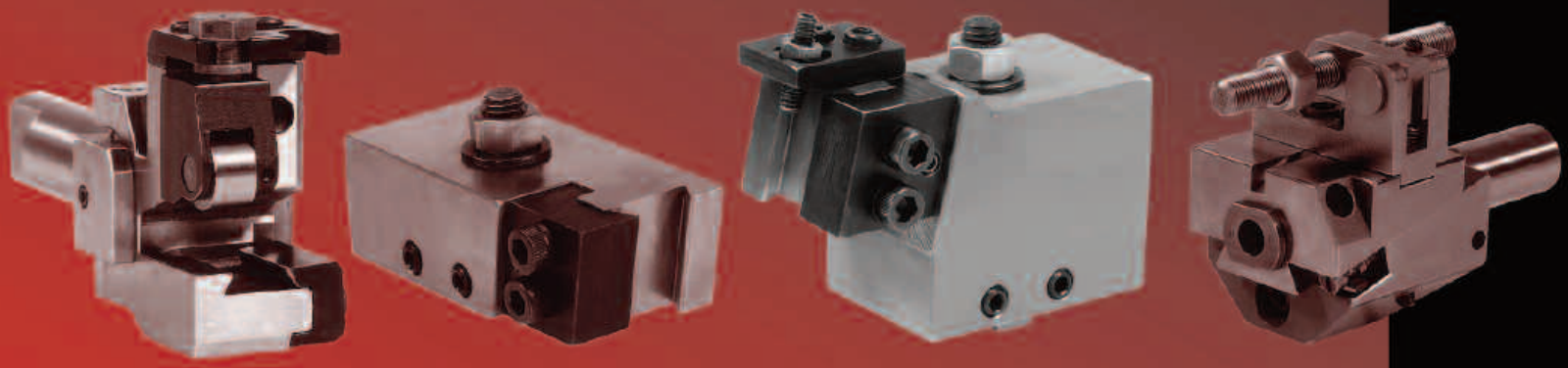
SLATER TOOLS™

Tooling Catalog

Manufacturer of Tools and Tool Holders

Specifically Designed For **Brown & Sharpe Automatics**

boring • retractable live centers • forming • knurling • recessing • rotary broaching • shaving • skiving



Order Factory Direct

Phone:
586-465-5000

Fax:
586-465-3030

for B&S automatics

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REV. 09/08

At Slater Tools, our Primary Focus is to design, manufacture and deliver the finest, most competitive tools for the turning industry. We will continue doing this by combining qualified dedicated people with state of the art technology. Our service and quality is the best! From the moment you call us - Our Goal Is To Please. Our courteous sales staff is trained to answer your questions and to assist your tooling requirements.

Order Factory Direct

8 a.m. to 5 p.m. EST. Monday thru Friday. Submit by fax 24 hours a day.
Stock orders placed before 5 p.m. qualify for shipment that same day.

Credit / Payment Terms

Same day shipping available for all approved credit. Call for faxable credit forms.
All sales subject to terms and conditions of Slater Tools. Accounts are net 30 days, Credit Card, or C.O.D.

For your convienience Slater Tools accepts:
Visa , MasterCard, American Express and various purchase cards.

Replacement Parts

Available from stock for immediate delivery.

Factory Repairs

Price quotes and delivery time will be submitted for your approval.

Return Policy

Full credit for all unused standard catalog items returned within 30 days of invoiced date.
All returns require a return goods authorization number.

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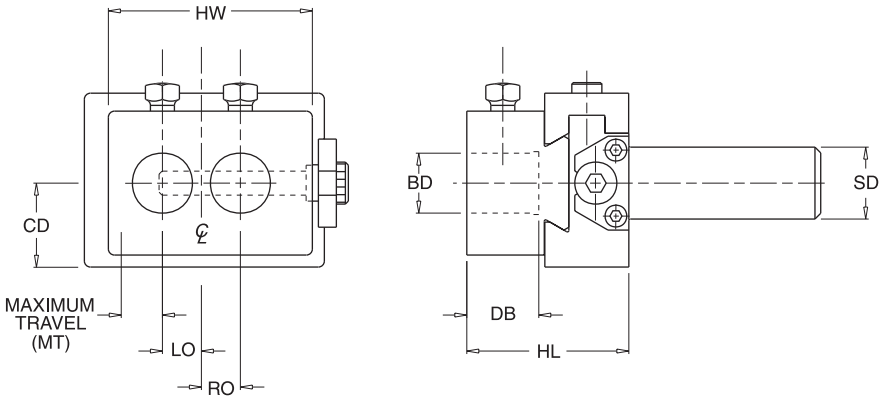
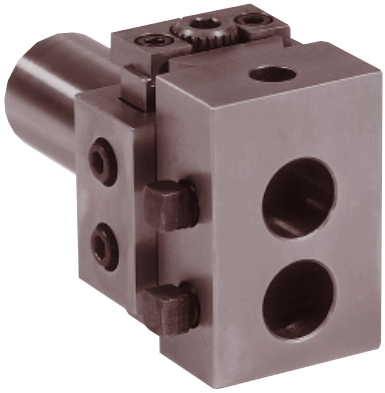
Boring Bar Tool Holders

Adjustable and Ruggedly Built for the Heaviest Cuts !





for B&S automatics

- ***High Precision Head*** is designed and ruggedly built for heavy cuts and accurate bore sizing for large volume production runs.
- Slater Tools Boring Bar Tool Holders use industry standard boring bars, reducing the need for special tooling.
- Tool bores are ground concentric with shank and can be used for trepanning, double hole designed for larger range of bore sizes.
- All moving parts are hardened and ground.

Machine Model	**Order #**	BD	SD	CD	HW	RO	LO	DB	HL	MT
00 & 00G	**BBH-0230**	5/8"	3/4"	7/8"	2-1/4"	1/4"	9/16"	3/4"	1-3/4"	5/16"
0 & 0G	**BBH-0235**	5/8"	1"	7/8"	2-1/4"	1/4"	9/16"	3/4"	1-3/4"	5/16"
2 & 2G	**BBH-0240**	3/4"	1-1/4"	1-1/8"	2-5/8"	3/8"	5/8"	1"	2-1/2"	1/2"

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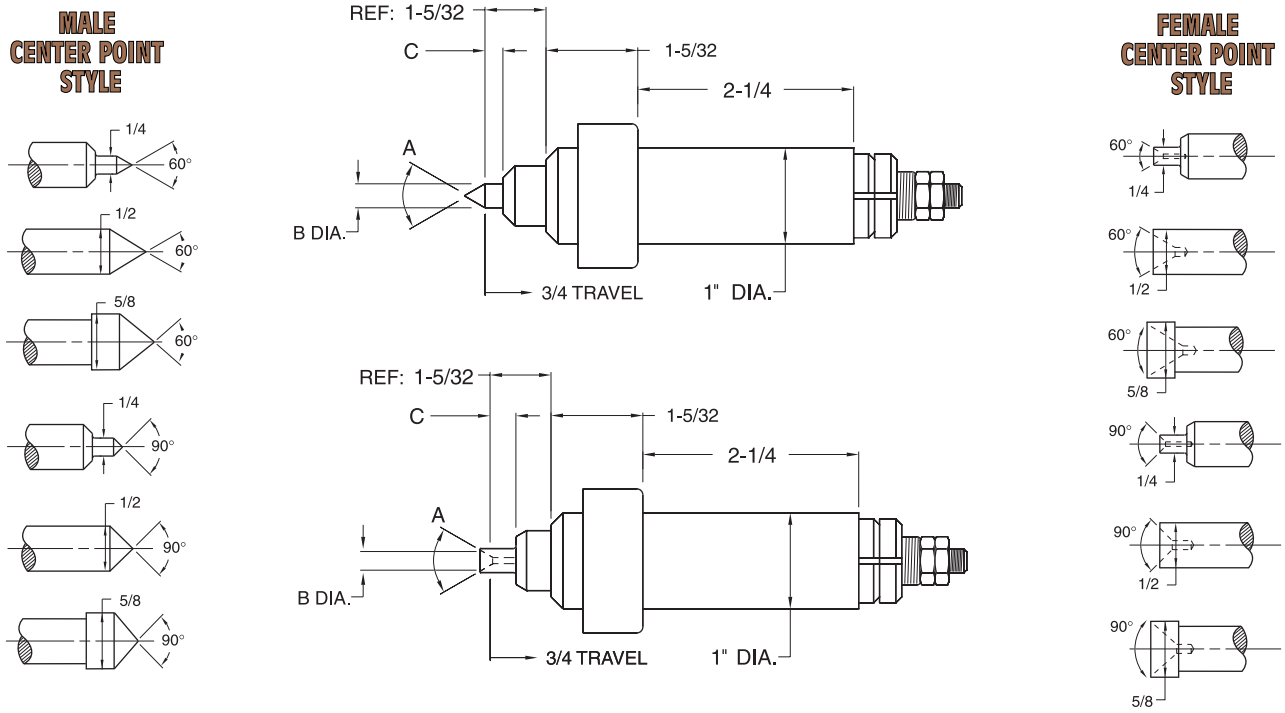
Center Live Retractable Type

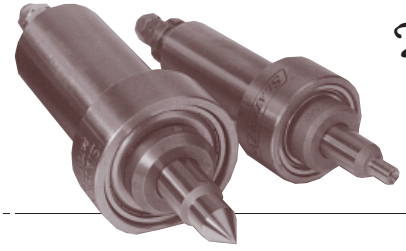
1" Straight Shank / Retractable / Spring Loaded



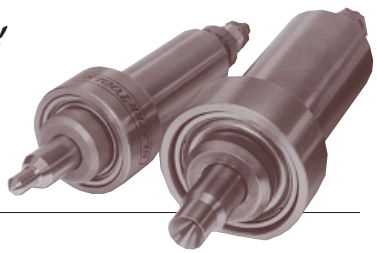
- ***Spring loaded centers*** fit directly into your turret.
- Interchangeable shaft allows versatility of points, reducing inventory, costs, and down time.
- The center is used to support an long work piece while shaving diameter.
- Enables you to shave extremely close limit tolerances.
- Female and male centers will provide excellent support, and prevent deflection of long parts while shaving.

for B&S automatics

Order #	A	B DIA.	C
CLR-0111	60° FEMALE	7/32"	3/8"
CLR-0112	60° FEMALE	15/32"	n/a
CLR-0113	60° FEMALE	19/32"	11/32"
CLR-0151	60° MALE	1/4"	3/8"
CLR-0152	60° MALE	1/2"	n/a
CLR-0153	60° MALE	5/8"	11/32"
CLR-0115	90° FEMALE	7/32"	3/8"
CLR-0116	90° FEMALE	15/32"	n/a
CLR-0117	90° FEMALE	19/32"	11/32"
CLR-0155	90° MALE	1/4"	3/8"
CLR-0156	90° MALE	1/2"	n/a
CLR-0157	90° MALE	5/8"	11/32"



Finest Heavy Duty Center Offered Anywhere!



