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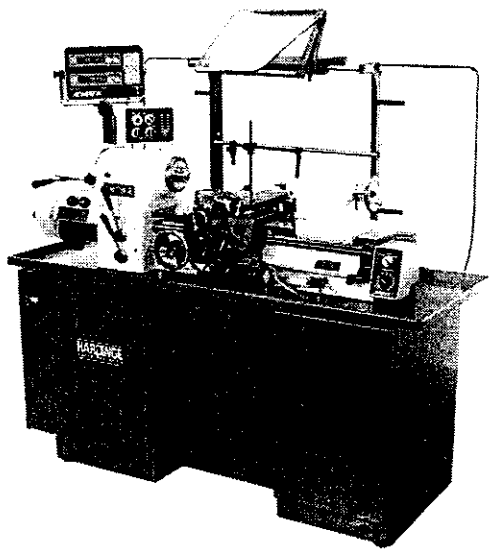
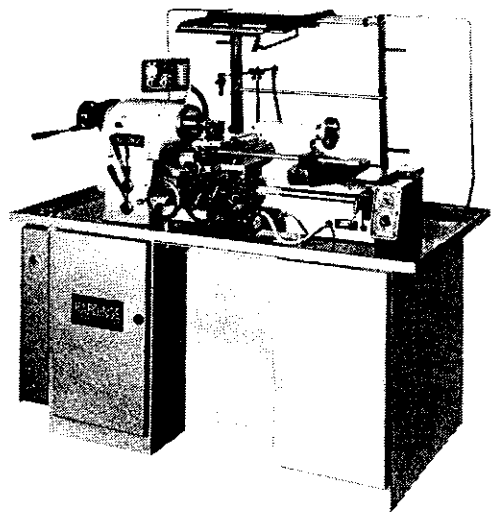
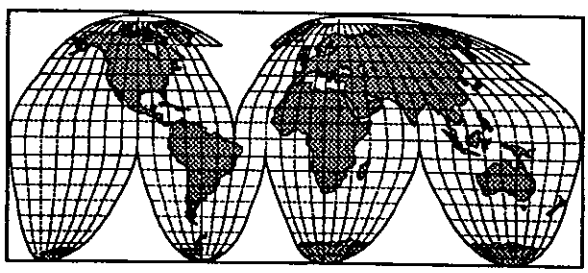
A Complete Line of Tooling, Attachments and Accessories for Hardinge HLV® and TFB® Lathes



HLV®-DR Toolroom Lathe



TFB®-H Production Lathe



In USA, call: 800-843-8801
In Canada, call: 800-468-5946
Elsewhere, call: 607-734-2281
Fax: 607-734-8819

Corporate Headquarters and
Manufacturing Facilities

Hardinge Brothers, Inc.
Elmira, New York 14902-1507 USA
607-734-2281

Brochure 1292
Part No. C -0009500-1292
October, 1993

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A - Standard equipment
C - Standard on HLV-DR model

Hardinge Brothers, Inc.

Elmira, New York 14902-1507 USA

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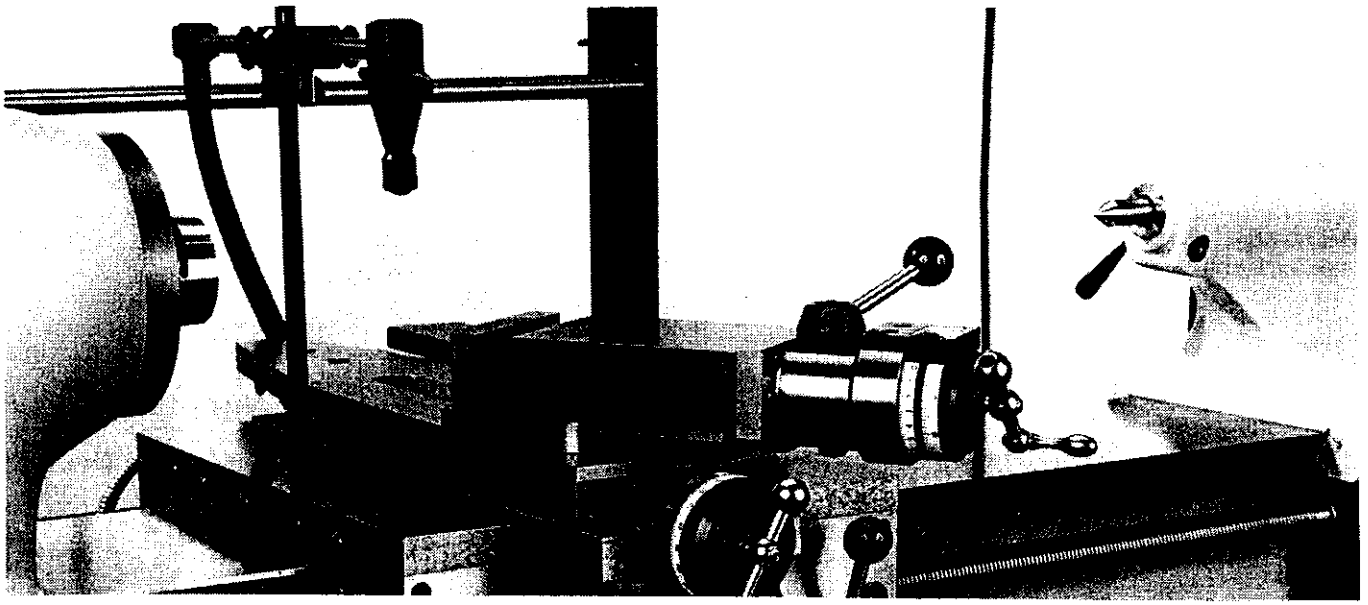
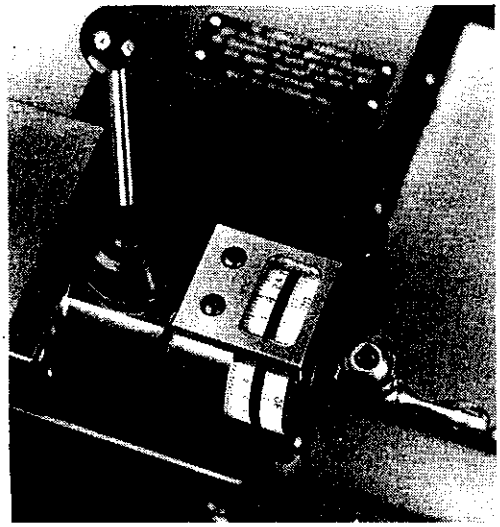
Front Slide Tooling

Quick-Acting Tool Post Slide (Standard)





The quick-acting tool post slide, which is mounted directly to the cross slide, is standard equipment on all Hardinge® HLV® toolroom and TFB®-H production lathes. The slide can be rotated to the desired angle and locked in place with an eccentric bolt. Increments are engraved in the top of the cross slide and they are viewed adjacent to the concave notch in the base of the quick-acting tool post slide.

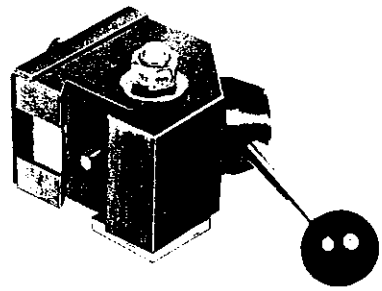
The optional tools detailed on pages 5 through 9 and 11 through 13 are used on the tool post slide for a wide variety of machining operations from the front side of the lathe. Tool motion is accomplished by using the carriage handwheel for the z-axis, the cross slide handwheel for the x-axis, and the tool post slide handwheel for fine x- or z-axis motions.

Easy-reading black and with dials are provided. Both inch and mm graduations are displayed at the same time for HLV-DR lathes (inch only on HLV-H and TFB-H lathes). The permanent white, hard dial material features individually engraved graduations for maximum accuracy. The window design prevents any build-up of chips under the glass.

On HLV lathes, the quick-acting tool post slide also provides the ability to cut precision threads as required. The ball-handle lever is used to quickly get the tool back into position for each pass, as well as to quickly retract the tool from the workpiece without having to back out the tool with the cross slide dial.

Fast-Change Tool Holder Base

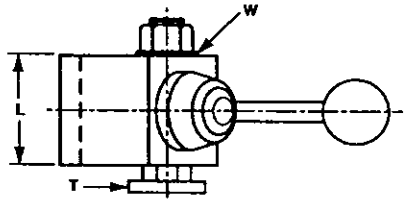
The tool holder base, also known as the quick-change tool holder, uses interchangeable tool holders to speed production and add versatility. It mounts directly to the quick-acting tool post slide.

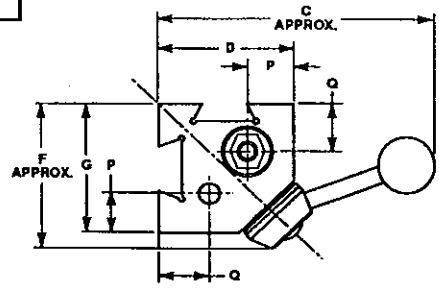


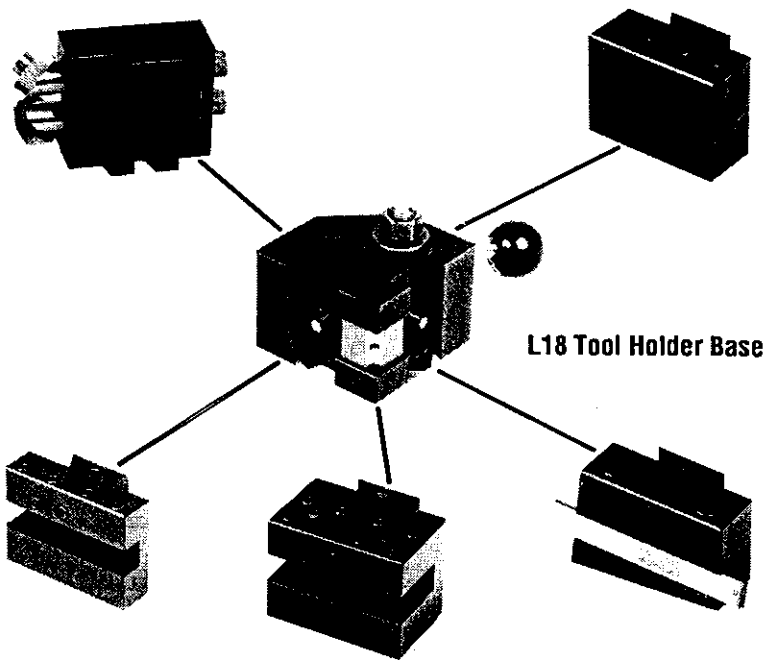
Tool holders are changed by unlocking the handle, changing the holder, and re-locking the handle. One tool holder can be used at a time. The tool holder base comes standard with a protecting cover for the dovetail not in use. Tool center height is maintained when changing tool holders by means of a locating pin in the dovetail slot of the base.

The base uses the interchangeable holders illustrated below and on pages 6 through 8.

Model No.	Part No.	Dimensions							
			C	D	F	G	L	P	Q
L18	STA0011216	Inch	4.75	2.34	2.63	2.34	1.75	.72	.88
		MM	120.7	59.5	66.7	59.5	44.5	18.3	22.2
Dimensions for the following part numbers can be found on the last page of this brochure									
T					W				
ST 0010594					U 0004143				







L20 Diamond Knurling Holder

L23/L23-75 Round Shank Tool Holder

L18 Tool Holder Base

L21/L21-50 Square Shank Single Tool Holder

L19 Cut-Off Holder

L22 Square Shank Multiple Tool Holder

Not shown: L24 Straight Knurling Holder

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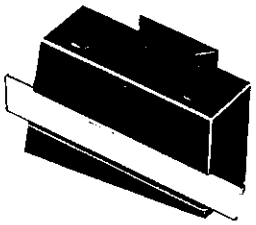
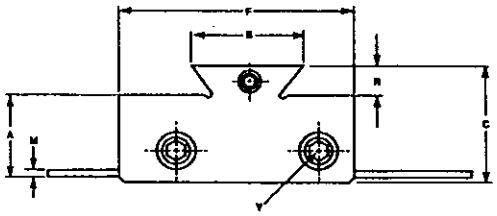
Front Slide Tooling

Cut-Off Holder



The cut-off holder is used to hold the P1 cut-off blade (1/16" width) which is provided. Two other cut-off blades can be ordered separately to use in the holder: P2 (3/32" width) and P3 (1/8" width). See page 13 for cut-off blades.

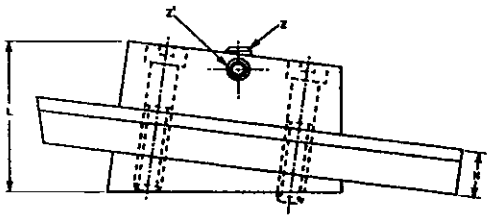
The holder is mounted directly into the dovetail of the L-18 tool holder base. A single adjusting screw located at the top of the holder allows the operator to center the tool without the use of shims. Once the tool is centered, the adjusting screw is locked into place with a set screw. The holder can then be removed and replaced without having to re-center the cut-off blade.



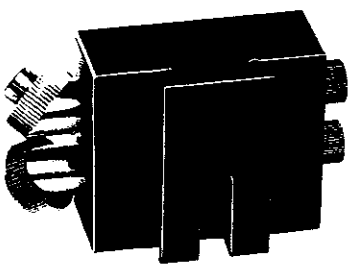
Model No.	Part No.		Dimensions							
			A	C	F	L	M	N	R	S
L19	ST 0011233	Inch	.94	1.25	2.25	1.67	.06	.48	.31	1.06
		MM	23.8	31.8	57.2	42.5	1.6	12.2	7.9	27.0

Dimensions for the following part numbers can be found on the last page of this brochure.

Y	Z	Z'
0100520	ST 0004220	0550512



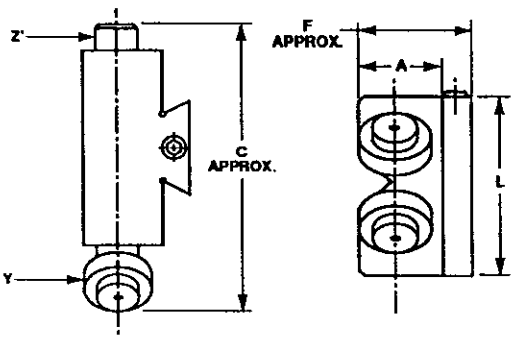
Diamond Knurling Holder



This knurling holder is used to hold the two cutting knurls provided for diamond knurling: 3/4" (19.05 mm) outside diameter; 1/4" (6.35 mm) inside diameter; 1/4" (6.35 mm) width; 30 teeth per inch. The knurls actually cut the material; they do not form it. Cutting knurls are better than plunging knurls for smaller diameter work, since there is no growth in material and less pressure on the part. Replacement knurls (part no. ST 0010901 D) are available.

