

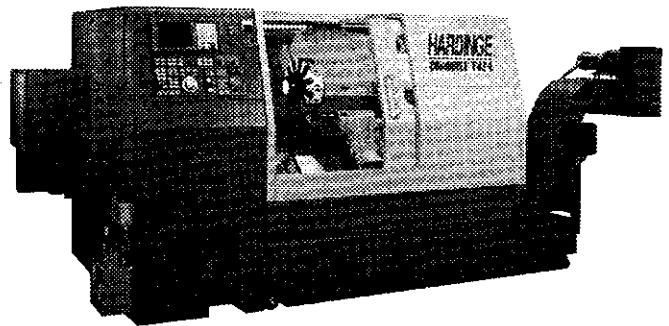


**CONQUEST® T42
CNC Lathe**

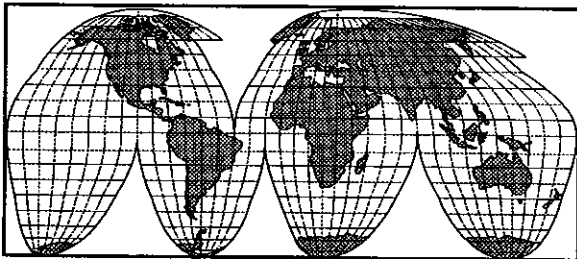
**A Complete Line of Tooling,
Attachments and Accessories for
Hardinge® CONQUEST® T42/T42SP
and CONQUEST T42-L Long Bed
CNC Lathes**



**CONQUEST® T42SP
SUPER-PRECISION® CNC Lathe**



**CONQUEST® T42-L
Long Bed CNC Lathe**

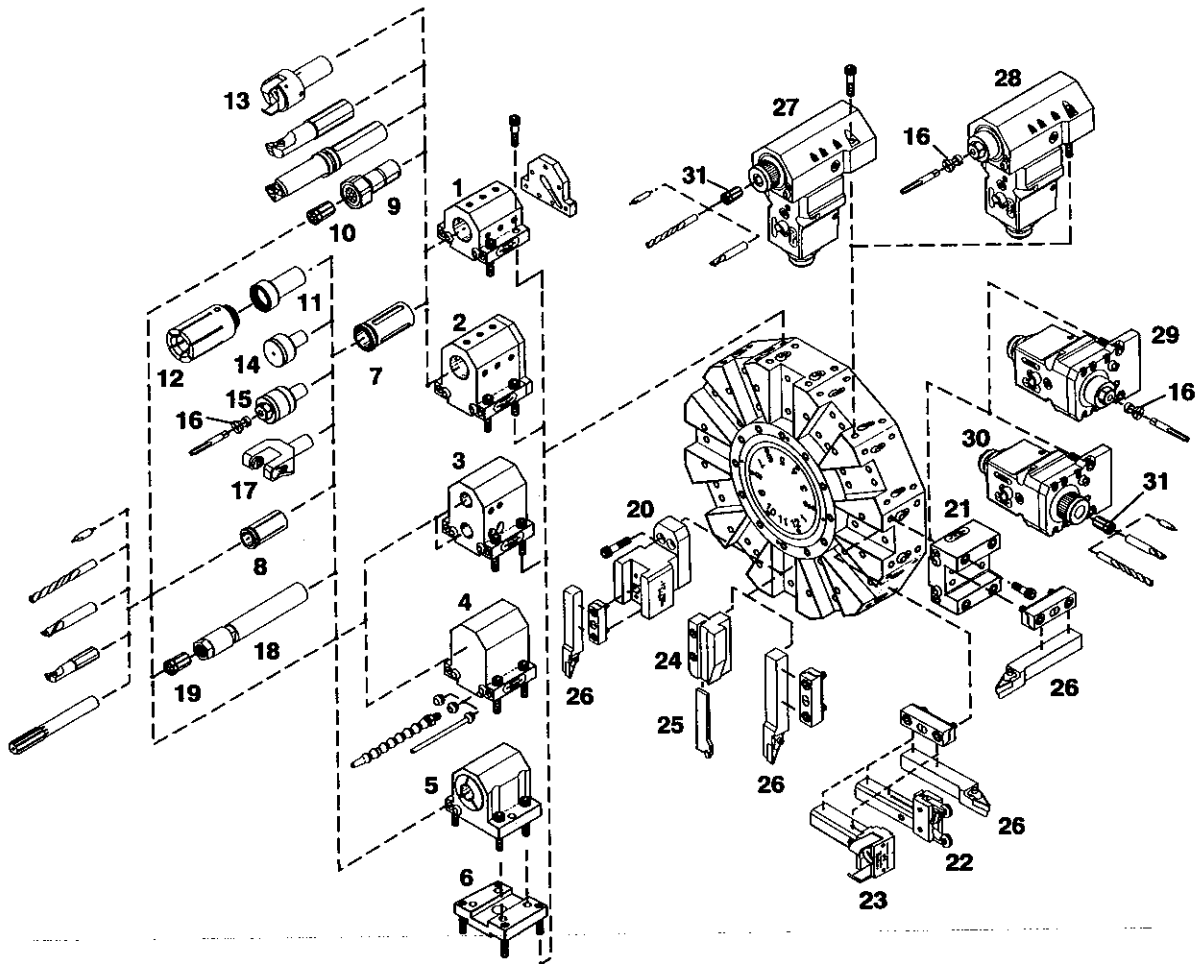


**In USA, call: 800-843-8801
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Fax: 607-734-8819**

Corporate Headquarters and
Manufacturing Facilities

Hardinge Inc.

Elmira, New York 14902-1507 USA
607-734-2281



NOTE: Not all tooling is illustrated. See below for complete list.

DIAGRAM KEY NO.	MASTER LISTING DESCRIPTION	MODEL NO.	PAGE NO.	1250 CATALOG PAGE NO.
10- and 12-Station Vertical Turret Tooling				
1	Round Shank Tool Holder (1-1/4" ID)	SG-21	7	—
	Round Shank Tool Holder (32 mm ID)	SG-20M	7	—
2	Round Shank Boring Tool Holder (1-1/4" ID)	SG-30	8	—
	Round Shank Boring Tool Holder (25 mm ID)	SG-27M	8	—
	Round Shank Boring Tool Holder (32 mm ID)	SG-30M	8	—
3	Round Shank Double Tool Holder (3/4" ID)	SG-34	9	—
	Round Shank Double Tool Holder (25 mm ID)	SG-34M	9	—
4	Inch Blank Tool Holder (bore to size)	SG-PS	10	—
	Metric Blank Tool Holder (bore to size)	SG-PM	10	—
5	5C Collet Tool Holder	CS-5C	11	—
6	Adapter Plate for 5C Collet Tool Holder	—	12	—
	Coolant Direction Balls and Tubes	—	12	—
7	Precision Solid Bushings (1-1/4" or 32 mm OD)	HDC-10/10M	13	—
	Precision Solid Preset Bushings (1-1/4" or 32 mm OD)	HDZ-10/10M	13	—
8	Precision Bushings (3/4" OD)	HDB-6	See Brochure 1287	85
	Round Shank Tool Setting Gauge (Main Spindle)	—	14	—
9	Double-Angle Collet Holder, 180-Series (1-1/4" OD/32 mm OD)	SG-180/180M	14	—

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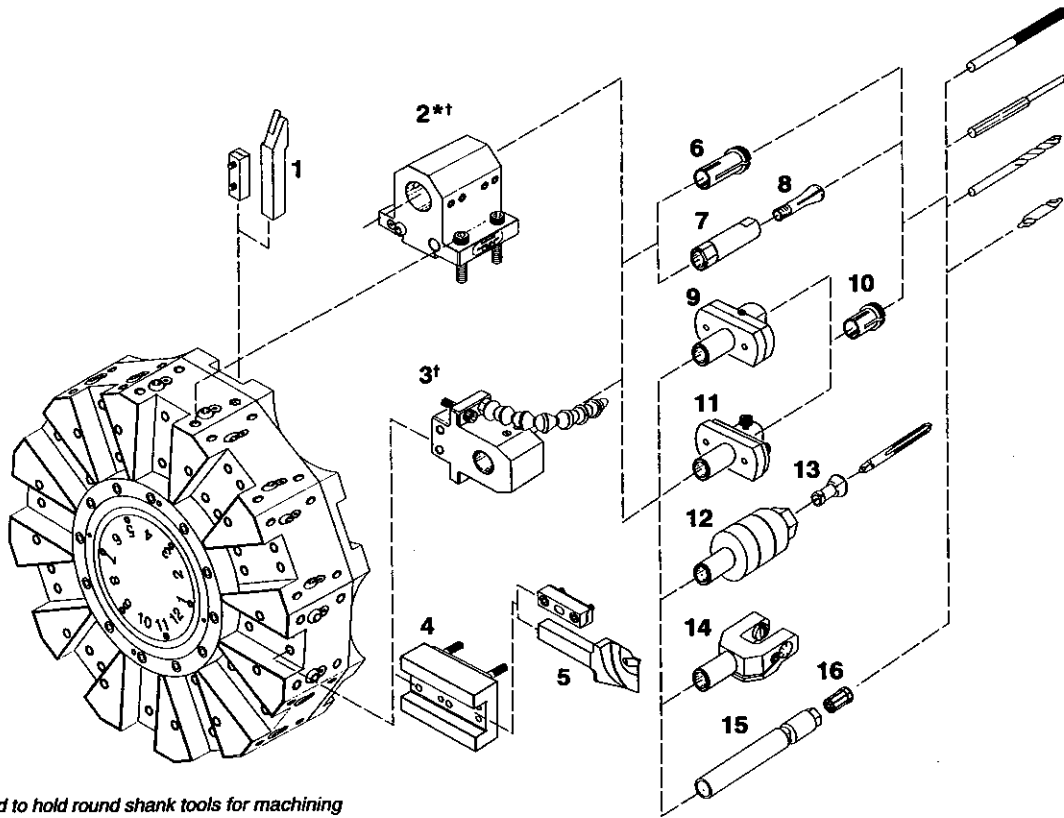
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DIAGRAM KEY NO.	MASTER LISTING DESCRIPTION	MODEL NO.	PAGE NO.	1250 CATALOG PAGE NO.
10- and 12-Station Vertical Turret Tooling (Cont'd.)				
10	180-Series Double-Angle Collets	—	See Brochure 1287	82
	180-Series Double-Angle Collet Holder Spanner Wrench	—	—	—
11	Bar Stock Puller Adapter	—	See Brochure 1288	201
12	Interchangeable Bar Stock Pullers	—	See Brochure 1288	202
13	Round Shank Bar Puller (1-1/4" OD)	F125	See Brochure 1288	—
14	Revolving Stock Stop	T20-3/4-16	26	46
15	Releasing "TT" Tap Holder (Collet-Type)	TT-	24	75
16	"TT" Tap Collets	TT (Size)	See Brochure 1287	86
17	"Crush-Type" Knurling Tool	T-8	25	115
18	Double-Angle Collet Tool Holder, 100-, 200- and 300-Series	DAH-	23	25
19	Double-Angle Collets, 100-, 200- and 300-Series	—	See Brochure 1287	82
20	Square-Shank Extension Tool Holder (3/4")	SG-TE	15	—
	Square-Shank Extension Tool Holder (20 mm)	SG-TEM	15	—
21	90° Square Shank Tool Holder (3/4")	SG-32	16	—
	90° Square Shank Tool Holder (20 mm)	SG-32M	16	—
22	Square Shank Knurling Tool	K075	25	—
23	Combination Round/Square Shank Bar Puller (3/4")	C100	See Brochure 1288	—
24	Left-Hand Cut-Off Tool Holder	SB-5L	17	23
25	Hardinge-Belcar Cut-Off Blade and Inserts	G-21	See Brochure 1289	107
	Hardinge-Belcar Square Shank Cut-Off Tool (3/4") and Inserts	G-23	See Brochure 1289	106 - 107
26	3/4" Square Shank and 1" Round Shank Insert Cutting Tools	—	See Brochure 1289	99 - 102
	3/4" Square Shank 35° and 55° Insert Profiling Tools	—	See Brochure 1289	103
Tooling Packages				
	Hardinge/Circle Cutting Tool Packages	—	See Brochure 1289	109
	Hardinge/Kennametal Cutting Tool Packages	—	See Brochure 1289	110
	Kennametal KM-32 Quick-Change Tooling Packages	KM-32	See Brochure 1289	111
Live Tooling Attachments				
27	End-Working Attachment (Inch)	SG-54	18	—
	End-Working Attachment (Metric)	SG-55M	18	—
28	End-Tapping Attachment (Inch)	SG-56	18	—
	End-Tapping Attachment (Metric)	SG-57M	18	—
29	Cross-Tapping Attachment (Inch)	SG-52	18	—
	Cross-Tapping Attachment (Metric)	SG-53M	18	—
30	Cross-Working Attachment (Inch)	SG-50	18	—
	Cross-Working Attachment (Metric)	SG-51M	18	—
31	100-Series Double-Angle Toolholder Collets	—	See Brochure 1287	82
	Square Corner Mill and Woodruff Key Slot Attachment (Inch)	SG-58	19	—
	Square Corner Mill and Woodruff Key Slot Attachment (Metric)	SG-58M	19	—



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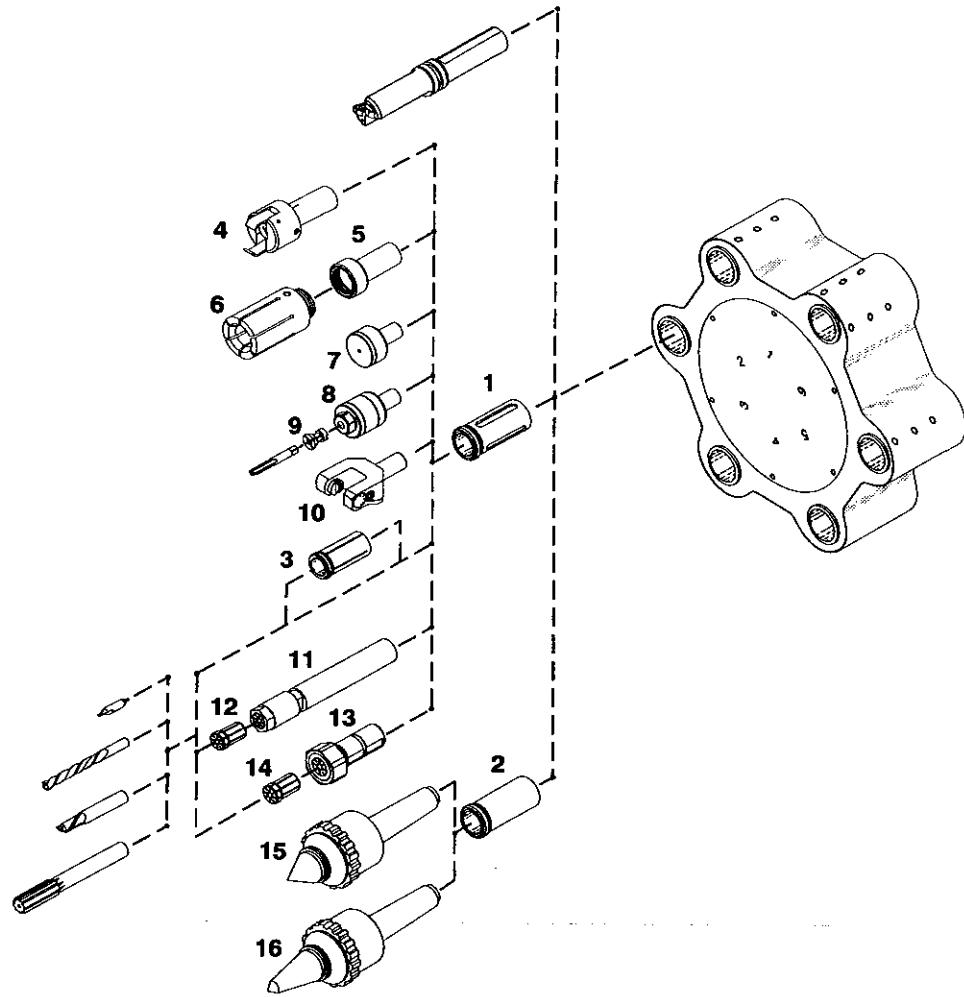
* Also used to hold round shank tools for machining workpieces in the main spindle
† Used at even-numbered stations only

