



PRECISION SHOP TOOLS



# SURFACE GAGES

## 56 SMALL SURFACE GAGES

### (HARDENED STEEL BASE)

- Smaller base and spindle than other surface gages and is designed for lighter work
- Two frictionally held gage pins in the hardened steel base which can be pushed down and used against the edge of a surface plate or T-slot for linear work
- Weighs only ten ounces (0.28kg.) and takes up very little space in a toolbox
- Only 1-3/8" (35mm) high, including the lower sleeve in the rocker arm
- Scriber has a 3/32" (2.4mm) diameter and is 3-1/4" (82mm) long



56 Small Surface Gages					
Cat. No.	EDP	Spindle		Base	
		in	mm	in	mm
56A	50289	4	100	2 x 1-1/2	50 x 38
56B	50290	Two, 4 and 7	100 and 175		
56C	50291	7	175		

## 57 FULL-SIZED SURFACE GAGES

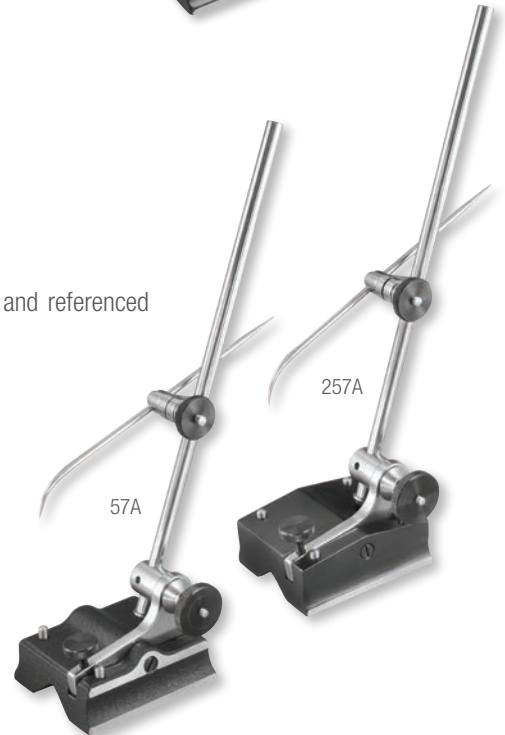
### (CAST IRON BASE)

- Full-size surface gage with attractive finish
- Base is ground flat with two frictionally held gage pins that can be pushed down and referenced against the edge of a surface plate or T-slot for linear work

## 257 FULL-SIZED SURFACE GAGES

### (HARDENED STEEL BASE)

- Finest full-size surface gage
- Stable steel base is fully hardened, ground and nicely finished
- Four frictionally held gage pins that add versatility for referencing the tool



57 Full-sized Surface Gages			
Cat. No.	EDP	Spindle Length	Base - Length x Width
57A	50292	9" (225mm)	3 x 2-9/16" (75 x 65mm)
57B	50293	9" and 12" (225 and 300mm)	
57C	50294	12" (300mm)	3-3/4 x 3-3/8" (95 x 85mm)
57D	50295	12" and 18" (300 and 450mm)	
257 Full-sized Surface Gages			
Cat. No.	EDP	Spindle Length	Base - Length x Width
257A	51240	9" (225mm)	2-7/8 x 2-3/8" (72 x 60mm)
257B	51241	9" and 12" (225 and 300mm)	
257C	51242	12" (300mm)	3-1/2 x 3-3/16" (90 x 80mm)
257D	51243	12" and 18" (300 and 450mm)	
Spindles, Scribers and Standard Snugs for 57 and 257 Surface Gages			
Fits	Spindles	Scribers	Standard Snugs*
A and B Models	5/16 x 9" and 12" (8 x 225mm and 300mm)	9/64 x 6" (3.6 x 150mm)	PT18718 (EDP 50709) with 5/16" post hole†
C and D Models	3/8 x 12" and 18" (9.5 x 300mm and 450mm)	5/32 x 8-1/2" (4 x 216mm)	PT18724 (EDP 50710) with 3/8" (9.5mm) post hole

† For snug with 8mm post hole diameter, order PT27171, EDP 66457.

\* Will hold scribers, rods or indicator stems ranging from 3/32-1/4" (2.4-6.35mm) and allows use with these test indicators: 196, 651, 711\*\*, 564\*\*, 708\*\*, 811\*\*, 650, 709\*\*

\*\* Snugs must be used with the proper indicator holder.



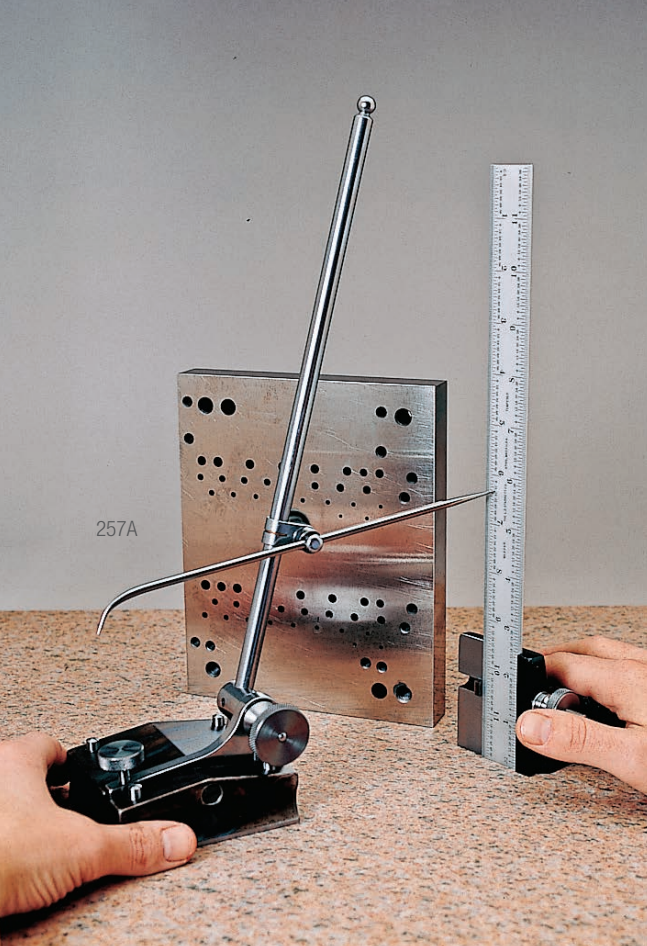
## SURFACE GAGES

### 57S, 58S UNIVERSAL SNUGS FOR SURFACE GAGES, INDICATORS AND ACCESSORIES

- Convenient attachment of scribers and test indicator shanks to surface gage magnetic bases, indicator tool post holders and gage rods
- Fits all 57 and 257 Surface Gages and test indicator clamps and post holders
- Permits the use of all of our test indicators: 196, 564\*, 650, 651, 708\*, 709\*, 711 and 811\*. (\*Snugs must be used with the proper indicator holder)

#### Universal Snugs for Surface Gages

Cat. No.	EDP	Spindle Hole Diameters		Gripping Hole Diameters	
		in	mm	in	mm
57S	50296	5/16, 3/8	8, 9.5	9/64, 5/32, 3/16, 1/4	3.5, 4, 4.8, 6.35
58S	56613	1/4, 5/16, 3/8	6.35, 8, 9.5	Range from 3/32-1/4	Range from 2.4-6.35



257A



57S

58S



257A with 711GPSZ

## SURFACE GAGES

Surface Gages are designed for a wide variety of uses. This is a basic tool for machinists and toolmakers. The main uses are for accurately scribing lines, transferring measurements and for probing surfaces in inspection work.

Lines can be scribed to heights and depths. Lines can also be scribed on horizontal surfaces referenced from gage pins on the tool.

Scribers are usually set in relation to rule graduations (our 62 Rule Holder is valuable in this respect) or height gages.

Marrying one of these tools with one of our test indicators makes easy work of checking flatness, parallelism, height and depth.



# SCRIBERS

## 29 SCRATCH GAGE

This tool is extremely useful for scribing lines parallel to a given surface. It is made of steel and the head is hardened. The gage is securely locked by a knurled clamp screw and split bushing in the head.

The marker is a square piece of thin tempered-steel firmly held against the edge of the beam by a screw. The beam is graduated a full 6" by 64ths of an inch, and fine adjustments may be made by a slight rotating movement of the head.

29B	50201	6" (150mm)	64ths
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29B Scratch Gage

## 70 POCKET SCRIBERS

### CARBIDE OR HARDENED STEEL POINTS

The handle is made of steel, knurled and nickel plated. The scriber point is steel, properly hardened and finely tapered so 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-shaped head prevents rolling.

### 67 IMPROVED SCRIBER

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, have a knurled grip.

The long bent point is useful for reaching through holes. The length of the scriber with the short point is 9" (225mm) and with the long bent point, 12" (300mm). Points screw into the handle and fit either end. The knurled handle is nickel-plated.

### 68 ADJUSTABLE SLEEVE SCRIBER

A very handy scriber with a point 8" (200mm) in length that is held by an adjustable knurled sleeve. The adjustable sleeve may be clamped close to or away from the working point.

The sleeve is nickel-plated. Available with or without knife point.