The knurling holder is mounted directly into the dovetail of the L-18 tool holder base shown on page 5. A single adjusting screw located at the top of the holder allows the operator to center the tool without the use of shims. Once the tool is centered, the adjusting screw is locked into place with a set screw. The holder can then be removed and replaced without having to re-center the tool.

To knurl different diameters, each knurl shaft is rotated to position the knurling wheel to the workpiece. Stock material diameters from 1/4" (6.35 mm) to 6" (152.4 mm) can be knurled. A part can be knurled to within 1/4" (6.35 mm) of a shoulder.



Model No.	Part No.		Dimensions			
			A	C	F	L
L20	STB0011709	Inch	.94	3.31	1.25	1.98
		MM	23.8	84.1	31.8	50.4

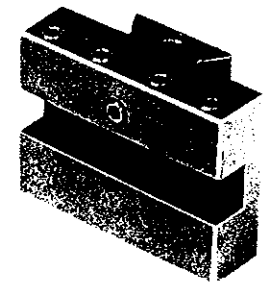
Dimensions for the following part numbers can be found on the last page of this brochure.

Y	Z	Z'
ST 0010901 D	D 0100728 LH	0100728 LH

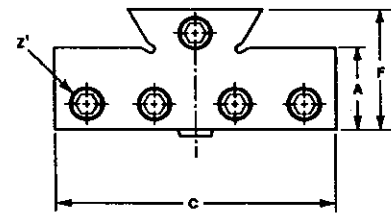
Square Shank Single Tool Holder

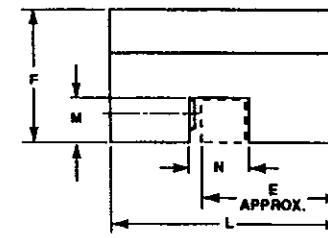
The single tool holder is used to hold one 3/8" or 1/2" square shank tool bit.

It is mounted directly into the dovetail of the tool holder base. A single adjusting screw located at the top of the holder allows the operator to center the tool without the use of shims. Once the tool is centered, the adjusting screw is locked into place with a set screw. The holder can then be interchanged without having to re-center the tool bit.
For use with the L-18 tool holder base (see page 5).



Model No.	Part No.	Dimensions							
			A	C	E	F	L	M	N
L21	ST 0011710	Inch	.67	2.25	1.03	.98	1.75	.38	.44
		MM	16.9	57.2	26.2	24.9	44.5	9.5	11.1
L21-50	ST 0011710-50	Inch	.67	2.25	1.03	.98	1.75	.50	.56
		MM	16.9	57.2	26.2	24.9	44.5	12.7	14.2
Dimensions for the following part number can be found on the last page of this brochure.									
Z'									
0570510									



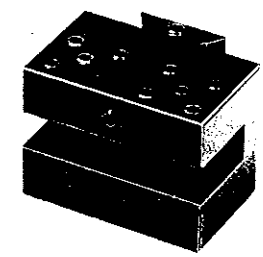


Square Shank Multiple Tool Holder

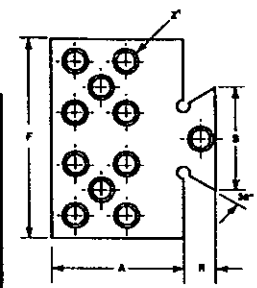
The multiple tool holder is used to hold up to three 3/8" square shank tools at one time.

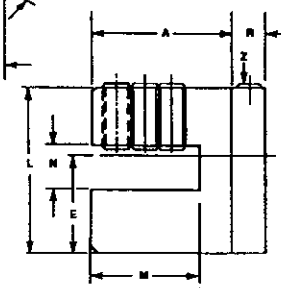
It is mounted directly into the dovetail of the L-18 tool holder base. A single adjusting screw located at the top of the holder allows the operator to center the tool without the use of shims. Once the tool is centered, the adjusting screw is locked into place with a set screw. The holder can then be removed and replaced without having to re-center the tool bits.

The multiple tool holder can also hold a 1.125" (28.58 mm) wide form tool. Shims may be needed to maintain the proper center height for the second and third tools (see brochure 1289 for shims).



Model No.	Part No.	Dimensions								
			A	E	F	L	M	N	R	S
L22	ST 0011711	Inch	1.41	1.03	2.25	1.72	1.06	.44	.31	1.06
		MM	35.8	26.2	57.2	43.6	26.9	11.1	7.85	26.9
Dimensions for the following part numbers can be found on the last page of this brochure.										
Z		Z'								
ST 000422001		0570510								





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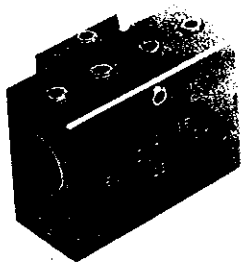
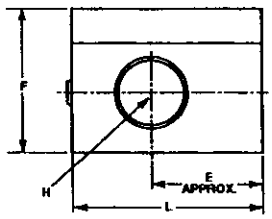
Front Slide Tooling

Round Shank Tool Holder

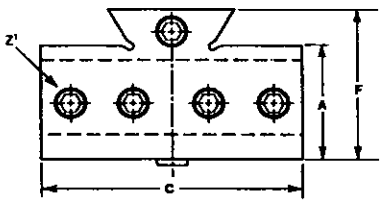


This round shank tool holder is used to hold 5/8" or 3/4" round shank tooling for drilling, reaming, boring, tapping, and die head work. For smaller diameter tooling HDB bushings can be used in the holder (see brochure 1287 for bushings).

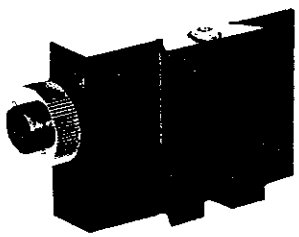
The holder is mounted directly into the dovetail of the L-18 tool holder base shown on page 5. A single adjusting screw located at the top of the holder allows the operator to center the tool so that the proper cutting geometry between the workpiece and the cutting tool will be maintained. Once the tool is centered, the adjusting screw is locked into place with a set screw. The holder can then be removed and replaced without having to re-center the tool bit.



Model No.	Part No.		Dimensions					
			A	C	E	F	H	L
L23	ST 0011712	Inch	1.00	2.25	1.09	1.31	.6254	1.72
		MM	25.4	57.2	27.8	33.3	15.884	43.7
L23-75	ST 0011712-75	Inch	1.00	2.25	1.09	1.31	.7504	1.72
		MM	25.4	57.2	27.8	33.3	19.060	43.7
Dimensions for the following part number can be found on the last page of this brochure.								
Z'								
0570506								



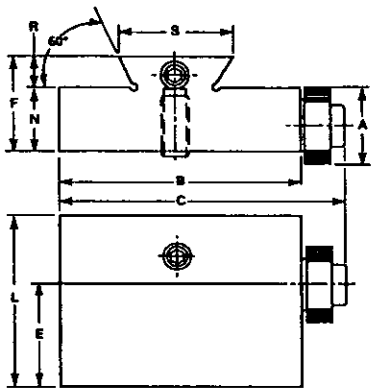
Straight Knurling Holder



The straight knurling holder is used to hold the cutting knurl provided.

It comes standard with one cutting knurl for straight knurling: 3/4" (19.05 mm) outside diameter; 1/4" (6.35 mm) inside diameter; 1/4" (6.35 mm) width; 30 teeth per inch. The knurl actually cuts the material; it does not form it. Cutting knurls are better than plunging knurls for smaller diameter work, since there is no growth in material and less pressure on the part. Replacement knurls (part no. ST 0010901 D) can be purchased separately.

The knurling holder is mounted directly into the dovetail of the L-18 tool holder base shown on page 5. A single adjusting screw located at the top of the holder allows the operator to center the tool without the use of shims. Once the tool is centered, the adjusting screw is locked into place with a set screw. The holder can then be removed and replaced without having to re-center the tool.



Model No.	Part No.		Dimensions				
			A	B	C	E	F
L24	ST 001170902	Inch	.75	2.31	2.75	1.03	.88
		MM	19.1	58.7	69.9	26.2	22.2
			L	N	R	S	
		Inch	1.69	.57	.308	1.06	-
		MM	42.9	14.4	7.82	27.0	-

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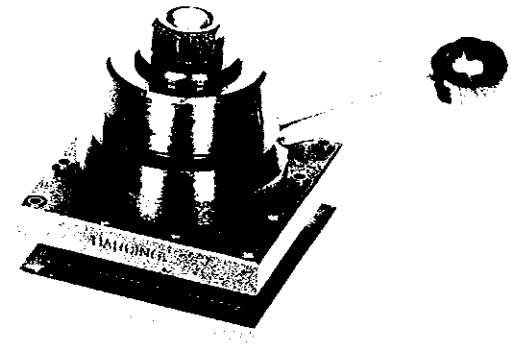
Automatic Indexing Square Turret

The square turret holds up to four square shank tools and increases production by reducing the time needed to go from one tool to another.

It mounts directly into the T-slot of the quick-acting tool post slide and uses 3/8" square shank tool bits that mount directly into the tool slots. 5/8" round shank tooling can be held in the turret with the use of an L1A boring tool holder shown on page 11. For round shank tooling that is 1/2" or less in diameter, HDB-5 bushings can be used (see brochure 1287 for English and metric bushings).

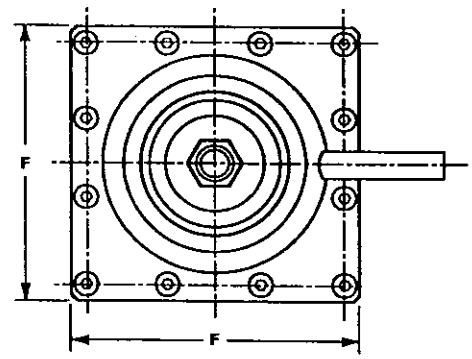
By a simple movement of the ball-handled lever, the turret is automatically unlocked, indexed to the next tool position and re-locked, ready for the next machining operation. Accurate indexing is accomplished by the use of tapered mating surfaces that automatically bring each tool into exact position. The turret can be indexed from one station to the next within .0001".

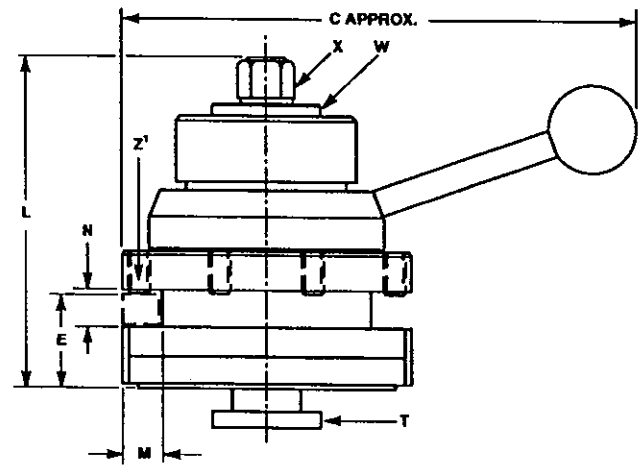


Model No.	Part No.	Dimensions						
			C	E	F	L	M	N
HTL	ATA0007200	Inch	6.00	1.100	3.00	3.63	.38	.44
		MM	152.4	27.94	76.2	92.1	9.5	11.1

Dimensions for the following part numbers can be found on the last page of this brochure.

T	W	X	Z'
AT 0000461	37 0000622	5PA0001957	0550508





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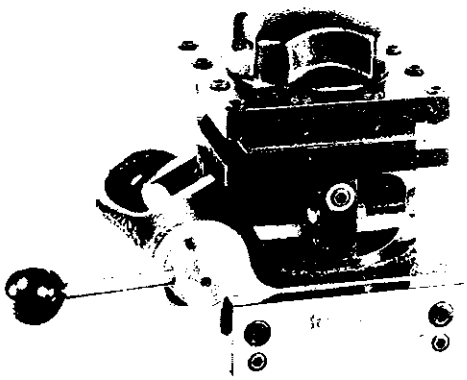
Front Slide Tooling

4-Station Square Turret



The square turret holds up to four tools and increases production by reducing the time needed to go from one tool to another.

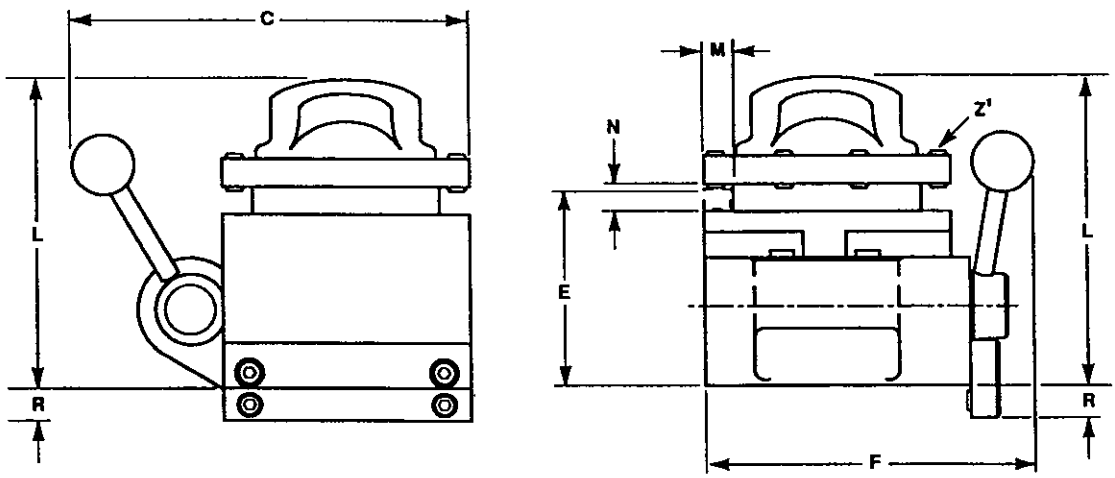
It mounts directly to the cross slide and uses 3/8" square shank tool bits that mount directly into the tool slots. Each turret station has an independent tool adjustment. The main turret rotates on preloaded, taper roller bearings. The indexing and locking shaft is also mounted on preloaded ball bearings. The turret indexes within .0001" and has a secure locking mechanism, enabling close tolerances to be held on the workpiece.

