



# HARDWARE & EQUIPMENT

*Freeman's extensive selection of hardware for the tooling industry includes pattern letters, embossing tapes, abrasives, fasteners, specialty equipment, assorted bits & cutters, and more.*

**106-107**



Freeman Pattern Letters

**109-110**



Dieboard Hardware

**111-115**



Abrasives & Fasteners

**116-118**



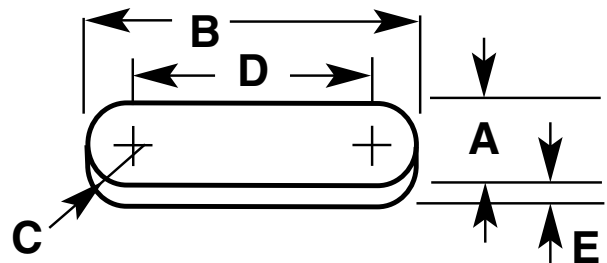
Equipment & Other Accessories

# FREEMAN PATTERN LETTERS

## FREEMAN LOK-IN LETTERS



These letters and holder are made with a high-quality investment cast steel and a dovetail design to secure the characters firmly in place while permitting their easy removal and replacement. The letters are available in a variety of sizes, in letters A-Z, numbers 0-9, a blank, and a dash symbol. Freeman also offers end plates and replacement screws. Please see our website, [www.FreemanSupply.com](http://www.FreemanSupply.com), for complete details and part numbers.



### Lok-In Letter Holder

The holder is available in multiple letter widths and dimensions. The end plates (including screws) and replacement screws are also available.

Holder Size	A	C	E	3 Letter		4 Letter		5 Letter		6 Letter		7 Letter		8 Letter		9 Letter	
				B	D	B	D	B	D	B	D	B	D	B	D	B	D
1/4"	1/2"	1/4"	3/16"	1 1/16"	1 3/16"	1 31/32"	1 19/32"	2 1/4"	1 3/4"	2 17/32"	2 1/32"	2 13/16"	2 3/16"	3 3/32"	2 19/32"	3 19/32"	2 29/32"
3/8"	3/4"	3/8"	3/16"	2 11/32"	1 19/32"	2 13/16"	2 1/16"	3 1/4"	2 1/2"	3 11/16"	2 15/16"	4 3/16"	3 7/16"	4 19/32"	3 27/32"	5 11/32"	4 9/32"
1/2"	15/16"	15/32"	3/16"	3 1/16"	2 1/8"	3 21/32"	2 23/32"	4 9/32"	3 11/32"	4 31/32"	4 1/32"	5 9/16"	4 5/8"	6 7/32"	5 9/32"	6 7/8"	5 15/16"
3/4"	1 1/8"	9/16"	3/16"	3 19/32"	2 15/32"	4 11/32"	3 3/32"	5 1/8"	4"	5 27/32"	4 23/32"	6 23/32"	5 19/32"	7 3/8"	6 1/4"	8 1/8"	7"

### Letter Dimensions

Freeman offers both letters and numbers in the Lok-In style. Available in 1/4", 3/8", 1/2", 3/4" and 1" recessed. The line also includes a blank and dash.

## SHARP-FACE GOTHIC PATTERN LETTERS

See the measuring guide on page 107 for ordering instructions.

### White Metal

- ▶ Heights from 1/8" to 3"
- ▶ Widths from 0.162" to 2.750"
- ▶ Thicknesses from 1/16" to 3/8"



### Aluminum with Sprigs

- ▶ Heights from 1/8" to 1"
- ▶ Widths from .175" to .825"
- ▶ Thicknesses from .0313" to .1719"



### Aluminum

- ▶ Heights from 3/16" to 2"
- ▶ Widths from .225" to 1.6375"
- ▶ Thicknesses from .0469" to .25"



### Brass

- ▶ Heights from 3/16" to 2"
- ▶ Widths from .200" to 1.850"
- ▶ Thicknesses from 1/16" to 1/4"



### Reverse - White Metal

- ▶ Heights from 3/16" to 2"
- ▶ Widths from .200" to 1.850"
- ▶ Thicknesses from 1/16" to 1/4"



### Reverse - Brass

- ▶ Heights from 1/4" to 1"
- ▶ Widths from 0.262" to 0.950"
- ▶ Thicknesses from 1/16" to 5/32"



### Rubber

- ▶ Heights from .220" to 0.725"
- ▶ Widths from .625" to 0.730"
- ▶ Thickness of 0.180"



### Plastic

- ▶ Heights from 1/4" to 1 1/8"
- ▶ Injection-molded plastic
- ▶ Thicknesses from .045" to .120"



# OTHER PATTERN LETTERS

## Flat-Face Gothic - White Metal

- ▶ Heights from  $\frac{3}{16}$ " to  $2\frac{1}{2}$ "
- ▶ Widths from .200" to 2.350"
- ▶ Thicknesses from  $\frac{1}{32}$ " to  $\frac{3}{16}$ "



## Round-Face Gothic - White Metal

- ▶ Heights from  $\frac{3}{8}$ " to  $1\frac{1}{2}$ "
- ▶ Widths from 0.400" to 1.425"
- ▶ Thicknesses from  $\frac{3}{32}$ " to  $\frac{3}{16}$ "



## Heavy Hairline - White Metal

- ▶ Heights from  $\frac{1}{8}$ " to 1"
- ▶ Widths from .143" to 0.875"
- ▶ Thicknesses from  $\frac{1}{32}$ " to  $\frac{1}{8}$ "



## Light Hairline - White Metal

- ▶ Heights from  $\frac{1}{8}$ " to  $\frac{3}{4}$ "
- ▶ Widths from 0.125" to 0.625"
- ▶ Thicknesses from  $\frac{1}{32}$ " to  $\frac{1}{16}$ "



## Heavy Hairline - Brass

- ▶ Heights from  $\frac{1}{8}$ " to  $\frac{1}{2}$ "
- ▶ Widths from .143" to 0.462"
- ▶ Thicknesses from  $\frac{1}{16}$ " to  $\frac{1}{32}$ "



## Deep Block - White Metal

- ▶ Heights from  $\frac{1}{4}$ " to 2"
- ▶ Widths from 0.375" to 1.825"
- ▶ Thicknesses from  $\frac{1}{8}$ " to  $\frac{1}{4}$ "