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Forming Dovetail Tool Holders

With Taper Adjustments

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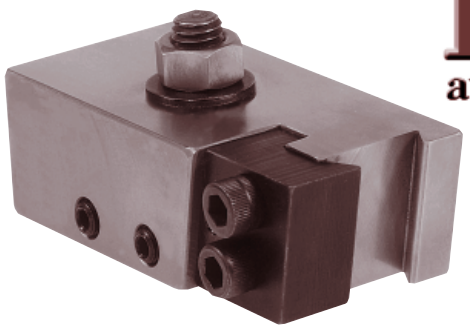

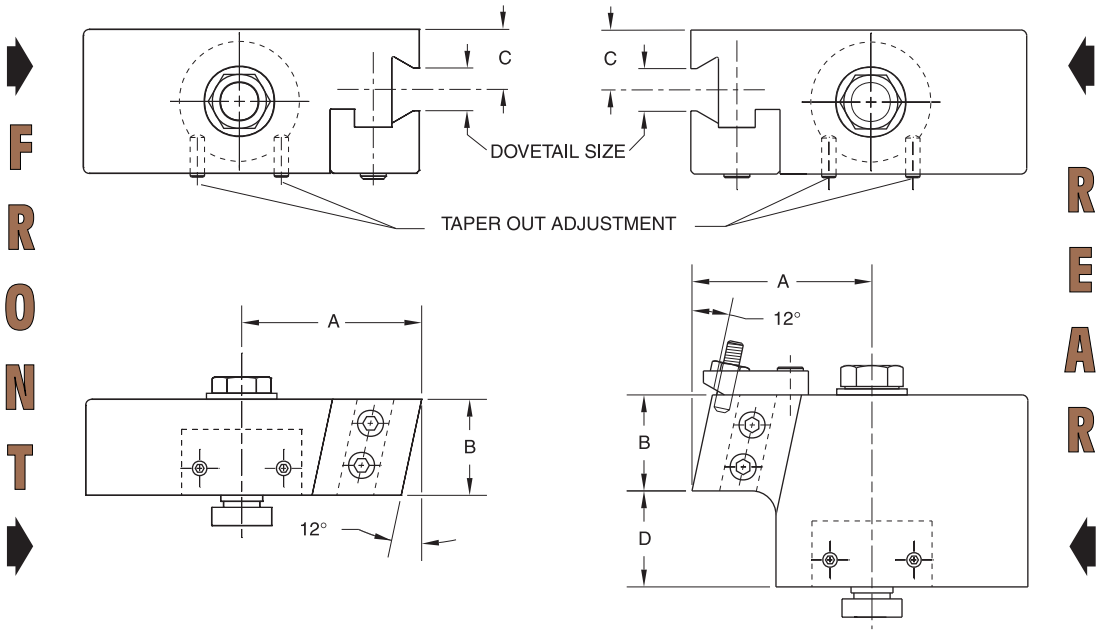

Machine Model		Order#	Dovetail Size	A	B	C	D
OO & OOG	Front	**FDT-8120**	3/8"	1-7/8"	1"	5/8"	-
	Rear	**FDT-8220**	3/8"	1-7/8"	1"	5/8"	1"
O & OG	Front	**FDT-8130**	5/8"	2-3/8"	1-5/16"	3/4"	-
	Rear	**FDT-8230**	5/8"	2-3/8"	1-5/16"	3/4"	1-5/16"
2 & 2G	Front	**FDT-8131**	5/8"	2-7/8"	1-7/16"	7/8"	-
	Rear	**FDT-8231**	5/8"	2-7/8"	1-7/16"	7/8"	1-7/16"
#4	Front	**FDT-8132**	5/8"	3-11/16"	2-3/16"	7/8"	-
	Rear	**FDT-8232**	5/8"	3-11/16"	2-3/16"	7/8"	2-3/16"
#6	Front	**FDT-8150**	1-1/4"	3-11/16"	2-7/16"	1-7/16"	-
	Rear	**FDT-8250**	1-1/4"	3-11/16"	2-7/16"	1-7/16"	2-7/16"

Forming dovetail tool holders use dovetail shaped tooling.
Tool sharpening is quick and will not affect tool profile. Holder furnished less tool.
With order specify holder number, size dovetail, position, model and size of machine.

Immediate delivery from stock.

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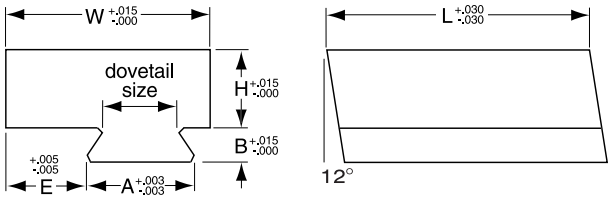
Forming Dovetail Tool Blanks

Hardened and Ground !



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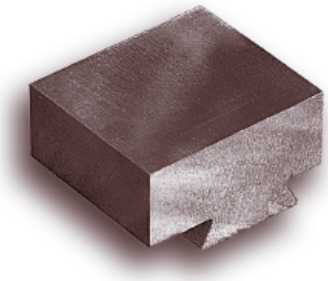

3/8" Dovetail

H	W	L	A	B	E	M-42	T-15	76 PM
3/4"	1"	1"	.6995	.297	.281	**FDB-8420**	**FDB-8620**	**FDB-8820**

5/8" Dovetail

H	W	L	A	B	E	M-42	T-15	76 PM
1"	1-1/4"	1-5/16"	.951	.297	.281	**FDB-8435**	**FDB-8635**	**FDB-8835**
1"	1-1/2"	2-1/4"	.951	.297	.531	**FDB-8439**	**FDB-8639**	**FDB-8839**

1-1/4" Dovetail

H	W	L	A	B	E	M-42	T-15	76 PM
1-1/2"	3"	2-1/4"	1.882	.547	.625	**FDB-8459**	**FDB-8659**	**FDB-8859**

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Knurling Tool Holders

Shopping for Productivity?

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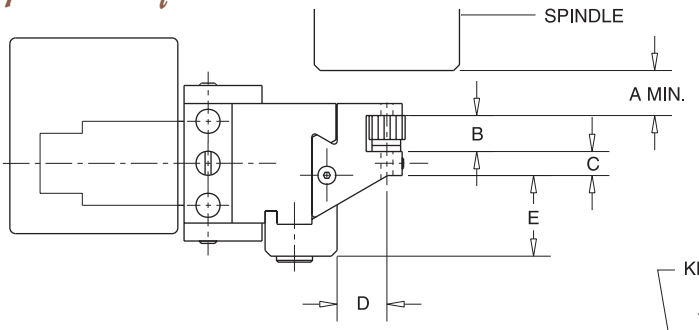
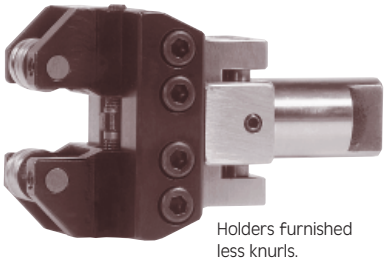
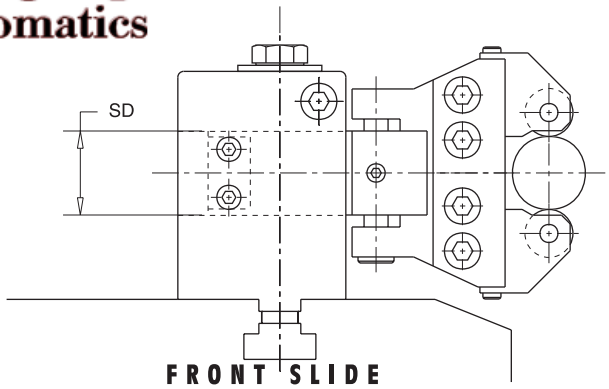
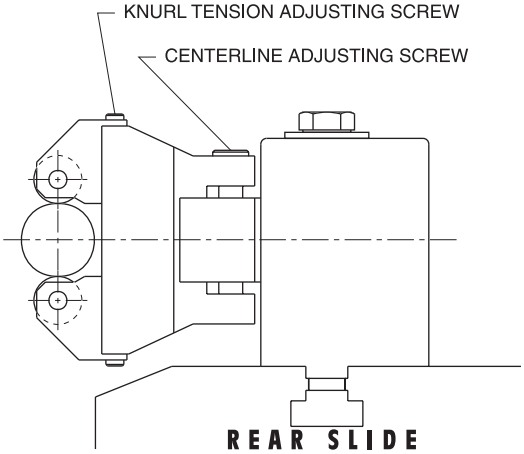




Holders furnished less knurls.



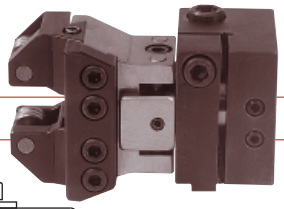


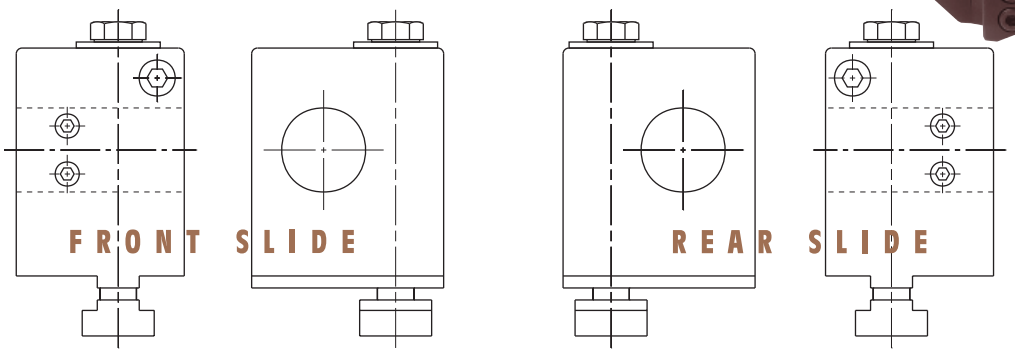
Order #	Capacity	Knurl Dia.	Pin Dia.	A	B	C	D	E	SD
KTC-8405	1/16" - 5/8"	1/2"	3/16"	5/32"	3/8"	1/4"	15/32"	7/8"	7/8"
KTC-8406	1/16" - 5/8"	5/8"	1/4"	1/4"	5/8"	9/32"	21/32"	11/16"	7/8"
KTC-8420	3/8" - 1"	3/4"	1/4"	1/4"	5/8"	5/16"	3/4"	11/16"	7/8"

Spacers furnished in each knurl roll holder as follows:
Assembly #KTC-8405 with 2 spacers each 3/32" thick.
Assembly # KTC-8406 with 3 spacers each 1/8" thick.
Assembly #KTC-8420 with 3 spacers each 1/8" thick.

