	5/8	.373	.376	5/16	3/4"



Tools for Inserting Master Metal Dowels (Shown at left)

Master Metal Dowels are quickly and easily inserted by using the following tools: Drill, Reamer, Counterbore, Tap and Wrench. A special combination Reamer and Counterbore is also available.

Order tools by size and specify whether you require the individual Reamer and individual Counterbore (2 separate tools) or the combination Reamer and Counterbore (1 tool).

Nuts to fit the various sizes of Dowels to assure permanent tightness are available.

MASTER SURE-LOCK DOWELS

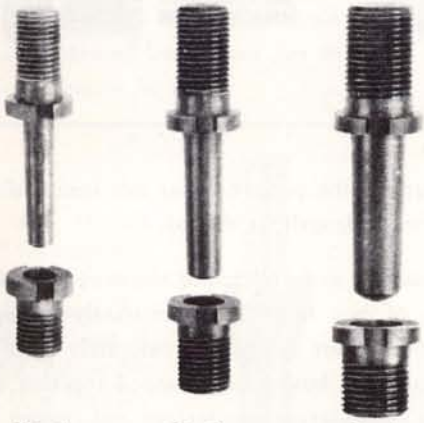
The Steel Dowel with the Round Pin and the Square Shoulder

STANDARD SIZES



No. 1 No. 2 No. 3 No. 4

SPECIAL SIZES



No. 2 No. 3 No. 4

Patent No. 2,451,747

FOR METAL PATTERNS, COREBOXES AND DRIERS

When first introduced to the patternmaking industry several years ago, these dowels offered several meritorious innovations (see special features below). Since that time, Sure-Lock Dowels have proved their worth in thousands of pattern shops and foundries all over the country.

NOTE: Sizes of Sure-Lock Dowels are exactly the same as Master Metal Dowels.

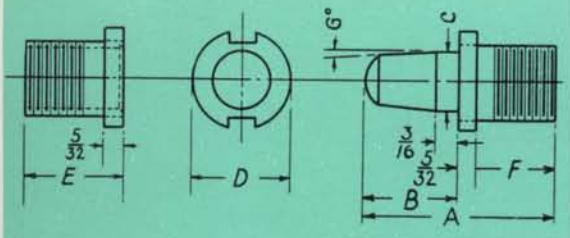
SPECIAL FEATURES:

1. Inserted easily, quickly and accurately.
2. Taper fit of body and square shoulder keep dowel anchored tightly.
3. Replacements and consequent loss of time drastically reduced.
4. Longer, more accurate draw. Head of male part entirely round for maximum bearing surface.
5. New type wrench of hardened steel permits firm tightening of dowels. No stripping of dowel.
6. Dowels accurately machined from special steel, hardened and treated to prevent rust.
7. A variety of sizes to suit every need are available. (See table.) The long bodies of the special sizes can be fitted with nuts for permanent installation. The special sizes are inserted with standard wrenches.
8. Master Sure-Lock Dowels are quickly and easily inserted by using the following tools: Drill, Reamer, Counterbore, Tap and Wrench. Please order the tools by size.
9. Nuts to fit various sizes of Master Sure-Lock Dowels to assure tightness are available.

Standard packages consist of 50 complete dowels (male and female).

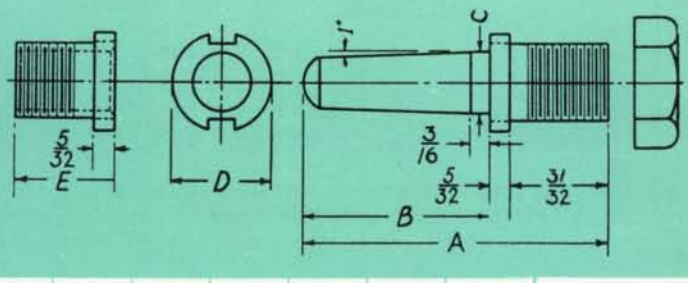
Individual parts may be ordered separately if desired.

STANDARD SIZES



No.	A	B	C	D	E	F	G	Thread
1	1 1/4"	17/32"	1/4"	9/16"	23/32"	9/16"	4°	3/8-24
2	1 11/32"	5/8"	5/16"	5/8"	21/32"	9/16"	2 1/2°	7/16-20
3	1 1/2"	11/16"	3/8"	11/16"	13/16"	21/32"	2 1/2°	1/2-20
4	1 19/32"	25/32"	1/2"	13/16"	13/16"	21/32"	4°	5/8-18

SPECIAL SIZES (Pins Only—Standard Females Used)



No.	A	B	C	D	E	Thread
1	2 1/32"	1 1/16"	1/4"	9/16"	21/32"	3/8-24
2	2 7/32"	1 1/4"	5/16"	5/8"	23/32"	7/16-20
3	2 1/2"	1 3/8"	3/8"	11/16"	13/16"	1/2-20
4	2 11/16"	13/16"	1/2"	13/16"	13/16"	5/8-18

KINDT-COLLINS MASTER PRODUCTS

MASTER PRECISION DOWELS

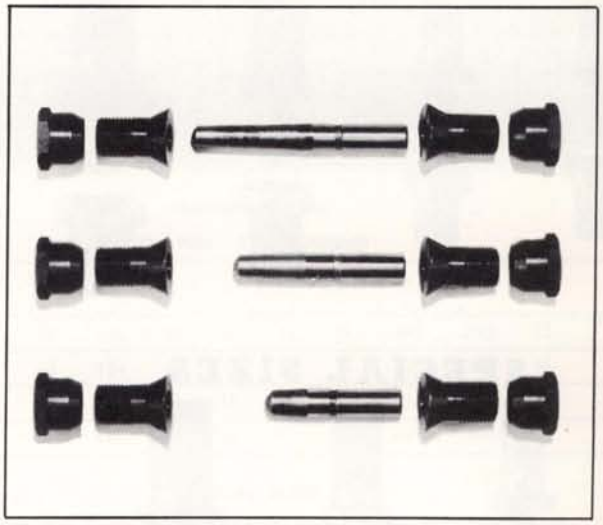
For Metal Patterns, Core Boxes and Driers Where Extra Precision is Required

MASTER Precision Dowels are designed for the metal patternmakers who require closer tolerances between the cope and drag halves of the core box than can be obtained with ordinary dowels. They consist of a bushing, collet and pin ground (not machined) to close tolerances of concentricity. Both bushing and collet have tapered flanges and are held in position with a tapered nut which will hold them permanently positioned. They will not come loose under the most severe conditions. The nut is so designed that the dowel can be adapted to various thicknesses of flanges or ears.

The special type friction collet offers a unique advantage especially on blow boxes. The pin and collet assembly are designed so that it takes approximately 80 lbs. pressure to slide the pin through the collet. Thus when the pin and the bushing (female) are not in register the pin will be pushed back, preventing the ears of the core box from breaking.

The complete assembly is made of special steel and the bushing and pins are hardened and ground to very close tolerances. The part of the pin protruding above the collet is ground straight for 5/16" and the taper beyond that is 1° on the side.

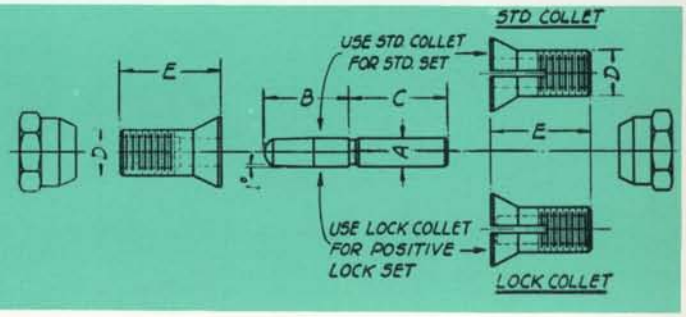
These dowels are available in two sizes (see chart) and there are three lengths of pins for each size of dowel.



With this variety the patternmaker can install a pin that is the correct length for the job.

To install bushing and collet into the core box after both halves of box have been accurately clamped together, the holes are drilled approximately 1/32 of an inch undersize. The box is left clamped together and after using a combination counterbore and reamer the holes definitely will be in line. The tapered recesses are then machined to accommodate both the top and the back side of the dowel as well as the tapered nut.

Type	DIMENSIONS				
	A	B	C	D	E
No. 1	1/4"	3/4" Std.	7/8"	7/16-20" Pitch	29/32"
	1/4"	1 1/8" Long	7/8"	7/16-20" Pitch	29/32"
	1/4"	1 3/4" Ext. Long	7/8"	7/16-20" Pitch	29/32"
No. 2	3/8"	7/8" Std.	1"	9/16-18" Pitch	1"
	3/8"	1 3/8" Long	1"	9/16-18" Pitch	1"
	3/8"	2" Ext. Long	1"	9/16-18" Pitch	1"



Master Precision Dowels are sold individually and consist of a complete dowel (male and female parts and nuts for each). When ordering be sure to specify the number of the dowel as well as the length of the pin (standard, long or extra long). Separate parts may be ordered as desired. A combination counterbore and reamer is the only special tool required for insertion.

MASTER ADJUSTABLE DOWELS

FOR METAL PATTERNS, COREBOXES AND DRIERS

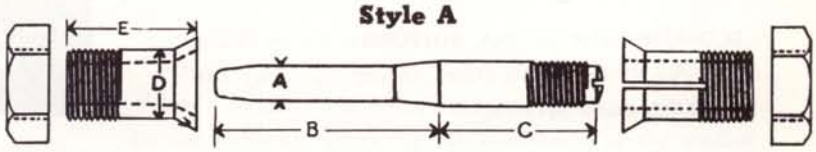
Ground to Fit — Adjustable to Compensate for Wear

A specialized dowel for use where a long pin and perfect bearing are required. These dowels will hold in aluminum even tighter than bushings cast in the metal. The pins of Master Adjustable Dowels are *cyanide hardened and then ground* to very close tolerances of concentricity and fit.



Quality materials, precision manufacture and engineered design enable these dowels to outwear the pattern or corebox, and afford perfect bearing as long as they are used. The pin can be cut to any desired length, *and can be adjusted to compensate for wear.*

Style A



Style A MASTER Adjustable Dowels with the offset taper are made in three sizes. The pins in this style are tapered 7½° on a side for a short distance, enough to give them a good, durable bearing. Beyond this taper the pin is straight with about ten thousandths clearance. The taper of the pin fits exactly into a corresponding taper in the bushings. See table at right:

NO.	A	B	C	D	E
1	¼"	1⅞"	1⅞"	9/16"	1"
2	⅜"	2 3/16"	1 7/16"	¾"	1¼"
3	½"	2 11/16"	1 9/16"	⅞"	1⅜"

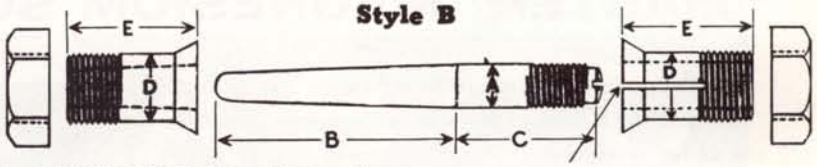
A complete Dowel consists of a pin, collet, bushing and two nuts.

Sold in any quantity required. Separate parts available as required.

The combination counterbore and reamer shown at the right machines the hole to exact size, and is used for both styles A and B MASTER Adjustable Dowels. It is the only special tool required for insertion.



Style B

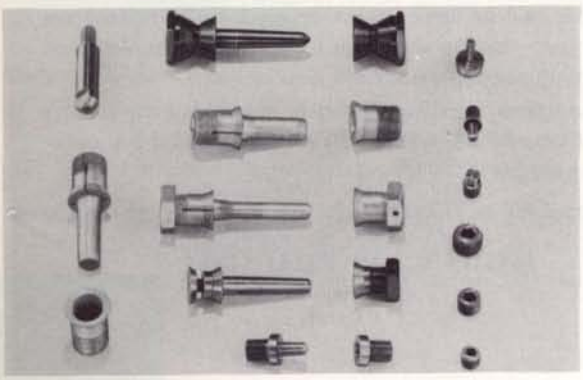


The Style B MASTER Adjustable Dowels feature a pin with a straight taper for the entire length. The degree of taper is 1½° with the taper of the pin fitting exactly a corresponding taper in the bushing. Exclusive of this difference, both styles A and B are exactly alike. The Style B is available in four sizes shown at right:

NO.	A	B	C	D	E
0	¼"	1 31/32"	1 1/32"	7/16"	29/32"
1	⅜"	2⅜"	1⅛"	9/16"	1"
2	½"	2 9/16"	1 7/16"	¾"	1¼"
3	⅝"	2 13/16"	1 9/16"	⅞"	1⅜"

A complete dowel consists of a pin, collet, bushing and two nuts.
Sold in any quantity required. Separate parts available as required.

MASTER SPECIAL DOWELS



For Special Jobs

Our many years of experience in designing and producing dowels for the pattern and foundry industry is at your service.

Note illustration of some of the types of dowels that we have designed and produced to meet special conditions. Dowels are a specialty with us.

Consult us if you have a dowel problem. We can help you.

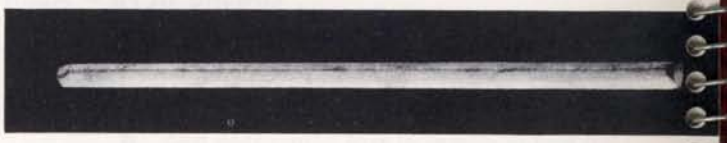
KINDT-COLLINS MASTER PRODUCTS

MASTER ALUMINUM SOLDER

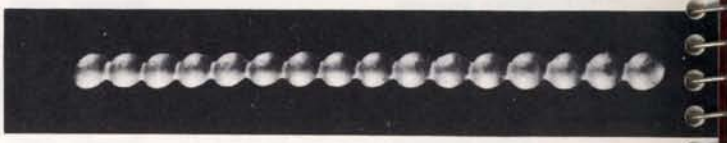
A Truly Fine Aluminum Solder

TRIANGULAR BAR (⅜" EACH SIDE): MASTER Aluminum Solder is a scientifically prepared product. The time-proven formula, as well as the method of manufacture, makes it outstanding. Thorough, scientific mixing makes this solder absolutely uniform throughout each bar, as well as throughout different mixings.

Master Aluminum Solder has unusually strong adhesive qualities. It works easily and readily incorporates with aluminum castings. Highly recommended for all aluminum soldering.



ECONOMY BAR (¾" DIA. BUTTONS): Master Aluminum Solder is also furnished in the "economy bar" which has many advantages.



Heat does not travel so rapidly through this new type bar. The solder to be used is heated more rapidly and with a great deal less oxidation. It follows naturally that the soldering done is stronger and will last longer.

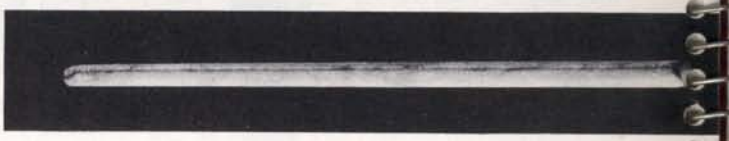
The small buttons are broken off only as required, which practically eliminates waste solder. These buttons are easily and quickly "tinned" over the part to be soldered, saving a great deal of time.

Available by the pound

MASTER MAGNESIUM SOLDER

A high quality solder ideally suited for use on magnesium. It is easy to use and holds tightly. Available in ⅜" triangular bar form as pictured.

Available by the pound.



MASTER BILD-UP METAL (Cold Solder)

Convenient — Easy To Use — Permanent



A synthetic metal alloy in putty form for repairing defects in metal. Will adhere to any clean, dry surface. Particularly adaptable for metal patterns.

Master Bild-Up Metal is highly recommended for the repairing of metal defects where heat or flame cannot be applied. Guaranteed not to crack, check or peel—merely apply and let dry. Grind it, file it and sand it—it's ready to take any paint finish.

Metal finishing and metal working industries throughout the country are finding that Master Bild-Up Metal is convenient, useful and exceptionally effective.

Available as follows:

MASTER BILD-UP METAL
¼ Pint (6 oz. net)
1 Pint (1½ lbs. net)

MASTER BILD-UP METAL SOLVENT
1 Pint
1 Quart

KINDT-COLLINS MASTER PRODUCTS

MASTER PATTERN LETTERS AND FIGURES

WHITE METAL BRASS ALUMINUM

The Kindt-Collins Company has been manufacturing quality pattern letters and figures since its founding some forty years ago. We have made a specialty of letters and figures for the pattern shop and foundry. In the pattern shop and foundry our letters and figures are used for identifying the manufacturer, for serial numbers, part numbers, batch numbers, dates, etc.

However, in addition to the above uses and because of their quality, our Master Pattern Letters and Figures are used for many other purposes including the following:

- Tablets
- Memorial Plaques
- Signs
- Curb Markers
- For Marking X-Ray Film
- For Titling Movie Film
- Identification Markers for Buildings, Historical Sites, etc.
- For Advertising Purposes
- Street Signs
- Grave Markers
- Desk Plates
- Door Markers

This is only a partial list of the many ways that Master Pattern Letters and Figures can be used.

Master Pattern Letters and Figures are available in a variety of styles (24) and in sizes ranging from 3/32″ to 4″ in height. See following pages for details.

They are available also in a variety of metals including White Metal, Brass, and Aluminum. Refer to the tables on the following pages for the availability of the various sizes, styles and metals.

Master Pattern Letters and Figures are all well manufactured and clean to produce a high quality casting or to add to the decorative effect. The quality of our letters is unsurpassed.



TO ORDER MASTER PATTERN LETTERS AND FIGURES

When ordering Master Pattern Letters and Figures please include the following information:

Size This is the height of the letter. See the charts on the following pages as to how the various styles of letters are measured. Some letters are measured center to center on the face — others overall on the face.

Style Select and indicate the style required. The various styles are pictured on the following pages. Some styles adapt themselves for one purpose, others are more suitable for different purposes.

Quantity This information is also important. In ordering commas, periods, dashes, etc., it is best to spell out your requirements. Do not include dashes, commas, periods to separate the letters required unless they are part of your requirements.

Metal Please specify whether letters are to be of White Metal, Brass or Aluminum.

Letters with Sprigs, Plain Back or Drilled Please indicate whether letters are to have sprigs, plain back, or are to be drilled for attaching with brads. In the absence of this information plain back letters are supplied.

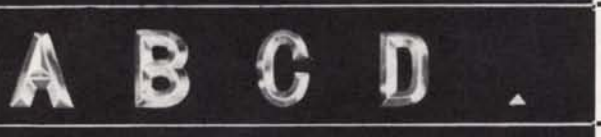
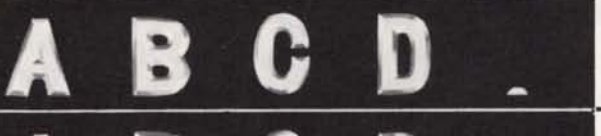
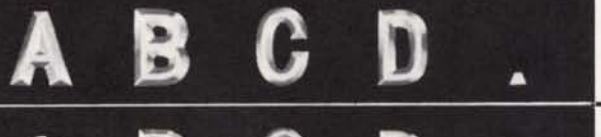
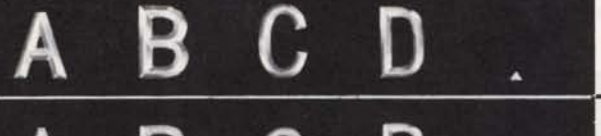
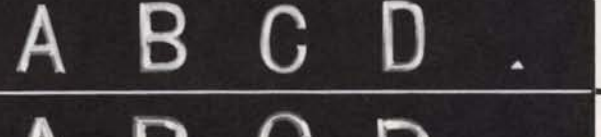
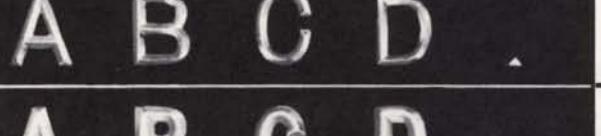
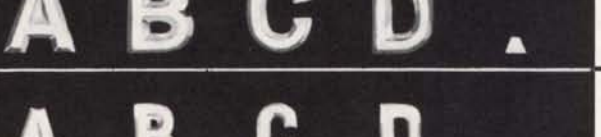
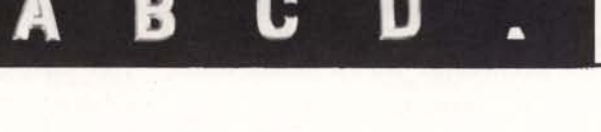
Where possible and where doubt exists submit a sample of the letters required. This will insure positive identification.

• • • •

Specially designed letters and figures for any purpose can be produced or designed. We welcome your inquiries.

MASTER PATTERN LETTERS . . . FIGURES

Availability • Sizes

STYLE	METAL	ILLUSTRATION	CROSS SECTION	MEASURED AS LETTER
SHARP FACE GOTHIC WITH SPRIGS	ALUM. ONLY			CENTER TO CENTER
SHARP FACE GOTHIC	W. M. BRASS			CENTER TO CENTER
SHARP FACE GOTHIC (REVERSE)	W. M. BRASS			CENTER TO CENTER
FLAT FACE GOTHIC No. 1	W. M. BRASS			CENTER TO CENTER
FLAT FACE GOTHIC No. 2	W. M. BRASS			CENTER TO CENTER
HAIR LINE GOTHIC (REGULAR)	W. M. BRASS			CENTER TO CENTER
HAIR LINE GOTHIC (LIGHT)	W. M. BRASS			CENTER TO CENTER
HAIR LINE GOTHIC (HEAVY)	W. M. BRASS			CENTER TO CENTER
DORIC HALF ROUND	W. M. BRASS			CENTER TO CENTER
ROUND FACE GOTHIC	W. M. BRASS			CENTER TO CENTER
DEEP BLOCK GOTHIC (REGULAR)	W. M. BRASS			CENTER TO CENTER
DEEP BLOCK GOTHIC (CONDENSED)	W. M. BRASS			OVERALL ON FACE

NOTE: All of the above letters are available in aluminum which has been especially made to order for pattern letter work.

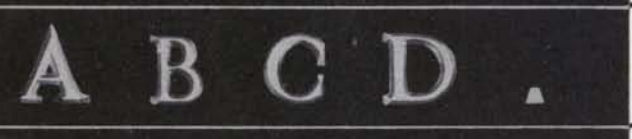
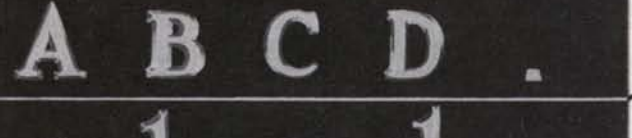
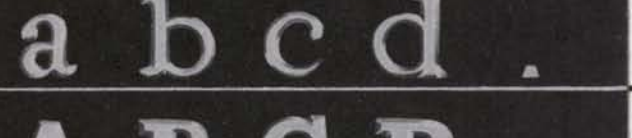
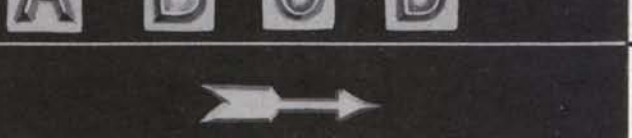
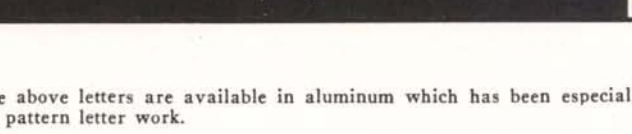
QUALITY PRODUCTS FOR INDUSTRY . . . PROVED BY PERFORMANCE

WHITE METAL . . . BRASS . . . ALUMINUM

Styles • Specifications

AVAILABLE SIZES

SIZE		3/32	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/2	4	GENERAL USE
WIDTH			1/16	3/32	1/8	5/32	3/16		1/4	3/8	7/16	1/2	9/16	11/16	7/8	1 1/16	1 15/16		1 9/16		1 3/4			These letters are in the Sharp Face Gothic style (the face of the letters is pictured under Sharp Face Gothic). However they have sprigs on the back (see picture) for securely attaching to wood patterns.
THICKNESS			1/32	3/64	3/64	1/16	5/64		3/32	7/64	1/8	9/64	11/64	3/16	7/32	15/64	1/4		5/16		3/8			
WIDTH			1/16	3/32	1/8	5/32	3/16	15/64	1/4	3/8	7/16	1/2	9/16	11/16	7/8	1 1/16	1 15/16	1 1/2	1 9/16		1 3/4			This is the most popular style of pattern letter —a simple, neat design that draws cleanly— recommended for most average work.
THICKNESS			1/32	3/64	3/64	1/16	5/64	5/64	3/32	7/64	1/8	9/64	11/64	3/16	7/32	15/64	1/4	9/32	5/16		3/8			
WIDTH				3/32	1/8	3/16	3/16	7/32	1/4	3/8	7/16		9/16	3/4	7/8	1 1/16	1 5/16		1 1/2		1 3/4			Same as above except letters are reversed for special applications. This is the only style of letter available in reverse.
THICKNESS				3/64	1/16	5/64	3/32	3/32	3/32	1/8	1/8		11/64	3/16	7/32	15/64	17/64		21/64		3/8			
WIDTH			1/16	3/32	1/8	5/32	3/16	15/64	1/4	3/8	7/16	1/2	9/16	11/16	7/8	1 1/16	1 15/16	1 1/2	1 9/16		1 3/4			This style of letter is similar in every respect to Sharp Face Gothic except that the face is flat. The face of the No. 1 is flatter and broader than the No. 2. Letters tend to be very legible because of flat face.
THICKNESS			1/32	1/32	1/32	3/64	3/64		1/16	1/16	1/16	5/64	5/64	3/32	7/64	1/8	1/8							
WIDTH			1/16	3/32	1/8	5/32	3/16	15/64	1/4	3/8	7/16	1/2	9/16	11/16	7/8	1 1/16	1 15/16	1 1/2	1 9/16		1 3/4			Similar to the above except that face letter is less broad. This style tends to be more popular than the No. 1 Flat Face Gothic.
THICKNESS					1/32	1/16	5/64	5/64	5/64	3/32	3/32	1/8	1/8	9/64	5/32	5/32	3/16	3/16	7/32		7/32		9/32	
WIDTH			1/16	3/32	1/8	3/16	3/16		17/64	3/8	7/16		9/16											Similar to Sharp Gothic except that letters are finer, thinner and tend to cast more legibly particularly in small sizes. Recommended for small work.
THICKNESS			.024	.028	.034	.040	.047		.059	.070	.073		.101											
WIDTH			1/16	3/32	1/8	3/16	3/16		17/64	3/8	7/16		9/16											Same as above except that letters are somewhat finer and lighter.
THICKNESS			.027	.024	.037	.042	.047	.062	.055	.063	.068													
WIDTH		1/16	5/64	1/8	5/32	3/16	1/4		11/32	7/16	7/16	1/2	9/16	3/4	7/8									Same as Hair Line Gothic (regular) except letters are somewhat heavier and thicker.
THICKNESS		.031	.037	.040	.050	.053	.053		.068	.085	.095	.100	.110	.130	.140									
WIDTH					1/8			9/32	3/8	11/32	9/16		5/8	3/4	1"									These letters are of simple design with a curved (half round) face.
THICKNESS					3/64			5/64	3/32	3/32	7/64		1/8	9/64	11/64									
WIDTH					5/32		1/4		1/4	3/8	1/2		5/8	3/4	1"	1 1/8	1 5/16		1 9/16		1 1/16	2 1/8	2 1/2	Same as above except letters tend to be of heavier design.
THICKNESS					5/64		3/32		7/64	1/8	9/64		11/64	13/64	15/64	9/32	19/64		11/32		3/8	27/64	7/16	
WIDTH					7/32		9/32	9/32	11/32	3/8	1/2	9/16	9/16	3/4	7/8		1 1/8	1 1/4	1 1/4		1 5/8		2 1/4	A simple square type heavy faced letter ideally suited for name plates or identification marks, particularly in the larger sizes.
THICKNESS					7/64		7/64	7/64	1/8	9/64	5/32	11/64	11/64	3/16	7/32		1/4	9/32	19/64		5/16		23/64	
WIDTH					7/32		1/4		3/8	3/8	7/16		9/16	11/16		7/8	1 1/8				1 5/8			Similar but not as wide or as heavy as Deep Block Gothic (regular). Neat clean modern design.
THICKNESS					3/32		3/32		3/32	3/32	3/32		3/32	7/64		5/32	11/64				3/16			

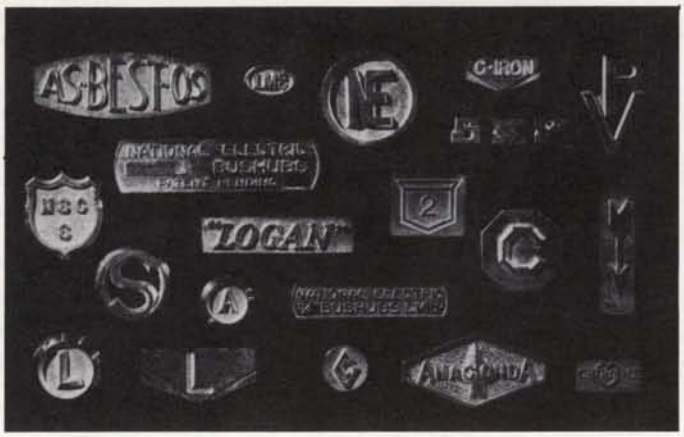
STYLE	METAL	ILLUSTRATION	CROSS SECTION	MEASURED AS LETTER
DEEP BLOCK GOTHIC (EXTENDED)	W. M. BRASS			 OVERALL ON FACE
CLASSIC TABLET (CAPITALS)	ALUM.			 OVERALL ON FACE
CLASSIC TABLET (LOWER CASE)	ALUM.			 OVERALL ON FACE
CLASSIC TABLET (CONDENSED)	W. M. BRASS			 OVERALL ON FACE
RUNIC TABLET No. 7 (CAPITALS)	W. M.			 OVERALL ON FACE
RUNIC TABLET No. 7 (LOWER CASE)	ALUM. W. M. BRASS			 OVERALL ON FACE
ROMAN (REGULAR)	ALUM. W. M. BRASS			 OVERALL ON FACE
ROMAN (THIN)	ALUM. W. M. BRASS			 OVERALL ON FACE
BRANDING LETTER	W. M. BRASS			 CENTER TO CENTER
CAR WHEEL GOTHIC	W. M. BRASS			 CENTER TO CENTER
PLATE LETTERS	W. M. ALUM.			 CENTER TO CENTER
ARROWS	W. M. BRASS			 OVERALL ON FACE
STARS	W. M. BRASS			OVERALL ON FACE

NOTE: All of the above letters are available in aluminum which has been especially made to order for pattern letter work.

AVAILABLE SIZES

SIZE	3/32	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/2	4	GENERAL USE
WIDTH								3/8	17/32			13/16				1 9/16							Similar to Deep Block Gothic (regular) but wider and more legible. Suitable for signs, markers and general identification where legibility counts.
THICKNESS								.100	.100			.100				3/16							
WIDTH				1/4	9/32	5/16		3/8	7/16	1/2	5/8	11/16	13/16	15/16	1 1/16	1 1/4		1 13/16		2 1/8			Of true classic design ideal for tablets, building markers, cornerstone plaques, memorials, patterns, etc. All letters in this style regardless of size are the same thickness to facilitate polishing.
THICKNESS				7/64	7/64	1/8		1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/8		1/8			
WIDTH				3/16				9/32	13/32			5/8											A lower case letter of classic design to match the above in the sizes available.
THICKNESS				1/32				1/8	1/8			1/8											
WIDTH				5/32		9/32		5/16	13/32	7/16		1/2		11/16									Similar to Classic Tablet (Capitals) except that letters are narrower and conserve space. Ideal for tablets and markers with considerable content.
THICKNESS				3/32		1/8		1/8	1/8	1/8		1/8		1/8									
WIDTH				9/32		5/16		15/32	1/2	9/16	21/32	25/32	29/32	1 3/32	1 3/8	1 1/2	1 9/16	1 5/8	1 3/4	1 27/32		2 1/2	As name indicates, these are particularly suited for tablets. Have attractive, legible face and fit in most anywhere.
THICKNESS				3/32		3/32		3/32	3/32	3/32	3/32	3/32	1/8	1/8	1/8	1/8	1/8	1/8	1/8	5/32		3/16	
WIDTH				1/4		5/16		3/8	1/2														A lower case letter suitable for use in conjunction with above of corresponding size.
THICKNESS				3/64		5/64		3/32	3/32														
WIDTH		1/8	3/16	1/4	5/16	5/16		7/16	1/2	5/8	11/16	3/4	15/16	1 3/16	1 1/4	1 1/2							One of the oldest styles of letters—has broad flat legible face which is somewhat more ornate than the more modern styles.
THICKNESS		3/64	1/16	1/16	5/64	5/64		5/64	5/64	3/32	3/32	7/64	9/64	9/64	9/64	9/64							
WIDTH			3/16	1/4		3/8		7/16	9/16	5/8		3/4											Similar to above but not as thick.
THICKNESS			1/32	1/32		3/64		3/64	3/64	1/16		1/16											
WIDTH				1/8		1/4		5/16	3/8	7/16		1/2											Very deep, thick, reversed type letters for making brands for marking, or for markers for making letters or names in cement.
THICKNESS				3/16		1/4		17/64	19/64	5/16		5/16											
WIDTH								1/4	7/16	1/2		5/8	3/4										Similar to the Sharp Face Gothic style, except that letter is heavier and thicker.
THICKNESS								5/32	3/16	3/16		13/64	7/32										
PLATE WIDTH	ALL PLATES					7/16		9/16	11/16	25/32		15/16			LETTERS SAME AS								Identical in style to Sharp Face Gothic except cast on a plate 1/16" thick. The letters have a fine fillet in the sharp corners, assuring clean reproduction under all conditions. Recommended for production wood and metal patterns.
PLATE HEIGHT	1/16 THICK					5/8		3/4	15/16	1 1/16		1 3/8			FLAT FACE #2								
WIDTH						1/8		1/8	5/32	5/32	3/16	3/16	1/4	9/32		13/32		1/2		1/2	9/16	5/8	
THICKNESS						5/64		3/32	3/32	3/32	3/32	3/32	3/32	3/32		1/8		1/8		5/32	11/64	3/16	
WIDTH				3/32	3/32	3/32	3/32	3/32	7/64	7/64	7/64	7/64	7/64	1/8	5/32								
THICKNESS																							

MASTER MONOGRAMS – FOUNDRY MARKS – TRADE MARKS-SPECIAL LETTERS AND ALPHABETS



For many years we have made a specialty of designing and producing Monograms, Foundry Marks and Trade Marks, as well as complete alphabets and figures of special design.

Send us your drawings, sketches or ideas and we will be glad to quote on your requirements in White Metal, Brass or Aluminum.

Please specify size, quantity and type of metal desired. All specially designed letters, monograms and trade marks become your exclusive property.

MASTER PATTERN LETTER CABINETS

The Handy Way to Store Pattern Letters

These handsome cabinets are sturdily and attractively made from hard wood. They are finished in natural color varnish. Each cabinet has 5 separate drawers and accommodates five complete sizes and/or styles of pattern letters and figures in separate compartments (26 letters—10 figures). The cabinets measure 21¾" x 15½" x 12¾" overall. Each drawer measures 14" x 19" x 1½". The individual compartments measure 3" x 2¼" x $1\frac{7}{16}$".

Order one of these cabinets and keep your pattern letters orderly and clean. They save time, money and tempers.



MASTER PATTERN LETTER CEMENT

Here, at last, is a cement that will hold pattern letters in place permanently. When properly applied it eliminates the possibility of a loose or missing letter to spoil a mold or casting. It works equally well on wood or metal patterns and on White Metal, Brass or Aluminum.

It is easy to use, sets quickly, and is waterproof. Not affected by core oils, chemicals, washes, etc., commonly used in the foundry—a real convenience.

Available in 1 quart containers.

MASTER PATTERN LETTER CEMENT SOLVENT

This Solvent is used as a thinner; for cleaning brushes; and for wiping up any surplus of Master Pattern Letter Cement.

Available in 1 quart containers.

MASTER PATTERN LETTER SOLDER

A soft, low melting point solder for attaching White Metal, Brass or Aluminum Pattern Letters to metal patterns. Easy and convenient to use.

Available by the pound.

KINDT-COLLINS MASTER PRODUCTS

MASTER KINCOTE (Cont.)

Master Kincote offers to the foundryman and to the buyer of patterns the maximum protection of any pattern coating currently available.

Kincote stands up under the most adverse conditions of abrasion, moisture, chemical solutions, oils, storage, etc., which are ever present in modern day foundry practice.

The charts shown here are definite and authoritative proof of the exceptional performance of Kincote (which is designated by the letter "A"). This high quality of service has produced many favorable comments of satisfied users who have tried Master Kincote under a variety of adverse conditions, and who are responsible for the phenomenal growth of sales of this now established product.

In addition to protection, Master Kincote offers to the user superior castings and an absolute assurance against sticking in the foundry. Several customers have advised us that they get as smooth a casting from a wooden pattern coated with Master Kincote as they do from an uncoated metal pattern. Certainly such statements warrant a trial for Master Kincote in your own shop under your particular operating conditions.

Why not try Master Kincote and convince yourself. If Master Kincote does not work to your satisfaction, you are at liberty to return it to us for credit within a reasonable length of time without obligation.

TABLE 1—PACKAGE AND APPLICATION CHARACTERISTICS

Pattern Coating	Build[1]	Total Solids	Brushability	Drying[2] Time	Drying[3] Time Over Wax	Gloss[4]	General Appearance	Odor
Shellac	0.8	35.0	7	60 min.	Same	68	4	9
Crankcase Sealer	0.3	25.0	6	15 min.	Same	27	6	6
→ A	2.5	47.0	10	30 min.	Same	93	10	9
B	1.0	33.0	8	30 min.	Same	60	7	7
C	1.3	37.0	9	40 min.	Same	53	8	6
D	1.0	42.0	6	10 min.	Same	26	5	6
E	2.0	54.0	9	30 min.	Slower	78	9	5
F	0.8	43.0	7	24 hr.	Much Slower	76	6	8
G	0.7	41.0	7	15 min.	Same	62	7	7

1. Build expressed in thousandths of an inch obtained from one coat applied by brush.
2. Drying to handle at room temperature, approximately 70°F.
3. Equivalent to drying over wood or slower.
4. Gloss reading obtained on wood using Gardner Gloss Meter. A gloss of 100 is equivalent to a mirror surface and a gloss of 0 is equivalent to a perfect lustreless surface.

Master Kincote is the pattern coating "A" indicated in this chart.

