

NCT
NEWS
10/21/18

Company returns to roots on 50th anniversary

By RAY BOOTH

The Newcomerstown News

The pictures on the table tell a story but not as well as the faces of the staff and workers who came through the door of what was once Herco Inc. in Newcomerstown.

In recognition of the 50th anniversary of the company, a special event was hosted at the original home for Herco, Inc., and what is now the Olde Main Street Museum, 218 W. Canal St., Newcomerstown. Today, Herco is The H3D Tool Company/High Defi-

nition Tooling/Terminus Companies.

Gary Dyer, owner of the company (along with his two sons, Chris and Gary), reminisced about those early years while welcoming employees to a dinner at the museum on Friday, Oct. 5. The event included a tour of the facility, an overview of the history of the company and a luncheon and presentation of "The Many Faces of Old Glory" by Vane Scott.

Standing near to what is now the Sam Douglass Saloon near the front of the museum, Dyer noted, "That

was my office" and later laughingly called it the "penthouse." The majority of the pictures put out by Dyer show employees in light-hearted moments.

Information provided by the company notes that on July 1, 1968, two professionals in the cutting tool industry recognized the need to start a manufacturing and service/sharpening company to meet the needs of a fast growing market in the wood processing market for V grooving also called miter folding. This

See Page A3 | Roots



Chris Dyer, left, presents a special watch to his father, Gary Dyer, in an event recognizing the 50th year of Herco, Inc.

Roots

From Page A1

type of operation was widely used in the manufacture of wood speaker cabinets of the time and also furniture components.

The information noted, "Harold Rivers was 36 years old, married with four children, and Gary Dyer was 24 years old, married with two children. Both worked together during a previous adventure but had the vision to see the potential of this opening market. Together they formed Herco Cutting Tools and searched for an affordable facility with close proximity to existing and potential markets. They also wanted to insure that the community supported an environment that was appropriate for raising their children and offered a pool of potential workers that would be available for the future growth of the company."

One of the five leading companies that used this type of cutting technology was located in Newcomerstown which was Groovfold, Inc. As the partners researched the area to become comfortable with what the community had to offer, the decision was made to locate in Newcomerstown. With the promise of \$500 per month in service and sharpening from Groovfold, the company's founders shook hands and a long standing relationship was started that has lasted through today.

As the pioneers in V Groove technology, Rivers and Dyer developed the idea of cutting a path in a wood based product with plastic adhered to one side in the shape of a V. The material would have a special tape applied at the cut line that would act as the hinge. The V groove tool would cut through the wood based product but not through the tape allowing the tape to act as a hinge. The



folding of the cut material allowed for many profiles to be formed on the edges of the board. Many of the edges were very complex and required a series of six or seven tools working as a single unit to create. Customers like Zenith, Motorola, RCA and Sony changed the profiles every year resulting in the need for new tooling which was very beneficial to the company.

The first 20 years in business saw substantial growth of the industry and the company. Rivers and Dyer always relied on the resources of the community to provide willing and hardworking individuals, including high school age children through the OWE program at Newcomerstown High School. Having a philosophy and desire to train local individuals to meet the demands of the company resulted in many long term associates, some who are still employed by the company today.

In the 1990's, the direction of the market and the company caused a shift in the vision shared by Rivers and Dyer. While Rivers was approaching retirement, Dyer was committed to continued growth of the company for

himself and his family. While Rivers decided to retire and return to his roots in Georgia, Dyer was joined in the business by his two sons both expressing an interest in the day-to-day operations of the business.

In 1994 Dyer purchased Rivers' share of the business to become sole owner. By adding a nationwide distribution network and professional technical sales representatives across the US, the company was able to offer onsite training and technical advice to their customers as an added service.

In the mid-90's, the cutting tool market continued to change and in order to stay a leader in the industry, the acquisition of CNC equipment was necessary. The Dyers also became acquainted with a product called poly crystalline diamond or PCD (a man-made diamond product) that was being used in Europe for wood based products. Unfortunately, the technology for manufacturing this type of tooling was also only available in Europe, so Dyer made his first trip overseas to acquire the machinery and technology necessary to offer this type of

tooling to their customers here in the USA.

In 1994, Dyer formed the 3-D Diamond Tooling company to pursue and offer this technology to the American market. Maintaining the philosophy of providing tooling to the woodworking market that was state of the art, machinery was acquired, the training was arranged, and the company grew to become the leading manufacturer of this type of tooling in the USA.

At this time, the product offering was expanded beyond V groove tooling to include profile tooling, saw blades, and other commodity tooling, as the company focused on providing all of the tools and accessories for each of their customer's applications. If a wood based product needed to be cut or shaped, Herco and 3-D Diamond Cutting tools could provide the total cutting solution. At this time the company also explored the cutting and shaping of other materials and have provided tooling for the solid surface industry for countertops, the metal working industry cutting and shaping aluminum, brass and bronze, cutting exotic material such as plastic explosives and solid jet fuel, to shaping the ends of baby carrots. If it needed to be cut or shaped, the company would work to find the technology required to meet the customer's expectations.

In 2000, the Dyers decided to enter the insert tooling market. This type of tooling completed the third and final product offering, adding to the brazed carbide tooling and PCD Tooling already manufactured by the Company, covering all options for the wood market. Insert tooling allows a customer to remove and replace the cutting edges on their tooling when dull, saving the removal of the tool and sending it out for service / sharpening. As a result, investments were made in tech-

nology to manufacture and shape this new style of cutting edge. While the steel tool bodies could be manufactured with the same equipment as V Groovers and profile tooling, the Dyers went a step beyond, acquiring new precision CNC equipment to manufacture the steel tool bodies to a standard previously not available in this market. By manufacturing a close tolerance tool body, the customer's ability to align the cutting edges in the field resulted in all the cutting edges working in unison providing a cleaner edge on the customer's material and an even load on the tool resulting in additional tool life.

The company continued to grow and eventually became aware of a competitive company with similar product lines that was for sale in North Carolina. In April 2012, the company acquired Carolina Specialty Tools in Connelly Springs, NC.

Over the next several years the Dyers invested heavily in new equipment and technology to bring the company's standards to match what had been established in Ohio. The company acquired a larger facility and moved to 1968 High Definition Drive in Connelly Springs, NC, and changed the name to High Definition Tooling.

The most recent acquisition of the Dyer family was the well know Terminus Company from Switzerland which was completed in December of 2017.

"This year we have accepted delivery on all of the equipment from Switzerland necessary to manufacture their complete line of cutter heads and have offered this additional product line to the market," company officials said.

Today, The H3D Tool Company / High Definition Tooling / Terminus Companies are the largest capacity privately owned tooling manufacturer for the wood industry marketplace in the United States.

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On July 1, 1968 two young men from Akron, Ohio left the company they both worked for to come to Newcomerstown to start Herco Cutting Tools Inc. Their plan was to start a manufacturing and service company for custom designed cutting tools for a relatively new process in the wood industry called V-Grooving or Miter Folding. Harold Rivers was 36 years old, married with 4 children; Gary Dyer was 24 years old, married with 2 children. They decided on Newcomerstown because they both felt it seemed like a good area for raising children. They found an affordable building (present museum site), and were told that future employee needs would be easy to take care of.

Also, one of the 5 companies in the United States manufacturing with the V-Grooving process was also located in Newcomerstown. That company - "Groovfold" (who pioneered V-Grooving) - wanted Herco to locate close to them due to the importance of the cutting tools and the difficulty of resharpening them. Groovfold assured Herco of \$500.00 per month service work if they would locate in Newcomerstown. With a handshake a close relationship was formed between these 2 companies that is still strong over 28 years later.

The process of V-Grooving was to allow a vinyl material that was laminated to fiberboard or particle board to act as a hinge after all material except the vinyl was removed using different angle Herco Cutting Tools. The vinyl that acted as a hinge and held the product together prior to gluing and folding was normally only .006" thick. Due to the vinyl thickness the accuracy of the cutting tools was extremely important. The cutting tools had to cut through and touch the vinyl, but if it cut too deep, even by .001 or .002, the vinyl would not be strong enough to keep the pieces of wood together during handling. If the cutters did not cut through all the wood fiber to the vinyl, then these fibers would push through the vinyl as it was being folded and, of course, this was unacceptable. So the precision and accuracy of the cutting tools became a very big role in the success of those companies using the V-Groove process.

Both Rivers and Dyer recognized this process as something that was going to catch on within the wood industry and they spent the first couple of years researching and experimenting with different carbides, hook angles, relief angles, wet grinding, dry grinding, and in general anything that could improve their cutting tools. They wanted to make sure, as this process grew, they would be considered the premier V-Groove tooling manufacturer in the world. They both spent many hours working on the floor of their customers plants so they not only knew the cutting tool end, they also knew the machining process as well.

In the early 70's the process had begun to take off as more woodworkers learned how it could speed up their manufacturing. There were now 3 V-Grooving machine builders supplying machinery thru out the United States. One from Canada, one from California, one from Newcomerstown (Groovfold). All three companies recognized the importance of quality cutting tools to enhance the performance of their machine and therefore all wanted Herco Cutting Tools supplied with their machines as original equipment. During the early and mid 70's, it was almost impossible for a company to get involved in the V-Grooving process without somehow becoming involved with Herco Inc. In fact, thru out this time, Rivers and Dyer became almost a universal consultant and problem solver for most companies involved in V-Grooving and their company saw steady growth thru the 70's.

In the early 80's the V-Grooving market had pretty much saturated itself and Herco had seen about all the growth it could expect from this market. It was decided if Herco could use the same exact tolerances they used in V-Groove tooling, coupled with custom designed instead of off the shelf tools, use the best carbides available and not the easiest to work with, and do all this with reasonable prices, that Herco could challenge the "Big Boys" of the cutting tool industry outside V-Grooving cutters. At this time thru out the United States, it was unheard of to expect woodworkers to buy basic tooling from a company that would not be doing weekly pick-up and delivery service, but Herco started doing some national advertising in trade magazines as well as building a custom tooling display booth to be used in Atlanta during a 4 day International Trade Show. Little by little Herco began to make themselves known and respected thru out the United States as a custom designed tool manufacturer. During the next 10 years, Herco became so well known thru out the industry they were building custom tooling under private names for more than 25 cutting tool manufacturers and sharpening companies. They were selling their tools to every corner of the United States and thru 1990 they had shipped custom designed tooling to 17 countries outside the United States.

Through out this 20 some years of growth in the cutting tool industry, Rivers and Dyer had always used employees from the Newcomerstown area. Thru out the entire growth and expansion years, they trained their employees from the ground up, preferring to hire employees with no experience, just potential and a desire to learn. Both Rivers and Dyer have always been quick to point out a large percent of Herco's success is due to the many long term employees that learned their trade well and work daily to turn out the best product possible.

During the early 90's due to the age difference of Rivers and Dyer, they began, for the first time in over 20 years, to look at the future and direction of Herco differently. Rivers had begun to think about retirement and returning to his roots in Georgia. By now, Dyer had been joined in the business by his two sons, Christopher and Gregory. Both boys had shown a willingness and desire to study under their father and this gave Dyer the motivation to want to continue to expand the business. Dyer purchased Rivers share of Herco on December 31, 1994. Together with his two sons they planned to move ahead.

Times were changing in the cutting tool industry due to automation and CNC equipment, both in the cutting tool industry and wood industry. To stay a world class operation was going to take a great deal of investment in new machinery. There was also a new concern to the future of carbide cutters. In Europe for the past 6 or 7 years, Dyer had heard of a cutting tool product that would outlast carbide by 75 to 100 times. This material was call PCD (poly-crystal-diamond) or commonly "man-made diamond". This PCD could not be cut or sharpened by any traditional equipment used by carbide manufacturers. In fact, there were no machines made in the United States capable of working on PCD. Dyer made his first trip to Europe in the fall of 1993 to talk to machine builders and see what he could learn. He came back convinced that there was more room for growth in diamond cutting tools than carbide, but it would be many years before diamond would be in the forefront. Dyer felt he must pursue both fields, which he did. He formed a separate company in the spring of 1994 to be called 3-D Diamond Tooling. The 3-D was based on the original concept of Herco. Supplying the best Designed custom tooling available, being the most Dependable of all cutting tool companies, owners with true Desire to overall be the best. There were also those that thought the 3-D's stood for the 3 Dyers, Gary and his 2 sons, Chris and Greg. Dyer has never disputed this.

Machinery was placed on order with expected delivery by late summer of 1994. Dyer felt that to be a real world class operation, he needed not only the new equipment for both Herco and 3-D Diamond, but a new

building both companies could call home. He very strongly wanted it to remain close to Newcomerstown so he could keep all of his long term employees. Ground was broken at the Newcomerstown Industrial Park on a 17,000 square foot building in January 1994 and the 3-D equipment started arriving and was put into production July of that same year. In March of 1995 Herco was moved from its 26 year location at Canal Street to the new building and both companies now share the same building.

Both companies are doing very well and it is the feeling of the Dyers that they can turn 3-D Diamond Tooling into a strong diamond cutting tool manufacturer, but not at the expense of Herco. They are continuing to put forth whatever effort and investment necessary to insure that as carbide work is lost to diamond cutters, new carbide customers are found to keep the 40 some Herco employees happily employed.



An individual cannot be criticized for avoiding something new...
But with respect to Herco's total tooling capabilities,
he might be missing something special!

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100% GUARANTEE

On all cutters sold and invoiced directly to the user, Herco offers a 100% satisfaction guarantee. If not completely satisfied, and upon return of the cutters within 30 days, the purchase price will be refunded or the invoice canceled without question.

To a Dealer, Agent or Machinery Manufacturer for resale, cutters are guaranteed to be made to his requirements according to materials, sizes and details specified.

Harold E. Rivers
President

Gary Dyer
Vice President

HERCO, INC.

213 West Canal Street • P.O. Box 314 • Newcomerstown, Ohio 43832

TELE. (614) 498-5181

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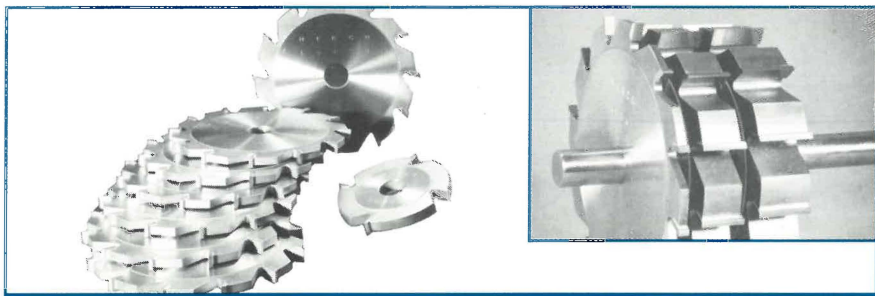
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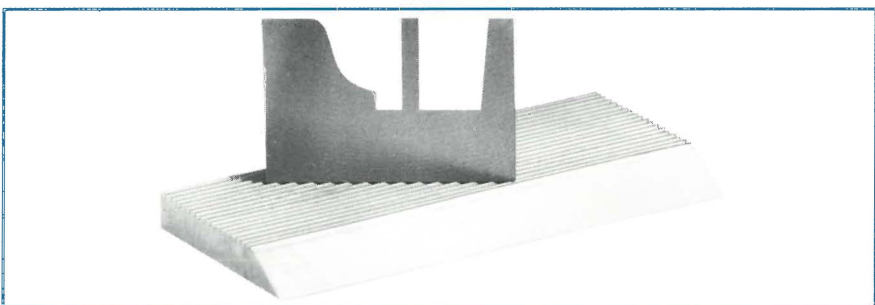
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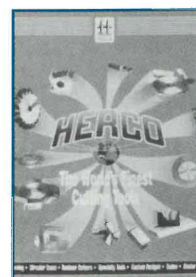


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Quality cutting tools play a big part in producing a quality finished product. The kind of finished product that really fits and most important the kind that really sells!

At Herco, Inc., for more than 25 years, we have been producing the world's finest quality carbide and diamond tipped cutting tools. And, we make them in a complete range of sizes and specialties for almost every operation—from the rough end cut to the finishing room cut. Though, what really makes Herco, Inc. the world leaders in the woodworking industry is our consistent dedication to quality and craftsmanship in every tool we make.

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Cutting Tools Send
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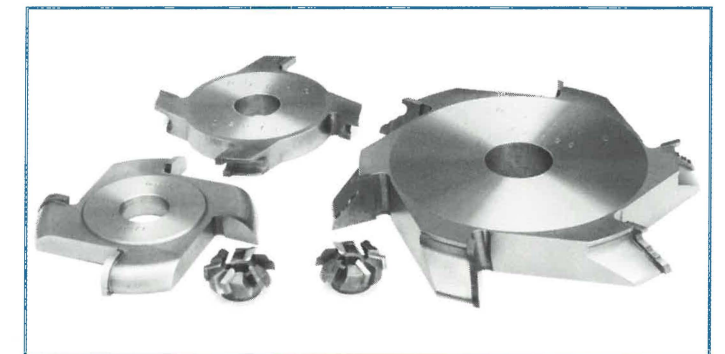
Insert Tooling



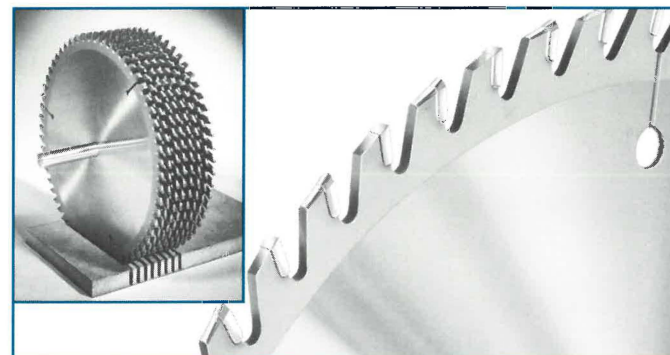
V-Groovers



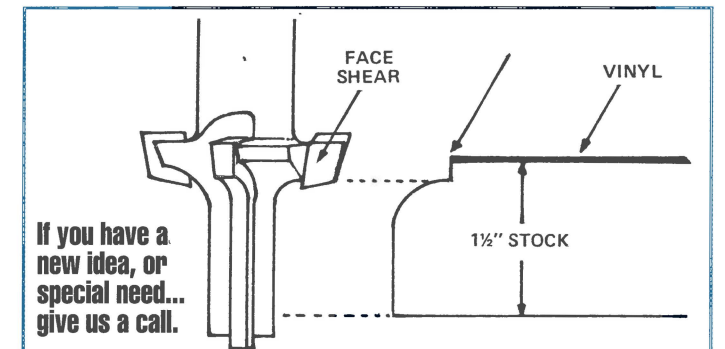
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On all cutters sold and invoiced directly to the user, Herco offers a 100% satisfaction guarantee. If not completely satisfied, and upon return of the cutters within 30 days, the purchase price will be refunded or the invoice canceled without question.

To a Dealer, Agent or Machinery Manufacturer for resale, cutters are guaranteed to be made to his requirements according to materials, sizes and details specified.

Harold E. Rivers
President

Gary Dyer
Vice President

HERCO, INC.

CARBIDE TIPPED

V-GROOVING

AND CUTTING TOOLS

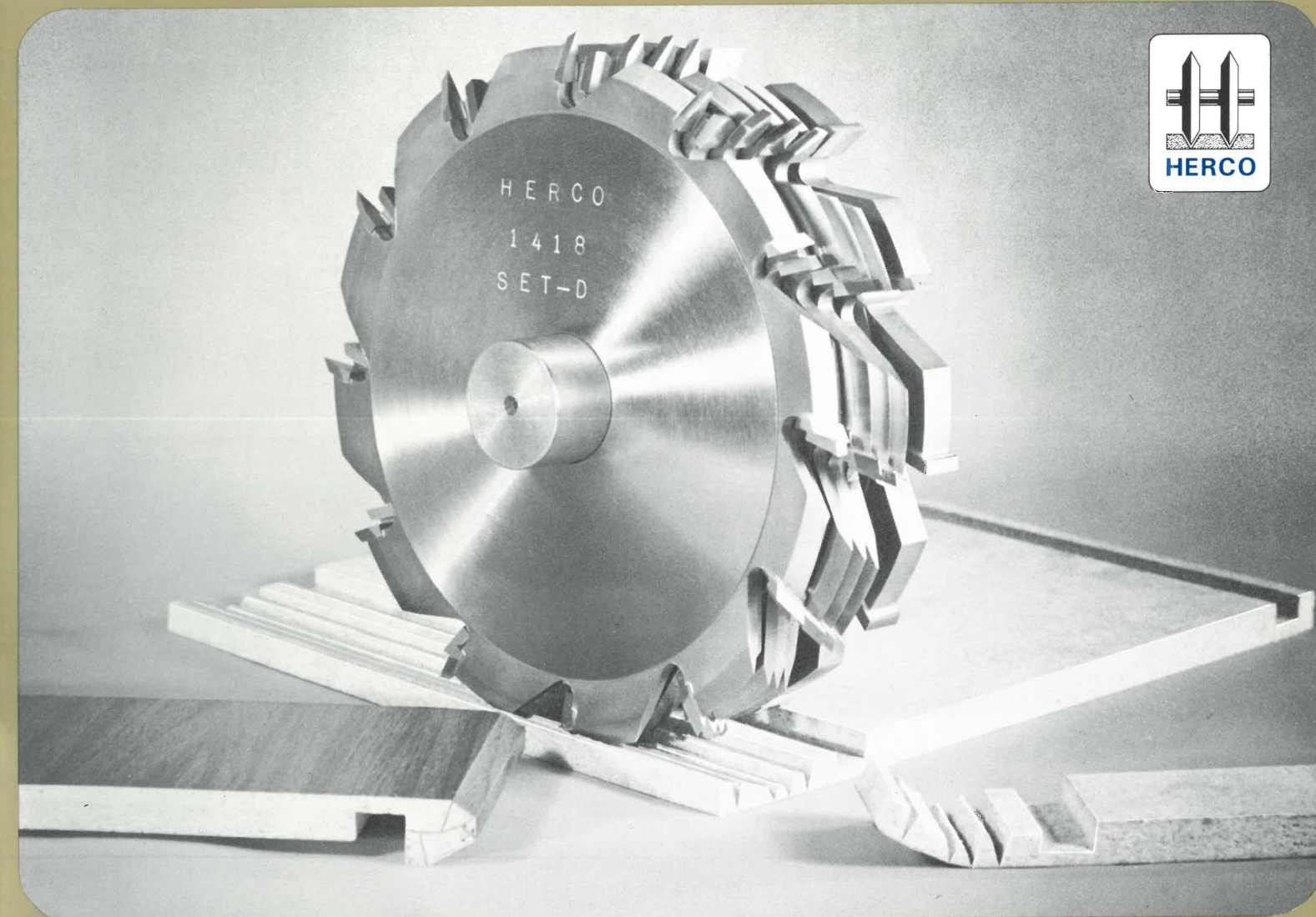
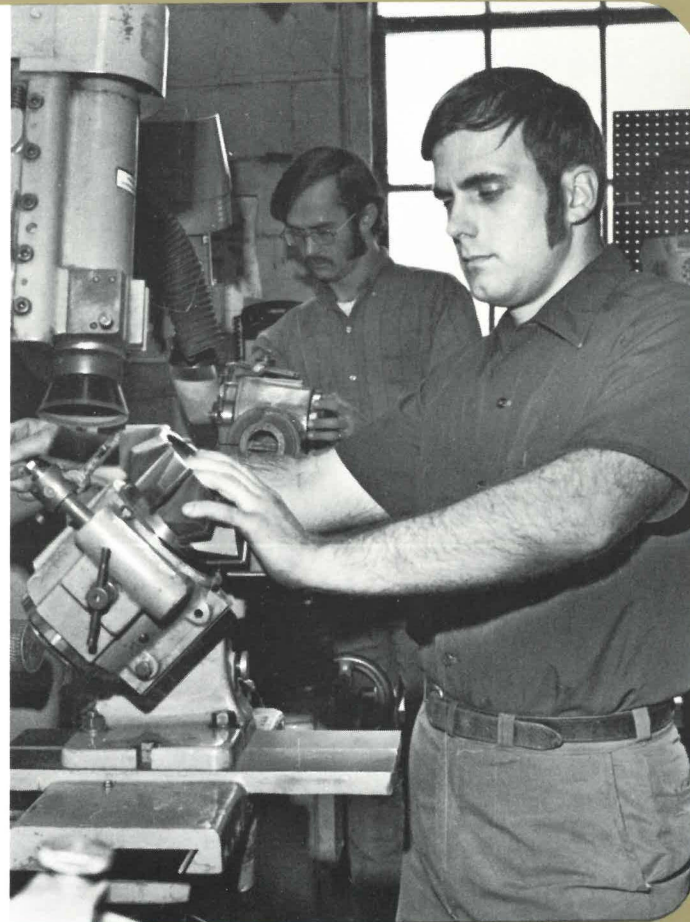
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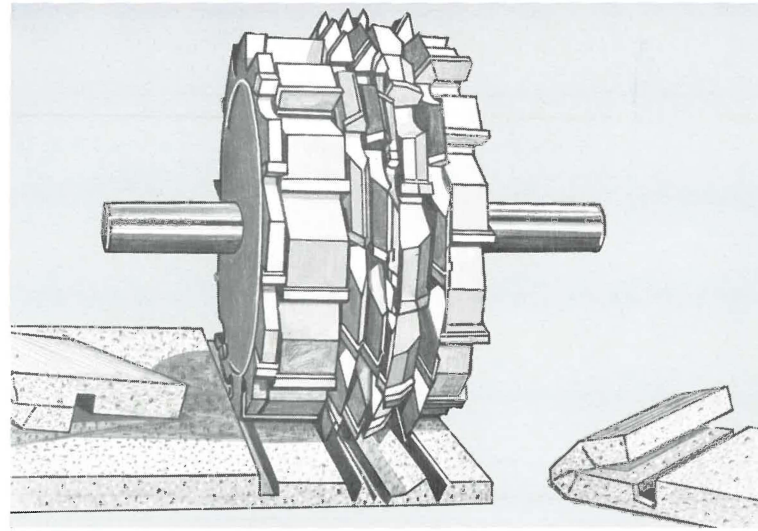
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WHAT IS V-FOLDING?

STEP 1 LINEAL GROOVING

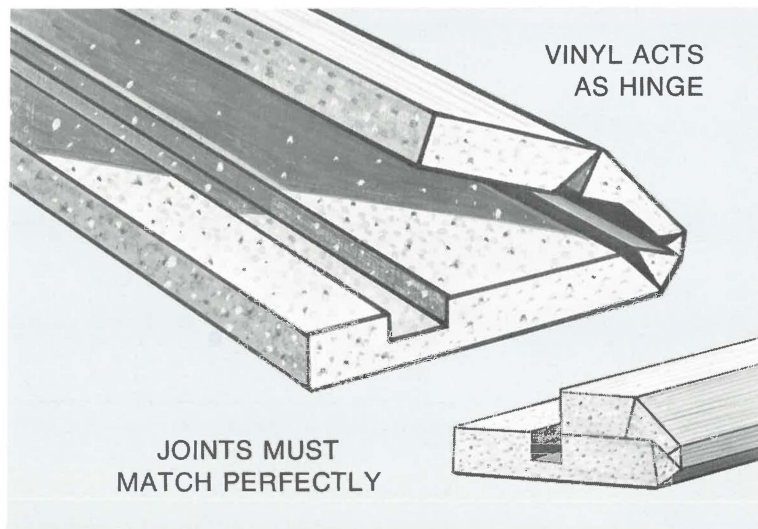
The lineal groove determines the front and back "mold" design of a table, bookshelf, cabinet, etc. Variations in this design are limited only by your imagination. (See pages 6 and 7 for suggested designs.) The illustration at right depicts V-Grooving Cutters making a cut through the backside of a composition board laminated (front side only) with simulated woodgrain vinyl. The cutters go through the substrate to, but not through the vinyl. As you can see at the far right corner of the illustration this allows the board to be folded and glued into the shape desired.



NOTE: To achieve accurate multiple grooving, cutting tool OD's must be manufactured to exacting standards. See page 4 for Herco's Guaranteed Tolerances.

STEP 2 FOLD AND GLUE

The flexible vinyl then acts as a hinge for the joint, which is then simply folded and glued for assembly. The sides of the "v's" come together, setting the angle of the fold with 100% accuracy and positively locating the two surfaces. The continuous veneer stops glue leakage and gives a continuity to the grain of the wood. Cutter sets must be engineered and manufactured to a high degree of accuracy to insure proper folding without "play" between the matching faces of the folds.



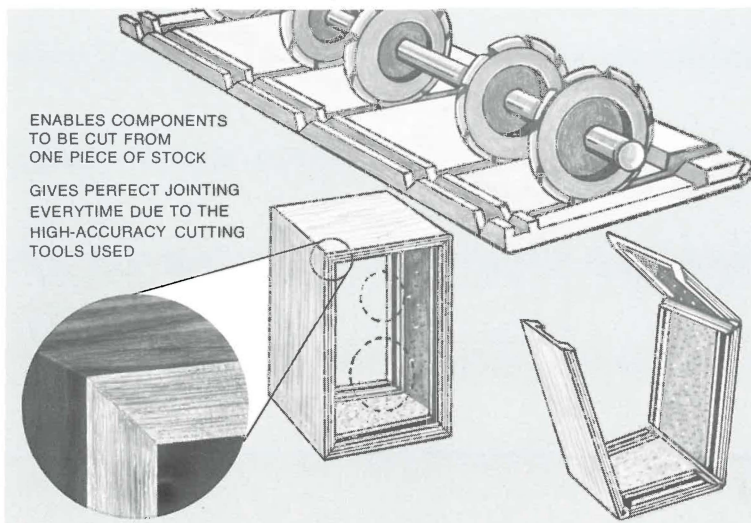
VINYL ACTS AS HINGE

JOINTS MUST MATCH PERFECTLY

STEP 3 CROSS GROOVING

Cross grooving can be accomplished with a single pass with multiple cutters or with multiple passes with a single cutter. Proper angle cutters must be used for precise mitering to avoid "corner gap" or stretching of "vinyl hinge." Five complete grooves must be cut to make up a four corner box. The extreme left and right hand half of each outside groove is removed in order to mate the joined corner.

Non-laminated materials, such as natural woods, arborite and plexiglass, can be jointed by first putting tape on the front face to act as the hinge in place of the vinyl. The tape is stripped off after assembly.



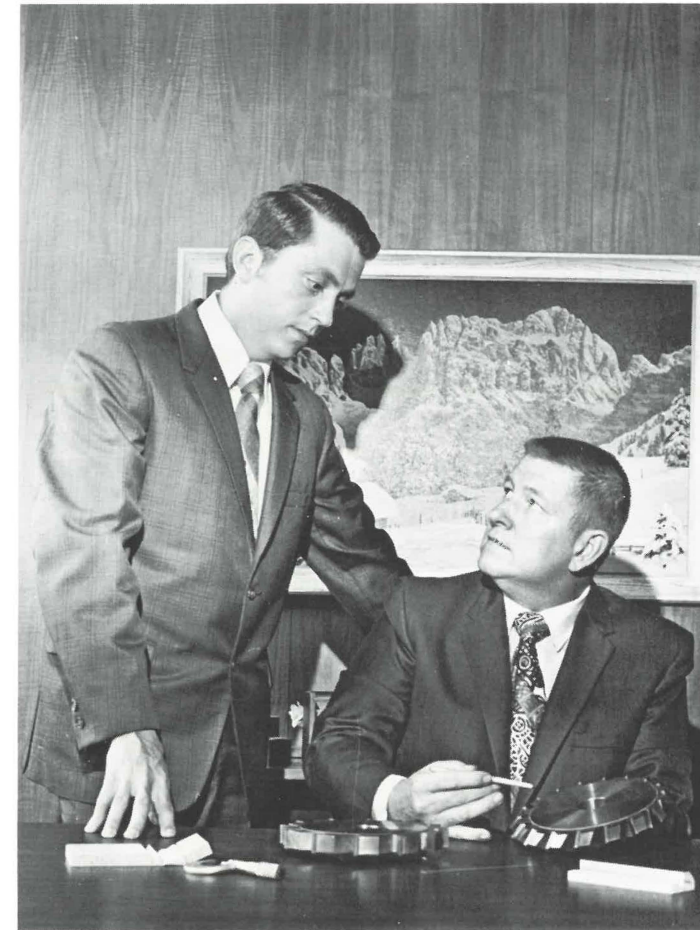
ENABLES COMPONENTS TO BE CUT FROM ONE PIECE OF STOCK

GIVES PERFECT JOINTING EVERYTIME DUE TO THE HIGH-ACCURACY CUTTING TOOLS USED

WHY HERCO?



HERCO'S objective is quality with economy . . .



Gary Dyer
Vice President

Harold Rivers
President

Seven important reasons to choose HERCO for your cutter needs

1. Precision
2. Experience
3. Guaranteed Satisfaction — See Guarantee Page 12
4. Personal Contact
5. Prompt Delivery
6. Resharpener and Reconditioning Service
7. National Distribution

OUR NATIONAL REPUTATION IS OUR MOST VALUABLE ASSET

- Preciseness is the key to V-Grooving and one of the first pre-requisites necessary to achieve this process.
- Herco management offers 28 years combined experience in the manufacture of V-Grooving Cutters.
- The specialized talent, skill and equipment of Herco is devoted to designing and manufacturing America's most complete line of V-Grooving cutters.
- The following pages show why Herco is your No. 1 Source.

A FEW USERS OF HERCO CUTTERS . . .

- | | |
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| Acoustic Fiber Sound | Jasper Stylemasters, Inc. |
| American Case Company, Inc. | Korth Furniture Industries, Inc. |
| Arcadia Furniture Corporation | Marlite Corporation |
| Burton Enterprises, Inc. | National Gypsum Company |
| Chicago Hardboard Company | Permaneer-Michigan, Inc. |
| Daily Manufacturing Company | Pilliod Cabinet Company |
| Electronic Sound Corporation | Reo Industries, Inc. |
| Fay Products, Inc. | W. J. Ruscoe Company |
| General Electric Company | Sierra-Permaneer Company |
| Groovfold, Inc. | Silver, Inc. |
| Horton & Hubbard Company | Wellcor, Inc. |
| Ivey Enterprises, Inc. | Winona Industries, Inc. |

MACHINE MANUFACTURERS WHO RECOMMEND HERCO CUTTERS INCLUDE:

1. Abal-Steffen Manufacturing, Inc.
2. Cain Machine & Tool, Inc.
3. Groovfold, Inc.

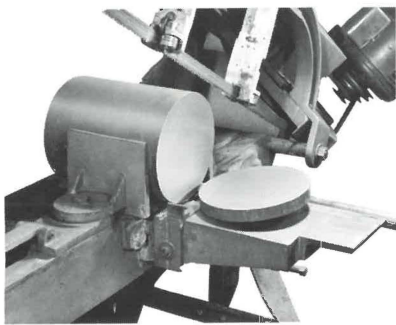




HERCO CUTTERS

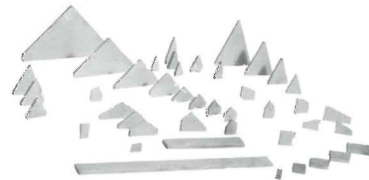
A BLEND OF CHOICE MATERIALS AND PROVEN CRAFTSMANSHIP

BODIES



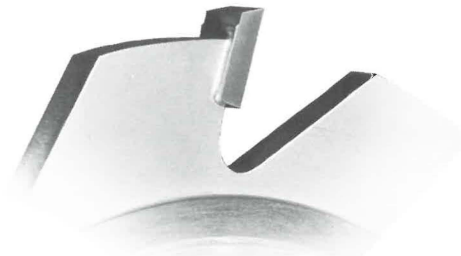
Herco starts with Chromium-Molybdenum alloy steel for the bodies of its cutters. This steel is used in applications where greater strength, stability and toughness are required. Herco stocks this steel in round bars of various sizes and saws off slices to the required thickness, which assures quick availability of stock for efficient order handling.

CARBIDE



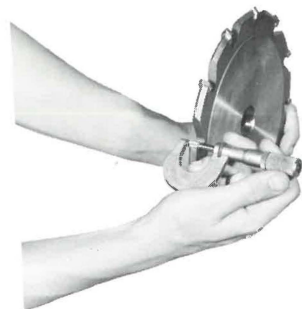
Next comes the selection of the best grade of carbide available, which is the heart of Herco cutters. After extensive application testing of 23 possible grades of carbide available, Herco has selected a grade most suitable for cutting particle board and related materials. It has the ability to keep a clean cutting edge and hold critical dimensions. It has a combination of hardness, transverse rupture strength, and abrasion resistance that excels all others for this application. Although it is not possible to stock every size and shape of carbide tip, Herco does carry an inventory of 6,000 to 7,000 special carbide tips for faster delivery of the more commonly used cutters.

BRAZING



Herco puts tips in to stay. Over the years, Herco has developed a process of brazing carbide tips in cutters at precisely the right temperature, to insure good joints free of Blow-Holes and with uniform holding strength. Generally a Herco cutter can be identified by the even flow of the silver solder.

TOLERANCE



When cutting a wood product and holding the cutting depth to within .001" - .002", one must eliminate as many variables as possible. Therefore, the tolerances held on V-Grooving cutters is of the utmost importance. Starting with the bore, any error here could be doubled in cutter run-out. For this reason, the bore of all Herco cutters are honed to a tolerance of +.0005" - .0000", over nominal sizes.

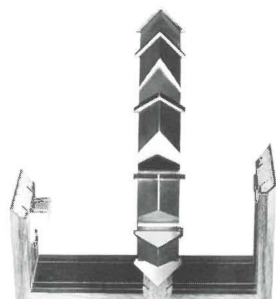
Next comes the run-out, both O.D. and Lateral. To prevent any lateral run-out, the bodies of Herco cutters are ground parallel to within $\pm .00025"$. The outside diameters are ground employing the most advanced method for concentricity, allowing Herco to guarantee O.D. run-out to be within $\pm .0005"$. The O.D. of a set of cutters will be matched within .001". This means faster set-ups and less down time for the user.

CUTTING EDGE



The business end of any cutting tool is the cutting edge. A sharp edge affords a smoother, cleaner cut with less effort and longer tool life. However, the word sharp is relative. A tool sharpened for normal woodworking would not meet the demands for V-Grooving. When cutting down to a vinyl without going into it, a cutter must take out a clean chip without any "hammering" or "beating" action. This fact is often overlooked or unknown. To insure an edge that will do the job — Herco, on special equipment, laps all cutting edges after sharpening with a 400 Grit — 100 concentration — diamond wheel. This removes the minute chipping and cratering so often found in the edge of carbide tools and can only be seen with a powerful magnifying glass.

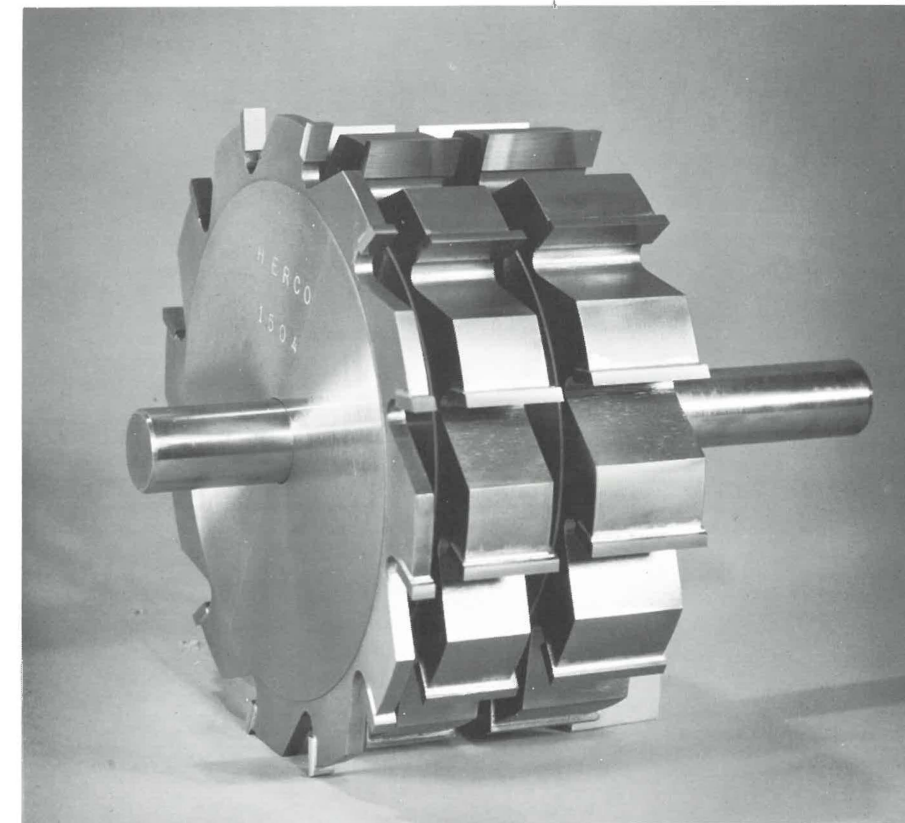
ANGLE OF CUT



The angle of cut must be exact to allow the folded surfaces to come together without gaps or open spaces. This is especially true in cross-grooving, where the mitered front edge of a fold will be seen. Various materials and vinyls used can require an "angle of cut" to be more or less than an exact 90° to give a square corner without an obvious joint. Specifications can vary from 89° 30' up to 91°, depending on the user's requirements.

By using special set-up equipment and grinding techniques, Herco guarantees that its cutters will cut an angle within $\pm 0^\circ - 6'$ of the nominal size required.

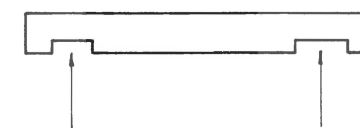
DADOS



All slotting and Dado requirements can be met with Herco Dado Cutters. Although not a V-Groove cutter, this is the most versatile and widely used cutter in the V-Grooving process.

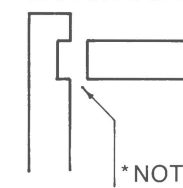
Dados are designed to run as a single cutter or ganged together for different widths of cut depending on the application.

TYPICAL APPLICATIONS

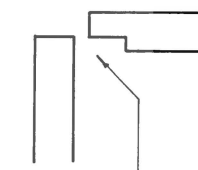


SLOTING FOR BAFFLES OR INTERLOCK

MOTOR BOARD



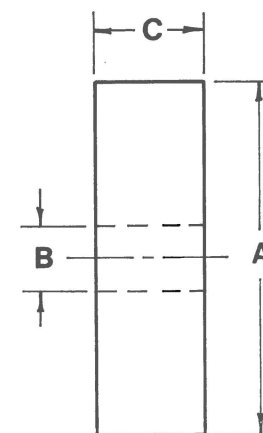
DADOING FOR MOTOR BOARDS



BACK PLATES OR BUTT JOINTS

*NOTE:

Because of the side clearance on the teeth of Dado cutters, the kerf or width will be reduced as the face of the tooth is sharpened. This will amount to .008" to .010" in total kerf from a new cutter until the cutter is ready to be retipped. With this in mind, we suggest Dado cutters be ordered on the wide side of your tolerance.



HOW TO ORDER

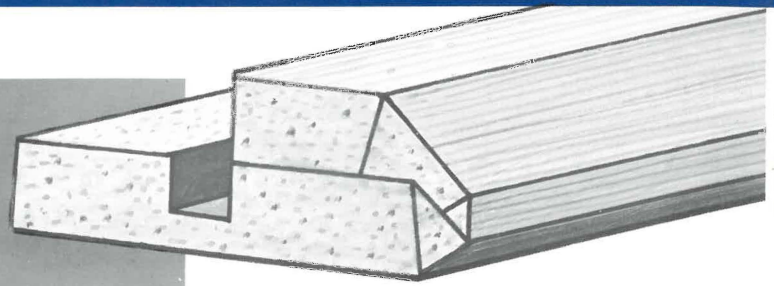
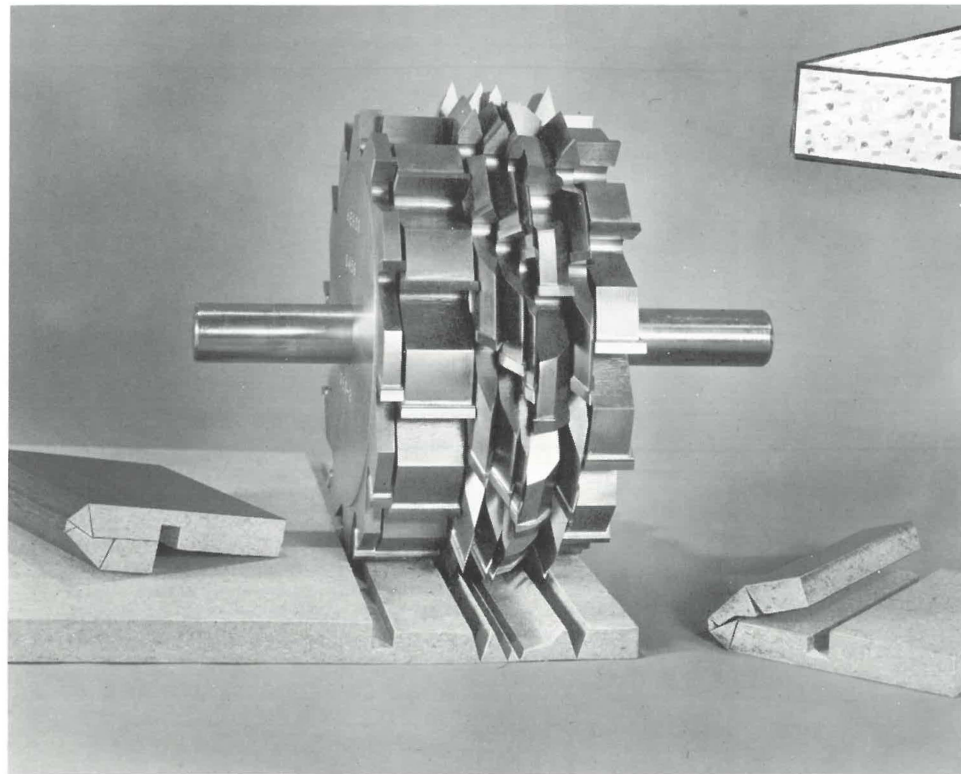
When ordering, please supply the following information:

1. Quantity
2. Outside Diameter (Dimension "A")
3. Bore size (Dimension "B")

4. Kerf or Width of cut (Dimension "C") *See Note
5. Number of Teeth
6. If Diameter is to be matched to other cutters that are running on the same shaft.



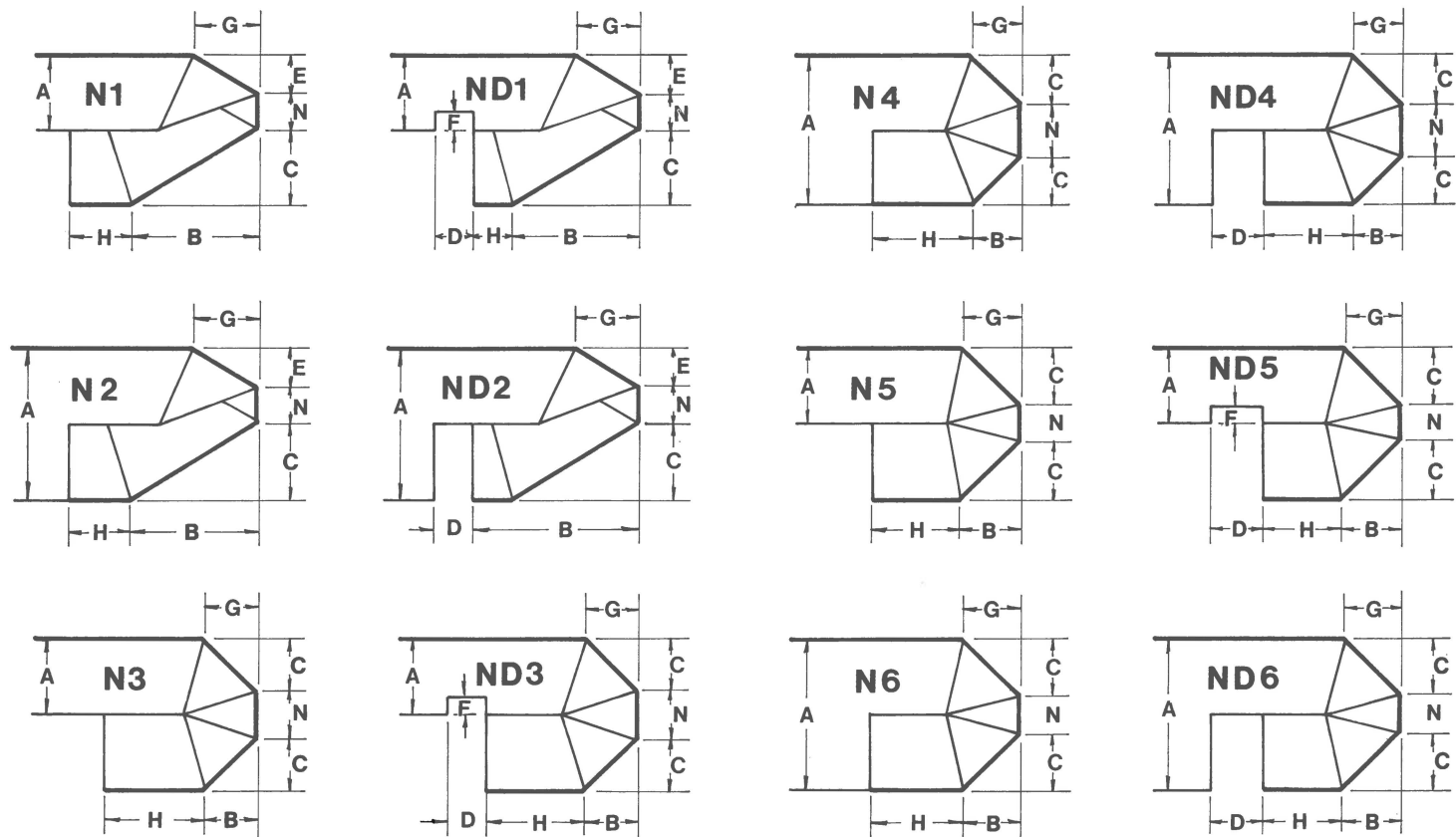
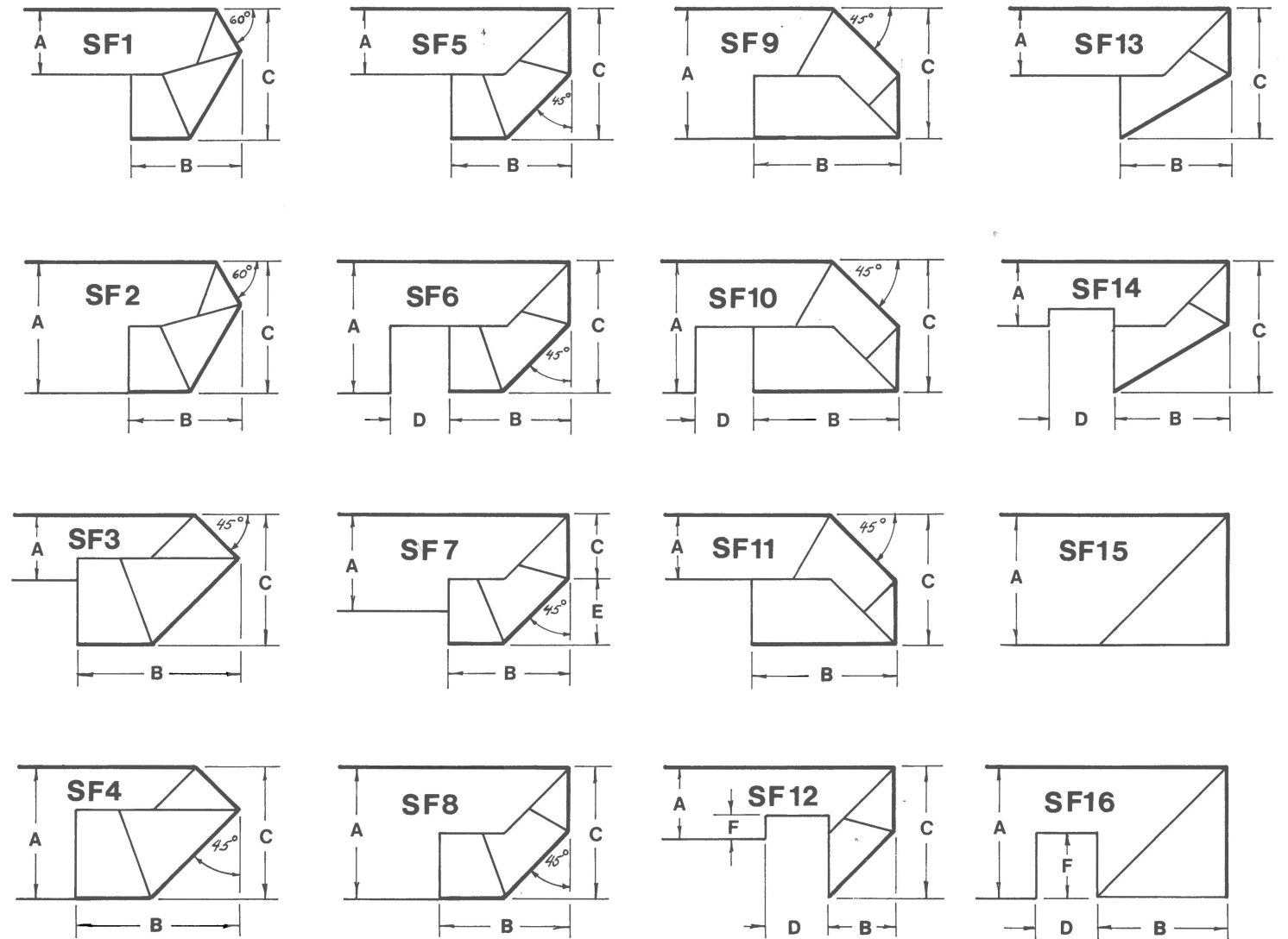
SPECIAL SETS



A special set consists of angular and/or dado cutters that are designed to run as a unit on one shaft. All the necessary grooving for a front lip or edge fold can be accomplished in **ONE PASS** through the machine.

The cutters in a set must relate to and complement each other as a set and by using them in this way, **SET-UP TIME IS CUT TO A MINIMUM** with production loss and aggravation to the operator eliminated. You can be sure of repeatability from one run to the next because the *O.D. match perfectly, the body thickness and tip overhang is exact to prevent any accumulative error and the angles are precise to allow room for glue and maintains a proper fold.*

Shown on these pages are just a few of the many edge folds, for which, Herco has made sets of cutters.



HOW TO ORDER

In ordering sets of cutters or requesting prices please furnish the following information.

1. Set number (if listed on these pages)
2. Give dimensions of A, B, C, D, etc. (where applicable)

OR

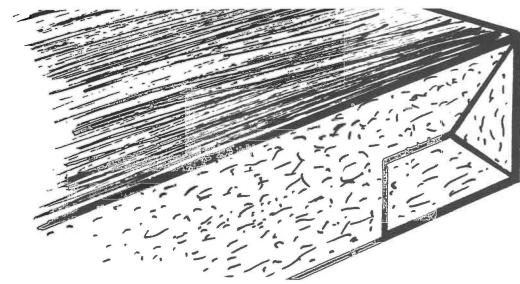
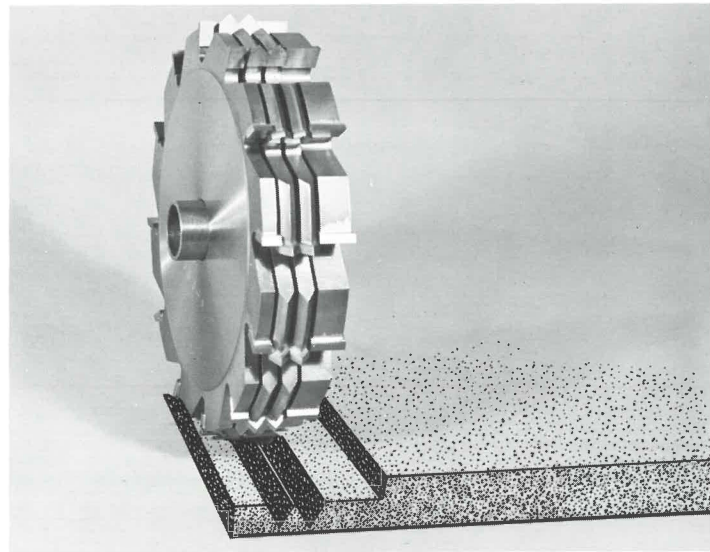
3. Send a sketch, drawing or sample of the fold you require, giving the necessary dimensions.