Knurling Tool Holder Blocks (Holders used interchangeably in these adapter blocks)

	00 & 00G	0 & 0G	2 & 2G
Front Slide	**KTB-8100**	**KTB-8102**	**KTB-8104**
Rear Slide	**KTB-8101**	**KTB-8103**	**KTB-8105**





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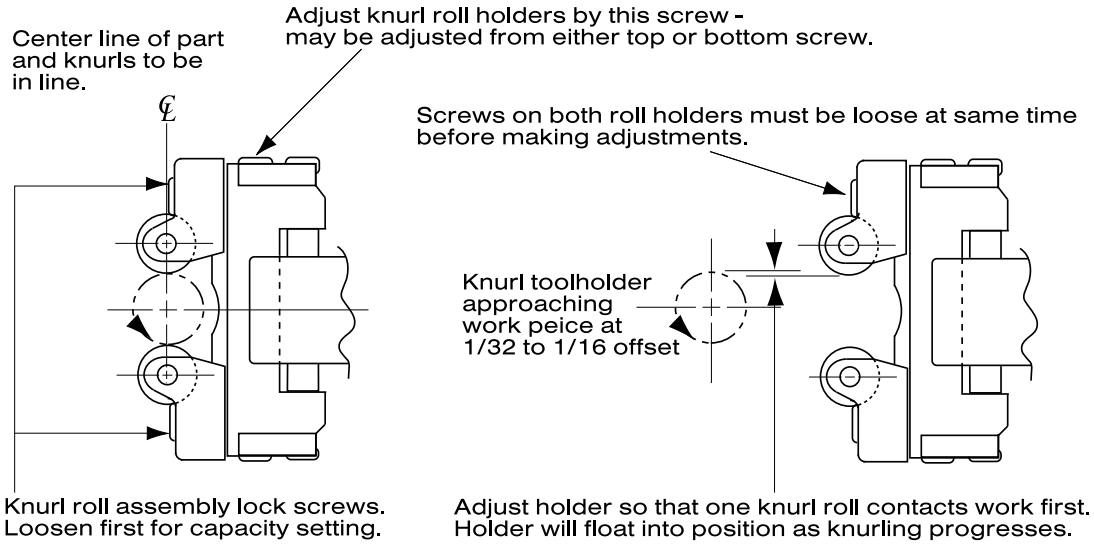
Knurl Tool Holders

Guarantee of Accuracy !

You get precision knurling and burnishing when you use Slater Tools Knurling Toolholders, because you are getting features and production advantages not found in any other tool holders. These knurl tool holders are of the straddle-type, which tangentially feeds to center from the cross slide of the automatic or turret lathe. Adapter blocks allow the holders to fit most makes, models, and size of machines. Holder assemblies are designed to compensate for any slight misalignment with centerline of the spindle. Size control is made easy through simultaneous adusting of both knurl roll holders.

Slater Tools straddle-type knurl holders increase machine life and save on setup time and maintenance costs. No extra expense for tooling, these tool holders use standard, commercially available knurl rolls.



high performance

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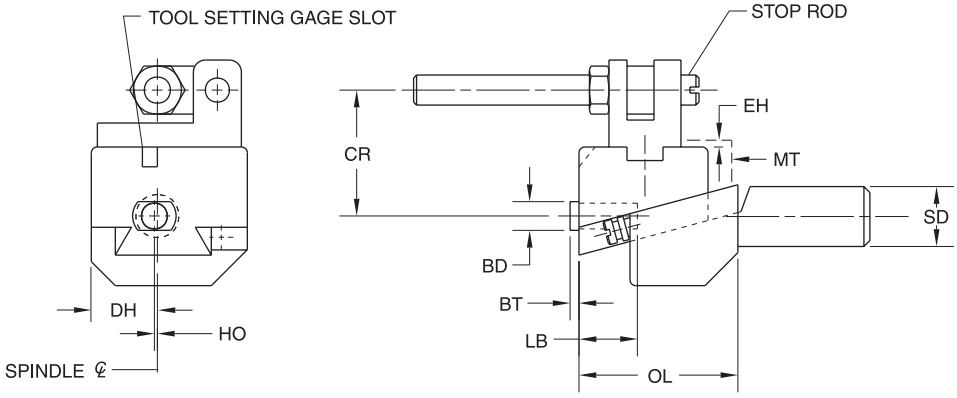
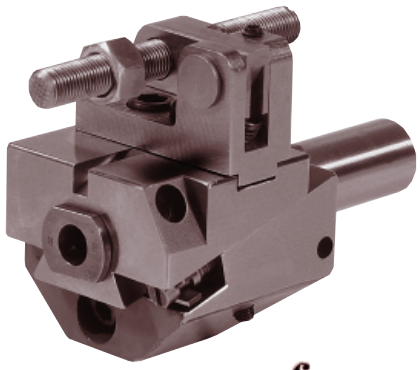
Recessing Tool Holders

Exacting Accuracy and Ruggedness Built In.





Hardened and Ground Bearing Surfaces.

for B&S automatics

- These tool holders are ruggedly built for wide and accurate recessing. Dovetail surfaces are hardened and ground. Tapered gib allows accurate adjustment for wear. Round shank type recess tool holders may be used for internal forming, as well as grooving and chamfering.
- Round shank type recess tool holder may also be used for undercuts which cannot be reached by a standard tool working from the main tool slide. The holder may be actuated in serveral ways, one by a draw bar anchored to a bracket built on to the cross slide or frame of the machine, or by a stop rod in the holder contacting a turned diameter of the part piece.
- Eccentric bushing assembled with offset as shown for recessing with right hand or counter clockwise spindle rotation. Rotate eccentric bushing 180° to recess with left hand or clockwise spindle rotation.
- Designed to operate from the machine turret. Stop bracket contacts spindle guard and swivels to compensate for holder expansion. May be used with left or right hand spindle rotation. Reversible bushing in larger sizes.

Machine Model		00 & 00G	0 & 0G	2 & 2G	4G
Holder Order #		**✱RTH-8900**	**RTH-8910**	**RTH-8920**	**★RTH-8930**
Overall Length	OL	1-3/8″	2-3/8″	2-1/2″	4-1/4″
Diameter of Shank	SD	5/8″	3/4″	1″	1-1/4″
Diameter of Bore	BD	1/4″	3/8″	1/2″	5/8″
Length of Bore	LB	3/8″	21/32″	5/8″	7/8″
Expansion Height	EH	1/16″	9/64″	9/64″	13/64″
Maximum Travel	MT	1/4″	1/2″	1/2″	3/4″
C/L of bore to C/L stop rod	CR	1-1/32″	1-5/8″	2″	2-19/32″
Distance to C/L shank of holder	DH	11/16″	1″	1-1/8″	1-3/8″
Thickness of collar of bushing	BT	✣	3/32″	1/8″	✣
Hole offset form C/L of shank	HO	✱.010	.031	.031	.031

✣ Holder has no bushing, decimal dimensions +/- .005
★ Used for right hand cut or counter clockwise spindle rotation only.
✱ Hole for tool shank is central with spindle - offset is obtained by reversible tool setting gage which positions cutting edge of tool .010 behind center for left hand or right hand cutting.

With order specify Assembly Number, Make, Model and Size of Machine.

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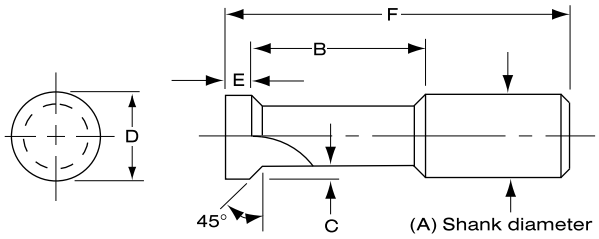
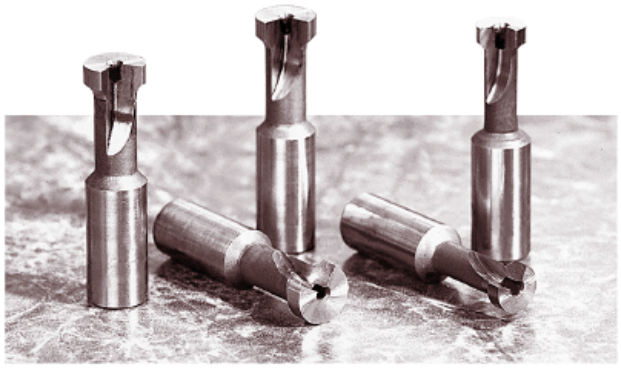
Recessing Tool Blanks

Ready To Use !





Hardened and Ground M-2 High-Speed Steel

A	B	C	D	E	F	Order #
1/4"	5/8"	.040	.240	.080	1-1/8"	**RTB-01001**
1/4"	5/8"	.050	.300	.100	1-1/8"	**RTB-01011**
3/8"	3/4"	.050	.300	.100	1-1/2"	**RTB-01101**
3/8"	3/4"	.060	.370	.120	1-1/2"	**RTB-01111**
1/2"	1"	.050	.300	.100	1-3/4"	**RTB-01201**
1/2"	1"	.060	.400	.120	1-3/4"	**RTB-01211**
1/2"	1-1/4"	.070	.500	.140	2"	**RTB-01221**
1/2"	1-1/4"	.090	.620	.180	2"	**RTB-01231**
1/2"	1-1/4"	.120	.740	.200	2"	**RTB-01241**
5/8"	1-1/4"	.060	.400	.120	2-1/4"	**RTB-01301**
5/8"	1-1/4"	.070	.500	.140	2-1/4"	**RTB-01311**
5/8"	1-1/2"	.090	.620	.180	2-1/2"	**RTB-01321**
5/8"	1-1/2"	.120	.740	.200	2-1/2"	**RTB-01331**
5/8"	1-1/2"	.130	.870	.240	2-1/2"	**RTB-01341**

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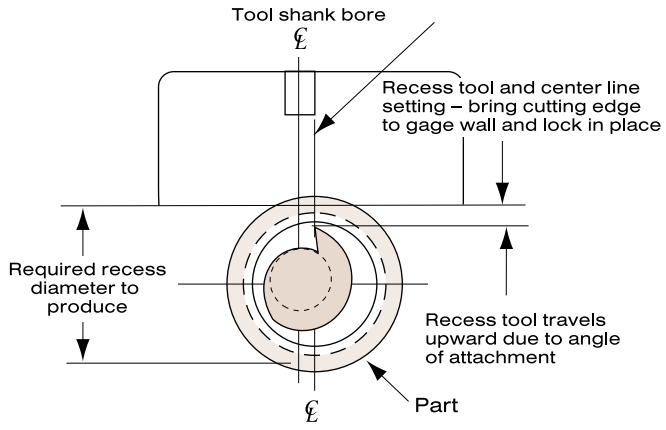
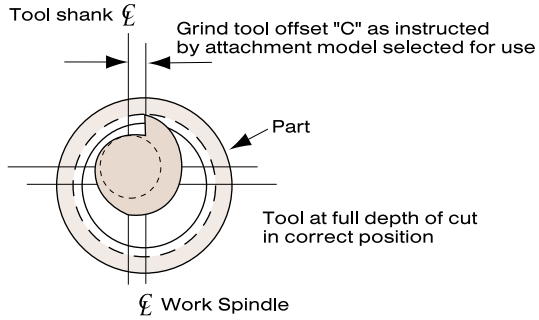
Recessing Tech Data

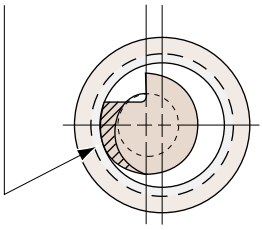
HOOK RAKE TOOL GEOMETRY



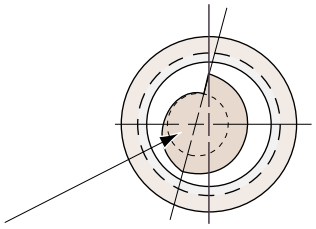
STANDARD STRAIGHT RAKE TOOL GEOMETRY



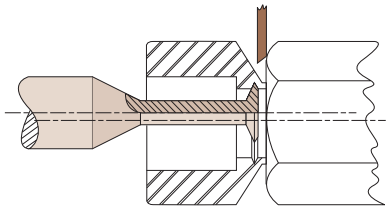
Remove shaded area by hand grinding, tool shank will rub due to lack of clearance



Properly ground tool with cutting edge offset according to size of holder provides peripheral clearance needed on circular tools.