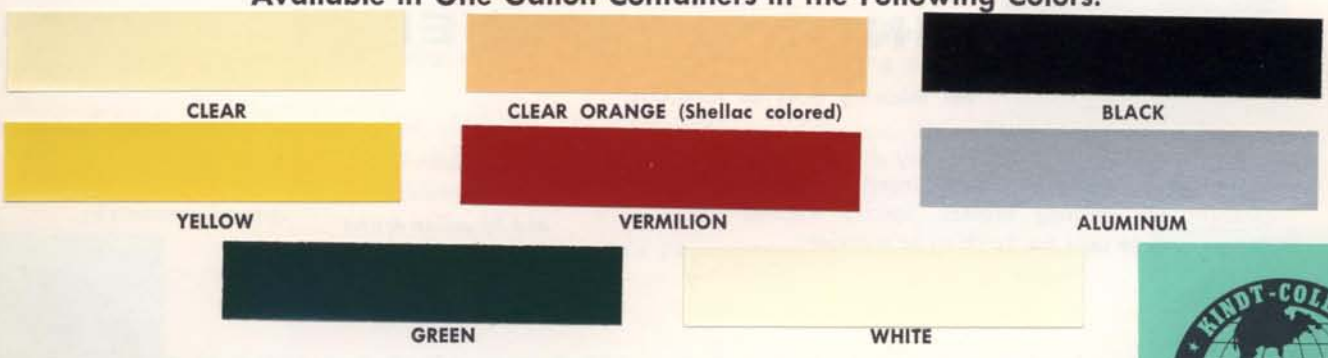
TABLE 2—DRY FILM CHARACTERISTICS

Pattern Coating	Pencil Hardness	Flex-[1] ibility	Abrasion[2] Resistance Mg Lost in 500 cyc.	120°F. Print Resistance	Linseed Core Sand Resistance	Water Soluble Core Binder Resistance	Gasoline Resistance	Water[3] Penetration % Water Absorbed 24 Hr.	120 Hr.
Shellac	HB	½ in.	66	V. Poor Bad Print	V. Poor Sticking & Softening	V. Poor Softening & Sticking	Good Slight Softening	3.1	8.6
Crankcase Sealer	1H	1 in.	45	Excellent No effect	Excellent No effect	Poor Softening & Sticking	Fair Softening	1.2	4.0
→ A	3H	¼ in.	35	Excellent No effect	Excellent No effect	Excellent No effect	Excellent No effect	0.88	2.9
B	1H	⅛ in.	40	Fair Sl. Print	Good Sl. Stick	Poor Softening & Sticking	Good Slight Softening	1.82	7.6
C	F	1 in.	47	Good V. Slight Print	Excellent No effect	Poor Softening & Sticking	Fair Softening	0.85	2.8
D	1H	3 in.	70	Excellent No effect	Excellent No effect	Excellent No effect	Excellent No effect	5.1	Coating Cracked & Peeled
E	1H	1 in.	67	Poor Print	Poor Sticking & Softening	Fair Softening	Excellent No effect	0.34	1.5
F	HB	⅛ in.	30	Fair Sl. Print	Excellent No effect	Poor Sticking & Softening	Fair Softening	1.98	6.2
G	2B	6 in.	67	Poor Print	Poor Sticking & Softening	Fair Softening	Good Slight Softening	0.75	2.5

1. Diameter bend at which cracking occurs.
2. 500 cycles on Tabor Abrasor.
3. Mahogany blocks coated and immersed in water.

Master Kincote is the pattern coating "A" indicated in this chart.

Available in One Gallon Containers in the Following Colors:



QUALITY PRODUCTS FOR INDUSTRY . . . PROVED BY PERFORMANCE

KINDT-COLLINS MASTER PRODUCTS

MASTER KINCOTE

The Quality Pattern Coating for Maximum Protection to Wood Patterns in the Foundry and in Storage

In performance as well as in appearance, Master Kincote is recognized as the most durable and the easiest handling of pattern coatings. Since its introduction, many users have volunteered their endorsement of its consistently high quality.

An impartial revelation of Master Kincote superiority in packaging, application, and dry film characteristics is shown in the charts on the reverse side of this page. This scientific verification was presented at the 1953 AFS Convention.

Master Kincote is packaged in one gallon containers (four gallons to a case) and is available in the following colors:

Clear, Clear Orange (Shellac colored), Black, Yellow, Vermilion, Aluminum, Green, and White.



ADVANTAGES OF MASTER KINCOTE:

1. Offers the most complete range of protective features of any pattern coating—more resistance to abrasion, moisture, core oils, kerosene, synthetic binders.
2. Excellent working qualities—good brushability, and adhesion.
3. Absolutely will not stick in the foundry—gives the effect of a parting. Not affected by heat under all foundry conditions.
4. No unpleasant odor.
5. Dries over wax.
6. Unusually good appearance . . . very strong gloss . . . strong brilliant colors.
7. One coat covers.
8. No sanding between coats. KINCOTE is self-leveling.

MASTER KINCOTE THINNER

for thinning MASTER KINCOTE

This thinner is designed specifically for use with Master Kincote. It is an ideal thinner and is also excellent for cleaning brushes. Specify whether thinner is to be used for brushing or spraying.

Available in
one-gallon and five-gallon containers
and 54-gallon drums

QUALITY PRODUCTS FOR INDUSTRY . . . PROVED BY PERFORMANCE

KINDT-COLLINS MASTER PRODUCTS

MASTER PAT-KOTE



A good, moderate priced pattern coating

Master Pat-Kote is our medium priced pattern coating. When introduced to the trade several years ago, it was "tops" in the field. Today, it has been superseded by Master Kincote but it still has many staunch users and "fills the bill" in many instances as a pattern coating. It is ideal for big patterns where cost is a factor and for patterns not used in high production.

It offers the following advantages:

1. Economical—low in cost and has excellent covering qualities.
2. The colors are all bright and in accordance with American Foundry Society recommendations.
3. Will not stick in the sand, does not blister or soften under the most extreme practical conditions in the foundry.
4. Water and oil resistant, gives maximum protection to the pattern, thereby minimizing swelling and warping.
5. Needs no sanding between coats—it is self-leveling, does not raise grain, assures a smooth finish when dry.
6. Easy to apply—no skill required. It dries hard quickly.
7. Highly abrasion resistant—wears unusually well.
8. Dries readily over oil and accepted brands of sheet wax and wax fillets without crazing.

Master Pat-Kote is available in one gallon cans (4 gall ons to a case) in the following colors:

● **ALUMINUM** ● **BLACK** ● **CLEAR** ● **CLEAR ORANGE** ● **CHROME YELLOW** ● **VERMILION** ● **GREEN** ● **GREY**

MASTER PAT-KOTE THINNER

Especially formulated for thinning Master Pat-Kote. It is also ideal for cleaning brushes.

Available in 1- and 5-gallon cans

MASTER UTILITY CONTAINER

A handy container for a multitude of purposes



The Master Utility Container is ideal for glues, pastes, paints, lacquers, shellacs, rubber cement, cleaning fluids, sealing and polishing compounds and a wide range of other liquids and materials that are applied with a brush. Ideal for your shipping room, soldering bench, paint department, etc.

Strongly made of heavy aluminum sheet that can withstand considerable abuse. The sturdy round handle is easy to grip and is attached at the proper angle for utmost convenience to the user.

The cone-shaped cover forms a seal with the container and serves to keep out the air, thereby preventing oxidation, evaporation and thickening of the contents.

A handy wiping bar is provided which fits in just below the rim of the pot. This will also hold the brush by using a bent nail. It can be removed if desired. There is plenty of room for the brush handle to fit into the cover. Brushes can thus be kept workable without the need of frequent cleaning.

Available in 1 quart and 2 quart sizes

MASTER ORANGE FLAKE PATTERN SHELLAC

This is the highest grade of shellac obtainable and is especially selected for the pattern trade. Light orange in color. Flakes are free and clean, and produce a high gloss. Master Shellac is completely unarsenated and is always of uniform high quality.

Available in bulk by the pound or in bag lots of 164 lbs.

MASTER SOLVENT FOR SHELLAC (ALCOHOL)

A special solvent for dissolving shellac. It is fast-acting and quick drying. Helps to produce a hard glossy finish.

Available in 1 and 5 gallon cans or in 54 gallon drums

MASTER CHROME YELLOW

A high grade chrome yellow in finely powdered form for coloring shellac, lacquer, etc. It mixes easily and produces a fine uniform color.

Available in one pound containers

MASTER IMPORTED ENGLISH VERMILION

The highest grade of vermilion available to the trade. It produces a beautiful light vermilion finish on the pattern when induced into shellac or lacquer and improves the wearing qualities of the coating. A little of this powder goes a long way.

Available in one pound containers

MASTER AMERICAN VERMILION

A popularly priced domestic vermilion powder which does an excellent job of coloring shellac, lacquer, etc. It produces a light color and the pigment does not settle when properly mixed.

Available in one pound containers

MASTER ALUMINUM POWDER

An extremely fine ground aluminum powder for coloring shellac, lacquer, etc. Its use will improve wearing qualities and parting qualities, and make more moisture-proof any vehicle into which it is introduced.

Available in 1 pound containers

MASTER BLACK PATTERN EXTRACT

Powder or Liquid. An intense black dye for coloring shellac, lacquer, or other coatings. Readily soluble in alcohol or Master Solvent and is easily mixed. Produces a very deep color.

Available in 1 lb. containers in powder form or in 1 qt. and 1 gallon cans in liquid form.

MASTER WHITE GLUE

(COLD-TYPE LIQUID PLASTIC)

THE ULTIMATE IN WHITE GLUES

ADVANTAGES:

1. It is ready for immediate use and can be applied at temperatures as low as 60° F.
2. Sets fast, assures a strong bond in approximately ½ hour.
3. Can be applied with brush, roll, spray or gun with ease and speed.
4. Highly water-resistant.
5. Glue line is practically colorless.
6. Designed to provide minimum wear to cutting tools.
7. Will bond with many dissimilar materials such as wood, cork, unoiled leather, plastics and metals when properly prepared.
8. Eliminates need for heated glue pot.
9. Not affected by freezing.

Master White Glue is a cold-bonding synthetic resin glue. It requires no mixing, blending or heating prior to use. It has the highest solid content of any glue of its type currently offered to the pattern trade and as a result gives a stronger bond. Formulated to set up quickly. Joints may be worked within 20-30 minutes after glueing. Master White Glue has unlimited pot life. Its formulation is carefully controlled by our laboratory to insure the same high quality in every batch.



Master White Glue is unaffected by freezing. It does not freeze until temperatures reach 15° F., and if freezing does occur, gradual thawing will restore original consistency without affecting bonding strength.

Master White Glue is packaged in polyethylene bags, in 1 and 5 gallon pails and 55 gallon drums. The polyethylene bag prevents contamination by the container and assures you of constant quality.

MASTER DISPENSO BOTTLE

The handy glue applicator

For the quick, easy, convenient and clean application of Master White Glue and other synthetic plastic glues. Has special spout for proper flow. Bottle is made of flexible plastic (polyethylene). Glue cannot stick and remains fresh, clean and readily available at all times.

Available as follows: Large Size: (1 quart capacity) Small Size: (8 ounce capacity)



MASTER PATTERNMAKERS HIDE GLUE

Master Patternmakers Glue is a high quality hide glue especially selected for use in the pattern shop. It is suitable for all woods and all classes of pattern work. The glue is light amber in color and almost transparent when properly mixed. Available in flake, ground or bead form. The ground and bead forms offer advantages in easier handling and faster soaking. All forms are of the same high quality.

Available in standard 100-lb. bags or in smaller quantities as desired.

MASTER DISC CEMENT

For attaching flexible paper and cloth backed abrasive discs



Master Disc Cement is the original latex type cement formulated especially for attaching abrasive discs to disc sanders. It simplifies and speeds the tiresome chore of changing abrasive discs. In many cases it has even eliminated the necessity of tearing down the sander by removing the steel discs to change the abrasive, thereby saving considerable time and money.

Master Disc Cement is designed for use with flexible paper or cloth-backed abrasive discs. It is not suitable for heavy cloth or fibre-backed discs. (See Master Heavy Duty Disc Cement below for this purpose.) It will produce absolutely satisfactory results when properly used.

Available in one quart cans

MASTER HEAVY DUTY DISC CEMENT

For attaching heavy fibre and cloth-backed abrasive discs

This cement is similar to Master Disc Cement except that it is especially formulated for heavy duty usage It is particularly designed for use with heavy cloth or fibre-backed discs or exceptionally large sized paper-backed discs where extreme adhesion is required to hold the disc in place.

Available in one quart cans

MASTER LAYOUT FLUID

Liquid — Powder



Master Layout Fluid is a great aid in the layout department. When coated on aluminum it emphasizes layout markings, preventing errors. It is also used to mark coatings for machinery and for fitting bearings, etc.

Available in powder form in one pound containers and as a liquid in one quart and one gallon cans and in 54 gallon drums.

MASTER PITCH SOLVENT



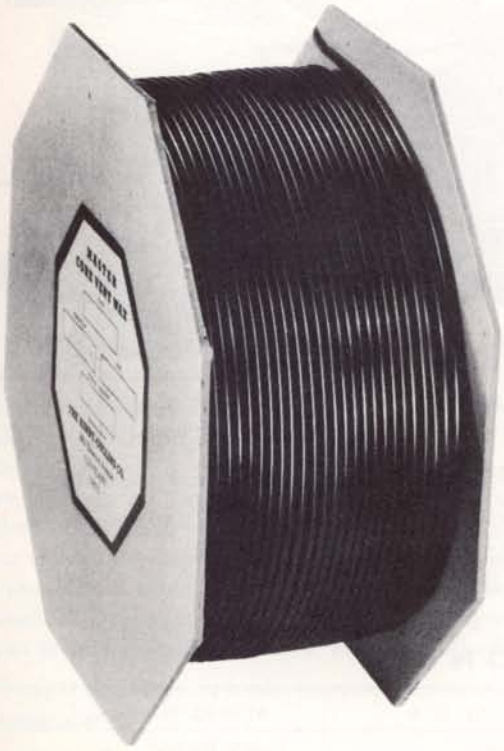
Renovates pitch-clogged abrasive discs, sleeves, belts, saws, etc.

Master Pitch Solvent when applied to pitch-clogged abrasives quickly dissolves the gummy, sticky pitch resins leaving the abrasive clean and usable. This lessens abrasive costs and saves the time needed to change a disc or belt. It can also be used on pitch-clogged saws, tools, etc. This solvent saves its cost many times over—a really useful item.

Available in 1- and 5-gallon cans

MASTER CORE VENT WAXES

• featuring specialized formulas for TOP performance!



FORMULATED • to fit the job • to fit the metal • to fit the core binder • to fit the season — only one grade required summer or winter.

During the past ten years the Kindt-Collins Company has made a specialty of the manufacture of Core Vent Waxes (and we do mean waxes). We do not use pitch or any allied products or any other inferior substitutes in any form in our vent waxes. The various types of vent waxes we offer, namely Types CV-10, CV-20 and CV-24, are custom formulated to produce the highest results possible under a given set of circumstances when properly used.

Only one formula is required for both summer and winter use. Master Core Vent Waxes do not run together during the summer months and are flexible at any reasonably normal temperature during the winter season.

over in all types. Hollow core vent wax offers the advantage of having less wax to dissipate, which results in less residue, a more permeable core and consequently, a better casting. Hollow core vent wax gives from 20% to 25% more footage per pound than does solid wax. The additional cost is therefore compensated by the increased footage.

If you have a special core vent problem, write us. Our facilities are at your disposal. We will do our best to help you. Please include information regarding the type of sand, the metal used, the core binder used, and the baking cycle involved, so that we can offer a practical solution.

MASTER CORE VENT WAXES ARE AVAILABLE IN ROLLS IN THE FOLLOWING TYPES AND SIZES:

CV-10 Our standard grade core vent wax . . . Works with all metals, but particularly formulated for ferrous castings . . . Brown in color . . . A wax (not a pitch) . . . Works well with all types of core binders—oil, cereal, and synthetic . . . Produces a clean hole and a highly permeable core . . . Leaves a minimum of residue and does not soften core when properly used.

CV-20 Our highest grade vent wax . . . Brown in color . . . An all-season wax—flexible in winter—does not run together in summer . . . All-purpose wax for use with all metals . . . Produces a clean vent and a permeable core . . . Available in hollow form in diameters from 1/8" and over . . . Works equally well with oil, cereal, or synthetic binders.

CV-24 A specialized core vent wax—formulated primarily for use with aluminum and magnesium castings . . . Light yellow in color . . . Particularly suited for use with cereal or synthetic resin core binders . . . Produces a clean hole and a permeable core when properly baked . . . Does not soften core . . . Available in hollow form in diameters from 1/8" and up—less wax to dissipate . . . Is particularly adaptable for use with dense cores . . . Eliminates blows common to complex cores used in aluminum and magnesium castings.

Size	*Code	Pounds per Roll	Size	*Code	Pounds per Roll
1/32"	RS	1	1/8"	RH	3
1/16"	RS	1	5/32"	RH	3
3/32"	RS	1	3/16"	RH	3
1/8"	RS	4	1/4"	RH	3
5/32"	RS	4	5/16"	RH	3
3/16"	RS	4	3/8"	RH	3
1/4"	RS	4	1/32" x 1/8"	1-FO	1
5/16"	RS	4	1/16" x 3/16"	2-FO	1
3/8"	RS	4	3/32" x 1/4"	4-FO	4
7/16"	RS	4	1/8" x 3/8"	6-FO	4
1/2"	RS	4	3/16" x 1/2"	8-FO	4
5/8"	RS	4	1/4" x 3/4"	12-FO	4

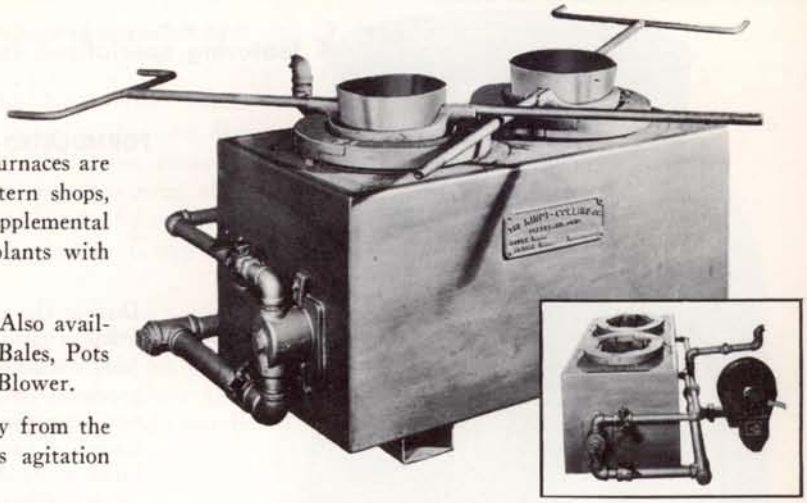
*Code: RS—Round Solid. FO—Flat Oval. RH—Round Hollow



Cross Section of solid and hollow wax, illustrating relative amounts of wax to be dissipated.

MASTER ALUMINUM MELTING FURNACES

GAS OR OIL FIRED



These scientifically engineered, highly efficient furnaces are now available to meet the requirements of pattern shops, schools, smaller foundries and to serve as supplemental equipment for large foundries, and for other plants with moderate production.

Gas or oil fired . . . for medium requirements. Also available for use with compressed air, complete with Bales, Pots and Regulating Valves but without Motor or Blower.

Aluminum can be melted in and poured directly from the heat-resisting alloy metal pots. This minimizes agitation and resultant porosity.

The pots can withstand more than 100 heats when used with reasonable care. They are designed to keep gases away from the surface of the molten metal, helping to minimize porosity.

Fuel and air adjustments are easily made.

Quick melting with low fuel consumption.

The furnaces are adequately insulated to assure maximum heat. The most efficient type of refractory linings are used.

Equipped with pilot light for quick and easy starting.

Completely equipped with bales, pots, motor, blower, etc.

Available in single units of 50 lb. capacity or double units of 100 lb. capacity (pictured above).

SPECIFICATIONS

	MODEL 301-A	MODEL 301-½-A	MODEL 301-O
Type:	Double Burner	Single Burner	Double Burner
Fuel:	Gas	Gas	Oil
Capacity Aluminum:	100 Lbs.	50 Lbs.	100 Lbs.
Floor Space Required:			
Furnace	29" x 52"	29" x 36½"	29" x 52"
Motor & Blower Assembly	16" x 16"	16" x 16"	23" x 29"
Motor—Standard:	⅓ HP. 220 V-3 Ph. 60 Cycles, 3450 R.P.M.	⅓ HP. 220 V-3 Ph. 60 Cycles, 3450 R.P.M.	1 HP. 220 V-3 Ph. 60 Cycles, 3600 R.P.M.
Motors of other specifications:	Available on Request	Available on Request	Available on Request
Motor & Blower Mounting:	Rear or Either End	Rear or Either End	Rear or Either End
Fuel Consumption per Burner:	5 C.F.P.M. of 1000 B.T.U. Gas	5 C.F.P.M. of 1000 B.T.U. Gas	3½ Gallons per hour per burner
Fuel Line:	1¼" dia.	1" dia.	½" dia.
Heating Time:	40 Minutes 30 Minutes	40 Minutes 30 Minutes	35 Minutes 25 Minutes
Shipping Weight (approx.)	915 Pounds	475 Pounds	965 Pounds
STANDARD EQUIPMENT			
	Furnace Control Valve and Burner Assembly Pilot Light (2) Motor & Blower Assembly Starting Switch Ladle Rings (2) Bales (2 Men) (2) Ladles (50 Lbs. cap.) (2)	Furnace Control Valve and Burner Assembly Pilot Light (1) Motor and Blower Assembly Starting Switch Ladle Rings (1) Bales (2 Men) (1) Ladles (50 Lbs. cap.) (1)	Furnace Control Valve and Burner Assembly Motor, Blower, Oil Pump, Relief Valve and Strainer Assembly Starting Switch Ladle Rings (2) Bales (2 Men) (2) Ladles (50 Lbs. cap.) (2)

Thousands of these MASTER Aluminum Furnaces have been sold to foundries, school shops laboratories, etc., where economy and convenience are of prime importance.

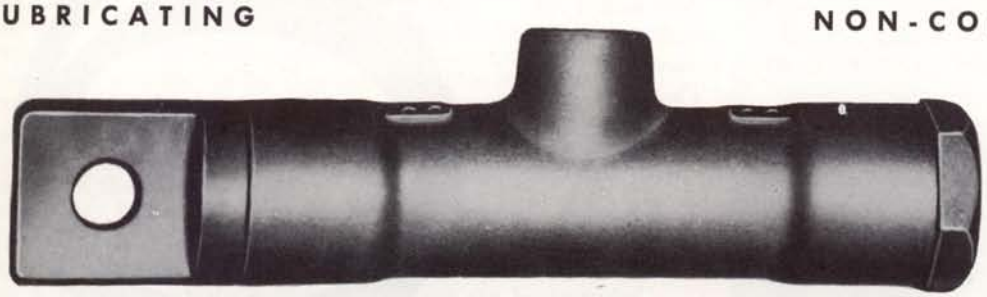
KINDT-COLLINS MASTER PRODUCTS

QUALITY PRODUCTS FOR INDUSTRY . . . PROVED BY PERFORMANCE

MASTER MATCH-PLATE VIBRATORS

For Compressed Air

DEPENDABLE • EFFICIENT • VERSATILE • LONG-LIVED
SELF-LUBRICATING NON-CORROSIVE

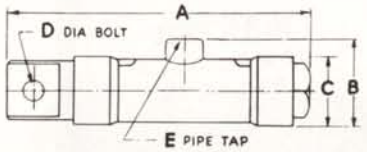


Master Matchplate Vibrators are adaptable to a wide variety of applications — in the foundry, for fatigue testing, for moving granular materials through tubes and chutes, for vibrating packaging tables, for concrete block machinery, etc.

Master Vibrators use less air, because their scientific design establishes a definite relation between the air ports and piston stops, producing a perfectly balanced vibrating operation. All parts are accurately machined or ground to close limits, making them interchangeable. Friction is reduced to a minimum. The body is made of tough forged manganese steel. The special corrosion-proof bronze bushing which is self-lubricating, can be readily replaced if worn, restoring full efficiency to the vibrator.

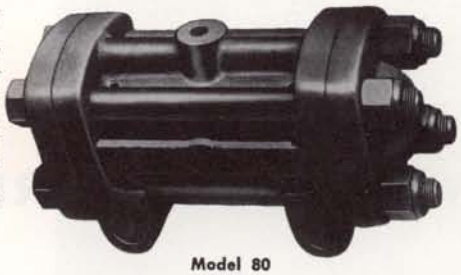
Straight or ell-type air intake connectors are furnished to meet individual requirements.

Dimensions	SERIES 76					SERIES 77		
Piston Diameter Sizes	½"	⅝"	¾"	1"	1¼"	¾"	1"	1¼"
A	5⅜"	5¹¹⁄₁₆"	5¾"	6¹¹⁄₁₆"	7¹¹⁄₁₆"	5.000"	5.000"	6.000"
B	1¾"	1½"	1¹¹⁄₁₆"	2"	2⅜"	6"	6¼"	7¼"
C	1"	1⅛"	1⅜"	1⅜"	2½"	1¹¹⁄₁₆"	2"	2⅜"
D	⅜"	⅜"	⅜"	⅜"	⅜"	1¾"	1⅜"	2½"
E	⅛"	⅛"	⅛"	⅛"	¼"	⅜"	⅜"	⅜"
F	.....	.....	.....	.....	.....	⅛"	⅛"	¼"
Air Cons. Cu. Ft. per Min. at 80 Lbs.	6	7	7½	8½	9½	7½	8½	9½
Weight, Lbs.	1½	2	2½	3½	9	2½	3½	9



MASTER HEAVY DUTY MATCHPLATE VIBRATORS

Models 78 and 80 Master Vibrators are primarily designed for heavy duty operation on molding machines, but are adaptable to many other types of work. These vibrators are particularly suitable for applications requiring extremely powerful vibrations. They feature the same type heavy, rugged, long-lived construction as the standard Master Matchplate Vibrators — forged manganese steel body and corrosion-proof bronze alloy inner-liner. Try these Vibrators and convince yourself of their superiority on your molding machines where the going is tough.

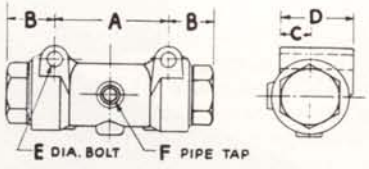


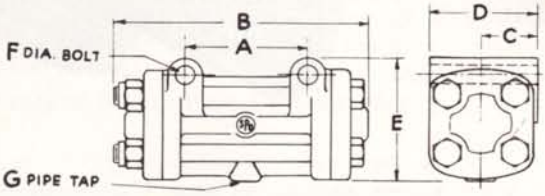
Model 80



Model 78

Dimensions	SERIES 78	SERIES 80
Piston Diameter Sizes	1¼"	1⅝"
A	3¾"	4"
B	1½"	8⅜"
C	1⅜"	1⅞"
D	2⅜"	3⁹⁄₁₆"
E	½"	4¼"
F	⅛" or ¼"	⅝"
G	.....	⅛" or ¼"
Air Cons. Cu. Ft. per Min at 80 Lbs.	9½	12
Weight, Lbs.	8½	21





KINDT-COLLINS MASTER PRODUCTS

MASTER VIBRATOR HOSE

A tough, black oil-resistant air hose 4-1/2 feet long, 3/16″ inside diameter with a 1/4″ P. T. straight connector at one end and a 1/8″ P. T. elbow connector at the other end for connecting to the vibrator. The elbow connector is of brass to minimize wear of threads in vibrator. The hose connectors are of a patented new quick-attachable leakproof type, which can be reused. Special sizes and lengths on request.



MASTER CORE DRIER RELEASE



Prevents Carbon Deposits on Coreboxes Assuring a Perfect Release and a Perfect Core

Master Core Drier Release is being used in many prominent foundries with very gratifying results. It can be used on new or old coreboxes (when properly cleaned). It prevents the formation of carbon deposits and assures the perfect release of the core.

When properly applied, one coating of this release on a core drier is effective for releasing a great number of cores (several hundred in actual tests). It is easy to apply by brushing or spraying. It can be air-dried or pre-baked by putting through one cycle of the core drier.

Eliminate spoiled cores and insure perfect castings by using this simple and effective release agent.

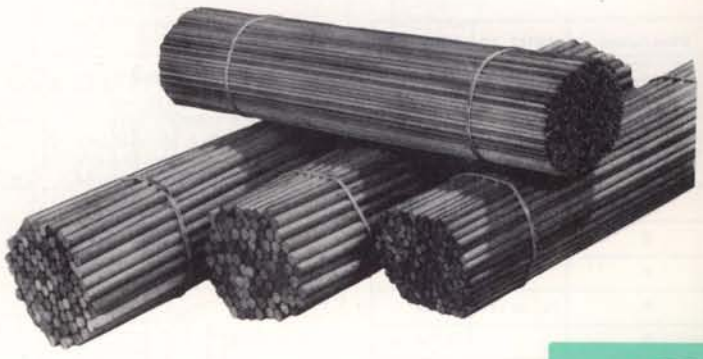
Available in 1-gallon cans and in 54-gallon drums.

MASTER HARDWOOD DOWELS

These are selected hardwood dowels, 3 feet in length, carefully turned from seasoned, straight-grained lumber. They are double kiln-dried to absolutely prevent shrinkage. Can be furnished either tight- or loose-fitting. Tight-fitting dowels are .005″ over-sized. When ordering please specify the fit desired.

Available from stock in the following diameters: 1/8″, 3/16″, 1/4″, 5/16″, 3/8″, 7/16″, 1/2″, 5/8″, 3/4″, 7/8″, 1″, 1-1/8″, 1-1/4″, 1-1/2″.

Order by the piece or by the foot. Special sizes and lengths available to order.



MASTER DURAL CEMENT

A Quality Gypsum Cement with a Low Coefficient of Expansion



Master Dural Cement is a strong, hard, abrasion resisting molding plaster which is quick setting and has high tensile strength. Because of its low expansion (the lowest of any Gypsum cement or plaster) and great hardness, it is ideal for making patterns for Keller Machines, etc. It is unexcelled for general purpose modeling, molding and repairing.

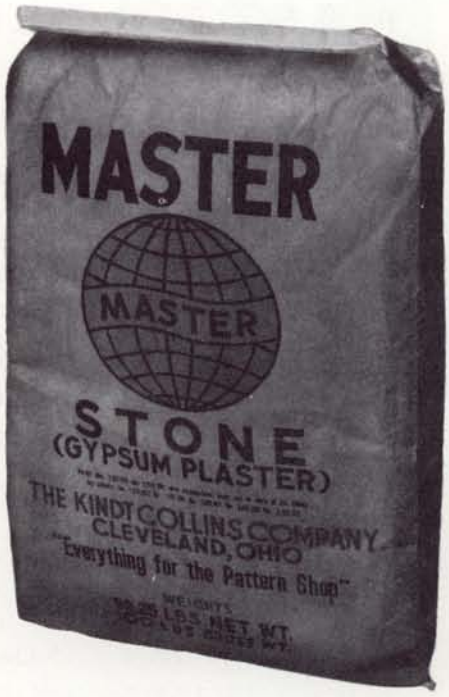
Core Driers can also be made by using a half and half mixture of Master Dural Cement and Portland Cement and an equal amount of fine silica sand. After pouring, the driers should be baked 12 to 14 hours at core oven temperature.

Master Dural Cement can be machined, drilled and tapped after drying. Under normal conditions, Master Dural Cement sets in twenty to thirty minutes. This time can be extended to meet special requirements by use of a setting retarder. It can be mixed thin and poured; or thick and troweled; or to a paste and built up and shaped with a cutting template to any required form. It is mixed with water only. No special solutions are necessary. It may be used immediately after setting without fear of damage. Available in 100 lb. bags or 300 lb. barrels.

As a release we suggest Master Plaster Release. (See Index.)

MASTER-STONE

A Super-Strength Gypsum Cement



MasterStone is a super-strength Gypsum cement designed to meet the demands of hard usage and production. It is the hardest and strongest Gypsum cement manufactured. It can be used for patterns where an extremely hard surface is required, and also for making Cope and Drag sets for the foundry. MasterStone is specially suited for temporary forming dies for preliminary shaping of sheet aluminum, as it may be cut back or tooled readily to allow for variable "springback" before final die pattern is cast in harder materials, or shaped from it in the Keller machine. It is also useful for sand cast matchplate patterns, as it can be poured without cracking into a tight rammed fine sand mold that has been dusted with graphite or calcium stearate powder to retard water absorption.

Check blocks, proof castings, and all replicas of fine detail where the finished cast must be accurate, strong, and of extreme surface hardness are also readily made from Master-Stone. Profiling patterns made with MasterStone for use on Keller or other die-sinking machines are exceptionally serviceable. MasterStone is not suited for trowel forming or cutting to shape with template tools. The setting time is comparable to Master Dural Cement, namely, twenty to thirty minutes. The setting time can be extended by use of a retarder. Available in 100 lb. bags.

As a releasing agent we suggest Master Plaster Release. (See Index.)

Other types of Gypsum Cements and Plasters are available. (See Index.)

MASTER PLASTER RELEASE

A Superior Release for Plasters, Gypsum Cements, Etc.



FORMULA "A" — A newly developed and formulated liquid product that readily releases plaster casts from wood, metal, plastic and plaster patterns and coreboxes. Exact reproductions are obtained because no fillets are formed by the release and there is no build up to affect accuracies when this release is used. It contains no ingredients such as lard, oil or stearic acid which tend to soften various types of plasters or gypsum cements.

We have never before offered a release that we can recommend so highly. When properly applied, plaster casts can be removed from any wood, metal, plastic and plaster pattern or corebox with the greatest of ease.

Available in 1 quart and 1 gallon cans or in handy spray cans which eliminate the fuss and muss of applying.

FORMULA "B" — This is our original Master Plaster Release which proved its merit as a release in pattern shops and plaster departments throughout the country. It acts as a release on wood, metal, plastic and plaster coreboxes and patterns and is preferred by some shops. However, it does not give the ultimate in detail and fineness as does Formula A.

Available in 1 quart and 1 gallon cans only.

NOTE: When Plaster is to be poured in or over wood or plaster, a good coating such as Master Kincote (see index) is as essential to perfect results as is a release agent.

MASTER FLEXIBLE MIXING BOWLS

Ideal for Handling Plasters and Gypsum Cements



These handy, new bowls are made of neoprene (synthetic rubber) which offers many advantages for the preparation and use of plasters and gypsum cements by pattern shops, laboratories, police departments, etc.

Master Mixing Bowls for plasters and gypsum cements are practically indestructible in the service for which they are intended. They cannot be broken or chipped, are not subject to corrosion or affected by water. Light weight makes them easy and comfortable to handle. Can be bent into any desired shape to facilitate pouring.

Master Mixing Bowls can be cleaned very quickly by merely flexing them between the hands. All the set cement immediately breaks loose and falls out. These bowls are available in sets of five as follows, or singly in the capacities indicated:

¼ Pint ¾ Pint 1¼ Pint
1½ Quarts 5 Quarts

We also have available heavy polyethylene pails of 17-qt. capacity which are excellent containers for plaster where more capacity is required.



This second section of our "Catalog R" supplements the previous section. Whereas the previous section includes only items manufactured by Kindt-Collins, this section includes only items which we sell but do not manufacture. All of the products included herein meet the requirements of our slogan,

"Quality Products for Industry . . .
Proved by Performance"

These products and their manufacturers have been carefully selected by us. They have been thoroughly tested in our laboratories, as well as by practical usage in the field, and we can sincerely recommend them to you as "Kindt-Collins Approved Products."

THE KINDT-COLLINS COMPANY

E. T. KINDT, PRESIDENT

MACHINERY LAYOUT AND PLANT DESIGN SERVICE

Our Engineering Department has had considerable experience in the layout of machinery and in the overall design of pattern shops. Should you be in the process of building a new shop, re-designing your old one, or purchasing a new piece of equipment, and would like advice as to the type of machine best suited for your purposes, or its location in the shop, etc., we will be glad to assist you at your request.

The following pages include various types of equipment which we have found to be the most popular in pattern shops. If the specific machine you require is not listed herein, please contact us regarding it so that we can submit a proper quotation if possible.

Please write us.

NEWMAN P-620 SINGLE SURFACER

The Newman P-620 Single Surfacer is designed to meet the present-day demand for a sturdy medium size machine capable of turning out the highest quality work. The machine is ideally suited for pattern shops and vocational training schools.



MODEL	SIZE	TYPE	FLOOR SPACE	WEIGHT
P-620	20" x 6"	DCD	66" x 33"	1250
P-620	20" x 6"	VBMD	66" x 33"	1250
P-620	20" x 6"	DMD	48" x 33"	1250

SPECIFICATIONS

CAPACITY: Will plane 20" wide, ⅛" to 6" thick. Shortest stock butted 3"; not butted 8¼".

BASE & FRAME: The heavy one-piece cast iron base, side frames, and girts are accurately machined to assure perfect alignment.

CUTTERHEAD: Three-knife round safety type with three high speed steel knives. Cutterhead rotates in sealed-for-life ball bearings, and is dynamically balanced for its running speed. The following three methods of drive can be furnished:

1. Direct Coupled Motor Drive, 3600 RPM.
2. V-Belt Motor Drive, 4200 RPM or more.
3. Direct Shaftless Motor Drive on cutterhead spindle, 3600 RPM.

FEED WORKS: Four solid steel rolls. Two top rolls are driven by a combination of machine-cut sprockets and gears. Top infeed roll is knurled. Feed works is completely enclosed in the frame of the machine and easily accessible for inspection. Heavy top roll springs are easily accessible to the operator for regulating spring tension on top rolls. Variable feed giving any rate of feed from 20 to 60 lineal feet per minute.

BED: The bed is a heavily ribbed one-piece casting, the vertical travel of which is guided by long accurately machined slides. Bed is raised and lowered by a large easily operated handwheel located at the side of the machine. A lumber thickness gauge is provided for showing the depth of the bed.

CHIPBREAKER & PRESSURE BAR: The chipbreaker is concentrically mounted with the cutterhead. The pressure bar is also concentric with cutterhead and has set screws for alignment and regulation of pressure.

REGULAR EQUIPMENT: Regular with each machine: one set (3) 20⅛" high speed steel thin knives, knife setting gauge, necessary wrenches.

EXTRA EQUIPMENT: Cutterhead motor. Separate feed motor. Electric knife grinder and jointing attachment. Sectional top infeed roll, 2" sections with ⅛" independent yield, total ¼" yield. Sectional chipbreaker, 2" sections with ⅛" independent yield. Shaving hood.

BOICE-CRANE 12" x 4" THICKNESS PLANER

A heavily constructed small planer, ideal for small shops or as an auxiliary in larger shops—excellent for small work, especially on short, narrow or thin stock



Pictured above is a direct-drive on stand.
Also available with V-Belt drive.

SPECIFICATIONS

CAPACITY:
Widest Stock ..... 12-1/8 inches
Thickest Stock ..... 4-1/2 inches
Thinnest Stock ..... 1/16 inch
Shortest Stock ..... 6-1/2 inches

MAXIMUM DEPTH OF CUT ..... 1/4 inch

RATE OF FEED:
Head running 3500 r.p.m.'s ..... 14 ft. per min.
Head running 4500 r.p.m.'s ..... 17-1/2 ft. per min.

CUTS PER INCH OF MATERIAL 60

TABLE SIZE ..... 20" x 12-1/4"

FRAME: *One-piece casting, rigidly ribbed. Weighs 150 lbs. alone.*

CUTTERHEAD: 3 knife, 2-3/8" dia. (Cutting Circle 2-7/8" dia.)

CUTTERHEAD BEARINGS: S.K.F. self-aligning double-row Ball Bearings.

FEED ROLL BEARINGS: Bronze in self-aligning journals.

