

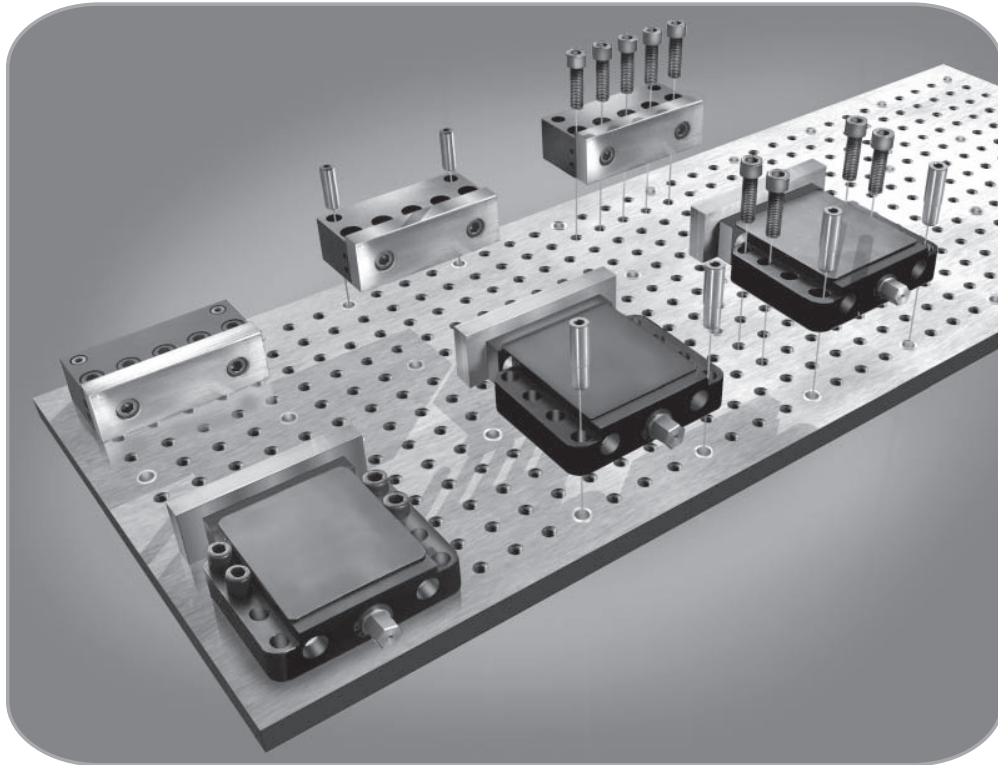
STEVENS



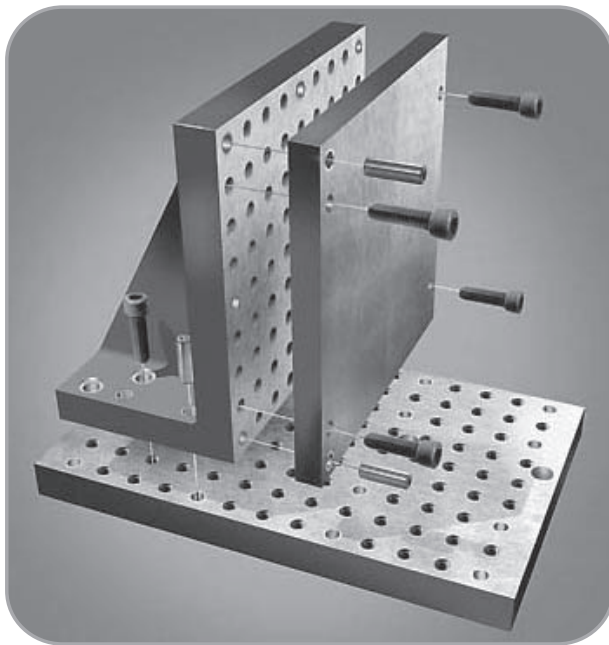
Modular Fixturing System
for vertical machining centers

Stevens Engineering Inc.
www.stevenseng.com

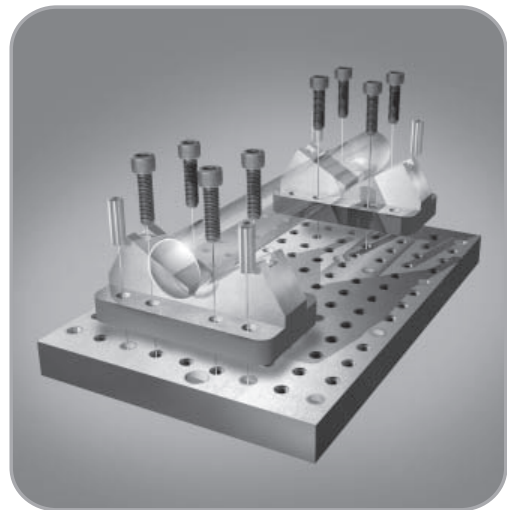
STEVENS SUBPLATES



Spacing of hole patterns on Stevens accessories is identical to the pattern on Stevens Subplates.



Insertion of the pull dowels thru bushed holes in the accessory into corresponding bushed holes in the subplate assures accurate alignment and X and Y location.