DIAGRAM KEY NO.	MASTER LISTING DESCRIPTION	MODEL NO.	PAGE NO.	1250 CATALOG PAGE NO.
Sub-Spindle Turret Tooling				
1	3/4" Square Shank Insert Cutting Tools	—	See Brochure 1289	99 - 102
	3/4" Square Shank 35° and 55° Insert Profiling Tools	—	See Brochure 1289	103
2	Double Round Shank Tool Holder (3/4" ID)	SG-46	21	—
	Double Round Shank Tool Holder (25 mm ID)	SG-47M	21	—
3	Round Shank Tool Holder (3/4" ID)	SG-38	20	—
	Round Shank Tool Holder (25 mm ID)	SG-39M	20	—
4	Square Shank Cut-Off Tool Holder (3/4")	SG-CE	22	—
	Square Shank Cut-Off Tool Holder (20 mm)	SG-CEM	22	—
5	Hardinge-Belcar Square Shank Cut-Off Tool (3/4") and Inserts	G-23	See Brochure 1289	106 - 107
6	Precision Bushings (3/4" OD)	HDB-6	See Brochure 1287	85
7	1C Collet-Type Tool Holder (3/4" Shank)	T-17-3/4	24	22
8	1C Collets	—	See Brochure 1287	83
9	Floating Reamer Holder (3/4" Shank)	T-19-3/4	26	44
10	Precision Bushings (1/2" OD)	HDB-2	See Brochure 1287	84
11	Adjustable Holder (3/4" Shank)	00D-3/4	27	50
12	Releasing "TT" Tap Holder (Collet-Type)	TT-3/4	24	75
13	"TT" Tap Collets	TT (Size)	See Brochure 1287	86
14	"Crush-Type" Knurling Tool	T-8	25	115
15	Double-Angle Collet Tool Holder, 200-Series	DAH-235	23	25
16	Double-Angle Collets, 200-Series	—	See Brochure 1287	82
	Round Shank Tool Setting Gauge (Sub-Spindle)	SG-4	19	—

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**DIAGRAM
KEY NO.**

**MASTER LISTING
DESCRIPTION**

**MODEL
NO.**

**PAGE
NO.**

**1250 CATALOG
PAGE NO.**

End-Working Turret Tooling

1	Precision Solid Bushings (1-1/4" or 32 mm OD)	HDC-10/10M	13	—
	Precision Solid Preset Bushings (1-1/4" or 32 mm OD)	HDZ-10/10M	13	—
2	#3 MT Precision Solid Bushing (1-1/4" OD)	HDC-10	13	—
	#2 or #3 MT Precision Solid Bushing (32 mm OD)	HDC-10M	13	—
3	Precision Bushings (3/4" OD)	HDB-6	See Brochure 1287	85
4	Round Shank Bar Puller	F125	See Brochure 1288	—
5	Bar Stock Puller Adapter	—	See Brochure 1288	201
6	Interchangeable Bar Stock Pullers	—	See Brochure 1288	202
7	Revolving Stock Stop	T20-3/4-16	26	46
8	Releasing "TT" Tap Holder (Collet-Type)	TT-	24	75
9	"TT" Tap Collets	TT (Size)	See Brochure 1287	86
10	"Crush-Type" Knurling Tool	T-8	25	115
11	Double-Angle Collet Tool Holder, 100-, 200- and 300-Series	DAH-	23	25
12	Double-Angle Collets, 100-, 200- and 300-Series	—	See Brochure 1287	82
13	Double-Angle Collet Holder, 180-Series (1-1/4" OD)	SG-180	14	—
14	180-Series Double-Angle Collets	—	See Brochure 1287	82
	180-Series Double-Angle Collet Holder Spanner Wrench	—	—	—
15	#3 MT Pressure Indicating Live Center	R3	29	170
16	#3 MT Extended-Nose Pressure-Indicating Center	RV-3	29	170

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DIAGRAM KEY NO.	MASTER LISTING DESCRIPTION	MODEL NO.	PAGE NO.	1250 CATALOG PAGE NO.
Tailstock Centers				
	#3 MT Live Center	D-3a	28	171
	#3 MT High-Speed Live Center	C-3	28	—
	#3 MT Pressure Indicating Live Center	R-3	29	170
	#3 MT Extended-Nose Pressure-Indicating Center	RV-3	29	170
Optional Equipment and Accessories				
	Full-Function Sub-Spindle*	—	31	—
	16C Headstock Center	AK-7	27	—
	6-Station End-Working Turret*	—	31	—
	Live Tooling	—	32	—
	Live Tooling Attachments	—	18, 19	—
	2" Big-Bore Spindle	—	32	—
	C-Axis Contouring	—	33	—
	Main Spindle Drive Systems			
	10-hp Hi-Torque Option — 30 to 3,000 rpm	—	33	—
	15-hp Hi-Speed Option — 60 to 6,000 rpm	—	33	—
	15-hp Hi-Torque Option — 44 to 4,400 rpm	—	33	—
	Steady Rest (CONQUEST T42-L only)	—	34	—
	Tool Touch Probe	—	34	—
	Parts Removal System	—	35	—
	Chip Removal System	—	35	—
	Air Blast System	—	36	—
	Hi-Pressure Coolant System	—	36	—
	Thru-Spindle Coolant System	—	37	—
	Headwall Coolant Control	—	37	—
	X-Axis Torque Limiter	—	37	—
	Mist Collector	—	38	—
	Auto Door	—	38	—
	Collet Closer Foot Switch	—	38	—
	Voltage Transformers	—	39	—
	Tramp Oil Recovery System	—	39	—
	Hardinge T.E.A.C.H.® Training Programs			
	Audio — Programming	—	39	—
	Video — Hands-On	—	39	—
	Combination Package — Audio & Video	—	39	—
	Har-Matic® Hydrodynamic Retractable Bar Feed Systems (6-Foot and 12-Foot)	—	See Brochure 1288	198 - 199
	SPEGO Bar Feed Systems	—	See Brochure T-234	—
	LNS® Bar Feed Systems	—	See Brochure T-245	—
	IEMCA Bar Feed Systems	—	See Brochure T-246	—
	Autoload™ Automated Parts Handling System	—	See Brochure 1286	—
	Bolts, Nuts, Screws, Washers and Miscellaneous Items	—	30	72
* Not available on CONQUEST T42-L Long Bed lathes				

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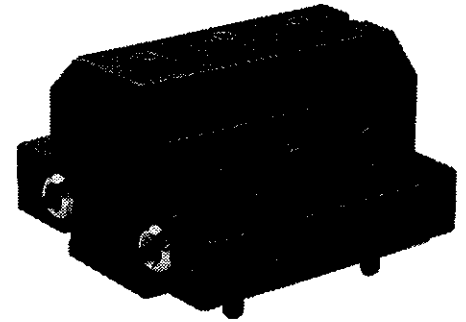
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Round Shank Tool Holder

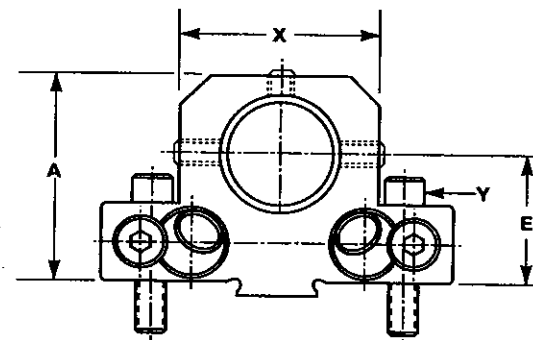
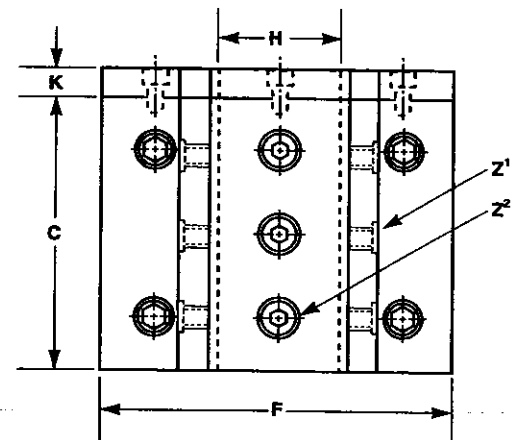
The round shank tool holder is used for operations such as center drilling, drilling, tapping, reaming, or bar stock pulling.

The tool holder is available with bore sizes of 1-1/4" and 32 mm. For optimum rigidity, HDC-10 solid bushings are used in the SG-21 holder to grip 1/2", 5/8", 3/4", 7/8" and 1" round shank tools or #3MT tooling. The SG-180 Double-Angle Collet Tool Holder is also available to rigidity grip tools from 3/64" to 3/4" (3.5 mm to 19 mm) in diameter (see page 14). HDC-10M solid bushings are used in the SG-20M holder to grip 12, 16, 20 and 25 mm round shank size tools or #3 MT tooling. See page 13 for solid bushings.

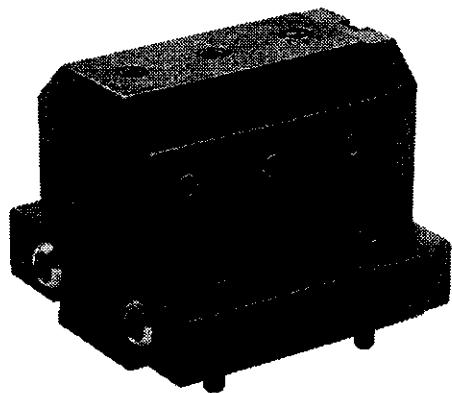
Two coolant balls in the holders direct coolant to the tool tip while machining. A 1/8-27 pipe plug, which is included, threads into the right coolant ball for through-the-tool coolant flow (a cover plate is included with each holder for through-the-tool coolant capabilities). To restrict coolant flow, a pipe plug is threaded into both coolant balls. Additional coolant direction balls and tubes are available (see page 12).



Model No.	Part No.	Dimensions							
			A	C	E	F	H	K	X
SG-21	SG 0011944 A	Inch	2.250	3.250	1.250	3.690	1.250	.375	2.250
		MM	57.15	82.55	31.75	93.73	31.76	9.52	57.15
SG-20M	SG 0011944 B	Inch	2.250	3.250	1.250	3.690	1.260	.375	2.250
		MM	57.15	82.55	31.75	93.73	32.00	9.52	57.15
Dimensions for the following part numbers can be found on page 30.									
Z ¹		Z ²		Y					
MS 0573817		MS 0573816		MS 0103620					



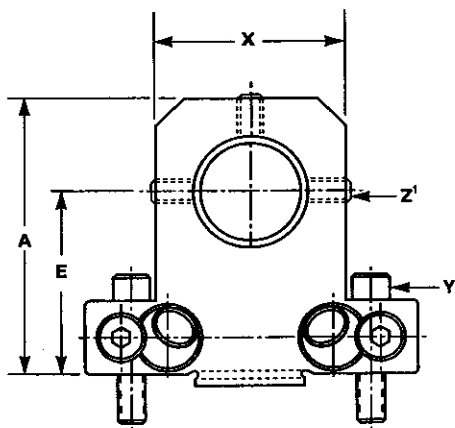
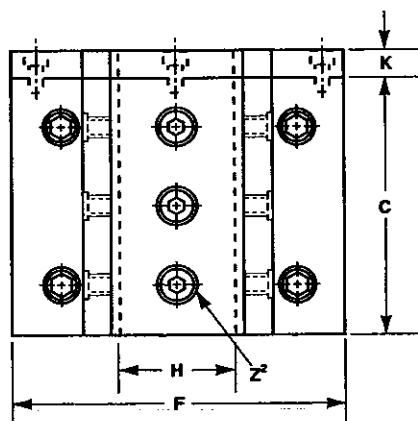
Round Shank Boring Tool Holder



The round shank boring tool holder is used for operations such as center drilling, drilling, tapping, reaming, boring, large hole boring, or bar stock pulling.

The tool holder is available with bore sizes of 1-1/4", 25 mm and 32 mm. For optimum rigidity, HDC-10 solid bushings are used in the SG-30 holder to grip 1/2", 5/8", 3/4", 7/8" and 1" round shank tools or #3MT tooling. The SG-180 Double-Angle Collet Tool Holder is also available to rigidity grip tools from 3/64" to 3/4" (3.5 mm to 19 mm) in diameter (see page 14). HDC-10M solid bushings are used in the SG-30M holder to grip 12, 16, 20 and 25 mm round shank size tools or #3 MT tooling. See page 13 for solid bushings.

Two coolant balls in the holders direct coolant to the tool tip while machining. A 1/8-27 pipe plug, which is included, threads into the right coolant ball for through-the-tool coolant flow (a cover plate is included with each holder for through-the-tool coolant capabilities). To restrict coolant flow, a pipe plug is threaded into both coolant balls. Additional coolant direction balls and tubes are available (see page 12).