FEED ROLLS: Two, each 2" dia. One corrugated and hardened. One smooth.

DRIVE: Direct or V-Belt. 1-1/2 to 2 H.P. Motor required. Various electrical specifications available to order.

SHIPPING WEIGHT: Approximately 680 lbs.

ACCESSORIES

Set of Knives
Cabinet Floor Stand

Net Weight 110 lbs.
Shipping weight—Approximately 150 lbs.

PARKS HEAVY DUTY 12" x 4" THICKNESS PLANER

A sturdy, moderately priced 12" planer—ideal for the small pattern shop, or as an auxiliary in a large shop—suitable for schools



SPECIFICATIONS

FRAME is constructed of heavy, well-ribbed cast iron. Base dimensions, 22 by 14 inches. Height overall, 22 inches.

CAPACITY: Will plane material up to 12 inches wide by 4 inches thick. Maximum cut, 1/8 inch. Will take pieces as short as 6 inches and as thin as 1/16 inch.

TABLE is one-piece casting, heavy ribbed, accurately planed. Is fitted to main pedestal by true machined ways. Adjustment is made with conveniently located hand wheel.

FEED ROLLS are machined from solid bar steel. Front in-feed roll is fluted to insure positive feed. Rear feed roll is machined and turned smooth. Both rolls are 1-3/4 inches in diameter. Pressure rolls are equipped with compression springs, conveniently adjusted.

BEARINGS are heavy duty ball bearings, equipped with alemite fittings.

CUTTER HEAD is turned and machined from solid bar steel. This safety type head 3-1/4 inches diameter, fitted with three high speed knives. To get best results, we recommend a speed of 4,000 R.P.M. which will give 12,000 cuts per minute. At 4,000 R.P.M., material feeds at the rate of 16 feet per minute.

CHIP BREAKER and pressure bar completely guard the head and feed rolls and are easily removed for accessibility to all working parts.

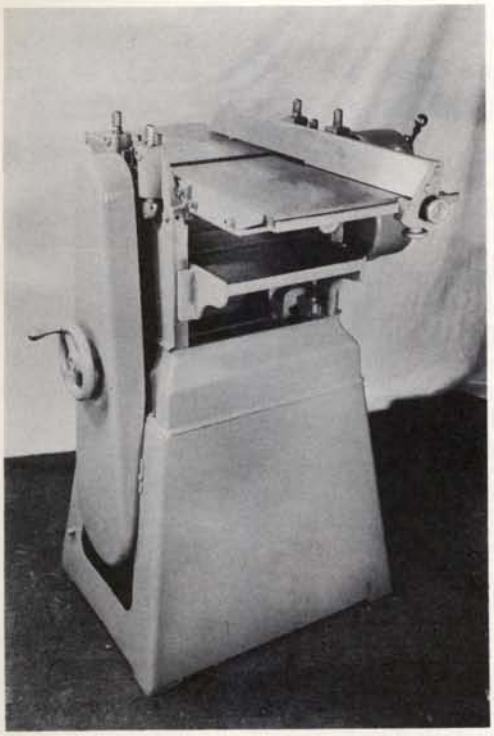
FRAME is furnished with graduated scale to determine the depth of cut.

DRIVE: Direct or V-Belt. 1-1/2 to 2 H.P. motor required. Various electrical specifications available to order.

WEIGHT: Without motor, 290 pounds. Shipping weight, 310 pounds.

EXTRAS: Fabricated Steel Base.
Belt Guard.
Set of Knives.

PARKS 12" THICKNESS PLANER AND JOINTER COMBINATION



For the shop which requires both a planer and jointer this new Parks combination machine offers a considerable saving in shop investment, since both the planer and jointer are operated by one motor. Moreover, the additional cost of the 12" Jointer unit over the cost of the Standard Parks 12" Planer is approximately one-tenth of the lowest priced 12" Jointer on the market. This Jointer unit is complete with knife guard and material guard.

SPECIFICATIONS

12" PLANER

CAPACITY: Will plane material up to 12 inches wide by 4 inches thick. Maximum cut, 1/8 inch. Will take pieces as short as 6 inches and as thin as 1/16 inch.

TABLE is one-piece casting, heavy ribbed, accurately planed. Is fitted to main pedestal by true machined ways. Adjustment is made with conveniently located hand wheel. Gibs are provided to assure accurate alignment of table to head.

FEED ROLLS are machined from solid bar steel. Front infeed roll is fluted to insure positive feed. Rear feed roll is machined and turned smooth. Both rolls are 1¾ inches in diameter. Pressure rolls are equipped with compression springs, conveniently adjusted.

BEARINGS are heavy duty ball bearings, equipped with alemite fittings.

CUTTER HEAD is turned and machined from solid bar steel. This safety type head 3¼ inches diameter, is fitted with three high speed knives. To get best results, we recommend a speed of 4,000 R.P.M. which will give 12,000 cuts per minute. At 4,000 R.P.M., material feeds at the rate of 16 feet per minute.

FRAME is furnished with graduated scale to determine the depth of cut.

DRIVE: V-Belt. 1½ to 2 H.P. motor required. Various electrical specifications available to order.

12" JOINTER

CAPACITY: Will handle material up to 12" wide. Maximum cut is 3/16".

TABLES: Both tables are adjustable for depth of cut and are made of gray iron casting with finished ground surface. Over-all length of table is 33", width is 12".

TILTING FENCE is included for bevel cutting. Fence tilts 45°.

PARKS 20" PLANER

The Parks 20" Planer is a modernly designed, precision-built, sturdy high speed surfacer. Its range of speeds assures the user a machine that can handle the heaviest type of roughing work or the finest cabinet finish with ease. The machine is sturdily constructed, with a heavy welded base, alloy head, high speed knives and hardened gears that enable the operator to run the planer at full capacity at all times. The high rate feed makes it ideal for use with other tools in any high production line for the fabrication of wood.

SPECIFICATIONS

BED: Semi-steel, close-grained casting supported by large anti-friction thrust bearings.

CUTTERHEAD: 4-knife round head of alloy steel with a cutting circle of 4¼". Mounted on heavy-duty ball bearings.

SPEED: 3600 R.P.M.

FRAME: Combines the best features of steel fabrication and semi-steel castings for sturdiness and greater rigidity.

RATES OF FEED: 20 and 40 F.P.M., or 40 and 80 F.P.M.

DRIVE: V-Belt. 3 to 10 H.P. motor required. Various electrical specifications available to order.

CAPACITY: 20" wide x 6" thick. Will take ⅜" cut.

OVERALL HEIGHT: 47"

TABLE DIMENSIONS: 34" x 20" wide.

BASE DIMENSIONS: 36" x 41".

KNIFE GRINDING ATTACHMENT: Available as extra.

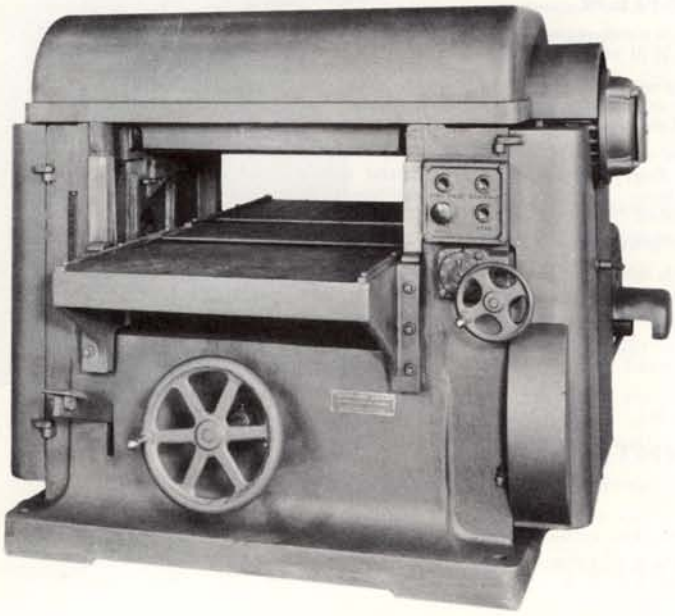
SHIPPING WEIGHT: 1425 pounds.



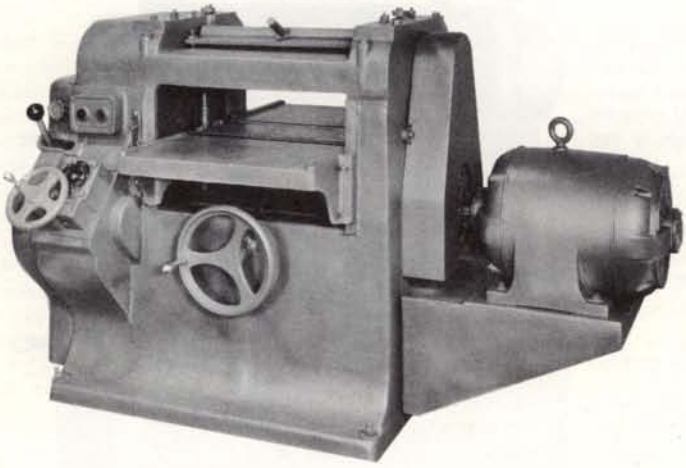
CRESCENT WOOD PLANERS

MODELS P-18 AND P-24

Dependable high-grade single surfacers that provide a fine finish on a great variety of jobs —sturdy, well constructed, and rapid cutting



"Crescent" Standard Model P-24 Planer with Direct Drive and Separate Feed Motor. Fully enclosed for safe operation.



Crescent Model P-18 Planer optionally arranged with V-belt drive.

CRESCENT 18- and 24-inch Wood Planers are designed to give a fine finish on a great variety of planing jobs in manual training schools, pattern shops, interior finish and furniture factories, and all industrial plants having need for a dependable high-grade single surfacer. These sturdy, rapid-cutting planers are built in two standard sizes, each equally well constructed and outstanding in operation within its respective capacity. Principal features of these machines are their heavy cast iron frames and beds, four knife cutter heads, direct motor drives, gear driven feed rolls, variable speed operation and extra large stock capacity.

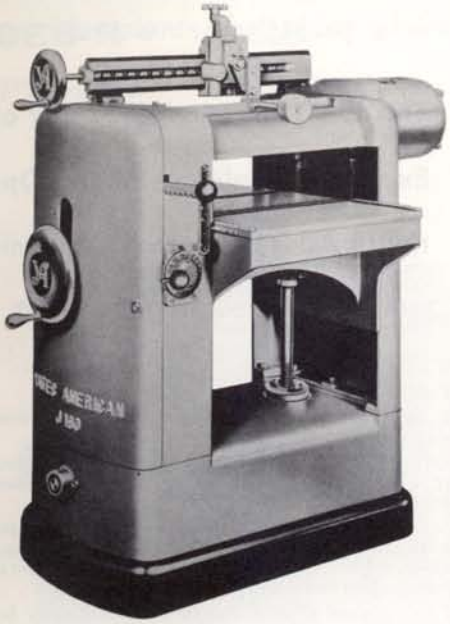
SPECIFICATIONS

	Model P-24	Model P-18
CAPACITY:		
Maximum width of stock	18 in.	24 in.
Maximum thickness of stock	6 in.	8 in.
Minimum thickness of stock	1/8 in.	1/8 in.
Maximum depth of cut	5/16 in.	5/16 in.
Shortest length (butted)	3 in.	3 1/2 in.
Shortest length (not butted)	7 1/4 in.	14 1/2 in.
FEED:		
Feeding speed	15 to 45 fpm	20 to 60 fpm
Number of driven feed rolls	2	4
Upper infeed rollers, solid, serrated	2 1/4 in.	4 in. O.D.
Upper outfeed rollers, solid, smooth	2 1/4 in.	4 in. O.D.
Lower feed rolls, solid, smooth	2 1/4 in.	3 1/4 in. O.D.
CUTTERHEAD:		
Diameter of cutting circle	3 1/2 in.	4 1/2 in.
Length of knives	18 1/4 in.	24 1/4 in.
Number of knives in cutterhead	4	4
Speed of head, direct motor driven	3600 rpm	3600 rpm
Speed of head, V-belt drive, max.	3600 rpm	4000 rpm
TABLE:		
Working surface length	33 in.	52 in.
Working surface width	18 in.	24 in.
MOTORS REQUIRED:		
Head drive (Second listed is standard)	3 or 5 hp	5, 7 1/2 or 10 hp
Feed drive	from cutterhead	1 hp
SHIPPING DATA:		
Net weight	1300 lb.	3100 lb.
Gross weight, boxed, domestic	1900 lb.	3700 lb.
Gross weight, boxed for export	2000 lb.	4100 lb.
Height	36 1/2 in.	46 in.
Floor space	38x54 in.	52x59 in.

Available as direct-drive or as V-belt drive (see pictures at left).

YATES-AMERICAN J-180 18" x 6" SURFACER

An Exceptionally Fine and Flexible Surfacer at Low Cost for the Medium Shop



Type	Size	Floor Space	Weight
DMD	18" x 6"	28" x 46"	1000 lbs.

CAPACITY: Will surface stock up to 18" wide and from ⅛" to 6" thick. Shortest when butted 3", not butted 8¼".

BASE: One piece casting forms a solid foundation for machine.

SIDE FRAMES AND GIRTS: Side frames and girts are cast iron, bolted and pinned to the base to form a rigid unit that will not twist or slide out of alignment.

BED: Heavy, one piece casting. Bed is 28" long, strongly ribbed and girted. It raises and lowers on 1¼" diameter hoist screws, and is supported on ball thrust bearings. The bed is adjusted by a large, easily operated handwheel on the left side of the machine.

FEED ROLLS: Top infeed roll is solid, knurled and runs in lubricated-for-life roller bearings. Top outfeed roll and bottom rolls are solid, and run in lubricated-for-life ball bearings. A rubber-covered, yielding roll can be supplied if desired.

FEED WORKS: Feed is driven from the cutterhead by a belt through the variable speed drive, and gear reduction unit to the feed rolls. Feed rates of from 18 to 55 feet per minute are available.

CUTTERHEAD CYLINDER: A 3-knife, round, safety-type cutterhead is furnished. The thin, high-speed steel knives are mounted at 30°. Cutting circle is 3½".

CHIPBREAKER: The solid, steel chipbreaker swings concentric with the cutterhead. The edge of the chipbreaker is always equidistant from the cutting circle and cannot strike the knives.

PRESSURE BAR: The pressure bar is solid and swings concentric with the cutterhead.

LUBRICATION: Feed works grease lubricated. Cutterhead and feed rolls have lubricated-for-life bearings.

MOTOR AND CONTROL: A 5 H.P., 3600 RPM, 3-phase, 60 cycle A.C., 220 or 440 volt motor is mounted directly on the cutterhead arbor. Motor is "cross-the-line" type. A push button operated magnetic starter gives full overload and undervoltage protection. All internal wiring is completed at the factory.

Motors of different frequency, phase, and voltage can be supplied on special order.

EXTRA EQUIPMENT: Jointer bar with self-reversing screw.

M-124 Motor Driven Knife Grinder (110 volt, single phase current) for use on Jointer Bar. (Note: Must have Jointer Bar above to use Grinder.)
Corrugated infeed roll.
Flexible chipbreaker.
Shaving Hood.

YATES-AMERICAN B-244 SURFACERS

24" x 8" and 30" x 8"

A Heavy-Duty Quality Surfacer of Modern Design



SIDE FRAMES & GIRTS: Side frames and girts are cast iron, bolted to the base to form a rigid unit that will not twist or slide out of alignment.

BED: Heavy one-piece casting. Bed is 40" long, strongly ribbed and girted. It raises and lowers on 1¼" diameter hoist screws, which are supported on ball thrust bearings. The bed is adjusted by a large, easily operated handwheel on the left side of the machine.

FEED ROLLS: Four 4" diameter driven feed rolls, running in roller bearings. Top infeed roll is sectional, made in 2" sections. Remainder of rolls solid. The top infeed roll has ½" yield through spring pressure.

FEED WORKS: Power is transmitted from the end of the cylinder through a flat belt to a pulley on the vari-drive shaft, then by Veebelt to the drive pinion on the gear reduction unit. The gear reducing unit transmits power to the feed rolls through a roller chain. Rates of feed 25' to 70' per minute through a vari-drive actuated by a conveniently located control in front of machine.

CYLINDER: The cylinder is a 4-knife round safety type, 4¼" cutting circle, fitted with four thin high speed steel knives mounted at 30 degrees. Cylinder runs in lubricated-for-life ball bearings.

CHIPBREAKER: Chipbreaker is sectional. A flexible chipbreaker can be furnished on special order instead of sectional type regularly furnished. A solid chipbreaker can also be furnished with the solid infeed roll if required.

PRESSURE BAR: The pressure bar is solid and also concentric with the cylinder, and is adjusted by screws placed on top.

LUBRICATION: Grease Gun.

DIRECT MOTOR DRIVE: 7½ HP, 3600 RPM motor, ball bearing, totally enclosed, dustproof, fan-cooled, built-in, cross-the-line type AC, 3 phase, 60 cycle, 220, 440 or 550 volts, on 24" machine, 10 HP on 30" machine. With magnetic starter, providing overload and undervoltage protection, and operated by a start and stop push-button station. The rotor of the motor is mounted directly on the cylinder.

KNIFE GRINDER: M-124 Motor-Driven Knife Grinder, for operation from 110-volt, single-phase current, is furnished.

EQUIPMENT: Jointing and knife setting device, shaving deflector and wrenches.

Type	Size	Floor Space	Weight
DMD	24" x 8"	48" x 40"	2300 lbs.
DMD	30" x 8"	56" x 40"	2800 lbs.

EXTRA EQUIPMENT

Shaving hood with 6" opening.

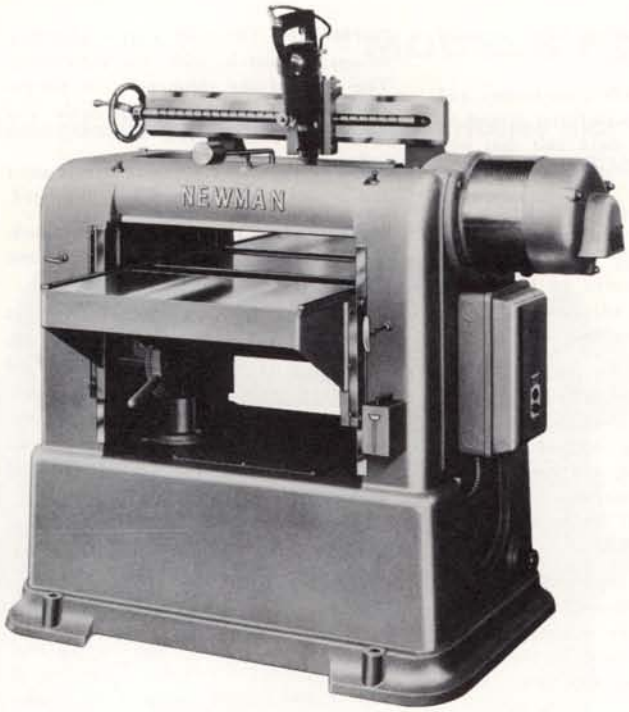
10 HP, 3600 RPM motor, AC, 3 phase, 60 cycle, 220, 440 or 550 volts, in place of 7½ HP on 24" machine.

Separate feed motor available if desired.

CAPACITY: To work stock up to 24" or 30" in width, and from ⅛" to 8" in thickness. Will surface stock as short as 3¼" butted, 11" not butted.

BASE: One-piece casting forms a solid foundation for the machine.

NEWMAN SINGLE SURFACERS



• P-820 • P-824 • P-830

This is a Truly Modern Planer of Excellent Quality with the Optional Advantage and Convenience of a Power-Table Hoist

SPECIFICATIONS

CAPACITY: The NEWMAN P-800 series planers are built in three sizes to plane 20", 24", and 30" wide, from ⅛" to 8" thick. Shortest stock butted 3¼", not butted 11". Maximum depth of cut ½".

BASE & FRAME: The heavy one-piece cast iron base, side frames, tables, and girts are accurately machined to assure perfect alignment.

CUTTERHEAD: The cutterhead is the four-knife round safety type, 4¼" cutting circle. It rotates on lubricated-for-life ball bearings and is made from high carbon special alloy steel and then statically and dynetrically balanced. The machine can be furnished with three methods of drive for the cutterhead as follows: one, direct coupled motor drive, 3600 RPM; two, V-belt motor drive, 4200 RPM or more; three, direct shaftless motor drive on cutterhead spindle, 3600 RPM.

FEED WORKS: The feed consists of four 4" diameter power driven feed rolls, one of which is sectional with 2" spring loaded cast steel roll sections with independent yield of ¼". The other three solid rolls are solid steel, ground for accuracy. The feed works consists of a totally enclosed all geared reduction unit for long wear. The power from this unit is then transmitted to the rolls through roller chain and machine cut steel sprockets with chain tighteners to remove the slack from the sprocket chains. The entire feed works rotates on ball bearings. The heavy top roll springs are easily accessible to the operator for regulating spring tension on top rolls and the infeed top roll has a yield of ½". The machine is equipped with variable feed drive which gives any rate of feed from 20 to 70 lineal feet per minute.

The bottom rolls are simultaneously adjusted with the micrometer SPEED-SET lever, making it possible to change this machine from roughing to finishing work in a matter of seconds.

BED: The bed is raised and lowered on heavy screws which are offset for extreme rigidity of the table. These screws are raised and lowered in ball thrust bearings for accuracy and ease of operation by means of hand wheel convenient to the operator.

The machine may be equipped with an electric geared-in motor for raising and lowering the bed by power and the handwheel is still available for fine settings. Limit switches are provided for the electric power hoist to protect the machine at the extreme limits of the table.

This bed may be furnished with a hardened and ground tool steel removable bed plate if desired.

CHIPBREAKER & PRESSURE BAR: The chipbreaker is concentrically mounted to the cutterhead with 2" spring loaded steel sections which have independent yield of ⅜". The pressure bar is concentrically mounted to the cutterhead and easily adjusted by set screws.

REGULAR EQUIPMENT: Sectional infeed roll. Sectional chipbreaker. SPEED-SET micrometer adjustment for bottom feed rolls. Variable speed feed control with convenient indicator giving any rate of feed between 20 and 70 FPM. One set of four high speed steel knives. Knife setting gauge and necessary wrenches.

EXTRA EQUIPMENT: Cutterhead motor as desired. (Motor controls with overload and low voltage protection are included in the price of the motor.) Electric chatter-proof grinder and jointer with double V-bar. Hardened and ground tool steel removable center bed plate. Power Hoist with geared-in electric motor to raise and lower table. Cutterhead brake. Shaving hood.

SPECIFICATIONS	P-820	P-824	P-830
Capacity	20" x 8"	24" x 8"	30" x 8"
Floor Space	63" x 38" DCD 63" x 38" VBD 51" x 38" DMD	67" x 48" DCD 67" x 48" VBD 55" x 48" DMD	73" x 48" DCD 73" x 48" VBD 61" x 48" DMD
Height	44"	44"	44"
Weight	2200	2250	2350

PLANER AND JOINTER BLADES

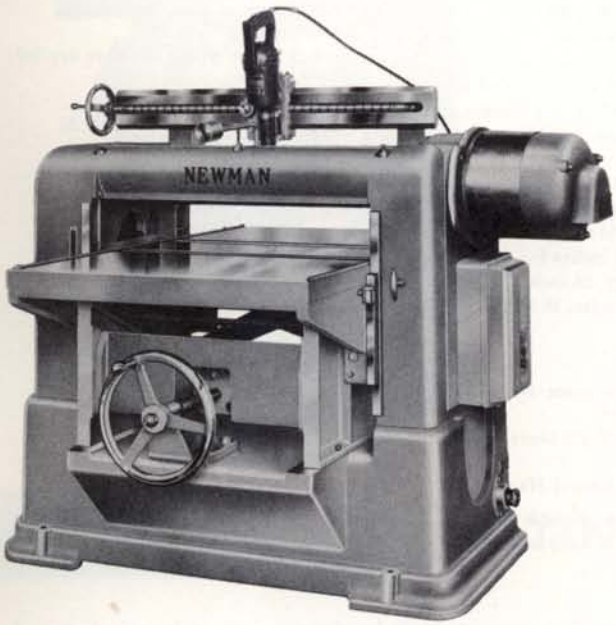


These are made from special steels and possess extreme durability and toughness. They retain their sharpness for long periods without resharpening. When ordering specify length, width and thickness and whether plain or notched. When notched, a sketch should be submitted.

NEWMAN PW SINGLE SURFACER WEDGE TYPE BED

The NEWMAN PW Single Surfacer is designed for use in schools, millwork, furniture and woodworking plants of all types where stress is placed on excellent finish. Power table hoist optional.

PW-820 PW-824 PW-830



SPECIFICATIONS

CAPACITY: The NEWMAN PW Single Surfacer is built in three sizes to plane 20″, 24″, and 30″ wide, from ⅛″ to 8″ thick. Shortest stock butted 3¼″, not butted 11″. Maximum depth of cut ½″.

BASE & FRAME: The heavy one-piece cast iron base, side frames, tables, wedges, and girts are accurately machined to assure perfect alignment.

CUTTERHEAD: The cutterhead is the four-knife round safety type, 4¼″ cutting circle. It rotates on lubricated-for-life ball bearings and is made from high carbon special alloy steel and then statically and dynetrically balanced. The machine can be furnished with three methods of drive for the cutterhead as follows: one, direct coupled motor driver, 3600 RPM; two, V-belt motor drive, 4200 RPM or more; three, direct shaftless motor drive on cutterhead spindle, 3600 RPM.

FEED WORKS: The feed consists of four 4″ diameter power driven feed rolls, one of which is sectional with 2″ spring loaded cast steel roll sections with independent yield of ¼″. The other three solid rolls are solid steel, ground for accuracy. The feed works consists of a totally enclosed all geared reduction unit for long wear. The entire feed works rotates on ball bearings. The heavy top roll springs are easily accessible to the operator for regulating spring tension on top rolls and the infeed top roll has a yield of ½″. The machine is equipped with variable feed drive which gives any rate of feed from 20 to 70 lineal feet per minute.

The bottom rolls are simultaneously adjusted with the micrometer SPEED-SET lever, making it possible to change this machine from roughing to finishing work in a matter of seconds.

BED: The bed is 48″ long and is raised and lowered on long incline wedges which are carefully hand scraped for extreme accuracy. A handwheel convenient to the operator in front of the machine is used to raise and lower this WEDGE-ADJUSTED table.

The machine may be equipped with an electric geared-in motor for raising and lowering the bed by power and the handwheel is still available for fine settings. Limit switches are provided for the electric power hoist to protect the machine at the extreme limits of the table.

This bed may be furnished with a hardened and ground tool steel removable bed plate if desired.

CHIPBREAKER & PRESSURE BAR: The chipbreaker is concentrically mounted to the cutterhead with 2″ spring loaded steel sections which have independent yield of ⅜″. The pressure bar is concentrically mounted to the cutterhead and easily adjusted by set screws.

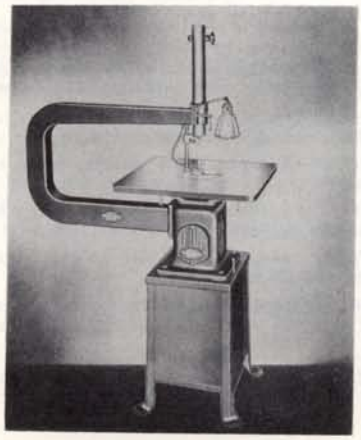
REGULAR EQUIPMENT: Sectional infeed roll. Sectional chipbreaker. SPEED-SET micrometer adjustment for bottom feed rolls. Variable speed feed control with convenient indicator giving any rate of feed between 20 and 70 FPM. One set of four high speed steel knives. Knife setting gauge and necessary wrenches.

EXTRA EQUIPMENT: Cutterhead motor as desired. (Motor controls with overload and low voltage protection are included in the price of the motor.) Electric chatter-proof grinder and jointer with double V-bar. Hardened and ground tool steel removable center bed plate. Power Hoist with geared-in electric motor to raise and lower table. Cutterhead brake. Shaving hood.

SPECS.	PW-820	PW-824	PW-830
Capacity	20″ x 8″	24″ x 8″	30″ x 8″
Floor Space	64″ x 48″ DCD	68″ x 48″ DCD	74″ x 48″ DCD
	64″ x 48″ BD	68″ x 48″ BD	74″ x 48″ BD
	52″ x 48″ DMD	56″ x 48″ DMD	62″ x 48″ DMD
Height	44″	44″	44″
Weight	2350	2450	2550

BOICE-CRANE 24″ x 5″ JIG SAW

A rugged Jig Saw for wood, metal, and plastic, with large capacity: 5″ thick, 24″ throat.



SPECIFICATIONS

TABLE.....20″ x 20″, tilts to 45°

THROAT.....24″ from saw blade to frame

CAPACITY.....To 5″ thick

BLADES.....Utilizes blades from 5″ to 9″ long—under measured tension

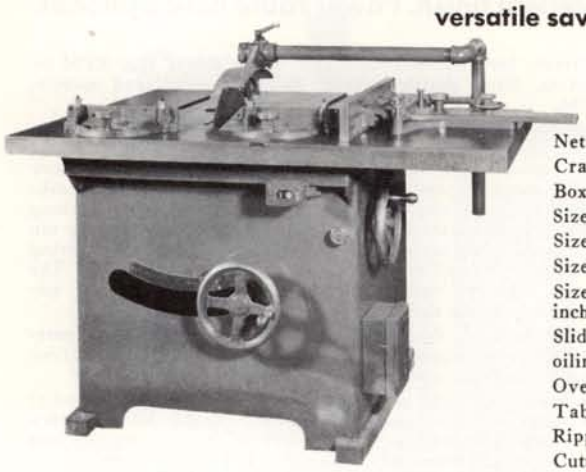
STROKE.....1-1/2″

POWER.....Recommended 1/3 HP, operating through V-belt

ACCESSORIES.....Steel stand and switch rod

TANNEWITZ TILTING ARBOR MITRE SAW BENCH TYPE U

Designed for the "high quality at low cost" buyer. A heavy duty, versatile saw bench that assures quality production with minimum cost.



SPECIFICATIONS

Net Weight, 1350 lbs.
Crated Weight, 1500 lbs.
Boxed Weight, 1600 lbs.
Size of Box, 56 cubic feet.
Size of One-Piece Table, 37 x 43 inches.
Size of Slide Table 15 x 41 inches.
Size of R. H. Table Section 20 x 41 inches.
Slide Table rolls on 6 adjustable self-oiling Ball Bearings.
Overall Width, 53 inches.
Table expands 3 inches for dadoes.
Ripping Capacity, 24 inches.
Cutting Off Capacity, 30 inches.
Height of Table, 35½ inches.
Size of Base at Floor, 27½ x 32½ inches.
Size of Arbor where saws are applied, 1 inch.
16-Inch Saw Projects 4 inches.
Largest Saw that can be used, 20 inches.
10-Inch Saw Projects 1 inch.
10-Inch or 12-Inch Dadoes Recommended.
4-Inch Vertical Saw Adjustment.
Alemite Lubrication.

Also available with sliding table.

EQUIPMENT

5 H.P. Woods-Tannewitz A.C. motor, fully enclosed and externally ventilated.
Cutler-Hammer Push-Button Control with overload and undervoltage protection.
16-Inch Diameter Cross-Cut Saw Blade.
B-13-A and B-14-A Universal Mitre Gauges, graduated 60 degrees right and left, complete with stop rods.
F-407 Non-Tilting Rack and Gear Adjusted Rip Fence, held in place by two taper pins and clamp knob.
Curved Steel Splitter and Rigid Overhead Guard.
10-Inch Handwheels and Swivel Handles.
Tee-Shaped Gauge Strips, ⅜-inch thick.
6-Inch Dust Outlet in Rear of Base.
One Set of Wrenches.

AVAILABLE EQUIPMENT

3-H.P. A.C. Motor.
36-Inch Ripping Capacity.
4-Inch Dado Stub Arbor.
B-435 Tilting Rip Fence with or without mike.
Automatic Cage Guard with Anti-Kick-back Dogs.

TANNEWITZ PORTABLE BENCH SAW TYPE M

Here is a machine that has a multiplicity of uses and will save endless hours of time and money on some of those tedious and difficult jobs you find in every shop. This is a high-quality machine built to last. It is convenient, speedy, accurate, and safe. Note how convenient it looks. It acts the same way. It is very simple to adjust and produces very accurate work.

CAPACITY—Has 10" hollow-ground saw for cutting smoothly with or against the grain. Cuts 2" (8/4) thick lumber x 6' wide squarely. At 45° it will cut 2" (8/4) x 4¼" wide lumber. Will cut light metal (moulding, tubing, etc.) with proper metal-cutting saw.

DRIVE—V-belt.

MOTOR—Standard motor is ½ H.P., 110 volt, 1 phase, AC. Can also be furnished with 1-H.P., 220/440-volt, 3-phase, 60-cycle, AC motor.

SWITCH—Start and stop switch provided.

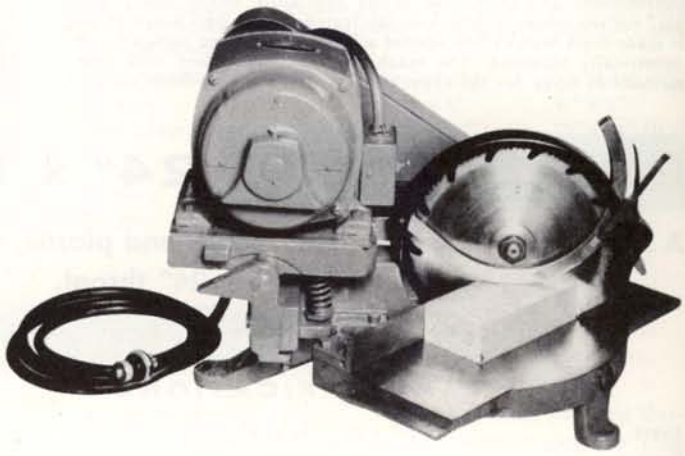
DUST FACILITIES—Provided with dust spout to connect to dust collector.

GUARDS—Saw is adequately and completely guarded. Belts and pulleys also guarded.

WEIGHT—With standard motor net weight is only 125 pounds making it easily portable.

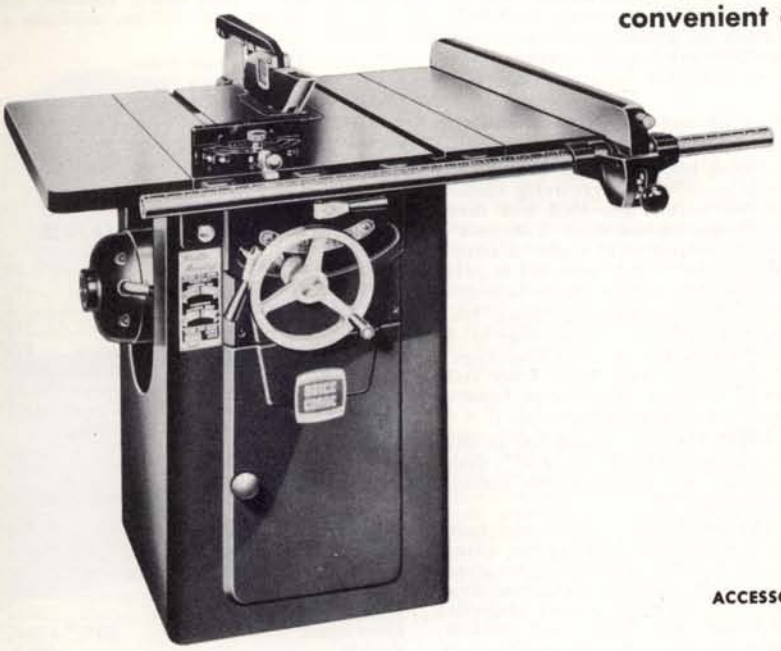
ACCESSORIES, EXTRAS—3-legged stand and foot treadle.
—4-ft. left-hand table with graduated 1" bar.

Also available in a slightly larger size Model M-2
Details upon request.



BOICE-CRANE 10" TILTING ARBOR SAW

A moderately priced, versatile saw with exceptionally convenient controls and large capacity



SPECIFICATIONS

Blade, maximum diameter	10 in.
Cut, maximum, square	3¼ in.
tilted	2¼ in.
Travel of Blade	4 in.
Arbor Speed	4000 r.p.m.
Drive	Triple V-Belt
Diameter of Arbor (at blade)	¾ in.
Cutter Space on Arbor, Dado, Cope Head, etc.	1⅛ in.
Height of top from floor	34 in.
Motors available	1½ or 1 h.p., 1 phase 2, 1½, 1 h.p., 3 phase
Bearings	Life-lubricated Ball
Cut-off Capacity	15" w. x 1" thick 13¾" w. x 3¼" thick
Fence Height	2½ in.
Shipping Weight	430 lbs.

ACCESSORIES: Extension Tables (pair to make table 36" wide)
Manual Starter
Magnetic Starter

NEWMAN K-16 TILTING ARBOR VARIETY SAW

A saw designed to do a variety of ripping, cross-cutting, mitering, beveling, grooving and dadoing operations. Carbide saws can be furnished for cutting wood and wood substitutes, aluminum and other non-ferrous metals.

SPECIFICATIONS

CAPACITY: Saw is equipped with a 16" blade which projects 4" above the table at 90° and 2½" at 45°. Stock 26" can be ripped and stock 28" wide can be cut off.

TABLE: The table is 36" deep, 44" wide, height above floor is 34", and is made of heavily ribbed cast iron, accurately machined to insure a flat surface. Tee slots and removable throat plate are provided. Center of saw from front edge of table is 18" and from left edge is 16".

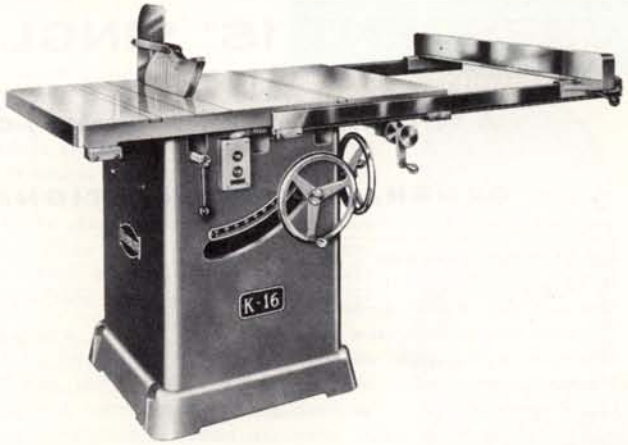
SAW ARBOR: The saw arbor is direct motor driven and mounted in large ball bearings, 1⅛" diameter where saw is mounted, and has a 4" vertical adjustment and tilts 45° to the right. The arbor and motor assembly is mounted in gibbed ways, accurately machined and fitted.

ADJUSTING SCREWS: Hoist and tilting adjustments of arbor are made by conveniently located hand wheels. Adjusting screws are equipped with ball thrust bearings for ease of operation. Separate locking mechanism provided for extreme positions of hoist and tilt.

RIP FENCE: Aluminum rip fence, machined on both sides, is provided with eccentric lock. Accurate alignment with blade is assured at all times. Fence unit is easily removed at any position.

MITER GAUGE: Cast iron miter gauge angles 45° to right or left.