70A, 67A, 68A Scribers

70 Pocket Scribers						
Cat. No.	EDP	Point	Point Length		Handle Diameter	
			in	mm	in	mm
70A	50323	Steel	2-3/8	60	1/4	6.4
70B	50324		2-7/8	72	3/8	9.5
70AX	50327	Carbide	2-3/8	60	1/4	6.4
70BX	56092		2-7/8	72	3/8	9.5
Points Only for 70 Pocket Scribers						
Part No.	EDP	Point	For Starrett Scriber No.			
PT02355A	70332	Steel	70A			
PT02355B	70333		70B			
PT14398	71527	Carbide	70AX			
PT19306	72049		70BX			
67 Improved Scribers						
Catalog	EDP	Description				
67A	50316	Complete with 3 points (1 straight, 1 short bent, 1 long bent)				
67B	50317	With 2 points (1 straight, 1 short bent)				
Points Only for 67 Improved Scribers						
Part	EDP	Description				
PT16584	71555	Extra straight point				
PT16585	71556	Extra short bent point				
PT16586	71557	Extra long bent point				
68 Adjustable Sleeve Scribers						
Cat. No.	EDP	Description				
68A	50322	With knife point				
68B	50321	Without knife point				





# PRECISION SHOP TOOLS

## 1610 KLEENScribe™ LAYOUT DYE

- Deep blue, quick-drying dye for clean, dry metal surfaces
- Brush or spray an opaque blue background that makes scribed lines stand out sharp and clear
- Will not rub off on hands or clothing or flake away
- Unaffected by cutting lubricants and heat generated during machining
- To remove, use a rag or wiper, moistened with denatured alcohol

### IDEAL FOR NUMEROUS APPLICATIONS:

- Laying out dies, cams, templates, jigs, fixtures, patterns, castings
- Touching cutting tool to work before setting machine for cut
- Identifying tools, parts, bar stock and other shop metals
- Checking alignment of gears and wearing parts



Kleenscribe™ Layout Dye			
Cat. No.	EDP	Size	Description
1610-4	53212	4oz. (0.1 liter)	Plastic Bottle
1610-16	53213	16 oz. (0.5 liter)	Plastic Bottle
1610-32	53214	32 oz. (1 liter)	Plastic Bottle
1611	55896	11-1/2 oz. (0.3 liter)	Aerosol Can

## 1 ADJUSTABLE-JAW CUT NIPPERS

Special design provides powerful leverage for efficient and clean cutting. Especially recommended for all applications involving wire cutting. These tools can be adjusted for wider jaw openings to easily cut tile and mosaics.

- Heat-treated steel frames for strength
- Carbide jaws for extra long life
- Red vinyl coated handles for a firm, comfortable grip
- Jaws can be detached and replaced, or resharpened. Jaws should be ground in pairs and referenced from the serrations
- Jaws can be adjusted on the frames. Each jaw has an allowance of about 1/4" (6.4mm) to cut tile or to adjust after resharpening.
- Stud and stop screw on the handle can be adjusted for proper jaw closure, thereby preventing damage from excess pressure on the jaws
- A flat safety spring below the cutting edges of the jaws forms a yielding seat for the end of the wire to press against while being cut



1 Adjustable-Jaw Cut Nippers										
Cat. No.	EDP	Jaws Only (Pair)		Size		Capacity (Max. Wire Dia.)		Jaw Width		Jaws
		Part No.	EDP	in	mm	in	mm	in	mm	
1X-5 1/2	50004	PT01931-1	50006	5-1/2	138	.050	1.3	21/32	16.5	Carbide Tipped
1X-7	50005	PT01932-1	50007	7	175	.080	2	13/16	21	Carbide Tipped



## PRECISION SHOP TOOLS

### WIGGLER OR CENTER FINDER WITH ATTACHMENTS 828

Wiggler/Center Finder S828 and four 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 that permits adjustment to an angular position or true concentricity.

**With Pointed Shank 828A**, 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.

**Ball Contact 828B** is useful in locating work by first bringing the contact (ball diameter .250" or 6.35mm) against the work, a slot, hole, shoulder, or end, and indexing the work to the desired position relative to the spindle.

**Disc Contact 828C**, which has a small disc at the end (.100"/2.54mm) diameter, permits use in more confined areas such as slots or shallow holes.

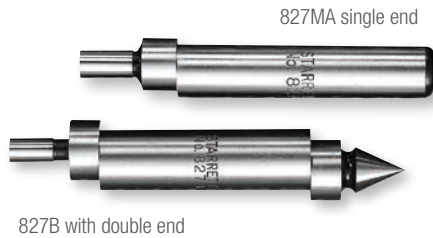
**Offset Indicator Holder 828D** with the Last Word® Test Indicators, the user can sweep holes or O.D.s for checking run-out or concentricity, establish center distances, check straightness or alignment of flat surfaces.



Complete set with case includes: 828B Ball Contact, 828A Wiggle/Center Finder with pointed shank, 828C Disc Contact, and 828D Offset Indicator Holder

#### Wiggler or Center Finder with Attachments

Cat. No.	EDP	Description
S828HZ	53064	Wiggler/Center Finder, Complete with case and 4 attachments, 828B, C, D, PT09186
S828	53065	Wiggler/Center Finder with 3 Attachments, 828B, C, PT09186, without indicator holder, without case
828A	53066	Wiggler/Center finder with pointed shank
PT09186	71164	Pointed Shank only
828B	53067	Ball contact only (.250"/6.35mm ball)
828C	53068	Disc contact only (.100"/2.54mm disc)
828D	53069	Offset indicator holder only



### 827 EDGE FINDERS

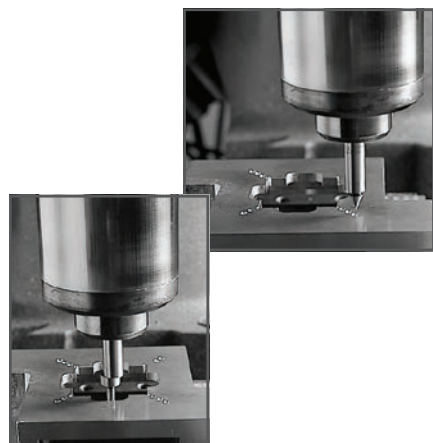
#### .375", .500" AND 10MM BODY DIAMETERS FOR FAST, ACCURATE WORK LOCATION

Work surfaces may be located easily, quickly and accurately with these edge finders. Work with flat, straight edges, shoulders, grooves, round work, studs, dowels or center points and scribed lines – all can be accurately located with this handy tool. Body and contacts are made of tool steel, hardened, ground and lapped to close tolerances for diameter and concentricity.

#### How To Use:

Edge finders are easy to use. They are placed in a collet or chuck. The worktable is then traversed to obtain contact between the rotating edge finder and the work. Contact will shift to concentric position relative to the body and with very slight additional table adjustment, will move off center with a decided wobble. At this point, the center of the finder is exactly one-half the diameter of the contact from the work edge, permitting accurate location for other machining operations relative to the edge.

For locating center points and scribed lines, the pointed contact is used by putting a pencil or rule against the center point and making it run concentrically. Then the point is brought down to the center point or intersection of scribed lines and the table is adjusted so that when the tool barely touches the work, the lineup with the point in question can be ascertained.



Above: Locating the center with 827MB  
Left: Locating the edge of a part with 827MA

#### 827 Edge Finders

Cat. No.	EDP	Body Diameter	Contact Diameter	Description
827A	53062	.375"	.200"	Single End
827B	53063	.500"	.200" and pointed contact	Double End
827MA	56041	10mm	6mm	Single End
827MB	66452	10mm	6mm and pointed contact	Double End

Furnished in attractive, protective case.



# PRECISION SHOP TOOLS

## COLLET ADAPTER

This is a timesaving accessory for our 827A Edge Finders. It allows quick installation and removal of the edge finder, eliminating the need for collet changes on Bridgeports and similar machines.

It can also be used with any other attachment with a 3/8" post.

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".

Collet Adapter		
Cat. No.	EDP	Description
PT28314	68846	Collet Adapter



PRECISION SHOP TOOLS



SF190 "Little Giant" Jack Screw set, complete with all attachments

## "LITTLE GIANT" JACK SCREWS

190

2-1/4"–3-3/8"/57-85MM

191

1-1/2"–2-1/4"/38-57MM

"Little Giant" Jack Screws are very handy for leveling work on planer beds, upright drills, setting up machinery, and for general use in the toolroom or machine shop.

190 and 191 have 20-pitch screws and for those who desire a finer adjustment, the F190 has a 40-pitch screw.

An auxiliary pointed screw (D) is supplied, to be used in place of the screw with swivel cap. Extension base (E) is furnished for places where it is not possible to obtain a bearing on a flat surface. Extension V base (F) is for use against a cylindrical form.

