



CATALOG  
**34**

Mid-2021



**LittleMachineShop™**  
**.com**

The premier source of tooling, parts,  
and accessories for bench top machinists.

www.LittleMachineShop.com  
(800) 981 9663  
396 W Washington Blvd #500  
Pasadena CA 91103  
Email: info@LittleMachineShop.com



Pricing Note Prices in this catalog are correct at the time of printing. The 25% additional tariff imposed on many of our imported products remains in place. And, of course, COVID continues to affect supply chains, factory production—and prices. Please check our website or call us to get the latest prices.



Welcome to **LittleMachineShop.com...**

...the premier source of machines, tooling, parts, and accessories for bench top machinists.

We focus on best-in-class machines and we offer tools, accessories, and replacement parts for:

- Bench top lathes
- Bench top milling machines
- Small band saws
- Bench top grinders

Products we support are sold by LittleMachineShop.com, Grizzly Industrial, Harbor Freight Tools, Micro-Mark, Busy Bee Tools, and others. Besides the products shown in this catalog, we have virtually every replacement part for the mini lathes, mini mills, and micro mills sold by these companies.

Visit our website at [www.littlemachineshop.com](http://www.littlemachineshop.com) to see large, full-color pictures along with more products and more information than we can fit in this catalog.

Check our website at [www.littlemachineshop.com](http://www.littlemachineshop.com) for current prices. Prices are subject to change without notice.

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## HiTorque Mills and Lathes from LittleMachineShop.com

HiTorque machines from LittleMachineShop.com are designed to be “best-in-class” offerings that provide more power, greater capacity, and more features than similarly sized machines from other vendors.

It all starts with the HiTorque drive system, which is powered by a brushless DC motor and controller. The wound stator and permanent magnet rotor provide virtually constant torque over the entire speed range. RPM feedback from the motor to the controller helps insure constant speed through varying loads.

By contrast, the conventional wound rotor DC motor and PWM controller card used in most other bench top mills and lathes require provide two speed ranges (selected by changing gears) to enhance low speed torque because the output torque of a DC drive like this falls off as the motor speed is reduced.

Compared with the standard SIEG drive, the brushless DC drive in the HiTorque mills and lathes have greater torque, especially at low speeds. Compare the typical torque curves.

The HiTorque drive lets you take deeper cuts at all speeds, and the low speed torque makes slow-speed operations like parting off significantly easier. Because of the nearly linear torque curve, the HiTorque drive does not need 2-speed gears. There is one continuous speed range. This means there are no gears to shift and no plastic gears to break.



All HiTorque mills include these features, many of which you won't find on competitive machines:

- R8 spindle for wide tool availability (2 MT on 4700)
- 0.001" graduated dials, 0.100" per turn
- Solid rectangular column for rigidity
- Dovetail column to maintain head alignment at any height
- E-stop safety power switch
- Fine feed on Z-axis for precise control
- NSK brand Japanese-quality spindle bearings
- Adjustable gibs on all dovetail ways

Unique features of HiTorque lathes from LittleMachineShop.com include (besides the all-important HiTorque drive system) a cam-lock tailstock, genuine NSK spindle bearings, and extended threading capabilities.

### Tooling Packages and Accessories

At LittleMachineShop.com, we offer much more than machines. For each of our mills and lathes, we offer *tooling packages* that include everything you need to get started with a new machine. Tooling packages offer tremendous savings over buying individual items, and you know that every part of the tooling package will work with your new machine.

Each mill tooling package includes an appropriately sized:

- Precision vise and mounting kit
- Thin parallels set
- 1-2-3 blocks
- Clamping kit
- Collet set
- End mill set
- Center drills
- Edge and center finder
- T-slot cleaner

Lathe tooling packages include:

- Quick change tool post set (for lathes that don't already have one)
- Indexable turning tools
- Boring bar
- Center drills
- Cut-off blade
- Drill chuck and arbor



For some machines, we offer more than one tooling package, with the higher priced packages including more pieces (for example, more end mill sizes) and higher quality components.

For complete details on the tooling packages, look in the Contents (the page opposite this one) for Kits > Mill Starter Kits and Kits > Lathe Starter Kits.

We also offer stands designed specifically for these machines. Find them in this catalog under Machines > Stands/Cabinets.



## HiTorque Mills

### HiTorque Large Bench Mill, Models 6700/6750

Bigger. Stronger. Faster.

The LittleMachineShop.com HiTorque Large Bench Mill is our largest mill - a significant step up in size, rigidity, and power compared to a mini mill, or even our bench mill. This benchtop mill provides a larger table (29.1" x 7.1", or 740 mm x 180 mm), more travel, and more horsepower.

The HiTorque Large Bench Mill incorporates a true quill and drill press-style handles for easy drilling. A button on the end of each handle reverses the spindle for easy tapping. Other features include:

- Spindle speed display
- Resume running at last-used spindle speed
- **Magnetic "tool box" on column for convenient storage**
- Digital position readout on quill reads in inches and mm

6750 HiTorque Deluxe Large Bench Mill has all the features of the 6700 large bench mill plus:

- Power head lift raises or lowers the mill head with the touch of a button
- 3-axis digital readout (DRO) with Bluetooth and 7" tablet display
- Electrically interlocked spindle lock for easy, safe tool changes

6700 HiTorque Large Bench Mill \$3499.00; 6750 HiTorque Large Bench Mill, Deluxe \$4299.00



### HiTorque Bench Mill, Models 6500/6550 *NEW FOR 2021!*

The LittleMachineShop.com HiTorque Bench Mill provides a larger table, more travel, and more horsepower than a mini mill. The 23.4" x 5.5" (595 mm x 140 mm) table on the 6500 bench mill provides a large work area. And the extra-long 27.6" x 6.3" (700 mm x 160 mm) table on the 6550 deluxe bench mill is huge! A 750 watt (1 hp) brushless DC motor provides abundant spindle power and tremendous low-end torque.

Like the HiTorque Large Bench Mill, the HiTorque Bench Mill has a true quill and drill press-style handles for easy drilling and a reverse button on each handle reverses to make tapping easy. Also:

- Tapping mode for reversing taps out
- Solid rectangular column for rigidity
- Spindle speed display
- Includes ½" capacity drill chuck and arbor

6550 HiTorque Deluxe Bench Mill has all the features of the 6500 bench mill plus:

- Extra-long table 27.6" x 6.3" (700 mm x 160 mm)
- 3-axis digital readout (DRO) with Bluetooth and 7" tablet display
- Electrically interlocked spindle lock
- Machined aluminum handwheels

6500 HiTorque Bench Mill \$2099.00; 6550 HiTorque Bench Mill, Deluxe \$2799.00



### HiTorque Mini Mill, Models 3990/4190

The LittleMachineShop.com HiTorque Mini Mill offers best-in-class features: more power, more torque, **and a larger table than competitors' mills. It has our exclusive solid column for extra rigidity.** And it includes one of the most popular upgrades for our earlier mills: an air spring to support the mill head, which provides greater support for the head and increased travel on the Z-axis. The 500 Watt brushless spindle drive motor provides tremendous low-end torque. And you can vary the speed from 100 RPM to 2500 RPM continuously. There are no gears to shift. With no gears, the HiTorque Mini Mill is the quietest in its class.

The large mill table provides 50% more table area than other mini mills. It also has 30% more travel in each direction. The resettable feed dials allow you to zero them at any point.

The HiTorque Mini Mill has drill press handles for drilling and fast motion of the mill head. It also has Z-axis fine feed with 0.001" resolution for milling operations.

4190 HiTorque Deluxe Mini Mill has all the features of the 3990 mini mill plus:

- 3-axis digital readout (DRO) with Bluetooth and 7" tablet display
- Electrically interlocked spindle lock
- Machined aluminum handwheels

3990 HiTorque Mini Mill \$1199.00; 4190 HiTorque Mini Mill, Deluxe \$1849.00



## HiTorque Micro Mill, Model 4700

Like its big brothers, the best-in-class LittleMachineShop.com HiTorque Micro Mill has more power, more **torque, and a larger table than competitors'** micro mills.

The 250 Watt brushless spindle drive motor provides tremendous low-end torque. And you can vary the speed from 100 RPM to 5000 RPM continuously. There are no gears or belts to shift, making it convenient and quiet. The large mill table provides 50% more width than other micro mills. The resettable feed dials allow you to zero them at any point.

The HiTorque Micro Mill has a drill press handle for drilling. It also has Z-axis fine feed with 0.001" resolution for milling operations.

Other features include:

- #2 Morse Taper spindle
- Solid, non-tilting column for great rigidity
- Adjustable Z-axis stop for repetitive drilling
- Includes 3/8" capacity drill chuck and arbor

4700 HiTorque Micro Mill \$899.00



## HiTorque Mill Specifications

	6700/6750	6500/6550	3990/4190	4700
End Milling Capacity	0.8" (20 mm)	0.6" (16 mm)	0.6" (16 mm)	0.4" (10 mm)
Face Milling Capacity	3.0" (75 mm)	2.0" (50 mm)	1.2" (30 mm)	0.6" (16 mm)
Drilling Capacity	1.2" (30 mm)	0.8" (20 mm)	0.5" (13 mm)	0.4" (10 mm)
Table Size	29.1" x 7.1" (740 mm x 180 mm)	6500: 23.4" x 5.5" (595 mm x 140 mm) 6550: 27.6" x 6.3" (700 mm x 160 mm)	18.1" x 4.7" (460 mm x 120 mm)	15.7" x 5.7" (400 mm x 145 mm)
X-Axis Travel	20.2" (513 mm)	6500: 15.6" (395 mm); 6550: 19.7" (500 mm)	11.8" (300 mm)	11.8" (300 mm)
Y-Axis Travel	8.5" (215 mm)	6500: 6.7" (170 mm); 6550: 5.5" (140 mm)	5.1" (130 mm)	5.9" (150 mm)
Z-Axis Travel	6700: 11.8" (300 mm); 6750: 9.8" (250 mm)	11.6" (295 mm)	10.6" (270 mm)	8.7" (220 mm)
Throat	9.1" (230 mm)	7.5" (190 mm)	6.5" (165 mm)	5.5" (140 mm)
X- and Y-Axis Feed Screws	0.100" (2.54 mm) per rotation	0.100" (2.54 mm) per rotation	0.062" (1.59 mm) per rotation	0.050" (1.27 mm) per rotation
Positioning Accuracy	0.0004" (0.010 mm)	0.0004" (0.010 mm)	0.0004" (0.010 mm)	0.0004" (0.010 mm)
Spindle Taper	R8	R8	R8	#2 Morse Taper
Spindle Motor	1.34 hp (1000 Watts)	1.0 hp (750 Watts)	0.67 hp (500 Watts)	0.34 hp (250 Watts)
Spindle Speed	Low range: 80 - 1500 RPM; High range: 280 - 5000 RPM	100 - 2000 RPM	100 - 2500 RPM	100 - 5000 RPM
Power Requirements	120 V 60 Hz 14 Amps	120 V 60 Hz 10 Amps	120 V 60 Hz 8 Amps	120 V 60 Hz 5 Amps
Weight	6700: 343 lbs (156 kg); 6750: 352 lbs (160 kg)	6500: 207 lbs (94 kg); 6550: 245 lbs (111 kg)	124 lbs (56 kg)	106 lbs (48 kg)
Dimensions (W x D x H)	37.0" x 30.5" x 36.5" (940 mm x 775 mm x 927 mm)	6500: 28.9" x 25.0" x 28.5" (735 mm x 635 mm x 725 mm) 6550: 34.6" x 25.0" x 28.5" (880 mm x 635 mm x 725 mm)	23.2" x 19.7" x 36.3" (590 mm x 500 mm x 922 mm)	20.5" x 19.3" x 28.7" (520 mm x 490 mm x 730 mm)
Crated Weight	6700: 403 lbs (183 kg); 6750: 412 lbs (187 kg)	6500: 262 lbs (119 kg); 6550: 292 lbs (133 kg)	161 lbs (73 kg)	117 lbs (53 kg)
Crate Dimensions (W x D x H)	37.5" x 32.7" x 42.0" (952 mm x 831 mm x 1067 mm)	32.0" x 28.0" x 35.5" (813 mm x 711 mm x 902 mm)	23.6" x 25.0" x 29.9" (600 mm x 635 mm x 760 mm)	2 cartons

## HiTorque Lathes

### HiTorque 8½" x 20" Bench Lathe, Models 7500/7550

The LittleMachineShop.com 8½"×20" HiTorque Bench Lathe is the best in its class. No other lathe in this size offers power cross feed. The 1000 Watt brushless spindle drive motor provides tremendous low-end torque, with speed continuously variable from 100 RPM to 2000 RPM in both directions. There are no gears to shift.

All the gears on this lathe are metal.

- Power longitudinal feed and power cross feed
- Genuine NSK ball bearings
- Induction hardened bed ways
- Cam lock tailstock

7550 HiTorque Deluxe Bench Lathe has all the features of the 7500 bench lathe plus:

- AXA quick change tool post (QCTP) set with five tool holders
- Digital readout (DRO) displays on compound rest and cross slide
- Anodized aluminum hand wheels, knobs, and levers



- Improved splash guard
- Modified compound rest to better accommodate QCTP

7500 HiTorque 8½"×20" Bench Lathe \$2499.00; 7550 HiTorque 8½"×20" Bench Lathe, Deluxe \$3399.00

### HiTorque 7"×16" Mini Lathe, Models 5100/7350

The LittleMachineShop.com HiTorque Mini Lathe the most power, most **torque, and more features than competitors'** mini lathes.

The 500 Watt brushless spindle drive motor provides tremendous low-end torque. And you can vary the speed from 50 RPM to 2500 RPM continuously in both directions without shifting gears.

Extended threading capabilities let you can create every American Standard Unified class 2A inch screw thread from 4 to 80 threads per inch and, with the extra 21 tooth change gear that is included, every American Standard Metric class 6h thread from 0.3 to 8 mm pitch.



The lathe includes a chip tray, a backslash guard, and spreaders to give the feet a broader stance.

- 4" 3-jaw chuck
- Rear apron shield to keep swarf out of the mechanism
- Cam lock tailstock
- Reversible lead screw for right and left hand threads

7350 HiTorque Deluxe Mini Mill adds an all-steel wedge-style quick change tool post set with five tool holders; digital readout (DRO) displays on the compound rest, cross slide, and tailstock; and metal hand wheels with chrome levers.

5100 HiTorque 7"×16" Mini Lathe \$1199.00; 7350 HiTorque 7"×16" Deluxe Mini Lathe \$1599.00

### HiTorque Lathe Specifications

	7500/7550	5100/7350
Swing Over Bed	8.5" (215 mm)	7" (180 mm)
Swing Over Saddle	4.6" (118 mm)	4.3" (110 mm)
Between Centers	20" (510 mm)	16.1" (410 mm)
Spindle Through Hole	0.8" (20 mm)	0.8" (20 mm)
Spindle Motor Output	1.34 hp (1000 Watts)	0.7 hp (500 Watts)
Range of Threads	8-80 TPI (0.2-8.0 mm)	4-80 TPI (0.3-8 mm)
Spindle Taper	#3 Morse taper	#3 Morse taper
Tailstock Taper	#2 Morse taper	#2 Morse taper
Spindle Speed	100 - 2000 RPM	50 - 2500 RPM
Cross Slide Travel	3.9" (100 mm)	2.6" (65 mm)
Power Requirements	120 V 60 Hz 12 Amps	120 V 60 Hz 8 Amps
Weight	220 lbs (100 kg)	90 lbs (41 kg)
Dimensions (W × D × H)	40" × 22" × 16" (1010 mm × 550 mm × 400 mm)	31" × 10" × 12" (790 mm × 260 mm × 300 mm)

## SIEG X2D Mini Mill

The SIEG X2D Mini Mill has all the features you want at an incredibly low price.

This mill has a solid column that does not tilt, which is significantly stiffer than the tilting column on other low-cost mini mills.

The large mill table provides 50% more table area than other mini mills. It also has 30% more travel in each direction.

The X2D Mini Mill has drill press handles for drilling and fast motion of the mill's head. It also has Z-axis fine feed with 0.001" resolution for milling operations.

This model also includes the air spring head support for even support throughout the Z-axis travel.

- 350 Watt variable speed DC drive
- R8 Spindle for wide tool availability
- Air spring provides greater support for the mill head and increased travel on the Z-axis
- Solid column mount for greater rigidity
- Includes ½" capacity drill chuck and arbor

4962 SIEG X2D Mini Mill \$799.00



## Specifications

End Milling Capacity	0.6" (16 mm)
Face Milling Capacity	1.2" (30 mm)
Drilling Capacity	0.5" (13 mm)
Table Size	18.1" x 4.7" (460 mm x 120 mm)
X-Axis Travel	11.8" (300 mm)
Y-Axis Travel	5.1" (130 mm)
Z-Axis Travel	10.6" (270 mm)
Throat	6.5" (165 mm)
X- and Y-Axis Feed Screws	0.062" (1.59 mm) per rotation
Positioning Accuracy	0.0004" (0.010 mm)
Spindle Taper	R8
Spindle Motor	0.47 hp (350 Watts)
Spindle Speed	100 - 2500 RPM
Power Requirements	120 V 60 Hz 6 Amps
Weight	126 lbs (57 kg)
Dimensions (W x D x H)	23.2" x 19.7" x 36.3" (590 mm x 500 mm x 922 mm)
Crated Weight	161 lbs (73 kg)
Crate Dimensions (W x D x H)	23.6" x 25.0" x 29.9" (600 mm x 635 mm x 760 mm)

## SIEG C3 7"x14" Mini Lathe

The SIEG C3 7x14 Mini Lathe has all the features you want at an incredibly low price.

A full 14" bed length with a cam-lock tailstock accommodates longer work pieces.

Real top and bottom half-nuts and a reversible 16 TPI lead screw provide extended threading capability. You can create every American Standard Unified class 2A inch screw thread from 4 to 80 threads per inch, and you can create every American Standard Metric class 6h thread from 0.3 to 8 mm pitch.

The cross feed and compound rest dials are graduated in 0.001" and 0.025 mm. The lathe is equipped with a 4-way indexing tool post set for 5/16" (8 mm) tools.

The lathe includes a chip tray, a backsplash guard, and a threading dial.

- Includes 3" 3-jaw chuck, 2 sets of jaws, and chuck key
- Variable speed 350 Watt spindle motor with two speed ranges for low speed torque
- Digital spindle speed readout
- Cam-lock tailstock
- Zero-settable hand wheels graduated in 0.001" on cross slide and compound rest
- Rear apron shield to keep swarf out of the mechanism
- Extended threading capability - inch and metric threads
- Four-way turret tool post
- Reversible lead screw for right and left hand threads

4959 SIEG C3 7"x14" Mini Lathe \$799.00

## Specifications

Swing Over Bed	7" (180 mm)
Swing Over Saddle	4.3" (110 mm)
Between Centers	14.0" (355 mm)
Spindle Through Hole	0.8" (20 mm)
Spindle Motor Output	0.5 hp (350 Watts)
Range of Threads	4-80 TPI (0.3-8 mm)
Spindle Taper	#3 Morse taper
Tailstock Taper	#2 Morse taper
Spindle Speed	100 - 3000 RPM
Power Requirements	120 V 60 Hz 6 Amps
Weight	88 lbs (40 kg)
Dimensions (W x D x H)	29" x 10" x 12" (740 mm x 260 mm x 300 mm)
Crate Dimensions (W x D x H)	34" x 13" x 15" (860 mm x 335 mm x 380 mm)



## Band Saws

### 4x6 Horizontal / Vertical Band Saw, Model 5300

This 4" x 6" capacity horizontal / vertical band saw has automatic shutoff at the end of the cut when in the horizontal position. The saw is floor standing on the included stand.

The vertical position allows for freehand cutting of large, thin work pieces.

In the horizontal position the vise can be set from 90° to 45° for angle cuts. The saw has adjustable down pressure and automatic shutoff for unattended operation. There is a work stop for repetitive cuts at the same dimension.

The saw has three speeds and comes with a 14 TPI blade.

5300 4x6 Horizontal / Vertical Band Saw \$349.95



### Bench Top Band Saw, Model 4829



This small bench top band saw for sale is perfect for the small shop. It's got the capacity of larger floor-standing saws but takes a fraction of the space. The cast iron vise swivels for angle cuts.

The two speed motor makes it great for ferrous and non-ferrous metals. It's quieter and more accurate than chop saws. You can remove the saw from the base and configure it for portable use.

The double-chain drive makes this table top band saw more rugged than the competition.

4829 Bench Top Band Saw \$279.95

## Drill Presses

### 13" Bench Top 16-Speed Drill Press, Model 5540

This is a versatile drill press for the home shop. With 13" swing and 16 speeds it can handle materials from wood, plastic, and most metals, including stainless steel. The 3/4 horsepower motor lets you drill up to 1/2" holes in steel at one pass. The 16 spindle speeds range 220 to 3600 RPM.

The large round table tilts 45 degrees either way and raises and lowers with a rack and pinion. There is an adjustable depth quill stop with a gage.

Included are a 5/8" drill chuck with key, a drill chuck arbor to fit the 2 Morse taper spindle, and a drift key for chuck removal from the spindle.

5540 13" Bench Top 16-Speed Drill Press, \$299.00

### 10" Bench Top 12-Speed Drill Press, Model 5530

With a 10" swing and 12 speeds this drill press can handle materials from wood, plastic, and most metals, including stainless steel. The 1/2 horsepower motor lets you drill up to 3/8" holes in steel at one pass. The 12 spindle speeds range from 300 to 2900 RPM.

The large table tilts 45 degrees either way and raises and lowers with a rack and pinion. There is an adjustable depth quill stop with a gage.

Included are the 1/2" drill chuck with key, a 2 Morse taper drill chuck arbor, and a drift key for chuck removal from the spindle.

5530 10" Bench Top 12-Speed Drill Press, \$159.95



## Bench Grinder

The Rikon model 80-808 1-HP Low Speed Bench Grinder has a larger size motor and will tackle the tough grinding jobs that are typical in machine shops, as well as the finesse to shape and sharpen hand tools. Low speed grinders reduce the chance that you'll overheat the tool you are grinding.

Tool rests on this machine are extra-large and flat, without a drill bit sharpening groove. The wheel flanges are cast metal. The grinder includes dual dust collection ports on the rear of the wheel guards.

The grinder comes with 90 grit and 120 grit white grinding wheels. We offer other grinding wheels; see Tools & Things > Abrasives in this catalog.

6242 8" Low Speed Bench Grinder, \$249.95





## CNC Machines: Accessories



### 3414 Jog Dial for CNC Machines \$94.95

- The ideal Mach3 accessory
- Fully configurable
- USB Interface
- Setup software included
- Complete jog pendant

The Z-Bot Jog Dial II replaces the hand cranks on CNC mills. The Z-Bot Jog Dial II is a USB jog pendant controller developed to work in conjunction with the popular Mach3 CNC control software. It is supplied with an installation disc that contains a Mach3 custom plug-in. The Jog Dial II is highly flexible, easy to use, requires minimal configuration, and does not use any parallel port pins.

The Jog Dial II USB controller has an inner and outer dial. Used for rapid coarse positioning, the outer dial will jog progressively faster, up to the full jog speed configured in Mach3, as the dial is turned further to the right or left of the center detent. The outer dial springs back to center position when released. Used for fine positioning, the inner dial jogs the machine one step increment, as configured in Mach3 for each "click." Four buttons are used to select the axis to jog. The fifth button is easily configured for a variety of Mach3 functions using the plug-in supplied.

## CNC Machines: CNC Lathes



### 5045 Lathe CNC, Tormach 15L Slant Pro \$15,260.00

- 15" Diameter swing over bed
- 3 HP Spindle (up to 3500 RPM)
- D1-4 Nose with removable 5C taper Insert
- 25" Carriage
- Conversational programming

The Tormach 15L Slant-PRO™ is a compact CNC slant-bed lathe designed for prototyping and light production work. With highly customizable workholding, rigid tapping support, and a host of configurable options and upgrades, the Tormach 15L Slant-PRO™ is a multipurpose CNC lathe for the small shop. This CNC lathe for sale can be accessorized with a wide array of tool changing and work holding options, including gang, quick change, or fully automatic tool changing, collet closers, etc. The available spindle speed range and horsepower make it well suited to cutting most metals, as well as plastics and non-abrasive composites. Conversational programming screens make this lathe a versatile prototyping tool and easy to program CNC tool. Many part geometries can be programmed on the control without resorting to CAD/CAM.

## CNC Machines: CNC Milling Machines



### 5980 Milling Machine CNC, Tormach 1100M \$14,241.00 Starter Package

- Tormach 1100M 3-Axis CNC Mill and Stand
- PathPilot® Controller and Control System
- 7,500 RPM R8 Spindle
- Travel: 18.0" x 11.0" x 16.25" (X, Y, Z-Axis)
- Enhanced Y-Axis Travel and Spindle Motor from the 1100 Series 3

With its ability to cut challenging materials like titanium as well as softer materials such as aluminum, plastic and wood, the Tormach 1100M PCNC Mill is an immensely flexible. With a typical footprint of 69" x 66" x 92" (with stand) the 1100M can fit in a shop without taking up a lot of room. The spindle motor has been upgraded from the 1100 Series 3 at 2.0 hp (1.40 kW) with a maximum speed of 7,500 RPM utilizing a Poly-V Belt transmission requiring Single-Phase 230 Vac, 50/60Hz, 20A breaker as the power source. The Y-Axis travel is also improved from the 1100 Series 3 with a travel of 11.0" (279 mm). Additionally, the 1100M has numerous add-on accessories which can be purchased separately. These include an automatic tool changer, 4th Axis Kit with 8" rotary table, Smart Cool™ Coolant System, power drawbar kit, full enclosure, and much more. The 1100M utilizes the PathPilot® control software which is user-friendly, supports up to 4-axis of continuous machining, industry standard G-code compliance and built-in Dropbox™ support for seamlessly transferring programs. This starter package includes the Tormach 1100M Compact 3-Axis CNC mill with PathPilot® controller, stand, controller arm, lifting bar, backslash kit, 5" CNC vise, TTS CNC operator set, standard LCD monitor, waterproof mini keyboard, waterproof mouse, 1-gallon machine way oil, and 1-year Autodesk Fusion license.



### 5349 Milling Machine CNC, Tormach 440 Starter Package \$7,195.00

- PCNC 440 Milling Machine & Chip Pan
- PathPilot® Controller and Control System
- 10,000 RPM R8 Spindle
- Travel: 10" x 6.25" x 10" (X, Y, Z-Axis)
- TTS Tooling, 4" CNC Vise and Cutting Tools

A machine that fits all-around capability in a compact and affordable package, the PCNC 440 is perfect for anybody that wants to do real cutting but doesn't have a lot of space. The typical footprint of the PCNC 440 is 42" x 36" (1067 mm x 914 mm) which allows for bench top use or mounting on the optional stand. The PCNC 440 offers high-performance bipolar stepper motors with Leadshine micro stepping drivers. It also incorporates rolled C7 ball screws with anti-backlash double ball nuts. It has a cast iron frame and table with hand-scraped hydrodynamic ways and tapered adjustment gibs. The way surfaces are low friction PTFE-filled Acetyl bonded sliding surfaces similar to Rulon® and Turcite®. The PCNC 440 is rated to cut aluminum, steel, titanium, as well as plastics, composites, wood, and PCB boards. This starter package includes the Tormach 440 PCNC Mill, PathPilot® controller, chip pan, standard LCD monitor, waterproof mini keyboard, jog shuttle controller, 4" CNC Vise, manual operator set (inch), cutting stool starter set, cable kit, 1 gallon machine way oil, and 1-year Autodesk Fusion license.



### 5977 Milling Machine CNC, Tormach 770M \$12,589.80 Starter Package

- Tormach 770M 3-Axis CNC Mill and Stand
- PathPilot® Controller and Control System
- 10,000 RPM R8 Spindle
- Travel: 14" x 7.5" x 13.2" (X, Y, Z-Axis)
- TTS CNC Operator set and 5" CNC Vise

With its ability to cut challenging materials like titanium as well as softer materials such as aluminum, plastic and wood, the Tormach 770M PCNC Mill is an immensely flexible. It has a small footprint (typically 56" x 48" x 88" with stand) and ability to run on standard Vac, single-phase household power. Its R8 spindle has a top speed of 10,000 RPM X- Y- and Z-Axis travel of 14" x 7.5" x 13.2".

Additionally, the 770M has numerous add-on accessories such as an automatic tool changer (not included in starter package) which make the 770M ideal for short-run production jobs.

The 77M utilizes the PathPilot® control software which is user-friendly, supports up to 4-axis of continuous machining, industry standard G-code compliance and built-in Dropbox™ support for seamlessly transferring programs

This starter package includes the Tormach 770M Compact 3-Axis CNC mill with PathPilot® controller, stand, controller arm, lifting bar, backslash kit, 5" CNC vise, TTS CNC operator set, standard LCD monitor, waterproof mini keyboard, waterproof mouse, and 1-gallon machine way oil.

## Collets and Chucks: 3C Collets



### 2244 Collet Closer, 7x10, 7x12 \$111.85

- 3C collet closer for 7x10 and 7x12 mini lathes
- Includes a 3 Morse taper to 3C collet adapter and a drawtube assembly

The adapter is precision ground to minimize runout. Drawtube is 3/4" in diameter and allows 7/16" material to pass through. See the Compatibility tab for machines that work with this product. \*Ships from factory without a handwheel handle. See related products for handle parts.

### 2240 Collet Adapter, 3MT to 3C \$62.19

### 2374 Collet Closer, 7x14 Mini Lathe \$112.45

### 2728 Collet Closer, Universal \$113.18

### Collets and Chucks: 3C Collets



**1991 Collet Set, 3C, Set of 7** **\$109.95**

- Set of seven 3C round collets range in size from 1/8" to 1/2" by 16ths
  - Includes 1/8", 3/16", 1/4", 5/16", 3/8", 7/16" and 1/2"
  - Made of high grade tool steel
  - Hardened and ground to close tolerance
  - Externally threaded
- The thru bore of the collets is 0.467". The 1/2" collet is bored to 1/2" by 0.66" deep. All the other collets will pass the full material size through the length of the collet.

4678 Collet, 3C, 1/8"	\$15.95
4679 Collet, 3C, 3/16"	\$15.95
4680 Collet, 3C, 1/4"	\$15.95
4681 Collet, 3C, 5/16"	\$15.95
4682 Collet, 3C, 3/8"	\$15.95
4683 Collet, 3C, 7/16"	\$15.95
4684 Collet, 3C, 1/2"	\$15.95

### Collets and Chucks: 5C Collets



**3190 Collet Block Set, 5C Hex and Square** **\$66.95**

- Holds standard 5C collets
  - Economical indexing for 2, 3, 4, and 6 divisions
  - Easy cross drilling at 60°, 90° and 120°
  - Made of hardened tool steel
  - Ground square and parallel within 0.0005" all over
- This set includes five pieces, the square block, the hexagonal block, two quick acting rings and the lever operated collet closer.
- 5C collets have a range of 1/16" to 1-1/16".



**3047 Collet Chuck, 5C Collets** **\$369.95**

- Plain back collet chuck mounts like a lathe chuck
  - 5" (130 mm) diameter
  - 1/16" to 1 1/8" capacity with appropriate collets
  - Through hole is 1.231"
- This 5C collet chuck mounts with three holes for M8 cap screws. They are through drilled and counterbored for bolting on from the front. The registration inset is 95 mm in diameter. Put this 5C collet holder to the test today.

**3901 Tap & Tap Drill Bit, M8x1.25 Metric Thread** **\$9.95**



**4662 Collet Set, 5C, Set of 69** **\$495.95**

- Set of 69 5C round collets range in size from 1/16" to 1-1/8" by 64ths
- Made of high grade tool steel
- Hardened and ground to close tolerance
- Internally threaded for a work stop

**3842 Collet Set, 5C, Set of 17** **\$129.95**

**4661 Collet Set, 5C, Set of 33** **\$239.95**

**1708 Collet Set, 5C, Set of 6** **\$41.90**



**3619 Collet Stop, 5C** **\$6.95**

- Fully threaded adjustment screw
  - Thread size: 3/8"-24
  - Speeds up repetitive work
  - Overall length 3.94" (100 mm)
  - Shaft threading 2.20" (56 mm)
- Collet stops eliminate push-back of the workpiece and provide a consistent locating surface to ensure each part is indexed to the same depth. The stop rod is easily adjustable.



### Collets, 5C Individual Sizes

- Precision ground hardened steel
  - Internally and externally threaded
  - For any machine or accessory that takes 5C collets
- 5C collets range in size from 1/16" to 1-1/8". The end is internally threaded with 5C standard size (1.041-24 thread). It is also externally threaded with 5C standard size (1.238-20 thread). The overall length is 3.281 inches.

4593 Collet, 5C, 1/16"	\$7.95
4594 Collet, 5C, 1/8"	\$7.95
3670 Collet, 5C, 3/16"	\$7.95
3476 Collet, 5C, 1/4"	\$7.95
4595 Collet, 5C, 5/16"	\$7.95
3477 Collet, 5C, 3/8"	\$7.95
4596 Collet, 5C, 7/16"	\$7.95
3478 Collet, 5C, 1/2"	\$7.95
4597 Collet, 5C, 9/16"	\$7.95
3479 Collet, 5C, 5/8"	\$7.95
4598 Collet, 5C, 11/16"	\$7.95
3480 Collet, 5C, 3/4"	\$7.95
4599 Collet, 5C, 13/16"	\$7.95
3481 Collet, 5C, 7/8"	\$7.95
4600 Collet, 5C, 15/16"	\$7.95
3482 Collet, 5C, 1"	\$8.95



**5479 Mount, 5C for 3-Jaw Lathe Chucks, 4"** **\$39.95**

- 4" adapter
  - 5C adapter body
  - 3 hole chuck mounting pattern is pre-drilled
  - Hardened and ground
  - 84mm Lathe chuck bolt circle diameter
- 5C adapter with standard internal and external threads.

**5478 Mount, 5C for 3 & 4 Jaw Lathe Chucks, 3"** **\$39.95**

### Collets and Chucks: Brown & Sharpe Collets



**2999 Collet Set, 7BS, Set of 7** **\$99.95**

- Set of seven Brown & Sharpe 7 round collets
  - Hardened and precision ground
  - 3/8"-16 drawbar thread
  - 0.0008" (0.02 mm) maximum runout
  - Overall length is 3.15"
- Set of seven Brown & Sharpe round collets to fit spindles with a Brown & Sharpe taper. This set ranges from 1/8" to 1/2" by 16ths (1/8", 3/16", 1/4", 5/16", 3/8", 7/16", and 1/2"). These collets are made from high-grade tool steel and are precision ground and hardened. Maximum runout is 0.0008" (0.02 mm). Drawbar thread is 3/8"-16, the width at the top is 0.725" and the width at the bottom is 0.600". Overall length is 3.15".

**2992 Collet, 7BS, 1/8"** **\$14.95**

**2993 Collet, 7BS, 3/16"** **\$14.95**

**2994 Collet, 7BS, 1/4"** **\$14.95**


**2995 Collet, 7BS, 5/16"** **\$14.95**

**2996 Collet, 7BS, 3/8"** **\$14.95**


**2997 Collet, 7BS, 7/16"** **\$14.95**


**2998 Collet, 7BS, 1/2"** **\$14.95**

**Collets and Chucks: Brown & Sharpe Collets**


	<b>3011 Collet Set, 9BS, Set of 11</b>	<b>\$189.95</b>
	<ul style="list-style-type: none"> <li>• Set of eleven Brown &amp; Sharpe #9 round collets</li> <li>• Hardened and precision ground</li> <li>• 1/2"-13 drawbar thread</li> <li>• 0.0008" (0.02 mm) maximum runout</li> <li>• Overall length is 4.00"</li> </ul> <p>Set of 11 Brown &amp; Sharpe #9 round collets to fit spindles with a Brown &amp; Sharpe taper. This set ranges from 1/8" to 3/4" (1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", and 3/4"). These collets are made from high-grade tool steel and are precision ground and hardened. Maximum runout is 0.0008" (0.02 mm). Drawbar thread is 1/2"-13, the width at the top is 1.067" and the width at the bottom is 0.900". Overall length is 4.0".</p>	
	<b>3000 Collet, 9BS, 1/8"</b>	<b>\$17.95</b>
	<b>3001 Collet, 9BS, 3/16"</b>	<b>\$17.95</b>
	<b>3002 Collet, 9BS, 1/4"</b>	<b>\$17.95</b>
	<b>3003 Collet, 9BS, 5/16"</b>	<b>\$17.95</b>
	<b>3004 Collet, 9BS, 3/8"</b>	<b>\$17.95</b>
	<b>3005 Collet, 9BS, 7/16"</b>	<b>\$17.95</b>
	<b>3006 Collet, 9BS, 1/2"</b>	<b>\$17.95</b>
	<b>3007 Collet, 9BS, 9/16"</b>	<b>\$17.95</b>
	<b>3008 Collet, 9BS, 5/8"</b>	<b>\$17.95</b>
<b>3009 Collet, 9BS, 11/16"</b>	<b>\$17.95</b>	
<b>3010 Collet, 9BS, 3/4"</b>	<b>\$17.95</b>	

**Collets and Chucks: ER Collets**


	<b>2229 Collet &amp; Chuck Set, ER-25, 2MT</b>	<b>\$149.95</b>
	<ul style="list-style-type: none"> <li>• Includes nine ER-25 Collets</li> <li>• 2 Morse taper shank</li> <li>• 3/8"-16 drawbar thread</li> <li>• Includes spanner wrench and fitted case</li> <li>• Includes 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", and 5/8"</li> </ul> <p>Collet and Chuck set for lathes with a 2 Morse taper spindle taper. Includes nine ER-25 collets, 3/8"-16 drawbar thread, spanner wrench and case.</p>	

	<b>2228 Collet &amp; Chuck Set, ER-32, 3MT</b>	<b>\$179.95</b>
	<ul style="list-style-type: none"> <li>• Includes eleven ER-32 collets</li> <li>• 3 Morse taper shank</li> <li>• 3/8"-16 drawbar thread</li> <li>• Includes spanner wrench and fitted case</li> <li>• Includes 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", and 3/4"</li> </ul> <p>Collet and Chuck set for lathes with a 3 Morse taper spindle taper. Includes eleven ER-32 collets, 3/8"-16 drawbar thread, spanner wrench and case.</p>	


	<b>2231 Collet Chuck, ER-32, 3MT</b>	<b>\$45.95</b>
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	<b>2888 Collet &amp; Chuck Set, ER-32, R8</b>	<b>\$204.95</b>
	<ul style="list-style-type: none"> <li>• Set includes eleven ER-32 collets</li> <li>• R8 taper shank</li> <li>• 7/16"-20 drawbar thread</li> <li>• Spanner wrench</li> <li>• Includes 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", and 3/4"</li> </ul> <p>Collet and Chuck set for mills with a R8 spindle taper. Includes eleven ER-32 collets, 7/16"-20 drawbar thread, spanner wrench.</p>	


	<b>3615 Collet Chuck, ER-32, R8</b>	<b>\$45.95</b>
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	<b>Collet Blocks, ER, Square and Hexagonal</b>	
	<ul style="list-style-type: none"> <li>• Uses standard ER collets</li> <li>• Through hole permits long parts to be machined</li> <li>• Hardened Tool Steel, Ground to .0005" on all 6 Sides</li> <li>• Accurately ground back face so the blocks may be used standing upright</li> <li>• Includes ER collet nut</li> </ul> <p>These collet blocks provide easy indexing for 2 and for, or 3 and 6 divisions.</p>	

<b>5911 Collet Block, ER-25 Hexagonal</b>	<b>\$36.95</b>
<b>5912 Collet Block, ER-25 Square</b>	<b>\$36.95</b>
<b>4105 Collet Block, ER-32 Hexagonal</b>	<b>\$36.95</b>
<b>4106 Collet Block, ER-32 Square</b>	<b>\$36.95</b>
<b>5913 Collet Block, ER-40 Hexagonal</b>	<b>\$39.95</b>
<b>5914 Collet Block, ER-40 Square</b>	<b>\$39.95</b>

	<b>5189 Collet Chuck, ER-16, Straight Shank, Professional Grade</b>	<b>\$59.95</b>
	<ul style="list-style-type: none"> <li>• 3/4" x 2 1/2" shank ER-16 collet chuck</li> <li>• Made of 20CrMnTi alloy steel</li> <li>• Max runout is 0.0003"</li> <li>• Balanced to 18,000 RPM</li> <li>• Electrolysis nickle coating</li> </ul> <p>Collet Chuck, ER-16, Straight Shank, Professional Grade This ER-16 straight shank collet chuck is a great tool for holding small end mills and engravers. It is made of 20CrMnTi alloy steel and is balanced to 18,000 RPM. The maximum runout is 0.0003" (0.0076 mm). ER-16 collets have a range of 1/32" to 3/8" (0.5 to 10.0 mm). The overall length is 4.087" (104 mm) and the width at the nut is 1.102" (28 mm). *Collet must be assembled into a collet chuck nut before inserting into the collet chuck.</p>	
	<b>5188 Collet Chuck, ER-11, Straight Shank, Professional Grade</b>	<b>\$59.95</b>

	<b>2532 Collet Chuck, ER-32, 3" Diameter</b>	<b>\$130.25</b>
	<ul style="list-style-type: none"> <li>• ER-32 3" collet chuck</li> <li>• Mounts on 3" spindle flange or adapter</li> <li>• Shorter than standard 3-jaw chuck</li> <li>• Allows 25/32" stock through the headstock of the mini lathe</li> <li>• Concentricity 0.0002"</li> </ul> <p>This 3" diameter ER-32 collet chuck mounts on the lathe spindle in place of the lathe chuck or can be used as a fixture on a milling table. ER collet chucks range in size from 3/32" up to 13/16" so you can run 25/32" (the through hole on the lathe spindle is 0.800") stock through the headstock of your mini lathe. The outside diameter of the lathe collet chuck is 80 mm. It has a 55 mm registration diameter and mounts with three M6 bolts on a 66 mm bolt circle. The concentricity of this chuck is 0.0002" (0.0051 mm). *Collet must be assembled into a collet chuck nut before inserting into the collet chuck.</p>	
	<b>4231 Collet Chuck, ER-32, 4" Diameter</b>	<b>\$130.25</b>
	<b>5452 Collet Chuck, ER-40, 4" Diameter</b>	<b>\$99.95</b>

	<b>5453 Collet Chuck, ER-32, 5C</b>	<b>\$49.95</b>
	<ul style="list-style-type: none"> <li>• 5C to ER-32 collet chuck</li> <li>• 5C collet shank, holds all ER-32 collets</li> <li>• Hardened and precision Ground</li> <li>• Half-moon Spanner included</li> <li>• 0.0005" (0.0127 mm) maximum runout (DIN6499B standard)</li> </ul> <p>5C to ER-32 collet chuck, milling chuck holder. This collet chuck is hardened and precision ground and has a maximum runout of 0.0005" (0.0127 mm). The chuck will hold all ER-32 collets and a spanner wrench is included. ER-32 collets have a range of 1/16" to 13/16" (1.0 mm to 21.0 mm). *Collet must be assembled into a collet chuck nut before inserting into the</p>	

	<b>5449 Collet Chuck, ER-32, R8, Professional Grade</b>	<b>\$87.95</b>
	<ul style="list-style-type: none"> <li>• R8 to ER-32 collet chuck</li> <li>• Made of 20CrMnTi alloy steel</li> <li>• Electrolysis nickel coating</li> <li>• R8 Drawbar thread is 7/16"-20</li> <li>• Max. RPM: 8,000, max runout 0.0003"</li> </ul> <p>R8 to ER-32 professional grade collet chuck. Premium 20CrMnTi alloy steel hardened and all ground body for extended tool life. Has a superior finish (electrolysis nickel coating). The maximum RPM is 8,000 and the maximum runout is 0.0003" (0.0076 mm). The R8 drawbar thread is 7/16"-20. ER-32 collets have a range of 1/16" to 13/16" (1.0 mm to 21.0 mm). *Collet must be assembled into a collet chuck nut before inserting into the collet chuck.</p>	

	<b>5448 Collet Chuck, ER-20, R8, Professional Grade</b>	<b>\$127.95</b>
	<b>5450 Collet Chuck, ER-25, 2MT, Professional Grade</b>	<b>\$84.95</b>
	<b>5883 Collet Chuck, ER-40, R8, Professional Grade</b>	<b>\$89.95</b>

**Collets and Chucks: ER Collets**



**1112 Collet Chuck, Rotary Table, ER-32, 80 mm Diameter** **\$79.95**

- Collet Chuck for Rotary Tables
  - Fits tables with 8 mm T-Slot
  - 80 mm Outside Diameter
- This 80 mm diameter ER-32 collet chuck clamps directly to a rotary table with an 8 mm T-Slot. T-Slot nuts, bolts and top brackets are included. The collet chuck holds standard ER-32 collets. View our related products for links to rotary tables, ER Collets and Collet Nut Wrenches.

**1111 Collet Chuck, Rotary Table, ER-25, 80 mm Diameter** **\$69.95**



**2289 Collet Holder, ER-32 Rotating, Aluminum** **\$55.00**

- Holds 18 ER-32 collets
  - Can be mounted anywhere
  - Made from anodized aluminum, red finish
  - Easy rotation for quick accessibility
  - Durable material for heavy use
- Rotating rack allows for quick and easy access to 18 ER-32 collets. This carousel, made from red anodized aluminum, can be mounted anywhere. Ease of rotation makes collet size selection quick and easy.



**5844 Collet Nut, ER-16** **\$11.47**

- Holds ER16 collets
  - Internal thread M22\*1.5
  - Outside diameter 1.1" (28 mm)
  - Tightening diameter 0.98" (25 mm)
  - Black oxide finish
- Collet nut for ER-16 collets and micro mills with an ER-16 Spindle like the HiTorque Micro Mill. Holds ER-16 collets and has and internal thread of M22\*1.5. The outside diameter is 1.1" (28 mm) with a tightening diameter of 0.98" (25 mm) across the flats. The collet nut has a black oxide finish. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.



**3407 Collet Nut, ER-32** **\$19.95**

- Fits ER-32 collet chucks
- This is an M-type M40-1.5 ER-32 collet chuck nut.



**4702 Collet Set, ER-16, Set of 6** **\$70.38**

- Set of 6 ER-16 collets, sizes 1/16" to 3/8" by sixteenths
  - Made of high grade tool steel
  - Major diameter 0.67" (17.0 mm)
  - Length 1.08" (27.5 mm)
  - Set Range 0.04" - 0.393" (1.0 mm - 10 mm)
- Set of six ER-16 collets sizes 1/16", 1/8", 3/16", 1/4", 5/16", and 3/8". This set of ER-16 collets provides the basics you need for the Tormach Tooling System ER-16 collet holder. They'll also work great in a Taig mill equipped with the ER-16 spindle. ER-16 collets have a major diameter of 0.67" (17.0 mm) and a length of 1.08" (27.5 mm). The collets in this set have a clamping range of 0.04" - 0.393" (1.0 mm - 10 mm). ER collets are made from high grade tool steel, hardened and ground to close tolerance. Kerf cuts allow the collet to expand and contract as needed within the specific clamping range to securely hold the tool or workpiece. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.



**2442 Collet Set, ER-20, Set of 3** **\$36.95**

- Includes 1/8", 1/4" and 3/8" collets
  - Made of high grade tool steel
  - Major diameter 0.83" (21 mm)
  - Length 1.24" (31.5 mm)
  - Set Range 0.12" - 0.393" (3.0 mm - 10 mm)
- Set of three ER-20 collets sizes 1/8", 3/16" and 1/4". This set of ER-20 collets provides the basics you need for the Tormach Tooling System ER-20 collet holder. ER-20 collets have a major diameter of 0.83" (21 mm) and a length of 1.24" (31.5 mm). The collets in this set have a clamping range of 0.12" - 0.393" (3.0 mm - 10 mm). ER collets are made from high grade tool steel, hardened and ground to close tolerance. Kerf cuts allow the collet to expand and contract as needed within the specific clamping range to securely hold the tool or workpiece. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.



**2662 Collet Set, ER-25, Set of 15** **\$179.95**

- Set of 15 ER-25 round collets
  - Made of high grade tool steel
  - Major diameter 1.02" (26 mm)
  - Length 1.34" (34 mm)
  - Range 0.04" - 0.629" (1.0 mm - 16.0 mm)
- Set of 15 ER-25 collets. Sizes include: 1/16", 3/32", 1/8", 3/16", 7/32", 1/4", 5/16", 11/32", 3/8", 13/32", 7/16", 1/2", 17/32", 9/16", and 5/8". ER-25 collets have a major diameter of 1.02" (26 mm) and a length of 1.34" (34 mm). The collets in this set have a clamping range of 0.04" - 0.629" (1.0 mm - 16 mm). ER collets are made from high grade tool steel, hardened and ground to close tolerance. Kerf cuts allow the collet to expand and contract as needed within the specific clamping range to securely hold the tool or workpiece. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.



**2559 Collet Set, ER-32, Set of 18** **\$203.95**

- Set of 18 ER-32 collets sizes 3/32" to 3/4"
  - Made of high grade tool steel
  - Major diameter 1.30" (33 mm)
  - Length 1.57" (40 mm)
  - Range 0.08" - 0.787" (2.0 mm - 20.0 mm)
- Set of 18 ER-32 collets. Sizes include: 3/32", 1/8", 3/16", 7/32", 1/4", 5/16", 11/32", 3/8", 13/32", 7/16", 1/2", 17/32", 9/16", 5/8", 21/32", 11/16", 23/32", and 3/4". ER-32 collets have a major diameter of 1.30" (33 mm) and a length of 1.57" (40 mm). The collets in this set have a clamping range of 0.08" - 0.787" (2.0 mm - 20 mm). ER collets are made from high grade tool steel, hardened and ground to close tolerance. Kerf cuts allow the collet to expand and contract as needed within the specific clamping range to securely hold the tool or workpiece. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.

**2558 Collet Set, ER-32, Set of 11** **\$132.95**

**2557 Collet Set, ER-32, Set of 6** **\$74.95**



**5666 Collet Set, ER-40, Set of 24** **\$269.95**

- Set of 24 ER-40 round collets 1/8" to 1"
  - Made of high grade tool steel
  - Major Diameter 1.62" (41.15 mm)
  - Length 1.81" (46 mm)
  - Range 0.04" - 0.629" (1.0 mm - 16.0 mm)
- Set of 24 ER-40 collets. Sizes include: 1/8", 3/16", 7/32", 1/4", 5/16", 11/32", 3/8", 13/32", 7/16", 1/2", 17/32", 9/16", 5/8", 21/32", 11/16", 23/32", 3/4", 25/32", 13/16", 27/32", 7/8", 15/16", 31/32" and 1". ER-40 collets are 1.62" (41.15 mm) maximum diameter and 1.81" (46 mm) long. The collets in this set have a clamping range of 0.04" - 0.629" (1.0 mm - 16.0 mm). ER collets are made from high grade tool steel, hardened and ground to close tolerance. Kerf cuts allow the collet to expand and contract as needed within the specific clamping range to securely hold the tool or workpiece. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.



## Collets, ER-11 Individual Sizes

- Hardened and ground to close tolerance
  - Made of high grade tool steel
  - Major diameter 0.45" (11.5 mm)
  - Length 0.71" (18.0 mm)
  - Range of ER-11 collets 1/32" to 1/4" (0.5 mm to 7.0 mm)
- ER-11 collets have a major diameter of 0.45" (11.5 mm) and a length of 0.71" (18 mm). They have a clamping range of 1/32" to 1/4" (0.5 mm to 7.0 mm). ER collets are made from high grade tool steel, hardened and ground to close tolerance. Kerf cuts allow the collet to expand and contract as needed within the specific clamping range to securely hold the tool or workpiece. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.

4797 Collet, ER-11, 1/32"	\$12.49
4601 Collet, ER-11, 1/16"	\$12.49
4398 Collet, ER-11, 3/32"	\$12.49
4454 Collet, ER-11, 1/8"	\$12.49
4455 Collet, ER-11, 3/16"	\$12.49
4399 Collet, ER-11, 7/32"	\$12.49
4456 Collet, ER-11, 1/4"	\$12.49



## Collets, ER-16 Individual Sizes

- Hardened and ground to close tolerance
  - Made of high grade tool steel
  - Major diameter 0.67" (17.0 mm)
  - Length 1.08" (27.5 mm)
  - Range of ER-16 Collets 1/32" to 3/8" (0.5 mm to 10 mm)
- ER-16 collets have a major diameter of 0.67" (17.0 mm) and a length of 1.08" (27.5 mm). They have a clamping range of 1/32" to 3/8" (0.5 mm to 10.0 mm). ER collets are made from high grade tool steel, hardened and ground to close tolerance. Kerf cuts allow the collet to expand and contract as needed within the specific clamping range to securely hold the tool or workpiece. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.

4437 Collet Set, ER-16, Set of 3	\$36.95
4613 Collet, ER-16, 1/32"	\$12.49
4614 Collet, ER-16, 1/16"	\$12.49
4615 Collet, ER-16, 3/32"	\$12.49
4434 Collet, ER-16, 1/8"	\$12.49
4435 Collet, ER-16, 3/16"	\$12.49
4616 Collet, ER-16, 7/32"	\$12.49
4436 Collet, ER-16, 1/4"	\$12.49
4617 Collet, ER-16, 5/16"	\$12.49
4619 Collet, ER-16, 11/32"	\$12.49
4618 Collet, ER-16, 3/8"	\$12.49



## Collets, ER-20 Individual Sizes

- Hardened and ground to close tolerance
  - Made of high grade tool steel
  - Major diameter 0.83" (21 mm)
  - Length 1.24" (31.5 mm)
  - Range of ER-20 collets 1/16" to 1/2" (1.0 mm to 13.0 mm)
- ER-20 collets have a major diameter of 0.83" (21 mm) and a length of 1.24" (31.5 mm). They have a clamping range of 1/16" to 1/2" (1.0 mm to 13.0 mm). ER collets are made from high grade tool steel, hardened and ground to close tolerance. Kerf cuts allow the collet to expand and contract as needed within the specific clamping range to securely hold the tool or workpiece. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.

4620 Collet, ER-20, 1/16"	\$12.49
4621 Collet, ER-20, 3/32"	\$12.49
2443 Collet, ER-20, 1/8"	\$12.49
4622 Collet, ER-20, 3/16"	\$12.49
4623 Collet, ER-20, 7/32"	\$12.49
2444 Collet, ER-20, 1/4"	\$12.49
4624 Collet, ER-20, 5/16"	\$12.49
4625 Collet, ER-20, 11/32"	\$12.49
2445 Collet, ER-20, 3/8"	\$12.49
4626 Collet, ER-20, 13/32"	\$12.49
4627 Collet, ER-20, 7/16"	\$12.49
4628 Collet, ER-20, 1/2"	\$12.49



## Collets, ER-25 Individual Sizes

- Hardened and ground to close tolerance
  - Made of high grade tool steel
  - Major diameter 1.02" (26 mm)
  - Length 1.34" (34 mm)
  - Range of ER-25 collets 1/16" to 5/8" (1.0 mm to 16.0 mm)
- ER-25 collets have a major diameter of 1.02" (26 mm) and a length of 1.34" (34 mm). They have a clamping range of 1/16" to 5/8" (1.0 mm to 16.0 mm). ER collets are made from high grade tool steel, hardened and ground to close tolerance. Kerf cuts allow the collet to expand and contract as needed within the specific clamping range to securely hold the tool or workpiece. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.

5053 Collet, ER-25, 1/16"	\$12.95
5054 Collet, ER-25, 3/32"	\$12.95
5055 Collet, ER-25, 1/8"	\$12.95
5056 Collet, ER-25, 3/16"	\$12.95
5057 Collet, ER-25, 7/32"	\$12.95
5058 Collet, ER-25, 1/4"	\$12.95
5059 Collet, ER-25, 5/16"	\$12.95
5060 Collet, ER-25, 11/32"	\$12.95
5061 Collet, ER-25, 3/8"	\$12.95
5062 Collet, ER-25, 13/32"	\$12.95
5063 Collet, ER-25, 7/16"	\$12.95
5064 Collet, ER-25, 1/2"	\$12.95
5065 Collet, ER-25, 17/32"	\$12.95
5066 Collet, ER-25, 9/16"	\$12.95
5067 Collet, ER-25, 5/8"	\$12.95



## Collets, ER-32 Individual Sizes

- Precision ground hardened steel
  - Made of high grade tool steel
  - Major diameter 1.30" (33 mm)
  - Length 1.57" (40 mm)
  - Range of ER-32 collets 1/16" to 13/16" (1.0 mm to 21.0 mm)
- ER-32 collets are 1.30" (33 mm) maximum diameter and 1.57" (40 mm) long. They have a clamping range of 1/16" to 13/16" (1.0 mm to 21.0 mm). ER collets are made from high grade tool steel, hardened and ground to close tolerance. Kerf cuts allow the collet to expand and contract as needed within the specific clamping range to securely hold the tool or workpiece. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.

4558 Collet, ER-32, 1/16"	\$11.95
4559 Collet, ER-32, 3/32"	\$11.95
4560 Collet, ER-32, 1/8"	\$11.95
4561 Collet, ER-32, 3/16"	\$11.95
4562 Collet, ER-32, 7/32"	\$11.95
4563 Collet, ER-32, 1/4"	\$11.95
4564 Collet, ER-32, 5/16"	\$11.95
4565 Collet, ER-32, 11/32"	\$11.95
4566 Collet, ER-32, 3/8"	\$11.95
4567 Collet, ER-32, 13/32"	\$11.95
4568 Collet, ER-32, 7/16"	\$11.95
4569 Collet, ER-32, 1/2"	\$11.95
4570 Collet, ER-32, 17/32"	\$11.95
4571 Collet, ER-32, 9/16"	\$11.95
4572 Collet, ER-32, 5/8"	\$11.95
4573 Collet, ER-32, 21/32"	\$11.95
4574 Collet, ER-32, 11/16"	\$11.95
4575 Collet, ER-32, 23/32"	\$11.95
4576 Collet, ER-32, 3/4"	\$11.95
4578 Collet, ER-32, 13/16"	\$11.95



## Collets, ER-40 Individual Sizes

- Precision ground hardened steel
- Made of high grade tool steel
- Major Diameter 1.62" (41.15 mm)
- Length 1.81" (46 mm)
- Range of ER-40 collets 1/8" to 1" (3.0 mm to 26.0 mm)

ER-40 collets are 1.62" (41.15 mm) maximum diameter and 1.81" (46 mm) long. They have a clamping range of 1/8" to 1" (3.0 mm to 26.0 mm). ER collets are made from high grade tool steel, hardened and ground to close tolerance. Kerf cuts allow the collet to expand and contract as needed within the specific clamping range to securely hold the tool or workpiece. \*Collet must be assembled into a collet chuck nut before inserting into the collet chuck.

5885 Collet, ER-40, 1/8"	\$12.95
5886 Collet, ER-40, 3/16"	\$12.95
5887 Collet, ER-40, 7/32"	\$12.95
5888 Collet, ER-40, 1/4"	\$12.95
5889 Collet, ER-40, 5/16"	\$12.95
5890 Collet, ER-40, 11/32"	\$12.95
5891 Collet, ER-40, 3/8"	\$12.95
5892 Collet, ER-40, 13/32"	\$12.95
5893 Collet, ER-40, 7/16"	\$12.95
5894 Collet, ER-40, 1/2"	\$12.95
5895 Collet, ER-40, 17/32"	\$12.95
5896 Collet, ER-40, 9/16"	\$12.95
5897 Collet, ER-40, 5/8"	\$12.95
5898 Collet, ER-40, 21/32"	\$12.95
5899 Collet, ER-40, 11/16"	\$12.95
5900 Collet, ER-40, 23/32"	\$12.95
5901 Collet, ER-40, 3/4"	\$12.95
5903 Collet, ER-40, 13/16"	\$12.95
5904 Collet, ER-40, 27/32"	\$12.95
5905 Collet, ER-40, 7/8"	\$12.95
5906 Collet, ER-40, 15/16"	\$12.95
5907 Collet, ER-40, 31/32"	\$12.95
5908 Collet, ER-40, 1"	\$12.95

## Collets and Chucks: Morse Taper Collets



## 1752 Collet Set, 2MT, Set of 7 \$84.65

- Set of seven 2 Morse taper round collets
- 3/8"-16 internal drawbar thread
- Made of high grade tool steel
- Hardened and ground to close tolerance
- Overall length is 2.67" (68 mm)

Set of seven #2 Morse taper round collets in sizes 1/8" - 1/2" by 16ths. Made of high grade tool steel these collets have been hardened and ground to close tolerance. Set includes sizes: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", and 1/2". Collets are made from high-grade tool steel and are precision ground and hardened. The drawbar thread is 3/8"-16 and the overall length is 2.67" (68 mm).

1745 Collet, 2MT, 1/8"	\$11.95
1746 Collet, 2MT, 3/16"	\$11.95
1747 Collet, 2MT, 1/4"	\$11.95
1748 Collet, 2MT, 5/16"	\$11.95
1749 Collet, 2MT, 3/8"	\$11.95
1750 Collet, 2MT, 7/16"	\$11.95
1751 Collet, 2MT, 1/2"	\$13.54



## 1948 Collet Set, 3MT, Set of 11 \$139.35

- Set of eleven #3 Morse taper round collets
- 3/8"-16 internal drawbar thread
- Made of high grade tool steel
- Hardened and ground to close tolerance
- Overall length is 3.39" (86 mm)

Set of eleven #3 Morse taper round collets. Made of high grade tool steel these collets have been hardened and ground to close tolerance. Includes sizes: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", and 3/4". 3 Morse taper collets fit spindles with a Morse taper. The drawbar thread is 3/8"-16 and the overall length is 3.39" (86 mm).

2023 Collet Set, 3MT, Set of 4	\$59.00
1615 Collet Set, 3MT, Set of 7	\$105.20
1605 Collet, 3MT, 1/8"	\$13.95
1606 Collet, 3MT, 3/16"	\$13.95
1607 Collet, 3MT, 1/4"	\$13.95
1858 Collet, 3MT, 5/16"	\$13.95
1608 Collet, 3MT, 3/8"	\$13.95
1859 Collet, 3MT, 7/16"	\$16.30
1609 Collet, 3MT, 1/2"	\$13.95
1860 Collet, 3MT, 9/16"	\$16.30
1610 Collet, 3MT, 5/8"	\$13.95
1861 Collet, 3MT, 11/16"	\$16.30
1611 Collet, 3MT, 3/4"	\$16.30

## Collets and Chucks: R8 Collets



## 5001 Collet Holder, R8 Rotating \$24.95

- Holds 11 R8 collets
- Can be mounted anywhere
- Made from durable ABS plastic
- Easy rotation for quick accessibility
- Low Price - Great for small shops

Rotating R8 collet rack allows for quick and easy access to 11 R8 collets. This carousel, made from durable ABS plastic, can be mounted anywhere. At the low price, buy multiple racks for large R8 collet sets.



## 2290 Collet Holder, R8 Rotating, Aluminum \$55.00

- Holds 11 R8 collets
- Can be mounted anywhere
- Made from anodized aluminum, blue finish
- Easy rotation for quick accessibility
- Durable material for heavy use

Rotating R8 collet rack allows for quick and easy access to 11 R8 collets. This carousel, made from blue anodized aluminum, can be mounted anywhere. Ease of rotation makes collet size selection quick and easy.



## 5915 Collet Set, R8 Metric, Set of 10 \$64.95

- Set of ten R8 round collets in metric sizes
- Hardened and ground to close tolerance
- Made of high grade tool steel
- 7/16" -20 drawbar thread
- 0.0007" (0.018 mm) maximum runout

Set of ten R8 round collets to fit spindles with a R8 taper. Metric sizes included: 3, 4, 5, 6, 8, 10, 12, 14, 18, and 20 mm. Collets are made from high-grade tool steel and are precision ground and hardened. Maximum runout is 0.0007" (0.018 mm). Drawbar thread is 7/16"-20.



## 4860 Collet Set, R8, Set of 13, Professional Grade \$124.95

- Set of thirteen R8 round collets
- Hardened and ground to close tolerance
- Made of high grade tool steel
- 7/16" -20 drawbar thread
- 0.0005" (0.013 mm) maximum runout

Set of 13 professional grade R8 round collets to fit spindles with a R8 taper. Set includes sizes 1/8" to 7/8" by 16ths (1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", and 7/8"). These are high precision professional grade collets with a maximum runout of 0.0005" (0.013 mm). Collets are made from high-grade tool steel and are precision ground and hardened.

## Collets and Chucks: R8 Collets



**2872 Collet Set, R8, Set of 23** **\$132.95**

- Set of 23 R8 round collets
- Hardened and ground to close tolerance
- Made of high grade tool steel
- 7/16" -20 drawbar thread
- 0.0007" (0.018 mm) maximum runout

Set of 23 R8 round collet to fit spindles with a R8 taper. Set includes sizes from 1/16" to 3/4" by 32nds providing maximum flexibility in tool fitting. Collets are made from high-grade tool steel and are precision ground and hardened. Maximum runout is 0.0007" (0.018 mm). Drawbar thread is 7/16"-20.

**2030 Collet Set, R8, Set of 11** **\$64.95**

**4515 Collet Set, R8, Set of 5** **\$33.95**

**1604 Collet Set, R8, Set of 6** **\$36.95**

**2605 Collet Set, R8, Set of 7** **\$43.95**



### Collets, R8, Individual Sizes

- Hardened and ground to close tolerance
- Made of high grade tool steel

**4543 Collet, R8, 1/8"** **\$6.95**

**4310 Collet, R8, 3/16"** **\$6.95**

**4486 Collet, R8, 1/4"** **\$6.95**

**4554 Collet, R8, 5/16"** **\$6.95**

**4487 Collet, R8, 3/8"** **\$6.95**

**4555 Collet, R8, 7/16"** **\$6.95**

**4488 Collet, R8, 1/2"** **\$6.95**

**4556 Collet, R8, 9/16"** **\$6.95**

**4489 Collet, R8, 5/8"** **\$6.95**

**4557 Collet, R8, 11/16"** **\$6.95**

**4490 Collet, R8, 3/4"** **\$6.95**

## Collets and Chucks: Taig Collets



**1915 Arbor, 3MT, Sherline/Taig Tooling** **\$34.95**

- 3/4-16 Threaded end fits Sherline and Taig chucks and tooling
  - 3MT drawbar shank with 3/8"-16 drawbar thread
  - Fits Taig collets and collet nut
- Note: For Sherline tooling a 1/8" thick flat washer must be used between the tool and arbor.

**2663 Arbor, 2MT, Sherline/Taig Tooling** **\$34.95**

**2317 Collet Set, Taig** **\$39.95**

## Collets and Chucks: Watchmakers Collets



### Collets, Watchmakers, Individual Sizes

- WW or 8 mm collets
  - Made in USA by Starrett Products
- Body diameter is 0.315" (8 mm)  
Thread is 0.275"- 40

**4527 Collet, #20, 2 mm, Watchmakers** **\$13.95**

## Coolant Systems: Cutting Compounds



**5881 Coolant, DuraKut 9000B, Gallon** **\$49.95**

- Non-toxic, Non-hazardous
- One premixed gallon
- Works well with Fogbuster and other Misting systems
- Ok to use with all metals
- Extends the life of machining tools

This is a moderate duty nearly dry machining fluid, designed for mist units. It works great with the Fogbuster unit. DuraKut 9000B machine coolant can be applied using mist systems or other minimum quantity lubrication setups. It may be used in a variety of metalworking applications including sawing, milling, and tapping.



**2236 Coolant, Kool Mist 77, Pint** **\$7.95**

- Safe for people
- Safe for materials
- Safe for the environment
- Safe for machines

Kool Mist 77 coolant is highly recommended for mist cooling any metal or alloy where tougher machine conditions require greater lubricity. It is particularly useful where the material is very abrasive.

Improves metal cutting, milling, turning, drilling, grinding, and sawing.

You can also use Kool Mist 77 as a flood coolant.

Kool Mist 77 is 100% synthetic and biodegradable, and meets the requirements of OSHA & EPA. This coolant will not cause rancidity or buildup and creates no rust or corrosion when diluted with clean water. Workpieces and machine parts remain clean and unstained.

Mix this Kool Mist coolant concentrate with 32 parts water before use. Makes over 4 gallons of coolant.

**2235 Coolant, Kool Mist 77, Gallon** **\$44.95**

**3089 Cutting Compound, Nikx Stikx** **\$5.95**



- Wax-based metal-cutting compound in 6" tube
- Extends tool life

- Lubricate saw blades, taps, drills, and hole saws

Nikx Stikx is a non-hazardous solid metal-cutting compound that eases your task and extends the life of all metal cutting and threading tools. Cutting oils are combined with wax in a tube approximately 1" in diameter and 6" long. Rub a little compound on the tool cutting edges. The compound heats up when cutting starts. The heated compound migrates to the tool cutting edge. The cutting compound helps prevent steel and aluminum from galling on the tool cutting edges. The compound works equally well on wood working tools by preventing wood pitch build-up and is a great lubricant for driving screws and lag-bolts. Craftsmen, electricians, plumbers, maintenance engineers and machinists welcome the product because it's convenient to use without fear of spillage.

**3088 Cutting Fluid, Re-Li-On, 4 Oz.** **\$3.95**



- Engineered formula for cutting and tapping
- Extends tool life and controls chip welding
- Improves finishes and tolerances
- Safe and odorless
- Spray top for easy application

Re-Li-On cutting and tapping fluid is a non-ozone depleting product that is safe on aluminum and exotic alloys such as stainless steel, hastelloy, inconel and titanium. The engineered formula clings to the cutting tool and provides strong lubrication.

**3120 Cutting Fluid, Re-Li-On, 16 Oz.** **\$9.95**

**5848 Cutting Oil, Viper's Venom** **\$19.50**



- 32 oz. bottle
- Superior high-sulfur cutting oil
- For cutting all ferrous metals
- Ideal for tapping, threading, reaming and lathe work
- Will not cause sticking or gumming

This high sulfur content cutting oil was recommended to us by the guys at the Arthur R. Warner Co. They know high speed steel and they use this stuff in their shop. It's great for threading, tapping, turning and milling. Viper's Venom is a superior high-sulfur cutting oil that is specifically formulated for cutting all ferrous metals. Ideal for tapping, threading, reaming, and lathe work. Works extremely well when threading or reaming stainless steel rifle barrels due to its extreme lubricity and cooling properties. Viper's Venom is a stable product. It contains saponifiables to promote adhesion to the work and tools, and to provide oiliness. It is fortified with sulfur and chlorine to reduce metal pick-up, galling, and welding. It has good cooling ability. It will cause only slight staining of ferrous metals. It will not cause sticking or gumming. It has good resistance to rancidity.

Coolant Systems: Flood Systems

Coolant Systems: Flood Systems



**3952 Coolant Hose on Magnetic Base \$19.95**

- Great for flood coolant applications
- 1/4" ID flexible coolant hoses with shut off
- On/off switchable magnetic base



**3660 Coolant Hose on Magnetic Base \$57.95**

- Great for flood coolant applications
- Two 1/4" ID flexible coolant hoses with individual shut offs
- On/off switchable magnetic base



**4551 Coolant Hose Set, Modular, 1/4" ID \$8.95**

- 12" length of 1/4" ID modular coolant hose
  - 1/16", 1/8", 1/4" nozzles
  - 1/8" NPT and 1/4" NPT connectors
- This is a starter set for modular coolant hose.

**4553 Coolant Hose Plier, Modular 1/4" ID \$21.95**

**4552 Coolant Hose Valve, Modular 1/4" ID \$3.95**

**4716 Coolant Hose Valve, Modular 1/4" ID \$3.95**

**4550 Coolant Hose, Modular 1/4" ID, 12" Long \$3.95**



**4763 Coolant Hose, Steel with Magnetic Base \$59.95**

- 5/8" diameter X 13" long steel nozzleed hose
- Flow control valve
- On/off switchable magnetic base
- Magnetic base dimensions: 2.36" x 1.97" x 2.17"



**4657 Coolant Tank and Pump \$301.92**

- 3 gallons (12 liters) per minute flow rate
  - 7 gallons (26.5 liters) capacity
  - Tank is 21.5" x 11.8" x 9.3" tall
  - Includes magnetic base and 18" modular hose
  - Sturdy side handles allow for ease in moving
- This flood coolant tank and pump is good for small mills, lathes, and band saws. Power: 120V 60Hz This unit has a strong 7' drain hose and a 6' fill hose connected to the magnetic base of the coolant hose. The 18" modular coolant hose has a lever controlled on/off valve. Side handles make the system easy to move and they fold down to the sides when not in use. On/Off switch is conveniently located on the top of the unit.



**1428 Coolant Tank and Pump, 3 Gal. \$274.95**

- 3 Gallon Coolant Pump Kit
  - Portable and easy to use coolant device
  - 1/8 HP
  - Dimensions: 15.5" x 10.5" x 13" (L,W,H)
- Three gallon coolant tank and flood system. Suitable for multiple cooling applications such as milling and small lathe work. Portable and easy to use, this unit is 1/8 HP and runs on 110V. The dimensions of the unit (L x W x H) are 15.5" x 10.5" x 13"



**3520 Flood Coolant Unit \$249.95**

- Includes tank, pump, hose, and nozzle
  - Delivers up to 100 GPH
  - Flow can be regulated without harming pump
  - Screen and chip collector easily removed for cleaning
  - Tank is oil resistant polyethelene
- This coolant pump and tank unit is great for bench top milling machines. It is compact (the tank holds 1 gallon) and easy to use and clean. Power: 120V 60Hz 80 watts

**3521 Flood Coolant Unit & Coolant \$289.95**

Coolant Systems: Lubricants



**3984 Lubriplate 630-AA Lithium Grease \$11.95**

- Lithium-based grease for general purpose lubrication
- High anti-wear for extra lubricity
- Water resistant
- Wide operating temperature range
- 630-AA is an NLGI No. 1 lubricant

This is the grease we recommend for small machine tools. It is great for many other applications as well.