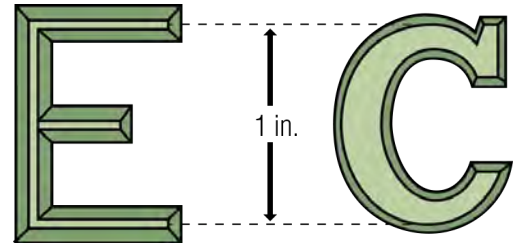
## Tablet - White Metal

- ▶ Heights from  $\frac{1}{4}$ " to 3"
- ▶ Widths from 0.350" to 2.400"
- ▶ Thicknesses from  $\frac{3}{32}$ " to  $\frac{1}{8}$ "



# ORDERING INSTRUCTIONS

Traditionally, specific letter heights are measured from the top of the face to the bottom of the face (C). Other letters are measured from the center of the top of the face to the bottom of the face (E). Each letter style is coded with "C" or "E" to show which method of measurement applies.



### Sharp-Face Gothic (E)

Height	$\frac{1}{8}$ "	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	$\frac{7}{16}$ "	$\frac{1}{2}$ "	$\frac{9}{16}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	$1\frac{3}{4}$ "	2"	$2\frac{1}{4}$ "	$2\frac{1}{2}$ "	3"
Thickness	$\frac{1}{16}$ "	$\frac{1}{16}$ "	$\frac{1}{16}$ "	$\frac{1}{16}$ "	$\frac{1}{16}$ "	$\frac{3}{32}$ "	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "	$\frac{5}{32}$ "	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{1}{4}$ "	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "
Width	0.162"	0.2"	0.262"	0.325"	0.375"	0.5"	0.555"	0.562"	0.7"	0.725"	0.85"	0.95"	1.15"	1.4"	1.6"	1.85"	2.1"	2.3"	2.75"

### Flat-Face Gothic (E)

Height	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	2"	$2\frac{1}{2}$ "
Thickness	$\frac{1}{32}$ "	$\frac{1}{16}$ "	$\frac{1}{16}$ "	$\frac{1}{16}$ "	$\frac{1}{16}$ "	$\frac{5}{64}$ "	$\frac{3}{32}$ "	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{9}{64}$ "	$\frac{5}{32}$ "	$\frac{3}{16}$ "	$\frac{3}{16}$ "
Width	0.2"	0.331"	0.4"	0.45"	0.575"	0.675"	0.775"	0.9"	1.0"	1.2"	1.45"	1.9"	2.35"

### Round-Face Gothic (E)

Height	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "
Thickness	$\frac{3}{32}$ "	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{3}{16}$ "	$\frac{3}{16}$ "	$\frac{3}{16}$ "
Width	0.4"	0.537"	0.637"	0.725"	0.95"	1.175"	1.425"

### Heavy Hairline (E)

Height	$\frac{1}{8}$ "	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	1"
Thickness	$\frac{1}{32}$ "	$\frac{1}{32}$ "	$\frac{1}{32}$ "	$\frac{1}{16}$ "	$\frac{1}{16}$ "	$\frac{1}{16}$ "	$\frac{1}{16}$ "	$\frac{1}{16}$ "	$\frac{1}{8}$ "
Width	0.143"	0.2"	0.25"	0.3"	0.35"	0.462"	0.537"	0.637"	0.875"

### Light Hairline (E)

Height	$\frac{1}{8}$ "	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "
Thickness	$\frac{1}{32}$ "	$\frac{1}{32}$ "	$\frac{1}{32}$ "	$\frac{1}{32}$ "	$\frac{1}{32}$ "	$\frac{1}{16}$ "	$\frac{1}{16}$ "
Width	0.125"	0.175"	0.231"	0.275"	0.318"	0.437"	0.625"

### Deep Block (E)

Height	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	2"
Thickness	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{3}{16}$ "	$\frac{3}{16}$ "	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{1}{4}$ "
Width	0.375"	0.475"	0.575"	0.662"	0.762"	0.862"	0.95"	1.175"	1.35"	1.825"

### Tablet (C)

Height	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	2"	3"
Thickness	$\frac{3}{32}$ "	$\frac{3}{32}$ "	$\frac{3}{32}$ "	$\frac{3}{32}$ "	$\frac{3}{32}$ "	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "
Width	0.35"	0.425"	0.525"	0.625"	0.7"	0.9"	1.062"	1.25"	1.7"	2.4"



# TAPES AND EMBOSSERS



\*Tapes not to scale.

## Embossing Tapes

We offer Zinc, Brass, Aluminum, and Steel Embossing Tapes for use with Roovers or any other embossing presses. Please note that Brass and Steel Tapes must be purchased in box quantities and have extended lead times. All other tapes are sold individually.



SKU	Material	Letter Size	Thickness	Roll Width	Roll Length	Rolls/Box
035070	Aluminum	1/4"	.012"	1/2"	120'	10
035075	Aluminum	1/4"	.015"	1/2"	85'	10
035090	Aluminum	5/16"	.018"	3/4"	80'	7
035100	Aluminum	3/8"	.018"	7/8"	80'	6
035110	Aluminum	3/4"	.022"	1 1/4"	65'	4
035120	Aluminum	3/4"	.022"	1 1/2"	65'	4
035015	Zinc	1/4"	.015"	1/2"	120'	10
035025	Zinc	5/16"	.018"	3/4"	80'	7
035030	Zinc	3/8"	.020"	7/8"	105'	6
035035	Zinc	1/2"	.022"	1 1/8"	95'	5
035045	Zinc	3/4"	.022"	1 1/2"	65'	4
035124	Brass	1/4"	.015"	1/2"	85'	10
035125	Brass	3/8"	.020"	7/8"	125'	6
035076	Cold Roll Steel	1/4"	.015"	1/2"	85'	10
035078	Cold Roll Steel	3/8"	.015"	7/8"	85'	6



## Roovers Embossing Press

Primarily used in the pattern and foundry industries for numbering patterns and core boxes. Other applications include numbering bins, parts, machines, storage areas, lockers, etc. Known for their rugged construction and simple operation, these embossing presses are furnished with deep strike type characters. Reverse styles of characters and replacement parts are available.