Two set screws at the bottom of the turret base are used to "square" the turret in relationship to the spindle. They also increase the rigidity of the turret.

Once the fork lock handle is released by the operator, the turret is manualiy indexed either clockwise or counterclockwise.

By using an L1 bore tool holder (see page 11), 5/8" round shank tooling can be held in the turret. Tools with smaller shank diameters can be held in the holder by using a Hardinge HDB-5 bushing (see brochure 1287 for English and metric bushings).

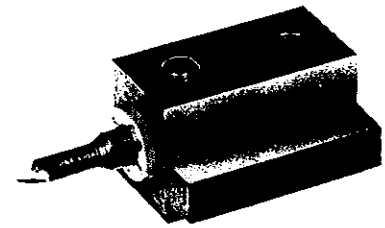
Model No.	Part No.	Dimensions							
			C	E	F	L	M	N	R
L6	LHB0007200	Inch	6.75	3.250	5.38	5.06	.47	.47	.50
		MM	171.5	82.55	136.5	128.6	11.9	11.9	12.7
Dimensions for the following part number can be found on the last page of this brochure.									
Z1									
LH 000108301									



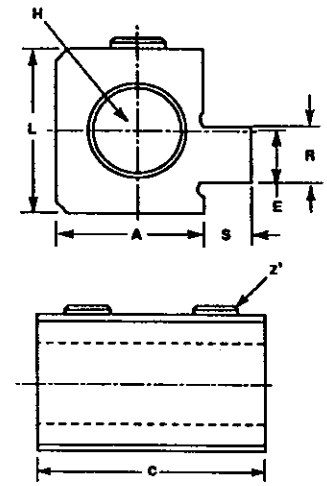
Boring Tool Holder

The boring tool holder is used for operations such as drilling, boring, and reaming.

The L1A holder mounts directly into the slot of the HTL turret shown on page 9. The L1 holder mounts into the L6 turret shown on page 10. These holders are capable of holding round shank tooling up to 5/8" in diameter. An HDB-5 bushing can be used for tooling that is 1/2" in diameter or less (see brochure 1287 for English and metric bushings).



Boring bar and bushing not included.



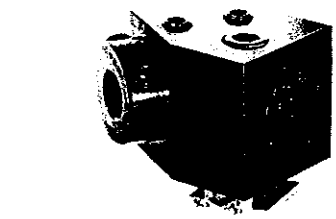
Model No.	Part No.		Dimensions						
			A	C	E	H	L	R	S
L1A	ST 001116004	Inch	1.06	2.00	.373	.6253	1.25	.41	.34
		MM	27.0	50.8	9.46	15.883	31.8	10.3	8.7
L1	ST 0011160	Inch	1.06	2.00	.373	.6253	1.25	.44	.44
		MM	27.0	50.8	9.46	15.883	31.8	11.1	11.1
Dimensions for the following part number can be found on the last page of this brochure.									
Z'									
0570906									

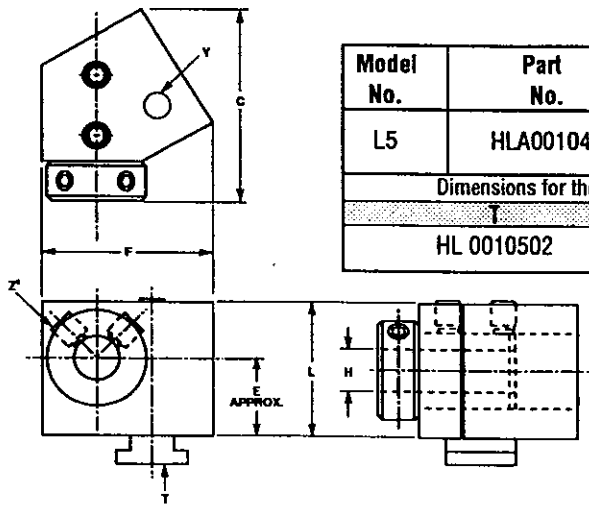
Boring Tool Holder

This boring tool holder mounts directly to the quick-acting tool post slide and is used for operations such as drilling, boring, and reaming.

This holder has an eccentric bushing which permits height adjustments of the tool bit for the proper cutting geometry between the workpiece and the cutting tool.

The holder is capable of holding round shank tooling up to 5/8" in diameter. An HDB-5 bushing can be used for tooling that is 1/2" in diameter or less (see brochure 1287 for English and metric bushings).





Model No.	Part No.		Dimensions				
			C	E	F	H	L
L5	HLA0010499	Inch	2.94	1.10	2.44	.6253	2.00
		MM	74.6	27.9	61.9	15.883	50.8
Dimensions for the following part numbers can be found on the last page of this brochure.							
T			Y			Z'	
HL 0010502			0101032			HL 0010504	

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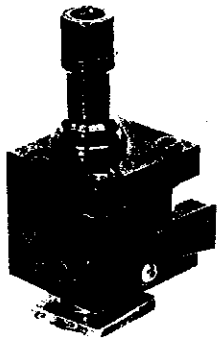
Front Slide Tooling

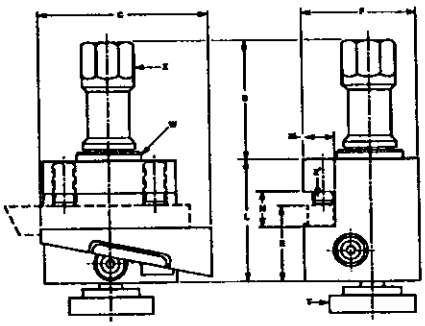
Wedge-Type Tool Holder



This tool holder is used for machining operations such as turning, chamfering, facing and grooving.

It mounts directly into the T-slot of the quick-acting tool post slide and uses 3/8" (10 mm) square shank tool bits. The tool bit can be adjusted to the height of the spindle centerline using the wedge assembly that is built into the holder. With this wedge arrangement, shims are not necessary to center the tool bit. The tool post locks into place using an end-wrench or a hex key wrench in the tool post screw.

Once the tool bit has been set to the height of the spindle centerline, the holder can be loosened and moved in the T-slot without affecting the height of the tool bit.



Model No.	Part No.	Dimensions							
			B	C	E	F	L	M	N
D9	DS 0000346	Inch	1.63	2.19	1.09	1.50	1.69	.45	.53
		MM	41.3	55.6	27.8	38.1	42.9	11.5	13.5

Dimensions for the following part numbers can be found on the last page of this brochure.

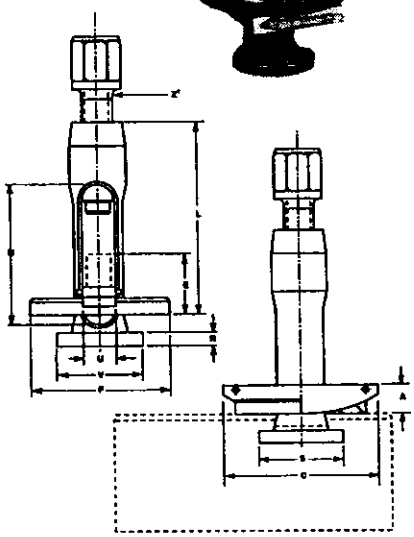
T	W	X	Z[1]
DS 0010594	U 0004143	DSA0010595	0550710

Rocker-Type Tool Holder

This tool holder is used for machining operations such as turning, chamfering, facing and grooving.

It uses 3/8" (10 mm) square shank tool bits and mounts directly into the T-slot of the quick-acting tool post slide. The tool bit can be adjusted to the height of the spindle centerline using the rocker wedge assembly that is built into the holder. The tool post locks into place using an end-wrench or a hex key wrench in the tool post screw.

A 3/8" shim must be used in order to set the tool bit to the height of the spindle centerline. If the holder is loosened and repositioned in the T-slot, the tool must be re-centered.



Model No.	Part No.	Dimensions					
			A	C	E	F	L
D11	R 0000346	Inch	.38	2.00	.75	1.72	2.50
		MM	9.5	50.8	19.1	43.6	63.5
			N	R	S	U	V
		Inch	1.81	.19	1.13	.41	1.50
		MM	46.0	4.8	28.6	10.3	38.1

Dimensions for the following part number can be found on the last page of this brochure.

Z[1]
4980000348

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Cut-Off Tool Holder

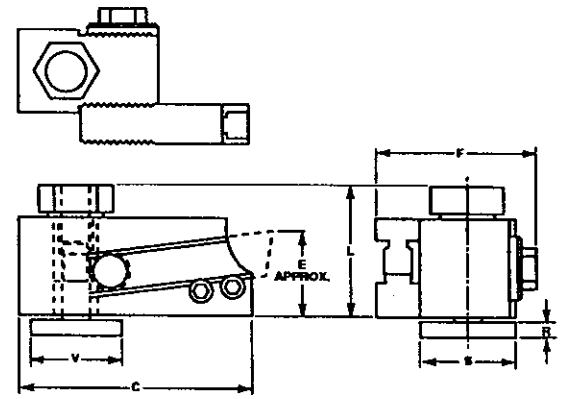
The cut-off tool holder is used for holding the following cut-off blades, which can be ordered separately: P1 (1/16" width), P2 (3/32" width), and P3 (1/8" width).

It mounts directly to the quick-acting tool post slide. A wrench is supplied for locking the cut-off blade in the holder.

The body of the blade holder and the tool holder are serrated for maximum rigidity and minimum vibration. The blade and serrated blade holder are adjustable to provide a cut-off capacity up to 1-1/16" (26.99 mm). Cut-off can be achieved from either the front or rear of the workpiece.

Blade not included.

Model No.	Part No.		Dimensions						
			C	E	F	L	R	S	V
L10	L 0000010	Inch	2.69	1.06	1.81	1.60	.19	1.13	1.13
		MM	68.3	27.0	45.8	40.7	4.8	28.6	28.6

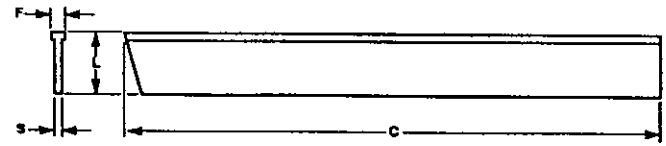


Cut-Off Blades

The cut-off blade is for cutting or parting off material.

It mounts directly into the cut-off tool holders shown on pages 6, 13 and 16. The blade is made of high-speed steel and can be resharpened as needed.

Model No.	Part No.		Dimensions			
			C	F	L	S
P1	P 0000001	Inch	4.50	.06	.477	.04
		MM	114.3	1.5	12.12	.9
P2	P 0000002	Inch	4.50	.09	.477	.07
		MM	114.3	2.4	12.12	1.8
P3	P 0000003	Inch	4.50	.13	.477	.10
		MM	114.3	3.2	12.12	2.6



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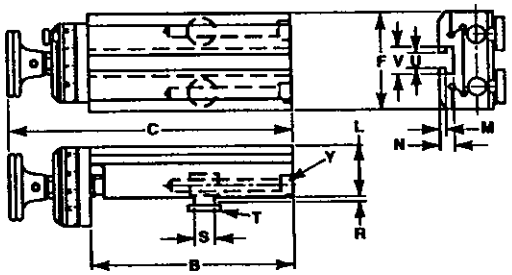
Rear Slide Tooling

Rear Tool Holder Slide

The L3 tool holder slide provides length adjustment and a larger mounting surface for tool holders.

The slide mounts directly to the L4 base (shown below). Both the slide and base are positioned on the rear cross slide section of a Hardinge HLV® or TFB®-H lathe. The slide provides up to 3/4" (19.05 mm) travel and is controlled by an easily readable black-and-white feed screw dial. The feed screw dial is graduated in .001" increments on the English slide and .02 mm on the metric slide. Both are adjustable for a zero setting.

A double locking arrangement easily maintains the desired position of the slide once it is set by the operator.

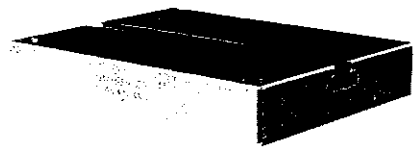


Model No.	Part No.		Dimensions				
			B	C*	F	L	M
L3	LH 0011206	Inch	4.88	7.25	2.50	1.31	.203
L3M	LH 0011206 M	MM	123.8	184.2	63.5	33.3	5.16
			N	R	S	U	V
L3EM	LHA0011206DD	Inch	.41	.13	.436	.376	.69
		MM	10.5	3.2	11.07	9.54	17.5
		*For model L3EM, dimension C is 9.25" (234.95 mm)					

Dimensions for the following part numbers can be found on the last page of this brochure.

T	Y
37 0000465	LH 0000466

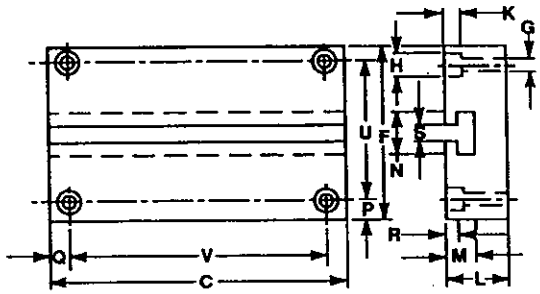
Base for Tool Holder Slide



The L4 slide base is used to mount additional tooling for machining from the back side of a workpiece. When the L3 tool holder slide (shown above) and the L4 slide base are used together, the assembly is generally referred to as the HLV or TFB "rear tool holder slide assembly."

The L4 slide base mounts directly to the rear cross slide section of a Hardinge HLV or TFB machine. It uses four screws (provided) to bolt to the rear cross slide section of the machine, with no machining necessary.