Model No.	Part No.	Dimensions							
			A	C	E	F	H	K	X
SG-30	SG 0011944 E	Inch	3.000	3.250	2.000	3.690	1.250	.375	2.250
		MM	76.20	82.55	50.80	93.73	31.76	9.52	57.15
SG-27M	SGA0011944 M	Inch	3.000	3.250	2.000	3.690	.9844	.375	2.250
		MM	76.20	82.55	50.80	93.73	25.00	9.52	57.15
SG-30M	SG 0011944 F	Inch	3.000	3.250	2.000	3.690	1.260	.375	2.250
		MM	76.20	82.55	50.80	93.73	32.00	9.52	57.15
Dimensions for the following part number can be found on page 30.									
Model	Z'	Z'	Y						
SG-30	MS 0573817	MS 0573816	MS 0103620						
SG-27M	MS 0573818	MS 0573817	MS 0103620						
SG-30M	MS 0573817	MS 0573816	MS 0103620						

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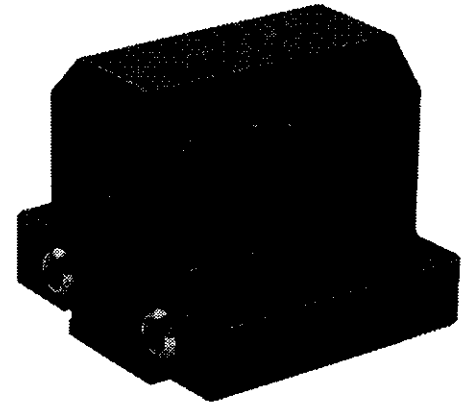
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Round Shank Double Tool Holder

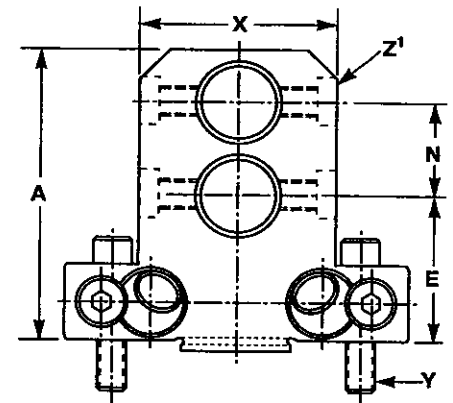
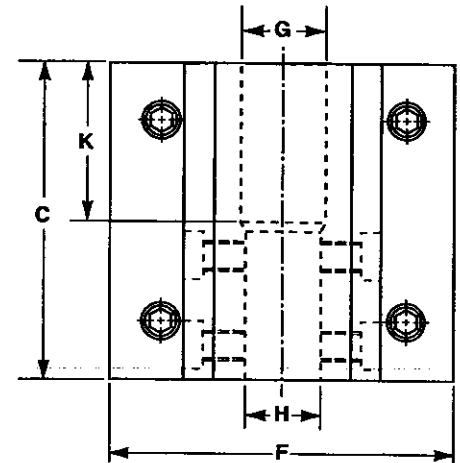
The round shank double tool holder is used for operations such as center drilling, drilling, tapping, reaming, boring, or bar stock pulling.

The tool holder is available with bore sizes of 3/4" and 25 mm. The DAH235 or 255-3/4 Double-Angle Collet Tool Holder shown on page 23 can be used in the SG-34 holder to grip tools ranging from 3/64" to 3/8". HDB-6 precision bushings can also be used for round shank tools ranging from 1/16" to 5/8", 2.0 to 16.0 mm, A to Z letter sizes, and 1 to 52 number sizes. See brochure 1287 for toolholder collets and precision bushings.

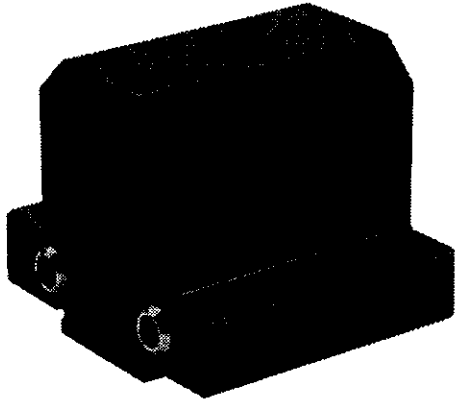
Two coolant balls in the holder direct coolant to the tool tip while machining. A 1/8-27 pipe plug, which is included, threads into the coolant ball to restrict coolant flow. Additional coolant direction balls and tubes are available (see page 12).



Model No.	Part No.	Dimensions					
			A	C	E	F	G
SG-34	SG 0011944 G	Inch	3.000	3.250	1.250	3.690	1.000
		MM	76.20	82.55	31.75	93.73	25.40
			H	K	N	X	
		Inch	.750	1.660	1.125	2.250	—
		MM	19.06	42.16	28.58	57.15	—
SG-34M	SGA0011944 H	Inch	3.000	3.250	1.250	3.690	1.000
		MM	76.20	82.55	31.75	93.73	25.40
			H	K	N	X	
		Inch	.9844	1.660	1.125	2.250	—
		MM	25.00	42.16	28.58	57.15	—
Dimensions for the following part numbers can be found on page 30.							
Z				Y			
MS 0573816				MS 0103620			



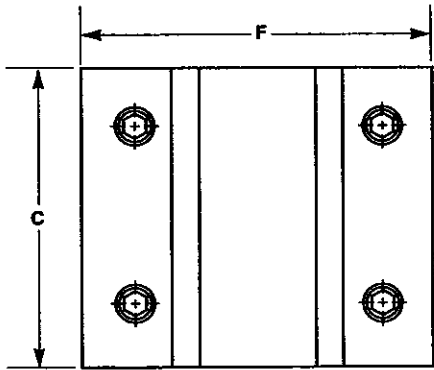
Blank Tool Holder



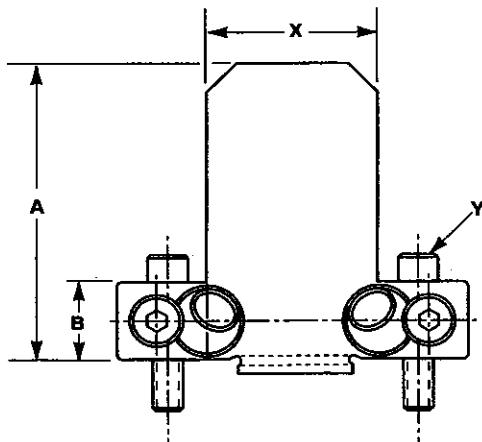
The blank tool holder is bored to size by the customer for operations such as center drilling, drilling, tapping, reaming, boring, large hole boring, or bar stock pulling.

A wide range of HDC and HDB bushings and double-angle collet tool holders are available for use with blank tool holders. See page 13 for HDC bushings and pages 14 and 23 for double-angle collet tool holders. See brochure 1287 for HDB bushings.

Two coolant balls in the holders direct coolant to the tool tip while machining. A 1/8-27 pipe plug, which is included, threads into the coolant ball to restrict coolant flow. Additional coolant direction balls and tubes are available (see page 12).



Model No.	Part No.	Dimensions					
			A	B	C	F	X
SG-PS	SG 0011944 C	Inch	2.940	.840	3.250	3.690	2.250
		MM	74.68	21.34	82.55	93.73	57.15
SG-PM	SG 0011944 D	Inch	2.940	.840	3.250	3.690	2.250
		MM	74.68	21.34	82.55	93.73	57.15
Dimensions for the following part number can be found on page 30.							
Y							
MS 0103620							



5C Collet Tool Holder

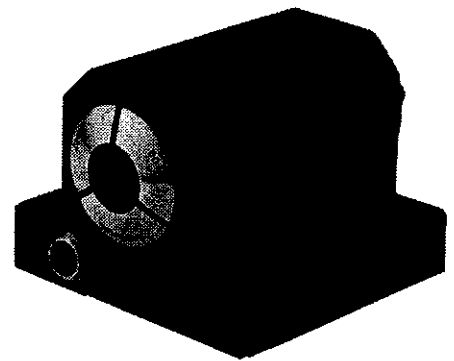
The 5C collet tool holder increases machining flexibility while reducing tooling costs by accurately and securely gripping round shank tools for such operations as center drilling, drilling, tapping, reaming, boring, feed stock, or bar stock pulling.

After locating the collet and round shank tool into the holder, the collet is drawn into the holder by tightening the hex-head draw tube at the rear of the holder. An even gripping force is applied to the tool OD on its entire circumference, resulting in a very rigid tool.

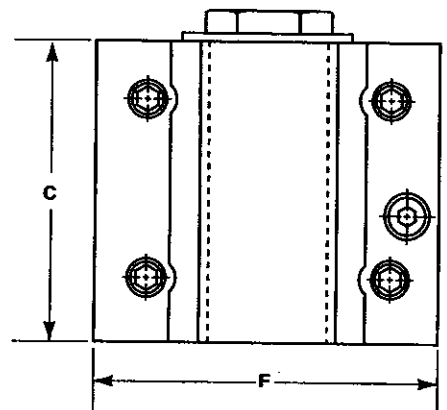
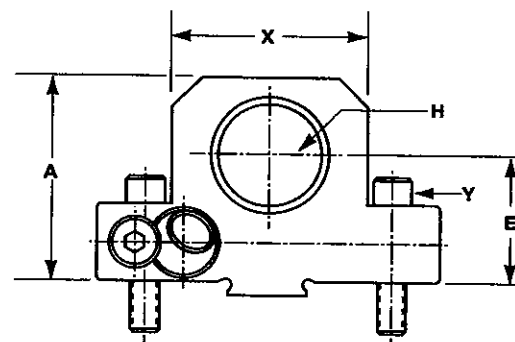
An extensive line of Hardinge 5C collets are available: fractional, letter, number and millimeter sizes; smooth and serrated configurations; emergency, extended-nose and step collets; and special-accuracy collets and collet sets. The tool can also be "preset" using a 5C solid stop, eliminating tool "pushback" commonly associated with bushings. Refer to brochure 2254 for 5C spindle tooling.

One coolant ball in the holder directs coolant to the tool tip while machining. A pipe plug, which threads into the coolant ball, is included to restrict coolant flow. Additional coolant direction balls and tubes are available (see page 12).

The adapter plate shown on the next page is required to mount the 5C tool holder to the turret.



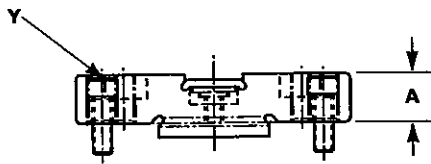
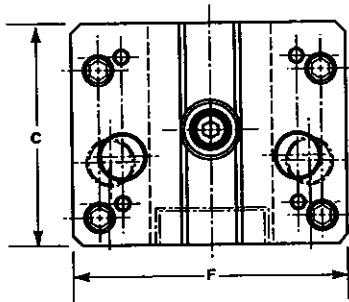
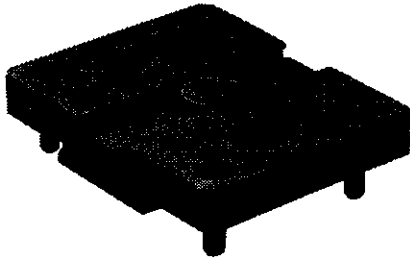
Collet not included.



Model No.	Part No.	Dimensions						
			A	C	E	F	H	X
CS-5C	CS 00119445C	Inch	2.450	3.150	1.500	3.346	5C	1.910
		MM	62.23	80.01	38.11	84.99	5C	48.51
Dimensions for the following part number can be found on page 30.								
Y								
0100520								



Adapter Plate



The adapter plate is used to mount the 5C tool holder described on the previous page. The plate can also be used to mount "old-style" inch or metric CONQUEST 42 round shank tool holders to CONQUEST T42 vertical turrets. For optimum tool rigidity, it is advisable to use the tool holders developed specifically for the CONQUEST T42 lathe.

This adapter plate cannot be used on machines equipped with the Sub-Spindle option due to potential interference conditions.

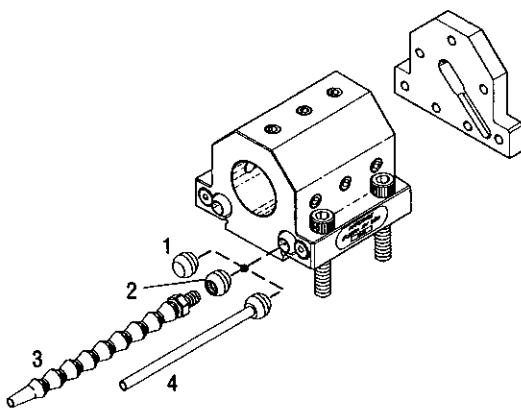
Model No.	Part No.	Dimensions			
			A	C	F
—	SGA0011944AD	Inch	.500	2.986	3.69
		MM	12.70	75.84	93.73
—	SGA0011944AM	Inch	.630	2.986	3.69
		MM	16.00	75.84	93.73
Dimensions for the following part number can be found on page 30.					
Y					
MS 0103618					

Coolant Direction Balls and Tubes

Coolant direction balls and pipe plugs to restrict coolant flow are included with round shank tool holders. Coolant direction is made by loosening the holder's flathead screw, rotating the ball, and tightening the screw. Additional coolant balls may be purchased.

For more accurate direction of coolant flow, a coolant ball with flexible copper tube or an adjustable coolant nozzle that threads into a coolant direction ball are available. The adjustable nozzle features a connector, eight interlocking segments and nozzle. Segments can be easily removed to suit machining requirements.

The rear cover plate illustrated is included with the round shank tool holders detailed on pages 7 and 8. The plate is used to direct coolant through the center of the tool holder for through-the-tool coolant capabilities. The plate also acts as a solid stop for drills.



ITEM NO.	PART NO. NO.	DESCRIPTION	THRU-CAPACITY
1	CS -0006058-03	Solid Coolant Ball	—
2 ^A	CSA-0006058-01	Coolant Direction Ball	.375" (9.5 mm)
3	SG -0007011-01	Adjustable Coolant Nozzle	.250" (6.3 mm)
4	CS -0009475-T1	Coolant Ball w/Copper Tube	.188" (4.8 mm)

A - Threaded both ends.

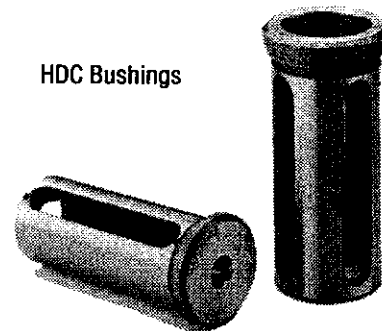
Precision Solid and Preset Bushings

Hardinge round shank tool holders were specifically designed to use solid and preset bushings for reduced tooling costs. Instead of buying several holders with different hole sizes, the desired tool holder and appropriate-size HDC or HDZ solid bushing are used to adapt drills, reamers, boring bars, stock stops and other round shank tooling.

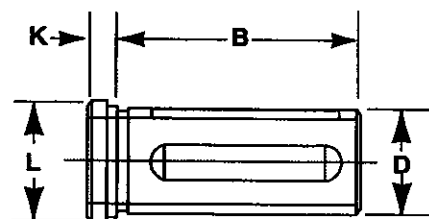
HDC bushings are manufactured to provide minimum wear with maximum resiliency. They are hardened and precision ground inside and out so they won't scar, bind, or cause excessive tool holder ID wear. A knurled shoulder is featured for easy installation and removal. Slots in the bushing body allow tool holder set screws to make direct contact with the tool for optimum tool rigidity.

HDZ bushings provide all the advantages of the HDC bushings, plus the added benefit of precisely presetting the tool to a specific dimension. By placing the tool into the bushing, measuring it from the locating shoulder and locking it in place by tightening the set screws, tools may be set up prior to installation on the machine. This speeds up the setup process that normally is slowed by working in the confines of the machine and reduces downtime.