**3195 M1 Lubricant, 12 oz. Aerosol Can, Starrett \$9.95**

- Starrett M1 all-purpose lubricant in 12 oz. Aerosol can
  - Must be shipped by ground; not available outside the continental US
- M1® is the "modern one" - the superior alternative. This all-purpose lubricant dries quickly and will not attract dirt or other contaminants as other leading lubricants do. Starrett lubricant simultaneously dries as it protects, avoiding dirt and grime. Dries to leave a film that protects and lubricates. Lubricates without silicone. Penetrates to quickly to free frozen nuts, bolts and metal parts. Prevents rust and corrosion damage by providing a molecular shield that locks to the metal. Non-soluble in water so it displaces moisture to lift it away from the surface to be protected. Nonconductive, preventing short circuits. Applications for industry are nearly endless. Protect working surfaces of machinery; use in dip tanks to protect production parts in process, or apply on tools when stored. Starrett M1 lubricant is also ideal in highly corrosive situations that destroy metal equipment used in marine environments.

**3179 M1 Lubricant, Case of 12 Aerosol Cans, Starrett \$118.95**

**1825 Tool and Instrument Oil, Starrett \$10.60**



- Starrett catalog number 1620
- This oil is the same extra-fine lubricant made to Starrett specifications and used in the Starrett factory to lubricate and protect their precision measuring tools and instruments. It is also perfect for all mechanics, homeowners, hobbyists, and sportsmen who require the finest all-purpose oil. Special high-refining makes Starrett Tool and Instrument Oil colorless, ensures thorough lubrication of close-fitting parts at high temperatures and below zero, and provides a strong lasting film over all areas requiring protection against rust. This oil has not been adulterated by additives for color and odor.



**4120 Way Oil, Mobil Vactra Oil No. 2 \$34.95**

- ISO viscosity 68
  - One gallon
  - Recommended for horizontal slideways on small to medium size machine tools
  - Rust Protection, ASTM D 665B Pass
  - Flash Point, ASTM D92, °C228
- When you need oil for your machine, many types of oil will work - even motor oil. However, the best oil to use is oil designed specifically for lubricating machine ways. This type of oil has an additive that helps the oil stick to the surface. We suggest and use 4120 Mobil Vactra Oil No. 2 Way Oil with ISO viscosity 68. Information provided by Mobil: Mobil Vactra Oil Numbered Series products are recommended for the lubrication of machine tool slideway systems. They are designed for use with combinations of cast iron, steel and non-metallic way materials. Mobil machine oil may be applied by hand, forced-feed lubricator or in flood application by circulation system. Mobil Vactra Oil No. Series of products are suitable for use in applications that require Fives Cincinnati specifications P53, P47, and P50. Mobil Vactra Oil No. 2 is recommended for horizontal slideways on small to medium size machine tools. It is also suitable for circulating application in large machines and as a moderate duty hydraulic fluid. Mobil machine oil can be used for lubrication of ball screws, linear guides, headstocks, translating screws. Mobil Vactra Oil Numbered Series is recommended for applications where oil contamination of the aqueous coolants shortens coolant batch life. Mobil Vactra Oil No. 2 Way Oil ISO Viscosity Grade 68cSt @ 40 C, ASTM D44568 Flash Point, ASTM D92, °C228 Pour Point, ASTM D97, °C-18 Copper Strip Corrosion, ASTM D 130C, 3 h1BRust Protection, ASTM D 665B Pass FZG Load Support, ISO 14635, Fail Stage 13



## Coolant Systems: Mist Systems


**4718 FogBuster Sprayer Coolant System with Tank, 1 Outlet** **\$345.00**

- FogBuster model 10100 with one spray outlet
  - 1/2 gallon clear coolant tank
  - Stainless steel handle, nozzle with magnetic stand, and pressure regulator
  - Reduces airborne pollutants in shop
- Half-gallon models are the ideal size for many coolant and lubricant applications. Coolant level can be easily viewed through the clear reservoir. The provided stainless steel handle makes mounting or carrying this spray mist coolant system quick and easy. The hose from tank to nozzle is 5 feet long. Unlike other mist coolant systems, the FogBuster does not atomize coolant at the nozzle tip. Coolant is carried accurately with the air stream after leaving the nozzle and will produce a small spray pattern from several inches from its target. Greater cooling and lubrication is achieved along with a reduction in coolant waste because virtually all of the coolant is being utilized on the part and tool. FogBuster offers a wide range of coolant and air flows, will spray virtually any type of coolant or lubricant, and its unique high volume low pressure design operates on only 10 to 20 PSI. Coolant flow is easily adjusted by a precision needle valve at the sprayer head, and can be set from very small amounts to a heavy spray to suit your job application. Air flow is adjusted at the air pressure regulator, and once flows are set sprayer operation is instant with the flip of an air toggle switch conveniently located on your machine or when called for in a program. Just hook up your air compressor.

**4719 Lathe Mount for FogBuster Mist Unit** **\$31.95**

**2965 Mist Coolant System with Tank, 1 Outlet** **\$235.00**

- Kool Mist model 100NF12 with one spray outlet
  - 12" Lock-Line® spray positioner
  - Heavy duty magnetic base
  - 1 gallon stainless steel coolant tank
  - Adjustable coolant nozzle and 4' coolant hose
- This spray mist unit has a 1/8" NPT thread for your compressed air supply. (You furnish the air compressor.)

**4278 Mist Coolant System with Tank, 1 Outlet plus Kool Mist 77** **\$241.95**
**3458 Mist Coolant System with Tank, 2 Outlets** **\$380.00**

**4691 Mist Coolant System, Lite Duty** **\$81.95**

- Kool Mist model 80S 90 Degree
  - 4" long 90 degree nozzle.
  - Adjustable coolant nozzles and 2' coolant hose
- These models are to be used with your own tank. The Lite Duty models are best used in production operations that require minimal set up changes. This is the least expensive model, but does not provide the flexibility to be moved quickly from machine to machine. Lite Duty models generate a very fine spray mist. Simplest of the Systems: The controls of these units are mounted permanently to the machine, close to the operator and the cut. No Coolant Tank Furnished: Coolant mix may be placed in any clean container that will not contaminate the coolant. Coaxial Coolant Line: Coolant and compressed air are not mixed until they reach the nozzle. To overcome the need for dual lines, Kool Mist has developed a coaxial line, or a hose within a hose. Coolant line exteriors may be nylon braided for normal duty, or metal braided from protection from hot chips and abrasion. Easy to Use Control: Output from each nozzle is regulated by a single knob on the control. Mist Spray may be turned on or off instantly to coordinate with the cutting cycle, and the spray mix made lean or rich as needed. Nozzle position can be a permanent mount or the flexible magnetic base. 90 degree nozzle.


**2966 PORTaMIST Spray Mist Unit 12"** **\$139.00**

- Kool Mist PORTaMIST model 60M12
  - 12" Lock-Line® spray positioner
  - Heavy duty magnetic base
  - Adjustable coolant nozzle
  - 4' coolant and air hoses
- This spray mist coolant unit has a male 1/8" NPT thread for your compressed air supply. (You furnish the air compressor.) Includes a sample of Kool Mist 77.

**4984 PORTaMIST Spray Mist Unit 18"** **\$153.00**

## Cutting Tools: Boring Bars


**1246 Boring Bar Set, 3/8" Shank, Carbide** **\$19.95**

- Set of nine boring bars - 3 lengths for each min. bore size
- Shank diameter 3/8"
- Hardened and ground to +0" - .0005"
- Shanks are made of special heat treated alloy steel
- Designed so the same bar can bore flat

This carbide tipped 9-piece boring bar set includes three different length boring bars each for minimum bores of 5/16", 3/8", and 7/16". The bore depth ranges from 3/4" to 2-1/4". The heat treated, alloy steel shanks are held to 0.000 to -0.0005" from the nominal diameter. The holder may vary from that shown in the photo.

**3768 Boring Bar Set, 1/2" Shank, Carbide with Holder for Mini Lathe** **\$33.19**
**1247 Boring Bar Set, 1/2" Shank, Carbide** **\$24.95**
**2682 Boring Bar Set, 1/2" Shank, HSS** **\$93.95**
**3832 Boring Bar Set, 3/4" Shank, Carbide** **\$49.95**
**2683 Boring Bar Set, 3/8" Shank, HSS** **\$74.95**

**1779 Boring Bar, 3/8" Indexable** **\$34.95**

- Profiling bars for semi-finishing and finishing operations
  - Designed for CCMT 80° inserts
  - 7° Relief angle
  - Negative 5° Lead angle for boring
  - 3° Side & end cutting edge angle
- This 3/8" diameter indexable boring bar for sale uses CCMT inserts. Minimum bore diameter is 0.50" Use CCMT 21.51 or CCMT 21.52 inserts with this boring bar set.

**1780 Boring Bar, 1/2" Indexable** **\$35.95**
**3719 Boring Bar, 5/16" Indexable** **\$38.95**
**5436 Boring Bar, 5/16" Indexable, S05-SCLCR06, Reduced Neck** **\$29.95**

**4788 Boring Bar, 3/8" Indexable, 80 Deg HSS Diamond Inserts, A R Warner Kit #13** **\$96.00**

- 3/8" diameter, 5" long boring bar
- 3 CEMW-21.5.5 high speed steel inserts
- 1 extra Torx screw
- 1 wrench

This Arthur R. Warner Co. precision boring bar uses high speed steel inserts. Combine the advantages of high speed steel cutting tools with the convenience of indexable tooling. The minimum boring diameter is 0.330". The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel. Their quality is excellent and LittleMachineShop.com is proud to carry their products.



**1720 Boring Bar, 3/8" Indexable, HSS Triangle Inserts, A R Warner Kit #12** **\$95.95**


- 3/8" diameter, 5" long boring bar with TPMW-1.81.5.5 insert
- 2 extra TPMW-1.81.5.5 high speed steel inserts
- 1 extra Torx screw
- 1 wrench


This Arthur R. Warner Co. precision boring bar uses high speed steel inserts. Combine the advantages of high speed steel cutting tools with the convenience of indexable tooling. The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel. Their quality is excellent and LittleMachineShop.com is proud to carry their products.

**1721 Boring Bar, 1/2" Indexable, HSS Triangle Inserts, A R Warner Kit #14** **\$102.00**


## Cutting Tools: Boring Bars

	<b>5605 Boring Bar, 3/8" Indexable, S06H-SCLCR-2, Tormach</b>	<b>\$39.95</b>
	<ul style="list-style-type: none"> <li>● Designation: S06H-SCLCR-2</li> <li>● Steel shank 3/8" x 4"</li> <li>● Designed for CCMT and CCGT inserts</li> <li>● Approach 95°, 7° relief angle</li> <li>● Insert Shape: 80° Rhombus (C)</li> </ul> <p>Right hand Boring Bar. Includes wrenches and (1) insert.</p>	
	<b>5608 Boring Bar, 1/2" Indexable, S08M-SCLCL-2, Tormach</b>	<b>\$45.95</b>
	<b>5607 Boring Bar, 1/2" Indexable, S08M-SCLCR-2, Tormach</b>	<b>\$45.95</b>
	<b>5606 Boring Bar, 3/8" Indexable, S06H-SCLCL-2, Tormach</b>	<b>\$34.95</b>

	<b>5435 Boring Bars, Indexable, 80 Deg Diamond Inserts, 3 Piece</b>	<b>\$89.95</b>
	<ul style="list-style-type: none"> <li>● 3 piece set, 5/16", 3/8" and 1/2" diameter</li> <li>● Uses CCMT 80 degree diamond inserts</li> <li>● 7 degree relief angle, negative 5 degree lead angle for boring</li> <li>● 3 degree side and end cutting edge angle</li> <li>● Torx wrench and CCMT inserts included</li> </ul> <p>Boring bars for semi-finishing and finishing operations. The 5/16" diameter bar is 4" long. The 3/8" diameter bar is 6" long. The 1/2" diameter bar is 7.75" long.</p>	


	<b>3662 Boring Head Set, R8</b>	<b>\$109.95</b>
	<ul style="list-style-type: none"> <li>● Includes boring head, R8 shank, and 9-piece boring bar set</li> <li>● 2" diameter boring head holds 1/2" shank boring bars</li> <li>● The boring head offsets up to 5/8", dial is graduated in 0.001"</li> <li>● Minimum bore diameter is 5/16"</li> <li>● Maximum bore depth is 3"</li> </ul> <p>The carbide tipped 9-piece boring bar set includes three different length boring bars each for minimum bores of 5/16", 7/16", and 9/16". The bore depth ranges from 3/4" to 3". The heat treated, alloy steel shanks are held to 0.000 to -0.0005" from the nominal diameter.</p>	

	<b>3830 Boring Head Set, 3MT</b>	<b>\$109.95</b>
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	<b>5403 Boring Head Set, R8 Professional Grade</b>	<b>\$207.95</b>
	<ul style="list-style-type: none"> <li>● Offset: 5/8", Crosshole: 1/2"</li> <li>● Shank thread: 7/16"-20 UNC</li> <li>● Min/Max boring diameter: 0.394" / 5.906"</li> <li>● Max boring depth: 1.970"</li> </ul> <p>Rugged design allows excellent rigidity for chatter-free boring. Head features a threaded back for multiple shanks exchangeable. Set complet with boring head, boring shank, carbide tipped boring bars &amp; L-shape Hex Wrenches. Dial on head with 0.001" graduation for accurate hole sizing. Fitted durable carrying case included.</p>	


	<b>5404 Boring Head Set, 2MT Professional Grade</b>	<b>\$204.95</b>
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## Cutting Tools: Broaches


	<b>5400 Keyway Broach Set, 9 Piece</b>	<b>\$145.95</b>
	<ul style="list-style-type: none"> <li>● 3 Broaches: 1/16" - A, 3/32" - A &amp; 1/8" - A</li> <li>● 5 Collared Bushings; 1 Shim</li> <li>● Heavy duty HSS</li> <li>● 15 Keyway combinations</li> <li>● Provides great versatility</li> </ul> <p>The easiest way to cut a keyway is with a broach. This keyway broach set kit includes 9 pieces for 15 combinations. The broach cutting tools are made of heavy duty high speed steel. Broach style: A Keyway Size: 1/16" - Collared bushing 1/4", 5/16" Keyway Size: 3/32" - Collared bushing 3/8", 7/16" Keyway Size: 1/8" - Collared bushing 1/2" The broaches are just over 5" (130 mm) long.</p>	


## Cutting Tools: Counterbores

	<b>5193 Counterbore Set, 3 Flute HSS, Set of 7</b>	<b>\$69.95</b>
	<ul style="list-style-type: none"> <li>● Sizes #6, #8, #10, 1/4", 5/16", 3/8", and 1/2"</li> <li>● Continuous pilot counterbores</li> <li>● Pilot extends the full length of the flute</li> <li>● Made of High Speed Steel</li> </ul> <p>Continuous pilot counterbores cut rapidly, smoothly, and accurately, producing long spiraling chips rather than small metal particles. The pilot extends the full length of the flute portion of the tool. As cutter flutes are ground back due to wear, a new section of pilot becomes exposed. The pilot head may be cut off to any desired length when repeated sharpening makes it too long for practical use. Continuous pilot counterbores have a life many times that of the conventional type counterbore.</p>	

	<b>5389 Counterbore Set, Interchangeable Pilot, HSS, 21 Piece</b>	<b>\$96.95</b>
	<ul style="list-style-type: none"> <li>● 6 counterbores</li> <li>● 14 pilots</li> <li>● Straight shanks</li> <li>● 1 holder: 3/8" shank</li> <li>● High speed steel</li> </ul> <p>21 Piece interchangeable pilot counterbore set used in spot facing and counterboring operations. Kit includes: 1 holder with 3/8" shank 6 counterbores, sizes: 5/16, 3/8, 7/16, 1/2, 9/16, 5/8" 14 Pilots: 5/32" Shank: 0.187, 0.204, 0.213, 0.229, 1/4, 17/64, 9/32, 5/16, 21/64, 11/32, 3/8, 25/64, 13/32 &amp; 7/16"</p>	

## Cutting Tools: Countersinks

	<b>4540 Countersink Set, Single Flute 82 Degree, Set of 4</b>	<b>\$29.95</b>
	<ul style="list-style-type: none"> <li>● Single flute countersinks</li> <li>● High speed steel</li> <li>● For steel, brass, and aluminum</li> <li>● 82 degree point angle</li> <li>● 1/4", 3/8", 1/2", and 3/4" diameter countersinks</li> </ul> <p>Use 82 degree countersinks for deburring and for flat head screws.</p>	
	<b>4539 Countersink Set, Single Flute 82 Degree, Set of 3</b>	<b>\$16.95</b>
	<b>4535 Countersink, 82 Degree, 1/4" Single Flute</b>	<b>\$3.95</b>
	<b>4536 Countersink, 82 Degree, 3/8" Single Flute</b>	<b>\$6.95</b>
	<b>4537 Countersink, 82 Degree, 1/2" Single Flute</b>	<b>\$7.95</b>
	<b>4538 Countersink, 82 Degree, 3/4" Single Flute</b>	<b>\$13.95</b>

	<b>4542 Countersink Set, Zero-Flute 82 Degree, Set of 5</b>	<b>\$46.95</b>
	<ul style="list-style-type: none"> <li>● High speed steel pilotless countersinks and deburring tools</li> <li>● Cam relieved for chatter free cutting</li> <li>● For mild steel, brass, aluminum, and plastics</li> <li>● 82 degree point angle</li> <li>● Includes sizes 0 through 4</li> </ul> <p>Use 82 degree countersinks for deburring and for flat head screws. These countersinks can be resharpened with a small mounted grinding wheel in the hole. Sizes 0, 1, and 2 have a 1/4" diameter shank. Sizes 3 and 4 have a 1/2" diameter shank.</p>	

**Cutting Tools: Cut-Off Tools**

**Cutting Tools: Cut-Off Tools**

**5108 Cut-Off Blade, 1/32", M2 HSS \$16.00**

- M2 High Speed Steel
- Width: .032", Height: .218", Length: 3.0"
- Used on 5106, 5107, and 5130 grooving & cut-off tools

0.032" x 0.218" x 3" M2 HSS cut-off blade.

This is a premium American-made M2 high speed steel cut-off blade from the Arthur R. Warner Co.

This is a replacement blade for 5106, 5107, and 5130 grooving & cut-off tools.

The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel. Their quality is excellent and LittleMachineShop.com is proud to carry their products.

**5109 Cut-Off Blade, 1/16", M2 HSS \$16.00**

**3415 Cut-Off Blade, P1 Carbide Tipped \$65.95**

- This blade is size P1
  - Two micro grain carbide tips brazed on
  - High speed steel
  - Width: 1/16", Height: 1/2", Length: 4-1/2"
- 1/16" x 1/2" x 4-1/2" M2 HSS cut-off blade. These T-shape parting blades provide great side clearance.

**4993 Cut-Off Blade, P2 Indexable \$52.95**

- This blade is size P2
  - Fits OXA and AXA cut-off holders
  - Uses GTN-2, GTL-2 or GTR-2 inserts
  - Includes one GTN-2 insert
- 0.072" x 1/2" x 4-11/32" M2 HSS cut-off blade. GTx-2 inserts have a 2mm (0.078") cutting width.

**Cut-Off Blades, High Speed Steel**

- 1/2" x 4-1/2" M2 HSS cut-off blades
  - These T-shape parting blades provide great side clearance
  - P1N blades are 0.040" wide
  - P1 Blades are 1/16" (0.063") wide
  - P1X blades are 5/64" (0.078") wide
- We carry both imported M2 blades and premium American-made M2 high speed steel cut-off blades from the Arthur R. Warner Co.

**1929 Cut-Off Blade, P1 \$7.95**

**1728 Cut-Off Blade, P1, M2 HSS \$21.95**

**1930 Cut-Off Blade, P1N \$7.95**

**1729 Cut-Off Blade, P1N, M2 HSS \$21.95**

**1552 Cut-Off Blade, P1X \$8.95**

**5431 Cut-Off Tool Holder, SGTHR9.5-2 \$29.95**

- Holder style 9.5-2
  - Uses GTN-2, GTL-2 or GTR-2 inserts
  - 3/8" x 3/8" shank size
  - 0.087" and 0.094" insert width
  - 1.10" maximum work diameter
- SGTHR9.5-2 cut-off tool holder style 9.5-2 has a 3/8" x 3/8" shank and holds inserts that are 0.087" and 0.094" in width. Self-gripping T-Cut style offers rigidity, stability and high reliability for superior straightness of cut. Maximum work diameter 1.10"

**3572 Grooving & Cut-Off Tool, 3/8" Indexable HSS Inserts, A R Warner Kit #21 \$115.50**



- For external grooving and cut-off operations
- Includes two 1/16" (.062") groover T-15 high speed steel inserts
- Includes two 1/32" (.031") groover T-15 high speed steel inserts
- Includes one 1/64" (.016") groover T-15 high speed steel insert
- This lathe grooving tool includes two IS 3007 screws and one T-9 wrench

This Arthur R. Warner Co. indexable cut-off and grooving tool has a 0.375" shank and is 4.5" long. The maximum cutting depth of the groover inserts is approximately 0.25". The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel. Their quality is excellent and LittleMachineShop.com is proud to carry their products.

**4819 Grooving & Cut-Off Tool, 1/2" Indexable HSS Inserts, A R Warner Kit #24 \$163.50**

**3579 Screw, Insert Retaining, IS 3007 \$1.95**

**5107 Grooving & Cut-Off Tool, 3/8" Shank, HSS Blade, A R Warner Kit #28 \$85.00**



- For external grooving and cutoff operations
  - Includes one 3/8" shank holder 3" overall length
  - Includes one 0.062" cut-off blade T-15 high speed steel
  - Includes one 7/64" Allen wrench
- The blade is 0.218" tall and 3" long.

Made in the US by the Arthur R. Warner Co.

The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel. Their quality is excellent and LittleMachineShop.com is proud to carry their products.

**5130 Grooving & Cut-Off Tool, 1/2" Shank, HSS Blade, A R Warner Kit #29 \$97.00**

**5106 Grooving & Cut-Off Tool, 5/16" Shank, HSS Blade, A R Warner Kit #27 \$82.00**

**Cutting Tools: Drill Sets**

**3418 Drill Set, 115 Piece Jobber Length Cobalt Steel \$499.95**



- Made in USA
  - Bronze color finish
  - 135° split point
- 115 Piece cobalt steel drill set. Set includes 1/16" - 1/2" by 64ths, A - Z, and No. 1 - 60. Cobalt drills display higher red hardness and are especially effective in drilling hard or abrasive materials. These are jobbers length drills with straight shanks. Jobbers length drills are normal length drills. Includes a metal index for storing the drills.

**2826 Drill Set, 115 Piece Jobber Length HSS \$186.95**



- 118° Point
  - Surface Treated Black Finish
  - Jobber Length
  - Straight Shank
  - High Speed Steel
- 115 Piece high speed steel drill set. Set includes 1/16" - 1/2" by 64ths, A - Z, and No. 1 - 60. These are jobber length drills with straight shanks. Jobber length drills are normal length drills. Includes a metal index for storing the drills.

**3043 Drill Set, #1-60 Jobber Length HSS \$39.95**

**3977 Drill Set, #61-80 Jobber Length HSS \$17.95**

**2828 Drill Set, 29 Piece Jobber Length HSS \$44.95**

**3044 Drill Set, A-Z Jobber Length HSS \$69.95**

**Cutting Tools: Drill Sets**



**2827 Drill Set, 115 Piece Screw Machine Length HSS \$314.95**

- Made in USA
- Surface treated black finish
- Heavy duty 135° split point
- Machine length
- High speed steel

115 Piece high speed steel machine screw set. Screw Machine Drill Bit Set includes 1/16" - 1/2" by 64ths, A - Z, and No. 1 - 60. These are screw machine length drills with straight shanks. Screw machine length drills are 5/8 as long as normal jobber-length drills. These shorter drill bits are useful on mini lathes and mini mills where there isn't much distance for tools. Includes a Huot metal index for storing the drills.

**4150 Drill Set, #1-60 Screw Machine Length HSS \$93.95**

**2829 Drill Set, 29 Piece Jobber Length HSS \$91.95**

**2830 Drill Set, 29 Piece Screw Machine Length HSS \$101.95**



**1109 Drill Set, 19 Piece Metric 1-10 mm Cobalt Steel \$37.46**

- 19 Piece cobalt metric drills
- Sizes 1 mm to 10 mm
- Ground from solid blanks
- 135° Split point
- Set packaged in steel case

19 Piece metric drill set in sizes from 1mm to 10mm. Set includes one each of: 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, & 10 mm. Drills are cobalt and are useful for drilling tough high tensile strength materials including stainless and titanium. 135° split point provides self-centering properties and secure positioning on work surface and increases abrasion resistance.



**2831 Drill Set, 19 Piece Metric Jobber Length HSS \$74.95**

- Made in USA
- Bright finish
- 118° point
- Jobber length
- High speed steel

19 Piece metric high speed steel drill set. Set includes 1.0 mm - 10.0 mm by 0.5 mm. These are jobbers length drills with straight shanks. Jobbers length drills are normal length drills. Includes a Huot metal index for storing the drills.



**4130 Tap & Drill Combo Set, 18 Pieces HSS \$56.95**

- High speed steel taps and drill bits
- Drill bits are matched with taps for quick use
- Includes 6-32, 8-32, 10-24, 10-32, 1/4"-20, 5/16"-18, 3/8"-16, 7/16"-14, and 1/2"-13 HSS taps
- Includes #36, #29, #25, #21, #7, F, 5/16", U, and 27/64" HSS drill bits

This set makes tapping common thread sizes a breeze. No need to get out your reading glasses to check those pesky drill charts any more. With this kit you'll be able to grab the correct drill bit and tap and go to work immediately.

**5837 Tap & Drill Combo Set, 18 Pieces HSS, Metric \$64.95**

**Cutting Tools: Drills**



**4859 Center Drills, Cobalt, Set of 5 (Numbers 1-5) \$19.95**

- Combined drill and countersink
- Sizes 1, 2, 3, 4 & 5
- M42 (8% cobalt) high speed steel
- 60° included angle
- Right hand cutting direction

This set includes five different sizes of combined drills and countersinks, commonly called center drills. They are used to produce a center hole on a workpiece for turning between centers. Center drills are also used to start drilled holes. Because they are very stiff they don't have a tendency to wander. The set is high speed steel and includes sizes 1, 2, 3, 4, and 5. These are 60 degree center drills with a right hand cutting direction. Each center drill is made of ground high speed M42 cobalt steel for good wear resistance.

**4864 Center Drill, Number 1, Cobalt \$2.95**

**4865 Center Drill, Number 2, Cobalt \$3.95**

**4866 Center Drill, Number 3, Cobalt \$3.95**

**4867 Center Drill, Number 4, Cobalt \$4.95**

**4868 Center Drill, Number 5, Cobalt \$7.95**



**1230 Center Drills, HSS, Set of 5 (Numbers 1-5) \$8.95**

- Combined drill and countersink
- Sizes 1, 2, 3, 4 & 5
- High speed steel
- 60° included angle
- Right hand cutting direction

This set includes five different sizes of combined drills and countersinks, commonly called center drills. They are used to produce a center hole on a workpiece for turning between centers. Center drills are also used to start drilled holes. Because they are very stiff they don't have a tendency to wander. The set is high speed steel and includes sizes 1, 2, 3, 4, and 5. These are 60 degree center drills with a right hand cutting direction. Each center drill countersink is made of ground high speed steel for good wear resistance with a hardness rating of Rc 58 - 60.

**2990 Center Drills, HSS, Set of 4 (Numbers 1-4) \$5.95**

**2985 Center Drill, Number 1, HSS \$1.05**

**2986 Center Drill, Number 2, HSS \$1.25**

**2987 Center Drill, Number 3, HSS \$1.25**

**2988 Center Drill, Number 4, HSS \$1.95**

**2989 Center Drill, Number 5, HSS \$2.95**



**Drills, Reduced Shank (S&D), HSS, Individual Sizes**

- Reduced shank (Silver & Deming) drills
- High Speed Steel, black oxide finish
- 6" overall length
- 1/2" straight shank
- 118 degree drill point

Reduced shank drills, also called Silver & Deming drills, have a reduced straight shank that is smaller than the diameter of the cutting bit. The smaller shank allows for the use of a 1/2" drill chuck while cutting larger holes. These drills are 6" in length and have a 1/2" shank and are made of high speed steel (HSS). The cutting tip is 118 degrees and the drill has a black oxide coating.

**3201 Drill, 17/32", Reduced Shank (S&D), HSS \$8.95**

**3202 Drill, 9/16", Reduced Shank (S&D), HSS \$7.49**

**3203 Drill, 5/8", Reduced Shank (S&D), HSS \$6.95**

**3204 Drill, 11/16", Reduced Shank (S&D), HSS \$8.95**

**3205 Drill, 3/4", Reduced Shank (S&D), HSS \$9.95**

**3206 Drill, 13/16", Reduced Shank (S&D), HSS \$11.95**

**3207 Drill, 7/8", Reduced Shank (S&D), HSS \$15.95**

**3208 Drill, 15/16", Reduced Shank (S&D), HSS \$18.95**

**3209 Drill, 1", Reduced Shank (S&D), HSS \$19.95**

**Cutting Tools: End Mills**

**Cutting Tools: End Mills**

**Corner Rounding End Mills, HSS, Individual Sizes**



- Formed Radius Cutters with right hand cut
- Resharpen without changing form
- Straight flutes
- Weldon Shank

Intended for use in rounding off sharp corners. Form-relieved type corner rounding end mills may be sharpened many times without changing the form of the radius. Non-center, right hand cutting with straight flutes and a weldon shank.

5137 Corner Rounding End Mill, 1/16", HSS	\$11.95
5138 Corner Rounding End Mill, 1/8", HSS	\$12.95
5139 Corner Rounding End Mill, 1/4", HSS	\$20.95

**Drill-Mills, 90 Degree, 2-Flute, Cobalt, Individual Sizes**



- 90 Degree angle
- Cobalt steel
- For spotting, chamfering, grooving
- For aluminum

Drill-mills work best on aluminum. They can be used for spotting holes instead of using a center drill; and are great for chamfering edges. Use a drill-mill to make a 90 degree angle groove.

5359 Drill-Mill, 90 Degree, 1/4" 2 Flute, Cobalt	\$23.95
5360 Drill-Mill, 90 Degree, 3/8" 2 Flute, Cobalt	\$25.95
5361 Drill-Mill, 90 Degree, 1/2" 2 Flute, Cobalt	\$35.95

**1245 End Mill Set, 10 pieces 2 & 4 Flute, TiN coated HSS \$47.95**



- 10 piece TiN coated HSS end mill set
  - Includes both 2 flute and 4 flute end mills
  - Center cutting end mills
  - Includes 1/4", 3/8", 1/2", 5/8", and 3/4" end mills
- This 10 piece TiN coated HSS end mill set includes both 2 flute and 4 flute end mills. The 1/4" and 3/8" end mills have a 3/8" shank. The 1/2" end mills have a 1/2" shank. The 5/8" end mills have a 5/8" shank. The 3/4" end mills have a 3/4" shank. The set comes in a fitted case.

**1244 End Mill Set, 20 pieces 2 & 4 Flute, TiN coated HSS \$82.95**



- 20 piece TiN coated HSS end mill set
  - Includes both 2 flute and 4 flute end mills
  - Center cutting end mills
  - 3/16" to 3/4" by 16ths
- The LittleMachineShop 1244 20 piece TiN coated HSS end mill set includes both 2 & 4 flute end mills. The 3/16" through 7/16" end mills have a 3/8" shank. The 1/2" and 9/16" end mills have a 1/2" shank. The 5/8" and 11/16" end mills have a 5/8" shank. The 3/4" end mill has a 3/4" shank. The HSS end mill set comes in a fitted case.

**4888 End Mill Set, 6 Piece 2 Flute, Cobalt \$59.95**



- 6 piece M42 8% cobalt end mill set
  - 2 flute end mills
  - Center cutting end mills
  - Includes 1/8", 3/16", 1/4", 5/16", 3/8", 1/2" end mills
- The smaller end mills have 3/8" shanks, the 1/2" end mill has a 1/2" shank. The set comes in a wooden stand.

**4887 End Mill Set, 6 Piece 4 Flute, Cobalt \$59.95**

**1242 End Mill Set, 6 Piece 2 Flute, HSS \$22.95**



- 6 piece HSS end mill set
  - 2 flute end mills
  - Center cutting end mills
  - Includes 1/8", 3/16", 1/4", 5/16", 3/8", 1/2" end mills
  - All end mills have 3/8" shank.
- 6 Piece 2 flute high speed steel end mill set (3/8" shank, center cut, high speed steel and single ended.) The set comes with a wooden stand. Sizes: 1/8", 3/16", 1/4", 5/16", 3/8", and 1/2".

2902 End Mill Set, 6 Piece 2 Flute Ball, HSS	\$46.95
2903 End Mill Set, 6 Piece 4 Flute Ball, HSS	\$55.95
1243 End Mill Set, 6 Piece 4 Flute, HSS	\$23.95



**2548 End Mill Set, Miniature, 10 pieces 2 & 4 Flute, HSS \$65.95**

- 10 piece HSS miniature end mill set
  - Includes both 2 flute end mills and 4 flute end mills
  - Double ended, center cutting end mills
  - Includes 1/16", 3/32", 1/8", 5/32", and 3/16" end mills
  - All end mills have 3/16" shank
- The set comes in a wood stand.

**End Mills, 2 Flute Ball, M42 Cobalt, Individual Sizes**



- Single ball end, 2 flute
- M42 (8%) cobalt

5415 End Mill, 1/8" 2 Flute Ball End, M42 Cobalt	\$19.95
5416 End Mill, 3/16" 2 Flute Ball End, M42 Cobalt	\$19.95
5417 End Mill, 1/4" 2 Flute Ball End, M42 Cobalt	\$19.95
5418 End Mill, 3/8" 2 Flute Ball End, M42 Cobalt	\$19.95
5419 End Mill, 1/2" 2 Flute Ball End, M42 Cobalt	\$27.95

**End Mills, 2 Flute, HSS, Individual Sizes**



- HSS 2 flute end mills
  - Center cutting
  - Single End
  - Weldon Shank
- Single end 2 flute center cut end mill ground from solid high speed steel. Used for removing material from a workpiece and leaving a smooth finish.

5140 End Mill, 1/8" 2 Flute, HSS	\$4.95
5141 End Mill, 3/16" 2 Flute, HSS	\$4.50
5142 End Mill, 1/4" 2 Flute, HSS	\$4.50
5143 End Mill, 5/16" 2 Flute, HSS	\$4.50
5144 End Mill, 3/8" 2 Flute, HSS	\$4.50
5145 End Mill, 7/16" 2 Flute, HSS	\$6.95
5146 End Mill, 1/2" 2 Flute, HSS, 3/8" shank	\$8.95
5147 End Mill, 1/2" 2 Flute, HSS	\$6.95
5148 End Mill, 9/16" 2 Flute, HSS	\$9.95
5149 End Mill, 5/8" 2 Flute, HSS, 1/2" shank	\$10.95
5150 End Mill, 5/8" 2 Flute, HSS	\$10.95
5151 End Mill, 3/4" 2 Flute, HSS, 1/2" shank	\$16.95
5152 End Mill, 3/4" 2 Flute, HSS	\$14.95
5153 End Mill, 1" 2 Flute, HSS, 1/2" shank	\$20.95

**End Mills, 2 Flute, M42 Cobalt, Coated, Individual Sizes**



- M42 8% cobalt 2 flute end mills
  - Center cutting, regular length
  - 3/8" shank
  - Made in the USA
- These are high quality, American made, cobalt end mills for general milling operations including slots, grooves and other similar features.

They are ground from solid M42 8% cobalt steel. The cutting areas are TiCN coated.

These CNC qualified end mills feature a spiral flute design for a faster and smoother cutting action.

4889 End Mill, 1/8" 2 Flute, M42 Cobalt TiCN Coated	\$23.95
4890 End Mill, 3/16" 2 Flute, M42 Cobalt TiCN Coated	\$23.95
4891 End Mill, 1/4" 2 Flute, M42 Cobalt TiCN Coated	\$29.95
4892 End Mill, 5/16" 2 Flute, M42 Cobalt TiCN Coated	\$25.95
4893 End Mill, 3/8" 2 Flute, M42 Cobalt TiCN Coated	\$26.95
4894 End Mill, 7/16" 2 Flute, M42 Cobalt TiCN Coated	\$38.95
4895 End Mill, 1/2" 2 Flute, M42 Cobalt TiCN Coated	\$42.95

**Cutting Tools: End Mills**

**End Mills, 2 Flute, M42 Cobalt, Individual Sizes**



- Single ended, 2 flute
- Weldon shank
- M42 (8%) cobalt

Single end 2 flute center cut end mill ground from M42 (8%) cobalt. Used for removing material from a workpiece and leaving a smooth finish. The 2 flute design allows for greater swarf removal but at a lower speed. If higher speed is required or less material is to be removed, consider our 4 flute end mills.

5420 End Mill, 1/8" 2 Flute, M42 Cobalt	\$11.95
5421 End Mill, 3/16" 2 Flute, M42 Cobalt	\$11.95
5422 End Mill, 1/4" 2 Flute, M42 Cobalt	\$11.95
5423 End Mill, 5/16" 2 Flute, M42 Cobalt	\$12.95
5424 End Mill, 3/8" 2 Flute, M42 Cobalt	\$12.95
5425 End Mill, 7/16" 2 Flute, M42 Cobalt	\$14.95
5426 End Mill, 1/2" 2 Flute, M42 Cobalt	\$16.95

**End Mills, 4 Flute, HSS, Extra Long Reach, Individual Sizes**



- HSS 4 flute end mills
- Center cutting, single edge
- 3/8" weldon shank
- Extra long compared to standard 3/8" shank end mills
- Limited Inventory

For a limited time we are carrying extra long end mills. This inventory was picked up from our supplier who is not longer carrying them. Each end mill is classified as extra long because the overall length and cutting length is longer than a standard end mill of it's size. For example, our standard 4 flute 3/8" shank, 3/8" cutting diameter end mill (P/N 5158) has an overall length of 2 1/2" and a cutting length (flute length) of 3/4". That same end mill in this group comes in two lengths 3 1/4" with a flute length of 1 1/2" (P/N 6218) and 4 1/4" with a flute length of 2 1/2" (P/N 6219). Once these end mills are out of stock, we will not carry more. Supplies are limited. All end mills are made of high speed steel, have 4 flutes, are center cutting and have a 3/8" weldon shank. Milling diameter and lengths vary.

6212 End Mills, 4 Flute, HSS, Extra Long Reach, Individual Sizes	\$0.00
6213 End Mill, 1/4" 4 Flute, HSS, 3-1/16" Long Reach	\$10.95
6214 End Mill, 1/4" 4 Flute, HSS Coated, 3-1/16" Long Reach	\$11.95
6215 End Mill, 1/4" 4 Flute, HSS, 3-9/16" Long Reach	\$11.95
6216 End Mill, 5/16" 4 Flute, HSS, 3-1/8" Long Reach	\$11.95
6217 End Mill, 5/16" 4 Flute, HSS, 3-3/4" Long Reach	\$11.95
6218 End Mill, 3/8" 4 Flute, HSS, 3-1/4" Long Reach	\$12.95
6219 End Mill, 3/8" 4 Flute, HSS, 4-1/4" Long Reach	\$12.95

**End Mills, 4 Flute, HSS, Individual Sizes**



- HSS 4 flute end mills
- Center cutting
- Single End
- Weldon Shank

Single end 4 flute center cut end mill ground from solid high speed steel. Used for removing material from a workpiece and leaving a smooth finish.

5154 End Mill, 1/8" 4 Flute, HSS	\$5.95
5155 End Mill, 3/16" 4 Flute, HSS	\$5.95
5156 End Mill, 1/4" 4 Flute, HSS	\$5.95
5157 End Mill, 5/16" 4 Flute, HSS	\$5.95
5158 End Mill, 3/8" 4 Flute, HSS	\$6.95
5159 End Mill, 7/16" 4 Flute, HSS	\$6.95
5160 End Mill, 1/2" 4 Flute, HSS, 3/8" shank	\$9.95
5161 End Mill, 1/2" 4 Flute, HSS	\$10.95
5162 End Mill, 9/16" 4 Flute, HSS	\$13.95
5163 End Mill, 5/8" 4 Flute, HSS, 1/2" shank	\$11.95
5164 End Mill, 5/8" 4 Flute, HSS	\$13.95
5165 End Mill, 3/4" 4 Flute, HSS, 1/2" shank	\$17.95
5166 End Mill, 3/4" 4 Flute, HSS	\$19.95
5167 End Mill, 1" 4 Flute, HSS, 1/2" shank	\$34.95

**End Mills, 4 Flute, M42 Cobalt, Coated, Individual Sizes**



- M42 8% cobalt 4 flute end mills
- Center cutting
- 3/8" shank
- Made in the USA

These are high quality, American made, cobalt end mills for general milling operations including slots, grooves and other similar features.

They are ground from solid M42 8% cobalt steel. The cutting areas are either Titanium Nitride (TiN) or Titanium CarboNitride (TiCN) coated.

These CNC qualified end mills feature a spiral flute design for a faster and smoother cutting action.

4896 End Mill, 1/8" 4 Flute, M42 Cobalt TiCN Coated	\$26.95
4897 End Mill, 3/16" 4 Flute, M42 Cobalt TiCN Coated	\$29.95
4898 End Mill, 1/4" 4 Flute, M42 Cobalt TiN Coated	\$49.95
4899 End Mill, 5/16" 4 Flute, M42 Cobalt TiCN Coated	\$29.95
4900 End Mill, 3/8" 4 Flute, M42 Cobalt TiN Coated	\$29.95
4901 End Mill, 7/16" 4 Flute, M42 Cobalt TiN Coated	\$37.95
4902 End Mill, 1/2" 4 Flute, M42 Cobalt TiN Coated	\$46.95

**End Mills, 4 Flute, M42 Cobalt, Individual Sizes**



- Single ended, 4 flute
- Weldon shank
- M42 (8%) cobalt

Single end 4 flute center cut end mill ground from M42 (8%) cobalt. Used for removing material from a workpiece and leaving a smooth finish. The 4 flute design allows for a high feed rate as less material is removed per flute. If greater swarf removal is desired, consider one of our 2 flute end mills.

5557 End Mill, 1/8" 4 Flute, M42 Cobalt	\$12.95
5558 End Mill, 3/16" 4 Flute, M42 Cobalt	\$12.95
5559 End Mill, 1/4" 4 Flute, M42 Cobalt	\$12.95
5560 End Mill, 5/16" 4 Flute, M42 Cobalt	\$13.95
5561 End Mill, 3/8" 4 Flute, M42 Cobalt	\$15.95
5562 End Mill, 7/16" 4 Flute, M42 Cobalt	\$14.95
5563 End Mill, 1/2" 4 Flute, M42 Cobalt	\$20.95

**End Mills, Miniature, 2 Flute, Double Ended HSS, Individual Sizes**



- Double ended, 2 flute miniature end mills
- High Speed Steel
- 2-1/4" overall length
- 3/16" Shank diameter

Popular for small slotting, engraving, pocketing and similar applications.

The medium-high helix angle produces an ideal shearing cut for outstanding performance.

5405 End Mill, Miniature, 1/16" 2 Flute, Double Ended, HSS	\$6.95
5406 End Mill, Miniature, 3/32" 2 Flute, Double Ended, HSS	\$7.95
5407 End Mill, Miniature, 1/8" 2 Flute, Double Ended, HSS	\$6.95
5408 End Mill, Miniature, 5/32" 2 Flute, Double Ended, HSS	\$6.95
5409 End Mill, Miniature, 3/16" 2 Flute, Double Ended, HSS	\$7.95

**Cutting Tools: End Mills**



**End Mills, Miniature, 4 Flute, Double Ended HSS, Individual Sizes**

- Double ended, 4 Flute miniature end mills
- High Speed Steel
- 2-1/4" overall length
- 3/16" Shank diameter

Popular for small slotting, engraving, pocketing and simillar applications. The medium-high helix angle produces an ideal shearing cut for outstanding performance.

<b>5410 End Mill, Miniature, 1/16" 4 Flute, Double Ended, HSS</b>	<b>\$6.95</b>
<b>5411 End Mill, Miniature, 3/32" 4 Flute, Double Ended, HSS</b>	<b>\$6.95</b>
<b>5412 End Mill, Miniature, 1/8" 4 Flute, Double Ended, HSS</b>	<b>\$6.95</b>
<b>5413 End Mill, Miniature, 5/32" 4 Flute, Double Ended, HSS</b>	<b>\$6.95</b>
<b>5414 End Mill, Miniature, 3/16" 4 Flute, Double Ended, HSS</b>	<b>\$6.95</b>



**End Mills, Roughing, Cobalt, Individual Sizes**

- 3 and 4 flute roughing end mills
- M42 8% cobalt
- Center cutting, single end
- Weldon Shank

Roughing end mill ground from solid M42 8% cobalt; center cutting and uncoated.

<b>5168 End Mill, 1/4" 3 Flute Roughing, M42 Cobalt</b>	<b>\$13.95</b>
<b>5169 End Mill, 3/8" 4 Flute Roughing, M42 Cobalt</b>	<b>\$13.95</b>
<b>5170 End Mill, 1/2" 4 Flute Roughing, M42 Cobalt</b>	<b>\$19.95</b>
<b>5171 End Mill, 5/8" 4 Flute Roughing, M42 Cobalt</b>	<b>\$27.95</b>
<b>5172 End Mill, 3/4" 4 Flute Roughing, M42 Cobalt</b>	<b>\$37.95</b>

**Cutting Tools: Engraving Tools**



**3779 Engraving Tool, 90 Degree Angle \$23.95**

- Submicron grade carbide
  - 1/8" shank, 1 1/2" overall length
  - Recommended for use with plastics
  - Use for aluminum, steel, and stainless steel
  - Kyocera Micro Tools PN EGR1250-090
- These engraving cutters can be used on mild steel, alloyed steel, stainless steel, nickel alloys, titanium, cast iron, aluminum, copper, brass, and plastics. These cutters cause fewer burs on plastics.



**Engraving Tools, Half Round, Individual Sizes**

- Submicron grade carbide
  - 1/8" shank, 1 1/2" overall length
  - Use for aluminum, steel, and stainless steel
  - Kyocera Micro Tools
- These engraving cutters can be used on mild steel, alloyed steel, stainless steel, nickel alloys, titanium, cast iron, aluminum, copper, brass, and plastics. These cutters might cause a bur when used on plastics.

<b>3776 Engraving Tool, Half Round, 0.005" Line Width</b>	<b>\$24.95</b>
<b>3777 Engraving Tool, Half Round, 0.010" Line Width</b>	<b>\$24.95</b>
<b>3778 Engraving Tool, Half Round, 0.020" Line Width</b>	<b>\$24.95</b>

**Cutting Tools: Indexable End Mills**



**5929 Indexable End Mill Set, Square Shoulder \$89.95**

- 90° square shoulder milling
  - Cutting Diameters: 3/8", 1/2", and 5/8"
  - Overall length 3"
  - Two single flute and one two flute tools
  - Use standard APKT-1003 Inserts (not included)
- Square shoulder milling cutters allow for a true 90° cut, combining peripheral milling with face milling. It is ideal for slotting. This 3 Piece set of square shoulder end mill have 1/2" shanks and overall length of 3" each. The cutting diameters are 3/8", 1/2" and 5/8". The 3/8's and 1/2" end mills are single flute and require one APKT-1003 insert each. The 5/8" end mill has 2 flutes and requires two inserts. Flute length on each tool is 1 1/2". End mills use M2.5 x 6 mm insert screws and a T8 Wrench. APKT-1003 indexable inserts not included. APKT-1003 carbide coated inserts are an excellent alternative to HSS for heavy material removal.

<b>5429 Indexable End Mill, Square Shoulder, 1/2"</b>	<b>\$29.95</b>
<b>5428 Indexable End Mill, Square Shoulder, 3/8"</b>	<b>\$27.95</b>
<b>5430 Indexable End Mill, Square Shoulder, 5/8"</b>	<b>\$32.95</b>



**4804 Indexable End Mill, 2 Flute, 25 mm, Center Cut, Tormach \$155.00**

- 2 Flute Indexable End Mill
  - 25mm cutting diameter
  - M12 threaded mount
  - Precision machined and hardened steel body
  - Threaded Shank
- Used for general material removal and 3D profiling. Inserts sold separately. Includes insert retaining screws and wrench.

<b>4813 Arbor, End Mill, Tormach TTS to M12 Medium</b>	<b>\$39.95</b>
<b>4812 Arbor, End Mill, Tormach TTS to M12 Short</b>	<b>\$39.95</b>
<b>4818 Arbor, End Mill, Tormach TTS to M8 Long</b>	<b>\$39.95</b>
<b>4817 Arbor, End Mill, Tormach TTS to M8 Medium</b>	<b>\$39.95</b>
<b>4816 Arbor, End Mill, Tormach TTS to M8 Short</b>	<b>\$39.95</b>
<b>5038 Arbor, Slitting Saw, Tormach TTS</b>	<b>\$55.95</b>
<b>4806 Indexable End Mill, 2 Flute, 17 mm, Center Cut, Tormach</b>	<b>\$135.00</b>
<b>4814 Insert, QOGT0830R-G1 Carbide, 10 Pack, Tormach</b>	<b>\$143.55</b>
<b>4811 Insert, QOGT1342R-G1 Carbide, Pack of 10, Tormach</b>	<b>\$219.45</b>
<b>4815 Insert, QOMT0830R-M2 Carbide, 10 pack, Tormach</b>	<b>\$150.15</b>
<b>4808 Insert, QOMT1342R-M2 Carbide, Pack of 10, Tormach</b>	<b>\$127.05</b>



**1952 Indexable End Mill, R8, 1.25" \$47.39**

- R8 shank
  - 1.25" cutting diameter
  - 1.25" length of cut
  - One set of 2 TPG322 end mill carbide inserts included
- For use in heavy duty milling application. Higher metal removal rates. Great surfacing.

<b>1889 Indexable End Mill, 2MT, 16 mm</b>	<b>\$53.84</b>
<b>1146 Indexable End Mill, 3MT, 30 mm</b>	<b>\$70.26</b>
<b>5427 Indexable End Mill, R8, 2"</b>	<b>\$64.95</b>
<b>2697 Screw, Insert Retaining, Indexable End Mill</b>	<b>\$2.53</b>
<b>1798 Screws, Insert Retaining</b>	<b>\$6.76</b>

### Cutting Tools: Indexable End Mills



**4121 Indexable Face Mill, 4 Flute, 38 mm, Tormach** **\$186.50**

- 1.5" (38 mm)
  - 4 Flute Indexable
  - Face/Shell mill for profiling, facing and material removal
- Face mills are used for surfacing. The increased number of flutes and large cutter diameter allow fast, efficient metal removal in a wide variety of materials. Replaceable carbide inserts can be repositioned as needed to use new cutting edges for economic material removal. Requires a 1/2" shell mill arbor.

**4122 Insert, APTG1135PDFR-G2 Carbide, Tormach** **\$8.95**

**4123 Insert, APMT1135PDER-M Carbide, Tormach** **\$15.95**



**5040 Indexable Toroidal Cutter, 2-Flute, 16 mm, Tormach** **\$100.50**

- 2-flute indexable mill with precision machined insert pockets
  - 16 mm (0.63") cutting diameter
  - 23 mm (0.91") height
  - M8 screw stud, hardened tool steel body
  - Inserts sold separately. See 5039 and 4664
- 16 mm (0.63") 2 flute indexable round insert mill. This unit is ideal for facing and pocketing, where it can be used to make inside corner fillets. Includes insert screws and wrench.

\*\*NOTE\*\* Inserts Sold Separately.

**5039 Insert, Toroidal Cutter HF7, Tormach** **\$17.95**

### Cutting Tools: Indexable Inserts

#### Inserts, Application Chart

For information about which insert to use with each of our tools, see the insert application chart at [www.littlemachineshop.com/inserts](http://www.littlemachineshop.com/inserts).

#### Inserts, Carbide



Carbide inserts. These inserts fit our indexable tools.

**5441 Insert, 11ERA60 External Thread, TiN Coated** **\$11.95**

**5442 Insert, 11IRA60 Internal Thread, TiN Coated** **\$11.95**

**5582 Insert, APKT1003 Square Shoulder** **\$10.95**

**1781 Insert, CCMT-21.51 Carbide** **\$4.95**

**5643 Insert, CCMT-32.51 Carbide** **\$10.95**

**1795 Insert, CCMT-32.52 Carbide** **\$4.95**

**4994 Insert, GTN-2** **\$7.95**

**5051 Insert, GTR-2** **\$6.95**

**5930 Insert, MGMN-200-G** **\$4.95**

**2033 Insert, TCMT-1.81.51 Carbide** **\$4.95**

**3416 Insert, TCMT-21.50 Carbide** **\$4.95**

**1670 Insert, TCMT-21.51 Carbide** **\$4.95**

**3417 Insert, TCMT-21.52 Carbide** **\$4.95**

**5931 Insert, TDEX-21.5 Carbide** **\$4.50**

**1216 Insert, TPC-322 Carbide** **\$9.71**

**1910 Insert, TPG-221 Carbide** **\$3.93**

**2277 Insert, TPG-322 Carbide** **\$3.75**

**2381 Insert, TPGH-32.51 Carbide** **\$5.95**

**5644 Insert, TPGH-322 Carbide** **\$4.95**

**5651 Insert, TPMB-321 Carbide** **\$10.95**

**5649 Insert, TPMT-222 Carbide** **\$7.95**

**5648 Insert, VCMT-221 Carbide** **\$11.95**

**3471 Insert, VCMT-222 Carbide** **\$14.95**

### Inserts, High Speed Steel



High speed steel inserts.

These inserts are made from T-15 high speed steel by the A. R. Warner Co.

Combine the advantages of high speed steel cutting tools with the convenience of indexable tooling.

**3578 Insert, 1/16" Groover HSS** **\$12.95**

**3577 Insert, 1/32" Groover HSS** **\$12.95**

**3576 Insert, 1/64" Groover HSS** **\$12.95**

**4603 Insert, 60 Degree Threader** **\$14.95**

**3696 Insert, CCMW-21.51 HSS** **\$7.95**

**3574 Insert, CCMW-32.51 HSS** **\$8.95**

**3575 Insert, CCMW-32.52 HSS** **\$8.95**

**4975 Insert, CEMW-21.5.5 HSS** **\$8.95**

**1724 Insert, TCMW-21.51 HSS** **\$7.49**

**1725 Insert, TCMW-21.52 HSS** **\$7.49**

**3698 Insert, TCMW-321 HSS** **\$7.95**

**3468 Insert, Threading, TNMC-32-NV HSS** **\$14.95**

**3469 Insert, Threading, TPMC-32-NV HSS** **\$16.95**

**1623 Insert, TPMB-321 HSS** **\$8.50**

**1622 Insert, TPMB-322 HSS** **\$8.50**

**1722 Insert, TPMW-1.81.5.5 HSS** **\$8.95**

**1723 Insert, TPMW-1.81.51 HSS** **\$8.95**

**1624 Insert, TPMW-221 HSS** **\$7.95**

**1621 Insert, TPMW-222 HSS** **\$7.95**

**5110 Insert, VCMW-221 HSS** **\$10.95**

**3470 Insert, VCMW-222 HSS** **\$11.50**

### Cutting Tools: Reamers



**5948 Reamer Set, Adjustable, 4 Piece #8 - #5** **\$74.95**

- Reamers in this set are adjustable from 0.250" to 0.375"
- Black Oxide Finish
- Handle Multiple Hole Sizes with One Tool
- 4 Piece Set Sizes #8 - #5
- Wooden Storage Box Included

Adjustable blade lets you handle multiple hole sizes with a single tool. Multiple tools in each set let you handle more hole sizes, making these sets virtually indispensable. Reamers are hardened, precision-ground high speed steel with a black oxide finish. Wooden storage box is included.

**3066 Reamers, 14 Piece Over-Under Chucking, HSS** **\$157.95**



- Includes 0.0010" over and 0.0010" under for 1/8" to 1/2" by 16ths
  - Straight shank and straight flute high speed steel reamers
  - Imported
  - Includes plastic pouch
- This set of high speed steel chucking reamers includes 0.1240", 0.1260", 0.1865", 0.1885", 0.2490", 0.2510", 0.3115", 0.3135", 0.3740", 0.3760", 0.4365", 0.4385", 0.4990", 0.5010" reamers.

**3067 Reamers, 29 Piece Chucking, HSS** **\$259.95**



- Includes 1/16" - 1/2" by 64ths
  - Straight shank
  - straight flute
  - high speed steel
- 29 Piece 1/16-1/2" X 64ths High Speed Steel Chucking Reamer Set



## Cutting Tools: Reamers



### Reamers, Adjustable Blade, Individual Sizes

- High Speed Steel
- Handle Multiple Hole Sizes with One Tool
- 5 Blades

Adjustable blades give the operator the ability to handle multiple hole sizes with a single tool, making them a good choice for users with low volume reaming needs. Blades are adjusted by loosening one nut and tightening the other. Each reamer expands to the next size. Square end allows the user to turn the reamer by hand with an adjustable wrench or straight handle tap wrench. Straight flute reamers should be used in thru-hole applications only.

5941 Reamer, Adjustable 1/4" - 9/32" #8	\$16.95
5942 Reamer, Adjustable 9/32" - 5/16" #7	\$16.95
5943 Reamer, Adjustable 5/16" - 11/32" #6	\$16.95
5944 Reamer, Adjustable 11/32" - 3/8" #5	\$16.95
5945 Reamer, Adjustable 3/8" - 13/32" #4	\$22.50
5946 Reamer, Adjustable 13/32" - 7/16" #3	\$22.50
5947 Reamer, Adjustable 7/16" - 15/32" #2	\$22.50



### Reamers, Chucking, HSS Individual Sizes

- High Speed Steel
- Straight Flute
- 45 Degree Chamfer
- ANSI standard

High speed steel reamers suitable for production reaming of most materials. Straight flute with 45 degree chamfer for gradual starting load.

5950 Reamer, Chucking 1/16" HSS	\$8.95
5951 Reamer, Chucking 1/8" HSS	\$6.95
5952 Reamer, Chucking 9/64" HSS	\$7.95
5953 Reamer, Chucking 5/32" HSS	\$4.49
5954 Reamer, Chucking 3/16" HSS	\$4.95
5955 Reamer, Chucking 7/32" HSS	\$5.49
5956 Reamer, Chucking 15/64" HSS	\$7.49
5957 Reamer, Chucking 1/4" HSS	\$7.49
5958 Reamer, Chucking 5/16" HSS	\$8.95
5959 Reamer, Chucking 23/64" HSS	\$9.95
5960 Reamer, Chucking 3/8" HSS	\$11.95
5961 Reamer, Chucking 27/64" HSS	\$12.95
5962 Reamer, Chucking 7/16" HSS	\$13.95
5963 Reamer, Chucking 31/64" HSS	\$14.95
5964 Reamer, Chucking 1/2" HSS	\$16.95

## Cutting Tools: Saw Blades



### Band Saw Blades, 44-7/8", Porta-Band Bi-Metal, Individual Sizes, Starrett

- 44-7/8" (1140 mm) x 1/2" (13 mm) x 0.020" (0.5 mm)
- Triple tempered M-42 cobalt high speed steel teeth with a fatigue resistant alloy steel backer
- Patented "Twin Tooth" design of the Split-Chip advantage "bi-metal unique"
- Faster cutting and longer life than ordinary blades
- Starrett Univerz bandsaw blades available in a variety of tooth pitches

These 44-7/8" bandsaw blades utilize Starrett's exclusive bi-metal unique saw technology for faster cutting and longer blade life.

Besides fitting LittleMachineShop.com portable band saws, these Starrett bandsaw blades fit Black & Decker, DeWalt, Greenlee, Makita, Unitec, Porter-Cable, Ridgid, Rockwell, Skil, Milwaukee portable band saws.

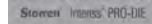
4932 Band Saw Blade, 44-7/8", Univerz Bi-Metal 10/S, Starrett	\$9.95
4933 Band Saw Blade, 44-7/8", Univerz Bi-Metal 14/S, Starrett	\$9.95
4934 Band Saw Blade, 44-7/8", Univerz Bi-Metal 18/W, Starrett	\$9.95
4935 Band Saw Blade, 44-7/8", Univerz Bi-Metal 24/W, Starrett	\$9.95
4937 Band Saw Blade, 44-7/8", Univerz Bi-Metal 14-18/W, Starrett	\$9.95
4936 Band Saw Blade, 44-7/8", Univerz Bi-Metal 10-14/S, Starrett	\$9.95



### Band Saw Blades, 64-1/2", Duratec SFB, Individual Sizes, Starrett

Starrett Duratec SFB band saw blade 64 1/2" x 1/2" x 0.025". Made from carbon steel with a flexible back, Duratec SFB is ideal for economical cutting on easy-to-machine ferrous or nonferrous metal and wood. It is for general purpose contour and straight cutting on a variety of machines.

4460 Band Saw Blade, 64-1/2", Duratec SFB 6/S, Starrett	\$13.95
4461 Band Saw Blade, 64-1/2", Duratec SFB 10/S, Starrett	\$13.95
4462 Band Saw Blade, 64-1/2", Duratec SFB 14/S, Starrett	\$13.95
4463 Band Saw Blade, 64-1/2", Duratec SFB 24/W, Starrett	\$13.95



### Band Saw Blades, 64-1/2", Intenss PRO-DIE, Individual Sizes, Starrett

Starrett Intenss PRO-DIE band saw blade 64-1/2" x 1/2" x 0.025".

Intenss PRO-DIE band saw blades have bi-metal unique saw technology, triple tempered M-42 cobalt HSS teeth combined with alloy steel backing strip for heat, abrasion and shock resistance, longevity and chip clearing. Ideal for tool, die and mold steels, stainless and nickel based and non-ferrous alloys.

1854 Band Saw Blade, 64-1/2", Intenss PRO-DIE 6/P-HP, Starrett	\$26.95
1855 Band Saw Blade, 64-1/2", Intenss PRO-DIE 8-12S, Starrett	\$28.95
1876 Band Saw Blade, 64-1/2", Intenss PRO-DIE 10-14S, Starrett	\$26.95

### Hacksaw Blades, 12", Bi-Metal, Individual Sizes, Starrett

- Starrett bi-metal unique HSS Safe-Flex hacksaw blades
- These blades are 12" long, 1/2" wide and are 0.025" thick.
- Bi-metal unique High Speed Steel Safe-Flex hacksaw blades are made with a patented solid-state diffusion process with 170% more HSS weld area and ground teeth for reduced blade fracture, faster cutting and longer life.

1850 Hacksaw Blade, Bi-Metal, 18 TPI, Starrett	\$2.01
1851 Hacksaw Blade, Bi-Metal, 24 TPI, Starrett	\$2.01
3561 Hacksaw Blade, Bi-Metal, 32 TPI, Starrett	\$2.01

## Cutting Tools: Slitting Saws



### Slitting Saw Blades, HSS, Individual Sizes

- 3" Saw Diameter
- 1" Hole Size
- 30 Teeth
- High Speed Steel

4725 Slitting Saw Blade, 1/32", HSS	\$9.95
4726 Slitting Saw Blade, 3/64", HSS	\$9.95
4727 Slitting Saw Blade, 1/16", HSS	\$9.95
4728 Slitting Saw Blade, 3/32", HSS	\$9.95
4729 Slitting Saw Blade, 1/8", HSS	\$14.95

## Cutting Tools: Taps and Dies

## Taps, Metric, Spiral Flute, TiN Coated, Individual Sizes



- Metric spiral flute plug style tap
- High speed steel (HSS) / TiN coated
- Sizes M2 - M10
- Ground threads
- Comply with DIN 371 standards

High speed steel (HSS) spiral flute plug style taps with a titanium (TiN) coating. These metric spiral flute taps have 35 degree spiral to assist in evacuating chips out of the tapped hole. Spiral flutes are recommended when bridging a gap inside the hole such as a keyway or cross-hole. These metric taps are available in sizes ranging from M2 to M10 and comply with standard tap dimensions as defined in DIN 371. The thread tap limits (pitch diameter limits) range from D3 to D6. D3 = plus 0.0015 D4 = plus 0.0020 D5 = plus 0.0025 D6 = plus 0.0030

6191 Tap, M2x0.4 Metric, Spiral Flute, TiN Coated	\$8.95
6192 Tap, M3x0.5 Metric, Spiral Flute, TiN Coated	\$5.95
6193 Tap, M4x0.7 Metric, Spiral Flute, TiN Coated	\$6.49
6194 Tap, M5x0.8 Metric, Spiral Flute, TiN Coated	\$6.95
6195 Tap, M6x1.0 Metric, Spiral Flute, TiN Coated	\$6.95
6196 Tap, M8x1.25 Metric, Spiral Flute, TiN Coated	\$8.49
6197 Tap, M10x1.5 Metric, Spiral Flute, TiN Coated	\$10.95

## Taps, Metric, Spiral Point, TiN Coated, Individual Sizes



- Metric spiral point plug style taps
- High speed steel (HSS) / TiN coated
- Sizes M2 - M10
- Ground threads
- Comply with DIN 371 standards

High speed steel (HSS) spiral point plug style taps with a titanium (TiN) coating. Spiral point style plug taps have the same general tap dimensions as straight flute taps however they have the first few threads cut at an angle which enhances the removal of chips from the cutting surface. This design makes spiral point taps ideal for production tapping of through holes. The flutes on a spiral point tap are more shallow than those of a conventional tap resulting in more surface area for cutting, making them stronger thereby allowing for higher cutting speeds and less power required for the tap to travel. These metric taps are available in sizes ranging from M2 to M10 and comply with standard tap dimensions as defined in DIN 371. The thread tap limits (pitch diameter limits) range from D3 to D6. D3 = plus 0.0015 D4 = plus 0.0020 D5 = plus 0.0025 D6 = plus 0.0030

6184 Tap, M2x0.4 Metric, Spiral Point, TiN Coated	\$7.95
6185 Tap, M3x0.5 Metric, Spiral Point, TiN Coated	\$5.95
6186 Tap, M4x0.7 Metric, Spiral Point, TiN Coated	\$5.95
6187 Tap, M5x0.8 Metric, Spiral Point, TiN Coated	\$6.49
6188 Tap, M6x1.0 Metric, Spiral Point, TiN Coated	\$6.49
6189 Tap, M8x1.25 Metric, Spiral Point, TiN Coated	\$7.49
6190 Tap, M10x1.50 Metric, Spiral Point, TiN Coated	\$9.95

## Taps, Spiral Flute, Individual Sizes



- Spiral fluted bottoming taps - two and three flute
- Ground from solid High Speed Steel (HSS) with ground threads
- Threading from 4-40 to 10-32 (two flute)
- Threading from 1/4"-20 to 1/2"-20 (three flute)
- Course and fine threads (see individual records)

These taps are spiral fluted and we carry two and three flute spiral fluted bottoming taps in sizes from 4-40 - 10-32 (two flute) and 1/4"-20 - 1/2"-20 (three flutes). Having 1-2 lead threads, and little to no taper, a bottoming tap is used to continue threading a blind hole. This allows the tap to cut threads to the bottom or nearly to the bottom of the hole. This design however makes bottoming taps ill designed for starting a hole and another type of tap should be used for that purpose. Use the bottoming tap to continue the partially threaded hole to the bottom. Individual taps have course or fine threading. See individual product records for details. \*Bottoming taps are not necessarily flat on the bottom, they sometimes have a 60 degree tapered point from the manufacturing process.

6199 Tap, 4-40, Spiral Flute	\$3.95
6200 Tap, 6-32, Spiral Flute	\$3.95
6201 Tap, 8-32, Spiral Flute	\$3.95
6202 Tap, 10-24, Spiral Flute	\$3.95
6203 Tap, 10-32, Spiral Flute	\$3.95
6204 Tap, 1/4"-20, Spiral Flute	\$4.49
6205 Tap, 1/4"-28, Spiral Flute	\$4.49
6206 Tap, 5/16"-18, Spiral Flute	\$6.95
6207 Tap, 5/16"-24, Spiral Flute	\$6.95
6208 Tap, 3/8"-16, Spiral Flute	\$6.95
6209 Tap, 3/8"-24, Spiral Flute	\$6.95
6210 Tap, 1/2"-13, Spiral Flute	\$12.95
6211 Tap, 1/2"-20, Spiral Flute	\$12.95

## Taps, Spiral Point, Individual Sizes



- HSS spiral point plug style taps
- Two and three flute styles
- Threading from 0-80 to 10-32 (two flute)
- Threading from 1/4"-20 to 1/2"-20 (three flute)
- Course and fine threads (see individual records)

High speed steel (HSS) spiral point plug style taps in two and three flute designs. Spiral point style plug taps have the same general tap dimensions as straight flute taps however they have the first few threads cut at an angle which enhances the removal of chips from the cutting surface. This design makes spiral point taps ideal for production tapping of through holes. The flutes on a spiral point tap are more shallow than those of a conventional tap resulting in more surface area for cutting, making them stronger thereby allowing for higher cutting speeds and less power required for the tap to travel. These two flute taps are available in sizes ranging from 0-80 to 10-32 thread. The three flute taps are available in sizes 1/4"-20 through 1/2"-20. Individual taps have course or fine threading. See individual product records for details.

6164 Tap, #0-80, Spiral Point	\$3.95
6165 Tap, #1-64, Spiral Point	\$3.95
6166 Tap, #1-72, Spiral Point	\$3.95
6167 Tap, #2-56, Spiral Point	\$3.95
6168 Tap, #3-48, Spiral Point	\$3.95
6169 Tap, #4-40, Spiral Point	\$3.95
6170 Tap, #5-40, Spiral Point	\$3.95
6171 Tap, #6-32, Spiral Point	\$3.95
6172 Tap, #8-32, Spiral Point	\$3.95
6173 Tap, #8-36, Spiral Point	\$3.95
6174 Tap, #10-24, Spiral Point	\$3.95
6175 Tap, #10-32, Spiral Point	\$3.95
6176 Tap, 1/4"-20, Spiral Point	\$3.95
6177 Tap, 1/4"-28, Spiral Point	\$3.95
6178 Tap, 5/16"-18, Spiral Point	\$5.95
6179 Tap, 5/16"-24, Spiral Point	\$5.95
6180 Tap, 3/8"-16, Spiral Point	\$6.95
6181 Tap, 3/8"-24, Spiral Point	\$6.95
6182 Tap, 1/2"-13, Spiral Point	\$9.95
6183 Tap, 1/2"-20, Spiral Point	\$9.95

**Cutting Tools: T-Slot and Dovetail Cutters**

**Cutting Tools: T-Slot and Dovetail Cutters**

1450 Chamfer Cutter, 45 Degree 1/2" Dia., HSS \$21.95



- High Speed Steel Cutter
- 1/2" Cutting Diameter
- 45° Chamfer Angle
- 3/8" Shank Diameter
- Use for Chamfering and Angle Milling

High speed steel, right hand cutting chamfer cutter. 45 degree chamfer angle with a 1/2" cutting diameter and 3/8" shank. Use for chamfering and angle milling.

1451 Chamfer Cutter, 45 Degree 3/4" Dia., HSS \$31.95

5921 Dovetail Cutter, Indexable 60 Degree 1/2" Dia., 1 Flute \$26.95



- 3/8" Shank 1 Flute Indexable Dovetail Cutter
  - Right Hand Cut
  - 60° Dovetail Angle 15° Clearance
  - 1/2" Cutting Diameter
  - Requires 1 TDEX 21.5 Insert (Not Included)
- 1/2" X 3/8" shank, single flute indexable 60 degree dovetail cutter. For milling roughing & finishing at high speeds & feeds. Use with TDEX 21.5 carbide inserts which are not included. Overall length is 2.36" and cutting depth is 0.32". Cutting diameter is 1/2" and the shank is 3/4". Comes with one M2.5x6.5 insert screw.

5922 Dovetail Cutter, Indexable 60 Degree 3/4" Dia., 2 Flute \$35.95

**Dovetail Cutters**



- High speed steel cutters
- 60° dovetail angle
- 3/8" shank diameter

2904 Dovetail Cutter, 60 Degree 3/8" Dia., HSS \$13.95

2905 Dovetail Cutter, 60 Degree 1/2" Dia., HSS \$14.95

2906 Dovetail Cutter, 60 Degree 3/4" Dia., HSS \$15.95

5090 Dovetail Cutter, 60 Degree 1-3/8" Dia., HSS \$34.95

**T-Slot Cutters, HSS, Individual Sizes**



- High speed steel T-slot cutters
  - Eight teeth
  - Positive radial rake, right and left hand spiral.
- These T-slot cutters have a positive radial rake, right and left hand spiral with alternate side cutting teeth for maximum chip clearance. The listed dimension is the width of the T-slot measured at the top of the T-slot.

5195 T-Slot Cutter, 3/8" T-slot, HSS \$21.95

5196 T-Slot Cutter, 7/16" (12 mm) T-slot, HSS \$26.95

5194 T-Slot Cutter, 8 mm T-slot, HSS \$18.95

**Cutting Tools: Turning Tools**

5612 Chamfer Tool, 3/8" Indexable, SCSCR-06-2J, Tormach \$43.95



- Designation: SCSCR-06-2J
  - Steel shank 3/8" x 3-1/2"
  - Designed for CCMT and CCGT 21.51 inserts
  - Approach 45°, 7° relief angle
  - Insert Shape: 80° (C)
- Right hand Chamfer Tool. Includes wrenches and (1) insert.