Cutting edge ground to centerline of tool shank when rotated to centerline of work gives negative rake. Suggested on softer materials when negative rake is desired.

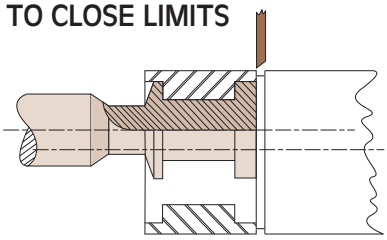


SAMPLES

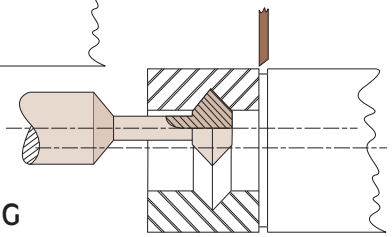
RECESS CHAMFER BEFORE CUTOFF

When recessing adjust recess tool from line of cut-off blade to .005 beyond (maximum) .002 to .005 flat on crest of recess tool.

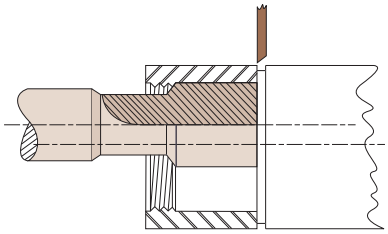
RECESS & SIZING SHOULDER TO CLOSE LIMITS



RECESS "V" GROOVE



PLUNGE CUTTING & WIDE INSIDE FORMING



How to set holder after maintenance.

Step 1

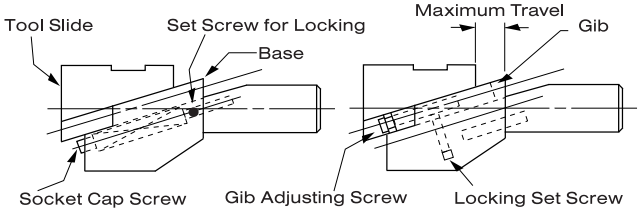
A. Assemble tool slide on base with spring and socket head cap screw set to maximum travel of tool holder.
B. Lock set screw to hold socket head cap screw in place.
C. Allow taper gib to be quite loose.

Step 2

A. Compress holder in vise or on an arbor press to maximum travel.
B. Tighten gib adjusting screw until gib will hold tool slide in maximum travel position.

Step 3

A. Clamp shank of base in vise.
B. Loosen gib adjusting screw very slowly until holder snaps open.
C. Tighten locking set screw to hold gib adjusting screw in place.
D. Holder is ready for use.



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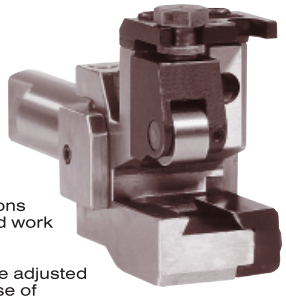
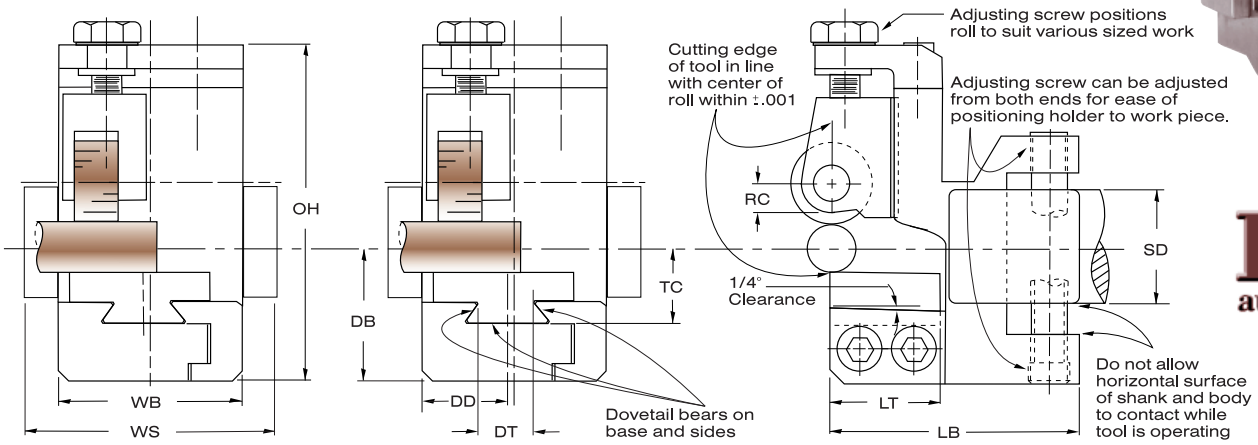
Shave Dovetail Tool Holders - Front Slide

For Increased Production ! ! !





for B&S automatics

Order #		SDT-8110	SDT-8120	SDT-8130	SDT-8135	SDT-8150
Capacity of holder	Dia.	7/16"	5/8"	1"N	1"	1-1/2"
Min. Cap. of holder	Dia.	0	0	0	0	1/2"
Roll clearance	RC	7/32"	1/4"	5/16"	11/32"	11/32"
Length of body	LB	2-1/8"	2-3/8"	3"	3"	3"
Length of tool	LT	1-1/8"	1-1/4"	1-1/2"	1-9/16"	1-9/16"
Overall Height	OH	2-23/32"	3-1/8"	3-31/32"	4-9/32"	4-13/16"
Depth Below	DB	1-1/4"	1-3/8"	1-21/32"	1-23/32"	1-15/16"
Width of Body	WB	1-5/16"	1-5/8"	2"	2-3/8"	2-3/8"
Width of Shank	WS	1-11/16"	2"	2-1/2"	3"	3"
Nominal size dovetail C/L	DT	1/2"	5/8"	5/8"	1"	1"
Shank diameter	SD	7/8"	1"	1-1/4"	1-1/4"	1-1/4"
Tooling constant	TC	19/32"	13/16"	1"	1"	1-1/4"
Distance to Dovetail	DD	39/64"	13/16"	1"	1-3/16"	1-3/16"
Small roller R-1	Dia.	-	5/8"	7/8"	1"	1"
Capacity work with R-1	Dia.	-	5/8"	1"	1"	1-1/2"
Large roller R-2	Dia.	5/8"	3/4"	1"	1-1/8"	1-1/4"
Capacity work with R-2	Dia.	7/16"	1/2"	7/8"	7/8"	1-1/4"

Front Slide Shaving Tool Holder Block Order #					
00 & 00G	**STB-8100**	-	-	-	-
0 & 0G	**STB-8102**	**STB-8111**	-	-	-
2 & 2G	**STB-8104**	**STB-8113**	**STB-8121**	**STB-8121**	**STB-8121**

See page 16 for information on roll positions. (D1, D2, D3) (R1, R2)

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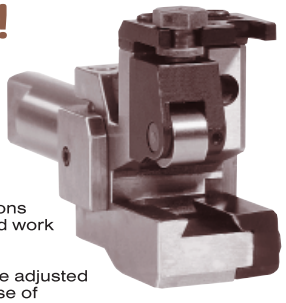
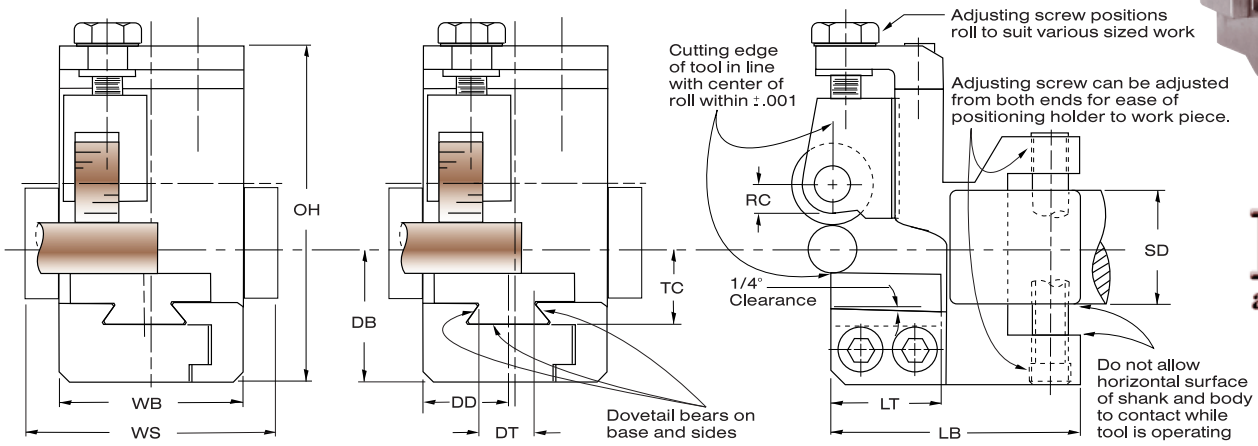
Shave Dovetail Tool Holders - Rear Slide

Precision Tolerances +/-.0005 with Smooth Finishes ! ! !