GUARD: Cast aluminum guard is mounted on splitter. Two kickback fingers on each side of splitter close to blade. Splitter is attached to tilting housing so that blade and guard tilt simultaneously. Double pivot action of guard provides maximum protection to operation at all times. Splitter and guard easily removable for dadoing.



MOTOR & CONTROLS: 5-h.p., 3-phase, 60-cycle, 220, 440, or 550-volt motor with push-button control providing overload and low voltage protection.

REGULAR EQUIPMENT: One combination rip and cut-off saw, safety guard for saw blade, one miter cut-off gauge, anti-kickback fingers, one double-faced rip fence which can be used on either side of saw, splitter and all necessary wrenches.

EXTRAS: Ball bearing roller table with non-tilting micrometer fence. Movable section 16" wide, adjustable to take dado heads up to 2½" wide.

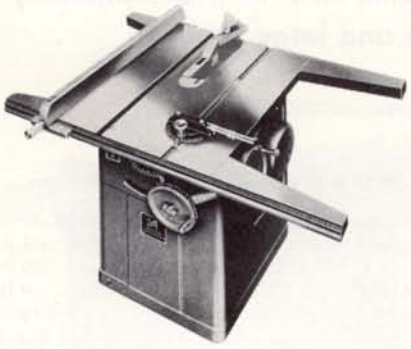
Quick adjusting type non-tilting Universal micrometer rip fence, instead of box type.

Quick adjusting type tilting Universal micrometer rip fence, instead of box type.

Micrometer box type rip fence, for ripping stock up to 48" wide.

Model	Size	Floor Space	H.P.	Weight
K16	16"	36" x 44"	5	1250 lbs.

YATES-AMERICAN J-125 10" CIRCULAR SAW



The J-125 10" Tilting Arbor Circular Saw is engineered for simplicity of operation, extreme accuracy, efficiency, and safety at a very low cost. These features make it the outstanding value in the woodworking equipment field today.

CAPACITY: Will rip to the center of a 50⅛" panel and saw through stock 3⅛" thick.

CABINET: Heavy, extra strong pressed steel cabinet. Large removable panel at top left provides for inspection of mechanism. Dust removal opening permits removal of sawdust as required.

TABLE: Normalized, close grained, heavily ribbed cast iron table accurately machined.

ARBOR: Precision ground alloy steel. Arbor runs on lubricated-for-life bearings which are perfectly aligned in a precision bored housing.

DRIVE: Efficient and rugged two belt drive.

CONTROLS: All controls conveniently located from operating position. Large machine tool handwheels provided with revolving handles. Tilt and hoist screws provided with thrust bearing for ease of operation. Tilt scale is set at a convenient eye angle. Electrical switch at left front is fully protected to guard against accidental engagement or damage.

RIP FENCE: The patented rip fence floats along the saw table on ball bearings to the exact position required. A single simple operation of the control knob locks fence front and back. Fence can be removed from or replaced on the table at any position.

MITER GAUGE: The miter gauge has positive adjustable stops at 45°, 90°, and 45°, easily and accurately set for repetitive cuttings. Head pivots full 120°.

GUARD: The new Yates-American saw guard has many fine features never before offered at any price. Roller bearings guide the guard with relationship to the splitter, eliminating twist and bind. Window allows inspection of cut or scribe mark. Splitter and anti-kickback fingers prevent stock bind and kickback.

Motors All motors totally enclosed, fan cooled, 3600 R.P.M., available as follows:

1 H.P., single phase.
2 H.P., single phase.
1½ H.P., three phase.
2 H.P., three phase.
3 H.P., three phase.

SPECIFICATIONS

Diameter of Blade	10"
Diameter of Arbor at Blade	⅝"
Cutter Capacity on Arbor	1"
Maximum Depth of Cut 90°	3⅛"
Maximum Depth of Cut 45°	2 $\frac{3}{16}$"
Arbor Speed	4000 R.P.M.
Table in Front of Blade at Maximum Cut	14"
Maximum Width of Cut-off (1" Stock)	15⅝"
Maximum Capacity Cross Cut, Miter Gauge Extended	24"
Cuts to Center of Panel	50⅛"
Capacity to Fence—Right	25 $\frac{1}{16}$"
Capacity to Fence—Left	16 $\frac{5}{16}$"
Table Size	22" x 28"
Table Size with Extensions	48¾" x 28"
Tilt of Blade to Right	45°
Fence Height	2½"
Table Height from Floor	34¼"
Floor Space	29⅝" x 24¾"
Weight	250 lbs.

CRESCENT 16" SINGLE TILTING ARBOR SAW

A versatile, well designed, heavy-duty tilting arbor saw of large capacity.

GENERAL SPECIFICATIONS

Table size	40 x 45 in.
Height of table from floor	34 in.
Arbor size	1⅛ in.
Maximum size of saw, diameter	20 in.
Thickness will cut stock (saw projection)	4 in. with 16 in. saw
Maximum ripping width, with fence to right	24 in.
Maximum ripping width, with fence to left	19 in.
Cut off capacity	1 x 18 in.
Dado head maximum width	3 in.
Size of ripping fence	3⅝ x 30 in.
Sawdust blower connection	6 in.
Number of cut-off gauges (T-slot type table)	2
Angular adjustment of cut-off gauges	45—0—45 deg.
Saw arbor elevating mechanism (screw type) vertical travel	5 in.
Maximum tilt of saw arbor	45 deg.
Motor horsepower	5 hp
Motor and arbor speed	3600 rpm
Electrical characteristics (wired or 220 v. initially)	220/440 v., 3 ph., 60 cy.

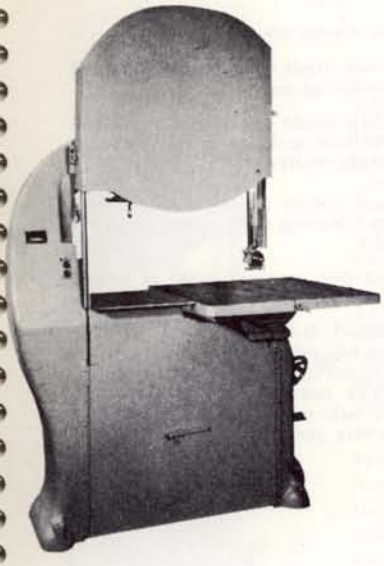
Base construction: Continuous welded steel plate ⅜ in. wall.
Table construction: Heavily ribbed one-piece iron casting.

Floor space, approximate	40 x 64 in.
Net weight, minimum	1500 lb.
Domestic shipping weight, approximate	1650 lb.



YATES-AMERICAN Y-36 36" BAND SAW

A big, heavy-duty bandsaw suitable for all types of work in any shop.



CAPACITY: Distance from saw blade to column, 35½" with the saw guard in place. Distance under the guide 20". This can be increased to 23" when the guard is removed.

FRAME: One-piece casting, combination straight and "goose neck" type, with wide flaring base. A dust chute with an outlet at the floor line in the rear of the machine is also cast into the frame.

TABLES: The main table is 36" x 36", of reinforced cast-iron construction, and rests upon a rigidly mounted cradle 13" wide. The table tilts 45° to the right and 10° to the left, by means of a hand wheel conveniently located at the side of the machine. The tilting device has lock and is equipped with an easily read index scale. The table surface is 42" from the floor level. An auxiliary table 18" x 22" in size is also provided.

WHEELS: "Carter" demountable rim type, 36" in diameter, with a 1¾" face. The upper wheel runs in roller bearings—the lower wheel in ball bearings on DMD models, and in roller bearings on the VBD models. Both are grease lubricated. The upper wheel mounting moves in carefully machined gibbed ways. The upper wheel is provided with a knife edge spring tensioned straining device, which is extremely sensitive and maintains the proper blade tension at all times. For the operator's convenience, a gauge and indicator shows the proper tension for each size saw blade. A hand wheel for tracking the saw is conveniently located within easy reach. Both wheels are rubber covered demountable rim type. The guide bar is counterbalanced by a special spring balance.

BRAKES: A quick-acting, spring set drum brake in the hub of the lower wheel stops the wheel and saw instantly and surely. The brake is operated by means of a foot pedal at the front of the machine.

DMD DRIVE: 5 H. P., 720 R. P. M., ball bearing, alternating current, 3 phase, 60 cycle, 220, 440 or 550 volt motor equipped with a magnetic starter with overload and undervoltage protection and with a start and stop push button station. 5 H. P., 900 R. P. M. motor optional. Specify wheel speed desired.

VBD DRIVE: 5 H. P., 1800 R. P. M., alternating current, 3 phase, 60 cycle, 220, 440 or 550 volt ball bearing motor is mounted on a bracket at the rear of the machine and vee belted to the lower wheel shaft.

EQUIPMENT: One ½" 21 gauge band saw blade.

Type	Floor Space	Weight
VBMD	6'-8" x 3'-2"	3050 lbs.
DMD	5'-3" x 3'-2"	3050 lbs.

EXTRA EQUIPMENT

Ripping fence.
Mitre gauge.

YATES-AMERICAN Y-1300 30" SCROLL BAND SAW

The Y-1300 is an easily operated, efficient, durable machine. It will handle all types of scroll band saw work on stock of any reasonable dimension, can be equipped with rip fence and mitre gauge for ripping and cut-off.

CAPACITY—Distance from saw blade to column, 29½" with saw guard in place. Distance under the guide, 14". This can be increased to 16" when the guard is removed. Blades up to 1½" in width can be used. Longest blade, 17'2"—shortest blade, 16'6".

FRAME—One-piece casting, with wide flaring feet. A heavy plate-type motor mounting is cast into the frame. This rigid mounting makes possible the perfect alignment of the wheels.

TABLES—The main table is 26" x 28", of reinforced cast-iron construction. It tilts 45 degrees to the right and 5 degrees to the left. The tilting operation is accomplished by means of a screw and self-locking crank. An index shows the degree of tilt. The table surface is 38½" from the floor level.

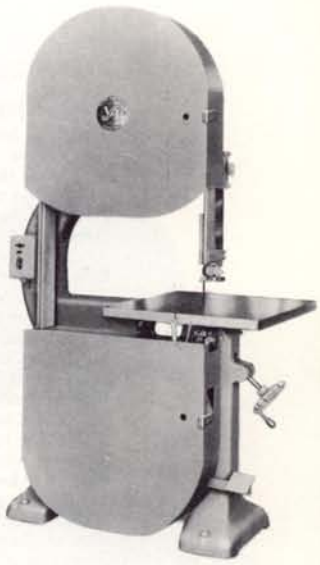
WHEELS—Both wheels cast iron spoke-type, 30" in diameter, with 1½" face. Run in ball bearings. The upper wheel mounting moves in carefully machined gibbed ways. The upper wheel is provided with a spring-tensioned straining device, which is extremely sensitive and maintains the proper blade tension at all times. A hand wheel for tracking the saw is conveniently located within easy reach of the operator. Lower wheel is mounted directly on the ball bearing motor shaft. The bearings are grease lubricated. Sheet metal door-type guards enclose both the lower and the upper wheels. The saw blade is completely guarded at all points except at the actual point of cut. Non-friction roller guides, one above and one below the table, are provided. Both wheels are rubber covered. A brake actuated by a convenient foot lever is provided on the lower wheel.

DMD DRIVE—3 H.P., 720 R.P.M., 2 or 3 phase, 60 cycle, 220, 440 or 550 volt, ball bearing alternating current motor. Magnetic push button starter having overload and undervoltage protection, mounted on frame of machine. (900 R.P.M. motor at extra charge.)

EQUIPMENT—One ⅜" 21 gauge band saw blade.

Floor Space—32" x 52"

Weight—1,700 Lbs.



EXTRA EQUIPMENT

Ripping fence
Splitting gauge and spring roll
Mitre cut-off gauge

YATES-AMERICAN J-120 20" BAND SAW



The J-120 20" band saw is a top-quality medium-sized band saw. It combines extreme accuracy, high operating efficiency, safety of operation and attractive design to make it one of the most outstanding values on the market today.

Lubricated-for-life bearings are used throughout the machine to assure years of trouble-free service. All moving parts are enclosed except at the actual point of cut, thus reducing the possibilities of accidents.

CAPACITY—Distance from saw blade to column 19½". Distance under the guide 13½".

FRAME—Cast iron base with steel frame. Upper frame is rubber mounted. Hinged doors give easy access to motor and top wheel. A dust chute is cast into the upper frame.

Type	Floor Space	Weight
VBD	24" x 42"	615 lbs.

TABLE—Table is 24" x 24" and is made of cast iron machined to an accurate surface. The table tilts 45° right, 12° left on double trunnions. A positive lock is provided and equipped with an easily read index scale. The table surface is 41½" from the floor level.

WHEELS—Aluminum, 20" diameter, with 1¼" face. Both the upper and lower wheels run in lubricated-for-life bearings. The wheels travel at 875 RPM. The blade travels at 4,580 FPM.

WHEEL GUARDS—Both wheels are totally enclosed.

SAW GUARDS—The saw blade is completely enclosed except at the actual point of cut.

STRAINING DEVICE—Saw strain is obtained through a spring to the top wheel. A scale indicates the correct strain for various blade widths.

GUIDES—Both top and bottom guides are furnished. Lubricated-for-life ball bearing back guides, hardened steel block side guides.

BRAKES—A convenient foot operated brake is located on the lower wheel.

MOTOR AND CONTROL—1 H.P., 1800 RPM, 60 cycle A.C., 3-phase, 220 or 440 volt motor with lubricated-for-life bearings. Motor drives the lower wheel through Vee-belts. The motor base is adjustable to maintain the proper belt tension. Single phase and other horsepower motors can be supplied as ordered.

EXTRA EQUIPMENT

Mitre Gauge Rip Fence

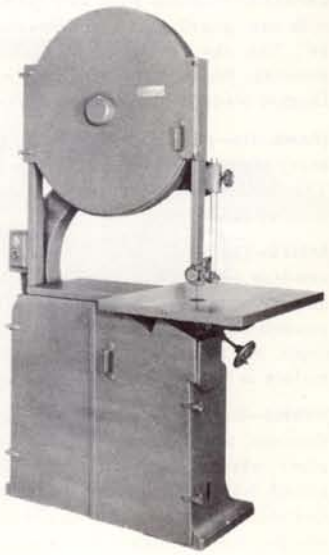
CRESCENT 36" BAND SAWS

A good, moderately priced all-round bandsaw of sturdy construction

- HANDWHEEL TILTING TABLE
- BALL BEARING SAW GUIDES
- COUNTERBALANCED GUIDE BAR
- ECONOMICALLY PRICED
- MASSIVE CONSTRUCTION
- CAST-IRON FRAME
- ACCURATELY BALANCED WHEELS
- FULLY GUARDED FOR SAFETY

SPECIFICATIONS

	STANDARD FRAME MODELS	"HIGH NECK" FRAME MACHINES
Width of base	44 in.	44 in.
Bolt center	15¼ in.	16 in.
Height of table from floor	40 in.	40 in.
Height overall	89 in.	105 in.
Depth of base, standard direct motor drive model	19 in.	19 in.
Depth of base including motor bracket extension for V-belt drive model	32 in.	32 in.
Bolt center	15 in.	15 in.
Thickness base pad	2 in.	2 in.
Bolt diameter	½ in.	½ in.
Blade to inside of column	35¼ in.	35¼ in.
Maximum height under top guide	16 in.	23 in.
Size of table	28 x 32 in.	29 x 36 in.
Size of auxiliary table	16 x 21 in.	16 x 21 in.
Table tilt to right	45 deg.	45 deg.
Table tilt to left	5 deg.	10 deg.
Vertical adjustment of upper wheel	4½ in.	7 in.
Size of wheels, diameter x width	36 x 2 in.	36 x 2 in.
Maximum width of blade	1½ in.	1½ in.
Blade length	18 ft. 6 in.	20 ft. 8½ in.
Size of Dust Chute Opening	¾ in. x 2½ in.	1 in. x 4¼ in.
Power required	3 or 5 hp	3 or 5 hp
Floor space	39 x 57 in.	39 x 60 in.
Net weight	1875 lb.	2300 lb.
Domestic shipping weight	2025 lb.	2450 lb.



DATA ON DRIVE ARRANGEMENTS

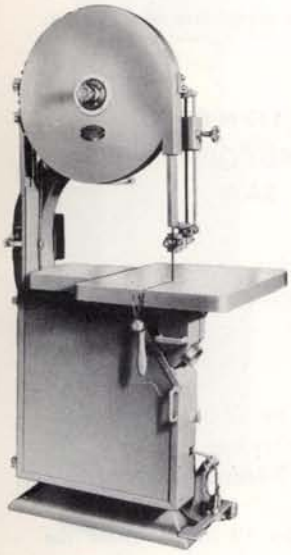
DIRECT MOTOR DRIVE—Lower wheel mounted directly on motor shaft. Wheel speed 600 or 900 rpm.

VEE BELT DRIVE—1800 rpm. motor mounted on bracket at rear of machine and connected to lower wheel shaft with multiple V-belts. Wheel speed 600 or 900 rpm.

Above also available as metal cutting saw. Write for details.

MOAK 26" BAND SAW

A very convenient size band saw, moderate in price, high in quality, and particularly suited to the shop doing medium size work.



SPECIFICATIONS

SIZE OF BAND SAW (wheel diameter)	26"
Wheel Face	1½"
Height of table from floor	40"
Size of table	24"x28"
Size of auxiliary table	13½"x13½"
Distance from front edge of table to saw	10"
Distance from saw to frame of saw	25¼"
Standard capacity under guide	15½"
Table tilts to right	45 deg.
Table tilts to left	5 deg.
Upper wheel has vertical adjustment	6½"
Maximum saw length	14'7"
Maximum height required	6'10"
Horsepower required	2 or 3
Floor space required	30"x45"
Base size	16"x32"
Net weight	1350 lbs.
Domestic shipping weight	1500 lbs.
Boxed for export gross weight	1800 lbs.
Boxed for export—content	90 cu. ft.

STANDARD EQUIPMENT: Aluminum Disc Wheels with interchangeable cast iron hubs and fitted with Carter Jiffy Tires (for speeds up to 1200 R.P.M.), prelubricated ball bearings, tilting table, two ball bearing saw guides, complete guards, guide bar counterbalance, dust spout and one ⅜" x 22 gauge blade.

OPTIONAL DRIVES: Belt Drive, Belted Motor Drive or Direct Motor Drive (2 or 3 H.P.).

EXTRA EQUIPMENT

EQUALIZED TWO-WHEEL BRAKES with automatic device to stop motor and apply both brakes in the event a band saw blade should break, also, shuts off motor when two-wheel brakes are applied by convenient foot pedal (furnished on direct motor drive only).

MECHANICAL BRAKE on lower wheel only; consisting of completely machined brake drum mounted on lower wheel shaft and operated by convenient foot pedal.

RIP FENCE can be used on either side of saw and locked in position.

MITER GAUGE complete with slide.

FLEXIBLE NECK MACHINE LIGHT with shade and 110 volt transformer installed on Band Saw, including wiring.

MOAK 36" HIGH SPEED BAND SAW

A high grade band saw with exclusive control features which produce unrivaled efficiency in the pattern shop or other woodworking departments.

SPECIFICATIONS

SIZE OF BAND SAW (wheel diameter)	36"
Wheel Face	1¾"
Height of table from floor	40"
Size of table	31"x37"
Size of auxiliary table	17"x20"
Distance from front edge of table to saw	13"
Distance from saw to frame of saw	35½"
Standard capacity under guide	20½"
Table tilts to right	45 deg.
Table tilts to left	5 deg.
Upper wheel has vertical adjustment	10½"
Maximum saw length	19'5"
Maximum height required	8'4"
Horsepower required	3, 5, or 7½
Floor space required	44"x60"
Base size	17½"x39"
Net weight	2250 lbs.
Domestic shipping weight	2500 lbs.

STANDARD EQUIPMENT: Carter Steel Disc Wheels with demountable tires (for speeds up to 1200 R.P.M.), prelubricated ball bearings, tilting table, two ball bearing saw guides, complete guards, guide bar counterbalance, dust spout and one ⅜" blade.

OPTIONAL DRIVES: Belt Drive, Belted Motor Drive or Direct Motor Drive (3, 5, or 7½ H.P.).

EQUALIZED TWO-WHEEL BRAKES with automatic device to stop motor and apply both brakes in the event a band saw blade should break, also, shuts off motor when two-wheel brakes are applied by convenient foot pedal (furnished on direct motor drive and metal cutting band saws only).

MECHANICAL BRAKE on lower wheel only; consisting of completely machined brake drum mounted on lower wheel shaft and operated by convenient foot pedal.

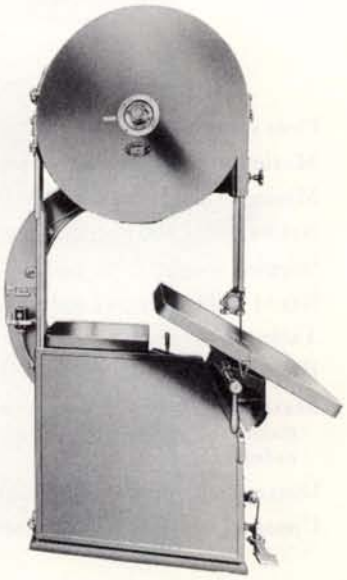
RIP FENCE can be used on either side of saw and locked in position.

MITER GAUGE complete with slide.

PADDOCK GUIDES "Lubricated for Life" and particularly suited for metal cutting.

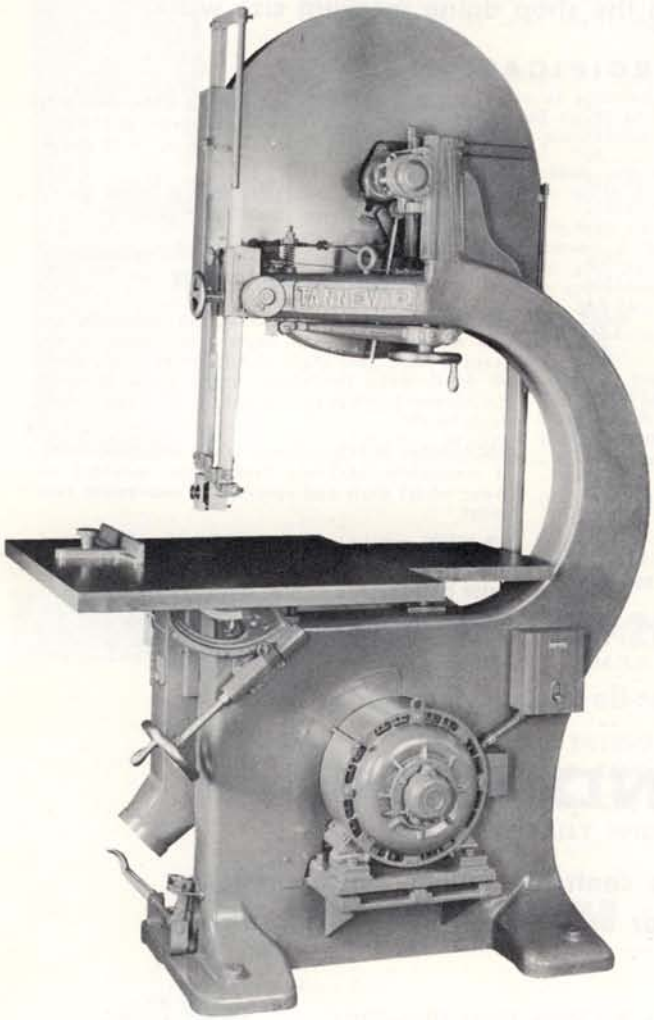
FLEXIBLE NECK MACHINE LIGHT with shade and 110 volt transformer installed on Band Saw, including wiring.

Available as left hand machine. Also available as a metal cutting saw with a variety of speeds from 150 RPM to 1200 RPM.



TANNEWITZ HIGH SPEED BAND SAWS

30"– 36"



These are high speed, high quality band saws which will increase your production and decrease your band sawing costs while doing a superior job. Both models PH and GH can be furnished with Automatic Hydraulic Synchronized 2-wheel Brakes. Also available in 42" size. Details on request.

SPECIFICATIONS

TANNEWITZ MODEL "GH," 36-INCH BAND SAW

Floor space required, 65 x 37 inches.

Maximum height overall, 8 feet 6 inches.

Minimum height overall, 7 feet 10 inches.

Net weight, 2,900 pounds.

Shipping weight, 3,230 pounds.

Boxed weight, 3,650 pounds.

Size of box, 30 inches by 56 inches by 92 inches, 90 cu. ft.

Size of table, 36 inches wide by 37 inches long.

Table swings 45 degrees to right and 5 degrees to left.

Height of table from floor, 41 inches.

Maximum range, 36 inches wide by 19 inches under the guide; 22¾ inches may be had under the guide — on special order.

Distance from front edge of table to saw, 13½ inches.

Upper wheel has vertical adjustment of 8 inches.

Drive by tight and loose pulley is available by using 16-inch diameter x 4-inch face pulleys.

Drive by belt from a motor mounted on a bracket at the rear is also available. In such case, the drive is provided with an idler and a guard enclosing the belt.

This machine will use blades from ⅛-inch to 2 inches wide. The width of the wheels is 2¼ inches.

Maximum saw length, 19 feet 9 inches.

TANNEWITZ MODEL "PH," 30-INCH BAND SAW

Floor space required, 35 x 60 inches.

Maximum height overall, 7 feet 6 inches.

Minimum height overall, 6 feet 9 inches.

Net weight, 1,800 pounds.

Shipping weight, 1,950 pounds.

Size of table, 26 inches wide by 28 inches long.

Table tilts 45 degrees to right and 10 degrees to left.

Height of table from floor, 38½ inches.

Maximum range, 30 inches wide by 15 inches under the guide; 18 inches may be had under the guide — on special order.

Distance from front edge of table to saw, 13 inches.

Upper wheel has vertical adjustment of 7 inches.

No. 1 Wright roller guides with ball bearing, dust-proof guide wheels are furnished above and below.

3 H.P., 900 R.P.M. ball bearing motor mounted directly in the frame and carrying the lower band saw wheel on its shaft.

Drive by tight and loose ball bearing pulley is available by using 12-inch diameter by 3-inch face pulleys.

Drive by belt from an 1800 R.P.M. motor mounted on a bracket at the rear is also available. In such case, the drive is provided with a ball bearing idler and a metal guard enclosing the belt.

Push button control with overload and low voltage protection.

This machine will use blades from ⅛-inch to 1½-inch wide. The width of the wheels is 1¾ inches.

Maximum saw length, 17 feet.

BOICE-CRANE 14" BAND SAW



An especially convenient and flexible saw for the small shop; an ideal auxiliary in the larger shop—for wood and metal

SPECIFICATIONS

SAWING CAPACITY: Blade to guard ..... 13½"
Guide to Work Table ..... 7¾"
TABLE: Tilts on Double-Trunnions 45° to right; 10° to left; size ..... 15" x 15½"
HEIGHT OVERALL of Floor Model ..... 67"
HEIGHT OF WORK TABLE from Floor ..... 39¼"
OVERALL WIDTH 27½" ..... Overall depth ..... 29"
BLADE WIDTHS: 3/16", ¼", 3/8", ½" and ¾"
LENGTH OF BLADE ..... 98"
WHEELS: Disc. Moulded Textolite. 14" dia. 1" face
BEARINGS: Grease-sealed Ball Bearings.
FRAME: Heavy Welded-Steel Construction.
OPERATING SPEEDS:

1-Speed Model	Wheel r.p.m.'s 1120								
	Blade Feet Per Min. 4100								
8-Speed Model	Wheel r.p.m.'s	1120	890	660	450	70	50	35	25
	Blade Feet Per Min.	4100	3260	2420	1650	250	183	128	92

	No. 2300	No. 2301	No. 2304	No. 2308	No. 2309	No. 2310
NET WEIGHTS (both less motors)	122 lbs.	224 lbs.	155 lbs.	250 lbs.	352 lbs.	257 lbs.
GROSS WEIGHTS	197 lbs.	334 lbs.	230 lbs.	320 lbs.	427 lbs.	367 lbs.

Available with direct drive, V-belt drive, and with an 8-speed gear drive. Recommended motor: ¾ H.P. Available for 110- or 220-volt, single-phase or 220/440-volt, three-phase current.

ACCESSORIES

MITER GAUGE — **WORK LIGHTS** — **SCREW-FEED ATTACHMENT**
RIP FENCE — **BLADE BUTT WELDER** — **CABINET BASE**

PARKS No. 2–18" BAND SAW

A rugged high-production tool, also ideal for auxiliary use

SPECIFICATIONS

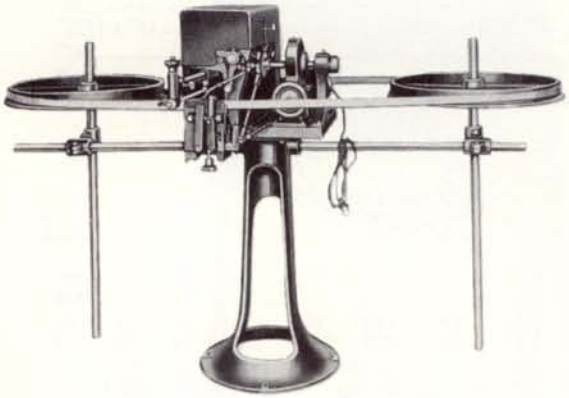
CAPACITY UNDER GUIDE = 12"
TABLE HEIGHT FROM FLOOR = 39"
SPEEDS: Dual Range, fully variable with handwheel control in the ranges from 50 to 350, and from 700 to 4200 blade feet per minute.
TABLE: Extra size 24" x 20" well-ribbed cast iron precision ground for accurate work. Table tilts from 5° to left, to 45° to right, and is equipped with protractor scale. Locks in any desired position. Table is equipped with two miter gauge slots and machined for attachment of the Ripping Fence accessory.
GRADUATED MITER GAUGE: Included as standard equipment. Is adjustable from 0° to 45° and may be used on either inboard or outboard side of blade.
BLADE: ¼" flexible back, hard-edge metal cutting blade for contour sawing included. Other widths up to 1" available. Blade length 132".
BLADE GUIDES: Both upper and lower metal cutting guides consist of hardened side-thrust guide blocks and hardened ball bearing supported thrust guide rollers.
BLADE ADJUSTMENT: Knobs for tensioning and tracking adjustments conveniently located on upper band saw wheel housing.
FRAME: Heavy fabricated steel designed for strength and rigidity.
WHEELS: 18" diameter by 1¼" face width. Wheels carefully balanced and trued. Upper wheel carried on heavy shock absorbing spring mounting.
WHEEL BEARINGS: Upper and lower wheel shafts supported on heavy duty sealed ball bearings.
DRIVE: Entirely enclosed in cabinet. V-belt from motor through variable speed pulley to Dual Range gear box. Convenient hand wheel and speed indicator scale for adjusting speeds within each range. Gear box completely enclosed.
SWITCH: Single phase safety push button flush mounted type standard equipment. Push button station for 3 phase available in lieu of above when specified.
MOTOR: Standard 1725 rpm motors up to 1 H. P. may be used.
OVERALL HEIGHT = 72½"
SHIPPING WEIGHT less motor and accessories: 500 lbs.
Ripping fence, work light, and blade welder are available as accessories. Miter gauge is supplied with the machine.



BAND SAW FILING, SETTING AND JOINTING MACHINE
MODEL G DOUBLE ACTING

The finest constructed, most powerful and accurate machine of its kind. It reduces your saw costs, saves one-half the time by filing and setting in one operation and produces a saw that will give a perfect and finished cut.

Every wearing part has ample adjustment. The main drive shaft runs on Timken Roller Bearings. This machine will file and set all spring, medium or soft-tempered band saws up to 2" in width.



MODEL G MOTOR DRIVE
Mounted on pedestal with pedestal-type saw-carrying wheels.

With this unit, all teeth are given keenly balanced cutting edges and the set is not disturbed as when a file files against it. Again by setting two teeth at the same time, it prevents any rock or spring to the saw. The amount of set can be increased by turning one adjustment screw.

The File Sharpens Each Tooth In the Direction It is Set. Arrows Show Movement of File.

Every Filer Knows This Method Produces a Smooth, Fast Straight Cutting Saw

Two Teeth Are Set at the Same Time. Arrow Shows Movement of Setters.

SPECIFICATIONS

RANGE & CLASS OF SAWS—Band saws ⅛" to 2" wide with teeth from 2 to 15 to the inch. All woodworking band saws or medium or spring tempered band saws used for cutting soft metals.

SPEED—70 teeth per minute—sets, files and joints.

FILES—Utilizes standard double-end tapered files.

MOTOR—Requires ¼ H.P., 1750 R.P.M. motor, available in single or three phase AC or DC.

MODELS—Bench type or pedestal (illustrated).

SHIPPING WEIGHTS—Pedestal type: 170 lbs.
Bench type: 125 lbs.

BAND SAW FILING, SETTING AND JOINTING MACHINE
MODEL K-5 COMBINATION

Produces a perfect saw that saves on every cut

Files, Sets and Joints Saws in One Operation

Solid locked front vise jaw, quickly removed when inserting saw.

Saw is rigidly locked by solid steel cam when file is being set.

File does not have to be removed when inserting saws.

Bronze gibs holding filing arm are above the slide, so chips cannot enter into them.

The vertical slide works on dovetail slides.

Hardened steel-lined vise jaws prevent all wear in the vise.

New method of tightening vise jaws can be easily adjusted.

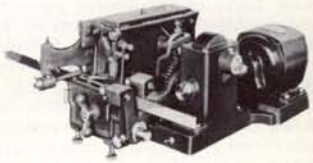
Ball bearing thrust on motor worm shaft.

Each tooth is set to give the proper clearance before being filed. Each stroke of the file cleans the face, gullet and back of the tooth. The teeth are left without a particle of burr. The filing arm is of positive and rigid construction. The file cuts to exactly the same depth at every stroke. For woodworking saws, ⅛" to 2" wide, 2 to 15 teeth per inch.

Sharpening rate: 65 teeth per minute.



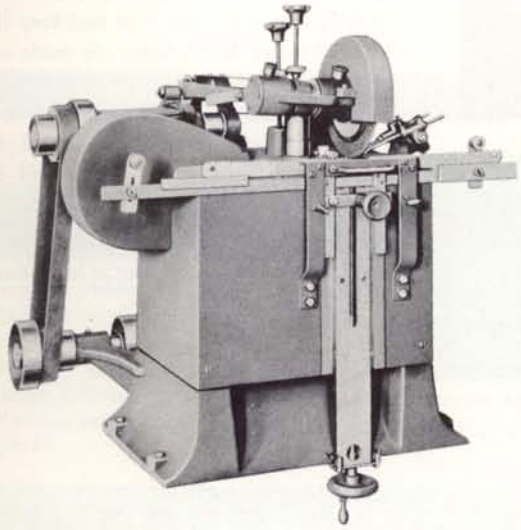
NEW TYPE MODEL K-5
Direct connected single-phase motor, mounted on Pedestal-Type Wheels for carrying the saw while being resharpened. Also available as bench model.



MODEL K
Belt or Motor Drive. All Wearing Parts Easily and Economically Replaced.
Shipping Weight: 520 lbs.

MODEL E-C COMBINATION AUTOMATIC GRINDER

For All Three Classes of Saws . . . Circular, Hack and Band



APPROXIMATE WEIGHT AND FLOOR SPACE

	Domestic Shipping Weight	Floor Space	Height
Pedestal Type	585	27x29	56
Bench Type	475	23x29	29

SPECIFICATIONS

CONSTRUCTION: The Model E-C New Type Automatic Grinder is a product of many years' development. It is fully automatic in its operation, has a rigid and strong one-piece cabinet frame with removable front plate; all bearings are Ball or Bronze, no babbitt bearings employed. The Worm and Gear run in heavy oil. Cabinet base construction with all parts below the grinding head and drive pulleys enclosed and fully protected from dust and dirt.

FEEDS: One of the important features of this machine is provided with three speeds of feed—grinding from 30 to 75 teeth per minute—which is quite an advantage in grinding large and small teeth.

GRINDING WHEEL HEAD: The grinding wheel head is of the yoke type construction and is supported by two adjustable hardened steel pivots, with radial adjustment for any hook or tooth desired. The grinding wheel spindle is mounted on high quality dust-proof grease seal ball bearings. It is also provided with two speeds of the grinding wheel. When the wheel is worn down to a smaller diameter it can be stepped up to a higher speed. The speed can also be regulated for sharpening high speed steel saws, which sometimes take a lower wheel speed than in sharpening carbon saws, to obtain the best results.

ADJUSTMENT: One univeral cam permits of following any shape of tooth with the grinding wheel, whether with straight or curved back.

CAPACITY: Circular saws 3" to 18" in diameter (and up to 24" if specified). Band saws, metal or wood cutting, ¼" to 6" wide. Hack saws up to 36" long. Tooth spacing 1/32" to 1¾".

MOTOR: ½ H.P., 1750 R.P.M.

SPEED OF DRIVE SHAFT: 1000 R.P.M. Driven with V-Belt from motor.

GRINDING WHEEL: 8" dia., ¾" hole.

REGULAR EQUIPMENT: One grinding wheel, set of arbor hole bushings, belts and spanner wrench.

COMBINATION: The machine can also be supplied as a Combination Grinder for all three types of saws—Circular, Band, and Hack Saws.
It can be furnished with either bench or floor type Pedestal, belt or motor drive.

BAND SAW BUTT WELDERS

For saws 1/16 to 1/2 inch wide and up to 1" when specified with Filing Attachments for Removing the Welding Flash

The GB Butt Welders are fast in operation and will give precision welding service without requiring an experienced operator.

The Saw Clamps automatically adjust to correct position for various thicknesses of saw blades and insure positive and accurate line-up with full electrical contact necessary for a good weld, with the saw blade firmly held in position during the welding and annealing operation.

The actual welding is entirely automatic. An operator without previous welding experience can do a first-class job the very first time he uses the machine. Simple instructions are printed on the name plate and if followed by the operator, the unit is practically fool-proof. No damage can result from error in operation.

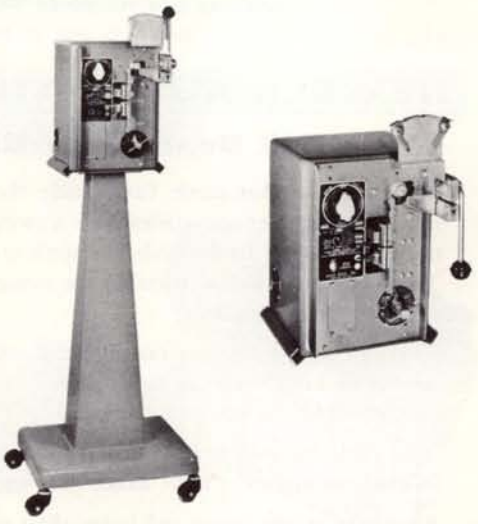
After the saw has been welded and annealed it is removed from the clamp ready for grinding and the grinder quickly removes the welding flash. The grinder is a built-in unit with a ball bearing motor and with the grinding wheel well guarded, so that it is a simple matter to complete the job by removing the welding flash.

A handy movable stand can be furnished at additional cost, with or without castors, for mounting the welder for convenient handling and operation.