5618 Chamfer Tool, 1/2" Indexable, SCSCR-08-3A, Tormach \$43.95

5611 Facing Tool, 3/8" Indexable, SCKCR-06-2J, Tormach \$43.95



- Designation: SCKCR-06-2J
  - Steel shank 3/8" x 3-1/2"
  - Designed for CCMT and CCGT 21.51 inserts
  - Approach 75°, 7° relief angle
  - Insert Shape: 80° (C)
- Right hand Facing Tool. Includes wrenches and (1) insert.

5617 Facing Tool, 1/2" Indexable, SCKCR-08-3A, Tormach \$43.95

5926 Grooving Tool Holder, 3/8" Shank, External MGEHR06-2 \$31.95



- Right hand external grooving tool holder
  - Designation MEGHR06-2
  - Shank size 3/8"
  - Overall length is 3"
  - Uses MGMN-200 Inserts
- MEGHR06-2 external right hand grooving tool holder has a 3/8" x 3/8" shank. Tool holder design provides precision clamping & insert indexing accuracy. Ideal for external grooving, turning, part-off, relieving & profile machining. Maximum cutting depth is 1/2". Overall length is 3".

5613 Profiling Tool, 3/8" Indexable, SCMCN-06-2J, Tormach \$43.95



- Designation: SCMCN-06-2J
  - Steel shank 3/8" x 3-1/2"
  - Designed for CCMT and CCGT 21.51 inserts
  - Approach 50°, 7° relief angle
  - Insert Shape: 80° (C)
- Neutral hand Profile Tool. Includes wrenches and (1) insert.


5619 Profiling Tool, 1/2" Indexable, SCMCN-08-3A, Tormach \$43.95

2431 Profiling Tool, 3/8" Indexable, 35 Deg Diamond Inserts, A R Warner Kit #15 \$109.00



- 3/8" square, 6" long profiling tool
  - Includes 2 HSS (VCMW-221) inserts
  - Includes 1 carbide (VCMT-221) insert
  - 2 MS-1153 screws
  - 1 T-7 torx wrench
- This Arthur R. Warner Co. precision profiling tool uses high speed steel or carbide inserts. Combine the advantages of high speed steel cutting tools with the convenience of indexable tooling. This profiling tool is great for CNC applications, and can be used for most of your turning needs.
- Contents:  
 1 Right Hand bar 3/8 inch shank 6.0 inches overall length, side angle: 3 degree  
 2 Inserts T-15 High Speed Steel VCMW-221  
 Relief : 7 degree, IC: 0.250 inch, Thickness: 0.125 inch, Hole: 0.110 inch, Top opening: 0.146 inch, Radius: 0.015 inch  
 1 Insert Carbide VCMT-221  
 Relief : 7 degree, IC: 0.250 inch, Thickness: 0.125 inch, Hole: 0.110 inch Top opening: 0.146 inch, Radius: 0.015 inch  
 Screws: (2) MS-1153  
 Wrench: T-7

The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel. Their quality is excellent and LittleMachineShop.com is proud to carry their products.



**4820 Profiling Tools, 3/8" Indexable R / L, 35 Deg Diamond Inserts, A R Warner Kit #16** \$139.00


- 3/8" Square shank Right Hand profiling tool, 6" overall length
- 3/8" Square shank Left Hand profiling tool, 6" overall length
- Includes 3 HSS (VCMW-221) inserts
- Includes 1 carbide (VCMT-221) insert
- 1 extra MS-1153 Torx screw, 1 T-7 wrench

This Arthur R. Warner Co. precision profiling tool uses high speed steel or carbide inserts. Combine the advantages of high speed steel cutting tools with the convenience of indexable tooling.

This profiling tool is great for CNC applications, and can be used for most of your turning needs.

Contents:  
 1 Right Hand bar 3/8 inch shank, 6 inch overall length, Side angle: 3 degrees  
 1 Left Hand bar 3/8 inch shank, 6 inch overall length, Side angle: 3 degrees  
 3 Inserts T-15 High Speed Steel VCMW221, Relief : 7 degrees, IC: 0.250 inch, Thickness: 0.125 inch, Hole: 0.110 inch, Top opening: 0.146 inch, Radius: 0.015 inch  
 1 Insert Carbide VCMT221, Relief : 7 degree, IC: 0.250 inch, Thickness: 0.125 inch, Hole: 0.110 inch, Top opening: 0.146 inch, Radius: 0.015 inch  
 Screws: (3) MS-1153  
 Wrench: T-7

The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel. Their quality is excellent and LittleMachineShop.com is proud to carry their products.




**4516 Tool Bit Sharpening Training Set** \$41.95

- Six presharpended 1/4" high speed steel tool bits
- Five unsharpened 1/4" tool bits
- Sharpening instructions

Learn how to grind tool bits with this set. The presharpended tool bits show you how the finished product should look. The unsharpened tool bits give you plenty of practice.

The presharpended tool bits are ground in the same manner as hand-ground tool bits so they provide an example of how to properly grind tool bits.

All the tool bits are M2 high speed steel. M2 is a high speed steel in the tungsten-molybdenum series. The carbides in it are small and evenly distributed. It has high wear resistance. It is used to manufacture a variety of tools, such as drill bits, taps and reamers.




**3192 Tool Bit, 5/16" Right Hand, Brazed Carbide** \$1.95

- AR-5 Style turning tool
- C6 Carbide tipped single point brazed tip
- Overall length 2 1/4"
- Right hand tool; cuts from right to left
- Use for steel and steel alloys

These tool bit are C6 grade carbide. C6 carbide is designed for steel and steel alloys, but in hobby use works fine on aluminum and non-ferrous metals too.

**3193 Tool Bit, 5/16" Left Hand, Brazed Carbide** \$1.95




**2250 Tool Bits, 1/4" Presharpened, Set of 6** \$35.95

- Six pre-sharpened 1/4" high speed steel tool bits
- Includes Right hand, Left hand, 45 degree chamfer, Round nose, Boring bar, Cut off

These tool bits are made from high speed steel. These tool bits are ground in the same manner as hand-ground tool bits so they provide an example of how to properly grind tool bits.


**1964 Tool Bit, 1/4" Left Hand, Presharpened** \$6.75  
**1965 Tool Bit, 1/4" Right Hand, Presharpened** \$6.75  
**1966 Tool Bit, 1/4" 45 Degree Chamfer, Presharpened** \$6.75  
**1967 Tool Bit, 1/4" Round Nose, Presharpened** \$6.75  
**1968 Tool Bit, 1/4" Boring Bar, Presharpened** \$6.75  
**1969 Tool Bit, 1/4" Cut-Off, Presharpened** \$6.75



**2412 Tool Bits, 5/16" Brazed Carbide, Set of 5** \$28.32

- 5 piece cutting tool set
- 5/16" (8mm) shanks
- Carbide cutting tips
- Variety of tips for roughing, straight and facing cuts and parting-off
- Ideal for mini lathes

This set includes five different brazed carbide turning tools. The shanks are 5/16" (8mm) which is the right size for the mini lathe. This set includes one each of the following tool bits: DIN 4971R (ISO1) Straight cutter for rough turning DIN 4975 (ISO10) Pointed tip for straight turning DIN 4980R (ISO6) Right angle cutter - offset side cutter for facing DIN 4980L (ISO6) Left angle cutter - offset side cutter for facing DIN 4981R (ISO7) Parting-off cutter




**Tool Bits, M2 High Speed Steel, Individual Sizes**

- 2-1/2" long M2 HSS tool bits

M2 is a high speed steel in the tungsten-molybdenum series. The carbides in it are small and evenly distributed. It has high wear resistance. It is used for a variety of tools, such as drill bits, taps and reamers.

**1154 Tool Bit, 1/8" x 2-1/2", M2 HSS** \$1.49  
**1153 Tool Bit, 3/16" x 2-1/2", M2 HSS** \$1.95  
**1155 Tool Bit, 1/4" x 2-1/2", M2 HSS** \$1.95  
**1152 Tool Bit, 5/16" x 2-1/2", M2 HSS** \$1.95  
**1156 Tool Bit, 3/8" x 2-1/2", M2 HSS** \$2.95




**Tool Bits, T-15 High Speed Steel, Individual Sizes**

- 2-1/2" long T-15 HSS tool bits

T-15 is a tungsten type super high speed steel containing high vanadium for excellent abrasion resistance and cobalt for good red hardness. AISI T-15 is ideal for cutting difficult to machine materials where high frictional heat is present.

**1726 Tool Bit, 1/8" x 2-1/2" T-15 HSS, A R Warner** \$9.95  
**1716 Tool Bit, 3/16" x 2-1/2", T-15 HSS, A R Warner** \$9.95  
**1717 Tool Bit, 1/4" x 2-1/2", T-15 HSS, A R Warner** \$10.95  
**1715 Tool Bit, 5/16" x 2-1/2", T-15 HSS, A R Warner** \$15.95  
**1718 Tool Bit, 3/8" x 3", T-15 HSS, A R Warner** \$17.95



**3694 Turning & Boring Tools, 3/8" Indexable, HSS Inserts, A R Warner Kit #8** \$166.00

- Right and left hand turning tools with 0.375" shank 3.5" long
- Boring bar with 0.375" shank 5.0" overall length
- Includes three T-15 HSS (CCMW21.51) inserts for turning
- Includes two T-15 HSS (CENW21.51) inserts for boring
- Includes two MS-1152S screws, three MS-1153 screws and one T-7 wrench


This Arthur R. Warner Co. kit includes a 3/8" right-hand turning tool, a 3/8" left-hand turning tool, and a 3/8" boring bar. The right hand turning bar has a 0.375" shank, and is 3.50" in overall length.

The left hand turning bar has a 0.375" shank, and is 3.50" in overall length. The left hand turning bar has a second insert pocket in opposite end that provides a 50° side cutting edge angle. This provides a way to use the two insert points that are not used in the other tool holders.

The boring bar has a 0.375" shank, and is 5.0" in overall length. It has 0.188" flat along length for location, and requires a 0.365" minimum bore.

The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel. Their quality is excellent and LittleMachineShop.com is proud to carry their products.


**Cutting Tools: Turning Tools**



**5433 Turning & Boring Tools, 3/8" Indexable, Triangle Inserts** **\$79.95**

- 4 turning tools
- 1 boring tool
- Inserts and torx wrenches
- 3/8" shank
- Uses TCMT-21.51 inserts


Set comes in a fitted aluminum case



**5432 Turning & Boring Tools, 5/16" Indexable, Triangle Inserts** **\$79.95**

- 4 turning tools
- 1 boring tool
- Inserts and torx wrenches
- 5/16" shank
- Uses TCMT-1.81.51 Inserts


Set comes in a fitted aluminum case



**1435 Turning & Boring Tools, 8 mm Indexable, Diamond Inserts** **\$54.95**

- 7 piece indexable turning and boring set
- 8 mm tool shank
- CCMT21.51 inserts included
- Six turning tools, one boring bar
- Carrying case and T8 wrench included

Turning and boring set with seven pieces. Each tool has an 8 mm tool shank and uses a CCMT21.51 ANSI (CCMT060204 ISO) indexable insert. Additional inserts are available with our part number 1781. CCMT diamond inserts have four cutting edges. See contents tab for what is included in this set. Set comes in a carrying case and a T8 wrench.




**5434 Turning & Cut-Off Tools, 3/8" Indexable, 7 Piece Set** **\$149.95**

- 6 turning tools
- 1 cut-off blade
- Inserts and torx wrenches
- 3/8" shank
- Extra inserts and screws available

Seven 3/8" indexable tool set, six turning tools and 1 cut-off blade, torx wrenches and inserts. Set comes in a fitted aluminum case. Turning tools included are: SDNCN 6-2 holder using a DCMT insert (P/N 5640), and an M2.5 x 6 retaining screw (P/N 2696). SDJCR 6-2 holder using a DCMT insert (P/N 5640), and an M2.5 x 6 retaining screw (P/N 2696). SCLCL 6-2 holder using a CCMT insert (P/N 1781), and an M2.5 x 6 retaining screw (P/N 2696). SCLCR 6-2 holder using a CCMT insert (P/N 1781), and an M2.5 x 6 retaining screw (P/N 2696). SWGCR 6-5 holder using a WCMX050308R-53 Carbide insert (P/N 5641), and an M3 x 8 retaining screw (P/N 5645). SER 6-11 holder - using an 11ERA60 insert (P/N 5441), and an M2.5 x 6 retaining screw (P/N 2696). Cut-Off Blade: MGEHR06-02 - using a MGMM-200 insert (P/N 5642), and an M4 x 12 retaining screw (P/N 2687).

**5640 Insert, DCMT-21.51 Carbide** **\$5.95**  
**5642 Insert, MRMN-200-M** **\$5.95**  
**5641 Insert, WCMX050308R-53 Carbide** **\$9.95**




**3693 Turning 1/4" & Boring 3/8" Indexable Tools, HSS Inserts, A R Warner Kit #4** **\$163.50**

- Right and left hand turning tools with 0.250" shank 3.5" long
- Boring bar with 0.375" shank 5.0" overall length
- Includes three T-15 HSS (CCMW21.51) inserts for turning
- Includes two T-15 HSS (CENW21.51) inserts for boring
- Includes two MS-1152S screws, four MS-1153 screws and one T-7 wrench

This Arthur R. Warner Co. kit includes a 1/4" right-hand turning tool, a 1/4" left-hand turning tool, and a 3/8" boring bar. The right hand turning bar has a 0.250" shank, and is 3.50" in overall length. The left hand turning bar has a 0.250" shank, and is 3.50" in overall length. The left hand turning bar has a second insert pocket in opposite end that provides a 50° side cutting edge angle. This provides a way to use the two insert points that are not used in the other tool holders. The boring bar has a 0.375" shank, and is 5.0" in overall length. It has 0.188" flat along length for location, and requires a 0.365" minimum bore.

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**5609 Turning and Facing Tool, 3/8" Indexable, SCLCR-06-2J, Tormach** **\$43.95**

- Designation: SCLCR-06-2J
- Steel shank 3/8" x 3-1/2"
- Designed for CCMT and CCGT 21.51 inserts
- Approach 95°, 7° relief angle
- Insert Shape: 80° (C)


Right hand Turning/Facing Tool. Includes wrenches and (1) insert.

**5616 Turning and Facing Tool, 1/2" Indexable, SCLCL-08-3A, Tormach** **\$43.95**

**5615 Turning and Facing Tool, 1/2" Indexable, SCLCR-08-3A, Tormach** **\$44.95**

**5614 Turning and Facing Tool, 3/8" Indexable, SCBCR-06-2J, Tormach** **\$43.95**


**5610 Turning and Facing Tool, 3/8" Indexable, SCLCL-06-2J, Tormach** **\$43.95**



**5620 Turning Tool, 1/2" Indexable, SCBCR-08-3A, Tormach** **\$43.95**

- Designation: SCBCR-08-3A
- Steel shank 1/2" x 4"
- Designed for CCMT and CCGT 32.51 inserts
- Approach 75°, 7° relief angle
- Insert Shape: 80° (C)

Right hand Turning Tool. Includes wrenches and (1) insert.



**3569 Turning Tools, 1/2" Indexable, 80 Deg Diamond HSS Inserts, A R Warner Kit #11** **\$127.00**

- Right hand tool holder
- Left hand tool holder, double ended
- Includes five T-15 HSS (CCMW32.52) inserts
- Includes four MS-1155 screws and one T-15 wrench

Right hand bar has 0.5" shank and is 4" long.

Left hand bar has 0.5" shank and is 4" long. It includes a second insert pocket that provides a 50° side cutting edge.

Uses CCMW32.51 and CCMW32.52 inserts.

The second insert pocket on the left hand tool provides a way to use the second and fourth corners on the diamond insert.

Made by A R Warner.

The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel. Their quality is excellent and LittleMachineShop.com is proud to carry their products. Shop lathe turning tools online today.

**3580 Screw, Insert Retaining, MS-1155** **\$1.95**



**4132 Turning Tools, 3/8" Indexable, Carbide Triangle Inserts, A R Warner \$69.95**

- 3 piece turning tool set
- 3/8" square shank
- 3 TCMT21.52 inserts
- 1 TCMT21.51 insert
- Torx wrench and 4 screws

This Arthur R. Warner Co. precision tool holder kits use carbide or high speed steel inserts. These are production quality tool holders that are made in the USA. The kit contains the following: AR and AL tool holders with TCMT21.52 inserts E threading tool holder with TCMT21.51 insert 1 extra TCMT21.52 carbide insert 1 extra Torx screw 1 Torx wrench Note that TCMW21.51 and TCMW21.52 high speed steel inserts also fit these tool holders. The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel (and tool steel). Their quality is excellent and LittleMachineShop.com is proud to carry their products.



**1619 Turning Tools, 3/8" Indexable, HSS Triangle Inserts, A R Warner Kit #5, Set of 5 \$153.00**

- 5 piece turning tool set
  - 3/8" square shank 3.5" overall length
  - 6 screws (MS-1153) (5 installed on the bits, 1 extra)
  - T-7 wrench
  - 6 TPMW-222 HSS inserts (5 installed on the bits, 1 extra)
- This Arthur R. Warner Co. precision tool holder kits use high speed steel inserts. Combine the advantages of high speed steel cutting tools with the convenience of indexable tooling.

The kit contains the following:

5 Turning bars 3/8 inch shank 3.50 inches overall length

6 Inserts (Turning) T-15 High Speed Steel TPMW-222

Relief : 11 degree, IC: .250 inch, Thickness: .125 inch, Hole: .110 inch Top opening: .146 inch @ 60 degrees, Radius: .031 inch

Screws: (6) MS-1153

Wrench: T-7

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**1620 Turning Tools, 1/2" Indexable, HSS Triangle Inserts, A R Warner Kit #9 \$163.35**

**1719 Turning Tools, 1/4" Indexable, HSS Triangle Inserts, A R Warner Kit #1 \$147.00**



**1669 Turning Tools, 3/8" Indexable, Triangle Inserts \$34.95**

- 5 piece set of lathe turning tools
- 3/8" square shank
- Extra screws included
- Two wrenches
- TCMT21.51 carbide inserts

This set of indexable turning tools includes 5 indexable tools (AR, AL, BR, BL, E), inserts, a wrench, and extra screws. It comes in a wooden case.

Style AR right hand tool

Style BR right hand tool with a 15° lead angle

Style E Neutral threading tool with 60° included angle

Style BL left hand tool with a 15° lead angle

Style AL left hand tool

The carbide inserts are TCMT-21.51.



**5675 Digital Position Readout, 2-Axis Mini Lathe \$174.95**

- This DRO kit is specifically made for the 7x10, 7x12, and 7x14 mini lathe
- Mounts right on the cross slide and compound rest to give you accurate depth-of-cut readings
- Resolution: 0.0001", accuracy: 0.001"
- Buttons for on/off, zero, and inch/mm
- Fits SIEG C2/SC2 and HiTorque mini lathes

This digital position readout works with most 7x10, 7x12, or 7x14 lathes made by SIEG (C2 and SC2), which includes almost all the mini lathes sold in the US and most of the mini lathes sold worldwide. It also works with HiTorque mini lathes. This kit does not work on 20 TPI mini lathes as sold by Micro Mark. See the Compatibility tab for machines that work with this product.

**5567 Digital Position Readout, 2-Axis Mini Lathe 20 TPI \$199.95**



**5515 Digital Position Readout, 3-Axis Bluetooth Universal \$545.00**

- Fits milling machines with less than 32" total X-, Y-, and Z-axis travel
- Displays on any Android tablet with Bluetooth capability
- Resolution of 0.0002" (0.005 mm)
- 120-240 VAC Power supply
- Coolant and dust resistant

This magnetic technology digital readout package fits virtually any milling machine with less than 31.8" total X-, Y-, and Z-axis travel.

This kit includes 1 meter (39.4") of magnetic scale that you cut to the lengths required for your machine. The instructions tell you how to measure and cut the magnetic scale.

This package includes what you need to put a DRO on most any milling (or 3-in-one) machine. It includes a section of scale, three read heads, and a Bluetooth transceiver.

You must also get an Android tablet for the display on this DRO. We recommend a 7" screen size, and the tablet must have Bluetooth capability.

**5513 Android Tablet, Bluetooth DRO Readout \$84.95**

**5784 Bluetooth Sender \$142.30**

**5497 Digital Position Readout, 2-Axis Bluetooth for HiTorque Bench Lathe \$484.92**

**5495 Digital Position Readout, 2-Axis Bluetooth for Mini Lathe \$448.54**

**5493 Digital Position Readout, 3-Axis Bluetooth for HiTorque 3900 Mini Mill \$561.41**

**5494 Digital Position Readout, 3-Axis Bluetooth for HiTorque Bench Mill \$597.29**

**5514 Digital Position Readout, 3-Axis Bluetooth for HiTorque Mini Mill \$561.41**

**5492 Digital Position Readout, 3-Axis Bluetooth for Mini Mill \$560.16**

**5499 Read Head, Bluetooth DRO Magnetic \$136.33**

**5498 Scale, Bluetooth DRO Magnetic 1 Meter \$44.94**

**5820 Tap & Drill Kit, DRO Installation \$24.95**

**5501 Transceiver, Bluetooth DRO \$114.20**



**4239 Digital Position Readout, 3-Axis Magnetic Scale, DRO Pros Mill \$1,215.00**

- Magnetic scales can be cut to exact length you need
  - Easy to use. More buttons, most intuitive layout--just walk up and operate
  - 5 micron (0.0002") resolution
  - Clearly-written full-color manual and Lifetime warranty
- The DRO PROS EL400 three-axis mill package includes everything you need: the display head, 3 magnetic scales 12" x 30" x16" maximum travel, detailed installation instructions, a detailed full-color operator's manual, Lifetime warranty, mounting arm, mounting hardware, and universal mounting brackets. Additionally, the display has a USB port on the back, ensuring it won't become obsolete when a new software update is released.

Magnetic scales are impervious to liquid yet they are slimmer than glass scales. They're easier to mount and more durable than other scales. Simply cut the scales to the length you need and mount them. See the instructions on the Chris' Tips tab.

This digital readout kit includes the following features: half function, inch/metric conversion, absolute/incremental modes, axis home reference, machine reference, sub datums, bolt-hole circle (pcd), arc bolt hole, arc contouring, grid hole function, line hole function, calculator (trigonometric), encoder fail detection, memory backup.

Operates on 120V or 240V AC

**4241 Digital Position Readout, 2-Axis Magnetic Scale, DRO Pros Lathe \$965.00**

**4240 Digital Position Readout, 2-Axis Magnetic Scale, DRO Pros Mill \$855.00**



**5880 Digital Position Readout, Bench Lathe Tailstock \$97.00**

- This DRO kit is specifically made for the C4/SC4 bench lathe tailstocks
  - Mounts right to the back of the tailstock to give you accurate quill depth readings
  - Resolution: 0.0001", accuracy: 0.001"
  - Buttons for on/off, zero, and inch/mm
  - Handwheel: 80 mm OD, 8 mm bore, 2 mm key
- This digital position readout for the tailstock works with C4 lathes made by SIEG. Designed for the C4 and SC4 class of bench lathes including HiTorque bench lathes. Kit includes a digital readout, handwheel, bracket, feed screw thrust bearing and fasteners. Handle of handwheel is not provided in kit however the handwheel bolt and handle from your machine should fit. The new handwheel, like the original, has a 6mm thread. For new handle parts, see related products link. See the Compatibility tab for machines that work with this product.



**5879 Digital Position Readout, Mini Lathe Tailstock \$88.85**

- This DRO kit is specifically made for the 7x10, 7x12, 7x14 and 7x16 mini lathe tailstocks
  - Mounts right to the back of the tailstock to give you accurate quill depth readings
  - Resolution: 0.0001", accuracy: 0.001"
  - Buttons for on/off, zero, and inch/mm
- This digital position readout for the tailstock works with almost all 7x10, 7x12, or 7x14 lathes made by SIEG, which includes most of the mini lathes sold in the US and most of the mini lathes sold world-wide.

\*NOTE\* - We've found that the bore in the gray DRO retainer from these kits generally fits most tailstock retainers, but there is some variance in tailstock retainer size. The gray DRO retainer in this kit may require some additional boring (typically less than 1/8") in order to mount it on to your existing tailstock retainer.



**5012 DRO Scale, 12" (300 mm) with Display \$94.95**

- 12" travel stainless steel scale
  - Stackable display unit
  - Mounting arm
  - Displays in inches or mm
- Resolution: 0.01mm/0.0005"

Accuracy: 0.04mm/0.002"

These units are significantly more robust than other inexpensive scales that are available. There are no batteries in the scale units, and the scale units are permanently wired. No square rubber plugs to cause issues. The plug into the display unit is a micro USB plug (though not wired as USB), so it's pretty robust. And each display has a strain relief to prevent stress on the plug.

Each display unit contains two CR2032 lithium batteries for long life.

**5596 DRO Scale, 24" (600 mm) With Display \$119.95**

**5011 DRO Scale, 6" (150 mm) With Display \$64.95**

**1177 Power Supply for DRO Scales With Display \$14.95**

**Kits: Lathe Conversion Kits**



**5000 Bed Extension Kit 16" \$193.31**

- Precision ways are approximately 28-3/8" long
  - Rack is approximately 17-3/4" long
  - Lead screw is approximately 29-5/16" long
- This lathe bed extension kit turns your 7x10, 7x12, or 7x14 lathe into a 7x16 lathe. This lathe conversion kit includes a bed casting, a lead screw, a rack, a motor mount, a chip pan, 2 chip pan braces, several fasteners, and complete instructions. The 7x16 bed is actually 8" longer than the 7x10 bed. It is 4" longer than the 7x12 bed. This is NOT a bolt-together kit. You must drill and tap 9 holes in the new bed casting to match your lathe. You need three metric taps: M3x0.5, M6x1, and M8x1.25. If you don't have metric drills, you can use letter and number drills for tap drills. (The sizes are given in the instructions.)

**1928 Bed Extension Kit 14" \$182.93**

**4270 Bed Extension Kit 16", HiTorque Mini Lathes \$150.42**

**1617 Tap & Tap Drill Kit \$26.95**



**3042 Control Box Assembly, Mini Lathe \$182.71**

- For 7x10 and 7x12 Mini Lathe
- Incorporates XMT-1125 controller
- 120V 60Hz input

This mini lathe control box kit includes the plastic control box, the motor controller, the emergency stop switch, the F/O/R switch, the potentiometer, the fuse holder and fuse. This is a fully-assembled control box. Simply hook up the power and motor leads and go.

Use this box to replace FC250/110V, and FC250BJ/110V, FC250J/110V boards. For 120V 7x10 and 7x12 C2 mini lathes

**3200 Control Box Kit, Mini Lathe 230V \$158.34**



**4450 Extended Cross Slide Travel Kit \$88.08**

This kit adds one inch to the travel of the lathe cross slide on 7x10 and 7x12 mini lathes. These are SIEG C2 and C3 lathes. The increased travel is away from the centerline of the lathe so you can work on larger diameter work pieces. This lathe conversion travel kit replaces the saddle and the cross slide feed screw, and it includes a spacer for the longer screw.


**5366 Extended Cross Slide Travel Kit 20 TPI \$88.08**

**5847 Extended Cross Slide Travel Kit DRO (Black Scales) \$88.08**

**5367 Extended Cross Slide Travel Kit DRO (Gray Scales) \$88.08**


**Kits: Lathe Conversion Kits**

**2383 Feed Screw Parts, 20 TPI, Mini Lathe \$61.33**



These parts change Grizzly, Harbor Freight, Homier, and Cummins mini lathes to 20 thread per inch feed screws on the cross slide and compound rest. Each rotation of the hand wheel will advance 0.050".


**4047 Feed Screw Parts, Metric, Bench Lathe \$87.42**



- Fits HiTorque Bench Lathe
- Fits SIEG C4 and SC4 lathes

These parts change the cross slide and compound feed screws, and the carriage dial to metric.

**3446 Metal Gear Kit, Mini Lathe Complete \$216.95**



- Changes every plastic gear on the mini lathe to metal
- Metal change gear set
- Metal 2-speed transmission gears
- Metal lead screw drive gears
- Metal 80-tooth gears

This mini lathe gear kit changes every plastic gear on a mini lathe to steel. You will never break a plastic gear again.

\*NOTE\* This set is designed for the older SIEG C2 lathes (see compatibility tab). If you own a HiTorque mini lathe, see product 3938 for metal gears.

- 3454 Pinion, 25 Teeth, Metal \$11.83
- 3493 Gear, 45 Teeth, Mini Lathe, Metal \$19.62
- 3450 Gear, 80 Teeth, Mini Lathe, Metal \$25.63
- 3455 Pinion, 20 Teeth, Metal \$11.71

**3448 Metal Transmission Gear Kit, Mini Lathe & 3MT Mini Mill \$62.95**



- Replaces both plastic transmission gears with metal
- Fits mini lathes and 3MT mini mills
- Small Gear: 12 Teeth / 20 Teeth, 12 mm Bore, 4 mm Keyway
- Large Gear: 21 Teeth / 29 Teeth, 30 mm Bore, 5 mm Keyway

Once this steel gear set is installed on your mini lathe or mini mill, you will no longer have to worry about breaking the hard-to-replace gears inside the headstock. On the mini lathe, the belt drive ensures that expensive parts don't break from overloads. On the mini mill, the easy-to-replace intermediate gear on top of the headstock is still plastic. This helps to ensure that you don't break expensive and hard to replace parts. The smaller in this set is smaller of the two transmission gears. It has 12 Teeth on one end and 20 teeth on the other. The larger of the two is the larger of the two transmission gears. It has 21 Teeth on one end and 29 teeth on the other.

- 3451 Gear, 2-Speed Intermediate Shaft, Metal \$34.27
- 3453 Gear, 2-Speed Spindle, Metal \$35.37
- 3452 Gear, Intermediate 30 Teeth, Mini Mill, Metal \$18.41
- 3456 Gear, R8 Spindle No. 2, Mini Mill, Metal \$17.52
- 4967 Gear, Saddle Drive, Bench Lathe \$22.53
- 3449 Transmission Gear Kit, R8 Mini Mill, Metal \$59.57

**1690 Metric Threading Kit 12" \$62.00**




- Metric threading kit for 7x12 mini lathes
- Fits HiTorque, SIEG, and other 7x12 mini lathes

Metric threading kit for 7x12 mini lathes. This kit replaces the lead screw and half nuts so you can more easily cut metric threads. You cannot use a threading dial with this kit installed. There is no metric threading dial. See the Compatibility tab for machines known to work with this product.

- 1691 Metric Threading Kit 10" \$57.63
- 2026 Metric Threading Kit 14" \$64.81
- 4877 Metric Threading Kit 16" \$66.74


**2592 Power Switch Upgrade Kit \$4.95**



- Heavy duty switch
- Five times the rated life of the standard switch
- Switch rated at 16 A at 120/250 VAC
- No soldering required to install


This is an upgrade kit for the illuminated power switch on Harbor Freight mini lathes. The kit contains an upgraded switch, two crimp terminals, and a multi-stack quick disconnect. You have to un-solder the old switch, but the crimp terminals eliminate soldering during installation.

**2018 Tailstock Cam Lock Kit \$29.95**



This kit converts a standard mini lathe tailstock to lock by lever action. This camlock action locks the tailstock to the ways by moving a lever about 45 degrees. You must drill one 1/2" hole in the back of the tailstock casting. This lathe cam lock kit is made from heat treated 4140 steel for long life.

**2634 Tweaks & Enhancements Kit, Mini Lathe \$23.95**



- Several small items to make your lathe work better and last longer
- Easier gib and saddle retainer adjustment
- Fewer busted knuckles
- Quicker gear cover removal
- Fewer tailstock clamp jams


The Mini Lathe Tweaks & Enhancements Kit™ can make a big difference in the operation of your mini lathe.

- The kit includes the following:
- Hardened lathe chuck mounting nuts for long life.
  - Self locking set screws for the cross slide and compound rest gibs
  - Self locking cap screws for the carriage retainers
  - Button-head cap screws for the cross slide and compound rest crank handles.
  - Thumbscrews for the change gear cover.
  - A spring for the tailstock clamp.
  - A rubber boot to protect the F/O/R switch on 7x10 and 7x12 mini lathes.
  - A rubber guard to prevent chips from getting into the motor speed control enclosure.
  - Complete instructions

- 3940 Tweaks & Enhancements Kit, HiTorque Mini Lathe \$21.95

**Kits: Lathe Starter Kits**

**1261 Starter Kit, Mini Lathe, 5/16" Tool Bits \$31.85**



- 0-1/2" Capacity Drill Chuck and key
- Drill chuck arbor 2MT short to 33JT
- Five 5/16" M2 high speed steel tool bit blanks
- Four center drills, sizes 1, 2, 3, and 4

Mini Lathe starter kit designed for 7x10, 7x12 and 7x14 mini lathes and includes all the basics you need to get started with a new mini lathe.

Drill Chuck: 0-1/2" Capacity drill chuck. All working parts are hardened. Chuck key is included. Number 33 Jacobs taper mount. Runout of this chuck is 0.008" (0.20 mm) or less. This mini lathe starter kit is specifically designed for use on the mini lathe tailstock. The rated capacity of the drill chuck is 1 mm (0.039") to 13 mm (0.512").

Tool Bits: 5/16" square by 2-1/2" long HSS mini lathe tool bits made of M2 high speed steel. The tool post on most mini lathes are sized to use 5/16" tool bits.

Center Drills: Four sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, and 4 with 60 degree counter sinks.

- 1796 Starter Kit, Lathe, 3/8" Tool Bits \$33.82



**5124 Tooling Package, Deluxe Mini Lathe \$83.19**

- 3/8" indexable TCMT inserts
- 9-piece carbide boring bar set - 3/8" shank
- 1/2" drill chuck, 2MT short to 33JT drill chuck arbor
- 4 center drills (sizes 1-4)
- P1N cut-off blade

This package contains all the tooling you need to be productive with your HiTorque deluxe mini lathe on the first day you own it. The package does not include a quick change tool post because there is one on the model 4200/5200/7350 lathe. The 1/2" capacity drill chuck is mounted on a short 2 Morse taper shank for the mini lathe. This chuck is specifically designed for the mini lathe tailstock. The rated capacity of the drill chuck is 1 mm (0.039") to 13 mm (0.512"). The set of indexable turning tools includes 5 tools (TAR, TAL, TBR, TBL, TE), inserts, a wrench, and extra screws. It comes in a wooden case. The carbide inserts are TCMT21.51. The carbide tipped 9-piece boring bar set includes three different length boring bars each for minimum bores of 5/16", 3/8", and 7/16". The bore depth ranges from 3/4" to 2-1/4". The heat treated, alloy steel shanks are held to 0.000 to -0.0005" from the nominal diameter. The P1 parting blade is 1/16" x 1/2" x 4-1/2" and made from M2 HSS. These T-shape parting blades provide great side clearance.

This package includes 4 different sizes of combined drills and countersinks, commonly called center drills. The center drill set is high speed steel and includes sizes 1, 2, 3, and 4. These are 60 degree center drills. These are the sizes that are most used by bench top machinists.

**5125 Tooling Package, Deluxe Mini Lathe Premium \$158.78**

- 1/2" professional grade drill chuck
- 2MT standard to 33JT drill chuck arbor
- 3/8" - 6" long indexable boring bar - CCMT inserts
- 3/8" indexable TCMT carbide inserts
- Premium P1 cut-off blade, 5 center drills

This package contains our best versions of all the tooling you need to be productive with your HiTorque deluxe mini lathe. The package does not include a quick change tool post because there is one on the model 4200/5200/7350 deluxe lathe. Drill Chuck: The 1/2" capacity professional grade drill chuck is mounted on a short 2MT shank for the mini lathe. Specifically designed for the mini lathe tailstock, the rated capacity is 1 mm (0.039") to 13 mm (0.512"). All working parts are hardened. Chuck key included. Number 33 Jacobs taper mount. This chuck is comparable to a Jacobs 34-33 heavy duty drill chuck, including the runout specification of 0.004" (0.10 mm) or less. Indexable Inserts: Indexable turning tools are made by AR Warner Co in the USA. These Warner precision tool holder kits use carbide inserts and include three styles of tools, AR right hand, E Neutral (threading tool - 60° angle), and AL left hand. Kit includes three tool holders, TCMT inserts, one extra TCMT-21.52 carbide insert, one extra Torx screw, and one wrench. Boring Bar: This 3/8" diameter indexable boring bar uses CCMT inserts and is 6" long. The minimum bore diameter for this is 0.50". The boring bar takes CCMT 21.51 or CCMT 21.52 inserts. Cut-Off Blade: The premium P1 parting blade is 1/16" x 1/2" x 4-1/2" and made from M2 HSS by Arthur R. Warner Co. in the USA. These T-shape parting blades provide great side clearance. Center Drills: Five sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.

**5680 Tooling Package, Grizzly G0765 Mini Lathe \$225.95**

- Specific items for 7x14 from Grizzly, Real Bull, and Big Dog
- 3/8" indexable TCMT inserts, P1N cut-off blade
- 9-piece carbide boring bar set - 3/8" shank
- 1/2" drill chuck, 2MT standard to 33JT drill chuck arbor
- 4 center drills (sizes 1-4)

This mini lathe tooling package contains all the tooling you need to be productive with your 7x14 mini lathe on the first day you own it. The Tormach OXA quick change tool post set (QCTP). This mini lathe tooling package includes the tool post and the following tool holders: 2 - #1 Turning & Facing 1 - #2 Boring, Turning & Facing 1 - #4 Heavy Duty Boring will hold both 3/8 and 1/2 boring bars 1 - #7 Universal Parting Blade (for 1/2 inch cut-off blade - horizontal) The wedge type quick change tool post is made of steel and all working parts are hardened and ground. No tools are required to change tools. Additional tool holders are available. The turning tool holders accept tools with 1/4" to 1/2" shank. The boring tool holder accepts boring bars with 3/8" or 1/2" round shanks. The cut-off tool holder holds 1/2" tall parting blades. The 1/2" capacity drill chuck is mounted on a short 2 Morse taper shank for the mini lathe. This chuck is specifically designed for the mini lathe tailstock. The rated capacity of the drill chuck is 1 mm (0.039") to 13 mm (0.512"). The set of indexable turning tools includes 5 tools (TAR, TAL, TBR, TBL, TE), inserts, a wrench, and extra screws. It comes in a wooden case. The carbide inserts are TCMT21.51. The carbide tipped 9-piece boring bar set includes three different length boring bars each for minimum bores of 5/16", 3/8", and 7/16". The bore depth ranges from 3/4" to 2-1/4". The heat treated, alloy steel shanks are held to 0.000 to -0.0005" from the nominal diameter. The P1 parting blade is 1/16" x 1/2" x 4-1/2" and made from M2 HSS. These T-shape parting blades provide great side clearance. This mini lathe tooling package includes 4 different sizes of combined drills and countersinks, commonly called center drills. The center drill set is high speed steel and includes sizes 1, 2, 3, and 4. These are 60 degree center drills. These are the sizes that are most used by bench top machinists.

**4857 Tooling Package, HiTorque Bench Lathe Premium \$310.95**

- OXA QCTP set with post mount for SC4 lathes
- 1/2" professional grade drill chuck, 2MT standard to 33JT drill chuck arbor
- 1/2" indexable boring bar - CCMT inserts
- 3/8" indexable TCMT carbide inserts
- Premium P1 cut-off blade, 5 center drills

This tooling package contains premium quality tooling for a C4, SC4 or LittleMachineShop.com HiTorque 8.5x16 bench lathes. Includes a OXA (Series 000) quick change tool post set (QCTP). This set includes the tool post and the following tool holders: 2 - #1 Turning & Facing 1 - #2 Boring, Turning & Facing 1 - #4 Heavy Duty Boring will hold both 3/8 and 1/2 boring bars 1 - #7 Universal Parting Blade (for 1/2 inch cut-off blade - horizontal) QCTP features all steel construction and wedge type tool post for better clamping and repeatability. All working parts are hardened, ground and sealed. Designed for lathes with limited distance from the top of the compound to the center of the lathe. This tool post mounts with an M12/M10 stud for C4 and SC4 lathes, which is included. The 1/2" capacity professional grade drill chuck is mounted on a short 2MT shank for the mini lathe. Specifically designed for the mini lathe tailstock, the rated capacity is 1 mm (0.039") to 13 mm (0.512"). All working parts are hardened. Chuck key included. Number 33 Jacobs taper mount. This chuck is comparable to a Jacobs 34-33 heavy duty drill chuck, including the runout specification of 0.004" (0.10 mm) or less. Indexable turning tools are made by Arthur R. Warner Co. in the USA. These precision tool holder kits use carbide inserts and include three styles of tools, AR right hand, E Neutral (threading tool - 60 degree angle), and AL left hand. Kit includes three tool holders, TCMT inserts, one extra TCMT-21.52 carbide insert, one extra Torx screw, and one wrench. 1/2" diameter indexable boring bar uses CCMT inserts and is 7" long. The minimum bore diameter for this is 0.625". The boring bar takes CCMT 32.51 or CCMT 32.52 inserts. The premium P1 parting blade is 1/16" x 1/2" x 4-1/2" and made from M2 HSS by Arthur R. Warner Co. T-shape parting blades provide great side clearance. Five sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.


**3389 Tooling Package, HiTorque Deluxe Bench Lathe Premium \$156.82**

- Premium tooling package for deluxe bench lathe
- 1/2" professional grade drill chuck, 2MT standard to 33JT drill chuck arbor
- 1/2" indexable boring bar - CCMT inserts
- 3/8" indexable TCMT carbide inserts
- Premium P1 cut-off blade, 5 center drills

This tooling package contains premium quality tooling for a C4, SC4 or LittleMachineShop.com HiTorque bench lathes. The 1/2" capacity professional grade drill chuck is mounted on a short 2MT shank for the mini lathe. Specifically designed for the mini lathe tailstock, the rated capacity is 1 mm (0.039") to 13 mm (0.512"). All working parts are hardened. Chuck key included. Number 33 Jacobs taper mount. This chuck is comparable to a Jacobs 34-33 heavy duty drill chuck, including the runout specification of 0.004" (0.10 mm) or less. Indexable turning tools are made by Arthur R. Warner Co. in the USA. These precision tool holder kits use carbide inserts and include three styles of tools, AR right hand, E Neutral (threading tool - 60 degree angle), and AL left hand. Kit includes three tool holders, TCMT inserts, one extra TCMT-21.52 carbide insert, one extra Torx screw, and one wrench. 1/2" diameter indexable boring bar uses CCMT inserts and is 7" long. The minimum bore diameter for this is 0.625". The boring bar takes CCMT 32.51 or CCMT 32.52 inserts. The premium P1 parting blade is 1/16" x 1/2" x 4-1/2" and made from M2 HSS by Arthur R. Warner Co. T-shape parting blades provide great side clearance. Five sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks. This tooling package does not include a quick change tool post because the HiTorque Deluxe Bench Lathe is equipped with a QCTP.


**5207 Tooling Package, Mini Lathe, OXA QCTP \$225.95**

- QCTP Set easily mounts to 7x10, 7x12, 7x14, 7x16 lathes
- 3/8" indexable TCMT inserts, P1N cut-off blade
- 9-piece carbide boring bar set - 3/8" shank
- 1/2" drill chuck, 2MT short to 33JT drill chuck arbor
- 4 center drills (sizes 1-4)

This package contains all the tooling you need to be productive with your 7x10, 7x12, 7x14 or 7x16 mini lathe on the first day you own it.

The OXA quick change tool post set (QCTP).

This mini lathe tool set includes the tool post and the following tool holders:

- 2 - #1 Turning & Facing
- 1 - #2 Boring, Turning & Facing
- 1 - #4 Heavy Duty Boring will hold both 3/8 and 1/2 boring bars
- 1 - #7 Universal Parting Blade (for 1/2 inch cut-off blade - horizontal)

The wedge type quick change tool post is made of steel and all working parts are hardened and ground. No tools are required to change tools. Additional tool holders are available.

The turning tool holders accept tools with 1/4" to 1/2" shank.

The boring tool holder accepts boring bars with 3/8" or 1/2" round shanks. The cut-off tool holder holds 1/2" tall parting blades.

The 1/2" capacity drill chuck is mounted on a short 2 Morse taper shank for the mini lathe. This chuck is specifically designed for the mini lathe tailstock. The rated capacity of the drill chuck is 1 mm (0.039") to 13 mm (0.512").

The set of indexable turning tools includes 5 tools (TAR, TAL, TBR, TBL, TE), inserts, a wrench, and extra screws. It comes in a wooden case. The carbide inserts are TCMT21.51.

The carbide tipped 9-piece boring bar set includes three different length boring bars each for minimum bores of 5/16", 3/8", and 7/16". The bore depth ranges from 3/4" to 2-1/4". The heat treated, alloy steel shanks are held to 0.000 to -0.0005" from the nominal diameter.

The P1 parting blade is 1/16" x 1/2" x 4-1/2" and made from M2 HSS. These T-shape parting blades provide great side clearance. This package includes 4 different sizes of combined drills and countersinks, commonly called center drills. The center drill set is high speed steel and includes sizes 1, 2, 3, and 4. These are 60 degree center drills. These are the sizes that are most used by bench top machinists.

Get the right tools for your mini lathe at LittleMachineShop.


**4116 Tooling Package, Mini Lathe Premium \$299.95**

- Tormach OXA (Series 000) QCTP set
- 1/2" professional grade drill chuck, 2MT standard to 33JT drill chuck arbor
- 3/8" - 6" long Indexable boring bar - CCMT inserts
- 3/8" indexable TCMT carbide inserts
- Premium P1 cut-off blade, 5 center drills

This package contains our best versions of all the tooling you need to be productive with your 7x10, 7x12, 7x14, or 7x16 mini lathe. QCTP: The OXA (Series 000) quick change tool post features all steel construction and wedge type tool post for better clamping and repeatability. All working parts are hardened and ground. Sealed for maintenance-free operation. Tool holders designed for mini lathes and other lathes with limited distance from the top of the compound to the center of the lathe. This tool post mounts with an M10 stud, which is included. This set includes the tool post and the following tool holders: 2 - #1 Turning & Facing 1 - #2 Boring, Turning & Facing 1 - #4 Heavy Duty Boring will hold both 3/8 and 1/2 boring bars 1 - #7 Universal Parting Blade (for 1/2 inch cut-off blade - horizontal) Drill Chuck: The 1/2" capacity professional grade drill chuck is mounted on a short 2MT shank for the mini lathe. Specifically designed for the mini lathe tailstock, the rated capacity is 1 mm (0.039") to 13 mm (0.512"). All working parts are hardened. Chuck key included. Number 33 Jacobs taper mount. This chuck is comparable to a Jacobs 34-33 heavy duty drill chuck, including the runout specification of 0.004" (0.10 mm) or less. Indexable Inserts: Indexable turning tools are made by Arthur R. Warner Co. in the USA. These Warner precision tool holder kits use carbide inserts and include three styles of tools, AR right hand, E Neutral (threading tool - 60° angle), and AL left hand. Kit includes three tool holders, TCMT inserts, one extra TCMT-21.52 carbide insert, one extra Torx screw, and one wrench. Boring Bar: This 3/8" diameter indexable boring bar uses CCMT inserts and is 6" long. The minimum bore diameter for this is 0.50". The boring bar takes CCMT 21.51 or CCMT 21.52 inserts. Cut-Off Blade: The premium P1 parting blade is 1/16" x 1/2" x 4-1/2" and made from M2 HSS by Arthur R. Warner Co. in the USA. These T-shape parting blades provide great side clearance. Center Drills: Five sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.

**Kits: Lathe Starter Kits**

**3527 Tooling Package, Small Lathe \$248.19**



- AXA (Series 100) Quick Change Tool Post Set
- 1/2" Indexable TCMM Inserts, P1X Cut-Off Blade
- 1/2" Drill Chuck, 2MT Standard to 33JT Drill Chuck Arbor
- 9-piece carbide Boring Bar Set - 1/2" shank
- 5 Center Drills (sizes 1-5)

This package contains all the tooling you need to be productive with your lathe on the first day you own it. The AXA (Series 100) quick change tool post set (QCTP) includes the tool post, mounting hardware, a turning & facing tool holder, a boring, turning & facing tool holder, a heavy duty boring bar holder, a universal parting blade holder, and a knurling, facing & turning tool holder. The quick change tool post is made from hardened steel. No tools are required to change tools. Additional tool holders are available. It requires some level of work, tapping a hole, or making a T-slot nut, to mount this QCTP on your lathe. The turning tool holders accept tools with 3/8" to 1/2" shank. The turning and boring tool holder accepts boring bars with up to 1/2" round shanks. The cut-off tool holder holds 1/2" tall parting blades. The 1/2" capacity drill chuck is mounted on a standard 2 Morse taper shank. The rated capacity of the drill chuck is 1 mm (0.039") to 13 mm (0.512"). The set of 1/2" shank indexable turning tools includes 5 tools (TAR, TAL, TBR, TBL, TE), inserts, a wrench, and extra screws. It comes in a fitted case. The carbide inserts are TCMM-321. The carbide tipped 9-piece boring bar set includes three different length boring bars each for minimum bores of 5/16", 3/8", and 7/16". The bore depth ranges from 3/4" to 2-1/4". The heat treated, alloy steel shanks are held to 0.000 to -0.0005" from the nominal diameter. The P1 parting blade is 1/16" x 1/2" x 4-1/2" and made from M2 HSS. These T-shape parting blades provide great side clearance. This package includes 5 different sizes of combined drills and countersinks, commonly called center drills. The center drill set is high speed steel and includes sizes 1, 2, 3, 4, and 5. These are 60 degree center drills. These are the sizes that are most used by bench top machinists.

**3786 Tooling Package, 9x20 Lathe \$254.19**

**Kits: Mill Conversion Kits**

**2258 Air Spring Conversion Kit \$45.85**



- Converts torsion spring mini mills to air spring
- Allows travel to the top of the column
- Provides better support for the mill head

Convert torsion spring mini mills to air spring. Most mini mills use a torsion spring mounted on the side of the column to support the head. This air spring conversion kit provides all the parts required to change to a vertical air spring that mounts inside and above the column.

With the air spring installed, you can move the mill head up until the top of the casting is almost flush with the top of the column. You can move it down until it almost contacts the adjustable Z-axis stop set in its lowest position. Besides all the parts required to mount the air spring, this kit also includes a longer Z-axis rack so you can take advantage of the longer head motion.

This air spring has about 35 pounds of force. This is not enough to totally support the head, but it is a heck of a lot more support than the torsion arm provides.

**4005 Air Spring Conversion Kit, HiTorque Mini Mills \$64.05**



**2560 Belt Drive Conversion Kit, Mini Mill \$154.95**

- No more broken drive gears
- Much quieter operation
- Spindle speed up to 4300 RPM
- Ideal for manual and CNC mini mills

This mini mill belt drive conversion kit provides an easy-to-install alternative to the noisy and fragile factory-installed gears that drive the spindle on the mini mill. This kit is CNC-machined from the highest quality materials. Designed to run full-time, it is built to last. The CNC belt drive conversion kit includes one belt. Change speeds without any tools. Simply remove the guard, loosen the lever locks and move the belt from one pair of pulleys to the other. Low speed range is 0-1700 RPM. High speed range is 0-4300 RPM. The installation is bolt-on and takes about 20 minutes. This CNC belt drive kit fits the mills shown on the Compatibility tab. Don't expect it to fit other machines. The small pulley has a 9 mm bore with a 3 mm keyway. The large pulley has a 30 mm bore with a 5 mm keyway. If your shafts don't match these values, then this belt drive will not fit your mill.

**4795 Belt Drive Shield, Mini Mill, Plastic \$4.95**

**2657 V-Belt, 2L130 for Mini Mill Belt Drive Kit \$5.95**



**6226 CNC Conversion Kit for Bench Mills \$749.00**

- Heavy Metal CNC kit
- Fits all SIEG X2.7 bench mills with 595 mm X 140 mm table
- 16 mm x 5 mm ball screws
- Preadjusted ball nuts for minimum backlash
- NEMA 23 & 24 motor mounts

This kit provides the mechanical elements you need to convert a Bench Mill with a 595 mm X 140 mm table to CNC. It includes ball screws, ball screw nuts, thrust bearings, and motor mounts plus the fasteners you need to install them. It does not include motors, drivers, power supply, or software. See the Documents tab for the electronics and software you will need in addition to this kit. All aluminum parts are clear anodized for corrosion and scratch resistance. This kit is designed to be adjustable to any and all of the machines shown on the compatibility tab. Sometimes it just isn't possible. Because of manufacturing tolerances, there is variation from machine to machine. When installing the kit you may need to make some modifications not listed in the instructions.



**6240 CNC Conversion Kit for Bench Mills \$775.00**

- Heavy Metal CNC kit
- Fits all bench mills with 700 mm x 160 mm table
- 16 mm x 5 mm ball screws
- Preloaded ball nuts for minimum backlash
- NEMA 23 & 24 motor mounts

This kit provides the mechanical elements you need to convert a bench mill with a 700 mm x 160 mm table to CNC. It includes ball screws, ball screw nuts, thrust bearings, and motor mounts plus the fasteners you need to install them. It does not include motors, drivers, power supply, or software. See the Documents tab for the electronics and software you will need in addition to this kit. All aluminum parts are clear anodized for corrosion and scratch resistance. This kit is designed to be adjustable to any and all of the machines shown on the compatibility tab. Sometimes it just isn't possible. Because of manufacturing tolerances, there is variation from machine to machine. When installing the kit you may need to make some modifications not listed in the instructions.

**Kits: Mill Conversion Kits**



**6225 CNC Conversion Kit for HiTorque Mini Mills \$699.00**

- Heavy Metal CNC kit
- Fits all HiTorque Mini Mills and mini mills with a 300 mm x 130 mm table.
- 16 mm x 5 mm ball screws
- Preloaded ball nuts for minimum backlash
- NEMA 23 motor mounts

This kit provides the mechanical elements you need to convert a Mini Mill with a 300 mm x 130 mm table to CNC. It includes ball screws, ball screw nuts, thrust bearings, and motor mounts plus the fasteners you need to install them. It does not include motors, drivers, power supply, or software. See the Documents tab for the electronics and software you will need in addition to this kit. All aluminum parts are clear anodized for corrosion and scratch resistance. This kit is designed to be adjustable to any and all of the machines shown on the compatibility tab. Sometimes it just isn't possible. Because of manufacturing tolerances, there is variation from machine to machine. When installing the kit you may need to make some modifications not listed in the instructions.

**6224 CNC Conversion Kit for Mini Mills \$679.00**

**4213 CNC Spindle Control Upgrade Kit, Mini Lathe and Mini Mill \$125.62**



- Converts brushless DC drive to CNC control
  - Provides speed, on/off, and direction control
  - For 500 watt Brushless DC drive, 120V 60Hz
  - Compatible with SIEG SX2 and HiTorque mini mills
  - Compatible with SIEG SC2 and HiTorque mini lathes
- This CNC spindle control kit consists of a small circuit board that replaces the circuit board with the speed control potentiometer, plus a replacement chip for the motor controller card. This conversion kit works on many SIEG SX2 and HiTorque mini mill as well as SIEG SC2 and HiTorque mini lathes. See the Compatibility tab for machines that work with this product.

**4645 CNC Spindle Control Upgrade Kit for Small Mill and Bench Lathe \$125.62**

**4951 CNC Spindle Control Upgrade Kit for Small Mill and Bench Lathe 230V \$125.62**

**1764 Feed Screw Parts, 20 TPI, Mini Mill \$61.20**



These parts change Grizzly, Homier, Cummins, and Harbor Freight mini mills to 20 thread per inch feed screws on the X- and Y-axis. Each rotation of the hand wheel will advance the table 0.050". The mini mill tool kit includes two feed screws, two nuts, two 50 division dials, plus the springs and keys that you are going to lose during disassembly. This mini mill conversion kit has the correct screw to work with the mini mill power feed.

**1989 Feed Screw Parts, Metric, Mini Mill \$71.28**

**5177 Large Table Solid Column Conversion Kit, Mini Mill \$499.95**



- Converts a tilting column mini mill to the large table solid column version
  - 30% more travel in both directions
  - 50% more table area
  - Solid column is significantly more rigid
- This kit converts a tilting column mini mill to a large table with a solid column. The kit includes the X-Y table and column from the HiTorque Solid Column Mini Mill (part number 3990), the fasteners needed to connect them. This kit contains a complete X-Y table assembly for a mini mill. The table is 120 mm (4.73") by 460 mm (18.11"). It has three 12 mm T-slots. The X-axis travel is 300 mm (11.8") and the Y-axis travel is 130 mm (5.1"). The dials are graduated in 0.001" and one turn of the hand wheels moves the table 0.050". The X-Y table is made of cast iron and steel. There are adjustable gibs on both axes.

**5855 Long Table Kit, Bench Mill \$347.53**



- Extra long table for Bench Mill, X2.7 and SX2.7 mills
- This extra long mill table fits the LittleMachineShop.com 5500 Bench Mill, the SIEG X2.7 and SIEG Super SX2.7 mills. The kit comprises a table and feed screw plus a larger saddle. It includes all the small parts required to install it. The table is 27.5" x 6.25" (595 mm x 140 mm). The kit requires drilling a few holes. This kit also requires you to order replacement gibs, and cut them to size.



**2642 Long Table Kit, Micro Mill \$107.34**

- Table is 400 mm x 145 mm
  - X-Axis travel is 330 mm
  - Provides 150 mm more X-axis travel
- This kit adds a larger table, and increases the X-axis travel to 330 mm on the Harbor Freight 47158 micro mill. The conversion kit includes a new table and 20 TPI X-axis screw.

**3492 Long Table Kit, Micro Mill, Metric \$107.34**

**3845 Long Table Kit, Super X3L \$254.93**



- Extra long table for X3 SX3 mills
- This extra long mill table fits both SIEG X3 and SIEG Super X3 mills and comes complete with an extra long feed screw and rule which may be fitted to the front of the table with the rivets supplied. The table is 700 mm x 160 mm.

**1625 Spindle Conversion Kit, R8 \$84.38**



- This kit converts a Grizzly or Micro-Mark mini mill to an R8 spindle
- The kit includes: -R8 spindle -Two spindle gears -Two spacing rings -Two keys -One bearing -One drawbar -Complete instructions

**2823 Spindle Conversion Kit, 3MT \$79.38**



**2635 Tweaks & Enhancements Kit, Mini Mill \$46.95**

- Several small items to make your mini mill work better and last longer
  - Easier gib adjustment
  - Fewer stripped locking levers
  - Easier backlash adjustment
  - Cleaner T-slots
- The Mini Mill Tweaks & Enhancements Kit™ can make a big difference in the operation of your mini mill. The kit includes the following: Improved (German-made) locking levers for the X-, Y-, and Z-axes. Self locking set screws for the X-, Y-, and Z-axis gibs. Self locking adjustment nuts for the X-, and Y-axes. A T-slot cleaner. Complete instructions

**5069 Upgrade Kit, Mini Mill \$197.85**



- Includes 2258 Air Spring Kit and 2560 Mini Mill Belt Drive Kit
  - Much quieter operation
  - Spindle speed up to 4300 RPM
  - Allows travel to the top of the column while providing better support for the mill head
  - No more broken drive gears
- Do not buy this milling machine upgrade kit if you have a HiTorque Mini Mill. Most or all of these features are already included on the HiTorque mills. This mini mill kit provides an easy-to-install alternative to the noisy and fragile factory-installed gears that drive the spindle on the machine. The kit includes one belt. Change speeds without any tools. Simply remove the guard, loosen the lever locks and move the belt from one pair of pulleys to the other. Low speed range is 0-1700 RPM. High speed range is 0-4300 RPM. This belt drive fits the following mills: Grizzly G0516 Lathe Mill Combo Cummins 7877 Mini Mill Grizzly G8689 Mini Milling Machine Harbor Freight 44991 Central Machinery Mini Mill/Drill Hare & Forbes HM-10 Mini Mill Drill Homier 03947 Speedway Mini Mill Micro-Mark 82573 MicroLux Milling Machine. The small pulley has a 9 mm bore with a 3 mm keyway. The large pulley has a 30 mm bore with a 5 mm keyway. If your shafts don't match these values, then this belt drive will not fit your mill. Convert torsion spring mini mills to air spring. This mini mill kit provides all the parts required to change to a vertical air spring that mounts inside and above the column. With the air spring installed, you can move the mill head up until the top of the casting is almost flush with the top of the column. You can move it down until it almost contacts the adjustable Z-axis stop set in its lowest position. This air spring has about 35 pounds of force. This is not enough to totally support the head, but it is a heck of a lot more support than the torsion arm provides.

**2653 Starter Kit, Micro Mill \$97.95**

- This kit contains the basics you need to start using your new micro mill
- 36-piece clamping kit for 5/16" (8 mm) T-slots
- Thin parallels (3" long)
- 1-2-3 blocks
- Edge and center finder

This kit contains the basics you need to start using your new micro mill. The clamping kit fits the 8 mm T-slots on the micro mill. The clamping kit includes 10 M6 studs, 4 step block pairs, 6 T-slot nuts, 6 flange nuts, and 6 step clamps. The thin parallels are a set of 10 matched pairs of high grade steel parallels, precision ground and hardened. The parallels are 1/8" thick and 3" long. The heights are 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2", and 1-5/8". They are made of high grade alloy steel hardened to 52 to 58 Rc and are parallel within 0.0002" on the top and bottom. The pairs are matched in height within 0.0004". The precision 1-2-3 blocks are ground and case hardened on all sides to 50-60 Rc. The blocks are 1" by 2" by 3". They are parallel within 0.0002", flat within 0.0002" and square within 0.0002". Each set includes two matched blocks. The blocks have 23 holes through them, 5 are threaded 3/8"-16 NC. The 3/8" diameter combination edge and center finder helps you locate work on your mill. The edge finder end has a 0.200" diameter cylinder to quickly find the edge of a work piece. The center finder end tapers to a point to locate holes. The edge and center finder is hardened and ground all over.

**1262 Starter Kit, X2/SX2 Mini Mill \$97.95**

- Clamping kit for 7/16" (12 mm) T-slots
- Thin parallels (6" long)
- 1-2-3 blocks
- Edge and center finder
- T-slot cleaner

This milling machine kit contains the basics you need to start using your new mini mill. This Mini Mill Starter Kit includes:

T-Slot Clamping Kit 7/16" - 58-piece clamping kit 3/8"-16, 7/16 T-Slot. This clamping kit fits the 12 mm T-slots on the mini mill. The clamping kit includes 24 3/8-16 studs, 12 step blocks in pairs, 6 T-slot nuts, 6 flange nuts, 4 coupling nuts, and 6 end hold downs. Clamping kit comes in a wall mount rack. Thin parallels combo set - 10 matched pairs of high grade steel parallels, precision ground and hardened. Parallels are 1/8" thick and 6" long. Heights are 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2", and 1-5/8". Made of high grade alloy steel hardened to 52 to 58 Rc. Parallel within 0.0002" on the top and bottom. The pairs are matched in height within 0.0004". Set comes in a durable plastic fitted case. 1-2-3 Blocks - These precision 1-2-3 blocks are ground and case hardened on all sides to 50-60 Rc. The blocks are 1" by 2" by 3". They are parallel within 0.0002", flat within 0.0002" and square within 0.0002". Each set includes two matched blocks. The blocks have 23 holes through them, 5 are threaded 3/8"-16 NC. Edge and Center Finder - This 3/8" diameter combination edge and center finder helps you locate work on your mill. The edge finder end has a 0.200" diameter cylinder to quickly find the edge of a work piece. The center finder end tapers to a point to locate holes. The edge and center finder is hardened and ground all over. T-Slot Cleaner - Use this T-slot cleaner to clear the debris from the T-slots on your mini mill and bench mill. Made for LittleMachineShop.com specifically to fit the Mini Mill and Bench Mill.

**3491 Tooling Package, 2MT Micro Mill \$346.95**

- 3" toolmakers screwless vise and 10 pairs of 3" long thin parallels
- Precision 1-2-3 Blocks and 36-piece Clamping Kit - 8 mm T-slot
- Two 6-piece end mill sets, 2 & 4 flute and 5 center drills
- Seven piece 2MT collet set
- Combination edge and center finder

Tooling package with all the essentials for a 2MT micro mill. Toolmakers Vise: 3" toolmakers screwless vice has a one-piece body. The body and jaws are hardened to Rc 58-62. All sides are flat, square and parallel to 0.0002". There are horizontal and vertical vees on the inside face of the movable jaw to hold round objects. The vise jaws are 1.38" deep and open to 3.78" capacity. The vise is 7.28" long, 2.76" tall and 2.785" wide. Thin Parallels: Set of ten pairs, 1/8" thick x 3" long, in fitted case. Made of high-grade alloy steel hardened to 52-58 Rc, parallel within 0.0002" on top and bottom. Parallel heights: 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2", and 1-5/8" (pairs matched within 0.0004"). Clamping Kit: 36-piece kit fits 8 mm T-slots on a micro mill. Includes 10 M6 studs, 4 step block pairs, 6 T-slot nuts, 6 flange nuts, and 6 step clamps. End Mills: 6-piece 4 flute & 6-piece 2 flute, HSS, center cutting end mill sets. Sizes 1/8", 3/16", 1/4", 5/16", 3/8", and 1/2". All with 3/8" shanks. 2MT Collets: Set of seven high-grade tool hardened steel round collets, sizes 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", and 1/2". The drawbar thread is 3/8"-16. This set includes all the sizes required for common end mills. 1-2-3 Blocks: Ground and hardened on all sides to 50-60 Rc, sizes 1" x 2" x 3". Parallel within 0.0002", flat within 0.0002", and square within 0.00021". Set has two matched blocks, 23 holes of which 5 are threaded 3/8"-16 NC. Center Drills: Five sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.

**4759 Tooling Package, ER-16 Micro Mill \$328.95**

- 3" toolmakers screwless vise and 10 pairs of 3" long thin parallels
- Precision 1-2-3 blocks and 36-piece clamping kit - 8 mm T-slot
- Two 6-piece end mill sets, 2 & 4 flute and 5 center drills
- Five piece ER-16 collet set
- Combination edge and center finder

Tooling package with all the essentials for an ER-16 Micro Mill. Toolmakers Vise: 3" toolmakers screwless vice has a one-piece body. The body and jaws are hardened to Rc 58-62. All sides are flat, square and parallel to 0.0002". There are horizontal and vertical vees on the inside face of the movable jaw to hold round objects. The vise jaws are 1.38" deep and open to 3.78" capacity. The vise is 7.28" long, 2.76" tall and 2.785" wide. Thin Parallels: Set of ten pairs, 1/8" thick x 3" long, in fitted case. Made of high-grade alloy steel hardened to 52-58 Rc, parallel within 0.0002" on top and bottom. Parallel heights: 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2", and 1-5/8" (pairs matched within 0.0004"). Clamping Kit: 36-piece kit fits 8 mm T-slots on a micro mill. Includes 10 M6 studs, 4 step block pairs, 6 T-slot nuts, 6 flange nuts, and 6 step clamps. End Mills: 6-piece 4 flute & 6-piece 2 flute, HSS, center cutting end mill sets. Sizes 1/8", 3/16", 1/4", 5/16", 3/8", and 1/2". All with 3/8" shanks. ER-16 Collets: Set of five ER-16 round collets. Sizes: 1/8", 3/16", 1/4", 5/16", and 3/8". Made of high-grade tool hardened steel, ground to close tolerance, this set includes the sizes required for most common end mills. 1-2-3 Blocks: Ground and hardened on all sides to 50-60 RC, sizes 1" x 2" x 3". Parallel within 0.0002", flat within 0.0002", and square within 0.00021". Set has two matched blocks, 23 holes of which 5 are threaded 3/8"-16 NC. Center Drills: Five sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.

**5671 Tooling Package, Grizzly G0758 Mill \$386.95**

- 3" precision milling vise (heavy) and 10 pairs of 3" long thin parallels
  - Precision 1-2-3 blocks and 20 piece end mill set - 2 & 4 flute (10 each)
  - 58- piece clamping kit - 5/16"-18, 3/8" T-slots
  - Seven piece R8 collet set, five center drills - 60° countersinks
  - Combination edge and center finder and a T-slot cleaner
- Tooling package with all the essentials for an R8 mini mill.

Milling Vise: 3" Kurt-style milling vice. Top, gib, jaws, bottom of vise bed and all plate mounting surfaces are ground. The angle tight positive lock style jaws are interchangeable with industry standard machine vises, are hardened and ground, and can be mounted on either end of the fixed and movable jaw supports for a wide range of clamping distances. Overall length is 10.85" and the height is 3.05". Jaws are 3.15" wide, 1.04" deep, open 3", and are perpendicular to the ways within 0.002" in 4". The ways are parallel to the base within 0.0006" in 4" without the swivel. Thin Parallels: Set of ten pairs, 1/8" thick x 3" long, in fitted case. Made of high-grade alloy steel hardened to 52-58 Rc, parallel within 0.0002" on top and bottom. Parallel heights: 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2", and 1-5/8" (pairs matched within 0.0004"). End Mills: 20 piece set included 2 flute and 4 flute center cutting TiN coated HSS end mills sizes 3/16" - 3/4" by 16ths. R8 Collets: Set of seven high-grade tool hardened steel, sizes 1/8", 3/16", 1/4", 3/8", 1/2", 5/8", 3/4". 1-2-3 Blocks: Ground and hardened on all sides to 50-60 Rc, sizes 1" x 2" x 3". Parallel within 0.0002", flat within 0.0002", and square within 0.00021". Set has two matched blocks, 23 holes of which 5 are threaded 3/8"-16 NC. Center Drills: Five sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.

**5489 Tooling Package, R8 Bench Mill Premium \$654.95**

- 4" Precision milling, professional and 10 pairs of thin parallels
  - Thirteen piece R8 collets, 12 piece end mill set - 2 & 4 flute (6 each) Cobalt
  - 58 - piece clamping kit - 3/8"-16, 7/16" T-slots
  - Premium precision 1-2-3 blocks, five center drills - 60° countersinks
  - Combination edge and center finder and a T-slot cleaner
- Premium tooling package with all the best products for your R8 mini mill.

Milling Vise: 4" Kurt-style professional milling vice with detachable 360° swivel base and easy to read divisions. Top, gib, jaws, swivel base, bottom of vise bed and all plate mounting surfaces are ground. The angle tight positive lock style jaws are interchangeable with industry standard machine vises, are hardened and ground, and can be mounted on either end of the fixed and movable jaw supports for a wide range of clamping distances. Overall length is 11.6" and the height is 3.1" without base, and 4.3" with base. Jaws are 3.15" wide, 0.9" deep, open 3", and are perpendicular to the ways within 0.0004" in 4". The ways are parallel to the base within 0.0003" in 4" without the swivel. Thin Parallels: Set of ten pairs, 1/8" thick. Made of high-grade alloy steel hardened to 52-58 Rc, parallel within 0.0003" on top and bottom. Parallel heights: 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1", 1-1/16" (pairs matched within 0.0003"). End Mills: 12 piece set included 2 flute and 4 flute center cutting Cobalt end mills sizes 1/8" - 1/2" by 16ths. R8 Collets: 13 R8 round collets sizes 1/8" to 1" by 16ths. Made of high grade tool steel, hardened and ground to a TIR of 0.0005" or less. This set includes all the sizes required for common end mills. 1-2-3 Blocks: Premium precision 1-2-3 blocks, ground and case hardened on all sides to 55-60 Rc. Blocks are 1" x 2" x 3"; parallel, flat, and square within 0.0001". Set includes two matched blocks and 5 cap screws. Blocks have 23 holes, five are threaded 3/8"-16 NC. Five piece M42 8% cobalt combined drills and countersinks sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.

**4212 Tooling Package, R8 CNC Mini Mill \$423.95**

- 3" precision milling vise (Heavy) and 10 pairs of 3" long thin parallels
  - Five piece R8 end mill holders, 20 piece end mill set - 2 & 4 flute (10 each)
  - 58-piece clamping kit - 3/8"-16, 7/16" T-slots
  - Precision 1-2-3 blocks, five center drills - 60° countersinks
  - Combination Edge and Center Finder and a T-Slot Cleaner
- Tooling package with all the essentials for an R8 CNC Mini Mill. Milling Vise: 3" Kurt-style milling vice. Top, gib, jaws, bottom of vise bed and all plate mounting surfaces are ground. The angle tight positive lock style jaws are interchangeable with industry standard machine vises, are hardened and ground, and can be mounted on either end of the fixed and movable jaw supports for a wide range of clamping distances. Overall length is 10.85" and the height is 3.05". Jaws are 3.15" wide, 1.04" deep, open 3", and are perpendicular to the ways within 0.002" in 4". The ways are parallel to the base within 0.0006" in 4" without the swivel. Thin Parallels: Set of ten pairs, 1/8" thick x 3" long, in fitted case. Made of high-grade alloy steel hardened to 52-58 Rc, parallel within 0.0002" on top and bottom. Parallel heights: 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2", and 1-5/8" (pairs matched within 0.0004"). End Mills: 20 piece set included 2 flute and 4 flute center cutting TiN coated HSS end mills sizes 3/16" - 3/4" by 16ths. The 5-piece end mill holder set includes adapters for end mills with shank diameters of 3/16, 3/8, 1/2, 5/8, and 3/4 inches. The end mill holders have an R8 shank and use the drawbar that comes with the mini mill. This set includes all the sizes required for common end mills. 1-2-3 Blocks: Ground and hardened on all sides to 50-60 Rc, sizes 1" x 2" x 3". Parallel within 0.0002", flat within 0.0002", and square within 0.00021". Set has two matched blocks, 23 holes of which 5 are threaded 3/8"-16 NC. Center Drills: Five sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.