AND FURNISH

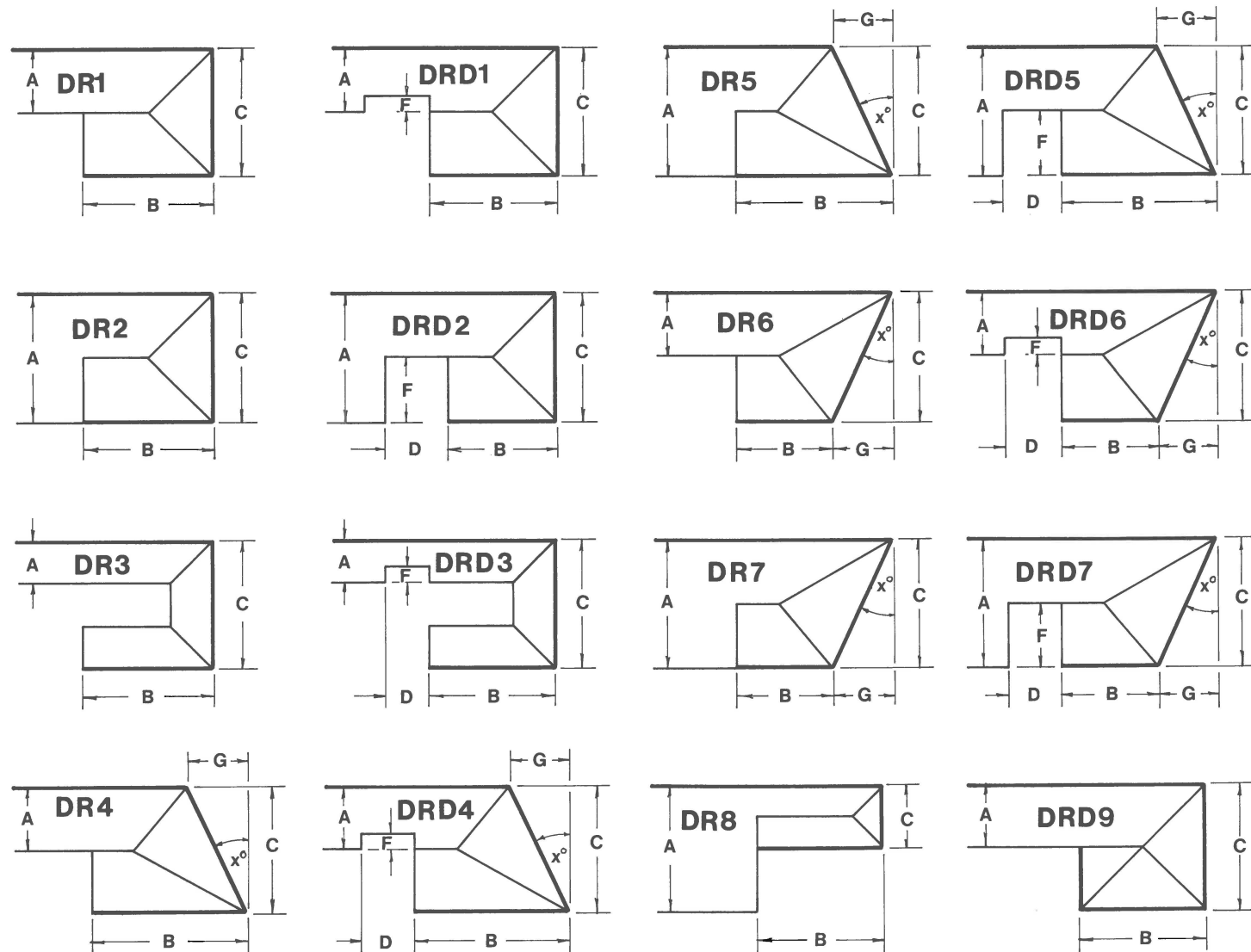
4. Number of sets required
5. O.D.
6. Bore size
7. Thickness of board being cut
8. Whether right or left hand cut
9. Type of machine on which cutters are used.



DOUBLE RETURNS



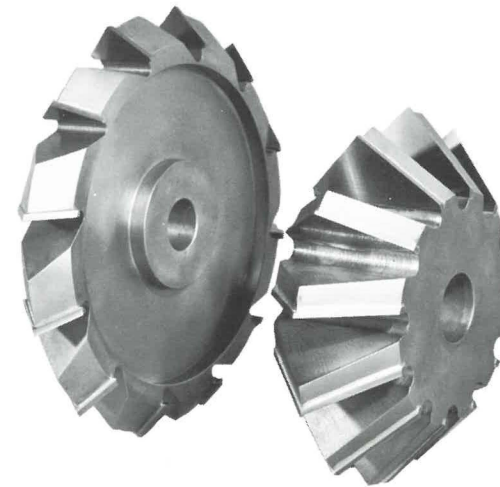
The most common and widely used set of cutters are the Double Returns. Here the board can be returned at 180° on or in itself to generate a finished front edge. The continuation of the vinyl can be maintained and the amount of return can be pre set. The cutter OD's are matched whereby only **ONE SET-UP** and **ONE PASS** is required.



SEE "HOW TO ORDER" PAGE 7



CROSS GROOVERS



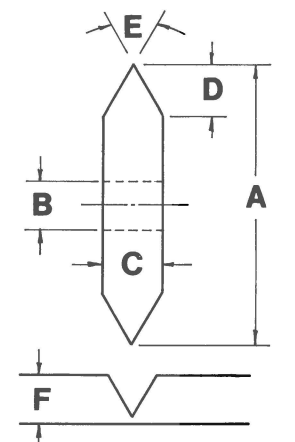
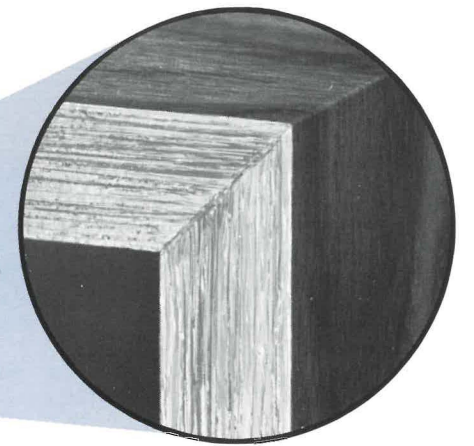
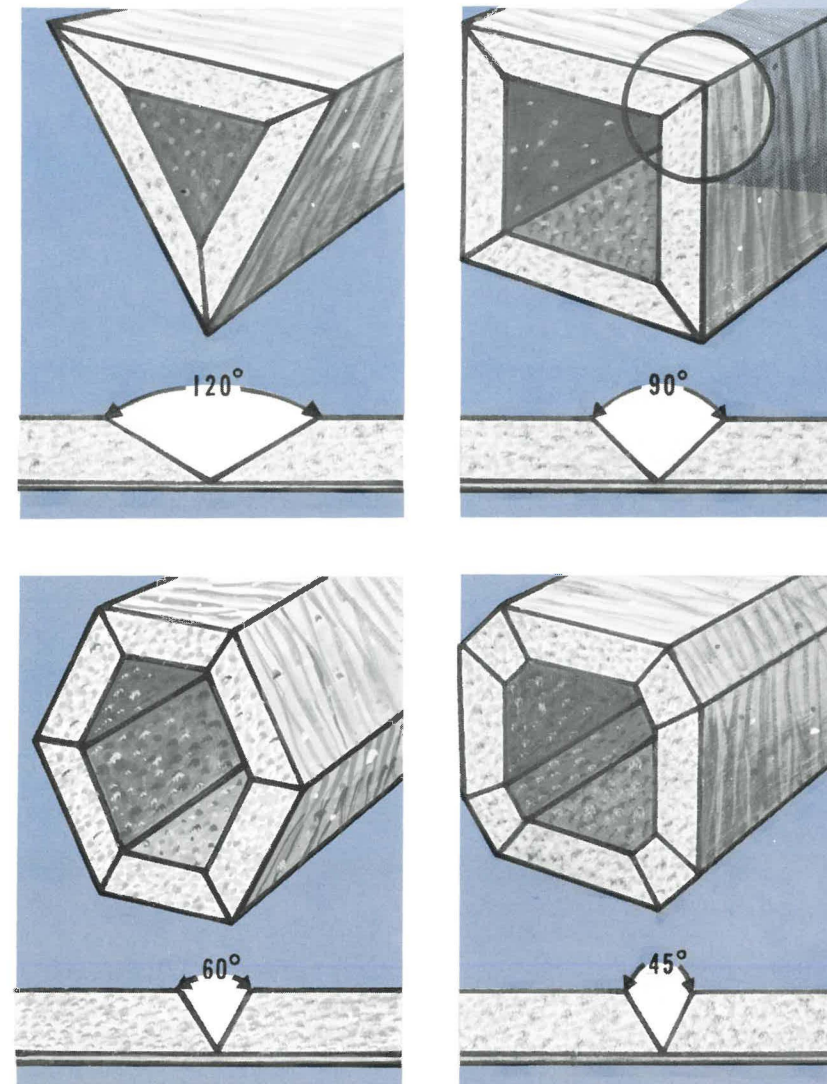
The **ANGLE** of the Cross Grooving Cutter determines the shape of the end product, whether it is a square, hexagon, triangle, etc. (See tolerances page 4.)

The depth of cut* and angle required determines the **WIDTH** (or kerf) of the cutter.

The **NUMBER OF TEETH** is determined by many factors, such as the O. D., speed of cutter, feed rate, smoothness of cut required and the intricacy of the front lip and whether or not you are cutting through aluminum or plastic trim.

When ordering Cross Groovers all the above variables should be considered for the design and manufacture of cutters for your particular needs.

*All Herco Cutters are made to cut at least 1/16" deeper than the nominal size, to allow for variations in the thickness of the board.

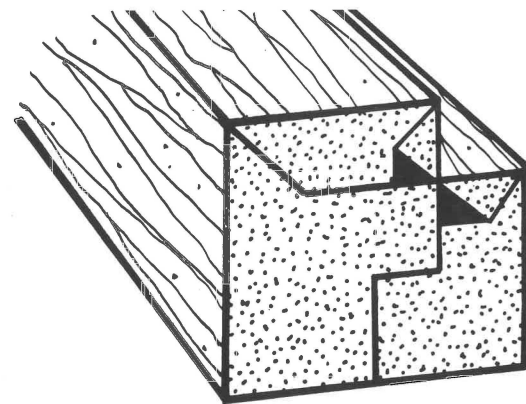
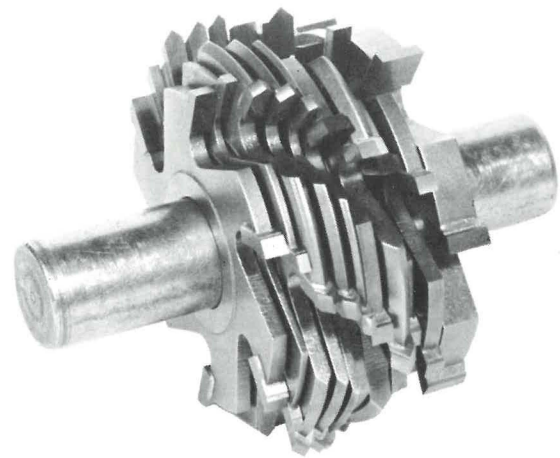


HOW TO ORDER

1. Number of Cutters required.
2. Outside Diameter (A)
3. Inside Diameter (B)
4. Thickness (C)
5. Angle of Cut (E)
6. Maximum Depth of Board to be cut (F)
7. Type of machine on which cutter will be used.
8. Material Being Cut.



REVERSE FOLDS

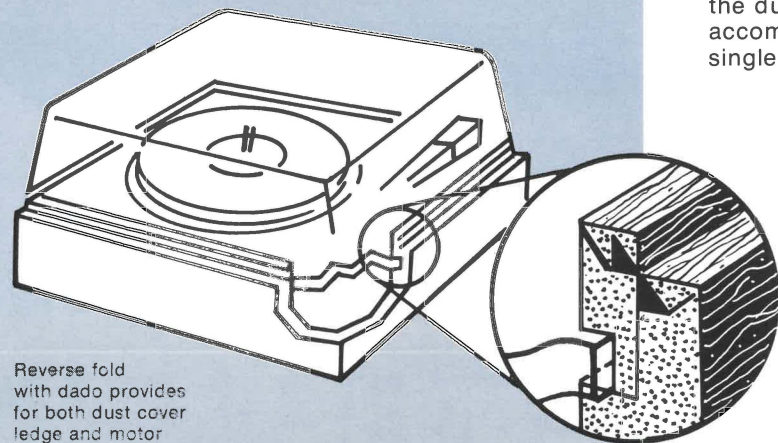


A new concept in V-Grooving developed by Herco is the **Reverse Fold**. With this fold, another dimension can now be added to a front lip or edge creating an **inside corner** with a continuous vinyl cover.

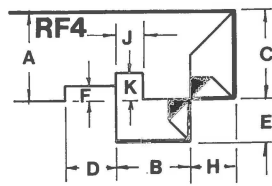
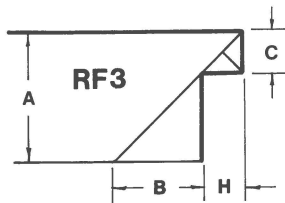
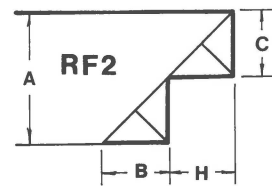
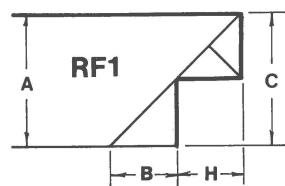
The Reverse Fold will extend the range of possible variations in both design and construction of V-Grooved items. Herco will be happy to assist you in any way in the development and application of this fold.

The set of cutters shown here was used by one customer to groove record changer bases with the edge fold, a lip for the dust cover, and a dado for the motor board. This was accomplished with one pass through the machine on a single arbor.

TYPICAL APPLICATIONS

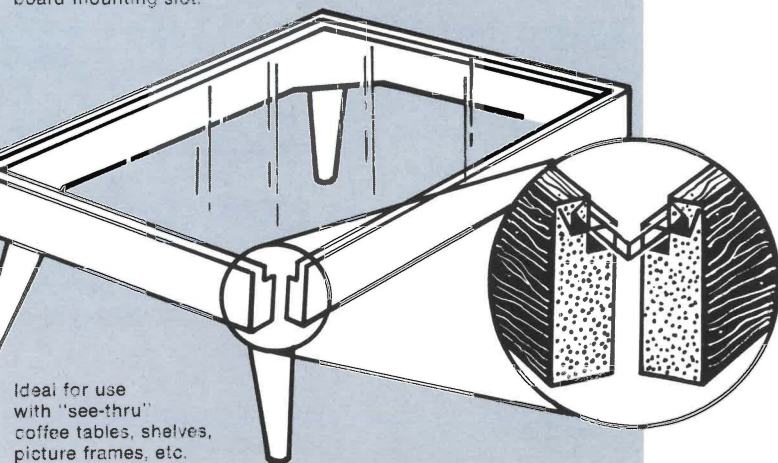


Reverse fold with dado provides for both dust cover ledge and motor board mounting slot.



HOW TO ORDER

In ordering cutters or requesting prices for a Reverse Fold please furnish the same information as required for "Special Sets," page 7.



Ideal for use with "see-thru" coffee tables, shelves, picture frames, etc.



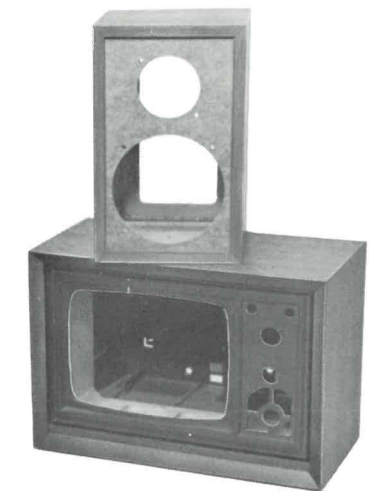
A PERSONAL NOTE



The purpose of this catalog is to acquaint you with Herco and the many new ideas that have been introduced in the V-Grooving Industry. It is actually impossible to include here, on these few pages, all of the information available and answer all the questions one might have pertaining to V-Grooving.

We at Herco shall be more than happy to assist you in any way, both in the design and manufacture of any cutters you may need or in any technical advice we may be able to offer. Why not take advantage of the many years of experience we have in this field? You know a specialist is more apt to come up with the right answers.

The many variations in cutters and cutter requirements make it almost impossible to "shelf price," however we will be glad to quote on your requirements.



Harold E. Rivers

Harold E. Rivers
President





HERCO, INC.

100% GUARANTEE

On all cutters sold and invoiced directly to the user, Herco offers a 100% satisfaction guarantee. If not completely satisfied, and upon return of the cutters within 30 days, the purchase price will be refunded or the invoice canceled without question.

To a Dealer, Agent or Machinery Manufacturer for resale, cutters are guaranteed to be made to his requirements according to materials, sizes and details specified.

Harold E. Rivers
President

Gary Dyer
Vice President

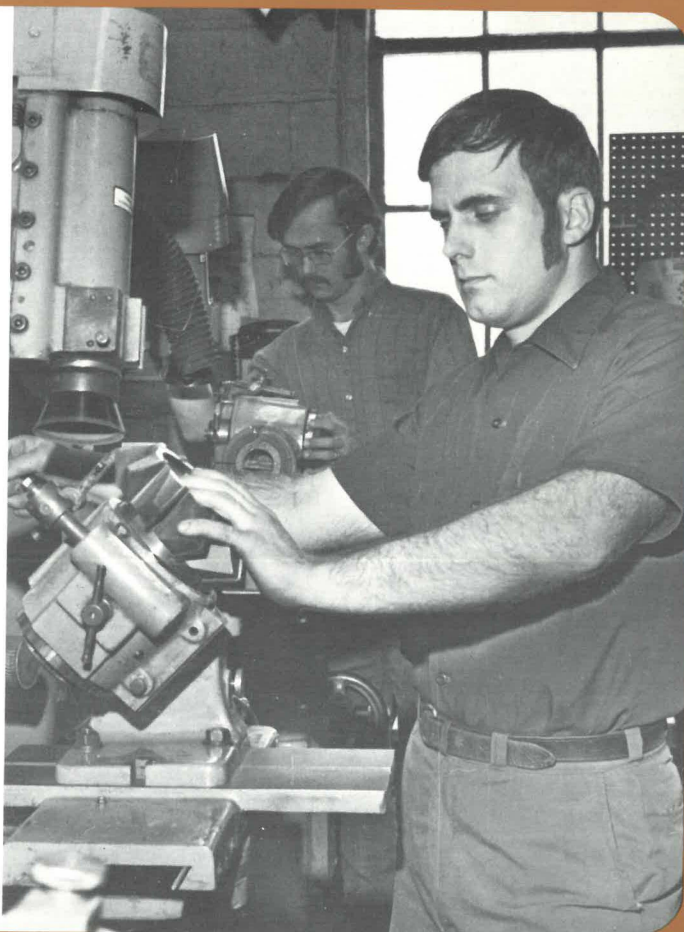
24 HOUR
Resharpener and
Reconditioning Service

• In One Day — Out The Next!

In most cases all regrind work is completed and shipped back to you the next day after it is received. (And in some instances the same day). Retipping a cutter or a set of cutters will normally take two days, however, in an emergency this time can be shortened.

Regrinding and retipping work is done on the same machines and in the same manner as new cutters, restoring your tools to a like-new condition.

Ask about our (in-your-shop) resharpener arrangement.



HERCO, INC.

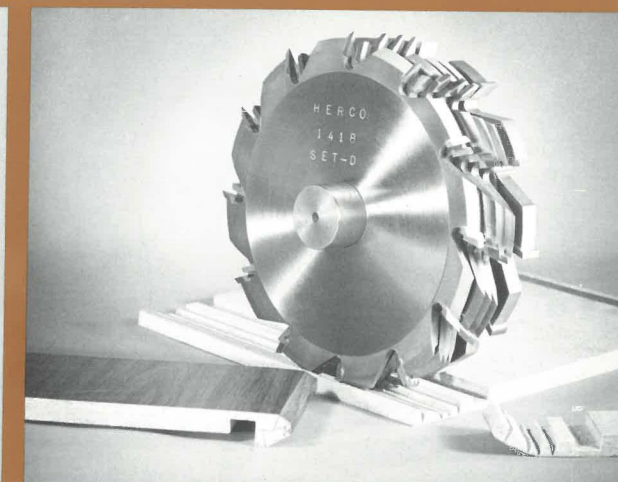
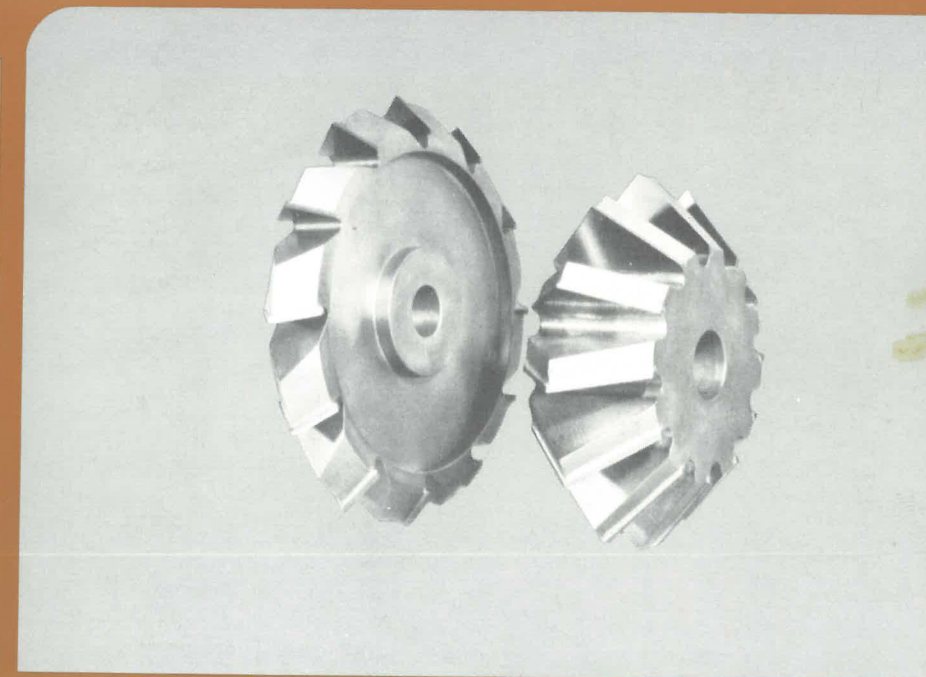
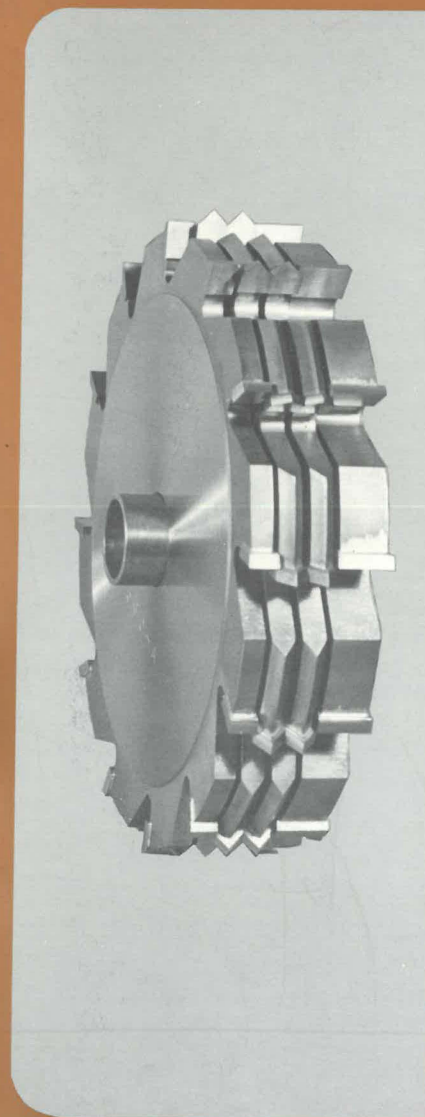
213 WEST CANAL STREET, NEWCOMERSTOWN, OHIO 43832
Area Code 614-498-5181

HERCO, INC.

CARBIDE TIPPED

V-GROOVING

AND CUTTING TOOLS



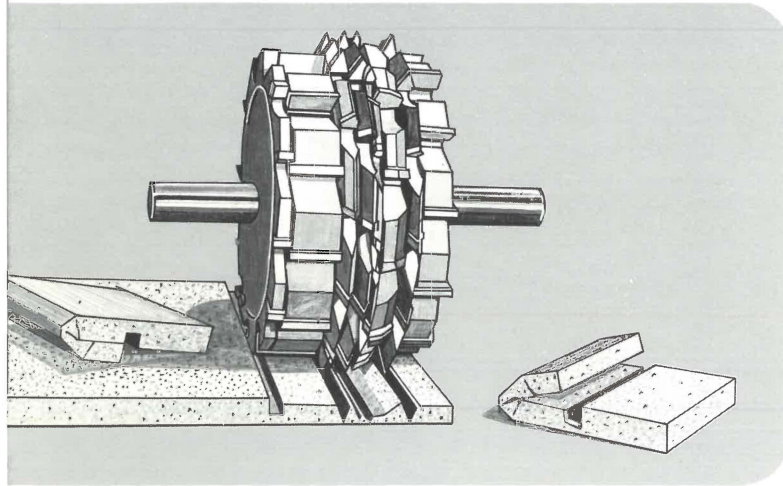


WHAT IS V-FOLDING?

STEP 1 LINEAR GROOVING

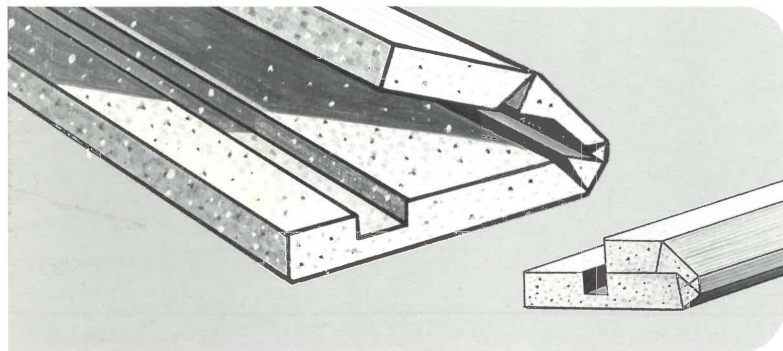
The linear groove determines the front and back "mold" design of a table, bookshelf, cabinet, etc. Variations in this design are limited only by your imagination. (See pages 6 and 7 for suggested designs.) The illustration at left depicts V-Grooving Cutters making a cut through the backside of a composition board laminated (front side only) with simulated woodgrain vinyl. The cutters go through the substrate to, but not through the vinyl. As you can see at the far right corner of the illustration this allows the board to be folded and glued into the shape desired.

NOTE: To achieve accurate multiple grooving, cutting tool OD's must be manufactured to exacting standards. See page 4 for Herco's Guaranteed Tolerances.



STEP 2 FOLD AND GLUE

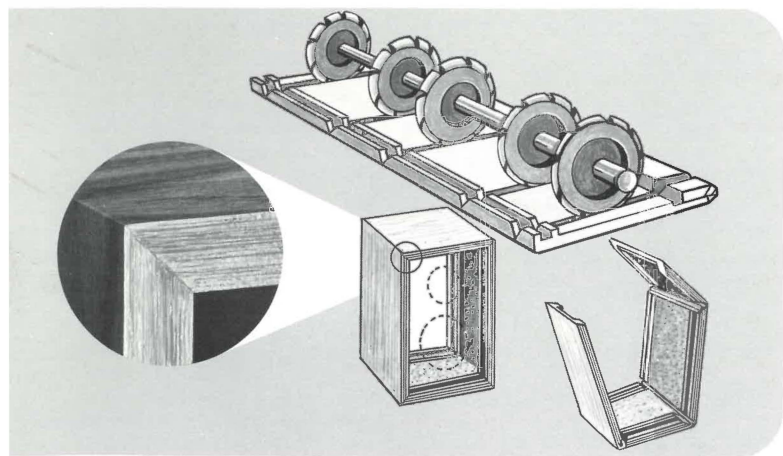
The flexible vinyl then acts as a hinge for the joint, which is then simply folded and glued for assembly. The sides of the "v's" come together, setting the angle of the fold with 100% accuracy and positively locating the two surfaces. The continuous veneer stops glue leakage and gives a continuity to the grain of the wood. Cutter sets must be engineered and manufactured to a high degree of accuracy to insure proper folding without "play" between the matching faces of the folds.



STEP 3 CROSS GROOVING

Cross grooving can be accomplished with a single pass with multiple cutters or with multiple passes with a single cutter. Proper angle cutters must be used for precise mitering to avoid "corner gap" or stretching of "vinyl hinge." Five complete grooves must be cut to make up a four corner box. The extreme left and right hand half of each outside groove is removed in order to mate the joined corner.

Non-laminated materials, such as natural woods, arborite and plexiglass, can be jointed by first putting tape on the front face to act as the hinge in place of the vinyl. The tape is stripped off after assembly.



WHY HERCO?

HERCO'S objective is quality with economy...

A FEW USERS OF HERCO CUTTERS...

- Affordable Furniture, Inc.
- American Acoustic Labs
- Arcadia Furniture Corp.
- Arvin Industries, Inc.
- B.F. Goodrich
- Bose Products, Inc.
- Brunswick Corporation
- Bush Industries, Inc.
- CBS Audio Products
- Chicago Steel Rule
- Ebonite Billiards
- General Electric
- General Tire
- Goodyear Tire & Rubber
- Groovfold, Inc.
- Gusdorf Corporation
- Magnavox Company
- Masonite Corporation
- O'Sullivan Industries, Inc.
- Pilliod Cabinet Company
- Royal Creations, Inc.
- Silver, Inc.
- Tandy Corporation
- Tiffin Enterprise, Inc.
- Winona Industries, Inc.



Herco has an international reputation for being the foremost manufacturer of precision V-Grooving Tools in the world. This reputation was achieved over the past 12 years, not with advertising, but with a personal dedication by the owners to furnish the industry with the very best V-Grooving Tools available. These tools can be delivered personally without any fear of rejection or failure.

Our objective and promise is to continue furnishing high quality tools and service while maintaining the lowest possible prices.

Should you have any question on V-Grooving, whether it be technical information or furnishing cutters, give us a call.



Harold E. Rivers, President



Gary Dyer, Vice President

OUR NATIONAL REPUTATION IS OUR MOST VALUABLE ASSET

- Preciseness is the key to V-Grooving and one of the first prerequisites necessary to achieve this process.
- Herco management offers 52 years combined experience in the manufacturing of V-Grooving Cutters.
- The specialized talent, skill, and equipment of Herco is devoted to designing and manufacturing America's most complete line of V-Grooving cutters.
- The following pages show why Herco is your No. 1 source.



MACHINE MANUFACTURERS WHO RECOMMEND HERCO CUTTERS INCLUDE:

- Abal Manufacturing Inc.
- Cain Machine & Tool Inc.
- Automac Machinery
- Gladu Engineering & Machinery Inc.
- Woodma Manufacturing Company, Inc.

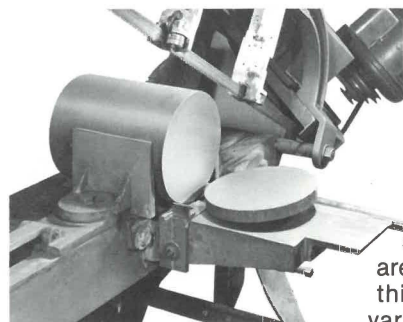
Seven important reasons to choose HERCO for your cutter needs

- Precision
- Experience
- Guaranteed Satisfaction—See Guarantee page 12
- Personal Contact
- Prompt Delivery
- Resharpener and Reconditioning Service
- National Distribution



HERCO CUTTERS

A BLEND OF CHOICE MATERIALS AND PROVEN CRAFTSMANSHIP



slices to the required thickness, which assures quick availability of stock for efficient order handling.

BODIES

Herco starts with Chromium-Molybdenum alloy steel for the bodies of its cutters. This steel is used in applications where greater strength, stability and toughness are required. Herco stocks this steel in round bars of various sizes and saws off

BRAZING

Herco puts tips in to stay. Over the years, Herco has developed a process of brazing carbide tips in cutters at precisely the right temperature, to insure good joints free of Blow-Holes and with uniform holding strength. Generally a Herco cutter can be identified by the even flow of the silver solder.



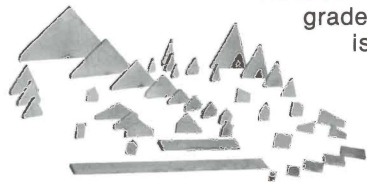
CUTTING EDGE

The business end of any cutting tool is the cutting edge. A sharp edge affords a smoother, cleaner cut with less effort and longer tool life. However, the word sharp is relative. A tool sharpened for normal woodworking would not meet the demands for V-Grooving. When cutting down to a vinyl without going into it, a cutter must take out a clean chip without any "hammering" or "beating" action. This fact is often overlooked or unknown. To insure an edge that will do the job—Herco, on special equipment, laps all cutting edges after sharpening with a 400 Grit—100 concentration—diamond wheel. This removes the minute chipping and cratering so often found in the edge of carbide tools and can only be seen with a powerful magnifying glass.



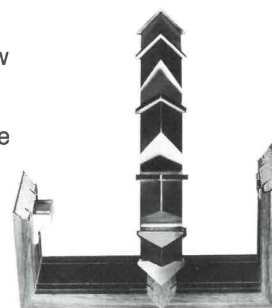
CARBIDE

Next comes the selection of the best grade of carbide available, which is the heart of Herco cutters. After extensive application testing of 23 possible grades of carbide available, Herco has selected a grade most suitable for cutting particle board and related materials. It has the ability to keep a clean cutting edge and hold critical dimensions. It has a combination of hardness, transverse rupture strength, and abrasion resistance that excels all others for this application. Although it is not possible to stock every size and shape of carbide tip, Herco does carry an inventory of 6,000 to 7,000 special carbide tips for faster delivery of the more commonly used cutters.



ANGLE OR CUT

The angle of cut must be exact to allow the folded surfaces to come together without gaps or open spaces. This is especially true in cross-grooving, where the mitered front edge of a fold will be seen. Various materials and vinyls used can require an "angle of cut" to be more or less than an exact 90° to give a square corner without an obvious joint. Specifications can vary from 89° 30' up to 91°, depending on the user's requirements.



By using special set-up equipment and grinding techniques, Herco guarantees that its cutters will cut an angle within $\pm 0^{\circ}-6'$ of the nominal size required.

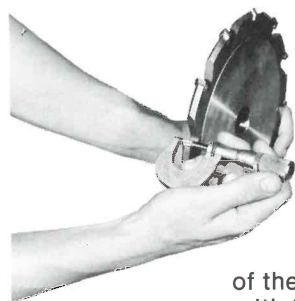
TOLERANCE

When cutting a wood product and holding the cutting depth to within .001"-.002", one must eliminate as many variables as possible.

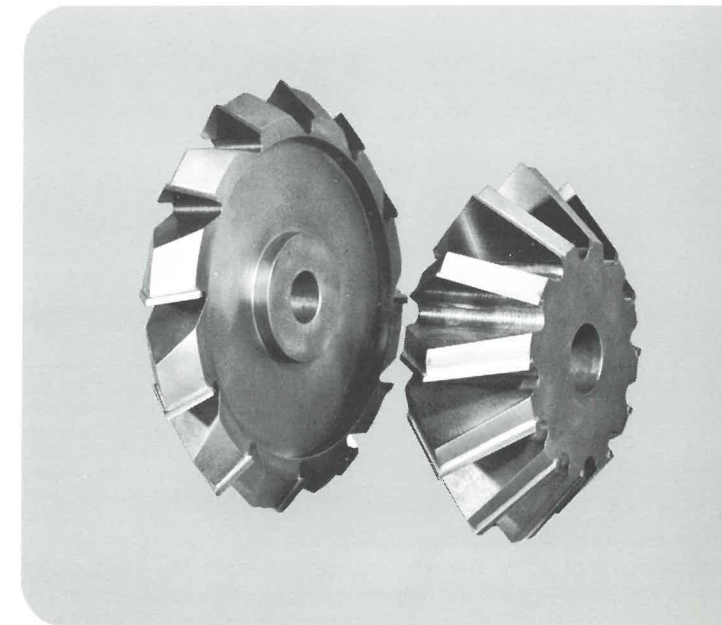
Therefore, the tolerances held on V-Grooving Cutters is of the utmost importance. Starting with the bore, any error here could

be doubled in cutter run-out. For this reason, the bore of all Herco cutters are honed to a tolerance of $\pm .0005"$ -.0000", over nominal sizes.

Next comes the run-out, both O.D. and lateral. To prevent any lateral run-out, the bodies of Herco cutters are ground parallel to within $\pm .00025"$. The outside diameters are ground employing the most advanced method for concentricity, allowing Herco to guarantee O.D. run-out to be within $\pm .0005"$. The O.D. of a set of cutters will be matched within .001". This means faster set-ups and less down time for the user.



CROSS GROOVERS



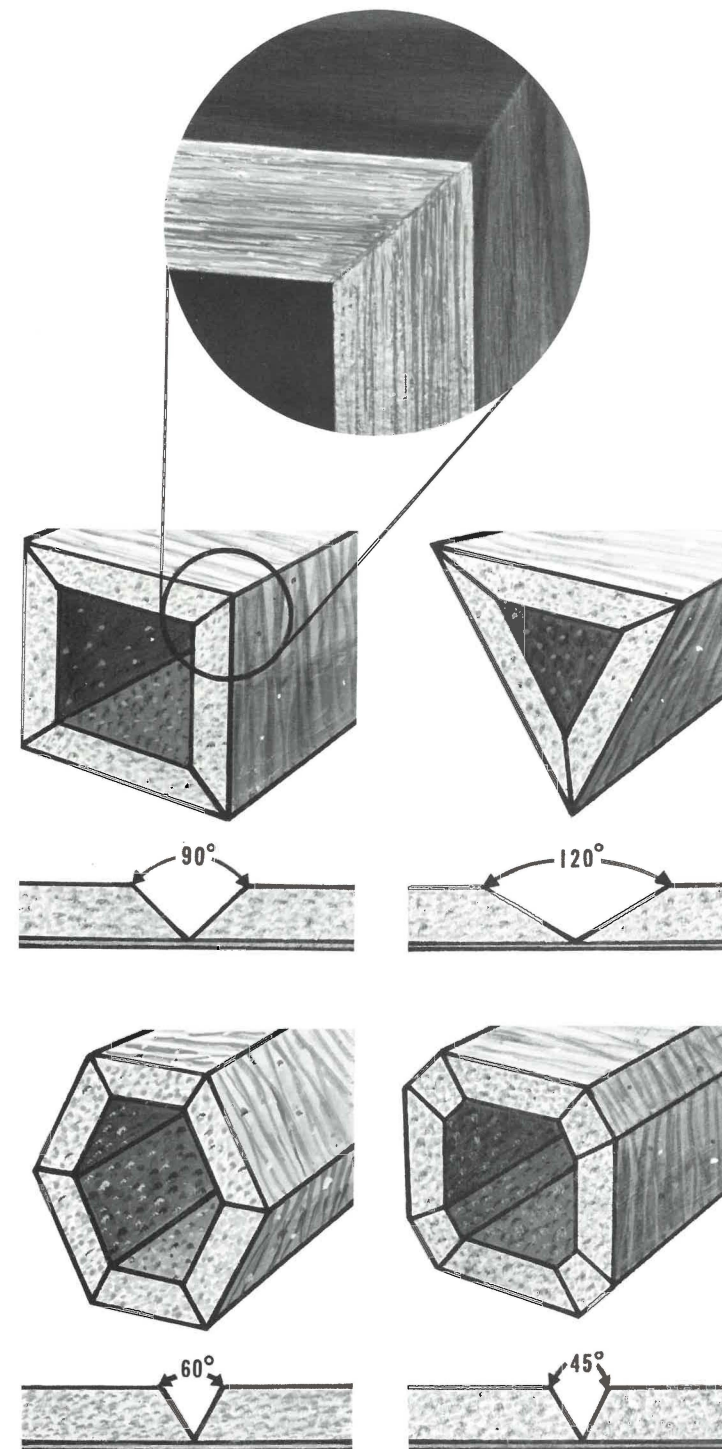
The **ANGLE** of the Cross Grooving Cutter determines the shape of the end product, whether it is a square, hexagon, triangle, etc. (See tolerances page 4.)

The depth of cut* and angle required determines the **WIDTH** (or kerf) of the cutter.

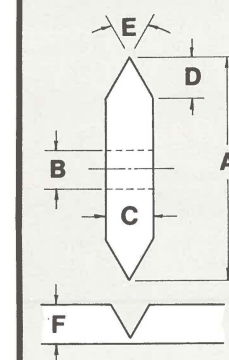
The **NUMBER OF TEETH** is determined by many factors, such as the O.D., speed of cutter, feed rate, smoothness of cut required and the intricacy of the front lip and whether or not you are cutting through aluminum or plastic trim.

When ordering Cross Groovers all the above variables should be considered for the design and manufacture of cutters for your particular needs.

*All Herco Cutters are made to cut at least $\frac{1}{16}"$ deeper than the nominal size, to allow for variations in the thickness of the board.



HOW TO ORDER



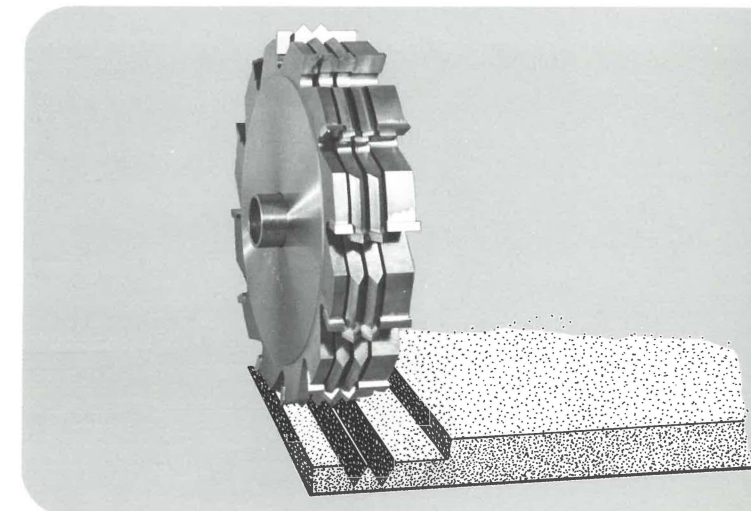
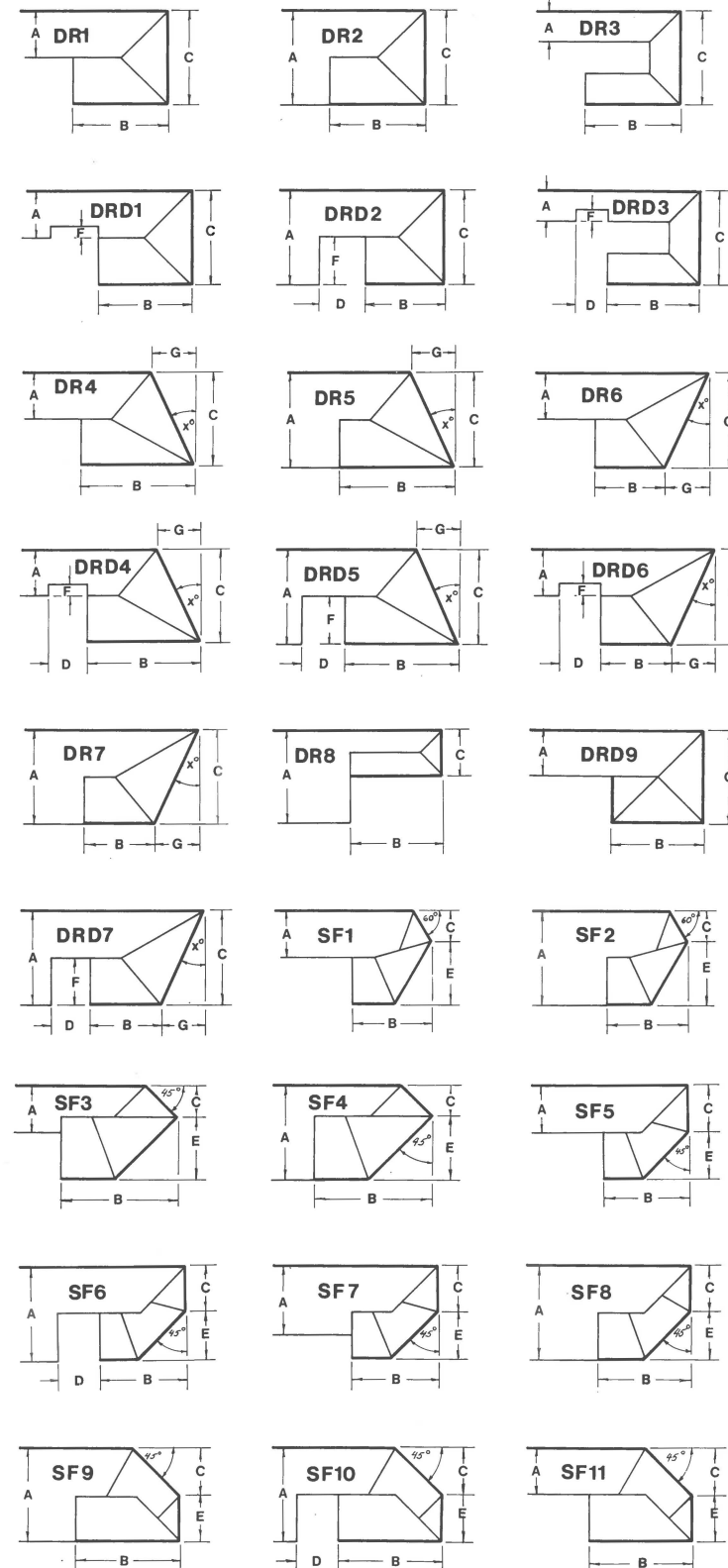
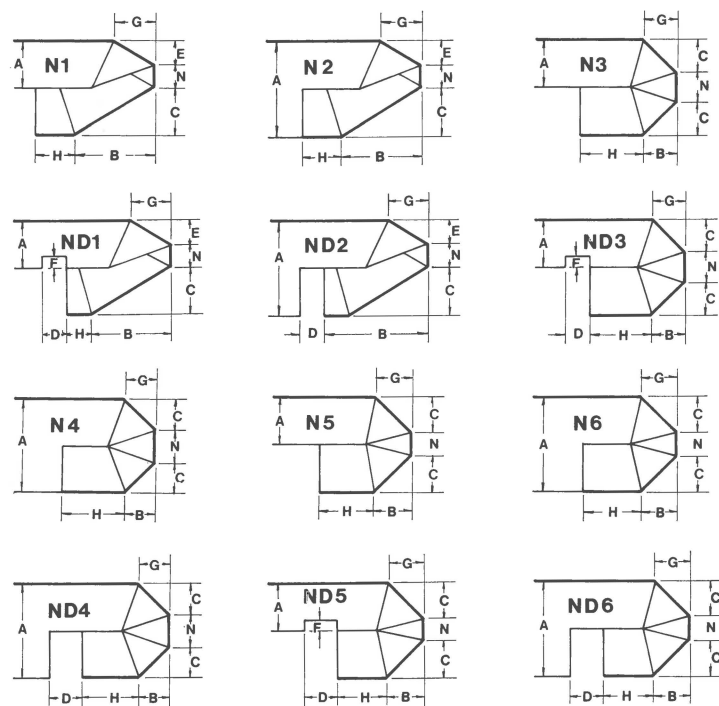
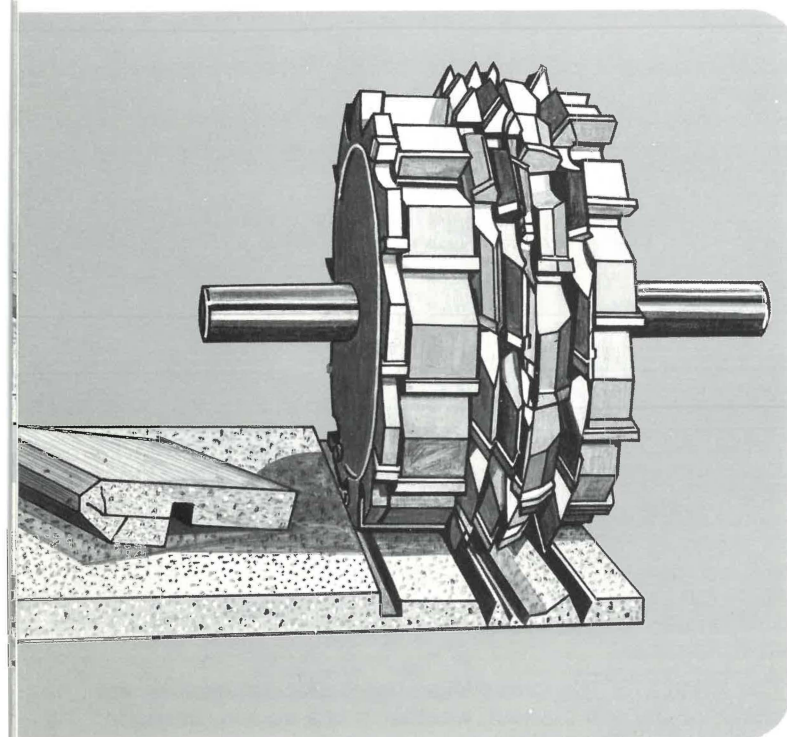
1. Number of Cutters required.
2. Outside Diameter (A)
3. Inside Diameter (B)
4. Thickness (C)
5. Angle of Cut (E)
6. Maximum Depth of Board to be cut (F)
7. Type of machine on which cutter will be used.
8. Material Being Cut.



SPECIAL SETS



DOUBLE RETURNS



The most common and widely used set of cutters are the Double Returns. Here the board can be returned at 180° on or in itself to generate a finished front edge. The continuation of the vinyl can be maintained and the amount of return can be preset. The cutter OD's are matched whereby only **ONE SET-UP** and **ONE PASS** is required.

A special set consists of angular and/or dado cutters that are designed to run as a unit on one shaft. All the necessary grooving for a front lip or edge fold can be accomplished in **ONE PASS** through the machine.

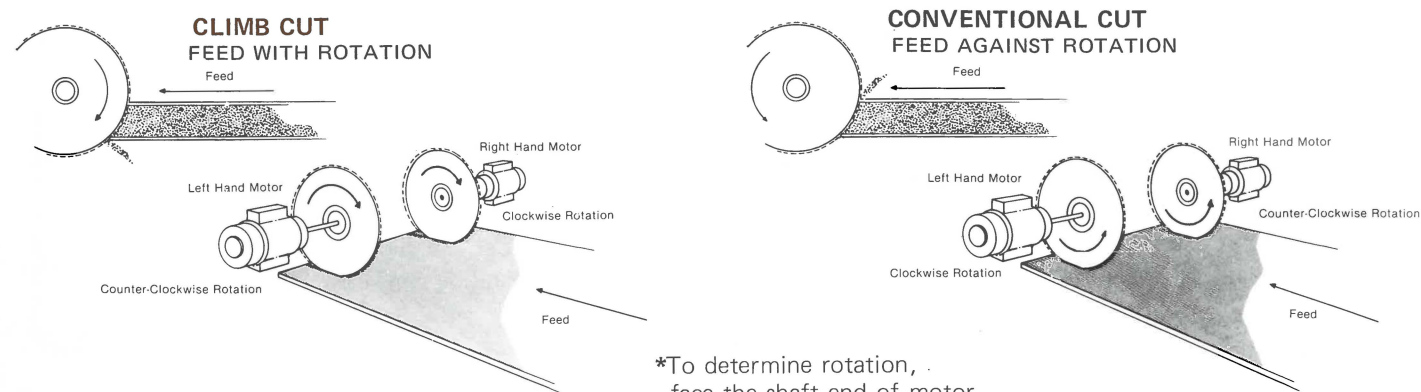
The cutters in a set must relate to and complement each other as a set and by using them in this way, **SET-UP TIME IS CUT TO A MINIMUM** with production loss and aggravation to the operator eliminated. You can be sure of repeatability

from one run to the next because *the O.D. match perfectly, the body thickness and tip overhang is exact to prevent any accumulative error and the angles are precise to allow room for glue and maintains a proper fold.*

Shown on these pages are just a few of the many edge folds, for which, Herco has made sets of cutters.

Cutter Rotation

When ordering cutters, details as to direction of rotation* should be given as illustrated below. If a single unit is ordered, it must be stated whether it is to run on the left or right side of the machine and whether it is rotating clockwise or counterclockwise.



HOW TO ORDER

In ordering sets of cutters or requesting prices, please furnish the following information.

1. Set number (if listed on these pages)
2. Give dimensions of A, B, C, D, etc. (where applicable)

OR

3. Send a sketch, drawing or sample of the fold you require, giving the necessary dimensions.

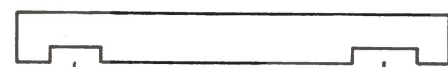
AND FURNISH

4. Number of sets required
5. O.D.
6. Bore size
7. Thickness of board being cut
8. Whether right or left hand cut
9. Type of machine on which cutters are used.