for B&S automatics

Order #		SDT-0115	SDT-0120	SDT-0130	SDT-0135	SDT-0150
Capacity of holder	Dia.	1/2"	5/8"	1"N	1"	1-1/2"
Min. Cap. of holder	Dia.	0	0	0	0	1/2"
Roll clearance	RC	7/32"	1/4"	5/16"	11/32"	11/32"
Length of body	LB	2-1/8"	2-3/8"	3"	3-1/8"	3"
Length of tool	LT	1-1/8"	1-1/4"	1-1/2"	1-5/8"	1-9/16"
Overall Height	OH	2-23/32"	2-23/32"	3-31/32"	4-1/4"	4-13/16"
Depth Below	DB	1-1/8"	1-3/8"	1-21/32"	1-11/16"	1-15/16"
Width of Body	WB	1-5/16"	1-5/8"	2"	2-3/8"	2-3/8"
Width of Shank	WS	1-11/16"	2"	2"	3"	3"
Nominal size dovetail	DT	1/2"	5/8"	5/8"	1"	1"
Shank diameter	SD	7/8"	1"	1-1/4"	1-1/4"	1-1/4"
Tooling constant	TC	5/8"	13/16"	1"	1"	1-1/4"
Distance to Dovetail C/L	DD	39/64"	13/16"	1"	1-3/16"	1-3/16"
Small roller R-1	Dia.	-	5/8"	7/8"	1"	1"
Capacity work with R-1	Dia.	-	5/8"	1"	1"	1-1/2"
Large roller r-2	Dia.	5/8"	3/4"	1"	1-1/8"	1-1/4"
Capacity work with R-2	Dia.	7/16"	1/2"	7/8"	7/8"	1-1/4"

Rear Slide Shaving Tool Holder Block Order #					
OO & OOG	**STB-8101**	-	-	-	-
O & OG	**STB-8103**	**STB-8110**	-	-	-
2 & 2G	**STB-8105**	**STB-8112**	**STB-8120**	**STB-8120**	**STB-8120**

See page 16 for information on roll positions. (D1, D2, D3) (R1, R2)

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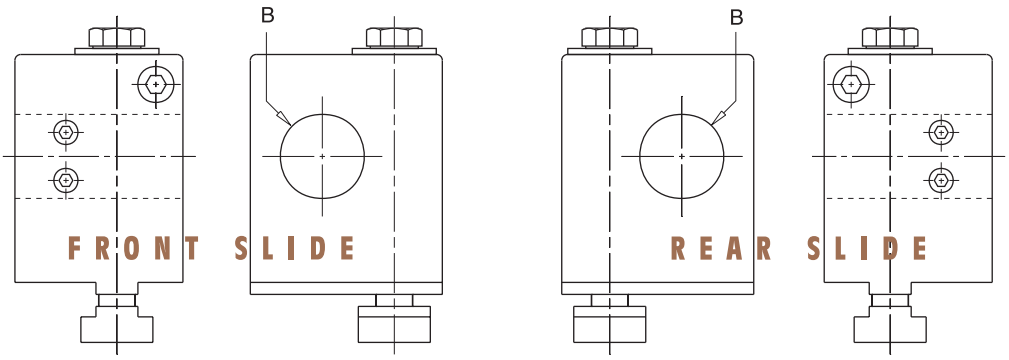
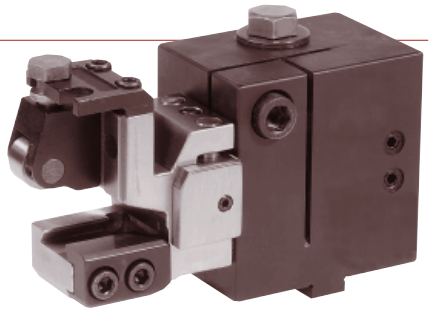
Shave Tool Holder Blocks





for B&S automatics

"00 & 00G"

Position	Block Order #	Cap.Holder Required	Holder Assembly #	Hole Bore Dia. "B"
Rear	**STB-8101**	1/2"	SDT-0115	7/8"
Front	**STB-8100**	7/16"	SDT-8110	7/8"

"0 & 0G"

Position	Block Order #	Cap.Holder Required	Holder Assembly #	Hole Dia. "B"
Rear	**STB-8103**	1/2"	SDT-0115	7/8"
	STB-8110	5/8"	SDT-0120	1"
Front	**STB-8102**	7/16"	SDT-8110	7/8"
	STB-8111	5/8"	SDT-8120	1"

"2 & 2G"

Position	Block Order #	Cap.Holder Required	Holder Assembly #	Hole Dia. "B"
Rear	**STB-8105**	1/2"	SDT-0115	7/8"
	STB-8112	5/8"	SDT-0120	1"
	STB-8120	1" Narrow	SDT-0130	1-1/4"
	STB-8120	1"	SDT-0135	1-1/4"
	STB-8120	1-1/2"	SDT-0150	1-1/4"
Front	**STB-8104**	7/16"	SDT-8110	7/8"
	STB-8113	5/8"	SDT-8120	1"
	STB-8121	1" Narrow	SDT-8130	1-1/4"
	STB-8121	1"	SDT-8135	1-1/4"
	STB-8121	1-1/2"	SDT-8150	1-1/4"

Immediate delivery from stock.

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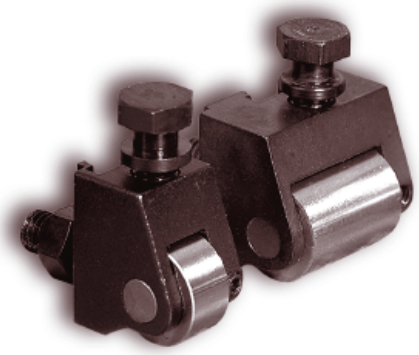
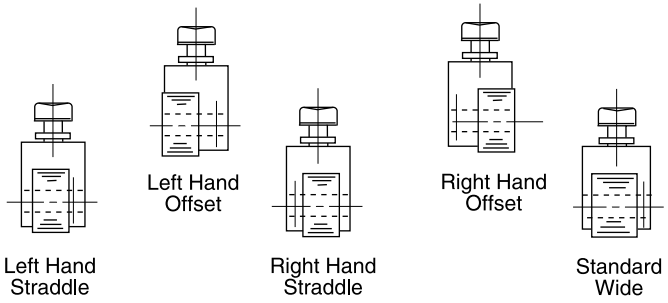
Shaving Roller Rests - Standard Design

Small and Large Rolls - Sub-Assemblies





Holder Capacity	Left Hand Straddle	Left Hand Offset	Right Hand Straddle	Right Hand Offset	Standard Wide
Standard Small Rolls					
7/16" & 1/2"	**SRR-0010**	**SRR-0030**	**SRR-0050**	**SRR-0070**	**SRR-0090**
Dia. x Width	5/8" x 3/8"	5/8" x 3/8"	5/8" x 3/8"	5/8" x 3/8"	5/8" x 1"
5/8"	**SRR-0110**	**SRR-0130**	**SRR-0150**	**SRR-0170**	**SRR-0190**
Dia. x Width	5/8" x 3/8"	5/8" x 3/8"	5/8" x 3/8"	5/8" x 3/8"	5/8" x 1"
1N"	**SRR-0310**	**SRR-0330**	**SRR-0350**	**SRR-0370**	**SRR-0390**
Dia. x Width	7/8" x 5/8"	7/8" x 5/8"	7/8" x 5/8"	7/8" x 5/8"	7/8" x 1"
1"	**SRR-0410**	**SRR-0430**	**SRR-0450**	**SRR-0470**	**SRR-0490**
Dia. x Width	1" x 11/16"	1" x 11/16"	1" x 11/16"	1" x 11/16"	1" x 7/8"
1-1/2"	**SRR-0510**	**SRR-0530**	**SSR-0550**	**SRR-0570**	**SRR-0590**
Dia. x Width	1" x 11/16"	1" x 11/16"	1" x 11/16"	1" x 11/16"	1" x 1"
Standard LARGE Rolls					
7/16" & 1/2"	**N/A**	**SRR-0020**	**N/A**	**SRR-0060**	**N/A**
Dia. x Width	N/A	3/4" x 3/8"	N/A	3/4" x 3/8"	N/A
5/8"	**SRR-0100**	**SRR-0120**	**SRR-0140**	**SRR-0160**	**SRR-0180**
Dia. x Width	3/4" x 3/8"	3/4" x 3/8"	3/4" x 3/8"	3/4" x 3/8"	3/4" x 1"
1N"	**SRR-0300**	**SRR-0320**	**SRR-0340**	**SRR-0360**	**SRR-0380**
Dia. x Width	1" x 5/8"	1" x 5/8"	1" x 5/8"	1" x 5/8"	1" x 1"
1"	**SRR-0400**	**SRR-0420**	**SRR-0440**	**SRR-0460**	**SRR-0480**
Dia. x Width	1-1/8" x 11/16"	1-1/8" x 11/16"	1-1/8" x 11/16"	1-1/8" x 11/16"	1-1/8" x 7/8"
1-1/2"	**SRR-0500**	**SRR-0520**	**SRR-0540**	**SRR-0560**	**SRR-0580**
Dia. x Width	1-1/4" x 11/16"	1-1/4" x 11/16"	1-1/4" x 11/16"	1-1/4" x 11/16"	1-1/4" x 1"

Rolls and pins can be purchased separately if desired.

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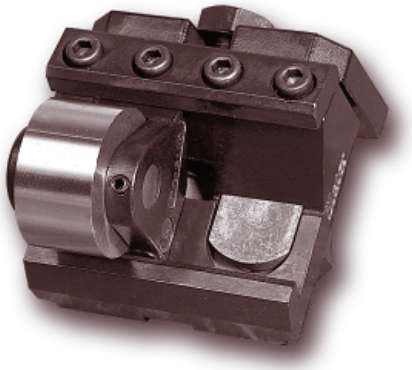
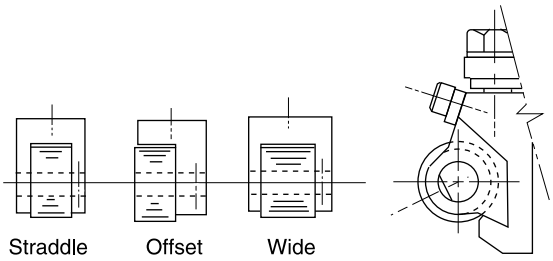
Vari-Position Shaving Roller Rests

Used For Unlimited Positions By Sliding Assembly - Then Locking !





Will adapt to Standard Shaving Dovetail Toolholder.
Roll assemby comes with mounting slide plate.