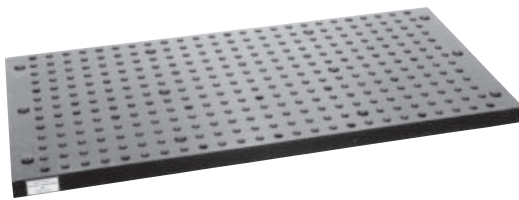


Fastening the accessory to the subplate is done with cap screws which pass thru clearance holes in the accessory into corresponding threaded holes in the subplate.

STEVENS SUBPLATES

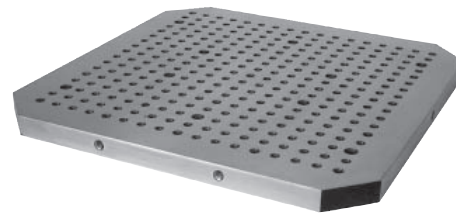
Stevens Subplates set the industry standard for accuracy and versatility. Users can save 15 minutes to 2 hours on every fixture setup. **Over 300 shapes and sizes of Subplates are available** to fit any make or model of vertical or horizontal spindle mills.

- Jig bored bushed holes and threaded holes form the basic Stevens patterns for mounting modular accessories.
- Subplate is permanently aligned to machine axes and becomes an accurate reference for machine setups.
- Accuracy of grid eliminates the need for indicating or probing.
- Stevens Subplates are precision ground to a parallelism of .0005" per 40".
- Counterbored clearance holes to fit the T-slot or threaded hole pattern on any make and model of milling machine are included.



VERTICAL SPINDLE MILLS

Subplate alignment to the machine axes is generally done with an indicator in the machine spindle by referencing two subplate bushings. Additional locating features are also available if desired.



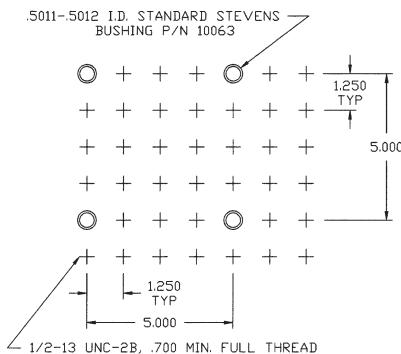
HORIZONTAL SPINDLE MILLS

Subplate locating features to match machine pallet locators are recommended to simplify positioning and alignment of Subplates on horizontal mills.

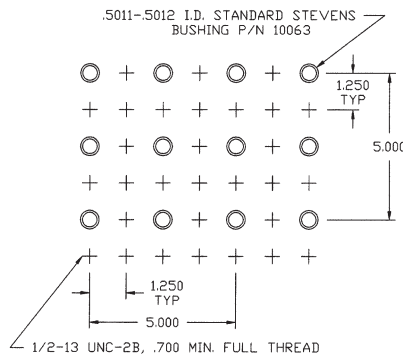
STEVENS PATTERN OPTIONS

Stevens Subplates are available with several variations of the same basic hole pattern. All Stevens Subplates will have clearance holes for attachment to the machine table spaced specifically for the machine for which it is intended.

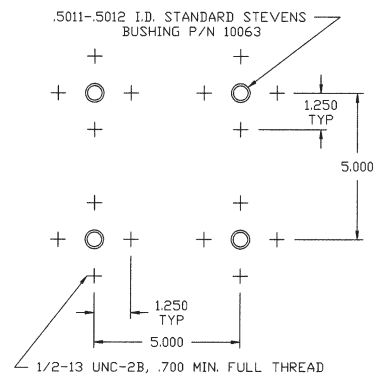
STANDARD PATTERN consists of 1/2-13 tapped holes on 1.250 centers and .5011-.5012 I.D. bushings on 5.000 centers. It is the most widely used pattern and may be used for mounting any Stevens accessory.



HIGH DENSITY PATTERN is basically the same as the Standard Pattern except that bushings are on 2.500 centers providing more locating positions.



CLUSTER PATTERN has an abbreviated hole pattern which is used with most Stevens accessories. It offers the same level of accuracy at a lower cost.



OTHER PATTERNS such as combination holes (bushings positioned over threaded holes) and ball-lock installations can be quoted upon request.

SYSTEM ACCURACY

Stevens Modular Fixturing is built to the highest standards for accuracy. Mitsui Seiki, SIP, and DIXI jig-boring machines, operating in a temperature controlled area, are used to produce exceedingly accurate hole patterns. Frequent calibration of these machines and other inspection equipment assures consistent accuracy.

Prior to finish boring and final inspection, modular components are placed in the environmentally controlled area. This assures exact correspondence between measurement standards and the finished product.