Model No.	Part No.		Dimensions							
			C	F	G	H	K	L	M	
L4	LH 0011207	Inch	5.50	4.46	.28	.41	.29	.94	.438	
		MM	139.7	113.3	7.1	10.3	7.4	23.8	11.11	
			N	P	Q	R	S	U	V	
		Inch	.81	.31	.31	.188	.438	3.88	4.88	
		MM	20.6	7.9	7.9	4.76	11.11	98.4	123.8	



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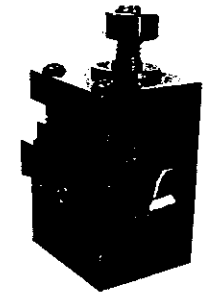
Rear Tool Holder

The rear tool holder mounts to the L3 tool holder slide. It uses 3/8" square shank tool bits and comes standard with an adjustable wedge. The wedge allows the tool tip to be adjusted to the height of the spindle centerline without the use of shims.

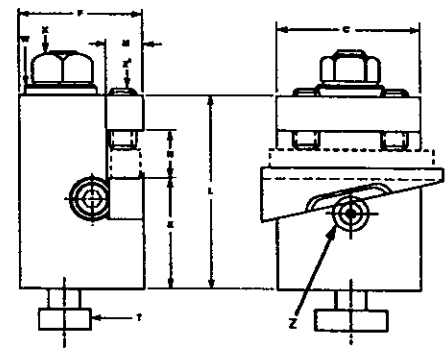


Tool Holder shown with optional square shank tool.

Model No.	Part No.		Dimensions					
			C	E	F	L	M	N
D4R	FRA0000474	Inch	1.75	1.00	1.50	2.00	.45	.59
		MM	44.5	25.4	38.1	50.8	11.5	15.1

Dimensions for the following part numbers can be found on the last page of this brochure.

T	W	X	Z	Z1
FCA0000461 R	U 0004143	47 0001502 C	DS 0010591	0550712

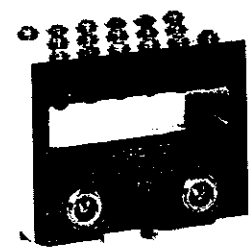


Multiple Tool Holder

The multiple tool holder allows multiple operations such as undercutting, chamfering, forming, or grooving to be accomplished in one operation.

The D7R mounts onto the L3 tool holder slide.

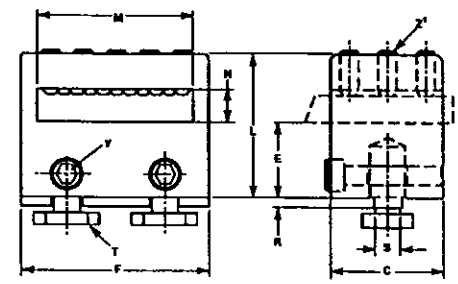
The holder has an opening of 7/16" (11.11 mm) by 2-1/16" (52.39 mm) which allows up to five 3/8" square shank tools to be held at one time. The holder is keyed to the T-slot to prevent the holder from pivoting.



Model No.	Part No.		Dimensions							
			C	E	F	L	M	N	R	S
D7R	DS 0011200 R	Inch	1.50	.998	2.50	1.94	2.06	.44	.13	.374
		MM	38.1	25.35	63.5	49.2	52.4	11.1	3.2	9.50

Dimensions for the following part numbers can be found on the last page of this brochure.

T	Y	Z1
DS 0000465	AD 0000466	0570510



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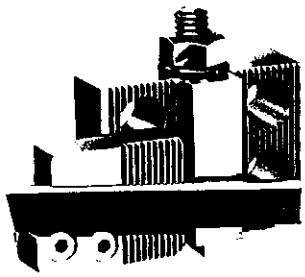
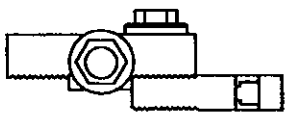
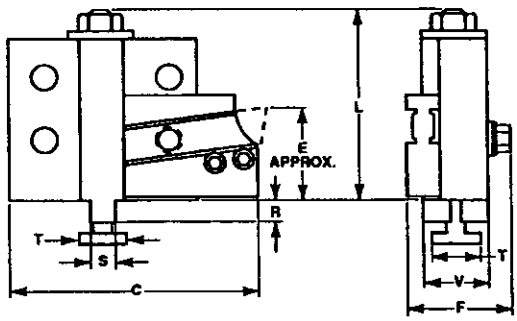
Rear Slide Tooling

Cut-Off Tool Holder



Blade not included.





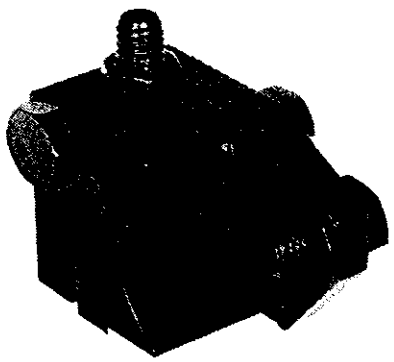
The cut-off holder mounts directly to the L3 tool holder slide and is used for cutting off a workpiece.

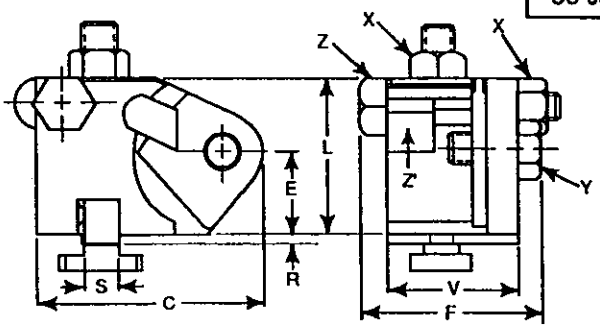
The holder comes standard with a wrench for locking the cut-off blade in the holder. The P1 (1/16" [1.59 mm]), P2 (3/32" [2.38 mm]), or P3 (1/8" [3.18 mm]) thickness blade shown on page 13 must be ordered separately.

The blade and serrated blade holder are adjustable to provide maximum cut-off capacity up to 1-1/16" (26.99 mm).

Model No.	Part No.	Dimensions				
			C	E	F	L
D10	D 0000010	Inch	3.25	1.06	1.40	2.44
		MM	82.6	26.9	35.6	62.0
			R	S	T	V
		Inch	.13	.375	.63	.88
		MM	3.3	9.53	16.0	22.4

Circular Form Tool Holder





This circular form tool holder mounts to the L3 tool holder slide and uses a No. 00 circular form tool. The circular form tool is 1-3/4" (44.45 mm) in diameter with a maximum thickness of 1" (25.40 mm). The unit can be adjusted for squareness by the adjusting screws built into the holder.

Three different-length locking bolts are supplied as standard equipment with each holder for holding different thickness circular form tools.

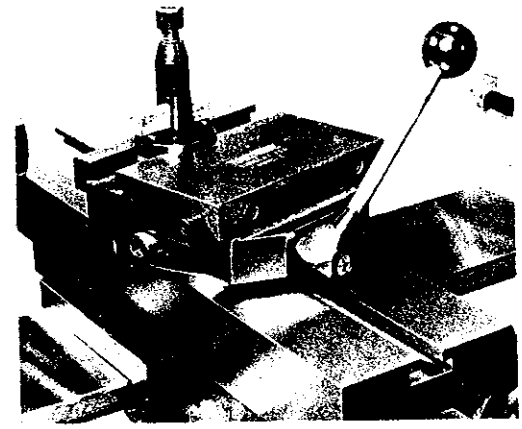
Model No.	Part No.	Dimensions							
			C	E	F	L	R	S	V
OOR	OO 0007956	Inch	2.38	.88	1.94	1.69	.13	.375	1.63
		MM	60.3	22.2	49.2	42.9	3.2	9.53	41.3
Dimensions for the following part numbers can be found on the last page of this brochure.									
T	X	Y		Z		Z'			
OO 0007949	7 0001502 B	OO 0007948		OO 0007951		OO 0007953,8,9			

Straight and Taper Turning Slide

The straight and taper turning slide is used to machine straight or tapered turns and straight or tapered bores.

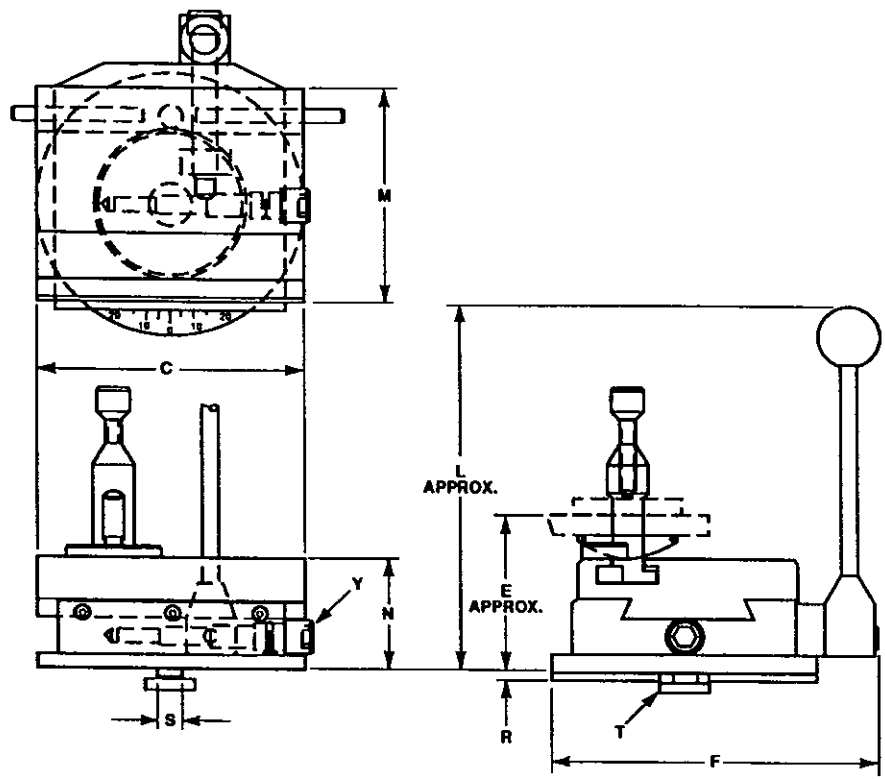
The slide mounts directly to the L4 base (see page 14), which is positioned on the rear cross slide section of an HLV® or TFB® machine. The swivel base is graduated in degrees and can be swiveled and locked to any angle in 360°. The lever-operated slide can travel up to 1-3/4" (44.45 mm), and length is controlled in either direction by adjustable stop screws.

The standard rocker-type tool holder takes 5/16" square shank tool bits. The tool can be adjusted to the height of the spindle centerline by using the rocker assembly. A double tool block (D2) and a boring tool holder (D8) are also available for use on the slide (see next page).



Slide shown mounted on a Hardinge DSM Five-Nine® lathe.

Model No.	Part No.	Dimensions								
			C	E	F	L	M	N	R	S
D13	6D 0000009	Inch	4.13	2.31	5.00	5.50	3.38	1.692	.13	.375
		MM	104.8	58.7	127.0	139.7	85.7	42.98	3.2	9.53
Dimensions for the following part numbers can be found on the last page of this brochure.										
T		Y								
6 0000525		6 0000523								



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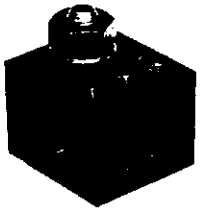
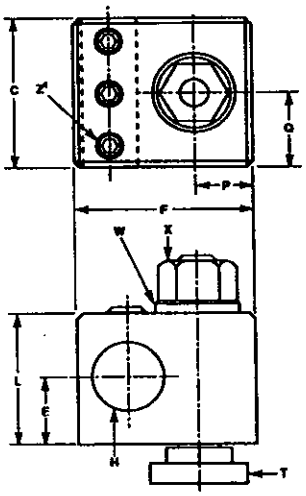
Rear Slide Tooling

Boring Tool Holder





The boring tool holder is used for holding round shank tooling up to 5/8" in diameter.

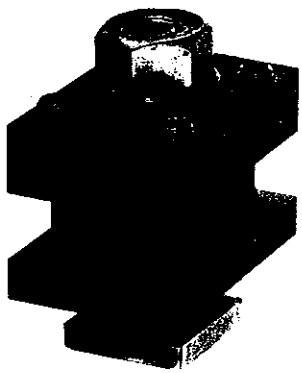
The holder mounts into the T-slot of the D13 straight and taper turning slide (see previous page). An HDB-5 bushing can be used in the holder for round shank tooling that is 1/2" or less in diameter (see brochure 1287 for English and metric bushings).

Model No.	Part No.	Dimensions					
			C	E	F	H	L
D8	STA0008257	Inch	1.50	.614	1.63	.6253	1.25
		MM	38.1	15.58	41.3	15.881	31.8

Dimensions for the following part numbers can be found on the last page of this brochure.

T	W	X	Z¹
ST 0007241	FB 0006906	47 0001502 C	0570906

Double Tool Block



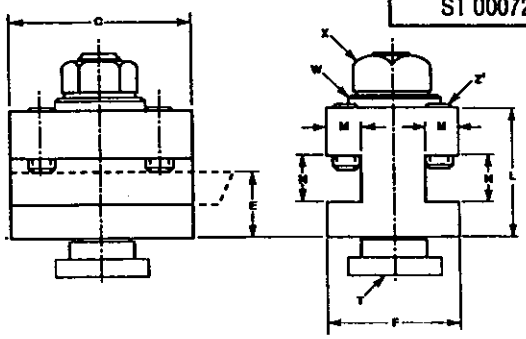
The double tool block is used for machining combinations such as taper turning and chamfering, facing and grooving, or turning two different-size tapers with the same angle in one operation.

The double tool block mounts into the T-slot of the D13 straight and taper turning slide. Up to two 5/16" square shank tool bits can be held in the holder at one time. Shims may be used to adjust tools to the spindle centerline (see previous page for the D13 slide and brochure 1289 for shims). The spindle must be run in reverse direction to use this block.

Model No.	Part No.	Dimensions							
			A	C	E	F	L	M	N
D2	ST 0008271	Inch	2.95	1.73	.61	1.23	1.23	.33	.45
		MM	7.49	44.1	15.4	31.3	31.3	8.3	11.5

Dimensions for the following part numbers can be found on the last page of this brochure.