Vari - Position Rests

Holder Size	Straddle Large Roll	Offset Large Roll	Wide Large Roll	Straddle Small Roll	Offset Small Roll	Wide Small Roll
7/16" & 1/2"	**N/A**	**N/A**	**N/A**	**SVR-0010**	**SVR-0030**	**SVR-0090**
Dia. x Width	N/A	N/A	N/A	5/8" X 3/8"	5/8" X 3/8"	5/8" X 1"
5/8"	**SVR-0100**	**SVR-0120**	**SVR-0180**	**SVR-0110**	**SVR-0130**	**SVR-0190**
Dia. x Width	3/4" x 3/8"	3/4" x 3/8"	3/4" x 1"	5/8" x 3/8"	5/8" x 3/8"	5/8" x 1"
1N"	**SVR-0300**	**SVR-0320**	**SVR-0380**	**SVR-0310**	**SVR-0330**	**SVR-0390**
Dia. x Width	1" x 5/8"	1" x 5/8"	1" x 1"	7/8" x 5/8"	7/8" x 5/8"	7/8" x 1"
1"	**SVR-0400**	**SVR-0420**	**SVR-0480**	**SVR-0410**	**SVR-0430**	**SVR-0590**
Dia. x Width	1-1/8" x 11/16"	1-1/8" x 11/16"	1-1/8" x 7/8"	1" x 11/16"	1" x 11/16"	1" x 7/8"
1-1/2"	**SVR-0500**	**SVR-0520**	**SVR-0580**	**SVR-0510**	**SVR-0530**	**SVR-0490**
Dia. x Width	1-1/4" x 11/16"	1-1/4" x 11/16"	1-1/4" x 1"	1" x 11/16"	1" x 11/16"	1" x 1"

Roll holders can be reversed from left to right hand positioning.
Rolls and pins can be purchased separately if desired.

for B&S automatics

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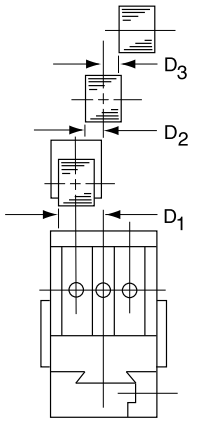
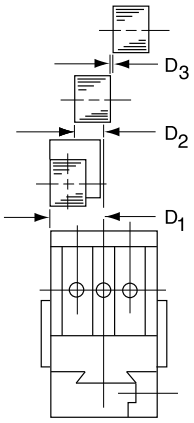
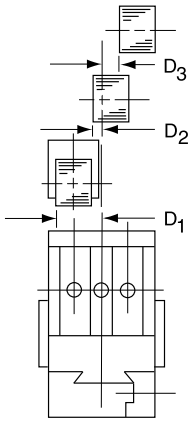
Shaving Roll Position



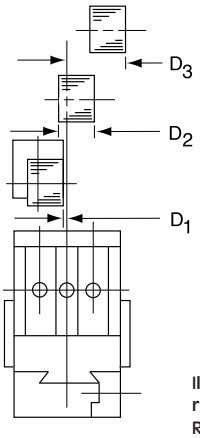
L.H. Straddle



L.H. Offset



R.H. Straddle



R.H. Offset

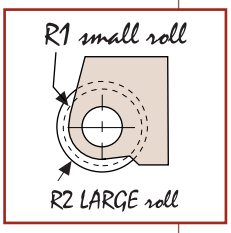


Illustration shown for rear slide example. Reverse for front slide.

Front Slide

		SDT-8110	SDT-8120	SDT-8130	SDT-8135	SDT-8150
Small roller R-1	Dia.	-	5/8"	7/8"	1"	1"
Capacity work with R-1	Dia.	-	5/8"	1"	1"	1-1/2"
Large roller R-2	Dia.	5/8"	3/4"	1"	1-1/8"	1-1/4"
Capacity work with R-2	Dia.	7/16"	1/2"	7/8"	7/8"	1-1/4"
Left hand straddle	D-1	7/16"	9/16"	13/16"	15/16"	15/16"
roller position	D-2	-	1/8" left	1/4" left	5/16" left	5/16" left
	D-3	9/32" right	5/16" right	5/16" right	5/16" right	5/16" right
Left hand offset	D-1	1/32" left	on C/L	on C/L	on C/L	on C/L
roller position	D-2	-	7/16"	9/16"	5/8"	5/8"
	D-3	3/4"	7/8"	1-1/8"	1-1/4"	1-1/4"
Right hand straddle	D-1	9/16"	11/16"	15/16"	1"	1"
roller position	D-2	-	1/4"	3/8"	3/8"	3/8"
	D-3	5/32"	3/16"	3/16"	1/4"	1/4"
Right hand offset	D-1	21/32"	7/8"	1-1/8"	1-1/4"	1-1/4"
roller position	D-2	-	7/16"	9/16"	5/8"	5/8"
	D-3	1/16" left	on C/L	on C/L	on C/L	on C/L

Rear Slide

		SDT-0115	SDT-0120	SDT-0130	SDT-0135	SDT-0150
Small roller R-1	Dia.	-	5/8"	7/8"	1"	1"
Capacity work with R-1	Dia.	-	5/8"	1"	1"	1-1/2"
Large roller R-2	Dia.	5/8"	3/4"	1"	1-1/8"	1-1/4"
Capacity work with R-2	Dia.	7/16"	1/2"	7/8"	7/8"	1-1/4"
Left hand straddle	D-1	9/16"	11/16"	15/16"	1"	1"
roller position	D-2	-	1/4"	3/8"	3/8"	3/8"
	D-3	5/32"	3/16"	3/16"	1/4"	1/4"
Left hand offset	D-1	21/32"	7/8"	1-1/8"	1-1/4"	1-1/4"
roller position	D-2	-	7/16"	9/16"	5/8"	5/8"
	D-3	1/16" right	on C/L	on C/L	on C/L	on C/L
Right hand straddle	D-1	7/16"	9/16"	13/16"	15/16"	15/16"
roller position	D-2	-	1/8" right	1/4" right	5/16" right	5/16" right
	D-3	9/32" left	5/16" left	5/16" left	5/16" left	5/16" left
Right hand offset	D-1	1/32" right	on C/L	on C/L	on C/L	on C/L
roller position	D-2	-	7/16"	9/16"	5/8"	5/8"
	D-3	3/4"	7/8"	1-1/8"	1-1/4"	1-1/4"

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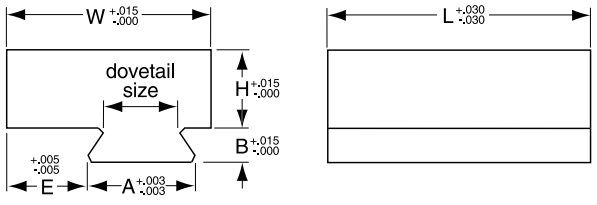
Dovetail Shave Tool Blanks

Hardened and Ground !



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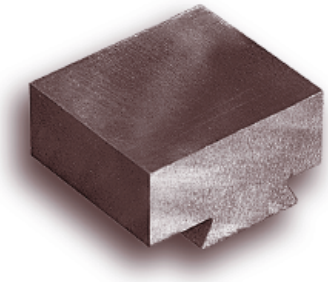


1/2" Dovetail

H	W	L	A	B	E	M-42	T-15	76 PM
3/4"	1-3/16"	1-1/16"	.715	.203	.331	**SDB-0417**	**SDB-0717**	**SDB-0917**

5/8" Dovetail

H	W	L	A	B	E	M-42	T-15	76 PM
3/4"	1-1/4"	1-1/4"	.913	.265	.294	**SDB-0433**	**SDB-0733**	**SDB-0933**

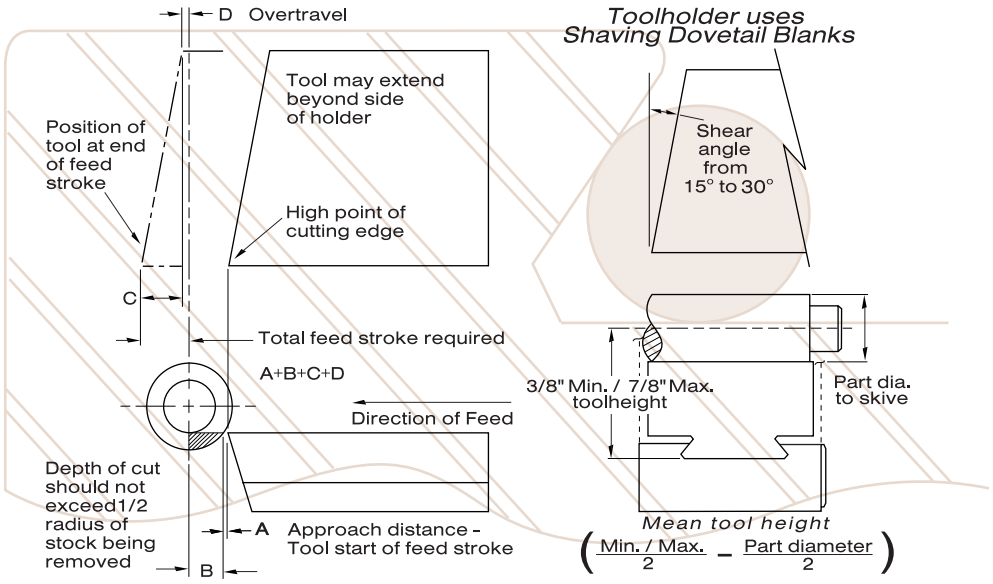
1" Dovetail

H	W	L	A	B	E	M-42	T-15	76 PM
1"	2"	1-3/4"	1.288	.265	.481	**SDB-0464**	**SDB-0764**	**SDB-0964**

Shaving to Skiving Blank Conversion

Front rake angle for a high speed steel tool -
Start with a 20° angle for steels (Max. 30°).
Start with a 15° angle for non -ferrous materials (Max. 25°).
Feed rates start at double form tool feed rate.

Front rake angle for a carbide tool -
Start with a 10° angle for steels (Max. 30°).
Start with a 15° angle for non-ferrous (Max. 25°).
Feed rates start at triple form tool feed rate.



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Force "E" Factor

As a roller contacts the workpiece, forward motion of the cross slide combined with resistance of the float spring creates a diagonal pushing effect against the work piece. The direction of this force, as shown in Figure 1, is along a line passing through the centers of the roll and the work piece.

The diagonal force "E" is an inherent characteristic of all floating, roller-controlled tool holders of this type. At the start of the shaving operation, some sideways force is necessary. As the roller climbs the arc of the work piece toward the vertical center line, more of the force is downward. To visualize the effect consider in Figure 1 a grossly exaggerated condition in which the roll contacts the part at the "w" axis. Angle 'R' would be 90-degrees; all pressure would be sideways. When the cut is complete and the roll lies on the "x" axis, angle "C" becomes perpendicular, and no sideways force exists.

If we are to shave the best accuracy and finish, the holder must be adjusted to keep angle 'R' as small as possible. Doing so calls for use of rolls with most suitable diameter, careful adjustment of holder float height, and leaving only a small amount of stock to be shaved.

When a shaving tool gives trouble, almost always the fault lies in one of the following items, all of which have an effect on the "Force E" conditions:

1. Chattering or varying form tools in station ahead of shaving position
2. Tools or rolls not clamped tightly.
3. Cutting edge of shave tool not on tangent line of roller.
4. Shave tool contacting work piece before roller does.
5. Work length, or small diameters, requires auxiliary supporting device.