ACCURACY OF GRID

Bushings (All locating holes are bushed)

Inside Diameter +/- .000050"

Concentricity .0001" TIR

Dowel Pin Diameter +/- .000050"

Span	30" span	45" span	60" span
Jig-Bored Hole Position	.00015	.00025	.00035
Bushing Concentricity (1/2 TIR)	.00005	.00005	.00005
Bushed Hole Centerline Accuracy=	+/- .0002	+/- .0003	+/- .0004

Clearance Between Dowels and Bushings
minimum .0004" • maximum .0006"

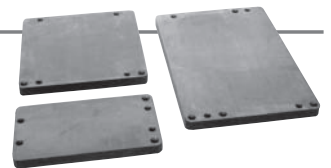
Accommodates span, concentricity, and diameter tolerances to assure 100% interchangeable assembly.

ACCURACY OF SURFACES

Parallelism of Qualified Surfaces .0005"/40"

STEEL & ALUMINUM TOOLING PLATES

- Designed for use in making permanent holding fixtures which can quickly and repeatedly be mounted on Stevens subplates, parallels, angle plates, etc.
- Available from stock for quick fixture turnaround.
- Steel plates are precision ground flat within .001", and parallel within .0005". Aluminum plates are controlled on thickness to +/- .005".
- Jig bored and bushed locating holes provide for accurate mounting. Aluminum Plates use one standard bushing and one Span-Comp bushing to provide precise position and repeatability when mounted on Stevens subplates. Span-Comp bushings precisely locate the plates while allowing for greater thermal expansion of aluminum relative to steel.

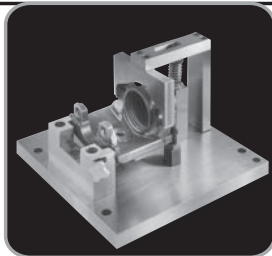


Steel Tooling Plates

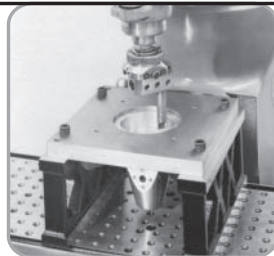


Aluminum Tooling Plates

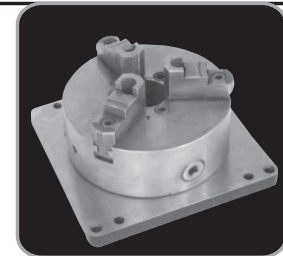
Applications



This brake caliper fixture made with Stevens Tooling Plate will quickly dowel to the primary table tooling.

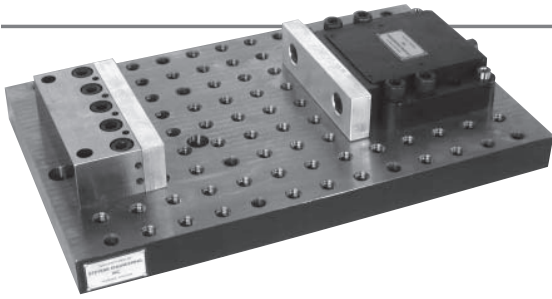


A bridge fixture uses Stevens Tooling Plates and parallels which pin together for quick alignment to machine axes.

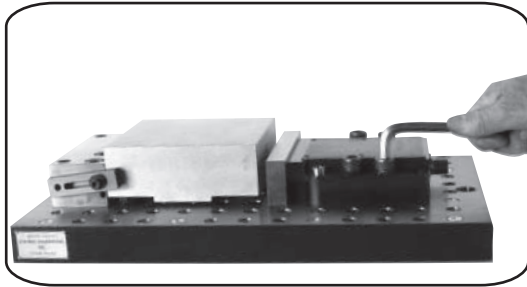


Stevens Tooling Plates are ideal for mounting chucks or collet fixtures to primary table tooling.

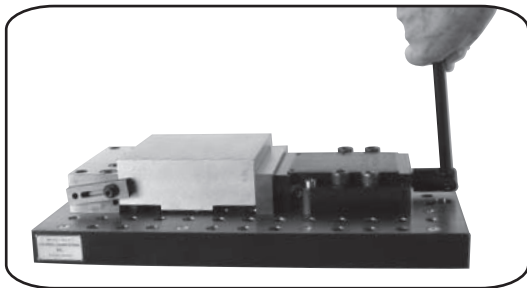
STEVENS MODULAR VISES



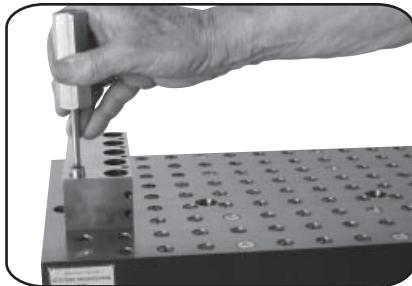
Subplate ordered separately.



The vise is furnished with a hardened movable jaw plate. The fixed jaw is already fully hardened.



Designed for use on Stevens grid patterns, the separate fixed and movable jaw assemblies may be positioned at any desired interval allowing a wide range of workpiece lengths to be held.



Pull dowels inserted through bushed holes in the fixed jaw and into corresponding holes below align the jaw face parallel to X, Y, or Z machine axes. When several vises are mounted, the fixed jaw faces will lie in the same plane.