SKU	Description	Mfg. No.
019370	1/4" Letter Size, 1/2" Wide Tape	T-10A
019372	3/8" Letter Size, 7/8" Wide Tape	T-20

## Dymo Tapewriter Replacement Tapes

The Dymo Tapewriter has been discontinued, but replacement tapes are still available with and without adhesive.

SKU	Description	Tape Width
035195	Aluminum Metal Tape without Adhesive	1/2"
035196	Aluminum Metal Tape with Adhesive	1/2"

## CUSTOMIZED LOGOS

Special letters, figures, monograms, and logos can be made either from existing patterns or a drawing. Logos are available for order in White Metal and Aluminum with a 100-piece minimum per order.

### Please provide the following for a quote:

1. Dimensions (Length x Width x Thickness)
2. To-Scale Drawing of Logo

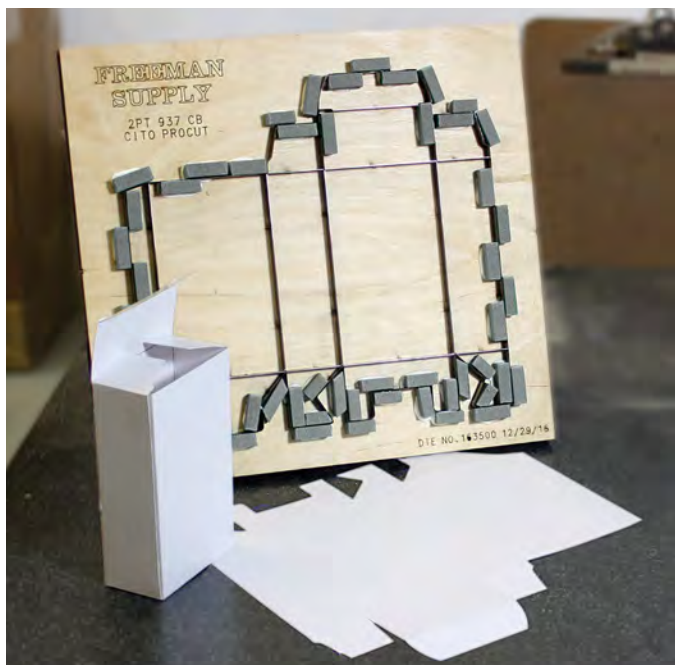
We will respond with a price for the logos and the amount of the one-time set up charge for the mold. A mold will then be created and a sample will be sent for approval.



Email or fax all diagrams to:  
Freeman Manufacturing & Supply Co.  
Inside Sales Department  
(440) 934-7200  
contactus@freemansupply.com

# DIE MAKING HARDWARE

Since entering the Die Making industry in 2015, Freeman is committed to becoming your one-stop-shop for all die making needs. We offer a broad selection of steel rule, ejection rubber, and other die supplies for diemakers and converters nationwide. Dieboards can be found on page 100 and Die Making Adhesives can be found on page 83. Please see our website, [www.FreemanSupply.com](http://www.FreemanSupply.com), for complete details and part numbers.



HS CITO Steel Rule and Freeman Ejection Rubber are used here on Freeman's UltraFlat Maple Dieboard to create a die for a reverse tuck box.

## HS CITO Steel Rule

HS CITO steel rule is manufactured using high-quality Japanese steel combined with an EBNER Austrian heat treat. The result is a premium cutting rule with a hardened edge for long life on-press and outstanding bendability due to the deep decarburization of the body. There is no cracking during the bending process. HS CITO Creasing Rule is differentiated by a variety of characteristics, including the smooth surface of the crease top, no sharp edges, and excellent thickness and height tolerances.



### Cutting Rules

- ▶ 2 pt. or 3 pt.
- ▶ 0.918" - 0.937"
- ▶ Shaved or Ground Edge
- ▶ Coils ACW or CCW
- ▶ Boxed Strips
- ▶ 42°, 52°, or Long Center Bevel

### Creasing Rules

- ▶ 2 pt. or 3 pt.
- ▶ 0.003" thick
- ▶ Widths of 36" to 60"
- ▶ Coils ACW or CCW

### Sword Cut

- ▶ 2 pt.
- ▶ 0.937" thick
- ▶ Ground and Polished Edge
- ▶ Coils ACW

## Kerf Bits for Steel Rule Dies

- ▶ From 2 pt. to 6 pt.
- ▶ 1/8" Perimeter Cutters
- ▶ 0.240" Clean Out Bits
- ▶ 5 flute geometry cuts clean
- ▶ Stays cool for long life



These high-performance bits are manufactured from the highest quality sub-micrograin carbide and are designed to last longer and have the lowest deflection of any other bit on the market. An overheated bit causes the edges to round-over and tear the wood fiber, causing poor kerf quality, extra clean-out, and premature bit breakage. The improved 5 flute geometry keeps the bit cool so the edges stay sharp.



## Black Maxx Counterplate

- ▶ 1.3 mm – 4 mm
- ▶ 42" x 42" sheet size
- ▶ Tightest thickness tolerances
- ▶ Easy-adhere back side
- ▶ Made in Germany

Black Maxx Counterplate has the tightest thickness tolerance in the industry of  $\pm 0.03$  mm, allowing for board-to-board and channel depth consistency. One side of the board has a "structured surface" that allows adhesive to easily bond without affecting the thickness tolerance. When

milled, this mixture of phenolic resin and phenolic paper produces a clean channel for precise creasing. Produced in Germany with the highest quality materials, this counterplate offers the reliability every diemaker needs.

## Mylar®

- ▶ 150 ft. or 300 ft. rolls
- ▶ Thicknesses of .003" or .005"
- ▶ Matte on one side for perfect plotting
- ▶ No edge curl
- ▶ Roll widths of 36", 42", 48", or 60"

Freeman Premium Mylar is manufactured with a precise thickness tolerance and unrolls easily with no edge curl or memory. Matted one side, it readily accepts all plotter ink with minimal smudging.





# DIEMAKING HARDWARE CONTINUED

## Rawhide Mallets

Our Rawhide Mallets are constructed from the finest materials and manufactured in the USA. Freeman's innovative #4 Long Rawhide Safety Mallet offers a 4 $\frac{3}{4}$ " head – compared to the traditional 3 $\frac{1}{2}$ " – providing an additional level of safety and longer life. Our #2 and larger mallets are available with energy-absorbing foam grips for improved ergonomics and comfort.