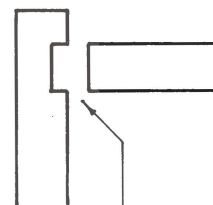
DADOS

TYPICAL APPLICATIONS



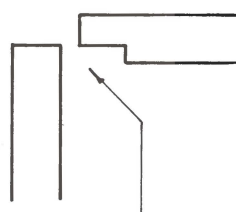
SLOTING FOR BAFFLES OR INTERLOCK

MOTOR BOARD



*NOTE

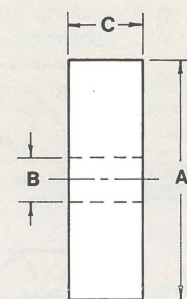
DADOING FOR MOTOR BOARDS



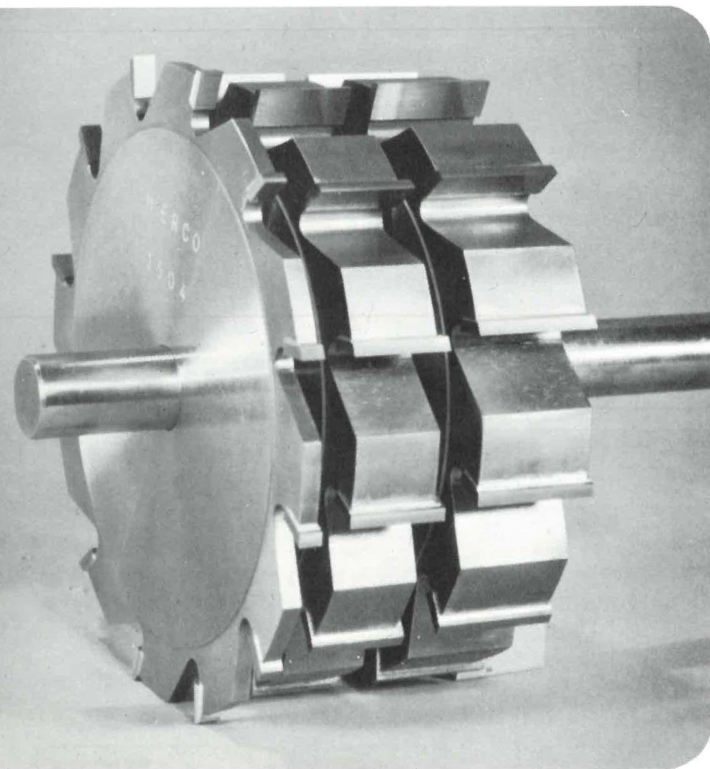
BACK PLATES OR BUTT JOINTS

***NOTE:** Because of the side clearance on the teeth of Dado cutters, the kerf or width will be reduced as the face of the tooth is sharpened. This will amount to .008" to .010" in total kerf from a new cutter until the cutter is ready to be retipped. With this in mind, we suggest Dado cutters be ordered on the wide side of your tolerance.

HOW TO ORDER

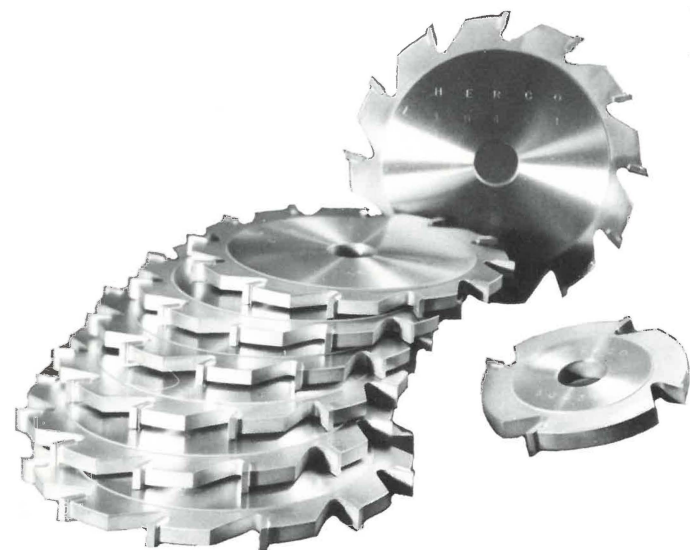


- When ordering, please supply the following information:
1. Quantity
 2. Outside Diameter (Dimension "A")
 3. Bore size (Dimension "B")
 4. Kerf or Width of cut (Dimension "C")
*See Note
 5. Number of Teeth
 6. If Diameter is to be matched to other cutters that are running on the same shaft.



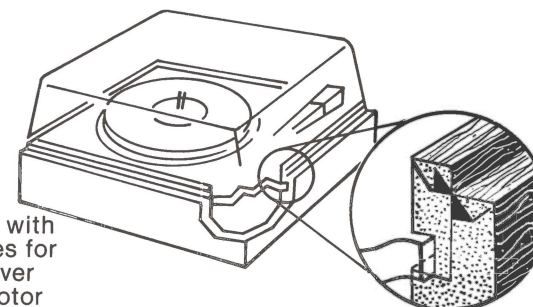
All slotting and Dado requirements can be met with Herco Dado Cutters. Although not a V-Groove cutter, this is the most versatile and widely used cutter in the V-Grooving process.

Dados are designed to run as a single cutter or ganged together for different widths of cut depending on the application.



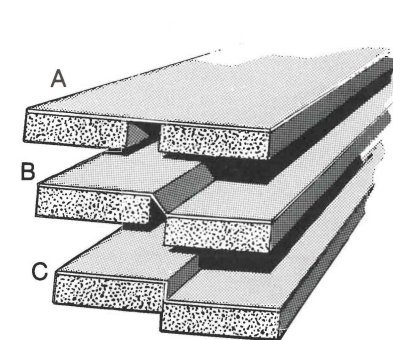
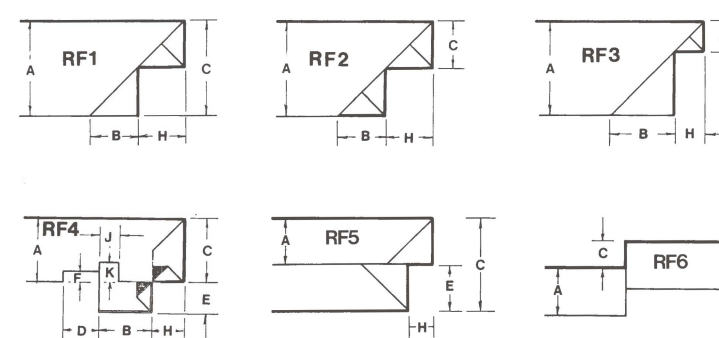
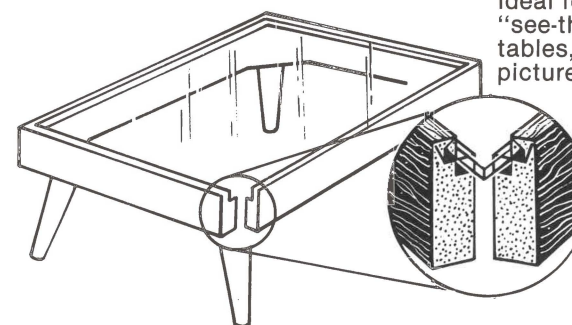
REVERSE FOLDS

TYPICAL APPLICATIONS

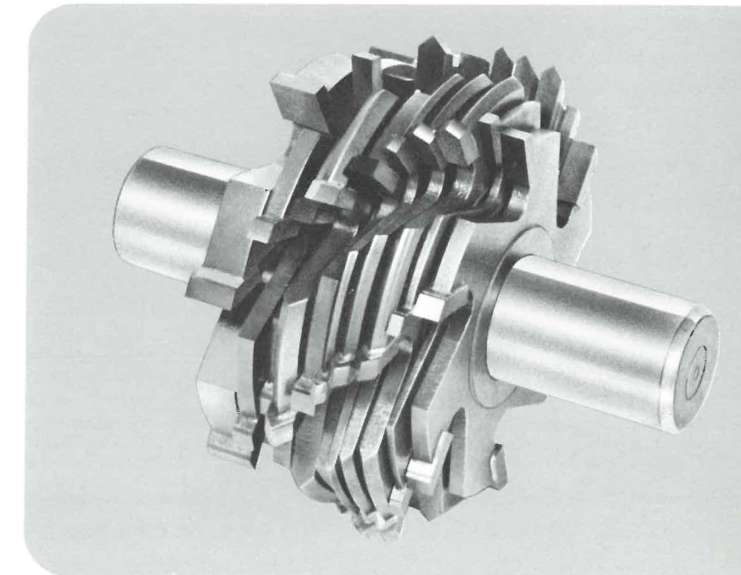


Reverse fold with dado provides for both dust cover ledge and motor board mounting slot.

Ideal for use with "see-thru" coffee tables, shelves, picture frames, etc.



STEP FOLD
A simple reverse fold can be achieved as shown in steps A, B, and C. A slot is cut down to the vinyl. The width will determine the amount of step. One side is pushed up and the other side down to form an offset. This basic principle is incorporated in the design of many reverse folds.



A new concept in V-Grooving developed by Herco is the **Reverse Fold**. With this fold, another dimension can now be added to a front lip or edge creating an **inside corner** with a continuous vinyl cover.

The Reverse Fold will extend the range of possible variations in both design and construction of V-Grooved items. Herco will be happy to assist you in any way in the development and application of this fold.

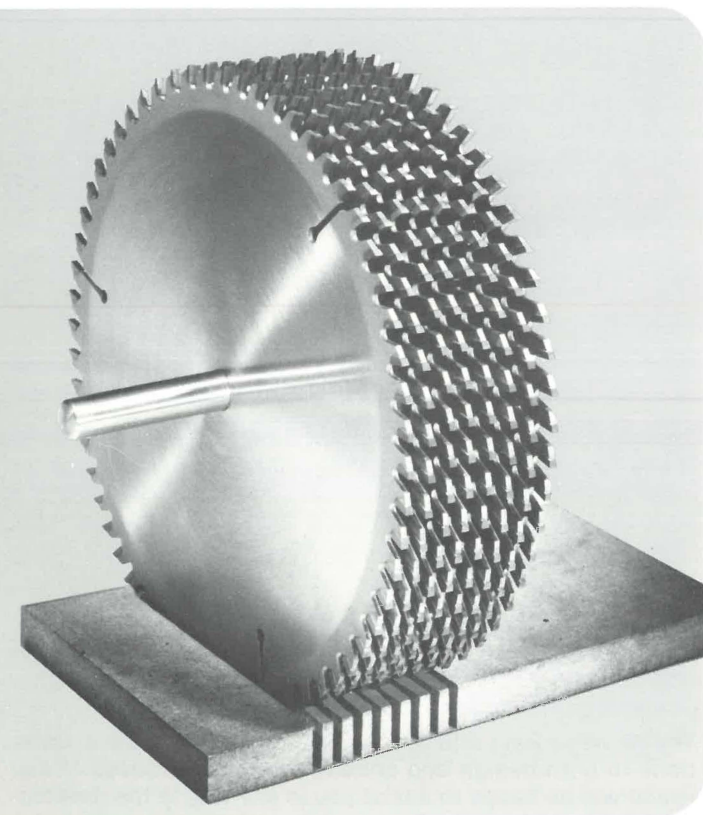
The set of cutters shown here was used by one customer to groove record changer bases with the edge fold, a lip for the dust cover, and a dado for the motor board. This was accomplished with one pass through the machine on a single arbor.

HOW TO ORDER

In ordering cutters or requesting prices for a Reverse Fold please furnish the same information as required for "Special Sets," page 7.

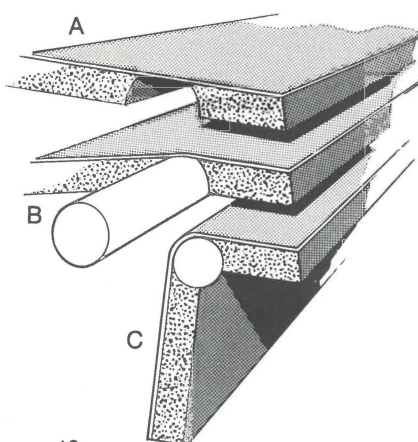


ROUND CORNERS



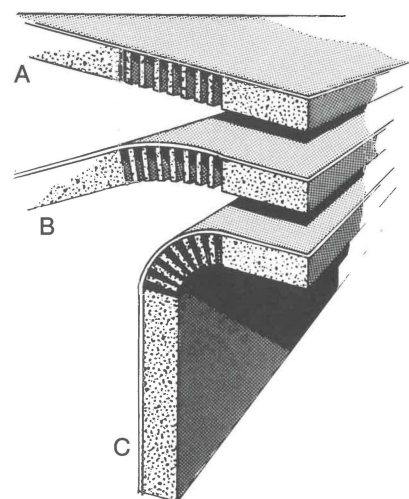
In the manufacturing of furniture, speakers, and various other items using vinyl overlay, the concept of a round corner is sometimes desirable. The three most common and least expensive ways to do this are the Round Dowel, Plastic Insert, and Kerfing Method. Normally, the approach chosen will be determined by the radius of the corner, the item produced, machine capability, and the number of pieces in the run.

Shown here are three ways to make a round corner in both linear and cross grooving. We will be happy to talk to you and discuss your requirements, and possibly contribute to your product design.



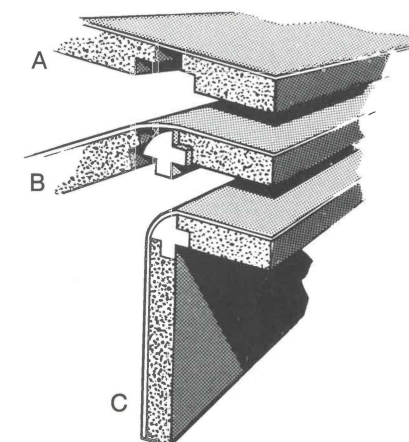
Round Dowel

- A. A dado is cut from the inside with each side rounded at the same radius as the desired corner.
- B. A round wooden or plastic dowel is placed in the groove with glue and the two sides are wrapped around the dowel.
- C. Once the glue is set the corner can be machined very successfully.



Kerfing

- A. A series of cuts is made from the inside down to, but not through, the vinyl. The number of cuts, width of cuts, and spacing are determined by the type of cut, size of corner, and thickness of material.
- B. Glue is applied and the corner is folded around to 90°.
- C. Once set up, both the outside as well as an inside radius will result.



Plastic Insert

- A. A T-slot groove is cut in the material down to the vinyl.
- B. The plastic insert is put in place with the glue. (Notice the corners will help position and hold the insert in exactly the right place.)
- C. After the glue is set the corner is round on the outside and has a square inside corner which is sometimes necessary. This method is used primarily on production runs.

How to Order

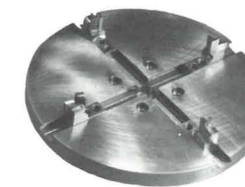
Because of the many ways to accomplish a round corner, we suggest you get in touch with us to discuss how and what approach you should take. If you have any questions, give us a call.



SPECIAL CUTTERS

There is a constant need for cutting tools that are not readily available anywhere. Most buyers of cutting tools are at a loss as to where to have a special tool made. Especially difficult is obtaining the tool as quickly as the production foreman needs it and also at a cost that is not exorbitant.

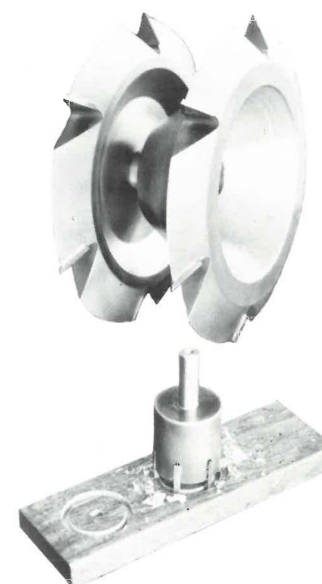
Herco has solved this problem for many woodworking manufacturers by supplying these special tools with very short lead time and at reasonable prices. Herco has designed and manufactured many one-of-a-kind tools for its customers to enable them to meet the special requirements of new or unusual designs. These tools are made of the same fine materials and are ground to the same exacting tolerances as our other tooling lines.



Here is a tool that cuts holes in baffle boards for speakers. The size of the circular cut is adjustable and the ledge for the speaker is cut at the same time as the hole.



Herco has designed and manufactured many special fly cutter bits for various operations.



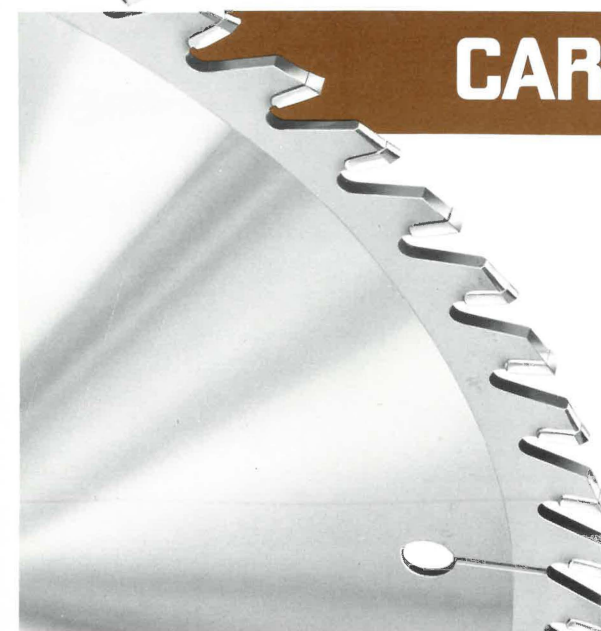
This set of cutters was designed for a V-Grooving customer who needed up to 4" from point to point on the cutters, however, was limited to a motor shaft only 3" long. The cutters saved several thousand dollars in not having to redesign the machine.

This tool was designed and made for a customer to cut a 1/8" wide x 1/8" deep circular slot in vinyl covered particle board. The slot was for the location and seating of a metal tube.

How To Order.

Give us a call if you have a particular problem. We may be able to suggest a solution. The benefit of our experience is only as far away as the phone.

CARBIDE TIPPED SAWS



Herco has been drawn into the manufacturer of carbide tipped saws by the increasing demand of users who require the highest quality saw possible for cutting today's material. Our customers have experienced the satisfaction of using Herco Cutters, and are not disappointed when they first use our saws. The quality for which we are so well known is built into every Herco saw.

Although a wide variety of saw blanks and carbide tips are in stock, each saw is manufactured special to fill a customer's particular need. In this way you are assured of getting a saw that will do the job you want done, and in most cases, for a price you have been paying for lesser quality. See our guarantee on back cover.



HERCO, INC.

100% GUARANTEE

On all cutters sold and invoiced directly to the user, Herco offers a 100% satisfaction guarantee. If not completely satisfied, and upon return of the cutters within 30 days, the purchase price will be refunded or the invoice canceled without question.

To a Dealer, Agent or Machinery Manufacturer for resale, cutters are guaranteed to be made to his requirements according to materials, sizes and details specified.

Harold E. Rivers
President

Gary Dyer
Vice President

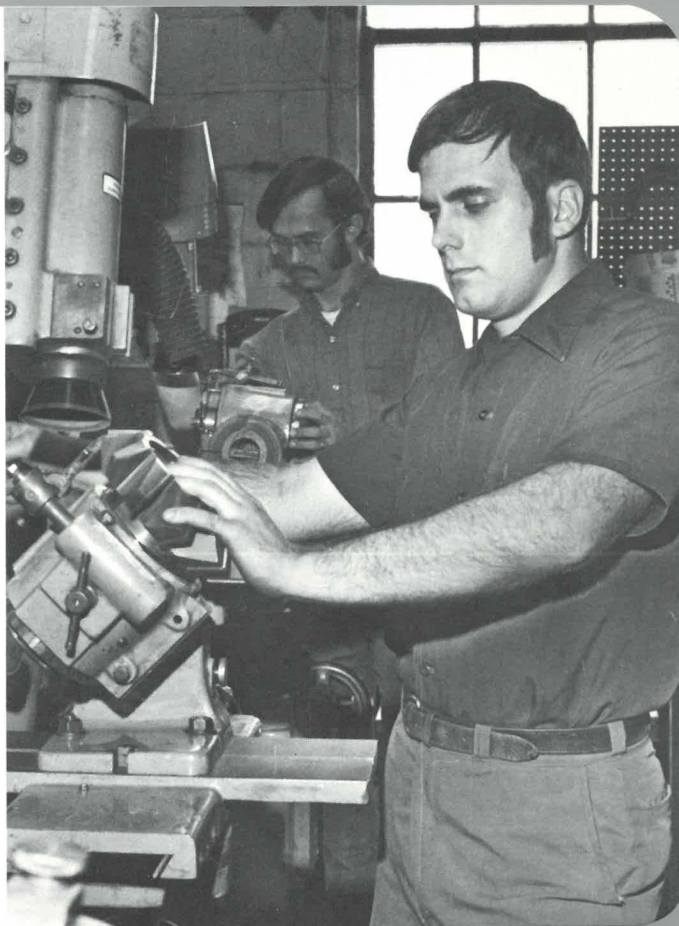
24 HOUR
Resharpener and
Reconditioning Service

- In One Day — Out The Next!

In most cases all regrind work is completed and shipped back to you the next day after it is received. (And in some instances the same day). Retipping a cutter or a set of cutters will normally take two days, however, in an emergency this time can be shortened.

Regrinding and retipping work is done on the same machines and in the same manner as new cutters, restoring your tools to a like-new condition.

Ask about our (in-your-shop) resharpener arrangement.



HERCO, INC.

213 WEST CANAL STREET, NEWCOMERSTOWN, OHIO 43832
Area Code 614-498-5181

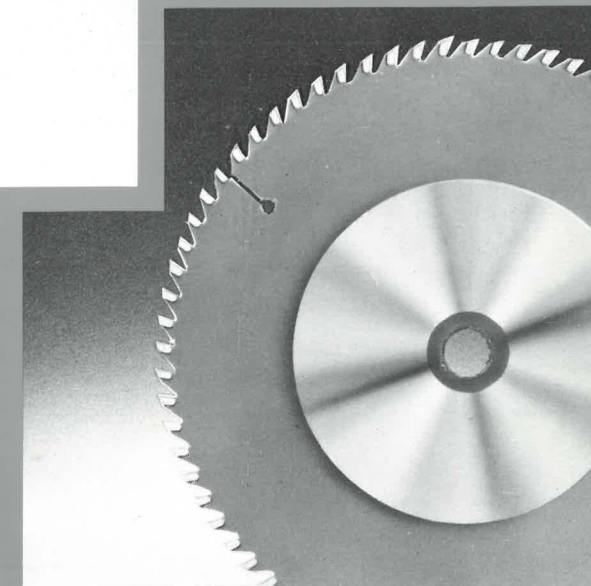
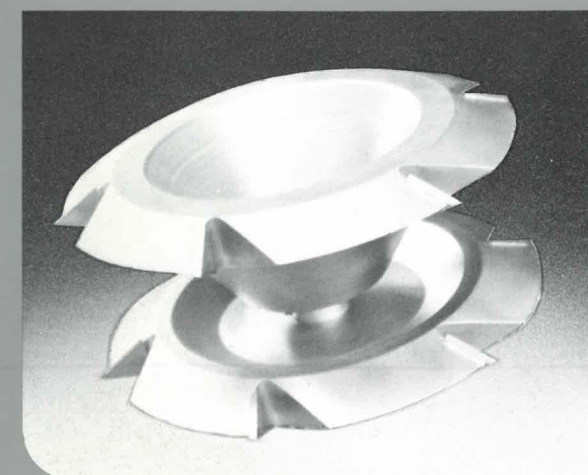
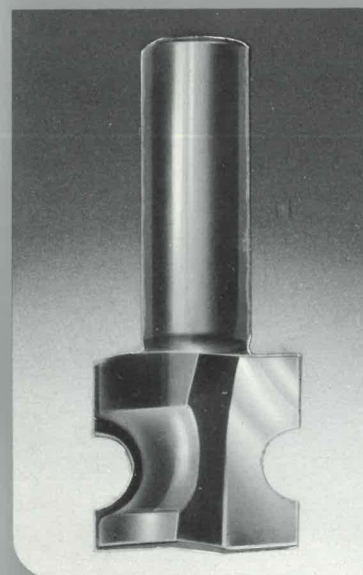
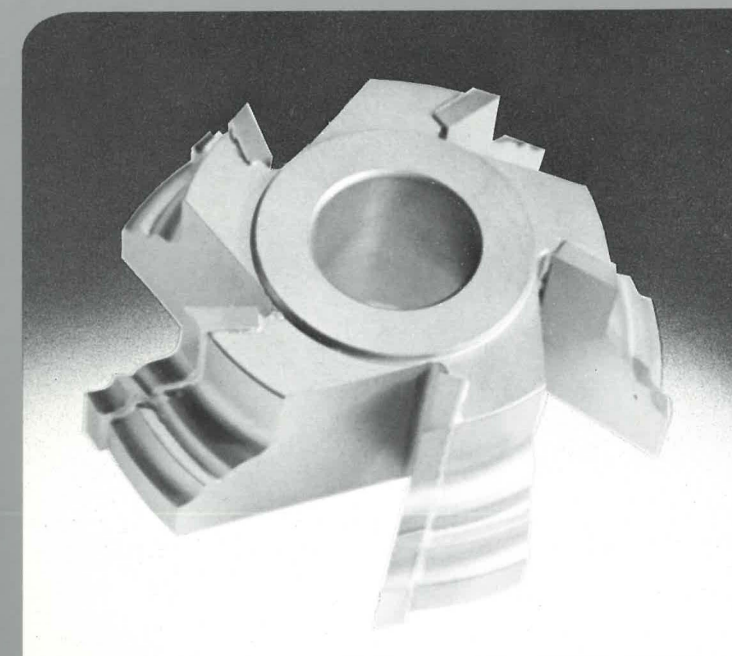
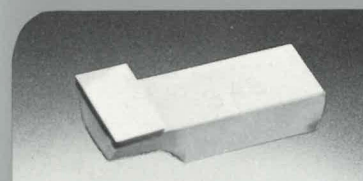
HERCO, INC.

CUSTOM CARBIDE TIPPED

CUTTING TOOLS



- Shaper Cutters
- Form Cutters
- Special Routers
- Dados
- Molders
- Tenon Heads and
- Carbide Tipped Saws





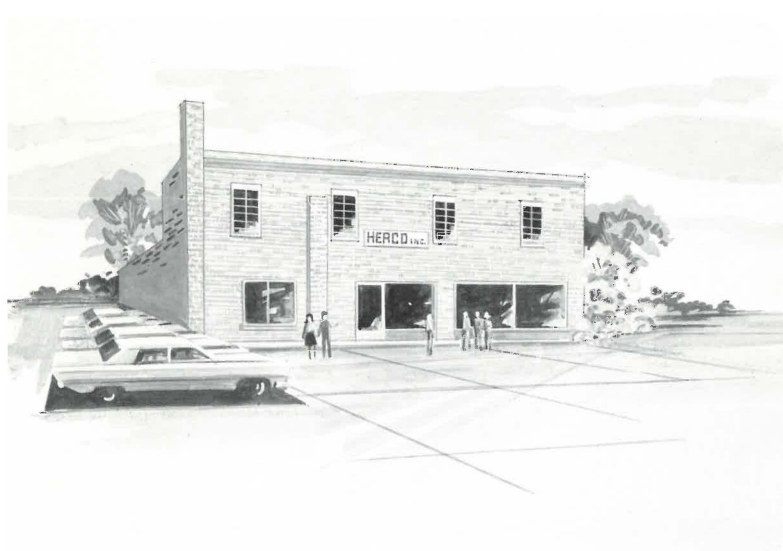
STOCK VS. CUSTOM MADE

There is quite a gap between the common stock cutting tool sold off the shelf or out of a catalog through distributors and the highly specialized tool that is completely foreign to the average tool maker.

The former is a "Make Do" situation with what is available and forces the user to adapt the job to the tool, rather than the tool to the job. The latter is a highly expensive, long delivery, hit and miss situation.

Herco has filled this gap by furnishing quality carbide tipped cutting tools to the woodworking industry, that are designed and made to meet a customers requirements. This is accomplished without any long delay or exorbitant expense.

These tools are precision made to extremely close tolerances, using the very best material and most advanced grinding techniques available today. Herco has been able to maintain a price comparable to and sometimes better than that of stock—off the shelf—cutting tools and at the same time offer a very fast delivery.



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Stock vs. Custom Made	2
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Dados	6
Tenon and Hogging Heads	7
Carbide Tipped Saws	8 - 9
Special Cutters	10
Solid Tooth Cutters	10
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WHY HERCO?

HERCO'S objective is quality with economy...

Herco has an international reputation of being the foremost manufacturer of precision V-Grooving tools in the world. This reputation was achieved over the last twelve years, not with advertising, but with a personal dedication by the owners to furnish the woodworking industry with the very best carbide tipped cutting tools available. Tools that could be delivered personally without any fear of rejection or failure. Herco has now expanded its capacity to produce special carbide form tools, carbide tipped shapers and moulders, carbide tipped saws, and various special carbide tipped cutting tools, all being custom made to customer specifications. The carbide used is the very best available for any specific need. If and when a superior grade is developed we will initiate its use immediately after testing, just as we have done in the past.

Remember, the effects of inflation are not as severe on those who steadily upgrade their processing.

Seven important reasons to choose HERCO for your cutter needs

1. Precision
2. Experience
3. Guaranteed Satisfaction—See Guarantee Page 12
4. Personal Contact
5. Prompt Delivery
6. Resharpener and Reconditioning Service
7. National Distribution

OUR NATIONAL REPUTATION IS OUR MOST VALUABLE ASSET.

- Precision is the key to quality carbide tipped cutting tools and one of the most important prerequisites to their manufacturer.
- Herco's management offers over fifty years of combined experience in the manufacturing of carbide tipped cutting tools.
- The specialized talent, skill, and equipment is devoted to designing and manufacturing America's most dependable line of cutting tools.
- The following pages show why Herco is your No. 1 source.

A FEW USERS OF HERCO CUTTERS...

- | | |
|--------------------------------|-----------------------------|
| Affordable Furniture, Inc. | Groovfold, Inc. |
| Arcadia Furniture Corporation | Magnavox Company |
| Arvin Industries, Inc. | Masonite Corporation |
| BFGoodrich | O'Sullivan Industries, Inc. |
| Bose Products, Inc. | Pilliod Cabinet Company |
| Brunswick Corporation | Seles Corporation |
| Bush Industries, Inc. | Tandy Corporation |
| CBS Audio Products | Tiffin Enterprise, Inc. |
| Ebonite Billiards | Winona Industries, Inc. |
| General Electric Company | |
| General Tire & Rubber Company | |
| Goodyear Tire & Rubber Company | |



HERCO, INC.
213 West Canal St.
Newcomerstown, Ohio
43832

Message from the President

My sincerest thanks to our many customers and friends with whom we have dealt over the past years. To you and the many new customers we will be serving we promise to continue in our endeavor to maintain the high standards of which we have been so proud. Along with this we will constantly search for ways to improve our products in both workmanship and services.

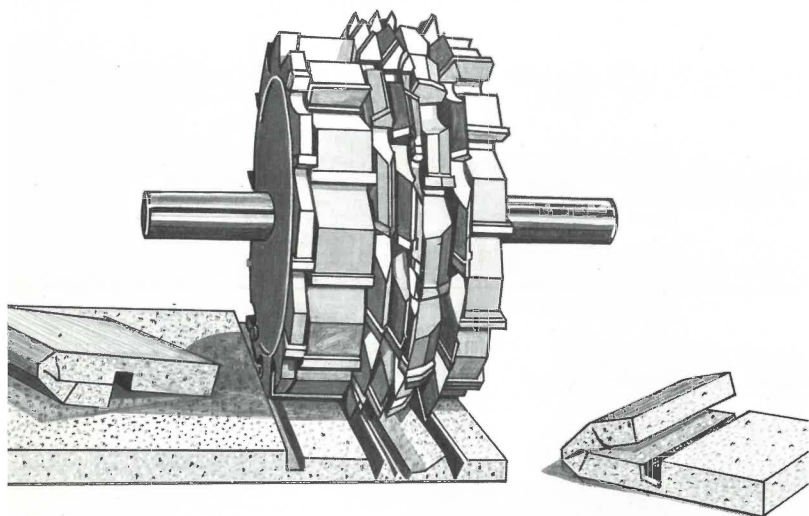
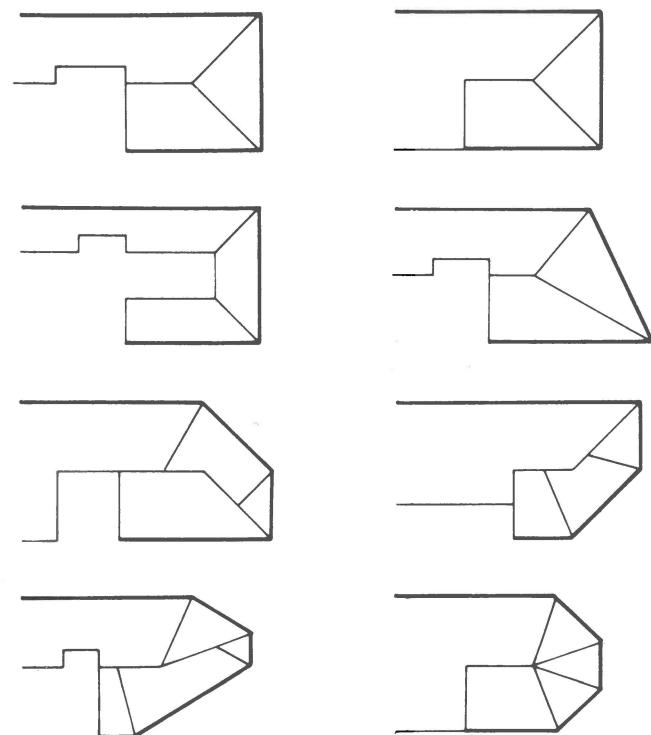
Harold E. Rivers,
President



V-GROOVING CUTTERS

The merits of the V-Grooving concept continues to attract manufacturers on a steady basis. As this number increases, the demand by manufacturers to offer a more stylish product has helped push HERCO up front as the V-Groove tool manufacturer to buy from.

FOLD CONCEPT DESIGN



V-Grooving and folding is a relatively new method of manufacturing case goods, furniture, speaker cabinets, picture frames, etc., the list is endless. One takes a vinyl covered substrate and cuts a v-groove, usually 90°, from the back side down to, but not through the vinyl. The piece can then be glued and folded using the vinyl as a hinge. This gives an outside corner without a joint.

Linear grooving refers to grooving the piece lengthwise on the front or back edge of the material resulting in a finished edge without shaping, sanding, filling, or staining. The vinyl will be continuous around the edge and its grain pattern will match properly.

Cross grooving refers to cutting across the piece with five cuts. The two outside pieces are then trimmed off and the piece can be glued and folded into a box or case. Because of the extremely close tolerances held on the cutters and angles, the front joint is hardly visible.

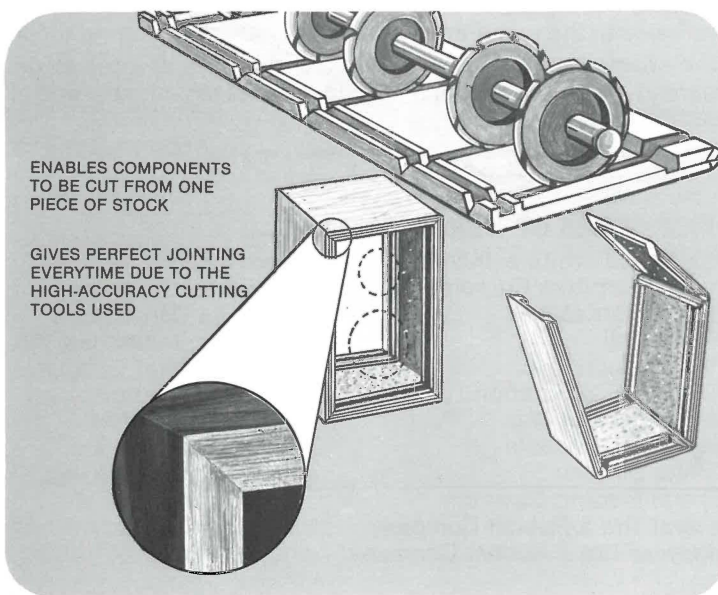
The application of this method in manufacturing is only limited by your imagination. Let Herco add imagination to your product design. Write for our V-Grooving Catalog No. HVG/2.

• Yesterday's Quality

• Today's Prices



• Tomorrow's Shapes



ENABLES COMPONENTS TO BE CUT FROM ONE PIECE OF STOCK

GIVES PERFECT JOINTING EVERYTIME DUE TO THE HIGH-ACCURACY CUTTING TOOLS USED

SHAPER AND MOLDER CUTTERS



Shaper Cutters

Next to saw blades, shaper cutters are probably the most widely used tools in the wood working industry. For this reason, emphasis should be placed on using the very best obtainable. Material, design and workmanship must be combined in manufacturing the proper tool for the proper job.

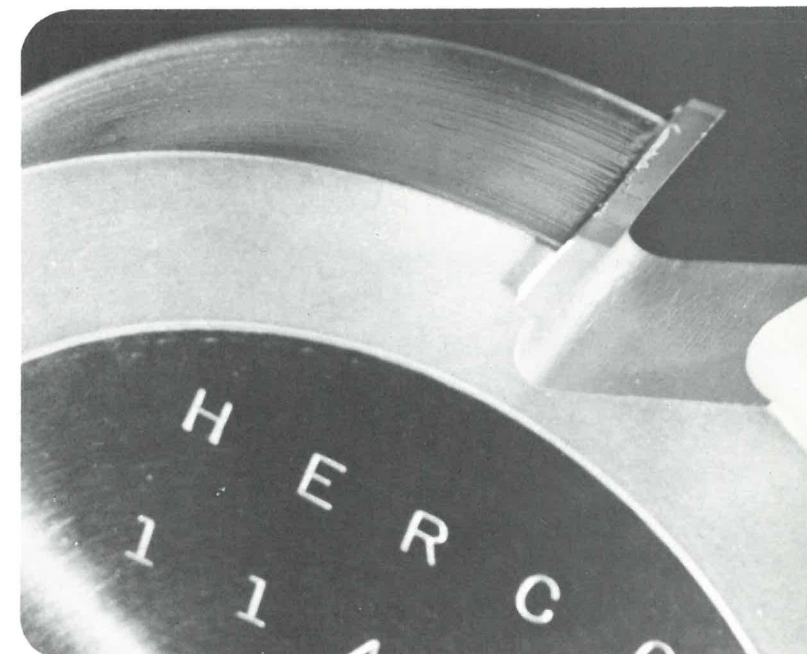
We at Herco are sensitive to the problems encountered in shaping both hardwoods and softwoods, along with the many man-made material. One common design or one grade of carbide cannot handle all the problems. Many manufactures have enjoyed the benefits of having their cutting tools special made for their specific needs.

Molder Cutters

Why be satisfied with the stock design of molding cutters? Herco's design engineers can work with you developing a shape that could enhance your product design along with a cutter that could enhance your profit. Whether it be an ogee, panel raising, flute, bead, etc., we would be glad to work with you or your cutter requirements.



Herco's unique method of duplicating a shape, guarantees exact reproduction every time.



How To Order

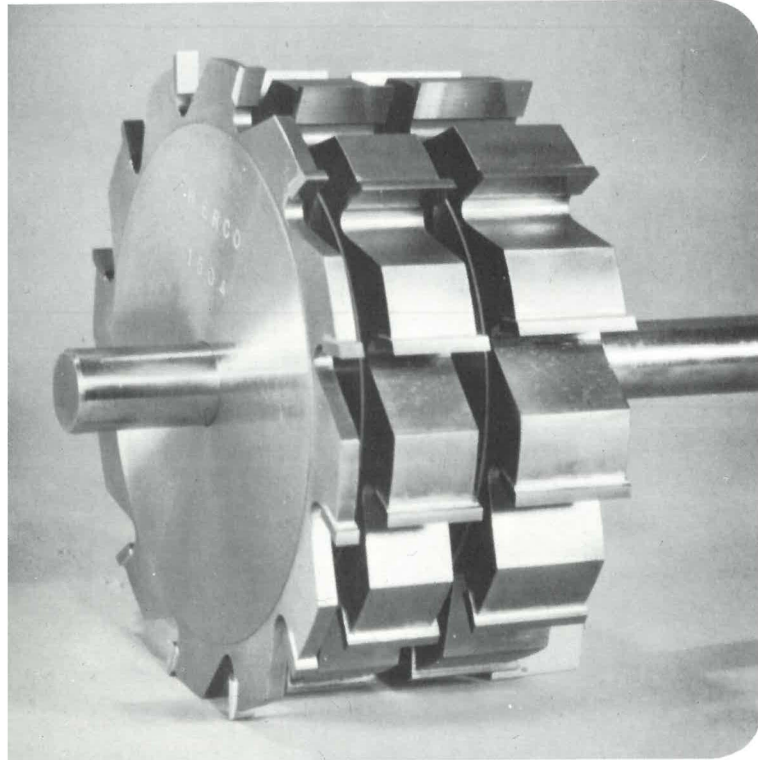
1. Quantity
2. Type of Cutter
3. Shape Required
 - (A) Drawing
 - (B) Old Cutter
 - (C) Sample Cut
4. Outside Diameter
5. Inside Diameter
6. Cutter Rotation (See Page 7)
7. Material Being Cut
8. Finish Desired



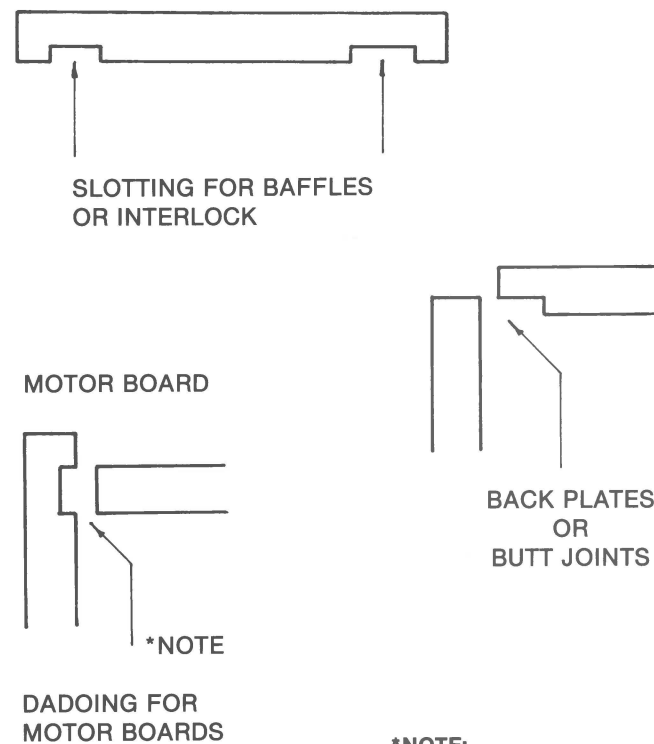
DADOS



TENON AND HOGGING HEADS

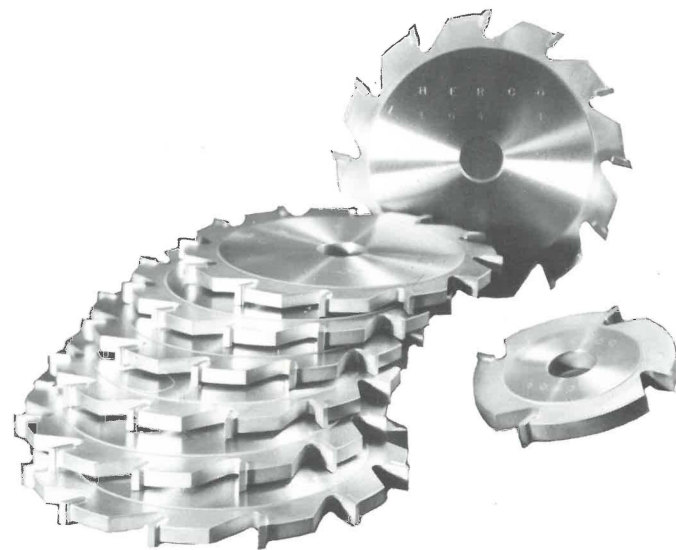


TYPICAL APPLICATIONS



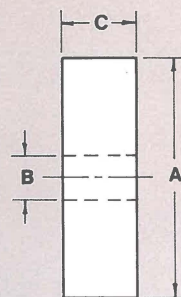
All slotting and Dado requirements can be met with Herco Dado Cutters. Although not a V-Groove cutter, this is the most versatile and widely used cutter in the V-Grooving process.

Dados are designed to run as a single cutter or ganged together for different widths of cut depending on the application.



***NOTE:**
Because of the side clearance on the teeth of Dado cutters, the kerf or width will be reduced as the face of the tooth is sharpened. This will amount to .008" to .010" in total kerf from a new cutter until the cutter is ready to be retipped. With this in mind, we suggest Dado cutters be ordered on the wide side of your tolerance.

How To Order



- When ordering, please supply the following information:
1. Quantity
 2. Outside Diameter (Dimension "A")
 3. Bore size (Dimension "B")
 4. Kerf or Width of cut (Dimension "C")
*See Note
 5. Number of Teeth
 6. If Diameter is to be matched to other cutters that are running on the same shaft.

Tenon Heads

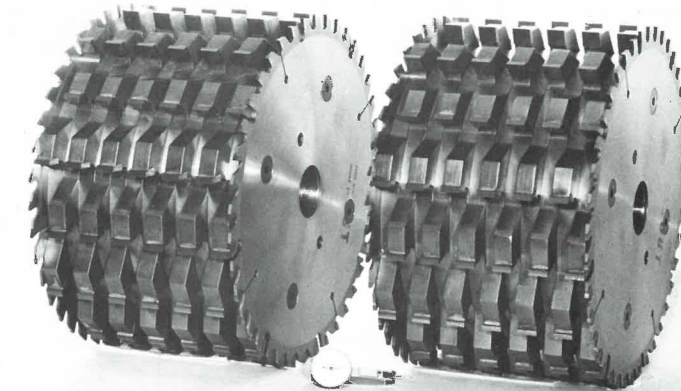
A tenon machine costs thousands of dollars, however, it is only as good as the tool it powers.

Herco Tenon Heads are designed to make clean smooth-end grain cuts with no edge chipping or tear out. No additional sanding or finishing is required. The improved tool design and sharpening have meant substantial savings for many Herco customers.

Hogging Heads

A trim or sizing saw of some kind is used in all woodworking plants. In most operations, a hogging head is used in conjunction with the trim saw to chop up the waste or off-fall. By doing this, two serious problems can be eliminated. First, cost is reduced by not having waste build up and removal. Secondly, and more important, is the personal safety factor involved.

Herco hoggers are used on double-end tenoners, cutoff saws, slat beds, panel sizer and other trimming machines. They will pay for themselves in a short time by making the operation more efficient and productive. A study shows that this is one of the best investments a woodworking plant can make in tooling.

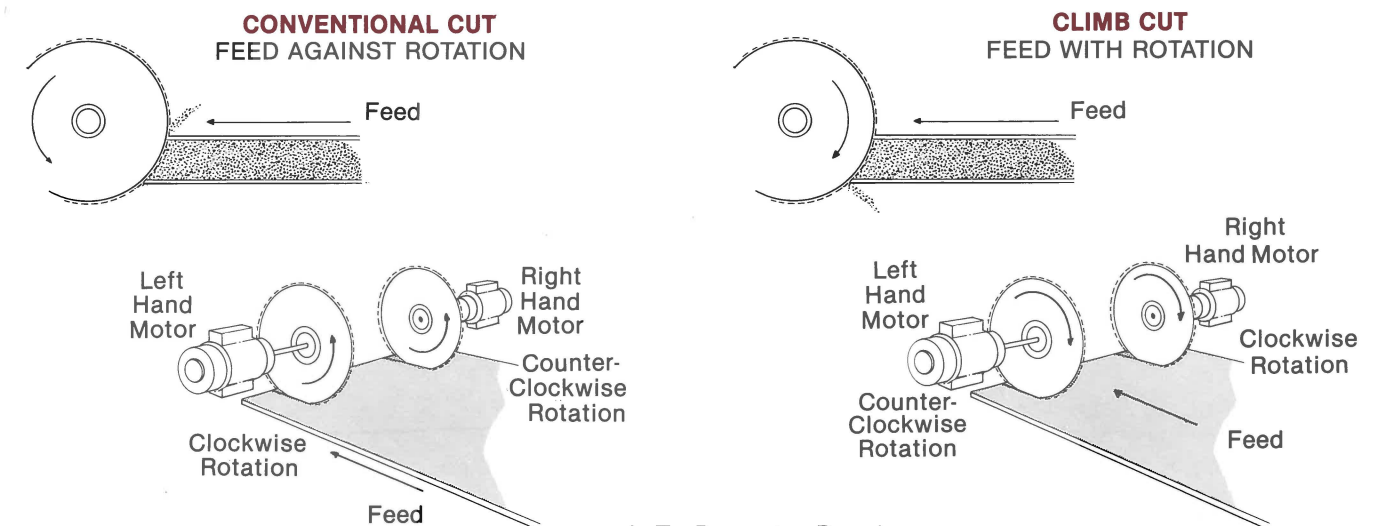


How To Order

1. Quantity
2. Type of Head
3. Outside Diameter
4. Inside Diameter
5. Cutter Rotation
6. Material Being Cut
7. Finish Desired

Cutter Rotation

When ordering cutters, details as to direction of rotation* should be given as illustrated below. If a single unit is ordered, it must be stated whether it is to run on the left or right side of the machine and whether it is rotating clockwise or counterclockwise.



* To Determine Rotation, Face The Shaft End Of Motor



CARBIDE TIPPED SAWS



A Blend of Choice Material And Proven Craftsmanship

Saw Bodies

All of our saw blade bodies are made of the highest quality saw steel. Each blade is heat treated to the optimum hardness for greater strength, stability, and toughness.

Carbide

Next comes the selection of the best grade of carbide available for a specific application. The carbide is the heart of a Herco saw. Our selection must have a combination of hardness, transverse rupture strength, and abrasion resistance that exceeds all other grades for the use intended.

Brazing

Herco puts tips in to stay. Over the years, Herco has developed a process of brazing carbide tips in saws at precisely the right temperature using the proper flux and the most advanced sandwich type silver solder. Take a look at the joint in a Herco saw or cutter. Notice the even flow of the silver solder which creates a permanent bond in every joint, free of blow holes and with uniform holding strength. Generally, a Herco Saw can be identified by this even flow of silver solder.

Tensioning and Straightening

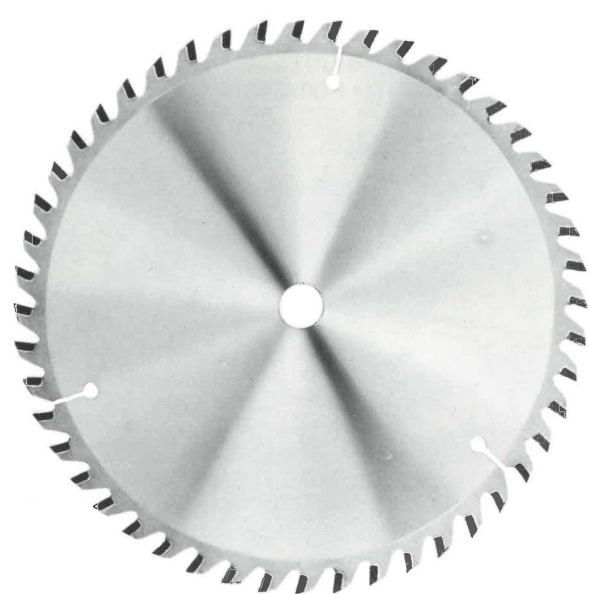
Every Herco saw is straightened and tensioned by experienced sawsmiths. The purpose of tension is to insure that centrifugal force acting on a saw at a certain R.P.M. and under certain load conditions does not cause the saw to wobble or lead in the cut. Straightness insures every tooth is cutting equally and that the saw does not have a warp or dish.

Cutting Edge

The business end of any saw or cutting tool is the cutting edge. Do not mistake a mirror finish for a sharp edge. A sharp edge must be free of any minute chips or cratering so often found in carbide tools and can only be seen with a powerful magnifying glass. To insure keen edges that will do a superior job, Herco, on special equipment, laps all cutting edges after sharpening with a 400 grit—100 concentration diamond wheel. This has to be done under conditions that do not burn or otherwise disturb the grain structure.

The Results

Herco manufactures a superior saw that offers longer life, smooth clean cuts, lower overall tool cost, fewer interruptions, less scrap loss, and reduced operator annoyances.

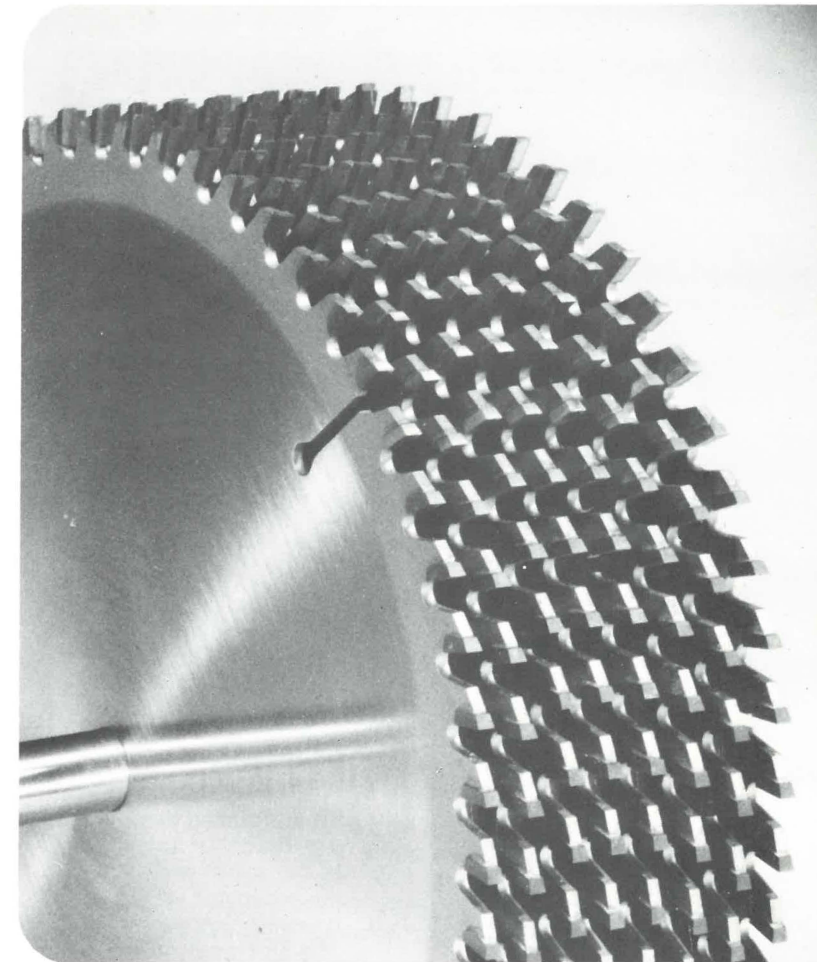
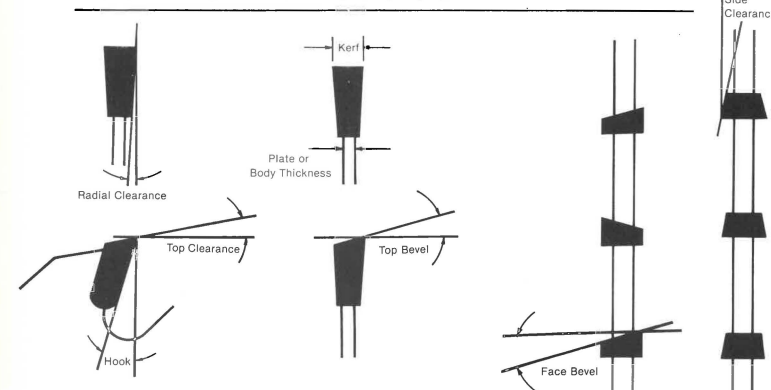
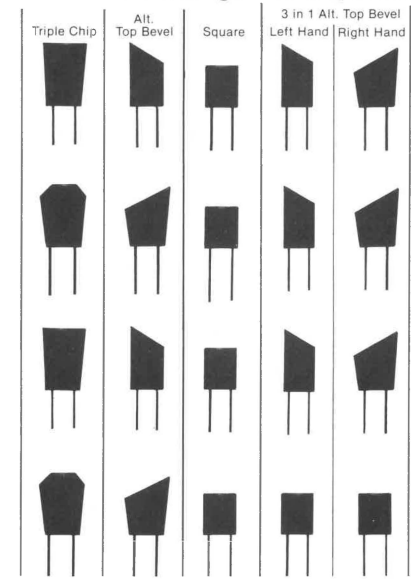


HERCO'S CARBIDE TIPPED SAW BLADES are engineered and designed to meet specific cutting requirements. To obtain the most efficient cutting results, it is important to start with a blade that has been designed to cut the material, or combination of materials, you plan to cut. Along with this, one must consider the results you want to obtain. *Why waste energy trying to get an extremely smooth finish when one not so smooth will do?—and sometimes be better.* Also, to be taken into consideration are your production demands,—blade speed, rate of feed, type of machine, and cost of machine down-time. Sometimes it is less expensive to take a blade off of a machine a little before it is completely dull rather than stop a production line to change blades in the middle of a shift.