MODEL 626 (P/N 20210)

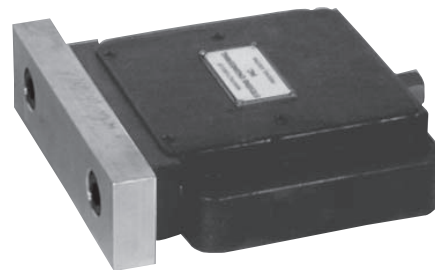
A pull-down mechanism prevents the work from rising as the vise is tightened.

The faces of the fixed and movable jaw assemblies are designed to allow mounting KURT style hard and soft jaws.

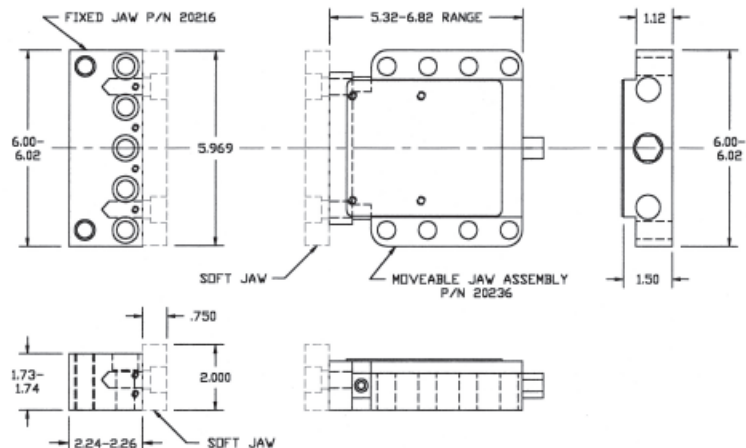
Model 626 Features

- Compact design makes handling easy and setup quick.
- Use of high strength materials assures durability under heavy use and retention of accuracy over years of service.
- Included with the Model 626 Vise are the fixed jaw, the movable jaw assembly, hinge handle, work stop, mounting hardware and instruction sheet.
- Stevens rest pads and shim sets are used to elevate the work to the desired height.

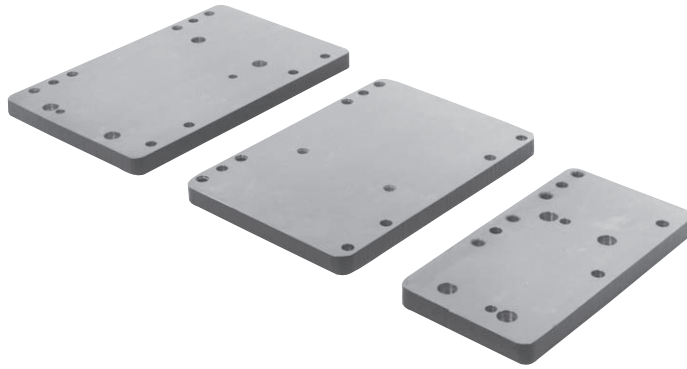
For more detailed information, please visit our web site.



The movable jaw assembly may be ordered separately.



STEVENS VISE ADAPTERS

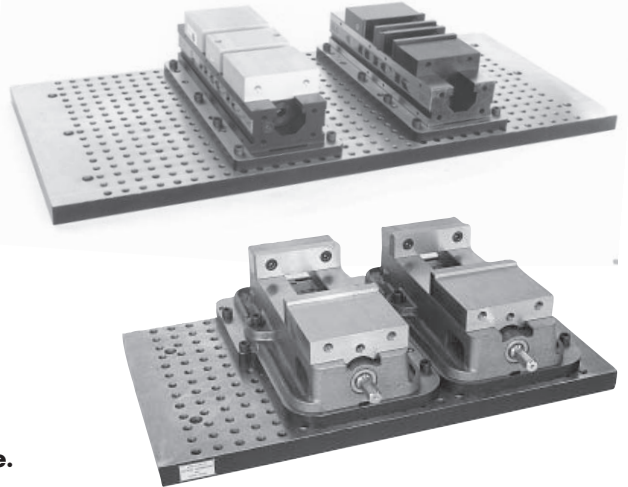


- Stevens pull dowels inserted through bushings in the adapter into bushed holes in the primary component below aligns the fixed jaw with respect to the X or Y axes.
- With multiple vise setups, fixed jaw locations will lie in the same plane using Stevens Vise Adapters.
- Stevens Vise Adapters are precision ground to a uniform height.

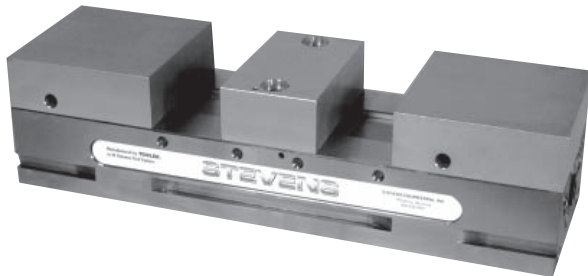
For more detailed information, please visit our web site.

Quick, accurate and repeatable vise setups are easy with vises mounted on Stevens Adapters.

Stevens Vise Adapters are available for a number of different makes and models of vises including KURT, TOOLEX, and CHICK.