Approximate Weight and Space

	Domestic Weight	Export Weight	Cubic Feet	Bench Space	Height
Butt Welder	58 lbs.	60 lbs.	1½	12 x 8	8¼"
Butt Welder With Stand	140 lbs.	180 lbs.	11		

FOR A.C. CURRENT ONLY: Available for 110 or 220 volt—25, 50 or 60 cycle.



MODEL GB
Butt Welder with Stand
also available as bench model.

BAND SAW BLADES for wood

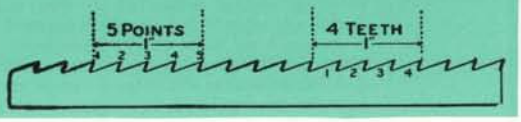
Long-Lasting . . . Special Alloy Steel



AVAILABLE IN THE FOLLOWING WIDTHS AND GAUGES:

3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"
x.022 or x.032	x.022 or x.032	x.025 or x.032	x.025 or x.032	x.032 or x.035	x.032 or x.035	x.035

When ordering, specify length of saw, width and the number of points to the inch. There is one less tooth to the inch than points to the inch.



Absolutely accurate cutting of wood parts in pattern making demands a saw blade that can take an edge and keep it. These Master Band Saws are made of special steel, noted for its exceptional toughness and edge-holding qualities. They are particularly well adapted to the many different jobs encountered in pattern shops.

We can furnish Master Steel Band Saw stock filed and set in coils or as individual saws, brazed, filed and set.

SKIP TOOTH SAWS

These are ideal for use on plastics, wood, aluminum and magnesium which require extra gullet capacity for the large chips which are formed. They are so designed that maximum strength is maintained in the body of the blade even in the narrower widths. Skip tooth saws will keep sharp for such long periods of time when cutting soft metals or wood that they can be thrown away when dull, without sharpening, making them highly economical.

They are available with 2, 3, 4 and 6 teeth per inch, in 100′ and 200′ coils or as individual saws.



SPECIFICATIONS

Width	Gauge	Teeth Per Inch	Width	Gauge	Teeth Per Inch
¼"	23	4 and 6	¾"	21	3
⅜"	23	3 and 4	1"	20	2 and 3
½"	23	2 and 4			

NEWELL AUTOMATIC SAW GUIDE

Ball Bearing for Band Saws

In the Newell Automatic Saw Guide the members, instead of being rigid as in all other saw guides, have a swinging movement which allows the saw to swing freely while the teeth are held practically stationary. This is accomplished by pivoting the swing at a center where the teeth of the saw are located.

The Ball Bearing Roller carries the thrust of the saw. This arrangement is used in the bottom guide as well as the top, reducing the friction on the back of the saw to a minimum.

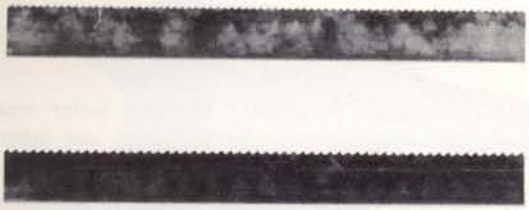
This guide has proven to reduce the saw breakage and therefore saving its own cost in a short time. Made to fit any make of Band Saw.

Be sure to specify upper and lower shaft sizes.



BAND SAWS METAL CUTTING

For Speed and Economy



Metal Cutting Band Saws are used for the cutting of aluminum, asbestos, babbitt, lead, bakelite, plastics, brass, bronze, steel, etc. Operating speed depends on material to be cut. They can be refiled and reset, or ground.

Metal Cutting Band Saws are available in the following widths and gauges in coils or cut to length and brazed:

Widths:	1/4"	3/8"	1/2"	5/8"	3/4"	1"
Gauges:	25	25	25-32	25-32-35	35	35

When ordering, specify length, width, gauge, number of teeth per inch and metal to be cut.

ENDLESS RUBBER BANDS

Keep the rubber bands on your band saw wheels in tip-top shape, and eliminate crystallization, increase efficiency, and add to the life of your equipment.

We have adequate stocks of all standard sizes and widths to assure prompt delivery. When ordering, specify diameter and width of wheels on which bands are to be used. We will furnish proper size to obtain a tight fit.



RUBBER BAND CEMENT

Made according to a special formula. Guaranteed to hold rubber bands securely on band saw wheels. Slow-drying, it adheres to both rubber and iron. Available in pint cans. Directions included.



CIRCULAR SAWS



Rip, Cross-Cut, and Combination Rip and Cross-Cut

Combination Rip and Cross-cut Saws can be used for either ripping or cross cutting. They will cut equally smooth in either operation. The saws work without set and are practical time-saving tools for the modern pattern shop.

Regular cross-cut and rip-saw blades are also available.

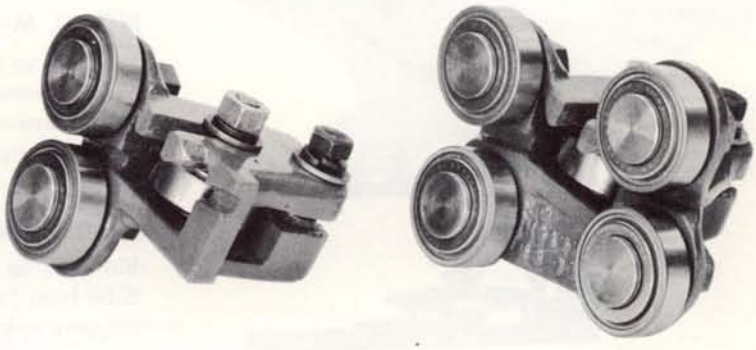
When ordering, specify type of saw, diameter of saw and size of arbor hole required.

ROLL-ON BALL BEARING BAND SAW GUIDES

These smooth-running friction-free guides have proved their ability to reduce saw breakage and increase sawing efficiency. The rollers are ball-bearing equipped throughout. The rollers carry the thrust of the saw at the top guide and bottom guide, reducing friction on the back of the saw to a minimum. The mountings are adjustable. There are no steel plates to cause friction.

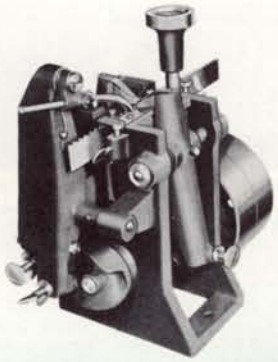
ROLL-ON BALL BEARING BAND SAW GUIDES can be used for saws up to 1 inch in width. They can be had for mounting on either 5/8 or 3/4 inch shafts.

Be sure to specify upper and lower shaft sizes.



HEAVY DUTY HIGH SPEED BAND SAW HAMMER SETTER

No. PB-30 Hammer Setter. Belt-drive or motor-driven



Sets saws from ¼" to 2½" wide (⅛" wide when specified) with tooth-spacing up to ½".

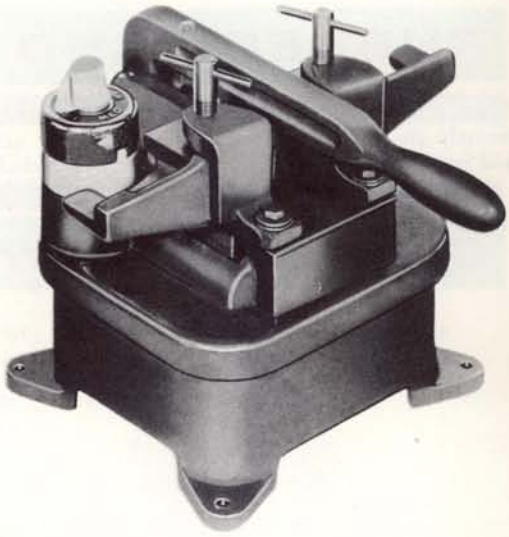
This heavy duty, high speed Band Saw Hammer Setter was developed to meet the requirements of pattern shops and other wood-working plants where a very large amount of setting is performed daily, requiring a rapid working, well-built and lasting machine, which will operate at a fast speed and also insure accurate, uniform setting of teeth.
Shipping Weight: 100 lbs.

ELECTRIC BRAZER NO. EB-1

for Saws up to 1½" wide

Comprises a transformer, the main coil of which is connected to any alternating current of correct voltage, cycles and phase and a secondary coil which serves as a clamp for the ends of a saw which are held rigid by saw clamps.

Safe, convenient, economical, doing away with the necessity for a forge, with fire and heating irons. The heat is applied directly to the saw blade. Within a few seconds' time the saw reaches brazing heat. Current is then turned off and by means of a hinged handle clamp, the ends of the braze are pressed firmly together for a few seconds while cooling and a perfect braze is secured. The machine is easily operated, no skill is required.

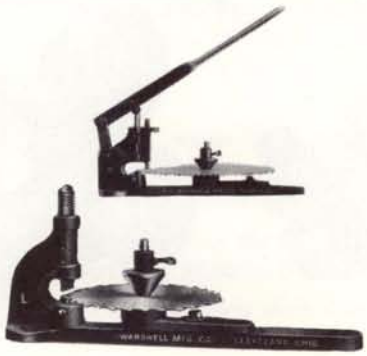


SPECIFICATIONS

Made for either 110 or 220 volts, 60 cycle, single phase alternating current. Current consumption 6 to 12 amperes for blades up to 1½" wide. Over 100 brazings with one Kilowatt hour.

Weight net 50 pounds. Boxed for shipment 65 pounds, 1½ cu. feet.

CIRCULAR SAW SETTERS



MODEL M

For saws up to 40" diameter. Model M is a Pressure Blow Setter with adjustments controlling the amount of set. This model will also accommodate arbor holes to 2½".
Shipping weight: 35 lbs.

MODEL 105-B Hammer Setter

For saws up to 30" diameter. The cone will accommodate arbor holes from ½" to 2½". Positive set assured.
Shipping weight: 27 lbs.

YATES-AMERICAN J-139 12" JOINTER



The new Yates-American 12" Jointer is a precise, heavy-duty machine which can be depended upon for accuracy and long service. Simple controls, accurate settings, and sturdy construction are important features.

FENCE TILT: Proper angle for any bevel jointed cut can be obtained by using the fence adjustment which tilts 45 degrees in either direction. Adjustable positive stops are provided for 45°, 0°, and 45° tilts.

TABLES: Lengthy, rigid, accurately ground tables give maximum support— 96 inches overall—with rabbeting capacity 5/8" x 12". Both front and rear tables are mounted on gibbed dovetail ways. Rear table is completely adjustable. A large handwheel to adjust table for depth of cut is conveniently located on back of machine.

CUTTERHEAD CYLINDER: A 3-knife, round, safety-type cutterhead with a 4" cutting circle is furnished. Cutterhead runs in lubricated-for-life bearings at 4500 RPM.

SCALES: The operator will find accurate adjustments on this jointer possible by means of easily read, conveniently located scales. Fence tilting scale, located behind the fence, can be seen from operator's position. Depth of cut indicator scale is found at front of machine.

DRIVE: Cutterhead on the Yates-American 12" Jointer is driven by two Vee Belts.

MOTORS: Standard motor for this Jointer is 5 HP, 3 phase, 3600 RPM, with magnetic starter as standard control. It is equipped with universal mount for NEMA 213 frame motors.

STAND: Two sturdy, cast iron legs support Jointer at table height of 34 inches. A convenient motor mount is fastened securely to one leg, and pivoting feature makes for easy installation of motor and belt tension. Holes in Jointer legs permit bolting machine to its foundation. The dust chute is built into the base for easy connection to the exhaust system.

SAFETY: The operator is assured of maximum safety when working with this machine. Not only are the controls within easy reach of the operator, but also the fence bracket forms a guard over the cutterhead at all times. In addition, the swing-type guard gives full protection, and the safety-type cutterhead reduces hazard to a minimum. Depth and tilt scales are in full view of the operator, giving him ready control of the machine.

SPECIFICATIONS

Length of tables	96"
Width of tables	12"
Table height	34"
Table ways	Dovetailed with gib take-up
Maximum depth of cut	5/8"
Rabbeting capacity	5/8" x 12"
Fence	48" x 5¾"
Fence tilts right or left	45°
Positive stops on fence	45°-0°-45°
Number of knives in cutterhead	3
Cutterhead bearings	Sealed—lubricated for life
Cutting circle	4"
Knife adjustment	2 adjusting screws for each knife
Cutterhead speed	4500 R.P.M.
Shipping weight with legs, less motor	1250 lbs.

CRESCENT 12" AND 16" JOINTERS

Good, medium-priced jointers, particularly suited for making medium to large-sized patterns

SPECIFICATIONS

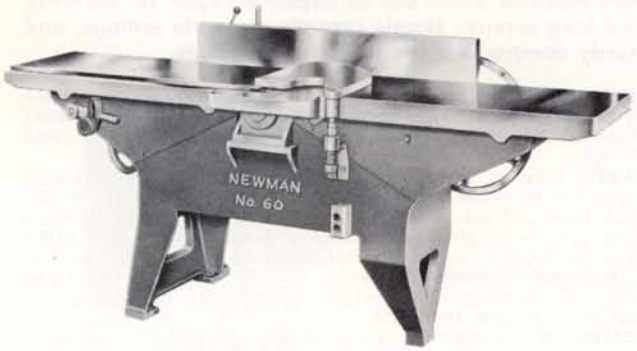
	12"	16"
Length of knives	12"	16"
Number of knives	4	4
Width of table	15½"	19½"
Length of front table	40"	40"
Length of rear table	40"	40"
Length of tables overall	82"	82"
Height of table	33½"	33½"
Max. depth of rabbet	½"	½"
Cutting circle	4½"	4½"
Spd. of cutterhead r.p.m.	3600	3600
Size of fence	5" x 39½"	5" x 39½"
Tilt of fence	45°	45°
Horsepower required	3-5	5-7½
Floor space, approx.	41" x 89"	41" x 89"
Net weight, approx.	1200 lbs.	1350 lbs.
Dom. ship. wt., approx.	1500 lbs.	1650 lbs.



EQUIPMENT: Equipment shall consist of one tilting adjustable fence; one pressure spring; jointer guard; 4-knife round safety head; one set of knives.

EXTRA EQUIPMENT: Rear knife guard, steel lips for table, magnetic switch, exhaust hood, and knives.

NEWMAN J-60 HAND JOINTER
12" AND 16"



SPECIFICATIONS

DESIGN: The Newman J-60 Hand Jointer accomplishes a wide range of work such as squaring, planing out of wind, straightening, glue jointing, beveling, chamfering, rabbeting, etc., therefore it is an indispensable machine in any woodworking plant.

BASE: Is a one piece cored type casting, supported on three legs which insures perfect alignment on almost any type of floor.

TABLES: Are eight feet long overall and are mounted on dovetailed ways of the inclines. Tables can be moved away from cutterhead giving a maximum opening of ten inches. An adjustment is provided for making spring and hollow joints. Renewable steel lips are located next to the cutterhead. Rear table is grooved for rabbeting. Front table is raised and lowered by means of a large handwheel.

FENCE: The fence is of the tilting type and is equipped with quick clamping and tilting feature. Graduated gauge is provided which shows angle at which fence is set. It is also adjustable across the machine.

CYLINDER YOKE: The cylinder is mounted in a one-piece yoke which includes bearing and motor housings. This type of construction insures alignment of bearings, cylinder and motor, at all times.

CYLINDER: The cylinder is forged from high carbon steel machined all over, accurately ground and dynamically balanced. It is mounted in lubricated-for-life precision ball bearings. A four-knife cylinder, 5" cutting circle is regularly furnished.

MOTOR: Is mounted directly on cylinder arbor.

CONTROL EQUIPMENT: Magnetic line starter with overload and under voltage protection mounted on base, push button is mounted on side of machine convenient to the operator.

GRINDER AND JOINTER: Electric grinder and jointer attachment can be furnished at extra cost for grinding and jointing the knives in the machine.

HIGH FREQUENCY: The Newman J-60 is especially adapted for high frequency operation and can be operated at any speed up to 6000 RPM.

Model	Size	Type	Floor Space	H.P.	Weight
J-60	12"	DMD or BD	3'8" x 8'6"	5	2200 lbs.
J-60	16"	DMD or BD	4' x 8'6"	5	2200 lbs.

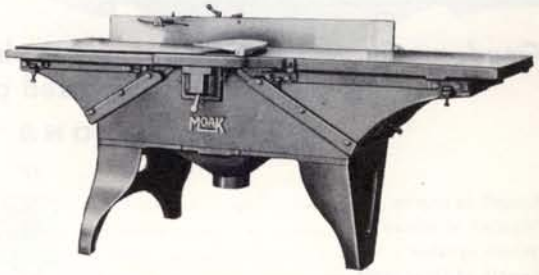
MOAK HAND PLANERS AND JOINTERS
12" AND 16"

A heavy duty jointer with inclined ways; built to maintain accurate, quality results over a long life.

- **PLANING**
- **GROOVING**
- **BEADING**
- **RABBETING**
- **CHAMFERING**
- **BEVELING**

SPECIFICATIONS

SIZE OF JOINTER (Length of knives)	12"	16"
Length of front table	46½"	47"
Length of rear table	36½"	38"
Length overall	85"	89"
Width of front table	18½"	22½"
Width of back table	22"	26"
Height of table	32½"	32½"
Length of fence	56"	56"
Height of fence	5"	5"
Diameter of pulley (belt drive)	3⅞"	3⅞"
Face of pulley (belt drive)	5¼"	5¼"
Cutting diameter of cylinder	4½"	4½"
Horsepower required	3 or 5	5
Motor speed (direct drive)	3600 R.P.M.	3600 R.P.M.
Floor space required	31 x 85"	35 x 89"
Net Weight	1500 lbs.	1650 lbs.
Domestic Shipping Weight	1700 lbs.	1900 lbs.



STANDARD EQUIPMENT

Self-Aligning Ball Bearings, Convenient Hand Brake, Steel Lips, round safety cutter head complete with three thin high-speed steel knives. Adjustable bevel fence tilts 45 degrees with indicator showing degree of tilt, complete with necessary wrenches.

OPTIONAL DRIVES

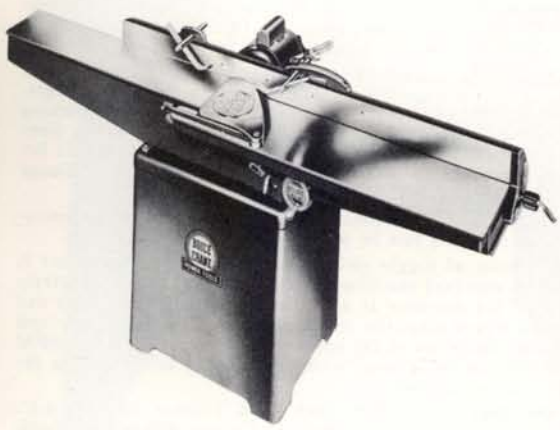
Belt Drive (with either flat or "V" belt pulley).
Direct ventilated Motor on Head Equipment including remote control push-button starting switch providing overload and No-voltage protection (two or three phase, 220 or 440 volt only).

EXTRA EQUIPMENT

GUARD, of aluminum spring type with rabbeting arm.
DUST CHUTE, cast iron construction with connection for 6" exhaust pipe.
FOUR-KNIFE HEAD
KNIFE GRINDING AND JOINTING ATTACHMENT

BOICE-CRANE 6" AND 8" JOINTERS

Exceptionally accurate adjustments—longest fence, longest table



SPECIFICATIONS

	6-INCH	8-INCH
Table Length	60 inches	84 inches
Height, floor to tables	36 inches	36 inches
Height, base to tables	8¾ inches	8¾ inches
Fence, Infeed length	30 inches	42 inches
Fence, Outfeed length	18 inches	24 inches
Fence, Front Dual controlled and 2-point locks	Std. Equipment	Std. Equipment
Depth of Cut, maximum	⅝ inch	⅝ inch
Cutterhead, diameter	3¼ inches	3¼ inches
Cutting Circle, diameter	3⅜ inches	3⅜ inches
Knives, number in cutterhead	4	4
Knife Locks and Concentric Controls, new micrometer type	Std. Equipment	Std. Equipment
Cutterhead Speed, rotor-on-cutterhead (direct) drive	3500 r.p.m.	3500 r.p.m.
Cutterhead Speed, V-belt drive	4500 r.p.m.	4500 r.p.m.
Power, rotor-on-cutterhead (direct) drive	¾ h.p.	1½ h.p.
Power, V-belt drive	½ or ¾ h.p.	1 or 1½ h.p.
Grouped Controls for depth of cut, gib locks, power on-off	Std. Equipment	Std. Equipment
Weights, jointer with motor and floor stand	Net 375 lbs. Gross 495 lbs.	440 lbs. 600 lbs.

YATES-AMERICAN J-138 8" JOINTER

The new shear-cutting feature of the J-138 fence makes possible precision cuts in unusual grained hardwoods and produces a better finish even across knotty woods.

***SHEAR-CUTTING FENCE:** The sturdy jointer fence is center-mounted to give more accuracy. Its size, 4" x34½", provides a firm guide for stock as it is pushed through the cutterhead.

FENCE TILT: You can obtain proper angle for any bevel jointed cut by using the fence adjustment which tilts 45 degrees in either direction. Adjustable positive stops are provided for 45°, 0°, and 45° tilts.

TABLES: Lengthy, rigid, acurately ground tables give maximum support—64" long overall, with rabbeting capacity ½" x 8". Both front and rear tables are mounted on gibbed dovetail ways and are equipped with a locking device which securely positions tables and prevents play when in use. Rear table is completely adjustable. A handwheel to adjust table for depth of cut is conveniently located on side of machine.

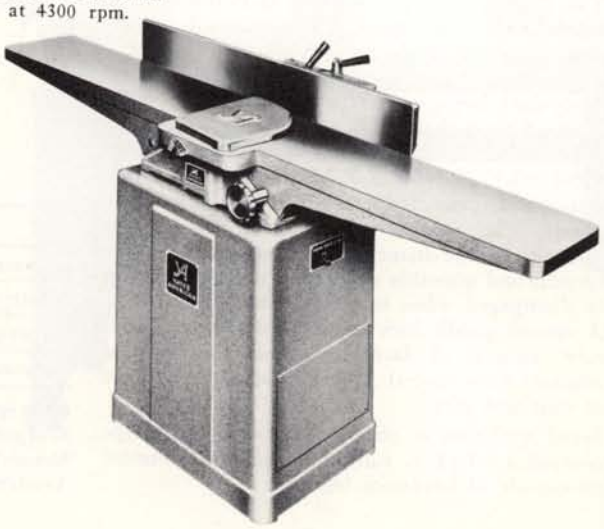
CUTTERHEAD CYLINDER: A 3-knife, round, safety-type cutterhead with a 2-13/16" cutting circle is furnished. Cutterhead runs in lubricated-for-life bearings at 4300 rpm.

GUARDS: Conventional swing-type jointer guard is standard equipment with the J-138. The arm is spring-loaded and always returns the guard to position, giving the operator full protection on all types of cuts.

SCALES: The operator will find accurate adjustments on the J-138 possible by means of easily read, conveniently located scales. Fence tilting scale, located behind the fence, can be seen from operator's position. Depth of cut indicator scale is found on rabbeti arm.

MOTORS: The J-138 Jointer will take ¾ to 1½ HP, 1 or 3 phase, 3450 rpm motors. Machine has universal mount for all NEMA 56, 66 or 182 frames.

CABINET: Optional cabinet is completely enclosed, giving protection against dust to the motor and against accident to the operator.



SPECIFICATIONS

Length of tables	64"
Width of tables	8"
Table Ways	Dovetailed with Gib Take-up
Maximum depth of cut	½"
Rabbeting capacity	½" x 8"
Fence	4" x 34½"
Fence tilts right or left	45°
Shear cut available with fence set at shear	10°
Positive stops on fence	45°-0°-45°
Number of knives in cutterhead	3
Cutterhead bearings	sealed—lubricated for life
Cutting circle	2 13/16"
Knife adjustment	2 adjusting screws at each knife
Cutterhead speed	4300 R.P.M.
Height on cabinet	32"
Shipping weight, less cabinet, less motor	191 lbs.
Shipping weight, with cabinet, less motor	260 lbs.

YATES-AMERICAN J-170 12" LATHE



The J-170 12" Swing Speed Lathe is engineered to give extreme accuracy, efficiency and safety at a very low cost.

The variable speed drive allows the operator to select any speed from 700 RPM to 3200 RPM without changing pulleys or belts, and without stopping the machine. The quality of work is improved by having available the exact speed needed for the type of operation being performed.

Type	Floor Space	Weight
VBD Wood Turning	24" x 64"	525 lbs.
4 Speed Direct Drive Woodturning Lathe	24" x 64"	525 lbs.

CAPACITY: On the solid bed lathe, maximum swing over bed is 12". On gap bed lathe, the gap will allow turning stock up to 16½" in diameter by 4½" thick. On either machine, distance between centers is 39".

BED: The bed and headstock support is a massive, heavily ribbed, one piece casting. The distance from the floor to the center of the spindle is 42".

FRAMES: Headstock and tailstock frames are of heavy, extra-strong pressed steel to give rigid support. Large removable panel on left side of headstock frame provides ready access to motor and variable speed drive.

HEADSTOCK: Precision-ground alloy steel spindle runs on widely spaced lubricated-for-life ball bearings, permitting unexcelled accuracy and long, trouble-free operation. Both ends of the spindle are accurately threaded to receive chucks and face plates. The spindle has a standard No. 2 Morse taper for spur centers and is hollow to permit rapid removal of centers. A plunger type spindle lock secures the spindle when changing face plates. This lock is designed so that it cannot be engaged when machine is in operation.

TAILSTOCK: Tailstock spindle has a standard No. 2 Morse taper for cup centers. Tailstock spindle is locked with a large knurled finger-wheel, while a slight movement of the heavy tailstock locking handle instantly locks the entire tailstock securely. At all times there is alignment between the tailstock and headstock centers because tailstock assembly is accurately keyed to the bed. Tailstock center is self-ejecting.

TOOL REST: The tool rest assembly is quick-locking, with an extra-long base so that rest can be placed exactly where required.

CONTROL: Choice of toggle switch, manual or magnetic starter is offered. On a standard machine, starting and stopping is positively controlled by the operator at any speed. If desired, the lathe can be furnished with a magnetic starter to start at low speed only and to stop at the discretion of the operator. Any speed from 700 RPM to 3200 RPM can be selected without changing belts, shifting the motor, or stopping the lathe.

MOTOR AND DRIVE: A ¾ H.P., 1800 RPM, 3-phase, 60 cycle A.C., 220 or 440 volt motor is furnished. The motor drives the spindle through Vee-belts and a variable speed pulley giving spindle speeds from 700 RPM to 3200 RPM. Other frequency, phase and voltage motors supplied if desired.

WOOD TURNING EQUIPMENT

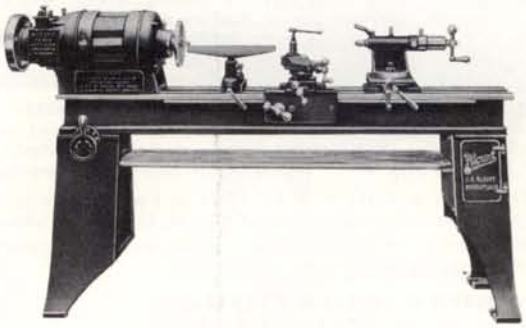
1—6" tool rest
1—12" tool rest
1—¾" cup center
1—1" spur center
1—6" face plate—front
1—8" combination hand wheel and face plate—rear
1—face plate wrench
1—center drift rod
1—blue print holder
1—rear tool shelf

BLOUNT 2 H. P. MOTOR HEADSTOCK LATHE

The Blount 2 H.P. Motor Headstock Pattern Maker's Lathe meets the exacting requirements of the modern pattern shop for motorized equipment. It shows economies in power and up-keep, and will show new profits by increasing production.

This Lathe is provided with a 2 H.P. multi-speed ball-bearing motor headstock which is fully enclosed and completely dust-proof. Main and jack spindles are of high carbon steel and turn in heavy-duty deep-groove-type ball bearings. Spindle is bored throughout ¾" and fitted with Morse No. 3 taper in nose. Main spindle speeds are: 575-1160-1725-3450 R.P.M. The jack spindle through a gear reduction has one-half these speeds. The reduced speeds make possible the turning of large diameter work on rear faceplate. Quietly and smoothly running in oil the gears can be disengaged when rear faceplate is not in use. A special spindle lock is provided for quick and easy removal of faceplate. Heavy motor end brackets have special provision against entrance of dust and dirt.

Speed variation is obtained through drum-type controller which is fully enclosed and mounted on outside of headstock leg.



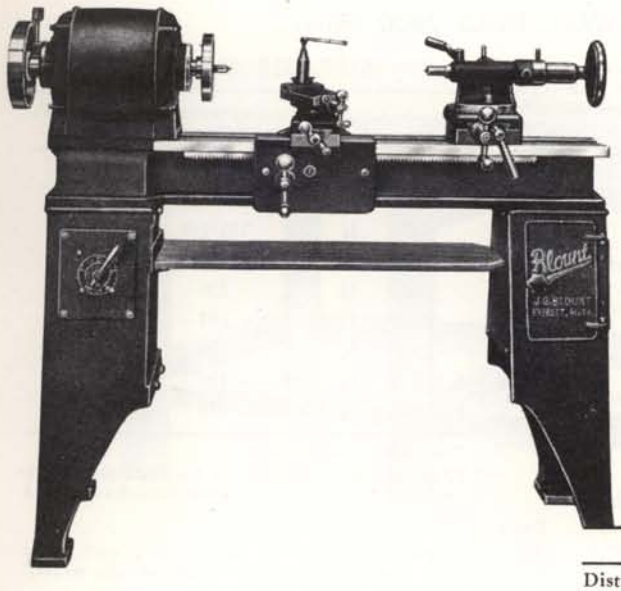
DIMENSIONS

Sizes	16"x6'	16"x8'	16"x10'
Distance between centers, inches	39"	63"	87"
Spindle bore, inches	¾"	¾"	¾"
Net weight, lbs.	970	1070	1350
Approximate shipping weight, lbs.	1060	1180	1470

Main spindle speeds 575, 1160, 1725 and 3450 R.P.M.
Rear spindle speeds 288, 580, 863, and 1725 R.P.M.
Motors for Alternating Current only, 3 phase, 60 cycle, 220, 440 or 550 volts.
Available also with 20" and 24" swing.

BLOUNT HEADSTOCK LATHE
½ H. P. MOTOR

A real utilitarian small lathe for the pattern shop.



The hand feed carriage, compound rest, and full setover swivel tailstock are sturdy in design, with ample bearing surfaces, and carefully gibbed and fitted, eliminating vibration, and providing for adjustment from wear. The compound rest and setover swivel tailstock have full 360° swing and are graduated so that any degree of taper may be bored or turned. *If desired, a straight setover or plain tailstock can be furnished.*

Regular equipment for each type of lathe includes 8″ combination rear faceplate and hand wheel, one spur and cup center, one rest holder, three tee rests 4—7—10″, 6″ faceplate with screw holes and spanner for removing same, 3″ screw chuck, knockout rod for head center, one 2½″ x 4″ right-angled rest. Other equipment can be furnished at additional cost.

Speeds for A.C. Lathe—full load—575—1160—1750—3450 R.P.M.

DIMENSIONS

Sizes	12″ x 4′	12″ x 6′	12″ x 8′
Distance between centers, inches	25″	49″	73″
Spindle bore, inches	5/8″	5/8″	5/8″
Net weight, floor type, lbs.	525	610	710
Approximate shipping weight, floor type	565	665	795
Net weight, with carriage, lbs.	635	710	800
Approximate shipping weight with carriage	675	765	875

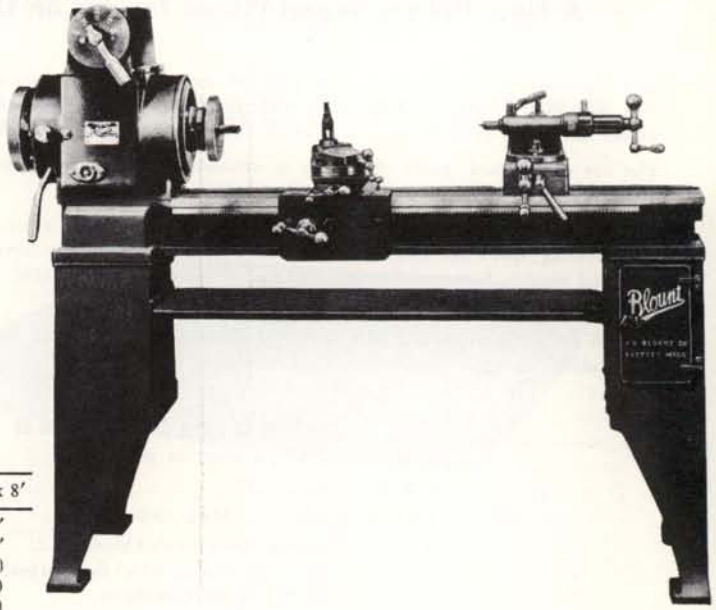
Also Available Without Carriage

BLOUNT PATTERN MAKERS LATHE
½ H. P. MOTOR

Unit Type Motor Headstock

A sturdy modern lathe engineered to provide ease of operation and trouble-free performance. As illustrated, furnished with the following: bed rack, hand feed carriage with compound rest, and a tailstock of full setover. Standard spindle speeds 600—1200—1800—3600 R.P.M. Motors available are 3 phase 60 cycle 220—440 or 550 Volts A.C.

See Blount Headstock Lathe above for regular equipment.



DIMENSIONS

Sizes	12 x 4′	12″ x 6′	12″ x 8′
Distance between wheel centers, inches	25″	49″	73″
Spindle bore, inches	5/8″	5/8″	5/8″
Net weight, floor type, lbs.	637	700	860
Net weight, bench type, lbs.	485	550	710
Approx. shipping weight, floor type, lbs.	687	760	920
Approx. shipping weight, bench type, lbs.	535	610	770

Also Available Without Carriage

BOICE-CRANE HEAVY DUTY DRILL PRESS



Pictured above: Floor model with standard tilt table.

SPECIFICATIONS

HELMET—HEAD 2600 Series

Drill to center of circle	15" dia.
Drilling Capacity, max. in cast iron	5/8"
Tapping Capacity, max. in brass	1/2"
Spindle Travel	4"
Chuck, Standard Equipment	0 to 1/2"
Chuck, Special Equipment, extra cost	1/8" to 5/8"
Table, standard tilting	10" x 11"
Table, production, ground area	11" x 16"
Base, ground area, bench model	10" x 10"
Base, ground area, floor model	14" x 10"
Column, 3/16" thick wall, centerless ground, seamless, diameter	2 3/4"
Bearings (see note)	4
Spindle Speeds:	
High	500, 925, 1750, 3250, 5500
Low	425, 775, 1330, 2200, 3340

(All #2 M.T. Socket Spindle models have 2-row lower bearing.)

1-Spindle Models

	Bench	Floor
Height Overall	42"	71"
Chuck to table	13 1/2"	41 1/4"
Chuck to base	20"	48 1/4"

SUITABLE MOTORS:

No.	H.P.	Phase	Voltage	Bearings	Ship. Wt. Lbs.
*885	1/2	3	220	Ball	32
*885A	1/2	3	440	Ball	32
*887	3/4	3	220/440	Ball	55
‡2655	1/3	1	110	Ball	34
‡2657	1/3	1	220	Ball	34
‡2665	1/2	1	110	Ball	62
‡2667	1/2	1	220	Ball	62
‡ D2575	3/4	1	110	Ball	62
‡DA2575	3/4	1	220	Ball	62

*No switch, cord or plug.

‡Repulsion-Induction motors. Include 2 pole switch suitable for remote control rod. Includes cord and plug.

Available as floor or bench models with many table variations, also as multiple spindle models. Write for details.

WAGNER SAFE-T-PLANER

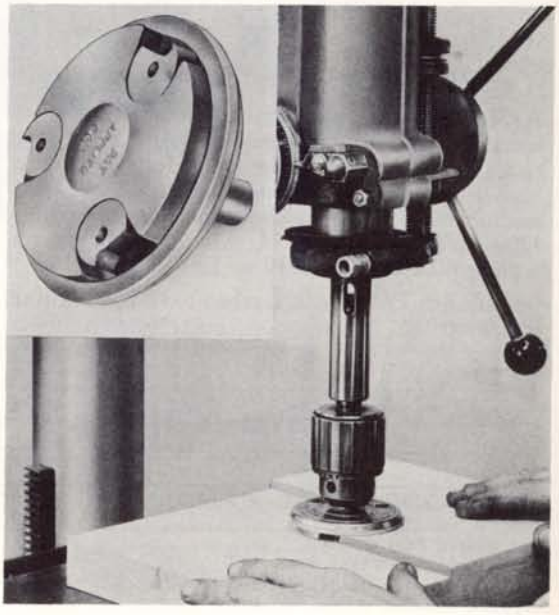
A New Unique Wood Planer for use on Drill Presses

The super-safe rotary planer is a handy tool serving a multiplicity of purposes. The outstanding feature is maximum safety. It is virtually impossible for this planer to "grab" or "kickback" . . . extra value worth the price alone!

The use of a guard, guide and fence is unnecessary except for precision work; minimum set-up saves much valuable time.

The Safe-T-Planer may be used on any drill press with a 1/2" capacity chuck at an operating speed not exceeding 5,000-6,000 rpm. Operation at lower speeds is safe and smooth, however. Use on high speed routers (10,000-20,000 rpm) is not recommended.

Besides its primary use for fast, accurate planing of boards, the Safe-T-Planer does rabbeting, tenoning, panel raising, moulding, and staving.



SPECIFICATIONS

Rough cuts to 1/4" in wood or plastic

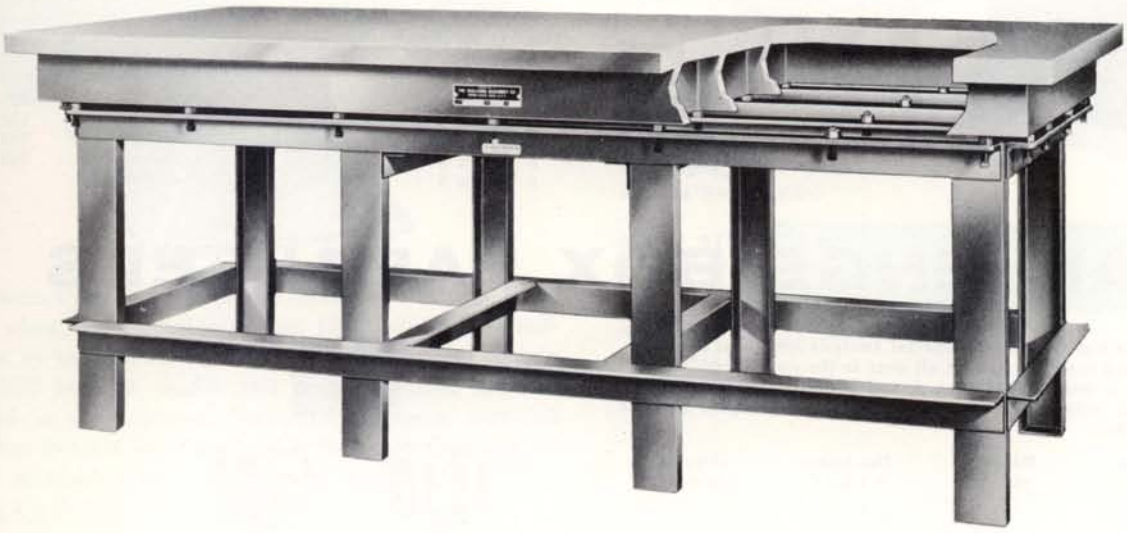
Diameter ..... 3" Shaft ..... 1/2" dia.