SKU	Size	Diameter	Length
081028*	#0	1"	2"
081029*	#1	1 $\frac{1}{4}$ "	2 $\frac{1}{2}$ "
080997	#2	1 $\frac{1}{2}$ "	3"
080998	#3	1 $\frac{1}{4}$ "	3 $\frac{1}{8}$ "
080999	#4	2"	3 $\frac{1}{2}$ "
081002	#4 Long Head	2"	4 $\frac{3}{4}$ "
081003	#4 Long Head & Handle	2"	4 $\frac{3}{4}$ "
081000	#5	2 $\frac{3}{4}$ "	4 $\frac{1}{4}$ "
081001	#6	2 $\frac{3}{4}$ "	4 $\frac{3}{4}$ "

\*Grips not included

## Elastomer Mallets

These heavy-duty mallets are constructed with an advanced elastomer resin for durability and toughness. This innovative #4 Long Elastomer Safety Mallet offers a 5" head – compared to the traditional 3 $\frac{1}{2}$ " – providing an additional level of safety. All of our elastomer mallets are supplied with durable foam grips for improved ergonomics, comfort and grip.

SKU	Size	Diameter	Length
081010	#4	2"	3 $\frac{1}{2}$ "
081012	#4L Long	2"	5"
081014	#5	2 $\frac{3}{4}$ "	4 $\frac{1}{4}$ "
081016	#6	2 $\frac{3}{4}$ "	4 $\frac{3}{4}$ "



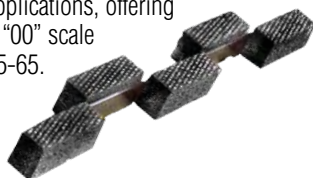
Regular and Safety Mallets

# EJECTION RUBBER

## Freeman F-65

- ▶ Black
- ▶ Open Cell
- ▶ Medium Density
- ▶ Thicknesses of  $\frac{1}{4}$ ",  $\frac{3}{8}$ " or  $\frac{1}{2}$ "
- ▶ Sheets, Strips, or Blocks

This medium-firm density rubber is used for flat die applications, offering a durometer "00" scale reading of 55-65.



## Freeman F-70

- ▶ Pink
- ▶ Open Cell
- ▶ Firm Density
- ▶ Thicknesses of  $\frac{1}{4}$ ",  $\frac{3}{8}$ " or  $\frac{1}{2}$ "
- ▶ Sheets, Strips, or Blocks

Freeman F-70 is a firm density rubber for flat die applications, offering a 65-70 durometer "00" scale reading.

## Freeman F-70P

- ▶ Red
- ▶ Premium Open Cell
- ▶ Firm Density
- ▶ Thicknesses of  $\frac{1}{4}$ ",  $\frac{3}{8}$ " or  $\frac{1}{2}$ "
- ▶ Sheets, Strips, or Blocks

F-70P Ejection Rubber is a premium firm density rubber offering a more uniform cell structure and a 65-70 durometer "00" scale reading. It is available with or without PSA.

## Freeman F-75

- ▶ Dark Red
- ▶ Open Cell
- ▶ Extra Firm Density
- ▶ Thicknesses of  $\frac{1}{4}$ ",  $\frac{3}{8}$ " or  $\frac{1}{2}$ "
- ▶ Sheets, Strips, or Blocks



This extra-firm density rubber is used for flat die applications, offering a 70-75 durometer "00" scale reading. It is available with or without PSA.

## Freeman F-257

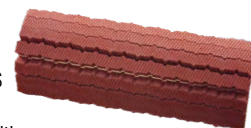
- ▶ Gray
- ▶ Closed Cell
- ▶ Medium Density
- ▶ Thicknesses from  $\frac{1}{4}$ " to  $\frac{3}{4}$ "
- ▶ Sheets, Strips, or Blocks

This gray, closed cell, medium-density rubber is primarily used on rotary die applications, as well as some flat die applications. It is available with or without PSA.

## Freeman Guide Strip™

- ▶ Dark Red
- ▶ Open Cell
- ▶ Extra Firm Density
- ▶  $\frac{3}{8}$ " x  $\frac{3}{8}$ " x 18 $\frac{1}{2}$ "
- ▶ Strips with Guide Points

Made with F-75 rubber, these strips are water-jet cut to ensure exact widths. This results in consistent ejection properties across the entire cutting die. The strips are available with or without adhesive.



## Freeman Patriot Blue

- ▶ Blue
- ▶ Micro Cell
- ▶ Medium Density
- ▶ Thicknesses of  $\frac{1}{4}$ ",  $\frac{3}{8}$ " or  $\frac{1}{2}$ "
- ▶ Sheets, Strips, or Wave

Freeman Patriot Blue micro-cellular ejection rubber offers diemakers a premium, high-performance, long-life ejection material. It is excellent for flat and rotary applications and is available with or without PSA.

## Freeman Gum Rubber

- ▶ Cream
- ▶ Closed Cell
- ▶ Slot Rubber
- ▶ Thicknesses of  $\frac{1}{16}$ ",  $\frac{3}{32}$ " or  $\frac{1}{8}$ "
- ▶ 12" x 36" Sheets

Gum Rubber is a durable slot rubber, or dense ejection rubber with a 35-45 Shore A hardness, and it used in slots or tight areas on a die. Gum Rubber has been a reliable industry standard for many years.

We are constantly expanding our One Stop Shop for Die Making. For dieboards and other accessories, please see page 100 or visit [www.FreemanDieSupply.com](http://www.FreemanDieSupply.com).

# ABRASIVES

## Abrasive Types Available

**Garnet:** A reddish-brown, natural mineral that features a medium hardness and good cutting edges that have a tendency to break or fracture when used, thus creating new cutting edges. Garnet is used primarily for fine finishing of wood.

**Aluminum Oxide:** A synthetic, gray-brown mineral that is tough and durable. This widely used abrasive is ideal for both woodworking and metalworking.

**Silicon Carbide:** A very hard, shiny, synthetic, black-colored mineral with a brittle quality permitting it to fracture into sharp, sliver-like wedges as it works. Silicon carbide is used for sanding a wide range of metals, plastics, or glass.