T	W	X	Z¹
ST 0007241	U 0004143	47 0001502 C	0570510



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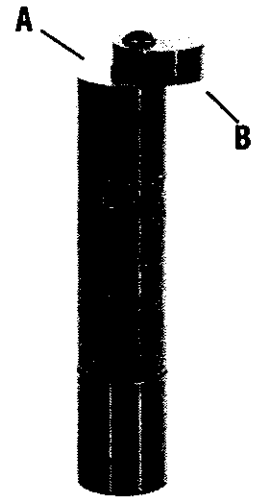
Adjustable Tool Setting Gage

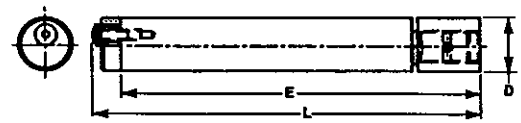
The adjustable tool setting gage is used to set cutting tools to the height of the spindle centerline quickly and accurately for longer tool life, easier cutting, better surface finishes and closer tolerances. Hardened and ground to maintain accuracy, this gage can be used for setting tools cutting on either the front or rear of a workpiece.



The tool setting gage reduces set-up time by eliminating scaling, guesswork, or trial-and-error cuts needed to set a cutting tool to the height of the spindle centerline. The gage also can be used for attachments requiring the setting of tools to the lathe spindle centerline.

The gage has two ground surfaces, labeled "A" and "B" in the illustration. Surface "A" is for setting tools to cut on the rear of a workpiece, and surface "B" is for setting tools to cut on the front of a workpiece. When gage is not in use, the top section swivels to cover and protect the ground gage surfaces.

The gage is adjustable and must be set to the height of the spindle centerline before use. The height of the spindle centerline can be determined by facing a part and adjusting the height of the facing tool until the part is faced off cleanly. The gage is then set to match the height of the facing tool. The gage can be set by using the flat end of the gage bar shown below with the bar held in a 1" (25.4 mm) collet in the lathe spindle.



The gage also can be set using an indicator to determine the height of a ground plug held in a collet in the spindle nose. Once the height is determined, the gage can be set to one-half the diameter of the ground plug.

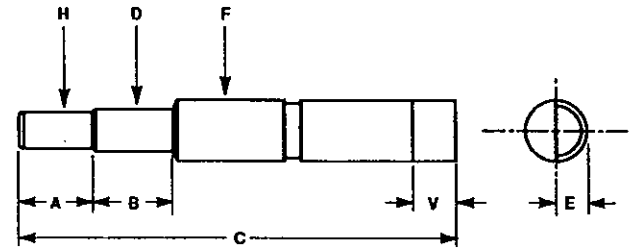
Model No.	Part No.	Dimensions			
			D	E	L
L2-A	LHA0011159	Inch	.98	4.53	5.03
		MM	25.0	115.1	127.8

Tool Setting Gage Bar

The tool setting gage bar is used to align round shank tool holders with the spindle centerline.

The hardened and ground bar allows both 5/8" and 3/4" diameter round shank holders to be centered. It also can be used to set the adjustable tool setting gage.

Part No.	Dimensions								
		A	B	C	D	E	F	H	V
HPA0010027	Inch	1.31	1.31	7.38	.7490	.5000	1.0000	.6240	.75
	MM	33.3	33.3	187.3	19.025	12.700	25.400	15.850	19.1



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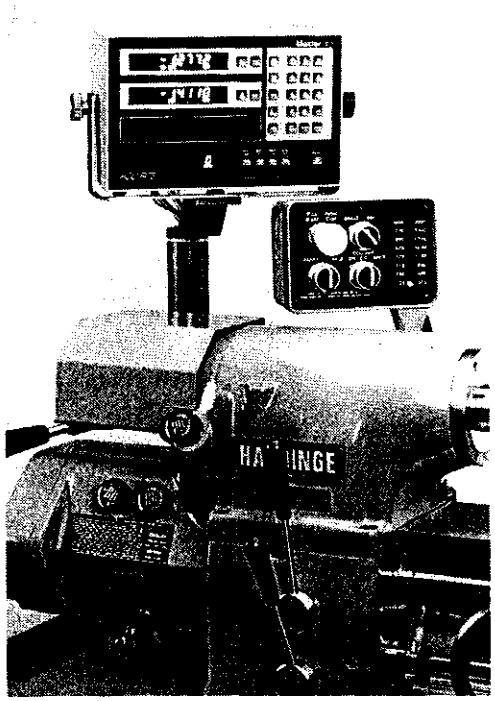
Major Attachments

Acu-Rite® Master-TP™ Digital Readout System



The HLV®-DR lathe comes standard with the Acu-Rite Master-TP Digital Readout system. It is also available as a kit for retrofitting HLV-H or TFB®-H lathes. The kit includes all the necessary hardware for mounting to the machine.

The Acu-Rite Master-TP minimizes operator fatigue and the chance of error, since the operator does not have to count handwheel revolutions. By presetting the dimensions, the operator needs only to refer to the digital readout.

Acu-Rite digital readouts use the most advanced glass scale linear encoder technology to achieve reliable, accurate measuring performance.

The unit features switchable inch/metric and radius/diameter readouts, absolute/incremental measuring, instant zero reset, and machine-geometry error compensation. A preset mode allows you to cut to zero instead of remembering dimensions.

Standard features included —

- Bright aqua display
- Remote zero reset
- Near-zero warning
- Position reference presets
- Last-position recall
- Reference mark detection
- Up to 99 programmable machining steps
- Tool position hold for accurate tool setting
- Auto-error calculation
- Workpiece edge finder
- Switchable display resolution
- Sensitive, positive-touch keypad
- Continu-Trac™ position monitor
- Datum point shifting
- Tool offset compensation
- Radius-to-diameter conversion

Kit Part No.	Description
KLC0000224 S	HLV-H Digital Readout

Optional features offered —

- Battery back-up
- Multiple scale coupling (combines signals from two scales moving in same plane)
- Communications (serial RS-232 and parallel ports to communicate to other devices)

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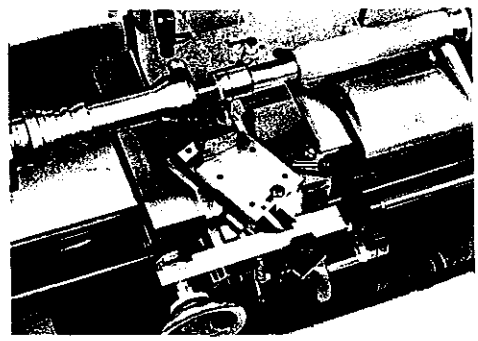
Contour Tracing Attachment



The contour tracing attachment is used to produce identical bores or turns in a production run. This attachment is intended for finishing work only.

The contour tracing attachment includes a template mounting bracket (dovetail bed adapter), tool slide assembly, external shaft assembly and one blank template. The template mounting bracket is clamped directly to the machine's dovetail bed to the right of the tailstock. Alterations are not necessary when mounted to HLV lathes, since the machine's standard compound slide is removed and the preloaded ball bearing tracing slide assembly sets in its place, and the same eccentric screw locks it in place.

After the blank template is ground to the desired shape of the workpiece, the template is mounted in the template mounting bracket. The mechanical tracer then follows the template and duplicates the shape on the workpiece. Reuse of templates eliminates costly set-up time when a job is to be run again.

One round shank tool holder and one square shank tool holder are supplied standard with the contour tracing attachment. The round shank tool holder is for internal work and holds 5/8" round shank tools. HDB-5 bushings can be used for holding tools that are 1/2" or less in diameter (see brochure 1287 for English and metric bushings). The square shank tool holder is for external work and holds 3/8" square shank tools. Both holders are supplied with micro screw adjustments with graduations in .001" increments.

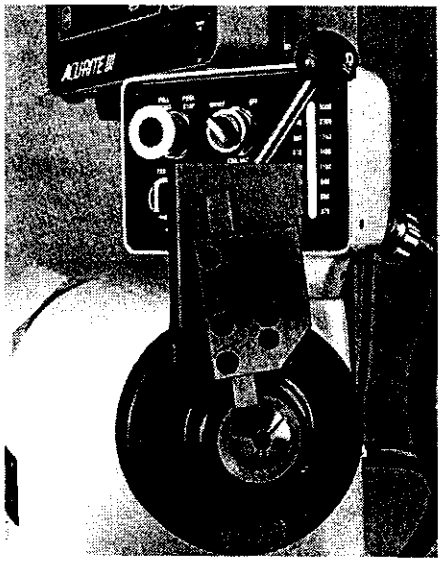
The maximum external diameter the contour attachment can be used on is 5-7/8" (149.23 mm); the maximum internal diameter on is 7" (177.80 mm). Maximum length of turn is 12-1/4" (323.85 mm). This unit can face a shoulder 90° or less in the direction of the feed, and it can plunge 45° maximum in the direction of the feed. The maximum change in part diameter being cut is 1-1/2" (38.10 mm).

The height-to-spindle centerline is approximately 5-1/2" (139 mm). The template mounting bracket has a female dovetail. For further information on the dovetail dimensions, see the dimensions for the L11 (7" bedplate) steady rest on page 25.

Model No.	Part No.	Description
PT	PT 00113580002	Attachment
PT3	PT 0011368	Blank Template

Major Attachments

Vertical Cut-Off Slide

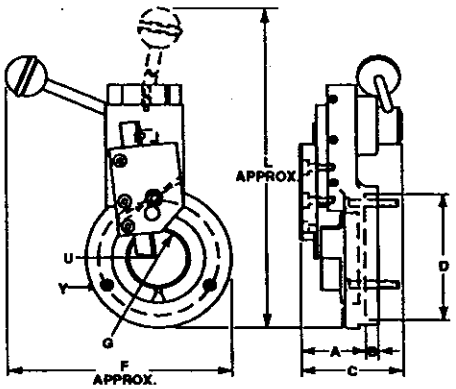


The vertical cut-off slide provides a separate station for cut-off operations, leaving other valuable stations free to perform other machining operations.

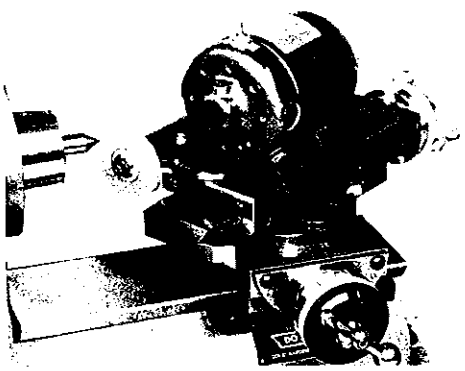
It is mounted directly to the front of a headstock. Mounting bolts are provided.

The supplied P3N, 3/32"-wide cut-off blade is locked in the holder using two eccentric screws. It is operated using a handle located on the back of the cut-off slide. The Hardinge-Belcar cut-off tool (G21), sold separately, can also be used (see brochure 1289).

Model No.	Part No.		Dimensions							
			A	B	C	D	F	G	L	U
VCHC	HCB0009650	Inch	2.26	.47	3.63	5.516	8.88	3.44	14.00	4.88
		MM	57.5	11.9	92.1	140.10	225.4	87.3	355.6	123.8
Dimensions for the following part number can be found on the last page of this brochure.										
Y										
0100648										



Motor Grinder



Grinder shown positioned on a compound slide rest on the HSL Five-Nine® speed lathe.

The L7 motor grinder mounts to the quick-acting tool post slide . The grinder can be used for both external and internal grinding operations.

The grinder has two speeds — 10,000 and 22,500 rpm, which can be changed by moving the belt on the stepped pulleys. The 1/4-hp motor operates on 110-volt, single-phase power which is supplied through an 8-foot cord with a 3-prong, grounding-type plug.

External grinding is performed using wheels with a 1/4" (6.35 mm) hole and a maximum OD of 2" (50.8 mm). Internal grinding capacity is 1/2" (12.70 mm) maximum to a depth of 2-1/4" (57.15 mm). An interchangeable chuck is used to hold grinding quills with 1/8" (3.18 mm) diameter shanks for internal grinding. Wheels can be purchased from a local supplier.

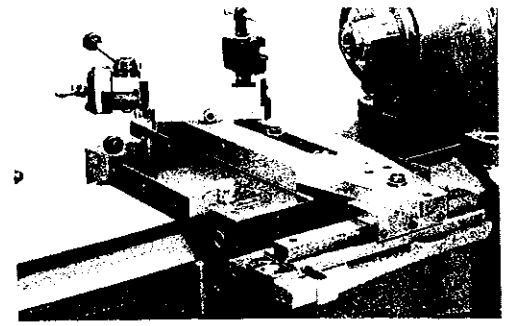
Model No.	Part No.
L7	L7 0011767

Taper Turning Attachment

The taper turning attachment is used to turn or bore precision tapers where the surface finish is critical, and to cut precision taper threads and pipe threads.

The attachment fits directly on the back of a lathe bed casting and can be positioned along the bed casting to suit the work length being performed. One end of the attachment is stationary while the other end of the guide bar is swiveled to set the desired angle. For the English model, the graduations for setting the guide bar are in 1/8" taper per foot and also in degrees. For the metric model, the graduations are in degrees alone. The maximum length taper that can be cut is 12" (304.80 mm); and the maximum degree of taper is 20° included angle. The power feed for the carriage can be used with the taper turning attachment.

Model No.	Part No.	Description
L8	LH 0006460	Taper Turning Attachment — English
L8	LH 0006460 M	Taper Turning Attachment — Metric



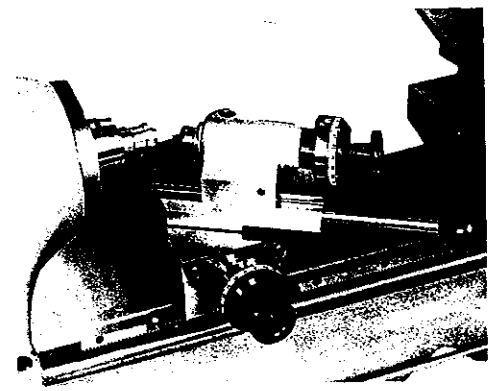
Shown with optional wedge-type tool holder.

Radius Turning Attachment

The radius turning attachment is used for producing precision concave and convex radii up to 1-1/2" (38.11 mm). It mounts directly to the machine's dovetail bed and uses 5/16" square shank tool bits. Maximum swing over the swivel base is 3" (76.2 mm) diameter. The swivel slide moves through 360° and is mounted on precision, preloaded ball bearings for accuracy and rigidity. Slide and tool movement are controlled by large, easily-read, black-and-white feed screw dials graduated in .001" or .02 mm increments. The dials are adjustable for a zero setting with a positive lock.