MODEL NO.	PART NO.	OD	ID SIZES AVAILABLE
HDC-10	1829-00-19-	1.25"	3/8", 1/2", 5/8", 3/4", 7/8", 1" and 1-1/8"
HDC-10	1829-08-80-000003	1.25"	#3 MT
HDC-10M	1831-00-17-	32 mm	10, 12, 16, 20 and 25 mm
HDC-10M	1831-00-19-	32 mm	3/8", 1/2", 5/8", 3/4" and 1"
HDC-10M	1831-08-80-000002	32 mm	#2 MT
HDC-10M	1831-08-80-000003	32 mm	#3 MT



HDC Bushings



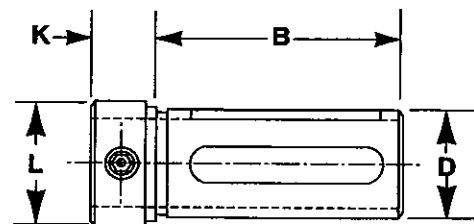
Dimensions				
	B	D	K	L
Inch	3.125	1.250	.250	1.500
MM	79.38	32.00	6.35	38.10

MODEL NO.	PART NO.	OD	ID SIZES AVAILABLE
HDZ-10	2059-00-19-	1.25"	3/8", 1/2", 5/8", 3/4", 7/8", and 1"
HDZ-10M	2061-00-17-	32 mm	10, 12, 16, 20 and 25 mm

Dimensions				
	B	D	K	L
Inch	3.000	1.250	.560	1.500
MM	76.20	32.00	14.22	38.10

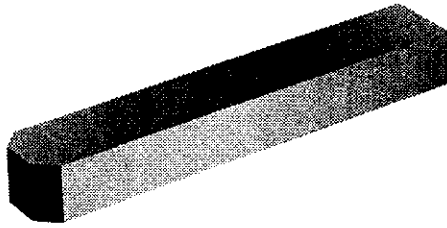


HDZ Bushings

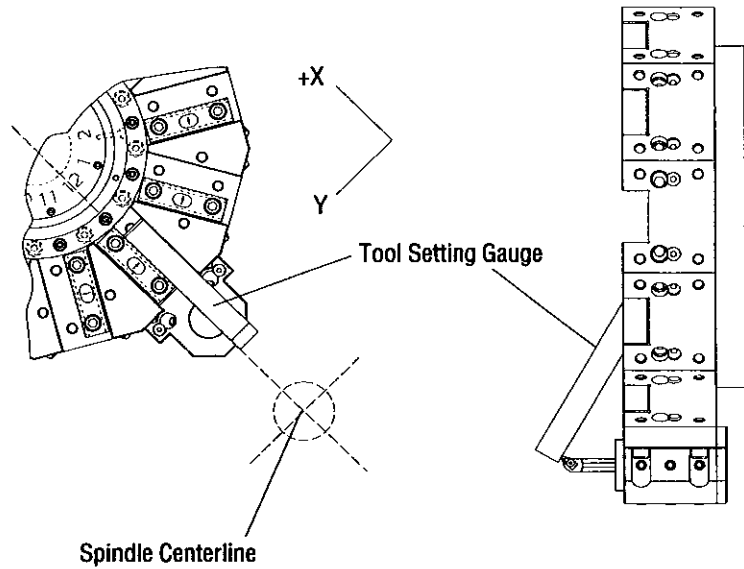


Round Shank Tool Setting Gauge (Main Spindle)

This gauge is used to set round shank tooling on center with the main spindle centerline. One gauge is included with each CONQUEST T42 lathe.



Inch Part No.	CS 0011890BT
Metric Part No.	CS 0011890BM



180-Series Double-Angle Collet Tool Holder

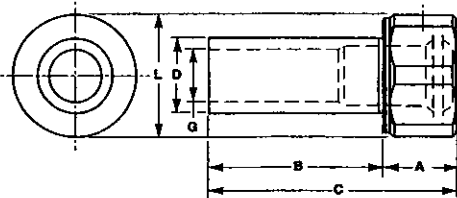
The SG-180/180M double-angle collet holders can be quickly mounted directly into a round shank tool holder to hold 3/4" (19 mm) or smaller diameter boring bars, center drills, reamers, end mills, and other round shank tools accurately. With a 180-series collet, the shank of the tool can be as much as 1/64" (.40 mm) under the rated size of the collet and the tool will still be held properly.



Collet sold separately.

An adjustable threaded stop is included in the tool shank to preset tools and provide push-back control for drills.

180-series collets are available in sizes from 3/64" (1.19 mm) to 3/4" (19.05 mm) and from 3.5 mm to 19.0 mm. Refer to brochure 1287 for specific information on double-angle collets.



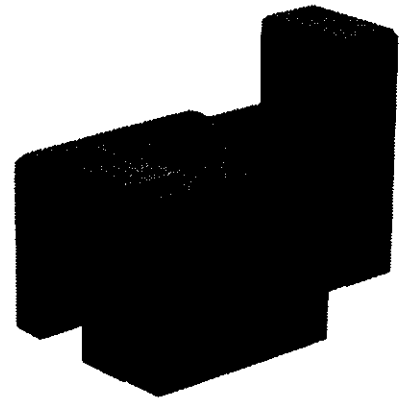
Model No.	Part No.	Dimensions						
		A	B	C	D	G	L	
SG-180	SG 0000187	Inch	0.969	2.500	3.469	1.250	.830	1.747
		MM	24.61	63.50	88.11	31.75	21.08	44.37
SG-180M	SG 0000187 M	Inch	0.969	2.500	3.469	1.259	.830	1.747
		MM	24.61	63.50	88.11	32.00	21.08	44.37



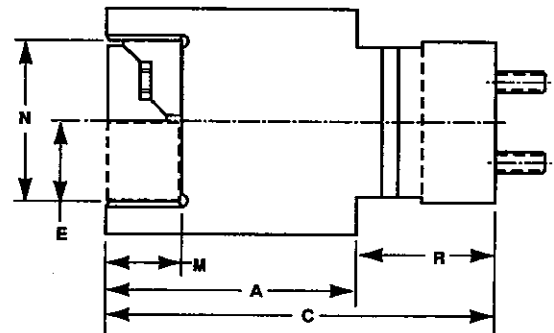
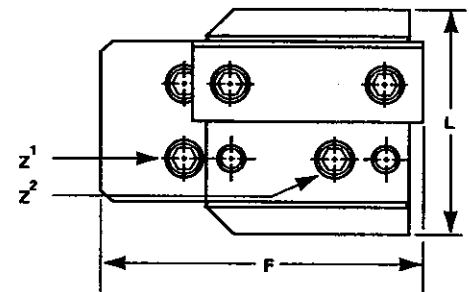
Square Shank Extension Tool Holder

The square shank extension tool holder is used to securely grip 3/4" square shank tooling to provide additional tool clearance for cutting on the front or back of the workpiece when live tooling is used. The holder may also be used on a turret setup to provide for flexibility in tool positioning.

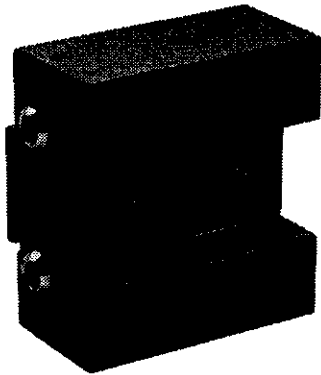
The extension tool holder mounts directly to the vertical turret tool slot. One tool clamp is included for locking the tool in the holder (clamp part numbers are shown in parentheses below each tool holder part number).



Model No.	Part No.	Dimensions								
			C	E	F	L	M	N	R	
SG-TE	SG 0011151 A (SG 0011944CT)	Inch	3.968	.750	3.250	2.500	.718	1.500	1.500	
		MM	100.78	19.05	82.55	63.50	18.24	38.10	38.10	
SG-TEM	SG 0011151MA (CS 0011944CM)	Inch	3.968	.7879	3.250	2.500	.718	1.575	1.500	
		MM	100.78	20.00	82.55	63.50	18.24	40.00	38.10	
Dimensions for the following part numbers can be found on page 30.										
Z¹			Z²							
MS 0103618			MS 0103624							



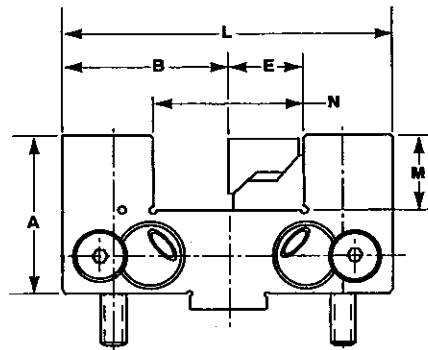
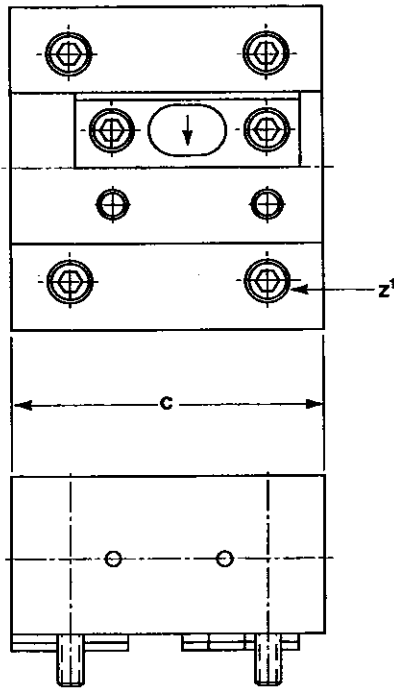
90° Square Shank Tool Holder



The 90° square shank tool holder is used to position a 3/4" or 20 mm square shank tool perpendicular to the turret face for performing facing, rough and finish contouring, grooving, and counterboring operations.

A tool clamp is included with this tool holder to lock the square shank tool in position (clamp part number is shown in parentheses below tool part number). Two coolant balls in the holders direct coolant to the tool tip while machining. A 1/8-27 pipe plug, which is included, threads into the coolant ball to restrict coolant flow. Additional coolant direction balls and tubes are available (see page 12).

Model No.	Part No.	Dimensions							
			A	B	C	E	L	M	N
SG-32	SG 0011944 J (SG 0011944CT)	Inch	1.625	1.844	3.250	.750	3.690	.750	1.500
		MM	41.28	46.83	82.55	19.05	93.73	19.05	38.10
SG-32M	SG 0011944 K (CS 0011944CM)	Inch	1.625	1.840	3.250	.7874	3.690	.750	1.575
		MM	41.28	46.74	82.55	20.00	93.73	19.05	40.00
Dimensions for the following part number can be found on page 30.									
Z									
MS 0103620									



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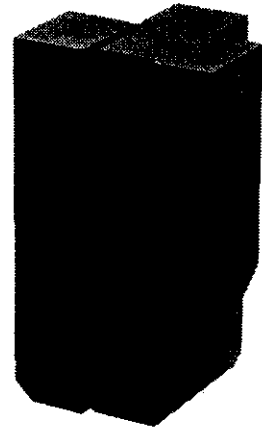
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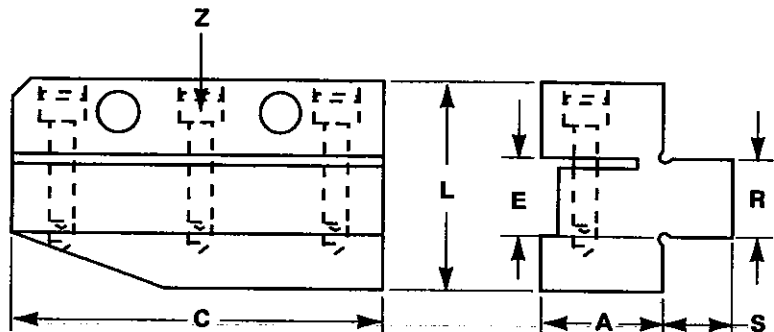
Left-Hand Cut-Off Tool Holder

The SB-5L is a left-hand cut-off tool holder with a 3/4" square shank for mounting directly to the tool slot of the vertical turret using a tool clamp supplied with the machine.

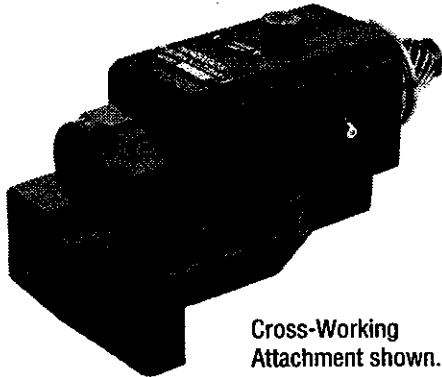
The holder holds a G21 Hardinge-Belcar cut-off blade with a .120" (3.05 mm) 8° lead insert (part number 3LA-0010903-12). The blade may be positioned in the tool holder for varying workpiece diameters. See brochure 1289 for cut-off blades and inserts.



Model No.	Part No.	Dimensions							
			A	C	E	L	M	R	S
SB-5L	SB 0011209AL	Inch	1.00	3.50	.68	2.00	.09	.75	.73
		MM	25.4	88.9	17.3	2.3	2.3	19.1	18.5
Dimensions for the following part number can be found on page 30.									
Z									
0100514									



Live Tooling Attachments



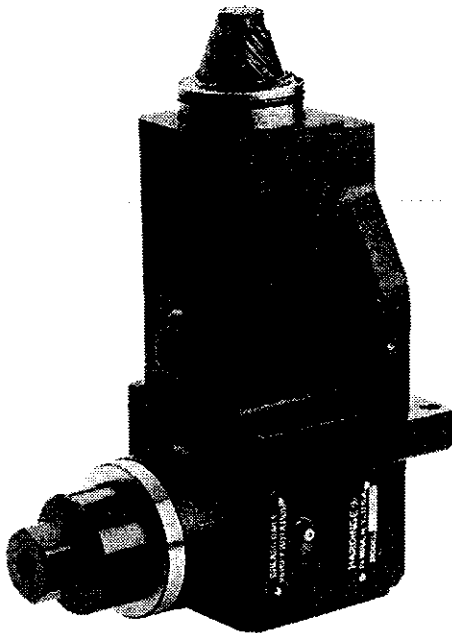
Cross-Working Attachment shown.

Live tooling attachments enable precision parts to be produced from start to finish on machines equipped with the Live Tooling option. Cross-working and cross-tapping attachments are used for live rotational tooling work to be done perpendicular to the spindle centerline. End-working and end-tapping attachments are used for live rotational tooling work to be done parallel to the spindle centerline (refer to page 32 for more information on the Live Tooling option).

Attachments are manufactured from steel and feature deep-groove roller bearings that accept heavy axial and radial loads. The attachments are factory set to be "on center" within $\pm 0.01"$ (± 0.25 mm) when properly mounted on the top plate. For more accurate tool alignment, an eccentric cam feature permits tool adjustment up to $\pm 0.03"$ (distance from the edge of the turret to the centerline of the tool is 1-1/2" [38.1 mm]). A lock button is provided to prevent the attachment spindle from turning while installing or removing tooling. Coolant can be directed to the work area through two coolant direction balls from the face of the attachment.

Speeds are fully programmable in 1-rpm increments either clockwise or counterclockwise up to 4,000 rpm. Continuous horsepower rating at the tool tip is 2.4-hp (1.79-kW) and continuous maximum torque rating is 52 in-lb (5.89 Nm).