Operating speed..... Max. 7200 RPM

Standard equipment: Router with 3 blades
Grinding wheel for sharpening
Instruction sheets
Allen wrench

CHALLENGE *"CLAMP EDGE"* LAYOUT PLATE

for Easy Locking of Job to Plate . . .



Challenge Clamp Edge Layout Plates, with an overhanging edge on all four sides, are ideal for securely locking a job in practically any position when layout or assembly operations are required. The underside of the Clamp Edge is carefully machined so that it is free from ribs thus permitting the use of clamps at any point along the sides or ends of the Plate.

Built of fine-grade special analysis semi-steel, planed perfectly smooth and square. The high quality of materials and workmanship results in dependably meeting the requirements of many types of work.

TOLERANCE: .002-inch over entire surface when mounted on a Challenge steel stand as illustrated above.

ALL-STEEL STAND with leveling screws are available for the plates listed.

SPECIFICATIONS

Stock No.	Size of Top	Size of Base	Height	Shipping Weight
LL-3672	36x72 ins.	32x68 ins.	36 ins.	2005 lbs.
LL-4096	40x96 ins.	36x92 ins.	36 ins.	3555 lbs.
LL-4896	48x96 ins.	44x92 ins.	36 ins.	3900 lbs.
LL-48120	48x120 ins.	44x116 ins.	36 ins.	4925 lbs.
LL-54144	54x144 ins.	50x140 ins.	36 ins.	5500 lbs.

Other Sizes Made to Order

CHALLENGE GRANITE SURFACE PLATES

SUPER HARD
NO DISTORTION
NON-MAGNETIC

SATIN SMOOTH
FLOATING MOVEMENT
BUMP FREE

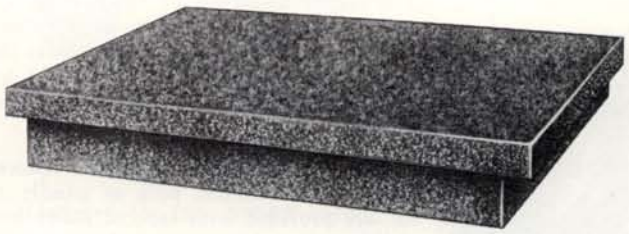
Challenge offers the highest precision in their Black Granite Surface Plates. Note the features of these plates listed above. They are made from granite rated stronger, denser and *less* absorptive than normal granites by the National Bureau of Standards. This makes possible "precision flatness" never before accomplished. Surface accuracies can be obtained from 2 thousandths to 50 millionths, depending on your requirements.

AVAILABLE IN THE FOLLOWING SIZES:

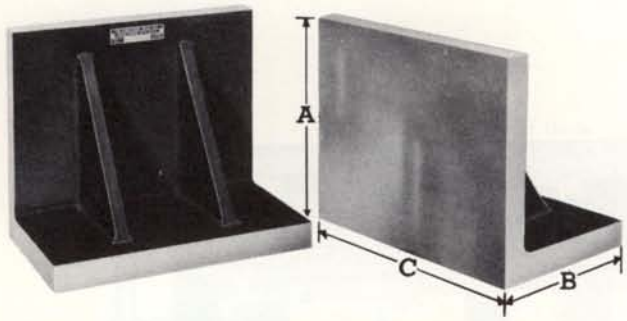
12x18	24x24	30x48	36x72	48x120
18x18	24x30	30x60	48x48	48x144
18x24	24x36	36x48	48x72	54x144
20x30	30x36	36x60	48x96	72x144

Heavy Duty steel stands with leveling screws are available for all of the above sizes.

When ordering, please specify size, number of ledges, accuracy, load, working height and location of holes, if required.



CHALLENGE ANGLE PLATES



Challenge Angle Plates provide a practical and versatile method of clamping and holding work. Made of the highest grade special analysis semi-steel castings, and are precision ground and are square to within .0005 of an inch in 6 inches.

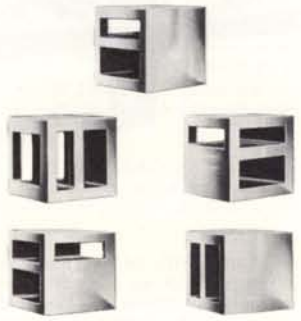
Size Inches A x B x C	Shipping Weight	Size Inches	Shipping Weight
2¾x4¾x 4¾	8	6x 8x10	55
3½x4 x 4	6	6x18x 6	65
4 x4 x 4	8	7x 8x 9	40
4 x5 x 6	12	8x10x 6	45
4 x6 x12	30	8x10x12	80
4½x5 x 8	18	9x 9x 9	60
5 x6 x 7	18	12x12x12	125
6 x6 x 6	20	12x12x15	160
6 x8 x 6	26	18x18x18	350
6 x6 x 8	24	24x24x24*	960
6 x7 x 8	28	*(Planer Finish)	

CHALLENGE BOX PARALLELS

Made from the highest grade of special analysis semi-steel castings, heat treated and precision ground all over to the sizes given, within limits of plus or minus .0005" (on A and B dimensions). All sizes are parallel to within .00025" in 6 inches and square to within .0005" in 6 inches.

Size Inches A x B x C	Shipping Weight	Size Inches A x B x C	Shipping Weight
2x2½x5	8	4½x 8x 9	45
3x4 x6	12	5 x 8x12	65
4x4 x6	15	5 x10x10	70
4x6 x4	13	6 x12x12	98
4x6 x6	19	6 x14x16	150

Challenge Universal Box Angle and Right Angle items available. Additional details will be furnished on request.



SPO NO. 30 LAYOUT PROTRACTOR TABLE

The SPO #30 Layout Protractor Table is an unusually convenient contrivance for use in the pattern shop. It is ideal for layout work in patterns and core boxes, and for checking and layout work on castings in the machine shop. Hours of work can be saved by this device; also closer, more accurate work can be accomplished.

This machine has a 30" diameter rotary table, the circumference of which is graduated from 0° to 360° by ½° graduations, and can be locked in any radial position desired. An adjustable arm supports an indicator and vernier which permits a direct reading of 10 minutes. This arm can be set to operate on either side of the table, or any intermediate position.



The rotary table can be tilted from a vertical position to a horizontal position by means of a worm gear unit actuated by a hand wheel. A quadrant which locks the table in any inclined position is graduated from 0° to 90° by 1° graduations, and is provided with a vernier which permits a reading of 10 minutes.

For ease of operation and also to reduce wear to a minimum, all points of rotation, such as spindle, trunnion, worm shaft, etc. are provided with tapered roller bearings, needle bearings and thrust bearings respectively.

The unit is designed so as to operate on any fairly substantial surface plate and handle average weight work without the necessity of bolting the unit down.



PORTER-CABLE

BENCH GRINDER



All Porter-Cable Bench Grinders contain 115 volt, 60 cycle, single phase, AC Induction motors. (230 volt motors available at no increase in price.) Bench Grinders also contain steel ball bearings, double pole toggle switches and are finished in gray lacquer. Standard equipment with all Grinders includes two Grinding Wheels (36 Grit and 60 Grit). Available Accessory Equipment includes Wire Wheel Brush, Cloth Buff Wheel and Eye Shield.

Model 116, ¼ H.P.

Excellent for general all-purpose grinding duty in small shops, garages, home workshops and on farms.

Wheel Size: 6" dia., ⅝" face, ½" bore
Speed: 3450 RPM
Net Weight: 43 lbs.
Shipping Weight: 48 lbs.

Model 517, ⅓ H.P.

Especially recommended for larger automotive and machine shops as well as schools and industrial woodworking shops.

Wheel Size: 7" dia., ¾" face, ½" bore
Speed: 3450 RPM
Net Weight: 51 lbs.
Shipping Weight: 56 lbs.

Model 518, ½ H.P.

Similar to 517, but with greater power and capacity. Also widely used in large automotive, machine, maintenance and industrial shops.

Wheel Size: 8" dia., 1" face, ⅝" bore
Speed: 3450 RPM
Net Weight: 78 lbs.
Shipping Weight: 86 lbs.

PORTER-CABLE

PORTABLE BAND SAW
MODEL 524

SPECIFICATIONS

Motor: Univ., 115 V, AC-DC, 25-60 Cycle, 6.5 Amp. (230 V available at extra cost)
Capacity: Rectangular stock, 3¼" x 4¼"; Round stock, 3¼" dia.
Drive: Worm Gear and Chain
Drive Pulley: 6" dia., Rubber Covered
Bearings. Ball, Needle
Frame: Aluminum Alloy
Speed: 240 SFPM
Blade Size: 44⅞" long, ½" wide, .020" thick; 10 teeth per inch
Machine Size: 19½" long, 7½" wide, 7½" high
Cord: 10'
Furnished with Machine: Grease (33-YX); Operating Manual
Net Weight: 16 lbs.
Shipping Weight: 21 lbs.

Accessory Equipment

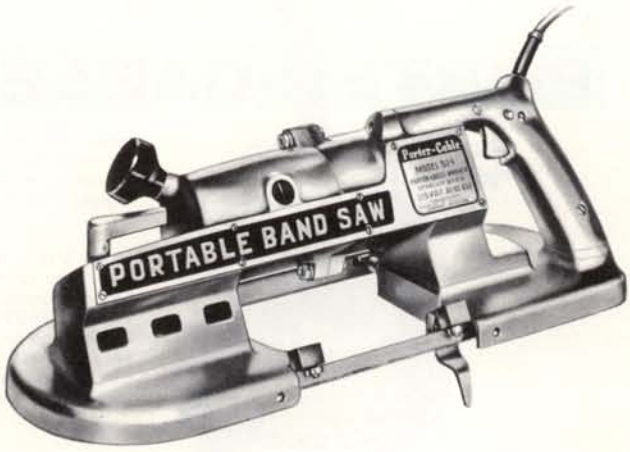
63-MS	Carrying Case
5018	50' Extension Cord
15Y-MS	3 Blades, 6 teeth per in.
16Y-MS	3 Blades, 8 teeth per in.
17Y-MS	3 Blades, 10 teeth per in.
18Y-MS	3 Blades, 14 teeth per in.
30Y-MS	3 Blades, 18 teeth per in.
31Y-MS	3 Blades, 24 teeth per in.
20Y-MS	Assorted Blades (5)

HI-SPEED STEEL BLADES

33Y-MS	Blade, 6 teeth per in.
34Y-MS	Blade, 9 teeth per in.
35Y-MS	Blade, 12 teeth per in.
36Y-MS	Blade, 16 teeth per in.

Model 524K Band Saw Kit

Contents: 524 Band Saw; 63-MS Carrying Case; 60-MS Blade (10 teeth per in.); 33-YX Tube of Grease; 238-X Allen Wrench; 1769-X 10' Cord and Plug; 20Y-MS 5 Assorted Blades.



Designed for fast, smooth cutting of all ferrous and non-ferrous metals, plastics and problem materials. Even cuts stainless steel, nickel, tool steel, and drill rod with Hi-Speed Steel Blades. This portable saw saves time and labor in all industrial and maintenance shops where cutting of metal stock is necessary. Well-balanced, easy to handle. Even inexperienced workers may operate. Assortment of band saw blades available for cutting various materials.

PORTER-CABLE

MODEL 115A SAW
7" DIA. BLADE



The heavy-duty 115A is a rugged all-purpose saw. It contains many features, including the KickProof Clutch, found only in bigger, more expensive machines. Ideal for every type of general cutting operation because of its light weight and extremely powerful motor.

SPECIFICATIONS

Motor: Univ., 115 V, AC-DC, 25-60 Cycle, 12 Amp. (230 V available at extra cost)
Blade Type: Combination (B-7005C)
Blade Size: 7" dia.; 5/8" round hole
Max. Depth of Cut: 90°-2-5/16"; 45°-1-13/16"
Min. Depth of Cut: 90°-0"; 45°-1/16"
Speed: Idle, 5500 RPM; Load, 4000 RPM
Bearings: Precision Ball
Size: 11" length, 7-3/4" width, 9-3/4" height
Cord: 10'

Furnished with Machine: 10' Cord
2 Wrenches, Spacer Washer (121-A6), Spacer Washer (122-A6), Solid Lockup Screw (30-SB), Operating Manual, Lubricant
Net Weight: 13-1/2 lbs.
Shipping Weight: Model 115A, 16-1/2 lbs.
Model 115AK, 24 lbs.

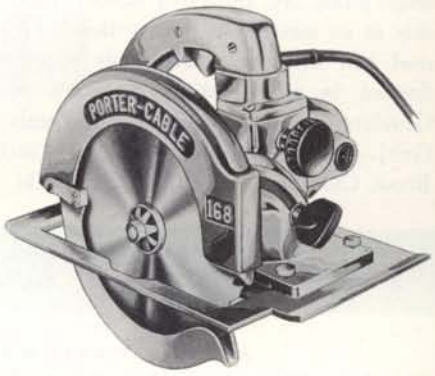
Accessory Equipment

229-SB	Carrying Case
21-SA	Rip Guide
25Y-K75	Protractor Gauge
153-K75	Cross-Cut Guide
BB-4Y	Saw Table Adapter
5019	50' Extension Cord

PORTER-CABLE

MODEL 168 SAW
8¼" DIA. BLADE

This large capacity saw has been designed particularly for the woodworker who needs the added power and big cutting capacity for all general woodworking jobs. It combines minimum weight, maximum power and every possible safety feature including the KickProof Clutch and an auxiliary front blade guard. May be used with Saw Table. Available in dollar-saving kit form.



SPECIFICATIONS

Motor: Univ., 115 V, AC-DC, 25-60 Cycle, 13 Amp. (230 V available at extra cost)
Blade Type: Combination (B-8255C)
Blade Size: 8-1/4" dia.; 5/8" round hole
Max. Depth of Cut: 90°-2-7/8"; 45°-2-1/8"
Min. Depth of Cut: 90°-1/32"; 45°-3/16"
Speed: Idle, 4500 RPM; Load, 3500 RPM
Bearings: Precision Ball
Size: 12-1/2" length, 10" width, 10-1/2" height
Cord: 10'

Furnished with Machine: 10' Cord, 2 Wrenches, Spacer Washer (121-A6), Spacer Washer (122-A6), Solid Lockup Screw (30-SB), Operating Manual, Lubricant
Net Weight: 14 lbs.
Shipping Weight: Model 168, 14 lbs.
Model 168K, 22 lbs.

Accessory Equipment

21-SA	Rip Guide
168-29	Carrying Case
153-K75	Cross-Cut Guide
25Y-K75	Protractor Gauge
BB-3Y	Saw Table Adapter
5019	50' Extension Cord

PORTER-CABLE

¼" HEAVY-DUTY DRILL
MODEL 515



Both heavy-duty drills are compact and light weight, yet packed with power and dependability. Ball bearings throughout. Each drill has ideal speed for maximum cutting efficiency on all types of materials. Widely used in every type of production work where rugged "all-day" drilling performance is required.

SPECIFICATIONS

Motor: Univ., 115 V, AC-DC, 25-60 Cycle, 3 Amp. (230 V at extra cost)
Capacity: Steel, 1/4"; Wood 1/2"
Speed: 1800 RPM
Chuck: Gear type
Bearings: Ball throughout
Gears: Compound Reduction
Chuck to Top Motor Housing: 7/8"
Housing: Aluminum Alloy
Size: 6-1/2" high, 7-1/4" long, 2-7/8" wide
Cord: 7'
Furnished with Machine: Chuck Key (12-DL3); Key Holder (19-DL1); Operating Manual
Net Weight: 3 lbs., 12 ozs.
Shipping Weight: 5 lbs.

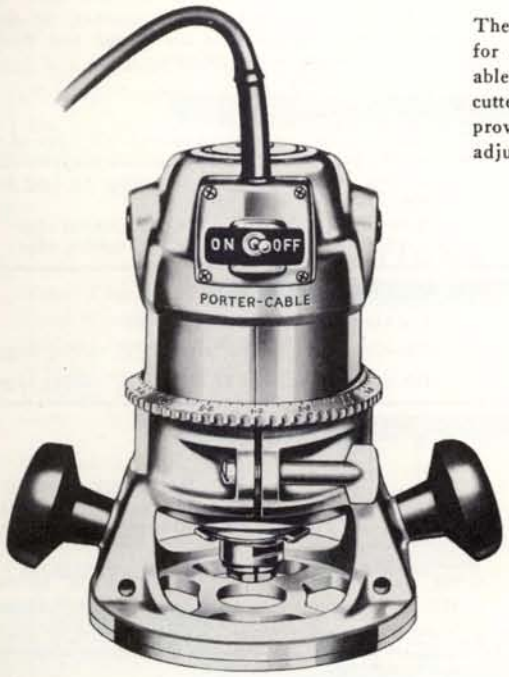
½" HEAVY-DUTY DRILL
MODEL 516



SPECIFICATIONS

Motor: Univ., 115 V, AC-DC, 25-60 Cycle, 6 Amp. (230 V at extra cost)
Capacity: Steel, 1/2"; Wood, 1-3/8"
Speed: 550 RPM
Chuck: Gear type
Bearings: Ball throughout
Gears: Double Compound Reduction
Chuck to Top Motor Housing: 1-1/8"
Housing: Aluminum Alloy
Size: 9-7/8" high, 14-1/4" long, 3-1/2" wide
Cord: 10'
Furnished with Machine: Spade Handle (4-DL4); Auxiliary Handle (20-DL2) Chuck Key (22-DL4); Key Holder (17-DL2); Operating Manual
Net Weight: 10 lbs.
Shipping Weight: 11 lbs., 3 ozs.

PORTER-CABLE KAM-GRIP ROUTERS



MODEL 511

The 511 is a heavy-duty router used by patternmakers and woodworkers everywhere for a wide variety of cutting and shaping operations. It features an interchangeable motor that may be used with the Model 5517 Power Plane. Over 150 bits and cutters are available for use with this router. New threadless Kam-Grip chuck provides greatest possible accuracy. This router features a quick, accurate depth adjustment from 1/64" to 1".

SPECIFICATIONS

MOTOR: Univ., 115 V, AC-DC, 25-60 Cycle, 8 Amp. 1½ H.P. (230 V available at extra cost).
COLLET: Split-type, Kam-Grip, ½" (Part No. SRB-24).
SPEED: 22,000 RPM.
SWITCH: Recessed Double Pole.
HOUSING: Polished Aluminum.
SUB-BASE: Non-marking.
SIZE: 8¾" width, 9⅜" height, 5¾" depth.
BEARINGS: Oversized Sealed.
CORD: 10'.

ROUTER INCLUDES:
MOTOR ASSEMBLY (511-M): Motor (SRB-29), 2 Wrenches (SRB-25), adapter (2211-X).
BASE ASSEMBLY (511-B): Base (SRB-9Y), Straight Gauge Assembly (SRB-7Y), Templet Guide (B-97), Grinding Wheel (25-CG), Lock Nut (140-17), Operating Manual.
NET WEIGHT: 8¾ lbs.
SHIPPING WEIGHT: Motor, 8 lbs.; Base, 6 lbs.
ACCESSORY EQUIPMENT: SRB-15Y Alternate Position Adapter.

MODEL 514

This router is a larger, more powerful version of the Model 511. It is excellent for use in heavy production work in pattern shops and woodworking plants. The 514 also has the Kam-Grip Chuck together with an easy-to-read calibrated depth adjustment. Versatility of this machine may be greatly increased by use with various templets.

SPECIFICATIONS

MOTOR: Univ., 115 V, AC-DC, 25-60 Cycle, 12 Amp. 2½ H.P. (230 V available at extra cost).
COLLET: Split-type, Kam-Grip, ½" (Part No. SRC-24).
SPEED: 20,000 RPM.
SWITCH: Recessed Double Pole.
HOUSING: Polished Aluminum.
SUB-BASE: Non-marking.
SIZE: 10" width, 12¾" height, 7" depth.
CORD: 10'.

ROUTER INCLUDES:
MOTOR ASSEMBLY (514-M): Motor (SRC-27Y), 2 Wrenches (SRB-25), Adapter (2211-X).
BASE ASSEMBLY (514-B): Base (SRC-6Y), Straight Gauge Assembly (SRC-7Y), Templet Guide (B-97), Grinding Wheel (25-CG), Lock Nut (140-17), Operating Manual.
NET WEIGHT: 18 lbs.
SHIPPING WEIGHT: Motor, 17 lbs.; Base, 12 lbs.
ACCESSORY EQUIPMENT: SRC-15Y Alternate Position Adapter.
D-508 Adapter.
D-510 Adapter.



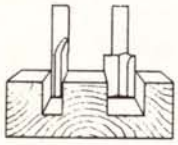
PORTER-CABLE • BITS • CUTTERS • ACCESSORIES

FOR USE WITH ALL ROUTERS

Porter-Cable Bits are made of the best grade of High Speed Steel available. A special heat treating process creates an extra toughness that makes these bits and cutters superior to any others on the market. Speedmatic Bits and Cutters are so drawn and hardened as to outwear any others. Absolute accuracy of relieving tools provides utmost precision for routing and mortising cuts.

Speedmatic Bits and Cutters are numbered so that the first number denotes the shank size, in 16ths, and the second and third numbers denote the diameter in 32nds.
For Example: Straight Bit A-412—the first number, "4" denotes 4/16 or ¼—which is the shank size and the second and third numbers indicate 12/32 or ⅜, which is the diameter.

STRAIGHT BITS 1/4" Shank, 2 Flutes

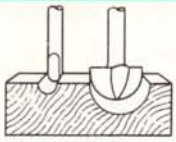


Length of shank is ⅞". D-508 adapter to be used with these bits. These bits are used for routing out the background of carvings, panels, rabbet cuts and strip inlays. The A-408 has a ⅝" flute; the rest have a ¾" flute.

A-408 ¼" diameter
A-410 $\frac{5}{16}$" diameter
A-412 ⅜" diameter
A-414 $\frac{7}{16}$" diameter
A-416 ½" diameter

STRAIGHT BITS $\frac{5}{16}$" shank, 1¾" cutting edge, 2 flutes.
A-516 ½" diameter.

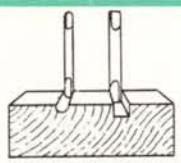
STRAIGHT BITS 7/16" Shank, 2 Flutes



For routing with the "C" Router only. Use D-814 adapter. Flutes are all 1½" except A-716S, on which flutes are 2".

A-716 ½" diameter
A-716S ½" diameter
A-720 ⅝" diameter
A-724 ¾" diameter
A-728 ⅞" diameter
A-732 1" diameter

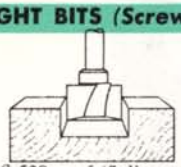
STRAIGHT BITS *(Double End)* Single Flute



For general routing with "B" and "C" Routers, use additional adapter, D-810, for use with "C" Router.

AA-402 $\frac{1}{16}$" diameter, $\frac{5}{32}$" edge, 1⅜" overall, use D-402 and D-508 adapters
AA-403 $\frac{5}{32}$" diameter, $\frac{3}{16}$" edge, 1⅜" overall, use D-403 and D-508 adapters
AA-404 ⅛" diameter, ¼" edge, 1½" overall, use D-404 and D-508 adapters
AA-405 $\frac{5}{32}$" diameter, ¼" edge, 1½" overall, use D-405 and D-508 adapters
AA-406 $\frac{3}{16}$" diameter, $\frac{5}{16}$" edge, 1⅝" overall, use D-406 and D-508 adapters

STRAIGHT BITS *(Screw Type)*



Used with BA-1 arbor. For general routing and mortising with Lock Mortiser. Attachment. Can also be used for rabbeting and strip inlays.

AS-520 ⅝" diameter
AS-522 $\frac{11}{16}$" diameter
AS-524 ¾" diameter
AS-526 $\frac{13}{16}$" diameter
AS-528 ⅞" diameter
AS-530 $\frac{15}{16}$" diameter
AS-532 1" diameter
AS-534 1$\frac{1}{16}$" diameter
AS-536 1⅛" diameter
AS-538 1$\frac{3}{16}$" diameter
AS-540 1¼" diameter

"V" GROOVING BIT 1/4" SHANK



For "V" grooving recessed designs or lettering on signs, plaques, etc. Use D-508 adapter.

V-490 cuts ⅝" wide, $\frac{5}{16}$" deep

CARBIDE-TIPPED STRAIGHT BITS

Long-life cutting performance on all types of wood, plywoods, Formica, Micarta, aluminum clapboards, Masonite. Cutting edge lasts 10 to 100 times as long as standard steel bits.

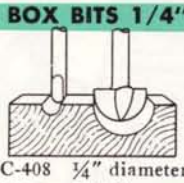
A-408C ¼" shank, ¼" dia., ⅝" cutting edge
A-416C ¼" shank, ½" dia., ⅞" cutting edge

PATTERN MAKERS DRAFT BIT

For exclusive use in pattern shops.

DR-410 $\frac{5}{16}$" at point 2° draft, 1¼" cutting edge ¼" shank
DR-514 $\frac{7}{16}$" at point 2° draft, 1½" cutting edge $\frac{5}{16}$" shank

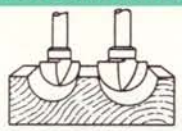
CORE BOX BITS 1/4" SHANKS



Use D-508 adapter. For light core box work in a pattern shop. Also used for surface fluting.

C-408 ¼" diameter
C-412 ⅜" diameter
C-416 ½" diameter
C-420 ⅝" diameter
C-424 ¾" diameter

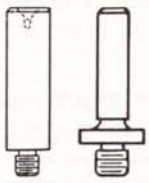
CORE BOX BITS *(Screw Type)*



Use BA-1 arbor. For light core box work in a pattern shop. Also used for surface fluting. These bits have ¼"—28 thread.

CS-524 ¾" diameter
CS-528 ⅞" diameter
CS-532 1" diameter
CS-540 1¼" diameter

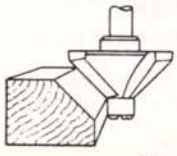
ARBORS



Speedmatic Arbors are used with all of the Speedmatic Screw type bits. The arbors are threaded and the screw type bits fit the thread of the arbors, which in turn slide into the collet of the router and are tightened. These arbors have ¼"—28 thread.

BA-1 $\frac{5}{16}$" diameter for all AS, CS, and ST Bits, 1⅛" Shank
BA-5 $\frac{9}{16}$" diameter, 1⅛" Shank. Screws into "B" Chuck
CA-2 ½" diameter, 2⅛" Shank

CHAMFER BIT *(Screw Type)*



Use BA-1 arbor and pilot SP-412. Used to make chamfer cuts on mouldings and table tops. Chamfer bit has maximum width of chamfer of ¾"; however, by the depth adjustment on router, this width can be controlled from ¾" to 0".

HS-524 ¾" cutting edge

CORNER ROUNDING BIT *(Screw Type)*



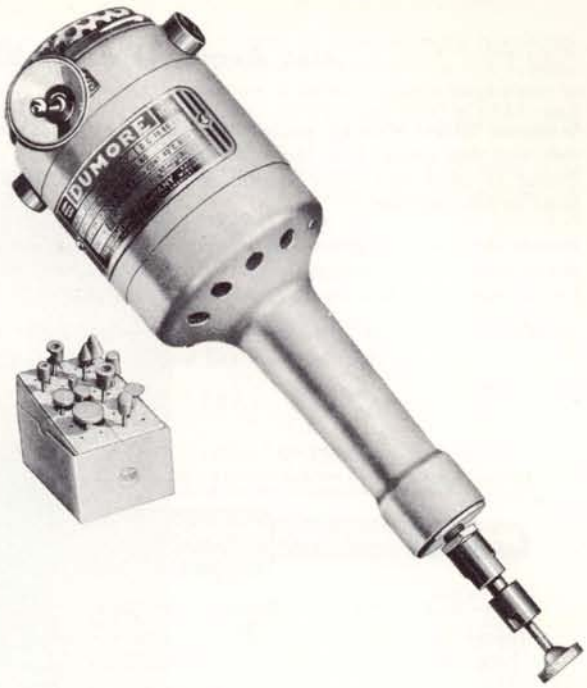
Use BA-1 arbor and pilot SP-412. Used to round edges of mouldings and tops of tables—the pilot tip acts as a guide along the edge of the work. These bits have ¼"—28 thread.

ES-508 ¼" radius
ES-512 ⅜" radius
ES-516 ½" radius

DUMORE HAND GRINDER SERIES 10

Recommended for both tool and die work where accuracy is a must and for shop and production bench work where full-shift operation is required.

One-tenth h.p. Dumore universal motor idles at 22,000 r.p.m. . . . will swing 1/8" to 7/8" wheels for full-shift production work. Weighs under 3 lbs. yet has twice the power of the average hand grinder. Prematched two-bearing construction . . . force cooling . . . quick-change chuck. A hog for work!



SPECIFICATIONS

Motor Type	Universal
Rated Horsepower	1/10
No-Load Speed	22,000
Bearings	Ball
Grinding Wheels	1/8"-7/8"
Dimensions—Length (Incl. Chuck)	9 23/32"
(Major Diameter)	2 11/16"
Weights—Net	3 lbs.
Shipping	3 lbs., 14 oz.
Available with These Chucks	1/8, 1/4, 0-1/8"

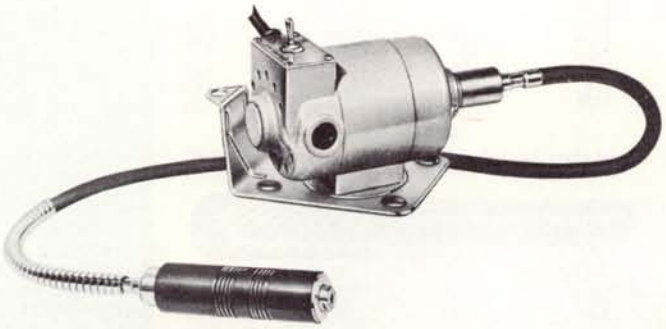
For 115 or 230 volt, AC or DC current.

ACCESSORIES: Bench Stand, Tool Post Bracket.

DUMORE FLEX-SHAFT POWER-FLEX

Recommended for full-shift grinding, filing, burring with all 1/4" or 1/8" shank tools

The Power-Flex gives you a full 1/4 hp, 20,000 rpm production tool for continuous, full-shift duty. With the Power-Flex, you put the power in your hand and the power plant on the bench. A natural for use with carbide cutters. Heavy-duty, heat-insulated hand piece has grease-sealed bearings . . . weighs only 6 ounces . . . handles all 1/4" and 1/8" shank wheels and cutters . . . has lock pin and wrenches for quick tool change. The 36" flexible shaft is moisture-, oil-, and grease-resistant. Motor has plate and swivel for both bench and hanging mount. Foot rheostat available for speed control.



SPECIFICATIONS

Motor Type	Universal
Rated Hp	1/4
No-Load Speed	20,000
Bearings	Ball
Weights—	
Net	6 lbs., 8 oz.
Shipping	8 lbs.

Available for 115 or 230 volt AC or DC current

ACCESSORIES

Accessory kit consisting of:
- 1—3/8" x 3/4" x 1/4" shank high-speed steel cutter
- 1—1/4" x 1/8" shank ball-type high-speed steel cutter
- 1—3/16" x 3/8" x 1/8" shank flame-shape cutter
- 1—B-135 mounted wheel, (1/4" x 1/2" x 1/8")
- 1—W-175 mounted wheel, (3/8" x 3/8" x 1/8")
- 2—W-217 mounted wheels, (1" x 3/8" x 1/4")

LETTERS and FIGURES HAND-CUT STEEL



Made from special tool steel expertly tempered to insure sharp, legible marks in all kinds of wood or metal. They are practically indestructible.

All sizes carried in stock. Specially designed letters, trade marks, designs, etc., can be made to order. Reverse style letters and figures also available.

Available in sets of letters or figures, or individually in the following sizes: (Other sizes available to order.)

1/32"	1/16"	3/32"	1/8"	5/32"
3/16"	1/4"	5/16"	3/8"	7/16"
1/2"		5/8"		3/4"

SEVERANCE MIDGET MILLS

Also Available as Carbide Cutters for Heavy Duty Work

Severance Midget Mills are hardened and drawn to a 63-65 Rockwell, and then ground from the solid. They cut clean, sharp chips instead of metal dust. They actually bite into hard metals and speed up finishing time.

Because these tools are ground from the solid after hardening, they can be re-ground time and again. After each grinding they will be just as sharp, hard and tough, as when they were new.

Standard tools have ¼" diameter shanks and measure 2¼" long, over all. Shanks of other diameters and lengths may be furnished upon request.

Tool symbols are made up in the following manner:

The *First* letter always designates the *Largest Diameter.*

The *Second* letter always designates the *Length of Cutting Portion.*

The *Third* letter always designates the *General Shape* as described in the following pages.

Special tools are given an identification symbol for convenience in re-ordering.

A—1/8"	F—7/16"	K— 7/8"	P—1½"	U—2½"
B—3/16"	G—½"	L—1"	Q—1⅝"	V—3"
C—¼"	H—9/16"	M—1⅛"	R—1¾"	W—3½"
D—5/16"	I—⅝"	N—1¼"	S—2"	X—4"
E—⅜"	J—¾"	O—1⅜"	T—2¼"	Y—4½"
				Z—5"

SHAPE "A"

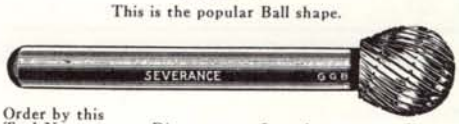
This tool is square on the end and cuts a very sharp corner. Regularly furnished without end cut but available with it.



Order by this Tool No.	Dia.	Length	Shape
AGA	1/8"	1/2"	Sq. End
BGA	3/16"	1/2"	Sq. End
CLA	¼"	1"	Sq. End
DLA	5/16"	1"	Sq. End
ELA	⅜"	1"	Sq. End
GLA	7/16"	1"	Sq. End
ILA	½"	1"	Sq. End
JJA	¾"	¾"	Sq. End

SHAPE "B"

This is the popular Ball shape.



Order by this Tool No.	Dia.	Length	Shape
AAB	1/8"	1/8"	Ball
BBB	3/16"	3/16"	Ball
CCB	¼"	¼"	Ball
DDB	5/16"	5/16"	Ball
EEB	⅜"	⅜"	Ball
GGB	½"	½"	Ball
IIB	⅝"	⅝"	Ball
JJB	¾"	¾"	Ball
LLB	1"	1"	Ball

SHAPE "C"

This shape has a Ball nose. Radius on end is one-half of Tool Diameter. Sides straight.



Order by this Tool No.	Dia.	Length	Shape
AGC	1/8"	1/2"	Ball Nose
BGC	3/16"	1/2"	Ball Nose
CLC	¼"	1"	Ball Nose
DLC	5/16"	1"	Ball Nose
ELC	⅜"	1"	Ball Nose
GLC	½"	1"	Ball Nose
ILC	⅝"	1"	Ball Nose

SHAPE "P"

A pear shape with shank extending from "sliced-off" blossom end.



The above are listed as representative shapes and sizes. A large number of additional standard shapes and sizes are carried in stock.

Write for descriptive circular with complete price lists.

SHAPE "R"

A TREE shape with a rounded or Ball nose. The small end is approximately one-half the diameter of large end. The outline of tool curves from the large diameter to the Ball nose by a convex radius of about eight times the large diameter of tool. This newly created shape bids fair to become the most popular tool of all.



Order by this Tool No.	Dia.	Length	Shape
CJR	¼"	¾"	Tree
ELR	⅜"	1"	Rounded
GMR	½"	1⅛"	Nose
IMR	⅝"	1⅛"	

SHAPE "Q"

Known as an Egg shape with the shank attached to what would be the pointed end of Egg.



Order by this Tool No.	Dia.	Length	Shape
CFQ	¼"	7/16"	Egg
EIQ	⅜"	⅝"	Egg
GKQ	½"	⅞"	Egg
ILQ	⅝"	1"	Egg

SHAPE "H"

Conical shapes. Plain angle cutters.



Order by this Tool No.	Dia.	Length	Shape
CEH	¼"	⅜"	14° Cone
EGH Trun.	⅜"	½"	14° Truncated
GLH	½"	1"	14° Cone

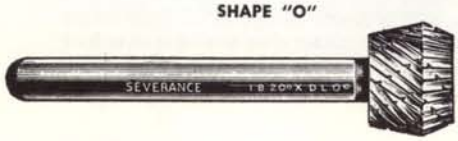
SHAPE "N"

All reverse angle cutters are grouped under this letter. Angle with c/l must be specified to complete the tool number. Furnished without end cut unless otherwise specified.



Order by this Tool No.	Dia.	Length	Shape
CGN	¼"	½"	7° Reverse
GLN	½"	1"	7° Reverse
JIN	¾"	⅝"	18° Reverse

SHAPE "O"



SHAPE "U"

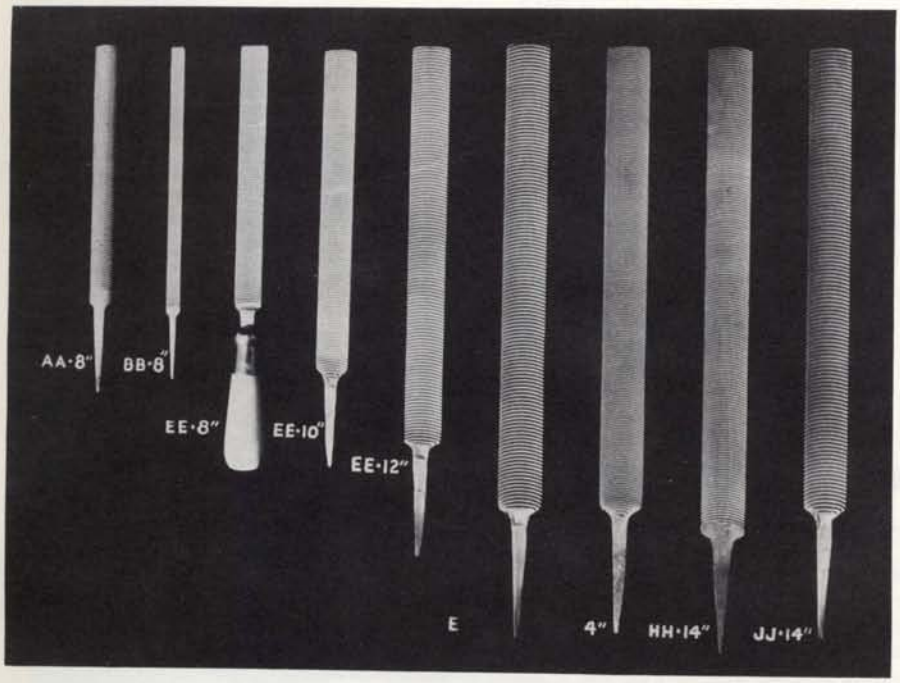


SHAPE "V"



FILES FOR ALUMINUM AND SOFT METALS

Sharp, keen edges, plus generous clearance—patented improvements—make these files particularly suitable for soft and sticky non-ferrous metals like solder, copper, brass, aluminum, babbitt, Kirksite, plastics, etc. The files have an unusual cutting action—not rasping or abrasive like common files. A smoother, better quality of finished work is assured. Master Milled Curved Tooth Files are made in the TANC Type, and are available in different cuts designated as REGULAR (or standard), FINE and SMOOTH, and in Flat, Half Round and Pillar styles.