STEVENS TWO STATION VISE



Two-Station Vise (P/N 20235)

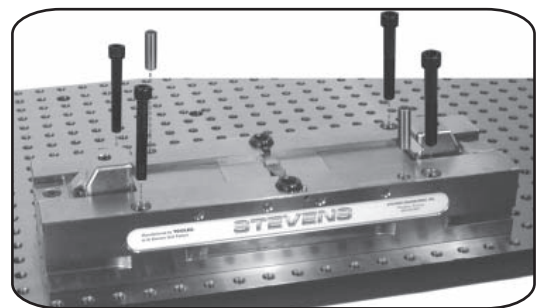
Hardened ductile-iron vise with machinable **TOOLEX**-style aluminum jaws will clamp either one or two workpieces for machining.

Includes vise with soft jaw set, vise handle, and tool kit.

Unlike competitors' vises, which must be awkwardly lifted up to load over pins or keys for alignment, the Stevens Two Station Vise may be slid into position. Pull dowels are inserted from the top to align with bushings in the subplate below.

Two Station Vise Features

- Fits standard Stevens grid pattern.
- Vise mounts with pull dowels and cap screws parallel to either X or Y axes—no need to align the vise.
- Quicker and more repeatable setup changes.
- Fixture offsets may be stored and downloaded instead of being indicated manually.
- Soft jaws can be easily machined to any configuration.
- Movable and fixed jaws are reversible.
- Hard jaw sets are also available.
- All jaw sets snap in easily and repeatedly.

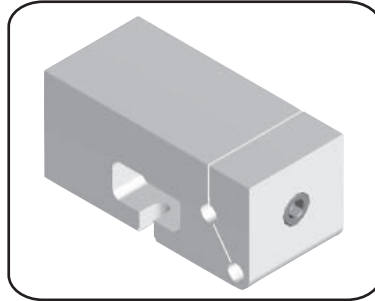


STEVENS SOFT BRICK VISE

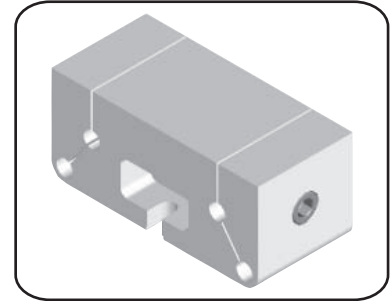
SOFT-BRICK VISE

(PATENT PENDING)

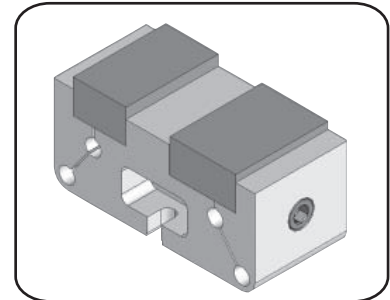
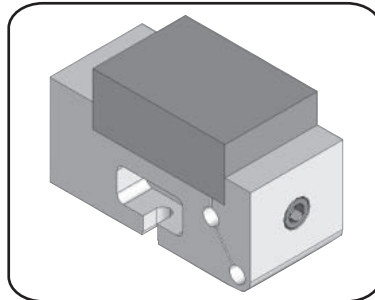
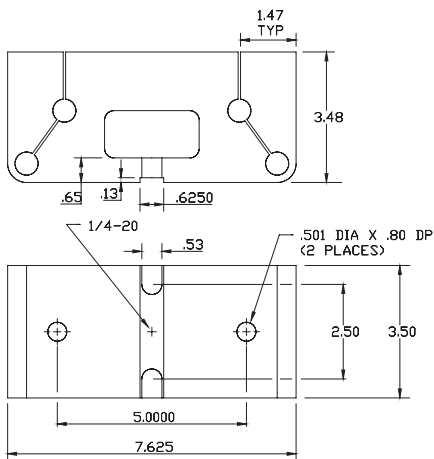
A totally new concept in workholding, the Stevens Soft-Brick vise eliminates the need for changing jaws on soft jaw vises. The vise needs no soft jaws because the vise itself is a soft jaw. Made from 6061 aluminum, the low cost vise can be machined by users with cavities to fit specific workpieces.



1-Station Soft-Brick Vise (P/N 20222)

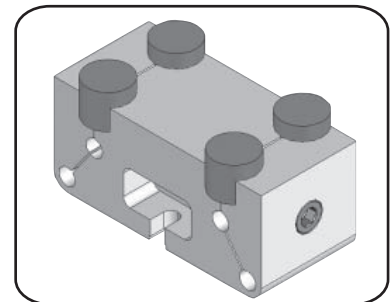
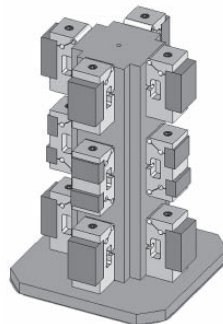


2-Station Soft-brick Vise (P/N 20223)



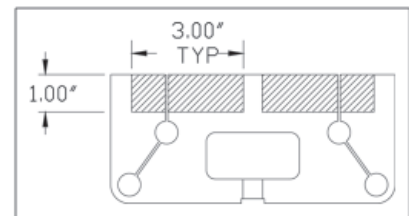
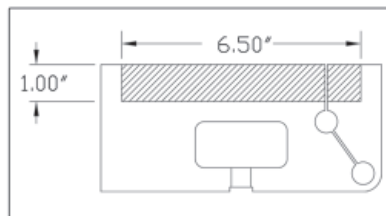
Soft-Brick Vise Design Features

Patent-pending design incorporates a jaw lock pin to clamp the empty vise while machining the cavity. Then the jaw-lock pin is removed and the workpiece can be clamped with up to 5,000 lbs. of clamping pressure. Hardened steel male and female threads and thrust bearing provide durability.