The cross- and end-working attachments use interchangeable 100-series double-angle toolholder collets, available from 3/64" to 9/16" in 1/64" increments and from 3.5 mm to 19.0 mm in .5 mm increments. The cross- and end-tapping attachments use "TT"-style tap holder collets, available in .141", .168", .194", .220", .255", .312", .318", .323", .367", and .381" sizes. See brochure 1287 for double-angle and tap holder collets.



End-Tapping Attachment shown.

Model No.	Part No.	Description
SG-50	SGA0000144CD	Cross-Working Attachment — Inch
SG-51M	SG 0000144CD M	Cross-Working Attachment — Metric
SG-52	SGA0000144CT	Cross-Tapping Attachment — Inch
SG-53M	SGA0000144CT M	Cross-Tapping Attachment — Metric
SG-54	SG 0000144ED	End-Working Attachment — Inch
SG-55M	SG 0000144ED M	End-Working Attachment — Metric
SG-56	SG 0000144ET	End-Tapping Attachment — Inch
SG-57M	SG 0000144ET M	End-Tapping Attachment — Metric

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Square Corner Mill and Woodruff Key Slot Attachment

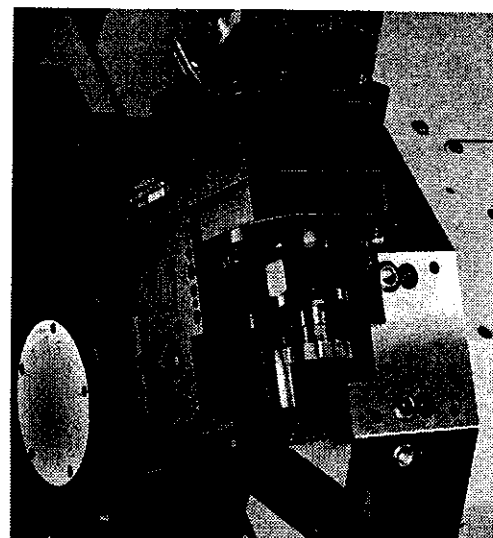
This attachment enables square corner milling and Woodruff key slot machining on lathes equipped with the Live Tooling option.

The attachment is manufactured from steel and features tapered roller bearings that accept heavy axial and radial loads. The attachment is programmed at speeds up to 2,125 rpm in 1-rpm steps. Continuous horsepower rating at the tool tip is 2.4 hp (1.79 kW) and continuous maximum torque rating is 97.8 in-lb (11 Nm).

A 3/8" (9.5 mm) adjustment in the Y-axis is possible. Maximum square size is .781" (19.8 mm) on a 1.125" (28.6 mm) diameter; maximum hex size is .820" (20.8 mm) on a .953" (24.2 mm) diameter.

Interchangeable 100-series double-angle toolholder collets are used to grip the cutting tool. Collets are available from 3/64" to 9/16" in 1/64" increments and from 3.5 mm to 19.0 mm in .5 mm increments. See brochure 1287 for double-angle and tap holder collets.

NOTE: this attachment occupies two turret stations.



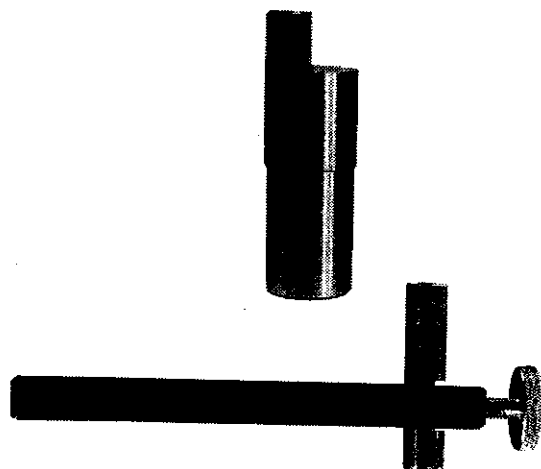
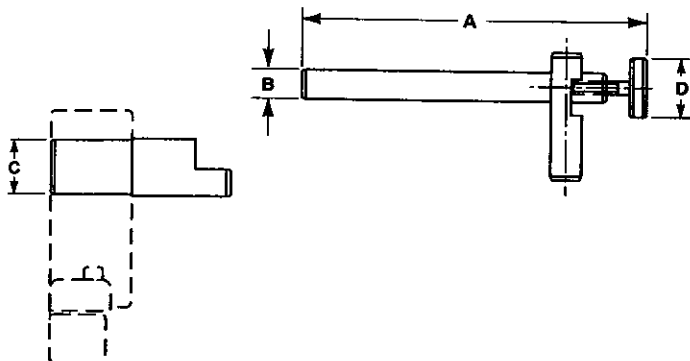
Model No.	Part No.	Description
SG-58	SGB0000144 M	Mill/Woodruff Key Attachment — Inch
SG-58M	SGA0000144MM	Mill/Woodruff Key Attachment — Metric

Round Shank Tool Setting Gauge (Sub-Spindle)

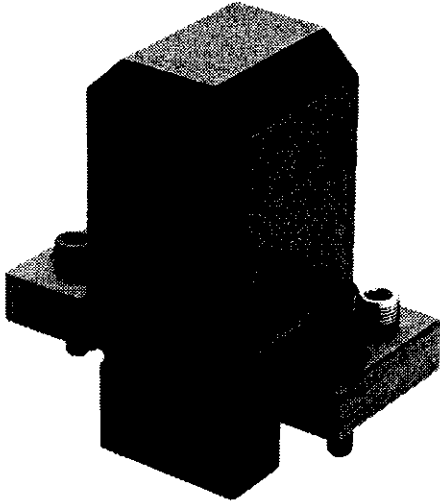
The SG-4 tool setting gauge is used to set round shank tooling on center with the centerline of the optional Sub-Spindle.

The gauge is used by mounting the round plug portion (lower illustration) into a SG-38 or SG-39M tool holder positioned on the turret. The centering portion (upper illustration) of the gauge can be positioned by the operator to match the tool's position and then locked into place with a thumb screw to center the tool.

Model No.	Part No.	Dimensions				
			A	B	C	D
SG-4	SG 000232104	Inch	5.062	.620	.750	.750
		MM	128.57	15.75	19.05	19.05



Round Shank Tool Holder (Sub-Spindle)

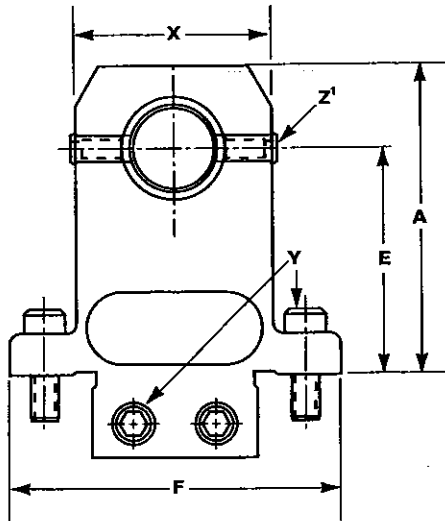
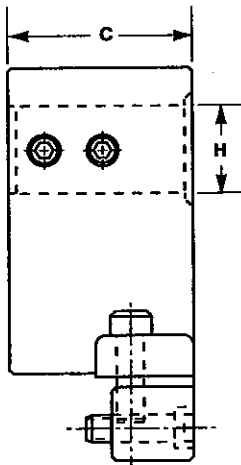


This round shank tool holder is used for machining operations on workpieces held in the Sub-Spindle, such as center drilling, drilling, tapping, reaming, boring and large hole boring.

The tool holder is available with bore sizes of 3/4" and 25 mm. The DAH235-3/4 Double-Angle Collet Tool Holder shown on page 23 can be used in the SG-38 holder to grip tools ranging from 3/64" to 3/8". HDB-6 precision bushings can also be used for round shank tools ranging from 1/16" to 5/8", 2.0 to 16.0 mm, A to Z letter sizes, and 1 to 52 number sizes. See brochure 1287 for toolholder collets and precision bushings.

Two adjustable coolant nozzles are included to direct coolant to the tool tip while machining. Two set screws are also included to restrict coolant flow. Additional coolant direction tubes are available (see page 12).

Model No.	Part No.	Dimensions						
			A	C	E	F	H	X
SG-38	SG 001194417	Inch	3.000	1.687	2.062	3.687	.750	1.750
		MM	76.20	42.85	52.37	93.65	19.05	44.45
SG-39M	SGA001194418		A	C	E	F	H	X
		Inch	3.000	1.687	2.062	3.687	.985	1.750
		MM	76.20	42.85	52.37	93.65	25.00	44.45
Dimensions for the following part numbers can be found on page 30.								
Y				Z'				
MS 0103619				MS 0573816				



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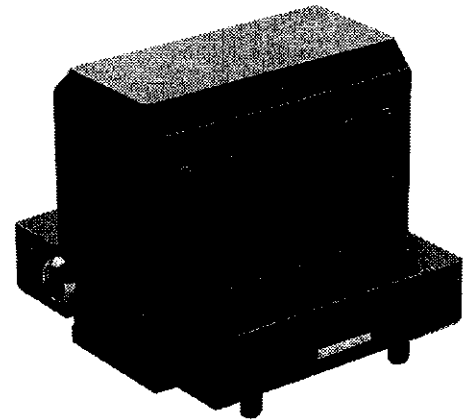
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Double Round Shank Tool Holder (Sub-Spindle)

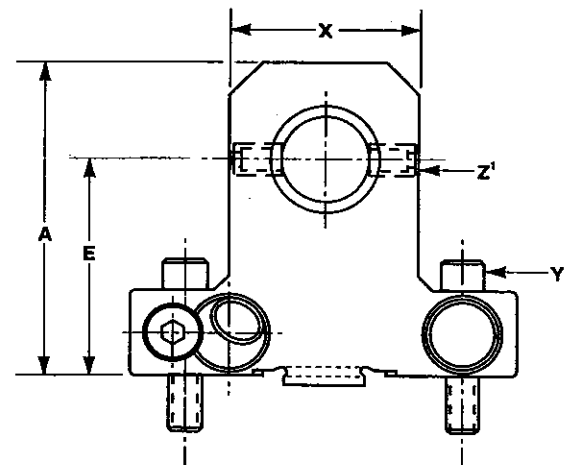
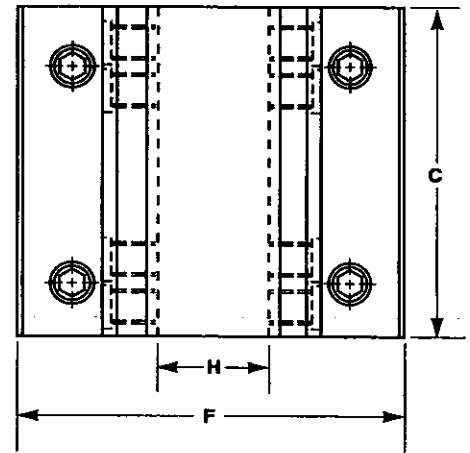
The double round shank tool holder is used to hold two round shank tools from either end simultaneously for operations such as center drilling, drilling, tapping, reaming, boring and large hole boring on workpieces held in the Sub-Spindle or the main spindle.

The tool holder is available with bore sizes of 3/4" and 25 mm. The DAH235-3/4 Double-Angle Collet Tool Holder shown on page 23 can be used in the SG-46 holder to grip tools ranging from 3/64" to 3/8". HDB-6 precision bushings can also be used for round shank tools ranging from 1/16" to 5/8", 2.0 to 16.0 mm, A to Z letter sizes, and 1 to 52 number sizes. See brochure 1287 for toolholder collets and precision bushings.

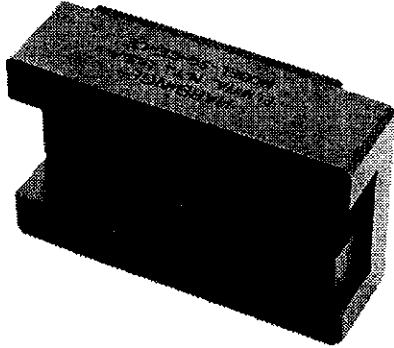
Two coolant balls in the holders, one on each end, direct coolant to the tool tip while machining. A 1/8-27 pipe plug, which is included, threads into the coolant ball to restrict coolant flow. Additional coolant direction balls and tubes are available (see page 12).



Model No.	Part No.	Dimensions						
			A	C	E	F	H	X
SG-46	SG 001194426	Inch	3.000	3.250	2.186	3.690	.750	1.880
		MM	76.20	82.55	55.52	93.73	19.05	47.75
SG-47M	SGA001194427		A	C	E	F	H	X
		Inch	3.000	3.250	2.186	3.690	.985	1.880
		MM	76.20	82.55	55.52	93.73	25.00	47.75
Dimensions for the following part numbers can be found on page 30.								
Model		Y			Z'			
SG-46		MS 0103620			MS 0573816			
SG-47M		0100520			0570710			



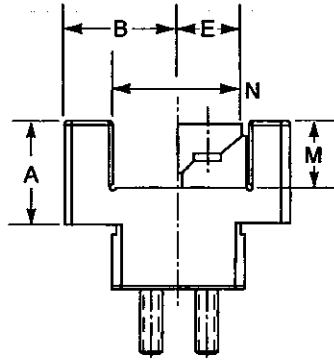
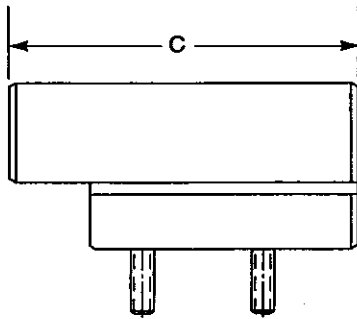
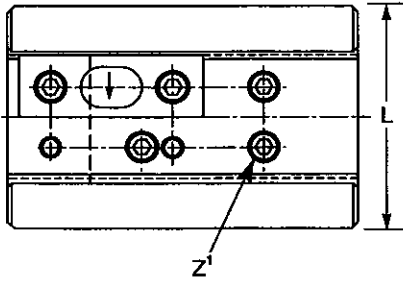
Square Shank Cut-Off Tool Holder (Sub-Spindle)



This tool holder mounts directly to the tool slot of the vertical turret. It is used to hold a 3/4" or 20 mm square shank cutoff tool for parting operations at the main spindle while transferring a part to the Sub-Spindle. The Hardinge-Belcar cutoff tool and inserts, which are described in detail in brochure 1289, may be used with this holder.

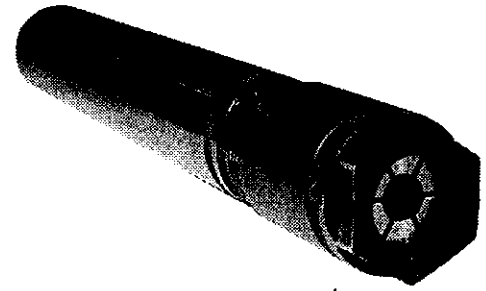
The holder comes with one tool clamp (clamp part number is shown in parentheses below tool part number).