## Backing Types Available

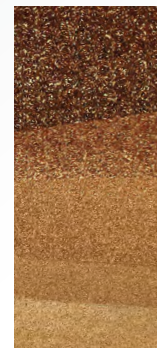
**Paper:** Used mainly with garnet abrasive. Paper sheets are available in weights A, C, and D (A being the lightest).

**Cloth:** Produces a durable and flexible backing, and is mainly used with aluminum oxide abrasive.

**Waterproof Paper:** Used mainly with silicon carbide abrasive.

## Grit Chart

Grit	Coarseness Level
40-60	Coarse
80-120	Medium
150-180	Fine
220-240	Very Fine
280-320	Extra Fine
360-600	Super Fine



Other weights and grits are available by special order. Please see our website, [www.FreemanSupply.com](http://www.FreemanSupply.com), or contact Customer Service for complete details and part numbers.

## ABRASIVE SHEETS (9" X 11")



### Garnet Paper Sheets

These 3M™ abrasives are open coat – where the abrasive granules cover 50-70% of the backing and are set at a pre-determined spacing to reduce loading or clogging.

SKU	Weight	Grit	Style #	Sheets
132005	A	80	110N	50
132010	A	100	110N	100
132015	A	120	110N	100
132020	A	150	110N	100
132025	A	180	110N	100
132030	A	220	110N	100
132071	C	100	130N	100
132076	C	120	130N	100
132081	C	150	130N	100
132052*	D	40	—	50
132056	D	50	140N	50
132061	D	60	140N	50
132066	D	80	140N	50

\*Not manufactured by 3M™

### Aluminum-Oxide Cloth Sheets

These 3M™ abrasive products are made with aluminum oxide uniformly applied to light, J weight cloth sheets. They are primarily used for metalworking but may also be used for woodworking.

SKU	Weight	Grit	Style #	Sheets
132095	J	80	211K	50
132100	J	100	211K	50
132105	J	120	211K	50

### Silicon Carbide Wetordry™ Paper Sheets

These sheets are made by coating a waterproof paper backing with silicon carbide. The flexible A weight paper is primarily for wet sanding automotive applications. The sturdy C weight paper is designed for general industrial applications requiring greater backing strength. They are good for metal, wood, glass and tooling boards such as RenShape 5169 and 5179 (page 16).

SKU	Weight	Grit	Style #	Sheets
132150	A	220	413Q	50
132165	A	600	413Q	50
132130	C	80	431Q	50
132135	C	100	431Q	50
132142	C	150	431Q	50
132145	C	180	431Q	50
132155	C	320	431Q	50
132160	C	400	431Q	50

### Silicon Carbide Coated Abrasive Mesh

Commonly referred to as “drywall sandpaper” or “sanding screen”, this abrasive is made with a silicon carbide mineral coated on a durable screen cloth mesh with waterproof bond. Ideal for plaster and other substrates that would load conventional abrasives.

SKU	Grit	Style #	Sheets
132170	80	483W	25
132175	100	483W	25

# DISC SANDER ABRASIVES



## 3M™ Aluminum-Oxide PSA Cloth Discs

These 3M discs are the premium in our line, featuring aluminum-oxide abrasive resin-bonded to a durable X weight cloth backing. These discs feature factory-applied adhesive on the backing to enable quick and easy installation to the machine. Primarily used for sanding metal.

SKU	Dia.	Grit	Disc/Pkg.*
131455	12"	40	10
131465	15"	36	10
131460	15"	40	10
131475	16"	36	10
131470	16"	40	10
131468	16"	60	10
131480	18"	40	10

\*These discs are sold individually. Unit quantities are listed for pricing and packaging reference only.

SKU	Dia.	Grit	Disc/Pkg.*
131495	20"	36	10
131490	20"	40	10
131488	20"	50	10
131487	20"	60	10
131486	20"	80	10
131515	24"	36	10
131505	24"	40	10
131509	24"	50	10
131510	24"	50	10
131511	24"	60	10
131530	30"	36	10
131525	30"	40	10

\*These discs are sold individually. Unit quantities are listed for pricing and packaging reference only.

## 3M™ Aluminum-Oxide Plain-Back Cloth Discs

This product features aluminum oxide abrasive resin-bonded to a cloth backing for superior life when sanding metal. Freeman Latex or Master Disc Cement must be used to apply these discs to the machine.

SKU	Dia.	Grit	Disc/Pkg.*
131605	24"	40	10
131615	30"	40	10

\*These discs are sold individually. Unit quantities are listed for pricing and packaging reference only.

## Garnet Resin Bond Paper Discs

Garnet is a natural mineral that, when used as an abrasive, provides excellent results for the sanding of wood. This sharp abrasive covers 100% of the disc (closed coat) for smooth stock removal and is resin-bonded for a long service life. Freeman Latex or Master Disc Cement must be used to apply these discs to the machine.

SKU	Dia.	Grit	Disc/Pkg.**
131115	12"	40	100
131135	15"	40	100
131155	16"	40	100
131165	18"	40	100
131175	20"	40	25
131195*	24"	40	20
131201	24"	40	20
131215	30"	40	20
131223	36"	40	20

\*These discs are manufactured with a 1" diameter center hole.

\*\*These discs are sold individually. Unit quantities are listed for pricing and packaging reference only.

## Disc Cement

Both Master Disc Cement (SKU #025510) and Freeman Latex Disc Cement (SKU #025505) are specifically formulated for securing paper and cloth-backed abrasives to any disc sanding machine. They are fast-drying, easy to use, and available in Quarts.



### Easy Application

1. Clean both surfaces to be bonded and ensure steel disc is free of grease.
2. Brush the Latex Disc Cement onto both the abrasive backing and steel disc.
3. Allow to dry (10-30 min.) before applying abrasive.
4. Align edges of abrasive disc to steel disc and apply carefully.
5. Roll down abrasive disc from the center outward.
6. Trim the excess abrasive from the outside diameter of the disc.

## Freeman Abrasive Cleaner Bar

The Abrasive Cleaner Bar is easy to use — just hold the bar securely and carefully push against the rotating abrasive disc until the majority of loaded particles are removed. It will allow 3 to 4 times more abrasive disc and belt life as well as prevent burning, chatter marks and machine vibration caused by loaded abrasives. The bar is 1 5/8" x 1 5/8" x 8 1/4" (SKU #136850).