**5535 Tooling Package, R8 Large Bench Mill Premium \$704.95**

- 5" Precision milling, professional and 10 pairs of thin parallels
  - Thirteen piece R8 collets, 12 piece end mill set - 2 & 4 flute (6 each) Cobalt
  - 58 - piece clamping kit - 3/8"-16, 7/16" T-slots
  - Premium precision 1-2-3 blocks, five center drills - 60° countersinks
  - Combination edge and center finder and a T-slot cleaner
- Premium tooling package with all the best products for your R8 mini mill. Milling Vise: Precision 5" Kurt-style milling vice. The top, bottom of vise bed, gib, jaws, swivel base, and all plate mounting surfaces are ground. The jaws are hardened and ground. The fixed jaw is bolted from the top for enhanced rigidity. The jaws are 5" wide, 1.58" deep and open 5.71". Without the swivel base, the ways of the precision milling vise are parallel to the base of the vise within 0.0006" in 4". The jaws are perpendicular to the ways within 0.002" in 4". With the swivel base installed, the ways of the vise are parallel to the base of the vise within 0.0008" in 4". Thin Parallels: Set of ten pairs, 1/8" thick. Made of high-grade alloy steel hardened to 52-58 Rc, parallel within 0.0003" on top and bottom. Parallel heights: 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1", 1-1/16" (pairs matched within 0.0003"). End Mills: 12 piece set included 2 flute and 4 flute center cutting Cobalt end mills sizes 1/8" - 1/2" by 16ths. R8 Collets: 13 R8 round collets sizes 1/8" to 1" by 16ths. Made of high grade tool steel, hardened and ground to a TIR of 0.0005" or less. This set includes all the sizes required for common end mills. 1-2-3 Blocks: Premium precision 1-2-3 blocks, ground and case hardened on all sides to 55-60 Rc. Blocks are 1" x 2" x 3"; parallel, flat, and square within 0.0001". Set includes two matched blocks and 5 cap screws. Blocks have 23 holes, five are threaded 3/8"-16 NC. Five piece M42 8% cobalt combined drills and countersinks sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.

**3489 Tooling Package, R8 Mini Mill \$369.95**



- 3" precision milling vise (heavy) and 10 pairs of 3" long thin parallels
- Precision 1-2-3 blocks and 20 piece end mill set - 2 & 4 flute (10 each)
- 58- piece clamping kit - 3/8"-16, 7/16" T-slots
- Seven piece R8 collet set, five center drills - 60° countersinks
- Combination edge and center finder and a T-slot cleaner

This mill tooling package comes with all the essentials for an R8 mini mill. Milling Vise: 3" Kurt-style milling vise. Top, gib, jaws, bottom of vise bed and all plate mounting surfaces are ground. The angle tight positive lock style jaws are interchangeable with industry standard machine vises, are hardened and ground, and can be mounted on either end of the fixed and movable jaw supports for a wide range of clamping distances. Overall length is 10.85" and the height is 3.05". Jaws are 3.15" wide, 1.04" deep, open 3", and are perpendicular to the ways within 0.002" in 4". The ways are parallel to the base within 0.0006" in 4" without the swivel. Thin Parallels: Set of ten pairs, 1/8" thick x 3" long, in fitted case. Made of high-grade alloy steel hardened to 52-58 Rc, parallel within 0.0002" on top and bottom. Parallel heights: 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2", and 1-5/8" (pairs matched within 0.0004"). End Mills: 20 piece set included 2 flute and 4 flute center cutting TiN coated HSS end mills sizes 3/16" - 3/4" by 16ths. R8 Collets: Set of seven high-grade tool hardened steel, sizes 1/8", 3/16", 1/4", 3/8", 1/2", 5/8", 3/4". 1-2-3 Blocks: Ground and hardened on all sides to 50-60 Rc, sizes 1" x 2" x 3". Parallel within 0.0002", flat within 0.0002", and square within 0.00021". Set has two matched blocks, 23 holes of which 5 are threaded 3/8"-16 NC. Center Drills: Five sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.

**3490 Tooling Package, 3MT Mini Mill \$387.95**

**3526 Tooling Package, R8 Bench Mill \$384.95**

**5534 Tooling Package, R8 Large Bench Mill \$467.95**

**4491 Tooling Package, R8 Mini Mill Essentials \$249.95**



- 3" precision milling vise, 4 pairs of 3" parallels
- 58 - piece clamping kit - 3/8"-16, 7/16" T-slots
- Ten piece end mill set - 2 & 4 flute
- Five piece R8 collet set, four center drills - 60° countersinks
- Combination edge and center finder and a T-slot cleaner

Tooling package with the basic tooling for an R8 mini mill. Milling Vise: The precision 3" Kurt-style milling machine vise has a detachable swivel base that features easy to read divisions. The top, bottom of vise bed, gib, jaws, swivel base, and all plate mounting surfaces are ground. The hardened and ground replaceable jaws on this vise are 3.15" wide, 0.93" deep, and open 2.83". The vise is 10.24" long. Without the base, the vise is 2.91" high. With the base, the vise is 3.94" high. The replaceable jaws can be mounted on either end of the fixed and movable jaw supports providing a wide range of clamping distances. The thin parallels are 5/32" thick and 3" long. The heights are 1/2", 5/8", 3/4", and 7/8". They are parallel within 0.0002" on the top and bottom. The pairs are matched in height within 0.0004". End Mills: The 10 piece TiN coated HSS end mill set includes both 2 flute and 4 flute end mills. The center cutting end mills are 1/4" to 3/4" by 8ths. The set comes in a fitted case. R8 Collets: Set of five R8 round collets includes the sizes 3/16", 3/8", 1/2", 5/8", 3/4". They are made of high grade tool steel, hardened and ground to close tolerance. Center Drills: Four sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, and 4 with 60 degree counter sinks.

**4723 Tooling Package, R8 Mini Mill Precision \$340.95**



- 3" Toolmakers screwless vise and 10 pairs of 3" long thin parallels
- Precision 1-2-3 blocks and 20 piece end mill set - 2 & 4 flute (10 each)
- 58- piece clamping kit - 3/8"-16, 7/16" T-slots
- Seven piece R8 collet set, five center drills - 60° countersinks
- Combination edge and center finder and a T-slot cleaner

Tooling package with all the essentials for an R8 mini mill. Toolmakers Vise: 3" toolmakers screwless vise has a one-piece body. The body and jaws are hardened to Rc 58-62. All sides are flat, square and parallel to 0.0002". There are horizontal and vertical vees on the inside face of the movable jaw to hold round objects. The vise jaws are 1.38" deep and open to 3.78" capacity. The vise is 7.28" long, 2.76" tall and 2.785" wide. Thin Parallels: Set of ten pairs, 1/8" thick x 3" long, in fitted case. Made of high-grade alloy steel hardened to 52-58 Rc, parallel within 0.0002" on top and bottom. Parallel heights: 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2", and 1-5/8" (pairs matched within 0.0004"). End Mills: 20 piece set included 2 flute and 4 flute center cutting TiN coated HSS end mills sizes 3/16" - 3/4" by 16ths. R8 Collets: Set of seven high-grade tool hardened steel, sizes 1/8", 3/16", 1/4", 3/8", 1/2", 5/8", 3/4". 1-2-3 Blocks: Ground and hardened on all sides to 50-60 Rc, sizes 1" x 2" x 3". Parallel within 0.0002", flat within 0.0002", and square within 0.00021". Set has two matched blocks, 23 holes of which 5 are threaded 3/8"-16 NC. Center Drills: Five sizes combined drills and countersinks made of high speed steel. Sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.

**4858 Tooling Package, R8 Mini Mill Premium \$689.95**



- 3" Precision milling, professional and 10 pairs of 3" long, high grade, thin parallels
- Thirteen piece R8 collets, 12 piece end mill set - 2 & 4 flute (6 each) Cobalt
- 58 - piece clamping kit - 3/8"-16, 7/16" T-slots
- Premium precision 1-2-3 blocks, five center drills - 60° countersinks
- Combination edge and center finder and a T-slot cleaner

Premium mini mill R8 tooling package with all the best products for your machine. Milling Vise: 3" Kurt-style professional milling vise with detachable 360° swivel base and easy to read divisions. Top, gib, jaws, swivel base, bottom of vise bed and all plate mounting surfaces are ground. The angle tight positive lock style jaws are interchangeable with industry standard machine vises, are hardened and ground, and can be mounted on either end of the fixed and movable jaw supports for a wide range of clamping distances. Overall length is 11.6" and the height is 3.1" without base, and 4.3" with base. Jaws are 3.15" wide, 0.9" deep, open 3", and are perpendicular to the ways within 0.0004" in 4". The ways are parallel to the base within 0.0003" in 4" without the swivel. Thin Parallels: Set of ten pairs, 1/8" thick x 3" long. Made of high-grade alloy steel hardened to 52-58 Rc, parallel within 0.0001" on top and bottom. Parallel heights: 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1", 1-1/16" (pairs matched within 0.0002"). End Mills: 12 piece set included 2 flute and 4 flute center cutting Cobalt end mills sizes 1/8" - 1/2" by 16ths. R8 Collets: 13 R8 round collets sizes 1/8" to 1" by 16ths. Made of high grade tool steel, hardened and ground to a TIR of 0.0005" or less. This set includes all the sizes required for common end mills. 1-2-3 Blocks: Premium precision 1-2-3 blocks, ground and case hardened on all sides to 55-60 Rc. Blocks are 1" x 2" x 3"; parallel, flat, and square within 0.0001". Mini mill tooling package set includes two matched blocks and 5 cap screws. Blocks have 23 holes, five are threaded 3/8"-16 NC. Five piece M42 8% cobalt combined drills and countersinks sizes 1, 2, 3, 4, and 5 with 60 degree counter sinks.

**Kits: Spare Parts Kits**

**2249 Spare Parts Kit, Micro Mill \$20.36**



- 5 GMA-2 fuses
- 6 different gears

This kit contains the parts that fail most often on the micro mill with a 2 Morse taper spindle.

**Kits: Spare Parts Kits**

**1223 Spare Parts Kit, Mini Lathe** **\$30.65**



This spare parts package contains the parts that fail most often on the mini lathe.  
This mini lathe spare parts kit contains:  
5 GMA-5 fuses  
1 Gear, 2-Speed Intermediate Shaft  
1 Gear, 2-Speed Spindle  
1 Belt, Timing  
1 Pulley, Timing Belt Motor (8 mm shaft)  
1 Pulley, Timing Belt Intermediate Shaft  
1 Gear, 80 Tooth

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**2262 Spare Parts Kit, 7x14 Mini Lathe** **\$25.51**

**1703 Spare Parts Kit, R8, Mini Mill** **\$35.85**



- R8 Mini Mill Spindle Gears
- 5 GMA-5 Fuses
- 1 Motor Gear
- 2 Spindle Gears
- 2 Intermediate Shaft Gears


This kit contains the parts that fail most often on the mini mill with the R8 spindle. The kit contains: 5 GMA-5 fuses 1 14-Tooth Motor Gear, Metal 1 30-Tooth Intermediate Shaft Gear 1 29-Tooth Spindle Gear, No. 11 21-Tooth Spindle Gear, No. 21 2-Speed Intermediate Shaft Gear, 12 Teeth / 20 Teeth

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**1224 Spare Parts Kit, 3MT, Mini Mill** **\$25.65**

**Lathe: 10x21 Lathe (C6) Accessories**


**2499 Faceplate, G0516 Combo Lathe Mill** **\$59.46**



Faceplate for Grizzly G0516 and SIEG C6 lathes. The faceplate is 8.66" (220 mm) in diameter and has 8 slots for mounting work.

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**2497 Follower Rest, C6 Lathes** **\$73.49**




- Follower Rest, C6 lathes
- Supports work up to 1.5" in diameter
- Fits Grizzly G0516 and SIEG C6 lathes
- M8x30 mounting bolts included

This follower rest fits the Grizzly G0516 and SIEG C6 lathes. The follower rest can support work up to 1.5" in diameter. This product comes with two M8x30 mounting bolts and washers. See the Compatibility tab for products that work with this product.

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**5042 Follower Rest, C8 Lathe** **\$80.16**




- Follower Rest, C8 lathes
- Supports work up to 2.5" in diameter
- Fits SIEG C8 lathes
- M8x30 mounting bolts included

This follower rest fits the SIEG C8 and SC8 lathes. This product comes with two M8x30 mounting bolts and washers. See the Compatibility tab for products that work with this product.

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**2894 Milling Attachment, C6 Lathe** **\$265.48**



- Milling attachment for 10x21 lathe
- Fits SIEG C6 class of lathes
- Includes mounting bracket
- Graduated in 0.025 mm (approximately 0.001")
- 60 divisions, advance is 1.5 mm (0.059") per revolution.

Milling attachment for the SIEG C6 10x21 class of lathes. This milling attachment includes the mounting bracket required to mount it on a SIEG C6 lathe. The vise opening is 1.9". The width of the vise is 2.6" and the depth is 1.4". The travel is 3.6". The dial is graduated in 0.025 mm (approximately 0.001") and there are 60 divisions, so the advance is 1.5 mm (0.059") per revolution. See compatibility tab for reference to machines or other related products that use this product. See Used On tab for reference to machines using this part and the corresponding drawing number.

**2496 Steady Rest, C6 Lathes** **\$85.35**




- Steady Rest, C6 lathes
- Supports work up to 2.5" in diameter
- Fits Grizzly G0516 and SIEG C6 lathes
- Mounting brackets included

This steady rest fits the Grizzly G0516, and SIEG C6 lathes. The steady rest can support work up to 2.5" in diameter. The product comes with a lock down bracket for the lathe table rail. See the Compatibility tab for products that work with this product.

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**5036 Steady Rest, C8 Lathes** **\$112.00**




- Steady Rest, C8 lathes
- Supports work up to 2.5" in diameter
- Fits SIEG C8 lathes
- Mounting bracket included

This steady rest fits the SIEG C8 and SC8 lathes. Mounting bracket included. See the Compatibility tab for products that work with this product.

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**2498 Wood Turning Tool Rest and Center, C6** **\$68.49**



Wood turning tool rest and center for Grizzly G0516 and SIEG C6 lathe. The tool rest clamps in the standard tool post so you can turn wood on your mini lathe. The driving center fits in the lathe spindle. See the Compatibility tab for machines that work with this product.

**Lathe: 4x5 Micro Lathe (C0)/Unimat Accessories**

**2496 Auto Longitudinal Feed, SIEG C0 Lathes** **\$57.60**




- Powers the lead screw
- Clutch disengages when not in use
- Includes drive belt and mounting bolt
- Fits SIEG C0 lathes

Auto longitudinal feed designed for the SIEG C0 lathe family including SIEG C0 micro lathes, Grizzly G0745 4x6 Micro Metal Lathes, and Harbor Freight Central Machinery 95012 4x5 Micro Lathes. Powers the lead screw with clutch that disengages when not in use. Comes with drive belt and mounting bolt.

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**5873 Belt, Auto Longitudinal Feed, SIEG C0** **\$5.88**

**2497 Compound Rest Assembly SIEG C0 Lathes** **\$56.29**




- Top slide for turning tapers
- 40 mm of travel
- Holds tools up to 1/4" shank
- Fits SIEG C0 and Unimat 4 lathes
- Fits Grizzly G00745 and Central Machinery 95012 micro lathes

Compound rest assembly for SIEG C0 Lathes and Emco Unimat 4 mini lathes as well as Grizzly G0745 and Harbor Freight Central Machinery 95012 micro lathes. 40 mm of travel. The tool post is two sided and holds tools up to a 1/4" shank. Mounts with an M6 bolt which is included.

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**2950 Faceplate, Nano Lathe, Unimat 3 & 4 and SIEG C0 Lathes** **\$22.50**




- 70 mm diameter
- Three slots to mount work
- M14x1.0 mounting thread
- Fits Nano Lathe
- Fits SIEG C0 lathes and Unimat 3 & 4

This is a faceplate with a 70 mm diameter designed to be screwed onto a lathe's spindle in place of a chuck.

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**2948 Live Center, SIEG C0 Lathes** **\$28.34**



- 10 mm straight shank
- Point is a 60° included angle
- Fits SIEG C0 lathes

The body is 0.91" (23 mm) in diameter.



**Lathe: 4x5 Micro Lathe (C0)/Unimat Accessories****2945 Steady Rest, SIEG C0 Lathes** \$34.15

- Supports work up to 40 mm (1.5") in diameter
  - Fits SIEG C0 micro lathes
  - Fits Grizzly G0745 4x6 Micro Metal Lathe
  - Fits Central Machinery 95012 4x5 Micro Lathe
- Steady rest for SIEG C0 micro lathes, Grizzly G0745 4x6 Micro Metal Lathes, and Harbor Freight Central Machinery 95012 4x5 Micro Lathes. This lathe steady rest supports work up to 40 mm (1.5") in diameter.

**2952 Tool Post, Unimat 3 & 4 and SIEG C0 Lathes** \$22.63

- Two sided tool post
  - Holds tools up to 1/4" shank
  - Fits Unimat 3 & 4 lathes
  - Fits SIEG C0 lathes
  - Mounts with an M6 bolt included
- Tool post that fits Unimat 3 and 4 as well as SIEG C0 Lathes. The tool post is two sided and holds tools up to a 1/4" shank. Mounts with an M6 bolt which is included.

**2949 Wood Turning Tool Rest and Center, Unimat 4 and SIEG C0 Lathes** \$46.82

- Wood turning tool rest and spur center
  - 150 mm long tool rest
  - Includes spur center with 10 mm shank
  - Fits Unimat 4 lathes
  - Fits SIEG C0 lathes
- Wood turning tool rest for small metal lathes. Designed for the SIEG C0 family of micro lathes and Emco Unimat 4 mini lathes. Will fit other SIEG C0 lathes including the Grizzly G0745 and Harbor Freight Central Machinery 95012 micro lathes. Rest is 150 mm (5.9") long. Set comes with a spur center that has a 10 mm shank.

**Lathe: 6x10 Micro Lathe (C1) Accessories****5547 Change Gear Set, Micro Lathe** \$17.47

- Micro lathe change gear set
  - Fits SIEG C1 6x10 micro lathe
  - 9 pieces for inch-standard threading
- Change gear set for the SIEG C1 micro lathe. The nine piece set is designed for inch-based thread pitches. Gears include include 36T, 40T, 42T, 45T, 48T, 50T, 54T, 57T, and 60T. See compatibility tab for reference to machines that are compatible with this product.

**5548 Chuck Adapter, Micro Lathe** \$12.99

- Micro lathe chuck adapter
  - Fits SIEG C1 6x20 micro lathe
  - Drilled for 3-Jaw and 4-Jaw chucks
- Lathe chuck adapter for the SIEG C1 6x10 micro lathe. Drilled for 3-jaw and 4-jaw chucks. See the Compatibility tab for machines that work with this product.

**5546 Compound Rest Assembly, Micro Lathe** \$184.80

- Micro lathe compound rest
  - Fits SIEG C1 6x10 micro lathe
  - Rotation angle +/- 40 degrees
- Compound rest assembly for the SIEG C1 6x10 micro lathe. Rotation angle +/- 40 degrees. See compatibility tab for reference to machines that are compatible with this product.

**5544 Follower Rest, Micro Lathe** \$36.00

- Micro lathe follower rest
  - Fits SIEG C1 6x10 micro lathe
- Micro lathe follower rest fits the SIEG C1 6x10 micro lathe. See compatibility tab for reference to machines that are compatible with this product.

**5545 Milling Attachment, Micro Lathe** \$160.40

- Micro lathe milling attachment
  - Fits SIEG C1 6x10 micro lathe
  - Mounts to micro lathe cross slide
  - Allows for milling functions using a micro lathe
  - Includes mounting hardware
- Micro lathe milling attachment for the SIEG C1 6x10 micro lathe. The attachment mounts to the top of the cross slide and holds the workpiece while milling with a cutting tool that is mounted on the spindle. Vertical movement is 3 3/4". Handwheel advance is 0.050" per revolution. Made of steel and cast iron. Includes 4 T-slot nuts, 4 bolts, and 4 washers. T-slot nuts are 8 mm. See compatibility tab for machines that are compatible with this product.

**5539 Steady Rest, Micro Lathe** \$48.40

- Micro lathe steady rest
  - Fits SIEG C1 6x10 micro lathe
- Micro lathe steady rest for the SIEG C1 6x10 micro lathe. See compatibility tab for reference to machines that are compatible with this product.

**Lathe: 7x10/12/14 Mini Lathe (C2/C3) Accessories****4607 Accessory Package, 3" Spindle Flange Mini Lathe** \$369.27

- Complete set of mini lathe accessories
  - Fully equip your mini lathe
  - Steadies, centers, chucks, locks and dogs
- This package includes all the accessories you could want to fully equip your mini lathe. This accessory package is for lathes that come from the factory with a 3" lathe chuck.

**5371 Accessory Package, 4" Spindle Flange, Mini Lathe** \$369.27

- Complete set of mini lathe accessories
  - Fully equip your mini lathe
  - Steadies, centers, chucks, locks and dogs
- This package includes all the accessories you could want to fully equip your mini lathe. This package is for mini lathes that come from the factory with a 4" lathe chuck.

**1700 Boring Bar Holder, 1/2"** \$11.16

- 1/2" Boring bar holder. This simple mini lathe boring bar holder fits in the standard 4-way tool post. It holds boring bars with 1/2" shanks.

**5135 Bullseye Lathe Tool Height Setter** \$9.95

- Quickly and easily check lathe tool bit height
  - Accepts any diameter work piece from 1/8" to 2 1/2"
  - Rubber band provides hands-free operation
- This lathe tool height gauge will allow you to quickly and accurately check and adjust lathe tool height. With the help of this lathe tool height setter there is no guess work and no fumbling around.

**2977 Carriage Lock, Mini Lathe** \$38.25

- Locks carriage down to ways
  - Won't rock the carriage when locking
  - Mounts to existing follower rest mounting holes
  - No tools required to lock the carriage
- This mini lathe carriage lock mounts to the two tapped holes for mounting the follower rest. The carriage lock can be left in place for most operations.

	<p><b>2705 Carriage Stop, Mini Lathe, Adjustable</b> \$27.02</p> <ul style="list-style-type: none"> <li>• Mini lathe carriage stop</li> <li>• Easy to attach and adjust</li> <li>• Includes fine adjustment</li> <li>• Useful for multiple cutting passes</li> <li>• Helps when making multiple parts</li> </ul> <p>This carriage stop clamps to the ways of your mini lathe to provide a repeatable stop position. This is useful when making multiple cutting passes or when making multiple parts. This stop incorporates a fine adjustment. It is locked with a lever so you need no tools to use it. See the Compatibility tab for machines that work with this product.</p>	<p><b>5916 Cut-Off Tool Holder, 3/8" Indexable with GTN-2 Inserts</b> \$85.95</p> <ul style="list-style-type: none"> <li>• 3/8" Indexable GTN-2 Cut-Off Tool Holder</li> <li>• Includes: tool holder, cut-off blade, 10 inserts, 2 allen wrenches</li> <li>• Tool holder is a SLTBN0375-2</li> <li>• Uses GTN-2 Inserts</li> <li>• Cut-off blade NCIH 19-2</li> </ul> <p>3/8" Indexable GTN-2 Cut-Off Tool Holder includes a SLTBN0375-2 tool holder, NCIH 19-2 cut-off blade, 10 GTN-2 inserts and 2 allen wrenches. Tool holder dimensions (see photo) A1 is 0.472" A is 0.984" H2 is 1.161" H4 is 0.435" M is 0.118" C is 2.2"</p>
	<p><b>4159 Carriage Stop, Bench Lathe, Adjustable</b> \$32.11</p> <p><b>3938 Change Gear Set, Mini Lathe, Metal</b> \$149.95</p> <ul style="list-style-type: none"> <li>• Attractive all metal change gears</li> <li>• Module 1 Metric gears</li> <li>• Bore 12 mm</li> <li>• Keyway 3 mm</li> <li>• Width 8 mm</li> </ul> <p>Complete all metal steel change gears for the mini lathe. Each gear has a brushed steel side with and easily to read gear number impression.</p>	<p><b>1873 Drawbar, 3MT x 3/8"-16, Mini Lathe</b> \$3.49</p> <ul style="list-style-type: none"> <li>• Mini lathe drawbar</li> <li>• 3MT x 3/8"-16 x 5"</li> <li>• Hardened</li> <li>• Fit SIEG C2 and SC2 class of mini lathes</li> </ul> <p>This is the 3/8-16 drawbar for the 7x10 and 7x12 mini lathe with the 3 Morse Taper spindle. This drawbar is a 3/8-16 x 5" cap screw and a flat washer. They are both hardened for long life. See the Compatibility tab for machines that work with this product.</p>
	<p><b>1677 Compound Rest Bottom, Drilled</b> \$36.27</p> <p>This is the bottom half of the compound rest on the mini lathe. This part has a second set of holes that moves the center of rotation of the compound rest to help eliminate chatter. Use the holes nearest the end of the part. The thread pitch is 1 mm so the compound advances 0.040" (actually 0.0394") per revolution. Use with a dial that has 40 divisions.</p>	<p><b>2224 Drawbar, 3MT x 3/8"-16, 7x14 Mini Lathe</b> \$4.29</p> <p><b>1872 Drawbar, 3MT x M12, Mini Lathe</b> \$4.49</p>
	<p><b>1880 Compound Rest Bottom, Drilled, 20 TPI</b> \$36.27</p> <p><b>1777 Compound Rest Bottom, Drilled and Milled</b> \$45.20</p> <p>This is the bottom half of the compound rest on the mini lathe. This part has a second set of holes that moves the center of rotation of the compound rest to help eliminate chatter. This part is also about 1/4" thinner than the standard part. This makes it possible to mount AXA or Series 100 tool posts on the mini lathe. Use the holes nearest the end of the part. Do not expect to use this without a quick change tool post of some sort. It will place the standard tool post about 1/4" too low. The thread pitch is 1 mm so the compound advances 0.040" (actually 0.0394") per revolution. Use with a dial that has 40 divisions.</p>	<p><b>5123 Faceplate, Mini Lathe, 100 mm Flange</b> \$40.64</p> <ul style="list-style-type: none"> <li>• 160 mm Diameter</li> <li>• 8 Slots to Mount Work</li> <li>• 72 mm Registration Recess</li> <li>• Requires 3 M8 x 25 Studs</li> <li>• Compatible with Lathes with 100 mm Flange Chuck Mount</li> </ul> <p>The faceplate is 6.29" (160 mm) in diameter and has 8 slots for mounting work. The faceplate is made of cast iron.</p>
	<p><b>1881 Compound Rest Bottom, Drilled and Milled, 20 TPI</b> \$45.20</p>	<p>This faceplate has a 72 mm registration recess. It requires 3 M8 x 25 studs. It mounts in place of a 100 mm (4") 3-jaw lathe chuck.</p> <p><b>1199 Faceplate, Mini Lathe, 80 mm Flange</b> \$37.04</p> <ul style="list-style-type: none"> <li>• 160 mm diameter</li> <li>• 8 slots to mount work</li> <li>• 55 mm registration recess</li> <li>• Requires 3 M6 x 30 studs</li> <li>• Compatible with lathes with 80 mm flange chuck mount</li> </ul> <p>The faceplate is 6.29" (160 mm) in diameter and has 8 slots for mounting work. The lathe face plate is made of cast iron. This mini lathe faceplate has a 55 mm registration recess. It requires 3 M6 x 30 studs.</p>
	<p><b>4836 Compound Rest Top, T-slot</b> \$35.82</p> <ul style="list-style-type: none"> <li>• Two 8 mm T-slots 25 mm center to center</li> <li>• Mounts QCTP or standard 4-way tool holder</li> </ul> <p>This compound rest top fits any mini lathe. It gives you two 8 mm T-slots with which you can mount anything you want.</p>	<p><b>2644 Clamping Kit for Faceplate</b> \$19.44</p> <p><b>3400 Faceplate, Bench Lathe</b> \$43.60</p> <p><b>2499 Faceplate, G0516 Combo Lathe Mill</b> \$59.46</p>
	<p><b>1551 Cut-Off Tool Holder</b> \$22.36</p> <ul style="list-style-type: none"> <li>• Fits Standard 4-way Tool Posts</li> <li>• Holds 1/2" Tall Cut-Off Blades</li> <li>• Steel Construction</li> </ul> <p>This cut-off, or parting, tool holder fits in the standard 4-way tool post (and most other tool posts) and holds 1/2" tall cut-off blades. The mini lathe parting tool holder is made of steel and has a 3/8 shank. Use 3mm hex wrench for screws.</p>	<p><b>1198 Follower Rest, Mini Lathe</b> \$48.95</p> <p>This follower rest mounts on the lathe saddle and moves with the carriage. The follower rest can support work up to 1" in diameter</p> <p><b>2419 Follower Rest, Mini Lathe, Ball Bearing</b> \$70.49</p>
	<p><b>3864 Cut-Off Tool Holder and HSS Blade</b> \$29.91</p>	<p><b>1137 Gear Set, Fine Feed, Mini Lathe</b> \$39.95</p> <ul style="list-style-type: none"> <li>• 80/15 and 90 teeth</li> <li>• Module 1 Metric gears</li> <li>• Bore 12 mm</li> <li>• Keyway 3 mm</li> <li>• Width 8 mm</li> </ul> <p>This gear set reduces the feed rate for turning from 0.0039" per spindle revolution to 0.0026" per revolution. Slowing the feed rate can help improve the surface finish.</p> <p>They replace the two 80 tooth gears and the lower 20 tooth gear. They are 3D printed from PTEG.</p>

**Lathe: 7x10/12/14 Mini Lathe (C2/C3) Accessories**

	<p><b>2459 Gear, 21 Teeth, Mini Lathe</b> <span style="float: right;"><b>\$10.85</b></span></p> <ul style="list-style-type: none"> <li>• 21 Teeth</li> <li>• Bore 12 mm</li> <li>• Keyway 3 mm</li> <li>• Width 8 mm</li> </ul> <p>A 21 tooth change gear allows you to cut more accurate metric threads with a mini lathe. These gears are made from metal for durability. This gear fits most current production mini lathes. Measure the width of the keyway in your change gears to be sure.</p>		<p><b>1956 Milling Attachment, Taig</b> <span style="float: right;"><b>\$72.95</b></span></p> <ul style="list-style-type: none"> <li>• Small milling attachment for mini lathe</li> <li>• Fits most small SIEG class mini lathes</li> <li>• Mounting block not included</li> <li>• See Chris' Tips for mounting block plans.</li> </ul> <p>The Taig milling attachment makes a good small milling attachment for the mini lathe. You must make a mounting block that is about 1" tall to mount this mini lathe milling attachment on the cross slide. The total vertical travel is 1.5" and the dial provides 0.001" increments. The vise width is 2". The table is 2" x 3-3/4". Overall the milling attachment is 2.25" wide, 3.38" deep, and 5.75" tall. See the Compatibility tab for machines and other products that work with this product. See Chris' Tips for mounting block plans.</p>
	<p><b>3937 Knob and Handwheel Kit, Mini Lathe</b> <span style="float: right;"><b>\$85.97</b></span></p> <ul style="list-style-type: none"> <li>• Anodized handwheels for apron and tailstock</li> <li>• Chrome levers for half-nuts, tool post and tailstock</li> <li>• Handwheels: 90 mm OD, 8 mm bore</li> <li>• Levers: M8 threading</li> <li>• Acron Nuts: M8 threading</li> </ul> <p>The attractive handwheels are all metal, and the levers are chrome. Designed for SIEG C2, SC2 and C3 class of mini lathes as well as HiTorque mini lathes. Kit contains two handwheels with handles and posts; three levers, acron nuts and a 24 tooth drive gear. The saddle drive gear in this kit is an upgraded version with a threaded end. This allows the handwheel to hold to the gear shaft using one of the chrome acron nuts. In the factory version of the lathe, the hand wheel was held to the gear using a cone point set screw. The tailstock handwheel also has an acron nut for attachment to the tailstock screw. In this application, the chrome acron nut simply replaces a standard M8 nut. See the Compatibility tab for machines that work with this product.</p>		<p><b>4968 Revolving Tailstock Chuck Adapter, 3" Chuck, 2MT</b> <span style="float: right;"><b>\$169.95</b></span></p> <ul style="list-style-type: none"> <li>• CHUCK NOT INCLUDED: Mounts a 3" 3-jaw chuck in the tailstock</li> <li>• Three ball bearings provide support for heavy duty load and high speed.</li> <li>• Max Load: 1100 lbs.</li> <li>• Maximum Rated RPM: 4000</li> <li>• 2MT standard shank</li> </ul> <p>Use this in conjunction with a 3" 3-jaw chuck in place of a live center. No more center drilling. This works great for long, large diameter work pieces where a live center or steady rest just won't cut it. Three ball bearings for heavy duty loads and relatively high speed. **NOTE** Chuck is not included, but it works great with our 1187 lathe chuck.</p>
	<p><b>3967 Lathe Cover, Mini Lathe</b> <span style="float: right;"><b>\$19.95</b></span></p> <ul style="list-style-type: none"> <li>• Fits 7x10, 7x12, 7x14 and 7x16 lathes</li> </ul> <p>This denim lathe cover provides protection for your lathe when you are not using it. The denim cloth breathes preventing moisture build-up under the cover.</p>		<p><b>4969 Revolving Tailstock Chuck Adapter, 3" Chuck, 3MT</b> <span style="float: right;"><b>\$166.95</b></span></p> <p><b>5965 Revolving Tailstock Chuck Adapter, 4" Chuck, 3MT</b> <span style="float: right;"><b>\$213.95</b></span></p>
	<p><b>4464 Lathe Dog Set</b> <span style="float: right;"><b>\$35.95</b></span></p> <ul style="list-style-type: none"> <li>• Set of 5 lathe dogs for material up to 1.5" (40 mm)</li> <li>• M6 and M8 drivers</li> </ul> <p>This lathe dog set will handle material sizes from very small up to 1.5" diameter.</p>		<p><b>3897 Spindle Hand Crank</b> <span style="float: right;"><b>\$39.30</b></span></p> <p>Great for threading, this allows you to turn your spindle by hand as slowly as you like. Tighten the bolt to engage the crank. Loosen to remove it.</p>
	<p>It includes driver pins for lathes with an 80 mm spindle flange (including mini lathes), and lathes with a 100 mm spindle flange.</p> <p><b>4476 Driver, Lathe Dog, M6</b> <span style="float: right;"><b>\$1.95</b></span></p> <p><b>4477 Driver, Lathe Dog, M8</b> <span style="float: right;"><b>\$1.95</b></span></p> <p><b>4471 Lathe Dog, 10 mm</b> <span style="float: right;"><b>\$4.95</b></span></p> <p><b>4472 Lathe Dog, 15 mm</b> <span style="float: right;"><b>\$5.95</b></span></p> <p><b>4473 Lathe Dog, 20 mm</b> <span style="float: right;"><b>\$6.95</b></span></p> <p><b>4474 Lathe Dog, 30 mm</b> <span style="float: right;"><b>\$7.95</b></span></p> <p><b>4475 Lathe Dog, 40 mm</b> <span style="float: right;"><b>\$8.95</b></span></p>		<p><b>1197 Steady Rest, 0-1" Mini Lathe</b> <span style="float: right;"><b>\$56.74</b></span></p> <p>This lathe steady rest can support work up to 1" in diameter. If this product is out of stock, you may want to try our part number 2418 Steady Rest, Ball Bearing as a substitute! It is the same Steady Rest just with the added ball bearing feature. This steady rest comes with the fasteners to lock it to the lathe bed.</p> <p><b>4675 Steady Rest Package, 0-2" Mini Lathe</b> <span style="float: right;"><b>\$121.50</b></span></p> <p><b>2418 Steady Rest, 0-1", Mini Lathe, Ball Bearing</b> <span style="float: right;"><b>\$81.61</b></span></p> <p><b>4673 Steady Rest, 1-2" Mini Lathe</b> <span style="float: right;"><b>\$68.75</b></span></p> <p><b>4674 Steady Rest, 1-2", Mini Lathe, Ball Bearing</b> <span style="float: right;"><b>\$100.50</b></span></p>
	<p><b>3766 Milling Attachment Package, Mini Lathe</b> <span style="float: right;"><b>\$278.48</b></span></p> <ul style="list-style-type: none"> <li>• Milling attachment that bolts on to the mini lathe</li> <li>• Set of 6 two-flute end mills, 1/8" to 1/2" diameter</li> <li>• 3/8" End mill holder and drawbar</li> </ul> <p>The milling attachment replaces the compound rest on the mini lathe. The vise opening is 1.9". The width of the vise is 2.6" and the depth is 1.4". The travel is 3.6". The dial is graduated in 0.025 mm (approximately 0.001") and there are 60 divisions, so the advance is 1.5 mm (0.059") per revolution. This package includes drawbars for all mini lathes. For other lathes you will probably need to make a drawbar from 3/8-16 threaded rod.</p>		<p><b>1684 Tachometer, Spindle</b> <span style="float: right;"><b>\$129.56</b></span></p> <p>This spindle tachometer mounts on the top of the mini lathe headstock and displays the speed, to the nearest 20 RPM, of the spindle. The spindle tachometer includes the interrupter wheel and the sensor and cable.</p> <p><b>1945 Sensor and Cable</b> <span style="float: right;"><b>\$14.64</b></span></p> <p><b>1946 Interrupter Wheel, 56 mm Diameter</b> <span style="float: right;"><b>\$7.69</b></span></p> <p><b>2051 Interrupter Wheel, 66 mm Diameter</b> <span style="float: right;"><b>\$6.52</b></span></p>

**Lathe: 7x10/12/14 Mini Lathe (C2/C3) Accessories**



**3818 Tachometer, Spindle, HiTorque Mills & Lathes** **\$159.95**

- Plugs into control panel
  - Mounts magnetically
  - Displays to nearest 20 RPM of spindle
  - Works for HiTorque mini mills and mini lathes
- This spindle tachometer mounts on the top of the mini lathe headstock or the control box of a mini mill. The device displays the speed, to the nearest 20 RPM, of the spindle. The spindle speed readout plugs into the jack on the control panel. See the Compatibility tab for machines and other products that work with this product.



**4293 Mini Lathe Deluxe DRO Kit** **\$344.87**

- Digital Readouts for cross slide and compound rest
  - Metal hand wheels and chrome levers
  - All metal change gears
- This digital readout kit will equip your mini lathe with digital readouts on the cross slide and compound rest. The attractive hand wheels are all metal, and the levers are chrome. All the good-looking change gears are metal. This DRO kit works on any 7x10, 7x12, 7x14, or 7x16 lathe made by SIEG, which includes virtually all the mini lathes sold in the US and most of the mini lathes sold world-wide. The DRO mounts right on the cross slide and compound rest to give you accurate depth-of-cut readings. The resolution is 0.0001", the accuracy is 0.001". There are buttons for On/Off, Zero, and Inch/MM.



**2658 Tachulatur Tachometer & SFM Meter** **\$109.95**

- Digital tachometer for lathes and mills
  - Displays rpm and surface feet per minute
  - Range to 9999 rpm, 9999 SFM
  - Accuracy and resolution to 1 rpm
  - Cutter or work diameter to 99.99"
- This kit includes the Tachulatur module in an aluminum enclosure, plus the sensor and power supply. Features include: Period counting for fast updates even at slow rpm inputs. Calculates SFM from rpm and entered diameter. Cutter or work diameter from 0.01" to 99.99". Low power consumption - 50mA typically at 9-12VDC. Bright attractive 4 digit 0.56" high display with decimal points. Sensor contains light source - will work in complete darkness. Crystal time base for high accuracy and stability. Professional quality conservative design and manufacturing. Screw terminal block for sensor connection. Usable with multiple sensor heads using a DPDT or 2-pole multiple-position switch.



**2299 Mini Lathe Headstock Assembly** **\$145.31**

This is the headstock assembly for a 7x10 or 7x12 mini lathe. This lathe headstock for sale includes the spindle and all the pieces in the headstock casting, the High/Low shifter, all parts on the spindle, and all parts on the intermediate shaft, except the pulley.



**5849 Mini Lathe Headstock Assembly, SIEG C3** **\$155.31**

This is the headstock assembly for a SIEG C3 7x14 mini lathe. It includes the spindle and all the pieces in the headstock casting.



**1884 Tailstock Assembly, Mini Lathe** **\$78.72**

- Complete Tailstock Assembly for Mini Lathe
  - Center Height Approx. 90 mm
  - 2MT Quill
- This is a kit of all the parts required to make a complete tailstock for the mini lathe. The center height of this tailstock is approximately 90 mm. The quill is 2 Morse taper.



**2502 Tailstock Assembly, Mini Lathe, Cam Lock** **\$86.16**

This is the tailstock from the HiTorque mini lathe. It has a factory-installed cam lock mechanism. It holds 2 Morse taper tooling.



**1204 Tool Post, Mini Lathe, Four-Position** **\$22.65**

- Four-position tool post for the mini lathe
  - 2" square and 1.5" tall
  - Tool slot is 0.64" tall and 0.32" from the bottom
- Four-position tool post for the mini lathe. This is the tool holder that comes on the mini lathe. On most mini lathes it is the correct size for 5/16" tools. On "early" Homier and Cummins lathes it is the correct size for 3/8" tools. The tool holder is 2" square and 1.5" tall. The tool slot is 0.64" tall and is 0.32" from the bottom.

**1589 Tool Holder Screws, Set of 8** **\$1.95**



**3844 Tooling Plate, Milling Attachment** **\$81.43**

This mill tooling plate works with the lathe milling attachment. It is 120 mm (4.72") square and includes four clamps. The holes are threaded M6 and are 20 mm on centers.



**5202 Telescoping Lead Screw Cover, 7x14, 7x16** **\$73.13**

- All metal construction
  - Works with threading dial
- These are telescoping metal covers for the lead screw of your mini lathe.



**1685 Wood Turning Tool Rest and Center, Mini & Bench Lathe** **\$68.43**

- Turn wood on a metal lathe
  - Includes woodturning tool rest and spur center
  - Fits several SIEG mini lathes classes from C2 to SC4
  - Fit LittleMachineShop.com HiTorque mini lathes and bench lathes
- The mini lathe tool rest clamps in the standard tool post so you can turn wood on your mini lathe. The driving center fits in the lathe spindle. See the Compatibility tab for machines that work with this product.

**2498 Wood Turning Tool Rest and Center, C6** **\$68.49**

**Lathe: 7x10/12/14 Mini Lathe (C2/C3) Assemblies**



**1769 Compound Rest Assembly, Mini Lathe** **\$90.55**


- Mini Lathe Compound Rest
  - Includes Tool Post
- This is a complete compound rest for the mini lathe. This mini lathe compound rest includes the tool post and locking handle.



**1526 Threading Dial Assembly (Inch)** **\$22.40**

This kit includes all the parts needed to add a thread dial indicator for cutting inch threads to a mini lathe. This dial assembly DOES NOT help you to cut inch threads on a metric lathe with a metric lead screw.


**2545 Threading Dial Assembly (Inch), G0516** **\$32.40**

**Lathe: 8.5x16 Lathe (C4) Accessories****Lathe: 8.5x16 Lathe (C4) Accessories**


**4665 Accessory Package, Bench Lathe** **\$381.93**

- Complete set of bench lathe accessories
- Fully equip your SIEG C4, SC4 or HiTorque bench lathe
- Steadies, centers, chucks, faceplate and dogs


This package includes all the accessories you could want to fully equip your SIEG C4, SC4 or LittleMachineShop.com HiTorque bench lathe. See compatibility tab for reference to machines that are compatible with this product.



**3538 Chip Tray, 8.5x20 Bench Lathe** **\$79.40**

- Metal chip tray, black
- 39.8" x 19.9" x 0.98" (1010 mm x 505 mm x 25 mm)
- Fits SIEG C4 & SC4 and HiTorque 8.5x20 bench lathes
- Holes align for securing compatible bench lathe
- Available in tray only or on a stand

Chip tray for SIEG C4 & SC4 and HiTorque 8.5x20 bench lathes. Dimensions are 39.8" x 19.9" x 0.98" (1010 mm x 505 mm x 25 mm). Positioning blocks are predrilled for securing a compatible bench lathe. This chip tray has been upgraded to be more robust than the trays that ship with most mini lathes. Sold individually for bench mounting or on a stand cabinet. For full cabinet with tray, see product #3973. See the Compatibility tab for machines that work with this product.




**3400 Faceplate, Bench Lathe** **\$43.60**

- 180 mm diameter
- 8 Slots for mounting work
- Compatible with lathes with 100 mm flange chuck mount
- Fits SIEG C4, SC4 and HiTorque bench lathes

Bench lathe faceplate that fits SIEG C4, SC4 and LittleMachineshop.com HiTorque bench lathes. The faceplate is 7.1" (180 mm) in diameter and has 8 slots for mounting work. This faceplate will not fit with the plastic chuck guard in place.

**3401 Clamping Kit, Bench Lathe Faceplate** **\$27.16**




**5043 Faceplate, C8 Lathe** **\$57.70**

- 254 mm Diameter
- 8 Slots to Mount Work

Faceplate SIEG C8 lathe.

The faceplate lathe is 10" (254 mm) in diameter and has 8 slots for mounting work.


**5035 Clamping Kit for C8 Faceplate** **\$30.35**



**3399 Follower Rest, Bench Lathe** **\$62.58**

- Follower rest, bench lathes
- Supports work up to 2.2" in diameter
- Fits SIEG C4, SC4, and HiTorque bench lathes


This follower rest fits SIEG C4, SC4, and LittleMachineshop.com HiTorque bench lathes. The follower rest can support work up to 2.2" in diameter. See compatibility tab for reference to machines that are compatible with this part.



**3398 Steady Rest, Bench Lathe** **\$73.71**

- Bench lathe steady rest
- Fits SIEG C4, SC4, and HiTorque bench lathes
- Supports work up to 2.2" (55.88 mm) in diameter

Bench lathe steady rest fits SIEG C4, SC4, and LittleMachineshop.com HiTorque bench lathes. The steady rest can support work up to 2.2" (55.88 mm) in diameter. See compatibility tab for reference to machines that are compatible with this part.


**Lathe: 8x12/14 Lathe Accessories**


**2544 Faceplate, 8x12 Lathe** **\$45.60**

- 200 mm Diameter
- 8 Slots for Mounting Work
- Compatible with 8x12 Lathe Faceplate 8x12 lathe.

The faceplate is 7.87" (200 mm) in diameter and has 8 slots for mounting work.


This faceplate mounts on the same flange as a 4" 3-jaw chuck mounts.



**2859 Follower Rest, 8x12, 8x14 Lathes** **\$64.85**


- Follower Rest, 8x12 and 8x14 lathes
- Supports work up to 2.5" in diameter

This follower rest fits 8x12 and 8x14 lathes. The follower rest can support work up to 2.5" in diameter. Use M8x30 bolts to secure to lathe. Bolts not included. See the Compatibility tab for products that work with this product.



**2858 Steady Rest, 8x12, 8x14 Lathes** **\$75.98**


This steady rest fits 8x12 and 8x14 lathes. The steady rest can support work up to 2.5" in diameter.

**Lathe: Small Lathe Accessories**


**5536 Compound Clamp for 9x20 Lathe** **\$69.95**

- Four bolt compound hold down precision machined from steel
- Includes four T-slot nuts
- Includes four Class 10.9 hex head cap screws


Eliminate the flex of your stock 2-bolt compound rest hold down with our precision machined 4-bolt upgrade. Replaces the current mount and is a direct bolt on upgrade. Includes set of four steel T-slot nuts with black oxide finish. Includes four Class 10.9 M6x18 hex head cap screws.



**5857 Compound Clamp, Grizzly G0602** **\$109.95**

- Designed for the Grizzly G0602 lathe
- Improves rigidity
- Made in the US

Improve the rigidity of your G0602 lathe with the Belfanti Machine Works G0602 compound clamp. The increased rigidity improves part-off capability and surface finishing, and it reduces chatter issues commonly found with the stock compound clamping system. All the hardware needed to install your new compound kit (metric studs, tap, drill bit, nuts, and washers) is included, along with instructions. You'll need the following tools to complete the installation: \* Center punch\* Hammer\* Tap handle\* Metric open end wrench set\* Metric allen wrench set\* Drill or drill press

**Lathe: Tool Post Grinders**


**1117 Grinding Wheel Dresser** **\$10.95**

- Overall length is 8-1/2"
- Wheel diameter is 1-1/4"
- Face width is 0.45"
- Supplied with an L-wrench

For dressing, truing, sharpening and removing glaze from solid abrasive wheels. Can be used on grinding wheel up to 1" wide. Four star-toothed hardened steel cutters with two spacers.

**Lathe: Tool Post Grinders**



**2001 Tool Post Grinder, Mini Lathe \$185.01**

- 6,000 RPM

This tool post grinder is designed specifically for the mini lathe. To install it, you simply replace the compound rest. The bottom of the mounting foot is approximately 50 mm (2") below the centerline of the grinding wheel. The grinder comes with 2 different grit grinding wheels (60 and 80 grit), and the tools needed to change them. Motor 150 watts, 120V, 60 Hz. This mini lathe tool post grinder is approximately 8" tall, 9" long and 3.5" thick. Get the right tools for your mini lathe and order this tool post grinder for sale today.

- 2195 Arbor, Grinding Wheel \$9.91
- 2584 Grinding Wheel, 120 Grit \$12.63
- 1767 Grinding Wheel, 80 Grit \$12.57
- 2585 Grinding Wheel, 180 Grit \$12.63
- 2586 Grinding Wheel, 240 Grit \$12.63
- 2184 Grinding Wheel, 60 Grit \$12.71
- 2194 Poly-V Belt, Tool Post Grinder \$5.37
- 4670 Tool Post Grinder, Bench Lathe \$195.01
- 4671 Tool Post Grinder, C6 Lathe \$195.01

**Lathe: Tooling**



**2568 Ball and Radius Turning Tool, Large, OMW \$139.95**

- Turn round shapes or curves on metal mini lathe
- For brass, aluminum, steel, plastic
- Cut convex curves up to 1 3/4" in diameter

The OMW Large Radius Ball Tool like its smaller counterpart is designed to cut round shapes or curves in brass, aluminum, steel, wood or plastic on your own lathe. Balls in the ends of rods, shafts, or handles are easily turned with the tool. You can also make ball joints, governor weights, railing knobs, round contact points for tools, nose cones, and many other useful and decorative objects. The OMW lathe radius turning tool is sized for lathes of 5" or greater swing, and the 1/2" shank size will fit most standard tool holders. The tool will cut convex curves up to 1 3/4" in diameter. This lathe ball turning attachment is manufactured from the highest quality materials. Frames are machined from high strength aluminum alloy. The handle is tool steel, the pivot pins are hardened and ground and rotate in custom bronze bearings. The tool is completely machined from solid metal stock, there are no stamped, cast or pressed parts. A pre-ground High Speed steel tool bit is included. Each lathe radius turning tool is manufactured in the USA by OMW Corporation and is carefully inspected and checked before shipment. This lathe ball turning attachment is designed so that the center height is 3/8" from the bottom of the shank. The tool comes with a pre-ground HSS tool bit which may be easily resharpened or modified.

- 2569 Ball and Radius Turning Tool, Small, OMW \$89.95
- 2963 Tool Bit, Large Ball and Radius Turning Tool \$21.95
- 2964 Tool Bit, Small Ball and Radius Turning Tool \$18.95



**1970 Ball Turning Attachment \$59.85**

- Turn balls on metal mini lathe
- Cut convex curves up to 2" in diameter
- Includes one presharpener 5/16" tool bit
- Fits most SIEG and LittleMachineShop.com HiTorque mini lathes
- Mounting block not included

This attachment allows you to turn balls on the mini lathe. This radius turning tool will cut convex curves up to 2" in diameter. Includes one presharpener 5/16" tool bit. You must make a mounting block for the ball turning attachment. See Chris' tips for plans for the mounting block. See the Compatibility tab for machines and other products that work with this product.

**Dead Centers**



Morse taper solid dead centers These dead centers have a 60 degree included point angle. Half-notched dead centers have about half the point cut away so you can work closer to the end of the work piece.

- 5187 Dead Center, 1MT \$5.95
- 5475 Dead Center, 1MT, Carbide Tip \$10.95
- 5471 Dead Center, 1MT, Carbide Tip, Half-Notched \$16.95
- 5473 Dead Center, 2MT \$7.95
- 1890 Dead Center, 2MT \$6.80
- 5476 Dead Center, 2MT, Carbide Tip \$10.95
- 5186 Dead Center, 2MT, Carbide Tip, Half-Notched \$13.95
- 1188 Dead Center, 3MT \$8.22
- 5477 Dead Center, 3MT, Carbide Tip \$16.95
- 5472 Dead Center, 3MT, Carbide Tip, Half-Notched \$16.95



**1911 Knurler, Large Capacity \$52.95**

- 0 to 2" (50 mm) diameter capacity
- Fits standard 4-way and quick change tool posts
- Includes three sets of knurls

This scissors knurling tool is made to our design, specifically for the mini lathe. This knurler fits in the standard tool post of the mini lathe without any modification. This knurling tool also works with any of the quick change tool posts we sell. The mounting bar is 3/8" (9.5 mm) tall so it replaces a 3/8" tool bit. It comes with fine (33 lines per inch, 0.8 mm pitch), medium (21 lines per inch, 1.2 mm pitch), and coarse (14 lines per inch, 1.8 mm pitch) diamond knurls.

- 3770 Knurler, Large Capacity with 6 sets of Knurls \$72.95
- 1733 Knurls, Coarse Diamond \$5.95
- 2974 Knurls, Coarse Straight \$5.95
- 1731 Knurls, Fine Diamond \$5.95
- 2972 Knurls, Fine Straight \$5.95
- 1732 Knurls, Medium Diamond \$5.95
- 2973 Knurls, Medium Straight \$5.95

**Lathe Mandrels, Individual Sizes**



- Standard taper: .0005" per 1"
- Smaller end is .0005" undersized
- Made of tool steel hardened and ground

Lathe and OD grinder mandrels. Designed for setting-up accurately bored or reamed blanks and castings.

- 5459 Lathe Mandrel, 1/8" x 2-1/2" \$9.95
- 5460 Lathe Mandrel, 3/16" x 3" \$9.95
- 5461 Lathe Mandrel, 1/4" x 3-3/4" \$9.95
- 5462 Lathe Mandrel, 5/16" x 4" \$9.95
- 5463 Lathe Mandrel, 3/8" x 4-1/4" \$9.95
- 5464 Lathe Mandrel, 7/16" x 4-1/4" \$9.95
- 5465 Lathe Mandrel, 1/2" x 5" \$9.95

**1189 Live Center, 2MT Short \$23.18**



- Point is a 60° included angle
- Short 2 Morse taper for the mini lathe
- Fits Jet 1014 mini wood lathe
- 1.495" diameter body

This mini lathe live center fits the tailstock of the mini lathe. The point is a 60° included angle and is 0.71" in diameter.


**3154 Live Center, 2MT Standard Bull Nose \$119.95**





- For tubing and other hollow work
- Point is a 70° included angle
- Standard bull nose 2 Morse taper
- 5.31" total length


This bull nose live center is made from hardened steel and ground for accuracy. It has precision high quality bearings. The nose is a 70° included angle. The diameter of the nose is 2.45". The diameter of the flat on the front of the nose is 0.46".


**Lathe: Tooling**

	<b>1592 Live Center, 2MT Standard Heavy Duty</b>	<b>\$26.95</b>
	<ul style="list-style-type: none"> <li>• Point is a 60° included angle</li> <li>• Standard 2 Morse taper for the mini lathe</li> <li>• 1.77" diameter body</li> </ul> <p>This center is made from hardened steel and ground for accuracy. It has precision high quality bearings. The point is a 60° included angle. The maximum diameter of the point is 0.98". The OD of the body is 1.77". The distance from the tip to the front of the body is 1.66". The rated radial load is 90 lbs. The maximum speed is 5000 RPM.</p>	
	<b>2714 Live Center, OMT</b>	<b>\$29.95</b>
	<b>1704 Live Center, 1MT Heavy Duty</b>	<b>\$26.95</b>
	<b>3702 Live Center, 3MT</b>	<b>\$32.95</b>

	<b>4544 Live Center, 2MT Standard Multi Point</b>	<b>\$117.95</b>
	<ul style="list-style-type: none"> <li>• 7 different live center points</li> <li>• Precision needle and thrust bearings</li> <li>• Bull nose and conical tips</li> <li>• In a fitted case</li> </ul> <p>This live center set gives you lots of options to support large and small parts. The body is 1.7" (45 mm) in diameter. The "bullnose" is 0.98" (25 mm) in diameter.</p>	
	<b>4545 Live Center, 3MT Multi Point</b>	<b>\$142.95</b>


	<b>4692 Live Center, 2MT Standard Multi Point Precision</b>	<b>\$69.95</b>
	<ul style="list-style-type: none"> <li>• 7 live center points</li> <li>• Precision needle and thrust bearings</li> <li>• Bull nose and conical tips</li> <li>• In a fitted wood case</li> </ul> <p>This live center set gives you lots of options to support large and small parts. There are five 60 degree live center tips of four different diameters. There are two of the largest "standard" center. The 60 degree centers range in diameter from 0.22 to 0.53" (5.5 to 13.5 mm). The 60 degree conical center is for pointed work pieces. The "bull nose" center is 1.22" (31 mm) in diameter. The body is 1.57" (40 mm) in diameter. There is a tapered pin to pop the tips out of the live center.</p>	
	<b>4915 Live Center, 3MT Multi Point Precision</b>	<b>\$79.95</b>


	<b>2504 Rotating Tailstock Chuck</b>	<b>\$72.95</b>
	This is a "live" drill chuck for the tailstock. Use it to support small diameter work where a live center is not practical. The shank is 2 Morse taper. The drill chuck is 1/2" capacity.	


	<b>1877 Tailstock Turret Tool Holder, 2MT</b>	<b>\$115.95</b>
	This tailstock turret tool holder has positions for 6 tools. The tool positions are 5/8" diameter holes with a set screw to retain the tool holder. The shank is a 2 Morse taper.	

<b>3053 Tailstock Turret Tool Holder, 3MT</b>	<b>\$149.95</b>
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**Lathe Chucks: Accessories**


	<b>1382 Chuck Stop, 3-Jaw, 3 Piece Set</b>	<b>\$124.99</b>
	<ul style="list-style-type: none"> <li>• Set of three 3-Jaw Chuck Stops</li> <li>• Fits 3" to 5" 3-Jaw lathe chucks</li> <li>• Thicknesses include 8.5 mm, 11.5 mm, and 14.5 mm</li> <li>• Magnetic mounting on chuck face</li> <li>• Made from blue anodized aluminum</li> </ul> <p>The chuck stops mount magnetically to the face of any 3" to 5" 3-jaw lathe chuck. The front and back surfaces are parallel within ±.002" (±0.05 mm). The design allows short and small parts to project a consistent distance past the chuck jaws without falling inside the bore.</p>	


	<b>1688 Jaws, Inside for 3-Jaw 3" Chuck</b>	<b>\$40.00</b>
	Inside jaws for 3" 3-jaw chuck. These are replacement jaws for the 3" 3-jaw chuck that comes on the mini lathe. Look carefully at the jaws before you decide to purchase inside or outside jaws.	
	<b>1973 Jaws, Inside for 3-Jaw 4" Chuck</b>	<b>\$41.95</b>
	<b>5027 Jaws, Inside for 3-Jaw 5" Chuck</b>	<b>\$57.65</b>
	<b>5793 Jaws, Inside for 3-Jaw 6" Chuck</b>	<b>\$49.95</b>
	<b>1689 Jaws, Outside for 3-Jaw 3" Chuck</b>	<b>\$40.00</b>
	<b>1974 Jaws, Outside for 3-Jaw 4" Chuck</b>	<b>\$41.95</b>
	<b>5028 Jaws, Outside for 3-Jaw 5" Chuck</b>	<b>\$57.65</b>
	<b>5932 Jaws, Outside for 3-Jaw 6" Chuck</b>	<b>\$37.95</b>
	<b>5029 Jaws, Reversible for 4-Jaw 3" Chuck</b>	<b>\$45.65</b>
	<b>3408 Jaws, Reversible for 4-Jaw 4" Chuck</b>	<b>\$53.57</b>
	<b>5030 Jaws, Reversible for 4-Jaw 5" Chuck</b>	<b>\$56.50</b>

	<b>1768 Key, Lathe Chuck, 8 mm Square</b>	<b>\$10.26</b>
	<ul style="list-style-type: none"> <li>• 8mm (5/16") Square Head</li> <li>• Fits 3" 3-Jaw Lathe Chuck</li> <li>• Fits 4" 3-Jaw Lathe Chuck</li> </ul> <p>This chuck key fits 3" 3-Jaw lathe chucks, as well as 4" 3-jaw lathe chucks. This key will also fit any other chuck that requires a 8mm (5/16") key.</p>	
	<b>5483 Key, Lathe Chuck, 11 mm Square</b>	<b>\$10.95</b>
	<b>5484 Key, Lathe Chuck, 12.5 mm Square</b>	<b>\$10.95</b>
	<b>3409 Key, Lathe Chuck, 6 mm Square</b>	<b>\$10.34</b>
	<b>5480 Key, Lathe Chuck, 6.5 mm Square</b>	<b>\$8.95</b>
	<b>5481 Key, Lathe Chuck, 8 mm Square, Long Handle</b>	<b>\$8.95</b>
	<b>5482 Key, Lathe Chuck, 9.5 mm Square</b>	<b>\$10.95</b>

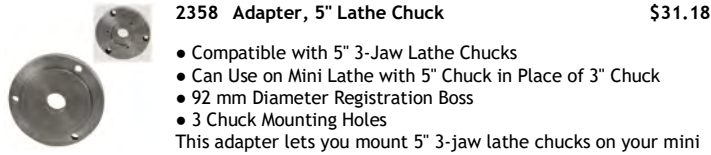
**Lathe Chucks: Adapters**

	<b>1692 Adapter, 4" Lathe Chuck</b>	<b>\$21.63</b>
	<ul style="list-style-type: none"> <li>• Compatible with 4" 3- or 4-Jaw Lathe Chucks on Mini Lathes</li> <li>• Use with Chucks with a 72 mm Registration Recess Diameter</li> <li>• Cast Iron</li> <li>• Net Thickness of 0.66"</li> </ul> <p>This adapter lets you mount 4" 3- or 4-jaw lathe chucks on your mini lathe.</p> <p>Use this adapter with chucks that have a 72 mm registration recess diameter.</p> <p>The adapter mounts to the 3-hole pattern on the spindle so it works on spindles with only three holes.</p>	
	This adapter is cast iron and has a net thickness of 0.66". The net thickness is the distance from the rim of the lathe spindle to the back of the chuck.	

	<b>2426 Adapter, 4" Lathe Chuck</b>	<b>\$21.63</b>
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	<b>3782 Adapter, 4" Lathe Chuck on 4" Rotary Table</b>	<b>\$89.95</b>
	<ul style="list-style-type: none"> <li>• Mounts a 4" 3- or 4-jaw chuck on 1810 and 2420 rotary tables</li> <li>• Maximum diameter matches chuck diameter</li> </ul> <p>This adapter attaches to the rotary table with some special tapered T-slot nuts that are tightened by the 4 cap screws around the outside. You mount the adapter to the chuck with cap screws using the holes around the periphery. It will mount either 3-Jaw or 4-Jaw 4" (100 mm) chucks. Remove the 4 cap screws around the outside. Slide the special T-slot nuts into the T-slots on the rotary table. Set the chuck and adapter over the T-slot nuts and reinsert the cap screws. The adapter is registered by the boss that extends from the bottom of the adapter. Tighten the 4 cap screws evenly. This adapter will only mount a 4" (100 mm) lathe chuck on a model 1810 or 2420 rotary table. It will not fit any other rotary table.</p>	

## Lathe Chucks: Adapters



### 2358 Adapter, 5" Lathe Chuck \$31.18

- Compatible with 5" 3-Jaw Lathe Chucks
  - Can Use on Mini Lathe with 5" Chuck in Place of 3" Chuck
  - 92 mm Diameter Registration Boss
  - 3 Chuck Mounting Holes
- This adapter lets you mount 5" 3-jaw lathe chucks on your mini lathe in place of a 3" (80 mm) chuck.

The adapter mounts to the 3-hole pattern on the spindle so it works on spindles with only three holes.

This adapter has a 92 mm diameter registration boss, and has 3 chuck mounting holes.

### 2347 Adapter, 5" Lathe Chuck \$31.18



### 2961 Adapter, 5" Lathe Chuck \$31.01

- Compatible with 5" 3- or 4-Jaw Lathe Chuck with 95 mm Registration Recess
  - Can Use on a Flange for 4" Chuck with 72 mm Registration Boss
  - Works on 8x12 and 8x14 Lathes
- This adapter mounts a 5" 3- or 4-jaw lathe chuck with a 95 mm registration recess on a flange for a 4" chuck with a 72 mm registration boss. It works on 8x12 and 8x14 lathes as well as the Harbor Freight 5980 multipurpose machine. It also fits the SIEG C4 lathe.



### 4913 Adapter, 6" Lathe Chuck \$38.64

- Fits 6" 4-Jaw Lathe Chucks with 65 mm Registration Recess
  - DO NOT BUY THIS FOR LMS CHUCKS 2038 and 2028
  - Can Use with 6" Chuck on Flange for 4" Chuck with 72 mm Registration Boss
  - Works on 8x12 and 8x14 Lathes
- This adapter mounts a 6" 4-jaw lathe chuck with a 65 mm registration recess on a flange for a 4" chuck with a 72 mm registration boss. It works on 8x12 and 8x14 lathes as well as the Harbor Freight 5980 multipurpose machine. It also fits the SIEG C4 and SC4 lathes.



### 4912 Adapter, 6" Lathe Chuck \$38.64

- Fits 6" 3-Jaw Lathe Chucks with 130 mm Registration Recess
  - Can Use with 6" Chuck on a Flange for 4" Chuck with 72 mm Registration Boss
  - Works on 8x12 and 8x14 Lathes
- This adapter mounts a 6" 3-jaw lathe chuck with a 130 mm registration recess on a flange for a 4" chuck with a 72 mm registration boss. It works on 8x12 and 8x14 lathes as well as the Harbor Freight 5980 multipurpose machine. It also fits the SIEG C4 and SC4 lathes.

\*NOTE\* If using with 2038 4-jaw chuck, additional mounting holes will need to be drilled.



### Backplate Lathe Chuck Adapters, Semi Machined

- Lathe side is fully machined
  - Chuck side must be machined to suit
  - Use for European style chucks
- These are a semi-machined adapter plate. The side that attaches to the lathe flange is fully machined. The side on which the lathe chuck mounts is not finished. Mount the backplate adapter on your lathe and complete machining of the chuck-mounting side. This ensures two things; that it will fit your chuck, and that it is concentric on your lathe.

4768 Backplate Lathe Chuck Adapter, 3" to 3" \$22.11

4769 Backplate Lathe Chuck Adapter, 4" to 3" \$27.72

4770 Backplate Lathe Chuck Adapter, 5" to 3" \$33.53

4771 Backplate Lathe Chuck Adapter, 5" to 4" \$36.53

4772 Backplate Lathe Chuck Adapter, 6" to 4" \$44.88



### Lathe Chuck Adapters

We stock a wide range of cast iron threaded lathe chuck adapters. These adapters are used to mount flat back lathe chucks on lathes with threaded spindles.

1791 Chuck Adapter, 1"-10 Thread 4" Diameter \$24.95

1917 Chuck Adapter, 1"-10 Thread 4" Diameter, 3 Holes \$25.95

2333 Chuck Adapter, 1"-10 Thread 5" Diameter \$43.95

2334 Chuck Adapter, 1"-10 Thread 6" Diameter \$54.95

1790 Chuck Adapter, 1"-8 Thread 4" Diameter \$24.95

1916 Chuck Adapter, 1"-8 Thread 4" Diameter, 3 Holes \$25.95

2331 Chuck Adapter, 1"-8 Thread 5" Diameter \$42.95

2332 Chuck Adapter, 1"-8 Thread 6" Diameter \$50.95

1792 Chuck Adapter, 1-1/2"-8 Thread 4" Diameter \$24.95

1918 Chuck Adapter, 1-1/2"-8 Thread 4" Diameter, 3 Holes \$25.95

1919 Chuck Adapter, 1-1/2"-8 Thread 6" Diameter \$52.95

5126 Chuck Adapter, 1-3/4"-8 Thread 6" Diameter \$52.95

2022 Chuck Adapter, 1/2"-20 Thread 3" Diameter, 3 Holes \$23.95

1923 Chuck Adapter, 2-1/4"-8 Thread 6" Diameter \$52.95

1920 Chuck Adapter, 3/4"-16 Thread 3" Diameter, 6 Holes \$23.95

1921 Chuck Adapter, M39 x 4 Thread 4" Diameter \$25.95

1922 Chuck Adapter, M39 x 4 Thread 6" Diameter \$52.95

2335 Chuck Adapter, Unthreaded 4" Diameter \$25.95

2336 Chuck Adapter, Unthreaded 6" Diameter \$52.95

## Lathe Chucks: Chucks

### Lathe Chuck Capacities

See the lathe chuck capacity chart at [www.littlemachineshop.com/chuck](http://www.littlemachineshop.com/chuck).



### 1187 Lathe Chuck, 3-Jaw 3" \$100.57

- Self-centering 3-Jaw lathe chuck.
  - 3" (80 mm) diameter
  - Includes chuck key, inside and outside jaws
  - Plain back mounting
  - High quality steel, hardened and ground
- This 3 inch 3-Jaw self-centering lathe chuck is the one that comes on the mini lathe. It includes a chuck key and inside and outside jaws. This three jaw chuck has a 0.63" (16 mm) through hole. It holds work up to 2.48" (63 mm) in diameter. The radial runout of a test bar held in this chuck, when the chuck is mounted true, is 0.003" maximum.