With Herco, all of these factors will be taken into consideration before a final recommendation is made on the exact saw blade for your job. Once the decision is made on the design, the blade will then be manufactured using the highest standards of both workmanship and material available today, along with the most advanced methods of tensioning, brazing carbide, and sharpening.

Nomenclature

Basic Tooth Design



How to Order

When ordering Herco Custom Saw Blades that will exactly fit your needs, please supply as much of the following information as possible:

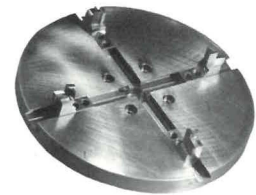
1. Type of machine
2. Hand or power feed
3. Feed rate
4. Blade speed
5. Single or gang operation
6. Blade position and rotation
7. Blade diameter
8. Arbor diameter
9. Pin holes or keyways if necessary
10. Type of material being cut
11. Thickness of cut
12. Type of cut: Crosscut-Rip-Bevel
13. Laminate, Veneer, or Vinyl covered (one or both sides)
14. Quality of cut required: Average-Smooth-Glue line
15. Any special requirements



SPECIAL CUTTERS

There is a constant need for cutting tools that are not readily available anywhere. Most buyers of cutting tools are at a loss as to where to have a special tool made. Especially difficult is obtaining the tool as quickly as the production foreman needs it and also at a cost that is not exorbitant.

Herco has solved this problem for many woodworking manufacturers by supplying these special tools with very short lead time and at reasonable prices. Herco has designed and manufactured many one-of-a-kind tools for its customers to enable them to meet the special requirements of new or unusual designs. These tools are made of the same fine materials and are ground to the same exacting tolerances as our other tooling lines.



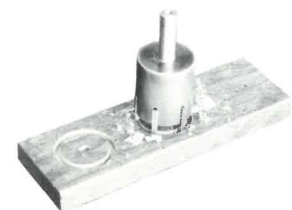
Here is a tool that cuts holes in baffle boards for speakers. The size of the circular cut is adjustable and the ledge for the speaker is cut at the same time as the hole.



Herco has designed and manufactured many special fly cutter bits for various operations.



This set of cutters was designed for a V-Grooving customer who needed up to 4" from point to point on the cutters, however, was limited to a motor shaft only 3" long. The cutters saved several thousand dollars in not having to redesign the machine.

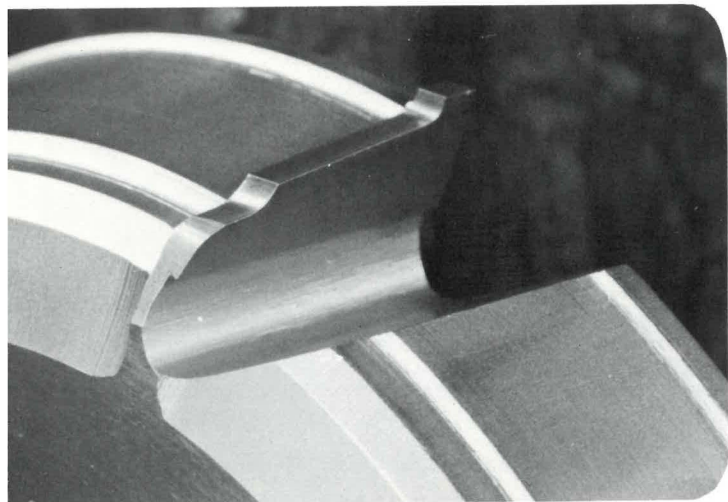


This tool was designed and made for a customer to cut a 1/8" wide x 1/8" deep circular slot in vinyl covered particle board. The slot was for the location and seating of a metal tube.

How To Order.

Give us a call if you have a particular problem. We may be able to suggest a solution. The benefit of our experience is only as far away as the phone.

SOLID TOOTH CUTTERS



Although Herco can make replaceable or insertable tooth cutters, we do not recommend this method for precision cutting. Theoretically, it is a good idea if the teeth were replaced by a toolmaker under laboratory conditions. However, under most circumstances, the dirt and sawdust around the machine where the teeth are replaced, prevents the teeth being seated at a tolerance of less than .001" which is necessary for quality cutters and maximum tool life. If the chip load for a cutter is .006", one tooth would not have to be out very much before it would be doing all the cutting and reducing the effectiveness of the tool to a one tooth cutter. The chances are very slim, all the teeth on a multiple tooth cutter can be replaced and positioned precisely. The more teeth the less the chances.

Most companies, that have a good handle on tool cost, have found that solid tooth cutters are more economical. Not only in the initial price, but also in longer tool life, quality cutting, less overall downtime and less operator annoyance. It would be a good gamble, with the odds in your favor, to compare.

HERCO'S OBJECTIVES



Message from the Vice-President

There is an old saying; "It is a shame, because of economic and competitive reasons, that a toolmaker cannot sell the same quality tool he would make for his own use." Contrary, to this, we decided at Herco twelve years ago to furnish the very best cutting tools available anywhere, barring none.

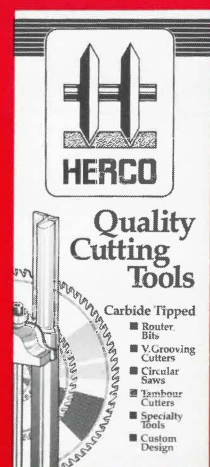
Because of this decision, we are now recognized by most all top woodworking manufacturers as a supplier of superior cutting tools in material, workmanship, and design.

We at Herco will be more than happy to assist you in any way in both design and manufacture of any cutting tools you may need, or in any technical advice we can offer.

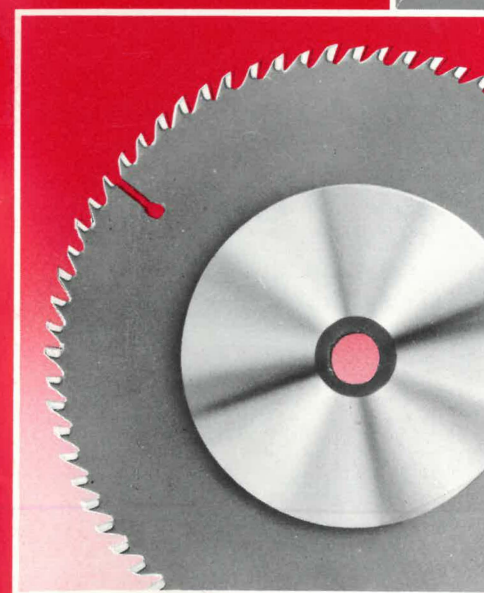
Why not take advantage of the personal service, coupled with our many years of experience in the field? Experience has proven that a specialist is more apt to come up with the right answers. We look forward to hearing from you.

Gary Dyer
Vice President





HERCO, INC. CARBIDE TIPPED ROUTER BITS AND CIRCULAR SAWS



Herco Quality... the Industry Leader!

For further information on either Herco Cutting Tools or Herco V-Grooving Tools, call or write for one of these catalogs today.

The Herco Guarantee

On all tools sold and invoiced directly to the user, Herco offers a 100% satisfaction guarantee. If not completely satisfied, and upon return of the cutters within 30 days, the purchase price will be refunded or the invoice canceled without question.

To a Dealer, Agent or Machinery Manufacturer for resale, cutters are guaranteed to be made to his requirements according to materials, sizes and details specified.

Harold E. Rivers

President

Gary Dyer

Vice President

24 HOUR Resharpener and Reconditioning Service

• In One Day — Out The Next!

In most cases all regrind work is completed and shipped back to you the next day after it is received. (And in some instances the same day). Retipping a cutter or a set of cutters will normally take two days, however, in an emergency this time can be shortened.

Regrinding and retipping work is done on the same machines and in the same manner as new cutters, restoring your tools to a like-new condition.

Ask about our (in-your-shop) resharpener arrangement.

HERCO, INC.

213 WEST CANAL STREET, NEWCOMERSTOWN, OHIO 43832
Area Code 614-498-5181

SPECIALTY TOOLING & CUSTOM DESIGN

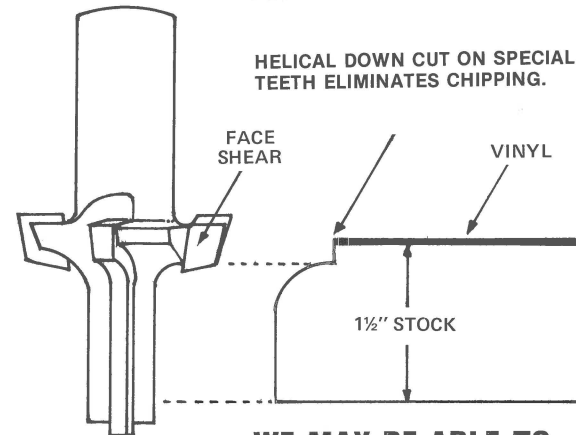


ROUTER BITS (CUSTOM)

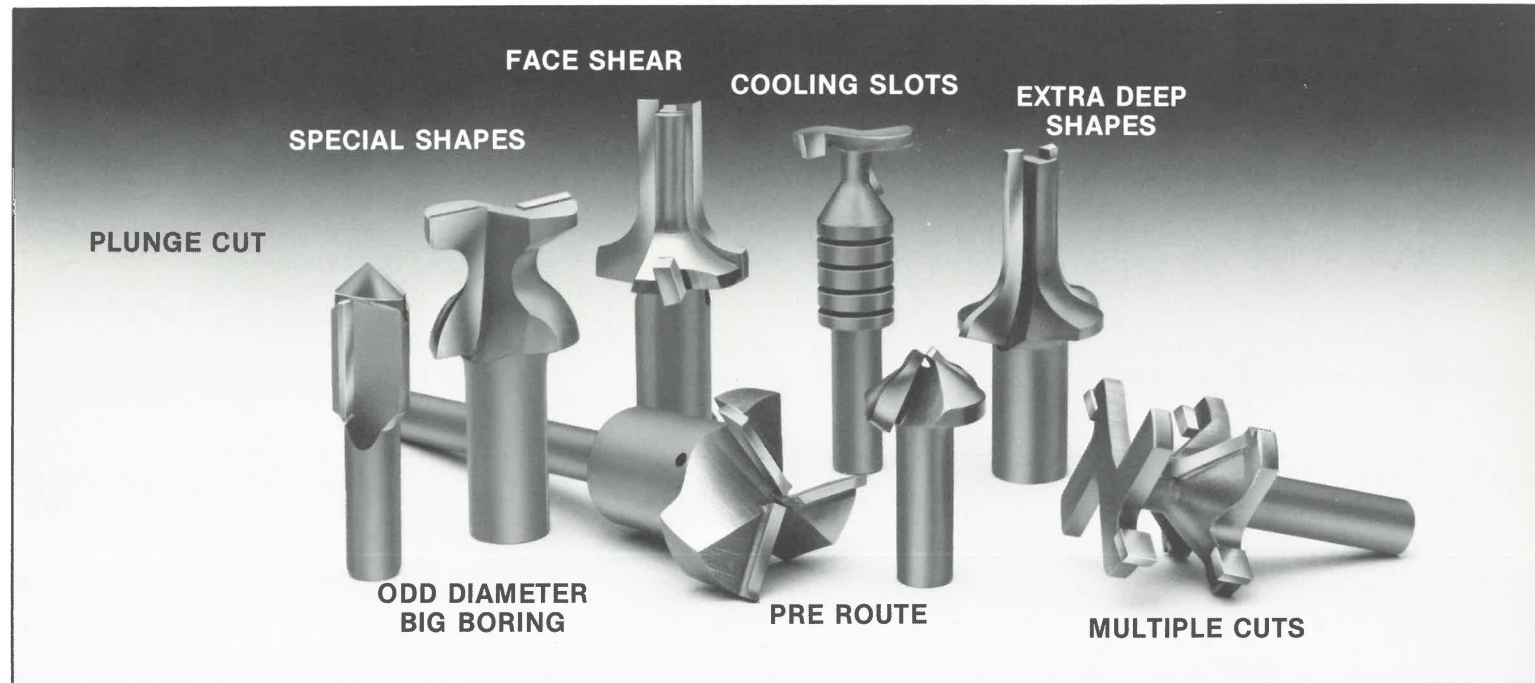
Herco has solved many problems for a lot of woodworking manufacturers by supplying CUSTOM ROUTER BITS at a reasonable cost and a minimum of lead time.

We have suggested ideas and produced many unique tools for our customers, to enable them to meet the special requirements of new or unusual designs. These one-of-a-kind tools are made of the same fine materials and are ground to the same exacting tolerances as our regular tooling lines.

IF YOU HAVE A NEW IDEA, NEED OR PROBLEM...GIVE US A CALL.



WE MAY BE ABLE TO SUGGEST A SOLUTION.



Herco enjoys an international reputation of being the foremost manufacturer of precision V-Grooving tools in the world. This reputation has been achieved over the years, not with advertising, but with personal dedication by the owners to furnish the woodworking industry with the very best carbide tipped cutting tools available.

We are now laying the ground work to build this same reputation with carbide tipped router bits. We feel by using only the best material available coupled with our superior craftsmanship and experience that our carbide tipped router bits, custom or stock, will be the best your money can buy.

An individual cannot be criticized for avoiding the untried... But with respect to Herco the untried might well be something good!



ROUTER BITS (STOCK)

DOUBLE FLUTE BITS

Tool Number	Shank Diameter	Cutting Diameter	Flute Length	Overall Length	Shank Length
H1012	1/4"	1/4"	1/2"	2"	1 1/4"
H1013	1/4"	1/4"	3/4"	2 1/4"	1 1/4"
H1014 *	1/4"	1/4"	1"	2 1/2"	1 1/4"
H1016	1/4"	1/4"	1"	3"	1 3/4"
H1018	1/4"	9/32"	1"	3"	1 3/4"
H1019	1/4"	5/16"	1"	2 1/2"	1 1/4"
H1021	1/4"	3/8"	3/4"	2 1/4"	1 1/4"
H1022	1/4"	3/8"	1"	2 1/2"	1 1/4"
H1023	1/4"	3/8"	1 1/4"	2 3/4"	1 1/4"
H1024	1/4"	7/16"	1"	2 1/2"	1 1/4"
H1025	1/4"	1/2"	3/4"	2 1/4"	1 1/4"
H1026	1/4"	1/2"	1"	2 1/2"	1 1/4"
H1027	1/4"	9/16"	3/4"	2 1/8"	1 1/4"
H1028	1/4"	5/8"	3/4"	2 1/8"	1 1/4"
H1029	1/4"	11/16"	3/4"	2 1/8"	1 1/4"
H1030	1/4"	3/4"	3/4"	2 1/8"	1 1/4"
H1033	1/4"	1"	3/4"	2 1/8"	1 1/4"

H1033B	5/16"	5/16"	1"	2 5/8"	1 3/8"
H1037	3/8"	1/4"	3/4"	2 3/8"	1 3/8"
H1039	3/8"	3/8"	1"	2 5/8"	1 3/8"
H1040	3/8"	3/8"	1 1/4"	2 7/8"	1 3/8"
H1041	3/8"	3/8"	1 1/4"	3 5/8"	2 1/8"
H1043	3/8"	1/2"	1"	2 1/2"	1 1/4"

H1058	1/2"	1/4"	3/4"	2 3/8"	1 3/8"
H1060	1/2"	5/16"	1"	2 5/8"	1 3/8"
H1061	1/2"	3/8"	3/4"	2 3/8"	1 3/8"
H1062	1/2"	3/8"	1"	2 5/8"	1 3/8"
H1063	1/2"	3/8"	1 1/4"	2 7/8"	1 3/8"
H1065	1/2"	7/16"	1 1/4"	2 7/8"	1 3/8"
H1066	1/2"	1/2"	1"	2 5/8"	1 3/8"
H1067	1/2"	1/2"	1 1/4"	2 7/8"	1 3/8"
H1069 *	1/2"	1/2"	1 1/2"	3 1/8"	1 3/8"
H1070	1/2"	1/2"	1 1/2"	4 1/8"	2 3/8"
H1071	1/2"	1/2"	2"	3 1/2"	1 1/4"
H1072	1/2"	1/2"	2"	4 1/8"	1 7/8"
H1073	1/2"	1/2"	2 1/2"	4 3/8"	1 7/8"
H1074	1/2"	17/32"	1 1/4"	2 7/8"	1 3/8"
H1075	1/2"	9/16"	1 1/4"	3"	1 3/8"
H1076	1/2"	5/8"	1"	2 1/2"	1 3/8"
H1077	1/2"	5/8"	1 1/4"	3"	1 3/8"
H1078	1/2"	5/8"	1 1/2"	3"	1 3/8"
H1079	1/2"	5/8"	2"	4"	1 7/8"
H1082	1/2"	11/16"	1"	2 1/2"	1 3/8"
H1083	1/2"	11/16"	1 1/4"	3"	1 3/8"
H1084	1/2"	3/4"	1"	2 1/2"	1 3/8"
H1085	1/2"	3/4"	1 1/4"	3"	1 3/8"
H1086	1/2"	3/4"	1 1/2"	3"	1 3/8"
H1087	1/2"	3/4"	2"	3 5/8"	1 3/8"
H1090	1/2"	13/16"	1 1/4"	3"	1 3/8"
H1091	1/2"	7/8"	1 1/4"	3"	1 3/8"
H1093	1/2"	1"	1 1/4"	3"	1 3/8"
H1094	1/2"	1"	1 1/2"	3"	1 3/8"
H1095	1/2"	1"	2"	3 3/4"	1 3/8"
H1096	1/2"	1 1/8"	1 1/2"	3"	1 3/8"
H1097	1/2"	1 1/4"	1 1/2"	3"	1 3/8"
H1098	1/2"	1 3/8"	1 1/4"	3"	1 3/8"
H1099	1/2"	1 1/2"	1 1/4"	3"	1 3/8"
H1100	1/2"	1 3/4"	1 1/4"	3"	1 3/8"
H1101	1/2"	2"	1 1/4"	3"	1 3/8"

H1103	3/4"	3/4"	1 1/4"	3"	1 1/2"
H1104	3/4"	3/4"	1 1/2"	3 1/4"	1 1/2"
H1105	3/4"	3/4"	2"	4"	2"
H1106	3/4"	3/4"	2 1/2"	4 1/2"	2"
H1107	3/4"	1"	1 1/4"	3"	1 1/2"
H1108	3/4"	1"	1 1/2"	3 1/4"	1 1/2"
H1109	3/4"	1"	2"	4 1/4"	2"

*Also available in left hand

SINGLE FLUTE BITS

Tool Number	Shank Diameter	Cutting Diameter	Flute Length	Overall Length	Shank Length
H1003	1/4"	1/4"	1/2"	2"	1 1/4"
H1004	1/4"	1/4"	3/4"	2 1/4"	1 1/4"
H1005	1/4"	1/4"	1"	2 1/2"	1 1/4"
H1006	1/4"	1/4"	3/4"	2 3/4"	1 3/4"
H1007	1/4"	1/4"	1"	3"	1 3/4"
H1008	1/4"	9/32"	3/4"	2 1/4"	1 1/4"
H1009	1/4"	5/16"	1"	2 1/2"	1 1/4"
H1033A	5/16"	5/16"	1"	2 5/8"	1 3/8"
H1035	3/8"	3/8"	1"	2 5/8"	1 3/8"
H1036	3/8"	3/8"	1 1/4"	2 7/8"	1 3/8"
H1048	1/2"	3/8"	3/4"	2 3/8"	1 3/8"
H1049	1/2"	3/8"	1"	2 5/8"	1 3/8"
H1050	1/2"	3/8"	1 1/4"	2 7/8"	1 3/8"
H1052	1/2"	1/2"	1 1/4"	2 7/8"	1 3/8"
H1054	1/2"	1/2"	1 1/2"	3 1/8"	1 3/8"
H1055	1/2"	1/2"	2"	4 1/8"	1 7/8"
H1055A	1/2"	1/2"	2 1/2"	4 3/8"	1 7/8"

LEFT HAND — 3/4" SHANK

Tool Number	Shank Diameter	Cutting Diameter	Flute Length	Overall Length	Shank Length
HLH1105	3/4"	3/4"	2"	5"	2"
HLH1106	3/4"	3/4"	2 1/2"	5 1/2"	2"

LEFT HAND — SHEAR FACE 3/4" SHANK

Tool Number	Shank Diameter	Cutting Diameter	Flute Length	Overall Length	Shank Length
HLHS1105	3/4"	3/4"	2"	5"	2"
HLHS1106	3/4"	3/4"	2 1/2"	5 1/2"	2"

STAGGERTOOTH STRAIGHT FLUTE

Tool Number	Shank Diameter	Cutting Diameter	Flute Length	Overall Length	Shank Length
H1200	3/8"	1 1/4"	2 3/4"	1 1/4"	3/8"
H1201	3/8"	1 1/2"	3 1/8"	1 3/8"	1/2"
H1202	1/2"	1 1/2"	3 1/8"	1 3/8"	1/2"
H1203	1/2"	2 1/8"	4"	1 5/8"	1/2"
H1204	5/8"	2 1/8"	4 3/4"	2 3/8"	1/2"

V GROOVING BITS 90° INCLUDED ANGLE — DOUBLE FLUTE

Tool Number	Shank Diameter	Cutting Diameter	Cutting Depth	Overall Length
H1500 *	1/4"	1/4"	1/4"	1 1/2"
H1501	1/4"	3/8"	1/2"	1 3/4"
H1502	1/4"	1/2"	1/2"	1 11/16"
H1504	1/2"	3/4"	5/8"	2 3/16"
H1505	1/2"	1"	5/8"	2 7/16"
H1507	1/2"	1 1/2"	1"	2 15/16"

*Solid Carbide



ROUTER BITS (STOCK)

RIGHT HAND DOVETAIL

Tool Number	Shank Diameter	Degree Each Side	Large Diameter	Depth of Cut	Overall Length
H1601	1/4"	9°	3/8"	3/8"	2"
H1602	1/4"	14°	1/2"	1/2"	2"
H1603	3/8"	9°	3/8"	3/8"	2"
H1604	3/8"	7°	1/2"	1/2"	2"
H1605	1/2"	9°	3/8"	3/8"	2 1/2"
H1606	1/2"	14°	1/2"	1/2"	2 1/2"
H1607	1/2"	7°	5/8"	7/8"	2 1/2"
H1608	1/2"	7°	3/4"	7/8"	2 1/2"
H1609	1/2"	7°	7/8"	7/8"	2 1/2"
H1610	1/2"	14°	1"	7/8"	2 1/2"
H1611	1/2"	14°	1 1/4"	7/8"	2 1/2"

LEFT HAND DOVETAIL

Tool Number	Shank Diameter	Degree Each Side	Large Diameter	Depth of Cut	Overall Length
HLH1601	1/4"	9°	3/8"	3/8"	2"
HLH1602	1/4"	14°	1/2"	1/2"	2"
HLH1603	3/8"	9°	3/8"	3/8"	2"
HLH1604	3/8"	7°	1/2"	1/2"	2"
HLH1605	1/2"	9°	3/8"	3/8"	2 1/2"
HLH1606	1/2"	14°	1/2"	1/2"	2 1/2"
HLH1607	1/2"	7°	5/8"	7/8"	2 1/2"
HLH1608	1/2"	7°	3/4"	7/8"	2 1/2"
HLH1609	1/2"	7°	7/8"	7/8"	2 1/2"
HLH1610	1/2"	14°	1"	7/8"	2 1/2"
HLH1611	1/2"	14°	1 1/4"	7/8"	2 1/2"

PILOT BITS WITH PLUNGE POINT — SINGLE FLUTE

Tool Number	Shank Diameter	Cutting Diameter	Flute Length	Overall Length	Shank Length
H1700	1/4"	1/4"	3/4"	2 5/8"	1 1/4"
H1701	3/8"	3/8"	1"	3 1/4"	1 1/4"
H1702	1/2"	1/2"	1 1/4"	3 3/4"	1 1/4"

PANEL PILOT BITS WITH PLUNGE POINT — DOUBLE FLUTE

Tool Number	Shank Diameter	Cutting Diameter	Flute Length	Overall Length	Shank Length
H1704	1/4"	3/8"	1"	3 1/4"	1 1/4"
H1705	3/8"	3/8"	1"	3"	1 1/4"
H1706	1/2"	1/2"	1 1/4"	4"	1 1/4"

ROUND NOSE (CORE BOX)

Tool Number	Shank Diameter	Cutting Diameter	Radius	Flute Length	Overall Length
HSC39	1/4"	1/8"	1/16"	1/4"	2"
HSC40	1/4"	3/16"	3/32"	3/8"	2"
HSC41	1/4"	1/4"	1/8"	1/2"	2"
H1403	1/4"	3/8"	3/16"	1/4"	2"
H1404	1/4"	1/2"	1/4"	3/8"	2"
H1405	1/4"	5/8"	5/16"	3/8"	2"
H1406	1/4"	3/4"	3/8"	7/16"	2"
H1407	1/2"	3/8"	3/16"	1"	2 5/8"
H1408	1/2"	1/2"	1/4"	1 1/4"	2 7/8"
H1410	1/2"	5/8"	5/16"	1 1/4"	2 7/8"
H1411	1/2"	3/4"	3/8"	1 1/4"	2 7/8"
H1413	1/2"	1"	1/2"	1 3/16"	2 13/16"

ROUNDING OVER (CORNER ROUNDS) WITH BALL BEARING GUIDE

Tool Number	Shank Diameter	Radius	Large Diameter	Carbide Height
H2000A	1/4"	1/16"	5/8"	1/2"
H2000C	1/4"	1/8"	3/4"	1/2"
H2000	1/4"	3/16"	7/8"	1/2"
H2001	1/4"	1/4"	1"	1/2"
H2002	1/4"	5/16"	1 1/8"	1/2"
H2003	1/4"	3/8"	1 1/4"	1/2"
H2004	1/4"	1/2"	1 1/2"	3/4"
H2006	1/2"	1/4"	1"	1/2"
H2007	1/2"	5/16"	1 1/8"	1/2"
H2008	1/2"	3/8"	1 1/4"	5/8"
H2009	1/2"	1/2"	1 1/2"	3/4"
H2010	1/2"	3/4"	2"	1"
H2011	1/2"	7/8"	2 1/4"	1 1/8"
H2012	1/2"	1"	2 1/2"	1 5/16"
H2013	1/2"	1 1/8"	3"	1 1/2"
H2014	1/2"	1 1/4"	3 1/4"	1 3/4"
H2015	1/2"	1 3/8"	3 1/2"	1 3/4"
H2016	1/2"	1 1/2"	3 1/2"	1 7/8"

BEARING: Use No. B3 on 2000A-2012
BEARING: Use No. B4 on 2013-2016

BEADING BITS WITH BALL BEARING GUIDE

Tool Number	Shank Diameter	Radius	Large Diameter	Carbide Height
H2100A	1/4"	1/16"	5/8"	1/2"
H2100C	1/4"	1/8"	3/4"	1/2"
H2100	1/4"	3/16"	7/8"	1/2"
H2101	1/4"	1/4"	1"	1/2"
H2102	1/4"	5/16"	1 1/8"	1/2"
H2103	1/4"	3/8"	1 1/4"	5/8"
H2104	1/4"	1/2"	1 1/2"	3/4"
H2106	1/2"	1/4"	1"	1/2"
H2107	1/2"	5/16"	1 1/8"	1/2"
H2108	1/2"	3/8"	1 1/4"	5/8"
H2109	1/2"	1/2"	1 1/2"	3/4"
H2110	1/2"	3/4"	2"	1"

BEARING: Use No. B2

ROMAN OGEE BITS

Tool Number	Shank Diameter	Radius	Large Diameter	Carbide Height
H2200	1/4"	5/32"	1 1/16"	15/32"
H2201	1/4"	1/4"	1 3/8"	21/32"
H2202	1/2"	5/32"	1 1/16"	15/32"
H2203	1/2"	1/4"	1 3/8"	11/32"

BEARING: Use No. B1

HALF ROUND

Tool Number	Shank Diameter	Radius	Opening of Cutter
H1425	1/4"	3/32"	3/16"
H1426	1/4"	1/8"	1/4"
H1427	1/4"	3/16"	3/8"
H1428	1/4"	1/4"	1/2"
H1429	1/2"	3/32"	3/16"
H1430	1/2"	1/8"	1/4"
H1431	1/2"	3/16"	3/8"
H1432	1/2"	1/4"	1/2"
H1433	1/2"	3/8"	3/4"
H1434	1/2"	1/2"	1"
H1435	1/2"	5/8"	1 1/4"

ROUTER BITS (STOCK)



CHAMFER BITS

Tool Number	Shank Diameter	Degree of Angle	Carbide Length	Overall Length
H2300	1/4"	15°	1/2"	1 3/4"
H2301	1/4"	25°	1/2"	1 3/4"
H2302	1/4"	45°	5/8"	1 3/4"
H2302A	1/4"	45°	1"	2"
H2305	1/2"	45°	5/8"	2"
H2306	1/2"	45°	1"	2 1/4"

BEARING: Use No. B3

BALL BEARING FLUSH TRIMMING BITS — DOUBLE FLUTE

Tool Number	Shank Diameter	Cutting Diameter	Cutting Length	Overall Length
H2400	1/4"	3/8"	1"	2 5/8"
H2401	1/4"	3/8"	1/2"	2 1/8"
H2402	1/4"	1/2"	1"	2 9/16"
H2403	1/4"	1/2"	1/2"	2 1/8"
H2404	3/8"	1/2"	1"	2 1/2"
H2405	1/2"	1/2"	1"	3 1/4"
H2406	1/2"	1/2"	1/2"	2 3/4"
H2407	1/2"	1/2"	1 1/2"	3 5/8"
H2408	1/2"	1/2"	2"	4"

BEARING: 2400-01 Use No. B1
2402-08 Use No. B3

BALL BEARING FLUSH TRIMMING BITS — THREE FLUTES

Tool Number	Shank Diameter	Cutting Diameter	Cutting Length	Overall Length
H2500	1/4"	1/2"	1"	2 1/2"
H2501	1/4"	1/2"	1/2"	2 1/8"
H2502	1/2"	1/2"	1"	3 1/4"
H2503	1/2"	1/2"	1/2"	2 3/4"
H2504	1/2"	1/2"	1 1/2"	3 5/8"

BEARING: Use No. B3

BALL BEARINGS

Tool Number	Outside Diameter	Inside Diameter
HB1	3/8"	1/8"
HB2	3/8"	3/16"
HB3	1/2"	3/16"
HB4	3/4"	1/4"
HB5	7/8"	5/16"

COVE BITS

Tool Number	Shank Diameter	Radius	Large Diameter	Depth of Cut
H1800A	1/4"	3/16"	7/8"	1/2"
H1800	1/4"	1/4"	1"	1/2"
H1801	1/4"	3/8"	1 1/4"	1/2"
H1802	1/4"	1/2"	1 1/2"	5/8"
H1803	1/2"	1/4"	1"	1/2"
H1804	1/2"	3/8"	1 1/4"	1/2"
H1805	1/2"	1/2"	1 1/2"	5/8"

BEARING: Use No. B1

LAMINATE CUTTERS — FOUR WINGS

Tool Number	Shank Diameter	Type of Cut
H2600	1/4"	flush
H2603	1/4"	15°
H2606	1/4"	25°
H2601	3/8"	flush
H2604	3/8"	15°
H2607	3/8"	25°
H2602	1/2"	flush
H2605	1/2"	15°
H2608	1/2"	25°

BEARING: Use No. B5

HELIX LAMINATE TRIMMING BITS

Tool Number	Shank Diameter	Cutting Diameter	Type of Cut	Cutting Length	Overall Length
H2700	1/4"	3/4"	flush	5/8"	2 1/4"
H2702	1/4"	7/8"	15°	3/8"	2"
H2701	1/2"	3/4"	flush	5/8"	2 1/2"
H2703	1/2"	7/8"	15°	3/8"	2 1/4"

BEARING: Use No. B4

LAMINATE TRIMMING BITS — DOUBLE FLUTE

Tool Number	Shank Diameter	Cutting Diameter	Carbide Length	Shank Length	Overall Length
H2800	1/4"	7/16"	1/2"	7/16"	1 1/8"
H2801	1/4"	7/16"	1/2"	1 5/16"	1 7/8"

MORTISE BITS

Tool Number	Shank Diameter	Cutting Diameter	Flute Length	Overall Length	Shank Length
H1300	1/4"	1/2"	3/4"	2 1/8"	1 1/4"
H1301	1/4"	5/8"	3/4"	2 1/8"	1 1/4"
H1302	1/4"	3/4"	3/4"	2 1/8"	1 1/4"
H1303	1/4"	1 1/4"	1/2"	2 1/8"	1 1/4"
H1304	1/2"	1 1/4"	1/2"	2 1/8"	1 1/4"

HELIX MORTISE* BITS — DOWN SHEAR

Tool Number	Size
H1325	1/2"
H1326	33/64"
H1327	41/64"
H1328	11/16"
H1329	3/4"
H1330	49/64"
H1331	13/16"
H1332	7/8"
H1333	1"
H1334	1 1/8"
H1335	1 1/4"

*Specify 1/4" — 28 THD or 5/16" — 24 THD

RABBETING BITS

Tool Number	Shank Diameter	Large Diameter	Depth of Rabbet	Cutting Length	Overall Length
H1900	1/4"	1 1/4"	3/8"	1/2"	2"
H1901	1/2"	1 1/4"	3/8"	1/2"	2 1/4"

BEARING: Use No. B3



ROUTER BITS (STOCK)

ARBORS FOR HELIX MORTISE BITS

Tool Number	Shank Diameter	Thread
HHMA1	1/4"	1/4"-28
HHMA4	1/4"	5/16"-24
HHMA5	3/8"	5/16"-24
HHMA2	3/8"	1/4"-28
HHMA3	1/2"	1/4"-28
HHMA6	1/2"	5/16"-24

ARBORS INCLUDING NUT AND TWO SPACERS

Tool Number	Shank Diameter	Spindle Diameter	Shank Length	Overall Length
HA 1/4	1/4"	5/16"	1 5/16"	2 3/8"
HA 3/8	3/8"	5/16"	1 5/16"	2 3/8"
HA 1/2	1/2"	5/16"	1 5/16"	2 3/8"

ARBORS FOR SLOTTING CUTTERS COMPLETE WITH NUT, WASHER & BEARING

Tool Number	Shank Diameter	Shank Length	Arbor Length	Thread
H6790	1/4"	1 1/2"	7/8"	5/16"-24
H6791	3/8"	1 1/2"	7/8"	5/16"-24
H6792	1/2"	1 1/2"	7/8"	5/16"-24

SLOTTING CUTTER — 2 WING

Tool Number	Kerf Decimal
H6700	.062
H6701	.070
H6702	.080
H6703	.094
H6704	.100
H6705	.125
H6706	.250

SLOTTING CUTTER — 3 WING

Tool Number	Kerf Decimal
H6700A	.062
H6701A	.070
H6702A	.080
H6703A	.094
H6704A	.100
H6705A	.125
H6706A	.250

SLOTTING CUTTER — 4 WING

Tool Number	Kerf Decimal
H6700B	.062
H6701B	.070
H6702B	.080
H6703B	.094
H6704B	.100
H6705B	.125
H6706B	.250

ROUTER BITS NOT SHOWN BUT AVAILABLE UPON REQUEST...

- FOUR WING CUTTERS
- RAISED PANEL CUTTERS
- ARBORS
- MULTI-SPUR BORING BIT
- SELF-CENTERING SLEEVE
- SOLID CARBIDE ROUTER
 - 1/4" SHANK — SINGLE FLUTE
 - 1/4" SHANK — DOUBLE FLUTE
 - 5/16" SHANK — SINGLE FLUTE
 - 5/16" SHANK — DOUBLE FLUTE
 - 3/8" SHANK — DOUBLE FLUTE
 - 1/2" SHANK — DOUBLE FLUTE
- TWO FLUTE FLAT BOTTOM VEINING BIT 2" OVERALL LENGTH
- SINGLE FLUTE ROUND BOTTOM VEINING BIT 2" OVERALL LENGTH
- DOUBLE FLUTE ROUND BOTTOM VEINING BIT 2" OVERALL LENGTH

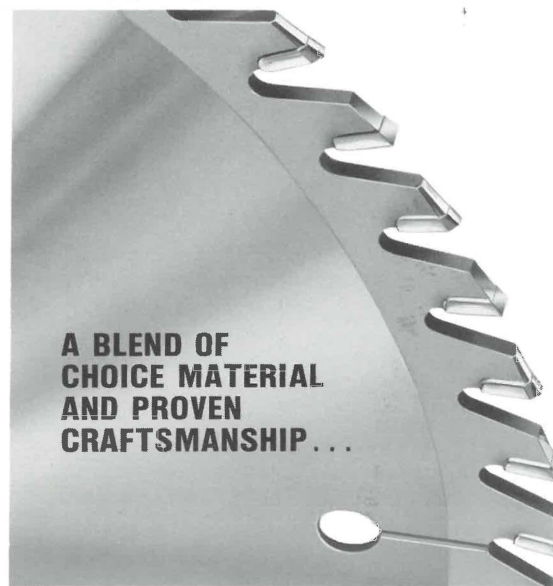
OTHER CUSTOM CARBIDE TIPPED CUTTING TOOLS AVAILABLE FROM HERCO...

- V-GROOVE CUTTERS
- SHAPER CUTTERS
- FORM CUTTERS
- DADOS
- MOLDERS
- TENON HEADS and
- TAMBOUR CUTTERS

CIRCULAR SAWS



HERCO CARBIDE TIPPED SAWS ARE CUSTOM MADE AND MANUFACTURED TO A CUSTOMER'S PARTICULAR NEED.



SAW BODIES

All of our saw blade bodies are made of the highest quality saw steel. Each blade is heat treated to the optimum hardness for greater strength, stability, and toughness.

CARBIDE

Next comes the selection of the best grade of carbide available for a specific application. The carbide is the heart of a Herco saw. Our selection must have a combination of hardness, transverse rupture strength, and abrasion resistance that exceeds all other grades for the use intended.

BRAZING

Herco puts tips in to stay. Over the years, Herco has developed a process of brazing carbide tips in saws at precisely the right temperature using the proper flux and the most advanced sandwich type silver solder. Take a look at the joint in a Herco saw or cutter. Notice the even flow of the silver solder which creates a permanent bond in every joint, free of blow holes and with uniform holding strength. Generally, a Herco Saw can be identified by this even flow of silver solder.

TENSIONING AND STRAIGHTENING

Every Herco saw is straightened and tensioned by experienced sawsmiths. The purpose of tension is to insure that centrifugal force acting on a saw at a certain R.P.M. and under certain load conditions does not cause the saw to wobble or lead in the cut. Straightness insures every tooth is cutting equally and that the saw does not have a warp or dish.

CUTTING EDGE

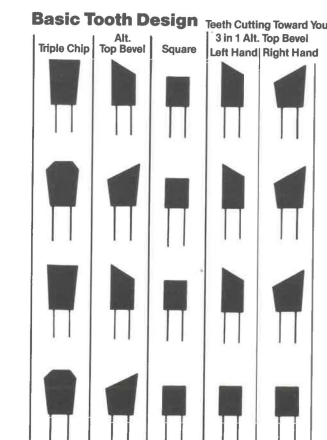
The business end of any saw or cutting tool is the cutting edge. Do not mistake a mirror finish for a sharp edge. A sharp edge must be free of any minute chips or cratering so often found in carbide tools and can only be seen with a powerful magnifying glass. To insure keen edges that will do a superior job, Herco, on special equipment, laps all cutting edges after sharpening with a 400 grit — 100 concentration diamond wheel. This has to be done under conditions that do not burn or otherwise disturb the grain structure.

HOW TO ORDER:

When ordering Herco Custom Saw Blades that will exactly fit your needs, please supply as much of the following information as possible:

- A. USE:
 - Rip-Saw
 - Cut-Off Saw
 - Combination Saw
 - Non-Ferrous Material Saw
 - Panel Saw
 - Multi Rip Saw
 - Special Purpose Saw
 - Other
- B. MATERIAL TO BE CUT & THICKNESS:
 - Soft Wood
 - Hard Wood
 - Laminates
 - Aluminum
 - Soft Metals
 - Hard Metals
 - Plastics
 - Vinyls
 - Other
- C. QUALITY OF CUT:
 - Course
 - Medium
 - Fine
 - Glue Lines
 - Combination
 - Other
- D. TYPE OF MACHINE & FEED RATE:
 - (Manual or Power)
- E. TYPE OF CUT:
 - Cross-Cut
 - Rip
 - Bevel
- F. BLADE DIAMETER
- ARBOR DIAMETER

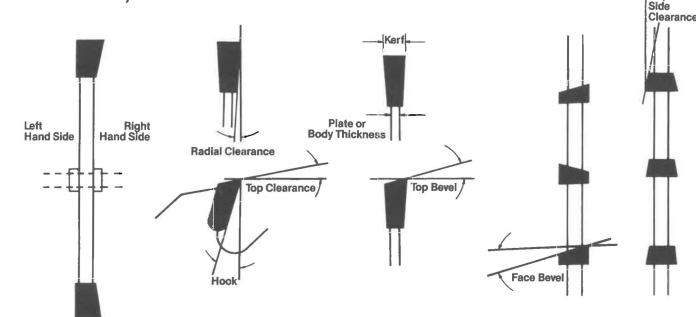
TYPE OF GRIND/CUT:



ALL SAWS MANUFACTURED CAN BE MADE WITH ANY OF THESE GRINDS OR WITH ANY OTHER SPECIAL REQUIREMENTS.

CIRCULAR SAW TERMINOLOGY:

(To Determine The Right or Left Hand Side of a Saw, Hold The Saw Vertical With The Top Teeth Cutting Toward You.)





Supplying tooling worldwide since 1968

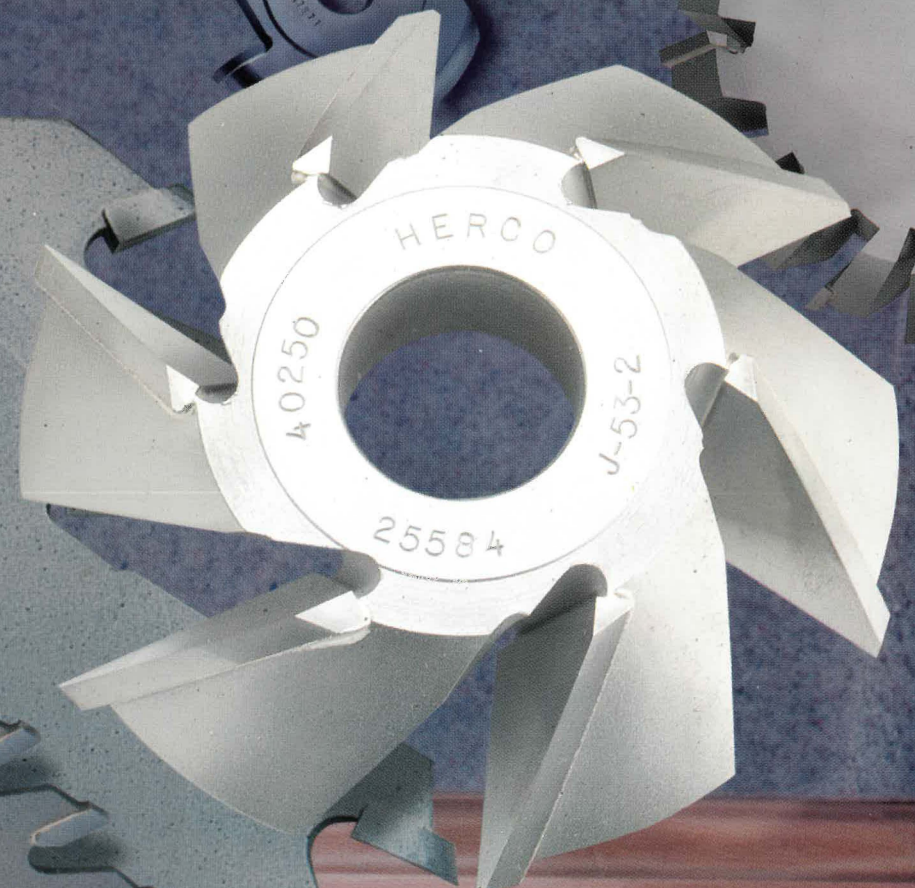
On July 1, 1968, Herco Cutting Tools, Inc. was established and began supplying custom V-Groove cutters to a few select customers in Ohio and Pennsylvania. Thanks to our 3-D Philosophy and a little word of mouth, our reputation for premium tooling and service at a reasonable price quickly spread. Today, we ship custom carbide tooling to every corner of the United States, as well as 17 foreign countries. As a result, we have enjoyed steady, controlled growth for over 28 years.

In December of 1993, we created a new company, 3-D Diamond Tooling, Inc., dedicated to manufacturing and servicing diamond cutting tools for the wood industry. A new 20,000 sq.ft. plant in Newcomerstown, Ohio, now serves as home to both Herco Cutting Tools and 3-D Diamond Tooling. Today, we are almost a full CNC operation, providing better products and service to the woodworking industry.

HERCO

CUTTING TOOLS
INCORPORATED

3-D
DIAMOND TOOLING
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P.O. Box 314 • 295 Enterprise Drive • Newcomerstown, OH 43832 • Phone (614) 498-5181 • Fax (614) 498-5454

PROFIT THROUGH AMERICAN TECHNOLOGY
WOOD MACHINERY
MANUFACTURERS
OF AMERICA
MEMBER
Printed in U.S.A.



Our overriding philosophy puts the customer first.

Herco Cutting Tools, Inc. was established almost 30 years ago on a relatively simple philosophy...the 3-D Philosophy. It's a commitment to our customers to: (1) **design** and build the best tools available at a reasonable price; (2) be the most **dependable** tooling company a customer could align themselves with; and (3) **dedicate** ourselves to being "The World's Finest Cutting Tool Manufacturer".

In fact, we believe in this philosophy so much that we named our second company after it, 3-D Diamond Tooling, Inc. At Herco and 3-D Diamond Tooling, we listen to our customers, and we respond quickly, as you'll find in our 24-Hour Guarantee. We're convinced that quality service, our long-standing

100% Satisfaction guarantee and our 3-D Philosophy, have led to our 30 years of success and continued growth in the custom tooling market. Plus, we simply manufacture the best custom tools available.

My sons, Chris and Greg, share my goal of being "The World's Finest Cutting Tool Manufacturer". We also share the great satisfaction of knowing that you, our customers, have complete confidence that Herco Cutting Tools and 3-D Diamond Tooling can take care of all your custom and standard tooling needs.

Gary D. Dyer, President

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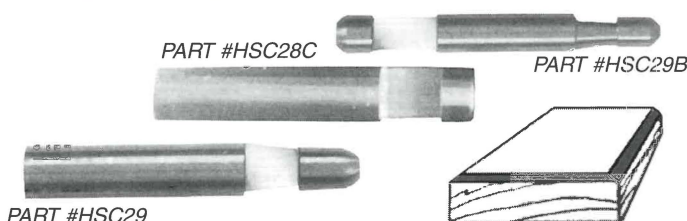
SOLID CARBIDE



PART #HSC19
STRAIGHT CUT

Part Number	Cutting Diameter	Cutting Length	Shank Diameter	Overall Length
SINGLE FLUTE				
HSC01	1/16"	5/16"	1/4"	1 1/2"
HSC02	1/8"	3/8"	1/4"	1 1/2"
HSC03	5/32"	5/8"	1/4"	1 1/2"
HSC04	3/16"	1/2"	1/4"	1 1/2"
HSC05	7/32"	3/4"	1/4"	2"
HSC06	1/4"	3/4"	1/4"	2"
HSC07	1/4"	1"	1/4"	2 1/2"
HSC08	1/4"	1"	1/4"	3"
HSC17	5/16"	1"	5/16"	2 1/2"

Part Number	Cutting Diameter	Cutting Length	Shank Diameter	Overall Length
DOUBLE FLUTE				
HSC09	1/8"	3/8"	1/4"	1 1/2"
HSC09A	1/8"	3/8"	1/4"	2"
HSC10	5/32"	5/8"	1/4"	1 1/2"
HSC10A	5/32"	5/8"	1/4"	2"
HSC11	3/16"	1/2"	1/4"	1 1/2"
HSC11A	3/16"	1/2"	1/4"	2"
HSC12	3/16"	5/8"	1/4"	2"
HSC13	7/32"	3/4"	1/4"	2"
HSC14	1/4"	3/4"	1/4"	2"
HSC15	1/4"	1"	1/4"	2 1/2"
HSC16	1/4"	1"	1/4"	3"
HSC18	5/16"	1"	5/16"	2 1/2"
HSC19	3/8"	1"	3/8"	2 1/2"
HSC20	1/4"	3/4"	1/2"	2 3/4"
HSC21	1/4"	1"	1/2"	3"
HSC22	5/16"	1"	1/2"	3"
HSC23	3/8"	1"	1/2"	3"
HSC24	3/8"	1 1/4"	1/2"	3 1/4"
HSC25	1/2"	1"	1/2"	3"
HSC26	1/2"	1 1/4"	1/2"	3"
HSC27	1/2"	1 1/2"	1/2"	3 1/2"



PART #HSC28C
LAMINATE TRIM - 1/4" shank

Part Number	Cutting Length	Overall Length	Description
HSC28	3/8"	1 1/2"	Flush
HSC28A	1/4"	2"	Flush Double end
HSC28B	1/4"	1 1/2"	Flush
HSC28C	1/4"	1 1/2"	Flush Sm Pilot, Dado Cut
HSC29	1/4"	1 1/2"	7° Bevel
HSC29A	1/4"	2"	7° Bevel Double end
HSC29B	1/4"	2"	Flush & 7° Double end



PART #HSC30
FLUSH & 7° BEVEL TRIM

Part Number	Cutting Diameter	Shank Diameter	Overall Length
HSC30	3/8"	1/4"	1 1/2"

SOLID CARBIDE IS NOT GUARANTEED AGAINST BREAKAGE

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PART #HSC31
HOLE & FLUSH TRIM

Part Number	Cutting Length	Shank Diameter	Overall Length
HSC31	1/4"	1/4"	2"



PART #HSC32
RIP & SLOTTING

Part Number	Cutting Length	Shank Diameter	Overall Length
HSC32	3/8"	1/4"	1 1/2"



PART #HSC33
FLAT BOTTOM VEINING - 1/4" shank

Part Number	Cutting Diameter	Cutting Length	Overall Length
DOUBLE FLUTE			
HSC33	1/8"	1/4"	2"
HSC34	3/16"	3/8"	2"
HSC35	1/4"	1/2"	2"



PART #HSC38
ROUND BOTTOM VEINING

Part Number	Radius	Cutting Diameter	Cutting Length	Overall Length
1/4" SHANK • SINGLE FLUTE				
HSC36	1/16"	1/8"	1/4"	2"
HSC37	3/32"	3/16"	1/4"	2"
HSC38	1/8"	1/4"	1/4"	2"

1/4" SHANK • DOUBLE FLUTE				
HSC39	1/16"	1/8"	1/4"	2"
HSC40	3/32"	3/16"	3/8"	2"
HSC41	1/8"	1/4"	3/8"	2"



PART #HSC90V
SOLID CARBIDE FIBERGLASS BIT

Part Number	Cutting Diameter	Cutting Length	Shank Diameter	Overall Length
HSC90	1/4"	3/4"	1/4"	2 1/2"
HSC90V	1/4"	3/4"	1/4"	2 1/2"

*Note - order HSC90 for flat point
order HSC90V for vee point

SOLID CARBIDE SPIRALS



SPIRAL BITS - DOWN CUT
SOLID CARBIDE - DOUBLE FLUTE

Right Hand Part Number	Left Hand Part Number	Cutting Diameter	Cutting Length
1/4" SHANK			
HRD1600	HLD1600	1/8"	1/2"
HRD1700	HLD1700	5/32"	5/8"
HRD1800	HLD1800	3/16"	3/4"
HRD1900		7/32"	3/4"
HRD2075		1/4"	3/4"
HRD2100	HLD2100	1/4"	1"

5/16" SHANK			
HRD3100	HLD3075	5/16"	3/4"
	HLD3100	5/16"	1"

3/8" SHANK			
HRD4100	HLD4100	3/8"	1"

1/2" SHANK			
HRD4800	HLD4800	9/32"	1"
HRD4850		5/16"	1"
HRD4900		3/8"	1 1/4"
HRD4950		7/16"	1 1/4"
HRD5125	HLD5125	1/2"	1 1/4"
HRD5150		1/2"	1 1/2"
HRD5200	HLD5200	1/2"	2"

5/8" SHANK			
HRD6150	HLD6150	5/8"	1 1/2"
HRD6200	HLD6200	5/8"	2"

3/4" SHANK			
HRD7150	HLD7150	3/4"	1 1/2"
HRD7200	HLD7200	3/4"	2"



SPIRAL BITS - UP/DOWN CUT
SOLID CARBIDE

Part Number	Cutting Diameter	Cutting Length	Shank Diameter
HUD4100	3/8"	1"	3/8"
HUD5150	1/2"	1 1/2"	1/2"
HUD7200	3/4"	2"	3/4"

* Used on Double-sided Laminates.

Spirals Available with Chipbreakers, add "CB" to Part Number.