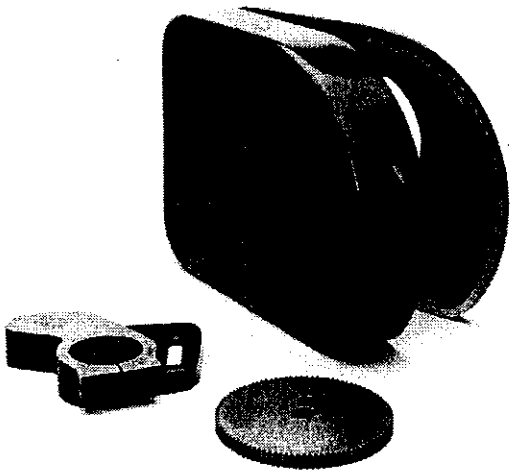
Height-to-spindle centerline is 5-1/2" (139.7 mm). For dimensions of the dovetail mount, see the dimensions for the L11 (7" bed plate) steady rest on page 25.

Model No.	Part No.	Description
L9	LH 00091000003	Radius Turning Attachment — English
L9-M	LH 0009100 M03	Radius Turning Attachment — Metric

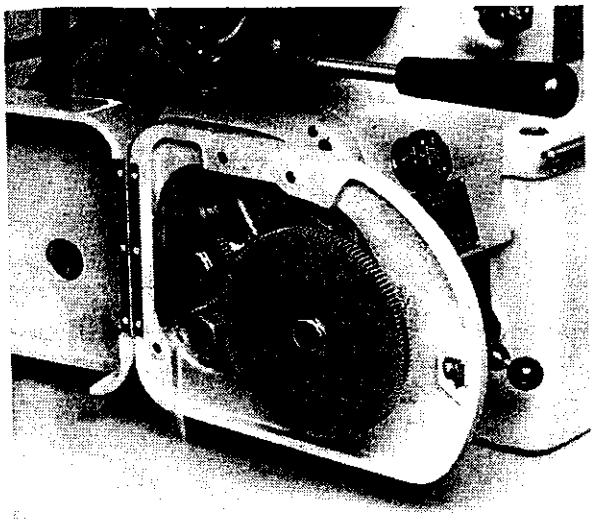


Major Attachments

Outside Metric Threading Attachment (for HLV-H)



Metric threads of .5, 1.0 and 2.0 can be cut on the HLV®-H lathe with the optional Metric Attachment Kit. The kit includes a metric bracket, a gear box cover, mounting studs, bushings, one 127-tooth translating gear, and one 50- and two 30-tooth gears. Metric thread leads from .1 to 3.0 can be cut by purchasing additional gears.



Kit Part No.	Description
HLA0006828	Outside Metric Threading Attachment

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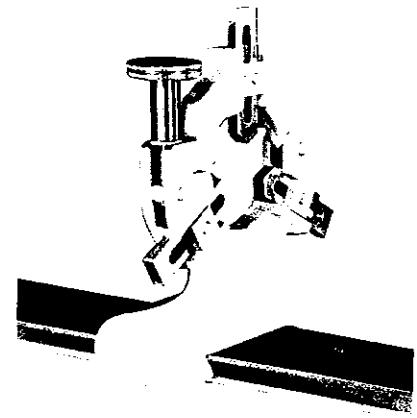
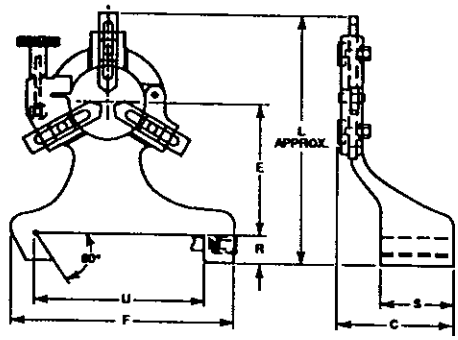
Steady Rest

The steady rest is used to support and prevent deflection of long workpieces while machining operations are performed on the end (e.g., facing, center drilling) or when machining the OD without the use of a tailstock.

The steady rest mounts directly to the machine's dovetail bed plate. The top section is hinged to provide for ease in loading. The three jaws are adjustable and have an accurate fit in the milled guides of the body. The rest is capable of holding a workpiece with a diameter up to 3" (76.20 mm). Once positioned, it is "fixed".



Model No.	Part No.	Dimensions							
			C	E	F	L	R	S	U
L11	LH 0000011	Inch	4.63	5.50	9.25	10.50	1.13	3.00	7.00
		MM	117.5	139.7	235.0	266.7	28.6	76.2	177.8

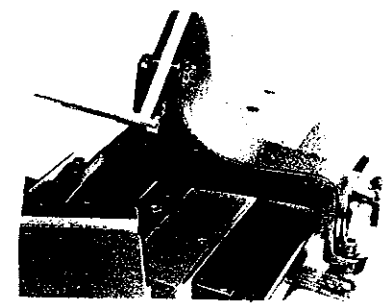


Follow Rest

The follow rest keeps a workpiece from deflecting during a machining operation.

The follow rest mounts directly to the top of the carriage using three mounting screws. The follow rest leads the tool along its cutting path, keeping the workpiece steady as the cut is being made.

The workpiece is supported from the rear in the vee guide on the follow rest. The vee guide supports the raw material, never touching the finish cut being performed. The guide can be adjusted by the operator to the diameter of the stock being machined.



Model No.	Part No.	Dimensions							
			C	E	F	L	R	U	V
L12A	KL 0006558	Inch	7.13	4.75	8.63	8.00	.38	7.50	6.00
		MM	181.0	120.7	219.1	203.2	9.5	190.5	152.4
Dimension for the following part number can be found on the last page of this brochure.									
Y									
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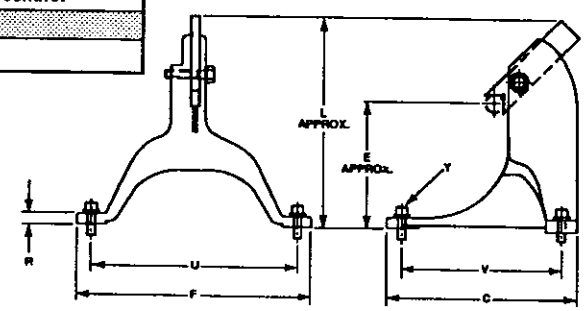

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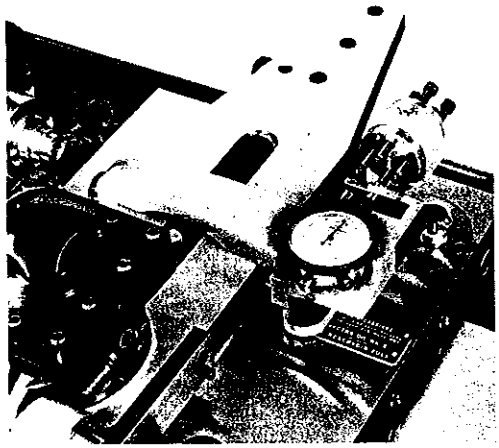
Precision Indicator Stops

4-Position Cross Slide Indicator Stop



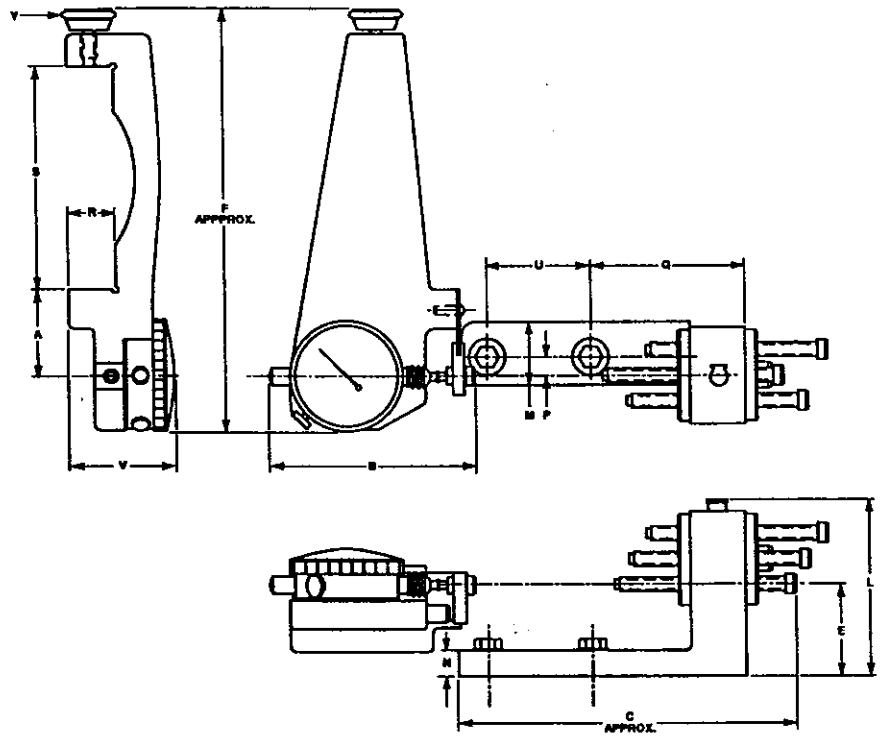
Indicator stop shown with optional 4-station square turret.

The 4-position indicator stop is used when machining one or more close tolerance diameters.

The 4-position indicator stop mounts directly to the cross slide and carriage, and is indexed by the operator. Each station has an adjustable reference screw. A built-in feature protects the dial indicator from over-travel. The indicator is a jeweled bearing type.

The HLV-H-CS model stop has a .0001" dial indicator having a .025" travel. The CS-M model comes with a .005 mm indicator having a 1.25 mm travel. The CS-EM model comes with both indicators.

Model No.	Part No.	Dimensions							
			A	B	C	E	F	L	M
HLV-H-CS	LH 0005890	Inch	1.81	4.00	6.50	1.75	8.50	3.44	1.13
		MM	46.0	101.6	165.1	44.5	215.9	87.3	28.6
CS-M	LH 0005890 M		N	P	Q	R	S	U	V
CS-EM	LH 0005890ME	Inch	.47	.38	2.94	.88	4.50	2.00	2.06
		MM	11.9	9.5	74.6	22.2	114.3	50.8	52.4
Dimensions for the following part number can be found on the last page of this brochure.									
Y									
LH 0008710									



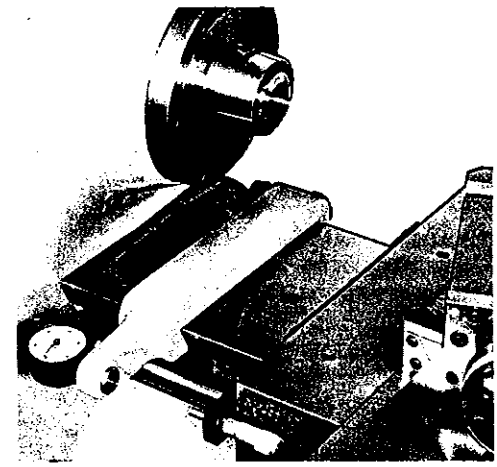
Micrometer Carriage Stop

The micrometer stop is used when producing parts with very close shoulder lengths or when facing to close tolerances.

The micrometer bracket mounts to the dovetail bed plate. The stop can be positioned to any desired location on the bed plate. The micrometer stop is designed as an indicator rather than a solid stop, and can be zeroed for easy reading.

The LH-BD1 model is supplied with a .0005" dial indicator (part no. HL 0010037) having a .075" travel. The micrometer is graduated in .001" increments. The BD-M model is supplied with a .01 mm dial indicator (part no. HL 0010037 M) having a 2.5 mm travel. The micrometer is graduated in .01 mm increments. The BD-EM model is supplied with one English and one metric dial indicator, and one English and one metric micrometer.

Height-to-spindle centerline is 5-1/2" (139.7 mm). For dimensions of the dovetail mount, see the dimensions for the L11 (7" bed plate) steady rest on page 25.



Model No.	Part No.		A	B	C	D	E	F	L
LH-BD1	LH 0006775	Inch	3.00	6.87	12.25	.81	.56	1.50	1.63
		MM	76.2	174.6	311.2	20.6	14.3	38.1	41.3
BD-M	LH 0006775 M		M	P	Q	R	S	U	V
BD-EM	LH 0006775ME	Inch	2.75	.44	.38	.88	2.00	1.25	2.25
		MM	69.9	11.1	9.5	22.2	50.8	31.8	57.2
Dimensions for the following part number can be found on the last page of this brochure.									
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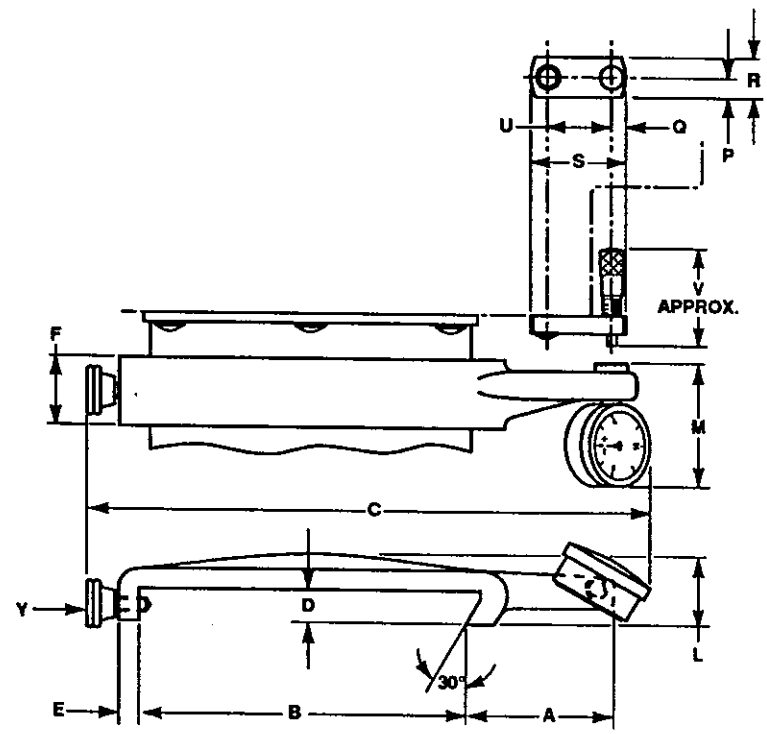
HLA0010039									