190 and 191 "Little Giant" Jack Screws					
Photo Key	Cat. No.	EDP	Cat. No.	EDP	Description
	SF190	64622			Set complete, with fine-adjusting screw and all attachments
	S190	50680	S191	50687	Set complete with all attachments
A	F190A	64623			Jack only, with fine-adjusting screw
	190A	50681	191A	50688	Jack only
B	190B	50682	191B	50689	Extension base
C	190C	50683	191C	50690	Extension base
D	F190D	64624			Auxiliary pointed screw with fine-adjusting screw
	190D	50684	191D	50691	Auxiliary pointed screw
E	190E	50685	191E	50692	Extension base
F	190F	50686	191F	50693	Extension V base

### 190 Specifications

Range		Maximum Height with Attachments		Jack (A) Base Diameter		Extension (B)		Extension (C)	
in	mm	in	mm	in	mm	in	mm	in	mm
2-1/4 – 3-3/8	57-85	6-3/8"	162	1-1/4	32	2	50	1	25

### 191 Specifications

Range		Maximum Height with Attachments		Jack (A) Base Diameter		Extension (B)		Extension (C)	
in	mm	in	mm	in	mm	in	mm	in	mm
1-1/2 – 2-1/4	38-57	3-3/4	95	1	25	1	25	1/2	13





## PRECISION SHOP TOOLS

### 815 TOOLMAKERS' HAMMER WITH BUILT-IN MAGNIFYING LENS

A PRACTICAL TOOL – MAKES A GREAT GIFT TOO!

Faster, easier and more accurate spotting and punching of centerlines and intersections is now possible with the this tool.

High-power magnification makes it easy to spot the punch and strike without once removing the eyes from the work.

Weighing only four ounces (113 grams) it is made of a steel forged chromium with plated finish. Both flat and ball peen heads are hardened and are offset for use in corners or close to obstructions. Shock resistant lens and hang hole.

815 Toolmakers' Hammer with Built-In Magnifying Lens		
Cat. No.	EDP	Description
815	53041	Hammer only
815P	53042	Personalized (specify name clearly)

### 129 BENCH BLOCKS

The 129 Bench Block is useful for holding work when driving pins, drilling, etc. The block is made from hardened steel and ground. A V-groove across the face accommodates round and odd-shaped stock. The smooth finish preserves the finish of the work being held.

The knurled side provides a good gripping surface, making it easier to handle. Recessed base to make it lighter, yet withstands hard usage.

129 Bench Blocks			
Cat. No.	EDP	Size Diameter x Height	Description
129	50559	3 x 1-1/2" (75 x 38mm)	129 bench block with oversize holes from 1/8-5/8" (3-16mm) diameter and one V-Groove

### 119 BENCH BLOCKS

The 119 Bench Block is a good choice for all-around machine shop and toolroom use when a larger, heavy-duty block is required. This block weighs five pounds (2.3kg). The base is hex-shaped, so the block can be held rigidly in a vise. It is made from alloy steel, hardened, and ground, top and bottom.

119 Bench Blocks			
Cat. No.	EDP	Size Diameter x Height	Description
119	50491	4-7/8 x 1-1/2" (120 x 38mm)	119 Bench Block with ten oversize holes from 1/8-7/8" (3-22mm) diameter and two V-Grooves at right angles



Above: 129  
Right: 119

Locating hole center on a workpiece with the 117B Center Punch and 815 Toolmakers' Hammer





# PUNCHES

## AUTOMATIC CENTER PUNCHES WITH ADJUSTABLE STROKE

### 18

Rugged automatic punches with all-steel handles and parts

- Internal mechanism automatically strikes a blow when downward pressure is applied
- Adjustable knurled cap regulates the force of the blow
- Spring tension, which regulates the blow, is constant so marks made by the point are uniform in depth and size for each setting
- All sizes are identical in style, differing only in the striking power
- The point can be easily removed for regrinding or replacement
- Heavy-duty 18C is capable of striking a much heavier blow than the other sizes

Automatic Center Punches with Adjustable Stroke						
Cat. No.	EDP	Length		Diameter		Description
		in	mm	in	mm	
18AA	50119	4	100	7/16	11	Punch
18A	50120	5	125	9/16	14	Punch
18C	56757	5-1/4	130	11/16	17	Punch, Heavy-Duty

Accessories		
Part No.	EDP	Description
PT06689	12901	Point only for 18AA
PT06690	12902	Point only for 18A
PT22256	72445	Point only for 18C



Rugged automatic center punch with adjustable stroke

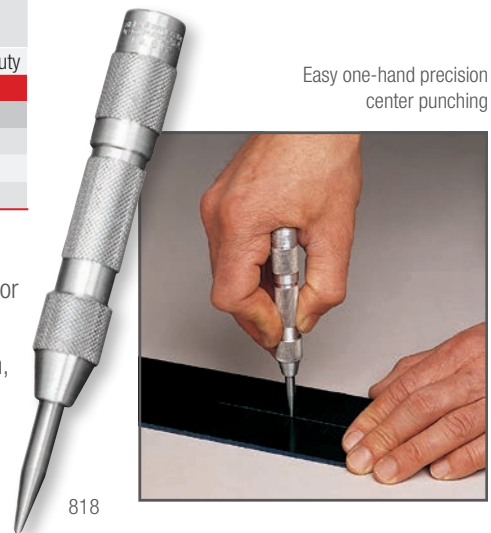
18A

### 818

This punch is similar to our 18C, except that it has a lightweight, knurled aluminum handle for a positive grip and easy handling

- No hammer 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 made of properly hardened tool steel. Hardened tool steel point may easily be removed for resharpening or replacement. (Replacement PT22256)
- Works on metal, plastics, wood and other machinable materials

818 Automatic Center Punch					
Cat. No.	EDP	Length		Diameter	
		in	mm	in	mm
818	53048	5	125mm	5/8	16



Easy one-hand precision center punching

818

### 819 HINGE-LOCATING

This automatic centering punch combines all the features of our 818 lightweight aluminum punch with an exclusive self-centering locating sleeve that automatically centers starter holes for screws

- Simply engage the beveled edge of the sleeve with the countersunk hole in the hinge and press down on the handle until the built-in mechanism strikes a blow for truly concentric starting holes every time. To draw hinges, etc., sideways, tilt the punch slightly in the opposite direction.
- Eliminates the risk of drilling off center, causing screws to pull hinges or hardware off center
- Punch can be adjusted for striking light or heavy impressions by turning the knurled cap
- Point is easily removed for replacement (Replacement PT09966-0)

819 Hinge-Locating Automatic Center Punch					
Cat. No.	EDP	Length		Diameter	
		in	mm	in	mm
819	53049	5	125	5/8	16



Automatically locates and centers holes through hinges, latches, catches, etc.

819



# PUNCHES

S117



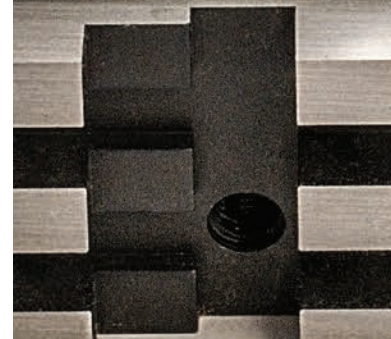
## 117 CENTER PUNCHES WITH ROUND SHANKS

- Hardened and properly tempered
- Well proportioned
- Knurled finger grip
- Ground at the proper angle
- Accurately centered tips

## 264 CENTER PUNCHES WITH SQUARE SHANKS

- Hardened and properly tempered
- Square knurled grip
- Will not roll
- Accurately centered tips
- Ground at the proper angle

117 and 264 Center Punches							
117		264		Length		Dia. at Top of Tapered Point	
Cat. No.	EDP	Cat. No.	EDP	in	mm	in	mm
117AA	50482	264A	51278	3	75	1/16	1.5
		264B	51279	3-1/2	88	5/64	2
		264C	51280	3-3/4	95	3/32	2.5
117A	50483					5/64	2
117B	50484	264D	51281	4	100	3/32	2.5
117C	50485					1/8	3
117D	50486					5/32	4
		264E	51282	4-1/4	108	5/32	4
		264F	51283	4-1/2	114	3/16	5
117E	50487	264G	51284	5	125	1/4	6.5
117 and 264 Center Punch Sets							
Cat. No.	EDP	Description					
S117PC	50488	Set of 5, 117AA, A, B, C, D in Plastic Case					
S264WB	51285	Set of 7, 264A, B, C, D, E, F, G in Round Red Plastic Box					





## PUNCHES



### 816 PRICK PUNCHES

- Accurately centered
- Ground at a sharp angle
- Hardened and tempered
- Knurled grip

### 800 SQUARE-HEAD NAIL SETS

- Round, knurled grip
- Large, square head
- Will not roll
- Beveled head prevents breakage
- Cupped punch surface
- Hardened and tempered steel

#### 816 and 800 Punches

816		800		Length		Punch Diameter	
Cat. No.	EDP	Cat. No.	EDP	in	mm	in	mm
816A	53043	800A	53029	4	100	1/32	0.8
		800B	53030			1/16	1.5
		800C	53031			5/64	2
816B	53044	800D	53032			3/32	2.5
816D	53046	800E	53033			1/8	3
						5/32	4

#### 816 and 800 Punch Sets

Cat. No.	EDP	Description
S816PC	57078	Combination Starrett Punch Set in Plastic Case. One Each 816A, B, D Prick Punches, and Two Center Punches 117AA, B
S800PC	64131	Set of 5 in Protective Plastic Case. One Each of 800A, B, C, D, E