Great economy is assured with these MASTER Files, because of their extremely long life, and the fact that they can be resharpened at a fraction of their original cost. Available as follows:

Length of Cut: 8, 10, 12, and 14 inches.

Styles

(AA) Half Round, Solid, Regular Cut
(BB) Pillar, Regular Cut
(CC) Pillar, Fine Cut
(DD) Pillar, Smooth Cut
(EE) Flat, Regular Cut
(FF) Flat, Fine Cut
(GG) Flat, Smooth Cut
(HH) Utility, one side regular—other side smooth cut.
(JJ) Babbitt File (8 teeth per inch)
#363 Patternmaker's, Thin type, 8" only.

Available singly or in dozen lots.

MASTER MILLING CUTTERS

For Use with Milling Machines, Routers, High Speed Drill Presses

These Cutters are used in milling machines, routers and high speed drill presses for machining wood and soft metals. They are manufactured from high-grade steel and can be re-sharpened.

Standard Cutters are available as listed below with or without chip-breakers. Special sizes, types, etc., are available to order. If you have any special design in mind, send us your sketch and we will gladly manufacture them for you.

STRAIGHT CUTTING EDGE

KCMC Tool No.	Tool Dia.	Length of Cut	Shank Dia.	Length O.A.
0.2	1/8	1 1/2	1/4	3
0.3	5/16	1 3/4	1/4	3 1/4
0.4	1/4	2	1/4	3 1/2
0.5	5/16	2 1/4	5/16	3 3/4
0.6	3/8	2 1/2	3/8	4
0.8	1/2	2 3/4	1/2	4 1/4
0.10	5/8	3	1/2	4 1/2
0.12	3/4	3 3/8	1/2	4 7/8
0.16	1	3 3/4	1/2	5 1/4

2° C/L ANGLE, TAPERED CUTTING EDGE

KCMC Tool No.	Tool Dia.	Length of Cut	Shank Dia.	Length O.A.
2.3	5/16	1 1/2	1/4	3
2.4	3/4	1 3/4	1/4	3 1/4
2.5	5/16	2 1/4	5/16	3 3/4
2.6	3/8	2 1/2	3/8	4
2.8	1/2	2 3/4	1/2	4 1/4
2.10	5/8	3	1/2	4 1/2
2.12	3/4	3 3/8	1/2	4 7/8
2.16	1	3 3/4	1/2	5 1/4

5° C/L ANGLE, TAPERED CUTTING EDGE

KCMC Tool No.	Tool Dia.	Length of Cut	Shank Dia.	Length O.A.
5.6	3/8	1 1/2	3/8	3
5.8	1/2	1 7/8	1/2	3 1/8
5.10	5/8	2 1/8	1/2	3 7/8
5.12	3/4	3	1/2	4 1/2
5.16	1	3 3/4	1/2	5 1/4

1° C/L ANGLE, TAPERED CUTTING EDGE

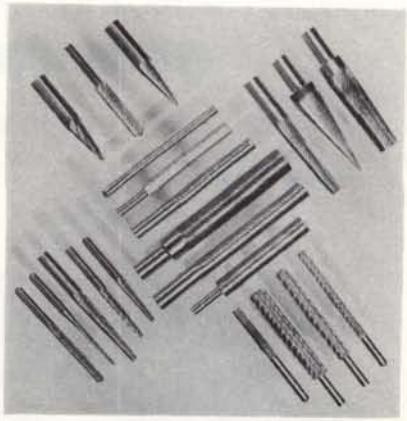
KCMC Tool No.	Tool Dia.	Length of Cut	Shank Dia.	Length O.A.
1.2	1/8	1 1/2	1/4	3
1.3	5/16	1 3/4	1/4	3 1/4
1.4	1/4	2	1/4	3 1/2
1.5	5/16	2 1/4	5/16	3 3/4
1.6	3/8	2 1/2	3/8	4
1.8	1/2	2 3/4	1/2	4 1/4
1.10	5/8	3	1/2	4 1/2
1.12	3/4	3 3/8	1/2	4 7/8
1.16	1	3 3/4	1/2	5 1/4

3° C/L ANGLE, TAPERED CUTTING EDGE

KCMC Tool No.	Tool Dia.	Length of Cut	Shank Dia.	Length O.A.
3.4	1/4	1 1/2	1/4	3
3.5	5/16	1 3/4	5/16	3 1/4
3.6	3/8	2	3/8	3 1/2
3.8	1/2	2 1/2	1/2	4
3.10	5/8	3	1/2	4 1/2
3.12	3/4	3 3/8	1/2	4 7/8
3.16	1	3 3/4	1/2	5 1/4

H.S.S., Special Milling Cutters for wood, 8° C/L angle tapered cutting edge, with or without Chip Breakers.

KCMC Tool No.	Tool Dia.	Length of Cut	Shank Dia.	Length O.A.
8.8	1/2	1 1/2	1/2	3
8.10	5/8	1 7/8	1/2	3 3/8
8.12	3/4	2 1/4	1/2	3 3/4
8.16	1	3	1/2	4 1/2



H.S.S., Special Milling Cutters for wood, 10° C/L angle tapered cutting edge.

KCMC Tool No.	Tool Dia.	Length of Cut	Shank Dia.	Length O.A.
10.10	5/8	1 1/4	1/2	2 3/4
10.12	3/4	1 5/8	1/2	3 3/8
10.16	1	2 1/2	1/2	4

TREE OFFSET BORING HEAD

This is a versatile unit adaptable to milling machines of all types, universal milling heads, boring and jig boring machines, automatic screw machines, turret or engine lathes, and special purpose tools. Design and construction assure rigidity, capacity and accuracy. Interchangeable arbors shown below permit use of head on many different machines.

TOOL HOLDER: V Type hole takes any size or shape bar with shank diameter up to ½". Square cross hole takes standard square steel or carbide tool bits to suit the job.

LOCK: Slotted body, with twin clamping screws makes a solid lock without gibs or plugs.

MICROMETER ADJUSTMENT: Micrometer screw is ⅜" diameter, 40 thread with large head and clearly marked divisions to .001. Threads are ground after hardening, and screw is enclosed to protect against chip damage.

Boring Capacity, ¼" to 7".
Offset Capacity, ¾".
Body Diameter, 2¼".
Length—Body and Holder, 2".



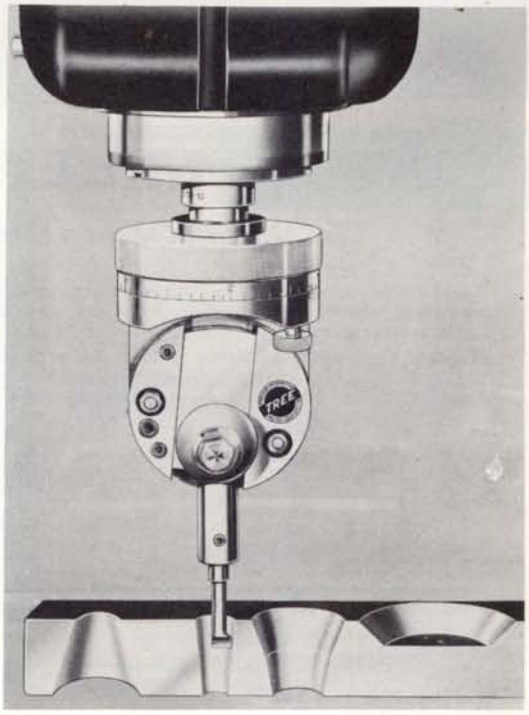
TREE TAPER BORING TOOL

Here's a handy tool for the pattern shop or tool room, that can be used on any Milling Machine, Jig Borer or Boring Bar as a detachable shank, either straight or tapered. It bores holes to any taper up to 10" in diameter by simply setting the graduated swivel base to the desired angle, swinging the boring bar into cutting position and holding the knurled ring stationary as the tool revolves.

Compact in size—4" in diameter and 5" long—the *Tree* Taper-Boring tool is made of alloy steel, heat treated and precision ground to assure many years of accurate use with virtually no wear.

Simplicity of operation plus greater adaptability makes it ideal for boring metal patterns, die cast dies, rubber or plastic molds, drop forge dies, etc. Speedy and economical to use, the *Tree* Taper-Boring tool is by far today's most efficient boring tool.

These three operations can be performed with a single setting: Straight and Taper Boring; Facing; Outside Turning.



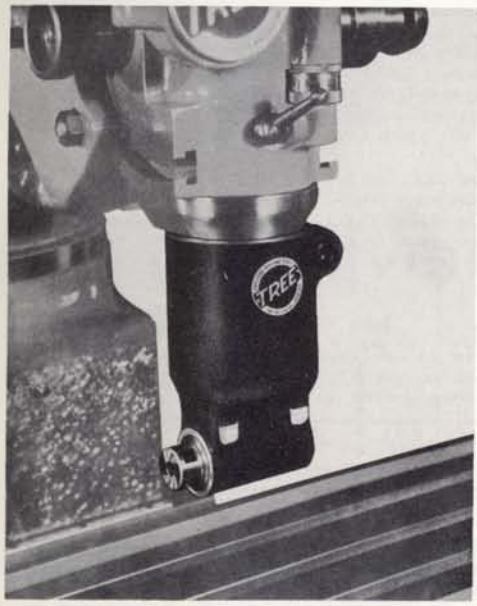
SPECIFICATIONS

Diameter	4"
Length	5 1/16"
Weight	10 lbs.
Shipping Weight	20 lbs.

Equipment Included:
One of the following shanks —
No. 3, No. 4, No. 5 Morse
No. 9, No. 10 B & S
No. 40, No. 50 MM Taper
¾" dia. to 1¼" dia. Straight Shanks
¾" dia. boring bar for ¼" square tool bits.
¾" dia. boring bar with ⅜" dia. hole in end.
⅜" dia. H. S. boring tool to fit above bar.
¾" extension bar for outside turning.
⅜" Hex Socket Wrench.
Allen wrench.
9/16" Open end wrench.
Packed in wooden case.

TREE INNER-MIL

• PATTERN MAKERS • PLASTIC MOLD MAKERS • TOOL AND DIE MAKERS



The TREE Inner-Mil is a right angle attachment that clamps onto the quill of a *Bridgeport, Eklund, Tree, Index, Rusnok, Fray* or other milling heads. Pattern makers, plastic mold makers, tool and die makers, can make tremendous savings on set-up time, costly hand finishing work and expensive special contour tools by using the TREE Inner-Mil.

A short 4" spindle in a narrow housing, operating at right angles to the milling head spindle, solves many expensive problems that cannot be handled in any other way.

Standard milling and boring cutters can be used in awkward recesses of patterns, core boxes, plastic molds, dies and fixtures.

The TREE Inner-Mil is built for precision work in pattern shop, tool room or production plant. The ball bearing spindle, gears and arbors are hardened to maintain accuracy and long life.

SPECIFICATIONS

Inner-Mil Style 2 includes:

HOUSING: Cast aluminum to fit quill. Diameter at spindle, 1¾".

SPINDLE: Hardened and ground. Length 4".

CAPACITY: ⅜" End Mills. ⅜" sq. tool bits.

BEARINGS: Ball bearings front and rear.

GEARS: Hardened, matched pairs.

ARBOR: ½" straight shank furnished.

Other Arbors Available

EMBOSSING PRESSES



Ideal for identifying patterns, castings, etc. Also can be used for dating, heat numbers, and a multiplicity of other uses. Available as follows:

MODEL AA		MODEL BB		MODEL CC	
Letter Size	Width of Tape	Letter Size	Width of Tape	Letter Size	Width of Tape
1/8" high	3/8"	9/32" high	9/16"	1/2" high	1-1/8"
1/8" reverse	5/16"	9/32" reverse	9/16"	5/8" high	1-1/4"
3/16" high	7/16"	5/16" high	3/4"	5/8" deep reverse	1-1/4"
1/4" high	1/2"	3/8" high	7/8"	3/4" high	1-1/2"
		3/8" deep reverse	7/8"	3/4" deep reverse	1-1/2"
				1" broad face	1-1/2"

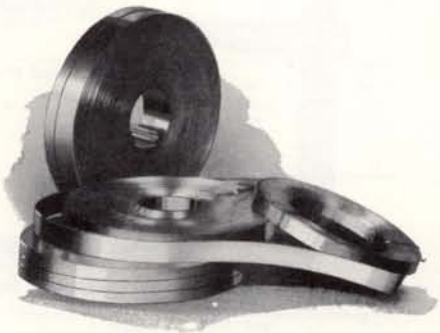
We also supply the new "Midgie" Portable Hand Embosser which utilizes various colored plastic and metal tapes with adhesive on the back producing 3/16" letters on 1/2" wide tape.

TAPE FOR EMBOSSING PRESSES and METAL STAMPING MACHINES

Embossing Tape is available in Zinc, Brass or Aluminum. It is of the proper width, gauge and temper to be used with Embossing Presses and Metal Stamping Machines as described above. Available in rolls as follows:

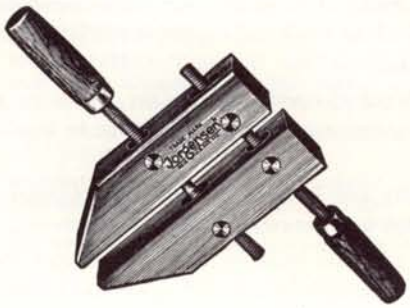
Width of Tape	Gauge	ZINC Lbs. Per Roll*	ALUMINUM Lbs. Per Roll*	BRASS Lbs. Per Roll*
3/8	.012	1-3/4	3/4	1-1/2
7/16	.012	3	7/8	1-3/4
1/2	.014	3	1	3
9/16	.016	3	1-1/4	3
3/4	.018	5	1-3/4	5
7/8	.018	5	2	5
1-1/8	.022	7	3	8
1-1/4	.022	8	3-1/2	8
1-1/2	.022	10	4	10

*These figures are approximate.



CLAMPS

ADJUSTABLE STEEL SPINDLE HANDSCREWS Type "J"



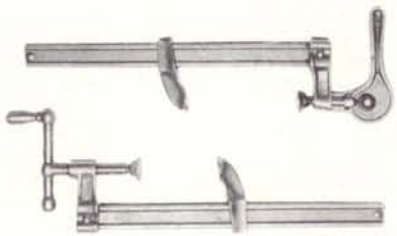
For glueing and assembly of woodwork, furniture, cabinet work, musical instruments, boats, airplanes, body work, patterns, stair work, etc. The hard maple jaws do not mar the work and are less likely to slip than steel jaws. Hence they are also most desirable for holding steel sheets, bars, odd shapes, templates, bakelite, linoleum, fabrics, insulated wire, fine veneers, etc. They have deep throat and afford either a broad area of evenly distributed pressure, or concentration at one point. Leverage of screw action gives most secure grip.

Finest hard maple straight grain seasoned and oiled jaws. Cold drawn screws and nuts, faster in operation and more durable than wood screws. Angle of jaws adjustable to fit the work or over-lap one jaw beyond the other. Threads will not strip. Glue will not adhere to the spindles. Does not come apart. Not affected by changes in climatic conditions.

Stock No.	Lgth. Jaws In.	Open Btwn. Jaws In.	Wt. Lbs. per Doz.
5/0	4	2	6
4/0	5	2½	8
3/0	6	3	16
2/0	7	3½	18
0	8	4½	24
1	10	6	32
2	12	8½	54
3	14	10	64
4	16	12	94
5	18	14	108
6	20	14	136
7	24	17	164

Packed ½ dozen per carton

STEEL BAR CLAMPS — Eccentric or Screw Type



A very handy and popular clamp among the patternmakers. Available with two-inch or four-inch reach and a sliding arm. Made in either screw or eccentric type. The bar is made from 1¼" steel. The arm will grip the I-bar at any point desired and will not slip. In ordering, specify length of bar and whether the screw or eccentric type is desired. Available as follows:

2-INCH REACH

Size	Reach	Approximate net wt. per doz.
10 in.	2 in.	50 lbs.
12 in.	2 in.	53 lbs.
18 in.	2 in.	62 lbs.
24 in.	2 in.	71 lbs.
30 in.	2 in.	80 lbs.
36 in.	2 in.	89 lbs.
48 in.	2 in.	107 lbs.
60 in.	2 in.	125 lbs.
72 in.	2 in.	143 lbs.
84 in.	2 in.	161 lbs.
96 in.	2 in.	179 lbs.

4-INCH REACH

1¼-inch I-Bar—Eccentric or Screw

Size	Reach	Approximate net wt. per doz.
6 in.	4 in.	46 lbs.
8 in.	4 in.	48 lbs.
10 in.	4 in.	51 lbs.
12 in.	4 in.	53 lbs.
18 in.	4 in.	62 lbs.
24 in.	4 in.	71 lbs.
30 in.	4 in.	80 lbs.
36 in.	4 in.	89 lbs.

Clamps with longer reach to 6" are obtainable on request.

QUICK ACTION CLAMPS



1. Indestructible, reinforced I-beam type jaws, best grade malleable iron.
2. Special alloy spring steel bar.
3. Strong swivel button, large area, ample movement.
4. Tough cold rolled steel spindle, deep cut acme thread, surface treated against welding spatter on all style "S" clamps (wingnut).
5. High grade, smooth wood handle securely riveted through long ferrule, on all style "W" clamps (wood handle).

STYLE 12 (DEEP THROAT)

SPECIFICATIONS

Clamping depth: 12"

Bar: 2" x ½"

Spindle: ⅞" dia.

No.	Opening	Weight per Piece
1208	8"	19 lbs.
1212	12"	20 lbs.
1218	18"	21½ lbs.
1224	24"	23 lbs.
1236	36"	27 lbs.

Size 2
Depth 2"—Bar: 7/8" x 3/16"

No.	Opening	Weight per Doz.
204	4"	15 lbs.
206	6"	16 lbs.
208	8"	17 lbs.
212	12"	19 lbs.
218	18"	23 lbs.
224	24"	26 lbs.

Size 3
Depth 3"—Bar: 1" x 5/16"

No.	Opening	Weight per Doz.
306	6"	28 lbs.
308	8"	30 lbs.
312	12"	34 lbs.
318	18"	40 lbs.
324	24"	47 lbs.
336	36"	59 lbs.

Size 4
Depth 4"—Bar: 1-1/4" x 3/8"

No.	Opening	Weight per Doz.
406	6"	44 lbs.
408	8"	45 lbs.
412	12"	51 lbs.
418	18"	58 lbs.
424	24"	66 lbs.
436	36"	81 lbs.
448	48"	96 lbs.

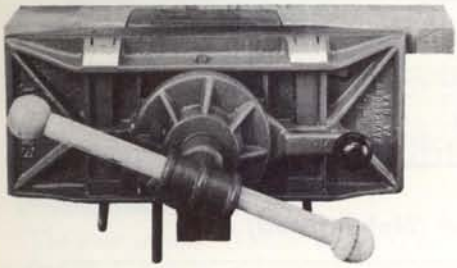
Size 5
Depth 5"—Bar: 1-1/2" x 3/8"

No.	Opening	Weight per Doz.
508	8"	66 lbs.
512	12"	73 lbs.
518	18"	86 lbs.
524	24"	98 lbs.
536	36"	120 lbs.
548	48"	144 lbs.
560	60"	162 lbs.
572	72"	182 lbs.

Size 7
Depth 7"—Bar: 1-1/2" x 3/8"

No.	Opening	Weight per Doz.
708	8"	72 lbs.
712	12"	80 lbs.
718	18"	91 lbs.
724	24"	102 lbs.
730	30"	108 lbs.
736	36"	125 lbs.

EMMERT IMPROVED UNIVERSAL VISES



For Pattern Shops, Cabinet Makers, Carpenter Shops, Planing Mills and Woodworking Plants.

Special web construction of jaws gives greater strength by actual test with other vises. Jaws will not spring. Jaws can be revolved in a complete circle and set at ANY point, instead of only at fixed stops. Can be revolved without loosening or removing work, as in other vises. Can be adjusted at either end for wedge shapes instead of only one end.

Taper adjustment quickly secured by large hand adjusting collar. Can be locked and securely held. Has set of steel jaws firmly riveted in jaws for holding metal.

Vise No.	Size of Jaw Inches	Opens Inches	Weight Pounds
1	7 x 18	15	86
2	5 x 14	12	56

COLUMBIAN VISES

GYRO-VISE

For every home or shop job. Stands upright or lays flat on either side. Rotates around base. Locks automatically in any position. Ideal for carpentry, sanding, sawing, tool sharpening, carving. Smooth, positive-grip, mar-free jaw faces.



Vise No.	Jaw Width In.	Jaw Depth In.	Jaw Opening In.	Pipe Capacity In.	Height In.	Weight Each Lbs.
73½	3½	2½	5	½-1½	8½	16½

Individual cartons. 6 cartons in a case.

GYRO-VISE ATTACHMENTS

1. Standard Base around which Gyro-Vise rotates. Additional bases can be placed in different locations and vise moved from job to job. Weight, 1¾ lbs.
2. Angle Adapter permits operation of Gyro-Vise in a vertical arc. Weight, 2¼ lbs.
3. Flush Base for applications where it is desirable to keep working surface free of obstacles. Weight, 4¾ lbs.



1 2 3

SWIVEL BASE MACHINISTS' VISES



Effective swivel base allows vise to be swung freely and locked in any desired position. Steel clamping nut operates forged steel bolt with teeth that mesh into gear-like corrugations in base plate to form positive lock. Position of work can be shifted and it can be held at different angles without removal from vise. Malleable iron unbreakable castings. Steel handle balls forged from handle stock. Self-lubricating graphite bronze bearing. Hardened tool steel replaceable jaw faces. Sizes larger than 5 inches have 2 swivel clamping nuts.

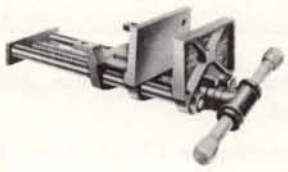
Vise No.	Jaw Width In.	Jaw Opening In.	Weight Each Lbs.
603	3	4	25
603½	3½	5	34
604	4	6	42
604½	4½	7	55
605	5	8	70
606	6	10	106
608	8	12	170

One in a carton.

SOLID NUT CONTINUOUS SCREW WOODWORKERS' VISES

For general industrial and school woodworking. Heavy steel screw with double lead, fast running thread provides maximum operating speed. Solid nut assures long, repair-free life. Hardwood handles standard. Tubular steel handles, optional at no extra cost. Vises furnished with dog type front jaw for use with bench stops—or plain. Illustration shows plain jaw.

Vise No.	Jaw Size In.	Jaw Opening In.	Jaw Style	Handle Type	Wt. Each Lbs.
7CPW	4x 7	9	Plain	Wood	26
7CDW	4x 7	9	Dog	Wood	27
10CDW	4x10	12	Dog	Wood	33
10CPW	4x10	12	Plain	Wood	32



RAPID ACTING CONTINUOUS SCREW WOODWORKERS' VISES



For use where changes in jaw openings must be made frequently and fast. Clockwise operation engages "Power-Slide" mechanism with continuous thread screw for unrestricted inward motion and holding power. Counter-clockwise operation disengages mechanism for "fast sliding" adjustment of jaw opening. Hardwood handles standard. Tubular steel handles, optional at no extra cost. Vises furnished with dog type front jaw for use with bench stops—or plain. Illustration shows dog raised.

Vise No.	Jaw Size In.	Jaw Opening In.	Jaw Style	Handle Type	Wt. Each Lbs.
7RPW	4x 7	9	Plain	Wood	26
7RDW	4x 7	9	Dog	Wood	27
10RDW	4x10	12	Dog	Wood	33
10RPW	4x10	12	Plain	Wood	32

One in a carton.

SOLID NUT CONTINUOUS SCREW WOODWORKERS' VISES

With Adjustable Steel Handles

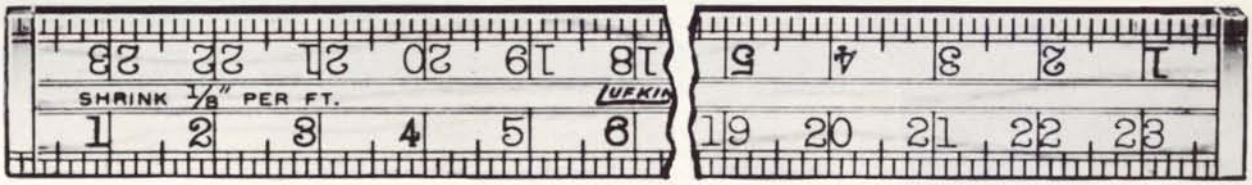


Adjustable steel handle greatly increases operating speed. Handle is held in desired position by tension spring in head. With handle centered, speed comparable to a rapid-acting vise is possible. Extension of handle gives leverage to tighten vise. Dog type front jaw.

Vise No.	Jaw Size In.	Jaw Opening In.	Jaw Style	Wt. Each Lbs.
7CDS	4x 7	9	Dog	27
10CDS	4x10	12	Dog	33

One in a carton.

BOXWOOD SHRINK RULES



No. 8205

All Markings are Clear Cut and Black Filled (Not Printed)

Boxwood Shrink Rules are suitable where the precision of machine divided Steel Shrink Rules is not required.

Patterns for metal castings are oversize to allow for shrinkage in cooling. As shown by table this varies with different metals. On the rules listed shrinkage allowance is included in all measurements throughout. Example: Rule No. 8205 is 24¼ inches long, divided into 24 equal parts, each part subdivided to 8ths or 16ths.

Ends are brass capped. Natural finish with a clear protective coating.

While Boxwood Shrink Rules are suitable for work described, Machine Divided Shrink Rules (see below), should always be used where a close degree of accuracy and finer graduations are required.

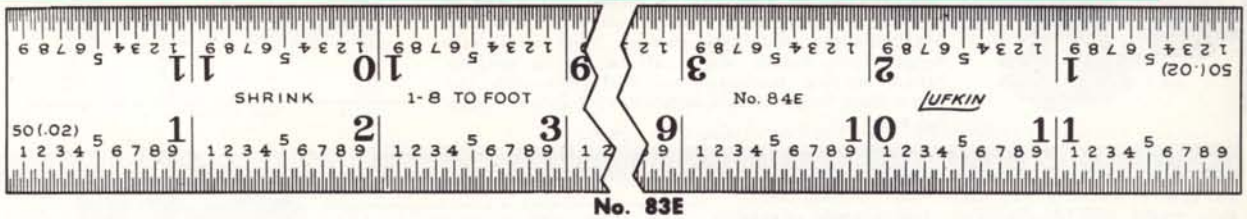
Marked Both Sides, Both Edges; One Side 8ths; Other Side 16ths Shrinkage Inch

No.	Shrinkage Inch per Foot	Length Feet	Width Inches	Thickness Inches	No. in Box	Weight Pounds per Box
8203	1/16	2	1-1/2	1/8	6	1-1/8
8205	1/8	2	1-1/2	1/8	6	1-1/8
8206	3/16	2	1-1/2	1/8	6	1-1/8
8207	1/4	2	1-1/2	1/8	6	1-1/8
8208	5/16	2	1-1/2	1/8	6	1-1/8
8209	3/8	2	1-1/2	1/8	6	1-1/8

Average Shrinkage of Castings

Metal	Shrinkage Inch per Foot	Metal	Shrinkage Inch per Foot
Cast Iron	1/8	Aluminum	3/16
Malleable Iron	1/8	Copper	3/16
Steel	1/4	Lead	5/16
Brass	3/16	Zinc	5/16

LUFKIN STEEL SHRINK RULES



No. 83E

Graduation No. 4: 8ths, 16ths, 32nds, 64ths shrinkage inch.

Furnished in 12 and 24-inch lengths. Nos. 83E, 83F and 83G are also available in 6-inch lengths.

Graduations allow for shrinkage indicated.

The 6-inch rule has single row of inch figures, both edges reading from same end; the 12-inch and longer rules have double row of inch figures, opposite edges reading from opposite ends.

Approximate width: 6-inch rule, ¾ inch; 12-inch rule, 1 inch; 24-inch rule, 1¼ inches.

Always specify length as well as No.

No.	Shrink per Foot	No.	Shrink per Foot	No.	Shrink per Foot
83A	1/16	**83G**	1/4	**83R**	5/32
83B	1/12	**83H**	5/16	**83S**	7/32
83C	1/10	**83J**	7/16	**83T**	9/32
83D	3/32	**83K**	3/8	**83W**	11/32
83E	1/8	**83L**	1/2	**83Y**	13/32
83F	3/16	**83P**	9/64	.....	.....

GENERAL INFORMATION ON ABRASIVES

The terminology applying to abrasive products is often misunderstood. The following is an attempt to clarify these terms so that the purchaser can order and obtain the exact type, etc., of abrasive that he requires.

ABRASIVES

The most common types of abrasives are as follows:

Garnet—a natural mineral product, predominantly red in color, whose qualities recommend it for the sanding and finishing of wood and wood products.

Flint—also a natural mineral, a dull white or light beige in color; grains break down quickly in use; recommended where cost is a factor or where sanding soft or gummy surfaces which fill the paper quickly making it necessary to discard same.

Emery—a natural mineral, dark and dull in color, most commonly used on metal; however, it is no longer very popular as it tends to break down quickly in use.

Aluminum Oxide—a man-made abrasive, superior to emery, brown in color, highly recommended for use on metal as it is very tough and has excellent durability.

Silicon Carbide—also man-made, black in color, grains are hard and sharp, recommended for certain types of metals with low tensile qualities, such as cast iron, brass, and copper.

BACKING

Backing is the material to which the abrasive material is applied. It carries the abrasive grain into action. The three most common types of backing are paper, cloth, and fibre.

Paper backing is most commonly used in conjunction with the sanding of wood although aluminum oxide with paper backing for sanding light metals and wood is available. Garnet Abrasives for wood are commonly available with two types of paper backings as follows:

Garnet Finishing Paper (opencoat) has a light tough paper backing for fine finishing and where flexibility is a factor.

Garnet Cabinet Paper (closekote) has a heavier, less flexible paper backing more suited to general purpose wood sanding than finishing paper.

Cloth Backing is most commonly used where metal is being sanded or where heavy, rough sanding of any type is being done.

Cloth backing is available in three weights as follows:

"J" weight, light weight cloth back used where flexibility is required.

"X" weight, standard or medium weight cloth backing.

"H" or "R" weight, heavy cloth backing for extra rough work.

Fibre is generally used as a backing on heavy aluminum oxide discs for grinding rough castings, etc.

GRAINING OR GRIT (Coating)

Closed coating indicates backing completely covered by abrasive.

Open Coating indicates backing evenly but not completely covered by abrasive averaging only 50%—70% coverage; generally utilizes a finer, more flexible backing, reduces tendency of abrasive to fill when sanding soft or gummy materials.

The following table indicates the relative value of the various grits in laymen's terminology:

General Classification	Grit No.'s for Wood Abrasives	Grit No.'s for Metal Abrasives
Fine	2/0, 3/0, 4/0, 5/0	100, 120, 150, 180
Medium	0, ½, 1	50, 60, 80
Coarse	1½, 2, 2½	30, 36, 40

WHEN ORDERING ALWAYS SPECIFY THE FOLLOWING:

1. Quantity of sheets, discs, sleeves, belts, etc., required.
2. Grit number indicating coarseness or fineness.
3. Type of coating, open or closed as the case may be.
4. Kind of abrasive, whether Garnet, Aluminum Oxide, Flint, or Silicon Carbide.
5. Backing, whether paper, cloth, or fibre, and in the case of Garnet Paper whether finishing or cabinet, and in the case of cloth, the weight ("J", "R" or "X").
6. Size: Rolls—width and length.
   Discs—diameter and size of center hole, if any.
   Sleeves—length and inside diameter.

• • •

We have sold abrasives of all descriptions since our founding in 1914. In addition, we manufacture disc grinders and sanders and spindle sanders which utilize abrasive discs and abrasive sleeves. With this experience we feel qualified to help you with your abrasive problems, particularly with regard to abrasive discs and abrasive sleeves. Contact us if you have an abrasive problem. We will be pleased to help you.

The following pages contain abrasive products which we have found to be most suited for use in the pattern industry. If your specific requirements are not listed contact us anyway as we have access to practically all types of abrasives.

ABRASIVES

GARNET PAPER SHEETS for wood

GARNET FINISHING PAPER (open coat)



Primarily for fine wood sanding or finishing. Has light, tough, flexible backing for use on intricate work, etc. Excellent for use on oscillating or vibrating hand sanders. Available in 9″ x 11″ sheets in grit numbers as follows: 8/0, 7/0, 6/0, 5/0, 4/0, 3/0, 2/0, 0.

GARNET CABINET PAPER (close coat)



For general purpose and heavier sanding than Garnet Finishing Paper. Has heavier backing. Suitable for general pattern work and all types of hand sanding. Available in 9″ x 11″ sheets in grit numbers as follows: 4/0, 3/0, 2/0, 0, ½, 1, 1½, 2.

ALUMINUM OXIDE CLOTH SHEETS for metal



Flexible cloth sheets with aluminum oxide for general purpose metal sanding. Available in 9″ x 11″ sheets in grit numbers as follows: 180, 150, 120, 100, 80, 60, 50, 40, 36.

GARNET PAPER and ALUMINUM OXIDE PAPER ROLLS



Paper rolls are generally used to cut discs for disc sanders. Available from stock in 50-yard rolls in widths from 12″ to 36″ in grits as follows: ½(60), 1(50), 1½(40), 2(36), 2½(30).

FLINT PAPER SHEETS

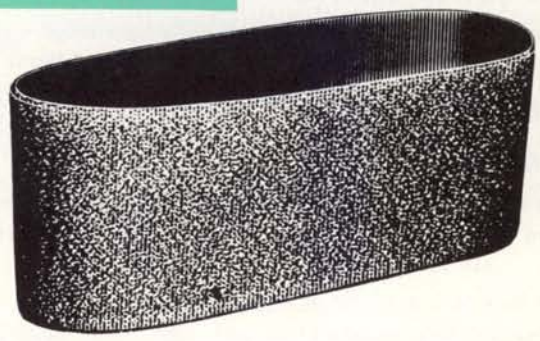


Sheet size 9″ x 10″. Flint Paper is the cheapest form of sheet abrasive available. It is most suited and economical for the sanding of old patterns and core boxes where the rapid clogging of the paper occurs.

Available as follows:

Grit	Packaged
Extra Fine 4/0	100 sheets
Fine 3/0	100 sheets
Medium 2/0, 1/0	100 sheets
Coarse 1½	50 sheets
Extra Coarse 2	50 sheets

ABRASIVE BELTS



Because of the variety of sizes, grits, and types of abrasive belts available, we supply them only to order. Every effort is made to give prompt service. Abrasive Belts are available in sizes required as follows:

Garnet Paper
Aluminum Oxide Paper — **Garnet Cloth**
Silicon Carbide Cloth — **Aluminum Oxide Cloth**

Note: When ordering abrasive belts, please specify the following: Type of abrasive—whether garnet, aluminum oxide, or silicon carbide, and whether paper or cloth. Length—Width—Grit.

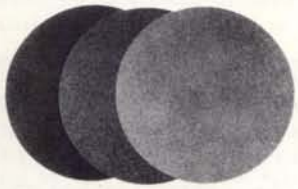
ABRASIVES

GARNET PAPER • ALUMINUM OXIDE PAPER

SILICON CARBIDE CLOTH • GARNET CLOTH • ALUMINUM OXIDE CLOTH

ABRASIVE DISCS for use on Disc Sanders

Among other things we are engaged in the manufacture of disc grinders and sanders. It is vitally necessary that we supply these machines with the proper abrasive discs to obtain the proper results. We therefore not only stock abrasive discs of all descriptions for our own machines, but also discs of all sizes and specifications for practically any disc grinder or sander on the market. In fact we have the largest stock of abrasive discs immediately available in the United States. We qualify as experts in the field of abrasives for disc grinders and sanders. Why not let us help you select the correct abrasive disc for your purposes and furnish them from our stock? When ordering discs please specify diameter required, type of paper or cloth and grit number.



GARNET PAPER DISCS

These are available in most sizes in both open and closed coat in sizes from 12" to 36". Stock grits range from #½ to 2½ covering most pattern shop requirements.

GARNET CLOTH DISCS

Garnet Cloth Discs are also available as above. The cloth discs are recommended where heavy work is being done and minimizes the necessity of changing discs so frequently.

ALUMINUM OXIDE PAPER DISCS

Recommended for light metal grinding or heavy, hardwood sanding where they will last for a long time. Available from stock in most diameters from 12" to 36" and grits from #30 to #50. Other grits are available to order.

ALUMINUM OXIDE CLOTH DISCS

Recommended for most metal grinding both ferrous and non-ferrous. Available from stock in most diameters from 12" to 36" and in grits from #20 to #60. Available in regular weight ("R") or heavy duty weight ("X"). Special grits are available to order.

SILICON CARBIDE CLOTH DISCS

Silicon Carbide Cloth Discs are available to order in all grits and diameters. They are recommended for use on low tensile metals, such as copper, brass, cast iron, etc., as well as plastics.

ABRASIVE SLEEVES for use on Spindle Sanders

All of our abrasive sleeves are accurately made by a special method of spiral winding so that there is "no lap." When ordering abrasive sleeves of any type please specify the following to insure prompt delivery.

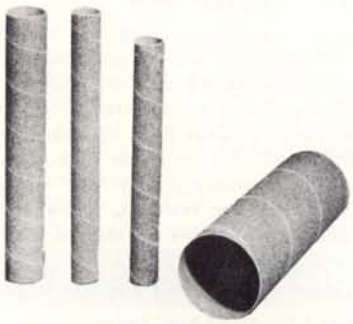
Type—whether Garnet or Aluminum Oxide, and whether paper or cloth.

Length

Inside Diameter—all sleeves are measured by the inside diameter.

Grit

We have abrasive sleeves available as follows:



GARNET PAPER SLEEVES

Recommended for sanding wood. We have Garnet Paper Sleeves available from stock in sizes from ¼" to 4" in diameter and in lengths to 17" and in grits from #2 (36) to ½" (60). Garnet Paper Sleeves of other specifications are available to order.

GARNET CLOTH SLEEVES

Recommended where longer life and wearing qualities are required and for heavier duty work. Available to order in any diameter, length, or grit. Be sure to specify.

ALUMINUM OXIDE CLOTH SLEEVES

Recommended for all metal work as these are tough and long wearing. We carry in stock sizes from ¼" to 4" diameters and to 11" in length in #36, #40, and #50 grit. Other sizes and grits are available to order.

ALUMINUM OXIDE PAPER SLEEVES

Recommended for light metal or heavy duty wood sanding. They are available to order in any diameter, length, or grit required.

RUBBER EXPANDING CYLINDERS



Rubber Expanding Cylinders are used over steel spindles on spindle sanders to increase size. When tightened they hold the abrasive sleeve firmly in place. They are made of selected rubber and each includes 2 steel washers. They are available in practically any size.

When ordering please specify the following: Diameter, Length and Hole Size.