# SPINDLE SANDER ABRASIVES

Our abrasive sleeves and expanding rubber drums are designed for oscillating spindle sanders including State, Master, and other makes and models. These abrasive sleeves are constructed to give dependable service and excellent surface finishes.

## Garnet Sleeves

Garnet is a natural mineral that provides excellent results for the sanding of wood when used as an abrasive. State and Master brands are listed for reference purposes. For other sander models, please refer to diameter and length dimensions when choosing appropriate sleeves.



### State Spindle Sanders

- ▶ Diameters from 1/4" to 6"
- ▶ Lengths from 5" to 11"
- ▶ Grits of 40 to 100

### Master Spindle Sanders

- ▶ Diameters from 1 1/4" to 4"
- ▶ Length of 11"
- ▶ Grit of 40

Please visit our website, [www.FreemanSupply.com](http://www.FreemanSupply.com), for complete dimensions and part numbers.

## Aluminum-Oxide Sleeves

These sleeves are made with Aluminum-Oxide, a tough, durable and synthetic gray-brown mineral. These resin-bonded, cloth-backed abrasive sleeves are used primarily in metalworking and plastic applications. State and Master brands are listed for reference purposes. For other sander models, please refer to diameter and length dimensions when choosing appropriate sleeves.

### State Spindle Sanders

- ▶ Diameters from 1/4" to 4"
- ▶ Lengths from 5" to 9"
- ▶ Grits from 36 to 120

### Master Spindle Sanders

- ▶ Diameters from 1/4" to 4"
- ▶ Length from 6 to 11"
- ▶ Grits from 36 to 200

Please see our website, [www.FreemanSupply.com](http://www.FreemanSupply.com), for complete dimensions and part numbers.

## Expandable Rubber Drums

These Expandable Rubber Drums are made of a rubber compounded for proper resiliency. For uniform compression and expansion, each drum is supplied with two steel washers appropriately sized to each drum. Each drum is 9" long and is sized to fit a 3/4" diameter spindle.

SKU	Outside diameter
133220	1"
133225	1 1/4"
133230	1 1/2"
133235	2"
133242	2 1/2"
133245	3"
133250	4"



# 3M™ ROLOC™ DISCS

Used with grinders or electric drills, these abrasive discs are designed for grinding and polishing wood, metal, or plastic. The exclusive 3M Roloc system locks the disc securely in place with just a half twist and unlocks just as easily. Available with aluminum-oxide or Scotch-Brite abrasive.

## 3M Roloc Aluminum Oxide Discs & Holders

3M Roloc style TR (plastic button) discs are resin-bonded, aluminum oxide discs that are offered in a variety of pad hardnesses. They provide an extremely effective means of deburring and finishing wood or metal surfaces. The discs are sold in full packages and the disc holders are sold separately and individually.

- ▶ Diameters from 1" to 4"
- ▶ Grits from 24 to 120
- ▶ 25 or 50 discs per package

Please see our website, [www.FreemanSupply.com](http://www.FreemanSupply.com), for complete dimensions and part numbers.



# SCOTCH BRITE® INDUSTRIAL HAND PADS (6" X 9")

## Scotch-Brite Heavy Duty Hand Pad

Most durable and aggressive pad for quick stock removal.

## Scotch Brite Blending Pads

Slightly finer abrasive than the heavy duty pad. Excellent for removing scratches on metal, wood, or synthetic surfaces.

## Scotch-Brite General Purpose Hand Pad

This is the most popular Scotch Brite abrasive — it is coarse enough for cleaning and finishing but fine enough to produce good surface finishes.

## Scotch-Brite Ultra-Fine Hand Pad

Fine textured for ultra-fine finishing on metal, wood, plastics, and composites.

## Scotch-Brite Light Duty Hand Pad

A very mild abrasive for gentle, yet through cleaning. Commonly used with liquid detergent.

SKU	Description	Color	Pads/Box	Mfg. No.
136799	Heavy Duty	Tan	20	7440
136800	Heavy Duty	Tan	10	7440
136802	Blending	Gray	10	7446
136805	General Purpose	Maroon	20	7447
136810	Ultra Fine	Light Gray	20	7448
136801	Light Duty	White	20	7445



# CARTRIDGE ROLLS

## Cartridge Rolls

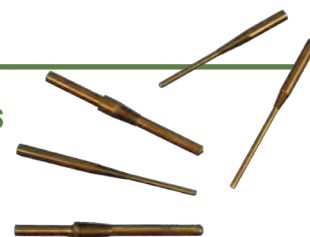
These products are designed for finish sanding of concave surfaces of metal, wood, or plastics. Made from resin bonded aluminum oxide cloth for long life, these products work well with air or electric grinders. A steel mandrel must be used to secure the abrasive to the tool.



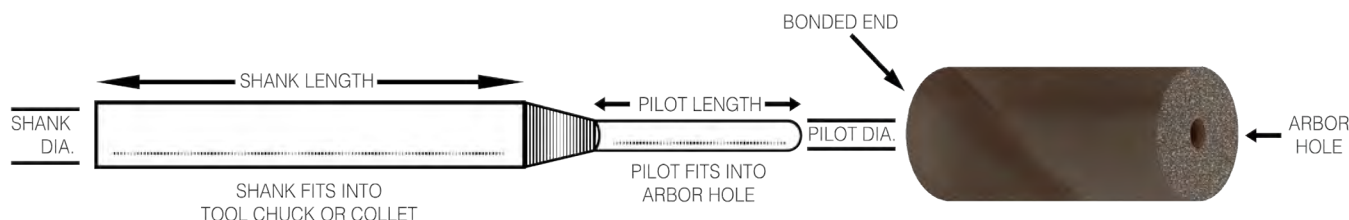
- ▶ Outside diameters from 1/8" to 1"
- ▶ Lengths from 1" to 2"
- ▶ Pilot diameters from 5/64" to 1/4"
- ▶ Grits from 40 to 240

## Mandrels for Cartridge Rolls

This steel adapter is used to secure and hold both tapered and parallel sided cartridge rolls for use on air grinders or electric drills. This holder is used by sliding the cartridge roll onto the mandrel pilot until the bottom of the abrasive touches the threaded steel area. Simply screw the cartridge roll onto the threads to secure. Your mandrel should be at least 1/4" shorter than your cartridge roll.