# PUNCHES

## 565 DRIVE PIN PUNCHES

- Hardened and tempered steel
- Knurled grip



S565



S565PC



S565WB

SB565



S565Z

## B565 BRASS DRIVE PIN PUNCHES

- Ideal for softer materials
- Solid brass prevents damaging delicate work
- Knurled grip

### 565 and B565 Drive Pin Punches

565		B565		Length		Diameter Punch	
Cat. No.	EDP	Cat. No.	EDP	in	mm	in	mm
565A	52578	B565A	12465	4	100	1/16	1.5
565B	52579	B565B	12466			3/32	2.5
565C	52580	B565C	12467			1/8	3
565D	52581	B565D	12468			5/32	4
565E	52582	B565E	12469			3/16	5
565F	52583	B565F	12470			7/32	5.5
565G	52584	B565G	12471			1/4	6
565H	52585	B565H	12472			5/16	8

### 565 and B565 Drive Pin Punch Sets

Cat. No.	EDP	Description
S565WB	52586	Set of 8 Punches (1 of Each Size) in Round Red Plastic Box
S565PC	52587	Set of 8 Punches (1 of Each Size) in Protective Vinyl Case
SB565Z	12473	Set of 8 Punches (1 of Each Size) in Fabric Pouch





# PUNCHES



## 248 DRIVE PIN PUNCHES FOR MACHINE SHOP AND MOTOR SERVICE WORK

- Extra-long drive pin punches, measuring 8" (200mm). The bodies are 4-1/2" (115mm) and the drive pin sections are 3-1/2" (90mm) long.
- Well-proportioned, hardened, properly tempered with a knurled grip
- Designed to withstand hard use
- Provide a most satisfactory punch for machine shop and motor service work
- Diameter of punches is slightly less than listed

## B248 BRASS DRIVE PIN PUNCHES FOR MACHINE SHOP AND MOTOR SERVICE WORK

- Same features as 248 extended length drive pin punches, but in a softer brass construction ideal for more delicate work
- Available in four sizes from 3/16" to 3/8" and as a full set of four in an attractive fabric pouch

### 248 and B248 Drive Pin Punches

248		B248 Brass		Length		Diameter Punch	
Cat. No.	EDP	Cat. No.	EDP	in	mm	in	mm
248A	51181			8	200	1/8	3
248B	51182	B248B	12460			3/16	5
248C	51183	B248C	12461			1/4	6
248D	51184	B248D	12462			5/16	8
248E	51185	B248E	12463			3/8	9.5

### 248 and B248 Drive Pin Punch Sets

Cat. No.	EDP	Description
S248PC	51186	Set of 5 Punches (1 of Each Size) in Protective Vinyl Case
S248	51187	Set of 5 Punches (1 of Each Size) in Plain Box
SB248Z	12464	Set of 4 Brass Punches (1 of Each Size) in Fabric Pouch



## SCREWDRIVERS



S555Z

S555Z-7



S551Z

S551Z-7



### 555 JEWELERS' SCREWDRIVERS

- Ideal for fine, delicate work
- Swivel knobs are concave to fit the finger
- Hexagonal knobs to prevent rolling
- Knurled grip
- Overall length of screwdrivers is approximately 3-3/4" (95mm)
- Replaceable blades available

### 551 PRECISION SCREWDRIVERS

The 551 Screwdrivers with soft-touch handle are lightweight and ergonomic. The blades are made of chromium-vanadium steel, hardened and chrome-plated, allowing them to hold up well in the toughest applications.

#### FEATURES

- Precision-machined tips for top quality and exact fit
- Vapor-chromed non-slip tips
- Hardened for maximum durability
- Tapered handles allow rapid rotation
- Swivel knobs are concave to fit finger

555 Jewelers' Screwdrivers					
Complete Screwdriver		Blade Only		Blade Width (in/mm)	Phillips Blade No.
Cat. No.	EDP	Part No.	EDP		
555AA	52549	PT02449AA	70361	.025" (0.6mm)	
555A	52550	PT02449A	70362	.040" (1mm)	
555B	52551	PT02449B	70363	.055" (1.4mm)	
555C	52552	PT02449C	70364	.070" (1.8mm)	
555D	52553	PT02449D	70365	.080" (2mm)	
555E	52554	PT02449E	70366	.100" (2.5mm)	
555F	52561	PT14443	71534		#0
555 Jewelers' Screwdriver Sets					
Cat. No.	EDP	Description			
S555Z-6	52564	Set of 6 Screwdrivers, 555AA, A, B, C, D, E – In Case			
S555Z-7	52566	Set of 7 Screwdrivers, 555AA, A, B, C, D, E, F – In Case			

551 Precision Screwdrivers			
Complete Screwdriver		Blade Width (in/mm)	Phillips Blade No.
Cat. No.	EDP		
551A	67195	.060" (1.5mm)	
551B	67196	.080" (2.0mm)	
551C	67197	.100" (2.5mm)	
551D	67198	.120" (3.0mm)	
551E	67199		#00
551F	67200		#0
551G	67201		#1
551 Precision Screwdriver Sets			
Cat. No.	EDP	Description	
S551Z-7	67203	Set of 7 Screwdrivers With Case, 551A, B, C, D, E, F, G	
S551ZZ	67204	Case Only	

### STARRETT SCREWDRIVERS

- Made for relatively small and very delicate work
- Bodies are made from knurled, nickel-plated steel
- Replaceable blades, made from the best quality steel, properly tempered and nickel-plated
- A slight turn of the knurled chuck locks the blade in place
- Blades can be reversed into the screwdriver body for safety







## SCREWDRIVERS

### 553 POCKET SCREWDRIVERS

The 553 Screwdrivers feature a hexagonally shaped head to prevent them from rolling. When not in use, the blade can be reversed into the screwdriver body for conveniently and safely carrying them in pockets. Size takes no more room than a penknife.

Handy steel and carbide scriber points are also available to fit these handles, including 70 Scriber points.

#### FEATURES

- Hexagonal head prevents rolling
- Small in size with reversable/removable blade
- Steel and carbide scriber points available
- Knurled grip



553

#### 553 Pocket Screwdrivers

Cat. No.	EDP	Blade Only		Blade Width		Blade Length	
		Part No.	EDP	in	mm	in	mm
553A	52543	PT02351A	70330	.100	2.5	1-7/8	48
553B	52544	PT02351B	70331	.150	3.8	3	75

#### Scriber Points Only

Steel		Carbide		Fits Model
Cat. No.	EDP	Cat. No.	EDP	
PT02355B	70333	PT19306	72049	553B



## PRECISION SHOP TOOLS

### 161 TOOLMAKERS' PARALLEL CLAMPS

These parallel clamps are designed for maximum strength and rigidity. They are extremely useful for holding work together in tapping and drilling and on various machine setups. The ends of the jaws are tapered to permit clamping under shoulders or in recesses.

A retaining ring holds the loose jaw in alignment when the clamp is being opened or closed. The clamps are made of steel, nicely finished and hardened.

161AA	50593	3/4	19	21/32	16.5	Single Clamp
161A	50594	1-1/4	32	13/16	20.5	Single Clamp
161B	50595	1-3/4	44	1	25	Single Clamp
161C	50596	2-1/4	57	1-7/32	30	Single Clamp
161D	50597	2-3/4	70	1-25/32	45	Single Clamp
161E	50598	3-1/2	89	2-1/4	57	Single Clamp



161 Clamps



### 580 PRECISION ANGLE PLATE

These angle plates are invaluable for accurate work in toolroom and small production applications when flatness, squareness and parallelism is important.

- Hardened and tempered steel
- Precision ground, square and parallel
- Convenient step for smaller work 3/4" (19mm) down from the top and a 1/4" (6.35mm) seat
- 10 holes tapped with a 1/4-20 thread for fastening to fixtures and clamping work to the angle plate

#### 580 Precision Angle Plate

Cat. No.	EDP	Size/Description		Description
		in	mm	
580	64961	3 x 3 x 3	75 x 75 x 75	Angle Plate

### 54 HOLD-DOWNS

- Improved design firmly holds work flat on a machine bed or in a vise
- Contact edges are tapered to hold work securely and force it downward to the bed of the machine or against any parallel surface
- Especially useful for holding small work or thin materials without distortion
- Made of tool steel, hardened and ground