2916 Lathe Chuck, 3-Jaw 2", Self-Centering \$53.95







1698 Lathe Chuck, 3-Jaw 4" \$120.04



2337 Lathe Chuck, 3-Jaw 5" \$133.70

2028 Lathe Chuck, 3-Jaw 6" \$183.90



## Lathe Chucks: Chucks

	<b>5933 Lathe Chuck, 3-Jaw 3", Front Mount</b>	<b>\$140.95</b>
	<ul style="list-style-type: none"> <li>• 3-jaw Front Mount Lathe Chuck</li> <li>• 3" (80 mm) diameter</li> <li>• Includes chuck key, inside and outside jaws</li> <li>• Plain back mounting with bolts thru from the front</li> <li>• High quality steel, hardened and ground</li> </ul> <p>This 3 inch 3-Jaw front mount lathe chuck includes a chuck key, inside and outside jaws, and three M6 mounting bolts. The chuck has an inside diameter gripping range of 24-64 mm, and an outside diameter gripping range of 2-70 mm. Front mount chucks are designed to be used with rotary tables and other devices where back mounting chucks cannot be used. Easily mount on table, dividing head, fixture, or indexer. This is a plain back chuck and requires a backplate adapter to mount it on a lathe.</p>	
	<b>1941 Lathe Chuck, 3-Jaw 4", with Adapter</b>	<b>\$131.78</b>
	<ul style="list-style-type: none"> <li>• 3-jaw self-centering lathe chuck</li> <li>• 4" (100 mm) diameter</li> <li>• Includes chuck key, inside and outside jaws and mounting bolts</li> <li>• Includes an adapter to mount on a 3" (80 mm) flange</li> <li>• High quality steel, hardened and ground</li> </ul> <p>4" 3-Jaw self-centering lathe chuck with adapter for the mini lathe. Includes chuck key, inside and outside jaws, and mounting bolts. The chuck can hold work up to 3.15" (80 mm) in diameter and comes with an adapter for the mini lathe so that you can bolt it on in place of a 3" (80 mm) chuck. This 4" 3-jaw lathe chuck has a 0.87" (22 mm) through hole. The radial runout of a test bar held in this chuck, when the chuck is mounted true, is 0.003" maximum.</p>	
	<b>2345 Lathe Chuck, 3-Jaw 5", with Adapter</b>	<b>\$153.70</b>
	<b>5049 Lathe Chuck, 3-Jaw 6", for C8</b>	<b>\$242.41</b>
	<ul style="list-style-type: none"> <li>• 3-jaw lathe chuck</li> <li>• 6" (160 mm) diameter</li> <li>• Includes chuck key, inside and outside jaws</li> <li>• Specific flange backplate for mounting on C8 lathe</li> </ul> <p>This 6" 3-jaw lathe chuck comes with a chuck key and reversible inside and outside jaws. It can hold work up to 5.71" (145 mm) in diameter.</p>	
	<b>1175 Lathe Chuck, 4-Jaw 3", Independent</b>	<b>\$102.21</b>
	<ul style="list-style-type: none"> <li>• 4-jaw lathe chuck</li> <li>• 3" (80 mm) diameter</li> <li>• Each jaw is independently adjustable and reversible</li> <li>• Plain back mounting</li> <li>• High quality steel, hardened and ground</li> </ul> <p>This 4-jaw 3" lathe chuck comes with a chuck key and reversible jaws. This chuck has a 0.87" (22 mm) through hole. It holds work up to 3.15" (80 mm) in diameter.</p>	
	<b>2917 Lathe Chuck, 4-Jaw 2", Self-Centering</b>	<b>\$59.95</b>
	<b>1588 Lathe Chuck, 4-Jaw 4", Independent</b>	<b>\$114.27</b>
	<b>2338 Lathe Chuck, 4-Jaw 5", Independent</b>	<b>\$131.93</b>
	<b>2038 Lathe Chuck, 4-Jaw 6"</b>	<b>\$170.50</b>
	<b>1697 Lathe Chuck, 4-Jaw 4", Independent with Adapter</b>	<b>\$126.27</b>
	<ul style="list-style-type: none"> <li>• 4-jaw lathe chuck</li> <li>• 4" (100 mm) diameter</li> <li>• Each jaw is independently adjustable and reversible</li> <li>• Includes an adapter to mount on a 3" (80 mm) flange</li> <li>• High quality steel, hardened and ground</li> </ul> <p>This 4" 4-Jaw independent chuck includes an adapter to fit the mini lathe spindle. It includes a chuck key and reversible jaws. The adapter mounts to the spindle with three studs so additional holes in the spindle are not required. This chuck has a 0.98" (25 mm) through hole. The chuck can hold work up to 3.94" (100 mm) in diameter.</p>	
	<b>2346 Lathe Chuck, 4-Jaw 5", Independent with Adapter</b>	<b>\$143.85</b>

	<b>2361 Lathe Chuck, 4-Jaw 4", Self-Centering</b>	<b>\$165.50</b>
	<ul style="list-style-type: none"> <li>• 4-jaw self-centering lathe chuck</li> <li>• 4" (100 mm) diameter</li> <li>• Plain back mounting</li> <li>• Includes chuck key, inside and outside jaws</li> <li>• High grade tool steel</li> </ul> <p>4 inch, 4-Jaw self-centering lathe chuck for square or octagonal work. The through bore of this chuck is 20 mm (0.79"). This lathe chuck can hold work up to 80 mm (3.15") in diameter. The radial runout of a test bar held in this chuck, when the chuck is mounted true, is 0.004" maximum.</p>	
	<b>3424 Lathe Chuck, 4-Jaw 3", Self-Centering</b>	<b>\$122.95</b>
	<b>2276 Lathe Chuck, 6-Jaw 4", Self-Centering</b>	<b>\$212.05</b>
	<ul style="list-style-type: none"> <li>• 6-jaw self centering lathe chuck</li> <li>• 4" (100 mm) diameter</li> <li>• Includes chuck key and mounting bolts</li> <li>• Plain back mounting</li> <li>• Excellent for holding thin walled workpieces</li> </ul> <p>The jaws on this 4" 6-Jaw self-centering lathe chuck are hardened and ground. Includes chuck key and mounting bolts. Because the chuck is designed to hold tubing, outside jaws are not included. This chuck has a 1.02" (26 mm) through hole. The chuck can hold work up to 3.15" (80 mm) in diameter. The radial runout of a test bar held in this chuck, when the chuck is mounted true, is 0.003" maximum.</p>	

## Machines: Stands/Cabinets

	<b>5626 Stand Cabinet, 7x16 Mini Lathe</b>	<b>\$195.37</b>
	<ul style="list-style-type: none"> <li>• Metal stand and chip tray for mini lathe</li> <li>• Single column two door design</li> <li>• 34.9" x 13.9" x 34.9" (886 mm x 354 mm x 886 mm)</li> <li>• Cabinet for storage with locking door</li> <li>• Fits SIEG SC2 and HiTorque 7x16 mini lathes</li> </ul> <p>This single column two door design black stand comes with a built in cabinet and is suitable for all SIEG SC3 7x16 and HiTorque 7x16 mini lathes. The cabinet has one shelf. The tray dimensions are 34.9" x 13.9" x 0.4" (886 mm x 354 mm x 11 mm). Predrilled holes in tray are sized for securing compatible 7x16 mini lathes. This chip tray has been upgraded to be more robust than the trays that ship with most mini lathes. The stand has bolting slots for securing the stand to a floor for additional stability and safety. See the Compatibility tab for machines that work with this product.</p>	
	<b>5503 Chip Tray, 7x10 Mini Lathe</b>	<b>\$19.41</b>
	<b>5504 Chip Tray, 7x12 Mini Lathe</b>	<b>\$19.41</b>
	<b>5505 Chip Tray, 7x14 Mini Lathe</b>	<b>\$19.41</b>
	<b>5506 Chip Tray, 7x16 Mini Lathe</b>	<b>\$21.79</b>
	<b>5623 Stand Cabinet, 7x10 Mini Lathe</b>	<b>\$195.37</b>
	<b>5624 Stand Cabinet, 7x12 Mini Lathe</b>	<b>\$195.37</b>
	<b>5625 Stand Cabinet, 7x14 Mini Lathe</b>	<b>\$195.37</b>
	<b>3973 Stand Cabinet, 8.5x20 Bench Lathe</b>	<b>\$288.24</b>
	<ul style="list-style-type: none"> <li>• Metal stand and chip tray for bench lathe</li> <li>• Shipped disassembled, requires assembly</li> <li>• Fits SIEG C4 &amp; SC4 and HiTorque 8.5x20 bench lathes</li> <li>• Holes align for securing compatible bench lathe</li> <li>• Also available as a single tray</li> </ul> <p>This double column two door design black stand comes with two built in cabinets and a chip tray, and is suitable for all SIEG C4 &amp; SC4 and HiTorque 8.5x20 bench lathes. The cabinet has one shelf. The tray dimensions are 39.8" x 19.9" x 0.98" (1010 mm x 505 mm x 25 mm) and the overall height is 30.7" (780 mm). Positioning blocks are predrilled for securing a compatible bench lathe. This chip tray has been upgraded to be more robust than the trays that ship with most lathes. The stand has bolting slots for securing the stand to a floor for additional stability and safety. See the Compatibility tab for machines that work with this product.</p>	
	<b>3538 Chip Tray, 8.5x20 Bench Lathe</b>	<b>\$79.40</b>

**5634 Stand Cabinet, HiTorque Bench Mill \$263.37**

- Metal stand and chip tray for bench mill
- Single column design
- 20.79" x 23.94" x 33.66" (528 mm x 608 mm x 855 mm)
- Cabinet for storage with locking door
- Fits the HiTorque and SIEG SX2.7 bench mills

This single column black stand comes with a built in metal storage cabinet and is sized for bench mills. The cabinet has one shelf.

The tray dimensions are 20.78" x 23.94" x 1.38" (527 mm x 608 mm x 35 mm) and the unit stands 33.66" (855 mm) high. The chip tray has been upgraded to provide years of service. The tray has predrilled holes for securing HiTorque and SIEG SX2.7 bench mills.

The cabinet base has bolting slots for securing the stand to a floor for additional stability and safety.

See the Compatibility tab for machines that work with this product.

**5581 Chip Tray, HiTorque Bench Mill \$28.02****5629 Stand Cabinet, HiTorque Mini Mill \$161.24**

- Metal stand and chip tray for mini mill
- Single column design
- 16.1" x 19.3" x 35.0" (410 mm x 489 mm x 889 mm)
- Cabinet for storage with locking door
- Fits the HiTorque and SIEG X2L/SX2L mini mills

This single column black stand comes with a built in metal storage cabinet and is sized for mini mills. The cabinet has one shelf. The tray dimensions are 16.1" x 19.3" x 0.9" (410 mm x 489 mm x 24 mm) and the unit stands 35" (889 mm) high. The chip tray has been upgraded to provide years of service. The tray has predrilled holes for securing HiTorque and SIEG X2L/SX2L mini mills. The cabinet base has bolting slots for securing the stand to a floor for additional stability and safety. See the Compatibility tab for machines that work with this product.

**5510 Chip Tray, HiTorque Mini Mill \$21.79****5509 Chip Tray, Mini Mill \$21.79****5628 Stand Cabinet, Mini Mill \$161.24****5627 Stand Cabinet, Micro Mill \$158.24**

- Metal stand and chip tray for micro mill
- Single column design
- 14.8" x 17.9" x 35.0" (376 mm x 456 mm x 889 mm)
- Cabinet for storage with locking door
- Fits HiTorque and SIEG X1/SX1 micro mills

This single column black stand comes with a built in cabinet and is suitable for all micro mills. The cabinet has one shelf. The tray dimensions are 14.8" x 17.9" x 0.3" (376 mm x 456 mm x 8 mm) and the unit stands 35" (889 mm) high. The chip tray has been upgraded to provide years of service. The tray has predrilled holes for securing HiTorque and SIEG X1/SX1 micro mills. The cabinet base has bolting slots for securing the stand to a floor for additional stability and safety. See the Compatibility tab for machines that work with this product.

**5508 Chip Tray, Micro Mill \$19.25****Mill: HiTorque Bench Mill (SX2.7) Accessories****5846 Deluxe Productivity Upgrade Package, HiTorque Bench Mill \$544.95**

- Includes the 5655 Spindle Lock, the 5633 Quill Stop, and the 5657 power lift in one easy kit
  - Makes tool changes easier, faster, and more convenient.
  - Electro-magnetic interlock disables power to the motor with the fork of the Spindle Brake engaged.
  - Quick and accurate way to set quill depth of cut on 5500 Bench Top Mill.
  - Power lift Switch is mounted to the system plate and has three momentary positions: up, off, and down
- The Spindle Brake provides a convenient method of locking the spindle freeing both hands to complete a tool change. A safety switch ensures that power to the motor is disabled when the Spindle Brake is engaged. This Spindle Brake features an integral flip-style locking fork which locks the mill's spindle when engaged and does not require a separate locking device to be mounted and removed from the mill. To operate, flip the Spindle Brake fork down over the spindle while the spindle is at rest. Then rotate the spindle by hand until the set screws in the Spindle Brake fork mesh with a spindle spline. Once the tool change is complete, lift the Spindle Brake fork up into the retracted position and you are ready to go. The Quill Stop provides a quick and accurate way to set the quill depth of cut. It is great for drilling multiple holes to the same depth. The Quill Stop is also very handy in performing single or repeated chamfering of parts. To set up the chamfer the first time on a part, turn the mill off and simply lower the cutter to the top of the part, lock the fine feed knob, and back-off one full turn (turn the Button Nut clockwise as viewed from the top). Then start the mill and turn the Button Nut on the Quill Stop counterclockwise in small increments until the cutter contacts the part. Then continue turning the Button Nut counterclockwise and alternately lowering the quill until the desired chamfer is achieved. The Quill Stop works equally well performing inside chamfers using typical chamfering mills, and outside chamfers using, for example, a hollow mill. The Power Lift system for the Little Machine Shop 5500 mill functionally replaces the Z-Axis manual hand wheel that is used to raise and lower the mill head. Using the Power Lift system is really easy, just press the switch up or down and release, and you are done. It is much faster than using the hand wheel, and much easier on your shoulder.

**5657 Power Lift System, HiTorque Bench Mill \$269.00****5842 Productivity Upgrade Package, HiTorque Bench Mill \$239.95****5526 Quill Stop, Deluxe HiTorque Bench Mill \$129.95****5621 Spindle Lock, HiTorque Bench Mill \$47.50****5655 Spindle Lock, HiTorque Bench Mill, Flip Style \$119.00****4327 Drawbar, Bench Mill, Quick Release \$33.31**

- For SIEG SX2.7 class of bench mills
- 7/16"-20 thread
- For R8 spindle
- 12.4375" (316 mm) when measured like a bolt
- Eliminates need for spindle wrench

Quick release drawbar designed to easy tightening and release for R8 spindle bench mills without a spindle lock. This drawbar is compatible with SIEG SX2.7 class bench mills including the HiTorque Bench Mills. To use, hold drawbar securely with one wrench and tighten/loosen secondary nut. The use of two wrenches at the top of the drawbar eliminates the need to use a spindle wrench to hold the spindle stationary with one hand while working with the drawbar. This drawbar is not necessary for bench mills that have a spindle lock. The overall length of the drawbar is 12 7/16" in length (316 mm) when measured like a bolt. The bushing that centers the drawbar in the spindle has three steps with the diameter of each being 13 mm (0.512) 20 mm (0.788") 25 mm (0.984"). This drawbar can be used in place of the standard drawbar provided with any HiTorque Bench Mill (SX2.7), #50 in the SIEG SX2.7 drawings.

**Mill: HiTorque Bench Mill (SX2.7) Accessories**



**5835 Power Drawbar, Bench Mill \$995.00**

- Activation with the flip of a switch
- Provides a consistent holding force of approximately 40 foot-pounds at 90 psi.
- Safety activation/lockout feature.
- Does not place a load on the spindle bearings
- System easily swivels out of the way for manual drawbar operations.

The Priest Tools Power Drawbar is a CNC-class drawbar system that automates the task of loosening and tightening the drawbar when changing a tool on a milling machine. This greatly expedites the tool changing process and adds a great deal of convenience. Installation requires very slight modification to the mill (drill one small hole). It works with mills that have a quill and is compatible with the following milling machines: Little Machine Shop 5500 (Sieg SX2.7) Grizzly G0463 (Sieg X3) Grizzly G0619 (Sieg SX3) Grizzly G0722R (Sieg SX4) Simple to Use - Insert the actuator plate into the cylinder plate and release the spring plunger that locks it into place. Then flip the switch up to activate the system and remove the tool from the collet. Insert another tool into the collet, and then flip the switch down to dis-engage the Power Drawbar and secure the tool for machining. Requires a 90 PSI air supply. (You furnish the air compressor.)

**5113 Power Feed, 5500 Bench Mill \$399.33**



- Fits 5500 HiTorque Bench Mills and SIEG SX2.7 Mills
- Clutch disengages power feed when not in use
- Adjustable limit switches restrict travel
- 120-240V 50-60Hz

Power table feed for the SX2.7 mill. This power feed mounts on the left end of the mill's table and drives the X-axis feed screw. It is variable speed (0 to 20 inches per minute).

The kit takes about 20 minutes to install. It is a bolt-on accessory for the bench mill and requires no modifications to the machine. The power feed adds 8 1/4" inches to the left end of the table.

The power feed works on 120-240V 50-60Hz power. It has a computer-style (IEC 60320 C3/C4) power cord that unplugs from the power supply unit. This makes it easy to adapt for other countries. The furnished power cord has a North American (NEMA 5-15P) wall plug.

**5850 Power Feed, 5550 Deluxe Bench Mill \$399.33**

**4699 Power Feed, HiTorque Large Bench Mill \$431.64**

**5114 Power Feed, X3 & SX3 Mills \$431.64**

**5876 Quill Lock Knob Deluxe, HiTorque Bench Mill \$17.95**



- Easily loosen or tighten the quill
- Knurled steel for ease of grip and turning
- Designed to replace factory cap screw
- Saves time and effort

Custom made for the HiTorque Bench Mill Lock and loosen the HiTorque bench mill quill without the use of a hex wrench by adding a knob to make the process quick and easy. Custom made by Priest Tools, this upgraded version of the Quill Lock Knob (P/N 5875) is constructed of steel and has a 2" knurled surface for a sure grip and ease of use. Simply remove the factory screw and replace with this threaded knob. The threading is cut for an exact fit so there is no modification necessary.

**5875 Quill Lock Knob, HiTorque Bench Mill \$9.95**

**5586 Trammig Set, Bench Mill \$78.95**



- Everything you need to tram a bench mill
- Dial test indicator
- Universal arm locks with one knob
- Shim assortment

This package includes everything you need to tram your bench mill and square your vise. Mount the indicator on the universal arm, put the shank of the universal arm in a drill chuck, and check the four corners of your mill table. Adjust the tram by shimming under the base of the column.

**Mill: HiTorque Mini Mill (SX2) Accessories**



**3954 Feed Screw Parts, 20 TPI, HiTorque Mini Mill \$60.98**

These parts change HiTorque mini mills to 20 thread per inch feed screws on the X- and Y-axis. Each rotation of the hand wheel will advance the table 0.050". The kit includes two feed screws, two nuts, two 50 division dials, plus the springs and keys that you are going to lose during disassembly.



**4249 Feed Screw Parts, Metric, HiTorque Mini Mill \$93.95**

This kit changes the HiTorque mini mill to metric feed screws on the X- and Y-axis. It also changes the Z-axis to read in mm. The kit includes two feed screws, two nuts, two dials, two scales, the Z-axis feed knob, plus the springs, pins and keys that you are going to lose during disassembly.



**4151 High Speed Spindle Kit, HiTorque Mini Mill \$69.95**

- Fits HiTorque mini mills
- 5000 rpm top speed
- Includes two pulleys and a belt
- Belt is 350-5M-15, 70 teeth

These pulleys change the spindle speed range to 5000 rpm max.

It's important to have high speed bearings, as the standard bearings are not rated to 5000 rpm. Most LittleMachineShop.com HiTorque Mini Mills have high speed bearings--see the Chris' Tips tab. The increased speed is great for small cutters such as those used for engraving. Just remember that doubling the speed will cut the torque in half. This high speed spindle kit uses the same belt as the standard drive pulleys. We do not have installation instructions completed yet, so you are on your own for installation. The pulleys are easy, but if you have to change the bearings you have to press the spindle out and back in. A hydraulic press makes it an easy task. Switching pulleys to the original set shouldn't take more than 20 minutes. Order this and other mini mill accessories online at LittleMachineShop.



**4483 Solid Column Conversion Kit, HiTorque Mini Mill \$204.95**

- Converts a HiTorque Tilting Column Mini Mill to the solid column version.
- Can be used on other Mini Mills (See Chris' Tips)

This mini mill conversion kit converts a HiTorque Tilting Column Mini Mill (part number 3900) to solid column.

The kit includes the base and column from the HiTorque Solid Column Mini Mill (part number 3960), the fasteners needed to connect them, and complete instructions.



**4762 Spindle Lock, Interlocked, HiTorque Mini Mill \$119.00**

- Makes tool changes easier, faster, and safer
- When engaged, the plunger automatically drops into the locking hole as the spindle is rotated
- An electro-magnetic interlock disables power to the motor when the spring plunger is engaged
- Frees both hands for changing tools
- Loosen and tighten keyless chucks with one hand

The spindle brake provides a semi-automatic method of locking the spindle freeing both hands to complete a tool change. A safety switch disables power to the motor when the spring plunger is engaged. Fits SIEG SX2 mills



**5585 Trammig Set, Mini Mill \$64.95**

- Everything you need to tram a mini mill
- Dial test indicator
- Universal arm locks with one knob
- Shim assortment

This package includes everything you need to tram your mini mill and square your vise. Mount the indicator on the universal arm, put the shank of the universal arm in a drill chuck, and check the four corners of your mill table. Adjust the tram by shimming under the base of the column.

**Mill: Micro Mill (X1) Accessories****Mill: Micro Mill (X1) Accessories****2034 Drawbar, 2MT x 3/8"-16, Micro Mill \$9.95**

- For SIEG X1 class of micro mills
- 3/8"-16 thread
- For 2MT spindle
- 5-5/8" long when measured like a bolt

This drawbar is for the micro mill. It has a 3/8"-16 drawbar thread which is needed for American Tooling. If you need the metric drawbar that typically comes with X1 Micro Mills from the factory, see product #2088See compatibility tab for reference to machines or other related products that use this product. See Used On tab for reference to machines using this part and the corresponding drawing number.

**Mill: Micro Mill (X1) Assemblies****3860 Micro Mill X-Y Table Assembly \$293.17**

- Complete X-Y table assembly for a micro mill
  - Includes long table and extended X-axis travel
- This is the complete X-Y table assembly for a Super X1 Micro Mill. The table is 145 mm (5.7") by 400 mm (15.7"). It has three 8 mm T-slots. The X-axis travel is approximately 330 mm (13") and the Y-axis travel is approximately 130 mm (5.1"). The table is 124 mm (4.9") tall (the hand wheel is higher). The table base is 353 mm (13.9") deep and 216 mm (8.5") wide. The dials are graduated in 0.001" and one turn of the hand wheels moves the table 0.0625". The X-Y table is made of cast iron and steel. There are adjustable gibs on both axes. Order this X-Y table for sale for your workshop today.

**Mill: Mini Mill (X2) Accessories****1637 Drawbar, 3MT x 3/8"-16, Mini Mill \$9.95**

- For SIEG X2 class of 3 Morse Taper Mills
- 3/8"-16 thread
- For 3MT spindle
- 4" long when measured like a bolt

This drawbar fits the Grizzly G8689 and the Micro-Mark 82573 mini mills with the 3 Morse taper spindle, and is for use with collets and end mill holders with 3/8-16 NC thread. These mini mill drawbars are custom made for LittleMachineShop.com. \*NOTE\*: this is not the original drawbar for these machines. If you are looking to replace the original see Part #1414 with the M12 thread.

**1414 Drawbar, 3MT x M12, Mini Mill \$11.19****1638 Drawbar, R8 1-Piece, Mini Mill \$9.95****4789 Handwheel, Mini Mill, Cast Iron/Chrome \$34.95**

- Cast iron handwheel with chrome plated finish
- Fits SEIG X2, SX2 and HiTorque Mini Mills
- 100 mm outside diameter
- Mounts on 10 mm shaft with a 4 mm keyway
- Bore is 23 mm, handle is included

This attractive handwheel is cast iron with a polished, chrome plated rim and handle. Designed to fit SIEG X2 class of mini mills (X2, SX2, SX2LF) including the HiTorque mini mills. The hand wheel is 100 mm outside diameter. It mounts on a 10 mm shaft and has a 4 mm keyway. The length through the bore is 23 mm. A chrome handle is included. Get two to equip your mini mill on the X- and Y-axes. See the Compatibility tab for machines that work with this product.

**3935 HiTorque Retrofit Drive Package, 500 Watt \$659.93**

- 120V 60Hz input
- This is a complete HiTorque Brushless DC variable speed drive system. It comes with 3' (1 m) cables so it is adaptable to many applications. The motor is 0-5000 RPM, 500 Watt (0.67 Hp) output. The motor shaft is 14 mm in diameter and 14.5 mm long. The motor is 74 mm square and 140 mm long, not including the shaft. The mounting holes are 6 mm on a 68 mm square. 120V 60Hz 8 amps input.

**5112 Power Feed, HiTorque Mini Mill \$379.85**

- Fits large-table mini mills
- Clutch disengages power feed when not in use
- Adjustable limit switches restrict travel
- 120-240V 50-60Hz

Power table feed for the HiTorque and other large-table mini mills.

This power table feed mounts on the left end of the mini mill's table and drives the X-axis feed screw. It is variable speed (0 to 20 inches per minute).

The power feed takes about 20 minutes to install. It is a bolt-on accessory for the HiTorque Mini Mill and requires no modifications to the machine. The power feed adds 8 1/4" inches to the left end of the table.

This mini mill power feed works on 120-240V 50-60Hz power. It has a computer-style (IEC 60320 C3/C4) power cord that unplugs from the power supply unit. This makes it easy to adapt for other countries. The furnished power cord has a North American (NEMA 5-15P) wall plug.

This mini mill power feed also fits the Grizzly G0727 horizontal/vertical mill. SIEG U1

**5111 Power Feed, Mini Mill \$379.85**

- Fits standard mini mills
- Clutch disengages power feed when not in use
- Adjustable limit switches restrict travel
- 120-240V 50-60Hz

Power table feed for the mini mill.

This power feed mounts on the left end of the mini mill's table and drives the X-axis feed screw. It is variable speed (0 to 20 inches per minute).

The mini mill power feed kit takes about two hours to install. The power feed unit bolts to existing bolt holes in the left end of the table. The limit switch mechanism is mounted to the back of the mill table. The power feed adds 8 1/4" inches to the left end of the table.

This mini mill power feed kit fits any mini mill with an extended X-axis feed screw. Look under the left side of the table to see if the X-axis feed screw has a 2 1/2" long unthreaded extension with a slot in the end. If so, you can use this power feed kit.

The x-axis power feed works on 120-240V 50-60Hz power. It has a computer-style (IEC 60320 C3/C4) power cord that unplugs from the power supply unit. This makes it easy to adapt for other countries. The furnished power cord has a North American (NEMA 5-15P) wall plug.

**5127 Riser, 2" Solid Column \$49.07**

- Adds 2" (50 mm) to the head space
- For solid column mini mills and micro mills
- Includes proper mounting hardware

This riser block mounts between the base and the column, adding 50 mm (2") to the head room on the mini mill.

The riser block has 4 holes for 8 mm fasteners on 50 mm x 135 mm centers.

**4785 Spindle Lock, X2 Mini Mill \$119.00**

- Makes tool changes easier, faster, and more convenient
- When engaged, the plunger automatically drops into the locking hole as the spindle is rotated
- An electro-magnetic interlock disables power to the motor when the spring plunger is engaged
- Frees both hands for changing tools
- Loosen and tighten keyless chucks with one hand

The spindle brake provides a fixed position for inserting the locking pin and frees both hands for changing tools. Fits SIEG X2 mills Does not work with the Mini Mill Belt Drive Kit.


**3711 Work Stop, Small Universal \$9.95**

- Rigid stop for small milling machines
- Made of hardened steel
- Column is 0.47" diameter and 3.94" tall
- Base is 1.57" wide, 2.76" long and 0.47" thick
- Rod is 0.375" diameter and 6" long

Use this work stop with vises, angle plates, jigs, and so on. It is the perfect size for 3" and 4" vises.


**3679 Work Stop, Universal \$12.95**

Mill: Mini Mill (X2) Assemblies



**1766 Column Assembly, Mini Mill** **\$150.68**


This is the complete column assembly for the mini mill.



**4503 Control Box Assembly, Mini Mill** **\$240.36**

- For all Mini Mills with conventional DC drives
- Saves complicated rewiring for updated controller board
- 120V 60 Hz input

This control box assembly includes two plastic control boxes, the motor controller, the emergency stop switch, the I/O switch, the potentiometer, the fuse holder and fuse. This is a fully-assembled control box set. Simply hook up the motor leads and go. One box mounts on the back of the column, the other on the side of the head. This package includes the current-production XMT-1135 motor controller. For all 120V mini mills except those with brushless DC drives.




**1663 Mini Mill Head Assembly, R8 Spindle** **\$447.09**

This is the complete head assembly for the mini mill. It includes the motor, motor controls, spindle housing and spindle. In short, it includes everything that travels up and down the column. This mini mill head assembly has an R8 spindle. The motor controller is a PWM variable speed controller with overload protection and a zero-speed start interlock. Motor: 350 Watt (0.47 HP) Low speed: 0-1100 RPM High speed: 0-2500 RPM Drilling capacity: 1/2" End milling capacity: 5/8" Face milling capacity: 1-1/8" Power: 120V, 60 Hz

**1912 Mini Mill Head Assembly, 3MT Spindle** **\$447.09**

**2636 Mini Mill Head Assembly, 3MT Spindle** **\$447.09**


**2517 Mini Mill Head Assembly, R8 Spindle 230V** **\$447.09**



**4134 Mini Mill Head Assembly, R8 Spindle, HiTorque** **\$741.48**

- R8 spindle
- No gears in spindle drive
- Most low-speed torque in its class
- Most powerful mill in its class


This is the complete head assembly for the HiTorque mini mill. It includes the motor, motor controls, spindle housing and spindle. In short, it includes everything that travels up and down the column. This mini mill head assembly has an R8 spindle. The 500 Watt brushless spindle drive motor provides tremendous low-end torque. And you can vary the speed from 50 rpm to 2500 rpm continuously. There are no gears to shift. And, with no gears, the HiTorque Mini Mill is the quietest in its class. Drilling capacity: 1/2" End milling capacity: 5/8" Face milling capacity: 1-1/8" Power: 120V, 60 Hz



**3677 Mini Mill Large Table Assembly** **\$376.07**

- 30% more travel in both directions
- 50% more table area
- Unbolt the column from your existing X-Y table and bolt it to this one.
- Great for the Grizzly G0516


This is a complete X-Y table assembly for a mini mill. The table is 120 mm (4.73") by 460 mm (18.11"). It has three 12 mm T-slots. The X-axis travel is 300 mm (11.8") and the Y-axis travel is 130 mm (5.1"). The dials are graduated in 0.001" and one turn of the hand wheels moves the table 0.050". The X-Y table is made of cast iron and steel. There are adjustable gibs on both axes. This is all you need to make a mini mill using the milling column from a Grizzly G0516 Combo Lathe with Milling Attachment.



**5013 Mini Mill Large Table Assembly, Solid Column Base** **\$394.60**

- 30% more travel in both directions
- 50% more table area
- Bolt pattern for solid column attachment (P/N 4307)


This is a complete X-Y table assembly for a mini mill. The table is 120 mm (4.73") by 460 mm (18.11"). It has three 12 mm T-slots. The X-axis travel is 300 mm (11.8") and the Y-axis travel is 130 mm (5.1"). The dials are graduated in 0.001" and one turn of the hand wheels moves the table 0.050". The X-Y table is made of cast iron and steel. There are adjustable gibs on both axes. The column mounting bolt pattern consists of 4 M8 threaded holes spaced 135 mm x 50 mm.



**1944 Mini Mill Spindle Box Assembly, R8** **\$145.31**


This is the spindle box casting for the mini mill, along with all the internal parts. Included are: An R8 spindle with all the gears, bearings, spacers, and top nut that ride on it. The intermediate shaft with all the gears, bearings and such that ride on it. This includes the intermediate gear on the top of the shaft. The high/low speed shifting mechanism.

**1906 Mini Mill Spindle Box Assembly, 3MT** **\$145.31**



**1765 Mini Mill Table Assembly** **\$256.12**


This is the complete XY milling table assembly for a mini mill. The table is 90 mm (3.54") by 335 mm (13.19"). It has three 12 mm T-slots. The X-axis travel is approximately 8" and the Y-axis travel is approximately 4". The table is 136 mm (5.31") tall (the hand wheel and rear mount are higher). The table is 390 mm (15.4") deep and 460 mm (18.1") wide. The dials are graduated in 0.001" and one turn of the hand wheels moves the table 0.0625". The XY table assembly is made of cast iron and steel. There are adjustable gibs on both axes. This is all you need to make a mini mill using the milling column from a Grizzly G0516 Combo Lathe with Milling Attachment.



**3062 Variable Speed Drive Package** **\$255.04**

- Complete 250 W (1/3 HP) variable speed drive
- 120 V 60 Hz power
- 0-5000 RPM
- Forward and Reverse

This is a complete variable speed motor and controller. Hook up the motor leads, plug it in and you have a 1/3 HP variable speed drive system. The motor is 83 mm in diameter. The body of the motor is 145 mm long. The motor shaft is 8 mm diameter with a 3 mm keyway and extends out 21.5 mm. There is a retaining ring groove near the end of the shaft. There are two M6 threaded holes in the side of the motor for mounting, or it can be end mounted with a motor mounting flange.



**2008 X-Y Table Assembly** **\$172.92**

This small precision X-Y table can be used on a drill press or other machine to precisely locate your workpiece. The table is 90 mm (3.54") by 200 mm (7.87"). It has three 8 mm T-slots. The complete X-Y Table assembly is 10.15" wide, 8.5" deep and 2.5" high. The X-axis travel is 135 mm (5.31") and the Y-axis travel is 70 mm (2.76"). The height of the table is 60 mm (2.36"). The base is 100 mm (3.94") by 175 mm (6.89"). The dials are graduated in 0.001" and one turn of the hand wheels moves the table 0.050". The X-Y table is made of cast iron and steel. There are adjustable gibs on both axes.



**About the Tormach Tooling System**

Tool switching with the Tormach Tooling System (TTS) is extremely easy: Simply loosen the drawbar, slide out the current tool holder, then slip in the next and retighten. The unique geometry of the TTS tool holder ensures that, as the drawbar is tightened, the tool holder moves into an exact Z height while increasing rigidity. Each TTS holder has a shoulder that is undercut so it contacts the spindle itself, not the end of the collet. As the drawbar is tightened the collet will simultaneously squeeze the shank and be pulled upward into the spindle taper. This simultaneous action, grasping while moving up, pulls the tool holder tightly against the spindle face. The high-pressure contact between the shoulder of the tool holder and the spindle is the equivalent of a zero tolerance fit; the vertical location (Z-height) of the tool is exact. The initial placement, created by simply sliding the tool holder up until it stops, is normally within a few thousandths of an inch. The final location, after tightening the collet, is exact, highly repeatable, and not affected by the variable tension of the drawbar or wear on the collet.

- 4910 Tool Conversion Kit, Tormach TTS \$24.95
- 4295 Tool Height Setting Package, Tormach \$365.00



**2436 Arbor, Drill Chuck, Tormach TTS to 33JT \$13.99**

- Quick change arbor for 1/2" drill chucks
  - Minimal clearance height for tool change
  - Repeatable tool positioning
  - Hardened and precision ground
- Part of the Tormach Tooling System (TTS) this 33JT arbor is used for mounting standard keyed and keyless drill chucks.
- 2453 Arbor, Drill Chuck, Tormach TTS to 2JT \$24.95
  - 3586 Arbor, Drill Chuck, Tormach TTS to JT1 \$24.95
  - 4749 Arbor, Drill Chuck, Tormach TTS to JT6 \$13.99



**2456 Boring Head Arbor, Tormach TTS \$48.95**

- Quick change boring head shank with 7/8-20 thread
  - Minimal clearance height for tool change
  - Repeatable tool positioning
  - Hardened and precision ground
- Part of the Tormach Tooling System (TTS) this boring head arbor fits to 7/8-20 UN F mounted hears or other tooling with the 7/8-20 thread.



**2435 Collet Holder, Tormach TTS, ER-20 \$44.95**

- Quick change adapter for ER-20 collets
  - Minimal clearance height for tool change
  - Repeatable tool positioning
  - Hardened and precision ground
- Part of the Tormach Tooling System (TTS) this ER collet holder is designed to hold industry standard (DIN 6499) self-extracting collets, size ER-20. ER20 collet holders can hold tools up to 1/2" in diameter. Ideal for any small milling or drilling operations.
- 4127 Collet Holder, Tormach TTS, ER-16 \$44.95
  - 4998 Collet Holder, Tormach TTS, ER-32 \$49.95



**2454 Collet, Tormach TTS, R8, 3/4" \$39.95**

- Special shortened R8 collet for TTS system
  - Precision ground
- This precision ground R8 collet is shorter than a normal R8 collet to ensure that the TTS tool holder contacts the spindle.

**2455 Collet, Tormach TTS, 3MT, 3/4" \$31.95**

**3588 Drill Chuck, Tormach TTS, 1/4" \$44.95**



- 0-1/4" Capacity drill chuck
  - Mounted on Tormach Tooling System Arbor
  - Minimal clearance height for tool change
  - Repeatable tool positioning
  - Hardened and precision ground
- 0-1/4" Capacity drill chuck and Tormach Tooling System Arbor. All working parts are hardened. Chuck key is included. Number 1 Jacobs taper mount.



**2434 End Mill Holder, Tormach TTS, 3/8" \$21.99**

- Quick change adapter for 3/8" shank end mills
  - Minimal clearance height for tool change
  - Repeatable tool positioning
  - Hardened and precision ground
- Part of the Tormach Tooling System (TTS) this set screw hold is intended to be used with end mills that have a Weldon shank. The tool holder has a set screw on one side and a balancing dimple on the other side. The balancing dimple reduces vibrations at speeds above 8000 RPM.

- 2698 Blank Tool Holder, Tormach TTS \$29.95
- 2438 End Mill Holder, Tormach TTS, 1/2" \$21.99
- 3026 End Mill Holder, Tormach TTS, 1/4" \$21.99
- 4125 End Mill Holder, Tormach TTS, 10 mm \$21.99
- 4126 End Mill Holder, Tormach TTS, 12 mm \$21.99
- 3025 End Mill Holder, Tormach TTS, 5/16" \$21.99
- 4124 End Mill Holder, Tormach TTS, 6 mm \$21.99



**4581 Passive Probe, Tormach \$395.00**

- For edge finding and digitizing
- The passive probe is an affordable option for occasional and hobby use. This probe uses a normally closed sensing logic and is suitable for edge finding, digitizing, and other basic probing procedures. Stylus is ground steel ball. It interfaces with the PCNC mill using a 5 pin DIN connector. Includes 10mm TTS low-profile mount.



**4805 Shell Mill Arbor, 1/2", Tormach Quick Change \$79.95**

- Compatible with shell mills designed for 1/2" R8 arbors
  - Works with 4121 Face Mill
  - 1/4-28 thread
- This is the TTS arbor used for the 4121 face mill.



**2440 Starter Set, CNC, Tormach TTS \$995.00**

- Complete set for CNC operations includes 13 tool holders
  - Minimal clearance height for tool change
  - Repeatable tool positioning
  - All tool holders are hardened and precision ground
  - Tool height presetting set included
- CNC operations work best with one holder for each tool in order to make use of the tool length compensation table in the CNC controller. This function also requires a system for measuring the mounted tools. The CNC set includes a total of 13 tool holders plus a tool measuring set. The Tormach Tool Assistant Set includes 8" digital height gauge (measurement accuracy +/-0.0005"), USB interface cable with touch trigger, manual, and Tool Assistant software. This is an outstanding value and a great way to get started with a CNC that has been retrofitted from a manual machine. If your CNC machine supports a tool offset table but you're not using it, then you're not realizing the full benefit of CNC machining.

**4608 Starter Set, CNC, Tormach TTS, Metric \$995.00**

**2441 Starter Set, Manual, Tormach TTS (Inch) \$245.00**

- Complete set for manual operations includes 4 tool holders
  - Minimal clearance height for tool change
  - Repeatable tool positioning
  - All tool holders are hardened and precision ground
- You don't need a CNC to take advantage of the Tormach Tooling System. Manual operations benefit from quick change, reduced clearance, and increased rigidity. This is a basic set that will introduce users to all of those features. The manual mill operators set will improve productivity in manual milling.

**Mill: Quick Change Tooling**



**4663 SuperFly Cutter, Tormach TTS \$145.00**

- Adjustable to 3" (75mm) Cutting Diameter
  - Includes tool bar for SEHT Insert
  - 1.8" (46mm) Height
  - TTS Fly Cutter Body with ATC Geometry
- The Tormach SuperFly cutter kit has modern insert geometries and is specially designed for maximum performance on spindles with less than 3hp.

Kit includes the fly cutter body, tool bar, two general purpose carbide inserts, two polished carbide inserts for aluminum machining, insert screw, wrench and anti-seize.

Like all Tormach TTS tools, the SuperFly Cutter has a 3/4" straight shank. Use it with the TTS system, or use it in any 3/4" collet.

Tormach part number 38258.

- 4688 Insert, SEHT43AFFN-X83, Tormach \$17.95**
- 4689 Insert, SEHT43AFSN-X45, Tormach \$16.95**
- 4799 Screw, Insert Retaining, SEHT Inserts \$6.95**



**4672 Quill Stop, X3 and SX3 Mills \$125.95**

- Quick and accurate way to set quill depth of cut
  - Press the button and the nut disengages from the thread
  - Slide to desired position and release the button to engage threads
  - Turn the nut for micro-adjustments
  - Set accurate and consistent depth of cut for repeated machining operations
- The Quill Stop provides a quick and accurate way to set the quill depth of cut. It is great for drilling multiple holes to the same depth. The Quill Stop is also very handy in performing single or repeated chamfering of parts. To set up the chamfer the first time on a part, turn the mill off and simply lower the cutter to the top of the part, lock the fine feed knob, and back-off one full turn (turn the Button Nut clockwise as viewed from the top). Then start the mill and turn the Button Nut on the Quill Stop counter clockwise in small increments until the cutter contacts the part. Then continue turning the Button Nut counterclockwise and alternately lowering the quill until the desired chamfer is achieved.
- The Quill Stop works equally well performing inside chamfers using typical chamfering mills, and outside chamfers using, for example, a hollow mill.
- Requires a slight modification to the mill (drill & tap 2, 1/4-20 holes in the side of the machine head).

This quills stop works well on the Grizzly G0619 and G0463 mills.



**4905 Tool Tightening Fixture, Tormach TTS \$39.95**

- Single handed operation
  - One-way bearing design: insert tool on left side to loosen and right side to tighten
  - Black anodized aluminum body
  - Hardened and precision ground
  - Do not use with with TTS-ER Tension/Compression Tapping Heads
- The Compact tool tightening fixture for the Tormach Tooling System uses a one-way bearing for easy one-handed tightening and loosening of TTS-ER tools or TTS Modular Insert tools. It is also quite handy for loosening and tightening Tormach setscrew holders and other TTS tools.



**4803 Spindle Spline Wrench \$22.95**

- Manufactured from a single formed piece of steel
  - Black oxide finish
  - Fits X3 mills
  - 25mm and 28mm splines
- This steel spindle wrench perfectly engages the spindle spline enabling full control of spindle rotation during drawbar loosening or tightening operations. The spindle spline wrench solves the no spindle lock problem for many mills. The wrench has a black oxide finish and is 8.5 inches (216 mm) long. The Spindle Spline Wrench is a must-have tool for anyone who owns or operates an X3 milling machine or other large round column or square column mill.



**5037 Wrench, ER-16 & ER-20, Deluxe Tormach Set \$34.95**

- Includes (1) Box End wrench for retention nuts and (1) open-end wrench for TTS arbors.
- Anodized Aluminum Alloy
- Slim Profile
- High Visibility Blue Color
- Laser Size Marking

This set works for both ER-16 and ER-20 TTS holders as well as other ER-16 and ER-20 collet nuts and chucks.

**5041 Wrench, ER-32, Deluxe Tormach Set \$34.95**

**Mill: Small Mill (X3/SX3) Accessories**



**5877 Power Lift System, G0704 Bench Mill \$299.00**

- For Grizzly G0704 Mills
  - Controlled by motor control toggle switch
  - Switch is mounted to the system plate and has three momentary positions: up, off, and down.
  - 120V AC powered reversible gear motor
  - Made in precision machining centers in the U.S.A
- The Power Lift system for the Grizzly G0704 mill functionally replaces the Z-Axis manual hand wheel that is used to raise and lower the mill head. Using the Power Lift system is really easy, just press the switch up or down and release, and you are done. It is much faster than using the hand wheel, and much easier on your shoulder.

**Mill: Tooling**



**1626 Boring Head Shank, R8 \$34.95**

- R8 Boring Head Shank
  - 7/8"-20 Mounting Thread
  - Tapped for 7/16"-20 Drawbar
  - Made of high grade tool steel
  - Hardened and ground
- This boring head shank has an R8 taper on one end and a 7/8"-20 thread on the other. The mill boring head shank adapts our boring head to mills with an R8 spindle.

**4824 Boring Head Shank, 1/2" Straight \$21.95**

**1630 Boring Head Shank, 2MT \$24.95**

**1265 Boring Head Shank, 3MT \$29.95**

**5402 Boring Head Shank, 3MT Professional Grade \$36.95**

**5401 Boring Head Shank, R8 Professional Grade \$31.95**



**1266 Boring Head, 2" \$52.95**


- 2" boring head holds 1/2" shank boring bars
  - The mill boring head offsets up to 5/8"
  - Mounts on a shank with a 7/8"-20 thread
  - Dial is graduated in 0.001"
  - Bar holder moves freely and smoothly
- Two inch round boring head designed with superior rigidity for chatter-free boring and precise hole size accuracy. Ground and hardened adjusting screw is designed for long lasting, trouble free use.





**4764 Boring Head, 2" Professional \$109.95**


- 2" diameter boring head holds 1/2" shank boring bars
  - The boring head offsets up to 5/8"
  - Mounts on a shank with a 7/8"-20 thread
  - Dial is graduated in 0.001"
  - Boring bar holder moves freely and smoothly
- The design of this boring head assures superior rigidity for chatter free boring and precise hole accuracy. The adjusting screw is hardened and ground for long lasting trouble free use.


**Mill: Tooling**


	<p><b>1978 End Mill Holder Set, 2MT, 4-Piece</b> <span style="float: right;"><b>\$81.68</b></span></p> <ul style="list-style-type: none"> <li>• Set of four 2 Morse taper end mill holders</li> <li>• 2 Morse Taper Shanks</li> <li>• Drawbar thread is 3/8-16</li> <li>• Compatible with Mills with 3 Morse Taper Spindle</li> <li>• For end mills with shanks 3/16", 3/8", 1/2", and 5/8"</li> </ul> <p>The 4-Piece end mill holder set includes adapters for end mills with shank diameters of 3/16, 3/8, 1/2, and 5/8 inches. This end mill holder set works with the Harbor Freight micro mill and other mills with a 2 Morse taper spindle. The drawbar thread is 3/8-16 NC.</p>
	<p><b>1706 End Mill Holder, 2MT, 1/2"</b> <span style="float: right;"><b>\$18.95</b></span></p> <p><b>1976 End Mill Holder, 2MT, 3/16"</b> <span style="float: right;"><b>\$18.95</b></span></p> <p><b>1705 End Mill Holder, 2MT, 3/8"</b> <span style="float: right;"><b>\$21.90</b></span></p> <p><b>1977 End Mill Holder, 2MT, 5/8"</b> <span style="float: right;"><b>\$24.10</b></span></p>


	<p><b>1636 End Mill Holder Set, 3MT, 5-Piece</b> <span style="float: right;"><b>\$122.11</b></span></p> <ul style="list-style-type: none"> <li>• Set of 5 3 Morse taper end mill holders</li> <li>• 3 Morse Taper Shanks</li> <li>• Drawbar thread is 3/8-16</li> <li>• Compatible with Mills with 3 Morse Taper Spindle</li> <li>• For end mills with shanks 3/16", 3/8", 1/2", 5/8", and 3/4"</li> </ul> <p>The 5-Piece end mill holder set includes adapters for end mills with shank diameters of 3/16, 3/8, 1/2, 5/8, and 3/4 inches.</p> <p>This end mill holder works with the mini mill with a 3 Morse taper spindle and other mills with a 3 Morse taper spindle. The drawbar thread is 3/8-16 NC.</p>
	<p><b>1633 End Mill Holder, 3MT, 1/2"</b> <span style="float: right;"><b>\$24.95</b></span></p> <p><b>1631 End Mill Holder, 3MT, 3/16"</b> <span style="float: right;"><b>\$28.35</b></span></p> <p><b>1635 End Mill Holder, 3MT, 3/4"</b> <span style="float: right;"><b>\$31.04</b></span></p> <p><b>1632 End Mill Holder, 3MT, 3/8"</b> <span style="float: right;"><b>\$24.95</b></span></p> <p><b>1634 End Mill Holder, 3MT, 5/8"</b> <span style="float: right;"><b>\$29.66</b></span></p>


	<p><b>1258 End Mill Holder Set, R8, 5-Piece</b> <span style="float: right;"><b>\$108.29</b></span></p> <ul style="list-style-type: none"> <li>• Set of five R8 end mill holders from 3/16" to 3/4"</li> <li>• R8 Shanks</li> <li>• Drawbar End Thread is 7/16"-20</li> <li>• Compatible with Mills with R8 Spindle</li> <li>• For end mills with shanks 3/16", 3/8", 1/2", 5/8", and 3/4"</li> </ul> <p>The 5-piece end mill holder set includes adapters for end mills with shank diameters of 3/16, 3/8, 1/2, 5/8, and 3/4 inches.</p> <p>The end mill holders have an R8 shank and use the drawbar that comes with the mini mill. This end mill holder works with the mini mill with R8 spindle and other mills that have an R8 spindle. Like every R8 tool, the R8 drawbar thread is 7/16"-20.</p>
	<p><b>1255 End Mill Holder, R8, 1/2"</b> <span style="float: right;"><b>\$20.24</b></span></p> <p><b>1253 End Mill Holder, R8, 3/16"</b> <span style="float: right;"><b>\$20.24</b></span></p> <p><b>1257 End Mill Holder, R8, 3/4"</b> <span style="float: right;"><b>\$22.58</b></span></p> <p><b>1254 End Mill Holder, R8, 3/8"</b> <span style="float: right;"><b>\$20.24</b></span></p> <p><b>1256 End Mill Holder, R8, 5/8"</b> <span style="float: right;"><b>\$22.24</b></span></p>


	<p><b>1231 Fly Cutter Set</b> <span style="float: right;"><b>\$15.95</b></span></p> <p>This is a set of three 1/2" shank fly cutters. The 3/4" body fly cutter uses a 3/16" tool bit. The 1-1/8" body fly cutter uses a 1/4" tool bit. The 1-3/8" body fly cutter uses a 5/16" tool bit. Fly cutter sets allow you to make fine finishes on large areas.</p>
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	<p><b>3094 Fly Cutter Set with Tool Bits</b> <span style="float: right;"><b>\$18.95</b></span></p>
	<p><b>5925 Fly Cutter, 2-1/2" Head R8 Shank</b> <span style="float: right;"><b>\$27.95</b></span></p> <ul style="list-style-type: none"> <li>• R8 Shank Fly Cutter with 2-1/2" Head</li> <li>• Utilizes standard 5/16" tool bits.</li> <li>• Counter Balanced</li> <li>• Made of Durable Hardened Steel</li> </ul> <p>R8 shank fly cutter with a 2-1/2" head. The cutter utilizes a standard 5/16" tool bit and is counter balanced. Made of durable hardened steel, cuts a flat and smooth surface with a single cut. Like every R8 tool, the R8 drawbar thread is 7/16"-</p>


	<p><b>4882 Fly Cutter, Adjustable 1.25 - 2.5", 3/8" Shank</b> <span style="float: right;"><b>\$22.95</b></span></p> <ul style="list-style-type: none"> <li>• Adjustable from 1-1/4" to 2-1/2" inch cutting diameter</li> <li>• Allen key for set screws</li> <li>• 1-1/8" Height</li> <li>• 3/8" Shank</li> <li>• Includes presharpener 1/4" Left Hand tool bit</li> </ul> <p>This adjustable fly cutter has a 3/8" diameter and short profile making it ideal for ER-16 or 2MT spindles, but will also work wonderfully well on larger mills with R8 or 3MT spindles.</p>
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	<p><b>1664 Mill Table</b> <span style="float: right;"><b>\$34.06</b></span></p> <p>This is the mill table from a 3-in-1 machine. It is approximately 9.5" long, 4.25" wide and 1" thick. The mill table has 12 mm T-slots so it uses 7/16" T-slot nuts.</p>
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	<p><b>1709 Spin Jig, 5C Precision Indexing</b> <span style="float: right;"><b>\$64.95</b></span></p> <p>This indexing spin jig is used on milling machines, grinders, and inspection equipment. The spindle is hardened and ground. The spindle accuracy is 0.0004 TIR. The indexing plate is precision ground. The 5C spin indexer directly indexes in 10 degree steps. The vernier provides 1 degree increments. The centerline of the milling machine indexer spin jig is about 2.75 above the base.</p>
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	<p><b>1132 Spin Jig, ER-32 Precision Indexing</b> <span style="float: right;"><b>\$112.95</b></span></p> <ul style="list-style-type: none"> <li>• ER-32 Indexing Spin Jig With Wrench</li> <li>• 10 vernier holes for 1° indexing</li> <li>• 2" spindle travel for flute grinding</li> <li>• Spindle lock for tightening collet.</li> <li>• Base footprint is 4.5 X 4".</li> </ul> <p>This indexing &amp; grinding fixture uses ER-32 collets (range 1/16-13/16") for better gripping and accuracy. Extends the capabilities of drill presses, surface grinders, gear cutters and milling machines. Spindle hardened and ground with a .0005" T.I.R. 10 vernier holes for 1° indexing. 2" spindle travel for flute grinding. 5" diameter index plate has a 36 hole circle and is graduated by 0 to 35 for direct indexing in 10° steps and is marked in 5° increments. Spindle lock for tightening collet. Center height is 2.75". Base footprint is 4.5 X 4". Ground parallel to spindle.</p>
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	<p><b>3878 Tilting Table, 7" x 5"</b> <span style="float: right;"><b>\$148.95</b></span></p> <ul style="list-style-type: none"> <li>• Tilts 40-0-40 degrees with worm drive</li> <li>• Graduated in degrees for quick setting</li> <li>• Heavy duty casting with three 1/2" T-slots</li> <li>• Overall height 3.75"</li> <li>• Locks in any position</li> </ul>
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	<p><b>4084 Tooling Plate, 6 x 12"</b> <span style="float: right;"><b>\$139.95</b></span></p> <ul style="list-style-type: none"> <li>• Made from aluminum plate 3/4" thick</li> <li>• Plate is 6" x 12"</li> <li>• 220 Holes tapped 1/4"-20, 72 holes for locating pins</li> <li>• Includes clamping kit</li> <li>• Designed for small work pieces</li> </ul> <p>Solid 6" x 12" aluminum tooling plate with 1/4"-20 tapped holes, clamping kit, and locating pins. There are 220 1/4"-20 tapped holes. There are 55 diamond patterns of 4 holes that are 3/8" C to C. The diamond patterns are on a 1" x 1" grid. There are 72 1/4" holes for locating pins on a 1" x 1" grid. At each end there is a counterbored hole for a 3/8" socket head cap screw.</p>
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	<p><b>4991 T-Slot Cleaner, 7/16" T-Slot</b> <span style="float: right;"><b>\$1.95</b></span></p> <p>Use this T-slot cleaner to clear the swarf from the T-slots on your mini mill and bench mill. Made for LittleMachineShop.com specifically to fit the Mini Mill and Bench Mill.</p>
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<b>1263 T-Slot Cleaner, 5/8" T-Slot</b>	<b>\$1.49</b>
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**Models: Flywheels****Models: Flywheels****Flywheels from Martin Model**

- Cast iron and bronze flywheels
  - Highest quality made by Martin Model & Pattern
  - Cast iron flywheels are fully annealed
  - Castings are oversize to allow turning to the specified diameter
- All Martin Model & Pattern iron castings are fully annealed for easier machining. When molten iron is poured into a sand mold, it cools very quickly where it contacts the cold sand. Quick cooling being the formula for hardening iron, this results in a very hard surface, or skin, on the casting. It's commonly known that you must address this hard skin when you start machining a casting. But Martin Model castings go through another heat treat process. After the castings have cooled, they are once again heated to a high temperature, but this time they are cooled slowly. This ensures that the castings are evenly soft throughout, and that there is no hard skin on the surface.

2763 Flywheel, 2" Diameter, 5 Heavyweight Curved Spoke, Bronze	\$23.95
2761 Flywheel, 2" Diameter, 5 Heavyweight Curved Spokes	\$18.95
4879 Flywheel, 2" Diameter, 5 Straight Spokes	\$21.95
4878 Flywheel, 2" Diameter, 5 Straight Spokes, Bronze	\$24.95
4880 Flywheel, 2-1/2" Diameter, 6 Straight Spokes	\$23.95
4881 Flywheel, 2-1/2" Diameter, 6 Straight Spokes, Bronze	\$32.95
2756 Flywheel, 3" Diameter, 6 Heavyweight Straight Spokes	\$23.95
2782 Flywheel, 3" Diameter, 6 Heavyweight Straight Spokes, Bronze	\$30.95
2755 Flywheel, 3" Diameter, 6 Straight Spokes	\$23.95
2781 Flywheel, 3" Diameter, 6 Straight Spokes, Bronze	\$31.95
2757 Flywheel, 4" Diameter, 5 Straight Spokes	\$35.95
2758 Flywheel, 4-1/2" Diameter, 6 Curved Spokes	\$31.95
2760 Flywheel, 4-1/2" Diameter, 6 Tapered Spokes	\$31.95

**Models: Fully Assembled and Kits****3137 British Toy Loco Material Kit \$149.95**

- Working British toy loco steam engine
  - Includes virtually all the material and drawings you need to make this engine
  - You machine the parts
  - CAD drawings and complete construction manual
- This is an operating toy steam engine. This kit includes 65 pages of drawings and 60 pages of construction notes that are specific to the mini mill and mini lathe. When finished, the British toy loco measures 2.23" wide x 6.43" long x 3.72" high. It runs on O27 gage track which is 1.25" between the rails. Because of the difficulties and dangers of using steam, these engines are most often powered by compressed air.

**3136 Model Steam Mill Engine Material Kit \$79.95**

- Working model of a steam mill engine
  - Includes all the material and drawings you need to make this model
  - You machine the parts
  - CAD drawings and complete construction manual
- This is a working model engine kit. This model steam engine kit includes 35 pages of drawings and 32 pages of construction notes that are specific to the mini mill and mini lathe. When finished, the mill engine measures 2.79" wide x 4.54" long x 3.08" high. Because of the difficulties and dangers of using steam, these engines are most often powered by compressed air.

**2594 Oscillating Steam Engine Material Kit \$27.95**

- Includes all the materials you need
  - Plus all the hardware to assemble the engine
  - Complete plans are included
  - Great first project for beginners
- This kit includes all the materials and hardware required to make the oscillating steam engine. This engine can be built with a small lathe (Sherline or larger) and a drill press. A small mill (Sherline or larger) makes it easier. You will need a source of compressed air, such as an air compressor, to run this engine.
- 1133 Cutting Tools for Oscillating Engine Kit \$59.95**  
**3485 Oscillating Steam Engine Material Kit and Instructional DVD \$49.95**

**Models: Plans****2515 Buffalo Pup Steam Tug Boat Plans \$29.95**

- Radio controlled 36" model tug boat runs on live steam
  - Build the 2 cylinder steam engine from bar stock
  - Build the copper boiler
  - Build the boat, including propeller and rudder
  - Install the radio control
- Complete plans to build a steam driven, radio controlled model of a tug boat. These plans were created by Bill Reichart. There are 30 pages of plans that cover building the boat including, building the boiler out of copper, and building the steam engine out of bar stock, and building the deck and cabin out of wood. The hull is fiberglass. Sources are provided for all purchased parts including propane, the ceramic burner, and the fiberglass hull.


**Precision: Calipers****3704 Dial Caliper, 6" Industrial Quality \$34.95**

- Style and quality similar to Swiss-made calipers
  - Clear graduations every 0.001"
  - Hardened stainless steel bar, rack, gears, depth rod and measuring faces
  - Knife-edge contacts for both inside and outside measurements
  - Fine adjustment roller for one hand use
- This 6" Dial Caliper is made of hardened stainless steel for long life. It has a thumb wheel and a locking screw. The measuring faces are hardened, ground and lapped. The bezel can be rotated 360°. You can make inside, outside, depth and step measurements. The dial caliper is furnished with a fitted case.

**4272 Dial Caliper, 6" Professional Grade \$59.95**

- Z-Limit brand guarantees professional quality
  - Clear graduations every 0.001", 0.100" per revolution
  - Hardened stainless steel bar, rack, gears, depth rod and measuring faces
  - Knife-edge contacts for both inside and outside measurements
  - Fine adjustment roller for one hand use
- This 6" dial digital caliper is made and inspected in the same factory as some of America's best-known brands. The caliper is made of hardened stainless steel for long life. It is very smooth operating and shock resistant. It has a thumb wheel and a locking screw. The rack is screwed on. The measuring faces are hardened, ground and lapped. The bezel can be rotated 360°. You can make inside, outside, depth and step measurements. The dial caliper is furnished with a durable fitted case.


**Precision: Calipers**



**1830 Dial Caliper, 6", Starrett** **\$216.00**

- Starrett 6" white dial caliper and fitted case
- Direct reading, reliable and accurate.
- American Made


This is one of the handiest measuring tools available, used by mechanics and toolmakers everywhere. It is direct reading, reliable, and accurate. The Starrett 120 Series dial calipers are the only American made dial calipers on the market. Starrett catalog number 120A-6.



**3166 Dial Caliper, 6", Starrett** **\$120.00**

- Starrett 6" white dial caliper and fitted case
- Starrett catalog number 3202-6
- Sharp, clear dial graduations of .001" with .100" per revolution
- Sharp, black graduations on the satin finished bar, every .100"

This is one of the handiest measuring tools available, used by mechanics and toolmakers everywhere. It is direct reading, reliable, and accurate. With the ability to provide quick, accurate measurement of O.D., I.D. and depth, the dial caliper is the most versatile precision hand tool on the market. Imported




**1758 Electronic Digital Caliper 6", 4 Buttons** **\$32.95**

- 6" (150 mm) range
- 0.0005" (0.01 mm) resolution
- 0.001" (0.02 mm) accuracy
- Reads inches or mm
- Four button model has display lock

This 6" electronic digital caliper has manual power on and off. It won't go off and lose your measurement. There are four buttons (one more than most digital calipers). OFF/ON: Turns the power on and off. ZERO: Sets the readout to zero at any position. MM/INCH: Switches between inch and metric display. HOLD: Locks the display. Use this button when you take a measurement where you cannot easily see the display. Press HOLD again to unlock the display. You can make absolute or relative inside, outside, depth, and step measurements.

Furnished with a fitted case.




**2983 Electronic Digital Caliper, 6"** **\$29.95**

- 0-6" (0-150 mm) range
- 0.0005" (0.01 mm) resolution
- 0.001" (0.02 mm) accuracy
- Reads inches or mm

This 6" electronic digital caliper has manual power on and off. There are three buttons. OFF: Turns the power off.

ON/ZERO: Turns the power on and sets the readout to zero at any position. MM/INCH: Switches between inch and metric display. You can make absolute or relative inside, outside, depth, and step measurements. Furnished with a fitted case.


**1776 Electronic Digital Caliper, 4"** **\$29.95**



**5758 Electronic Digital Caliper, 6" Fractions IP54** **\$34.95**

- Range: 0-6" (0-150 mm)
- Accuracy: 0.001"/6"
- Resolution: 0.0005" / 0.01mm / 1/128"
- Easy to Read Super Large Display LCD
- IP54: Splash water, oil and dust resistance

This 6" electronic digital caliper has a large display and easily switches from inches (decimal) to fractions to metric measurements. The caliper has an easy to read large display LCD. The hardened stainless steel construction allow for smooth movement and a high measure speed. The three buttons perform the following: OFF/ON: Turns the power on and off. ZERO: Sets the readout to zero at any position. mm/in/F: Switches between fractional inch, decimal inch and metric display. Furnished with a fitted case.




**5864 Electronic Digital Caliper, 6" Fractions IP67** **\$59.99**

- Range: 0-6" (0-150 mm)
- Accuracy: 0.001"/6"
- Resolution: 0.0005" / 0.01mm / 64th
- IP67: Dust tight, temporarily imersable
- Operating Environment: 0-40° c

This 6" electronic digital caliper has a large display and easily switches from inches (decimal) to fractions to metric measurements. The caliper has an easy to read large display LCD. The hardened stainless steel construction allow for smooth movement and a high measure speed. The international Protection Rating of this caliper is IP67 (protected from immersion between 15 centimetres and 1 metre in depth, limited ingress protection). The caliper has an auto shut-off and comes with a fitted case.

**5865 Electronic Digital Caliper, 8" Fractions IP67** **\$69.99**




**4251 Electronic Digital Caliper, 6" Professional Grade** **\$57.95**

- Z-Limit brand guarantees professional quality
- Large, easy-to-read LCD display can be zeroed at any position
- Automatic shut-off after 5 minutes of non-use, last measuring position retained when shut off
- Hardened stainless steel body for long life, with fine adjustment thumb wheel
- Resolution is 0.0005" (0.01mm) and linear accuracy meets DIN 862 standard

This 6" electronic digital caliper is made and inspected in the same factory as some of America's best-known brands. The 6" digital vernier caliper measures four ways; outside, inside, depth, and step. The three keys are on/off, inch/mm, and zero.

Jaw Depths: 1 1/2" outside, 5/8" inside. The CR-2032 battery is included. Includes a durable plastic case.



**4458 Electronic Digital Caliper, 6", IP67, Starrett** **\$244.00**

- Large, easy-to-read LCD display
- IP67 level of protection against coolant, water, dirt and dust
- Hardened stainless steel measuring surface for long life
- Fine adjustment for precision measurements
- Resolution is .0005" (0.01 mm)

Starrett 6" electronic digital caliper resists coolant, water, dirt and dust. Starrett catalog number 798A-6/150. The Starrett 798 electronic caliper provides an IP67 level of protection against foreign matter in hostile shop environments. In addition to being coolant and water resistant, the 798 also offers excellent protection against chips, dirt, dust, and other contaminants. The extra large LCD (character height .310") makes the 798 exceptionally easy to read. All 798 models also include an output port for RS232 equipped devices. While there are other IP67 electronic calipers available, only the 798 is a Starrett - for a century and a quarter, the tool of choice for the most experienced toolmakers and machinists when the measurements are most critical. According to IEC529, in IP67 the first number "6" identifies protection against ingress of dust and the second number "7" identifies submersion in water under standardized conditions of pressure for 30 minutes. With this caliper you can set zero at any position, read inches or millimeters, and lock the slide in position. There is a manual on/off button, plus the caliper turns itself off after thirty minutes of inactivity.

**Precision: Calipers**

**2752 Electronic Digital Caliper, 6", Starrett 799 \$161.00**



- Large, easy-to-read LCD display can be zeroed at any position
  - Automatic shut-off after 5 minutes of nonuse, last measuring position retained when shut off
  - Hardened stainless steel body for long life
  - Fine adjustment thumb wheel
  - Resolution is .0005" (0.01mm) and linear accuracy meets DIN 862 standard
- Starrett 6" electronic digital caliper Starrett catalog number 799A-6/150Starrett's 799 series electronic calipers are light, comfortable, easy to use, and constructed with features that have made Starrett slide calipers the machinist's first choice for many years. They have a slim, streamlined profile, function buttons for zero and inch/mm, a large, clear, easy-to-read LCD display, and long battery life. The 799 Calipers are furnished in a fitted, protective case. Jaw Depths: 1 1/2" outside, 5/8" inside.

**Precision: Edge and Center Finders**

**2747 Center Finder, Drill Press \$17.95**



- Accurately and quickly locates center on cylindrical workpieces
  - Satin chrome finish
  - Place tool in drill chuck or collet and line up pointer with line scribed on shaft
  - 3/8" diameter shank
- The drill press center finder is a quick way to find the approximate center of cylindrical objects. Line the pointer up with the mark and the drill chuck is centered over the work.

**2060 Coaxial Centering Indicator \$79.95**



- Use this indicator to quickly center work pieces or fixtures on your mill
  - This coaxial centering indicator remains stationary while the spindle rotates
  - Can be used to center internal and external diameters
  - The locating accuracy is 0.0005" of center
  - Furnished in a fitted case
- Use this indicator to quickly center work pieces or fixtures on your mill. The measuring range is 0.25". The shank is 0.375" diameter and 0.75" long. The indicator is 5.5" long from the top of the shank to the bottom of the tip holder (the black part). Can measure internal diameters from 0.12" to 4.25" and external diameters from zero to 4.25". This set includes: Indicator body, restraining rod (prevents rotation), spring-loaded center point feeler, three straight feelers (for IDs), three curved feelers (for ODs). Buy this and other precision tools for sale online at LittleMachineShop.

**2652 Collet Adapter for Edge Finders, Starrett \$27.00**



- Starrett Catalog Number PT28314
  - Compatible with Any Attachment with a 3/8" Post
  - Eliminates Need to Change Collet to Use Edge Finder
- This is a time saving accessory for edge finders with a 3/8" shank. The collet adapter allows quick installation and removal of the edge finder, eliminating the need for collet changes on Bridgeports and similar machines. It can be used with any attachment with a 3/8" shank. The progressive steps are 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" and 1". Step depths vary from .100" to .200".



**5446 Edge and Center Finder Set, 4 Piece \$29.95**

- 4 piece Edge and Center Finder Set
  - Accurately locates the starting point for all types of machine work and jig boring
  - Hardened and ground all over
  - Accuracy .0002"
- The edge finder end has a 0.200" diameter cylinder to quickly find the edge of a work piece. The center finder end tapers to a point to locate holes. Set includes: 1 double ended edge finder: Shank: 1/2", Tip diameter: .20/.50" 1 single ended edge finder: Shank: 3/8", Tip diameter: .200" 1 single ended edge finder: Shank: 1/2", Tip diameter: .500" 1 double ended edge and center finder: Shank: 1/2", Tip diameter: .200"

**1822 Edge and Center Finder, 1/2" Shank, Starrett \$33.50**

**3793 Edge and Center Finder, 10 mm Shank, Starrett \$34.00**

**1240 Edge and Center Finder, 3/8" Shank \$7.95**

**1960 Edge and Center Finder, 3/8" Shank Audible, Fisher \$14.75**

**1959 Edge and Center Finder, 3/8" Shank, Fisher \$17.00**

**1961 Edge Finder, 1/4" Shank Audible, Fisher \$16.75**

**1823 Edge Finder, 3/8" Shank, Starrett \$27.50**

**2604 Edge and Center Finder, 3/8" Shank Laser \$124.50**



- 3/8" shank fits collets and end mill holders
  - 3.375" overall length
  - Uses common SR44 batteries (included)
  - Accuracy to 0.001"
  - Includes polarizing attachment to adjust dot size
- The model 2604 3/8" shank Laser Edge and Center Finder is a new tool for your mill that saves setup time. It eliminates the frustrations and doubts of using the century-old indirect method with a conventional edge finder or wiggler. The Laser Center/Edge Finder projects a fine laser beam that directly indicates the edge of the workpiece. Move the beam to the edge of the work and set your dial to zero. It is that easy. No more calculating half the diameter of the edge finder. You can also use this laser edge finder to locate scribed or center-punched locations. Simply move the laser beam to the location on the workpiece and the spindle is aligned. Our laser edge finder is easy to align so you can be sure it is always accurate. The batteries for the model 2604 3/8" shank Laser Edge and Center Finder last for over 3 hours of continuous operation. That's 6 months to a year of normal use.

**2886 Polarizing Attachment for Laser Edge Finder \$29.95**

**2606 Edge and Center Finder, 1/2" Shank Laser \$124.50**

**2679 Edge and Center Finder, 1/2" Shank Laser Wet Cabinet \$134.50**

**2543 Edge and Center Finder, 1/4" Shank Laser \$124.50**

**2624 Edge and Center Finder, 10 mm Shank Laser \$124.50**

**2623 Edge and Center Finder, 6 mm Shank Laser \$124.50**

**2887 Magnetic Holder for Laser Edge Finder \$11.50**

**3965 Edge and Center Finder, 3/8" Shank Laser AC Powered \$178.50**



- 3/8" shank fits collets and end mill holders
  - 3.375" overall length
  - AC Powered 110 to 240 VAC
  - Accuracy to 0.001"
  - Includes polarizing attachment to adjust dot size
- The Laser Center/Edge Finder™ is a new tool for your mill that saves setup time. It eliminates the frustrations and doubts of using the century-old indirect method with a conventional edge finder or wiggler. The Laser Center/Edge Finder projects a fine laser beam that directly indicates the edge of the workpiece. Move the beam to the edge of the work and set your dial to zero. It is that easy. No more calculating half the diameter of the edge finder. You can also use the Laser Center/Edge Finder to locate scribed or center-punched locations. Simply move the laser beam to the location on the workpiece and the spindle is aligned. The Laser Center/Edge Finder is easy to align so you can be sure it is always accurate.

**Precision: Edge and Center Finders**



**3966 Edge and Center Finder, 3/8" Shank Laser Concentric Circles** \$178.50

- 3/8" shank fits collets and end mill holders
  - 3.375" overall length
  - Uses common SR44 batteries (included)
  - Accuracy to 0.001"
  - Includes polarizing attachment to adjust line width
- The Laser Center/Edge Finder™ is a tool for your mill that saves setup time. It eliminates the frustrations and doubts of using the century-old indirect method with a conventional edge finder or wiggler. This Laser Center/Edge Finder projects a series of concentric rings, making it easy to center over an existing hole. See the pattern on the Chris' Tips tab. The Laser Center/Edge Finder projects a fine laser beam that directly indicates the edge of the workpiece. Move the beam to the edge of the work and set your dial to zero. It is that easy. No more calculating half the diameter of the edge finder. You can also use the Laser Center/Edge Finder to locate scribed or center-punched locations. Simply move the laser beam to the location on the workpiece and the spindle is aligned. The Laser Center/Edge Finder is easy to align so you can be sure it is always accurate. The batteries last for over 3 hours of continuous operation. That's 6 months to a year of normal use.

**4792 Edge and Center Finder, 1/4" Shank Laser Concentric Circles** \$164.50



**4629 Edge and Center Finder, 3/8" Shank Laser Crosshair** \$164.50

- 3/8" shank fits collets and end mill holders
  - 3.375" overall length
  - Uses common SR44 batteries (included)
  - Accuracy to 0.001"
  - Includes polarizing attachment to adjust to normal dot
- The Laser Center/Edge Finder™ is a tool for your mill that saves setup time. It eliminates the frustrations and doubts of using the century-old indirect method with a conventional edge finder or wiggler. This Laser Center/Edge Finder projects a crosshair, making it easy to align a workpiece on the table. The Laser Center/Edge Finder projects a fine laser beam that directly indicates the edge of the workpiece. Move the beam to the edge of the work and set your dial to zero. It is that easy. No more calculating half the diameter of the edge finder. You can also use the Laser Center/Edge Finder to locate scribed or center-punched locations. Simply move the laser beam to the location on the workpiece and the spindle is aligned. The Laser Center/Edge Finder is easy to align so you can be sure it is always accurate. The batteries last for over 3 hours of continuous operation. That's 6 months to a year of normal use.

**3188 Edge Finder, 1/2" Shank Electronic** \$32.95



- Lights up when it contacts the edge of the work
  - Repeatable to 0.0002"
  - Works on any conductive metal
  - Includes LED light and battery
  - Made in USA
- This electronic edge finder has a 1/2" shank. It is 4" long overall. This device uses an A23 battery that may also be called 1811A, 23A, 8F10R, 8LR32, 8LR932, A21, A23, BAT012, E23A, EL12, GP23A, K23A, L1028, LRV08, MN21, MN23, MS21, N21, N21, PX32A, PX32AB, PX32B, RV08, RVO8, S21, V23GA, VR22, 23AE, or L1028F.

**2294 Wiggler Center Finder Set, PEC** \$24.95



- Collet chuck and 4 probes
  - Includes needle point, 0.250" ball, 0.100" disk, and 0.250"-shank indicator holder
  - Made in USA
- This wiggler center finder set comes with a collet chuck and 4 probes for finding centers, edges, and indicating. Each probe snaps into the body without removing the collet nut. The wiggler shank is 0.375" diameter.

**1603 Wiggler Center Finder Set** \$14.95



**2278 Wiggler Center Finder Set, Starrett** \$42.00

- Three attachments: Ball Contact, Disc Contact and Wiggler Shank
  - Ball diameter 0.250" or 6.3 mm
  - Disc contact: small disc at the end (0.100"/2.5 mm) diameter.
  - Wiggler shank is 0.375" diameter.
- Starrett Wiggler Center Finder. Starrett catalog number S828. The wiggler center finder and three different attachments adapt to countless applications and are readily interchangeable. The attachments are snapped in the chuck without removing the collet nut and are clamped by a ball swivel-joint, which permits adjustment to an angular position or true concentricity. With the pointed shank, working centers can be quickly and accurately located. Spring tension on the ball of the point permits guiding the point to true concentricity so that the work can be brought into perfect alignment with the machine spindle. The ball contact is useful in locating work by first bringing the contact (ball diameter 0.250" or 6.3 mm) against the work, a slot, hole, shoulder, or end, and indexing the work to the desired position relative to the spindle. The disc contact, which has a small disc at the end (0.100"/2.5 mm) diameter, permits use in more confined areas such as slots or shallow holes. The wiggler shank is 0.375" diameter.