Model No.	Part No.	Dimensions							
			A	B	C	E	L	M	N
SG-CE	SG 0011150CE (SG 0011944CT)	Inch	1.250	1.375	4.250	.750	2.750	.750	1.477
		MM	31.75	34.93	107.95	19.05	69.85	19.05	37.52
SG-CEM	SG 0011150CM (CS 0011944CM)	Inch	1.250	1.375	4.250	.787	2.750	.787	1.575
		MM	31.75	34.93	107.95	20.00	69.85	20.00	40.00
Dimensions for the following part number can be found on page 30.									
Z'									
MS 0103619									



Double-Angle Collet Tool Holder

The double-angle collet extension tool holder mounts directly into a round shank tool holder, or with the applicable HDC bushing, to hold small diameter tools securely. Double-angle collets are used to provide a positive gripping capability. DAH100-series holders use 100-series double-angle collets, DAH200-series holders use 200-series collets, and DAH300-series holders use 300-series collets. See brochure 1287 for toolholder collets.

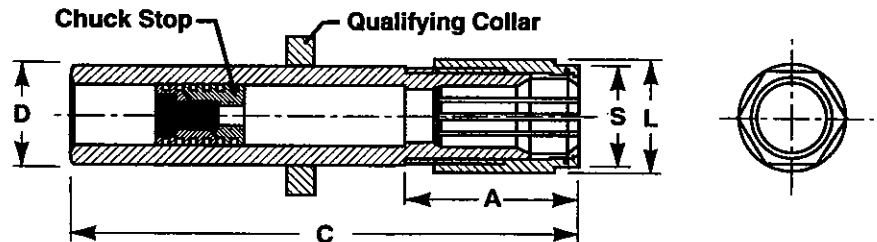


Shown with optional collet.

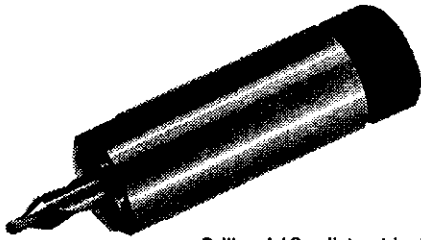
Optional qualifying collars and chuck stops are available. The collars can be positioned and locked on the holder shank to qualify tool position in a holder or turret. Chuck stops are positioned inside the holder body to provide a qualified locating surface for tooling and help prevent tool "push back".

Model No.	Part No.	Dimensions					
			D	C	A	S	L
DAH155-1	19790000000000	Inch	1.00	5.500	1.812	.875	1.062
		MM	25.40	139.70	46.02	22.22	26.97
DAH135-1	19770000000000	Inch	1.00	3.500	1.812	.875	1.062
		MM	25.40	88.90	46.02	22.22	26.97
DAH255-3/4	19610000000000	Inch	.750	5.500	1.625	.687	.812
		MM	19.05	139.70	41.27	17.44	20.62
DAH235-3/4	19590000000000	Inch	.750	3.500	1.625	.687	.812
		MM	19.05	88.90	41.27	17.44	20.62
DAH355-5/8	19450000000000	Inch	.625	5.500	1.312	.625	.680
		MM	15.87	139.70	33.32	15.87	17.27
DAH335-5/8	19430000000000	Inch	.625	3.500	1.312	.625	.680
		MM	15.87	88.90	33.32	15.87	17.27
DAH350-1/2	19270000000000	Inch	.500	5.500	1.312	.500	.560
		MM	12.70	139.70	33.32	12.70	14.22
DAH330-1/2	19250000000000	Inch	.500	3.500	1.312	.500	.560
		MM	12.70	88.90	33.32	12.70	14.22

Optional Qualifying Collar	
Holder Model No.	Part No.
DAH155, DAH135	19930000000000
DAH255, DAH235	19750000000000
DAH355, DAH335	19570000000000
DAH350, DAH330	19410000000000
Optional Chuck Stop	
Holder Model No.	Part No.
DAH155, DAH135	19910000000000
DAH255, DAH235	19730000000000
DAH355, DAH335	19390000000000
DAH350, DAH330	



Collet-Type Tool Holder



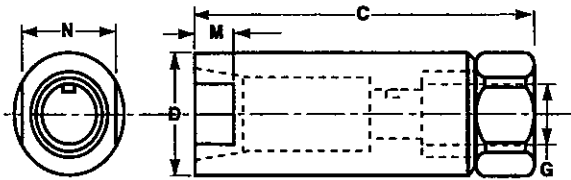
Drill and 1C collet not included.

This 1C collet-type tool holder is an accurate method of holding drills, center drills, round shank boring bars, round shank turning tools and reamers.

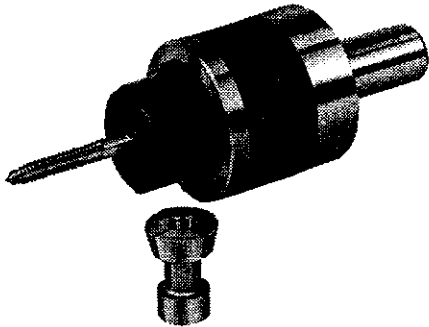
The T17 holder mounts directly into a round shank tool holder. The holder is hardened and ground and holds standard 1C collets, which have a maximum capacity of 1/4" (6.35 mm).

Turning a nut at the rear of the assembly draws the collet into the assembly, where the matching angles of the collet and the holder cause the collet to close down on the tool. See brochure 1287 for 1C collets.

Model No.	Part No.	Dimensions					
		C	D	G	M	N	
T17-5/8	37 0000102	Inch	1.82	.6243	.30	.25	.54
		MM	20.8	15.856	7.6	6.4	13.7
T17-3/4	37 000010201	Inch	1.82	.7493	.30	.25	.54
		MM	20.8	19.031	7.6	6.4	13.7



Collet-Type Releasing Tap Holder

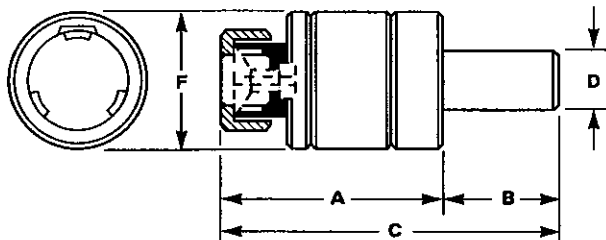


Tap not included.

The collet-type releasing tap holder is used to provide thread length control on either right- or left-hand taps by switching a lever inside the body of the tap holder.

The tap holder mounts directly into a round shank tool holder or into the end-working turret with an HDC solid bushing. "TT" style tap holder collets are used for accurate holding and centering of taps. To provide a positive drive for the taps, the collets have a square slot in the back to accommodate the square of the top shank and a notch in the back bearing of the collet that fits over a hardened pin in the bottom of the holder. See page 13 for HDC bushings and brochure 1287 for "TT" tap holder collets.

Model No.	Part No.	Dimensions					
		A	B	C	D	F	
TT-5/8	STA0011202	Inch	2.22	1.25	3.47	.6243	1.63
		MM	56.4	31.8	88.1	15.856	41.3
TT-3/4	STA001120201	Inch	2.22	1.25	3.47	.7493	1.63
		MM	56.4	31.8	88.1	19.031	41.3

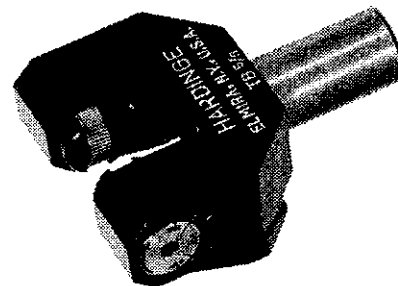


“Crush-Type” Knurling Tool

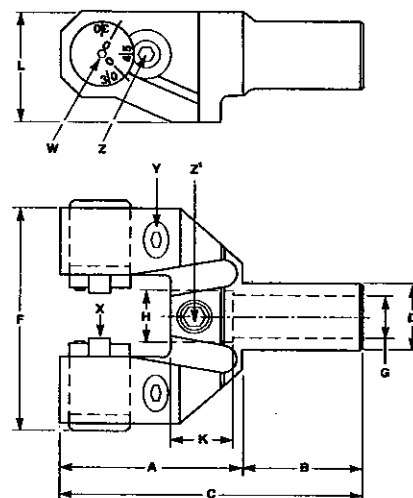
The “crush-type” knurling tool holder is used to knurl workpieces by passing the workpiece between the knurls. This tool holder actually forms knurls by displacing material of the workpiece.

The knurling tool mounts into either a machine turret or a round shank tool holder and comes standard with two knurls. The knurls, with a 64 diametral pitch, are mounted onto a swivel holder that can be set at any angle to form either diamond or straight knurls. This unit can knurl a workpiece using a cross slide motion (approaching the work perpendicularly), or a turning motion by placing the holder parallel to the workpiece and passing the workpiece between the knurls.

By making the appropriate adjustments, diameters from 5/32" to 1/2" (3.97 to 12.70 mm) for the T8-5/8 model and to 3/4" (19.05 mm) for the T8-3/4 model can be knurled. A workpiece with a diameter of 3/8" (9.53 mm) or less can pass through the shank of the knurling tool. For stock diameters of 3/8" to 1/2" (9.53 to 12.70 mm), the maximum knurling length is 7/8" (22.23 mm).



Model No.	Part No.	Dimensions										
			A	B	C	D	F	G	H	K	L	
T8-5/8	STA0010901	Inch	1.63	1.13	2.75	.6243	2.06	.39	.5002	.50	1.00	
		MM	41.3	28.6	69.9	15.857	52.4	9.9	12.704	12.7	25.4	
T8-3/4	STA001090175	Inch	2.44	1.49	3.93	.7493	2.80	.45	.6252	.80	1.38	
		MM	61.9	37.9	99.8	19.031	71.0	11.3	15.879	20.3	35.1	
Dimensions for the following part numbers can be found on page 30.												
		W	X				Y	Z	Z'			
3 0010901	T8-5/8 (8 0010901)	T8-3/4 (ST 0010901)					0100208	0010901	0550506			

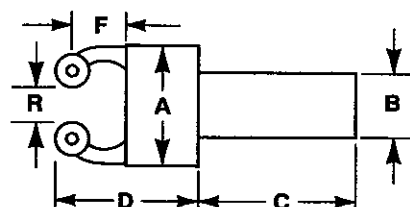
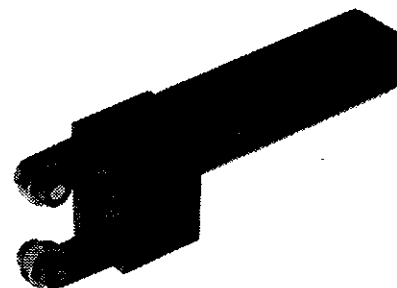


Square Shank Knurling Tool

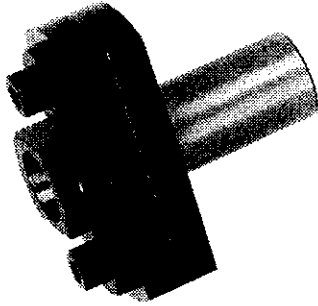
This knurling tool mounts directly to the tool slot of the vertical turret. It is held in place with a tool clamp supplied with the machine. The knurl head and shank feature a dovetail configuration for optimum tool rigidity.

To position the knurls “on center” with the spindle centerline, the head is adjusted by a simple adjustment of the socket head cap screw located in the tool’s shank. Knurl range is from 1/8" to 1-1/8" (3.2 mm to 28.6 mm).

Model No.	Part No.	Dimensions					
		A	B	C	D	F	
K075	18270000000000	Inch	1.500	.750	2.500	2.063	.656
		MM	38.10	19.05	63.50	52.40	16.66



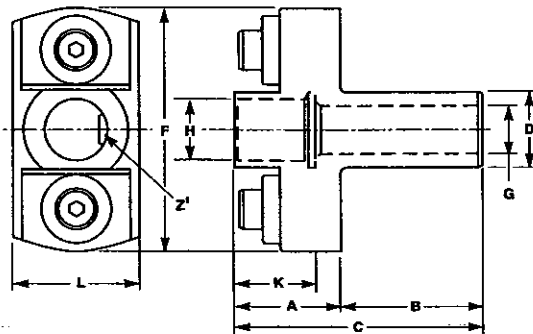
Floating Reamer Holder



The floating reamer holder is used to align the tool with the hole being reamed.

This holder mounts into a round shank tool holder and it floats freely, providing alignment of the reamer with the hole. The holder has a 1/2" (12.70 mm) diameter bored hole for 1/2" round shank tools and will accept HDB-2 bushings for holding tools with 3/8" and smaller shanks. See brochure 1287 for English and metric bushings.

Model No.	Part No.	Dimensions									
			A	B	C	D	F	G	H	K	L
T19-5/8	ST 0007967	Inch	.84	1.13	1.97	.6243	1.98	.39	.5003	.66	1.00
		MM	21.4	28.6	50.0	15.856	50.4	9.9	12.706	16.7	25.4
T19-3/4	ST 000796701	Inch	.84	1.13	1.97	.7493	1.98	.45	.5003	.66	1.00
		MM	21.4	28.6	50.0	19.031	50.4	11.5	12.706	16.7	25.4
Dimensions for the following part number can be found on page 30.											
Z ¹											
0550704											

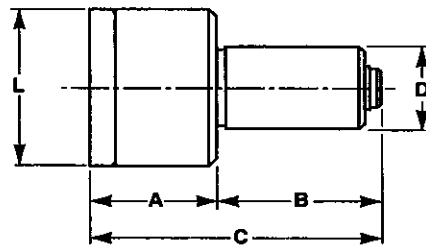


Revolving Stock Stop



The revolving stock stop mounts into a round shank tool holder directly or with a bushing to position bar stock in the collet while being fed by a bar feed unit. The front portion of the stop rotates with the workpiece.

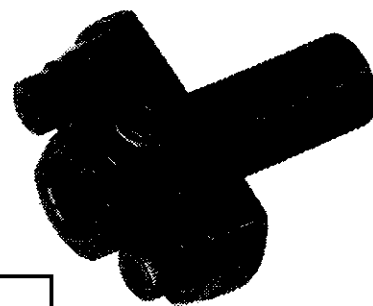
Model No.	Part No.	Dimensions					
		A	B	C	D	L	
T-20-3/4-16	RS 001115716	Inch	1.06	1.38	2.44	.7497	1.44
		MM	27.0	34.9	61.9	19.042	36.5



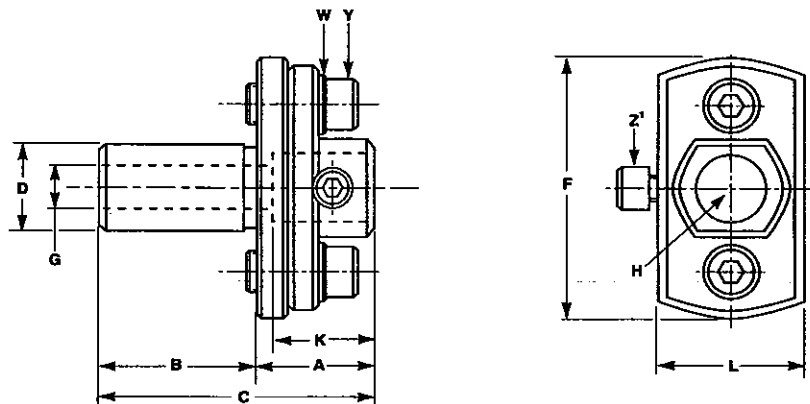
Adjustable Tool Holder

The adjustable tool holder provides a means of adjusting center working tools such as center drills and drills to the centerline of the spindle. When the tool has been centered, the adjustable portion of the holder is locked into position.