#### 54 Hold-Downs

Cat. No.	EDP	Length		Width	
		in	mm	in	mm
54A (Pair)	50274	4	100	27/32	21



54A

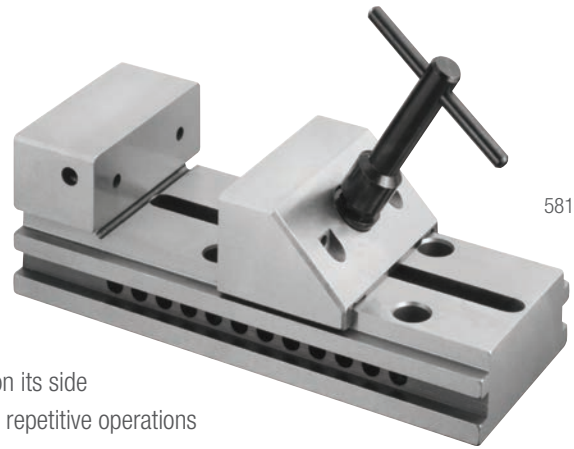




# VICES AND CLAMPS

## 581 Precision Grinding Vise

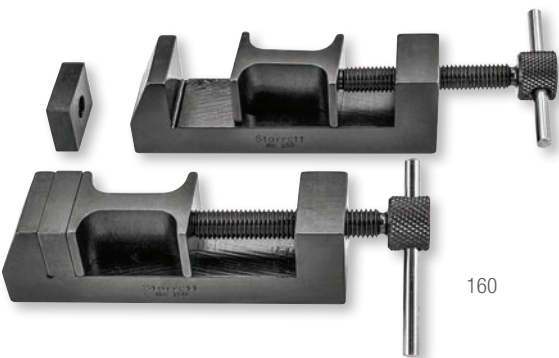
- Extremely useful for accurate grinding
- Hardened steel construction
- Ground flat, square, and parallel within .0002" (0.005mm)
- Jaw pressure on workpiece is forward and downward for repeatable positioning and maximum holding power
- Jaw opening 4" (100mm), jaw depth 1-1/4" (32mm)
- Movable jaw is slightly narrower than the base, enabling the vise to be used on its side
- 1/4-20 tapped hole in each side of the solid jaw to allow the use of a stop for repetitive operations
- "T" handle wrench provided for tightening the movable jaw
- Four drilled and counterbored holes for 5/16 bolts in the base of the vise for bolting to a sine plate or the bed of a machine tool
- Angle blocks available on special order
- For attaching special jaw plates, two holes are drilled in both the solid and movable jaws



581

### 581 Precision Grinding Vise

Cat. No.	EDP	Capacity Jaw Opening x Depth		Description
		in	mm	
581	64962	4 x 1-1/4	100 x 32	Grinding Vise with T-Handle Wrench



160

## 160 TOOLMAKERS' STEEL CLAMPS

These clamps are useful in layout work or for holding work securely in drilling and other similar operations. Each clamp is furnished with two take-up blocks that slip on the end of the screw. The blocks are held to allow a slight swivel action that conforms the angle of the block to the shape of the work being held.

There is a hole in the base of the clamps so they may be fastened to the bench and used as a small vise. Clamps are made of case-hardened steel and are smoothly finished.

### 160 Toolmakers' Steel Clamps

Cat. No.	EDP	Capacity		Description
		in	mm	
160	50592	2	50	Pair of Clamps



## PIN VISES



S240

### 240 PIN VISES WITH TAPERED COLLETS

.010-.200"/0.25-5.1MM

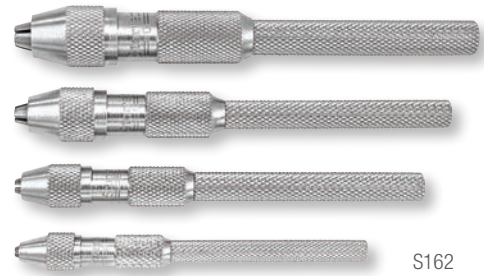
- Special tapered collet, providing maximum clamping surface
- Smaller body diameter than the chuck to allow fast opening and closing and rapid rotation when used on small work
- Available individually or as a complete set in a convenient case

#### 240 Pin Vises

Cat. No.	EDP	Range in	mm
240A	51136	.010-.055	0.25-1.4
240B	51137	.025-.075	0.64-1.9
240C	51138	.045-.135	1.2-3.4
240D	51139	.110-.200	2.8-5.1

#### 240 Pin Vise Sets

Cat. No.	EDP	Description
S240Z	51140	Set of All 4 Sizes in Protective Vinyl Case



S162

### 162 PIN VISES

0-.187"/0-4.8MM

The handles of these pin vises are reduced in size so that they can be rapidly rotated between thumb and finger when filing small work.

#### 162 Pin Vises

Cat. No.	EDP	Range in	mm
162A	50599	0-.040	0-1
162B	50600	.030-.062	0.8-1.6
162C	50601	.050-.125	1.3-3.2
162D	50602	.115-.187	2.9-4.8

#### 162 Pin Vise Sets

Cat. No.	EDP	Description
S162Z	50604	Set of All 4 Sizes in Protective Vinyl Case



165

### 165 DOUBLE END PIN VISE

0-.125"/0-3.2MM

- Reversible collets with two size capacities at each end
- One chuck holds work or tools 0-.031" and .093-.125" diameter (0-0.8mm and 2.5-3.2mm). The other chuck holds .031-.062" and .062-.093" diameter (0.8-1.6mm and 1.6-2.5mm).
- "Back support" provided by beveled chuck ends

#### 165 Double End Pin Vise

Cat. No.	EDP	Range in	mm
165	50608	0-.125	0-3.2



S166

### 166 PIN VISES WITH INSULATED, OCTAGONAL HANDLES

0-.187"/0-4.8MM

These pin vises are the same as our 162 except that they have an insulating PVC handle which is octagonally shaped, preventing them from rolling when laid down.

#### 166 Pin Vises

Cat. No.	EDP	Range in	mm
166A	50609	0-.040	0-1
166B	50610	.030-.062	0.8-1.6
166C	50611	.050-.125	1.3-3.2
166D	50612	.115-.187	2.9-4.8

#### 166 Pin Vise Sets

Cat. No.	EDP	Description
S166Z	50614	Set of All 4 Sizes in Protective Vinyl Case

## PIN VISES

Starrett pin vises are useful for securely holding small stock, taps, drills, reamers, scribes, wire, small files, and other tools. The jaws on all are hardened and with a few turns of the binding nut, a firm grip may be obtained. Handles and binding nuts are nickel-plated except for the 166 pin vise.

A hole extends through the full length of the handles so that wires of any length and any diameter up to the full size of the tool can be held.

**NOTE:** These tools not recommended for powered use.





# PIN VISES

## 93 T-HANDLE TAP WRENCHES

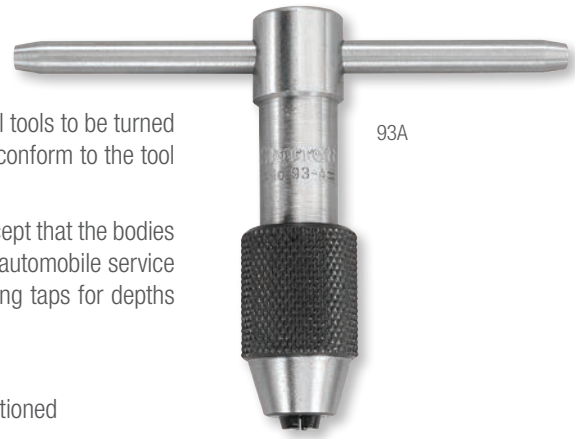
The 93 T-Handle Tap Wrenches are for holding taps, drills, reamers and other small tools to be turned by hand. They are properly heat treated to withstand ordinary shop use. The jaws conform to the tool being held, making it rigid and less apt to loosen.

The 93D, E and F sizes are identical in construction to the 93A, B and C models, except that the bodies are proportionately longer. These longer tap wrenches are very handy in machine, automobile service and aviation repair shops because they eliminate the need for stocking special long taps for depths which cannot be reached with shorter wrenches.

### FEATURES

- Sliding handle is frictionally held, permitting the handle to be removed or positioned

**NOTE:** 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.



93A

93 T-Handle Tap Wrenches							
Cat. No.	EDP	Capacity Tap Size		Square Shank		Body Length	
		in	mm	in	mm	in	mm
93A	50427	1/16-3/16	1.6-4.7	1/16-5/32	1.6-4	2	50
93B	50428	7/32-7/16	5.5-11	5/32-1/4	4-6.4	2-1/2	65
93C	50429	1/4-1/2	6.4-12.7	3/16-5/16	4.7-8	3-1/2	90
93D	50430	1/16-3/16	1.6-4.7	1/16-5/32	1.6-4	6	150
93E	50431	7/32-7/16	5.5-11	5/32-1/4	4-6.4	10	250
93F	50432	1/4-1/2	6.4-12.7	3/16-5/16	4.7-8	13	330



91A

## 91 TAP WRENCHES

The 91 Tap Wrenches are strong and well proportioned. They are nicely finished and the gripping surfaces are properly tempered. They will firmly hold square or round shanks. They are plunger operated by knurled sleeve – the spring inside the sleeve causes plunger to back off when pressure is removed.

**NOTE:** Round shanks can be gripped, but care must be used. Excessive pressure may break the moveable V-jaw.

91 Tap Wrenches							
Cat. No.	EDP	Capacity Tap Size		Square Shank		Body Length	
		in	mm	in	mm	in	mm
91A	50419	1/16-1/4	1.6-6.35	3/32-5/32	2.4-4	6	150
91B	50420	3/16-1/2	4.7-12.7	5/32-9/32	4-7	9	225
91C	50421	1/4-5/8	6.35-16	5/32-3/8	4-9.5	12	300
91D	50422	5/16-3/4	8-19	13/64-7/16	5.2-11	16	400

## 174 TAP WRENCH

This is a well-designed tap wrench, ideal for holding smaller diameter taps, drills, reamers and other tools up to 1/4" (6.35mm) in diameter.