**2279 Wiggler Center Finder, Starrett** \$25.50

- Quickly and accurately locate working centers.
  - Attachment snapped in chuck without removing collet nut.
  - Spring tension on ball permits guiding point to true concentricity.
- Starrett Wiggler Center Finder. Starrett catalog number 828A. The wiggler center finder and pointed shank quickly and accurately locates working centers. Spring tension on the ball of the point permits guiding the point to true concentricity so that the work can be brought into perfect alignment with the machine spindle. The attachment is snapped in the chuck without removing the collet nut and is clamped by a ball swivel-joint, which permits adjustment to an angular position or true concentricity.

**Precision: Indicators**



**3716 Dial Indicator, 0.25" x 0.001", Small Face** \$17.95

- 0.25" dial indicator with 0.001" resolution
  - AGD Group I for tight locations
  - 1.5" Diameter face, 0.375" shank, #4-48 tip thread
  - Rack & contact point made of hardened stainless steel
  - Jeweled movement
- This 1/4" stroke dial small face dial indicator features large, easy to read numbers and crisp graduations. Each revolution is 0.100", indicated by the revolution counter. The resolution is 0.001". There is a mounting lug on the back of the case.



**1236 Dial Indicator, 1" x 0.001"** \$14.95

- 0-1" dial indicator with 0.001" resolution
  - AGD Group 2
  - 2.25" Diameter face, 0.375" shank, #4-48 tip thread
  - Lug back mounting screws: #2-56 thread
- This 1" stroke dial indicator features large, easy to read numbers and crisp graduations. Each revolution is 0.100", indicated by the revolution counter. The resolution is 0.001". There is a mounting lug on the back of the case.

**2873 Dial Indicator, 1" x 0.0005"** \$16.95

**2726 Dial Indicator, 2" x 0.001"** \$25.95

**4467 Indicator Back, Dial Indicator, with Lug** \$4.95

**2531 Magnetic Back for Dial Indicator** \$4.95

**1783 Point Set, Dial Indicator** \$4.95

**Precision: Indicators**



**5918 Dial Indicator, 1" x 0.001" with Lifting Lever \$19.95**

- 0-1" Dial Indicator with 0.001" Resolution
- ADG Group 2 - 2" Diameter Dial Face
- Lifting Lever, 0.375" Shank, #4-48 Tip Thread
- Lug Back
- Jeweled Movement

This 1" stroke dial indicator features large, easy to read numbers and crisp graduations. Each revolution is 0.100", indicated by the revolution counter. The resolution is 0.001". There is a mounting lug on the back of the case. The indicator comes with an equipped lifting lever attached to the top end of the spindle. This improves inspection efficiency and accuracy when using the indicator on a mounted stand. With a lifting lever, the spindle can easily be raised in small increments as material is moved under the spindle.



**5517 Dial Indicator, 1" x 0.001", Magnetic Back \$24.95**

- 0-1" dial indicator with 0.001" resolution
- 0.375" Shank, #4-48 Tip Thread of Hardened Stainless
- AGD Group 2, 2" Diameter Face
- Magnetic Back Screws On/Off
- Magnetic Back is 2 1/4" in Diameter and Coated

This 1" stroke dial indicator features large, easy to read numbers and crisp graduations. Each revolution is 0.100", indicated by the revolution counter. The resolution is 0.001". There is a screw on/off magnetic back which has a protective coating. The Indicator shank is 3/8" (0.375") in diameter, made of hardened stainless steel and has a #4-48 tip thread.



**4281 Dial Indicator, 1" x 0.001", Professional Grade, Shock Resistant \$49.95**

- Z-Limit brand guarantees professional quality
- 0-1" dial indicator with 0.001" resolution
- 6 jewel shock resistant movement
- 2.25" dial diameter AGD Group 2 with 0.375" shank and flat back
- Calibration certificate included

This 1" stroke dial indicator features large, easy to read numbers and crisp graduations. Each revolution is 0.100", indicated by the revolution counter. The resolution is 0.001". The thread for the tip is #4-48.

Includes a durable plastic case.

This indicator is made and inspected in the same factory as some of Europe's best-known brands.

**4285 Dial Indicator, 0.25" x 0.001", Professional Grade, Shock Resistant \$39.95**

**4282 Dial Indicator, 0.5" x 0.0005", Professional Grade, Shock Resistant \$49.95**

**4112 Dial Indicator, 1" x 0.001", Professional Grade \$29.95**

**4283 Dial Indicator, 10 mm x 0.01 mm, Professional Grade, Shock Resistant \$49.95**

**4284 Dial Indicator, 5 mm x 0.01 mm, Professional Grade, Shock Resistant \$42.95**



**1835 Dial Indicator, 1", Starrett \$157.00**

- Range: 1.000"
- Face diameter: 2-1/4"
- Graduations: 0.001"
- Shockless, hardened steel gear train and jewel bearings
- Lug on center of the back

Starrett catalog number 25-441J. These indicators have a shockless, hardened steel gear train and jewel bearings. They are furnished with a lug on the center of the back. This is an AGD Group 2 indicator with a 2.25" Diameter face, 0.375" shank, and #4-48 tip thread.



**1819 Dial Indicator, Starrett Last Word \$200.00**

- Starrett dial indicator with universal friction holder with shank
  - Graduation: 0.0005"
  - Range: 0.030"
  - Dial Reading: 0-15-0
- Starrett catalog number 711LPSZ. Steel Contact Point Length: 5/32" (4 mm) Steel Contact Point Ball Diameter: 0.120" (3 mm)

These handy test indicators are among the most versatile available. Their small size and variety of attachments handle all jobs with ease and accuracy. A very useful feature is the shaded dial - when used with a mirror, such as in a jig bore application, the operator always knows where he is.



**5379 Dial Test Indicator Set, 0.3" x 0.0005" \$59.95**

- 0-0.03" Dial Test Indicator Set with .0005" Graduation
  - Three dovetail positioning mounts work with most existing test indicator accessories
  - Precision gear-driven design with smooth jeweled movement
  - Frictionally adjustable contacts
  - High contrast easy to read dials with a white background
- Includes 2 contact points, 2 dovetail clamps, 1 swivel post holder, 1 tool post holder and 1 contact wrench in a fitted case. Manufactured and inspected at world class factory that produces highest quality European brands. Contact point reverses automatically to maintain clockwise hand rotation. Meets or exceeds ANSI/ASME accuracy specifications. Narrow body for in reach ability, and a satin chrome finish for durability. Interchangeable with 3808AC.



**1249 Dial Test Indicator, 0-15-0 x 0.0005" \$29.95**

- Dial test indicator with 0.0005" graduations
  - Range is 0 - 0.030" in either direction
  - Reading 0-15-0
  - Includes 5/32" and 3/8" diameter posts, dovetails on the back and end, and an 0.080" diameter point
  - 7 Jewel movement, Comes in a fitted case
- Test Dial Indicator for sale with 0.0005" graduations and reading from 0 - 15 - 0. Comes in a fitted case.

**3522 Dial Test Indicator, 0-15-0 x 0.0005" and Universal Magnetic Base \$81.95**

**2875 Dial Test Indicator, 0-4-0 x 0.0001" \$49.95**

**4633 Replacement Point, Dial Test Indicator \$3.95**



**3709 Dial Test Indicator, 0-15-0 x 0.0005", Interapid Style \$89.95**

- Dial test indicator with 0.0005" graduations
- Range is 0.030" in either direction
- Includes 5/32" and 3/8" diameter posts, dovetails on the back and end, and an 0.080" diameter point
- Dial test indicator comes in a fitted case
- Jeweled movement

This Swiss-type horizontal dial indicator has a large 1.5" dial. 210 degree swivel arc with .080 steel contact point.

**Precision: Indicators**



**3548 Dial Test Indicator, 0-5-0 x 0.0001", Dovetail Mount, Starrett** **\$311.00**

- Starrett dial test indicator with dovetail mount
- Starrett catalog number 708AZ
- Dial test indicator with 0.0001" graduations
- Range is 0.010"

These precision test indicators were designed to be positioned for easy and accurate readability. The versatility of the angled head, combined with the three dovetail mounts eliminates the need for having both vertical and horizontal style test indicators. These are the features that make this series of test indicators superior to ordinary types. Angled head for better reading position. Large 1 3/8" (35mm) dial diameter. Precision gear-driven design with smooth, jeweled movement. Meet or exceed ISO accuracy specification. For extreme accuracy we recommend positioning the lever contact so that it is approximately 15° from being horizontal with the workpiece. Three dovetail positioning mounts work with existing test indicator accessories. Inch reading indicators are available with easy-to-read, shaded white, solid red, or solid black dials - millimeter reading indicators with solid yellow dials. Contact point reverses automatically, always maintaining clockwise hand rotation. Narrow body for inreach ability. Satin chrome finish for durability. Long carbide contacts 13/16" (20mm) are furnished as standard. Contacts are frictionally adjustable and replaceable.



**2521 Electronic Digital Indicator, 1"** **\$59.95**

- Measurement range is 0-1"
- Resolution is 0.0005", accuracy is 0.0012"
- Measures in inches or mm
- Set to zero at any position
- Relative and absolute measurement

This is an AGD Group 2 indicator with a 0.375" diameter shank and a #4-48 thread for tips. There are three buttons; ON/OFF for power, RESET to zero the display, and R/A to switch between absolute and relative measurement. Pressing R/A zeros the indicator at any position so you can make comparative readings between two parts. The absolute measurement is not lost, and is displayed by pressing R/A again.



**5378 Electronic Digital Indicator, 1", Quick Action** **\$64.95**

- 1" digital electronic AGD Group 2 indicator
  - Range 0-1" (0-25mm)
  - Resolution .0005" (.01mm)
  - Excellent repeatability with quick movement of measurements
  - True Inch/MM conversion
- Absolute zero reset button. Lug Back and on/off button. Comes with a fitted case.



**5376 Indicator Back, Dial Indicator, Flat** **\$0.95**

- Fits 2.25" dial diameter (AGD Group 2) indicators
  - Four hole pattern
- Flat back for 4 hole pattern indicators that have a 2 1/4" diameter (AGD Group 2).



**5375 Point Set With Ring, 22 Piece Set** **\$15.95**

- 22 Points
  - 4-48 Screw Threads
  - Fit AGD Indicators
  - Premium quality
  - Aluminum Ring for easy storage and easy selection
- Ring includes 22 points with 4-48 screw threads that fit AGD indicators. All points are mounted on a convenient aluminum ring for safe keeping and ready selection.



**2452 Universal Back-Plunger Dial Indicator, Starrett** **\$256.00**

- Starrett Back-Plunger Dial Indicator
  - Starrett catalog number 196A1Z
  - 0-100 with 3 contact points, adapter, 4 attachments in case
  - Accurate and reliable
  - Rugged, with few moving parts
- The Starrett No. 196 Indicator is one of the most versatile indicators available, and it is the "granddaddy" of them all. Over the years this tool has been improved by methods and materials but the basic design is unchanged. The design is older than most of you and has withstood the test of time and beaten all challengers because it is:
- Accurate and reliable
  - Simple to operate
  - Rugged, with few moving parts
  - Smooth in operation
  - Inexpensive - the best indicator value you can buy
- This indicator with graduations to .001" will handle by far the majority of jobs. Shank diameter is 1/4" (6.3 mm). For full use, first choose the proper contact from the three hardened contact points that are included. Then the contact is brought against the work with enough pressure to give the hand one full turn. Set the hand at zero by rotating the dial with the knurled bezel. This provides one full rotation of the hand both to the right and left of zero, showing a rise or drop in the work and the amount of that variation. The bar is 0.750" tall, 0.375" wide and 6" long.



**3168 Dial Test Indicator, 0-5-0 x 0.0001", Starrett** **\$392.00**

- Starrett dial test indicator with attachments
- Starrett catalog number 708ACZ
- Range is 0.005" in either direction
- Precision gear-driven design with smooth, jeweled movement
- Dial test indicator comes in a fitted case

These precision test indicators were designed to be positioned for easy and accurate readability. The versatility of the angled head, combined with the three dovetail mounts eliminates the need for having both vertical and horizontal style test indicators. Includes a dovetail body clamp, tool post holder, swivel post snug with dovetail indicator clamp, and a snug and rod unit. For extreme accuracy we recommend positioning the lever contact so that it is approximately 15° from being horizontal with the workpiece.



**2876 Electronic Digital Indicator, 0.5"** **\$46.95**

- Measurement range is 0-0.5"
- Resolution is 0.0005", accuracy is 0.0012"
- Measures in inches or mm
- Set to zero at any position

There are three buttons; OFF for power, ZERO/ON to zero the display, and IN/MM to switch between inches and millimeters. The digital display indicator turns on automatically when the plunger moves. Pressing ZERO/ON zeros the electronic digital indicator at any position so you can make comparative readings between two parts.



**5377 Electronic Digital Indicator, 0.5", Starrett Style** **\$76.95**

- 0.5" digital electronic AGD Group 2 indicator
- Range .500" (12.7mm)
- Resolution .0005" (.01mm)
- Reverse travel (± control indicates direction)
- True inch/mm conversion

This electronic digital indicator features a large, easy to read LCD display. You can set zero at any position and change the direction that shows positive dimensions. The indicator has a 3/8" shank and the tip thread is #4-48. The case has a mounting lug on the back. Front battery cover allows easy access to change battery. Extra large LCD display. Absolute zero reset button. Zero at any point. On/Off button. Flat Back with Lug Back included. Battery included: SR44, 1.55V. Supplied with fitted case.

**Precision: Layout**



**1250 Combination Square Set, 12" 4R** **\$56.95**

- 12" stainless steel blade
- Includes square head, center head, and protractor head
- 4R Graduation - 8ths, 16ths, 32nds, 64ths

This 4-Piece combination square set features a stainless steel blade, and includes a square head, a center head, and a protractor.

**5868 Combination Square Set, 12" 4R Precision \$66.99**



- Fully hardened steel with satin chrome finish blade
- 4R Graduation - 8ths, 16ths, 32nds, 64ths
- Protractor scale graduated from 0-180° in both directions
- Square/Miter head feature level vial and hardened scribe tool
- High precision engineering standard

This premium square features a 12 Inch blade, a cast iron center finding head, a cast iron 180 degree protractor head and a cast iron square/miter head with 45 degree and 90 degree precision ground faces. The adjustable heads may be locked securely in any position along the precision ground satin chrome finished steel blade. The protractor head can be moved in both directions. The blade features etched, machine divided graduations in 1/8 Inch and 1/16 Inch on one side and 1/32 Inch and 1/64 Inch on the other. The square/miter head incorporates a spirit level and hardened scribe. The square comes packaged in a padded plastic storage case.

**2738 Combination Square Set, 12" 4R, PEC \$162.95**



- 12" Combination square
- Hardened and tempered
- 4R graduations, 8ths & 16ths, 32nds & 64ths
- Protractor graduated 0-180 degrees in both directions
- Includes level vial and hardened scribe tool

Combination square with 12" machinist's blade, square/miter head, protractor head, and center head. Easy to read satin chrome finish blade is fully hardened and tempered. 4R graduations, 8ths & 16ths, 32nds & 64ths. Protractor graduated 0-180 degrees in both directions. Heads have hammertone powder-coat finish. Square/miter head includes level vial and hardened scribe tool. Combination square made in the US by Products Engineering Corporation (PEC).

**3589 Combination Square Set, 12" 4R, Starrett \$254.00**



- Starrett 12" combination square set
- Includes square head, center head and reversible protractor head
- Starrett catalog number C435-12-4R
- Graduation No. 4R- 8ths, 16ths, Quick Reading 32nds, 64ths

The combination square set has reversible lock bolts, scribe, spirit level in both square head and protractor head, direct reading double 180° protractor scale, hardened steel, photoengraved blade. Cast iron heads with black wrinkle finish. The blade is 1" wide and 3/32" thick and has a satin chrome finish.

**1839 Combination Square, 12" 4R, Starrett \$87.00**



- Starrett 12" combination square with square head
- Starrett catalog number 11H-12-4R
- Graduation No. 4R- 8ths, 16ths, Quick Reading 32nds, 64ths
- Machine divided blade

The square has a reversible lock bolt, scribe, spirit level, and hardened steel, photoengraved blade with regular finish. Cast iron head with black wrinkle finish. The blade is 1" wide and 3/32" thick.

**2451 Combination Square, 4" 4R, Starrett \$78.00**



- 4" 4R blade with 2.5" base
- 6" 4R blade with 4" base
- 4R Graduation - 8ths, 16ths, 32nds, 64ths
- Scale accuracy: 0.001"
- Squareness: 0.0015"

Pair of heavy duty hardened, precision ground double squares, 4" and 6". Blades are graduated in 8ths, 16th, 32nds, and 64ths. Blades are satin chrome finished to reduce glare and rust, and are easy to read. Made to US standards for accuracy and squareness with scale accuracy of 0.001" and squareness of 0.0015". The 6" square has a bubble level and the squares may be locked at any position along the blade. Squares come in a storage case with foam insert.

**5869 Double Square Set, 4" and 6" 4R \$25.49**



- 4" 4R blade with 2.5" base
- 6" 4R blade with 4" base
- 4R Graduation - 8ths, 16ths, 32nds, 64ths
- Scale accuracy: 0.001"
- Squareness: 0.0015"

Pair of heavy duty hardened, precision ground double squares, 4" and 6". Blades are graduated in 8ths, 16th, 32nds, and 64ths. Blades are satin chrome finished to reduce glare and rust, and are easy to read. Made to US standards for accuracy and squareness with scale accuracy of 0.001" and squareness of 0.0015". The 6" square has a bubble level and the squares may be locked at any position along the blade. Squares come in a storage case with foam insert.

**3559 Double Square, 4" 4R, Starrett \$73.00**



- Starrett 4" double square with graduated blade
- 4R Graduation - 8ths, 16ths, 32nds, 64ths
- Popular with machinists, toolmakers, and patternmakers

The sliding blade is adjustable making it more practical for a wide variety of uses than a common square with fixed blade. The faces of the head are ground square. Starrett catalog number 13A.

**2025 Double Square, 6" 4R, Starrett \$89.00**

**2741 Double Square, 6" 4R, PEC \$51.95**



- Double square with 6" blade
- Easy to read satin chrome finish blade is fully hardened and tempered
- 4R graduations, 8ths & 16ths, 32nds & 64ths
- Head has hammertone powder-coat finish

Double square made in the US by Products Engineering Corporation (PEC).

**4742 DYKEM Hi-Spot Blue \$8.95**



- Non-drying
- Non-hardening
- Transfers from surface to surface
- Saves time in surface scraping work
- 0.55 Oz.

Hi-Spot is an intensely blue, soft, smooth uniform paste that can be spread to an extremely thin layer easily and evenly. It is typically used to show high spots on bearings and when making close fitting parts. The film remains pliable and transferable for months. WARNING: This product can expose you to chemicals such as Michler's ketone, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov/product](http://www.P65Warnings.ca.gov/product).

**4741 DYKEM Steel Blue Layout Fluid \$9.95**



- 4 Oz. container
- Brush in cap
- Provides a thin blue film without cracking or chipping
- Toluene free
- Must be shipped by ground; not available outside the continental US

Machinists depend on Dykem Steel Blue Layout Fluids to scribe sharp, clear, precise lines. When applied, the layout fluid provide a uniform deep blue color that prevents glare and dries in minutes. Dykem Layout Fluid creates an extremely thin film which adds practically no thickness to the work piece and remains flexible without cracking and chipping.

**3810 Layout & Marking Kit \$19.95**



- Scriber with 2-3/8" Point, Starrett
- Sharpie Magnum Permanent Marker, Black
- Sharpie Metallic Fine Point Permanent Marker

The big, fat Sharpie Magnum King Size in this kit is a great substitute for layout dye. It marks on virtually any surface, provides an opaque covering to scribe, and doesn't dry out in the can. Not to mention that it avoids all the hassle and limitations of shipping and using hazardous layout dyes. The Starrett scriber has been the industry standard for many years. The Sharpie Metallic marker can be used on dark materials where contrast is needed. It is also great for identifying materials in your steel rack.

**5988 Layout Package \$162.95**



- Layout die, straight edge, and scriber
- Hermaphrodite caliper, protractor, and machinists squares
- Digital height gage
- Prick punch and center punch

This kit includes the layout tools you need for machine shop use. Layout is the process of transferring measurements from a drawing to a workpiece. Layout is an important part of machining especially when working with castings, forgings and weldments. It is important that you lay out carefully to make sure you have enough material to "clean up" all important surfaces.



**2549 Machinist Square Set \$49.95**

- Machinist square set includes 2", 3", 4" and 6" squares
- Made from fully seasoned and hardened tool steel
- Accurate right angles both inside and outside
- Beams are ground and lapped
- Class H accuracy: 0.0008" + 0.0001" per inch

Set of four machinist squares made of hardened tool steel in sizes 2", 3", 4", and 6". Length of blade is measured from inner edge of beam to end of blade. The small notch at the inside corner prevents small particles from accumulating at the juncture and impacting the squares reading. Typical use involves aligning the beam along one edge of an object with the blade across the body of the work. Using a strong light source behind the square will reveal any gaps showing the squareness of the work.



**1126 Machinists Square, 4" \$8.88**

- 4" X 3" Machinist square
- Made from hardened tool steel
- Accurate right angles both inside & outside
- Beam is ground and lapped
- Perfect set-up tool for machining, table saws, and more

4" X 3" Machinist square made of hardened tool steel. Length of blade is measured from inner edge of beam to end of blade. The small notch at the inside corner prevents small particles from accumulating at the juncture and impacting the squares reading. Typical use involves aligning the beam along one edge of an object with the blade across the body of the work. Using a strong light source behind the square will reveal any gaps showing the squareness of the work.

**1127 Machinists Square, 6" \$13.58**



**5874 Machinist Square Set, 2" 4" and 6" \$39.95**

- Grade 1 DIN Standard 875
- Accurate on inside and outside angles
- All surfaces and edges ground
- Perfect set-up tool for machining, table saws, and more
- Comes in heavy-duty case

Set of three engineer's squares, sizes 2", 4", and 6". This set is ideal for set-up work with machine tools, table saw blades, and many other shop tools.



**2064 Master Precision Level, 6", Dasqua \$89.95**

- 6" Master Precision Level
- Cast iron with precision ground measuring surface
- Bubble has 0.005" graduation
- Overall accuracy is 0.0005" per 10"
- V-grooved base for round stock

Ensure a level setup with this 6" master precision level. Made in strict accordance with DIN877 standard, this level is used to measure the straightness and flatness of machine guide rails. Made of cast iron with a precision ground measuring surface. A V-grooved base allows for use on round stock, shafts and cylindrical surfaces. Includes a main vial and a cross test vial. High-sensitivity bubble with 0.005" graduations and an accuracy of 0.0005" per 10".

The surfaces and edges are ground for high tolerances of straightness and squareness.

Squares are accurate on both inside and outside angles and meet German DIN standard 875, Grade 1.

Length of blade is measured from inner edge of beam to end of blade. The small notch at the inside corner prevents small particles from accumulating at the juncture and impacting the squares reading.

Typical use involves aligning the beam along one edge of an object with the blade across the body of the work. Using a strong light source behind the square will reveal any gaps showing the squareness of the work.



**3186 Optical Center Punch \$79.95**

- Accuracy to 0.002"
- A center dot and circle target the punch location
- Magnifies without distortion or parallax
- Includes sturdy storage case

Even less experienced machinists can punch layout points to within 0.002" using this high power piloted center punch system.

The optical center punch is located over a scribed workpiece and adjusted until centered using the optics. The optical pilot is then removed and replaced by the punch. A tap marks the spot.



**2742 Machinist Square Set, PEC \$73.95**

- Includes 2", 3", 4" and 6" squares
- Made from high quality tool steel
- True right angles inside and outside
- Beams and blades are precision ground
- Hardened Blade

Set of four machinist squares made of high quality tool steel in sizes 2", 3", 4", and 6". These squares are made in the US by Products Engineering Corporation (PEC). These squares are square within 0.0006" over the length of the blade. The two sides of the blades and beams are parallel within 0.0005" over their length. Length of blade is measured from inner edge of beam to end of blade. The small notch at the inside corner prevents small particles from accumulating at the juncture and impacting the squares reading. Typical use involves aligning the beam along one edge of an object with the blade across the body of the work. Using a strong light source behind the square will reveal any gaps showing the squareness of the work.













**1125 Machinists Center Square, 1-1/2" \$12.67**

- Rapidly locate exact center
- Range up to 1-1/2" diameter
- Features 90 degree V angle
- Made from precision ground tool steel
- Hardened and tempered blade

To find the center, insert work piece into the 'V' of the square and mark a line. For round stock, rotate the piece 90 degrees and mark again. The intersection of the lines is true center.




	<b>2423 Precision Machinists Level, 12", Starrett</b>	<b>\$241.00</b>
	<ul style="list-style-type: none"> <li>Starrett machinist's improved level</li> <li>Starrett catalog number 98-12</li> <li>Ground and graduated main vials</li> <li>Cross test vial and plumb vial</li> <li>0.0005" per foot (0.42 mm per meter) accuracy</li> </ul> <p>These Starrett Machinist Levels have ground and graduated main vials, and a cross test vial. The 12" level also has a plumb vial. These vials are adjustable to a positive setting and are housed in a satin chrome brass tube with a friction-fit closing cover to prevent breakage. The base of the precision machinists level features an involute groove running the length of the base, which provides a reliable seat for round work such as pipes or shafting. With the cross test vial, it is possible to simultaneously level in both directions. This prevents inaccuracies in the main vial reading caused by canting the level sidewise on round work. The main level vials have graduations that are approximately 80-90 seconds or .005" per foot (0.42 mm per meter). There are five, six, or seven lines on each side of the bubble, depending on the base length. Starrett Machinist Levels are the finest levels available, used for precision work that is typically required in industry. They all have these features: All level bases are made from the finest quality seasoned cast iron and are precision-machined on the reference surface. Nonmachined surfaces have an attractive, black wrinkle finish. An involute longitudinal groove between the bearing flats for accurate seating on round work. This groove has a special involute design, permitting better centering and greater capacity to handle larger rounds. Groove and bearing flats are machined together for maximum accuracy.</p>	
	<b>2427 Precision Machinists Level, 18" and Case, Starrett</b>	<b>\$499.00</b>
	<b>2425 Precision Machinists Level, 18", Starrett</b>	<b>\$391.00</b>
	<b>2654 Case, Precision Machinists Level, 12", Starrett</b>	<b>\$36.30</b>
	<b>2320 Precision Machinists Level, 4", Starrett</b>	<b>\$114.00</b>
	<b>1846 Precision Machinists Level, 6", Starrett</b>	<b>\$135.00</b>
	<b>3174 Precision Machinists Level, 8", Starrett</b>	<b>\$167.00</b>
	<b>1824 Scriber with 2-3/8" Point, Starrett</b>	<b>\$13.00</b>
	<ul style="list-style-type: none"> <li>1/4" diameter handle</li> <li>Nickel plated steel</li> <li>Knurled handle</li> <li>Hardened tip is finely tapered</li> <li>Tip can be reversed and telescoped into handle</li> </ul> <p>Starrett hand scriber. Starrett catalog number 70A. The 1/4" diameter handle is of steel, knurled, and nickel plated. The scriber point is steel, properly hardened and finely tapered so that the location of the point is not obscured. The scriber is held firmly in the handle by a knurled chuck and when not in use can be reversed, telescoped into the handle, and locked by the chuck. The hexagon head prevents rolling. The scriber point is shipped reversed in the handle so the point is protected.</p>	
	<b>2655 Scriber with 2-7/8" Point, Starrett</b>	<b>\$16.00</b>
	<b>3885 Scriber with Two Tips, Starrett</b>	<b>\$34.00</b>
	<ul style="list-style-type: none"> <li>Tempered well-finished steel</li> <li>Points are finely tapered</li> <li>Nickel plated knurled handle</li> </ul> <p>Scribers are steel, properly tempered and well finished. The points are finely tapered so that the scriber point can be easily seen on the work. The handle, as well as the points, has a knurled grip.</p> <p>The length of the scriber is 9" (225mm). Points screw into the handle and fit either end. The knurled handle is nickel-plated.</p>	
	<b>3605 Sharpie Fine Point Permanent Marker, Black</b>	<b>\$0.99</b>
	<ul style="list-style-type: none"> <li>The original pen style permanent marker</li> <li>Permanent on most surfaces</li> <li>Quick-drying ink</li> <li>Fade and water resistant</li> <li>Marks on plastic, metal, cardboard, vinyl, leather and glass</li> </ul> <p>This is the original Sharpie marker. It has many uses around the shop, including using it as layout fluid.</p>	
	<b>3607 Sharpie King Size Permanent Marker, Black</b>	<b>\$2.50</b>
	<b>3606 Sharpie Metallic Fine Point Permanent Marker</b>	<b>\$1.95</b>

	<b>3069 Surface Gage</b>	<b>\$32.95</b>
	<ul style="list-style-type: none"> <li>For scribing lines, use on a surface plate</li> <li>Includes 4" and 7" spindles</li> <li>Bottom V-groove ground for cylindrical work</li> <li>Retractable pins in base for working on flat surfaces</li> <li>Fine adjustment</li> </ul>	
	<b>3068 Surface Plate, Granite, 9"x12"</b>	<b>\$39.95</b>
	<ul style="list-style-type: none"> <li>Black granite for long term stability</li> <li>Grade B: ±0.0001 accuracy</li> <li>Meets federal specification GGG-P-463C</li> </ul> <p>Black granite surface plate used as a horizontal reference plane for tooling setup, precision inspection and layout. These surface plates are checked with an auto-collimator for overall accuracy. All points on the surface are between two parallel planes 0.0002" apart.</p>	
	<b>3173 Toolmakers Square, 6", Starrett</b>	<b>\$165.00</b>
	<ul style="list-style-type: none"> <li>Starrett toolmaker's grade stainless steel square</li> <li>Starrett catalog number 3020-6</li> <li>Blade length 5 29/32"</li> <li>Beam length 3 29/32"</li> <li>Squareness accuracy to .0002" (0.005mm) for every 6" (150mm)</li> </ul> <p>These high quality toolmaker's squares feature hardened, ground, and lapped stainless steel construction on both the blade and the beam. The beam is machined at the inner corner for clearance.</p>	
	<b>3172 Toolmakers Square, 3", Starrett</b>	<b>\$91.00</b>
	<b>3564 Toolmakers Square, 4", Starrett</b>	<b>\$110.00</b>
	<b>2031 Transfer Punch Set 3/32" to 1/2"</b>	<b>\$13.95</b>
	<ul style="list-style-type: none"> <li>28 piece transfer punch set</li> <li>Sizes from 3/32" to 1/2" by 1/64" plus a 17/32" punch</li> <li>Heat treated and tempered tool steel for long life</li> <li>Transfer punches are 0.0025" undersize</li> </ul> <p>These transfer punches are 4-7/8" long and have a black oxide finish. The precision punch set includes an indexed stand. The punches are 3/32" to 1/2" diameter in increments of 1/64", plus a 17/32" punch.</p>	
	<b>5970 Transfer Screw Set, 1/4" - 7/16"</b>	<b>\$30.95</b>
	<ul style="list-style-type: none"> <li>4 sizes / 6 screws each plus wrench/holder</li> <li>Sizes: 1/4-20, 5/16-18, 3/8-16, 7/16-14</li> <li>Transfer exact location of threaded holes</li> <li>Works with blind holes</li> </ul> <p>Transfer the exact location of a threaded hole to your work piece. Transfer screws are more accurate than transfer punches and may be used with blind holes. The use of transfer screws is the most precise method of transferring threaded holes to mating parts and are great for tool &amp; die work, and in layouts. This set includes 4 sizes of transfer screws (6 screws each) and the wrench/holders. Sizes: 1/4-20, 5/16-18, 3/8-16, 7/16-14</p>	
	<b>5969 Transfer Screw Set, #4 - #10</b>	<b>\$34.95</b>
	<b>5987 Transfer Screw Set, M3 - M6</b>	<b>\$30.95</b>
	<b>5968 Transfer Screw Set, M6 - M12</b>	<b>\$30.95</b>
	<b>Transfer Screw Sets, Single Size</b>	
	<ul style="list-style-type: none"> <li>Includes 6 transfer screws in a wrench/holder</li> <li>Transfer exact location of threaded holes</li> <li>Works with blind holes</li> </ul>	
	<b>3079 Transfer Screw Set, 1/4"-20 Thread</b>	<b>\$12.95</b>
	<b>3080 Transfer Screw Set, 5/16"-18 Thread</b>	<b>\$12.95</b>
	<b>3081 Transfer Screw Set, 3/8"-16 Thread</b>	<b>\$12.95</b>
	<b>3082 Transfer Screw Set, 1/2"-13 Thread</b>	<b>\$12.95</b>
	<b>3083 Transfer Screw Set, M4 Thread</b>	<b>\$12.95</b>
	<b>3084 Transfer Screw Set, M5 Thread</b>	<b>\$12.95</b>
	<b>3085 Transfer Screw Set, M6 Thread</b>	<b>\$12.95</b>
	<b>3086 Transfer Screw Set, M8 Thread</b>	<b>\$12.95</b>
	<b>3087 Transfer Screw Set, M10 Thread</b>	<b>\$12.95</b>

**Precision: Layout**

**3609 Uni-Paint Valve Action Paint Marker, Black** \$2.95




- Quick drying, Acid Free
- Marks opaque and glossy on light or dark surfaces - just like paint
- Fade-Proof, Water-Proof
- Must be shipped by ground; not available outside the continental US

Marks on virtually any surface; glass, metal, wood, rubber, stone, plastic, paper, vinyl, leather, felt, canvas and more.

**3610 Uni-Paint Valve Action Paint Marker, White** \$2.95


**3028 Universal Bevel, PEC** \$35.95



- Six inch long blade
- Set to any angle
- Stainless steel
- Made in USA

This high-accuracy T-bevel features both straight slots and offset slots in the blade and straight slots in the stock. This combination allows for the widest possible variety of adjustments. Align the T-bevel with the angle you want to duplicate, then tighten the knurled locking nut.

**2227 Universal Bevel, Starrett** \$120.00




- Starrett Universal Bevel
- Starrett catalog number 47
- Wide variety of adjustment and angle settings
- Blade is 6" (150 mm) long

This improved Universal Bevel has both offset and straight slots in the blade, in combination with straight slots in the stock that allow for a wide variety of adjustment and angle settings that are impossible to obtain with many ordinary bevels. Length of the blade is 6" (150 mm), and the stock, 3-1/2" (90 mm). The stock lies flat on the work or paper since the head of the clamping bolt is recessed. This tool can be set to duplicate an angle from a master, or it may be easily converted into a Bevel Protractor by using this tool with the No. 193 Protractor (PN 1833).

**Precision: Measuring**


**3103 Angle Gage Set** \$29.95



- Set of 18 metal angle gages
- 5° to 90° by 5° increments
- Satin chrome finish
- Eight gaging surfaces on each gage
- Check primary angle, 1/2 primary and complementary angles

The angle gage set is furnished in a vinyl case for storage.

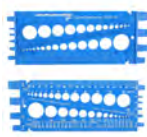
**5490 Angle Gage, Digital** \$36.95



- +/- 180 Degree Range
- Auto Off conserves battery life
- 0.1 Degree Resolution
- Compact and Lightweight design with ±0.1 Degree Repeatability
- Mounting magnets on 3 sides to ensure accurate measurements

This small device is great for setup or checking angles. It is accurate and reliable and the magnetic base makes for easy angle checking on a work piece, angle vise or sine vise, and whatever else you can dream up.


**3459 BoltSize-It Bolt and Nut Checker** \$4.95



- Sizes bolts, nuts, and screws
- Sorts coarse threads, fine threads, and metric threads
- Measures inches and millimeters
- Length: 8-5/8", Width: 4-1/4"

Size bolt diameter by pushing bolt through sizing holes Gauges hex nuts and washers (USS, SAE)Gauges metric hex nuts and washers by holding under metric holesMeasure US and metric thread pitchSpecial notch gauges flat headed metal and wood screwsRuler marked with inches and millimetersSturdy and lightweight plastic resists water, alcohol, oil, and greaseFits in shirt pocket (8-5/8" x 3-1/4" or 217 mm x 82 mm)


**3708 Bore Gage Set, 2-6" Dial** \$89.95



- Measure ID of holes from 2" to 6" in diameter
- Close tolerance measurement of ID, taper and roundness
- Furnished with AGD Group II dial indicator
- Accuracy: 0.0005"
- Includes fitted case and interchangeable anvils

This dial bore gage is easy to calibrate with a ring gage or micrometer.

**3617 Caliper, 6" Outside Spring** \$9.95



- Max. measurement 6" (150 mm)
- Flat leg type
- Quick adjustment nut
- Easy adjustment over entire range
- Polished natural steel finish


6" outside spring caliper used to measure the external size of an object. Outside calipers are useful for transferring measurements from a workpiece to a rule. They are a flexible solution when the work has complex shapes or when measuring round stock. These calipers have a flat leg design and open to a maximum of 6" (150 mm). The polished steel legs are easily adjusted over the entire range and adjustments can be easily fixed with a quick nut.

**3688 Caliper, 6" Hermaphrodite** \$16.95

**3618 Caliper, 6" Inside Spring** \$10.95

**3687 Divider, 6" Spring** \$10.95

**2743 Center Gage, 60 Degree, PEC** \$11.95




- Made of high quality steel
- Satin chrome finish
- Use for grinding and setting thread cutting tools
- Gaging surfaces are precision ground

Center gage made in the US by Products Engineering Corporation (PEC). Used for grinding and setting screw cutting tools. Scales with 14ths and 20ths graduations provided on one side, 24ths and 32nds on reverse side. Scales are used to determine number of threads per inch. Gage also features a table of double depths of thread for selecting size of tap drills. Made of hardened spring tempered steel, with a protective satin chrome finish. All gaging surfaces are precision ground.

**4254 Center Gage, Acme, PEC** \$27.95


**1829 Center Gage, 60 Degree, Starrett** \$25.50



- Starrett 60 degree center gage
- Starrett catalog number C391
- Extremely handy for use in grinding and setting thread cutting tools
- Spring tempered steel

These gages meet the following standards: American National or U.S. 60°, Whitworth or English 55°, and Metric 60°. They also have a very useful scale for finding the number of threads per inch through graduations in 14ths, 20ths, 24ths and 32nds of an inch. The gage also has a table of double depths of threads for determining size of tap drills.


**2882 Comparator Stand & Indicator** \$46.95



- Fine vertical adjustment with lock
- 6" x 6" granite base flat within 0.0005"
- 1" Diameter column, 8" tall
- Includes a 0-1" x 0.001" dial indicator

This granite dial gage comparator stand will accept any AGD 1, 2, 3, or 4 dial indicator.

**5185 Depth Base for 6" Caliper** \$15.95



- Slot Width: .64"
- 1.5 x 4 x 1.5 Inches
- Z-Limit Brand Guarantees Professional Quality
- 3" Base

This depth base attaches to the blade of a 6" caliper for depth measurement. It has a locking nut to secure along the blade. This precise measurement instrument is used to determine the depth of any shape with a step, slot, or groove.



**3546 Depth Gage, 6" Combination, Starrett \$78.00**

- Starrett 6" combination gage, 32nds/64ths
- Starrett catalog number 236
- Combination depth gage and protractor

This depth gage has an added feature permitting its use as a protractor for measuring angles. It is a simple, handy tool that is a welcome addition to any machinist's tool box. The head is graduated both left and right to 30, 45, and 60 degrees. The rule can be set to any of these angles by swinging the rule until the line on the turret coincides with the desired angle. Head is made of hardened steel, ground, and nicely polished - 2 5/8" (66mm) long and 1/8" (3mm) wide. One side of the base is cut out to permit easier and more accurate readings. The center of the head is recessed so that the tool will lay flat to permit more accurate measurements. A tempered rule that has been accurately machined divided, is smoothly fitted to the head and can be locked in position by a knurled nut.



**5599 Depth Gage, 6" Steel Rule, PEC \$32.95**

- 6" Rule made of Hardened and Tempered Steel
- Protractor Graduations Include 30°, 45°, and 60° Angles
- Base Surface Measures 2-12" x 1/8" Thick
- Rule Measures 7/32" Wide and 0.041" Thick with Deeply Etched Markings
- 32nds one side, 0.5mm on reverse

These very handy depth gages can be used to quickly obtain measurements in 32nd of an inch by simply adjusting the rule to the required depth. The gage consists of a nicely finished, hardened steel head and an accurate, machine divided, tempered steel rule.



**3547 Depth Gage, 6" Steel Rule, Starrett \$58.00**

- Starrett steel rule depth gage, 0-6" range, 32nds/64ths
- Starrett catalog number 237
- Head length is 2-5/8" x 1/8"
- Hardened steel head, tempered steel rule

These very handy depth gages can be used to quickly obtain measurements in 64th of an inch by simply adjusting the rule to the required depth. The gage consists of a nicely finished, hardened steel head and an accurate, machine divided, tempered steel rule. The rule is Starrett No. 610N. The gage can be smoothly adjusted to the required measurement and then locked into position by a knurled nut. The base is cut out on one side, adjacent to the rule, permitting easier readings and more accurate measurements.



**3460 Drill Gage \$4.95**

- 1/16" to 1/2" fractional size drill gage
- Quickly check drill sizes
- 32 holes marked with drill sizes
- Measurement marked in inches and decimal equivalents

Sturdy and lightweight plastic resists water, alcohol, oil, and grease. Fits in shirt pocket (3-3/8" x 7-9/16" or 86 mm x 193 mm)



**1434 Drill Gage, #61-80 \$5.95**

- Drill Gage
- Made of steel with etched markings
- Sizes #61 - #80
- Use for twist drill sizing

Drill gage for measuring twist drill sizes. Made of steel with etched graduation markings. Gage sizes from #61 - #80.



**3552 Drill Gage, A-Z Drill Sizes, Starrett \$82.00**

- Starrett Standard Letter Size Drill Gage, A-Z range
- Starrett catalog number 198
- Hardened steel
- Drill sizes .234" to .413"

Letter size drills can be quickly and conveniently checked with this gage. Twenty-six holes are provided, giving corresponding drill sizes from "A" through "Z" with decimal equivalents from .234" diameter through .413" diameter.

The gage is approximately 5/64" thick by 2 5/16" wide and 6 1/4" long, is hardened and has a satin finish. Thoroughly tested after hardening.



**3551 Drill Gage, Jobbers, 1/16-1/2", Starrett \$71.00**

- Starrett Jobbers' Drill Gage, 1/16-1/2" Range
- Starrett catalog number 187
- Hardened Steel
- Marked with inches and decimal equivalents

Using this gage, the size of any twist drill from 1/16-1/2" by 64ths can be quickly determined. The gage has a total of 29 holes, each marked with the drill size in inches and the decimal equivalent. Gage is rigidly tested after hardening and has a black matte finish. Gage information is steel stamped on one side and white marked on the reverse side for quick, clear reading. Approximately 5/64" thick by 2 5/16" by 6 1/4" long.



**3557 Drill Point Gage, Starrett \$69.00**

- Starrett Drill Point Gage, 59° bevel, 32nds graduations
- Starrett catalog number 22C
- The head is beveled to 59° (the correct drill point angle)
- Graduated in 32nds along the 59° face for measuring the drill lips

This gage was designed specifically for use in drill grinding. It provides a quick, accurate way for determining the correct drill point angle of 59° and the correct length of drill lips necessary for clean-cut drilling at maximum feeds and speeds. The sliding head may be adjusted to any position along the rule and locked by a thumb nut. The head is beveled to 59° (the correct drill point angle), and is also graduated in 32nds along the 59° face for measuring the drill lips which should be of equal lengths. The hook rule has accurate, machine-divided graduations in 8ths, 16ths, quick-reading 32nds and 64ths. Hook is adjustable and can be shortened or extended on either side of the rule, and may also be removed if desired. Tool can also be used as a plain rule, hook rule, depth gage, and slide caliper. The No. 22D Head-only will fit all steel rules 3/4" wide by 3/64" thick.



**3092 Height Gage, 12", Dial \$109.95**

- Stainless steel with satin chrome finish
- Carbide tipped scriber for longer life
- Fine feed adjustment
- Positive lock screw
- 0.001" Graduations



**5794 Scriber, Height Gage \$20.95**

**5870 Height Gage, 6", Digital, iGaging \$50.99**

- Resolution: 0.0005"
- Accuracy +/- 0.001"
- Repeatability: 0.0005"
- Solid aluminum base, stainless steel beam
- Large LCD Display, Inch, Metric and Fractions

iGaging's MiniMag 6" Height Gauge makes vertical and horizontal measuring easy. The large LCD display gives measurements in inches, millimeters and fractions and unit has ABS and hold functions. Mounted on a solid aluminum base with magnets, the gage has a stainless steel beam for smooth travel with no play. IP54 rated for splash water, oil & dust resistance, the resolution is 0.0005" (0.01mm) with an accuracy of +/- 0.001" (+/- 0.03mm). Controls are Zero reset, On/Off, inch/mm/fraction conversion, Hold, Absolute.



**3181 Height Gage, 6", Digital, Starrett \$302.00**

- Starrett 0-6" (0-150 mm) range digital height gage
- Starrett catalog number 3751AZ-6/150
- Easy-to-read LCD with .32" high characters
- Linear Accuracy: 0.001" (0.02mm)
- Resolution: .0005" (0.01mm)

Rounded nose scriber cuts clean, sharp lines. Easy-to-read LCD with .32" high characters. This digital height gage features Inch-millimeter conversion and zero at any position. It has a manual ON/OFF button but will also turn off automatically after 5 minutes of inactivity. The stainless steel bar is hardened for long life. The scriber can reference zero from the base bottom.

It also has a slide lock and fine adjustment thumb roll, plus it features a hardened, ground, and lapped base.

**Precision: Measuring**

	<p><b>4642 Height Gage, Digital, 8", Tormach</b> <span style="float: right;"><b>\$185.00</b></span></p> <ul style="list-style-type: none"> <li>● 8" Digital Height Gauge</li> <li>● 0.001" graduations</li> <li>● Easy to read LCD screen</li> </ul> <p>This is a stainless steel dial height gauge with 0.001" graduations.</p>		<p><b>3714 Magnetic Base Indicator Holder, Professional Grade</b> <span style="float: right;"><b>\$27.95</b></span></p> <ul style="list-style-type: none"> <li>● Z-Limit brand guarantees professional quality</li> <li>● Magnetic base indicator holder with fine adjustment</li> <li>● Permanent magnet has an 65 kg (145 lb) holding force</li> <li>● On/off switch makes it easy to position</li> <li>● V-groove base allows you to mount it on cylindrical surfaces</li> </ul> <p>This magnetic base indicator holder has a fine adjustment feature. The on/off switch makes it easy to position. The V-groove base allows you to mount it on cylindrical surfaces. The permanent magnet has an 66 kg (145 lb) holding force.</p>
	<p><b>4521 Indicator Arm, Universal, 11"</b> <span style="float: right;"><b>\$28.95</b></span></p> <ul style="list-style-type: none"> <li>● Steel universal arm with central locking mechanism</li> <li>● 8 mm indicator stem hole</li> <li>● 11" arm length</li> <li>● Fine adjustment knob</li> <li>● 8 mm x 40 mm rod</li> </ul> <p>11" universal arm for holding test indicators. Arm is constructed of steel and has a central locking mechanism. The 8 mm indicator stem hole and dovetail grooves holds most dial indicators and test indicators. Indicator stem has a fine adjustment knob. The arm has a 8 mm (0.315") x 40 mm (1.57") unthreaded stem for placing the arm in collets.</p>		<p><b>3549 Magnetic Base Indicator Holder, Starrett</b> <span style="float: right;"><b>\$198.00</b></span></p> <ul style="list-style-type: none"> <li>● Starrett Magnetic Base with Attachments</li> <li>● Starrett catalog number 657AA</li> <li>● Powerful magnetic base holds firmly to steel and iron surfaces</li> <li>● Push button turns magnet on or off for quick, one-hand set-up</li> </ul> <p>For use with all Starrett Test, Back-Plunger, AGD, Dial and Miniature-Dial Indicators. Also accommodates similar indicators of other manufacturers.</p>
	<p><b>4653 Indicator Arm, Universal, 6"</b> <span style="float: right;"><b>\$21.95</b></span></p> <ul style="list-style-type: none"> <li>● 1/4" Straight</li> <li>● 3" overall length</li> <li>● For use with test indicators and probes with dovetails</li> <li>● Locks in 90° increments</li> </ul> <p>Great for aligning a vise or setting up a work piece.</p>		<p><b>3170 Magnetic Base Indicator Holder, Starrett</b> <span style="float: right;"><b>\$132.00</b></span></p> <ul style="list-style-type: none"> <li>● Magnetic base with triple-jointed arm and fine adjustment</li> <li>● Starrett catalog number 660</li> <li>● Positive On/Off switch</li> <li>● Very sensitive fine-adjustment thumb screw</li> </ul> <p>The compact and versatile No. 660 Magnetic Base Indicator Holder has three adjustable pivots controlled by a single knob for fast, easy indicator positioning. Small but powerful magnetic base, with 70 lbs. (320 N) holding force. Base Dimensions: 1 3/16 x 1 9/16 x 1 3/8" (30 x 40 x 35mm) Horizontal and vertical mounting positions Will hold any indicator with a 3/8" (9.5mm) stem or standard dovetail mount Articulating arm with powerful central locking knob provides full 360° horizontal positioning and over 180° vertical positioning Maximum horizontal reach: 4.750" (120mm) Maximum vertical reach: 7.500" (190mm)</p>
	<p><b>4948 Indicator Holder, 1/4" Round Shank</b> <span style="float: right;"><b>\$13.95</b></span></p> <ul style="list-style-type: none"> <li>● 1/4" Straight</li> <li>● 3" overall length</li> <li>● For use with test indicators and probes with dovetails</li> <li>● Locks in 90° increments</li> </ul> <p>Great for aligning a vise or setting up a work piece.</p>		<p><b>3072 Magnetic Test Indicator Holder, Fisher</b> <span style="float: right;"><b>\$76.00</b></span></p> <ul style="list-style-type: none"> <li>● Overall height 3.75"</li> <li>● Powerful permanent magnet</li> <li>● Clamps on dovetail, 5/32", or 1/4" diameter stems</li> <li>● Includes stem adapter and mill adapter</li> </ul>
	<p><b>2880 Magnetic Base Indicator Holder</b> <span style="float: right;"><b>\$38.95</b></span></p> <ul style="list-style-type: none"> <li>● Magnetic base indicator holder with one-knob lock</li> <li>● Permanent magnet has an 80 kg (176 lb) holding force</li> <li>● On/off switch makes it easy to position</li> <li>● V-groove base allows you to mount it on cylindrical surfaces</li> </ul> <p>This magnetic indicator holder locks all its joints when the knob is tightened. The on/off switch makes it easy to position. The V-groove base allows you to mount it on cylindrical surfaces. The permanent magnet has an 80 kg (176 lb) holding force. The lower arm is 110 mm long, the upper arm is 100 mm long.</p>		<p><b>1237 Magnetic Base Indicator Holder</b> <span style="float: right;"><b>\$13.95</b></span></p> <ul style="list-style-type: none"> <li>● Magnetic base indicator holder with fine adjustment</li> <li>● Permanent magnet has an 60 kg (130 lb) holding force</li> <li>● On/off switch makes it easy to position</li> <li>● V-groove base allows you to mount it on cylindrical surfaces</li> <li>● Works with most AGD dial and test indicators</li> </ul> <p>This magnetic base indicator holder has a fine adjustment feature. The on/off switch makes it easy to position. The V-groove base allows you to mount it on cylindrical surfaces. The permanent magnet has an 60 kg (130 lb) holding force.</p>
	<p><b>2029 Magnetic Base Indicator Holder, Mini</b> <span style="float: right;"><b>\$39.95</b></span></p>		<p><b>5867 Micrometer Set, 0-3", Mitutoyo Style</b> <span style="float: right;"><b>\$62.99</b></span></p> <ul style="list-style-type: none"> <li>● Measuring range 0 to 3"</li> <li>● Accuracy: +/- 0.0001" per inch</li> <li>● Graduation interval 0.0001"</li> <li>● Thimble style: friction or ratchet</li> <li>● Hardened and ground carbide anvil</li> </ul> <p>Three micrometer set manufactured in the style of Mitutoyo micrometers have a measuring range of 0-1", 1-2", and 2-3". The Vernier scale has 0.0001" graduations and an accuracy of +/- 0.0001" per inch. Hardened and ground measuring faces are wear resistance and the hardened, ground, and lapped spindle thread provides smooth movement and accuracy. Micrometer have friction thimbles with ratchet stops. Baked enamel frame, thimble and sleeve have a satin chrome finish. Set includes three micrometers range of 0-1", 1-2", and 2-3", 1" standard, 2" standard and a fitted case.</p>
	<p><b>2062 Magnetic Base Indicator Holder, Dasqua</b> <span style="float: right;"><b>\$79.95</b></span></p> <ul style="list-style-type: none"> <li>● Magnetic base indicator holder</li> <li>● 110 lbs pull with 220mm (8.66") arm length</li> <li>● Tight locking force</li> <li>● Dovetail groove for test indicators</li> <li>● Three clamping holes, 6mm, 8mm and 3/8"</li> </ul> <p>Magnetic base indicator holder with a strong 110 lb. pull. The indicator arm is 220mm (8.66"). Unit has three clamping holes (6mm, 8mm and 3/8") for use with metric and inch dial indicators. There is a dovetail groove for test indicators. The tightening knob is designed for comfortable grip. Constructed from high grade hardened steel and made on CNC machines for an accurate fit.</p>		<p><b>3663 Micrometer Set, 0-6"</b> <span style="float: right;"><b>\$239.95</b></span></p> <ul style="list-style-type: none"> <li>● Solid metal C-shape frame for all sizes</li> <li>● Graduation: 0.0001"</li> <li>● Hardened and precision ground anvil spindle thread with microlap finish on ends</li> </ul> <p>This 0-6" micrometer set features carbide faces and clear 0.0001" graduations on a satin-chrome finish. The frames are forged steel. 1" through 5" standards are included, as well as adjusting wrenches. The micrometers have a ratchet stop for exact repetitive readings and a lock lever to lock the barrel. The micrometers come in a fitted case.</p>
	<p><b>5374 Magnetic Base Indicator Holder, Fine Adjustment</b> <span style="float: right;"><b>\$77.95</b></span></p> <ul style="list-style-type: none"> <li>● Unique top fine adjustment mechanism</li> <li>● 3-D rigid aluminum arm movement</li> <li>● Dovetail groove for test indicator</li> <li>● Maximum reach is 10.7"</li> <li>● On/Off switch</li> </ul> <p>Magnetic base indicator holder with fine adjustment mechanism on the top of the base. Magnet has 176 lbs of pull. Base is 60 x 50 x 55mm.</p>		<p><b>5373 Magnetic Base Indicator Holder, Fine Adjustment, Mini</b> <span style="float: right;"><b>\$64.95</b></span></p>

**Precision: Measuring**

**2520 Micrometer, 0-1" Digital \$129.95**



- Measurement range is 0-1"
- Resolution is 0.00005"
- Protected from dust and water to IP54 per IEC529 standard
- Large LCD display
- Rugged plastic case

This digital electronic micrometer with carbide measuring faces has a resolution of 0.00005". There are three buttons; ON/OFF, SET to zero the display, and ABS/INC to switch between absolute and incremental measurement. The micrometer turns itself off after about 5 minutes of inactivity. Pressing ABS/INC zeros the micrometer at any position so you can make comparative readings between two parts. The absolute measurement is not lost, and is displayed by pressing ABS/INC again. The IP54 code says that dust shall not penetrate in a quantity to interfere with satisfactory operation of the device or to impair safety, and water splashed against the device from any direction shall have no harmful effects.

**5866 Micrometer, 0-1" Digital IP65 \$69.99**



- Measurement range: 0-1"
- Resolution: 0.00005"/0.001mm
- Accuracy: 0.00015"/0.003mm
- IP65 Water, Oil & Dust Resistance
- Large LCD display

Easy to read digital electronic micrometer with a large LCD digital display + Vernier scale reading in the spindle. The digital display has two measuring modes Metric/Standard as well with absolute and incremental modes for each. The spindle has carbide measuring faces and the resolution of 0.00005"/0.001mm. Measurement range is 0-1" and the unit is rated as IP65 (water, oil and dust resistance). There are three buttons; ON/OFF Zero, ABS in/mm to switch between inches and mm with absolute and incremental measurement options for each. The micrometer has an auto shut-off. Comes with an adjustment wrench and a 3V CR 2032 lithium battery and a ball adapter.

**1845 Micrometer, 0-1" Digital, Starrett \$165.00**



- ON/OFF button with auto off after 30 minutes of nonuse.
  - Ability to zero tool at any position.
  - Inch or millimeter graduations.
  - Balanced frame design.
  - One-piece spindle, micro-lapped carbide measuring faces.
- Starrett 0-1" Electronic Digital Micrometer  
 Starrett Digital Micrometer Action Features: ON/OFF button - also automatic OFF after 30 minutes of nonuse. Instant inch/millimeter conversion. Measurement HOLD button. Ability to zero tool at any position. Readability Features: Large, right-sized, high-contrast LCD digital readout is easy to read and reduces errors. Conventional inch or millimeter graduations standard. Attractive no-glare black wrinkle finish on the frame. Starrett no-glare satin chrome finish on thimble and sleeve. Ease-of-Handling Features: Balanced frame design for comfortable and accurate measuring. Ring-type knurled lock nut for quick and sure locking. Smooth friction thimble for uniform pressure. Gracefully designed tapered frame for use in narrow slots and tight places. Accuracy and Long-Life Features: Extremely hard and stable one-piece spindle (the heart of our accuracy). Micro-lapped carbide measuring faces. Starrett designed electronic microprocessor. One battery furnished for dependable power and over one year's normal usage. Automatic OFF after 30 minutes of nonuse. Starrett workmanship. Starrett catalog number 3732XFL-1

**3180 Micrometer, 0-1", Starrett \$234.00**



- Starrett 0-1" micrometer
  - Starrett catalog number T230XRL
  - Accurate to 0.0001"
  - Thousandths are numbered on inch tools for quick and easy reading
  - Adjustments are easy and quick
- The Starrett 0-1" micrometer is the jewel of precision tools used by skilled workmen worldwide.

The spindle and anvil are sized at .235" (6mm) to reach places most micrometers cannot reach.

The balanced frame and thimble design insure easy handling and better readability. A ring-type knurled lock nut provides quick and sure locking. The combination ratchet and speeder provides uniform pressure and quicker adjustment. A gracefully designed tapered frame allows use in narrow slots and tight places.

The Starrett T230XRL micrometer has a rigid one-piece frame of drop forged steel and an extremely hard and stable one-piece spindle (the heart of the accuracy). It features micro-lapped measuring faces, quick and easy adjustment, plus Starrett workmanship.

**1962 Pee Dee Thread Measuring Wires, Fisher \$37.00**



- Made in USA by Fisher Machine Shop
- This set of thread measuring wires includes 48 wires of 16 different diameters for the three wire thread measuring procedure. You can measure threads from 3 to 48 threads per inch, and metric threads from 0.5 mm to 6 mm pitch. You can also measure Acme threads from 3 to 16 threads per inch. The thread measuring wires come with thread charts and are furnished with a quality vinyl case. This is a quality American-made product from Fisher Machine Shop. These are the original Pee Dee thread measuring wires.

**3720 Pin Gage Set, 0.061" to 0.250" Minus \$59.95**



- 190 2" long pin gages
  - Each pin is up to 0.0002" under the marked size
  - Hardened to 60-62 Rc
  - Finished to 10 microinches
  - Furnished in a sturdy plastic case with sizes marked
- These pin gages provide one of the best ways of measuring hole diameters. They can also be used to measure the distance between holes and for go/no go gaging. This set includes 190 pin gages, one for each 0.001" from 0.061" to 0.250". Each of the pin gages are individually marked with their respective sizes.

**3879 Pin Gage Set, 0.011" to 0.060" Minus \$29.95**

**3556 Protractor, Rectangular Head, Starrett \$87.00**



- Starrett steel protractor (0-180°), 6" blade, rectangular head
  - Starrett catalog number C183
  - Double graduations from 0-180° in two directions
  - The blade can be locked firmly at any angle by the lock nut
  - Satin chrome finish for ease of reading and resistance to rust
- This is a highly useful and accurate tool for setting bevels, transferring angles, small squaring tasks, checking cutter clearances within certain limits, and many other applications. Double graduations from 0-180° in opposite directions permit the direct reading of angles and supplementary angles. The back of the tool is flat for ease of use.

**2749 Protractor, Semi-Circle Head, PEC \$29.95**



- Measures angles from 0 to 180°
  - Semi-circular head is 3.3" x 2"
  - 6" arm can be locked in any position with knurled lock nut
  - Made of tempered steel with satin chrome finish
- Protractor made in the US by Products Engineering Corporation (PEC). Protractors are used for drawing radial lines, transferring angles, setting bevels, and setting tapers.

**2748 Protractor, Rectangular Head, PEC \$29.95**

**2751 Protractor, Semi-Circle Head, Stainless, PEC \$17.50**



**2878 Radius Gage Set \$21.95**

- Set of 25 radius gages and holder
  - 1/64" to 17/64" radius by 64ths
  - 9/32" to 1/2" by 32nds
  - Satin chrome finish
  - Five gaging surfaces on each gage for both concave and convex radii
- The radius gage set is furnished in a vinyl case for storage.



**1842 Radius Gage Set, Starrett \$193.00**

- Starrett 25 piece radius gage set
  - Starrett catalog number S167CHZ
  - Radii Range: 1/64-17/64" 9/32-1/2"
  - Increments: 64ths, 32nds
  - Rust and stain resistant satin finish stainless steel
- Radii or fillets can be checked or laid out easier, faster, and more accurately with Starrett radius gages. Each radius gage set is furnished in an attractive case which provides complete protection and easy, instant selection of the right gage size for the job.
- Starrett Radius Gage Features: Made of satin finish stainless steel - rust and stain resistant. Each gage is clearly marked with its radius. Each gage has five different gaging surfaces for both convex and concave radii. All gages have precision finished radii with extra smooth, accurate edges.
- Gage Holder Features: Any gage can be used with the Starrett No. 110 holder which is especially useful for checking radii in confined or hard-to-reach locations. Two slots are provided in the holder permitting gages to be held at 30° or 45°, either square in the slot or tipped to one side. The holder is 4" (100 mm) long, providing good reach and balance.



**3029 Screw Checker, Inch, PEC \$22.95**

- #1 to 5/16" thread sizes
  - Quickly identify unified and American threads
  - NC, NF, and NS threads
  - Made in USA
- Screw checkers provide a quick way to measure standard threads. They provide all the information you need for screws; diameter, length, threads per inch, hole size and even tap drill sizes.

- 3031 Screw Checker, Large Metric, PEC \$24.95**
- 3030 Screw Checker, Small Metric, PEC \$22.95**



**3461 Screw Checker, Plastic \$4.95**

- #0 to 3/4" coarse & fine threads
  - 1.6 mm to 16mm metric threads
  - Tap drill sizes on back
- Sturdy and lightweight plastic resists water, alcohol, oil, and grease. Fits in shirt pocket (3-3/8" x 6-5/8" or 86 mm x 168 mm)



**5192 Screw Pitch Gage, Inch 51 Leaves \$10.95**

- Screw pitch gage with 51 leaves
  - Measures 60° threads from 4 - 84 TPI
  - Each blade clearly marked with thread size
  - Blades are protected in sturdy steel case
  - Locking device for each set of leaves
- Correct pitch is determined by matching blade teeth with threads. Each blade clearly marked with proper thread size. Blades are protected in sturdy steel case. Includes the following TPI: Leave Sizes: 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10, 11, 11.5, 12, 13, 14, 15, 16, 18, 20, 22, 24, 25, 27, 28, 30, 32, 34 threads per inch (TPI) Leave Sizes: 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84 threads per inch (TPI)

- 5190 Screw Pitch Gage, Acme Inch 16 Leaves \$28.95**
- 5191 Screw Pitch Gage, Metric 28 Leaves \$7.95**



**2744 Screw Pitch Gage, Inch 51 Leaves, PEC \$48.95**

- Screw pitch gage with 51 leaves
  - Measures 60° threads from 4 - 84 TPI
  - Each blade clearly marked with thread size
  - Blades are protected in sturdy steel case
  - Locking device for each set of leaves
- Screw pitch gage made in the US by Products Engineering Corporation (PEC). The correct pitch is determined by engaging the blade teeth with the threads you are measuring. This screw pitch gage measures the following screw pitches: Leave Sizes: 4, 4-1/2, 5, 5-1/2, 6, 7, 8, 9, 10, 11, 11-1/2, 12, 13, 14, 15, 16, 18 threads per inch (TPI) Leave Sizes: 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50 threads per inch (TPI) Leave Sizes: 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84 threads per inch (TPI)

- 2746 Screw Pitch Gage, Inch/Metric 28 Leaves, PEC \$25.95**
- 2745 Screw Pitch Gage, Metric 28 Leaves, PEC \$25.95**



**3176 Screw Pitch Gage, Inch 51 Leaves, Starrett \$84.00**

- Screw pitch gage with 51 leaves
  - Measures 60° threads from 4 - 84 TPI
  - Each blade clearly marked with thread size
  - Blades are protected in sturdy steel case
  - Locking device for each set of leaves
- Starrett screw pitch gages are among the most useful tools in any mechanic's toolbox. They quickly determine the pitch of various threads. These gages consist of a substantial steel case with a number of folding leaves at both ends, each leaf having teeth corresponding to a definite pitch, marked on each leaf. The screw pitch gage features a locking device at both ends of the case, so leaves can be securely locked in position for use. Leaves have a special narrow design, permitting checking internal threads in nuts, etc., as well as external threads. Measures 60° threads from 4 threads per inch to 84 threads per inch Leave Sizes: 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10, 11, 11.5, 12, 13, 14, 15, 16, 18 threads per inch (TPI) Leave Sizes: 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50 threads per inch (TPI) Leave Sizes: 52, 43, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84 threads per inch (TPI) Starrett catalog number 472

- 1834 Screw Pitch Gage, Inch 30 Leaves, Starrett \$42.00**
- 2617 Screw Pitch Gage, Metric 28 Leaves, Starrett \$48.50**



**3093 Small Hole Gage Set, 4-Piece \$12.95**

- 4 small hole gages with 0.125" to 0.500" range
  - Full spherical ball for very accurate measurements
  - Hardened, satin-chrome plated measuring faces
  - Furnished in plastic pouch
- Accurately and quickly gages small holes, grooves and slots. Insert the appropriate gage (smaller but closest to bore diameter) into the hole. Rotate the knurled base to expand the end until a slight pressure is felt when the gage is moved in the bore. Remove the gage and measure with a caliper or micrometer.



**4492 Small Hole Gage Set, 4-Piece, PEC \$64.95**

- 4 small hole gages with 0.125" to 0.500" range
- Extra long for gaging deep holes and slots
- Hardened, satin-chrome finish
- Furnished in fitted vinyl case
- Size adjustment by knurled knob



**3545 Small Hole Gage Set, 4-Piece, Starrett \$173.00**

- Starrett 4- piece small hole gage set
  - Starrett catalog number 5829EZ
  - Range of 0.125-0.500" (3.2-12.7 mm)
  - Hardened-ball measuring surface with two-point contact
  - Smooth, sensitive adjustment for better feel, giving more accurate measurements
- These small hole gages are well balanced tools that are ideal for accurately measuring small holes, slots, grooves, and recesses in all kinds of work. The radius on each gage is less than the minimum diameter to be measured, which provides the two-point contact necessary for maximum accuracy. They have smooth, sensitive adjustment for better feel, giving more accurate measurements. The adjustment of the gage beyond their range is restricted by a safety stop that prevents breakage. Accurate measurements are obtained by slightly "rocking" these gages in the hole to be measured. This will guarantee contact at the true diameter. The final size is then obtained by measuring over the ball contacts with a micrometer. Furnished in a vinyl pouch.



**3550 Tap and Drill Gage, Starrett "Time Saver" \$77.00**

- Starrett hardened tap and drill gage
  - Starrett catalog number 185
  - Drill sizes number 1-60 (0.228-0.040")
- This highly useful gage shows at a glance the correct size tap drill for any common size machine screw tap in "NF" National Fine or "NC" National Coarse Thread Series, that will leave the right amount of stock for approximately 65% full thread. The gage also shows the correct body size drill to use. In addition, there are 60 holes marked with the number size and decimal equivalent of the drill that fits each hole. Example: a size 2-56 tap (No. 2 tap with 56 pitch) calls for a No. 50 tap drill and a No. 44 body drill. The gage has a black matte finish with information steel stamped on one side and white marked on the reverse side for quick, clear reading. The gage is thoroughly tested for accuracy after hardening. Approximate size, 5/64" thick by 2 5/16" wide by 6 1/4" long.



**1234 Steel Rule, 6" 4R Rigid \$5.95**

- 4R graduations, 8ths & 16ths, 32nds & 64ths
  - Hardened stainless steel
  - Rule is 3/4" wide and 0.032" thick
- This precision, 6" long steel rule is flexible to fit into tight spots. The etched black graduations are easy to read against the non-glare finish.



**Steel Rules, PEC**

- Made from the finest quality steel available
  - Fully hardened and tempered with stain chrome finish
  - Precisely etched, then black filled for readability
  - Flexible rules are 1/2" wide and 0.015" thick
  - Rigid rules are 3/4" wide and 0.040" thick
- Steel Rules made by Product Engineering Corporation (PEC) are a high quality rule made in the US. Each rule is fully hardened and tempered and etched with precision. Flexible rules are 1/2" wide and 0.015" thick. Rigid rules are 3/4" wide and 0.040" thick. See Chris' Tips "How to Use a Steel Rule" for more information on graduations.

- 2729 Steel Rule, 6" 4R Flexible, PEC \$12.95**
- 4227 Steel Rule, 6" 4R Black Flexible, PEC \$9.95**
- 2734 Steel Rule, 6" 4R Rigid, PEC \$12.95**
- 2731 Steel Rule, 6" 5R Flexible, PEC \$12.95**
- 2733 Steel Rule, 6" 31 (in/mm) Flexible, PEC \$12.95**
- 2736 Steel Rule, 6" 31 (in/mm) Rigid, PEC \$12.95**
- 2730 Steel Rule, 12" 4R Flexible, PEC \$23.95**
- 2735 Steel Rule, 12" 4R Rigid, PEC \$25.95**
- 2732 Steel Rule, 12" 5R Flexible, PEC \$23.95**
- 5092 Steel Rule, 300 mm 30 (1.0 mm/.05 mm) Flexible, PEC \$23.95**
- 4796 Steel Rule, 300 mm 30 (1.0 mm/.05 mm) Rigid, PEC \$25.95**
- 4610 Steel Rule, Hook 12" (32nds/ 0.5 mm), PEC \$32.95**



**Steel Rules, Starrett**

Starrett precision steel rules are machine-divided, not photoengraved. They are inspected to Starrett Master Standards, which are traceable to the National Institute of Standards and Technology. Graduation No. 4R are 8ths, 16ths, quick-reading 32nds and 64ths. Graduation No. 16R are Quick-reading 32nds and 64ths, aircraft quick-reading 50ths and 100ths. Graduation No. 5R are quick-reading 10ths, aircraft quick-reading 100ths, 32nds and 64ths. Graduations No. 31 are 32nds and 64ths on one side; mm and 1/2 mm on reverse.

Flexible rules are 1/2" wide and 1/64" thick. Rigid rules are 3/4" wide and 3/64" thick.

- 1826 Steel Rule, 6" 4R Flexible, Starrett \$24.00**
- 2233 Steel Rule, 6" 4R Rigid, Starrett \$25.50**
- 1827 Steel Rule, 6" 5R Flexible, Starrett \$24.50**
- 3175 Steel Rule, 12" 5R Flexible, Starrett \$51.00**
- 1828 Steel Rule, 150 mm 31 (in/mm) Flexible, Starrett \$27.00**



**3185 Telescoping Gage Set, 4-Piece 5/16 - 2-1/8", PEC \$81.95**

- For measuring holes, slots and recesses
  - Measures holes from 5/16" to 2 1/8" diameter
  - Double action is self-centering
  - Satin chrome finish
  - Contact ends are hardened and ground
- Use telescoping gages to measure ID, deep holes, recesses, slots, grooves, and other hard to reach places. Measure the actual size or lock the self-centering plungers to a known size for a go-no go gage.

**3184 Telescoping Gage Set, 6-Piece 5/16 - 6", PEC \$112.95**



**1840 Telescoping Gage Set, 4-Piece 5/16 - 2-1/8", Starrett \$160.00**

- Starrett telescoping gage set
  - Starrett catalog number S579GZ
  - Range: Four gages, 5/16" to 2-1/8"
  - Handles are approximately 2-3/8" long
  - Contains two telescoping contacts
- Starrett telescoping gages are used for determining the true size of holes, slots, and recesses up to 2-1/8" (54 mm). The ends of both contacts are hardened and ground to a radius to allow proper clearance on the smallest hole the gage will enter. These tools must be slightly "rocked" in the hole being measured to ensure that the tool is on the proper diameter before it is locked and withdrawn. The final hole size is obtained by measuring over the gage contacts with a micrometer.