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Precision Indicator Stops

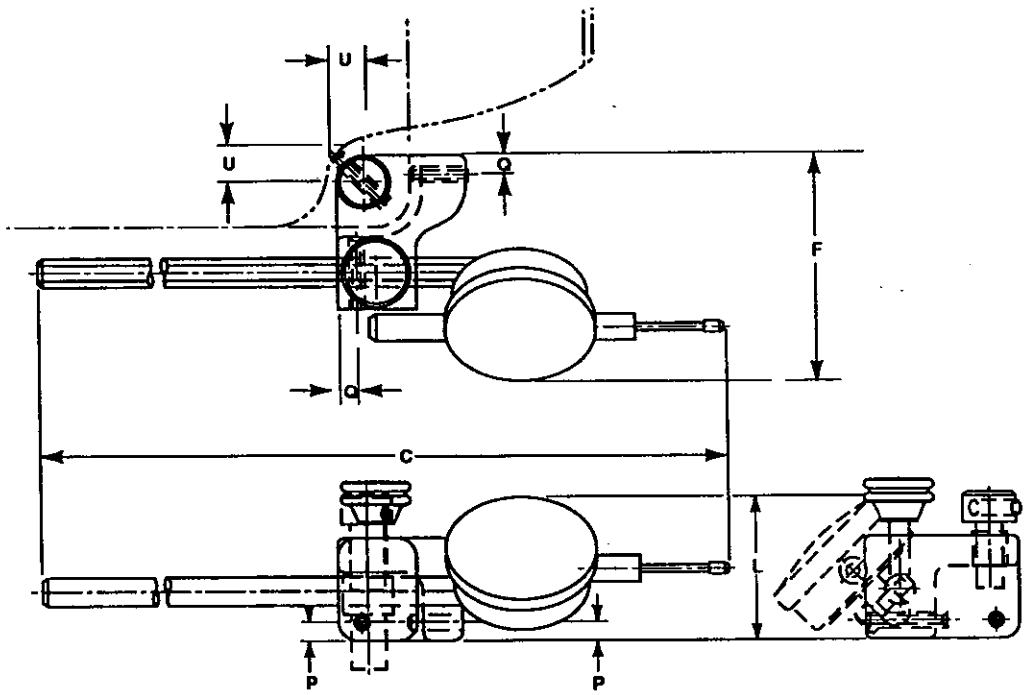
Carriage Length Indicator

The length indicator with micrometer is used to machine parts with close shoulder lengths or when facing to close tolerances. The micrometer stop is designed as an indicator rather than a solid stop, and can be zeroed for easy reading.

The indicator is a jeweled bearing type. The long rod allows the indicator to be extended to a distance of 6.5" (165.10 mm). The carriage length indicator allows close-to-the-spindle machining.

The HLVH-HD1 model is supplied with a .001" dial indicator having a 1.000" travel. The HD-M model is supplied with a .01 mm dial indicator having a 25 mm travel. The HD-EM model is supplied with both dial indicators.

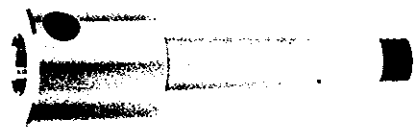
Model No.	Part No.	Dimensions						
			C	F	L	P	Q	U
HLVH-HD1	LH 0011190	Inch	15.00	3.50	2.19	.31	.31	.41
HD-M	LH 0011190 M	MM	381.0	88.9	55.6	7.9	7.9	10.3
HD-EM	LH 0011190ME							



No. 2 Morse Taper Adapter

This adapter is used to hold 5/8" diameter round shank tooling in the tailstock. It has a No. 2 Morse taper shank that mounts directly into a No. 2 Morse taper tailstock spindle.

HDB-5 bushings can be used in the adapter to hold round shank tooling 1/2" in diameter or smaller (see brochure 1287 for English and metric bushings).



Model No.	Part No.	Dimensions					
			A	C	H	K	L
D18	DV 0004941	Inch	1.44	4.50	.6252	1.19	1.36
		MM	36.5	114.3	15.880	30.2	34.5
Dimensions for the following part number can be found on the last page of this brochure.							
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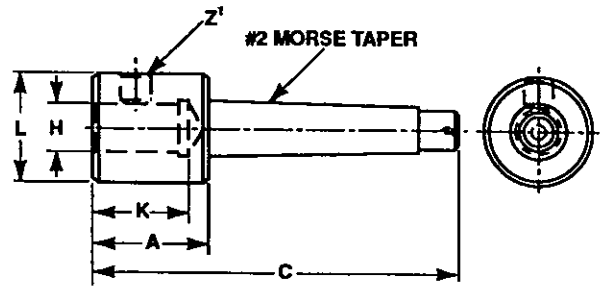
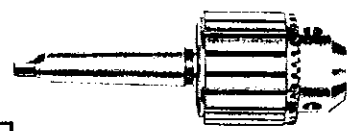
0570906							



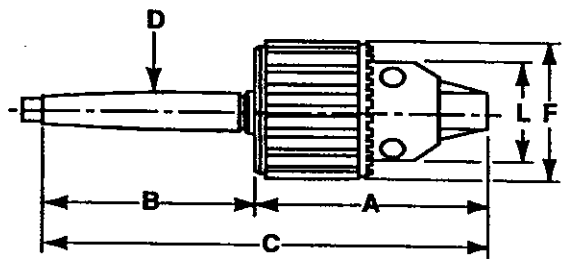
Drill Chucks

A drill chuck (or Jacobs chuck) has a No. 2 Morse taper shank that mounts directly into a No. 2 Morse taper tailstock. Maximum round shank tooling capacities are 1/8" for the G31 model, 3/8" for the G33, and 1/2" for the G34. A chuck key is provided.



Model G33 shown.

Model No.	Part No.	Dimensions						
			A	B	C	D	F	L
G31	G 000000301	Inch	1.37	3.04	4.41	#2 Morse	.85	.59
		MM	34.8	77.2	112.0	Taper	21.6	15.0
G33	G 000000303	Inch	3.00	3.04	6.04	#2 Morse	1.78	1.25
		MM	76.1	77.2	153.3	Taper	45.2	31.8
G34	G 000000304	Inch	3.42	3.04	6.46	#2 Morse	2.04	1.56
		MM	86.7	77.2	163.9	Taper	51.8	39.6



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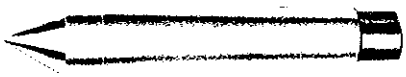
Tailstock Tooling

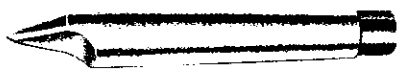
Tailstock Centers

Swivel "V" Center



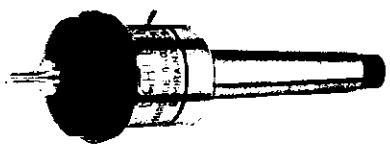
Male Center

Female Center

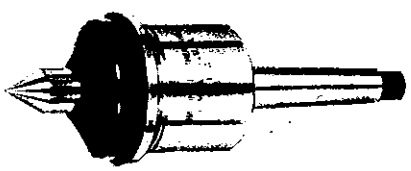


Half Center

Large Center



Light-Duty Center



Heavy-Duty Center

A center helps prevent chatter and deflection when turning long bars.

The swivel "V" center has a maximum body runout of .0001" (.00254 mm) and supports parts perpendicular to the spindle centerline, odd-shaped parts, or is used for special applications. The "V" portion of the center rotates with the workpiece.

The male center supports a workpiece that has a center-drilled hole or an internal angle in the end.

The female center will support a workpiece that has a point on the end. It has a 60° conical hole, 1/8" (3.18 mm) in diameter at the face of the center.

The half center is used to support a workpiece that has a center drilled hole or an internal angle in the end, and when tool clearance is desired for turning the full length of a part or facing the part when supported by the tailstock.

The large center is used for tubing or counterbored work that is too large for the G5 male center.

The light- and heavy-duty live centers support a workpiece that has a center-drilled hole in it. The light-duty center is used for small-diameter work, light cuts, and can be run at high spindle speeds. The heavy-duty center is used for large-diameter work, heavier cuts, and should be run at low spindle speeds. Both centers feature preloaded ball bearings that permit high precision between-centers machining and they are designed to exclude chips, dirt, and coolant from the internal mechanisms.

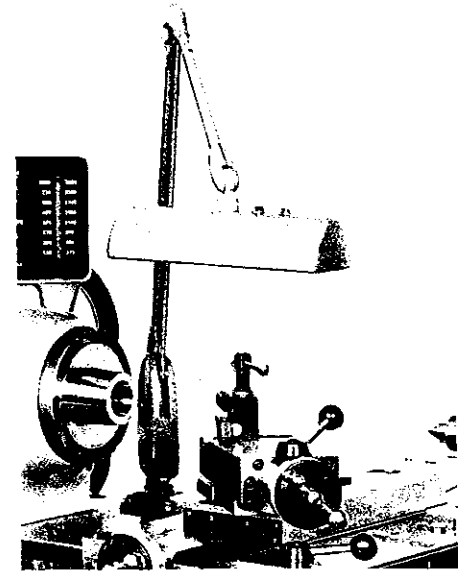
All centers are hardened and ground and have a No. 2 Morse taper shank for direct mounting into the tailstock spindle. Due to the construction of the centers, they are sold only as complete units and are not designed to be repaired.

Model No.	Part No.	Description
G4	2M 0002565	Swivel "V" Center
G5	2MB0000422	Male Center
G6	2MA0002561	Female Center
G7	2M 0002562	Half Center
G8	2M 0002560	Large Center
LDC	LD 0000422	Light-Duty Center
HDC	LCA0000422	Heavy-Duty Center

Fluorescent Worklight

The fluorescent worklight operates from a 110-volt power line that is plugged directly into an outlet. The light swivels and pivots for easy adjustment by the operator.

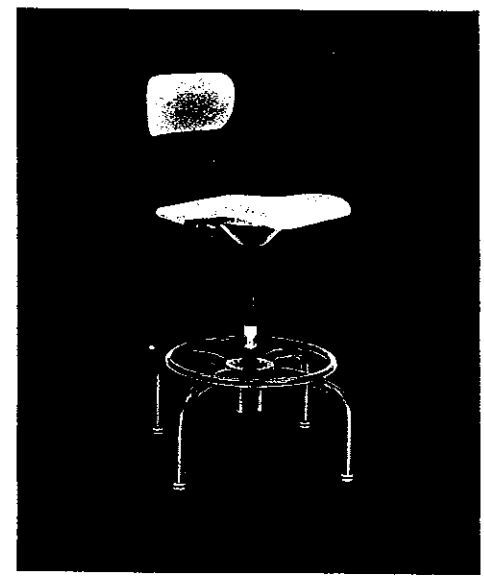
Model No.	Part No.	Description
L13	LH 0000239	Fluorescent Lamp



Adjustable-Height Chair

The chair is an independent unit designed for use in any production environment. It features an adjustable height seat and back rest for operator comfort.

Model No.	Part No.
L15	L150011768



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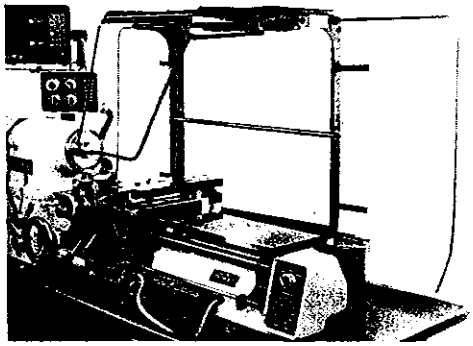
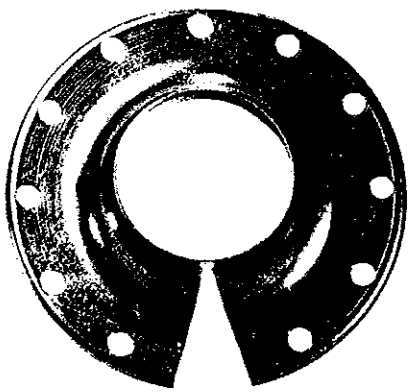
Chip and Coolant Shield



The chip and coolant shield confines chips and coolant to the machine pedestal, and acts as a safety shield. The shield mounts directly to the machine's pedestal, and is supplied as standard equipment. The entire center section of the shield can be raised to allow for ease in tool setting and chip removal.

Model No.	Part No.
L14	CGI0010453 H

Spindle Coolant Shield



The spindle coolant shield is included as standard equipment on HLV® and TFB®-H lathes. The shield mounts to the outer diameter of the machine's spindle nose to minimize splash from cutting oil when parts are being machined and to help keep cutting oil away from the spindle bearings.

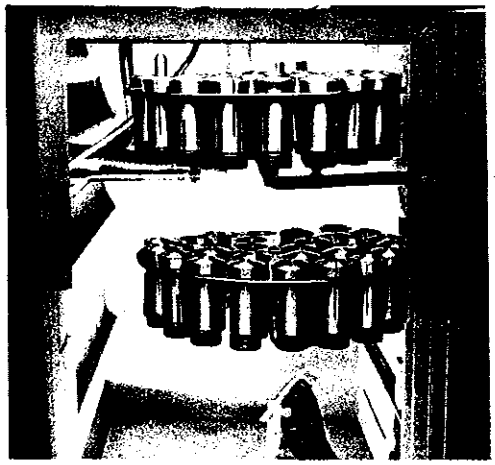
Part No.	Dimensions	
	Back ID	Front ID
CW 0006407	5-1/2"	2-1/4"

Rotary Collet Board

Two rotary collet boards are included as standard equipment on HLV® lathes and one board is standard on TFB®-H lathes. The boards provide convenient storage and quick access to collets, tailstock centers, and other small tooling. Each rotary board is mounted on a swivel inside the compartment of the machine's pedestal and provides room for up to thirty-two 5C collets.

For TFB lathes, an additional rotary board can be purchased and positioned in the compartment as shown in the photograph.

Model	Part No.
Rotary Board	KL 0008780 S



Tooling shown is not included.

5C Special-Accuracy Collets Sets

5C special-accuracy collet sets are available from Hardinge®. Each collet is tested in a Hardinge spindle to guarantee a maximum TIR (total indicator reading) of .0002". Collets are manufactured from the finest steel and hardened and ground to size. Each set is enclosed in a walnut case and includes a *Certificate of Accuracy* signed by the President of Hardinge Brothers, Inc.