It will firmly grip round or square shanks. It is lightweight, well proportioned, and the gripping surface is properly heat treated.



174

174 Tap Wrench							
Cat. No.	EDP	Capacity Tap Size		Square Shank		Body Length	
		in	mm	in	mm	in	mm
174	50658	No. 0-14	1/4 diameter	6.35	3-5/8	90	



## FIXTURING

### 268 V-BLOCKS AND CLAMP

#### 1-1/8"/28MM CAPACITY

- Cast iron construction
- 1-1/2" (38mm) square and 2" (50mm) long
- Clamp is ribbed for extra strength and will hold work up to 1-1/8" (28mm) in diameter

#### 268 V-Blocks and Clamp

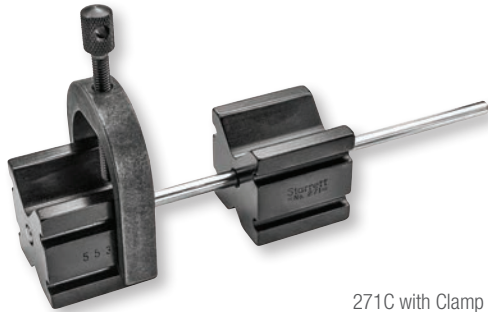
Cat. No.	EDP	Capacity in	mm	Description
268A	51287	1-1/8	28	2 V-Blocks (one pair)
268C	51289			Complete set with 2 V-Blocks (one pair) and clamp

#### 268 V-Blocks and Clamp Accessories

Cat. No.	EDP	Description
268B	51288	Clamp only



268C with Clamp



271C with Clamp

### 271 V-BLOCKS AND CLAMP

#### 1-1/4"/32MM CAPACITY

- Case hardened steel for wear resistance
- For use singly or in pairs
- Includes a steel rod that passes through each block, firmly held by friction positioning to keep blocks in alignment
- Two grooves on each side of the blocks will hold the clamp for small or large work
- Steel forged clamp holds work up to 1-1/4" (32mm) in diameter

#### 271 V-Blocks and Clamp

Cat. No.	EDP	Capacity in	mm	Description
271A	51293	1-1/4	32	2 V-Blocks (one pair)
271C	51295			Complete set with 2 V-Blocks (one pair) and clamp

#### 271 V-Blocks and Clamp Accessories

Cat. No.	EDP	Description
271B	51294	Clamp only

### 278 V-BLOCKS AND CLAMPS

#### 1"/25MM CAPACITY

- Precision ground to extreme accuracy
- Vees are central, parallel, and square with the ends and sides
- Hardened and ground steel construction
- Numbered in series so the vees in each set are always in alignment
- 1/4-20 tapped hole through the sides for attachment to an angle iron that can then be attached to a lathe faceplate or held by a magnetic chuck
- Each block is 1-1/4" (32mm) square and 1-5/8" (40mm) long

#### 278 V-Blocks and Clamps

Cat. No.	EDP	Capacity in	mm	Description
278	51312	1	25	Complete Set with 2 V-Blocks (One Pair) and 2 Clamps

#### 278 V-Blocks and Clamp Accessories

Cat. No.	EDP	Description
278B	51313	Clamp Only



278 with Clamps

## PRECISION V-BLOCKS AND CLAMPS

Starrett V-Blocks come in a variety of styles to suit the numerous requirements of machinists. They are for general shop use and layout work, as well as for holding stock in place during light-duty milling, drilling, and grinding operations. All clamp screws have a hole to help secure the workpiece.







## FIXTURING

### 566 DUAL-VEE MAGNETIC V-BLOCK

#### 1-3/4"/44MM CAPACITY

- Designed for versatility and accuracy
- All working surfaces are precision ground
- Two precision vees will hold round stock sizes from 1/4 - 1-3/4" (6.4-44mm) diameter
- Powerful, permanent magnet is controlled by a rotary switch
- All working surfaces are heat treated for long wear and stability
- Each block is 2-1/2" wide x 3" high x 3" long (63 x 75 x 75mm)



566

#### 566 Dual-Vee Magnetic V-Block

Cat. No.	EDP	Capacity		Description
		in	mm	
566	63323	1-3/4	44	Dual-Vee Magnetic V-Block

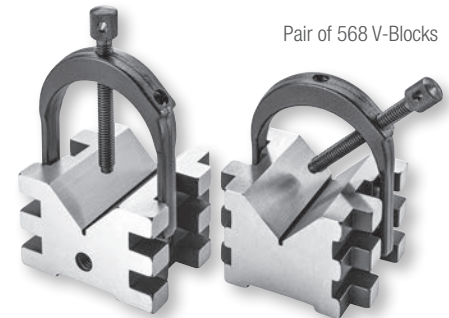
### 568 V-BLOCKS AND CLAMPS FOR ROUND OR SQUARE WORK

#### 2"/50MM ROUND CAPACITY

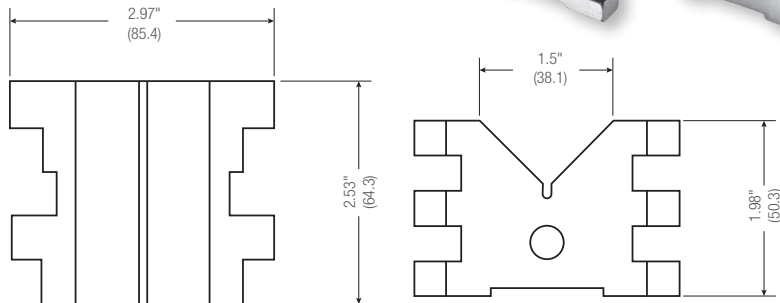
#### 1-7/16"/36MM SQUARE CAPACITY

These rugged and versatile blocks have the following features:

- Hardened steel, precision ground parallel and square
- V-grooves are ground central and parallel to the sides and base – perfect alignment in matched pairs
- Clamps have screw holes at 45° and 90° to hold either square or round work
- Stepped groove construction permits high or low clamp mounting for small or large work
- Clamps do not project over the width of the block, permitting it to be used on the base, ends or sides
- 3/8-16 tapped holes permit mounting blocks on faceplates or angle irons
- Each block is 2-1/2" long x 3" wide x 2" high (63 x 75 x 50mm)



Pair of 568 V-Blocks



#### 568 V-Blocks and Clamps

Cat. No.	EDP	Capacity	Description
568A	52590	2" (50mm) dia. round; 1-7/16" (36mm) square	1 V-Block and clamp
568C	52592	(1-9/16" [40mm] with screw at top)	Complete set with 2 V-Blocks and 2 clamps (matched pair)

#### 568 V-Blocks and Clamp Accessories

Cat. No.	EDP	Description
568B	52591	Clamp Only

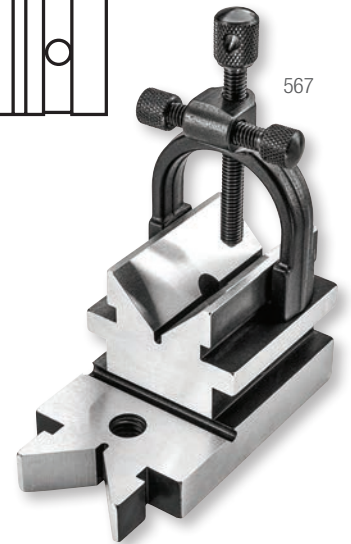
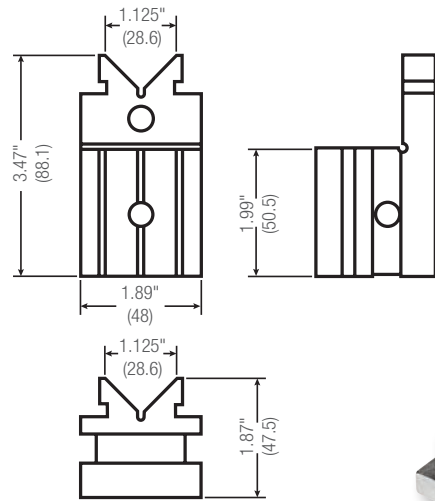


## FIXTURING

### 567 V-BLOCK AND CLAMP

#### 1-5/16"/33MM CAPACITY

- The clamp is smaller than the outside width of the block, but has an adjustable side screw to support the block and prevent tilting
- The V at the stepped end is at right angles to the base and is handy for holding shouldered studs, pins, etc.
- A clearance hole for drilling or removing dowel pins is provided in the block
- The block has four 3/8-16 tapped holes, two in the base and one on each side for attachment to an angle iron. The angle iron holding the block can then be attached to a lathe faceplate or held by a magnetic chuck.
- The clamp is a strong forging
- The block is hardened and precision ground. The sides are parallel and the V is central and parallel to the sides and base.
- Can be used on its base, on the end or on either side



#### 567 V-Block and Clamp

Cat. No.	EDP	Capacity in	mm	Description
567	52588	1-5/16	33	Complete set with 1 V-Block and 1 clamp