The No. 579 Series telescoping gages have handles that are rigidly attached to the contact plungers and are automatically self-centering. Also, the No. 579 gages have two telescoping contacts.

The handles are approximately 2-3/8" (60 mm) long.

Constant spring tension gives uniform contact pressure and both plungers are easily locked at any desired setting.

**2959 Telescoping Gage Set, 6-Piece 5/16 - 6", Starrett \$272.00**



**2879 Telescoping Gage Set, 6-Piece 5/16 - 6" \$16.95**

- For measuring holes, slots and recesses
  - Measures holes from 5/16" to 6" diameter
  - Double action is self-centering
  - Satin chrome finish
  - Contact ends are hardened and ground to the radius of the smallest diameter
- Use telescoping gages to measure ID, deep holes, recesses, slots, grooves, and other hard to reach places. Measure the actual size or lock the self-centering plungers to a known size for a go-no go gage.

**Precision: Measuring**



**5967 Telescoping Gage Set, 6-Piece 5/16 - 6", Professional Grade \$39.95**

- For measuring holes, slots and recesses
  - Measures holes from 5/16" to 6" diameter
  - Double action is self-centering
  - Satin chrome finish
  - Contact ends are hardened and ground
- Use telescoping gages to measure ID, deep holes, recesses, slots, grooves, and other hard to reach places. Measure the actual size or lock the self-centering plungers to a known size for a go-no go gage.



**2925 Dial Indicator, Test Indicator, Magnetic Base & Point Set \$59.95**

- 0-1" dial indicator with 0.001" resolution
  - 0-15-0 dial test indicator with 0.0005" resolution
  - Magnetic base indicator holder with fine adjustment
  - 22 piece indicator point set
  - All in a plastic case
- The 1" stroke dial indicator features large, easy to read numbers and crisp graduations. Each revolution is 0.100", indicated by the revolution counter. The resolution is 0.001". There is a mounting lug on the back of the case. This is an AGD Group 2 indicator with a 2.25" Diameter face, 0.375" shank, and #4-48 tip thread. The dial test indicator has 0.0005" graduations and a 7 jewel movement. Its range is 0.030" in either direction. Includes 5/32" and 3/8" diameter posts, dovetails on the back and end, and a 0.080" diameter point. The magnetic base indicator holder has a fine adjustment feature. The on/off switch makes it easy to position. The v-groove base allows you to mount it on cylindrical surfaces. Includes a 22 piece indicator point set and a plastic case.



**3771 Test Indicator Holder, Professional Grade \$19.95**

- Z-Limit brand guarantees professional quality
  - Clamping diameter range of 1-3/8" to 2"
  - Length from the center of the clamp to the indicator can be up to 6-1/2"
  - Clamps to the outside of an end mill holder and does not disturb the working tool
- This test indicator holder has a clamping diameter of 1-3/8". The length from the center of the clamp to the indicator can be up to 6-1/2". The test indicator clamps to the outside of an end mill holder and does not disturb the working tool.



**2518 Inspection Kit, 6-Piece \$99.95**

- 1" Dial indicator, magnetic base and point set
  - 0-30-0 Dial test indicator
  - 0-1" micrometer
  - 6" Dial caliper
  - Plastic case
- This set includes all the basic precision measuring tools. The micrometer has a range of 0-1" and a resolution of 0.0001". An adjustment wrench is included. The dial caliper has a range of 0-6" and a resolution of 0.001". The dial test indicator has a range of 0.030" in either direction and a resolution of 0.0005". It includes 5/32" and 3/8" diameter posts, dovetails on the back and end, and a 0.080" diameter point. The dial indicator has a range of 0-1" and a resolution of 0.001". Each revolution is 0.100", indicated by the revolution counter. There is a mounting lug on the back of the case. The magnetic base has an on-off switch for the magnet and incorporates a fine adjustment feature. The point set includes 22 of the most popular points. All have #4-48 threads for use in AGD 1, 2, 3, and 4 indicators.



**4832 Test Indicator Holder, Universal \$31.95**

- Designed to hold dovetailed test indicators or 1/4" straight shanks
  - 3 different clamping dimensions: 1/4", 3/8" & 1/2" for various collet sizes
  - reaches anywhere within a 8" diameter and fine-adjusts approximately 3/8"
- Setting up a workpiece before machining, aligning the center of a round workpiece in relation to the cutting head, or aligning vise jaws to the spindle takes virtually no time this test indicator holder.



**1260 Measurement Starter Kit with Digital Caliper \$59.95**

- 6" electronic digital caliper
  - 6" steel rule
  - 1" x 0.001" stroke dial indicator
  - Magnetic base indicator holder
  - Starrett Tools & Rules for Precision Measuring booklet
- This kit includes the basic measurement tools you need for the mini mill, mini lathe or other small machines. The magnetic base includes a fine adjustment.



**1843 Thickness Gage Set, Starrett \$77.00**

- 26 Tapered Leaves, 1/2 - 1/4 x 3-1/32"
  - Range .0025-.025"
  - Leaf Thickness (Inches): .0015 to .025
  - Tempered-steel.
  - Locking device. Leaves easily removed or replaced.
- Starrett thickness gage set (feeler gage) Starrett catalog number 66T.26 Tapered Leaves, 1/2 - 1/4 x 3-1/32" Range .0025-.025" Leaf Thickness (Inches): .0015, .002, .0025, .003, .004, .005, .006, .007, .008, .009, .010, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025 The gages of this Starrett feeler gage set are used in automotive, aviation, diesel, and farm equipment manufacture and service, and also in jig, fixture, gage, and experimental work. Especially useful in adjusting tappets, spark plugs, distributor points, checking bearing clearances and gear play, fitting pistons, rings and pins, and gaging narrow slots. Leaves made of finest tempered-steel, carefully finished to correct thickness, individually tested and marked with thickness. Locking device on most gages - permits securely locking one or more leaves in position. Leaves are easily removed or replaced. Gage has a rugged, substantial steel case protects leaves.

**1259 Measurement Starter Kit with Dial Caliper \$59.95**

**Precision: Setup**

**Precision: Sets**



**1782 Dial Indicator, Magnetic Base & Point Set \$32.95**

- 0-1" dial indicator with 0.001" resolution
  - Magnetic base indicator holder with fine adjustment
  - 22 piece indicator point set
  - All in a plastic case
- This 1" stroke dial indicator features large, easy to read numbers and crisp graduations. Each revolution is 0.100", indicated by the revolution counter. The resolution is 0.001". There is a mounting lug on the back of the case. This is an AGD Group 2 indicator with a 2.25" Diameter face, 0.375" shank, and #4-48 tip thread. The magnetic base indicator holder has a fine adjustment feature. The on/off switch makes it easy to position. The v-groove base allows you to mount it on cylindrical surfaces. Includes a 22 piece indicator point set and a plastic case.

**1593 Dial Indicator and Magnetic Base \$24.95**

**2424 Plastic Case for Magnetic Base and Dial Indicator \$7.95**



**2552 Adjustable Parallel Set \$42.95**

- Made of precision ground tool steel
  - Easily expanded to size in openings for quick reference measurements
  - Lock desired size by set screws provided
  - Exact size can be set with micrometer
  - Furnished in fitted plastic case with size range markings
- Six piece adjustable precision parallel set. Parallels are adjustable to the following sizes: 3/8" - 1/2", 1/2" - 11/16", 11/16" - 15/16", 15/16" - 1-5/16", 1-5/16" - 1-3/4", 1-3/4" - 2-1/4". The parallels are 5" long and 1/4" thick.



**2553 Angle Block Set \$29.95**

- Simple, quick angle set ups
  - Manufactured of hardened, stabilized and ground steel
  - Accurate to ±0.0001" per inch
  - Fitted case
  - Angle blocks are 3" long and 0.25" thick
- Ten piece angle block set. The angles included are 1°, 2°, 3°, 4°, 5°, 10°, 15°, 20°, 25°, 30°. You can combine them to make any integral angle.



**Precision: Setup**



**3431 Angle Plate, 3" Slotted & Webbed \$16.95**

- 3" long, 2.5" tall, and 2" wide
- Accurately machined and ground square and parallel on outside and ends
- Slots provide many options for mounting
- widely used for machining, layout and inspection
- High tensile cast iron is properly seasoned to prevent distortion

**3432 Angle Plate, 4-1/2" Slotted & Webbed \$22.95**



**5385 Angle Plate, 3" Webbed End \$18.95**

- 3" x 3" x 3" angle plate
  - Precision ground finishing
  - Square and parallel to .0005" per 6"
  - Webbed end
  - Made from high tensile cast iron
- 3" webbed end angle plate for squaring surfaces and job layout. The angle plate is precision ground and square and parallel to 0.0005" (0.013 mm) per 6" on two working surfaces. Made from high tensile cast iron, normalized and stress relieved. Angle plate is 3" long, 3" tall and 3" wide.

**5384 Angle Plate, 2" Webbed End \$12.95**

**5386 Angle Plate, 4" Webbed End \$27.95**



**1233 Blocks, 1-2-3 \$19.95**

- Threaded holes are 3/8"-16 thread
  - Through holes are 5/16"
  - Hardened and precision ground steel
  - Pairs are matched within 0.0002"
- These precision 1-2-3 blocks are ground and case hardened on all sides to 50-60 Rc. The blocks are 1" by 2" by 3". They are parallel within 0.0002", flat within 0.0002" and square within 0.0002". Each set includes two matched blocks. The blocks have 23 holes through them, 5 are threaded 3/8"-16 NC.

**3666 Blocks, 2-4-6 \$109.95**



**2881 Blocks, 1-2-3, Ultra Precision \$29.95**

- Threaded holes are 3/8"-16 thread
  - Through holes are 5/16"
  - Pair of 1-2-3 blocks
  - Five 3/8"-16 x 1-1/2" Socket Head Cap Screws
  - One Hex Wrench
- These ultra precision 1-2-3 blocks are ground and case hardened on all sides to 55-60 Rc. They are parallel within 0.0001", flat within 0.0001" and square within 0.0001". They are up to 0.0003" oversize for lapping. Each set includes two matched blocks. The blocks have 23 holes through them. Five are threaded 3/8-16 NC, and the other through holes are 5/16" diameter. The set includes a matched pair of 1-2-3 blocks, five 3/8-16 x 1.5" socket head cap screws and a hex wrench. Furnished in a fitted case.



**2186 Center It V-Block \$18.95**

- CENTER IT makes it easy to drill round stock and tubing
  - Bolts to the drill press table and enables the drilling of round pieces parallel and centered
  - Grooves on the outer sides eliminate slippage while holding by hand for sawing
  - Place CENTER IT on the drill press table, run the stationary bit down to center the fixture
- CENTER IT is a tool for drilling pipe and other round objects. The CENTER IT v-block is made specifically for use in a drill press. No clamping of the tube is necessary since the angled flats of the jig hold it centered. Holes will automatically be centered on the tube with no center-punching required. If tubing is too large to drill in a single operation this drill press v-block can simply be turned over. Especially for the metalworking enthusiast, the woodworking hobbyist, and even the professional automotive mechanic, CENTER It v-block makes speedy and precise work of drilling tasks. Its "hand vise" grip ridges allow no-clamp holding of round stock for sawing and cutting. CENTER IT is made of heavy aluminum extrusion. The CENTER IT drill press v-block is 5" Long, 4" Wide, and 1-3/4" High. The groove at the base of the V is 0.43" wide, so use a drill bit smaller than this to center the CENTER IT.



**5380 Gage Block Set, Rectangular, 81 Pieces \$169.95**

- No. of Blocks - 81pc
  - Made of the highest quality tool steel
  - Surface hardness: HRC 64
  - Grade AS-2 (B) (+/- 50 millionths)
  - With fitted wooden case with sizes labeled
- Blocks Included: 9 Blocks: .1001" thru .1009" step of .0001", 49 Blocks: .101" thru .149" step of .001", 19 Blocks: .050" thru .950" step of .050", 4 Blocks: 1.000" thru 4.000" step of 1.000". Meets or exceeds Federal GGG-G-15C. All calibration conforms to: MIL-STD 45662A, GGG-G-15C, ISO/IEC 17025 Accredited, ISO 9000, 10012-1, ANSI-NCSL Z540-1, ISO GUIDE 25 Certified. Complete with manufacturer's calibration or certificate.



**4855 Indicator Holder, 3/8" Square Shank \$13.95**

- Holds dovetail indicators
  - 3/8" & 7/32" mounting holes for holding the stem of almost all dial indicators
  - 4" long 3/8" square shank makes this great for use in a lathe
- Easily center work in a 4-jaw chuck by using this indicator holder in your tool post or standard turning tool holder holder for a quick change tool post with almost any indicator.



**2907 Machinists Jack Set \$16.95**

- Machinists jack
  - Two extension bases
  - Auxiliary pointed screw
  - Inner and outer V bases
  - 1" diameter, 1.5" to 2.3" tall
- Machinists jacks are used to support odd sized or odd shaped objects. Use them to support the ends of long workpieces that extend beyond your vise jaws. Use them to support the edges of items that you are clamping with your clamping kit. The machinist's jack includes lots of parts that you can mix and match to meet your needs.



**Machinists Jacks, Individual Sizes**

- High Quality Tool Steel
  - Ideal for Setup Work
- These little screw jacks are ideal for work piece setup in which fine adjustment may be required to level a work piece. They also make a suitable replacement for a step block when using a clamp kit.

**5936 Machinists Jack, 23-30 mm \$4.95**

**5937 Machinists Jack, 40-60 mm \$4.95**



**3525 Sine Bar, 5" \$64.95**

- Working face accurate to 0.00003" per inch of length
  - 5.00" center distance of rolls accurate to 0.0002"
- Use a sine bar and space blocks to set or measure extremely accurate angles.

**3535 Sine Bar, 2.5", Fisher \$43.00**



**3945 Thin Parallel Shims, 3" Long, 3 Pairs \$12.95**

- Shims are 9/64", 5/32" and 3/16" square and 3" long
  - Made of high grade alloy steel hardened to 52 to 58 Rc
  - Parallel within 0.0002". The pairs are matched in height within 0.0002"
- These shims multiply the options for your 3" long thin parallels. You can now space your work by 1/64".



**1893 Thin Parallels, 3" Long, 10 Pairs \$29.95**

- Set of ten pairs of 3" thin parallels in a fitted case
  - Parallels are 1/8" thick and 3" long
  - Heights are 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2", and 1-5/8"
  - Made of high grade alloy steel hardened to 52 to 58 Rc
  - Parallel within 0.0002" on the top and bottom. The pairs are matched in height within 0.0004"
- These 3" long thin parallels are great for the small vises used on the mini mill.

**3947 Thin Parallels, 1.5" Long, 9 Pairs \$34.95**

**3946 Thin Parallels, 3" Long, 11 Pairs \$45.95**

**2924 Thin Parallels, 3" Long, 4 Pairs \$14.95**

**5381 Thin Parallels, 4" Long, 10 Pairs \$44.95**

**5382 Thin Parallels, 5" Long, 10 Pairs \$45.95**

**1232 Thin Parallels, 6" Long, 10 Pairs \$29.95**



**2220 Thin Parallels, 3" Long, 10 Pairs, Ultra-Precision** **\$119.95**

- Set of ten pairs of thin parallels in a fitted case
- Parallels are 1/8" thick and 3" long
- Heights are 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1", 1-1/16"
- Made of A2 tool steel hardened to 57 to 59 Rc
- Parallel within ±0.0001" on the top and bottom. The pairs are matched in height within ±0.0001"

These 3" long thin parallels are great for the small vises used on the mini mill. These thin parallels were made in the USA by the Arthur R. Warner Co. exclusively for LittleMachineShop.com. This set of 1/8" thin parallels contains 10 pairs of parallels that step in 1/16" increments. This gives you more sizes you can use in our small vises. These parallels do not have holes in them. The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel (and tool steel). Their quality is excellent and LittleMachineShop.com is proud to carry their products.



**2923 Ultra Thin Parallels, 6" Long** **\$29.95**

- Set of 20 pairs of ultra thin parallels in a fitted case
- Machinist parallels are 1/32" thick and 6" long
- Heights are 1/2" to 1-11/16" in 1/16" steps
- Made of high grade alloy steel hardened to 50 Rc
- Parallel within 0.0001" on the top and bottom. The pairs are matched in height within 0.0001"

The heights of the parallels are 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1", 1-1/16", 1-1/8", 1-3/16", 1-1/4", 1-5/16", 1-3/8", 1-7/16", 1-1/2", 1-9/16", 1-5/8", and 1-11/16".



**1794 V-Blocks, 1-1/4" x 1-1/4" x 1-5/8"** **\$49.95**

- Vee Capacity Is 1"
- Includes Clamps
- 90° V Groove is accurate within 0.0001" for central, parallel and square with all surfaces
- Height: 1-1/4", Width: 1-1/4", Length: 1-5/8"

These precision V-blocks are made of hardened steel. They are ground square, parallel and concentric within 0.0001". The V-blocks are supplied in matched pairs. V-block clamp set includes clamps for inspection work.

**5383 V-Blocks, 1-5/8" x 1-3/4" x 2-3/4"** **\$72.95**



**3718 V-Blocks, Miniature 0.03" to 0.28" Capacity** **\$139.95**

- Hold miniature round parts in these small V-blocks
- Bridges straddle long workpieces allowing use of hold-down screw of containing V-block
- Hardened and precision ground
- Square and parallel to 0.0002"
- Includes fitted case

These mini V-blocks, held in larger V-blocks, provide a unique and universal way to hold small and intricate parts. V-block set includes two V-blocks, one with a 0.030" to 0.15" capacity and one with a 0.05" to 0.28" capacity. Also are two bridges and five upper prisms providing 1/8", 5/32", & 3/16" capacity.

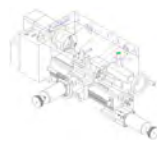


**5447 Z-Axis Tool Height Setter, Digital** **\$99.95**

- Easy to set "0" point with LCD display
- Positioning accuracy is 0.001" / 0.01 mm
- Displays in inches and mm
- Overall height is 50 mm
- Fitted metal case included

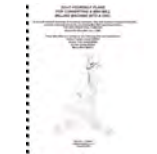
Accurately and easily establish tool length offsets for CNC milling with this digital Z-Axis height setter. The large LCD display is easy to read (mm or inch) and the large contact face makes contact with multiple points of the cutter. The magnetic base keeps the device from shifting. Made of hardened steel and shipped in a fitted metal case. SR44 battery included.

**Project Plans: CNC Conversions**



**2395 Mini Lathe CNC Conversion Plans** **\$54.95**

Plans to add CNC to a mini lathe. These CNC conversion plans were created by Ronald J. Steele. This is a complete set of plans to add CNC to a mini lathe. They include a materials list with sources, plans for all the parts, and instructions for making the parts and installing them on the mini lathe. Changes to the original machine are minimal. Three drilled and tapped holes are put into the tail end of the lathe bed to hold the Z axis lead screw thrust washer seat/motor mount plate. The remaining motion control parts are either attached via existing holes or clamped onto the machine. Project completion time is 30 to 40 hours. Cost for mechanical hardware and materials is between \$180 and \$220. The plans provide several sources for the electrical parts and software.



**2353 Mini Mill CNC Conversion Plans** **\$54.95**

Plans to add CNC to a mini mill. These Mini Mill CNC Conversion plans were created by Ronald J. Steele. This is a complete set of plans to add CNC to a mini mill. These CNC mill conversion plans include a materials list with sources, plans for all the parts, and instructions for making the parts and installing them on the mini mill. The only permanent change made to the mini mill is to drill and tap two holes. Ron Steele says the cost of the hardware and materials, assuming you need to purchase everything, is about \$160. The plans provide sources for all these items. The plans also provide several sources for the electrical parts and software. One kit includes software, 145 oz/in stepper motors, and a pre-wired boxed controller and sells for \$645. It takes between 20 and 30 hours to machine the parts and bolt it all together.

**Project Plans: Engines**



**2342 Elbow Engine Plans** **\$12.95**

Complete plans to build a unique 5-cylinder steam engine. These plans were created by Bill Reichart. This steam engine has 10 pistons and no crankshaft. The plans include six pages of detailed drawings and construction notes. The engine is made from bar stock. No castings are required.



**2340 Epicyclic Steam Engine Plans** **\$24.95**

Complete plans to build an epicyclic steam engine. These plans were created by Bill Reichart. This engine uses a unique set of epicyclic gears where one gear revolves around another gear. There are 33 pages of plans that detail every part and describe methods of production. The engine is made from bar stock. No castings are required. You get the gears from Boston Gear.



**2341 Panther Pup Engine Plans** **\$25.95**

Complete plans to build a 4-cylinder, 4-cycle gasoline engine. These plans were created by Bill Reichart. The Panther Pup is an air-cooled internal combustion engine. There are 54 pages of plans, bound in a saddle-stitched booklet. The plans include detailed drawings of each part along with complete construction notes. Two castings are required. Plans are included to make your own patterns, or castings can be purchased from LittleMachineShop.com.

**2355 Panther Pup Engine Castings, Aluminum** **\$149.95**

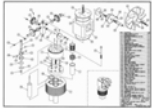


**2343 Pip-Squeak Engine Plans** **\$10.95**

Complete plans to build a simple steam engine. These steam engine project plans were created by Bill Reichart. The Pip-Squeak was designed to be a very first, easy to build engine. It is built from bar stock. No castings are required. It can be made on a small hobby lathe and a small drill press. A small milling machine helps, but isn't necessary.

**Project Plans: Engines**

**2295 Stirling-Steele Engine Plans \$29.95**

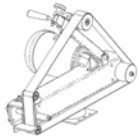


- Complete plans to build a Stirling engine
- Engine is 10" tall when completed
- 26 Pages of plans

Complete plans to build a four-cylinder Stirling cycle engine from bar stock and commercial components. These plans were created by Ronald J. Steele. The package contains 26 pages of highly detailed drawings and instructions providing all the necessary information to produce this modern compact version of a Stirling engine. The Stirling-Steele engine can be machined on a 6" lathe and small milling machine from readily available material. A full bill of materials is included as are assembly instructions. This is not a kit but a full set of dimensioned drawings.

**Project Plans: Tools**

**2717 Belt Grinder Plans \$59.95**



- 17 pages of DIY belt grinder plans
- 18 pages of instructions
- 2" x 72" belt stays sharp longer and cuts cooler than shorter belts
- Use for roughing, shaping, contouring of flat or angular stock

Plans for a commercial-grade square wheel belt grinder. Machines like this sell for over \$1000. This project consists of 17 pages of drawings and 18 pages of well written instructions. The drawings are printed on 11 x 17 paper, making them easy to read. Every aspect of this project has been explained and detailed, including 3 dimensional assembly drawings to show you where everything goes. Although this machine would feel right at home in a professional metal worker's shop, the average home shop machinist will also find endless uses for this grinder. Use it for deburring, sharpening drill bits, dressing mushroomed punches, and grinding HSS lathe tool bits. Although this 2" x 72" belt grinder plan is not for a beginner, it was designed with the home shop machinist in mind. Anyone with modest equipment can complete this high performance machine. The prototype was built primarily with a 7" lathe, a drill press, and a MIG welder.

**2304 Rike-Vise Plans \$8.95**



The Rike-Vise was invented by Bill Reichart. This simple tool is especially designed for the home machine shop. For many jobs it will replace a standard vise. The Rike-Vise is described as two 90° angle plates joined at the corner, and providing a foot so it can be easily clamped to a machine table or a lathe faceplate. The square donut piece provides an accurate clamp to secure a work piece in the base. It is made of mild steel. The plans include tips on accurately building the vise, plus details on using it. The plans comprise six 8-1/2" x 11" pages. The plans include information on building and using the Rike-Vise. Features of the Rike-Vise: At the lathe you can turn square stock round or drill square stock perfectly concentric. You can also do the same to rectangular stock, and drill or turn it in the exact center or to one side, as you desire. The vise holds work perpendicular for drilling at your drill press. At the milling machine, you can mill an end perfectly square, or notch or groove perfectly parallel to the sides. It holds stock perpendicular for use at the surface grinder.

**QC Tool Posts: QCTP Sets**



**3048 Quick Change Tool Post Set, OXA, 4-Degree Cut-Off \$159.95**

- Quick change tool post set for lathes with up to 9" swing
- 60% of AXA, or series 100 size wedge type QCTP
- This lathe quick change pool post set includes a 4-Degree Cut-off tool holder
- Includes five tool holders
- All steel construction

This is a true wedge type quick change tool post set that is an exact 6/10 scale copy of the AXA, or series 100 wedge type quick change tool post. This quick change tool post set is designed for lathes with up to 9" swing. It requires 3/4" from the top of the compound rest to the center of the lathe. It will hold turning tools with shanks from 1/4" to 1/2". The boring bar holder will hold 3/8" and 1/2" boring bars. It will hold 1/2" tall cut-off blades. All working parts are hardened and ground. It is completely sealed for maintenance-free operation. This set includes the tool post and the following tool holders: 2 - #1 Turning & Facing 1 - #2 Boring, Turning & Facing 1 - #4 Heavy Duty Boring will hold both 3/8 and 1/2 boring bars 1 - #7 Universal Parting Blade (for 1/2 inch cut-off blade - 4-degree) This tool post mounts with an M10 stud that is included. It also includes a piece of steel from which you can make a T-slot nut to fit your lathe.

**4117 Quick Change Tool Post Mount, OXA for Lathes \$9.95**

**4083 Quick Change Tool Post Set, OXA for 8x12, 8x14 Lathe \$164.95**

**4046 Quick Change Tool Post Set, OXA for 9x20 Lathe \$164.95**

**4058 Quick Change Tool Post Set, OXA for Atlas/Craftsman 6" \$164.95**

**4157 Quick Change Tool Post Set, OXA for G0768 \$164.95**



**3112 Quick Change Tool Post Set, OXA, Horizontal Cut-Off, Mini Lathe \$159.95**

- Quick change tool post set for lathes with up to 8" swing
- OXA, or series 000 size (60% of AXA size)
- Includes five steel tool holders
- Horizontal Cut-off tool holder
- Fits all 7x10 to 7x16 mini lathes

Wedge type OXA quick change tool post set. This quick change tool post set is designed for lathes with up to 8" swing. It is the perfect size for mini lathes. The tool holders have been designed specifically to work on the mini lathes and other lathes that have limited distance from the top of the compound to the center of the lathe. This tool post mounts with an M10 stud, which is included. This quick change tool post requires 5/8" from the top of the compound rest to the center of the lathe. All working parts are hardened and ground steel. It is completely sealed for maintenance-free operation. This tool post mounts with an M10 stud. This set includes the tool post and the following tool holders: 2 - #1 Turning & Facing 1 - #2 Boring, Turning & Facing 1 - #4 Heavy Duty Boring will hold both 3/8 and 1/2 boring bars 1 - #7 Universal Parting Blade (for 1/2" cut-off blade - horizontal)

**3119 Quick Change 2MT Tool Holder, OXA \$23.95**

**3116 Quick Change Boring Tool Holder, OXA \$22.95**

**3117 Quick Change Cut-Off Tool Holder, OXA \$21.95**

**3774 Quick Change Cut-Off Tool Holder, OXA, 4-Degree Cut-Off \$21.95**

**3118 Quick Change Knurling & Turning Tool Holder, OXA \$32.95**

**4101 Quick Change Tool Post Set, OXA for HiTorque Bench Lathe \$164.95**


**4039 Quick Change Tool Post Set, OXA for Sherline and Taig \$164.95**


**3113 Quick Change Tool Post, OXA \$79.95**

**3115 Quick Change Turning & Boring Tool Holder, OXA \$15.95**

**3114 Quick Change Turning & Facing Tool Holder, OXA \$15.95**

**4153 Set Screws, M6x16 Socket Dog Point, Set of 10 \$6.05**

	<b>2280 Quick Change Tool Post Set, AXA</b>	<b>\$174.95</b>
	<ul style="list-style-type: none"> <li>• Quick change tool post set for lathes with up to 12" swing</li> <li>• AXA, or series 100 size</li> <li>• Tool holders interchange with Aloris, Dorian, and Phase II</li> <li>• All steel construction</li> <li>• Includes five tool holders</li> </ul> <p>AXA, or series 100, wedge type quick change tool post set. This AXA quick change tool post set is designed for lathes with up to 12" swing. It is a good fit on 9x20 lathes, but requires some modification or our mounting sleeve. Many people feel that these tool posts are too large for mini lathes, but others like the mass and rigidity they provide. All working parts are hardened and ground. This lathe tool post set is completely sealed for maintenance-free operation. The tool holders interchange with Aloris, Dorian, and Phase II. This lathe tool post set includes the tool post and the following tool holders: No. 1 - Turning &amp; Facing Tool Holder, No. 2 - Boring, Turning &amp; Facing Tool Holder, No. 4 - Heavy Duty Boring Tool Holder, will hold 5/8" or 3/4" round shanks, No. 7 - Universal Parting Blade Holder, No. 10 - Knurling, Facing &amp; Turning. This set includes a 9/16"-18 threaded stud and a piece of steel from which you can make a T-slot nut to fit your lathe.</p>	
	<b>3787 Compound Rest Top, for AXA QCTP on C6 Lathe</b>	<b>\$38.44</b>
	<b>4914 Compound Rest Top, for AXA QCTP, Bench Lathe</b>	<b>\$39.34</b>
	<b>4426 Quick Change 2MT Tool Holder, AXA</b>	<b>\$24.95</b>
	<b>2283 Quick Change Boring Tool Holder, AXA</b>	<b>\$21.95</b>
	<b>2284 Quick Change Cut-Off Tool Holder, AXA</b>	<b>\$21.95</b>
	<b>2285 Quick Change Knurling &amp; Turning Tool Holder, AXA</b>	<b>\$24.95</b>
	<b>3712 Quick Change Tool Post Mount, AXA for 9x20 Lathes</b>	<b>\$9.95</b>
	<b>4701 Quick Change Tool Post, AXA</b>	<b>\$147.95</b>
	<b>2282 Quick Change Turning &amp; Boring Tool Holder, AXA</b>	<b>\$15.95</b>
	<b>2281 Quick Change Turning &amp; Facing Tool Holder, AXA</b>	<b>\$14.95</b>
	<b>3970 Set Screws, M8x20 Socket Dog Point, Set of 10</b>	<b>\$7.95</b>
	<b>3674 Tap &amp; Tap Drill Bit, 9/16"-18 Thread</b>	<b>\$16.95</b>

	<b>3876 Quick Change Tool Post Set, AXA, Aloris</b>	<b>\$483.00</b>
	<ul style="list-style-type: none"> <li>• AXA, or series 100 Aloris quick change tool post set for lathes with up to 12" swing</li> <li>• Made by Aloris, the originator of the super precision quick change tool post</li> <li>• Tool holders interchange with Aloris, Dorian, and Phase II</li> <li>• All steel construction</li> <li>• Starter set includes two Aloris tool holders</li> </ul> <p>Aloris Tool Technology Company is the originator of super precision Quick Change Tool Posts and tool holders for over 60 years. Since 1946, Aloris has revolutionized the metal working industry with the introduction of the first quick change tool post and has since been the standard of the industry, known worldwide for our integrity and lasting quality. AXA, or series 100, wedge type quick change tool post set. This Aloris quick change tool post set is designed for lathes with up to 12" swing.</p> <p>It is a good fit on 9x20 lathes. Many people feel that these tool posts are too large for mini lathes, but others like the mass and rigidity they provide. All working parts are hardened and ground. It is completely sealed for maintenance-free operation. The tool holders interchange with Aloris, Dorian, and Phase II. This set includes the tool post and the following Aloris tool holders: No. 1 - Turning &amp; Facing, No. 2 - Boring, Turning &amp; Facing. This set also includes a piece of steel from which you can make a T-slot nut to fit your lathe.</p>	

	<b>3658 Quick Change Tool Post Set, BXA</b>	<b>\$315.95</b>
	<ul style="list-style-type: none"> <li>• Quick change tool post set for lathes with 10-15" swing</li> <li>• BXA, or series 200 size</li> <li>• Tool holders interchange with Aloris, Dorian, and Phase II</li> <li>• All steel construction</li> <li>• Includes five tool holders</li> </ul> <p>BXA, or series 200, wedge type quick change tool post set. This quick change tool post set is designed for lathes with up to 10-15" swing. All working parts are hardened and ground. It is completely sealed for maintenance-free operation. The tool holders interchange with Aloris, Dorian, and Phase II. This set includes the tool post and the following tool holders: No. 1 - Turning &amp; Facing, No. 2 - Boring, Turning &amp; Facing, No. 4 - Heavy Duty Boring, No. 7 - Universal Parting Blade, No. 10 - Knurling, Facing &amp; Turning. This set also includes a piece of steel from which you can make a T-slot nut to fit your lathe. The BXA turning tool holders hold tools up to 5/8". The cut-off tool holds 11/16" blades.</p>	
	<b>4443 Quick Change Boring Tool Holder, BXA</b>	<b>\$36.95</b>
	<b>4444 Quick Change Cut-Off Tool Holder, BXA</b>	<b>\$32.95</b>
	<b>4445 Quick Change Knurling &amp; Turning Tool Holder, BXA</b>	<b>\$53.95</b>
	<b>4442 Quick Change Turning &amp; Boring Tool Holder, BXA</b>	<b>\$23.95</b>
	<b>4441 Quick Change Turning &amp; Facing Tool Holder, BXA</b>	<b>\$21.95</b>


**Rotary Tables: Rotary Tables**


Rotary Table Comparison


See the rotary table comparison chart at [www.littlemachineshop.com/rotary](http://www.littlemachineshop.com/rotary)


	<b>1927 Rotary Table, 4" H/V</b>	<b>\$469.95</b>
	<ul style="list-style-type: none"> <li>• 4" (100 mm) diameter</li> <li>• Use in horizontal or vertical position</li> <li>• Worm ratio is 72 to 1</li> <li>• 10 second rotational accuracy</li> <li>• 2 Morse taper center hole</li> </ul> <p>This horizontal / vertical rotary table is for indexing, circular cutting, angle setting, boring, and spot facing operations. The meehanite cast iron table is precision machined and has a 2 Morse taper center hole. The table is graduated with a 360° scale. A micro collar graduated to one minute with a ten second accuracy vernier scale is provided. The rotary table has lock down clamps and the crank can be disengaged. The worm gear and center hole are hardened and ground. The table is 2.76" high when horizontal, and the centerline is 2.76" above the table when in the vertical position. The worm ratio is 72 to 1. Flatness of clamping surface: 0.0006" TIR Parallelism of clamping surface to base: 0.0008" TIR Squareness of clamping surface to angle face: 0.0004" TIR Squareness of clamping surface to center slot: 0.0008" TIR Concentricity of center bore: 0.0008" TIR Maximum spacing error: 1 minute, 20 seconds.</p>	
	<b>1943 Clamping Kit, 6 mm T-Slot, 16-Piece</b>	<b>\$17.95</b>
	<b>1799 Dividing Plate Set for 4" Rotary Table</b>	<b>\$134.95</b>
	<b>1931 Rotary Table, 4" with Tailstock &amp; Dividing Plate</b>	<b>\$694.95</b>
	<b>3791 Rotary Table, 4" with Tailstock, Dividing Plate, &amp; 3-Jaw Lathe Chuck</b>	<b>\$810.95</b>
	<b>3792 Rotary Table, 4" with Tailstock, Dividing Plate, &amp; 4-Jaw Lathe Chuck</b>	<b>\$799.95</b>
	<b>1800 Tailstock for 4" Rotary Table</b>	<b>\$114.95</b>


**Rotary Tables: Rotary Tables**

	<b>5603 Rotary Table, 4" H/V, Economy</b>	<b>\$153.59</b>
	<ul style="list-style-type: none"> <li>• Horizontal or vertical use</li> <li>• 4" diameter table rotates 360°</li> <li>• 1:36 ratio or 10° per handwheel revolution</li> <li>• Scale reads to 15 minutes</li> <li>• Low profile - 55mm (2.17") tall</li> </ul> <p>Affordably priced rotary table suitable for bolt patterns, arched slots, cutting out flywheels and other medium precision jobs. The small size of the table is good for small milling machines. The table has a low profile of 55mm (2.17") in the horizontal position. This precision ground graded cast iron table is graduated for a full 360°. The handwheel utilizes a 1:36 ratio resulting in 10° per handwheel revolution. Table comes with two clamping studs, two 45mm clamping bars and two t-nuts.</p>	
	<b>5601 Rotary Table, 3" H/V, Economy</b>	<b>\$117.91</b>
	<b>5630 Tailstock for 3" &amp; 4" Rotary Tables</b>	<b>\$92.83</b>

	<b>1810 Rotary Table, 4" Precision</b>	<b>\$341.78</b>
	<ul style="list-style-type: none"> <li>• 4" (100 mm) diameter</li> <li>• Use in horizontal or vertical position</li> <li>• Worm ratio is 72 to 1</li> <li>• 10 second rotational accuracy</li> <li>• 2 Morse taper center hole</li> </ul> <p>This horizontal / vertical precision rotary table is made of precision machined cast iron and has a 2 Morse taper center hole. The table is graduated with a 360 degree scale. The rotary table is furnished with lock down clamps. This rotary table comes with an adapter to mount a 3" lathe chuck. It works with both 3- and 4-jaw chucks. The model 1810 4" Precision Rotary Table is 2.87" high when horizontal, and the centerline is 2.68" above the table when in the vertical position. The body of the table is 5" (crank handle to back) by 5.5" (mounting slot to mounting slot). The worm ratio is 72 to 1. Flatness of clamping surface: 0.0008". Parallelism of clamping surface to base: 0.0008". Squareness of clamping surface to angle face: 0.0012". Squareness of clamping surface to center slot: 0.0012". Concentricity of center bore: 0.0008" TIP.</p>	
	<b>1888 Adapter, 3" Lathe Chuck, Rotary Table</b>	<b>\$33.74</b>
	<b>3146 Adapter, 3" Lathe Chuck, Rotary Table</b>	<b>\$32.05</b>
	<b>3442 Clamping Kit, 8 mm T-Slot, 10-Piece</b>	<b>\$24.95</b>
	<b>1813 Clamping Kit, 8 mm T-Slot, 12-Piece</b>	<b>\$25.95</b>
	<b>1811 Dividing Plate Set for 4" Rotary Table</b>	<b>\$91.11</b>
	<b>1440 Rotary Table DRO Conversion Kit</b>	<b>\$79.95</b>
	<b>2183 Rotary Table, 4" with Tailstock &amp; Dividing Plate</b>	<b>\$451.78</b>
	<b>3131 Rotary Table, 4" with Tailstock, Dividing Plate, &amp; 3-Jaw Lathe Chuck</b>	<b>\$537.78</b>
	<b>3132 Rotary Table, 4" with Tailstock, Dividing Plate, &amp; 4-Jaw Lathe Chuck</b>	<b>\$537.78</b>
	<b>1812 Tailstock for 4" Rotary Table</b>	<b>\$98.58</b>

	<b>2420 Rotary Table, 4" Precision, Digital Readout</b>	<b>\$355.18</b>
	<ul style="list-style-type: none"> <li>• 4" (100 mm) diameter</li> <li>• Use in horizontal or vertical position</li> <li>• Worm ratio is 72 to 1</li> <li>• Digital angular readout with 1 minute (0.017 degree) resolution digital angular readout</li> <li>• 2 Morse taper center hole</li> </ul> <p>This horizontal / vertical rotary table is made of precision machined cast iron and has a 2 Morse taper center hole. The rotary table is furnished with lock down clamps. The digital readout displays degrees and minutes or decimal degrees. This rotary table comes with an adapter to mount a 3" lathe chuck. It works with both 3- and 4-jaw chucks. The table is 2.87" high when horizontal, and the centerline is 2.68" above the table when in the vertical position. The body of the table is 5" (crank handle to back) by 5.5" (mounting slot to mounting slot). The worm ratio is 72 to 1. Flatness of clamping surface: 0.0008". Parallelism of clamping surface to base: 0.0008". Squareness of clamping surface to angle face: 0.0012". Squareness of clamping surface to center slot: 0.0012". Concentricity of center bore: 0.0008" TIP.</p>	
	<b>5852 Rotary Table, 4" Digital Readout with Tailstock &amp; Dividing Plate</b>	<b>\$474.18</b>
	<b>5853 Rotary Table, 4" Digital Readout with Tailstock, Dividing Plate, &amp; 3-Jaw Lathe Chuck</b>	<b>\$550.18</b>
	<b>5854 Rotary Table, 4" Digital Readout with Tailstock, Dividing Plate, &amp; 4-Jaw Lathe Chuck</b>	<b>\$550.18</b>

	<b>5604 Rotary Table, 4" Tilting</b>	<b>\$188.54</b>
	<ul style="list-style-type: none"> <li>• Tilting table 0° to 90°</li> <li>• 4" diameter table rotates 360°</li> <li>• 1:36 ratio or 10° per handwheel revolution</li> <li>• Scale reads to 15 minutes</li> <li>• Low profile - 66mm (2.60") tall</li> </ul> <p>Affordably priced rotary table suitable for bolt patterns, arched slots, cutting out flywheels and other medium precision jobs. The small size of the table is good for small milling machines. The table has a low profile of 66mm (2.60") in the horizontal position. This precision ground graded cast iron table is graduated for a full 360°. The handwheel utilizes a 1:36 ratio resulting in 10° per handwheel revolution. Table tilts from 0° to 90° and locks into place. Table comes with two clamping studs, two 45mm clamping bars and two t-nuts.</p>	
	<b>5602 Rotary Table, 3" Tilting</b>	<b>\$147.67</b>

	<b>1787 Rotary Table, 6"</b>	<b>\$613.95</b>
	<p>This horizontal / vertical rotary table is for indexing, circular cutting, angle setting, boring, and spot facing operations. The meehanite cast iron table is precision machined and has a 2 Morse taper center hole. This 6" rotary table is graduated with a 360° scale. A micro collar graduated to one minute with a ten second accuracy vernier scale is provided. This horizontal/vertical rotary table has lock down clamps and the crank can be disengaged. The worm gear and center hole are hardened and ground. The 6" rotary table is 3.35" high when horizontal, and the centerline is 4.92" above the table when in the vertical position. The worm ratio is 90 to 1. Flatness of clamping surface: 0.0006" Parallelism of clamping surface to base: 0.0008" Squareness of clamping surface to angle face: 0.0004" Squareness of clamping surface to center slot: 0.0008" Concentricity of center bore: 0.0008" Dividing plates and a tailstock are available for this rotary table.</p>	
	<b>3942 Adapter, 5" Lathe Chuck, Rotary Table</b>	<b>\$152.95</b>
	<b>1801 Dividing Plate Set for 6" Rotary Table</b>	<b>\$144.95</b>
	<b>3566 Rotary Table, 6" with Tailstock &amp; Dividing Plates</b>	<b>\$924.95</b>
	<b>1802 Tailstock for 6" Rotary Table</b>	<b>\$191.95</b>

**Threading Tools: Die Holders**

**Threading Tools: Die Holders**



**2314 Die Holder** \$35.33

- Holds 13/16" and 1" round dies
- Holds dies in alignment when threading on the lathe
- 2 Morse taper shank fits the mini lathe tailstock
- Tommy bar provides torque for larger thread sizes

This 2314 industrial die holder goes in the tailstock of the mini lathe, or any other lathe with a 2 Morse taper tailstock. It has a short Morse taper for the mini lathe so you may need to put a ball bearing or such like behind it so it will eject from lathes that expect a standard length taper. The arbor is made of steel. The body is aluminum for low mass, so it spins easily when you release it. This prevents small parts from twisting off. This lathe die holder tool does not work with hexagonal dies. Hexagonal dies are not made for creating new threads, they are for maintenance work.



**4666 Die Stock, No. 2, 13/16"** \$4.95

- For adjustable round split dies
- Holds 13/16" dies
- 6-1/2" overall length

**4667 Die Stock, No. 3, 1"** \$5.95  
**4668 Die Stock, No. 5, 1-1/2"** \$7.95

**Threading Tools: Hand Tappers**



**2539 Hand Tapper** \$179.95

- Assures straight tapped holes
- Helps prevent broken taps
- 9 tap adapters included
- Spindle is balanced for sensitive feel
- Sliding vise jaws keep work from slipping

This rigid hand tapper helps prevent broken taps while tapping straight holes. Precision ground work table and spindle ensure accuracy. Tap adapters for #6, #8, #10, 1/4", 5/16", 3/8", 7/16" 1/2" and 5/8" taps. (Not recommended for taps smaller than #6.) The work area is 6.5" x 10". The clearance height is 7" and the throat depth is 7.5". The overall height is 13". This hand tapping machine includes an offset handle and a rack for the tap adapters.



**1115 Hand Tapper, Compact with Magnetic Base** \$149.95

- Compact & portable
- Maximum stroke is 2.36"
- Drill chuck enables easy loading of tap
- Tap capacity is #0 to 1/2" (M3 to M12)
- 175 lbs. on/off magnet base 2.36" X 2.36" X 2"

This rigid hand tapper helps prevent broken taps while tapping straight holes. Equipped with a powerful 175 lb. magnetic base the tap can be moved and secured with ease. This tapper comes with a drill chuck that has a capacity of #0 to 1/2" (M3 to M12) and has a maximum stroke of 2.36".



**2898 Hand Tapper, Mini** \$79.95

- Assures straight tapped holes
- Helps prevent broken taps
- 7 tap adapters included

This rigid hand tapper helps prevent broken taps while tapping straight holes. Precision ground work table and spindle ensure accuracy. Tap adapters for #0 through 5/16" taps. The table is 8.5" x 6". The clearance height is 3.75" and the throat depth is 4.5". The overall height is 9".

**2900 Tap Adapters, Set of 7** \$15.95



**1116 Tap & Reamer Holder, 0-#8, Self Aligning** \$17.95

- Self Aligning Tap & Reamer Holder
- Capacity 0 - #8
- Guide Base has Two 120° Vees for Round Items

Self-aligning tap and reamer holder utilizes 4 jaw collet design to provides firm grip and 90° alignment that eliminates tap breakage while producing perfectly aligned threads. The collets 4-jaw design help ensure the tap is mounted straight and provide a tight grip on the tap's shank. The collet included will fit #0 to #8. The base of the guide has two 120° vees that accept round stock.

**5966 Tap & Reamer Holder, 0-1/2", Self Aligning** \$24.95

**Threading Tools: Lathe Threading**



**3695 Threading Tool, External, 3/8" Indexable, HSS Triangle Inserts, A R Warner Kit #17** \$96.00

- For external threading, 8 through 36 TPI
- 3/8" shank, 3/8" IC Inserts, 5" long
- 2 inserts included: TNMC-32-NV and TPMC-32-NV
- 1 extra 4-40 flat head cap screw
- 1 - 1/16" Allen wrench

This Arthur R. Warner Co. precision threading tool will turn external threads. The tool can turn from 8 through 36 pitch, 60 degree threads. The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel. Their quality is excellent and LittleMachineShop.com is proud to carry their products.



**5437 Threading Tool, External, 3/8" Indexable, SER0375E11** \$141.95

- Right hand external threads cut
- 3/8" shank
- Includes: 1 tool holder, 10 TiN coated A60 carbide inserts, 1 Torx wrench
- A60 inserts range 0.5-1.5mm/16-48 TPI Complete with aluminum case.

**5438 Threading Tool, External, 1/2" Indexable, SER0500H11** \$141.95



**3467 Threading Tool, Int / Ext, 1/2" Indexable HSS Triangle Inserts, A R Warner Kit #18** \$109.00

- For internal and external threading
- 1/2" shank, 3/8" IC Inserts, 5" long
- 2 inserts included: TNMC-32-NV and TPMC-32-NV
- 1 extra 4-40 flat head cap screw, 1 - 1/16" Allen wrench
- For 8 through 36 pitch 60 degree threading

This A.R. Warner precision HSS threading tool will turn both internal and external threads. You can mount inserts on both ends. One end mounts the insert at the end of the tool for external threading. The mount on the other end is offset. Mount the insert one way for internal threading. Turn the insert around and you can use the tool for external threading too. The minimum bore diameter for internal threading is 1.375". The maximum thread depth of this internal and external threading tool is 0.100". The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel (and tool steel). Their quality is excellent and LittleMachineShop.com is proud to carry their products.

**3581 Cap Screw, Retaining 6-32** \$0.95



**3570 Threading Tool, Internal, 3/8" Indexable, HSS Triangle Inserts, A R Warner Kit #19** \$103.00

- For internal threading
- Includes three T-15 high speed steel TPMW-1.8-1.5-.5 inserts
- Includes two MS-1152S screws and one T-7 wrench

This Arthur R. Warner Co. boring bar for single-point cutting internal threads has 0.375" shank and is 5" long.

This tool requires a 0.5" minimum hole size.

Uses TPMW-1.8-1.5-.5 and TPMW-1.8-1.5-1 inserts.

The maximum thread depth is 0.100".

The Arthur R. Warner Co. is a family-owned American manufacturer of high speed steel products with specialization in cutting, shaping, pre-grinding, heat treating, and finish grinding of premium grades of flat high speed steel. Their quality is excellent and LittleMachineShop.com is proud to carry their products.

**3571 Threading Tool, Internal, 1/2" Indexable HSS Triangle Inserts, A R Warner Kit #20** \$103.00

**Threading Tools: Lathe Threading**



**5439 Threading Tool, Internal, 3/8" Indexable, SIR0375H11** **\$174.95**

- For right hand internal threads
  - 3/8" x 4" shank
  - 10 TiN coated 11IRA60 carbide inserts
  - Includes: 1 tool holder, 1 Torx wrench
  - A60 inserts cut 0.5-1.5mm/16-48 TPI threads
- Complete with aluminum case. Minimum bore 0.47" (11.9 mm)

**5440 Threading Tool, Internal, 1/2" Indexable, SIR0500K11** **\$174.95**



**2221 Tool Bit, 5/16" HSS Threading** **\$9.95**

This threading tool bit is sharpened on both ends to a 60° angle for threading. It is made from high speed steel. Both ends are offset, one so you can thread near a left shoulder, and the other so you can thread near a right shoulder.

**4115 Threading Tool Bit and Center Gage** **\$16.95**

**1895 Tool Bit, 1/4" HSS Internal Threading** **\$12.95**

**Threading Tools: Tap and Die Sets**



**2851 Die Set, 0-80 to 5-40 Threads** **\$72.95**

- Miniature die set includes 0-80, 1-64, 2-56, 3-48, 4-40, and 5-40 dies
  - Round adjustable split dies
  - 13/16" diameter
  - High Speed Steel
  - Imported
- For cutting external screw threads either by hand or with a die stock or by machine with a die holder. They can be utilized to cut smaller or larger tolerance by turning the adjustment screw.

**2842 Die, 0-80 Thread** **\$12.95**

**2843 Die, 1-64 Thread** **\$12.95**

**2844 Die, 2-56 Thread** **\$12.95**

**2845 Die, 3-48 Thread** **\$12.95**

**2846 Die, 4-40 Thread** **\$12.95**

**2847 Die, 5-40 Thread** **\$15.95**

**2848 Die, 6-32 Thread** **\$12.95**

**2849 Die, 8-32 Thread** **\$12.95**

**2850 Die, 10-24 Thread** **\$16.95**

**3675 Die, 10-32 Thread** **\$12.95**



**5920 Die Set, M6 - M20 Rethrading, Hexagonal** **\$26.95**

- 7 Piece Hexagon Rethrading Die Set
  - Common sizes from M6 - M20
  - Right Hand
  - Carbon Steel
  - Supplied with Fitted Case
- For rethreading rusty or worn threads. Right handed. Size include: M6 X 1.00, M8 X 1.25, M10 X 1.50, M12 X 1.75, M14 X 2.00, M16 X 2.00 & M20 X 2.50.



**3601 Tap & Die Set, 39-Piece Solid Round Dies** **\$164.95**

- 39-piece machine screw & fractional tap and solid round die set
- Machine screw and fractional sizes of plug style taps plus 1" solid round dies
- Includes three tap handles and two die stocks
- 18-leaf standard thread pitch gauge and screwdriver
- Plastic case with lift-out tray

This USA-made IRWIN brand 39 PC set can be used to create new threads. The taps and dies are made from high carbon steel. The Hanson 39-Piece Machine Screw / Fractional Tap and Solid Round Die Set includes machine screw taps, fractional plug style taps, plus 1-inch solid round dies. A adjustable guide diestock for cutting external threads on metal cylinders is included, as well as an adjustable handle tap wrench to create internal screw threads, and a T-handle tap wrench. There's also an 18-leaf standard thread pitch gauge, a screwdriver, and a handy plastic case to keep everything organized. 39-pc set in plastic case includes the following items: Machine Screw Plug Tap and 1" Solid Round Dies in sizes: 4 - 40 NC, 6 - 32 NC, 8 - 32 NC, 10 - 24 NC, 10 - 32 NF, 12 - 24 NCFractional Plug Tap and 1" Solid Round Dies in sizes: 1/4" - 20 NC, 1/4" - 28 NF, 5/16" - 18 NC, 5/16" - 24 NF, 3/8" - 16 NC, 3/8" - 24 NF, 7/16" - 14 NC, 7/16" - 20 NF, 1/2" - 13 NC, 1/2" - 20 NFPipe Thread Plug Tap and 1" Solid Round Dies in sizes: 1/8" - 27 NPTThreading Tools: Adjustable Die Stock - 1" Dies, T-Handle Wrench - Taps No. 0 to 1/4", Adj. Handle Tap Wrench - Taps No. 0 to 1/2", 18 Leaf Standard Thread Pitch Gauge, Empty Plastic Case



**3597 Tap & Die Set, 41-Piece** **\$152.95**

- 41-piece machine screw & fractional hexagonal tap and die set for threading operations
- Machine screw and fractional sizes of plug style taps plus 5/8" and 1" hexagon dies
- Includes three tap handles and two die stocks
- 18-leaf standard thread pitch gauge and screwdriver
- Plastic case with lift-out tray

This USA-made IRWIN brand 41 PC set can be used to restore or start new threads. The taps and dies are made from high carbon steel. The Hanson 41-Piece Machine Screw / Fractional Tap and Hex Die Set includes machine screw taps, fractional plug style taps, plus 5/8-inch and 1-inch hexagon dies in 17 different sizes. A DS-26 adjustable guide diestock and DS-57 plain diestock for cutting external threads on metal cylinders is included, as well as a TR-88 adjustable handle tap wrench to create internal screw threads, a TR-73 two-in-one tap wrench, and a TR-50 two-in-one tap wrench. There's also an 18-leaf standard thread pitch gauge, a screwdriver, and a handy plastic case to keep everything organized. 41-pc set in plastic case includes the following items: Machine Screw Plug Tap and 5/8" Hexagon Dies in sizes: 4 - 40 NC, 6 - 32 NC, 8 - 32 NC, 10 - 24 NC, 10 - 32 NF, 12 - 24 NCFractional Plug Tap and 1" Hexagon Dies in sizes: 1/4" - 20 NC, 1/4" - 28 NF, 5/16" - 18 NC, 5/16" - 24 NF, 3/8" - 16 NC, 3/8" - 24 NF, 7/16" - 14 NC, 7/16" - 20 NF, 1/2" - 13 NC, 1/2" - 20 NFPipe Thread Plug Tap and 1" Hexagon Dies in sizes: 1/8" - 27 NPTThreading Tools: Adjustable Die Stock - 1" Dies, Plain Die Stock - 5/8" Hexagon Dies, Adj. Handle Tap Wrench - Taps No. 0 to 1/2", T-Handle Wrench - Taps No. 0 to 1/4", Two-in-One Tap Wrench - Taps 1/4" to 1/2", 18 Leaf Standard Thread Pitch Gauge, Empty Plastic Case

**3600 Tap & Die Set, 41-Piece Metric** **\$174.95**



**2540 Tap & Die Set, 41-Piece** **\$56.95**

- Tungsten Steel
  - Hex dies are ideal for working in tight places
  - Furnished in a fitted case with lift-out tray
  - Imported
- This 41-piece tap and die set includes all the common sizes from #4 to 1/2". The set includes a screw pitch gage, a die stock and a T-handle tap wrench. The threads covered include: NC: 4-40, 6-32, 8-32, 10-24, 12-24, 1/4"-20, 5/16"-18, 3/8"-16, 7/16"-14, 1/2"-13NF: 10-32, 1/4"-28, 5/16"-24, 3/8"-24, 7/16"-20, 1/2"-20NPT: 1/8"-27

**2541 Tap & Die Set, 41-Piece Metric** **\$56.95**

**Threading Tools: Tap and Die Sets**



**2841 Tap Set, 0-80 to 5-40 Thread, Set of 6 \$44.95**

- Hand tap set includes #0-80, #1-64, #2-56, #3-48, #4-40, and #5-40
  - Plug style (3-5 chamfered threads)
  - High speed steel (HSS)
  - Utilize in through or blind hole tapping
  - Made in USA
- Set of 6 plug style hand taps made of high quality High Speed Steel in sizes #0-80, #1-64, #2-56, #3-48, #4-40, and #5-40. Hand taps are the most commonly used general purpose tap. They are recommended for tapping free machining steels, stainless steels, aluminum, zinc, and ductile materials. Plug taps have 3-5 chamfered threads and are utilized in either through or blind hole tapping. The High Speed Steel (HSS) construction gives good wear-resistance. Taps Included: #0-80 - 2 Flute, Plug Chamfer, Right Hand - Fine #1-64 - 2 Flute, Plug Chamfer, Right Hand - Coarse #2-56 - 3 Flute, Plug Chamfer, Right Hand - Coarse #3-48 - 3 Flute, Plug Chamfer, Right Hand - Coarse #4-40 - 3 Flute, Plug Chamfer, Right Hand - Coarse #5-40 - 3 Flute, Plug Chamfer, Right Hand - Coarse
- 1446 Tap Set, Metric M3 to M8 Thread \$32.95**
- 2832 Tap, 0-80 Thread, Plug Style \$9.95**
- 2833 Tap, 1-64 Thread, Plug Style \$9.95**
- 2834 Tap, 2-56 Thread, Plug Style \$9.95**
- 2835 Tap, 3-48 Thread, Plug Style \$6.95**
- 2836 Tap, 4-40 Thread, Plug Style \$5.95**
- 2837 Tap, 5-40 Thread, Plug Style \$5.95**
- 2838 Tap, 6-32 Thread, Plug Style \$4.49**
- 2839 Tap, 8-32 Thread, Plug Style \$4.95**
- 2840 Tap, 10-24 Thread, Plug Style \$5.49**
- 3676 Tap, 10-32 Thread, Plug Style \$5.95**

**Threading Tools: Tap Holders and Guides**



**3602 Tap Adapters, 3/8" Socket Drive \$33.95**

- Jaws adjust to tightly secure taps
  - Fits all 3/8" square drive wrenches
  - Small adapter fits taps for #0 to 1/4" thread
  - Large adapter fits taps for 1/4" to 1/2" thread
- For use in tight workspaces or for putting some muscle on those hard-to-turn large taps. Designed for use with taps, reamers, screw extractors and other tools with a square shank. Not recommended for cutting new threads.



**1963 Tap Guide, Fisher \$16.00**

- Made in USA
  - Reversible
  - 0.500" diameter body
  - Ground and knurled for easy handling
- This tap guide helps you start threaded holes straight. The reversible point is spring loaded to maintain pressure on the tap. One end of the point has a center hole for small taps, while the other end is pointed for larger taps. The 0.500" diameter body is ground and knurled for easy handling. Remove the setscrew in the back end to reverse the point. This is a quality American-made product from Fisher Machine Shop.

**3104 Tap Guide, 2MT Short, Fisher \$17.95**



**3603 Tap Handle, Adjustable \$9.95**

- Offset handle adjustable tap & reamer wrench
  - Straight handle design provides greater leverage, especially when using larger diameter tapes
  - For Taps No. 0 To 1/2"
- Straight handle design provides greater leverage, especially when using larger diameter tapes.



**2621 Tap Wrench 3-5/8", Starrett \$36.00**

- Body length: 3-5/8" (90mm)
  - Capacity tap size: No. 0-14
  - Square shank: 1/4" (6.35mm)
  - Starrett catalog number 174
- This is a well-designed tap wrench, ideal for holding smaller diameter taps, drills, reamers, and other tools up to 1/4" (6.35 mm) in diameter. It works with 0-14 tap sizes. It will firmly grip round or square shanks, is lightweight and well proportioned. The gripping surface is properly heat treated to withstand any ordinary use.

**3177 Tap Wrench 6", Starrett \$53.00**

**5122 Tap Wrench 9", Starrett \$75.00**



**5390 Tap Wrench 5", Adjustable \$3.95**

- Body length: 5" (127 mm)
- Capacity tap size: 0-5/16"
- Knurled steel handles
- Jaws surface hardened
- Zinc die casting

**5391 Tap Wrench 8", Adjustable \$4.95**



**2571 Tapping Block, OMW \$39.95**

- Starts taps straight - reduces breakage
- Fits taps from 0-80 to 3/8-16
- Elegant design

Over 90% of broken taps are the result of the tap not starting straight in the hole, yet most people tapping by hand simply "eyeball" their tap into a hole and then are amazed when the tap snaps in a valuable part! The OMW Tapping Block was inspired by a block used nearly every day by a master tool and die maker I had the pleasure of working with in my shop. He used his block whenever tapping a hole, and I never saw him break a tap! Simply hold the tapping block flat against your work, above the hole you've tap drilled. Place your tap through the appropriately sized guide hole and you are assured of perfect tap alignment when starting your thread.

The OMW Tapping Block is manufactured of the highest quality 4140 steel. It is beautifully designed, expertly knurled and chamfered for easy grip, with counterbored holes to allow for material chip clearance when tapping. Fits all common taps from 0-80 thread to 3/8-16 (the seven holes fit tap shanks of #0-#6, #8, #10, #12, 1/4, 5/16, and 3/8). This Tapping Block should be in the tool chest of every machinist, from beginner to expert. Shop lathe threading tools online at LittleMachineShop.com.

**2854 Tapping Block, OMW Metric \$43.95**



**5591 Tapping Chuck, 33JT \$69.95**

- Tap #10 to 1/2" (M3 - M12) threads
- Quick loading and unloading
- Adjustable clamping range
- Good stability, high precision

Turn your bench mill, or lathe into a tapping machine. Tap #10 to 1/2" (M3 - M12) threads. This is not a reversible tapping head. You must reverse the spindle to extract the tap. Mounts to 33 Jacobs taper arbor. Length 2.87" (73mm) Diameter: 1.89" (48mm)



## Threading Tools: Tap Holders and Guides



**3434 T-Handle Tap Wrench for #0 to #10 Taps, Starrett** \$37.50

- Starrett T-handle tap wrench
  - Starrett catalog number 93A
  - For holding taps, drills, reamers, and other small tools to be turned by hand
  - Fits machine screw taps from #0 to #10
  - Fits fractional thread taps from 1/16" to 3/16"
- The body of this T-handle tap wrench is centered, enabling the worker to use it on lathe centers or on an upright drilling machine to start the tap straight. The jaws conform to the tool being held, making it rigid and less apt to loosen. They are properly heat treated to withstand ordinary shop use. The wrench has a sliding handle that is frictionally held. This feature permits the handle to be removed entirely or positioned so that leverage can be applied when working in close quarters. These tools are designed to hold square shanks. Round shanks can be gripped, but care must be used. Excessive tightening may break the binding nut.

**3555 T-Handle Tap Wrench for 1/4" to 1/2" Taps, Starrett** \$51.00

**3554 T-Handle Tap Wrench for 7/32" to 7/16" Taps, Starrett** \$40.00



**2852 T-Handle Tap Wrench for #0 to #8 Taps** \$11.95

- For hand tapping and driving screw extractors
  - Fits machine screw taps from #0 to #8
  - Fits fractional thread taps from 1/16" to 5/32"
- For holding taps, reamers, and other small tools to be turned by hand.

**2853 T-Handle Tap Wrench for #8 to 1/4" Taps** \$12.95



**3427 V-TapGuide Hand Tap Guide for Inch Threads** \$25.50

- Eliminate tap breakage due to improper alignment
  - Automatically squares up the tap with the surface
  - 90 degree V-groove along the bottom allows perpendicular alignment on round parts or corners
  - Portable, pocket size
  - Protective plastic storage tube is included
- V-TapGuide™ by Big Gator Tools™ is made of a special alloyed steel that is ground and heat treated for durability. The guide holes are smooth, unlike drilled or reamed holes. Guide holes are sized for ANSI standard ground taps. The V-TapGuide handles taps for UTS screw sizes of #0, #1, #2, #3, #4, #5, #6, #8, #10, 1/4", 5/16", 3/8", 7/16", 1/2", and 5/8".

**3428 V-TapGuide Hand Tap Guide for Metric Threads** \$25.50



**3866 V-TapGuide Hand Tap Guide Set, Inch and Metric** \$49.95

- Both inch and metric taps
  - Eliminate tap breakage due to improper alignment
  - Automatically squares up the tap with the surface
  - 90 degree V-groove along the bottom allows perpendicular alignment on round parts or corners
  - Portable, pocket size. Protective plastic storage tube is included
- V-TapGuide™ by Big Gator Tools™ is made of a special alloyed steel that is ground and heat treated for durability. The guide holes are smooth, unlike drilled or reamed holes. Guide holes are sized for ANSI standard ground taps. The inch V-TapGuide handles taps for UTS screw sizes of #0, #1, #2, #3, #4, #5, #6, #8, #10, 1/4", 5/16", 3/8", 7/16", 1/2", and 5/8". The metric V-TapGuide handles taps for metric screw sizes of 1.6 mm, 2 mm, 2.5 mm, 3 mm, 3.5 mm, 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, and 16 mm.

## Threading Tools: Taps and Dies



Dies, Hex, Individual Sizes

- Hex Shape
- Carbon steel
- Hex shape
- Right hand thread

For cutting external screw threads either by hand or with a die stock or by machine with a die holder.

**5392 Die, Hex, 1/4"-20 Thread** \$2.95

**5393 Die, Hex, 1/4"-28 Thread** \$2.95

**5394 Die, Hex, 5/16"-18 Thread** \$2.95

**5395 Die, Hex, 5/16"-24 Thread** \$2.95

**5396 Die, Hex, 3/8"-16 Thread** \$2.95

**5397 Die, Hex, 3/8"-24 Thread** \$2.95

**5398 Die, Hex, 1/2"-13 Thread** \$3.95

**5399 Die, Hex, 1/2"-20 Thread** \$3.95

## Threading Tools: Thread Repair Tools



Thread Repair Kits, Individual Sizes

- For repairing tapped holes in soft metal
- Simple and easy to use
- Stronger than original threads
- 25 Stainless steel coil (helical) inserts

Thirty-one piece thread repair kits. Used for repairing tapped holes that have been stripped or damaged. The stainless steel insert is wound into a coil (helical). Once inserted into the hole the radial pressure of the insert holds it firmly into place. The kit comes with inserts, the appropriate size HSS twist drill, installation tool, tang removal tool and L hex wrench. Each kit contains: 25 stainless steel inserts, 1 Screw thread insert (STI) high speed steel tap, 1 High speed steel twist drill, 1 Coil driver, 1 Tang breaker, 1 L hex wrench, 1 Metal case

**5829 Thread Repair Kit, 1/4"-20** \$35.95

**5830 Thread Repair Kit, 5/16"-18** \$39.95

**5831 Thread Repair Kit, 3/8"-16** \$49.95

**5832 Thread Repair Kit, M5x0.80** \$29.95

**5834 Thread Repair Kit, M8x1.25** \$39.95

## Tooling: Arbors and Sleeves



**2393 Arbor, Blank 3MT Drawbar** \$12.95

This arbor has a soft end which can be machined to suit your purpose.

The arbor has a case hardened 3 Morse taper shank and is threaded for a 3/8-16 NC drawbar.

The machinable end is 1.5" long and 1.5" in diameter.

**2394 Arbor, Blank 2MT Drawbar** \$13.51

**Tooling: Arbors and Sleeves**

**Arbors, Drill Chuck, Morse Taper Shank**



The long taper goes in the lathe tailstock or mill spindle.  
The short taper goes in the drill chuck.  
The 2MT Stub arbors fit the mini lathe tailstock without cutting.

3544 Arbor, Drill Chuck OMT Standard to 2JT	\$9.79
3543 Arbor, Drill Chuck OMT Standard to 33JT	\$9.77
5524 Arbor, Drill Chuck 1/2" Straight to 33JT	\$7.95
1778 Arbor, Drill Chuck 1MT Tang to 2JT	\$7.79
1894 Arbor, Drill Chuck 1MT Tang to 33JT	\$7.79
4631 Arbor, Drill Chuck 2MT Drawbar to 0JT	\$10.14
1882 Arbor, Drill Chuck 2MT Drawbar to 2JT	\$9.85
1883 Arbor, Drill Chuck 2MT Drawbar to 33JT	\$9.85
1803 Arbor, Drill Chuck 2MT Short to 2JT	\$9.85
1807 Arbor, Drill Chuck 2MT Short to 3/8"-24 Thread	\$9.85
1804 Arbor, Drill Chuck 2MT Short to 33JT	\$9.85
2955 Arbor, Drill Chuck 2MT Standard to 33JT	\$9.82
1167 Arbor, Drill Chuck 2MT Tang to 2JT	\$9.85
1613 Arbor, Drill Chuck 2MT Tang to 3/8"-24 Thread	\$9.85
1190 Arbor, Drill Chuck 2MT Tang to 33JT	\$9.85
1805 Arbor, Drill Chuck 3MT Drawbar to 2JT	\$12.07
1808 Arbor, Drill Chuck 3MT Drawbar to 3/8"-24 Thread	\$13.35
1806 Arbor, Drill Chuck 3MT Drawbar to 33JT	\$11.95
1191 Arbor, Drill Chuck 3MT Tang to 2JT	\$12.04
1614 Arbor, Drill Chuck 3MT Tang to 3/8"-24 Thread	\$12.07
1192 Arbor, Drill Chuck 3MT Tang to 33JT	\$10.95

**Arbors, Drill Chuck, R8 Shank**



The long taper goes in the mill spindle.  
The short taper goes in the drill chuck.

3999 Arbor, Drill Chuck R8 to 2JT	\$11.95
5445 Arbor, Drill Chuck R8 to 2JT, Professional Grade	\$14.95
1676 Arbor, Drill Chuck R8 to 33JT	\$11.95
5444 Arbor, Drill Chuck R8 to 33JT, Professional Grade	\$14.95

**Arbors, Drill Chuck, Straight Shank**



The straight end goes in a collet or other tool holder.  
The short taper goes in the drill chuck.

4632 Arbor, Drill Chuck 3/8" Straight to 0JT	\$10.07
2298 Arbor, Drill Chuck 3/8" Straight to 2JT	\$12.85

1195 Morse Taper Sleeve 3MT-2MT	\$7.73
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- Overall Length Is 4-3/8"
- Hardened and Ground
- Adapts 2 Morse Taper to 3 Morse Taper

Morse taper sleeve adapts 2 Morse taper tools to 3 Morse taper machines.

Hardened and precision ground.

1193 Morse Taper Sleeve 2MT-1MT	\$6.51
1194 Morse Taper Sleeve 3MT-1MT	\$7.73

3671 R8 to 3MT Sleeve	\$11.95
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- Hardened and Ground
- Drawbar End Thread Is 7/16"-20
- Adapts 3 Morse Taper to R8

This sleeve adapts 3 Morse taper tools to R8 spindles.

It is hardened and precision ground.

2190 R8 to 2MT Sleeve	\$10.95
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4720 Slitting Saw Arbor, 1/2" Shank	\$15.95
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- For saw blades up to 3/16" thick
- Fits 1/2", 5/8", 3/4", 7/8", and 1" holed slitting saw blades
- 1/2" straight shank
- Overall length is 2-9/16"

This arbor has a 1/2" shank and fits slitting saw blades up to 3/16" thick. This slitting saw arbor is compatible with blades that have a center hole of 1/2", 5/8", 3/4", 7/8", or 1".

4647 Slitting Saw Arbor, R8 Shank	\$24.95
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- For saw blades up to 3/16" thick
- Fits 1/2", 5/8", 3/4", 7/8", and 1" holed slitting saw blades
- R8 Shank
- Overall length is 5-3/32"
- Drawbar end is 7/16"-20

This arbor has an R8 shank and fits slitting saw blades up to 3/16" thick. This slitting saw arbor is compatible with blades that have a center hole of 1/2", 5/8", 3/4", 7/8", or 1".

3620 Stub Milling Machine Arbor, 3/4" Straight Shank	\$64.95
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- 1" diameter arbor with spacer rings and left-hand nut
- 3/4" straight shank fits in collets or end mill holders
- Fits 1" ID slitting saws and milling cutters

**Tooling: Clamping Kits**

2551 Clamp, Adjustable	\$11.95
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- One piece assembly allows quick set-up
- Instant height adjustment
- Attached brass covers protect machine table and workpiece
- Fits 7/16" and 12 mm T-slots
- Clamps work up to 1.75" (44 mm) thick, clamp is 1.35" (34 mm) wide overall

This adjustable clamp fits into the T-slots on the mill table and quickly adjusted to secure your work piece. Clamp fits 7/16" and 12 mm T-slots and the clamp has a brass covering at the point of contact to protect the work piece.

1507 Clamping Kit, 3/8-16 Thread, Professional Grade 16-Piece	\$72.95
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- 4 toe clamps
- 4 heel step blocks
- 4 3/8-16 threaded bolts
- 4 3/8-16 flange nuts
- Use on 7/16", 12 mm, and 1/2" T-slots with your studs and T-slot nuts

This jig bore style clamping kit is made in the US of case hardened steel. It includes 4 CNC machined case hardened toe clamps. There are two large and two small toe clamps with thin "toes" to get into tight spaces. There are 4 aluminum heel step blocks with end radius that are CNC machined and tumble finished. Included are 4 3/8-16 threaded bolts with a CNC machined radius on the head and black oxide finished for supporting the toe clamps. And 4 hardened flange nuts.