The holder mounts into a round shank tool holder and it has a 1/2" (12.70 mm) diameter bore to hold round shank tools. HDB-2 bushings can be used in the holder to hold tools with shanks that are 3/8" or less in diameter. See brochure 1287 for English and metric bushings.



Model No.	Part No.	Dimensions									
			A	B	C	D	F	G	H	K	L
OOD-5/8	OO 0007967	Inch	.84	1.34	2.19	.6245	1.84	.375	.5002	.69	1.0
		MM	21	34	55.5	15.862	46.8	9.53	12.705	17.5	25.4
OOD-3/4	OO 000796701	Inch	.84	1.34	2.19	.7500	1.84	.375	.5002	.69	1.0
		MM	21	34	55.5	19.050	46.8	9.53	12.705	17.5	25.4
Dimensions for the following part numbers can be found on page 30.											
W		Y				Z'					
OO 0007963		0100508				0100506					

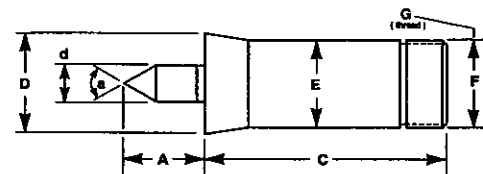
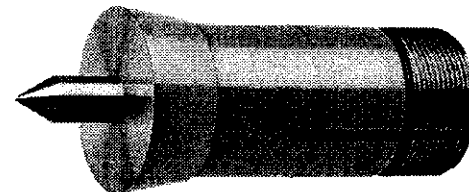


16C Headstock Center (Sub-Spindle)

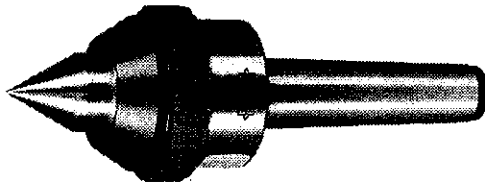
The 16C Headstock Center mounts into the optional Sub-Spindle in the same manner as a 16C collet for occasional light duty tailstock use.

Model No.	Part No.	Dimensions				
			A	C	D	E
AK-7	AK 000029616 C	Inch	1.246	4.344	2.248	1.880
		MM	31.65	110.34	57.10	47.75
			F	G	d	a
		Inch	1.865	1.75 M/M RH*	.570	60°
		MM	47.37	1.75 M/M RH*	14.48	60°

*14.51 Pitch



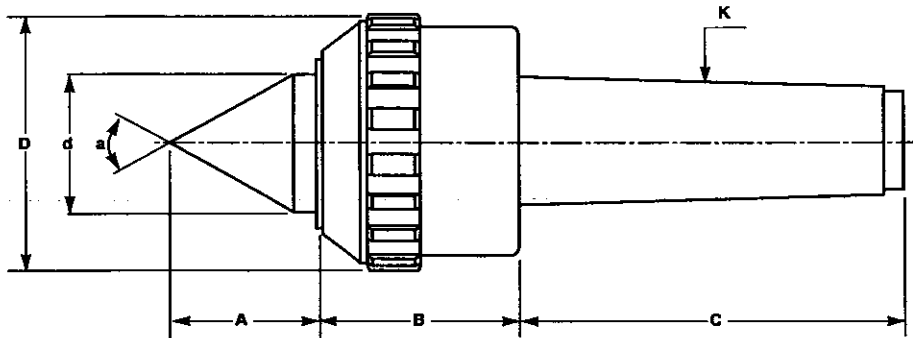
Live Tailstock Centers



The high-accuracy, No. 3 Morse taper live centers are designed for use with the tailstock only to support a workpiece that has a center-drilled hole or an internal angle in its end. The center is equipped with heavy-duty bearings and features a wear-resistant steel center tip. The bearings are adjustable to compensate for wear and they are protected from coolant by a labyrinth seal. Concentricity is accurate to 0.0001" (0.0025 mm) Total Indicator Reading (TIR).

The center tip may be re-ground as needed.

SPECIAL NOTE: Do not use these centers with the end-working turret option (see next page for correct centers)



Model D-3a illustrated.

Model No.	Part No.		Dimensions							Workpiece Max. Weight	Axial Load Max.	Max. Speed
			K	A	B	C	D	d	a			
D-3a	SB 00004224P	Inch	MT3	1.14	1.89	3.36	2.24	.98	60°	1,550 lb	1,150 lb	4,000 rpm
		MM	MT3	29	48	85.5	57	25	60°	700 kg	500 daN	4,000 rpm
C-3	SG 0000422HS (High-Speed)	Inch	MT3	1.14	1.89	3.36	2.24	.86	60°	1,650 lb	2,200 lb	10,000 rpm
		MM	MT3	29	48	85.5	57	22	60°	750 kg	1,000 daN	10,000 rpm



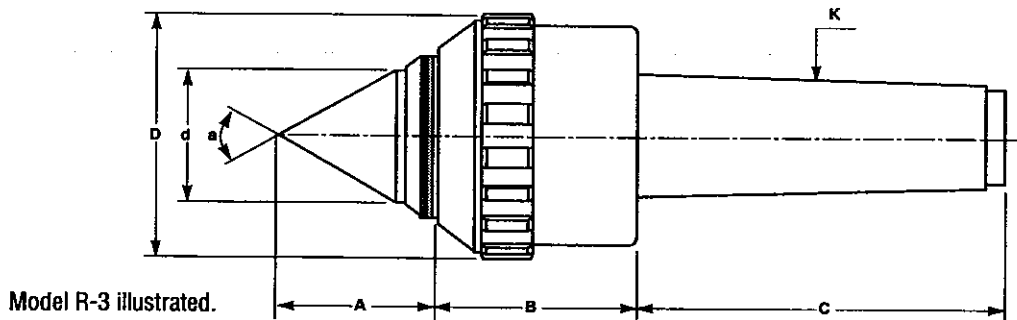
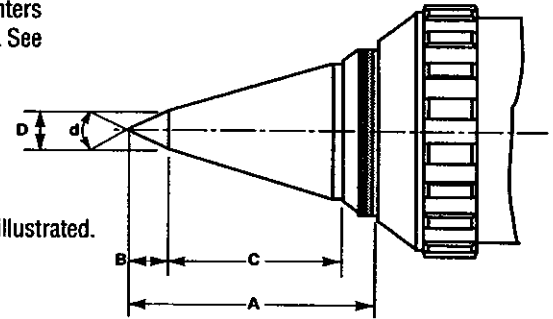
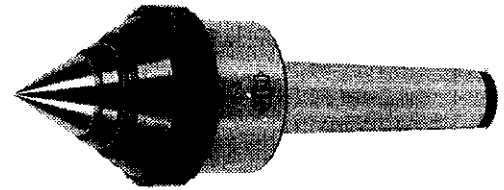
Pressure Indicating Live Centers

The high-accuracy, No. 3 Morse taper pressure indicating live centers are intended for use with the end-working turret option. The extended-nose model may also be used with the tailstock when extended machining clearance is required.

The centers are designed to support a workpiece that has a center-drilled hole or an internal angle in its end. The centers are equipped with heavy-duty bearings and feature a 60°-angle, wear-resistant steel center tip that may be re-ground as needed. The bearings are protected from coolant by a labyrinth seal. The center shaft is spring-loaded to prevent bearing overload from workpiece heat expansion.

Both centers feature three easy-to-read, color-coated bands on the center point to indicate radial clamping pressure. Concentricity is accurate to 0.0001" (0.0025 mm) Total Indicator Reading (TIR).






A No. 3 Morse taper HDC-10 or 10M solid bushing is available for mounting these centers into the end-working turret. No bushing is required for use with the #3 MT tailstock. See page 13 for HDC bushings.



Model No.	Part No.		Dimensions							Workpiece Max. Weight	Axial Load Max.	Max. Speed
			K	A	B	C	D	d	a			
R-3	SB 0000422 P (Regular-Nose)	Inch	MT3	1.22	1.89	3.36	2.24	.98	60°	1,600 lb	1,150 lb	4,000 rpm
		MM	MT3	31	48	85.5	57	25	60°	720 kg	500 daN	4,000 rpm
RV-3	CS 0000422RV (Extended-Nose)	Inch	MT3	1.65	.39	.94	.47	.98	60°	1,300 lb	1,150 lb	4,000 rpm
		MM	MT3	42	10	24	12	25	60°	550 kg	500 daN	4,000 rpm

Miscellaneous Tooling



Bolts:		Part Number	Dimensions	Part Number	Dimensions
 T-Bolt Shown	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
 Nut Shown	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:		49B0000348	5/8 RD x 2-1/2	0101028	3/8-16 x 1-3/4
 Set Screw Shown	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	0550704	5/16-24 x 1/4	
	2001091	1/2 RD #8260 x 3/4	0550710	5/16-24 x 5/8	
	ST 001116204	1/2 RD x 2-11/16	0550712	5/16-24 x 3/4	
	AH 001164401	1/4-28 x 1/2	0550910	3/8-24 x 5/8	
	0100208	8-32 x 1/2	0570504	1/4-28 x 1/4	
	0100506	1/4-28 x 3/8	0570506	1/4-28 x 3/8	
	0100508	1/4-28 x 1/2	0570508	1/4-28 x 1/2	
	0100510	1/4-28 x 5/8	0570510	1/4-28 x 5/8	
	0100514	1/4-28 x 7/8	0570610	1/4-20 x 5/8	
	0100516	1/4-28 x 1	0570710	5/16-24 x 5/8	
	0100520	1/4-28 x 1-1/4	0570904	3/8-24 x 1/4	
	0100540	1/4-28 x 2-1/2	0570906	3/8-24 x 3/8	
	0100848	1/4-20 x 3	0570908	3/8-24 x 1/2	
	0100814	5/16-18 x 7/8	0570910	3/8-24 x 5/8	
	0100816	5/16-18 x 1	0570912	3/8-24 x 3/4	
	0100840	5/16-18 x 2-1/2	0571016	3/8-16 x 1	
	1011912	3/8-24 x 3/4	6A 0008586	1/4-28 x 1-1/16, 13/16	
	MS 0103618	M6 x 20mm	MS 0573816	M8 x 12mm	
	MS 0103619	M6 x 25mm	MS 0573817	M8 x 16mm	
	MS 0103620	M6 x 30mm	MS 0573818	M8 x 20mm	
	MS 0103624	M6 x 50mm			
	Washers:		370000622	33/64 x 1-1/8 x 1/8	5P 0006434
 Washer Shown	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:		Part Number	Dimensions	Description	
 Solid Coolant Ball Shown	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		
	3 0010901	5/8 RD x 7/8	Barrel		
	8 0010901	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		
CSA000605801	Round	Coolant Direction Ball			

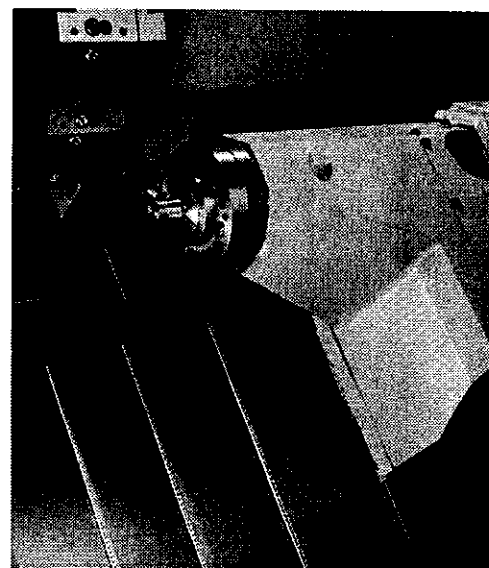
Full-Function Sub-Spindle

The ANSI A2-5" 16C Collet Sub-Spindle permits drilling, boring, facing, tapping, turning and threading operations to be performed from the back side of the vertical turret with 3/4" (20 mm) square shank and 3/4" (25 mm) round shank insert tools. Square shank tools are mounted directly into the tool slot of the dedicated turning tool mounting ring located on the back of the vertical turret. Round shank holders mount to the vertical turret in the same manner as the tool holders used for machining at the main spindle (see page 4 for illustration).

Transfer of workpieces from the main spindle to the Sub-Spindle, or vice versa, is accomplished at one synchronized speed. The 5-hp (3.7-kW), AC analog spindle motor offers an 80 to 6,000 rpm spindle speed range with a maximum torque of 17.5 ft-lb (23.7 Nm) at the 1,500-rpm base speed. Speeds are fully programmable in one-rpm increments. A low-pressure air purge system, used in conjunction with a labyrinth seal, protects the bearings from chip and coolant contamination. The Air Blast System detailed on page 36 and a safety shear feature are included.

The extensive line of 16C spindle tooling may be used, including the SURE-GRIP™ 5" through-hole jaw chuck (refer to brochure 2298 for chucks). The maximum depth a workpiece can be "swallowed" in the spindle is 14-1/4" (361.9 mm), measured from the spindle face. Maximum spindle weight is 75 lb (34 kg), including workholding device(s). The hydraulic collet closer is designed to provide optimum gripping force over a wide range of workpiece configurations. The #3MT, 16C center shown on page 27 is available for occasional, light-duty tailstock use.

Sub-Spindle movement is accomplished on linear guideways; positioning is provided either hydraulically or with a ball screw drive. Maximum rapid traverse rate is 300 ipm (7.6 mpm) and maximum travel is 11-1/2" (292 mm) for hydraulic versions. Maximum rapid traverse rate is 394 ipm (10 mpm) and maximum travel is 15-5/16" (388 mm) for ball screw driven versions. The Sub-spindle is available as original equipment only.



NOTE: Not available on CONQUEST T42-L Long Bed lathes. This option is intended to provide general precision machining capabilities on CONQUEST T42SP machines.

6-Station End-Working Turret

The 6-Station End-Working Turret uses 1-1/4" round shank tools direct on the inch turret or 32 mm round shank tools direct on the metric turret for machining on workpieces held in the main spindle. HDC-10 solid bushings are offered to securely hold 3/8" to 1-1/8" (10 mm to 25 mm) tooling and they help to reduce tooling costs. Round shank tooling up to 3/4" or 20 mm may be used with the Hardinge Double-Angle Collet Toolholder (see page 5 for illustration). An unbalanced tooling setup will not affect turret indexing.

Bidirectional turret indexing minimizes machining cycle time, since the turret is pre-programmed to take the shortest path from one station to the next (maximum 180° indexing). The indexing path may also be determined by the programmer. The turret is hydraulically 'raised', indexed by the servo-driven motor, and positively 'locked' into position on a curvic coupling arrangement with .00005" (.013 mm) repeatability. Indexing time to the next station is .25 seconds. The turret is positioned along the z-axis by a 1.25" (32 mm) diameter ball screw. Maximum travel is 11.5" (292 mm) and rapid traverse rate is 394 ipm (10 mpm). Maximum z-axis (drilling) thrust is 1,500 lb (6,672 N).