#### 567 V-Block and Clamp Accessories

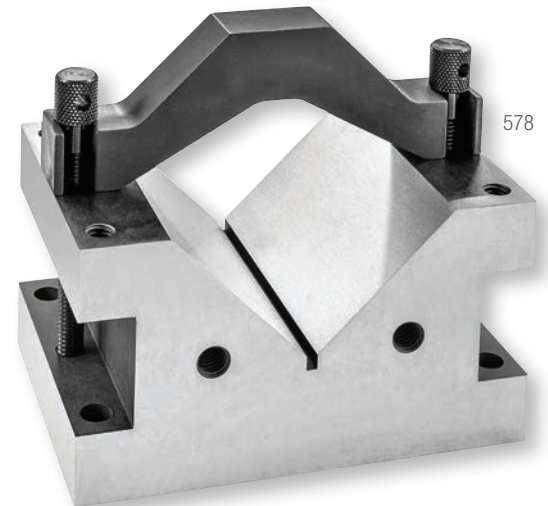
Cat. No.	EDP	Description
567B	70885	Clamp only

### 578 V-BLOCK AND CLAMP FOR LARGER CAPACITY WORK

#### 4"/100MM CAPACITY

This is our largest capacity V-block, which is ideal for toolroom, inspection and production work. Hardened steel

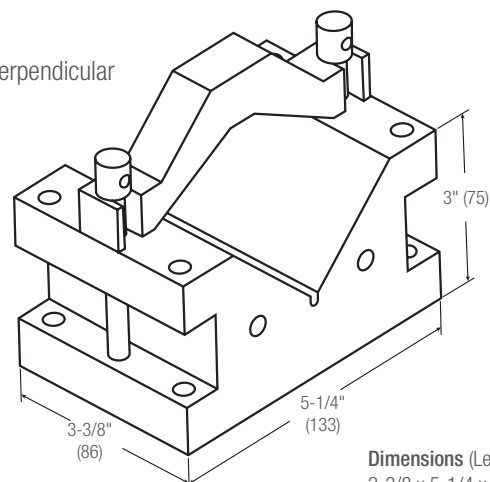
- Precision ground flat, square and parallel
- Rugged, reversible, hardened clamp can accommodate 9/16-4" (14-100mm) diameters of almost any shape of work
- No clamp interference when the block lies on either side
- Three available clamp positions
- Two tapped holes (3/8-16) in one end for mounting the V-block perpendicular to faceplates, etc.
- Available in matched pairs by special order



Above: V-Block with reversible clamp in downward facing position  
(Line drawing illustrates clamp in upward facing position)

#### 578 V-Block and Clamp

Cat. No.	EDP	Description
578	64960	V-Block and clamp for larger capacity work
578B	64988	Clamp only with 2 screws

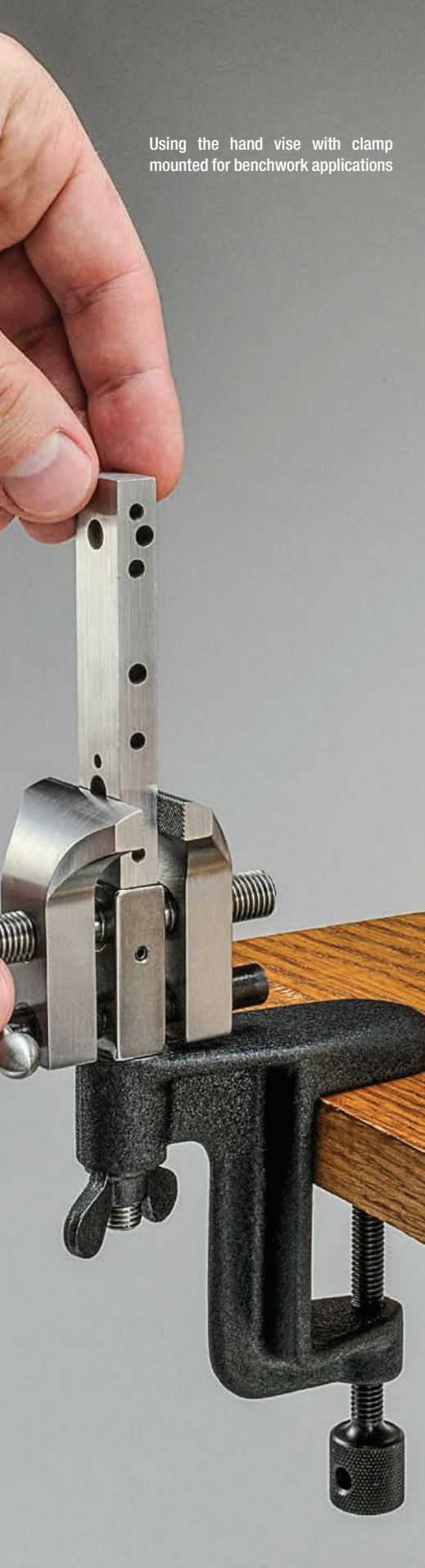


Dimensions (Length x Width x Height):  
3-3/8 x 5-1/4 x 3" (86 x 133 x 75mm)





Using the hand vise with clamp mounted for benchwork applications



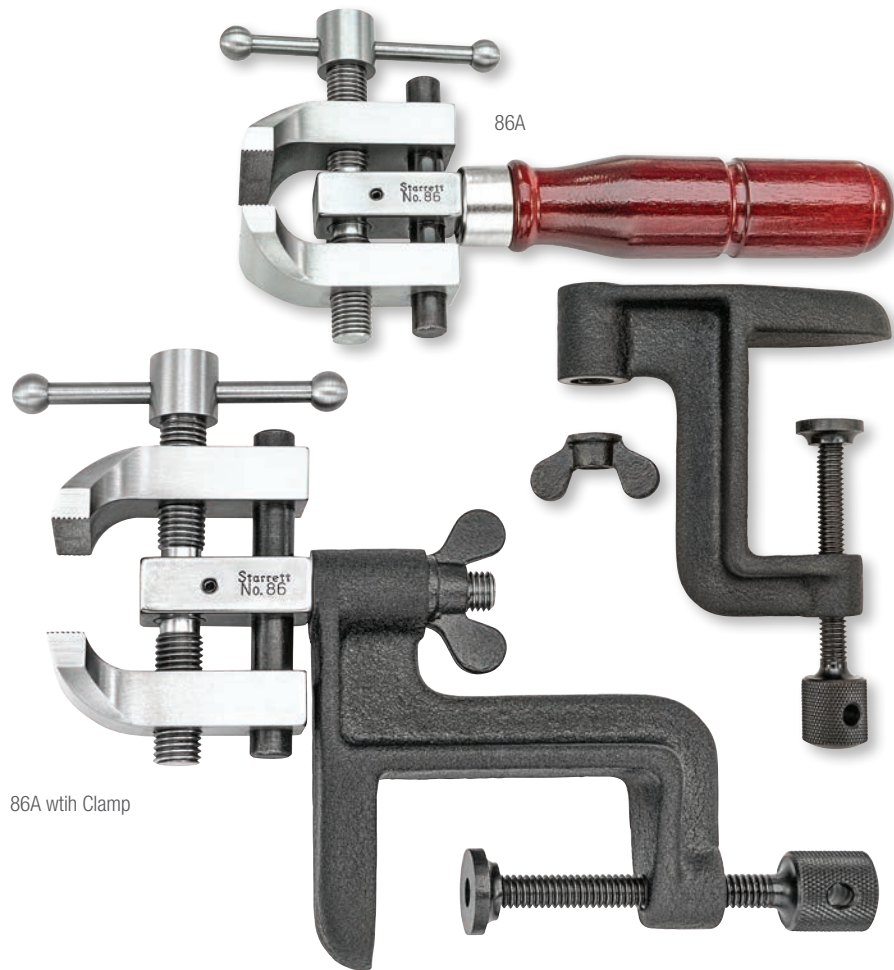
## FIXTURING

### 86 COMBINATION HAND VISE

The 86 Combination Hand and Bench Vise has a wide range of uses for all toolmakers, mechanics, hobbyists and do-it-yourselfers. When a vise is needed at different locations for convenience, this tool is indispensable. By removing the handle and substituting the clamp, the tool may be fastened to benches, shelves, etc., approximately 1/2 - 2-1/8" (13-54mm) in thickness, and can be adjusted to different positions according to the user's preference.

When used as a hand vise, the leverage obtainable with the ball end lever will be appreciated in comparison with a wing nut commonly employed for this purpose. The jaws are made from forgings and are properly tempered.

86 Combination Hand Vise				
Cat. No.	EDP	Capacity in	mm	Description
86A	50404	1-1/2	38	Hand Vise with Clamp



86A with Clamp





## M1 OIL

### M1® INDUSTRIAL QUALITY ALL-PURPOSE LUBRICANT

M1 is the "modern one" – the superior alternative. It dries and will not attract dirt, dust or other contaminants as other leading lubricants do.

Starrett is a leader in precision measuring tools. We use M1 in our manufacturing areas and it works. M1 will work for you too. The best lubricant value for your money.

- M1 produces a micro-thin, airtight coating/film that simultaneously dries as it protects, avoiding dirt, grime, etc., that other "wet" lubricants actually attract
- The can will spray upside down in awkward places without losing propellant power

12 oz. Aerosol Can



1 pt. Spray bottle sold empty for refilling from bulk container

**Lubricates:** M1 is free of silicone, making it an excellent lubricant. Its ability to stand up to extreme temperatures makes it ideal year-round.