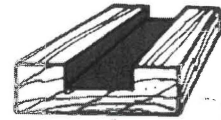
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CARBIDE TIPPED



PART #H1039

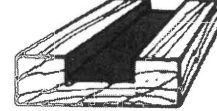


STRAIGHT BITS

Part Number	Cutting Diameter	Cutting Length	Overall Length
1/4" SHANK • SINGLE FLUTE			
H1003	1/4"	1/2"	2"
H1004	1/4"	3/4"	2 1/4"
H1005	1/4"	1"	2 1/4"
H1006	1/4"	3/4"	2 3/4"
H1007	1/4"	1"	3 1/8"
H1008	9/32"	3/4"	2 1/4"
H1009	5/16"	1"	2 1/2"
1/4" SHANK • DOUBLE FLUTE			
H1012	1/4"	1/2"	2"
H1013	1/4"	3/4"	2 1/4"
H1014	1/4"	1"	2 1/2"
H1016	1/4"	1"	3"
H1018	9/32"	1"	3"
H1019	5/16"	1"	2 1/2"
H1021	3/8"	3/4"	2 1/4"
H1022	3/8"	1"	2 1/2"
H1023	3/8"	1 1/4"	2 3/4"
H1024	7/16"	1"	2 1/2"
H1024A	31/64"	3/4"	2 1/4"
H1025	1/2"	3/4"	2 1/4"
H1026	1/2"	1"	2 1/2"
H1027	9/16"	3/4"	2 1/8"
H1027A	19/32"	3/4"	2 1/8"
H1028	5/8"	3/4"	2 1/8"
H1029	11/16"	3/4"	2 1/8"
H1029A	23/32"	3/4"	2 1/8"
H1030	3/4"	3/4"	2 1/8"
H1031	3/4"	1"	2 5/8"
H1033	1"	3/4"	2 1/8"
5/16" SHANK • SINGLE FLUTE			
H1033A	5/16"	1"	2 5/8"
5/16" SHANK • DOUBLE FLUTE			
H1033B	5/16"	1"	2 5/8"
3/8" SHANK • SINGLE FLUTE			
H1035	3/8"	1"	2 5/8"
H1036	3/8"	1 1/4"	2 7/8"
3/8" SHANK • DOUBLE FLUTE			
H1037	1/4"	3/4"	2 3/8"
H1039	3/8"	1"	2 5/8"
H1040	3/8"	1 1/4"	2 7/8"
H1041	3/8"	1 1/4"	3 5/8"
H1043	1/2"	1"	2 1/2"
H1045	7/8"	1"	2 1/2"
1/2" SHANK • SINGLE FLUTE			
H1048	3/8"	3/4"	2 3/8"
H1049	3/8"	1"	2 5/8"
H1050	3/8"	1 1/4"	2 7/8"
H1052	1/2"	1 1/4"	2 7/8"
H1054	1/2"	1 1/2"	3 1/8"
H1055	1/2"	2"	4 1/8"
H1055A	1/2"	2 1/2"	4 3/8"



PART #H1039



STRAIGHT BITS, (cont'd)

Part Number	Cutting Diameter	Cutting Length	Overall Length
1/2" SHANK • DOUBLE FLUTE			
H1058	1/4"	3/4"	2 3/8"
H1059	9/32"	3/4"	2 3/8"
H1060	5/16"	1"	2 5/8"
H1061	3/8"	3/4"	2 3/8"
H1062	3/8"	1"	2 5/8"
H1063	3/8"	1 1/4"	2 7/8"
H1064	13/32"	3/4"	2 1/2"
H1065	7/16"	1 1/4"	2 7/8"
H1065L	7/16"	1 1/4"	3 1/4"
H1065A	31/64"	1"	2 5/8"
H1066	1/2"	1"	2 5/8"
H1067	1/2"	1 1/4"	2 7/8"
H1069	1/2"	1 1/2"	3 1/8"
*H1069DS	1/2"	1 1/2"	3 1/8"
H1070	1/2"	1 1/2"	4 1/8"
H1071	1/2"	2"	3 1/2"
H1072	1/2"	2"	4 1/8"
H1073	1/2"	2 1/2"	4 3/8"
H1074	17/32"	1 1/4"	2 7/8"
H1075	9/16"	1 1/4"	3"
H1075A	19/32"	3/4"	2 1/4"
H1076	5/8"	1"	2 1/2"
H1077	5/8"	1 1/4"	3"
H1078	5/8"	1 1/2"	3"
H1079	5/8"	2"	4"
H1080	21/32"	1 1/4"	3"
H1082	11/16"	1"	2 1/2"
H1083	11/16"	1 1/4"	3"
H1083A	23/32"	1"	2 1/2"
H1084	3/4"	1"	2 1/2"
H1085	3/4"	1 1/4"	3"
H1086	3/4"	1 1/2"	3"
H1087	3/4"	2"	3 5/8"
H1088	25/32"	1 1/4"	3"
H1090	13/16"	1 1/4"	3"
H1091	7/8"	1 1/4"	3"
H1093	1"	1 1/4"	3"
H1094	1"	1 1/2"	3"
H1095	1"	2"	3 3/4"
H1096	1 1/8"	1 1/2"	3"
H1097	1 1/4"	1 1/2"	3"
H1098	1 3/8"	1 1/4"	3"
H1099	1 1/2"	1 1/4"	3"
H1100	1 3/4"	1 1/4"	3"
H1101	2"	1 1/4"	3"
3/4" SHANK • DOUBLE FLUTE			
H1103	3/4"	1 1/4"	3"
H1104	3/4"	1 1/2"	3 1/4"
H1105	3/4"	2"	4"
H1106	3/4"	2 1/2"	4 1/2"
H1108	1"	1 1/2"	3 1/4"
H1109	1"	2"	4 1/4"

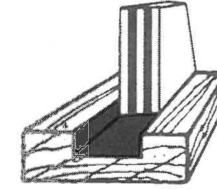
* DS-Down Shear

Tools on this page can be supplied with chipbreakers and boring points. Prices available upon request. For chipbreakers, add CB to Part No. For boring points, specify Flat (F) or Vee (V) point.

CARBIDE TIPPED



STRAIGHT CUT CABINET DADO BITS

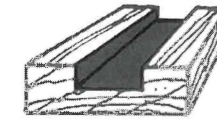


FOR UNDERSIZED PLYWOOD

Part Number	Cutting Diameter	Cutting Length	Overall Length
1/4" SHANK • DOUBLE FLUTE			
H1024A	31/64"	3/4"	2 1/4"
H1027A	19/32"	3/4"	2 1/8"
H1029A	23/32"	3/4"	2 1/8"
1/2" SHANK • DOUBLE FLUTE			
H1065A	31/64"	1"	2 5/8"
H1075A	19/32"	3/4"	2 1/4"
H1083A	23/32"	1"	2 1/2"



PART #H1105LH

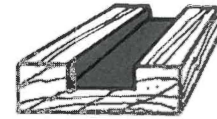


LEFT HAND - STRAIGHT CUT

Part Number	Cutting Diameter	Cutting Length	Overall Length
1/4" SHANK • DOUBLE FLUTE			
H1014LH	1/4"	1"	2 1/2"
1/2" SHANK • DOUBLE FLUTE			
H1062LH	3/8"	1"	2 5/8"
H1066LH	1/2"	1"	2 5/8"
H1069LH	1/2"	1 1/2"	3 1/8"
H1072LH	1/2"	2"	4 1/8"
3/4" SHANK • DOUBLE FLUTE			
H1105LH	3/4"	2"	5"
H1106LH	3/4"	2 1/2"	4 1/2"
H1126LH	3/4"	2 1/2"	5"
*H1128LH	3/4"	2 1/2"	5 1/2"



PART H1150LHS



LEFT HAND SHEAR FACE

Part Number	Cutting Diameter	Cutting Length	Overall Length
3/4" SHANK • DOUBLE FLUTE			
*H1150LHS	3/4"	2"	5"
*H1152LHS	3/4"	2 1/2"	5 1/2"

* for "Topmaster" machines.

Tools on this page can be supplied with chipbreakers and boring points. Prices available upon request. For chipbreakers, add CB to Part No. For boring points, specify Flat (F) or Vee (V) point.

CNC ROUTER BITS - STRAIGHT CUT

C Series Tools are specifically designed for the severe applications & extreme demands of CNC Routing. ** USE ON CNC ROUTERS ONLY.

Part Number	Cutting Diameter	Cutting Length	Overall Length
1/2" SHANK • SINGLE FLUTE			
HC1052	1/2"	1 1/4"	2 7/8"
HC1055	1/2"	2"	4 1/8"
1/2" SHANK • DOUBLE FLUTE			
HC1067	1/2"	1 1/4"	2 7/8"
HC1069	1/2"	1 1/2"	3 1/8"
HC1072	1/2"	2"	4 1/8"
5/8" SHANK • SINGLE FLUTE			
HC6210	1/2"	1 1/4"	3"
HC6220	1/2"	2"	4"
5/8" SHANK • DOUBLE FLUTE			
HC6310	5/8"	1 1/4"	3"
HC6320	5/8"	2"	4"
HC6420	3/4"	2"	4"
3/4" SHANK • SINGLE FLUTE			
HC7210	1/2"	1 1/4"	3"
HC7220	1/2"	2"	4 1/8"
3/4" SHANK • DOUBLE FLUTE			
HC7420	3/4"	2"	4"
HC7430	3/4"	2 1/2"	4 1/2"



PART #H1202



STAGGETOOTH BITS

Part Number	Cutting Diameter	Cutting Length	Overall Length
1/2" SHANK			
H1201	3/8"	1 1/2"	3 1/8"
H1202	1/2"	1 1/2"	3 1/8"
H1203	1/2"	2 1/8"	4"
H1204	5/8"	2 1/8"	4 3/4"



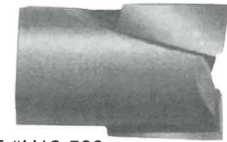
PART #H1300



MORTISE BITS

Part Number	Cutting Diameter	Cutting Length	Overall Length
1/4" SHANK			
H1300	1/2"	3/4"	2 1/8"
H1301	5/8"	3/4"	2 1/8"
H1302	3/4"	3/4"	2 1/8"
H1303	1 1/4"	1/2"	2 1/8"
1/2" SHANK			
H1304	1 1/4"	1/2"	2 1/8"

CARBIDE TIPPED



PART #H13-500

SCREW TYPE HELIX MORTISE WITH DOWNSHEAR - CUTTER ONLY

Part Number	Cutting Diameter		Cutting Length	Overall Length
	Fractional	Decimal		
DOUBLE FLUTE				
H13-500	1/2"	.500	5/8"	7/8"
H13-515	33/64"	.515	5/8"	7/8"
H13-531	17/32"	.531	5/8"	7/8"
H13-562	9/16"	.562	5/8"	7/8"
H13-625	5/8"	.625	5/8"	7/8"
H13-640	41/64"	.640	5/8"	7/8"
H13-656	21/32"	.656	5/8"	7/8"
H13-687	11/16"	.687	5/8"	7/8"
H13-719	23/32"	.719	5/8"	7/8"
H13-750	3/4"	.750	5/8"	7/8"
H13-765	49/64"	.765	5/8"	7/8"
H13-781	25/32"	.781	5/8"	7/8"
H13-812	13/16"	.812	5/8"	7/8"
H13-875	7/8"	.875	5/8"	7/8"
H13-1000	1"	1.000	1/2"	1/2"
H13-1125	1 1/8"	1.125	1/2"	1/2"
H13-1250	1 1/4"	1.250	1/2"	1/2"

All Cutters Supplied with 1/4" - 28 threads
Special Sizes Available

HELIX MORTISE ARBORS

Part Number	Shank Diameter	Thread	Overall Length
HMA-1/4	1/4"	1/4"-28	1 3/4"
HMA-1/2	1/2"	1/4"-28	1 3/4"



PART #H1374

BOWL & TRAY BITS

Part Number	Radius	Cutting Diameter	Cutting Length	Overall Length
1/4" SHANK				
H1370	1/8"	7/16"	5/16"	2 1/8"
H1372	1/4"	3/4"	5/8"	2 3/8"
1/2" SHANK				
H1374	1/4"	3/4"	5/8"	2 3/8"
H1376	1/4"	1 1/4"	5/8"	2 3/8"



Part #H1408

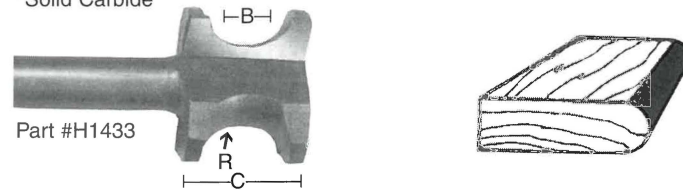
ROUND NOSE (CORE BOX)

Part Number	Radius	Cutting Diameter	Cutting Length	Overall Length
1/4" SHANK				
*HSC39	1/16"	1/8"	1/4"	2"
*HSC40	3/32"	3/16"	3/8"	2"
*HSC41	1/8"	1/4"	3/8"	2"
H1403	3/16"	3/8"	1/2"	2"
H1404	1/4"	1/2"	5/8"	2 1/4"
H1405	5/16"	5/8"	3/8"	2"
H1406	3/8"	3/4"	7/16"	2"

1/2" SHANK

H1407	3/16"	3/8"	1"	2 5/8"
H1408	1/4"	1/2"	1 1/4"	2 7/8"
H1410	5/16"	5/8"	1 1/4"	2 7/8"
H1411	3/8"	3/4"	1 1/4"	2 7/8"
H1413	1/2"	1"	1 1/4"	2 7/8"
H1414	5/8"	1 1/4"	1 1/4"	3"
H1415	3/4"	1 1/2"	1 1/4"	3"

*Solid Carbide



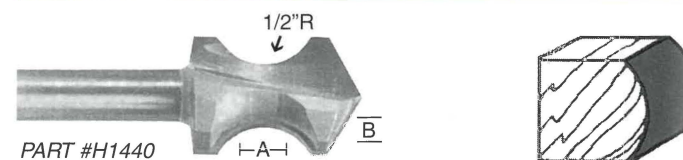
Part #H1433

HALF ROUND (BULL NOSE)

Part Number	"R" Radius	"B" Opening of Cutter	"C" Cutting Length	Overall Length
1/4" SHANK				
H1425	3/32"	3/16"	1/2"	1 3/4"
H1426	1/8"	1/4"	9/16"	1 7/8"
H1427	3/16"	3/8"	7/8"	2 3/16"
H1428	1/4"	1/2"	1"	2 3/8"

1/2" SHANK

H1429	3/32"	3/16"	1/2"	1 7/8"
H1430	1/8"	1/4"	9/16"	2"
H1431	3/16"	3/8"	7/8"	2 5/16"
H1432	1/4"	1/2"	1"	2 1/2"
H1433	3/8"	3/4"	1 1/4"	2 3/4"
H1433A	7/16"	7/8"	1 1/2"	3 1/4"
H1434	1/2"	1"	1 1/2"	3 1/4"
H1434A	9/16"	1 1/8"	1 1/2"	3 1/4"
H1435	5/8"	1 1/4"	1 3/4"	3 3/8"



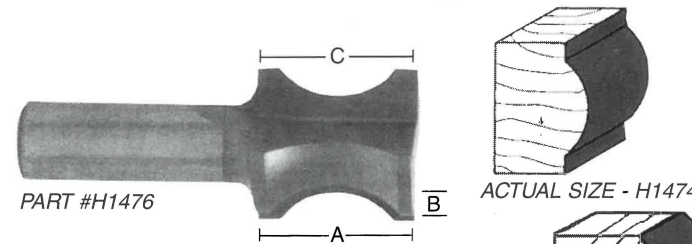
PART #H1440

PLUNGE CUT HAND GRIP - 1/2" SHANK

Part Number	"A" Bead Opening	"B" Bead Depth	Cutting Length	Overall Length
H1440	7/8"	1/4"	1 3/8"	3 1/2"
H1440B	7/8"	1/4"	1 3/8"	3 1/2"

"B" Denotes bearing (B11) on shank for template

CARBIDE TIPPED



PART #H1476

OVAL EDGE (HALF BULL NOSE)

Part Number	"A" Bead Opening	"B" Bead Depth	"C" Cutting Length	Overall Length
1/2" SHANK				
H1474	1/2"	1/8"	1"	2 5/8"
H1476	3/4"	3/16"	1 1/4"	2 7/8"



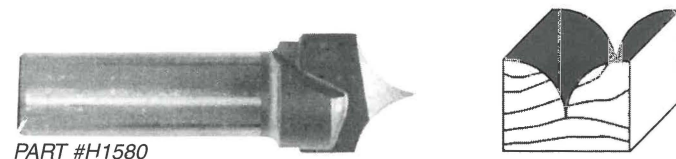
PART #H1505

V GROOVE

Part Number	Cutting Diameter	Cutting Length	Shank Diameter	Overall Length
90° INCLUDED ANGLE				
*H1500	1/4"	1/4"	1/4"	1 1/2"
H1501	3/8"	3/8"	1/4"	1 3/4"
H1502	1/2"	1/2"	1/4"	1 3/4"
H1504	3/4"	1/2"	1/2"	2 3/16"
H1505	1"	5/8"	1/2"	2 7/16"
H1507	1 1/2"	7/8"	1/2"	3"

*Solid Carbide

60° INCLUDED ANGLE				
*H1550	1/2"	5/8"	1/4"	2"
H1560	1/2"	5/8"	1/2"	2 1/4"



PART #H1580

POINT CUTTING ROUND OVER DECORATIVE TRIMMING & LETTERING

Part Number	Radius	Cutting Diameter	Cutting Length	Overall Length
1/4" SHANK				
H1570	3/16"	3/8"	3/8"	2"
H1572	1/4"	1/2"	3/8"	2"
H1574	3/8"	3/4"	5/8"	2"
1/2" SHANK				
H1580	3/8"	3/4"	5/8"	2 1/4"

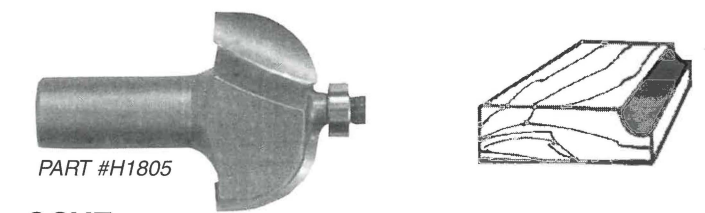
Point Cutting Roundovers are not guaranteed against breakage.



PART #H1700

PANEL BITS - PILOT PLUNGE POINT

Part Number	No. Flutes	Cutting Diameter	Cutting Length	Shank Diameter	Overall Length
H1700	1	1/4"	3/4"	1/4"	2 5/8"
H1701	1	3/8"	1"	3/8"	3 1/4"
H1702	1	1/2"	1 1/4"	1/2"	4"
H1704	2	3/8"	1"	1/4"	3 1/4"
H1705	2	3/8"	1"	3/8"	3"
H1706	2	1/2"	1 1/4"	1/2"	4"

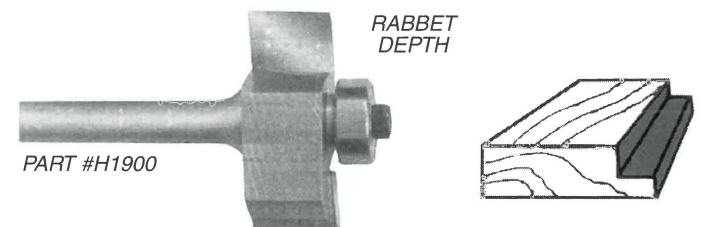


PART #H1805

COVE

Part Number	Radius	Large Diameter	Cutting Length	Bearing Number
1/4" SHANK				
H1800A	3/16"	7/8"	1/2"	B3
H1800	1/4"	1"	1/2"	B3
H1801	3/8"	1 1/4"	1/2"	B3
H1802	1/2"	1 1/2"	5/8"	B3

1/2" SHANK				
H1803	1/4"	1"	1/2"	B3
H1804	3/8"	1 1/4"	1/2"	B3
H1805	1/2"	1 1/2"	5/8"	B3
H1806	5/8"	1 3/4"	3/4"	B3
H1807	3/4"	2"	7/8"	B3



PART #H1900

RABBETING

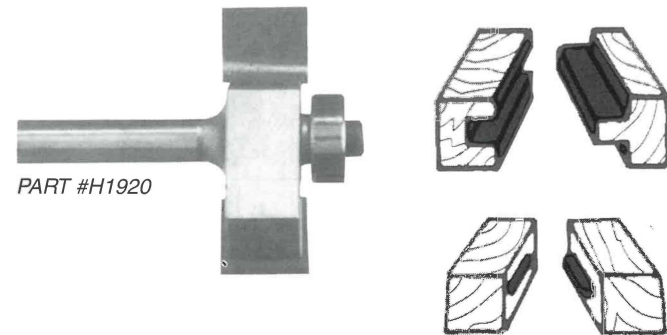
Part Number	Large Diameter	Rabbit Depth	Cutting Length	Overall Length	Bearing Number
1/4" SHANK					
H1900	1 1/4"	3/8"	1/2"	2"	B3
1/2" SHANK					
H1901	1 1/4"	3/8"	1/2"	2 1/4"	B3

RABBETING BIT SET

Includes standard Rabbeting Bit above with HBB500 bearing assortment kit. Allows rabbit depths of 1/4", 5/16", 3/8", and 7/16". Hex wrench included.

Part Number	Description
H1902	1/4" SHANK SET
H1903	1/2" SHANK SET

CARBIDE TIPPED

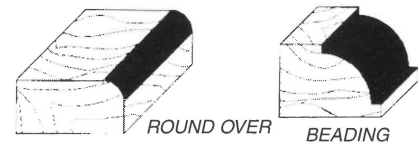


RABBETING, BISCUIT JOINING & SLOTTING

Part Number	Large Diameter	Cutting Length	Cutting Depth	Overall Length
1/4" SHANK				
H1904	1 1/4"	1/8"	3/8"	2"
*H1908	1 1/2"	5/32"	1/2"	1 3/4"
H1912	1 1/4"	1/4"	3/8"	2"
H1916	1 1/4"	3/8"	3/8"	2"
H1920	1 1/2"	1/2"	1/2"	2"

Part Number	Large Diameter	Cutting Length	Cutting Depth	Overall Length
1/2" SHANK				
H1906	1 1/4"	1/8"	3/8"	2"
*H1910	1 1/2"	5/32"	1/2"	2"
H1914	1 1/4"	1/4"	3/8"	2"
H1918	1 1/4"	3/8"	3/8"	2 1/8"
H1922	1 1/2"	1/2"	1/2"	2 1/4"
H1924	1 1/4"	3/4"	3/8"	2 1/2"

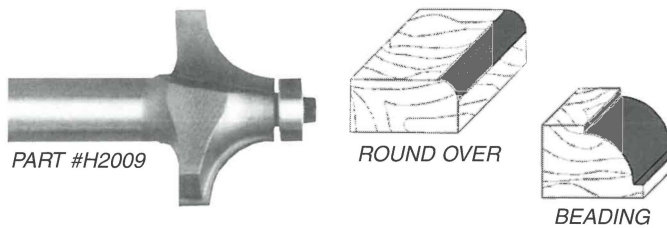
H3 Bearing supplied.
Change cutting depths with HBB500 3 piece Conversion Kit
*Made for Biscuit Joining



ROUNDING OVER & BEADING (cont'd) BALL BEARING GUIDE

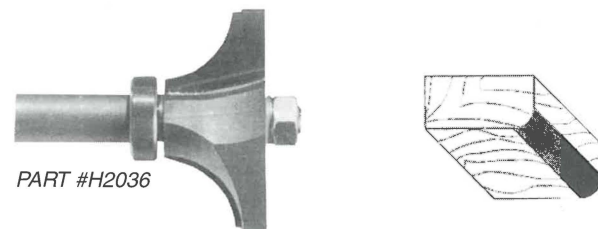
Round-Over Part Number	Beading Part Number	Radius	Large Diameter	Cutting Length
1/2" SHANK				
H2005	H2105	3/16"	7/8"	1/2"
H2006	H2106	1/4"	1"	1/2"
H2007	H2107	5/16"	1 1/8"	1/2"
H2008	H2108	3/8"	1 1/4"	5/8"
H2009	H2109	1/2"	1 1/2"	3/4"
H2009A	H2109A	5/8"	1 3/4"	1"
H2010	H2110	3/4"	2"	1"
H2011		7/8"	2 1/4"	1 1/8"
H2012	H2112	1"	2 1/2"	1 5/16"
H2013		1 1/8"	3"	1 1/2"
H2014		1 1/4"	3 1/4"	1 3/4"
H2015		1 3/8"	3 1/2"	1 3/4"
H2016		1 1/2"	3 3/4"	1 7/8"

Bearing: Use B3 for Rounding Over
Use B2 for Beading
Use B4 for H2013 thru H2016



ROUNDING OVER & BEADING BALL BEARING GUIDE

Round-Over Part Number	Beading Part Number	Radius	Large Diameter	Cutting Length
1/4" SHANK				
H2000A	H2100A	1/16"	5/8"	1/2"
H2000C	H2100C	1/8"	3/4"	1/2"
H2000	H2100	3/16"	7/8"	1/2"
H2001	H2101	1/4"	1"	1/2"
H2002	H2102	5/16"	1 1/8"	1/2"
H2003	H2103	3/8"	1 1/4"	5/8"
H2004	H2104	1/2"	1 1/2"	3/4"

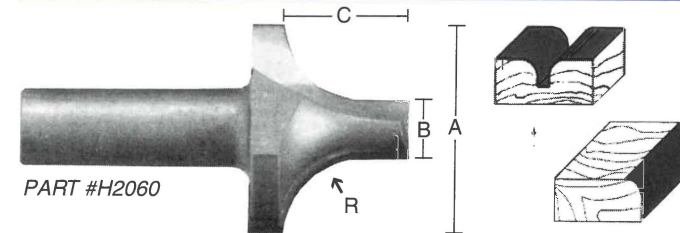


ROUNDING UNDER

Part Number	Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H2024	1/4"	1 3/8"	1/2"	2 3/4"
H2026	3/8"	1 5/8"	5/8"	3"
H2028	1/2"	1 7/8"	3/4"	3"
1/2" SHANK				
H2030	1/4"	1 3/8"	1/2"	3"
H2032	3/8"	1 5/8"	5/8"	3"
H2034	1/2"	1 7/8"	3/4"	3"
H2036	3/4"	2 3/8"	1 1/16"	3 3/8"

Bearing Number: B5

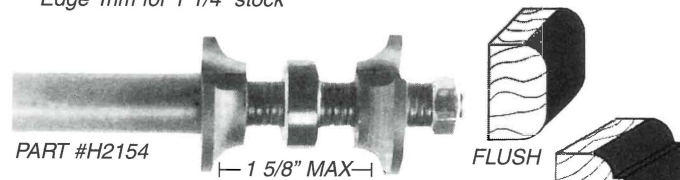
CARBIDE TIPPED



BORING POINT ROUNDING OVER

Part Number	"R" Radius	"A" Large Diameter	"B" Small Diameter	"C" Cutting Length	Overall Length
1/4" SHANK					
H2050	1/8"	3/8"	1/8"	1/4"	1 3/4"
1/2" SHANK					
H2056	1/4"	3/4"	1/4"	3/8"	2"
H2058	3/8"	1"	1/4"	9/16"	2 1/4"
H2060	1/2"	1 3/8"	3/8"	3/4"	2 1/2"
H2062	9/16"	1 5/8"	1/2"	1"	2 3/4"
H2064	5/8"	1 3/4"	1/2"	1 1/16"	3"
H2066	3/4"	2"	1/2"	1 1/8"	3"
*H2068	3/16"	1"	1/2"	13/16"	2 5/8"
**H2070	3/16"	1"	1/2"	1 5/16"	3 1/8"
**H2072	1/4"	1 1/8"	1/2"	13/16"	2 5/8"
**H2074	1/4"	1 1/8"	1/2"	1 5/16"	3 1/4"
*H2076	3/8"	1 3/8"	1/2"	13/16"	2 3/4"
**H2078	3/8"	1 3/8"	1/2"	1 5/16"	3 1/4"

* Edge Trim for 3/4" stock
** Edge Trim for 1 1/4" stock



DOUBLE ROUND OVER WITH ADJUSTABLE CUTTING LENGTH

Part Number	Radius	Large Diameter	Overall Length
H2150	1/8"	1"	3 3/4"
H2152	3/16"	1 1/8"	3 3/4"
H2154	1/4"	1 1/4"	3 3/4"

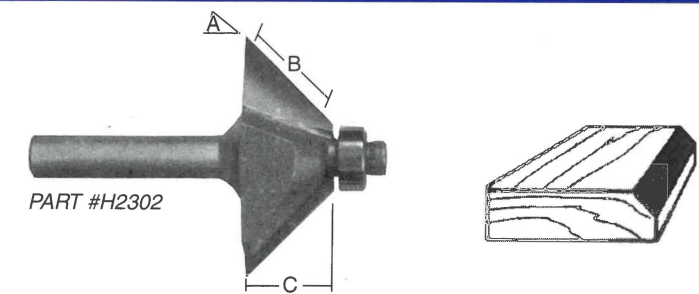
Assemblies Sold with B4 Bearing for flush round over
Use B6 Bearing for 1/16" Bead • Use B9 Bearing for 1/8" Bead



ROMAN OGEE BITS

Part Number	Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H2200	5/32"	1 1/8"	9/16"	2"
H2201	1/4"	1 1/2"	11/16"	2 1/4"
1/2" SHANK				
H2202	5/32"	1 1/8"	9/16"	2 1/4"
H2203	1/4"	1 1/2"	11/16"	2 3/8"
H2210	3/8"	2"	1"	2 3/4"

Bearing Number: B3



CHAMFER

Part Number	"A" Degree of Angle	"B" Cutting Length	"C" Cutting Height	Overall Length
1/4" SHANK				
H2300	15°	1/2"	1/2"	2"
*H2300A	15°	1/4"	1/4"	2"
H2301	25°	9/16"	1/2"	2"
H2302	45°	5/8"	7/16"	2"
H2308	30°	7/8"	3/4"	2 3/4"
1/2" SHANK				
H2305	45°	5/8"	7/16"	2 1/4"
H2306	45°	1 1/16"	3/4"	2 1/2"
H2307	22 1/2°	15/16"	7/8"	3"
H2309	30°	7/8"	3/4"	2 3/4"

Bearing Number: B3
* Used on Laminate Trim



FLUSH TRIM BALL BEARING - DOUBLE FLUTE

Part Number	Cutting Diameter	Cutting Length	Overall Length	Bearing Number
1/4" SHANK				
H2400	3/8"	1"	2 5/8"	B1
H2401	3/8"	1/2"	2 1/8"	B1
H2402	1/2"	1"	2 9/16"	B3
H2403	1/2"	1/2"	2 1/8"	B3
3/8" SHANK				
H2404	1/2"	1"	2 1/2"	B3
1/2" SHANK				
H2404A	3/8"	1"	3"	B1
H2405	1/2"	1"	3 1/4"	B3
H2406	1/2"	1/2"	2 3/4"	B3
H2407	1/2"	1 1/2"	3 5/8"	B3
H2408	1/2"	2"	4"	B3
H2410	3/4"	1 1/4"	3"	B4

1/2" SHANK - DOUBLE BEARINGS

H2457	1/2"	1 1/2"	3 7/8"	B3
H2458	1/2"	2"	4 1/4"	B3

CARBIDE TIPPED



FLUSH TRIM WITH V-GROOVE

Part Number	Cutting Diameter	Cutting Length	Shank Diameter	Overall Length	Bearing Number
H2425	1/2"	1"	1/4"	2 5/8"	B3
H2426	1/2"	1"	1/2"	3 1/4"	B3



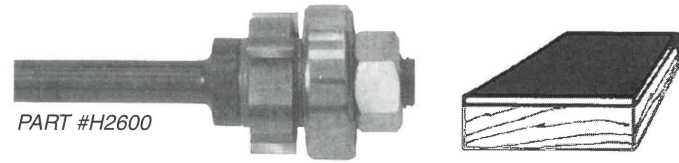
OVERHANG TRIM BIT 1/4" OVERHANG

Part Number	Cutting Diameter	Cutting Length	Shank Diameter	Overall Length	Bearing Number
H2470	3/8"	1/2"	1/4"	2 1/4"	B7



FLUSH TRIM BALL BEARING - 3 FLUTES

Part Number	Cutting Diameter	Cutting Length	Overall Length	Bearing Number
1/4" SHANK				
H2500	1/2"	1"	2 1/2"	B3
H2501	1/2"	1/2"	2 1/8"	B3
1/2" SHANK				
H2502	1/2"	1"	3 1/4"	B3
H2503	1/2"	1/2"	2 3/4"	B3
H2504	1/2"	1 1/2"	3 5/8"	B3
H2505	1/2"	2"	4"	B3



LAMINATE TRIM ASSEMBLY

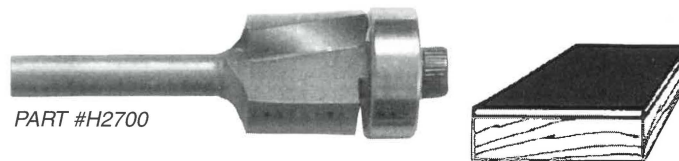
Part Number	Type of Cut	Shank Diameter	Cutting Diameter
Flush	15° Bevel	25° Bevel	
H2600	H2603	H2606	1/4"
H2601	H2604	H2607	3/8"
H2602	H2605	H2608	1/2"

Replacement Parts: Bearing Number: B5
Arbor: A200 - 1/4" shank
A205 - 3/8" shank
A210 - 1/2" shank
Cutter: See Below



LAMINATE CUTTERS - 4 WING

Part Number	Type of Cut	Cutter Bore	Small Diameter
H2609	flush	5/16"	7/8"
H2610	15°	5/16"	7/8"
H2611	25°	5/16"	7/8"



HELIX LAMINATE TRIM

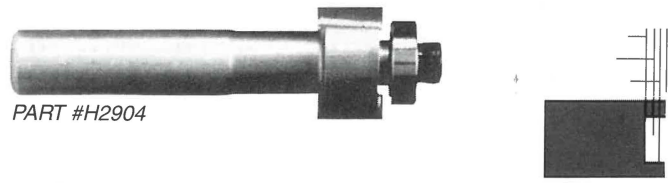
Part Number	Type of Cut	Large Diameter	Cutting Length	Overall Length	Bearing Number
1/4" SHANK					
H2700	flush	3/4"	5/8"	2 1/8"	B4
H2702	15°	7/8"	3/8"	2"	B4
1/2" SHANK					
H2701	flush	3/4"	5/8"	2 3/8"	B4
H2703	15°	7/8"	3/8"	2 1/4"	B4



COMBINATION LAMINATE TRIM

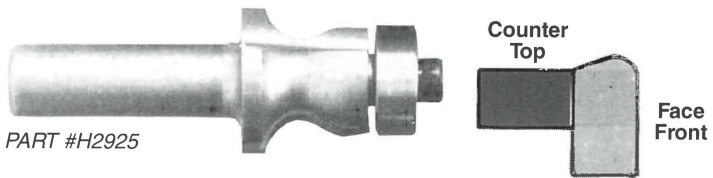
Part Number	Cutting Diameter	Degree of Angel	Cutting Length	Overall Length
1/4" SHANK • DOUBLE FLUTE				
H2800	7/16"	22 1/2°	1/2"	1 1/8"
H2801	7/16"	22 1/2°	1/2"	1 7/8"

SOLID SURFACE BITS



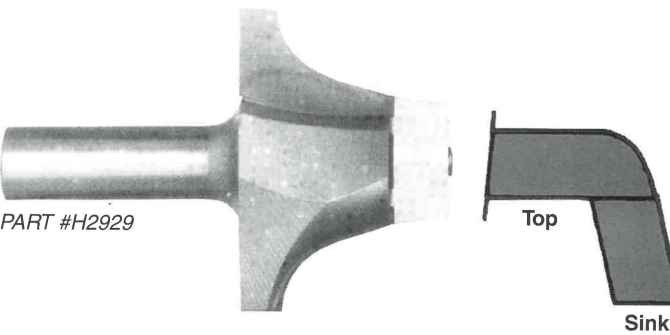
FACE INLAY

Part Number	Cutting Diameter	Cutting Length	Cutting Depth	Overall Length	Bearing Number
1/2" SHANK					
H2900	7/8"	1/4"	1/16"	2 3/4"	B4
H2901	7/8"	1/4"	1/8"	2 3/4"	B6
H2902	7/8"	1/4"	3/16"	2 3/4"	B9
H2903	7/8"	1/2"	1/16"	3"	B4
H2904	7/8"	1/2"	1/8"	3"	B6
H2905	7/8"	1/2"	3/16"	3"	B9
H2906	7/8"	3/4"	1/16"	3 1/4"	B4
H2907	7/8"	3/4"	1/8"	3 1/4"	B6
H2908	7/8"	3/4"	3/16"	3 1/4"	B9



NO DRIP COUNTER TOP

Part Number	Material Thickness	Large Diameter	Overall Length	Bearing Number
1/2" SHANK				
H2925	1/2"	1"	2 3/4"	B4
H2926	3/4"	1"	3"	B4



ROUNDING OVER UNDERMOUNT

Part Number	Material Thickness	Degree	Overall Length	Bearing Number
1/2" SHANK				
H2929	1/2"	18°	3"	BB300
H2930	3/4"	18°	3 1/4"	BB300

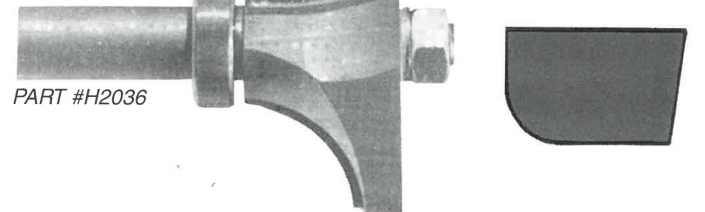


BEVEL UNDERMOUNT BOWL

Part Number	Material Thickness	Degree	Overall Length	Bearing Number
1/2" SHANK				
H2944	1/2-3/4"	12°	3"	BB300



Part Number	Material Thickness	Cutting Diameter	Overall Length	Bearing Number
1/2" SHANK				
H2945	1/2-3/4"	3/4"	2 7/8"	BB300



Part Number	Material Thickness	Radius	Overall Length	Bearing Number
1/2" SHANK				
H2034	1"	1/2"	3"	B5
H2036	1 1/2"	3/4"	3 3/8"	B5

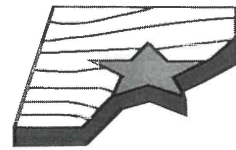


Part Number	Material Thickness	Radius	Overall Length	Bearing Number
1/2" SHANK				
H2009	1"	1/2"	2 1/2"	B3
H2010	1 1/2"	3/4"	2 3/4"	B3

PROFILE CUTTING



PART #H3004



TEMPLATE BITS BALL BEARING GUIDE

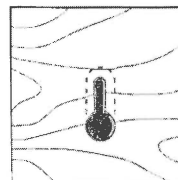
Part Number	Cutting Diameter	Cutting Length	Overall Length	Bearing Number
1/4" SHANK				
H3000	1/2"	1/4"	1 3/4"	B9
H3002	1/2"	3/4"	2 1/4"	B9
H3004	1/2"	1"	2 1/2"	B9
H3006	5/8"	1/4"	1 3/4"	B6
H3008	5/8"	1"	2 1/2"	B6
H3010	3/4"	1/4"	1 3/4"	B4
H3012	3/4"	3/4"	2 3/8"	B4
H3014	3/4"	1"	2 5/8"	B4

3/8" SHANK				
H3015	7/8"	1"	2 1/2"	B12

1/2" SHANK				
H3016	1 1/8"	1"	3"	B11
H3018	1 1/8"	1 1/2"	3 1/2"	B11



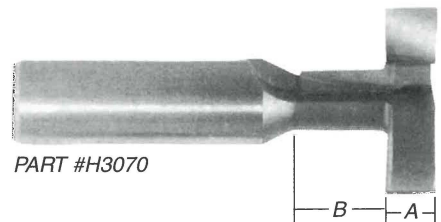
PART #H3050



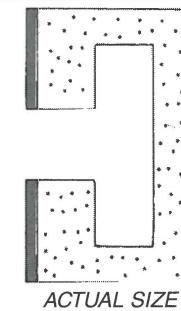
KEYHOLE BITS

Part Number	Large Diameter	Small Diameter	Cutting Length	Overall Length
1/4" SHANK				
H3050	3/8"	3/16"	7/16"	1 1/2"
H3052	1/2"	5/16"	7/16"	1 1/2"

1/2" SHANK				
H3051	3/8"	3/16"	7/16"	2 1/8"
H3053	1/2"	5/16"	7/16"	2 1/8"



PART #H3070

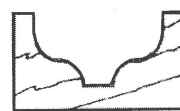


T-SLOT CUTTER

Part Number	Large Diameter	Small Diameter	"A" Length	"B" Length	Overall Length
1/2" SHANK					
H3070	1 1/16"	3/8"	5/16"	1/2"	2 3/8"



PART #H3102

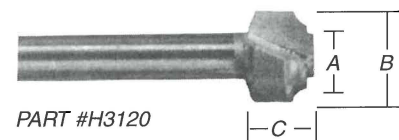


PLUNGE CUTTING OGEE

Part Number	Radius	"A" Small Diameter	"B" Large Diameter	"C" Cutting Length	Overall Length
1/4" SHANK					
H3100	1/16"	1/8"	3/8"	1/4"	1 3/4"
*H3102	3/32"	1/8"	1/2"	1/4"	1 3/4"
H3104	3/16"	3/16"	7/8"	1/2"	2"

1/2" SHANK					
H3106	3/16"	3/16"	7/8"	1/2"	2"
*H3108	3/16"	3/8"	1 1/8"	1/2"	2"

*Available with Bearing on Shank for Template Work. Add B to Part Number.



PART #H3120



CLASSIC FLAT & BEAD

Part Number	Radius	"A" Small Diameter	"B" Large Diameter	"C" Cutting Length
1/4" SHANK				
*H3120	1/16"	1/4"	1/2"	5/16"
*H3122	1/8"	3/8"	3/4"	7/16"

*Available with Bearing on Shank for Template Work. Add B to Part Number.



PART #H3134



ACTUAL SIZE - H3132 & H3134

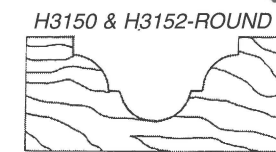
CLASSIC ROUND & BEAD

Part Number	Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H3130	1/8"	5/8"	7/16"	2"
H3132	3/16"	7/8"	1/2"	2"
1/2" SHANK				
H3134	3/16"	7/8"	1/2"	2 1/8"
H3136	3/16"	1"	5/8"	2 1/4"

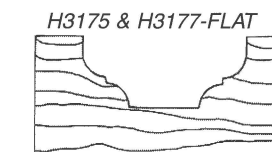
PROFILE CUTTING



PART #H3175



ACTUAL SIZE-H3150



ACTUAL SIZE-H3175

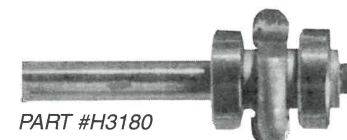
LARGE CLASSICAL TRIM BITS BALL BEARING GUIDE

Part Number	Style of Cut	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H3150	Round	7/8"	1/2"	2"
H3175	Flat	7/8"	3/8"	2"

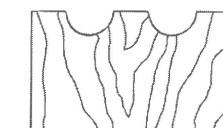
Bearing Number: B5

1/2" SHANK				
H3152	Round	1 3/8"	9/16"	2 1/2"
H3177	Flat	1 3/8"	9/16"	2 1/2"

Bearing Number: B13



PART #H3180

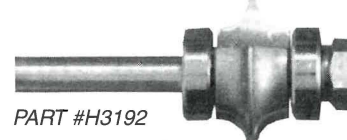


ACTUAL SIZE-H3180 & H3181

Part Number	Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H3180	1/8"	1 1/8"	1/4"	2 3/4"
H3182	3/16"	1 1/4"	3/8"	3 1/8"

1/2" SHANK				
H3181	1/8"	1 1/8"	1/4"	2 3/4"
H3183	3/16"	1 1/4"	3/8"	3 1/8"

Bearing Number: B5



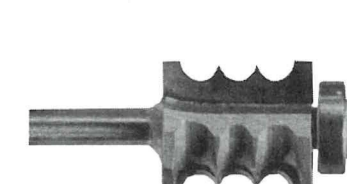
PART #H3192



FULL BEAD

Part Number	Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H3190	1/8"	7/8"	5/16"	2 1/8"
H3192	3/16"	1"	1/2"	2 5/16"
H3194	1/4"	1 1/8"	5/8"	2 1/2"
H3196	3/8"	1 3/8"	7/8"	2 3/4"

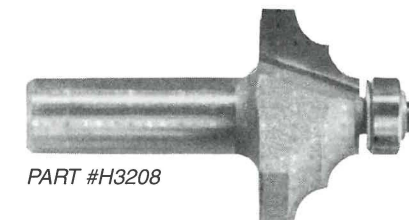
Bearing Number: B6



MULTI-BEADING

Part Number	Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H3200	1/8"	7/8"	1"	2 1/2"
1/2" SHANK				
H3202	1/8"	7/8"	1"	2 3/4"

Bearing Number: B6



PART #H3208

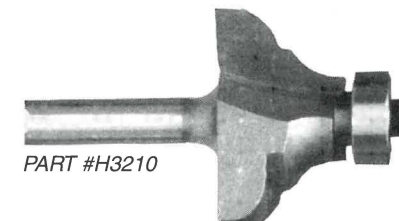


ACTUAL SIZE H3206 & H3208

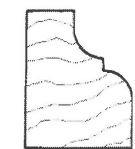
CLASSICAL MOLDING

Part Number	Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H3205	5/32"	1 1/8"	1/2"	2"
H3206	7/32"	1 3/8"	5/8"	2 1/4"
1/2" SHANK				
H3207	5/32"	1 1/8"	1/2"	2 3/8"
H3208	7/32"	1 3/8"	5/8"	2 1/2"

Bearing Number: B3



PART #H3210



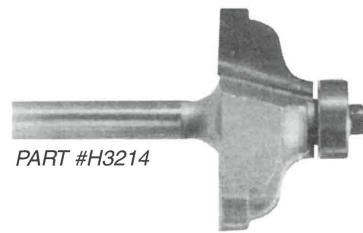
ACTUAL SIZE H3209 & H3211

COVE & BEAD

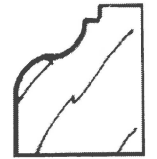
Part Number	Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H3209	5/32"	1 1/8"	1/2"	2"
H3210	1/4"	1 5/16"	5/8"	2 1/8"
1/2" SHANK				
H3211	5/32"	1 1/8"	1/2"	2 1/4"
H3212	1/4"	1 5/16"	5/8"	2 3/8"
H3282	3/8"	2"	1 3/16"	2 7/8"

Bearing Number: B3

PROFILE CUTTING



PART #H3214



ACTUAL SIZE-
H3214 & H3216

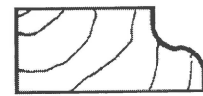
OGEE FILLET

Part Number	Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H3214	3/16"	1 3/8"	5/8"	2 1/8"
1/2" SHANK				
H3216	3/16"	1 3/8"	5/8"	2 1/2"
H3218	1/4"	1 5/8"	3/4"	2 5/8"

Bearing Number: B3



PART #H3222

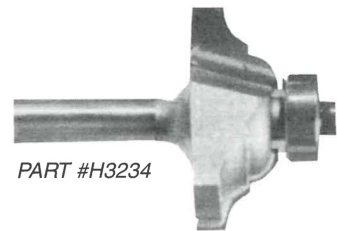


ACTUAL SIZE-H3220 & H3222

REVERSIBLE OGEE

Part Number	Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H3220	5/32"	1 1/8"	1/2"	2"
H3224	1/4"	1 1/2"	1/2"	2"
1/2" SHANK				
H3222	5/32"	1 1/8"	1/2"	2 3/8"
H3226	1/4"	1 1/2"	1/2"	2 3/8"

Bearing Number: B3



PART #H3234

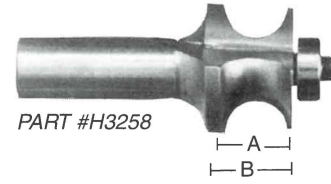


ACTUAL SIZE-H3234 & H3236

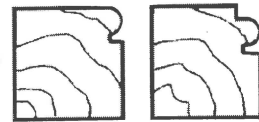
CLASSICAL PATTERN

Part Number	Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK				
H3230	5/32"	1 1/4"	1/2"	2 1/8"
H3234	3/16"	1 1/2"	5/8"	2 1/4"
1/2" SHANK				
H3232	5/32"	1 1/4"	1/2"	2 3/8"
H3236	3/16"	1 1/2"	5/8"	2 1/2"

Bearing Number: B3



PART #H3258



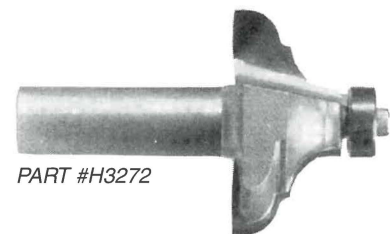
EDGE BEADING

Part Number	Large Diameter	"A" Bead Diameter	"B" Cutting Length	Overall Length
1/4" SHANK				
H3240	7/8"	1/8"	9/16"	2"
H3244	7/8"	1/4"	9/16"	2"
H3248	1"	5/16"	5/8"	2 1/4"
H3252	1 1/16"	3/8"	3/4"	2 1/4"
H3256	1 1/16"	1/2"	3/4"	2 1/4"

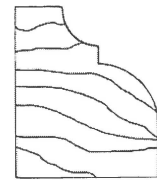
1/2" SHANK

H3242	7/8"	1/8"	9/16"	2 1/4"
H3246	7/8"	1/4"	9/16"	2 1/4"
H3250	1"	5/16"	5/8"	2 1/4"
H3254	1 1/16"	3/8"	3/4"	2 1/2"
H3258	1 1/6"	1/2"	3/4"	2 1/2"
H3260	1 3/8"	5/8"	1"	2 5/8"
H3262	1 1/2"	3/4"	1 1/4"	3"

Bearing Number: B3



PART #H3272

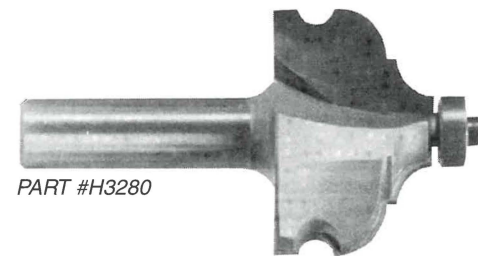


ACTUAL SIZE

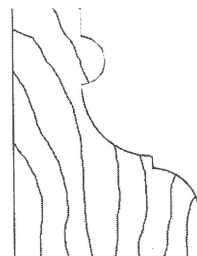
FRENCH TRADITIONAL

Part Number	"R1" Radius	"R2" Radius	Large Diameter	Cutting Length	Overall Length
1/4" SHANK					
H3270	3/16"	5/16"	1 1/2"	5/8"	2 1/8"
1/2" SHANK					
H3272	3/16"	5/16"	1 1/2"	5/8"	2 1/2"

Bearing Number: B3



PART #H3280



ACTUAL SIZE

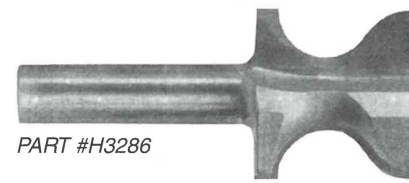
FRENCH PROVINCIAL

Part Number	Large Diameter	Cutting Length	Bead Diameter	Overall Length
1/2" SHANK				
H3280	1 3/4"	1 1/8"	1/4"	3 1/8"

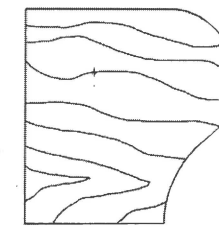
Bearing Number: B3

PROFILE CUTTING

PROFILE CUTS ARE ACTUAL SIZE



PART #H3286

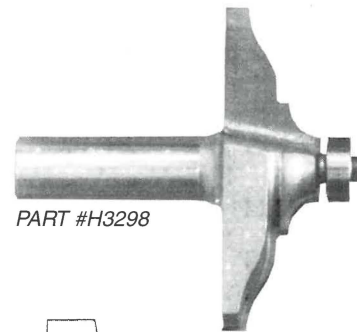


ACTUAL SIZE-H3286

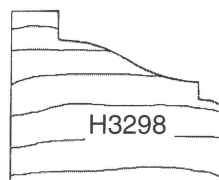
WINDOW SILL EDGE

Part Number	Radius	Large Diameter	Profile Length	Overall Length
1/2" SHANK				
H3285	7/32"	1 1/4"	13/16"	2 7/8"
H3286	3/8"	1 7/16"	1 1/8"	3 3/8"

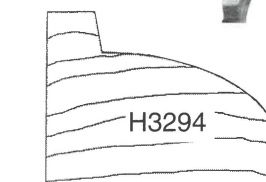
Available with Bearing on Shank for Template Work.
Add B to Part Number.



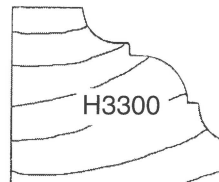
PART #H3298



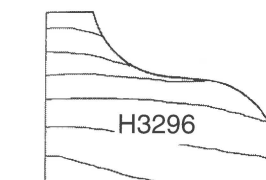
H3298



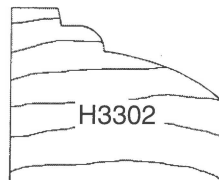
H3294



H3300



H3296



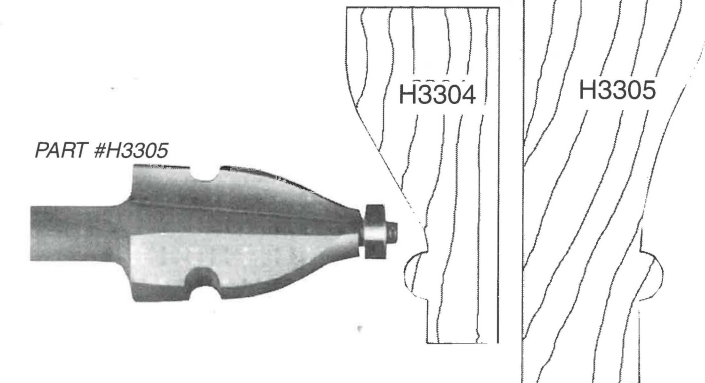
H3302

PROFILE CUTS ARE ACTUAL SIZE

TABLE TOP EDGE

Part Number	Profile Width	Large Diameter	Cutting Length	Overall Length
1/2" SHANK				
H3294	1"	2 1/2"	3/4"	2 1/2"
H3296	1"	2 1/2"	3/4"	2 1/2"
H3298	1"	2 1/2"	3/4"	2 1/2"
H3300	7/8"	2 1/4"	3/4"	2 1/2"
H3302	1"	2 1/2"	3/4"	2 1/2"

Bearing Number: B3



PART #H3305

H3304

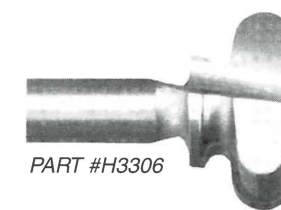
H3305

HANDRAIL

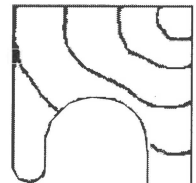
Part Number	Large Diameter	Cutting Length	Bead Diameter	Overall Length
1/2" SHANK				
H3304	1 3/8"	1 1/2"	1/4"	3 3/8"
H3305	1 1/4"	2"	1/4"	3 7/8"

Bearing Number: B3

Use one of the table top edge bits to cut the top of the handrail.