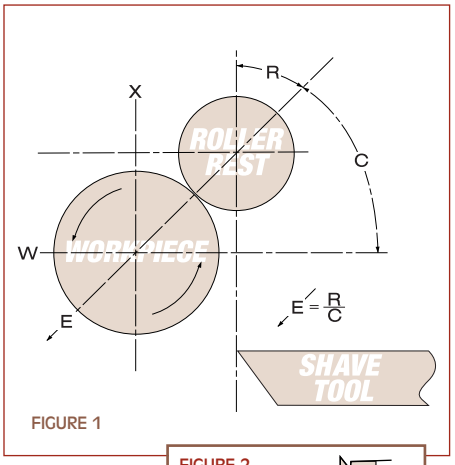

FIGURE 1

While it may be possible to accomplish short, stiff parts, Force 'E' becomes a vital factor on long shaved surfaces, or when stock diameter is small. If a fine finish is required, and tolerances are close, it is usually advisable to support the work piece opposite the shave tool in some way. On a multiple- spindle machine, a tool slide roller rest, mounted as shown in Figure 2, is probably simplest.

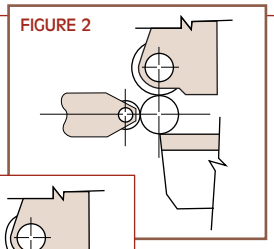
FIGURE 2

This, however, raises a problem: As the shaving decreases the work diameter, how can the support be maintained? One solution is to use a tapered roll . The smaller tapered section of the support picks up the unshaved diameter, while the larger, straight area behind takes over as the diameter decreases. Another solution is to use a carbide pad, shown in Figure 3.

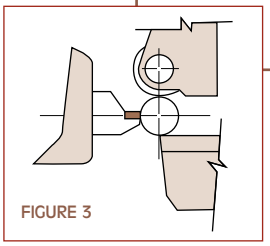
FIGURE 3

By designing the support taper correctly, and setting its holder at the proper point on the tool slide, the shaving operation can be supported throughout the operation. Under ideal conditions, no more than .010 of stock should be shaved away. However very shallow grooves or minor steps need not be designed into the forming tool; usually they can be shaved without trouble and in many cases, it is advisable to do so. On the other hand, the form should be wide enough to clear both sides of the shave tool; if it is not, the shave may rub, climb into the cut, and grab. Those who have seen this happen need no further explanation of the possible consequences.

Chatter or Vibration, from another tool in the machine, can be transmitted to a shaving tool. It should be kept in mind that a shave tool is deliberately designed to follow a previously established contour; it is not intended to round up egg shaped O.D.'s or correct eccentricity of a diameter.

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If the formed surface is chattered, the shave tool roller will attempt to follow the chatter marks. For this reason, the preparatory cuts should bring the diameter to be shaved into proper condition. However, if Force "E" is great enough to spring the workpiece off the spindle line even briefly, it may set up the harmonic condition which produces a chattered finish. The solution, as mentioned earlier, is an outboard support, or a change in tool design, which reduces the side stress on the workpiece.

Here are some other common sources of a chattering condition:

1. Tool set ahead of center.
2. A sticky, or jerky, cross-slide action.
3. Worn, out-of-round roller.
4. Roller of wrong diameter for job.
5. Not enough front rake on shave tool, start with one to two degrees rake, increase up to 15 degrees as required until chatter stops.
   This is possible on straight cuts only.
   Shave tools with deep profiles would require correcting depths of steps to hold size.
6. Cross-slide cam or linkage worn or loose.
7. Spindle bearings in machine are worn or need adjustment.
8. Surface speed and feed may be incorrect for the job. Make slight changes to determine if this is the case.
9. Float spring on shave holder is not tight enough.
10. Guide pin bore's out of round.

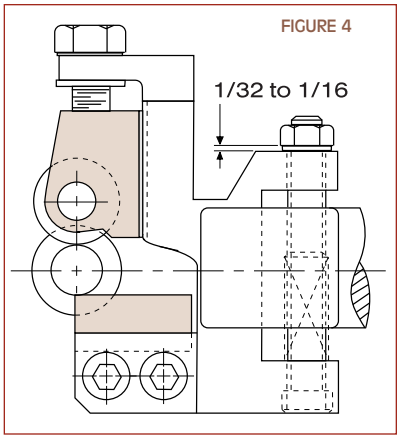

FIGURE 4

Summary

On any machine in good condition, shaving will produce diameters which are round, and on size within +/- .0005. Contours can be produced which otherwise would be possible only by tracing. By its nature, shaving can almost always be completed in less revolutions than an end-working operation; hence shaving seldom is the limiter on cycle time. Shaving also has its built-in diameter controls; it does not rely on exact cross slide stroke length for accuracy, and to a certain extent, it can compensate for index or spindle errors. If holders, and the machines, are in good condition, and if properly designed, correctly ground tools are used at appropriate feeds and speeds, shaving gives minimum trouble. If trouble occurs, look to the Force "E" factor. Simple as it seems, control of Force "E" is the key to efficient shaving.

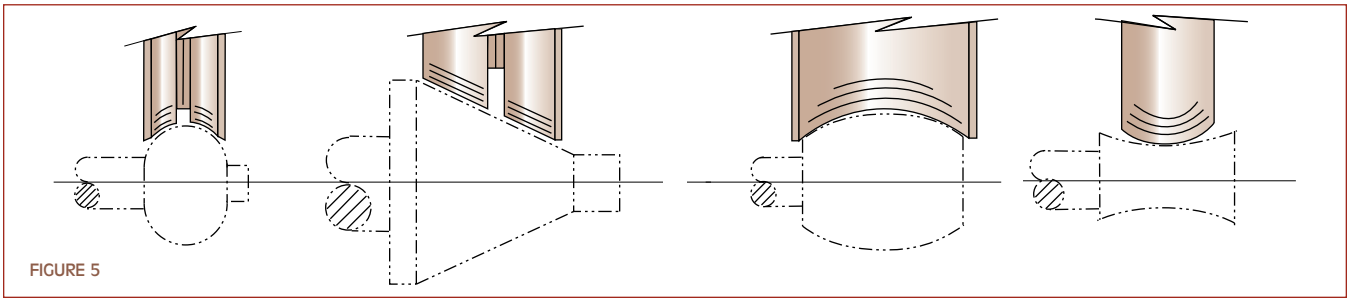
FIGURE 5

Roll Design

As nearly as possible, the roller should be over the center of the cut (refer to samples above). This is easier if a shop has on hand a variety of right-hand, left-hand and on-center roll holders. There are numerous varieties of roll position, and each application calls for a different usage.

When radiused surfaces are shaved, a straight, cylindrical roller will give only line contact, and may leave a pressure mark. On the other hand, a roll contoured exactly like the part may bind on contact with the unshaved surface. The best answer is shown in Figure 5, where the radius of the roll is slightly greater than that of the part. In a concave situation, the reverse would be true; the roll's radius should be less than that on the workpiece.

In shaving a taper, rolls may skid, due to the differential between the various diameters of roll and work piece. There are two logical solutions: (1) use split rollers side by side in the same holder: (2) use one tapered roller in a tilted holder. While the second suggestion calls for a specially designed roller back rest, it is generally the best.

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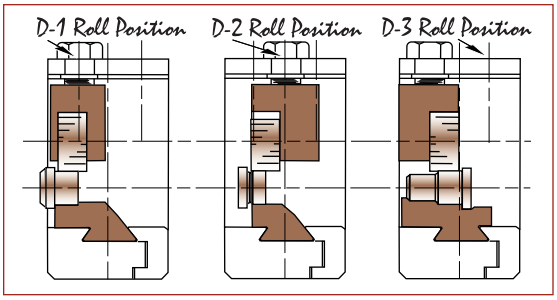
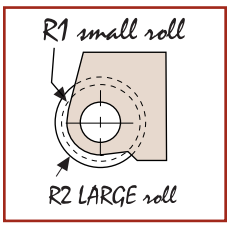
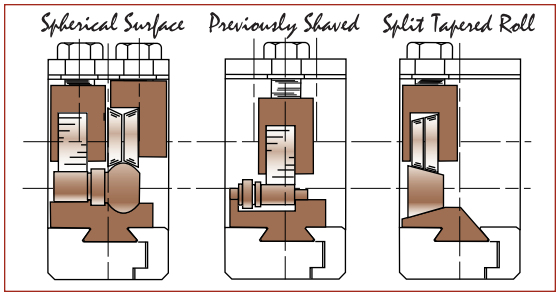






Shaving Shoulders and Grooves

If the tool must work close to a deep shoulder, a stop device, like the one shown in Figure 4 on page 24, controls the upward travel of the tool and insures against tool-grabbing. As holder advances toward stock center, the tool digs into shoulder and body is raised to an unsuitable clearance. This improper shaving condition will not allow roll to contact part and guide tool in its proper cutting path, but rather allows tool to advance unguided. This will damage dovetail tool or break work piece. It is possible tool may raise holder to a point where body would ram shank. If this happens, damage will occur to the shave tool holder. Note the stop nut limits travel, but does not interfere with the float of the holder on the spring.

Standard rolls and roller back rests may be positioned, and adjusted to shave the contours of many parts usually associated with special rolls and roller back rests. Standard roller back rests may be placed in any of 3 positions for both straddle and offset type roller back rests. (7/16 shave tool holder have 2 roller positions only.) A combination of any 2 roller back rests may be used in the D-1 and D-3 positions for all shave tool holders. Tools are located on the dovetail in the holder after part has been positioned for support by the roll. Special ground rolls are needed for tapered and spherical surfaces. Extra wide roller back rests are made on order only. Undercuts, if not too deep (.010-.020) may be shaved in without forming.

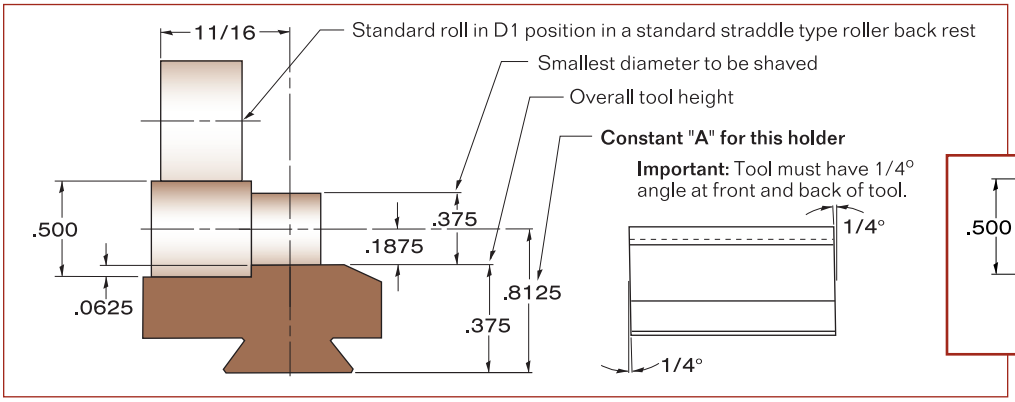
Tool Design / Constant "A"

For any one particular holder there is a constant "A" figured from the bottom of the tool to the centerline of the work. This constant is computed according to size of dovetail and the capacity of the holder as follows:

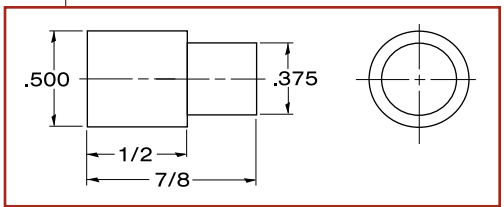
- For the 1/2 inch size dovetail the constant is equal to 3/8 inch plus 1/2 the capacity of the holder being used.
- For the 5/8 to 1-1/2 inch size dovetail inclusive the constant is equal to 1/2 inch plus 1/2 the capacity of the holder being used.
- For the 1-5/8 inch size dovetail the constant is equal to 3/4 inch plus 1/2 the capacity of the holder being used.