**Penetrates:** Deep-down penetration works quickly to free frozen nuts, bolts, and metal parts. Actually gets under caked-on dirt to clean the metal for removal.

**Prevents Rust:** Protects metal against rust and corrosion damage by providing a molecular shield that locks to the metal.

**Cleans:** Actually removes grease, tar, and grime from metal parts and painted surfaces. Cleans and polishes for lasting protection.

**Stops Squeaks:** Has instant lubrication properties that spread into those hard-to-reach metal parts to stop squeaking and sticking.

**Displaces Moisture:** M1 is not soluble in water, so it gets under moisture to lift it away from the surface to be protected.

**Nonconductive:** Prevents short circuits in high moisture environments, halts electrical leakage from wet ignition wires.



M1 Aerosol Cans spray upside down and in awkward places. Spray wand (shown) is included with each aerosol can.



## INDUSTRIAL APPLICATIONS

Applications for industry are endless. Protect working surfaces of machinery, use in dip tanks to protect production parts in process, or apply on tools when stored. M1 is also ideal in highly corrosive situations that destroy metal equipment like rollers, racks, conveyors, etc. used in marine environments.

## UNIVERSAL APPLICATIONS

Use to dry wet automotive ignition systems. Great on ski bindings and prevents snow from sticking to shovels. Ideal on sticky drawer slides and window frames. Removes tar from car bumpers and painted surfaces. Can also be easily removed to prepare surfaces for painting. Use on tools, hinges, appliances, guns, knives, bicycles, mowers, fishing gear, locks, and more.

## BULK CONTAINERS

Larger size containers of M1 make economical sense. You can also use and refill the handy spray dispenser bottle that saves you money and prevents the unwanted waste and disposal of empty cans.



1 Gallon (3.8 liters)



5 Gallon (19 liters)



53 Gallon Drum (200 liters)

M1 All-Purpose Lubricant		
Cat. No.	EDP	Description
M1.95173	95173	Case of 12/12 oz. (0.3 liter) aerosol cans
Bulk Containers		
Cat. No.	EDP	Description
M-1.01	93221	4/1 gal. (3.8 liter) containers
M-1.05	93227	5 Gal. (19 liters)
M-1.53	93233	53 gal. (200 liters) drum
Spray Dispenser		
Cat. No.	EDP	Description
M-1.15	93251	Case of 4/1 pint (0.5 liter) empty spray bottles



M1 is available in bulk for industrial applications in 1 Gallon Cans, 5 Gallon Pails, and 53 Gallon Drums.

Specifications	
Color	Amber (clear)
Odor	Pleasant
Specific Gravity	.80 @ 60° F (15.5° C)
Viscosity	2.2 cSt (centiStokes) converts to 10.5 SUS (seconds universal Saybolt) at 72° F (22.2° C)
Lubrication	1500 lb (680.4 kg) of pressure (independent testing)
Flash Point	174 °F (79 °C) T.C.C.
VOC (wt%) CARB Method 310	9.2
Pour Point	-100° F (-73° C) excellent low temperature stability
Evaporation Rate	.7 (water = 1)
Coverage	3500 to 4000 sq. ft. (72-82 sq. meters) per U.S. Gal. (4.5 liters)
Boiling Point, Initial	370 - 470° F (187.8 - 243.3° C)
Weight, Applied Coating	1.7 x 10-3 lb per sq. ft.
Film Thickness	.0004" (0.010mm) average
Dielectric Strength	18,000v with .100" (2.54mm) gap
Humidity	Meets and exceeds ASTM-D655 zero rust after 1000 hours
Salt Spray	Meets and exceeds ASTM-B117 zero rust after 48 hours
	Indoor protection lasts up to a year. Outdoor protection – reapply as needed.
NSF registered 124332 Category Code H2	Acceptable as a lubricant, release agent or anti-rust film on equipment and machinery parts in and around food processing areas where there is no possibility of direct food contact





# PRECISION SHOP TOOLS

## 1620 TOOL AND INSTRUMENT OIL

Special high-refining process makes Starrett Tool and Instrument Oil colorless, ensures thorough lubrication of close-fitting parts at extreme temperatures and provides a strong, lasting film over all areas requiring protection against rust.

### FEATURES

- This oil is made to our specifications and used in our factory to lubricate and protect our precision measuring tools and instruments
- General purpose lubricant for a wide range of applications
- Ideal for maximum protection and lubrication of measuring tools, precision instruments and light machinery
- Guards highly finished tools, parts and machined surfaces against rust
- Protects firearms, fishing tackle and other sporting equipment and keeps working parts in perfect condition
- Cleans bright metals and polishes furniture
- Starrett oil can also be used for automobile generators, starters, hinges, locks, and springs



1620 Tool and Instrument Oil		
Cat. No.	EDP	Description
1620	53216	4 fl. oz. (0.1 liter) plastic bottle

## 706 INSPECTION BLOCKS

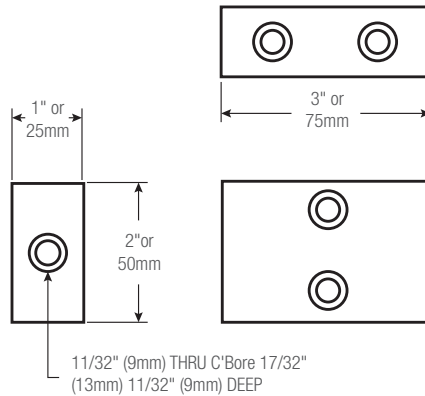
1 X 2 X 3"

## 706M INSPECTION BLOCKS

25 X 50 X 75MM

These Inspection Blocks are manufactured to precision tolerances, and are of great value for all inspection laboratories and in-shop setups where positioning is important.

- High accuracy
- Hardened steel, ground and lapped
- Matched pair available



Inch Blocks		
Cat. No.	EDP	Description
706AZ	57121	Single 1 x 2 x 3" block in case
706BZ	57122	Matched pair in case

Millimeter Blocks		
Cat. No.	EDP	Description
706MAZ	64968	Single 25 x 50 x 75mm block in case
706MBZ	64969	Matched pair in case

Specifications	
Block Dimensions	1 x 2 x 3" (25 x 50 x 75mm)
Parallelism	.0001" (0.003mm)
Squareness	.0001 in/in (0.003mm/25mm)
Hardness	RC 63-65
Flatness	.0001" (0.003mm)

706BZ





# DIGITAL TACHOMETER

## S7793Z CONTACT AND NON-CONTACT DIGITAL TACHOMETER

This Pocket Laser Tachometer (S7793Z) is a digital, battery-powered portable optical tachometer that can operate up to 25 feet from a reflective target using a laser light source. Its ergonomic design allows safe, direct line-of-sight viewing of both target and display at the same time, with a non-slip rubber surface for single hand operation.

### MULTI-FUNCTION

This powerful 32 function Tachometer/Ratemeter, Totalizer/Counter and Timer (stopwatch) is programmable in both inch and metric rates. It has TTL compatible pulse output to trigger devices such as data collectors or stroboscopes.

The kit is supplied with a remote contact assembly including concave and convex tips, a 10cm linear speed wheel, and rugged carrying case.

### FEATURES

- Operating range up to 25 feet\* (Class 3R visible laser)
- Accepts remote contact assembly
- Accepts remote sensors (optional)
- TTL pulse output
- Auto ranging/fixed decimal (user selectable)
- English and metric rates
- Tripod mounting bushing
- On-target and low battery indicators
- Rugged rubberized housing
- NIST traceable certificate of calibration included



Kit includes tachometer, RCA, contact tips, 10cm linear contact wheel 5 feet of T-5 reflective tape, (2) "AA" batteries, and latching carrying case

### 7793 Contact and Non-Contact Digital Tachometer

Cat. No.	EDP	Description
S7793Z	68930	Tachometer, RCA, contact tips, 10cm linear contact wheel 5' of T-5 reflective tape, (2) "AA" batteries, latching carrying case

### Specifications

Display	5 Alpha-Numeric LCD
<b>Ranges</b>	
Optical*	5-200,000 RPM
Contact**	0.5-20,000 RPM
<b>Rates 10cm Circumference Contact Wheel</b>	
Inches/Min	1.969-78,740
Feet/Min	0.164-6,561.7
Yards/Min	0.055-2,187.2
Centimeters/Min	5.000-200,000
Meters/Min	0.050-2,000
Totalizer	1-200,000
<b>Accuracy</b>	
Optical	±0.01% of reading
Contact	±0.05% of reading (rpm)
Resolution	0.001-10 RPM
Operating range	2 Inches to 25 feet, ±70°
Memory	Maximum, Minimum, and Last
Power	(2) "AA" 1.5 VDC Batteries (30 Hours)
Environmental	5° - 40°C (0° - 100°F) 80% RH up to 31°C (88°F)
Size (H x W x D)	6.92 x 2.4 x 1.6" (176 x 61 x 41mm)
Weight	7 oz. (210g)

\* Performance subject to intensity of ambient light irradiation

\*\* Also reads units per second and per hour



The S7793Z Pocket Laser Tachometer can operate with the remote contact assembly (left) or up to 25 feet from a reflective target (right)