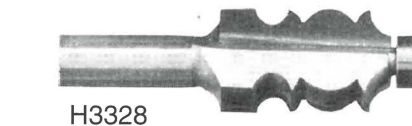
PART #H3306



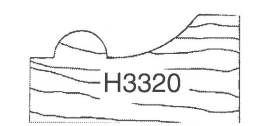
ACTUAL SIZE

DRAWER PULL - EUROPEAN - 1/2" SHANK

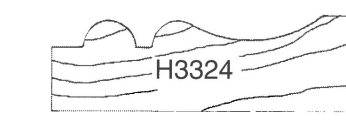
Part Number	Large Radius	Large Diameter	Cutting Length	Overall Length
H3306	1/4"	1 1/2"	13/16"	2 1/4"



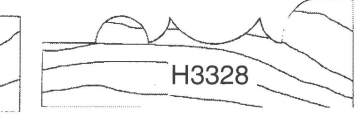
H3328



H3320



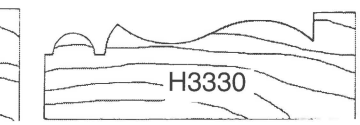
H3324



H3328



H3326



H3330

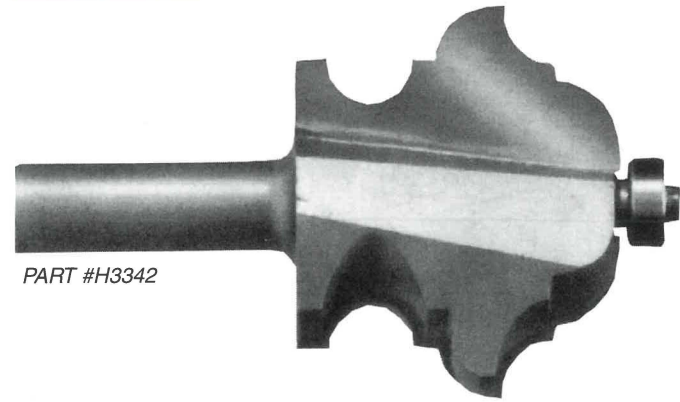
PROFILE CUTS ARE ACTUAL SIZE

SPECIALTY MOLDING

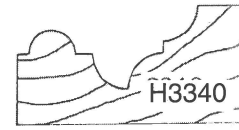
Part Number	Large Diameter	Cutting Length	Bead Diameter	Overall Length
1/2" SHANK				
H3320	1"	1"	5/16"	2 3/4"
H3324	7/8"	1 5/8"	5/16"	3 1/2"
H3326	1 1/16"	1 5/8"	1/4"	3 1/2"
H3328	1"	1 5/8"	5/16"	3 1/2"
H3330	1"	1 5/8"	1/4"	3 1/2"

Bearing Number: B3

PROFILE CUTTING



PART #H3342



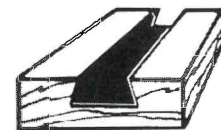
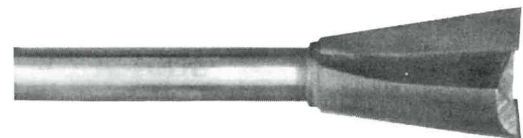
PROFILE CUTS ARE ACTUAL SIZE

CLASSIC MULTI-FORMS - 1/2" SHANK

Part Number	Large Diameter	Cutting Length	Bead Diameter	Radius	Overall Length
H3340	1 3/8"	1"	1/4"	3/16"	2 3/4"
H3342	2 1/4"	1 7/8"	1/2"	5/16"	3 3/4"

Bearing Number: B3

DOVETAIL BITS



DOVETAIL BITS

Part Number	Angle	Large Diameter	Depth Of Cut	Shank Diameter	Overall Length
HD7-625	7°	5/8"	7/8"	1/2"	2 5/8"
HD7-750	7°	3/4"	7/8"	1/2"	2 5/8"
HD7-875	7°	7/8"	7/8"	1/2"	2 1/2"
HD75-25	7 1/2°	1/4"	5/16"	1/4"	2 1/2"
HD8-250	8°	1/4"	1/4"	1/4"	2 1/4"
HD8-312	8°	5/16"	3/8"	1/4"	2 1/4"
HD8-375	8°	3/8"	1/2"	1/4"	2 3/8"
HD8-500	8°	1/2"	13/16"	1/4"	2 3/4"
HD8-687	8°	11/16"	1"	1/2"	3"
HD8-812	8°	13/16"	1 1/4"	1/2"	3 1/4"
HD9-372	9°	3/8"	3/8"	1/4"	2"
HD9-373	9°	3/8"	3/8"	3/8"	2"
*HD9-375	9°	3/8"	3/8"	1/2"	2"
*HD9-376	9°	3/8"	3/8"	1/2"	2 1/2"
HD10-50	10°	1/2"	5/8"	1/4"	2 1/2"
HD14-50	14°	1/2"	1/2"	1/4"	2"
HD14-51	14°	1/2"	1/2"	1/4"	2 3/8"
HD14-55	14°	1/2"	1/2"	1/2"	2 1/2"
HD14-75	14°	3/4"	3/4"	1/2"	3"
HD14-100	14°	1"	7/8"	1/2"	2 1/2"
HD18-50	18°	1/2"	3/8"	1/4"	2 1/4"

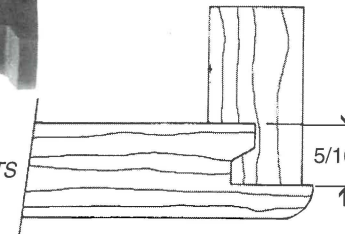
*Available in Left Hand. Add LH to Part Number.

GLUE JOINTS



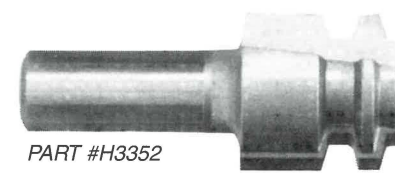
PART #H3347

ACTUAL SIZE
ONE TOOL MAKES BOTH CUTS



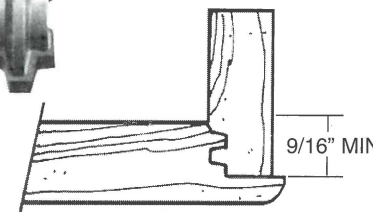
LOCKING DRAWER GLUE JOINTS

Part Number	Large Diameter	Cutting Length	Shank Diameter	Overall Length
H3346	3/4"	1/2"	1/4"	1 7/8"
H3347	1"	1/2"	1/2"	2 1/8"



PART #H3352

ONE TOOL MAKES BOTH CUTS

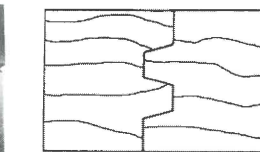


LOCKING DRAWER GLUE JOINTS

Part Number	Large Diameter	Cutting Length	Shank Diameter	Overall Length
H3350	1"	1"	1/4"	2 3/8"
H3352	1"	1"	1/2"	2 3/8"



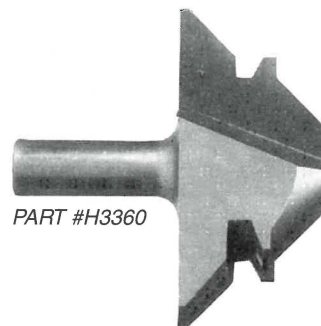
PART #H3354



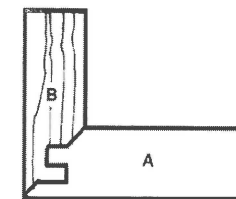
ACTUAL SIZE
ONE TOOL MAKES BOTH CUTS

STANDARD GLUE JOINT

Part Number	Material Thickness	Large Diameter	Shank Diameter	Overall Length
H3354	1/2-1 1/4"	1 1/2"	1/2"	2 3/4"



PART #H3360



ONE TOOL MAKES BOTH CUTS

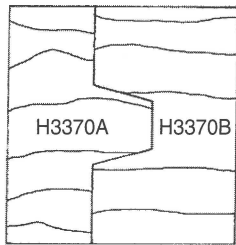
LOCK MITER - 45°

Part Number	Material Thickness	Large Diameter	Shank Diameter	Overall Length
H3360	1/2-1 1/4"	3 1/8"	1/2"	2 7/8"
H3362	1/2-3/4"	2"	1/2"	2 3/8"

Note: H3362 is recommended for stock thickness 1/2 - 3/4"



PART #H3370A



ACTUAL SIZE



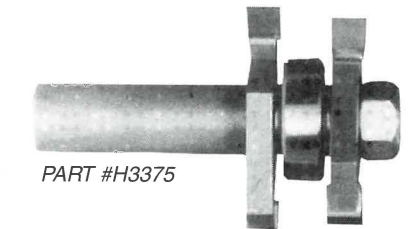
PART #H3370B

WEDGE TONGUE & GROOVE

Part Number	Material Thickness	Large Diameter	Cutting Length	Overall Length
H3370	5/8-1 1/4"	1 1/4"	1 1/4"	2 7/8"

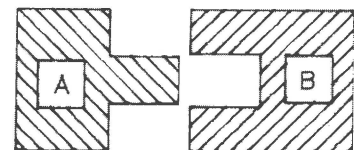
*Order H3370 for Two Piece Set.

*Order H3370A or H3370B for individual cutters.



PART #H3375

ONE TOOL MAKES BOTH CUTS



ACTUAL SIZE

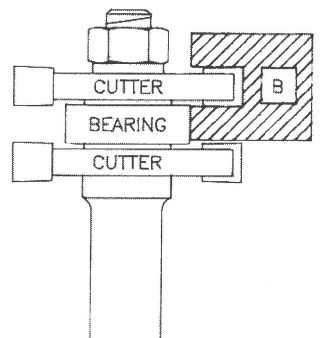
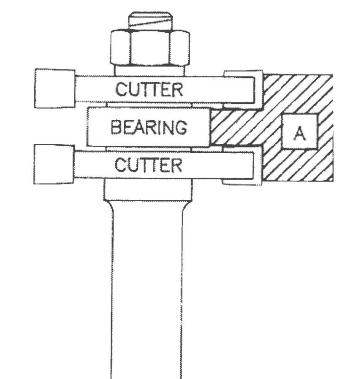
TONGUE & GROOVE ASSEMBLY

Part Number	Material Thickness	Large Diameter	Tongue Width	Bearing
H3375	1/2"-13/16"	1 5/8"	9/32"	B5

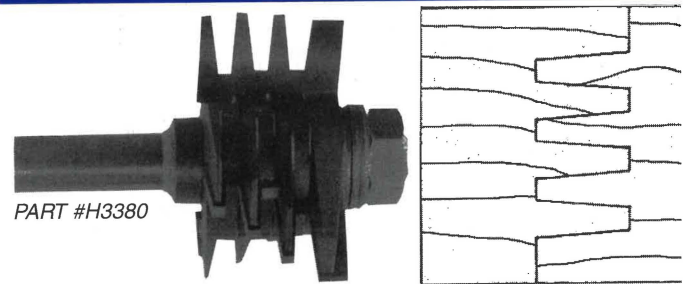
USING THE TONGUE & GROOVE ASSEMBLY

CUTTING THE TONGUE

CUTTING THE GROOVE



FINGER JOINTS

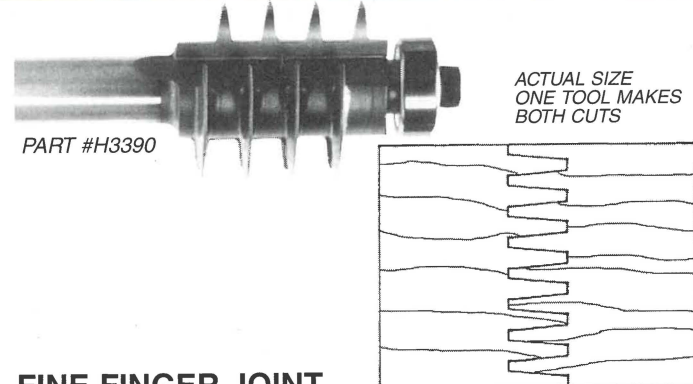


FINGER JOINT ASSEMBLY 3 WING, 1/2" SHANK

Part Number	Large Diameter	Material Thickness	Finger Depth	Overall Length
H3380	2 1/2"	1/2-1 1/2"	1/2"	3 7/8"
H3380B	Assembly with Ball Bearing (B18) Guide			

Replacement Parts: H3381 Standard Cutter Head (1/2" bore)
H3382 End Cutter Head
Arbor: A550

ACTUAL SIZE
ONE TOOL MAKES
BOTH CUTS



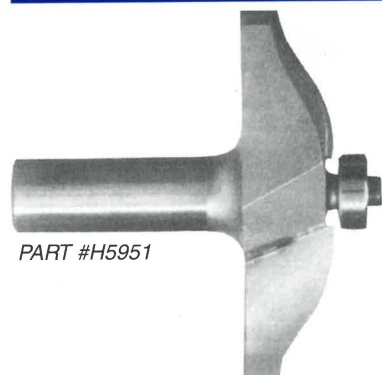
FINE FINGER JOINT - 1/2" SHANK

Part Number	Material Thickness	Large Diameter	Finger Depth	Overall Length
H3390	5/16-1 1/4"	1 3/8"	5/16"	3 1/4"

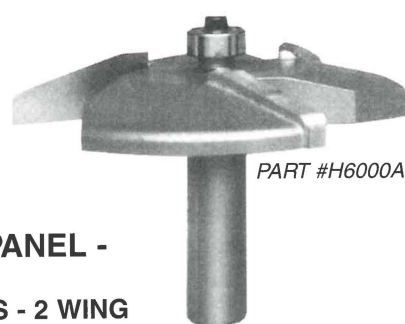
Bearing Number: B4

ACTUAL SIZE
ONE TOOL MAKES
BOTH CUTS

RAISED PANEL CUTTERS



PART #H5951



PART #H6000A

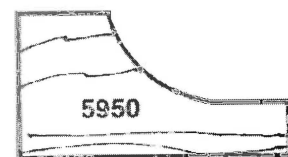
LARGE RAISED PANEL - 1/2" SHANK

H5900 SERIES - 2 WING
H6000 SERIES - 3 WING

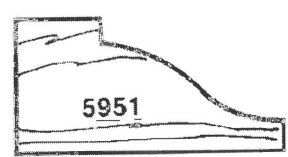
Series	Large Diameter	Length of Profile	Overall Length	Bearing Number
H5900	3 1/4"	1 3/8"	2 3/4"	B3
H6000	3 3/8"	1 7/16"	2 3/4"	B3

RAISED PANEL - 1/2" SHANK, 2 WING

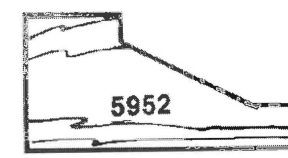
Large Diameter	Length of Profile	Overall Length	Bearing Number
2 1/2"	1"	2 3/8"	B3



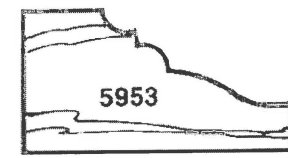
Cove



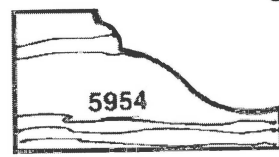
Ogee



Straight



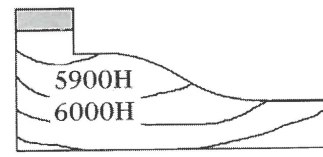
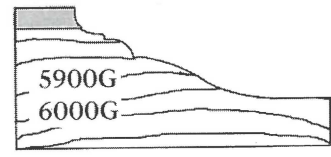
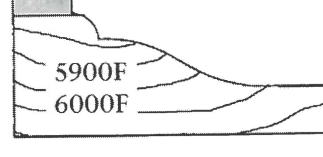
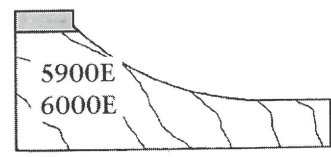
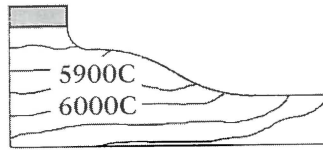
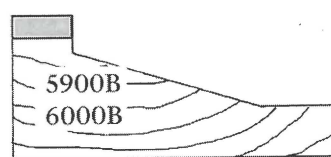
Classic Ogee



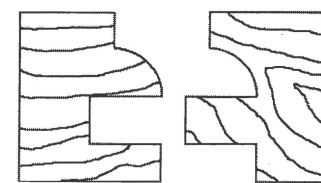
Ogee Bead



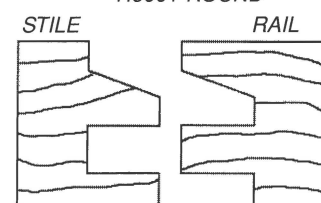
PROFILE CUTS ARE
ACTUAL SIZE



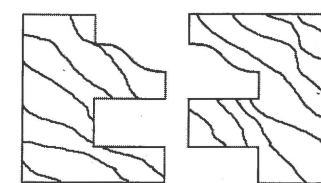
STILE & RAIL



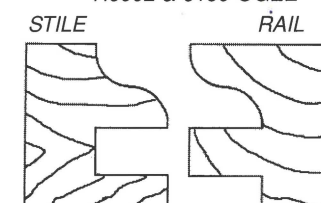
H6001-ROUND



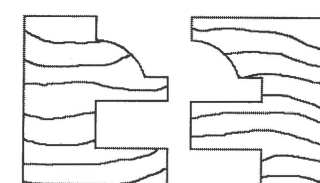
H6004 & H6156-STRAIGHT



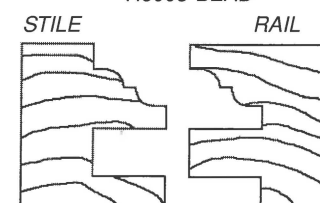
H6002 & 6150-OGEE



H6005 & H6154-TRADITIONAL

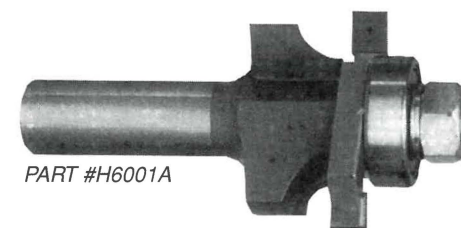


H6003-BEAD

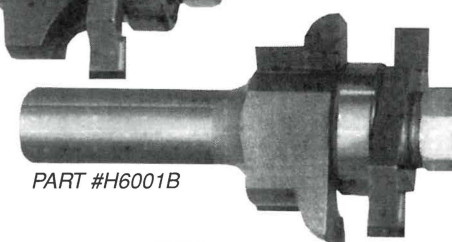


H6006 & H6152-CLASSICAL

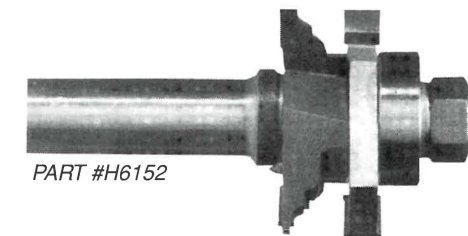
ALL DRAWINGS ARE ACTUAL SIZE



PART #H6001A



PART #H6001B



PART #H6152

STILE & RAIL CUTTERS

Large Diameter	Length of Cut	Overall Length	Bearing Number
1 5/8"	7/8"	2 3/4"	B5

MATCHED TWO PIECE SETS 1/2" SHANK

Style	Part Number
Round	H6001
Ogee	H6002
Bead	H6003
Straight	H6004
Traditional	H6005
Classical	H6006

For Individual Cutters: Add A to Part Number for Stile Cutter.
Add B to Part Number for Rail Cutter.
Example H6001A - Round Stile Cutter

REVERSIBLE STILE & RAIL ASSEMBLIES

Style	Part Number	
	1/4" shank	1/2" shank
Ogee	H6150	H6151
Classical	H6152	H6153
Traditional	H6154	H6155
Straight	H6156	H6157

Replacement Parts: Profile Cutter Head - Add H to Part Number.
Example: H6150H
Groove Cutter H6001G
1/4" Shank Arbor - HA300
1/2" Shank Arbor - HA310
Bearing Number: B5

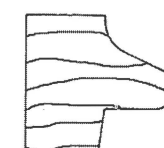
DOOR EDGE



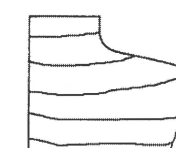
PART #H6010



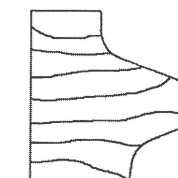
PART #H6010



PART #H6013



PART #H6015



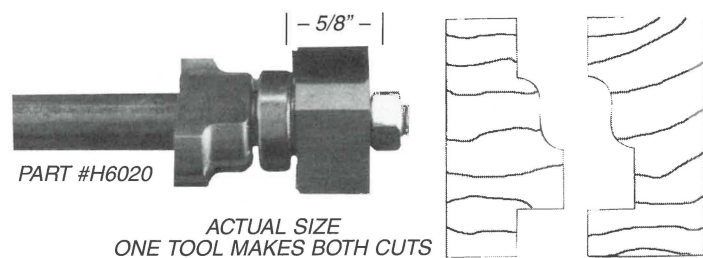
PART #H6016

DOOR EDGE - 1/2" SHANK

Part Number	Larger Diameter	Cutting Length	Style
H6010	1 3/8"	1 1/8"	Corner Round & Taper
H6013	1 1/2"	1"	Curve & Taper
H6015	1 1/2"	7/8"	Contemporary
H6016	1 5/8"	7/8"	European (Reversible)

ALL DRAWINGS ARE ACTUAL SIZE

CARBIDE TIPPED



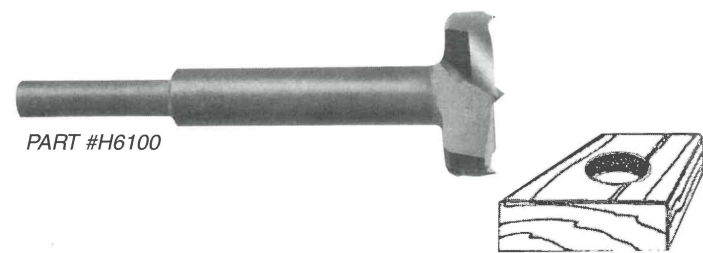
PART #H6020

ACTUAL SIZE
ONE TOOL MAKES BOTH CUTS

REVERSIBLE WINDOW SASH-GLASS DOOR ASSEMBLY - 1/2" SHANK

Part Number	Cutting Diameter	Cutting Length	Overall Length
H6020	1 3/8"	7/8-1 7/8"	3 3/4"

Bearing Number: B5
Arbor: A380

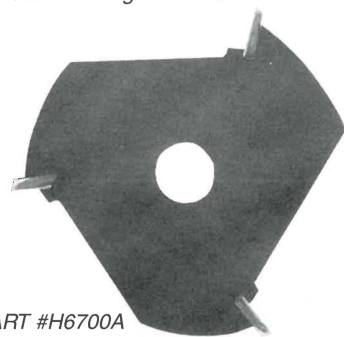


PART #H6100

BORING BITS

Part Number	Cutting Diameter	Shank Diameter	Overall Length
H6100	2 1/8"	1/2"	6 1/8"
H6140	35mm	3/8"	2 3/8"

**Use only in drill press or boring machine.



PART #H6700A

SLOTING CUTTERS 1 7/8" CUTTING DIAMETER - 5/16" BORE

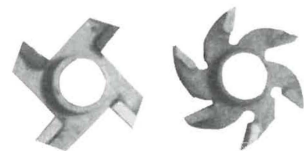
Part Number	Kerf	Kerf	
		Decimal	Fractional
H6700A	3 wing	.062	1/16"
H6701A	4 wing	.070	---
H6702A	4 wing	.080	---
H6703A	4 wing	.094	3/32"
H6704A	4 wing	.100	---
H6705A	4 wing	.125	1/8"
H6708A	4 wing	.156	5/32"
H6709A	4 wing	.187	3/16"
H6710A	4 wing	.250	1/4"

*Special Sizes Available Upon Request

SLOTING CUTTER ARBORS

Part Number	Shank Size
HA200B	1/4"
HA205B	3/8"
HA210B	1/2"

Arbors include: Nut, Two Spacers, and B5 Bearing for 1/2" Depth of Cut



PART #H6800 PART #H6801

DRAWER SLOT CUTTERS (JEMCO MACHINES)

Part Number	Cutting Diameter	Bore	Kerf	No. Flutes
H6800	1 1/4"	3/8"-24thd	3/16"	4
H6801	1 1/4"	3/8"-24thd	3/16"	6



PART #H6891



PART #H6892

ARBORS FOR DRAWER SLOT CUTTERS

Part Number	Shank Diameter	Overall Length	Thread
H6890	1/4"	2"	3/8"-24
H6891	3/8"	2"	3/8"-24
H6892	1/2"	2"	3/8"-24
H6896	3/8"	3 1/4"	3/8"-24



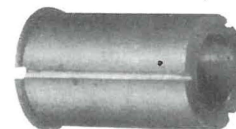
PART #H6912

POLISHED SOLID CARBIDE KNIVES

Part Number	Size
H6900	1/8" x 5/8" x 2
H6902	1/8" x 5/8" x 4
H6904	1/8" x 5/8" x 6
H6906	1/8" x 5/8" x 8
H6908	1/8" x 3/4" x 2
H6910	1/8" x 3/4" x 4
H6912	1/8" x 3/4" x 6
H6914	1/8" x 3/4" x 8

Sold Individually

ACCESSORIES



PART #H6406

ROUTER COLLETS

Part Number	I.D.	O.D.	Overall Length
H6400	1/4"	1/2"	1 1/4"
H6401	5/16"	1/2"	1 1/4"
H6402	3/8"	1/2"	1 1/4"
H6403	1/4"	3/4"	1 1/4"
H6404	5/16"	3/4"	1 1/4"
H6405	3/8"	3/4"	1 1/4"
H6406	1/2"	3/4"	1 1/4"



PART #HA200

ARBORS

Part Number	Shank Diameter	Arbor Diameter	Arbor Length	Overall Length
HA200	1/4"	5/16"	7/8"	2 3/8"
HA205	3/8"	5/16"	7/8"	2 3/8"
HA210	1/2"	5/16"	7/8"	2 3/8"
HA250	1/4"	5/16"	1 1/8"	2 5/8"
HA260	1/2"	5/16"	1 3/16"	2 3/4"
HA300	1/4"	5/16"	1 7/16"	3 1/16"
HA310	1/2"	5/16"	1 7/16"	3 1/16"
HA550	1/2"	1/2"	1 7/8"	3 7/8"
HA560	1/2"	1/2"	2 3/8"	4 3/8"

Arbors include nut and washer.

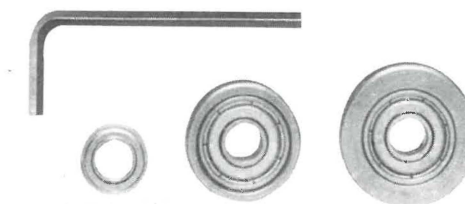


PART #HB5

BALL BEARINGS

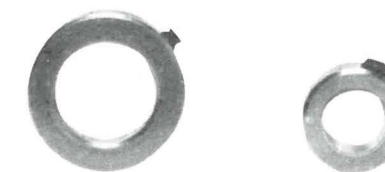
Part Number	Outside Diameter	Inside Diameter
HB1	3/8"	1/8"
HB2	3/8"	3/16"
HB3	1/2"	3/16"
HB4	3/4"	1/4"
HB5	7/8"	5/16"
HB6	5/8"	1/4"
HB7	5/8"	3/16"
HB8	3/4"	3/16"
HB9	1/2"	1/4"
HB11	1 1/8"	1/2"
HB12	7/8"	3/8"
HB13	1 3/8"	.590
HB14	1 1/16"	3/16"
HB15	1 3/16"	3/16"
HB16	1 1/4"	1/2"
HB17	1 3/8"	1/2"
HB18	1 1/2"	1/2"
HB19	3/4"	1/2"
*HBB300	7/8" x 10°	3/16"

*Nylon-sleeved Ball Bearing



HBB500 - 3 PIECE BEARING CONVERSION KIT

Use this kit to change cutting depths or profiles.
Contains B2, B7, & B8 Bearings and 3/32" Hex Key Wrench.



BEARING LOCK COLLARS

Used For Shank Mounted Bearings

Part Number	Inside Diameter	Outside Diameter
HLC-1/4	1/4"	7/16"
HLC-1/2	1/2"	13/16"



HEX KEY WRENCHES

Part Number	Size	Application
HK-1/16	1/16"	Bearing Lock Collars
HK-3/32	3/32"	3/16" I.D. Bearings (Standard)
HK-5/32	5/32"	1/4" I.D. Bearings

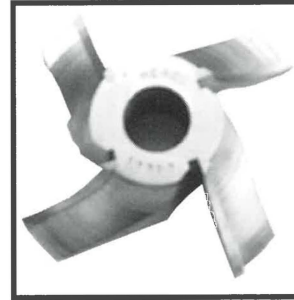
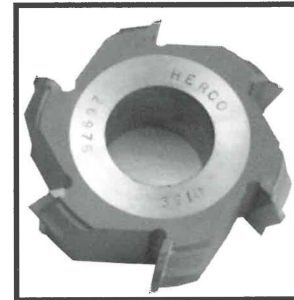
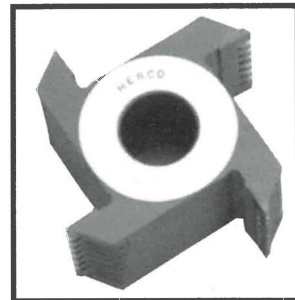
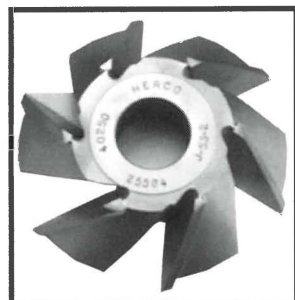
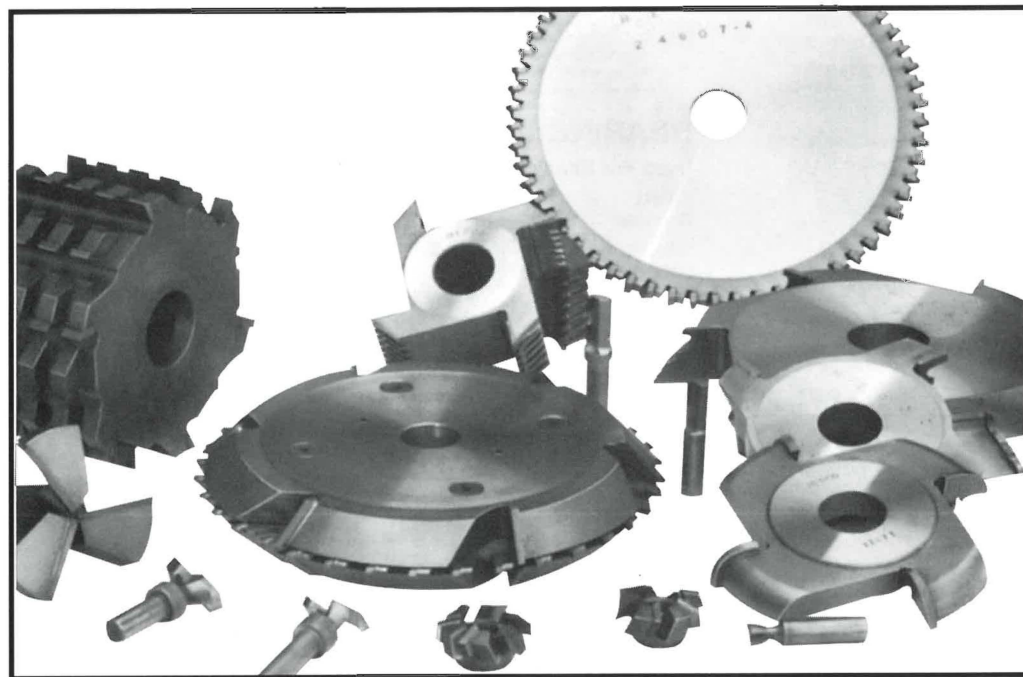
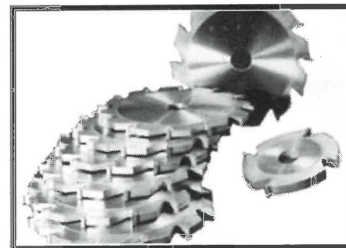
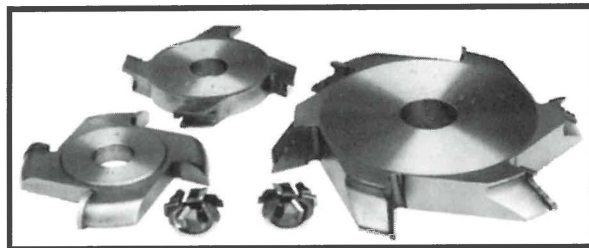


SOCKET HEAD CAP SCREWS

Part Number	Thread Size	Thread Length	Hex Key Size
HS10	5-40	1/4"	3/32"
HS12	5-40	3/8"	3/32"
HS50	10-32	3/8"	5/32"

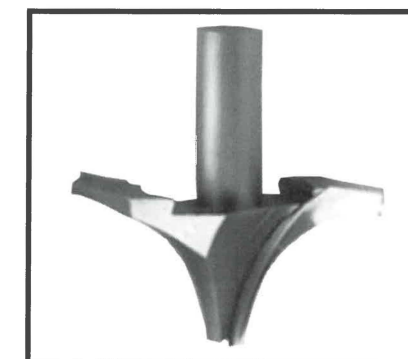
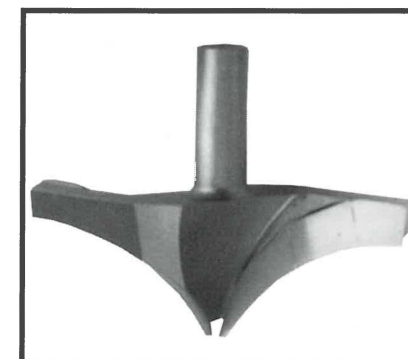
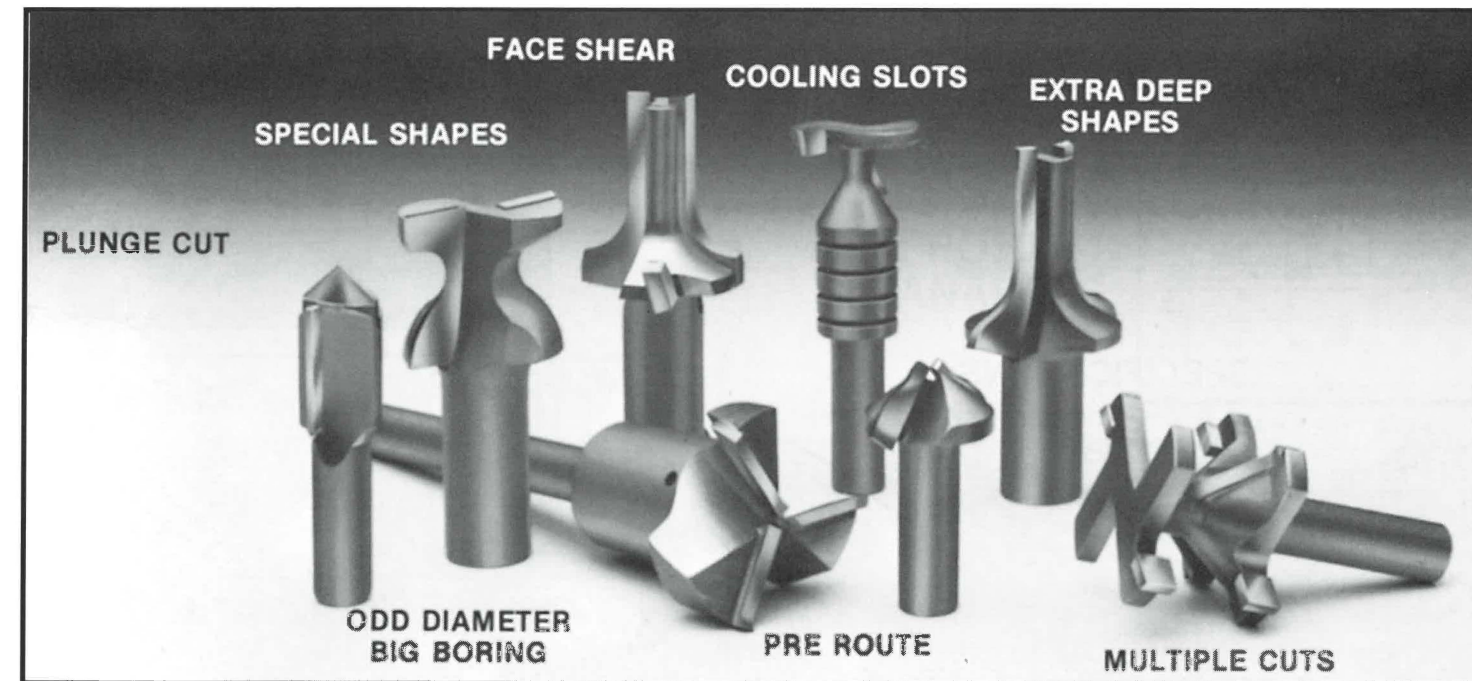
CUSTOM TOOLING

There are many important operations in the making of a great performing custom cutting tool, but what makes Herco, Inc. a world leader in this industry is our consistent dedication to quality and craftsmanship in every tool we make.



CUSTOM TOOLING

One of Herco's greatest strengths is our vast understanding of Woodworkers Products, Machinery, Production Procedures and being able to design custom tooling that makes all these things work together.



DESIGNED BY WOODWORKERS

MULTI-PROFILE CLAMP 'N DOOR EDGE CUTTER

MODEL NO. 8000 TECHNICAL DETAILS:

Available with solid carbide or Tantung inserts. Has a constant cutting circle for the elimination of set-ups, because inserts clamp 'n against precision ground seats. Cutter has been designed so that by changing inserts and supports you can change profile. All inserts can be resharpened and have been designed for soft and hardwood, compound board and exotic hardwoods.

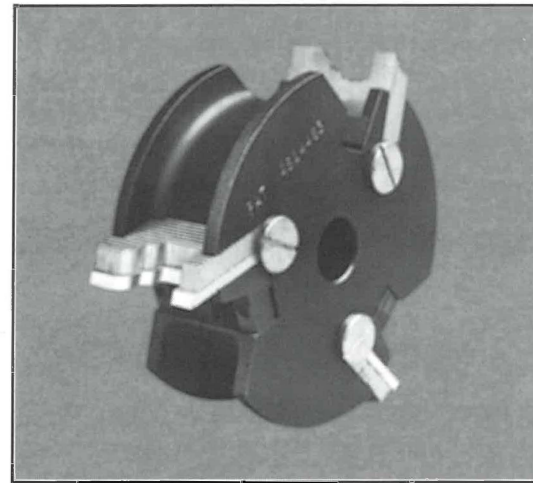
TO CHANGE INSERTS:

Release screw-on clamp, slide insert and gib sideways and turn over or replace knife. After placing in correct position tighten down screws for perfect clamping. *Inserts can be returned to our factory for resharpening.*

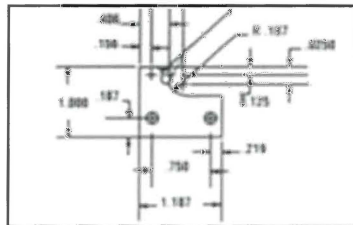
SPECIFICATIONS:

DIAMETER	4 1/2"
Standard Bore	1 1/4"
Maximum Bore	1 1/4"
Wings	3

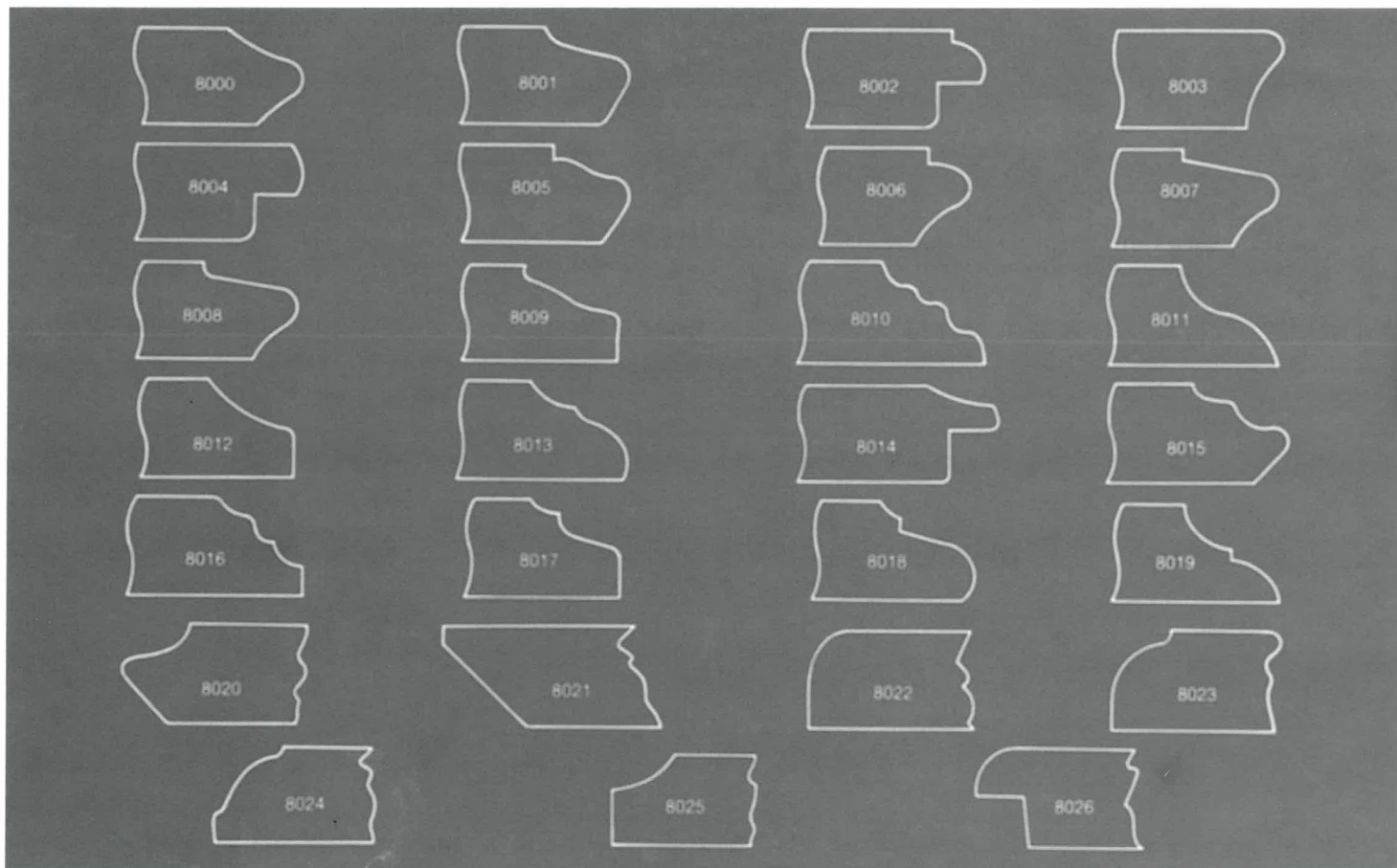
Dedicated profile or multi-profile and larger sizes are available, "T"-Bushings for 1/2" spindle on request. Counterclockwise or clockwise rotations. Material runs face up. Ball bearing rub collars available upon request.



PROFILE ANALYSIS



PROFILES:



The Diamond Difference

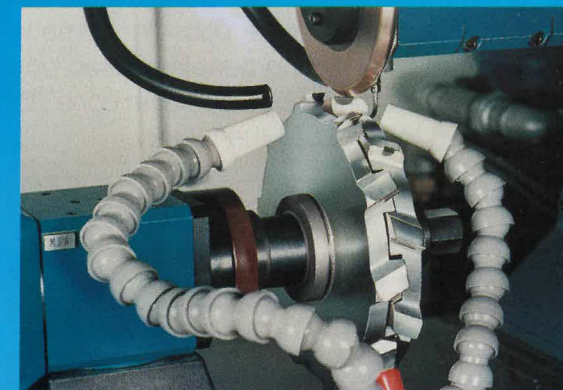
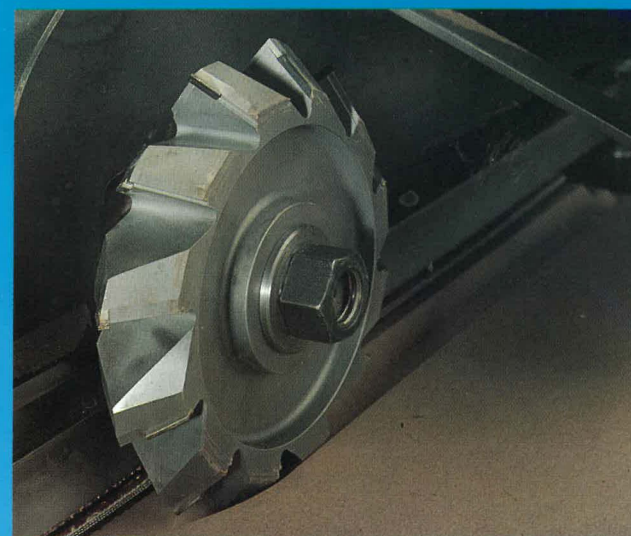
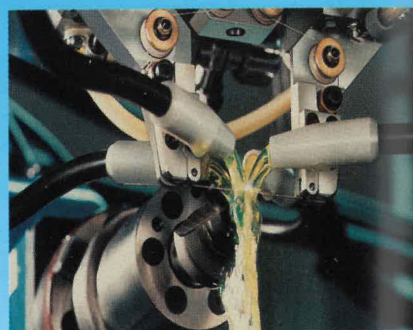
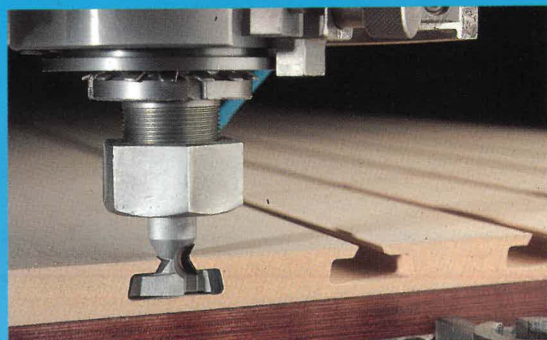
Why buy diamond tooling instead of carbide?

Diamond tooling helps meet industry's need for greater quality and increased productivity with less downtime – both necessary to remain competitive in today's demanding business climate.

Under the right conditions, Diamond tooling will:

- Run 100 times longer than carbide.
- Provide a more consistent quality of cut throughout the life of the tool.
- Maintain more exact tolerances, even after resharping.
- Frequently eliminate approximately 100 tool changes on long tool cycle runs, keeping your equipment working.

If your company performs extended runs requiring close tolerances, regardless of whether you use new woodworking machinery or older machinery in good condition, diamond tooling should be a part of your production package.



Why buy diamond tooling from 3-D Diamond?

For the past 30 years, you've trusted Herco Cutting Tools, Inc. to deliver top quality carbide tooling for your woodworking applications. It's that same 30 years of experience and industry know-how that goes into every diamond tool from 3-D Diamond Tooling, Inc. You see, we know what it takes to manufacture durable and affordable diamond tooling that can keep your equipment running longer and speed up your production process.

In our dedicated diamond tool production facility, you'll find our staff of highly trained engineers who know your machinery, your production procedures and the tooling problems you face daily. They also know how to solve those problems. They've spent countless hours on many production floors studying even the smallest details of woodworking with diamond tooling.



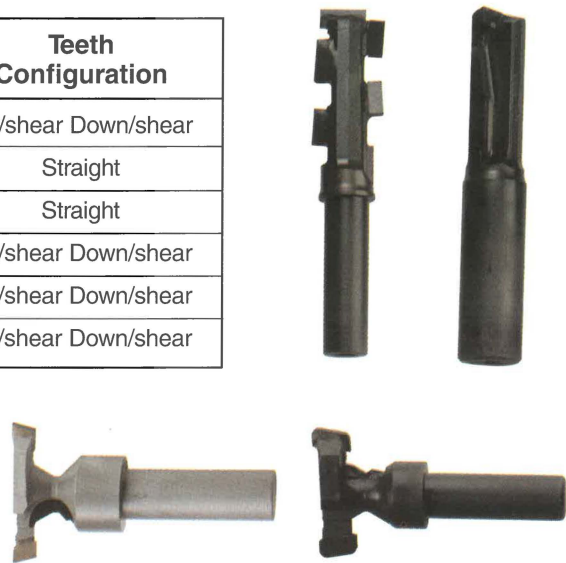
Standard Tools From 3-D Diamond

The majority of diamond tooling manufactured by 3-D Diamond is custom designed and custom made. However, we consider some widely used products to be standard and we can therefore offer pricing benefits based on quantity production. Some of these products are listed on this page, but the list is constantly growing. For details on the current list of our standard tooling, call the factory.

Router Bits

Product #	Shank Dia.	Cutting Dia.	Cutting Length	Number Teeth	Teeth Configuration
D5002	1/2"	1/2"	1"	2w(1+1+1)	Up/shear Down/shear
D5001	1/2"	1/2"	1"	1	Straight
D50025	1/2"	1/2"	1"	2	Straight
D6252	1/2"	5/8"	1"	2w (1+1+1)	Up/shear Down/shear
D62525	5/8"	5/8"	1"	2w (1+1+1)	Up/shear Down/shear
D7502	3/4"	3/4"	1"	2w (1+1+1)	Up/shear Down/shear

T-std	1/2"	1.375"	1/4"	2 wing 1 neck
T-insert	1/2"	1.375"	3/8"	2 wing 1 neck



Saws

Product #	O.D.	Number Teeth	Kerf.
D840	8"	40	.135
D860	8"	60	.135
D1040	10"	40	.150
D1060	10"	60	.150
D1260	12"	60	.160
D1280	12"	80	.160

Score Saws

D512024	120mm	24	Conical
D512524	125mm	24	Conical
D5524	5"	24	Conical
D5624	6"	24	Conical
D5824	8"	24	Conical

Groovers

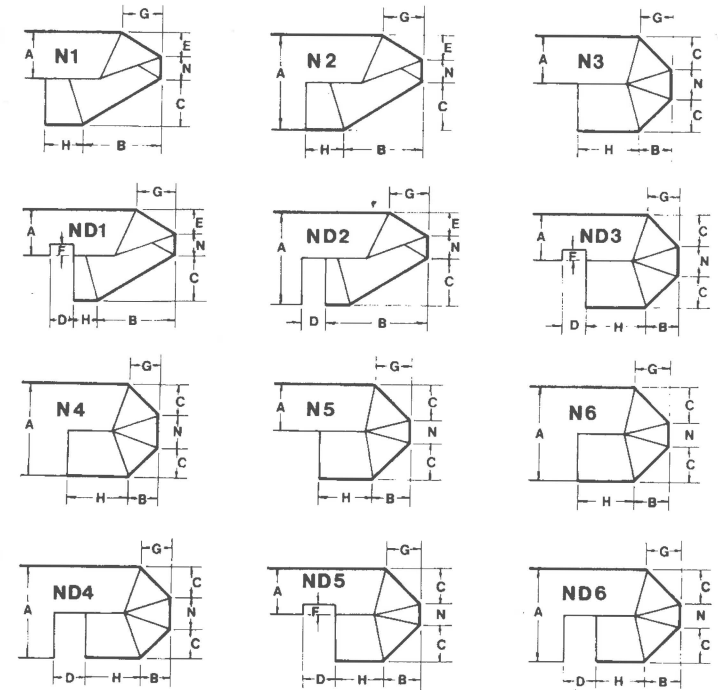
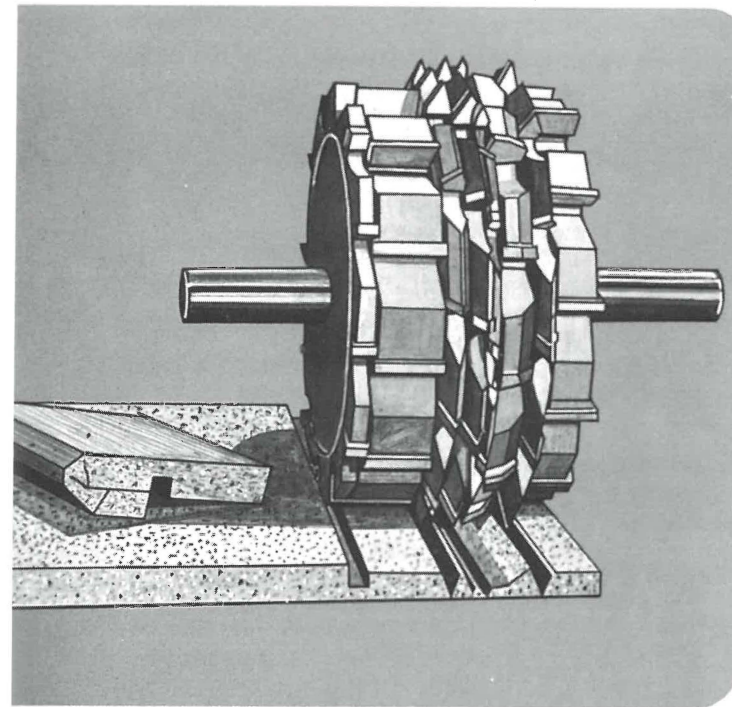
Product #	O.D.	Number Teeth	Kerf.
D6125	6"	6	1/8
D6250	6"	6	1/4
D6375	6"	6	3/8
D6500	6"	6	1/2
D8125	8"	6	1/8
D8250	8"	6	1/4
D8375	8"	6	3/8
D8500	8"	6	1/2
D10125	10"	8	1/8
D10250	10"	8	1/4
D10375	10"	8	3/8
D10500	10"	8	1/2



Herco Cutting Tools, Inc. • 3-D Diamond Tooling, Inc.
P.O. Box 314 • 295 Enterprise Drive • Newcomerstown, OH 43832 • Phone (614) 498-5181 • Fax (614) 498-5454

HERCO CUTTING TOOLS

SPECIAL SETS



A special set consists of angular and/or dado cutters that are designed to run as a unit on one shaft. All the necessary grooving for a front lip or edge fold can be accomplished in **ONE PASS** through the machine.

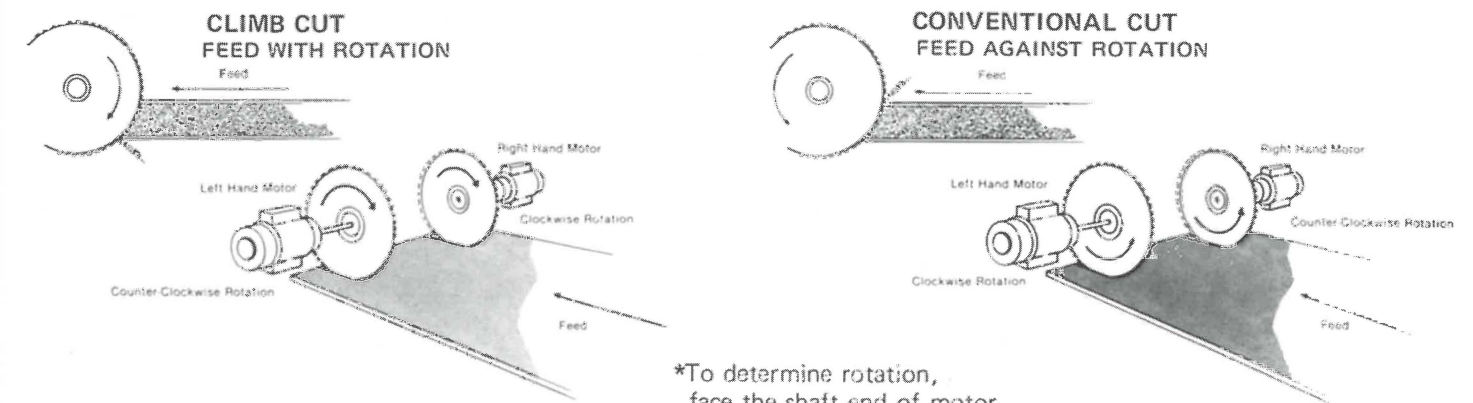
The cutters in a set must relate to and complement each other as a set and by using them in this way, **SET-UP TIME IS CUT TO A MINIMUM** with production loss and aggravation to the operator eliminated. You can be sure

of repeatability from one run to the next because *the O.D. match perfectly, the body thickness and top overhang is exact to prevent any accumulative error and the angles are precise to allow room for glue and maintains a proper fold.*

Shown on these pages are just a few of the many edge folds, for which, Herco has made sets of cutters.

Cutter Rotation

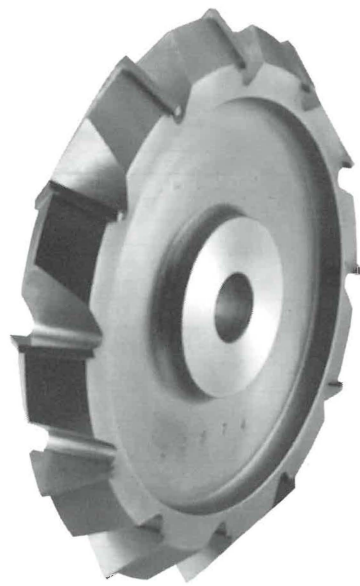
When ordering cutters, details as to direction of rotation* should be given as illustrated below. If a single unit is ordered, it must be stated whether it is to run on the left or right side of the machine and whether it is rotating clockwise or counterclockwise.