Kit	Range	Part No.
33-Piece	Round Fractional 1/16" to 1-1/16" inclusive by 1/32" increments	0904-00-00-000000
65-Piece	Round Fractional 1/16" to 1-1/16" inclusive by 1/64" increments	0903-00-00-000000
51-Piece	Round Millimeter 2 mm to 27 mm inclusive by .5 mm increments	0909-00-00-000000

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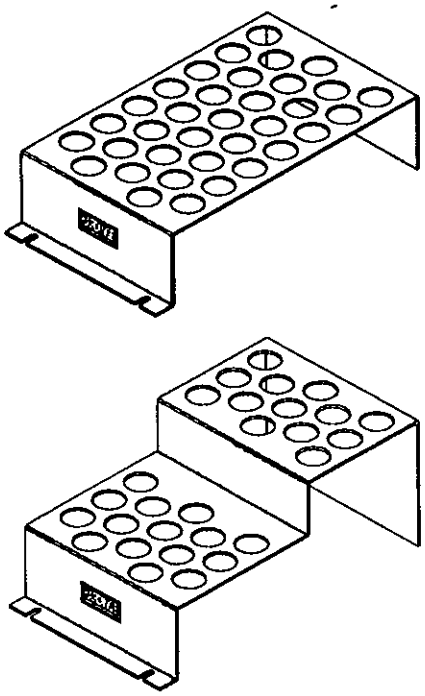
Accessories

5C Collet Rack

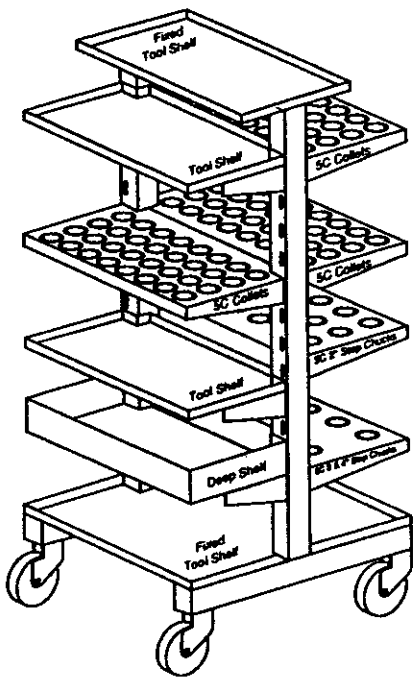


The 5C collet rack stores your collets in a manner that will protect the head angle, threads and keyway, all while providing quick and easy access for the operator.

Two models are available: The single-depth model that holds 35 collets, and the double-deck model that holds 28 collets. The double-deck model holds fully-assembled Dead-Length® Collets, Stop Collets, and Master Expansion Collets as well as standard and extra depth step chucks. The racks bolt to a worktable for maximum stability.

Description	Part No.
35-Collet Capacity	0944-00-00-000032
28-Collet Capacity	0944-00-00-000028

Portable Collet/Tooling Kart



HANDI-KART shown set up as a 5C workstation

The Handi-Kart allows you to store collets, step chucks and closers on one side, and tool holders and attachments on the other side.

The Handi-Kart is designed for efficiency and compactness. It is manufactured from heavy-duty, 16-gage steel and comes standard with any three shelves of your choice. Additional shelves can be purchased to customize the kart for your individual needs. Round holes in the shelves are grommet lined to protect collets and tooling.

The vertical posts have 26 pair of slots that are spaced 2" apart. Heavy-duty swivel casters (one locking) permit convenient mobility and placement. Request brochure 2269 for detailed information.

Hole Size	Description	Part No.
N/A	Handi-Kart w/3 Shelves	0945-00-00-000000
1.37"	5C Collet Shelf	0946-00-00-000001
1.18"	R8 Mill Collet Shelf	0946-00-00-000002
1.37"	5C, 2" Step Chuck Shelf	0946-00-00-000003
1.37"	5C, 3" & 4" Step Chuck Shelf	0946-00-00-000004
1.92"	16C Collet Shelf.	0946-00-00-000005
2.35"	20C Collet Shelf	0946-00-00-000006
3.25"	25C Collet Shelf	0946-00-00-000007
N/A	Shallow Utility Shelf	0946-00-00-000008
N/A	Deep Utility Shelf	0946-00-00-000009

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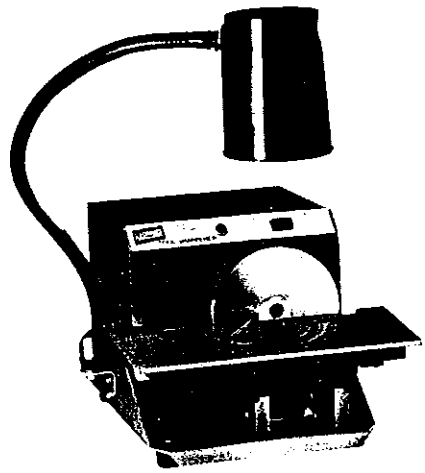
Hardinge®/Accu-Finish™ Precision Tool Sharpener



Every toolroom and production department can save time and money with the Hardinge/ Accu-Finish Tool Sharpener. The initial cost is low and the machine can pay for itself in a relatively short time.

Because dull tools create heat, vary tolerances, and deteriorate the workpiece's surface finish, it is crucial to keep cutting tools sharp. Machinists can reduce downtime during production by having ready access to a tool sharpener that is quick and easy to use.

The Hardinge/Accu-Finish Series II Precision Tool Sharpener provides up to 400% longer tool life of cutting, threading, profiling, and boring tools, and it eliminates the need to send worn inserts to a regrinding shop. You can also change the radius of an insert for a special tool profile in an inexpensive way, or lap the tops of new inserts before use to create flatter tops and eliminate waves.

The unit requires practically no set-up time, and the diamond-surfaced wheels can be changed in seconds — without adjusting the table angle. It is extremely versatile with its unique vertical and horizontal operations and its reversible spindle. With the simple push of a button, the operator can change the direction of the wheel's movement, either clockwise or counterclockwise.

All diamond wheels are electroplated with a hard nickel bond to hold the diamond abrasive securely in place. Because of the sharpener's unique low-speed system, these wheels are suitable for carbides, high-speed steels, ceramics, cubic boran nitride (CBN), cermet tools, tantung and most polycrystalline diamond (PCD) tools. There is no need for several grinders with different wheel types. Also included in the set are two different insert holders for varying insert thicknesses. These items are ideal for working on the sides, noses, and edges of various-shaped inserts.

Part No.	Description
TG-0012141-01	Complete Package: 1 Series II machine 4 diamond wheels (1 each of 260, 360, 600, and 1200 grits) 1 ceramic lap 1 bottle of diamond spray[1] (1 micron size) for ceramic lap 1 bottle of wetting agent concentrate 1 wheel storage rack 1 wheel cleaning stick 1 foot switch 1 adjustable lamp 1 insert holder for inserts from 1/8" to 3/16" thick 1 insert holder for inserts from 3/16" to 1/4" thick
TG-0012151 TG-0012151-01 TG-0012151-02 TG-0012151-03 TG-0012151-04	6" diamond wheel, 260 grit (coarse) 6" diamond wheel, 360 grit (alligator wheel) 6" diamond wheel, 600 grit (medium) 6" diamond wheel, 1200 grit (fine) 6" ceramic lap
TG-0012152 TG-0012152-01 TG-0012153 TG-0012153-01 TG-0012154	Diamond spray for ceramic lap (1 micron; 14,000 grit)[1] Diamond spray (package of 6 bottles; 1 micron)[1] Insert holder for inserts from 1/8" to 3/16" thick Insert holder for inserts from 3/16" to 1/4" thick Wheel storage rack for 5 wheels
TG-0012155 TG-0012156 TG-0012156-01 TG-0012157 TG-0012157-01	Diamond wheel cleaning sticks (package of 3) Wetting agent concentrate (package of three 2-ounce bottles)[2] Wetting agent concentrate (1 gallon)[3] Diamond file set (one 320 and one 600 grit files) Diamond file set (two 600 grit files)

1 — The use of diamond spray is required with the ceramic lap.
2 — Each bottle of concentrate makes one gallon of wetting agent.
3 — One gallon of concentrate makes 70 gallons of wetting agent.

Accu-Finish is a trademark of Glendo Corporation.

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Accessories

Bolts:

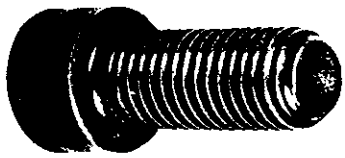
T-Bolt Shown

Part Number	Dimensions	Part Number	Dimensions
AD 00046101	7/8 RD X 3-5/16	PL 0007241	7/8 RD x 2-5/16
AD 0000461 R	7/8 RD X 3-11/16	ST 0007241	7/8 SQ x 2-5/16
AM 0000461	7/8 RD X 4-7/16	CWC0007392	5/8 RD x 1-5/16
AT 0000461	1-1/8 SQ x 4-1/8	OO 00007948	5/8 Hex x 1-1/8
FCA0000461 F	7/8 RD x 2-7/8	VBS0007948	5/8 Hex x 1-1/2
FCA0000461 R	7/8 RD x 3	OO 0007949	5/8 SQ x 2-13/16
370000465	2/4 SQ x 57/64	VBS0007949 F	5/8 SQ x 2-15/16
DS 0000465	15/16 RD x 1	VBS0007949 R	5/8 SQ x 2-5/8
AD 0000466	1/2 RD x 1-11/16	OO 0007951	5/8 Hex x 1-13/16
FB 0000466	1/2RD x 2-7/16	OO 0007953	3/8 x 7/8 x 1-11/16
LH 0000466	1/2 RD x 3-1/16	OO 0007958	3/8 X 7/8 x 1-15/16
ST 0000466	1/2RD x 2-1/8	OO 0007959	3/8 x 7/8 x 2-3/8
60000523	1/2 x 3	OO 0007960	3/8 x 7/8 x 1-11/16
60000525	3/4 RD x 1-1/4	OO 0007961	3/8 x 7/8 x 1-15/16
50002011	3/4 SQ x 1-7/8	OO 0007962	3/8 x 7/8 x 2-3/16
AH 0007241	1 RD x 2-9/32	VD 0011903	5/16 - 24 x 1
HP 0007241	7/8 RD x 2-3/16	DS 0010594	1-1/8 SQ x 3-1/8

Nuts:

ST 0000374	3/4 SQ x 13/32	AD 0008411	1/4 x 5/8 x 1
7 0001502 B	3/8-16 Std Hex	AD 0010502	3/8 x 5/8 x 7/8
47 0001502	3/8-16 Grade 5	CH 0010502	3/8 x 3/4 x 13/16
47 0001502 C	3/8-16 Grade 5	HL 0010502	1-1/8 SQ x 1/2
5PA0001957	11/16 Hex x 1/2	STA0010502	3/8 x 3/4 x 13/16
5 0002012	7/16-14 Grade 5	AH 0011481	TCN-1-1/2-13
5 0002012	7/16-14		

Screws:



Set Screw Shown

49B0000348	5/8 RD x 2-1/2	0101028	3/8-16 x 1-3/4
CH 000363	3/8-16 x 1-1/2	0101032	3/8-16x2
LH 000108301	5/16-24 x 3/4	0101036	3/8-16 x 2-1/4
ST 000422001	1/4-28 x 1	0150516	1/4-28 x 1
CS 0008710	3/4 RD x 1-5/8	0151420	1/2-13 x 1-1/4
LH 0008710	1 RD x 1-1/8	0550305	10-32 x 5/16
SB 0008710	3/4 RD x 1-5/8	0550503	1/4-28 x 3/16
60009095	3/4 RD x 1	0550506	1/4-28 x 3/8
KH 0010031	1/4-28 x 3/8	0550508	1/4-28 x 1/2
HLA0010039	1 RD x 1-3/4	0550510	1/4-28 x 5/8
HL 0010504	3/4 RD x 7/16	0550512	1/4-28 x 3/4
DS 0010591	1/2 RD x 1-11/16	0550710	5/16-24 x 5/8
2001091	1/2 RD #8260 x 3/4	0550712	5/16-24 x 3/4
ST 001116204	1/2 RD x 2-11/16	0550910	3/8-24 x 5/8
AH 001164401	1/4-28 x 1/2	0570504	1/4-28 x 1/4
0100208	8-32 x 1/2	0570506	1/4-28 x 3/8
0100506	1/4-28 x 3/8	0570508	1/4-28 x 1/2
0100508	1/4-28 x 1/2	0570510	1/4-28 x 5/8
0100510	1/4-28 x 5/8	0570610	1/4-20 x 5/8
0100514	1/4-28 x 7/8	0570510	5/16-24 x 5/8
0100516	1/4-28 x 1	0570904	3/8-24 x 1/4
0100520	1/4-28 x 1-1/4	0570906	3/8-24 x 3/8
0100540	1/4-28 x 2-1/2	0570908	3/8-24 x 1/2
0100648	1/4-20 x 3	0570910	3/8-24 x 5/8
0100814	5/16-18 x 7/8	0570912	3/8-24 x 3/4
0100816	5/16-18 x 1	0571016	3/8-16 x 1
0100840	5/16-18 x 2-1/2	6A 0008586	1/4-28 x 1-1/16, 13/16
1011912	3/8-24 x 3/4		

Washers:

370000622	33/64 x 1-1/8 x 1/8	5P 0006434	1/2 Std
AD 0001067	5/8 RD x 7/32	FB 0006906	3/4 RD x 1/4
50002068	1 RD x 1/4	OO0007963	1/2 RD x 3/16
U 0004143			

Miscellaneous:

Coolant Ball Shown

Part Number	Dimensions	Description
OR 00027	1/2 I.D. x 1-11/16 OD x 3/32 CS	O-Ring
DT 0009094	7/16 SQ x 1-11/16	Locking Plug
CH 0010037 M	25mm Jewel Big Post Back	Indicator Dial
CHA0010037	1000 post back pt 1"	Indicator Dial
CH 0010039	1 RD x 1-1/2	Screw Clamp
DSA0010595	3/4 RD x 1-5/8	Cap for Tool Post
3001090	5/8 RD x 7/8	Barrel
80010901	Reed CS-35 Knurl B&S 711-8064-100	Knurl
ST 0010901 D	TPI #SS-30 Str. 3/4 OD x 1/4 ID x 1/4	Diamond Knurl
CS 000605801, 02, 03	Round	Blank Coolant Ball

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