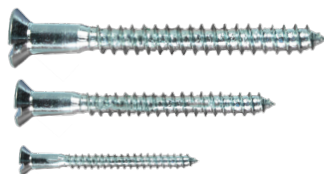
- ▶ Shank diameters of 1/8" or 1/4"
- ▶ Pilot diameters from 5/64" to 1/4"
- ▶ Pilot lengths from 1/2" to 2"



# FASTENERS

## Wood Screws

- ▶ High-grade wire steel, zinc-plated
- ▶ Phillips head and slotted head styles available
- ▶ Lengths: from 1" to 6"
- ▶ Gauges: 8, 10, 12, or 14



## Steel Pinch Dogs

- ▶ Forged tool-steel
- ▶ Sold individually
- ▶ Lengths: from 3/4" to 3 1/2"



## Solid Brass Escutcheon Pins

- ▶ Sold in 1 lb. boxes
- ▶ Lengths: from 1/4" to 1"
- ▶ Head diameters: from 0.092 to 0.165
- ▶ Shaft diameters: 0.065 to 0.083
- ▶ Gauges: 14, 16, or 18



Images may not be to scale. Please see our website, [www.FreemanSupply.com](http://www.FreemanSupply.com), for complete details and part numbers.

## Wire Brads

- ▶ Sold in 1 lb. boxes
- ▶ Lengths: from 1/2" to 1 1/2"
- ▶ Gauges: 15, 16, 17, 18, or 20



## Flat Head Wire Nails

- ▶ Sold in 1 lb. boxes
- ▶ Lengths: from 1/2" to 1 1/2"
- ▶ Gauges: 15, 16, 17, 18, or 20



## Drywall Screws

- ▶ Self-tapping, coarse threaded
- ▶ Phillips head
- ▶ Lengths: from 1" to 3"
- ▶ Gauges: 6 or 8
- ▶ Screws/box: from 2,000 to 10,000



## Corrugated Fasteners

- ▶ Sold by the box (100/box)
- ▶ Depths: from 1/2" to 5/8"
- ▶ Corrugations: 5



# BAND SAW ACCESSORIES

## Matchless Grease Stick

This 1 1/2 lb. wax-based band saw blade lubricant is packaged in a 2 1/2" by 10" tube. 24 per case, sold individually. (SKU #027725)

## Castrol Stick Wax Lubricant

Used for lubricating metal-cutting band saw blades and cutting tools, this 15 oz. light yellow wax is packaged in a cardboard tube for ease of use. Dimensions: 2" dia. x 11" length. Sold by the full case of 24 tubes. (SKU #027886)

## Band Saw Replacement Tires

All tires are 3/16" thick and each tire diameter before attachment is approximately 20% less than the wheel diameter.



SKU	Wheel Diameter	Tire Width
031500	12"	1"
031505	14"	1 1/16"
031510	16"	1 5/16"
031512	18"	1 1/2"
031515	20"	1 5/8"
031520	26"	2"
031525	30"	2"
031530	32"	2"
031532	34"	2 1/8"
031535	36"	2 1/8"
031540	38"	2 1/4"

## Band Saw Tire Cement

This pint-size contact adhesive is used for gluing band saw tires onto band saw wheels. (SKU #031550)



### Instructions

1. Remove old tire, clean wheel completely
2. Without adhesive, stretch tire onto wheel
3. Using small wedges, create a space between tire & wheel
4. Apply band saw tire cement to tire & wheel
5. Using an air hose, dry the adhesive completely
6. Repeat with another coat of adhesive and dry again
7. Apply a third application if necessary to build up thickness
8. Dry completely
9. Remove wedges, press tire firmly to wheel
10. Ready for use in one hour



# DEGASSING, MIXING & DISPENSING EQUIPMENT

## Gas Vac II Industrial Vacuum Degassing Unit

Designed for simplified and dependable operation, this vacuum efficiently deaerates urethane elastomers and silicone rubbers resulting in casts that are virtually void-free in quality. The clear acrylic lid permits viewing while maintaining complete seal and the heavy-gauge steel support stand mounted on swivel casters offers portability.



SKU	Description	Net weight (lb.)
054300	Degassing Unit	185
054303	Vacuum Seal	—

Vacuum Seal included with purchase, sold separately as well.

- ▶ Large chamber (14" dia. x 17" deep)
- ▶ 1/2 hp, two stage, direct drive pump displaces up to 6 CFM
- ▶ Thermal protected capacitor start & 20 micron factory rating
- ▶ 28"W x 25"D x 31"H, 115V, 60 Hz motor

## Red Devil Mixer

Make any project easier with the Red Devil Mixer's 3-way agitation action for smooth and quiet mixing. This heavy-duty, clamp-design, electric mixer is for effective mixing of Freeman's line of Repro Fast-Cast urethanes, paint, or any other low to medium viscosity liquid. Available with bench or pedestal mount.



- ▶ Heavy-duty twin arm design for mixing — 6 pints, 4 quarts, 2 gallons
- ▶ New safety covers for mixer arms
- ▶ 15-minute dial timer
- ▶ 110 volt, 1/2 HP, 60 Hz, heavy guard

SKU	Description	Height	Width	Depth	Weight (lb.)
054311	1400-00 Red Devil Mixer	31½"	41½"	29½"	191
054313	No. 5153 Counter Base*	19"	33"	20¾"	20
054314	No. 5151 Pedestal Base*	46"	33"	18"	75

\*Dimensions include mixer.

## Plunge Industrial Mixers

This heavy-duty Plunge Mixer has a rugged zinc-aluminum alloy mixing head mounted with a set screw to a steel shaft. Its smooth-bottom teeth thoroughly mixes resins containing high-density fillers much faster and more effectively than standard drill-driven paint mixers. The mixing head's tumble finish allows for quick clean up of resins and paints.

SKU	Size	Length	Shaft Dia.	Head Dia.	Model No.
054190	Quart	13¼"	5/16"	2¼"	002
054195	Gallon	17"	5/16"	3¾"	003
054200	5 Gallon	23½"	1/2"	5⅞"	006A



## Jiffy Mixer

This all-purpose mixer is designed and manufactured to thoroughly mix epoxies, resins, plastics, chemicals, paints and many other materials at 450 to 750 RPM without sucking air into material or splashing material outside container.