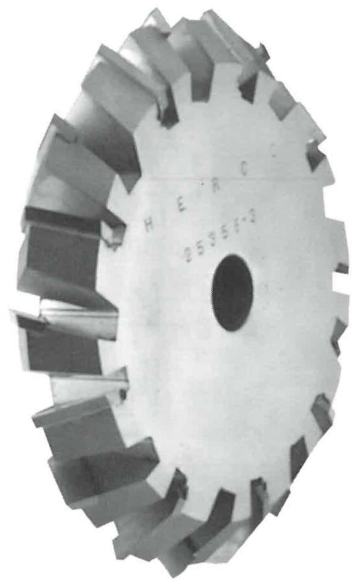
*To determine rotation, face the shaft end of motor.

PHONE 614-498-5181 FAX 614-498-5454

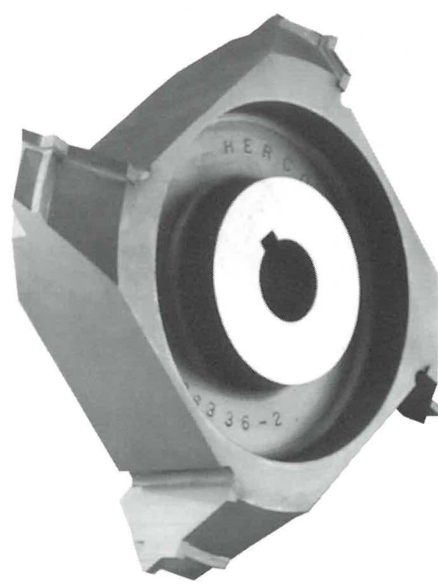
CROSS GROOVERS



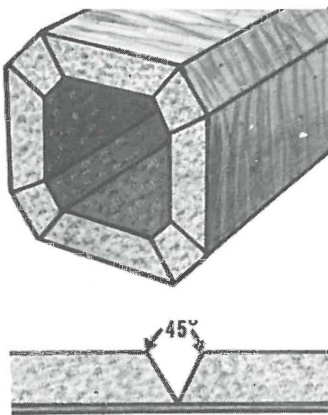
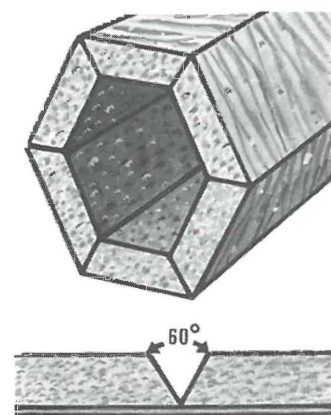
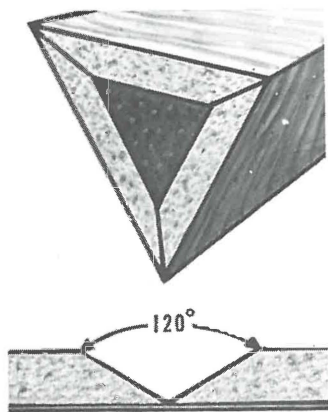
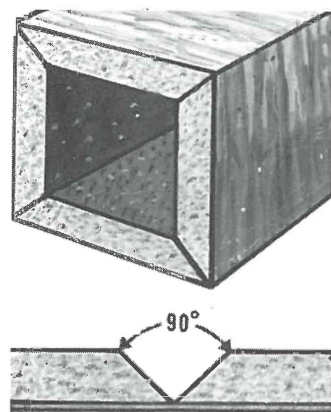
STANDARD CUTTER



FINE CUT ALTERNATE SHEAR CUTTER



LOCK CORNER CUTTER



The **ANGLE** of the Cross Grooving Cutter is determines the shape of the end product, whether it is a square, hexagon, triangle, etc. (See tolerances page 4.)

The depth of cut* and angle required determines the **WIDTH** (or kerf) of the cutter.

The **NUMBER OF TEETH** is determined by many factors, such as the O.D., speed of cutter, feed rate, smoothness of cut required and the intricacy of the front lip and whether or not you are cutting through aluminum or plastic trim.

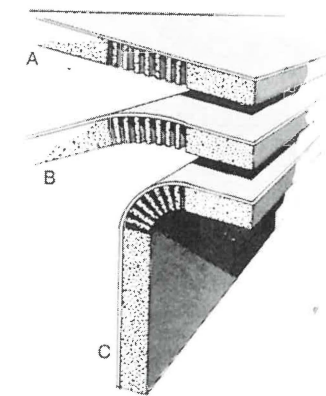
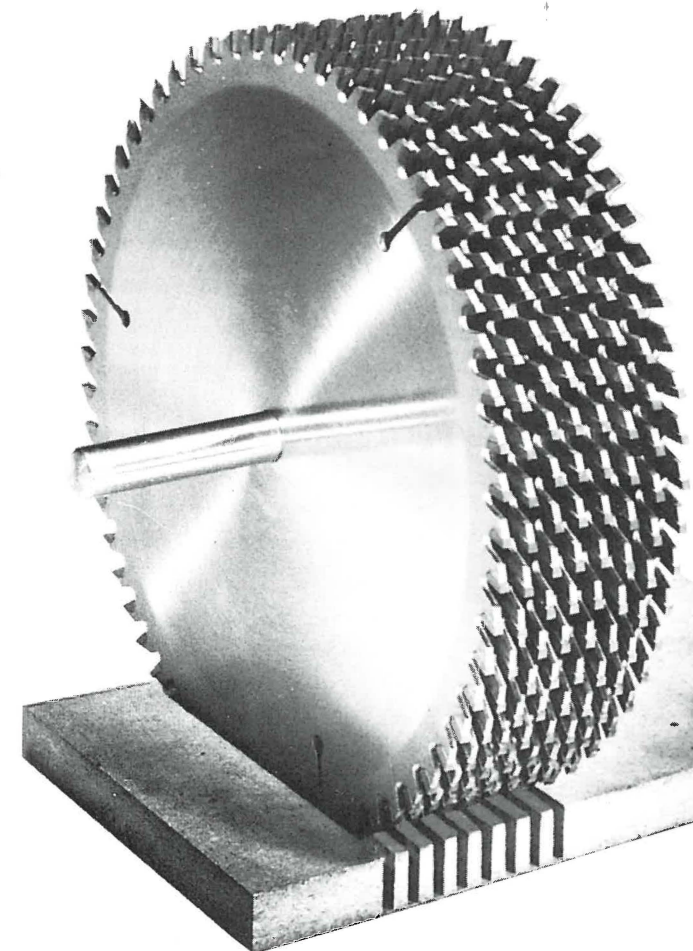
When ordering Cross Groovers all the above variables should be considered for the design and manufacture of cutters for your particular needs.

*All Herco Cutters are made to cut at least 1/16" deeper than the nominal size, to allow for variations in the thickness of the board.

HOW TO ORDER

1. Number of Cutters required.
2. Outside Diameter (A)
3. Inside Diameter (B)
4. Thickness (C)
5. Angle of Cut (E)
6. Maximum Depth of Board to be cut (F)
7. Type of machine on which cutter will be used.
8. Material Being Cut.

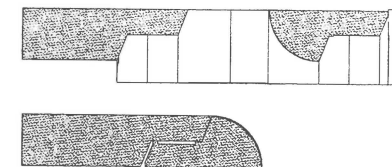
ROUND CORNERS



Kerfing

- A. A series of cuts is made from the inside down to, but not through, the vinyl. The number of cuts, width of cuts, and spacing are determined by the type of cut, size of corner, and thickness of material.
- B. Glue is applied and the corner is folded around to 90°.
- C. Once set up, both the outside as well as the inside radius will result.

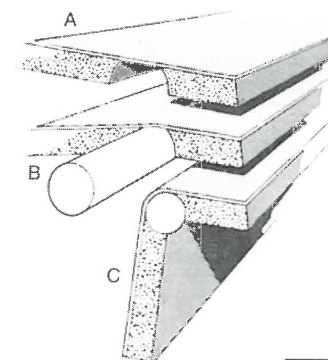
V-Grooving



- A. A series of cutters are run together on one shaft to remove and leave the exact amount of material.
- B. Glue is applied in the designed voided area.
- C. Material is wrapped around the vinyl and exact amount of wood fiber by hand or automatic rollers.

In the manufacturing of furniture, speakers, and various other items using vinyl overlay, the concept of a round corner is sometimes desirable. The three most common and least expensive ways to do this are the Round Dowel, V-Groove, and Kerfing Method. Normally, the approach chosen will be determined by the radius of the corner, the item produced, machine capability, and the number of pieces in the run.

Shown here are three ways to make a round corner in both linear and cross grooving. We will be happy to talk to you and discuss your requirements, and possibly contribute to your product design.



Round Dowel

- A. A dado is cut from the inside with each side rounded at the same radius as the desired corner.
- B. A round wooden or plastic dowel is placed in the groove with glue and the two sides are wrapped around the dowel.
- C. Once the glue is set the corner can be machined very successfully.

HOW TO ORDER

Because of the many ways to accomplish a round corner, we suggest you get in touch with us to discuss how and what approach you should take. If you have any questions, give us a call.

SAFETY GUIDES

for the operation of CARBIDE TIPPED SAW BLADES

Read Completely Before Attempting To Operate Carbide Tipped Saw Blades

This leaflet of safety and operating instructions is not intended to be and is not totally comprehensive; that is, it does not, and cannot, cover every possible safety problem which may arise in using specialized and standard tooling on varying machines and applications. This leaflet is rather intended to generally describe many of the basic safety and operating procedures which should be followed, and to describe the types of safety considerations which should be considered in operating cutting tools.

None of the statements or information presented in this leaflet should be interpreted to imply any warranty or safety protection.

The drawings do not depict any particular design, type, or size of tools, equipment or machines. The drawings are illustrative only and are not to construed to establish any exact mode, method or procedure.

All Federal and state laws and regulations having jurisdiction covering the safety requirements of cutting tools at the point of usage take precedence over the statements and information presented in this leaflet. Users of cutting tools must, of course, adhere to all such regulations. As an aid to cutting tool users a number of such regulations are listed below. The list does not include all regulations that may apply:

1. The Federal Register dated June 27, 1974, Dept. of Labor, Office of Safety and Health Administration (The OSHA Act)
2. American National Standards Institute, 01.1-1975 (Safety Regulations for Woodworking Machinery)
3. American National Standards Institute, 02.1-1969 (Safety Requirements for Sawmills)
4. American National Standards Institute, P1.1-1969 (Safety Requirements for Pulp, Paper and Paperboard Mills)
5. Other ANSI, State and/or Federal Codes and Regulations which may apply in your operation.

SAFETY RULES WHICH APPLY TO THE OPERATION OF ALL CARBIDE TIPPED CUTTING TOOLS

1. Always inspect the cutting tool completely before mounting. Never attempt to operate a tool which has chipped or bent teeth or cutting edges or teeth that are not sharp. You must be familiar with normal wear conditions for the type of tooling to be used. The tool must be completely clean to allow proper visual inspection.

2. Do not attempt to operate cutting tools or machinery with which you are not familiar or have not received operational training—get assistance from your supervisor, his designated representative or a trainer who is familiar and properly trained and experienced on the machine to insure your safety. Become completely familiar with all of the machinery manufacturer's written instructions, guides and manuals before operating machine. You must use and be familiar with all controls, safety devices and emergency stop mechanisms to operate a machine safely.

3. Never operate a cutting tool that is not properly aligned to the direction of feed. Do not allow sideward, twisting or other than forward pressure on the cutting tool in feeding material into a cut.

4. Make sure the tool is mounted to rotate in the proper direction before cutting any material. The tool must rotate against, rather than with, the direction of feed on all hand feed machines. Do not climb on hand feed machines.

5. Do not cut materials of a type, hardness¹ or density² other than that which the cutting tool was designed to cut. Never attempt to cut materials with a tool unless you have personally checked with your supervisor to make sure the cutting tool was designed for the specific type of material you wish to cut, and for the depth of cut desired. This is particularly important when attempting to cut "stacked" material, i.e., cutting more than one piece at a time.

6. Never force-feed materials into a cutting tool such that it causes the tool or machine motor to slow down below operating speeds. A safe and proper cutting operation will not require much force in feeding material. If material begins to "ride up" on the cutting tool, or requires undue pressure to feed the material into the tool, or if undue vibration is experienced, do not continue the cut—turn off all power and correct the condition.

7. Keep body and clothing well clear of all cutting tools and other moving parts while the machine is in operation. Use work holding fixtures and mechanical feed devices in all possible cases. When cutting material of such size, shape or type that it necessitates close approximation to the cutter and mechanical feed

1. **Hardness** is the resistance of a material to being cut or the strength of a material to resist tearing or breaking.
2. **Density** is the compactness of a material compared to its volume.

mechanisms cannot be used, use a wood "push stick" to feed the material so that no part of your body or clothing comes close to the cutting tool.

8. Never attempt to clean a cutting tool or clear pieces of material from the cutting area while machine power is "on" or when cutting tools, material or any part of the machine is moving. Allow cutter rotation to stop by itself, or by use of a brake if supplied on the machine. Never attempt to stop or slow a rotating cutting tool by applying a hand-held or any other object to the cutter, arbor, spindle or drive as a brake.

9. Do not place your body in the rotational path of a cutting tool unless absolutely necessary, and then only if there is a complete and adequate barrier between you and the cutting tool. Remember that carbide tips are very hard and, therefore, brittle. The tips can break away under incorrect side thrust or twisting forces, or if foreign material is allowed to contact the tips. An operator can reduce the danger of being hurt by a "kickback" of the material if he always stands **beside** the material he is feeding into the machine rather than in back of it.

10. Never leave machines unattended while cutting tools are still rotating or any part of the machine or material is moving.

11. Never operate a machine without using all of the hoods, guards, holddowns and safety devices for the machine being operated.

12. Machines must be maintained to the manufacturer's standards and current safety standards.

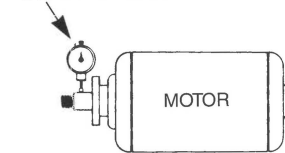
13. Always wear safety glasses or face shield to completely protect your eyes when operating cutting tools.

CIRCULAR SAW BLADES AND SAW MACHINE TOOLS MOUNTING INSTRUCTIONS

1. **TURN OFF AND LOCK OUT ALL MACHINE POWER.** Clean the saw arbor, saw collars, sleeve and arbor nut. Remove nicks and burrs by very lightly honing any nicked or burred area. (Do not use coarse files or abrasives).

2. **WITH ALL MACHINE POWER OFF AND LOCKED OUT,** pull and push on the machine arbor sideways in and out by hand (without rotating the arbor). There should be no feeling of movement. Next, rotate the arbor by hand. If the bearings are in proper condition, the arbor should turn freely with no sticking or rubbing. To check the arbor, set up a dial indicator as shown in Fig. 1. The arbor should run true within the motor manufacturer's

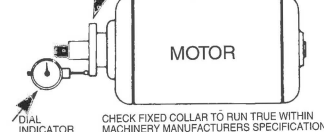
Fig. 1
DIAL INDICATOR



CHECK ARBOR TO RUN TRUE WITHIN MOTOR MANUFACTURERS SPECIFICATIONS.

Set the dial indicator to bear on the fixed collar of the arbor and turn the arbor (Fig. 2). The collar

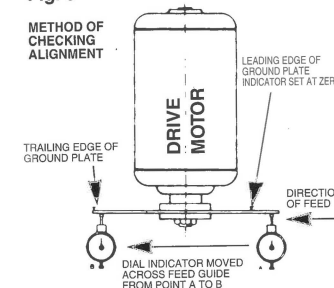
Fig. 2
FIXED COLLAR OF MACHINE ARBOR



should run true within the machine manufacturer's specifications.

3. **WITH ALL POWER OFF AND LOCKED OUT,** align the saw blade with the direction of feed. A method of checking alignment is to mount a flat ground plate of 10 or 12 inches diameter by 1/4 inch thick on the saw arbor in the same manner as a saw blade (see Fig. 3). Set up a dial

Fig. 3



indicator so it can be moved by hand along the guide rail or feed mechanism. Position the dial indicator so it can traverse across the plate either above or below the mounting collars. Set the dial indicator to zero at the leading edge of the plate (Position A, Fig. 3), and move it across the plate to the trailing edge (Position B, Fig. 3).



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Any error in the plate flatness can be eliminated by rotating the plate by hand so that point A is moved to point B when reading the indicator. Any deviation in angularity between the saw blade and the direction of feed should be maintained within the machine manufacturer's recommendations. On double cut-off and panel trim machines any slight angularity in alignment should be controlled so that the trailing edge of the saw blades do not re-cut the material.

4. **WITH ALL MACHINE POWER OFF AND LOCKED OUT,** inspect the saw blade before mounting. The bore (center hole) must be the correct size and fit snugly. Do not force a saw or other type of tool on an arbor. Do not tighten mounting screws unequally, or use incorrectly fitted keys. Incorrect mounting of saws or other tools can cause tool breakage and create dangerous operating conditions. Never mount a saw blade with a damaged (deeply scored or out of round) bore or arbor. Inspect the teeth carefully. Do not mount blades with damaged bodies, dull or damaged (bent or chipped) teeth. Never use anything other than accurate metal shims or spacers if saw blades have to be positioned on the arbor. Never use shims to "wobble" a saw blade.³ Be sure that all saw collars used match exactly in diameter. Closely check to see that the arbor nut threads are not worn and the wrench surfaces of the arbor nut are not rounded off.

5. **WITH ALL MACHINE POWER OFF AND LOCKED OUT,** mount the saw blade on the arbor making sure that the saw blade is turning in the correct rotation and that the arbor nut tightens in a direction opposite to the blade rotation (See Fig. 4A & 4B). Unless the

Fig. 4A

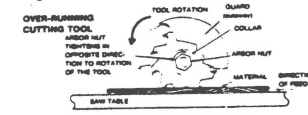
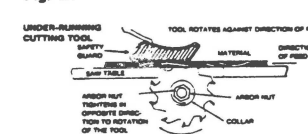


Fig. 4B



machine is specifically designed for such cutting, never mount saw machine tools to "climb cut" (teeth cutting in the same direction of feed) on manually fed machines. Never use saw blades on operations for which they were not designed; for example, do not use rip design blades to cut across the grain, etc.

CIRCULAR SAW BLADES AND SAW MACHINE TOOLS START-UP PROCEDURES

1. **TURN OFF AND LOCK OUT ALL MACHINE POWER.** Never assume previously set machine or tool conditions to be correct. Be sure that

3. Mounting a saw blade to "wobble" means to shim the blade body unequally on one side, throwing the saw out of alignment with the arbor. This causes the saw to make a wider cut and dangerously increases pressures on the tool.

the tool is correctly mounted, properly locked on the arbor (See Fig. 4A & 4B), turns freely (no foreign objects in tool rotation path) and is properly positioned for the cutting operation required (See Fig. 3). Check to see that the cutting tool is not dull or damaged. Check to see that the body of the saw blade is not cracked.⁴ Take special precaution to check "stacked cutters" to be sure that all bolts, pins and threaded parts are not worn or damaged, and are properly mounted. Be sure that hubs on all "split" circular tools are properly fitted and pinned and that the locking collars are in place and fit properly. Do not use locking collars that are not matched to the "split tool." Split collars on split tools are not recommended.

2. **WITH ALL MACHINE POWER OFF AND LOCKED OUT** insure that you are not attempting to operate tools that do not conform to the machine manufacturer's machine load specifications in either size or weight, or that do not mount according to the machine design limitations. Operate saw machine tools only on the type of materials, cutting loads and operation applications for which the tools were designed. (If you don't know this information, ask your supervisor.) Do not operate saw blades or saw machine tools in excess of the machine or tool manufacturer's specifications, or current applicable OSHA standards, or in excess of 18,000 sfm (surface feet per minute).⁵ (See Charts A and B following).

3. **WITH ALL MACHINE POWER OFF AND LOCKED OUT** position the cutting tool, material guides and material hold-downs so that the material to be cut is fully supported. This will insure there will be minimal material vibration. Next, follow the machine manufacturer's instructions to mount all guards over the tools such that the guards are close to, but properly clear, the material being cut. Mount and activate all of the machine safety devices such as anti-kickback mechanisms, spreaders, dust hoods and safety switches. Make sure all personnel and all loose or foreign objects are clear of the machine and cutting tools.

4. **TURN ON MACHINE POWER,** start the tool rotation slowly before feeding material. This is done by "jogging" (that is, pressing the start button and immediately after that pressing the stop button). At a safe distance, observe the operating condition of the tools (by sign and sound) as they rotate slowly. Next, **TURN ALL MACHINE POWER OFF AND LOCKED OUT,** wait until all cutting tools stop rotating by themselves (do not attempt to stop their rotation yourself unless a brake is specifically provided for that purpose on the machine), and make any necessary corrections. Go through all steps noted in paragraph 3, just above, before you. **TURN THE MACHINE POWER ON.** Press the start button and allow the machine to operate at full speed for at

4. "All cracked saws shall be removed from service," Department of Labor OSHA Standards, Federal Register 29 CFR Part 1910.213(S) (7)

5. The term "surface feet per minute" refers to the peripheral or rim speed of a cutting tool. See "Operating Speeds for Carbide Tipped Rotary Cutting Tools."

least one minute before feeding material.

OPERATING SPEEDS FOR CARBIDE TIPPED CIRCULAR SAW BLADES

Carbide tipped circular saw blades of the types commonly used in the machining of materials typical of the toughness and density range of most wood species, composition boards, medium hard plastics, and the softer non-ferrous metals must never be operated in excess of the machinery or tool manufacturer's recommendations, or current applicable OSHA standards, or in excess of 18,000 sfm (surface feet per minute) whichever is lowest. Surface feet per minute (sfm) refers to the peripheral or rim speed of a cutting tool, that is, the speed at which the outer cutting teeth are rotating when the tool is at full speed. This speed increases as the tool diameter and/or motor arbor or spindle rpm increase. The maximum speed of 18,000 sfm is allowable only when the machinery being used is in excellent operating condition and is excellently maintained. When using older or worn machinery, or when cutting materials of an unusual toughness⁶ or density⁷ the surface feet per minute or material feed rate, or both, should be reduced to speeds where the tool cuts easily and freely without excessive vibration or high tooth impact shock. Most woods, plastics and the medium-hard nonferrous metals will cut better with longer tool life at surface feet per minute ranging from 8,000 sfm to 16,000 sfm,

6. **Toughness** is the resistance of a material to being cut or the strength of a material to resist tearing or breaking.
7. **Density** is the compactness of a material compared to its volume.

depending on the hardness and machining characteristics of the material being cut. As the rim speed (surface feet per minute) of a circular saw blade is decreased, feed rates must be decreased accordingly to prevent the forcing of material into the cutting tool and overloading of the cutting teeth.

The method of determining the surface feet per minute (sfm) of a rotary cutting tool is as follows:

$$.26 \times D \times \text{RPM} = \text{SFM}$$

where D = diameter of the tool in inches
RPM = rotating speed, in revolutions per minute
SFM = rim speed, in surface feet per minute
.26 = this number is used to convert the tool circumference from inches to feet (3.14 divided by 12)

Remember that changing to a larger diameter cutting tool at the same machine spindle or arbor speed increases the surface feet per minute rim speed of the tool. Never make assumptions as to any machine motor rpm since machines and individual motors can be modified. **WITHOUT ANY CUTTING TOOLS MOUNTED ON THE MACHINE,** check the rpm of each motor using an rpm tachometer. Once the cutting tool diameter and motor rpm are known, you can check Chart A (following) to see if a saw blade will be operating within the 18,000 surface feet per minute maximum rim speed specified. For diameters not covered by Chart A, use the sfm (surface feet per minute) formula above. For the circular sawing of magnesium, copper, lead, brass, or bronze, note the **LOWER** surface speed limitations on Chart B. For harder or more difficult to cut materials, consult the tool manufacturer.

CHART A

18,000 SFM (SURFACE FEET PER MINUTE) MAXIMUM RPM ROTATING SPEEDS FOR CARBIDE TIPPED CIRCULAR SAW BLADES TYPICAL OF COMMERCIAL DESIGN, THICKNESS AND GRADE STANDARDS
(DO NOT OPERATE CARBIDE TIPPED CIRCULAR SAW BLADES ABOVE THE RPM ROTATING SPEEDS SHOWN)

SAW DIA. (INCHES)	MAXIMUM RPM	SAW DIA. (INCHES)	MAXIMUM RPM	SAW DIA. (INCHES)	MAXIMUM RPM
6	11538*	24	2885	44	1573
7	9890*	26	2663	46	1505
8	8654*	28	2473	48	1442
10	6923*	30	2308	50	1385
12	5769*	32	2163	52	1331
14	4945*	34	2036	54	1282
16	4327*	36	1923	56	1236
18	3846*	38	1822	58	1194
20	3461	40	1731	60	1154
22	3147	42	1648		

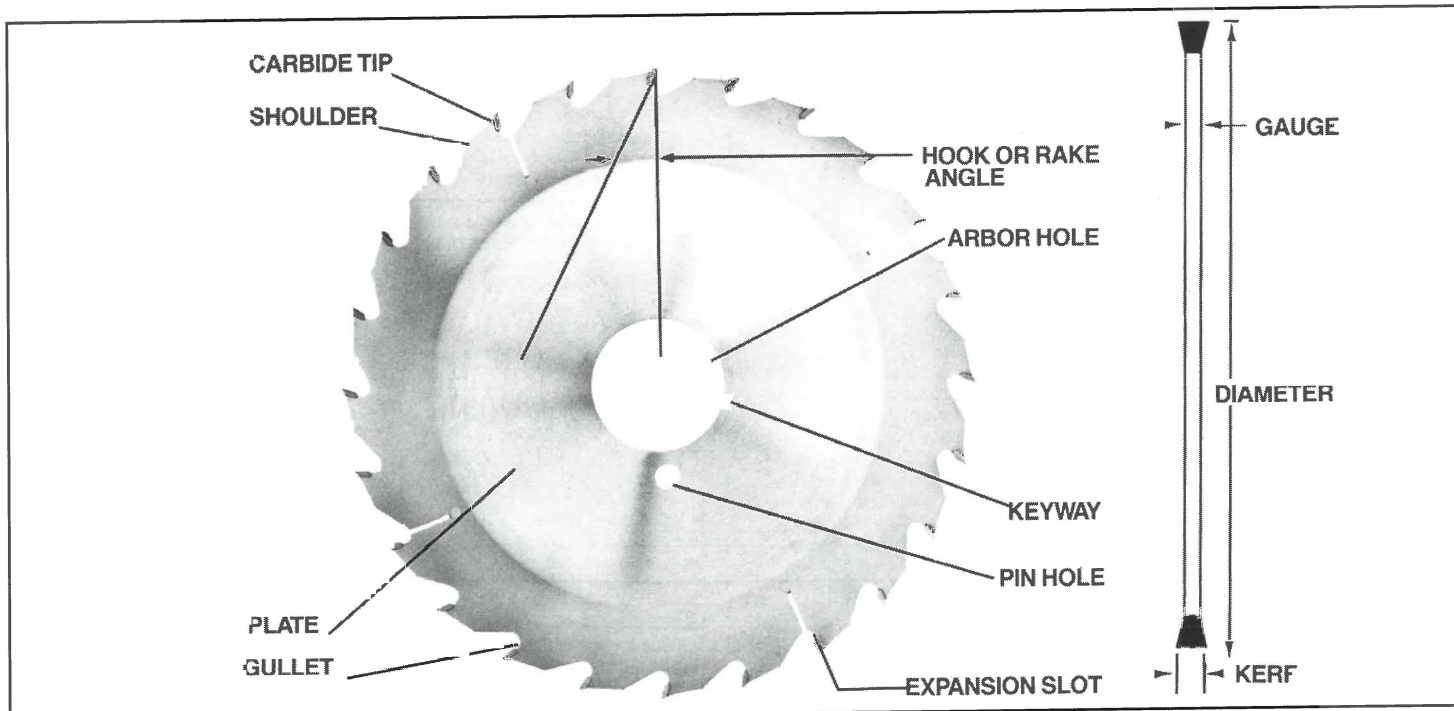
*Operation of saw blades in excess of 3600 RPM is not recommended and will generally result in poor tool life and cut quality.
Note: Most materials will cut better with longer tool life at speeds well below the maximum RPM rotating speed.

CHART B

MAXIMUM RIM SPEEDS, IN SURFACE FEET PER MINUTE (SFM), FOR CARBIDE TIPPED CIRCULAR SAW BLADES CUTTING THE MATERIALS LISTED BELOW

MAGNESIUM	COPPER	LEAD	UNDER 150 BRINELL BRASS	UNDER 150 BRINELL BRONZE
15,000 SFM	10,000 SFM	14,000 SFM	10,000 SFM	12,000 SFM
SOFT & MEDIUM-HARD ALUMINUM	HARD, ANODIZED ALUMINUM	Note: Most metals, including those listed, will cut better with longer tool life at speeds below the maximum surface feet per minute (sfm) rim speeds.		
18,000 SFM	12,000 SFM			

TECHNICAL INFORMATION



CARBIDE TIP: Extremely hard and brittle man made material which actually comes in contact with material being cut. Cemented carbide generally is composed of tungsten carbide powder and cobalt which acts as a bonding agent.

PLATE: Name given to circular body of saw in which teeth are machined in and carbide tips are inserted usually using silver solder as a bonding agent.

SHOULDER: Portion of tooth directly behind tip in which tungsten carbide is brazed giving carbide strength and support during cutting operation.

HOOK OR RAKE ANGLE: Angle formed when cutting tooth meets center line.

GULLET: Normally circular shape at bottom of carbide tip which allows for continuous flow of chips during cutting operation.

ARBOR HOLE, BORE, OR I.D.: Term used for center hole in saw which is used to mount blade on machine arbor. Measured in inches or millimeters.

KEYWAY: Used on certain machines normally involving multiple blades on one arbor with automatic feeds to prevent slippage of saws during cutting.

PIN HOLE: Same application as keyway except machine normally has only one saw blade.

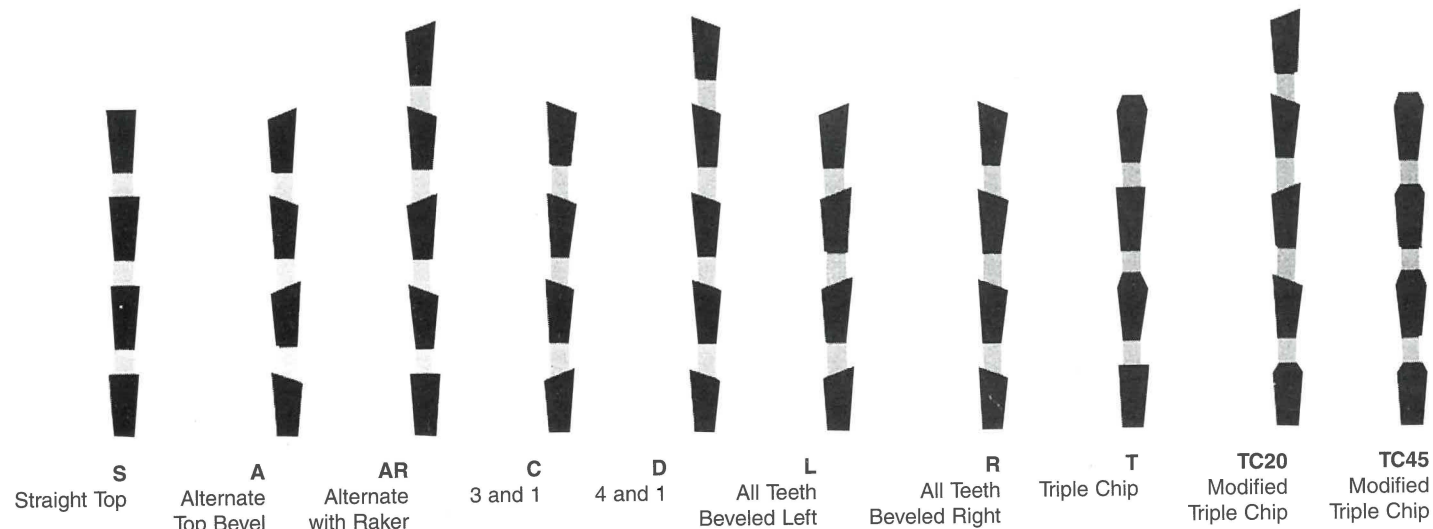
EXPANSION SLOT: Allows for heat expansion of steel during cutting operation to avoid possible cracking in plate.

GAUGE: Measurement of thickness of steel plate (body).

DIAMETER (O.D.): Measurement of particular cutting tool from the point of one tooth to the point of another tooth which lies directly opposite.

KERF: Measurement in inches or millimeters which tells the width of a particular cutting tool.

STANDARD TOOTH GRINDS FOR SAW BLADES

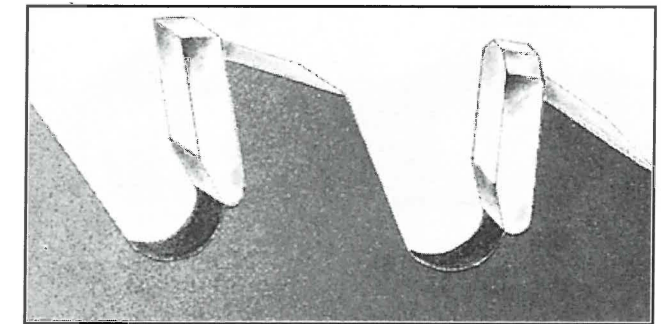


GLUE LINE RIP SAWS

Triple Chip

An extremely stable saw offering smoother cutting for all glue line applications on either straight or shadow line rip saws.

Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HGL1030	10"	.095	.145	5/8"	20°	30
HGL1230	12"	.110	.160	1"	20°	30
HGL1436	14"	.120	.170	1"	20°	36
HGL1636	16"	.120	.170	1"	20°	36

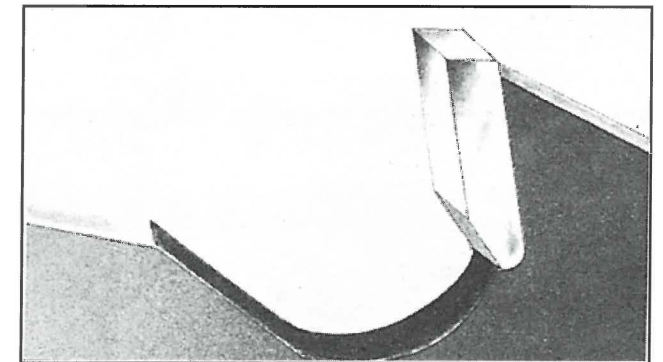


HEAVY DUTY RIP SAWS

Straight Top

A saw especially developed for fast cutting on both hand and power feed ripping operations. This is accomplished by extremely large gullets, heavier plates and use of the proper clearances designed for this type of heavy duty cutting in both hard or soft woods.

Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HHD824	8"	.085	.135	5/8"	20°	24
HHD924	9"	.085	.135	5/8"	20°	24
HHD1024	10"	.095	.145	5/8"	20°	24
HHD1224	12"	.110	.160	1"	20°	24
HHD1424	14"	.120	.170	1"	20°	24
HHD1636	16"	.120	.170	1"	20°	36
HHD1840	18"	.134	.184	1"	20°	40

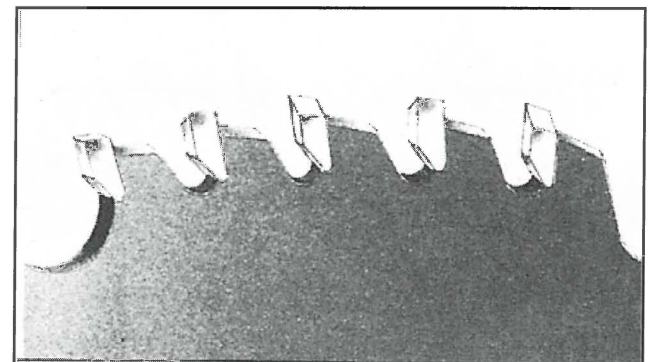


COMBINATION SAWS

Alternate with Raker

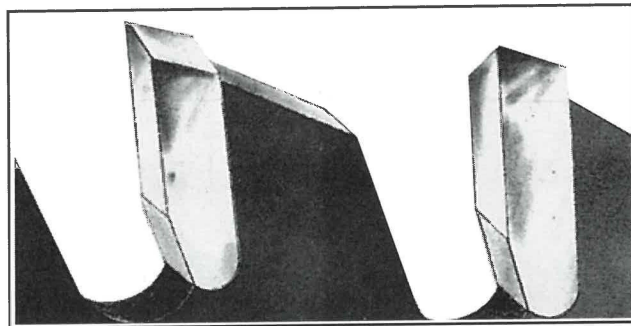
An excellent all round saw ideally suited for the small woodworking or cabinet shops where one saw is used for all different types of cutting. It can be used for ripping or crosscutting in solid woods, particle board, plywood or laminated panels.

Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HCBS840	8"	.085	.125	5/8"	15°	40
HCBS940	9"	.085	.125	5/8"	15°	40
HCBS1040	10"	.085	.130	5/8"	15°	40
HCBS1050	10"	.085	.130	5/8"	15°	50
HCBS1260	12"	.110	.160	1"	15°	60
HCBS1470	14"	.110	.160	1"	15°	70
HCBS1680	16"	.120	.170	1"	15°	80



GENERAL PURPOSE CUT-OFF SAWS Alternate Top Bevel

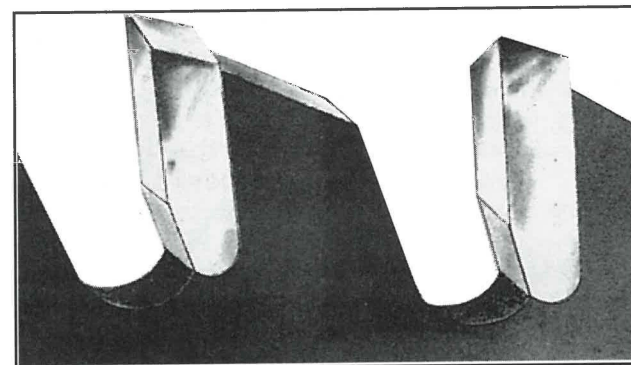
Designed for all around purpose cutting in solid woods, plywood, masonite, chip core, and laminated formica (single sided).



Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HGP840A	8"	.085	.125	5/8"	15°	40
HGP940A	9"	.085	.125	5/8"	15°	40
HGP1040A	10"	.085	.125	5/8"	15°	40
HGP1240A	12"	.095	.140	1"	15°	40
HGP1440A	14"	.120	.165	1"	15°	40
HGP1640A	16"	.120	.165	1"	15°	40

GENERAL PURPOSE CUT-OFF SAWS Triple Chip

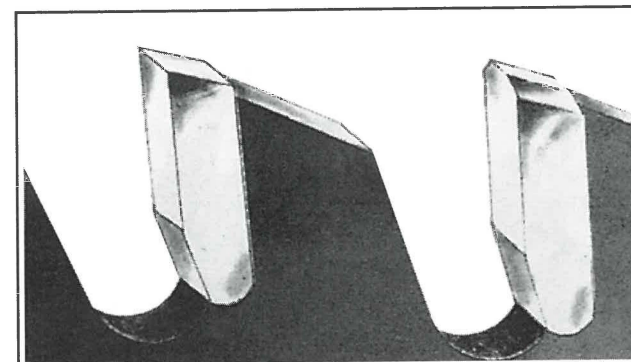
Designed for all around general purpose cutting in solid woods, plywood, masonite, chip core, and laminated formica (single sided). Please note triple chip grind recommended for cutting all types of abrasive materials, such as chip board or high pressure laminates.



Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HGP840T	8"	.085	.125	5/8"	15°	40
HGP940T	9"	.085	.125	5/8"	15°	40
HGP1040T	10"	.085	.125	5/8"	15°	40
HGP1240T	12"	.095	.140	1"	15°	40
HGP1440T	14"	.120	.165	1"	15°	40
HGP1640T	16"	.120	.165	1"	15°	40

STANDARD PURPOSE CUT-OFF SAWS Alternate Top Bevel

For fine finishing cuts in plywood, veneered panels, masonite coated or uncoated, crosscutting in hard or soft woods, plexiglass over 1/2 inch thickness. Can be used on radial or table saws with equal quality of finish.



Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HSP71456A	7-1/4"	.072	.102	Univ.	10°	56
HSP860A	8"	.085	.125	5/8"	10°	60
HSP960A	9"	.085	.125	5/8"	10°	60
HSP1060A	10"	.085	.125	5/8"	10°	60
HSP1060A8.5	10"	.085	.125	5/8"	10°	60
HSP1260A	12"	.095	.140	1"	10°	60
HSP1460A	14"	.109	.155	1"	10°	60
HSP1660A	16"	.109	.155	1"	10°	60
HSP165160A	16-5/16"	.095	.135	25mm	10°	60
HSP1860A	18"	.134	.180	1"	10°	60

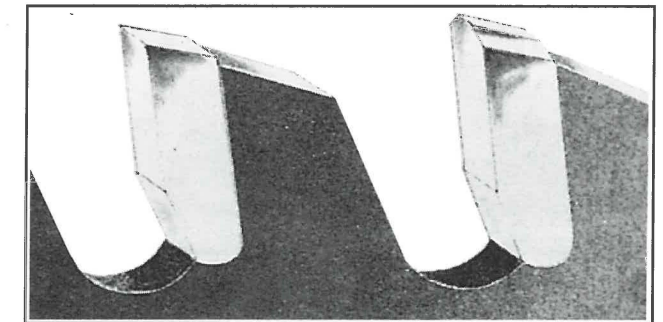
NOTE: HSP1060A: Tip .421 Long
HSP1060A8.5: Tip .335 Long

STANDARD PURPOSE CUT-OFF SAWS Triple Chip

For fine finishing cuts in plywood, veneered panels, masonite coated or uncoated, crosscutting in hard or soft woods, plexiglass over 1/2 inch thickness. Can be used on radial or table saws with equal quality of finish. Please note triple chip grind recommended for cutting of all types of abrasive materials.

Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HSP71456T	7-1/4"	.072	.102	Univ.	10°	56
HSP860T	8"	.085	.125	5/8"	10°	60
HSP960T	9"	.085	.125	5/8"	10°	60
HSP1060T	10"	.085	.125	5/8"	10°	60
HSP1060T8.5	10"	.085	.125	5/8"	10°	60
HSP1260T	12"	.095	.140	1"	10°	60
HSP1460T	14"	.109	.155	1"	10°	60
HSP1660T	16"	.109	.155	1"	10°	60
HSP1860T	18"	.134	.180	1"	10°	60

NOTE: SP1060T: Tip 421 Long
SP1060T 85: Tip 335 Long

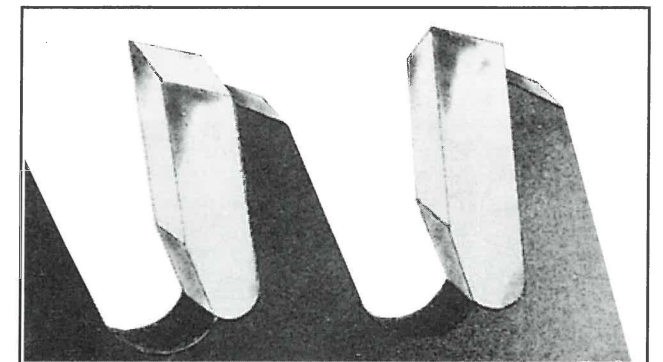


SPECIAL PURPOSE CUT-OFF SAWS Alternate Top Bevel

For smoothest possible finish in plywood, veneer, laminated panels, coated hardboard, plexiglass up to 3/8 inch thickness, for crosscutting of both hard or soft woods up to 3/4 inch thick.

Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HSPE1080A	10"	.085	.125	5/8"	5°	80
HSPE1280A	12"	.095	.135	1"	5°	80
HSPE1210A	12"	.095	.135	1"	5°	100
HSPE1480A	14"	.109	.150	1"	10°	80
HSPE1410A	14"	.109	.150	1"	5°	100
HSPE1680A	16"	.109	.150	1"	10°	80
HSPE1610A	16"	.120	.160	1"	5°	100
HSPE1620A	16"	.120	.160	1"	5°	120
HSPE1880A	18"	.134	.175	1"	10°	80
HSPE1810A	18"	.134	.175	1"	10°	100
HSPE1820A	18"	.134	.175	1"	10°	120

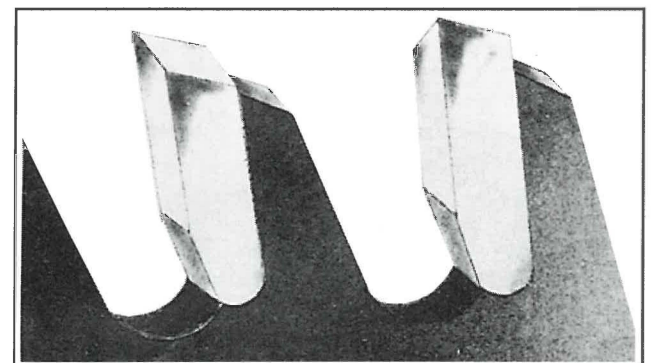
NOTE: SP1060T: Tip 421 Long
SP1060 85: Tip 335 Long



STANDARD PURPOSE CUT-OFF SAWS Triple Chip

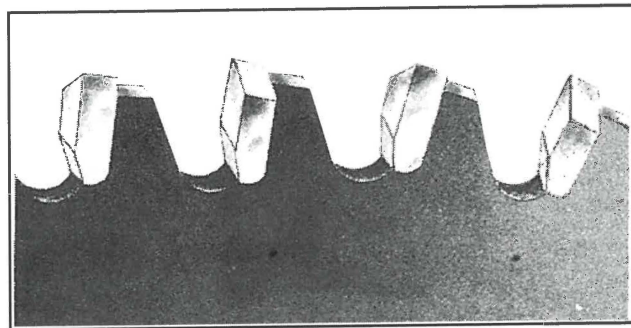
For smoothest possible finish in plywood, veneer, laminated panels, coated hardboard, plexiglass up to 3/8 inch thickness, for crosscutting of both hard or soft woods up to 3/4 inch thick. Please note triple chip grind always recommended for all abrasive types of materials.

Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HSPE1080T	10"	.085	.125	5/8"	5°	80
HSPE1280T	12"	.095	.135	1"	5°	80
HSPE1210T	12"	.095	.135	1"	5°	100
HSPE1480T	14"	.109	.150	1"	10°	80
HSPE1410T	14"	.109	.150	1"	5°	100
HSPE1680T	16"	.109	.150	1"	10°	80
HSPE1610T	16"	.120	.160	1"	5°	100
HSPE1620T	16"	.120	.160	1"	5°	120
HSPE1880T	18"	.134	.175	1"	10°	80
HSPE1810T	18"	.134	.175	1"	10°	100
HSPE1820T	18"	.134	.175	1"	10°	120



RADIAL OVERARM SAWS Alternate Top Bevel

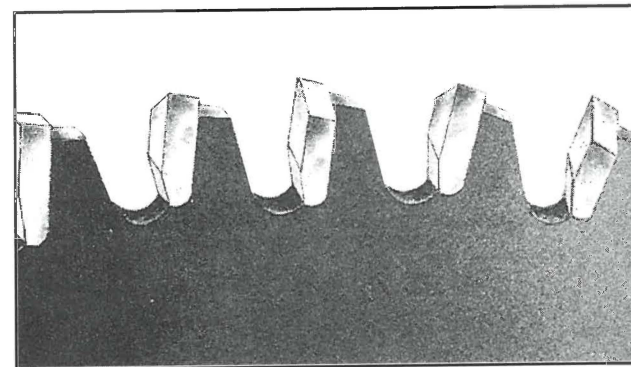
An excellent blade for use on all types of radial saws. Due to the negative tooth design, this saw offers a minimum of grabbing which is the main problem on most overarm machines



Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HR01024	10"	.095	.135	5/8"	-2°	24
HR01230	12"	.095	.135	5/8"	-2°	30
HR01260	12"	.095	.135	5/8"	-2°	60
HR01440	14"	.120	.165	1"	-2°	40
HR01640	16"	.120	.165	1"	-2°	40

MITRE SAWS Alternate with Raker

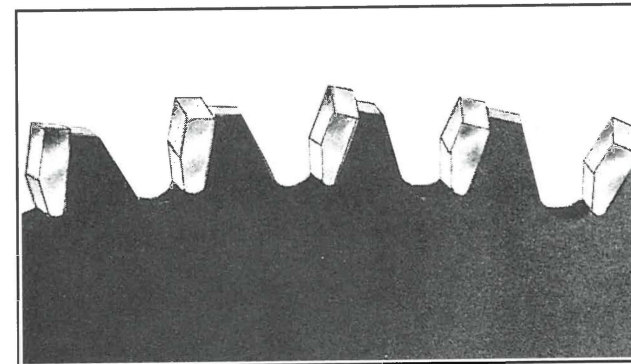
Especially designed for the smoothest cutting of wood mouldings on all types of mitre machines and Rockwell type mitre box saws. Negative tooth design provides the least possible grabbing of material.



Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HMT960	9"	.085	.115	5/8"	-2°	60
HMT1080	10"	.085	.115	5/8"	-2°	80
HMT1280	12"	.095	.125	1"	-2°	80
HMT1210	12"	.095	.125	1"	-2°	100
HMT121058	12"	.095	.125	5/8"	-2°	100
HMT35080	350mm	.085	.115	25mm	-2°	80
HMT350801	350mm	.085	.115	1"	-2°	80
HMT1490	14"	.120	.150	1"	-2°	90
HMT1510	15"	.085	.115	1"	-2°	100
HMT1610	16"	.120	.150	1"	-2°	100

DOUBLE MITRE SAWS 4 & 1 Grind

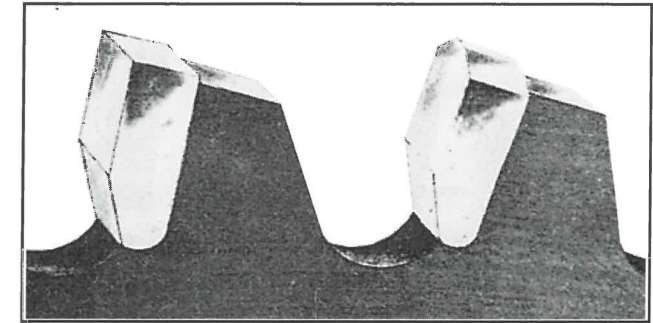
For smoothest cutting of wood mouldings. Sold as set: 1 Left Hand and 1 Right Hand. For double mitre machines such as Pistorius, Sampson, CTD, etc.



Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HDMT1080	10"	.086	.110	5/8"	-2°	80
HDMT121058	12"	.095	.120	5/8"	-2°	100

NON-FERROUS METAL CUTTING SAWS Triple Chip

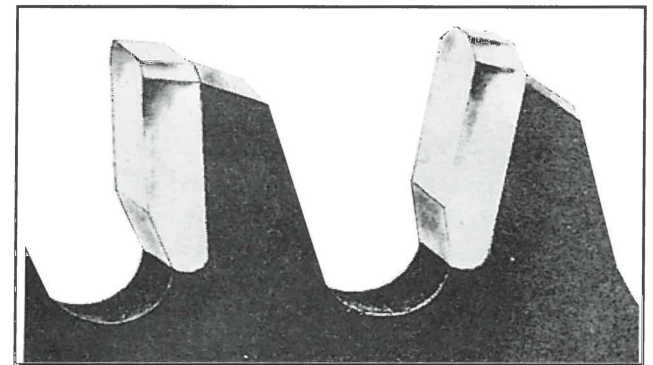
Designed for smooth, burr free cuts on all types of aluminum extrusions, thin wall tubing with a wall thickness of 1/16 inch to 1/8 inch and a thin gauge sheets. These blades work particularly well on double mitre or portable mitre box machines. Please note that a lubricant should always be used during cutting and material should always be firmly secured while being cut.



Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HNF860	8"	.086	.115	5/8"	-2°	60
HNF960	9"	.086	.115	5/8"	-2°	60
HNF1060	10"	.086	.115	5/8"	-2°	60
HNF1072	10"	.095	.125	5/8"	-2°	72
HNF1080	10"	.086	.115	5/8"	-2°	80
HNF1010	10"	.086	.115	5/8"	-2°	100
HNF1280	12"	.095	.125	1"	-2°	80
HNF1210	12"	.095	.125	1"	-2°	100
HNF121058	12"	.095	.125	5/8"	-2°	100
HNF35080	350mm	.085	.115	25mm	-2°	80
HNF350801	350mm	.085	.115	1"	-2°	80
HNF1490	14"	.120	.150	1"	-2°	90
HNF1510	15"	.085	.115	1"	-2°	100
HNF1610	16"	.120	.150	1"	-2°	100
HNF1810	18"	.134	.165	1"	-2°	100

PLEX-CUT SAWS TC45

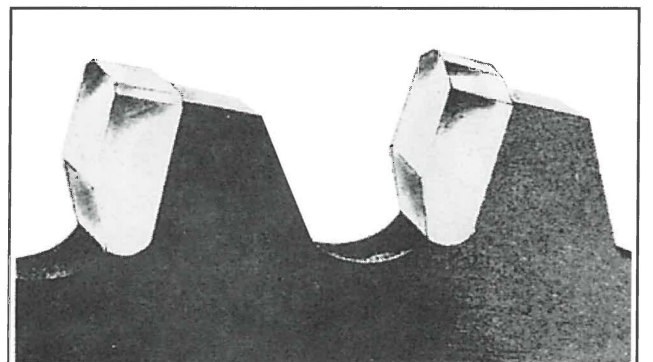
Ideally suited for cutting plastics such as plexiglass, lucite, ABS, and lexan, where melting is a problem. Good for material thickness up to 3/8 inch.



Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HPC860	8"	.072	.102	5/8"	5°	60
HPC1080	10"	.072	.102	5/8"	5°	80
HPC1280	12"	.085	.115	1"	5°	80

SOLID SURFACE MATERIAL SAWS TC45

For smoothest cutting on solid surface materials such as Corian®, Avonite®, and Fountainhead®. Special clearances allow for smoothest cut on these materials.

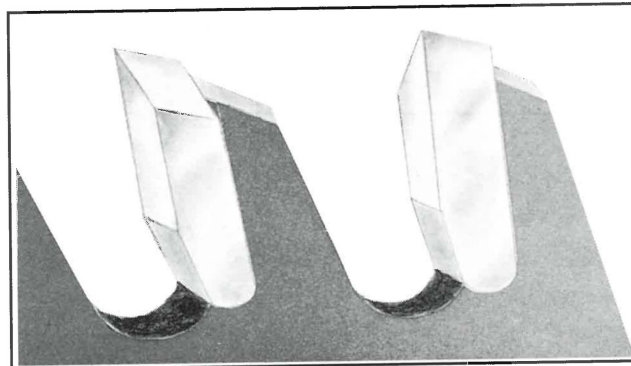


Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HDFLC71440	7-1/4"	.080	.104	Univ	-2°	40
HDFLC860	8"	.086	.110	5/8"	-2°	60
HDFLC1080	10"	.086	.110	5/8"	-2°	80

DOUBLE FACE LAMINATE SAWS

30° ATB

Smoothest cutting saw for double sided materials such as Melamine, Kortron & Veneer. Can be used on radial or table saws.

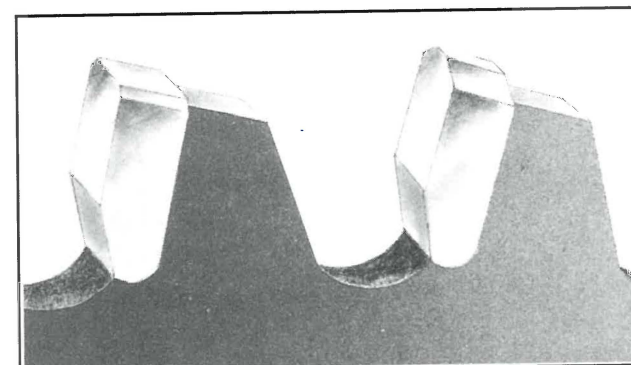


Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HDFL86030	8"	.085	.115	5/8"	-5°	60
HDFL108030	10"	.085	.115	5/8"	-5°	80
HDFL121030	12"	.095	.125	1"	-5°	100

DOUBLE FACE LAMINATE SAWS

TC45

The perfect saw for the best possible cutting of formica and Melamine laminated panels. These blades can perform equally as well as both radial or table saws.