With this constant "A" the overall height of the tool may be figured. From constant "A" subtract one half the smallest diameter to be shaved. The remainder is the overall height of the tool and all steps are dimensioned down from this surface. (Note: No correction for 1/4 degree front clearance is needed on steps of shave tool). The overall tool height may vary by plus or minus 1/32 inch. Adjustment in the holder compensate for this variation in tool height. Be sure to position the roll on part to be shaved to obtain the best supporting surface.

The length of the tool is obtained directly from the tooling chart. It is important that the face and heel of the shave tool be ground with the 1/4 degree angle as shown.



Example: Shave the .500 and .375 diameters of the part shown at right, using a SDT-71201, 5/8 capacity Slater shaving dovetail tool holder.



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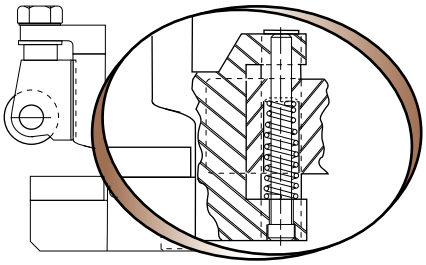
Spring Maintenance



fast! easy! efficient!

To reassemble after replacing spring, be sure to replace pilot pins in exact same holes from which they were removed and in the same direction.

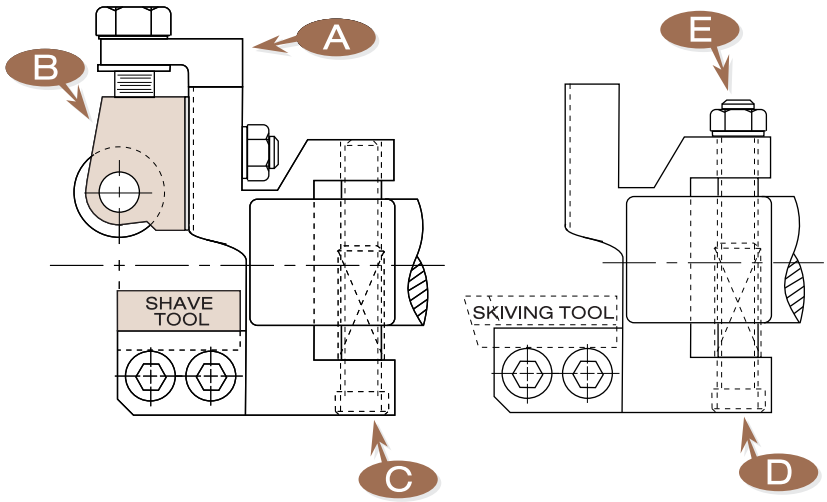
NOTE: Bottleneck Spring Only.
When replacing spring be sure that small diameter of spring is at top as shown.

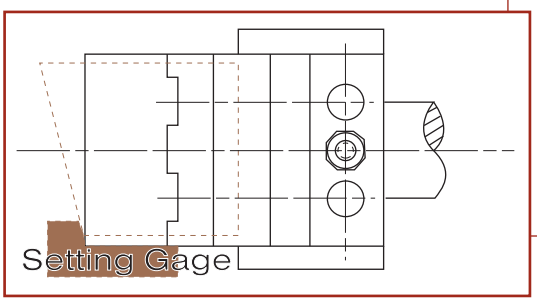
Converting Shaving to Skiving Holder

Instructions on how to convert SLATER TOOLS Shaving Dovetail Tool Holder to Skiving Dovetail Tool Holder.

To convert shaving tool holder to skiving tool holder, follow these easy steps:

- Remove pressure plate "A"
- Remove roller back rest "B"
- Remove socket head cap screw "C"
- Replace "C" with longer screw "D"
- Add lock nut "E"
- Use setting gage to set tool and maintain the same diameter on the work piece as before sharpening.
- Adjust screw "D" to position tool to skive desired diameter of work.
- After adjustment is made, lock in place with nut "E".





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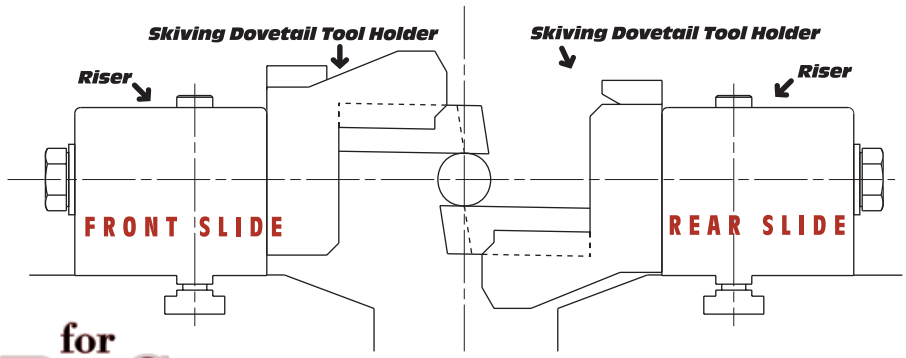
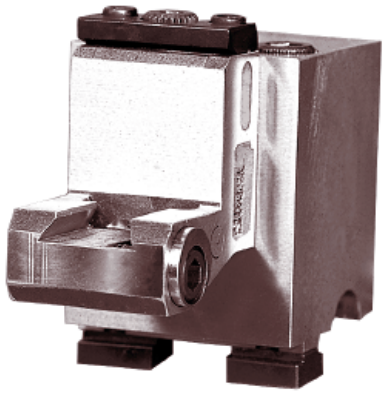
Skiving Dovetail Tool Holders

Reversible & Adjustable





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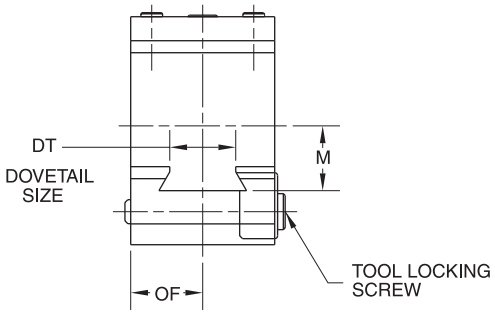

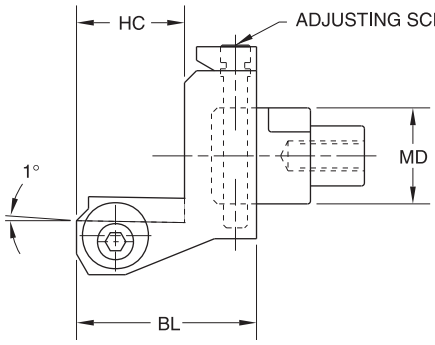

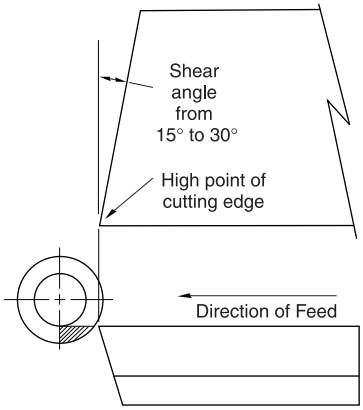

Skiving dovetail holders are used with dovetail tooling to obtain exceptionally smooth finishes.
shave tool blanks shown on page 31 may also be used as skive tool blanks. Tool design data on page 31.

Machine Model: **OO & OOG** (Front and Rear)

Order #	Capacity	DT	BL	MD	M Min.	M Max.	OF	HC	Riser #
SDH-0110	3/4″	5/8″	1-7/8″	1″	3/8″	7/8″	3/4″	1″	**STR-8110**

Machine Model: **O & OG** (Front and Rear)

Order #	Capacity	DT	BL	MD	M Min.	M Max.	OF	HC	Riser #
SDH-0110	3/4″	5/8″	1-7/8″	1″	3/8″	7/8″	3/4″	1″	**STR-8111**

Machine Model: **2 & 2G** (Front and Rear)

Order #	Capacity	DT	BL	MD	M Min.	M Max.	OF	HC	Riser #
SDH-0110	3/4″	5/8″	1-7/8″	1″	3/8″	7/8″	3/4″	1″	**STR-8112**
SDH-0120	1-1/2″	1″	2-5/8″	1-1/4″	1/2″	1-1/4″	1″	1-1/2″	**STR-8120**
SDH-0130	2-1/4″	1-1/4″	3-1/4″	1-1/2″	3/4″	1-5/8″	1-3/16″	1-13/16″	**STR-8130**

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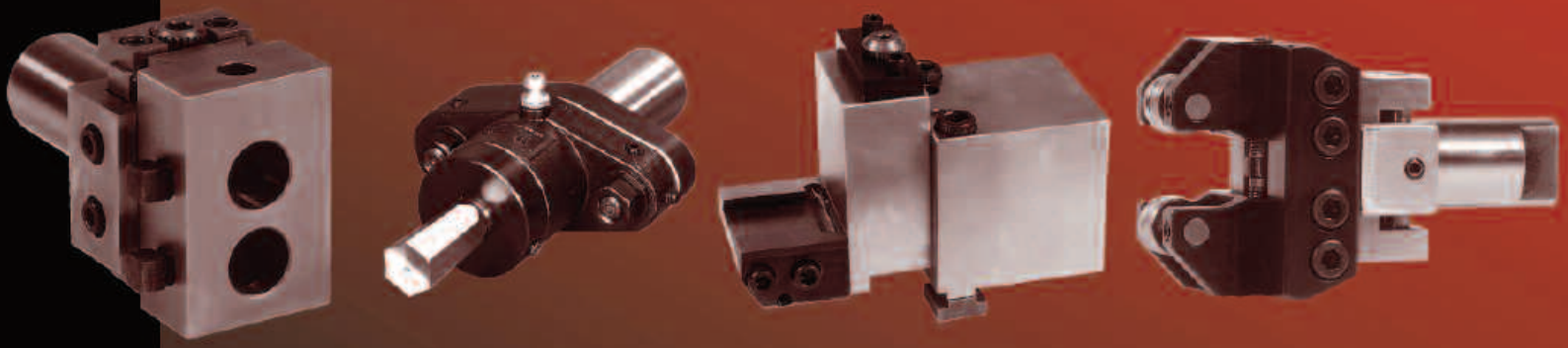

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