SKU	Shaft Length	Container Size	Top Dia.	Bottom Dia.	Depth of Head	Shaft Dia.	Model No.
054220	10¼"	Pint	1¼"	1¼"	1⅜"	¼"	LM
054215	10¼"	1-2 Gallon	2⅝"	2⅝"	2⅜"	¼"	HS-1
054210	20½"	5-10 Gallon	4⅝"	5½"	5"	½"	PS-1



## Miapoxy 100 Hand Pumps

Miapoxy 100 Hand Pumps are specifically designed for fast and accurate dispensing of the Miapoxy 100 Resin and Hardener (page 51). Each pump is clearly marked with a different colored sticker for resin and hardener. Use one stroke of the hardener pump for every stroke of the resin pump to obtain the correct mix ratio. Kit size 1/2 includes one resin pump for quarts and gallons, one hardener pump for pints and one hardener pump for quarts and gallons. Kit size 3 includes one resin pump for 5-gallons and one hardener pump for quarts and gallons.



SKU	Size
406650	1/2
406655	3

# SCALES

## Ohaus Compact Electronic Scale

This portable and accurate scale may be operated with an AC adapter or 3 AA batteries (both included). The Ohaus CS5000 Scale offers a 5,000 g (1 lb., 4 oz.) capacity with a large stainless steel platform and readability to 1 g. **(SKU #054239)**



## Plastic Resin Portion Scale

This scale was designed and engineered specifically for weighing plastics, chemicals, and plasters. Face dial markings are graduated in ½ ounces up to 80 ounces. The adjustable dial permits weighing up to 80 ounces without figuring or allowing for the container weight. **(SKU #054235)**



# SHEARS



*Airtech Techshears cutting fiberglass cloth*

## Airtech Techshears

- ▶ Titanium nitride coated blades for a super-sharp, long-lasting edge
- ▶ Adjustable cutting force for different materials
- ▶ Micro-serrated blades available for cutting aramid fabric
- ▶ Both left and right handed

These shears are the highest quality that Airtech offers. Techshears are designed with a cantilever action that reduces cutting effort significantly. 7.5" in length **(SKU #402375)**.



## Airtech Shop Shears

- ▶ Thick blades for heavy duty cutting
- ▶ Blades are hardened throughout, not case hardened
- ▶ Soft Santoprene inserts to cushion the handles

These high quality shears are constructed from heavy gage stainless steel to provide years of service in cutting fiberglass and carbon cloth. 10" in length **(SKU #402368)**.

## Heritage Spring Action Snip

- ▶ Spring action self opening reduces fatigue during use
- ▶ Micro-serrated blades for effective cutting of aramid fabric
- ▶ Cushion handle grips for user comfort

These hot forged, chrome plated snips are ideal for cutting aramid, carbon, Kevlar® and fiberglass fabric. 6.5" in length **(SKU #048040)**.



# ASSORTED CUTTERS AND BITS

## Multi-Spur Wood Boring Drill Bits

These high speed steel wood boring bits are ideal for fast cutting of larger holes. The spurs cut clean holes while the center point provides precise location. Designed for wood only. Shank diameter is 1/2".



SKU	Bit Diameter
043524	3/4"
043532	1"
043536	1 1/8"
043540	1 1/4"
043542	1 5/16"
043544	1 3/8"
043548	1 1/2"
043554	1 3/4"
043556	1 7/8"
043558	2"
043564	2 3/8"
043566	2 1/2"
043574	3"

## Adjustable Countersink Cutter

The Countersink Cutter has a beveled head and is used to countersink while drilling pilot holes for flat head wood screws. The set screw holds countersink head onto drill; depth of drill and countersink is adjustable. The cutter can be used on any one of the four drill sizes.

SKU	Countersink Diameter	Drill Size
041996	1/2"	1/8"
043820	1/2"	3/16"
043822	1/2"	7/32"
043824	1/2"	1/4"



## Rotary Surfer

This surfacing cutter is designed to be used in a drill press to machine and plane wood and plastic. It features two diameters and silicon carbide cutters for long cutter life.

SKU	Description	Diameter
043900	Rotary Surfer	1 1/2"
043902	Rotary Surfer	3"
043904	Blade Only	1 1/2"
043906	Blade Only	3"



## Karbide Kutzall® Rotary Burrs

Karbide Kutzall Rotary Burrs are ideal for wood, fiberglass, plastic, rubber, soft stone and composites. They feature patented SSG structured carbide teeth. These tungsten-carbide teeth are very free-cutting and can be dressed to produce very smooth finishes. ALWAYS WEAR SAFETY GLASSES when working with these Rotary Burrs.



SKU	Head Shape	Head Dia.	Head Width	Shank Dia.	Mfg. No.
043840	Taper	1/4"	1 1/4"	1/4"	T-14
043844	Taper	3/4"	1 1/4"	1/4"	T-34
043850	Ball Nose	1/4"	1 1/4"	1/4"	BN-14
043854	Ball Nose	3/4"	1"	1/4"	BN-34
043860	Cylinder	1/4"	1 1/4"	1/4"	C-14
043862	Cylinder	1/2"	3/4"	1/4"	C-12
043864	Cylinder	3/4"	1 1/4"	1/4"	C-34

## Brad Point Wood Boring Drill Bits

This high speed steel drill bit features a sharp center point for precise hole location and the outside diameter is designed to score the hole before stock removal. These two features combine to create a clean and accurate hole without chipping. Ideal for dowel pin installation. For use with wood only.



SKU	Bit Diameter	Shank Diameter	Flute Length	Overall Length
043280	1/8"	1/8"		3"
043284	3/16"	3/16"		3 1/2"
043288	1/4"	1/4"		4"
043292	5/16"	5/16"		4 1/2"
043294	3/8"	3/8"		5"
043300	1/2"	1/2"		6"
043304	5/8"	1/2"	4"	6"
043306	1 1/16"	1/2"	4"	6"
043308	3/4"	1/2"	4"	6"
043312	7/8"	1/2"	4"	6"

Other sizes available by special order. Please see our website, [www.FreemanSupply.com](http://www.FreemanSupply.com), for details.