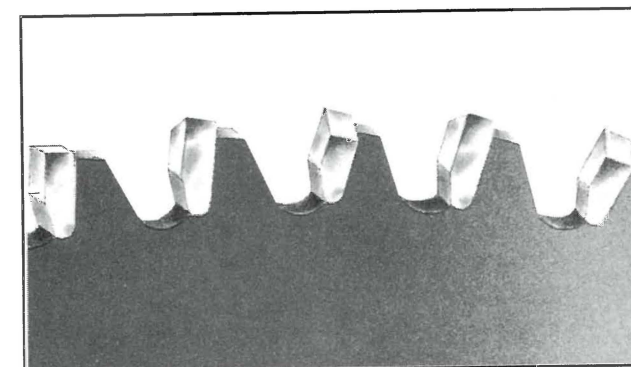


Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HDFL860	8"	.085	.115	5/8"	-5°	60
HDFL960	9"	.085	.115	5/8"	-5°	80
HDFL1080	10"	.085	.115	5/8"	-5°	80
HDFL1210	12"	.095	.125	1"	-5°	100
HDFL1410	14"	.120	.150	1"	-5°	100
HDFL1620	16"	.120	.150	1"	-5°	120

DOUBLE FACE VENEER SAWS

Alternate with Raker

A saw specifically recommended for the cutting of double sided veneered panels either with or against the grain. Will also give splinter free cuts in plywood. Also for the cutting of veneer or hardwood strips for edge banding.

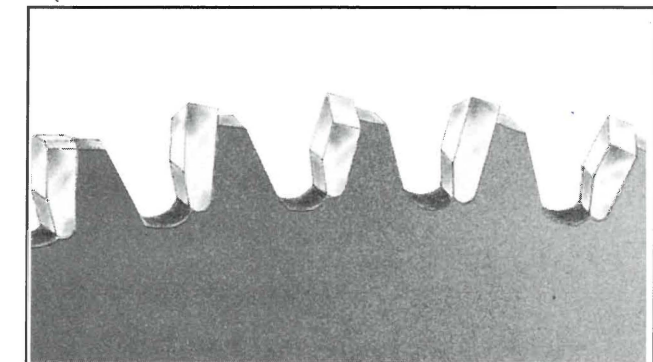


Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HDFV860	8"	.085	.115	5/8"	-5°	60
HDFV960	9"	.085	.115	5/8"	-5°	60
HDFV1080	10"	.085	.115	5/8"	-5°	80
HDFV1210	12"	.095	.125	1"	-5°	100
HDFV1410	14"	.120	.150	1"	-5°	100
HDFV1620	16"	.120	.150	1"	-5°	120

DOUBLE SIDED VINYL SAWS

TC20

Specially made for cutting double sided vinyl panels. Extremely fine cut on top and bottom of material.



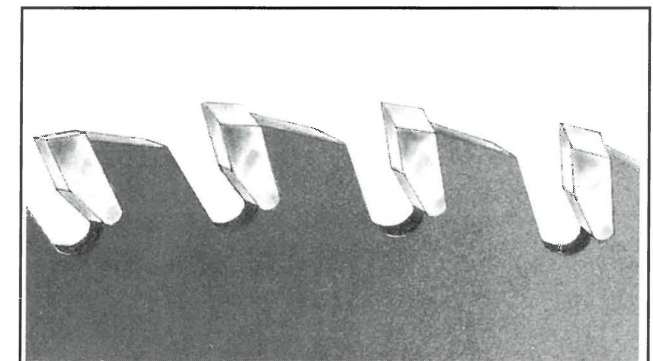
Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HDSV860	8"	.085	.115	5/8"	-5°	60
HDSV960	9"	.085	.115	5/8"	-5°	60
HDSV1080	10"	.085	.115	5/8"	-5°	80
HDSV1210	12"	.095	.125	1"	-5°	100
HDSV1410	14"	.120	.150	1"	-5°	100
HDSV1620	16"	.120	.150	1"	-5°	120

DOUBLE CUT-OFF & TRIM SAWS

3 & 1 Grind

Extra plate thickness gives these saws extreme stability when used on Double End or Panel Sizing machines, resulting in a splinter free finish on either sizing or angular cuts.

Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HDCO1280	12"	.120	.165	1"	10°	80
HDCO1410	14"	.134	.180	1"	10°	100
HDCO1610	16"	.134	.180	1"	10°	100



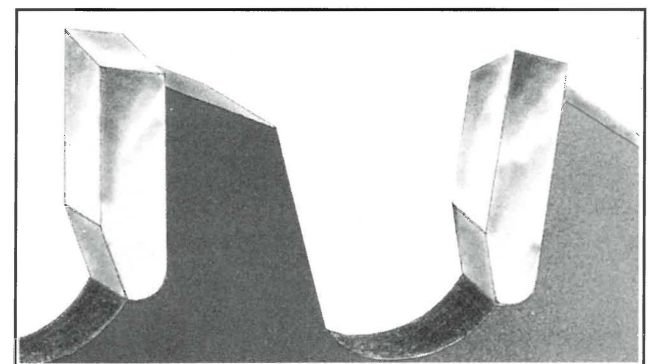
EDGE BANDER SAWS

Alternate Top Bevel or All Teeth Beveled to Left or Right

A specially designed saw for use on both single and two sided edge banding machines, for the end trimming of either wood or plastic banding materials.

Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HEB420	4"	.085	.125	5/8"	8°	20
HEB4200	4"	.085	.125	5/8"	0°	20
HEB43820	4 3/8"	.085	.125	5/8"	6°	20
HEB4520	4 1/2"	.085	.125	5/8"	6°	20
HEB43424	4 3/4"	.085	.125	5/8"	6°	24
HEB524	5"	.085	.125	5/8"	6°	24
HEB5530	5 1/2"	.085	.125	5/8"	6°	30
HEB640	6"	.085	.125	5/8"	6°	40
HEB6400	6"	.085	.125	5/8"	0°	40

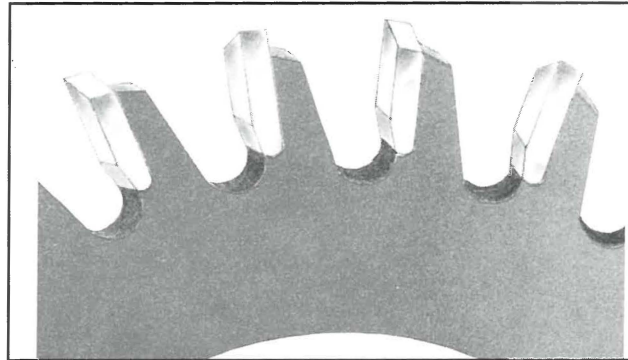
NOTE: When ordering Alternate Top Bevel add letter A after Saw No.
For Left Bevel add letter L after Saw No.
For Right Bevel add letter R after Saw No.



THIN RIM SAWS

Alternate Top Bevel or Triple Chip

The perfect saw to use where there is a need for a minimum of stock removal per cut, as in the cutting of plastic or veneer strips for edge banding. Maximum depth of cut on Thin Rim blade is 1 3/4 inches.



Saw No.	Diameter	Plate Thickness	Thin Rim Plate Thickness	Kerf	Bore	Hook	Teeth
HTR860	8"	.086	.062	.092	5/8"	10°	60
HTR1080	10"	.086	.062	.092	5/8"	5°	80
HTR1280	12"	.095	.062	.092	1"	5°	80
HTR1210	12"	.095	.062	.092		5°	100

NOTE: When ordering Alternate Top Bevel add letter A after Saw No. For Triple Chip add letter T after Saw No.

PANEL SAWS

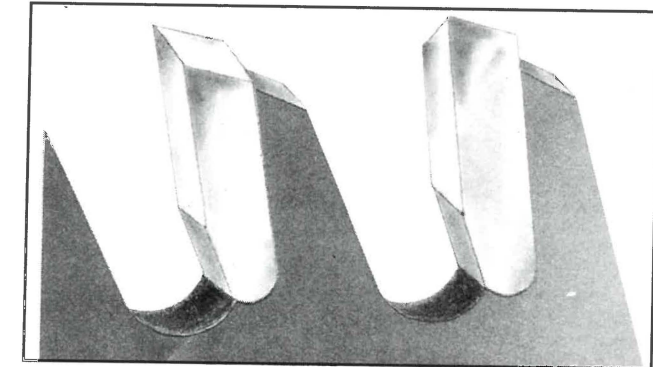
Metric Diameter

For use on various models of vertical and horizontal panel saw machines. For scoring blades to match see scoring saws listed below.

Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HSP22064T	220mm	.080	.120	30mm	5°	64
HSP30060A	300mm	.095	.135	30mm	10°	60
HSPE30010T	300mm	.095	.135	30mm	5°	100
HSPE35072A	350mm	.110	.172	30mm	13°	72
HSPE35072T	350mm	.110	.172	30mm	13°	72
HSP40060A	400mm	.110	.172	75mm	13°	60
HSP40060T	400mm	.110	.172	75mm	13°	60

A=Alternate Top Bevel
T=Triple Chip

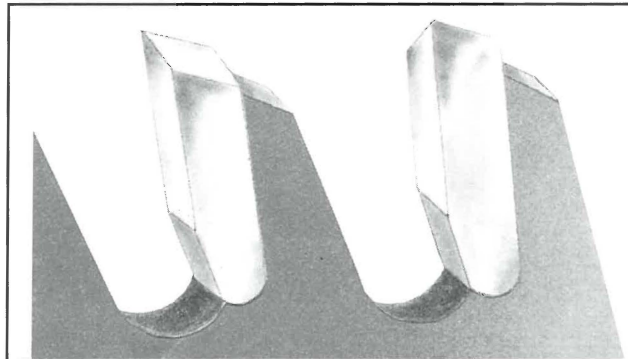
Note: MICRO-5 Extra Hard, Micro-Grain Carbide Tips used on all panel saw blades.



THIN KERF SAWS

Alternate Top Bevel

Thin kerf blades create less power drain on machine and allow for minimum of stock waste.



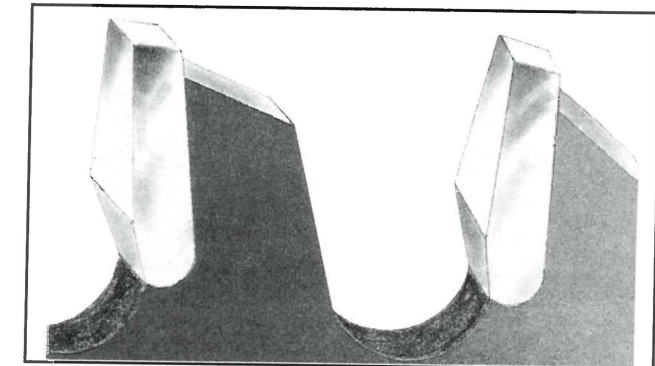
Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HTK860A	8"	.072	.102	5/8"	5°	60
HTK1080A	10"	.072	.102	5/8"	5°	80
HTK1280A	12"	.085	.115	1"	5°	80

SCORING SAWS

Straight Top and Conical Sides

Used on most sliding carriage panel saws to score the bottom of finished panels, thus allowing large saw to cut through without chipping material on bottom side.

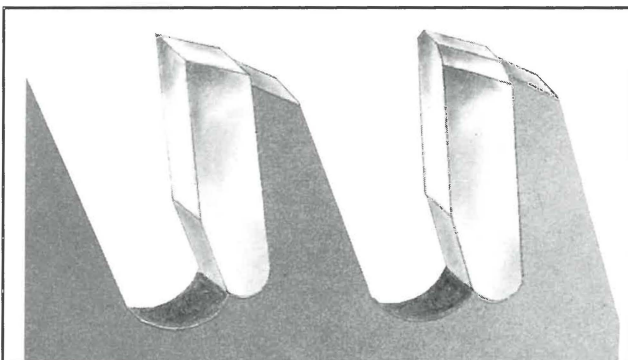
Saw No.	Diameter	Bore	Teeth	Hook	Used With Cut-Off-Saws
HS420	4"	5/8"	20	8°	12" to 16" dia.
HS12024	120mm	5/8"	24	10°	350mm dia.
HS43424	4 3/4"	5/8"	24	8°	12" to 16" dia.
HS12524	125mm	45mm	24	10°	400mm dia.
HS524	5"	5/8"	24	8°	12" to 16" dia.
HS51824	5 1/8"	5/8"	24	8°	12" to 16" dia.
HS624	6"	5/8"	24	8°	12" to 16" dia.
HS824	8"	5/8"	24	8°	12" to 16" dia.



THIN KERF SAWS

Triple Chip

Thin kerf blades create less power drain on machine and allow for minimum of stock waste. Please note triple chip grind recommended for cutting all types of abrasive materials.

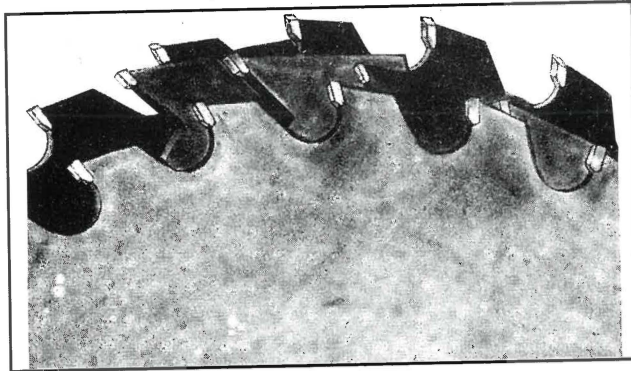


Saw No.	Diameter	Plate Thickness	Kerf	Bore	Hook	Teeth
HTK860T	8"	.072	.102	5/8"	5°	60
HTK1080T	10"	.072	.102	5/8"	5°	80
HTK1280T	12"	.085	.115	1"	5°	80

DADO SETS

Standard #3 Set

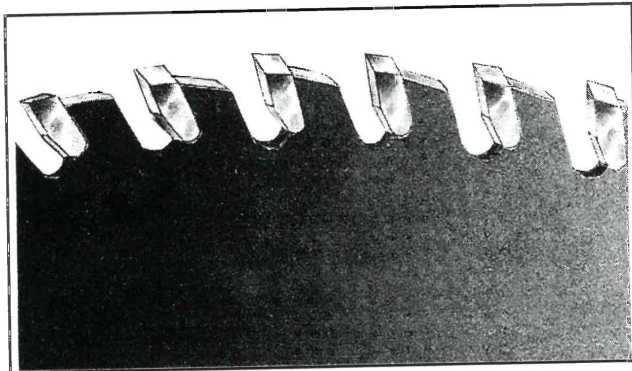
Offers the woodworking shop one tool which will cut various size grooves up to 13/16 inch maximum width of cut. Can be used to cut either with or against grain.



Saw No.	Diameter	Width of Cut	Bore	Hook	Teeth
HDS6	6"	1/4" to 13/16"	5/8"	15°	18
HDS8	8"	1/4" to 13/16"	5/8"	15°	18
HDS10	10"	1/4" to 13/16"	5/8"	15°	24
HDS101	10"	1/4" to 13/16"	1"	15°	24
HDS12	12"	1/4" to 13/16"	1"	15°	24

One set consists of: Two 1/8 inch outside blades
Two 1/8 inch chippers
One 1/4 inch chipper
One 1/16 inch chipper

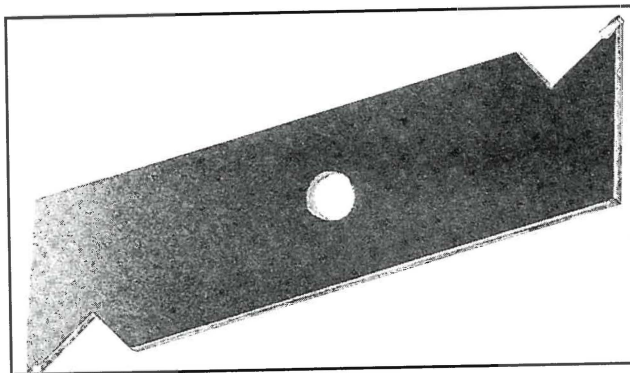
OUTSIDE DADO SAWS



Saw No.	Diameter	Kerf	Bore	Hook	Teeth
OHS6	6"	1/8"	5/8"	15°	18
HOS8	8"	1/8"	5/8"	15°	18
HOS10	10"	1/8"	5/8"	15°	24
HOS12	12"	1/8"	1"	15°	24

Specify teeth beveled left or beveled right.

DADO CHIPPERS



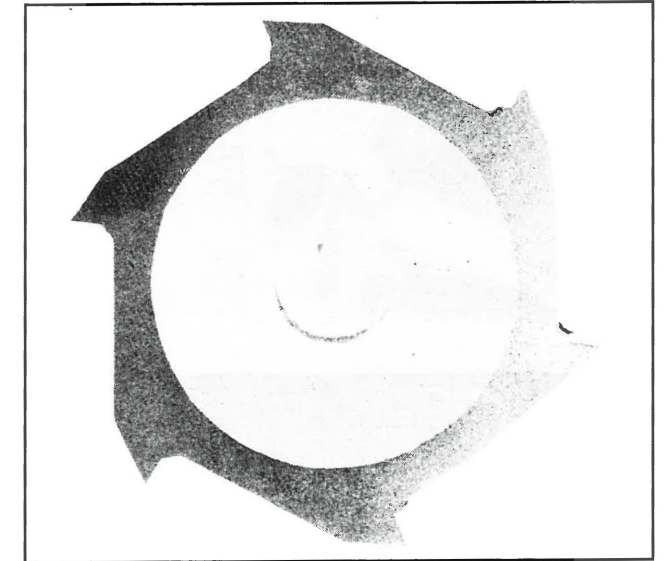
Chipper No.	Diameter	Kerf	Bore	Hook
HDC616	6"	1/16"	5/8"	15°
HDC618	6"	1/8"	5/8"	15°
HDC614	6"	1/4"	5/8"	15°
HDC816	8"	1/16"	5/8"	15°
HDC818	8"	1/8"	5/8"	15°
HDC814	8"	1/4"	5/8"	15°
HDC1016	10"	1/16"	5/8"	15°
HDC1018	10"	1/8"	5/8"	15°
HDC1014	10"	1/4"	5/8"	15°
HDC1216	12"	1/16"	1"	15°
HDC1218	12"	1/8"	1"	15°
HDC1214	12"	1/4"	1"	15°

Also Available: Fine Tooth Dados and Dados for Melamine

GROOVERS – SQUARE FACE & TOP Straight Top

A single purpose tool to be used when a specific width of groove is desired for production runs. Will give good finish cuts when run with grain of material.

Groover No.	Diameter	Kerf	Bore	Teeth
HG4184	4"	1/8"	5/8"	4
HG43164	4"	3/16"	5/8"	4
HG4144	4"	1/4"	5/8"	4
HG45164	4"	5/16"	5/8"	4
HG4384	4"	3/8"	5/8"	4
HG47164	4"	7/16"	5/8"	4
HG4124	4"	1/2"	5/8"	4
HG4584	4"	5/8"	5/8"	4
HG4344	4"	3/4"	5/8"	4
HG6188	6"	1/8"	5/8"	8
HG63168	6"	3/16"	5/8"	8
HG6148	6"	1/4"	5/8"	8
HG65168	6"	5/16"	5/8"	8
HG6388	6"	3/8"	5/8"	8
HG67168	6"	7/16"	5/8"	8
HG6128	6"	1/2"	5/8"	8
HG6588	6"	5/8"	5/8"	8
HG6348	6"	3/4"	5/8"	8
HG831612	8"	3/16"	5/8"	12
HG81412	8"	1/4"	5/8"	12
HG851612	8"	5/16"	5/8"	12
HG83812	8"	3/8"	5/8"	12
HG871612	8"	7/16"	5/8"	12
HG81212	8"	1/2"	5/8"	12
HG85812	8"	5/8"	5/8"	12
HG83412	8"	3/4"	5/8"	12
HG81424	8"	1/4"	5/8"	12
HG83824	8"	3/8"	5/8"	12
HG81224	8"	1/2"	5/8"	12
HG85824	8"	5/8"	5/8"	12
HG83424	8"	3/4"	5/8"	12
HG1031624	10"	3/16"	5/8"	24
HG101424	10"	1/4"	5/8"	24
HG1051624	10"	5/16"	5/8"	24
HG103824	10"	3/8"	5/8"	24
HG101224	10"	1/2"	5/8"	24
HG105824	10"	5/8"	5/8"	24
HG103424	10"	3/4"	5/8"	24



GROOVERS – SHEAR FACE

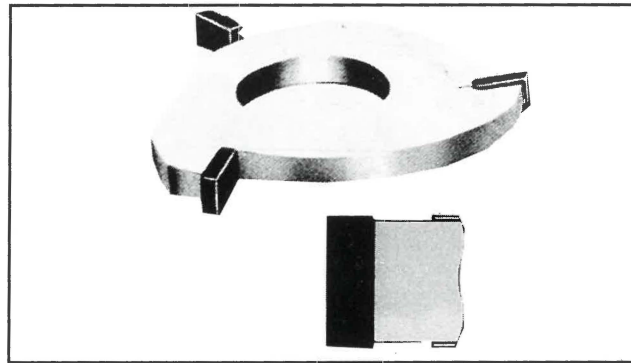
Especially suited for cutting against the grain in veneer and plywood. Same specifications as above.

NOTE: When ordering Shear Face add letters SF after Groover No.

Also Available: Fine Tooth Groovers, V-Groovers and Specialty Groovers

STRAIGHT FACE CUTTERS

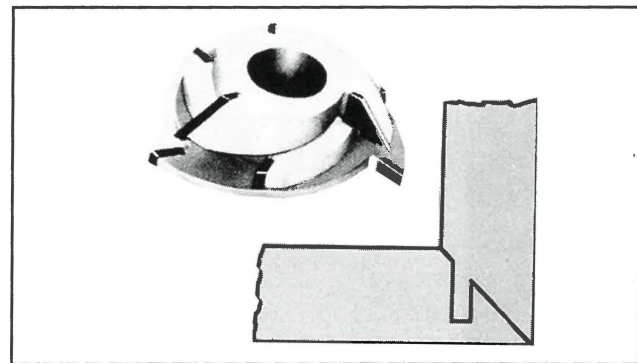
3 Wing



Saw No.	Tool Diameter	Bore	Kerf
HESF414	4"	3/4, 1 1/4"	1/4"
HESF412	4"	3/4, 1 1/4"	1/2"
HESF434	4"	3/4, 1 1/4"	3/4"
HESF4100	4"	3/4, 1 1/4"	1"
HESF4112	4"	3/4, 1 1/4"	1 1/2"
HESF4200	4"	3/4, 1 1/4"	2"

Add "S" to Tool Number if side clearance is needed.

LOCK MITRE CUTTER 3 Piece Set (Counterclockwise Rotation)



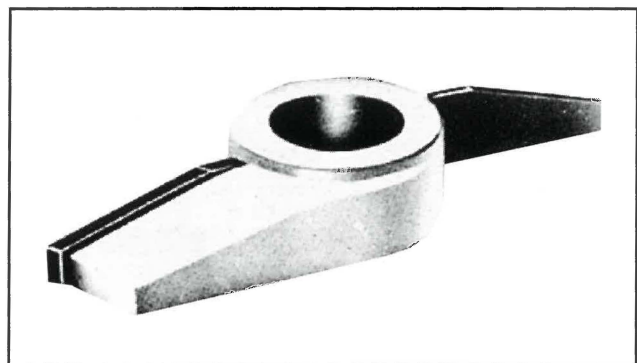
Tool Number	Tool Diameter	Bore	Number of Wings
HELM	4 1/2"	3/4, 1 1/4"	3
*HG81424	8"	5/8"	24

*Popular size groove used with Lock Mitre Cutter.

For other size groovers see "Groovers" in Industrial Saw Blade Section of catalogue.

RAISED PANEL CUTTERS

For 3/4" Material



Tool Number	Tool Diameter	Bore	Number of Wings
HERP-2	6"	3/4, 1 1/4"	2
HERP-3	6"	3/4, 1 1/4"	3

Specify style letter after Tool Number.

A D G
 B E H
 C F I

Please specify rotation and wood face up or wood face down.

All cutters also available in Tantung. Call for quotation.
"CUSTOM CUTTERS OUR SPECIALTY"
 SEND PRINT OR WOOD SAMPLE FOR QUOTATION.
 Complete retipping service available.

DOOR LIP CUTTER

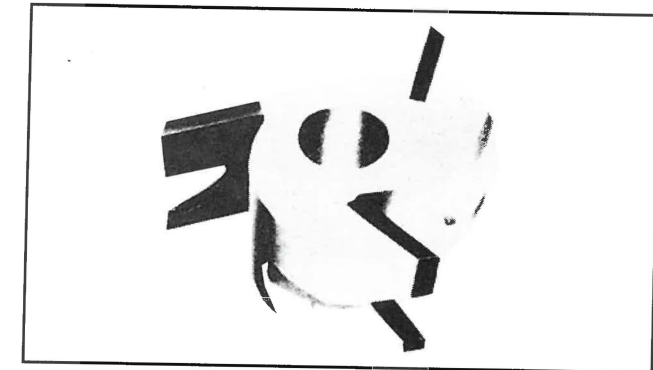
for 3/4" Material

Tool Number	Tool Diameter	Bore	Number of Wings
HEDL	4"	1 1/4"	3

Specify style letter after Tool Number.



Please specify rotation and wood face up or wood face down.

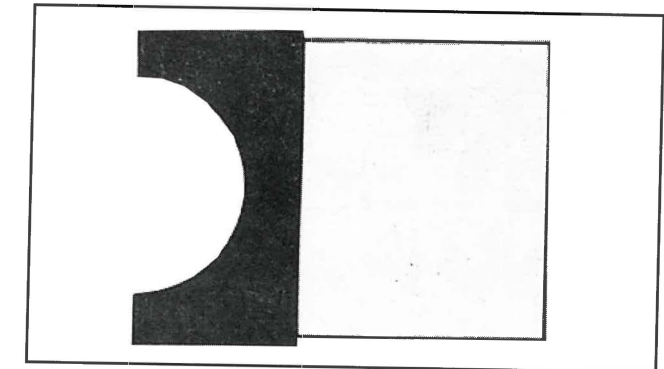


HALF ROUND CONCAVE RADIUS CUTTERS

3 Wing

Tool Number	Tool Diameter	Bore	Radius	Material Thickness
HEHR-1	4"	1 1/4"	1/4"	1/2"
HEHR-2	4"	1 1/4"	1/2"	1"
HEHR-3	4"	1 1/4"	3/4"	1 1/2"

Additional sizes from 1/8" to 1" radius available to order.

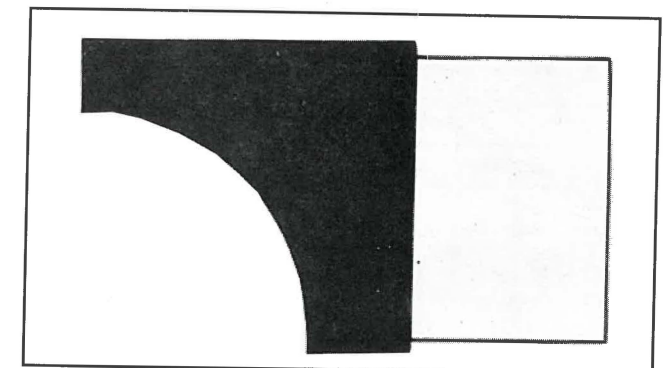


QUARTER ROUND CONCAVE RADIUS CUTTERS

3 Wing

Tool Number	Tool Diameter	Bore	Radius
HEQR-1	4"	1 1/4"	1/4"
HEQR-2	4"	1 1/4"	1/2"
HEQR-3	4"	1 1/4"	3/4"
HEQR-4	4"	1 1/4"	1"

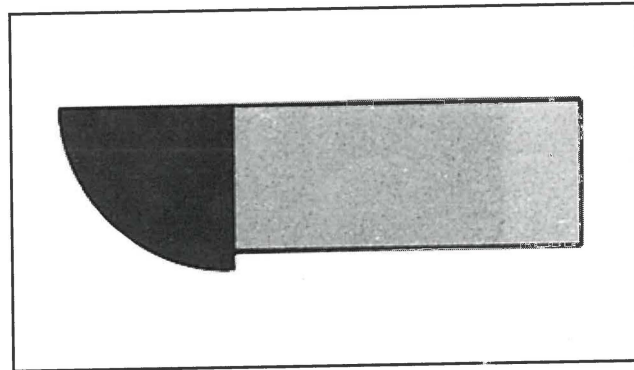
Additional sizes from 1/8" to 2" radius available to order.



All cutters also available in Tantung. Call for quotation.
"CUSTOM CUTTERS OUR SPECIALTY"
 SEND PRINT OR WOOD SAMPLE FOR QUOTATION.
 Complete retipping service available.

QUARTER ROUND CONVEX RADIUS CUTTERS

3 Wing

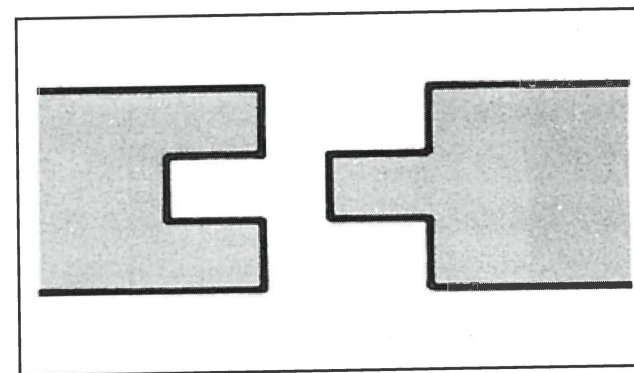


Tool Number	Tool Diameter	Bore	Radius
HEQRX-1	4"	1 1/4"	1/4"
HEQRX-2	4"	1 1/4"	1/2"
HEQRX-3	4"	1 1/4"	3/4"

Additional sizes from 1/8" to 1" radius available to order

TONGUE & GROOVE CUTTER SET

FOR 3/4" Material



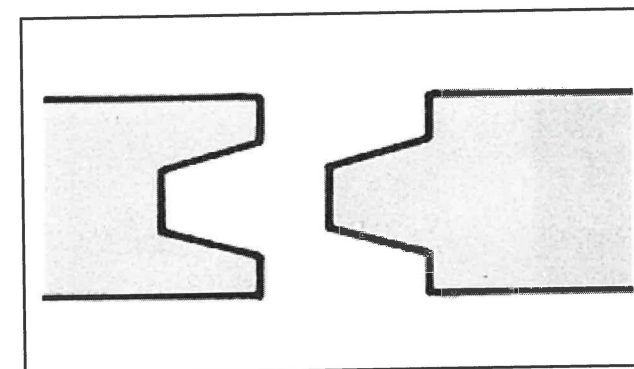
Tool Number	Tool Diameter	Bore	Number of Wings
HETC	4"	1 1/4"	3

Set consists of: 3 Cutters and 1 Spacer
1 Cutter to cut groove
2 Cutters and 1 Spacer to cut tongue

Please specify rotation and wood face up or wood face down.

WEDGE TONGUE & GROOVE CUTTER SET

for 3/4" Material



Tool Number	Tool Diameter	Bore	Number of Wings
HEWTG	4"	1 1/4"	3

Set consists of: 3 Cutters and 1 Spacer
1 Cutter to cut groove
2 Cutters and 1 Spacer to cut tongue

Please specify rotation and wood face up or wood face down.

All cutters also available in Tantung. Call for quotation.
"CUSTOM CUTTERS OUR SPECIALTY"
SEND PRINT OR WOOD SAMPLE FOR QUOTATION.
Complete retipping service available.

PHONE 614-498-5181 FAX 614-498-5454

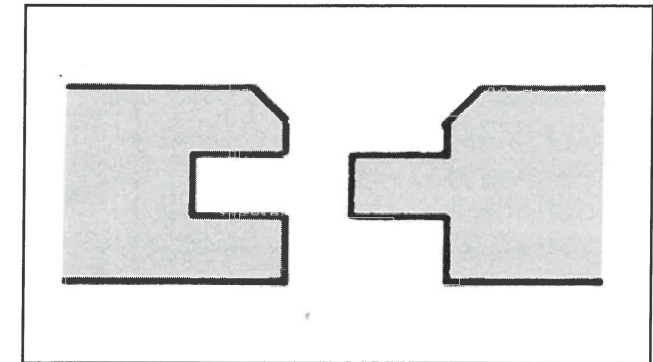
"V" PANELING CUTTER SET

for 3/4" Material

Tool Number	Tool Diameter	Bore	Number of Wings
HEVP	4"	1 1/4"	3

Set consists of: 5 Cutters and 1 Spacer
3 Cutter to cut groove
2 Cutters and 1 Spacer to cut tongue

Please specify rotation and wood face up or wood face down.



STILE & RAIL CUTTER SET

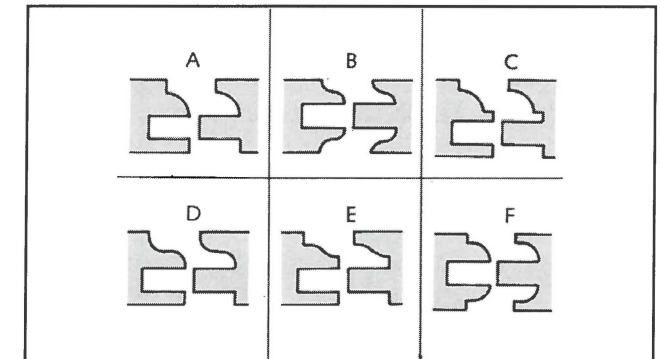
for 3/4" Material

Tool Number	Tool Diameter	Bore	Number of Wings
HESR	4"	1 1/4"	3

Set consists of: 5 Cutters and 1 Spacer

Specify style letter after tool number.

Please specify rotation and wood face up or wood face down.



REVERSIBLE DETAIL CUTTERS

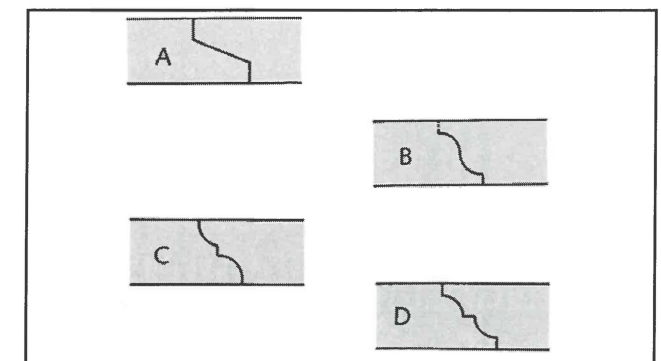
for 3/4" Material

Tool Number	Tool Diameter	Bore	Number of Wings
HERD	4"	1 1/4"	3

One Cutter; After cutting two pieces of wood one piece is reversed thereby forming a perfectly matched joint.

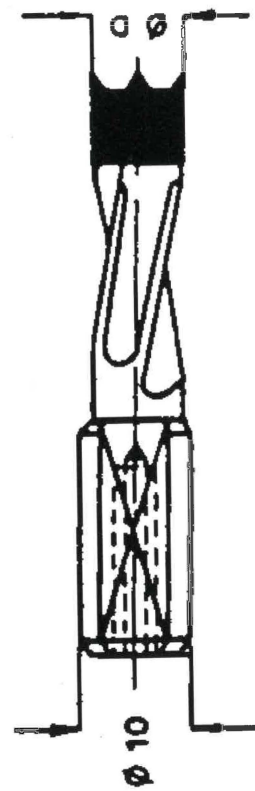
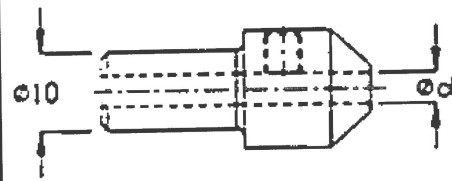
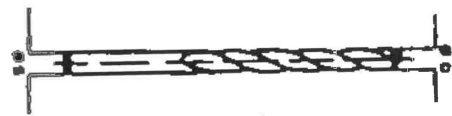
Specify style letter after Tool Number.

Please specify rotation and wood face up or wood face down.



All cutters also available in Tantung. Call for quotation.
"CUSTOM CUTTERS OUR SPECIALTY"
SEND PRINT OR WOOD SAMPLE FOR QUOTATION.
Complete retipping service available.

PHONE 614-498-5181 FAX 614-498-5454



SOLID CARBIDE BITS

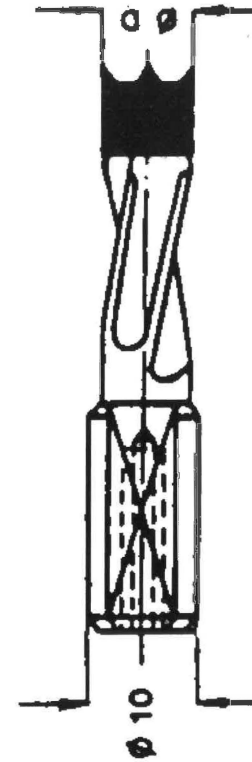
SIZE	RH	LH
2.0MM	H7000-020-00B	H7000-020-01BL
2.4	H7000-024-00B	H7000-024-01BL
2.5	H7000-025-00B	H7000-025-01BL
2.8	H7000-028-00B	H7000-028-01BL
3.0	H7000-030-00B	H7000-030-01BL
3.2	H7000-032-00B	H7000-032-01BL
3.5	H7000-035-00B	H7000-035-01BL
4.0	H7000-040-00B	H7000-040-01BL
5.0	H7000-050-00B	H7000-050-01BL

SOLID CARBIDE BIT ADAPTERS

2.0	H7000-2.0-APT
2.4	H7000-2.4-APT
2.5	H7000-2.5-APT
2.8	H7000-2.8-APT
3.0	H7000-3.0-APT
3.2	H7000-3.2-APT
3.5	H7000-3.5-APT
4.0	H7000-4.0-APT
5.0	H7000-5.0-APT

DOWEL (BRAD POINT) BITS 10MM SHANK - 57MM OVERALL LENGTH

SIZE	RH	LH
4.0 (5/32)	H7000-040-00	H7000-040-01
4.76 (3/16)	H7000-047-00	H7000-047-01
5.0MM	H7000-050-00	H7000-050-01
5.2MM	H7000-052-00	H7000-052-01
5.5 (7/32)	H7000-055-00	H7000-055-01
6.0MM	H7000-060-00	H7000-060-01
6.35 (1/4)	H7000-635-00	H7000-635-01
6.5MM	H7000-065-00	H7000-065-01
7.0MM	H7000-070-00	H7000-070-01
8.0MM	H7000-080-00	H7000-080-01
8.2MM	H7000-082-00	H7000-082-01
9.0MM	H7000-090-00	H7000-090-01
9.52 (3/8)	H7000-375-00	H7000-375-01
10MM	H7000-100-00	H7000-100-01
11MM	H7000-111-00	H7000-111-01
12MM	H7000-120-00	H7000-120-01
12.7 (1.2)	H7000-500-00	H7000-500-01
13MM	H7000-130-00	H7000-130-01
14MM	H7000-140-00	H7000-140-01
15MM	H7000-150-00	H7000-150-01



DOWEL (BRAD POINT) BITS 10MM SHANK - 70MM OVERALL LENGTH

SIZE	RH	LH
4.0 (5/32)	H7100-040-10	H7100-040-11
4.76 (3/16)	H7100-047-10	H7100-047-11
5.0MM	H7100-050-10	H7100-050-11
5.2MM	H7100-052-10	H7100-052-11
5.5 (7/32)	H7100-055-10	H7100-055-11
6.0MM	H7100-060-10	H7100-060-11
6.35 (1/4)	H7100-635-10	H7100-635-11
6.5MM	H7100-065-10	H7100-065-11
6.7MM	H7100-067-10	H7100-067-11
7.0MM	H7100-070-10	H7100-070-11
8.0MM	H7100-080-10	H7100-080-11
8.2MM	H7100-082-10	H7100-082-11
8.73MM	H7100-087-10	H7100-087-11
9.0MM	H7100-090-10	H7100-090-11
9.52 (3/8)	H7100-375-10	H7100-375-11
10MM	H7100-100-10	H7100-100-11
10.4MM	H7100-104-10	H7100-104-11
11MM	H7100-111-10	H7100-111-11
11.1 (7/16)	H7100-111-1-10	H7100-111-1-11
12MM	H7100-120-10	H7100-120-11
12.7 (1/2)	H7100-500-10	H7100-500-11
13MM	H7100-130-10	H7100-130-11
14MM	H7100-140-10	H7100-140-11
16MM	H7100-160-10	H7100-160-11
17MM	H7100-170-10	H7100-170-11

77MM OVERALL LENGTH

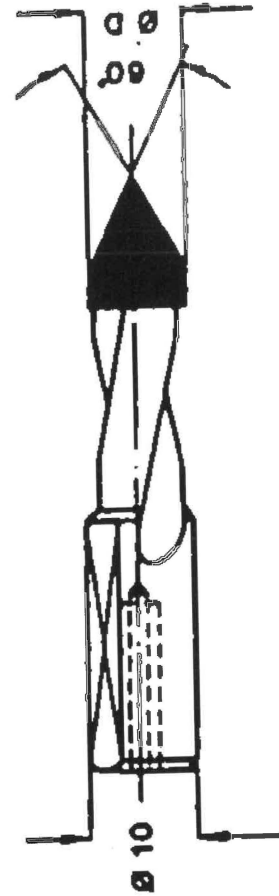
4.0MM	H7100-040-20	H7100-040-21
5.0MM	H7100-050-20	H7100-050-21
6.0MM	H7100-060-20	H7100-060-21
7.0MM	H7100-070-20	H7100-070-21
8.0MM	H7100-080-20	H7100-080-21
9.0MM	H7100-090-20	H7100-090-21
10MM	H7100-100-20	H7100-100-21
12MM	H7100-120-20	H7100-120-21

COUNTERSINK

5-10MM	H7900-999-00	H7900-999-01
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DOWEL (BRAD POINT) WITH 10MM THREAD SHANK - (SHANK 10MM OR 8MM THREAD) BIT

SIZE	RH	LH
5.0MM	H7000-050-43	H7000-050-43L
6.0MM	H7000-060-43	H7000-060-43L
8.0MM	H7000-080-43	H7000-080-43L
10MM	H7000-100-43	H7000-100-43L
12MM	H7000-120-43	H7000-120-43L



THRU-BORE (V-POINT BITS) WITH 10MM SHANK - 58MM OVERALL LENGTH

SIZE	RH	LH
4.0 (5/32)	H7300-040-20	H7300-040-21
5.0MM	H7300-050-20	H7300-050-21
6.0MM	H7300-060-20	H7300-060-21
6.35 (1/4)	H7300-635-20	H7300-635-21
6.5MM	H7300-065-20	H7300-065-21
7.0MM	H7300-070-20	H7300-070-21
8.0MM	H7300-080-20	H7300-080-21
9.0MM	H7300-090-20	H7300-090-21
10MM	H7300-100-20	H7300-100-21
11.1 (7/16)	H7300-111-1-20	H7300-111-21

70MM OVERALL LENGTH

SIZE	RH	LH
4.0 (5/32)	H7400-040-30	H7400-040-31
4.7 (3/16)	H7400-047-30	H7400-047-31
5.0MM	H7400-050-30	H7400-050-31
5.5 (7/32)	H7400-055-30	H7400-055-31
6.0MM	H7400-060-30	H7400-060-31
6.35 (1/4)	H7400-635-30	H7400-635-31
6.5MM	H7400-065-30	H7400-065-31
7.0MM	H7400-070-30	H7400-070-31
8.0MM	H7400-080-30	H7400-080-31
9.0MM	H7400-090-30	H7400-090-31
9.52 (3/8)	H7400-375-30	H7400-375-31
10MM	H7400-100-30	H7400-100-31
11.1 (7/16)	H7400-111-30	H7400-111-31
12MM	H7400-120-30	H7400-120-31

77MM OVERALL LENGTH 10MM SHANK

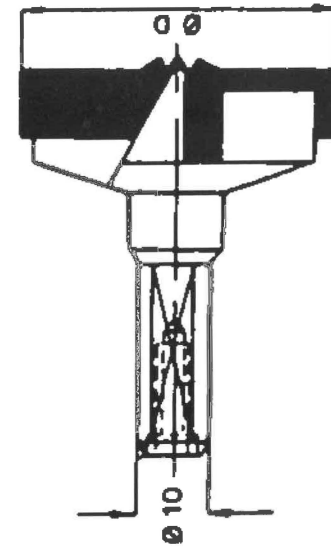
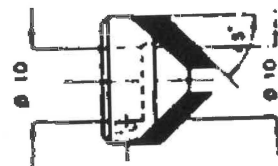
4MM	H7400-040-77R	H7400-040-77L
5MM	H7400-050-77R	H7400-050-77L
6MM	H7400-060-77R	H7400-060-77L
8MM	H7400-080-77R	H7400-080-77L
10MM	H7400-100-77R	H7400-100-77L

COUNTERSINK

5-10MM	H7900-999-00	H7900-999-01
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COUNTERSINK (TWIST STYLE)

5MM	H7900-999-05R	H7900-999-05L
6MM	H7900-999-06R	H7900-999-06L
8MM	H7900-999-08R	H7900-999-08L



HINGE BITS 57MM OVERALL LENGTH

SIZE	RH	LH
15MM	H7500-150-00	H7500-150-01
16MM	H7500-160-00	H7500-160-01
18MM	H7500-180-00	H7500-180-01
19MM (3/4)	H7500-190-00	H7500-190-01
20MM	H7500-200-00	H7500-200-01
22MM	H7500-220-00	H7500-220-01
24MM	H7500-240-00	H7500-240-01
25MM	H7500-250-00	H7500-250-01
26MM	H7500-260-00	H7500-260-01
28MM	H7500-280-00	H7500-280-01
30MM	H7500-300-00	H7500-300-01
32MM	H7500-320-00	H7500-320-01
35MM	H7500-350-00	H7500-350-01
38MM	H7500-380-00	H7500-380-01
40MM	H7500-400-00	H7500-400-01

HINGE BITS 70MM OVERALL LENGTH

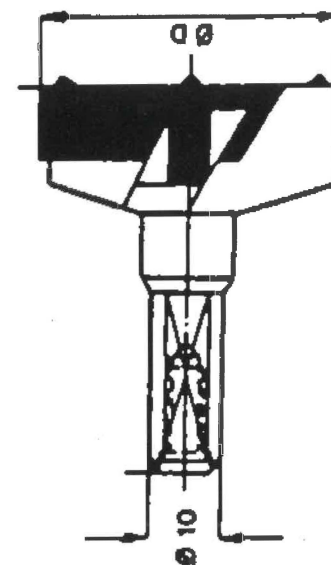
15MM	H7500-150-10	H7500-150-11
16MM	H7500-160-10	H7500-160-11
17MM	H7500-170-10	H7500-170-11
19MM	H7500-190-10	H7500-190-11
20MM	H7500-200-10	H7500-200-11
25MM	H7500-250-10	H7500-250-11
26MM	H7500-260-10	H7500-260-11
30MM	H7500-300-10	H7500-300-11
35MM	H7500-350-10	H7500-350-11
40MM	H7500-400-10	H7500-400-11

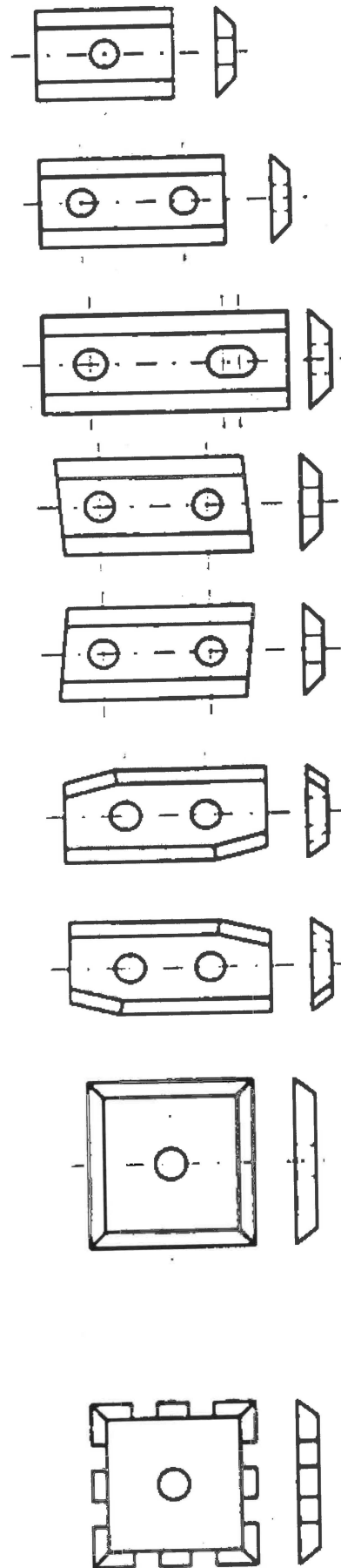
HINGE BITS WITH 3-WINGS 57MM OVERALL

25MM	H7500-250-20	H7500-250-21
35MM	H7500-350-20	H7500-350-21
40MM	H7500-400-20	H7500-400-21

HINGE BITS 90MM OVERALL (RIGHT HAND ONLY)

45MM	H7500-450-90
50MM	H7500-500-90





STANDARD TWO-SIDED STRAIGHT INSERTS

7.5 X 12 X 1.5	H5000-075-00
9.6 X 12 X 1.5	H5000-096-00
15 X 12 X 1.5	H5000-015-00
20 X 12 X 1.5	H5000-020-00
25 X 12 X 1.5	H5000-025-00
30 X 12 X 1.5	H5000-030-00
40 X 12 X 1.5	H5000-040-00
50 X 12 X 1.5	H5000-050-00
60 X 12 X 1.5	H5000-060-00
80 X 13 X 2.2	H5000-080-00
100 X 13 X 2.2	H5000-100-00
120 X 13 X 2.2	H5000-120-00

PREMIUM GRADE (MAN-MADE MATERIAL ONLY)

20 X 12 X 1.5	H5000-020-50-P	\$2.01
30 X 12 X 1.5	H5000-030-50-P	\$2.36
50 X 12 X 1.5	H5000-050-50-P	\$3.31

SKUEW SIDE INSERTS (5-DEGREE ANGLE)

SIZE	RH	LH
20 X 12 X 1.5	H5100-020-R	H5100-020-L
30 X 12 X 1.5	H5100-030-R	H5100-030-L
50 X 12 X 1.5	H5100-050-R	H5100-050-L

BEVEL INSERTS (HOLZ-HER TYPE)

SIZE	RH	LH
30 X 12 X 1.5	H5200-295-R	H5200-295-L
50 X 12 X 1.5	H5200-050-R	H5200-295-L

4-SIDED INSERTS

10.5 X 10.5 X 1.5	H5300-010-00
12 X 12 X 1.5	H5300-012-00
13 X 13 X 2.5	H5300-013-13
14 X 14 X 1.2	H5300-014-12
14 X 14 X 1.2 (HOLZER)	H5300-014-12-1
14 X 14 X 2.0	H5300-014-14
17 X 17 X 2.0	H5300-017-17
30 X 12 X 1.5	H5300-030-30
50 X 12 X 1.5	H5300-050-50

ROUTER BIT 4-SIDED INSERTS

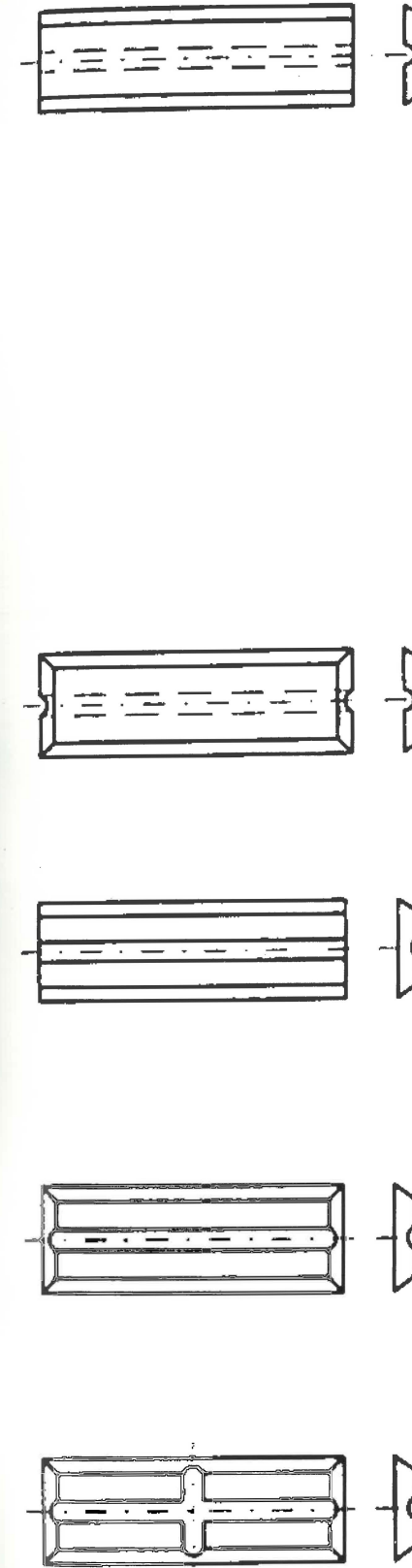
30 X 9	H5500-030-09-4
50 X 9	H5500-050-09-4

4-SIDED CHIP-BREAKER

15 X 15 X 2.0	H5300-015-15
15 X 15 X 2.5	H5300-015-25

OPPOLD STYLE

44.5 X 15 X 1.5	H5000-044-15
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FACE-GROOVE INSERTS (2-SIDED)

20 X 8 X 1.5	H5500-020-08
30 X 8 X 1.5	H5500-030-08
40 X 8 X 1.5	H5500-040-08
50 X 8 X 1.5	H5500-050-08
60 X 8 X 1.5	H5500-060-08
12 X 5.5 X 1.1	H5500-012-55
20 X 5.5 X 1.1	H5500-020-55
30 X 5.5 X 1.1	H5500-030-55
40 X 5.5 X 1.1	H5500-040-55
50 X 5.5 X 1.1	H5500-050-55
60 X 5.5 X 1.1	H5500-060-55

FACE-GROOVE INSERTS (4-SIDED)

20 X 5.5 X 1.1	H5500-020-55-4
30 X 5.5 X 1.1	H5500-030-55-4
40 X 5.5 X 1.1	H5500-040-44-4
50 X 5.5 X 1.1	H5500-050-55-4

BACK-GROOVE INSERTS (2-SIDED)

12 X 5.5 X 1.1	H5900-012-55
20 X 5.5 X 1.1	H5900-020-55
30 X 5.5 X 1.1	H5900-030-55
40 X 5.5 X 1.1	H5900-040-55
50 X 5.5 X 1.1	H5900-050-55

BACK-GROOVE INSERTS (4-SIDED)

20 X 5.5 X 1.1	H5900-012-55-4
30 X 5.5 X 1.1	H5900-030-55-4
40 X 5.5 X 1.1	H5900-040-55-4
50 X 5.5 X 1.1	H5900-050-55-4

BACK-GROOVE INSERTS (CROSS-GROOVE) 4-SIDED INSERTS

20 X 5.5 X 1.1	H5900-500-55-4
30 X 5.5 X 1.1	H5900-300-55-4
40 X 5.5 X 1.1	H5900-400-55-4
50 X 5.5 X 1.1	H5900-500-55-4
20 X 4.1 X 1.1	H5900-020-41