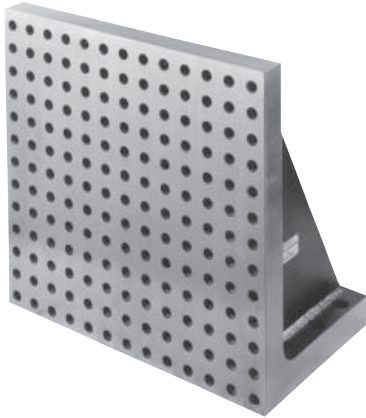


- Compact and easy to mount.
- Soft-Brick vises weigh only 9 lbs. and may be used for small workpieces or can be ganged together for larger workpieces.
- A universal mounting pattern will fit onto any Stevens subplate grid pattern, and T-slotted machine table, or onto the faces of a tombstone.

MACHINABLE AREA

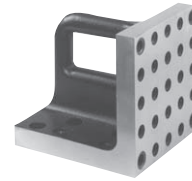
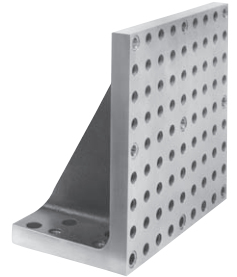


STEVENS ANGLE PLATES & ADJUSTABLE ANGLE PLATES



ANGLE PLATE FEATURES

- Base pattern of Stevens Angle Plates consists of bushed holes and clearance holes for pull dowels and cap screws.
- Bushing locations are qualified relative to the vertical face and bottom face.
- Material: Ductile iron or steel; angle plates smaller than 12" in height are hardened.
- Custom sizes are available.
- Accuracy: Perpendicularity .0005"/12"
Flatness: .0003"/12".



Application

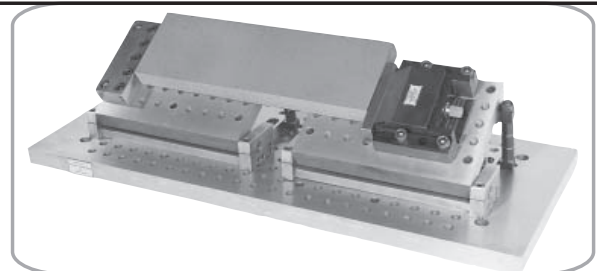
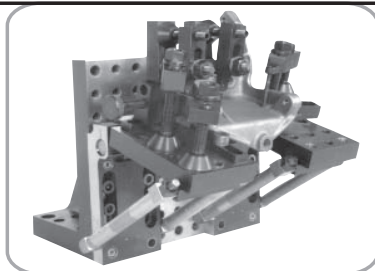


Faces of multiple Angle Plates will lie in the same plane when mounted on a Stevens Subplate.

ADJUSTABLE ANGLE PLATE FEATURES

- Any Angle from 0 to 90 can be set using shims and studs, both of which are furnished with each unit.
- Tabulation sheet shows shim stack required for setting any angle.
- Stevens patterns in base and on face allows use with other Stevens accessories.
- Compound angles may be achieved by stacking Adjustable Angle Plates.

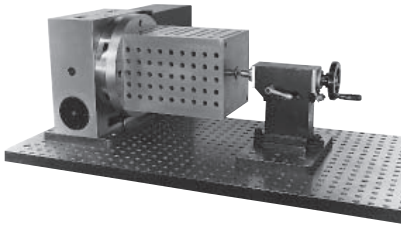
Applications



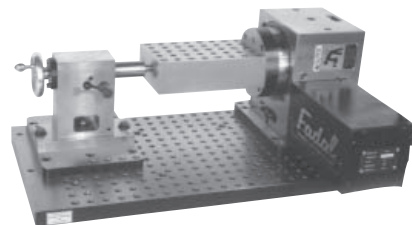
STEVENS APPROACH TO 4TH AXIS FIXTURING

Stevens 4th axis accessories include 4-Sided Columns with the standard hole pattern, Plain Columns, 2-Sided Plates, and standard pattern Subplates to fit headstock faceplates.

- 4th axis headstock and tailstock can be quickly mounted or removed using Stevens adapter plates.
- Once the unit is installed on the adapter plate, insertion of pull dowels assures precise alignment of the headstock and/or tailstock with the machine axes.



Stevens 4-Sided Column is shown above mounted on Haas headstock and tailstock.



The 2-Sided Plate (shown above) is advantageous for larger workpieces requiring greater swing clearance.