2718 Clamping Kit, 6 mm & 1/4" T-Slot, 42-Piece	\$49.95
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- Six 6 mm T-slot Nuts & Six 1/4" T-Slot Nuts
- Ten M5 Studs
- Six Flange Nuts
- Six Step Clamps
- Four Step Block Pairs

36-piece clamping kit This clamping kit fits the 6 mm T-slots on the Taig mill, and the 1/4" T-slots on the Sherline mill. The clamping kit includes 10 M5 studs, 4 step block pairs, 6 T-slot nuts (in each of the two sizes), 6 flange nuts, and 6 step clamps. There are more parts included than shown in the photo. The stated dimension of the clamping kit is the width at the top of the T-slot.


**Tooling: Clamping Kits**



**1943 Clamping Kit, 6 mm T-Slot, 16-Piece** **\$17.95**

- Four T-slot nuts for 6 mm T-slots
- Four studs of two different lengths
- Two flange nuts
- Two step clamps
- Two pair step block pairs

This set of T-slot nuts and clamping bars fits our 4" H/V rotary table (PN 1927) and the Phase II 4" rotary table (PN 1727). This mill clamp set also fits Taig mills. The clamping kit includes 4 studs of two different lengths, 2 step block pairs, 4 T-slot nuts, 2 flange nuts, and 2 step clamps. The stated dimension of the clamping kit is the width at the top of the T-slot.




**1144 Clamping Kit, 7/16" T-Slot** **\$54.95**

- Stud Size: 3/8"-16
- T-Slot: 7/16"
- 58 Pieces
- Made of powered casting steel, heat treated
- Storage rack included

58-piece clamping kit 3/8"-16, 7/16" T-Slot This machinist clamping kit fits the 12 mm T-slots on the mini mill. The t-slot clamp kit includes 24 3/8"-16 studs, 12 step blocks in pairs, 6 T-slot nuts, 6 flange nuts, 4 coupling nuts, and 6 end hold downs. Comes in a wall mount rack. The stated dimension of the clamping kit is the width at the top of the T-slot.

**1268 Clamping Kit, 1/2" T-Slot** **\$54.95**  
**5491 Clamping Kit, 3/8" T-Slot** **\$59.95**  
**3667 Clamping Kit, 5/8" T-Slot** **\$54.95**



**1426 Clamping Kit, 7/16" T-Slot in Organizer Case** **\$64.95**

- Stud Size: 3/8"-16
- T-Slot: 7/16" wide at top
- 58 Pieces
- Made of heat treated steel
- Organizer case included

58-piece clamping kit 3/8"-16, 7/16" T-Slot in organizer case. This machinist clamping kit fits the 12 mm T-slots on the mini mill. The t-slot clamp kit includes 24 3/8"-16 studs, 12 step blocks in pairs, 6 T-slot nuts, 6 flange nuts, 4 coupling nuts, and 6 end hold downs. Comes in an organizer case. The stated dimension of the clamping kit is the width at the top of the T-slot.

**1427 Clamping Kit, 8 mm T-Slot in Organizer Case** **\$64.95**




**5975 Clamping Kit, 7/16" T-Slot, Professional Grade** **\$74.95**

- T-Slot: 7/16"
- Stud Size: 3/8"-16
- Made of IC45e steel
- All parts hardened to HRC30-40
- Manufactured at factory for top US brands

58-piece clamping kit 3/8"-16, 7/16" T-Slot. This professional grade clamping kit is manufactured at a world class factory that produces high quality US brands. Pieces are made of IC45e steel for improved strength and all parts are case hardened or heat treated to HRC30-40. The t-slot clamp kit includes: 24 Studs (3/8"-16) - 4 each 3" 4" 5" 6" 7", and 8" - 4 Coupling nuts - 6 Flange nuts - 6 Forged steel step clamps - 6 T-slot Nuts - 12 Step blocks in pairs - 1 Wall Rack This machinist clamping kit fits the 12 mm T-slots on the mini mill. The stated dimension of the clamping kit is the width at the top of the T-slot.


**4833 Clamping Kit, 5/8" T-Slot, Professional Grade** **\$81.95**



**5910 Clamping Kit, 7/16" T-Slot, Professional Grade 5-Piece** **\$9.95**

- T-Slot: 7/16"
- Stud Size: 3/8"-16
- Made of IC45e steel
- All parts hardened to HRC30-40
- Manufactured at factory for top US brands


Add individual clamping sets to expand your capabilities. This professional grade clamping kit is manufactured at a world class factory that produces high quality US brands. Pieces are made of IC45e steel for improved strength and all parts are case hardened or heat treated to HRC30-40. The t-slot clamp kit includes 1 each of: - 7/16" T-slot nut - 3/8"-16 stud - Step clamp - Step block - Flange Nut This machinist clamping kit fits the 12 mm T-slots on the mini mill. The stated dimension of the clamping kit is the width at the top of the T-slot.



**3442 Clamping Kit, 8 mm T-Slot, 10-Piece** **\$24.95**

- Two T-slot nuts for 8 mm T-slots
- Two studs
- Two flange nuts
- Two step clamps
- One step block pair


This set of T-slot nuts and clamping bars fits our 4" precision rotary table (PN 1810). It also fits the Harbor Freight micro mill. The clamping kit includes 2 T-slot nuts for 8 mm T-slots, 2 studs, 1 step block pair, 2 flange nuts, and 2 step clamps. The stated dimension of the clamping kit is the width at the top of the T-slot.



**1813 Clamping Kit, 8 mm T-Slot, 12-Piece** **\$25.95**

- Two T-slot nuts for 8 mm T-slots
- Two studs
- Two flange nuts
- Two step clamps
- Two pair step blocks

This set of T-slot nuts and clamping bars fits our 4" precision rotary table (PN 1810). It also fits the Harbor Freight micro mill as a milling machine clamp set. The T-slot clamping kit includes 2 studs, 2 T-slot nuts, 2 flange nuts, 2 step clamps, and 2 pair step blocks. The stated dimension of the clamping kit is the width at the top of the T-slot.




**2039 Clamping Kit, 8 mm T-Slot, 44-Piece** **\$54.95**

- 6 T-slot nuts to fit 8 mm T-slots
- 10 M6 studs
- 6 step clamps
- 6 flange nuts
- 8 step block pairs

36-piece clamping kit This clamping kit fits the 8 mm T-slots on the micro mill. The clamping kit includes 10 M6 studs, 8 step block pairs, 6 T-slot nuts, 6 flange nuts, and 6 step clamps. The stated dimension of the clamping kit is the width at the top of the T-slot.

**1972 Clamping Kit, 8 mm T-Slot, 24-Piece** **\$39.85**



**6258 Clamping Kit, 8 mm, Professional Grade 8-Piece** **\$32.95**

- 4 Clamp bars 2-3/8" long
- 4 Step blocks 1" tall
- Use on 1/4", 5/16" and 8 mm T-slots with your 1/4", 6 mm or 5 mm studs and T-slot nuts

This small clamping kit is made in the US of steel. It includes 4 CNC machined clamp bars that are 2-3/8" long. There are 4 steel step blocks that are 1" tall. Works with 5 mm, 6 mm and 1/4" studs or bolts.

**Tooling: Clamping Kits**



**T-Slot and Flange Nuts**

T-slot nuts are used on mill tables and rotary tables. They are heat treated and have a black oxide finish. The size of a T-slot nut is the width of the top of the T-slot.

2253 Flange Nut, 3/8"-16	\$1.29
5668 Flange Nut, 5/16"-18	\$1.29
4978 Flange Nut, M6	\$1.29
3097 T-Slot Nut, 1/4"	\$1.95
5592 T-Slot Nut, 3/8"	\$1.49
1269 T-Slot Nut, 7/16"	\$1.49
2021 T-Slot Nut, 1/2"	\$1.49
5971 T-Slot Nut, 5/8"	\$2.95
2059 T-Slot Nut, 6 mm	\$2.59
2058 T-Slot Nut, 8 mm	\$2.37
2991 T-Slot Nut, 10 mm	\$4.07
1418 T-Slot Nut, 12 mm	\$4.27

**Tooling: Drill Chucks**



1212 Drill Chuck, 1/2"	\$11.95
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- High degree of accuracy
- All working parts hardened
- Drill chuck with key included
- Capacity: 1/32" - 1/2"
- Mounts to 33 Jacobs taper arbor

1/32" - 1/2" Capacity drill chuck designed for bench and floor drill presses, mills, lathes. Hardened ground center jaw improves durability and ensures straight alignment. Runout of this mini drill chuck is 0.008" (0.20 mm) or less.

1213 Drill Chuck, 3/8"	\$9.50
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1660 Drill Chuck, 1/2" Keyless	\$38.95
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- Self-tightening design
- No chuck key required
- Hardened tool steel
- Capacity: 1/32" - 1/2"
- Mounts to 33 Jacobs taper arbor

1/2" keyless drill chuck. No chuck key is required with this self-tightening design. The Jacobs keyless chuck is made from hardened tool steel to ensure accuracy and extended life. The rated capacity is 1/32" to 1/2". Number 33 Jacobs taper mount. Runout of this chuck is 0.005" (0.13 mm) or less.

1659 Drill Chuck, 3/8" Keyless	\$31.95
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5923 Drill Chuck, 1/2" Keyless with Integrated R8 Arbor	\$82.95
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- 1/64" to 1/2" Keyless Drill Chuck
- Integrated R8 Shank with 7/16"-20 drawbar thread
- T.I.R. <= .0025" (0.0635 mm)
- More compact than traditional chuck/arbor combinations
- No chuck slipping

1/64" - 1/2" Precision keyless drill chuck with integral R8 shank. The integrated design maximized rigidity and accuracy. Additionally, the chuck is more compact than a typical combined drill chuck and arbor combination, and there can be no chuck slipping on its arbor. The chucks total indicated runout (TIR) is 0.0025" (0.0635 mm) or less

5924 Drill Chuck, 5/8" Keyless with Integrated R8 Arbor	\$97.50
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3153 Drill Chuck, 1/2" Professional Grade	\$32.95
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- Precision made for reduced runout
- Designed for heavy duty jobs
- Key included
- Capacity: 1/32" - 1/2"
- Mounts to 33 Jacobs taper arbor

1/32" - 1/2" Capacity professional grade drill chuck. Designed for heavy jobs; all working parts are hardened and manufactured to the highest standards for durability and straight alignment. This chuck is comparable to a Jacobs 34-33 heavy-duty drill chuck, including the runout specification of 0.004" (0.10 mm) or less. Chuck key is included.

4862 Drill Chuck, 3/8" Professional Grade	\$26.95
4863 Drill Chuck, 5/8" Professional Grade	\$34.95



1148 Drill Chuck, 1/2" with 2MT Short Arbor	\$22.85
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- Package designed for mini lathe tailstock
- Capacity 1/32" - 1/2" chuck
- Hardened for high degree of accuracy
- Key included
- Drill chuck mounted on a short 2 Morse Taper shank for the mini lathe

1/32" - 1/2" Capacity drill chuck with hardened ground center jaw for improved durability and straight alignment. Mini lathe drill chuck runout is 0.008" (0.20 mm) or less. 2 Morse taper to 33 Jacobs taper. This arbor has a short Morse taper and does not need to be cut to use in the tailstock of the mini lathe. This model of drill chucks for lathes also fits the Jet 1014 mini wood lathe.



2870 Drill Chuck, 1/2" with 2MT Standard Arbor	\$22.82
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- Combo Chuck and Arbor package for small lathe tailstock
- Capacity 1/32" - 1/2" chuck
- Hardened for high degree of accuracy
- Key included
- Mounted on a standard 2MT arbor

Chuck and Arbor combo pack. 1/32" - 1/2" capacity drill chuck with hardened ground center jaw for improved durability and straight alignment. Chuck runout is 0.008" (0.20 mm) or less. This chuck comes with a standard length 2 Morse taper arbor that will eject from most lathes with a 2MT tailstock taper.



1396 Drill Chuck, 1/2" with R8 Arbor	\$25.29
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- High degree of accuracy
- All working parts hardened
- Chuck Key included
- Capacity: 1/32" - 1/2"
- Mount: 33 Jacobs taper with R8 Shank

1/32" - 1/2" Capacity drill chuck with a 33 Jacobs taper arbor that has an R8 Shank. Chuck has a hardened ground center jaw that improves durability and ensures straight alignment. The chuck's roundout is 0.008" (0.20 mm) or less. Fits mini mills with an R8 spindle.



5469 Drill Chuck, 1/2", Ball Bearing	\$39.95
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- Capacity: 1/32" - 1/2"
- Taper Mount: 33JT
- +/- .0032" (.0813 mm) TIR
- Ultra smooth with ball bearing
- Chuck key Included

Extra heavy duty, all parts hardened and precision ground. Anti-thrust ball bearing to increase the grip power with high speed drilling.



5470 Drill Chuck, 5/32" Stainless Steel	\$55.95
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- Capacity: 1/64" - 5/32"
- Taper Mount: 0JT
- +/- .006" (.1524 mm) TIR
- Made of anti-rust stainless steel, acid resistant
- Chuck key Included

Recommended for EDM machines and the food & marine industries.



2951 Drill Chuck, 6 mm for Unimat 3 & 4 and SIEG C0 Lathes	\$29.76
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- 0.6 to 6 mm (0.024" to 0.24") capacity
- M14 x 1.0 mounting thread
- Fits Unimat 3 & 4 lathes
- Fits SIEG C0 lathes
- Includes chuck key

Drill chuck for Emco Unimat 3, Unimat 4 and SIEG C0 4x5 lathes. This threaded drill chuck also works with Harbor Freight 95012 Central Machinery 4x5 Micro Lathe. M14 x 1.0 mounting thread with a chuck capacity of 0.6 - 6 mm (0.024" - 0.24"). Includes chuck key.

## Tooling: Drill Chucks



### 4977 Key, 1/2" & 5/8" Drill Chucks \$3.95

- Fits 1/2" and 5/8" drill chucks
- 11 teeth with 5mm spacing
- Gear diameter 15mm
- 8mm Pilot
- 102mm handle stem

This chuck key fits 1/2" and 5/8" drill chucks. The 11 teeth have a 5mm tooth spacing in a gear that is 15mm wide at its narrowest point. There is an 8mm pilot and the handle is 102mm in length.



### 3790 Sensitive Drill Feed and 1/8" (3 mm) Keyless Drill Chuck \$141.95

- Fingertip control for drilling small holes
  - Helps prevent drill breakage
  - OJT taper, 1/2" diameter precision ground straight shank
  - Spring loaded 3/4" travel fits most drills, mills, lathes or jig borers
  - Capacity: 0" - 1/8" (0 - 3mm ) Keyless drill chuck
- Sensitive drill feed designed for drilling small holes combined with a 0"-1/8" (3 mm) capacity keyless drill chuck. To use the sensitive drill feed, grasp the knurled ring and pull it down to feed the drill into the workpiece. The internal spring retracts the drill when the ring is released. No chuck key is required with this self-tightening design. The chuck is made from hardened tool steel to ensure accuracy and extended life. The rated capacity of the drill chuck is 0 to 3 mm. Number 0 Jacobs taper mount. 0.002" (0.05 mm) maximum runout.

### 3665 Sensitive Drill Feed \$59.95

### 3668 Drill Chuck, 1/8" (3 mm) Keyless \$82.95

## Tools & Things: Abrasives



### Abrasive Cloth, 1" Wide, Individual Grits

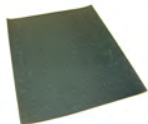
- Aluminum oxide abrasive
- High grade resin-bonded on J-weight cotton cloth backing
- Flexible for contour work

The price is for one foot. Order as many feet as you want and we will cut it to that length. Maximum length is 150 feet. Use for cleaning and deburring metal surfaces. Can be used with water or oil.

### 3890 Abrasive Cloth, 1" Wide, 240 Grit \$0.19

### 3891 Abrasive Cloth, 1" Wide, 320 Grit \$0.19

### 3892 Abrasive Cloth, 1" Wide, 400 Grit \$0.29



### Abrasive Sheets, 9" X 11", Individual Grits

- Silicon carbide abrasive
- High grade resin-bonded on J-weight cotton cloth backing
- Flexible for contour work

Use for cleaning and deburring metal surfaces. Can be used with water or oil.

### 4992 Abrasive Pad, Maroon Hand Pad, 3M \$1.95

### 3886 Abrasive Sheet, Wet or Dry, 240 Grit \$0.59

### 3887 Abrasive Sheet, Wet or Dry, 320 Grit \$0.59

### 3888 Abrasive Sheet, Wet or Dry, 400 Grit \$0.49

### 3889 Abrasive Sheet, Wet or Dry, 600 Grit \$0.49



### Cratex Bullet Shaped Points

- Diameter: 9/32", Length: 1", Arbor hole: 1/16"
- For Proxon and Dremel rotary tools
- Sold individually
- Mandrels fit 1/16" arbor hole

Cratex bullet shaped points are used for smoothing and polishing hard to reach surfaces such as grooves, ball corners, holes, clasps, spirals, flutes, and edges. They are widely used for polishing molds, dies, patterns and light castings.

### 4944 Cratex Bullet Shaped Point, 9/32" Medium \$0.99

### 4943 Cratex Bullet Shaped Point, 9/32" Coarse \$0.99

### 4947 Cratex Point Mandrel for Bullet Points, 1/8" Shank \$6.95

### 4946 Cratex Point Mandrel for Bullet Points, 3/32" Shank \$4.95



## Grinding Wheels

These grinding wheels fit our bench grinder, P/N 6242. They are 8" in diameter, 1" wide and have a 1" center hole. The Green Silicon Carbide wheels are good for sharpening cemented carbide tools and non-ferrous metals. Use for grinding cemented carbides and non-ferrous metals. The Aluminum Oxide wheels are good for sharpening HSS tools and other general purpose use. Fast cutting and cool grinding of all tool steels. For grinding, sharpening and deburring of hand tools, drills, chisels, blades and cutting tools. They include bushings for 3/4", 5/8" and 1/2" arbors.

### 6246 Grinding Wheel, 8" x 1" 100 Grit Green Silicon Carbide \$35.95

### 6245 Grinding Wheel, 8" x 1" 60 Grit Aluminum Oxide \$31.95

### 6244 Grinding Wheel, 8" x 1" 80 Grit Aluminum Oxide \$31.95

## Tools & Things: Adhesives



### 3978 J-B Weld \$5.95

- Cold-weld compound
- Can be formed, drilled, ground, tapped, machined, filled, sanded, and painted
- Super strong and safe to use

Don't scrap that damaged item that nothing else can fix! J-B Weld is an incredibly versatile product that can repair everything from damaged welds and solders to a precious heirloom. Save money, save time, and save your sanity for drastically less money than other forms of permanent repair. J-B Weld is the world's finest cold-weld compound. It's a remarkably easy, convenient, and inexpensive alternative to welding, soldering, and brazing. J-B Weld is the smart way to repair something ... and for literally pennies per use. When welding or soldering is out of the question due to cost, down time for repairs, or technical/environmental considerations, J-B Weld is the answer. J-B Weld is packaged in two tubes. One contains liquid steel/epoxy resin, and the other contains hardener. When mixed together in equal portions, a chemical reaction occurs that turns the mixture into a compound as hard and tough as steel -- and with similar properties.



## Loctite Products

Visit our Web site for full information about these Loctite products.

### 3989 Loctite 7649 Primer for Threadlockers \$11.95

### 3986 Loctite 222 Purple Low Strength Threadlocker for Small Fasteners \$17.95

### 3987 Loctite 242 Medium Strength Blue Threadlocker \$18.95

### 3988 Loctite 271 High Strength Red Threadlocker \$18.95

## Tools & Things: Batteries

### Batteries

- Batteries for the products we sell



### 4420 Battery, AG10 Alkaline \$0.95

### 4292 Battery, CR2032 Lithium \$1.95

### 1707 Battery, LR44 Alkaline \$0.95

### 2975 Battery, LR44 Alkaline, Set of 10 \$5.95

### 2976 Battery, SR44 Silver Oxide \$1.95

**Tools & Things: Gift Certificates**

**Tools & Things: Gift Certificates**

1675 Gift Certificate, \$100 \$100.00



LittleMachineShop.com gift certificates make great gifts. Now you know exactly what to give, and you don't need to worry about whether or not it fits. If you'd like a certificate in a higher amount, order multiple certificates that add up to the amount you want, and in the Special Instructions, include a note asking us to combine them into a single certificate. (For example, if you want to give \$250 to someone you really like, order five \$50 certificates. Include a note and we'll issue a single certificate for the full amount.)

1673 Gift Certificate, \$25 \$25.00  
1674 Gift Certificate, \$50 \$50.00

**Tools & Things: Lights**



5197 Flashlight, LED with Magnetic Base \$27.95

- Flexible shaft with universal movement.
- Max. reach: 8".
- Magnetic Base: 1-1/2" diameter, 25 lbs power pull.
- LED flash light requires 3xAAA battery.

Flexible shaft with universal movement. | Max. reach: 8". | Magnetic Base: 1-1/2" diameter, 25 lbs power pull. | LED flash light requires 3xAAA battery.



3682 Machine Light with Magnetic Base \$26.95

- Powerful magnetic base with On/Off switch
- Machine light with flexible arm for easy positioning
- 120 VAC power
- Use standard 60 W incandescent medium base bulb (not included)

Incandescent 60 W work light with a powerful magnetic base that is controlled with an On/Off switch.



4986 Machine Light, LED with Magnetic Base \$79.95

- 20" flexible shaft
- Powerful magnetic base
- 100-240 V 50-60 Hz
- 330 lumens

LED machine work light with magnetic base. The 20" flexible shaft combined with the magnetic base gives you the flexibility to target light directly to your work area. The LED is 330 lumens (roughly comparable to a 30 W incandescent bulb) and is rated 100-264 V 50-60 Hz.



4334 Machine Light, LED with On/Off Magnetic Base \$89.95

- 20" flexible shaft
- Powerful magnetic base with On/Off function
- 3 Watt, 300 lumens
- Color temperature is 6000-6500K
- 100-240 V 50-60 Hz

LED machine work light illuminates work area without the heat. The 20" flexible shaft combined with the magnetic base allows you the flexibility to target light directly to your work area. The magnetic base features an On/Off switch making repositioning easy while holding fast when the magnet (150 lb. pull) is activated. The light is housed in aluminum with tempered glass. The LED is 300 lumens (roughly comparable to a 30 W incandescent bulb) and is rated 100-264 V 50-60 Hz and has an estimated 50,000 hours of LED life.



5972 Work Light, LED with Universal Arm, Waterproof \$79.95

- 7 Watt Waterproof LED Work Light
- 18" Universal Arm
- Light Head Diameter 2-3/8"
- 350 Lumens, Color Temperature 6500 K
- Bolt-on Mounting Plate

7 Watt Waterproof LED work light with bolt-on mounting plate (2 3/8" x 2 3/8") has a 18" swivel arm. The LED is 350 lumens with a color temperature of 6500 K with an estimated 50,000 hour lifetime. The power supply is 110 AC. LED lights are excellent for heat sensitive environments and are a cost effective alternative to Halogen or incandescent lights.

**Tools & Things: Lubrication**



4960 Pump Oiler with Flexible Spout \$17.95

- For oiling machinery (and hundreds of other uses)
- 16 oz. capacity
- Flexible 8" spout
- High pressure pump

Industrial oiler for tough jobs. Zinc die-cast high pressure pump with precision ground piston, powder coated copper bronze finish with zinc plated top cap. 16 oz, with 8 inch flexible spout.



4949 Pump Oiler with Hard Trigger \$13.95

- For ball oilers (and hundreds of other uses)
- 6 oz. capacity
- Straight spout
- Flared bottom to prevent tipping

6 oz. oiler with a case hardened trigger to handle thicker liquids. The trigger and container are powder coated copper bronze color. Straight spout. Flared bottom to prevent tipping. This is an old-timey (but brand new) pump oiler to oil all those little ball oilers. The hardened trigger means it's good for even thick machine oils as well as most types of cutting oils.



3896 SpillMaster Container \$6.95

- Avoid workbench spills
- Holds cutting fluids and lubricants
- Won't spill, even when upside down
- Durable polyethylene for long life
- Spill proof container includes applicator brush

The SpillMaster is a great way to keep cutting fluid handy on your workbench. The included acid brush makes application easy. SpillMasters come with Red, Blue, and White tops. We ship the colors randomly based on availability. If you want a particular color, put a note in the Special Instructions box on your order. We'll accommodate your request if we have that color in stock.

**Tools & Things: Shims**



4304 Shim Stock Assortment, 0.0005" - 0.005" Plastic \$9.95

- 7 sheets of 5" x 5" sheets of polyester shim stock
- Minimal compression in use
- Thickness tolerances to industry standards
- 0.0005", 0.001", 0.0015", 0.002", 0.003", 0.004", and 0.005"

Color coded shim stock sheets are made from a high quality plastic material. Easy to cut and resists oil. Non-magnetic and non-conductive to electricity. Corrosion resistant.

4296 Shim Stock, 0.0005" Silver Plastic \$4.95  
4297 Shim Stock, 0.001" Amber Plastic \$4.95  
4298 Shim Stock, 0.0015" Purple Plastic \$4.95  
4299 Shim Stock, 0.002" Red Plastic \$4.95  
4301 Shim Stock, 0.003" Green Plastic \$4.95  
4302 Shim Stock, 0.004" Tan Plastic \$4.95  
4303 Shim Stock, 0.005" Blue Plastic \$4.95

## Tools &amp; Things: Things


**1196 Armor Wrap 30G Corrosion Inhibiting Paper, 10 Sheets \$1.95**

- 10 Sheets 6" x 6" Armor Wrap Corrosion Inhibiting Paper
  - Protects exposed metal in enclosed spaces
  - Proprietary VCI nanotechnology
  - For ferrous & non-ferrous metals
  - Protect your valuables and tools from rust and corrosion
- Put a sheet in each drawer of your tool box to prevent corrosion. The new global standard in corrosion inhibiting paper for ferrous & non-ferrous metals. ARMOR WRAP® VCI papers utilize proprietary VCI nanotechnology, and are essential to keeping your stored items and in-process metals protected and corrosion-free for years. ARMOR WRAP® VCI papers are impregnated on BOTH sides and provide protection for up to three years. This 30# ARMOR WRAP® VCI Paper is environmentally safe, fully recyclable, biodegradable and non-toxic. ARMOR uses only the highest quality virgin neutral pH kraft paper available. The 30G paper is the best all-around solution since it works extremely well protecting ferrous and non-ferrous metals. Protects exposed metal in enclosed spaces without harmful effect on electrical, mechanical or chemical properties. Use in any enclosed space with metals including your toolbox, gun case or safe, tackle box, truck bed box, and safety deposit box.

**1457 Chip Removal Tool with Shovel \$15.95**


- Remove Chips from Hazardous Areas
  - 5" Guard and Handle
  - Use on Curled and Powdered Chips
  - Handle Length 6"
  - Shovel 4.75" x 2.75"
- Remove chips and empty chip trays from hazardous areas on machines while avoiding accidents. Sturdy design ensures a firm grip and hand safety. This one tool may be used on both curled and powdered chips.

**3953 Chip Shield on Magnetic Base \$26.95**


- 8" x 10" (200mm x 249mm) clear plastic shield
  - Magnetic base and locking arm allow easy placement
  - Magnetic base dimensions: 2.6" diameter X 0.4" depth
- This is a great item for stopping flying chips or coolant/cutting oil spray. The magnetic base allows you to position it on virtually any metal surface and has easy quick lock mechanisms to adjust positioning.

**5485 Demagnetizer \$76.95**


- Demagnetizes tools such as dies, cutters and punches
  - 115 VAC with on/off switch
  - Table size: 6-1/4" x 4-3/4"
  - Weight: 7 lbs
- Table top style demagnetizer good for demagnetizing tools such as dies, cutters, and punches.

**5017 Machinist Calc Pro 2 Machinists Calculator \$94.95**


- The first dedicated handheld machining math and reference tool
  - Calculate speeds and feeds, right triangle solutions, bolt patterns and much more
- The Machinist Calc Pro 2 is the upgraded version of the original dedicated handheld machining math and reference tool which provides a complete assortment of machine shop solutions. It has more complete thread data than the Machinery's Handbook, including step-saving thread and drill size chart look-ups, speeds and feeds, right triangle solutions, bolt patterns and much more. Spend more time machining and less time looking up specs and data in books, on charts or in computer programs. New features include the ability to enter WOC (width of Cut), LOC (Length of Cut), and DOC (Depth of Cut). It also includes settings for 20 popular materials, 6 processes and 3 Tools. It also has a new larger 2-line LCD display.

**5387 Magnifier, 10x, Hastings Triplet \$25.95**


- 10x Magnification
- Triplet lens system
- 21mm diameter
- Come with case


**5388 Magnifier, 8x, Desktop, LED Light \$59.95**

- 8x Magnification
- Flexible arm for any desired position
- 5" lens diameter
- 300 LUX (2.5 watt) LED light
- 110v/1 phase power supply, 60" cord


**4423 Safety Glasses \$9.95**

- Strong, lightweight clear polycarbonate lens with 11 degree base curve
  - Treated with our exclusive Duramass scratch resistant and anti-fog coatings
  - Non-slip rubber head grips and temple sleeve designed for breakaway cord
  - Twin bridge adjustable nose piece
- The safety glasses feature safety and style at an affordable. The metal frame with spring hinge temples, 11 degree base curve lens and twin bridge adjustable nose piece keeps you at the peak of comfort and style all day long. Lightweight metal frame with extreme flexibility. Non-slip temple sleeves designed for use with breakaway cord. Twin-bridge adjustable nose piece with gel nose pads. Meets or Exceeds ANSI Z87.1 Safety Standards. Always wear safety glasses when working in your shop.

**3855 Safety Glasses, Economy \$2.95**

**5587 Shear and Brake Combination, 8" \$169.95**

- Shear sheet metal, plastics, circuit boards
  - Bend sheet metal up to 90 degrees
  - Maximum material width 7.75" (197 mm)
- This small shear and brake combination is great for small sheet metal projects. It cuts metal, plastics, and printed circuit boards. The bending brake will make bends up to 90 degrees. It includes a full length bending die as well as four different length smaller dies. The base of the machine is 9.4" x 5.4".

## Tools &amp; Things: Tools


**6256 Acid Brushes, 3/8", 6 Pieces \$1.50**

- Natural bristles
  - Tin handles
  - 6" long
- These brushes are great for applying cutting fluid to cutting tools and work pieces.

**6257 Acid Brush, 3/8", 1 Piece \$0.25**

**3681 Arbor Press, 1/2-Ton \$54.95**

- Heavy duty frame
  - Four position anvil
  - Steel pinion
  - Maximum work height 4.5"
  - Maximum work diameter 6.5"
- This arbor press stands 10" tall and has a 4" x 9" base.


**5083 Arbor Press, 1-Ton \$85.95**

- Heavy duty frame
  - Four position anvil
  - Steel pinion
  - Maximum work height 5.25"
  - Maximum work diameter 8"
- This arbor press stands 13" tall and has a 5" x 11" base.


**5681 Automatic Center Punch \$6.95**

- Double spring loaded barrel
  - Special hardened alloy steel tip for instant marking
  - Knurled body
- This punch has a lightweight, knurled handle for a positive grip and easy handling. No hammer is required! Just hold the punch in an upright position, press the handle down, and a built-in mechanism strikes a perfect center mark every time. All working parts are made of tool steel, properly hardened. Works on metal, plastics, wood and other machinable materials.



**3553 Automatic Center Punch, Starrett \$42.50**

- Starrett Automatic Center Punch with adjustable stroke
- Starrett catalog number 18A
- Length: 5"
- Punch Diameter: 9/16"
- Knurled steel handle

Rugged automatic punches have all-steel handles and parts. This Starrett center punch has a mechanism that automatically strikes a blow when downward pressure is applied. No hammer is required, making one hand always free to steady the work.

The adjustable knurled cap of the Starrett 18A regulates the force of the blow. Should a heavy mark be required, the cap is screwed down. Progressively lighter marks are obtained by turning the cap upward. The tension of the spring, which regulates the blow is constant, so marks made by the point are uniform in depth and size for each setting. The point can be easily removed for regrinding and/or replacement. All sizes are identical in style, differing only in the striking power.



**4086 Center Punch, Starrett \$7.30**

- Length: 4"
- Punch Diameter: 1/8"
- Properly Hardened Tool Steel

Starrett catalog number 117C.

The Starrett 117C Center Punch is made of specially selected steel, hardened and properly tempered. It is well proportioned, nicely finished and has a knurled finger grip. The points are ground at the proper angle to give maximum service, and the tips are accurately centered. The center punch is 4" (100mm) long with a 1/8" (3mm) Dia. Point.



**2620 Automatic Center Punch, Starrett \$38.00**

- Length: 5"
- Punch Diameter: 5/8"
- Aluminum Handle
- Properly Hardened Tool Steel

Starrett Automatic Center Punch with adjustable stroke.

Starrett catalog number 818.

This punch has a lightweight, knurled aluminum handle for a positive grip and easy handling. No hammer is required! Just hold the punch in an upright position, press the handle down, and a built-in mechanism strikes a perfect center mark every time. The force of the blow can be adjusted by turning the knurled cap.

All working parts are made of tool steel, properly hardened. The hardened tool steel point can easily be removed for resharpening or replacement. Works on metal, plastics, wood and other machinable materials.



**1820 Center Punches, Starrett \$41.00**

- Sizes 1/16", 5/64", 3/32", 1/8", and 5/32" diameter
- Hardened and tempered steel
- Knurled finger grip
- Points ground at proper angle for maximum service
- Tips are accurately centered

Starrett Center Punches with round shanks. Set of 5, Nos. 117AA, A, B, C, D in Plastic Case

Starrett catalog number S117PC. This center punch set includes the following sizes, measured at the top of the tapered point: 1/16", 5/64", 3/32", 1/8", and 5/32" diameter.

Starrett No. 117 Center Punches are made of specially selected steel, hardened and properly tempered. They are well proportioned, nicely finished and have a knurled finger grip. The points are ground at the proper angle to give maximum service, and the tips are accurately centered.

These punches are universally used, but most often by machinists. They are well-proportioned for ease of use. The specially selected tool steel is hardened and tempered to the proper hardness. All of them feature nicely knurled finger grips for ease of handling. A special tempering process makes the head less likely to fracture from a hard, off-center blow. ALWAYS WEAR SAFETY GLASSES WHEN USING STRIKING AND STRUCK TOOLS.



**3189 Bench Block \$24.95**

- Made from steel; hardened and ground
- Handy tool for holding work, driving pins, drilling and so on
- Knurled edge provides a good grip
- V-groove accommodates round and odd-shaped objects
- Holes from 1/8" to 5/8" diameter

This bench block is 3" in diameter and 1.5" thick.



**4676 BoreScope, Wired with Color LCD Monitor and 9 mm Camera \$119.95**

- 2.4" color LCD monitor
- IP67 Water-proof camera with 39" flexible line
- Night vision feature
- 9mm camera head (640 x 480 resolution)

This bore scope allows for easy inspections in hard to reach areas. The lightweight handheld design lets you easily find, diagnose and solve problems. Features: Vivid 2.4" color TFT LCD monitor allows image rotation for detailed images 39" flexible gooseneck cable retains configured shape Optional 78" flexible shaft with 9mm or 17mm camera available Mini waterproof 9mm (IP67) camera head provides on-the-spot viewing Night Vision Range: 20' Power indicator, low voltage indicator Mirror button LED brightness control LCD contrast control Power Supply: 4 x AA battery Dimension: (WxDxH) 8x3.3x2.4" Operating Temperature: 14 - 122° F Weight: 14 oz.

**4687 BoreScope, Camera Head Extension \$107.95**



**3979 Chip Brush, 1" \$0.99**

- Natural bristles
- Wood handle

The brushes are great for clearing chips as well as for small painting jobs where you don't want to take the time to clean a brush.

**3981 Chip Brushes, 1", 36 Pieces \$33.95**

**3980 Chip Brushes, 1", 6 Pieces \$5.75**



**1671 Deburring Tool \$2.99**

This hand deburring tool has a built-in E-100 blade. The deburr tool deburs holes with a flick of the wrist.



**4848 Deburring Tool Set \$5.95**

- 4 piece set
- Includes plastic handle, telescoping holder, and B10 & B20 blades

Use on Plastics, Steel, Brass, Aluminum, Copper, and Cast Iron This deburring tool set comes with 2 easily swappable blades to conveniently tackle all your deburring needs. The hand deburring tools deburr holes with a flick of the wrist.

**4849 Deburring Blade, B10 \$0.75**

**4850 Deburring Blade, B20 \$0.75**



**1135 Deburring Tool, Fine Carbide Point \$29.95**

- Deburring tool for small work pieces
- 3-cornered carbide scraper

Hand made scraper handle and 3-corner carbide scraper. Very ergonomic design made of stainless steel and carbide. These handles are made in the United States in Southeastern Pennsylvania. Great for light deburring on brass, aluminum and steel. Scraper is approximately 5" long, 6" with scraper. The carbide scraper is approximately 1 1/2" long, 1/8" diameter.



**3884 Drive Pin Punches, Extra Long, Starrett \$49.50**

- Set of 5 extra long 8" pin punches
  - Includes 1/8", 3/16", 1/4", 5/16", and 3/8" punches
  - Well proportioned, hardened, proper tempered with a knurled grip
  - Includes vinyl case
  - Starrett catalog number S248PC
- Starrett No. 248 Drive Pin Punches are extra-long, measuring 8" (200 mm). The bodies are 4-1/2" (115 mm) and the drive pin sections are 3-1/2" (90 mm) long. They are well-proportioned, hardened, properly tempered, and have a knurled grip. They are designed to withstand hard use and provide a most satisfactory punch for machine shop and motor service work. Just the punch to follow long cotter pins and the like into holes without hindrance. The diameters of the punches are slightly under the sizes listed. ALWAYS WEAR SAFETY GLASSES WHEN USING STRIKING AND STRUCK TOOLS.

**1821 Drive Pin Punches, Starrett \$63.00**

- Diameters: 1/16", 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", 5/16"
  - Hardened and tempered steel
  - Knurled finger grip
  - Points ground at proper angle for maximum service
  - Tips are accurately centered
- Starrett 8 piece drive pin punch set. Set of 8, Nos. 565A/B/C/D/E/F/G/H in a round container. Starrett catalog number S565WB. This set includes the following diameter punches: 1/16", 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", 5/16". Starrett No. 565 Drive Pin Punches are well proportioned, hardened, properly tempered, nicely finished, and have a knurled finger grip. Each punch has the size stamped on the head. These punches are universally used, but most often by machinists. They are well-proportioned for ease of use. The specially selected tool steel is hardened and tempered to the proper hardness. All of them feature nicely knurled finger grips for ease of handling. A special tempering process makes the head less likely to fracture from a hard, off-center blow. ALWAYS WEAR SAFETY GLASSES WHEN USING STRIKING AND STRUCK TOOLS.

**4823 File Set, 12" Steel, 5 Pieces \$13.95**

- Set Includes: Flat File, Tapered Round File, Square File, Triangular File & Half Round File
- Made of T12 hardened tool steel
- Comfortable and durable PVC handles

**2891 Grinder, Proxxon IB/E Professional Rotary Tool \$141.95**

- Ball bearing spindle of ground steel, with lock button for rapid cutter changing
  - Streamlined die-cast aluminum head for exact bearing seats and optimal stability
  - Powerful 100 W motor with full-wave electronics for variable speeds between 5,000 and 20,000 RPM
  - Proxxon rotary tool comes complete with six triple-slit steel collets covering 1/32" to 1/8" (1.0 -
  - Two year limited warranty
- Grinder with 34 industrial quality bits & cutters with shanks  $\varnothing$  3/32" (2.3 mm). High concentricity (maximum run out .001"). This high-revving motor is usable for extended periods at a time. 120V AC, 60 Hz. The ground steel spindle runs in a ball bearing assembly, minimizing play. Six high concentricity collets sized 1/32", 1/16", 5/64", 3/32", 7/64" and 1/8" (1.0, 1.5, 2.0, 2.4, 3.0 and 3.2 mm) along with a collet nut are included. Proxxon IB/E Professional Rotary Tool is packed in a durable plastic case, complete with the 34 bits & cutters as shown above.

**3633 Accessory Kit for Rotary Tools \$41.85****3634 Accessory Kit for Rotary Tools, Modelmakers \$22.95****3632 Collet Set, Proxxon Micromot \$14.95****2969 Cut-Off Disks, Aluminum Oxide for Rotary Tools, 50 Count \$14.50****3033 Grinder, Proxxon IB/E Professional Rotary Tool 230V \$126.95****2967 Grinding Wheels, Aluminum Oxide for Rotary Tools, 10 Count \$8.65****2968 Grinding Wheels, Silicon Carbide for Rotary Tools, 10 Count \$8.65****2935 Rotary Tool Mount for Mini Lathe \$32.75****3635 Wire Brushes, Brass for Rotary Tools, 5 Count \$13.15****3562 Hacksaw Frame, Heavy Duty, Starrett \$36.95**

- Starrett Closed Grip Heavy Duty High-Tension Hacksaw Frame
  - Starrett catalog number K145
  - 12" (300mm) frame
  - 4-3/8" (110mm) throat depth
- The K145 is a rugged, professional quality high-tension frame constructed of cast aluminum with an extra-thick tubular steel bar for added strength. The steel tube also provides on-hand storage for spare blades. The K145 High-Tension Frame is engineered for use with Starrett bi-metal Bluestripe® and Greenstripe® blades. With just three 360° turns, the easy to use adjusting screw will tension the blade up to 28,000 psi (2,000kg/cm) which prevents the blade from twisting and binding when bearing down on the cut. Each K145 Heavy Duty High-Tension Frame is shipped with a Starrett Bluestripe bi-metal unique ground tooth hacksaw blade.

**5928 Hammer, 1-lb. Dead Blow, Professional Grade \$22.95**


- 16 Oz. Dead Blow Hammer
- Shot loaded interior produces a powerful driving force
- UPE plastic material strike faces
- Head diameter is 1.2"
- Overall length is 12"

Dead blow hammers are designed for applying striking force while minimizing damage to your surface and in reducing rebound. This 16 oz. dead blow hammer is shot loaded for powerful driving force. The striking faces are made of UPE plastic which is resistant to industrial chemical, is non-marring and non-sparking. Head diameter is 1.2", overall length is 12". The handle is padded.

**3614 Hammer, 8-oz Ball Peen \$8.95**

- Drop forged and polished head
- Hardened striking face
- Fiberglass handle
- Shock absorbing rubber grip
- Polished round peen


Ball peen hammers are used in striking and shaping metals. This 8 ounce Ball Peen Hammer has a shock absorbing grip and a hardened striking face.



**3613 Hammer, Dead Blow 18 oz. \$15.95**

- Shot-loaded head provides powerful driving force
- Non-marring, non-sparking
- Polypropylene is resistant to most industrial chemicals
- Head 100 mm x 38 mm (3.94" x 1.50")
- Overall length is 287 mm (11.30")


Dead blow hammers are designed for applying striking force while minimizing damage to your surface and in reducing rebound. This 18 oz. dead blow hammer is shot loaded for powerful driving force. It is case out of durable polypropylene which is resistant to industrial chemical, is non-marring and non-sparking. Head dimensions are 100 mm x 38 mm (3.94" x 1.50"). Overall length is 287 mm (11.30").



**1114 Hammer, Hobby, with Interchangeable Tips \$12.95**

- Six interchangeable tips
- Aluminum grip
- Use for riveting, blending, and chisel work
- 7.5" overall length
- 2.5 ounce head


Modelers hammer with 2.5 oz. steel head, steel handle, and an aluminum grip. Comes with six screw-on tips including a flat brass, steel ball, steel dome, steel tapered, steel flat, and high density fiber. Use for driving pins, mini nails, riveting, chiseling, and forming sheet metal. 7.5" overall length.



**5840 Handee Clamp \$17.95**

- Attach nuts, bolts, or hose clamps in hard-to-reach places
- Simply put desired nut, clamp, or bolt in the Handee Clamp and tighten nut on other end to secure
- Made in USA

The Handee Clamp is a small handheld device that firmly holds nuts, bolts and clamps. Its design allows for the placement of the item in vise like jaws that can be tightened from one end. Once secured, simply put the held item into place with one hand, freeing the other hand for actions such as tightening. The Handee Clamp will securely hold onto whatever you put in its jaws, enabling you to reach into that tight crevice so you can focus on the job at hand and not worry about dropping the hardware you need. There is no telling when the next time you'll need The Handee Clamp to help you with that "Out of Reach Grasp". For a relatively inexpensive product, it can save you hours of frustration that makes it more than worth its value. Order this and other lathe tools online at LittleMachineShop.



**4331 Hex Wrench Set, T-Handle Ball End, Inch \$48.95**

- Cushion grip T-handle
- 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4", 5/16", and 3/8"
- Sizes 5/32" and up have ball end
- Includes stand
- Ball end tips work at up to 25 degree angle

Ball end T-handles feature welded steel handles with cushion grips sized for maximum torque while protecting the ballpoint tip and screw from rounding or stripping. The cushion grip handle is ergonomically shaped eliminating pressure points. The heavy duty handle generates flywheel effect for fast insertion and extraction of screws. Comes with a molded stand that mounts on the wall or work bench. Only available from Bondhus, Protanium® steel means these are the strongest tools available.

Tools are Made in the USA with Bondhus proprietary Protanium steel and are up to 20% stronger than competitive tools. ProGuard Finish is 5 times more effective than the next leading brand in preventing rust, protecting your investment over time.


**4330 Hex Wrench Set, T-Handle Ball End, Metric \$41.95**



**5871 Needle File Set, 12 Pieces \$9.99**

- Swiss Pattern File Set of 12
- 6" length, #2 Cut
- Ideal for Die Makers, Gunsmiths, Machinists, Modelers
- Common Swill Pattern Shapes
- Storage Wallet Included


Set of 12 Swiss Pattern needle files, ideal for die makers, jewellers, modellers, craftspeople and hobbyists. Use for removing, smoothing and shaping a wide range of materials. Files are #2 cut and 6". Shapes includes are: half round, hand, knife, round, round straight, square and three square shapes. Set comes in a vinyl storage wallet.



**5466 Pin Chuck Set, 0 - 3/32" \$9.95**

- Holds small drills firmly
- Ensures complete collet length
- Overall length: 2-1/2"
- Shank size: 1/4"


Includes: 3 collets - capacity: 0 - 1/32", 1/32" - 1/16", 1/16" - 3/32"



**1113 Pin Punch, 13 Piece Set \$19.95**

- 13 Piece Pin Punch Set
- 5 Long Punches - 8" (200 mm) Long
- 8 Smaller Punches - 4" (200 mm) Long
- Knurled Grips
- Sizes Stamped on Handle


Combination set of popular size pin punches, 13 pieces in all. Use to drive pins into or out of a workpiece. Each pin has the size stamped on the handle. Set includes: 5 long drive pin punches in sizes 1/8", 3/16", 1/4", 5/16" & 3/8" - 8 pin punches in sizes 1/16", 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", & 5/16". The long drive punches are 8" (200mm) in length and the small punches are 4" (100mm) long. Punches have knurled grips and come in a convenient storage envelope.



**1131 Pin Punch, 8 Piece Set, Brass \$24.95**

- 8 piece brass pin punch set
- Sizes from 1/16" (1.6 mm) to 5/16" (8.0 mm)

Eight piece brass drive pin punch set. Set includes sizes 1/16" (1.6 mm), 3/32" (2.4 mm), 1/8" (3.2 mm), 5/32" (4.0 mm), 3/16" (4.8 mm), 7/32" (5.5 mm), 1/4" (6.4 mm), and 5/16" (8.0 mm).




**5467 Pin Vise Set, 0 - 3/16" \$11.95**

- Hollow handle for long wire or rods

Includes: Ranges: 0-.055", .025"- .075", .045"- .125", .110"- .187"


**3881 Pin Vise, 0.010 - 0.055", Starrett \$24.00**  
**3882 Pin Vise, 0.025 - 0.075", Starrett \$29.50**  
**3883 Pin Vise, 0.045 - 0.135", Starrett \$32.50**



**3560 Pocket Level, Starrett \$34.00**

- Starrett 3.5" pocket level
- Starrett catalog number 135B
- 3.5" (88 mm) long
- Satin nickel plated finish

This is an extremely useful Starrett level that fits handily in the pocket with no sharp edges. Made from hexagonal stock with convex ends and satin nickel-plated finish.



**4085 Prick Punch, Starrett \$9.60**

- Length: 4"
- Punch Diameter: 5/64"
- Properly Hardened Tool Steel

Starrett Prick Punch 5/64".

Starrett catalog number 816A.

This is the punches to use when precise positioning of a point or an intersection of lines is required. The points are carefully ground to the correct taper, which is sharper than the normal center punch. This allows exact placement of the point, providing sharp impressions. The prick punch is 4" (100mm) long with a 5/64" (2mm) Dia. Point.

**Tools & Things: Tools**



**4732 R8 Tool Fixture \$96.95**

- Provides a safe way to change cutting tools in R8 based tool holders.
  - Easy assembly and installation.
  - Mounts to the front slot of a mill table, workbench, or vise.
  - Includes a tool caddy for quick access to frequently used tools
  - Convenient for changing R8 based indexable-insert tooling
- The R8 Tool Fixture provides a platform for setting tools in any R8 compatible tool holder, and includes a tool caddy for convenient access to frequently used tools such as an air gun, wrenches, and brushes. It is handy for setting tools in quick change tool holders like the Tormach TTS System or Royal R8 System, great for setting tools in ER collets, and useful for setting tools in shell mill arbors such as a slitting saw.

**5198 Stamp Set, Numbers and Letters, 3/16" \$13.95**



- Numbers (0-9) & Letters (A-Z)
  - Hardened to RC 59-61 at tip and tempered to RC 41 Rockwell at striking end.
  - Made from carbon steel.
  - Character style designed to give sharp clear impressions.
  - Packed in a durable box for easy selection and storage.
- 3/16" Number & Letter Stamp Set -- 0-9 and A-Z Hardened to RC 59-61 at tip and tempered to RC 40 Rockwell at the striking end. Made from carbon steel. Character style is designed to give sharp clear impressions. Packed in a durable box. Easy selection and storage.

**4208 Thread Restoring File, 12-28 TPI \$10.95**



- Eliminates damage on threads of bolts and shafts
  - Suitable for pitches 12, 13, 14, 16, 18, 20, 24 & 28 threads per inch
  - Featuring a crosscut design
  - Square profile shape with overall length of 8 1/2"
  - Sizes are clearly marked
- Restores damaged or rusted external threads on bolts, threaded shafts, pipes and pipe fittings. Use to restore damaged or rusted threads of bolts, threaded shafts, pipes, and pipe fittings. The crosscut design has a depth that is proportional to the thread pitch. Suitable for pitches 12, 13, 14, 16, 18, 20, 24 & 28 threads per inch.

**4209 Thread Restoring File, 0.7-3 mm Pitch \$10.95**

**Torx Wrenches, Flag Style**



- Molded Flag Style Handle with spinner top
- This is a great replacement torx wrench for many indexable turning tool sets that use torx screws. The flag style Torx wrench is designed to prevent overtightening of insert retaining screws.

- 5443 Torx Wrench, T-6 \$1.95**
- 5551 Torx Wrench, T-8 \$1.95**
- 5552 Torx Wrench, T-9 \$1.95**
- 5553 Torx Wrench, T-10 \$1.95**
- 5554 Torx Wrench, T-15 \$1.95**

**Torx Wrenches, Flag Style, Wiha**



- Molded Flag Style Handle with spinner top
  - Made of High Performance CRM 72 Tool Steel
  - Hardened Oxide Finish
  - Made In Germany
- This is a great replacement torx wrench for many indexable turning tool sets that use torx screws. The flag style Torx wrench is designed to prevent overtightening of insert retaining screws.

- 5511 Torx Wrench, T-5, Wiha \$5.95**
- 5512 Torx Wrench, T-6, Wiha \$5.95**
- 4842 Torx Wrench, T-7, Wiha \$5.95**
- 4843 Torx Wrench, T-8, Wiha \$5.95**
- 4844 Torx Wrench, T-9, Wiha \$5.95**
- 4845 Torx Wrench, T-10, Wiha \$5.95**
- 4846 Torx Wrench, T-15, Wiha \$5.95**

**4279 V-DrillGuide Hand Drill Guide for Inch Drills \$27.50**



- Drill guide is sized for drill bit sizes: 1/8" to 3/8"
  - 17 drill sizes - 1/64" increments
  - Special nickel alloyed steel heat treated for durability
- V-DrillGuide Hand Drill Guide by Big Gator Tools™ is like a portable drill press for precision alignment. The V-groove along the bottom of the guide allows for perpendicular alignment with all drill sizes on round parts or corners. The image shows both the top and bottom of the guide. The bottom surface is precision ground to assure stability and accurate perpendicular alignment on flat surfaces.

**4911 V-DrillGuide Hand Drill Guide for Metric Drills \$27.50**

**Tools & Things: Workwear**



**3968 Shop Apron \$13.95**

- 5 pockets designed for metalworking tools
- We had these aprons custom-made to our design out of heavy-duty denim.

**Videos and Books: Machinist Books**



**Machinists Books**

How-to guide books for machinists  
Visit our Web site for a full description of these titles.

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- 1739 Machine Shop Practice, Vol. 2 \$29.95**
- 3565 Metalworking Sink or Swim \$49.95**
- 1150 Basic Benchwork for Home Machinists \$14.99**
- 4735 Basic Lathework for Home Machinists \$14.99**
- 1165 Gears and Gear Cutting for Home Machinists \$12.99**
- 3402 Home Machinist's Handbook \$22.95**
- 1436 Lathework for Beginners \$29.95**
- 2465 Machine Shop Essentials: Questions & Answers \$44.95**
- 2366 Machine Shop Trade Secrets, Second Edition \$49.95**
- 5180 Machining for Hobbyists: Getting Started \$34.95**
- 4736 Metal Lathe for Home Machinists \$12.95**
- 4983 Metalworking - Doing It Better \$39.95**
- 1437 Milling for Beginners \$29.95**
- 4738 Milling for Home Machinists \$12.95**
- 4734 Mini-Lathe for Home Machinists \$12.95**
- 4739 The Metalworker's Workshop for Home Machinists \$14.99**
- 4737 The Milling Machine for Home Machinists \$14.99**
- 5839 Tool & Cutter Sharpening for Home Machinists \$12.99**
- 5102 Useful Machine Shop Tools to Make for Home Shop Machinists \$14.99**

**Videos and Books: Other Books**



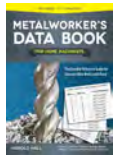
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**Videos and Books: Reference Books**



**Reference Books**

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1735 Basic Machining Reference Handbook	\$54.95
4996 Engineers Precision Data Pocket Reference	\$24.95
1744 Machinery's Handbook 31st Edition, Toolbox Size	\$119.95
5838 Metalworker's Data Book for Home Machinists	\$14.99
1953 Shop Reference for Students & Apprentices	\$29.95

**Videos and Books: Users Guides**



**Users Guides**

Users guides for the machines we sell as well as some others  
These are all available for free download on the Support menu.  
Visit our Web site for a full description of these titles.

2247 Mini Lathe Users Guide	\$5.95
2706 Mini Mill Users Guide	\$5.95
4928 Users Guide, HiTorque Bench Lathe, 3536 & 3540	\$5.95
4930 Users Guide, HiTorque Micro Mill, 2MT, 4700	\$6.55
4929 Users Guide, HiTorque Micro Mill, ER-16, 4660	\$5.95
4924 Users Guide, HiTorque Mini Lathe, 4100 & 4200	\$5.95
4927 Users Guide, HiTorque Mini Mill, Solid Column with Air Spring, 3990	\$5.95
4926 Users Guide, HiTorque Mini Mill, Solid Column, 3960	\$5.95
4925 Users Guide, HiTorque Mini Mill, Tilting Column, 3900	\$5.95
5098 Users Guide, KX1 Milling Machine, 3501	\$39.95
5099 Users Guide, KX3 Milling Machine, 3503	\$39.95

**Videos and Books: Videos**



3440 DVD: Shop Secrets, Volume 1: Measuring Tools \$39.95

- Teaches you to operate and maintain precision measuring equipment
  - Easy-to-understand words, diagrams, and three-dimensional graphics explain operation of the tools
  - Covers equipment that even experienced machinists may not know how to operate
- Shop Secrets, Volume 1 is a two-hour video on the use and care of machinist measuring tools and related machine shop operations. Produced for the beginning machinist, this video is in use at technical high schools in the US and in industry both in the US and the Far East.
- Topics include adjustable parallels, backlash, calipers, combination squares, optical comparator, dial indicators, edge finders, left-handed lead screw operation, micrometers, precision squares, radius gages, shop safety, small hole gages, thread gages, telescoping gages, thread pitch gages, vernier scales, vision assists, wigglers, steel rules.
- Running time: 1:52 hours.



**Jose Rodriguez Videos**

Jose Rodriguez publishes in depth videos about bench top machining.  
Visit our Web site for a full description of these videos.

2007 DVD: 7x10 Variable Speed Mini Lathe Operations	\$43.00
2566 DVD: Advanced Taig Micro Lathe Operations	\$43.00
2564 DVD: Basic Taig Micro Lathe Operations	\$33.00
2193 DVD: Building a Spindle Gauge for the Mini Lathe	\$33.00
2396 DVD: Grinding Tool Bits and Other Things	\$30.00
2057 DVD: Making Gears the Easy Way	\$43.00
2054 DVD: Threading on the Lathe	\$33.00
5344 DVD: Basic Operations On The HiTorque Mini Mill	\$18.00
4649 DVD: Basic uses for Dividing Instruments for the Mill	\$25.00
4518 DVD: Basic Vise Work Holding Techniques for the Mini Mill	\$20.00
4421 DVD: Cutting Balls & Radiuses on the Lathe	\$35.00
4743 DVD: Introduction to the Model 4100 HiTorque Mini Lathe	\$20.00
4635 DVD: Introduction to the Nano Lathe-Drillpress-Mill	\$15.00
4440 DVD: Mini Lathe Advanced Operations, Vol. 1	\$39.00

**Ron Takayama Videos**



Ron Takayama has created some videos that show you how to build some great projects. You get video instructions and complete plans on the DVD.

4077 DVD: Building a Horizontal Steam Engine	\$19.95
3820 DVD: Building a Vertical Boiler	\$19.95
4246 DVD: Building an Overcrank Steam Engine	\$19.95
4522 DVD: Building a Crosshead Overcrank Steam Engine	\$19.95

**SwarfRat Videos**



SwarfRat provides the hobby machinist with top-notch instruction that is both easy to understand and enjoyable to watch. They take the subject of metalworking and break it down into easily understood lessons; lessons that are chock-full of on-camera demonstrations, on-screen charts, animations, and 3-D computer simulations, all designed to make sure you can visualize and understand the concepts and techniques. Our lesson format is good for those of you who have some experience too; you can pick just the topics you need a little help with.

Visit our Web site for a full description of these videos.

3484 DVD: Building the Oscillating Cylinder Steam/Air Engine	\$26.95
3141 DVD: Mini Machines 101 Complete Mill Series	\$129.95
2537 DVD: Teardown, Tuning & Trimming	\$24.95
3123 DVD: Work Holding on the Mini Lathe	\$24.95

**Vises: Accessories**



3070 Soft Jaws, 3" Vise	\$14.95
<ul style="list-style-type: none"> <li>• Aluminum soft jaws fit 3" vises</li> <li>• Magnets hold jaws firmly in place</li> <li>• Magnets are removable for easy cleaning</li> <li>• V-groove for round objects</li> <li>• Includes two aluminum jaws</li> </ul>	
3" Hardened aluminum soft vise jaws designed to protect work from scratching. Mount onto a 3 inch vise with magnets which can be removed for cleaning. The jaws have a V-groove for round objects. Set includes two aluminum jaws.	
3443 Soft Jaws, 4" Vise	\$15.95

**Vises: Accessories**


	<b>2066 Soft Jaws, 3" Vise, Prism Face</b>	<b>\$7.02</b>
	<ul style="list-style-type: none"> <li>Aluminum soft jaws fit 3" vises</li> <li>Magnets hold jaws firmly in place</li> <li>Magnets are removable for easy cleaning</li> <li>V-groove for round objects</li> <li>Vertical groove for marking out</li> </ul> <p>3" Aluminum soft vise jaws designed to protect work from scratching. Mount onto a 3 inch vise with magnets which can be removed for cleaning. The jaws have a 120 degree horizontal V-groove for round objects, and a vertical groove for marking out and center punching. Set includes two hardened aluminum jaws.</p>	
	<b>2067 Soft Jaws, 4" Vise, Prism Face</b>	<b>\$9.00</b>
	<b>2068 Soft Jaws, 3" Vise, Rubber Face</b>	<b>\$9.00</b>
	<ul style="list-style-type: none"> <li>Aluminum soft jaws fit 3" vises</li> <li>Synthetic rubber cover</li> <li>Magnets hold jaws firmly in place</li> <li>Magnets are removable for easy cleaning</li> <li>Includes two aluminum jaws</li> </ul> <p>3" Aluminum soft vise jaws designed to protect work from scratching. Mount onto a 3 inch vise with magnets which can be removed for cleaning. The jaws have a synthetic rubber cover for extra protection and firm grip. Set includes two hardened aluminum jaws.</p>	
	<b>2069 Soft Jaws, 4" Vise, Rubber Face</b>	<b>\$9.60</b>

**Vise Comparison**

See the vise comparison chart at [www.littlemachineshop.com/vise](http://www.littlemachineshop.com/vise).

**Vises: Milling Vises**

	<b>2045 Swivel Base, 3" Precision Milling, Heavy</b>	<b>\$29.95</b>
	<ul style="list-style-type: none"> <li>Detachable swivel base features easy to read divisions</li> <li>Ground top and bottom</li> </ul> <p>This swivel base fits our 3" Precision Milling Vise, Heavy</p>	
	<b>2239 Swivel Base, 4" Precision Milling, Heavy</b>	<b>\$36.95</b>
	<b>1647 Vise, 3" Milling</b>	<b>\$64.95</b>
	<ul style="list-style-type: none"> <li>Jaw Width 3.15" (80.0 mm)</li> <li>Jaw Depth 1.18" (30.0 mm)</li> <li>Swivel Base</li> <li>Maximum Jaw Opening 2.56" (65.0 mm)</li> </ul> <p>This 3" milling vise is good for general mill work.</p>	
	<b>2500 Vise, 3" Precision Milling</b>	<b>\$99.95</b>
	<ul style="list-style-type: none"> <li>Detachable swivel base</li> <li>360 degree rotation</li> <li>Ground and hardened jaws</li> <li>Jaw width 3.15" (80 mm)</li> <li>Jaw depth 0.93" (23.5 mm)</li> </ul> <p>Precision 3" Kurt-style milling vise with swivel base. The top, bottom of vise bed, gib, jaws, swivel base, and all plate mounting surfaces are ground. The jaws of this precision milling vise are hardened and ground. The detachable swivel base allows 360 degree rotation of the vise.</p>	
	<b>3969 Vise, 3" Precision Milling Plus Parallels and Mounting Kit</b>	<b>\$129.95</b>
	<b>2024 Vise, 3" Precision Milling, Heavy, No Swivel Base</b>	<b>\$115.95</b>
	<ul style="list-style-type: none"> <li>Precision 3" Kurt-style milling machine vise</li> <li>No swivel base</li> <li>Hardened replaceable jaws</li> <li>The top, bottom of vise bed, gib, jaws, swivel base, and all plate mounting surfaces are ground</li> </ul> <p>3" Kurt-style milling vise. Top, gib, jaws, bottom of vise bed and all plate mounting surfaces are ground. The angle tight positive lock style jaws are hardened and ground, and can be mounted on either end of the fixed and movable jaw providing a wide range of clamping distances. Overall length is 10.85" and the height is 3.05". Jaws are 3.15" wide, 1.04" deep, open 3", and are perpendicular to the ways within 0.002" in 4". The ways are parallel to the base within 0.0006" in 4".</p>	

	<b>1699 Vise, 3" Precision Milling, Heavy, with Swivel Base</b>	<b>\$134.95</b>
	<ul style="list-style-type: none"> <li>Precision 3" Kurt-style milling machine vise</li> <li>Detachable swivel base features easy to read divisions</li> <li>Hardened replaceable jaws</li> <li>The top, bottom of vise bed, gib, jaws, swivel base, and all plate mounting surfaces are ground</li> </ul> <p>Precision Milling Machine Vise: 3" Kurt-style milling vise with detachable 360° swivel base and easy to read divisions. Top, gib, jaws, swivel base, bottom of vise bed and all plate mounting surfaces are ground. The angle tight positive lock style jaws are interchangeable with industry standard machine vises, are hardened and ground, and can be mounted on either end of the fixed and movable jaw supports for a wide range of clamping distances.</p>	
	Overall length is 10.85" and the height is 3.05" without base, and 4.21" with base. Jaws are 3.15" wide, 0.94" deep, open 3", and are perpendicular to the ways within 0.002" in 4". The ways are parallel to the base within 0.0006" in 4" without the swivel.	
	<b>1789 Jaws, 3" Precision Milling Vise</b>	<b>\$22.95</b>
	<b>3710 Jaws, 4" Precision Milling Vise</b>	<b>\$25.95</b>
	<b>3070 Soft Jaws, 3" Vise</b>	<b>\$14.95</b>
	<b>4972 Vise Mounting Kit, 1/2" T-Slot</b>	<b>\$12.95</b>
	<b>5670 Vise Mounting Kit, 3/8" T-Slot</b>	<b>\$9.95</b>
	<b>3125 Vise Mounting Kit, 7/16" T-Slot</b>	<b>\$9.95</b>
	<b>1879 Vise, 4" Precision Milling, Heavy, No Swivel Base</b>	<b>\$139.95</b>
	<b>1755 Vise, 4" Precision Milling, Heavy, with Swivel Base</b>	<b>\$154.95</b>
	<b>2061 Vise, 5" Precision Milling, Heavy, with Swivel Base</b>	<b>\$229.95</b>

	<b>4740 Vise, 3" Precision Milling, Professional Grade</b>	<b>\$234.95</b>
	<ul style="list-style-type: none"> <li>Totally enclosed heat treated screw</li> <li>High repeatability</li> <li>Detachable swivel base features easy to read divisions</li> <li>Hardened jaws</li> </ul> <p>This is a very well-made precision 3" Kurt-style milling machine vise with a swivel base. The top, bottom of vise bed, gib, jaws, swivel base, and all plate mounting surfaces are ground. The jaws are hardened and ground. The detachable swivel base features easy to read divisions. The replaceable jaws can be mounted on either end of the fixed and movable jaw supports providing a wide range of clamping distances.</p>	
	<b>4733 Vise, 4" Precision Milling, Professional Grade</b>	<b>\$276.95</b>
	<b>3951 Vise, 5" Precision Milling, Professional Grade</b>	<b>\$319.95</b>
	<b>3857 Vise, 4" CNC Mill</b>	<b>\$242.95</b>
	<ul style="list-style-type: none"> <li>Lock down type</li> <li>Compact size allows multiple vises on CNC mill table</li> <li>Flatness of all sides within 0.001"</li> <li>Mount upright, or on left or right sides</li> <li>Sides parallel within 0.0005" in 4"</li> </ul> <p>This vise is designed for CNC milling machines where a swivel base is never required. The compact size allows you to mount multiple vises on the CNC mill table so you can machine several items in one setup. The vise closes with up to 3000 lbs. of clamping force. The vise is 4.13" wide, 11.25" long, and 4" tall. The jaws are 1.5" deep and open 4".</p>	
	<b>5590 Vise, 3" CNC Mill</b>	<b>\$179.95</b>

**Vises: Milling Visers**

**4834 Vise, 5" CNC Mill, Tormach \$405.00**



- Lock down type
- Compact size allows multiple vises on CNC mill table
- Flatness of all sides within 0.001"
- Mount upright, or on left or right sides
- Sides parallel within 0.0005" in 4"

A versatile and compact 5" CNC Vise that can be mounted upright or on either side. Includes a Bridge Clamp for compact side by side mounting - up to 3 vises on the PCNC 1100 or 2 vises on the PCNC 770. Also features 6 tapped holes for mounting to base plate or trunnion. Vise includes cast steel handle, not shown here.

**2199 Vise, 4" CNC Mill, Tormach \$335.00**

**Vises: Other Visers**

**4140 Vise, 2.5" Drill Press \$24.95**



- Cast iron construction
- Vertical and horizontal V-grooves in fixed jaw
- 2.5" jaw opening
- 2.5" jaw width
- 1.5" jaw depth

2.5" Drill press vise. Cast iron construction with vertical and horizontal V-grooves in fixed jaws. Jaws open 2.5" (63.5 mm) and are 2.5" (63.5 mm) wide. Jaw depth is 1.5" (38.1 mm).

**4139 Vise, 1.5" Drill Press \$19.95**

**4141 Vise, 3" Drill Press Quick Slide \$37.95**



- 3" wide jaws
- 1/2" slot for mounting
- Precision ground
- Jaw depth 1"

With this quick-slide vise for your drill press, you slide the jaws against your workpiece and lock it into place with the lever for a secure hold. The 1/2-inch slot allows the vise to be mounted to nearly any machine table using common T-slot clamps. Made of high grade stress-relieved iron casting.

**3643 Vise, 3.5" Tilting, 0-90 Degree \$52.95**



- Full 90° horizontal to vertical adjustment
- Multiple bolt slots in base for easy mounting
- Angle dial on one side and locking knob on opposite side
- Made from strong cast iron
- Has a rail for secure angle adjustments

The jaws are 3.5" wide, 1.25" deep, and open to 3.25" capacity. The front and rear slots are 0.5" wide. The corner slots are 0.4" wide.

**3524 Vise, Universal Movement \$989.95**



This fixture is composed of two parts; a precision vise and a swivel angle plate base  
 Vise revolves 360° horizontally with 3' engraved graduations and 45° vertical with 3' engraved graduations  
 Hex wrench included for locking vise at any position  
 Vertical angle can be adjusted with fine adjustment knob  
 Hardened and precision ground parallel and square within 0.0004"  
 Unique universal movement for precision grinding, machining, boring and other applications

**Vises: Screwless Visers**

**1590 Vise, 3" Screwless \$78.95**



- Hardened and Precision Ground
- Square and Parallel within 0.0002"
- Ground "V" Way

This high precision toolmakers screwless vise has a one-piece body. The body and jaws are hardened to Rc 58-62. All sides are flat, square and parallel to 0.0002". There are horizontal and vertical vees on the inside face of the movable jaw to hold round objects. The jaws are 1.38" deep and open to 3.78" capacity. The vise is 7.28" long, 2.76" tall and 2.875" wide.

**2675 Clamps, Screwless Vise \$28.95**

**3142 Vise, 1" Screwless, Built-in Parallels \$39.95**

**3949 Vise, 1" Screwless, Square Jaws \$42.95**

**3950 Vise, 1.5" Screwless \$54.95**

**1591 Vise, 2" Screwless \$54.95**

**3769 Vise, 2" Screwless with 3" Thin Parallels \$74.95**

**3763 Vise, 3" Screwless plus Parallels and Mounting Clamps \$123.95**

**2356 Vise, 3" Screwless with Clamping Slots \$107.95**

**3767 Vise, 3" Screwless with Hold Down Clamps \$97.95**

**1756 Vise, 3" Screwless Sine \$149.95**



- Sine range: 0-60°
- Hardened and precision ground
- Tolerance of .0004" center to center
- Jaw can be opened or closed without unbolting from work surface

3" Precision screwless sine vise. Jaw width is 2.9" (73 mm), jaw depth is 1.4" (35 mm), jaw opening is 4" (100 mm). The base size is 7" x 2.9" (190 mm x 73 mm) The center distance of the cylinders is 100.00 mm. Hardened and precision ground to a tolerance of .0004" for both parallelism and squareness. Sine range: 0 - 60°. Jaw can be opened or closed without unbolting vise from work surface.

**1757 Space Block Set \$79.95**

**4216 Vise, 3" Sine Screwless & Space Block Set \$196.95**

**4871 Vise, 3" Screwless with Clamping Slots - BLEM \$102.95**



- These vises have blemishes--cosmetic defects but function normally

This high precision toolmakers screwless vise has a one-piece body. The body and jaws are hardened to Rc 58-62. All sides are flat, square and parallel to 0.0002". There are horizontal and vertical vees on the inside face of the movable jaw to hold round objects.

This screwless vise has slots along the sides so you can clamp it to the mill table with a clamping kit.

The jaws are 1.357" deep and open to 3.94" capacity.

The vise is 7.72" long, 2.76" tall and 2.875" wide.

**3583 Z-Clamp \$6.73**



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Purchaser		Ship to (if different)	
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Qty	Part number	Description	Unit price	Total
Subtotal				
Sales tax CA (8.75%), CO (7.65%), GA (7.25%), IL (6.25%), IN (7%), KY (6%), LA (10%), MD (6%), MI (6%), MN (7.5%), NC (7%), NJ (6.63%), NV (8.25%), OH (7.25%), PA (6%), UT (7%), VA (5.75%), WA (9.25%), WI (5.5%)				
Shipping & handling (see table below)				
Total				

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Less than \$25.00	\$7.00
\$25.00 to \$49.99	\$9.00
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\$150.00 to \$399.99	8% of subtotal
\$400.00 or more	6% of subtotal

Ground service to US addresses only. Contact us for rates for other services and destinations.

### Web

For next-day shipping and secure credit card payment, place your order on our web site: [www.LittleMachineShop.com](http://www.LittleMachineShop.com)

### Mail

Mail your order with your credit card information or a check to LittleMachineShop.com, 396 W Washington Blvd #500, Pasadena, CA 91103

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Call us at 800 981 9663 or 626 797 7850 to place your order.

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