ABRASIVE CARTRIDGE ROLLS



Available in Quarter-Glued, Half-Glued or Full-Glued Types

FOR GENERAL PURPOSE USE SPECIFY BIAS CUT QUARTER GLUED

Available in various diameters, lengths and grits for use on hand grinders, electric drills, flexible shaft assemblies, bench grinders or drill presses. Fabricated from Aluminum Oxide abrasive cloth, they are excellent for deburring, finishing or polishing operations where a fast-working tool is required. The self-dressing feature provides an excellent grinding and polishing tool. Ideal for many lapping operations.

Center holes are standard with 1/8" diameter hole up to and including 1/2" diameter, and 3/16" center hole for diameters from 5/8" to 1-1/2" inclusive. Center holes of 1/4" and 5/16" diameters also are available in the larger sizes. In addition to the patented "Strongstitch" feature, which assures a smoother running tool, tapered thread mandrels are supplied as companion tools.

Base Diam.	Center Hole	Lengths
1/8"	5/64"	1/2", 3/4", 1"
3/16"	3/32"	1/2", 3/4", 1"
1/4"	1/8"	1/2", 3/4", 1", 1-1/2", 2"
5/16"	1/8"	1/2", 3/4", 1", 1-1/2", 2"
3/8"	1/8"	1/2", 3/4", 1", 1-1/2", 2", 2-1/2", 3"
1/2"	1/8"	1/2", 3/4", 1", 1-1/2", 2", 2-1/2", 3"
5/8"	3/16-1/4"	1/2", 3/4", 1", 1-1/2", 2", 2-1/2", 3"
3/4"	3/16-1/4"	1/2", 3/4", 1", 1-1/2", 2", 2-1/2", 3"
1"	3/16-1/4"	1/2", 3/4", 1", 1-1/2", 2", 2-1/2", 3"
1-1/8"	3/16-1/4"	1/2", 3/4", 1", 1-1/2", 2", 2-1/2", 3"
1-1/4"	5/16"	1/2", 3/4", 1", 1-1/2", 2", 2-1/2", 3"
1-3/8"	5/16"	1/2", 3/4", 1", 1-1/2", 2", 2-1/2", 3"
1-1/2"	5/16"	1/2", 3/4", 1", 1-1/2", 2", 2-1/2", 3"

Available in grits from #24 to 320. Also in resin bond for rough usage at extra cost.

TAPERED THREAD MANDRELS



Precision Made of Finest Tool Steel

HOW TO ORDER: Mandrels should be ordered with a shank diameter to fit your power tool chuck or collet. Equally important is the specification of the diameter of the mandrel pilot on which the Cartridge Rolls or Spiral Points are mounted. Ordinarily a 1/8" diameter pilot is used for Cartridge Rolls or Spiral Points up to and including 1/2" diameter. Rolls or Points from 1/2" up to and including 1-inch in diameter usually require 3/16" diameter pilots, however 1/4" and 5/16" sizes are available. Special mandrels also are available on order. Standard sizes are shipped from stock.

RECOMMENDED PILOT LENGTHS FOR MANDRELS

For Cartridge Rolls and Spirals of 3/4" Length.....1/2"
For Cartridge Rolls and Spirals of 1" Length.....3/4"
For Cartridge Rolls and Spirals of 1-1/2" Length.....1"
For Cartridge Rolls and Spirals of 2" Length.....1-1/2"

PILOT		SHANK	
Diam.	*Length*	*Diam.*	*Length*
5/64"	1"	1/8"	1"
3/32"	1"	1/8"	1"
1/8"	1/2"—3/4"—1"	1/8"	1"
1/8"	1-1/2"	1/8"	1"
1/8"	1/2"—3/4"—1"	1/4"	1-1/4"
1/8"	1-1/2"	1/4"	1-1/4"
1/8"	2"	1/4"	1-1/4"
3/16"	1/2"—3/4"	1/8"	1"
3/16"	1/2"—3/4"—1"	1/4"	1-1/4"
3/16"	1-1/2"	1/4"	1-1/4"
3/16"	2"	1/4"	1-1/4"
1/4"	1/2"—3/4"—1"	1/4"	1-1/4"
1/4"	1-1/2"	1/4"	1-1/4"
1/4"	2"	1/4"	1-1/4"
5/16"	1/2"—3/4"—1"	1/4"	1-1/4"
5/16"	1-1/2"—2"	1/4"	1-1/4"
3/16"	1-1/2" Square Taper	1/4"	1-1/2"

ABRASIVE KITS

For the Practical-Minded Craftsmen

Designed particularly for the metal pattern shop, model shop, machine shop, etc., where each job to be finished is different and requires a variety of diameters, grits and types to meet the varied requirements. Sizes and grits which become depleted may be ordered separately to refill kit.

Specify grits when ordering.

KIT "A"—80 rolls and points, including mandrels.

KIT "B"—102 rolls, points and spirals, including mandrels.

KIT "C"—15—compartment metal box. Size 11½" x 5" x 3½". Tray 11" x 3½" x 1". Snap catch for padlock use.

Contents Kit "C"

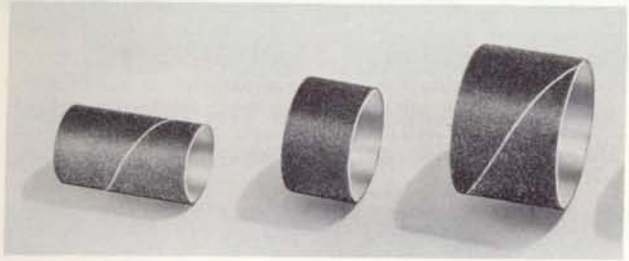
- Cartridge Rolls
- Cone Points
- Multiple Bands
- Mandrels
- Spirals
- Famco Discs
- Abrasive Pads
- Sanding Drum

Kit "C"



241 Pieces
Assorted Sizes and Grits!

ABRASIVE BANDS AND SLEEVES



- A/O Glue Bond
- A/O Resin Bond
- Silicon Carbide Cloth
- Silicon Carbide Paper
- Garnet Cloth
- Garnet Paper

Available grits from #180 to 24

Diameter	Length of Abrasive Face	Diameter	Length of Abrasive Face	Diameter	Length of Abrasive Face
¼″ 5/16″	½″ 1″ 1½″ 2″ 2½″ 3″	1½″	½″ 1″ 1½″ 2″ 2½″ 3″	2¼″ 2⅜″ 2½″	½″ 1″ 1½″ 2″ 2½″ 3″
3/8″ 7/16″ ½″ 9/16″ ⅝″	½″ 1″ 1½″ 2″ 2½″ 3″	1¾″	½″ 1″ 1½″ 2″ 2½″ 3″	2¾″	½″ 1″ 1½″ 2″ 2½″ 3″
11/16″ ¾″ ⅞″	½″ 1″ 1½″ 2″ 2½″ 3″	2″ 2 3/16″	½″ 1″ 1½″ 2″ 2½″ 3″	3″	½″ 1″ 1½″ 2″ 2½″ 3″
1″ 1⅛″ 1 3/16″ 1¼″	½″ 1″ 1½″ 2″ 2½″ 3″				

RUBBER CUSHIONED SANDING DRUMS

AVAILABLE AS FOLLOWS:

Drum Diam.	Length of Face	Shank Diam.
3/4″ 13/16″ ⅞″ 15/16″ 1″ 1 1/16″ 1⅛″ 1 3/16″ 1¼″	½″ ½″ ½″ ¾″ ½″ ½″ ¾″ ½″ ¾″	⅛″ ⅛″ ⅛″ ⅛″ ⅛″ ⅛″ ⅛″ ⅛″ ⅛″
1⅛″ 1⅛″ 1⅛″ 1⅛″ 1⅛″ 1⅛″ 1½″	½″ ¾″ 1″ 1½″ 2″ 2½″ 3″	¼″ ¼″ ¼″ ¼″ ¼″ ¼″ ¼″
5/8″ 5/8″ 5/8″ 5/8″ 5/8″ ⅝″	½″ ¾″ 1″ 1½″ 2″ 3″	¼″ ¼″ ¼″ ¼″ ¼″ ¼″

Drum Diam.	Length of Face	Shank Diam.
¾″ ¾″ ¾″ ¾″ ¾″	½″ ¾″ 1″ 1½″ 2″	¼″ ¼″ ¼″ ¼″ ¼″
7/8″ 7/8″ ⅞″ ⅞″ ⅞″	¾″ 1″ 1½″ 2″ 3″	¼″ ¼″ ¼″ ¼″ ¼″
1″ 1″ 1″ 1″ 1″	½″ ¾″ 1″ 1½″ 2″	¼″ ¼″ ¼″ ¼″ ¼″
1¼″ 1¼″ 1¼″ 1¼″	¾″ 1″ 1½″ 2″	¼″ ¼″ ¼″ ¼″

Drum Diam.	Length of Face	Shank Diam.
1⅛″ 1½″ 1½″ 1½″	¾″ 1″ 1½″ 2″	¼″ ¼″ ¼″ ¼″
2″ 2″ 2″ 2¼″	1″ 1½″ 2″ 1″	¼″ ¼″ ¼″ ¼″
3″ 3″ 3″	1″ 1½″ 2″	⅜″ ⅜″ ⅜″



PRESSURE SENSITIVE ABRASIVE DISCS and HOLDERS



For Use on Flat or Contoured Surfaces

Ideal for roughing, cleaning, finishing, and polishing operations. Holders as pictured at left are available in sizes as listed in table. The Pressure Sensitive Discs are available in all the diameters listed at right in any grit required.

Dia.	Shank Size
½″	¼″ or ¼″
¾″	⅜″ or ¼″
1″	⅜″ or ¼″
1½″	⅜″ or ¼″
2″	¼″
3″	¼″
4″	¼″ or ⅜″
5″	¼″ or ⅜″
6″	¼″, ⅜″ or ½″ or ⅝″ threaded insert
7″	½″, ⅝″ threaded insert

50 Discs per Package

ECONOMY KITS Speed Work on Finishing and Polishing Jobs



Junior Set
Contains 3 Holders on ⅛″ or ¼″ shanks for ¾″, 1″, and 1½″ discs. Also 100 discs for each diameter. Specify grits of your choice.



Senior Set
Contains 6 Holders on ⅛″ or ¼″ shanks for ½″, ¾″, 1″, 1½″, 2″ and 3″ discs, with 100 discs for each size. Grits as desired.

PATTERN MAKERS BRUSHES

No. 102 RUBBERSET BRUSH



All pure bristle, square trim, nickeled ferrule, set in rubber. A low-priced brush for all around use. Suitable for shellac, varnish, and lacquer.

Size	Length	Thickness
½″	1½″	¼″

No. 132 BRUSH



All pure bristle, chisel trim, nickeled ferrule, set in rubber. A good value brush for all around use. Suitable for use with shellac, varnish, and lacquer.

Size	Length	Thickness
1″	2 1/8″	7/16″
1½″	2 1/8″	½″
2″	2 3/8″	9/16″
2½″	2 5/8″	5/8″
3″	2 5/8″	11/16″

OX HAIR SIGN WRITERS' BRUSH



Pure, soft Ox Hair, nickeled ferrule, set in rubber, chisel trim. This high quality brush is a new addition to our line. Suitable for use with shellac, varnish, and lacquer. Recommended for fine, small work.

Size	Length	Thickness
¼″	13/16″	3/32″
½″	1″	3/16″
¾″	1 1/8″	¼″
1″	1 1/4″	5/16″

No. 673 RUBBERSET PROFESSIONAL BRUSH



A good quality bristle and Ox Hair mixture, flat sash brush, long handle, double thick, chisel trim, nickeled ferrule. Suitable for use with shellac, varnish, and lacquer.

Size	Length	Thickness
1½″	2 3/16″	½″
2″	2 7/16″	9/16″
2½″	2 11/16″	5/8″

No. 975-A RUBBERSET FITCH FLOWING BRUSH



High quality soft hair, double thick, chiseled trim, set in rubber, rubber bound ferrule (no metal). An ideal brush for obtaining the smoothest finish. Suitable for shellac, varnish, and lacquer.

Size	Length	Thickness
1″	1½″	5/16″
2″	1 5/8″	11/32″
3″	2″	13/32″

No. 652 RUBBERSET FLAT BRUSH (Small)



A long handled brush of pure bristle, chiseled trim, nickeled ferrule, set in rubber. A handy brush for coating small patterns. Suitable for use with shellac, varnish, and lacquer.

Size	Length
¼″	1¼″
½″	1¼″
5/8″	1⅛″
¾″	1 5/8″
1¼″	1 7/8″

No. 962 RUBBERBOUND GLUE BRUSH (Round)



All pure black bristle, dome trim, particularly good for getting into corners.

Size	Length	Diameter
#1	1½″	½″
#3	2″	¾″
#5	2½″	1″
#6	2¾″	1⅛″

No. 173 PATENT BOUND BRIDLED GLUE BRUSH



This glue brush has double life as bridle can be removed when the bristles wear. Pure gray bristles, plain long wood handles, compressed steel ferrules, vulcanized setting.

Size	Length	Diameter
# 6	1½″	½″
#10	1 5/8″	¾″
#14	1 7/8″	1″
#18	2¼″	1¼″
#22	2 5/8″	1½″
#30	3¼″	2″

No. 4163 ROUND CAMEL HAIR BRUSH



A short handled brush, splendid for small lacquering and marking jobs. Made of pure squirrel hair, cement set and metal bound. Suitable for marking and small work. For use with shellac, varnish, and lacquer.

Size	Length	Diameter
#1	7/8″	3/16″
#4	1¼″	¼″
#6	1 3/8″	3/8″

No. W-62 FLAT BRUSH (Triple-thick)



All pure bristle, triple thick, chisel trim, nickel ferrule, set in rubber. Ideal for large work. Suitable for use with shellac, varnish, and lacquer.

Size	Length	Thickness
1″	2 1/16″	5/8″
1½″	2 1/8″	11/16″
2″	2 3/8″	¾″
2½″	2 5/8″	13/16″
3″	2 7/8″	13/16″

GYPSUM CEMENTS and PLASTERS

We stock a complete line of plasters and gypsum cements. Some of the most popular items are listed below. Please also refer to pages 57 and 58 in the first section of the catalog for other gypsum cements and related products sold under our own trade name.

PATTERN SHOP HYDROCAL

PATTERN SHOP HYDROCAL (HYDROCAL gypsum cement base). For pattern and model making where a moderately low "setting expansion," plastic, free-forming material is desired and dimensional accuracy is necessary. A low expansion material which works well under the template. Has a gradual "set" with long period of plasticity. Does not get too hard and can be carved or otherwise worked freely. A general purpose gypsum cement.

Available in 100-lb. bags.

HYDROCAL WHITE CEMENT

HYDROCAL WHITE is an extremely hard, low absorption gypsum cement. Setting time and mixing properties are similar to white moulding plasters. Surface hardness and tensile strength are from two to four times greater than standard plaster castings, depending on the amount of water used in mixing. Setting expansion is about one-third greater than expansion of moulding, casting, or pottery plasters. Setting time is 25 to 30 minutes under ordinary mixing conditions.

Available in 100-lb. bags.

ULTRACAL "30"

ULTRACAL "30" is the newest super-strength gypsum cement. It is a dense, very low expansion, low absorption material. It has greater plasticity and more gradual setting action than HYDROCAL A-11 which makes it more suitable for built-up or template formed models. It is especially adapted to the production of dimensionally accurate models as required for all types of die-sinking machines and extremely accurate patterns. Models, patterns or molds made of ULTRACAL GYPSUM CEMENT are stable and dimensionally accurate and are not affected by moisture or age. The surface hardness and compressive strength are twice as great as HYDROCAL B-11, depending upon the amount of mixing water used.

Available in 100-lb. bags.

MOULDING PLASTER

A white plaster containing additives for set control, surface hardness, and sinkability. Number 1 Moulding Plaster is generally considered the utility plaster of the industrial line, a real general purpose plaster. Normal consistency is 60 to 66. Setting time is about 27 minutes. Dry Tensile Strength is 550 and Dry Compressive Strength is about 3400 lbs. per square inch.

Available in 100-lb. bags.

HYDROPERM PLASTER

HYDROPERM PLASTER is a completely formulated Hydrocal Metal Casting Plaster. During the mixing operation, air is incorporated into the mix and when the mold is dried it becomes a rigid sponge-like mass, possessing great permeability.

Available in 100-lb. bags.

MEDIUM HIGH EXPANSION AND HIGH EXPANSION HYDROCAL

The use of high expansion plasters for the fabrication of expanded patterns, models and molds has been recognized as one of the outstanding tooling developments in the last five years. Industrial tooling and pattern making materials such as Medium High Expansion and High Expansion HYDROCAL cement have many applications in the Aircraft, Automotive and Foundry industries. The use of the expanding plasters has facilitated pattern making to such a degree that many pattern shops have adopted these materials as standard shop procedure.

Medium High and High Expansion HYDROCAL are two specially formulated gypsum cements having unique characteristics. Medium High Expansion cement has been tinted yellow to distinguish it from the High Expansion cement. The two materials expand uniformly in all directions and have the highest setting expansion of any known gypsum cements. The amount of expansion can be controlled by the quantity of water used in the mix. Through the proper water to plaster ratio, it is possible to achieve expansion values from 1/16″ to 1/4″ per foot.

Available in 100-lb. bags.

APPLICATIONS

The end use or application for the expansion plasters is unlimited wherever patterns, matchplates and models are fabricated with shrink allowance. For example, a pattern shop in Chicago has utilized the expansion plasters for core dryer patterns by making a cast or impression from the pattern. After the cast has expanded to the desired oversize dimensions, subsequent gypsum pattern making operations were accomplished to complete the core dryer pattern. In Milwaukee a matchplate firm has made use of the expansion plasters to add the extra shrink that is necessary where a wood matchplate is to be reproduced in aluminum by the pressure cast technique. In Detroit the Medium Expansion and High Expansion HYDROCAL cements have been used to convert conventional foundry patterns to the metal equipment required for the Croning Process. This has been accomplished by pouring a mix of the expansion plaster over the existing pattern or foundry equipment. After the plaster has set it is removed from the pattern or core box and allowed to expand to the dimensions required for the alloy that is to be cast. The expanded pattern was then rammed in sand to produce the desired metal equipment.

At the same time these materials are finding new uses in the Automotive and Foundry industries, several large Aircraft manufacturers have centered their entire Drop Hammer Die programs around the expansion plasters because of accuracy, expediency and economy.

HYDROMITE

HYDROMITE is a combination of synthetic resins and other plastic materials in powder form. Used according to directions it is self-setting to a strong, dense, hard, tough product. It combines the major advantages of synthetic casting resins and gypsum cements and eliminates most of the weaknesses of both. The major advantages of HYDROMITE are:

1. Easy and quick to mold and cast.
2. Has less *shrinkage* than synthetic resins.
3. Casts and forms in simple, inexpensive molds and dies and without use of high cost shop equipment.
4. Dimensions are more permanently stable than most plastics.

Available in 25 and 50-lb. drums and 100-lb. bags.

NO. 1 POTTERY PLASTER

Produced from selected white rock. All manufacturing operations are carefully controlled and the final inspection includes screen tests for size, test for iron contamination, and tests for set, consistency, porosity, and strength. #1 Pottery Plaster is generally used in the ceramic industry but many other uses are being discovered—for example, investment formulae.

Consistency—60 cc.

Setting Time—32 minutes (approximately)

Expansion—.188%

Tensile Strength—455 at normal consistency

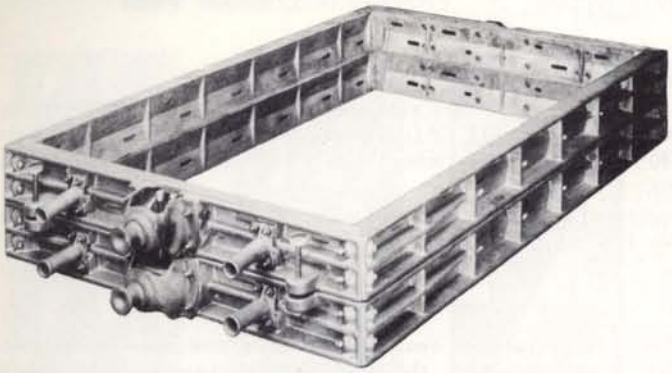
Available in 100 lb. bags.

DENTAL PLASTER

A truly fine general purpose plaster, closely controlled as to color, fineness, setting time, and consistency. Setting time is approximately 28 to 32 minutes.

Available in 100 lb. bags.

HINES MATCH PLATE FLASKS



An accurate cast aluminum flask of rigid construction. The double steel pins and the bronze slides are designed to make it impossible to bind the cope when lifting. Two thumb screws on each end facilitate an accurate draw. The draw pins are ⅞" in diameter by 5" long and are made from rustless steel, accurately ground and chrome plated.

Five inch cope and drag are standard. The recommended size is 20" x 30", which will make 90% of all cast match plates. Other sizes can be made to order.

WHEELCO PYROMETER

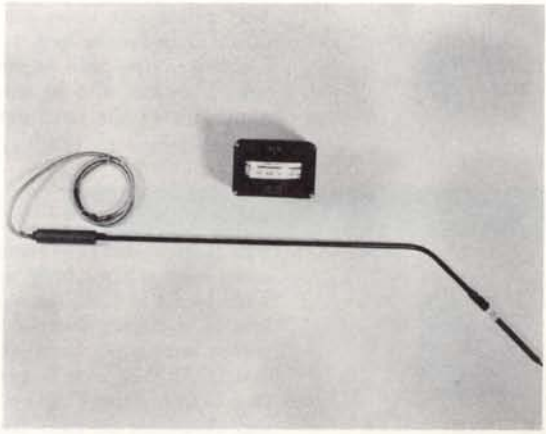
For Non-ferrous Metals

A pyrometer is a necessary instrument for measuring the temperature of molten metal to insure that it will be poured at the proper temperature to produce uniform, high quality castings. This instrument eliminates the guesswork common to many small non-ferrous foundries.

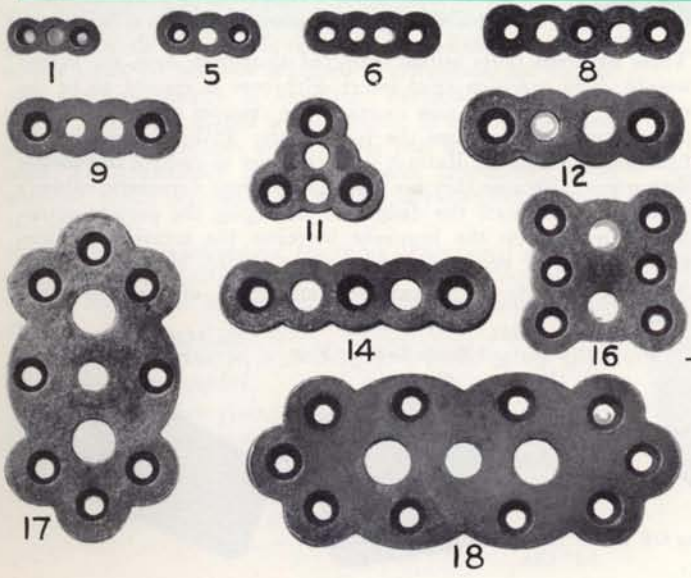
The Wheelco Pyrometer pictured here is a well-made, rugged, accurate device for measuring the temprature of aluminum and brass and other non-ferrous metals with melting temperatures to 2500° F. It is an ideal companion piece to work in conjunction with our Master Aluminum Melting Furnace (see index).

The Wheelco Pyrometer utilizes a sensitive thermocouple element and a wall type meter which can be easily and accurately read. A portable type model is also available.

These instruments are manufactured of the finest materials and assembled by skilled workmen to give years of trouble-free service and dependable operation. Complete operating instructions are included.



MALLEABLE IRON RAPPING PLATES



Fraser Type

AVAILABLE ONLY IN SIZES AS FOLLOWS:

NUMBER	SIZE	NUMBER	SIZE
1	⅝" x 1½"	12	1¼" x 3¾"
5	¾" x 1⅝"	14	1¼" x 4½"
6	¾" x 2¼"	16	2¾" x 2¾"
8	⅞" x 3¼"	17	3" x 5½"
9	1" x 3"	18	3" x 7¼"
11	2¼" x 2¼"		

Available by the dozen or by the hundred.

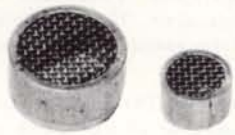
Also see Master Rapping Plates page 26.

CORE VENTS

HIGH QUALITY • ALL TYPES
ALL SIZES • PROMPT DELIVERY

Scientifically Designed • Accurately Made • Provide Maximum Vent

SCREEN TYPE (Monel Metal)



The woven wire mesh is a very popular type core vent that has been a standard for years. This type has a brass body with MONEL METAL wire mesh attached to the end. They are available in 30, 35, and 40 mesh, thereby providing the user with the proper size openings for his particular requirements.

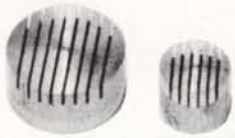
These vents also have a support rod under the face and some of the larger sizes have two braces. Available in sizes from 1/8″ to 1″ inclusive.

PERFORATED TYPE



The perforated type vent plug is a type of core vent that has a definite place in the core-blowing industry. It is used to advantage where the sand used is coarse and unwashed. This type of core vent is not for contour or radii conditions as it cannot be shaped after it is inserted in the core box, however, it is easier cleaned than the milled slot type. The facing is of brass and is only .015 thick with staggered slots 1020 x .120. Available in sizes from 3/16″ to 1″ inclusive.

MILLED SLOT TYPE



The milled slot vents are made from one piece of bar brass, having a 3/32″ face with milled slots. They can be had with slot widths of .010, .013, .015 and .016. This type of core vent is intended for radii or contour conditions as they can be shaped after insertion in the core box. They can also be used in flat surfaces. Some users prefer them to other types where the conditions of the sand permit their use. Available in sizes from 1/8″ to 1″ inclusive.

Special depths to 1/4″ are available to order.

LEKTROMESH TYPE



The Lektromesh core vents are the latest and most popular vent plugs in use today. They are made with a brass body and are assembled with an alloy facing composed of copper and nickel. This facing is thin, has square holes and is extremely easy to clean, due to its extreme thinness. The facing material is all in one piece and does not have the cross-over condition that woven wire mesh has; yet it is amply rigid and has the proper amount of open area (approximately 35%). The larger diameters are further supported with a stiff brace rod; some have two braces, depending on the size. Some of our users refer to these vent plugs as self-cleaning. Available in sizes from 1/8″ to 1″ inclusive.

Tools for inserting all sizes of the above vents are available to order.

NEOPRENE BUTTS

For Hand and Pneumatic Rammers



No. 2516
Floor Rammer Butt
3¼″ Dia.



No. 2011
Bench Rammer Butt
2⅜″ Dia.





No. 2012
Core Rammer Butt
1¾″ Dia.



No. 2515 3″ dia. Floor Rammer Butt Aluminum Head with steel insert and replaceable rubber tip

No. 4536 Special Jumbo Topping Off Butt 5″ Dia.
No. 4537 Topping Off Butt 3.9″ Dia.

These neoprene butts utilize tempered aluminum cores for lighter weight. The precision steel insert with core is reamed to fit the rammer. This combination increases the rammer speed 400 blows per minute and increases the power ratio 35%. Because of the lightness of Neoprene Butts it is much easier to control and handle the rammer. Because they are made of neoprene (synthetic rubber) these butts eliminate the danger of damaging the pattern equipment. In addition the neoprene increases the wearing qualities many times over even the highest grade of steel butts.

NOTE: Be sure to indicate size and make of rammers when ordering.

No. 4031
Floor and Bench Rammer Pein
⅞″ x 3″

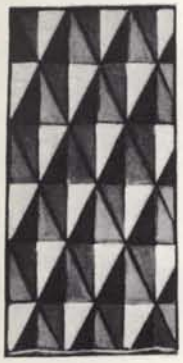


No. 3526 4″ Long Pein
¾″ x 1¾″



DIAMOND PATTERN LUMBER

Ideal for safety treads, etc.



STYLE A—
1-1/8″ x 9/16″



STYLE B—
1-1/8″ x 7/16″



STYLE C—
1-1/2″ x 3/4″



STYLE G—
1/2″ x 1/2″



STYLE H—
5/8″ x 5/8″

SPECIFICATIONS

Cut from clear pine timber.

Styles: Available in seven patterns as pictured.

THICKNESS: Patterns cut on surfaced wood exactly ½″, ⅝″ and ¾″.

WIDTH: Available in standard widths of 8″, 10″ and 12″. Actual widths may be ½″ scant.

LENGTH: Standard length—8 feet. Other lengths to 16′ available to order.

Also available in the following styles

STYLE D—3/4″ x 3/4″ squares
STYLE E—7/8″ x 7/8″ squares

When ordering be sure to specify the following:

1 STYLE	A, B, C, D, E, G, or H
2 THICKNESS	½″, ⅝″ or ¾″
3 WIDTH	8″, 10″ or 12″
4 LENGTH	Specified or Random

MODELING CLAY

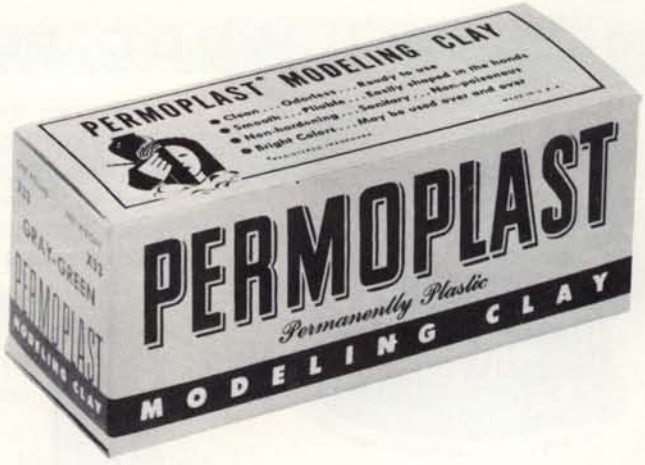
Permanently Plastic • Antiseptic

Permoplast is an ideal nonhardening modeling clay for all grades of work. The clay is ready to use, and the one-quarter pound sticks are machine wrapped in cellophane for cleanliness and convenience in handling. Permoplast is smooth, pliable and easily shaped in the hands. It can be squeezed, pushed and pulled into many shapes and worked over and over. The consistency remains the same indefinitely. Only nontoxic colors are used. Permoplast is antiseptic, harmless and stainless.

Permoplast is recommended for three dimensional modeling, relief modeling, industrial designing, for building original models for plaster molds, and as a base for papier-mache art.

We offer Permoplast in a pleasing gray-green color. Other colors available to order.

In all one and five pound packages Permoplast Modeling Clay is supplied in one-quarter pound sticks, which have been machine wrapped in cellophane. It is also available in 100 pound tubs.



CELASTIC LAGGING MATERIAL



The remarkable properties of CELASTIC colloid-treated fabric for wood or metal patterns has proved an eye-opener for every pattern-maker who has seen it demonstrated! CELASTIC has simplified the process of building up a pattern—either wood or metal—beyond anything previously obtainable and is more satisfactory to use, absolutely simple to cut or machine and stands up well under the abrasive action of sand. CELASTIC is suitable for production as well as master patterns under certain conditions.

CELASTIC features . . .

1. A felt-like cloth in thickness from .015″ to .135″ (Shrinks slightly after applying.)
2. Softens by dipping momentarily in special solvent
3. Shapes to any contour
4. Bonds permanently to wood or metal
5. Hardens and works exactly like wood.

Available by the yard in the above thicknesses and widths, and in 25 and 50 yard rolls.

CELASTIC SOLVENT—Packaged in one and five gallon containers.

Specify for wood or metal.

SPECIFICATIONS

Size	Nominal Thickness	Decimal Thickness	Approx. Width
No. 1436	1/64″	.015 - .017	33″
No. 3647		.023 - .025	32″
No. 1040	1/32″	.035 - .040	46″
No. 1045		.040 - .045	46″
No. 1075	3/64″	.045 - .050	46″
No. 1115	1/16″	.060 - .065	48″
No. 1120		.085 - .095	50″
No. 1125	3/32″	.095 - .105	50″
No. 1144	1/8″	.125 - .135	31″

DURATITE WOOD DOUGH

A very popular, fine-grained wood-filler or build-up material, Duratite is non-shrinking, has excellent feathering characteristics and can be worked as easily as the wood itself.

Available in the following colors:

Natural **Mahogany** **Pine**

Available in 1¼ and 2½-lb. cans.

Note: Duratite must be thinned only with Duratite Solvent (see below).



DURATITE SOLVENT

For thinning or softening Duratite Wood Dough.
Available in one pint and one gallon cans.

MEND-ALL WOOD PLASTIC



A high-grade wood compound of a thick paste consistency, which hardens to wood on exposure to air. After hardening, it has all the characteristics, excepting grain. It can be worked with ordinary woodworking tools, or turned in a lathe. Mend-All Plastic will stick permanently to metal or wood. When properly applied it cannot be separated from them except by cutting. It will hold screws, tacks and nails without splitting. Available in 1 lb. and 2 lb. cans.

MEND-ALL SOLVENT



Used for softening Mend-All Plastic should it become too hard for working. Also used to remove the Mend-All Plastic from fingers or tools. Available in 3 oz., 1 pint and 1 quart containers.

MISCELLANEOUS ITEMS

FILZIT

An inexpensive crack and nail hole filler. It is merely necessary to mix with water to the proper consistency to use. Can be readily sanded and painted. Sold by the pound.

PUTTY

A high grade of Commercial Putty. Available in 1, 5, 12½, 25 and 100 pound metal containers.

PINCH DOGS



Made from forged tool steel which gives them great strength and holding power. They are practically indestructible. Sizes available: 1″, 1½″, 2″, and 3″.

STEARIC ACID

Available in powder form, and sold by the pound. When melted and mixed with kerosene and properly used it acts as a parting agent to reduce sticking in plaster molding. Sold by the pound. We recommend Master Plaster Release (see our Catalog 0) as a superior product for this purpose.

50-50 SOLDER



A combination of tin and lead for general, all-around pattern shop use. Sold by the pound.

CROCUS BRICK

Useful on buffing wheels for sharpening chisels, gouges, etc. Sold by the pound.

ALCOHOL LAMPS



A small, useful, economical glass lamp for use with fillet tools, hard wax, and other uses. Wicks are also available.

BISMUTH SOLDER



A soft, high-grade solder with a low melting point for soldering pattern letters to metal patterns. Makes a firm, permanent bond. Sold by the pound.

CORRUGATED STEEL JOINT FASTENERS



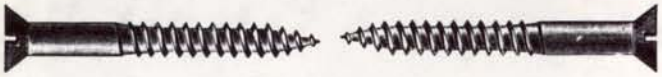
Every patternmaker knows this little timesaver. It will join anything made of wood quickly and permanently. The saw tooth divergent type is an improvement over the plain edge as it will enter the wood without tearing and pulls the joint tightly together.

Available in boxes of 500 fasteners as follows:

¼″ deep with 4 or 5 corrugations
⅜″ deep with 4, 5 or 6 corrugations
½″ deep with 4, 5 or 6 corrugations
⅝″ deep with 5 or 6 corrugations
¾″ deep with 5 or 6 corrugations

Other sizes and numbers of corrugations are available in bulk to order.

STEEL WOOD SCREWS



Available by the gross as follows:

⅜ Inch
No. 4
No. 5

½ Inch
No. 2
No. 3
No. 4
No. 5
No. 6
No. 8

⅝ Inch
No. 2
No. 3
No. 4
No. 5
No. 6
No. 8

¾ Inch
No. 4
No. 5
No. 6
No. 7
No. 8
No. 9
No. 10
No. 12

⅞ Inch
No. 4
No. 5
No. 6
No. 8
No. 9

1 Inch
No. 4
No. 5
No. 6
No. 7
No. 8
No. 9
No. 10
No. 12
No. 14

1¼ Inch
No. 4
No. 6
No. 7
No. 8
No. 9
No. 10
No. 12
No. 14
No. 16

1½ Inch
No. 6
No. 7
No. 8
No. 9
No. 10
No. 12
No. 14
No. 16

1¾ Inch
No. 6
No. 8
No. 9
No. 10
No. 12
No. 14
No. 16

2 Inch
No. 6
No. 8
No. 9
No. 10
No. 12
No. 14
No. 16

2¼ Inch
No. 8
No. 10
No. 12
No. 14

2½ Inch
No. 8
No. 10
No. 12
No. 14
No. 16

2¾ Inch
No. 10
No. 12
No. 14

3 Inch
No. 8
No. 10
No. 12
No. 14
No. 16
No. 18

3½ Inch
No. 10
No. 12
No. 14
No. 16

4 Inch
No. 12
No. 14
No. 16
No. 18

4½ Inch
No. 14
No. 16

5 Inch
No. 14
No. 16

5½ Inch
No. 16

6 Inch
No. 14
No. 16

WIRE BRADS



Available by the pound as follows:

¼ Inch
22 Ga.

⅜ Inch
20 Ga.
22 Ga.

½ Inch
18 Ga.
19 Ga.
20 Ga.
22 Ga.

⅝ Inch
16 Ga.
17 Ga.
18 Ga.
19 Ga.
20 Ga.

¾ Inch
16 Ga.
17 Ga.
18 Ga.
19 Ga.
20 Ga.

⅞ Inch
15 Ga.
16 Ga.
17 Ga.
18 Ga.
19 Ga.

1 Inch
15 Ga.
16 Ga.
17 Ga.

18 Ga.
19 Ga.
20 Ga.

1¼ Inch
15 Ga.
16 Ga.
17 Ga.
18 Ga.

1½ Inch
14 Ga.
15 Ga.
16 Ga.
17 Ga.
18 Ga.

1¾ Inch
14 Ga.

15 Ga.
16 Ga.

2 Inch
12 Ga.
13 Ga.
14 Ga.
15 Ga.
16 Ga.

2¼ Inch
14 Ga.

2½ Inch
12 Ga.
13 Ga.

3 Inch
12 Ga.

FLATHEAD WIRE NAILS

Available by the pound as follows:

3/16 Inch
20 Ga.

⅜ Inch
22 Ga.

½ Inch
18 Ga.
19 Ga.
20 Ga.

⅝ Inch
16 Ga.
18 Ga.
19 Ga.
20 Ga.

¾ Inch
16 Ga.
17 Ga.
18 Ga.
19 Ga.

⅞ Inch
15 Ga.
16 Ga.
18 Ga.

1 Inch
16 Ga.

17 Ga.
18 Ga.

1¼ Inch
15 Ga.
16 Ga.
17 Ga.

1½ Inch
15 Ga.
16 Ga.

COMMON NAILS

Available in 100 lb. kegs as follows:

Size	Length	Gauge	Size	Length	Gauge
2 D	1″	15	8 D	2½″	10¼
3 D	1¼″	14	9 D	2¾″	10¼
4 D	1½″	12½	10 D	3″	9
5 D	1¾″	12½	12 D	3¼″	9
6 D	2″	11½	16 D	3½″	8
7 D	2¼″	11½	20 D	4″	6

FINISHING NAILS

Available in 100 lb. kegs as follows:

Size	Length	Gauge	Size	Length	Gauge
3 D	1¼″	15½	8 D	2½″	12½
4 D	1½″	15	10 D	3″	11½
6 D	2″	13			

NEEDLE POINT WIRE BRADS

Available in 1 lb. boxes as follows:

¼ x 22 gauge ⅜ x 20 gauge ⅜ x 22 gauge