STEVENS UTILITY BLOCKS

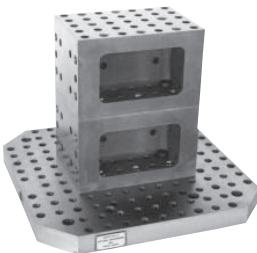
Large Utility Blocks (P/N 20160)



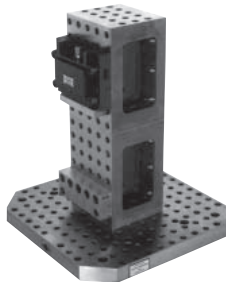
Small Utility Blocks (P/N 20066)

Used to establish qualified surfaces for modular setups.

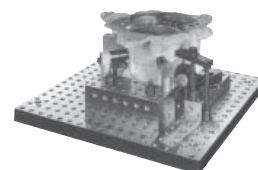
- May be screwed and doweled to other Stevens components.
- Height and length are qualified; perpendicularity of faces allows Utility Blocks to be used as angle plates. They may also be used as parallels.
- 8 bushings are pass thru bushings, allowing stacking. Doweling them together assures that bushing true position is maintained and that all edges will stay in the same plane.
- Pass thru bushings have a spring retainer, preventing dowels from dropping through unless pushed through.



Two Utility Blocks may be stacked to create larger structures as shown. Bushing locations are accurately held relative to qualified edges. When doweled together, this means that adjoining qualified surfaces will lie in the same plane.



Qualified edges of Small Utility Block are used here to establish secondary and tertiary locations.



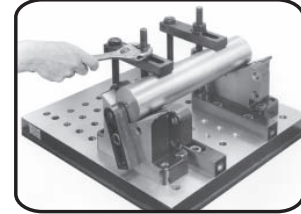
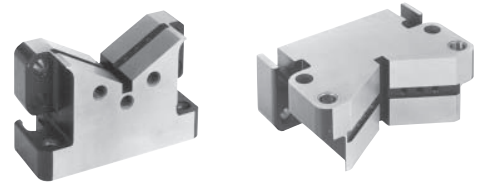
Bushings on top of Small Utility Block are used here to position Flat Edge Locators.

STEVENS VEE BLOCKS

Vee Blocks (P/N 20065)

Used to position round or irregular workpieces in either vertical or horizontal orientation.

- Mounts on any standard Stevens pattern with pull dowels and hex head screws.
- Height and centerline are precisely qualified relative to mounting bushings.
- Slots on 120 degree surfaces accepts Extenders or Serrated Grippers.
- Centerline height adjustment can be made by using Shims or Risers under the Vee Block or using Extenders.

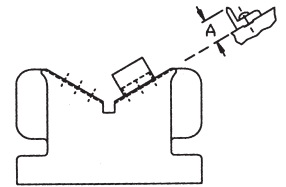
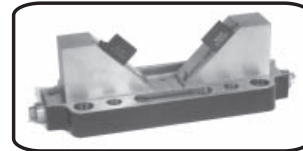


Adjustable Vee Blocks (P/N 20129)

Used for infinitely variable centerline height adjustment.

Vee Block Extenders

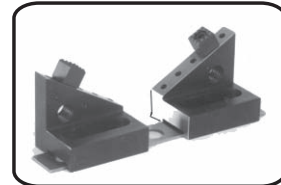
Used with Vee Blocks to reach around cast bosses and ribs or to raise centerline height of workpiece.



Vee Block Extenders may be used where access to the O. D. is limited by cast bosses or ribs.

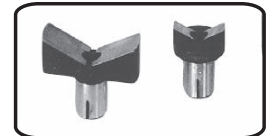
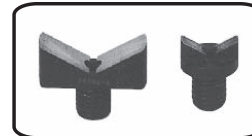
Vee Sets

Used in pairs as a fully adjustable vee locator, includes right and left half vees together with a Stevens slide key which fits precision slots in underside of vee sets.



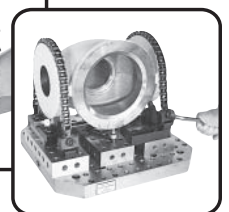
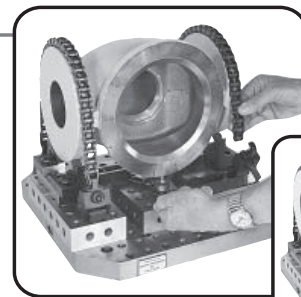
Vee Locators

Used for locating smaller diameter workpieces.



STEVENS CHAIN CLAMP

- Fast initial setup. Socket head cap screws are used for mounting each end of the chain clamp to a subplate or T-slotted table.
- Each standard duty kit P/N 20149 (clamping force up to 6,000 lbs.) includes a cam-locking hook assembly P/N 20150, a take-up unit P/N 20151 for adjusting chain tension, and a chain set P/N 20152. Any length chain up to 40 inches can thus be quickly assembled for various workpiece diameters.
- Each heavy duty kit P/N HD20149 (clamping force up to 12,000 lbs) includes a cam-locking hook assembly P/N HD20150, a take-up unit P/N HD20151, and a chain set P/N HD20152.
- Additional lengths of roller chain may be added for holding extra large workpieces.



The modular fixture above utilizes two chain clamps to secure the valve body casting. A standard Allen wrench is used to operate the cam-locking hook assembly.

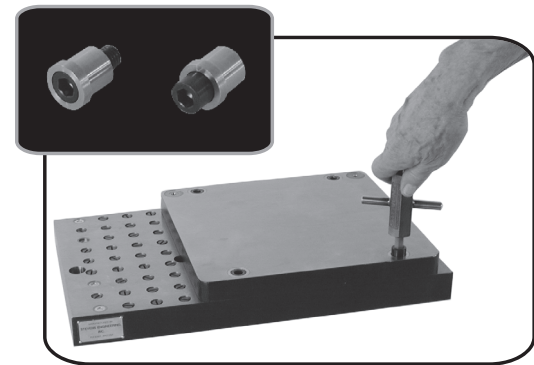
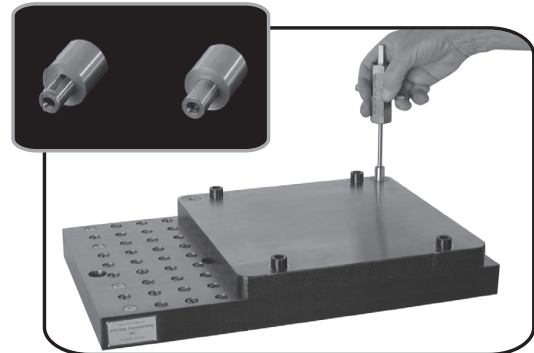


STEVENS LOCATOR CAPSULES

SAVE LOST TIME IN MAKING SETUP CHANGES AND ROUNDING UP LOOSE DOWELS & SCREWS.

Captured screw and captured dowel assemblies are permanently installed in holding fixtures for location and attachment to a subplate, base plate, or machine table. Captured dowels are retained in precision bushings which are installed in the fixture. Two captured dowel assemblies align the fixture when the dowel is pushed into a bushing or bored hole in the surface below. Captured screws are retained in a housing which is installed in the fixture. Two or more captured screws holds the fixture in place.

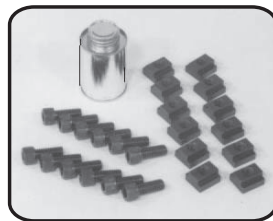
- When inserted into corresponding holes below, locator capsules lie flush with the fixture surface eliminating cutter path interference.
- In captured dowel assemblies, concentricity between the pull dowel and the O.D. of its bushing is held to .0003, providing exceptional location accuracy.
- The pull dowel may be removed from its bushing if necessary by taking out the retaining screw on its lower end.
- The captured screw assembly is protected from contaminants with a seal near the top of the housing.
- The screw may be removed if necessary by pushing the screw upward past the seal.
- A spring actuated mechanism in the screw pushes it upward near the top of its travel, preventing the screw from hanging up in the threaded hole below.



STEVENS WORKHOLDING ACCESSORIES

Stevens Installation Kit

Installation Kits include the hardware required to mount your Stevens subplate onto your machine table. The kit includes cap screws and T-nuts sized to fit machine T-slots, and also a can of rust preventative oil which can be applied to the under surface of the subplate.



Precision Bushings (P/N 10063)

Used in Stevens Fixturing and in fixtures which must be compatible with Stevens Fixturing.



Precision Pull Dowels (P/N 10062)

Used to locate accessories on subplates.



Pull Dowel Extractor (P/N 20027)

Slide hammer used to insert and remove Stevens Pull Dowels and other components.



Chip Plugs:

Threaded Holes (P/N 10126)

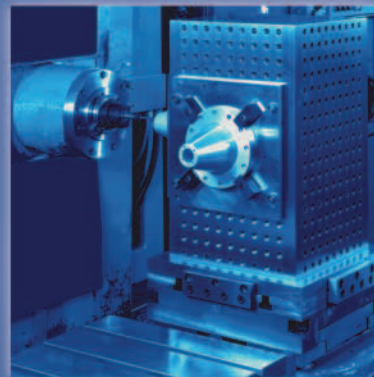
Bushed Holes (P/N 20139)

Keeps chips and dirt out of unused holes, making tooling easier to work with.



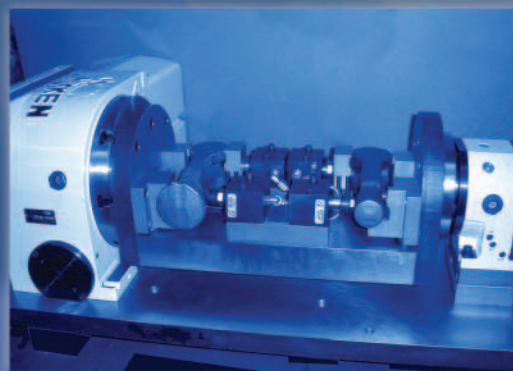
Stevens offers a wide range of solutions
proven to raise productivity.

Workholding for
Horizontal Machining Centers.



Stevens Modular Components
are used to quickly build fixtures.

Larger production quantities may
require dedicated fixtures.
Stevens designs and builds
fixtures with hydraulic, pneumatic,
or manual clamping.



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