Machining cycle times can be further reduced by programming the turret to index at a safe index position in front of the spindle using the Hardinge Safe Start Format. The turret does not have to return to home position to be indexed as is often the case for competitive machines.

One fully adjustable coolant nozzle is located above the End-Working Turret for precise directional flow of coolant to the machining area. The ball-and-socket segments are easily snapped in or out for exact length adjustment. Coolant can also be fed "through-the-tool" for each station. Machines equipped with the End-Working Turret include the 15-hp Hi-Speed spindle drive system. The turret is available as original equipment only.



NOTE: Not available on CONQUEST T42-L Long Bed lathes. This option is intended to provide general precision machining capabilities on CONQUEST T42SP machines.

Live Tooling



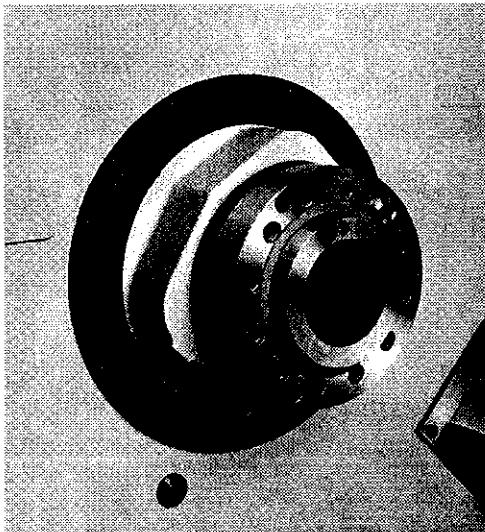
Live Tooling is especially useful for eliminating the need for milling machine operations, or for minimizing mill setup time and the need for special mill fixturing. 2-1/2° and 1° Spindle Orient is included. Live tooling operations can be further enhanced when used in conjunction with the C-Axis Contouring feature (Note: Spindle Orient is not included, or required, on machines equipped with the C-Axis option).

Any combination of up to six optional cross-working, end-working, cross-tapping, and end-tapping attachments can be mounted at odd-numbered stations on a 12-station turret and 5 attachments on a 10-station turret. Attachments are driven through matching spiral bevel gears by the brushless servomotor, providing a maximum 2.4-hp (1.79-kW) rating at the tool tip with a maximum continuous torque rating of 52 in-lb (5.89 Nm) and a maximum intermittent torque rating of 125 in-lb (14.17 Nm). Speeds are fully programmable either clockwise or counterclockwise in one-rpm increments up to 4,000 rpm. All mounted attachments rotate simultaneously. Refer to pages 18 and 19 for detailed information on the attachments.

Protective covers are provided for each drive gear box attachment location for when attachment is removed from the turret.

Live Tooling is available as original equipment only.

2" "Big-Bore" Spindle



The American National Standards Institute A2-6", 20C collet spindle permits bar work up to 2" (51 mm) in diameter, chucking work up to 6" (152 mm) in diameter with step chucks, and chucking work up to 8-1/2" (216 mm) in diameter with 10" (254 mm) jaw chucks*.

The spindle is hardened & ground and of one-piece construction. It is mounted in a solid, cast iron headstock housing and bolted to the headstock insert, that is molded into the HARCLETE® base for maximum rigidity. The housing is heavily ribbed to minimize heat buildup and protect the spindle bearings from overheating.

A low-pressure air purge system and labyrinth seal keep coolant and chips out of the bearings. There are five angular contact ball bearings used for the spindle. Three bearings are located at the front and two are located at the rear of the spindle. The 15°, initial contact angle of the ball bearings is designed to operate at low temperatures within a wide range of speeds and operating loads. This bearing configuration provides optimum smoothness and machining accuracy, as well as allowing for higher spindle speeds than would be possible using other bearing configurations. A high degree of rigidity in both axial and radial directions is featured, and preloading of the bearings minimizes end play. Maximum weight on the spindle is 100 lb (45 kg), including workholding device(s).

The Air Blast and Thru-Spindle Coolant Systems discussed on pages 36 and 37, respectively, are available to help minimize chip buildup.

CONQUEST T42 machines equipped with the "Big-Bore" Spindle include a 10-station turret and 15-hp Hi-Torque spindle drive system.

CONQUEST T42SP machines equipped with the "Big-Bore" Spindle include a 10-station turret and 15-hp, 4,400-rpm spindle drive system only.

The "Big-Bore" Spindle is available as original equipment only.

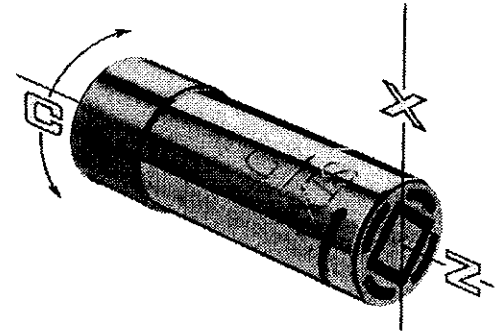
* May require a spindle adapter.

C-Axis Contouring

C-Axis Contouring allows the main spindle (C-Axis) to be programmed to perform a variety of machining operations. Resolution is .001°. Positioning accuracy is ±1 arc minute. Repeatability is 1.75 arc minute.

There are three applications included —

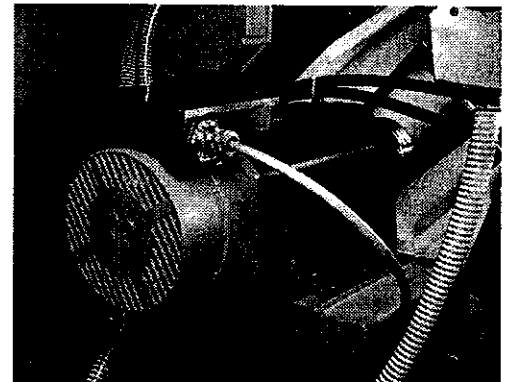
- **Polar Interpolation**—ability to cut with X- and C-axis simultaneously. Includes circular interpolation.
- **Cylindrical Interpolation**—ability to cut with Z- and C-axis simultaneously. Includes circular interpolation.
- **Three-Axis Interpolation**—ability to cut in all 3 axes; X, Z, and C when in G1 mode. Example: Helix cutting
 Note: circular cutting cannot be accomplished when cutting with all three axes at the same time.



Machines equipped with C-Axis Contouring do not require Spindle Orient. C-Axis Contouring is available as original equipment only.

Main Spindle Drive Systems

The AC digital spindle drive and motor systems used in CONQUEST lathes are more accurate and responsive than analog spindle drives and motors. The motors are also more reliable and require minimal maintenance, since they are fan cooled, brushless and permanently sealed and lubricated. Power is delivered to the spindle by a multi-section V-belt, which minimizes the transfer of vibrations compared to geared systems. Speeds are fully programmable in one-rpm increments. A hydraulic external brake located on the rear of the spindle provides optimum holding power when used with live tooling.



- **10-hp Hi-Torque Option (CONQUEST T42/T42-L Lathes only)**

This system can be either factory installed or field retrofitted on machines originally equipped with the standard 10-hp spindle drive. The 10-hp (7.5 kW) Hi-Torque option offers a spindle speed range of 30 to 3,000 rpm with 70 ft-lb (95 Nm) torque rating at the 750-rpm base speed. Torque is constant at spindle speeds below 750 rpm. A 4-section V-belt, motor drive pulley, and parameter tape are included.

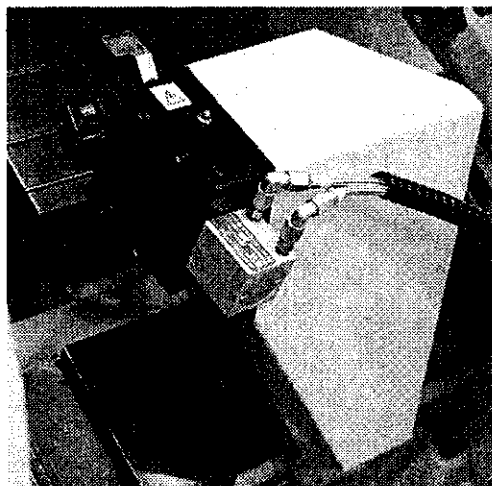
- **15-hp Hi-Speed AC Digital Spindle Drive and Motor**

This system is available as original equipment only and it is not available with the "Big Bore" Spindle. The drive system delivers a 15-hp (11-kW) intermittent duty for 30 minutes at 150% power rating and 10-hp (7.5-kW) continuous duty at 100% power rating. The spindle drive and motor offer a spindle speed range of 60 to 6,000 rpm with 51.5 ft-lb (69.8 Nm) torque rating at the 1,500-rpm base speed for heavy metal removal rates. Torque is constant at spindle speeds below 1,500 rpm. A 3-section V-belt is provided.

- **15-hp Hi-Torque Option (CONQUEST T42/T42-L Lathes only)**

The 15-hp (11-kW) Hi-Torque system can be either factory installed or field retrofitted on machines originally equipped with the 15-hp Hi-Speed spindle drive. The Hi-Torque drive offers a spindle speed range of 44 to 4,400 rpm with 70 ft-lb (94.9 Nm) torque rating at the 1,100-rpm base speed. Torque is constant at spindle speeds below 1,100 rpm. A 4-section V-belt, motor drive pulley, and parameter tape are included.

Steady Rest



NOTE: Available on CONQUEST T42-L Long Bed lathes only.

Specifications

Arobotech Systems Model	ARM-45 Auto Rest
Diameter Range	0.20"/5.0mm to 1.77"/44.9mm
Minimum Part Length (Approx.)*	7.50"/190mm
Surface Speed (Max.)	1360 fpm/ 415 m/min
Centering Accuracy (over full range)	0.0002"/.005mm
Repeatability	0.0002"/.005mm
Recommended Roller Lubricant	Mobil® SCH 220 Synthetic Grease or Equivalent
Approx. Weight	100lb/45kg

* Dependent on tailstock center used.

This specially-designed and manufactured steady rest assembly consists of a heavy-duty, rigid cast iron frame manufactured by Hardinge® and the LNS® Auto Rest® self-centering work support system. The assembly offers a unique solution to center and hold long cylindrical parts for turning operations involving heavy or interrupted cuts and to reduce cutting tool chatter to maintain precision tolerances and surface finishes.

The steady rest assembly incorporates the following features:

- High precision
- High rigidity
- Simple hydraulic operation
- Compact narrow design
- Easy setup
- Automatic retraction (for loading clearance) by M-code command
- Minimal adjustments

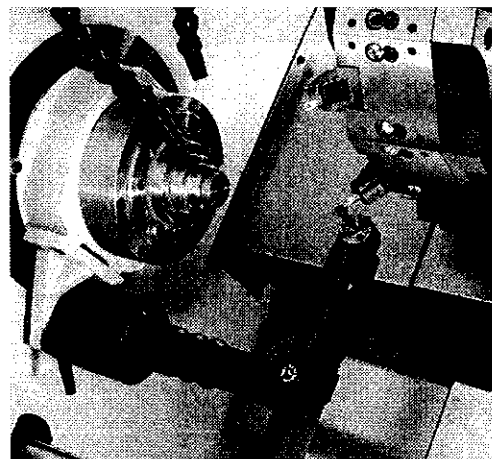
LNS's three-roller contact and patented sliding wedge design eliminates cams, bearings, gears and pivot points, allowing optimum strength and rigidity for workpiece accuracy and repeatability. The rollers redirect the cylinder stroke, thus causing the three rollers to clamp on the workpiece with equal speed, pressure and travel for "true centering."

The steady rest assembly mounts directly to the tailstock's dovetail bed way on CONQUEST T42-L lathes. Once manually positioned, locking screws at the base of the frame allow quick, rigid clamping of the steady rest assembly. A workpiece support arm, which is adjustable for the required part diameter, is also provided. A pressure gauge and hand control valve are located on a manifold block in the machine's hydraulic compartment at the rear of the machine. A button on the machine's control panel allows the operator to open and close the rollers for job setup.

Hydraulic components are installed at the factory when the steady rest is purchased with the machine. The steady rest unit is also available for field installation. One set of precision, crowned rollers is included. Additional roller sets may be purchased direct from LNS America or from a local bearing distributor.

LNS and Auto Rest are trademarks of LNS America, Inc. • Mobil is a trademark of Mobil Oil Corporation.

Tool Touch Probe



The Tool Touch Probe is mounted on the headstock and is manually positioned in front of the main spindle to provide a known reference point for establishing the position of turret tooling.

Features:

- Detachable probe arm provides quick set up and easy use, enabling the operator to set tooling and be producing parts in a very short time.
- Four-direction probe surfaces make it possible to touch off both internal and external working tools.
- Convenient storage—removed to mounting bracket in tool compartment.
- Audible and visual signals when probe contact is made.
- No N/C programming involved in set up.

Specifications:

- Accuracies: ± .0008 inch (± .002 mm) on CONQUEST T42/T42-L
± .0004 inch (± .001 mm) on CONQUEST T42SP
- Sensor Repeatability: ± .000040" (± .001 mm)

Call 800-843-8801

Monday—Friday, 8:00 am to 8:00 pm
Eastern Standard Time for FAST delivery!



Hardinge Inc.

Elmira, New York 14902-1507 USA

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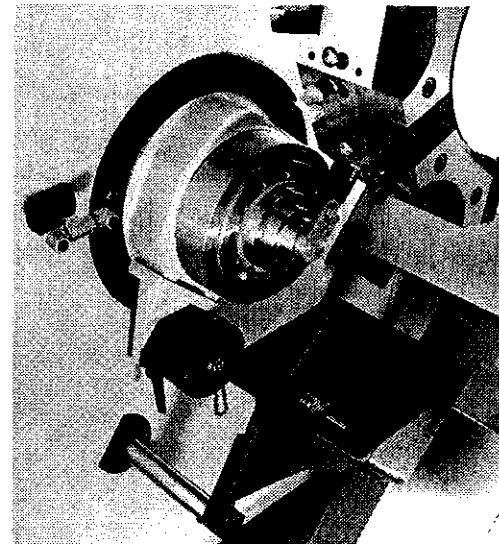
Parts Removal System

The Parts Removal System aids productivity by automatically removing finished workpieces from the spindle area without interrupting the machining cycle.

Available as original equipment only, the Parts Removal System is offered in two configurations—one for machines equipped with the tailstock or Sub-Spindle option and one for machines with the End-Working Turret option. Maximum workpiece diameter is 2" (50 mm), length is 6" (152 mm) and weight is 5.5 lb (2.5 kg).

The tailstock/Sub-Spindle configuration (shown to the right) features a catcher arm that is programmed to extend under the spindle and accept the workpiece during cutoff from the vertical turret. The arm then moves to the retract position and deposits the workpiece in the part chute, which is mounted on the inside of the coolant guard door. Finished workpieces can be removed by opening the hinged chute door on the coolant guard door.

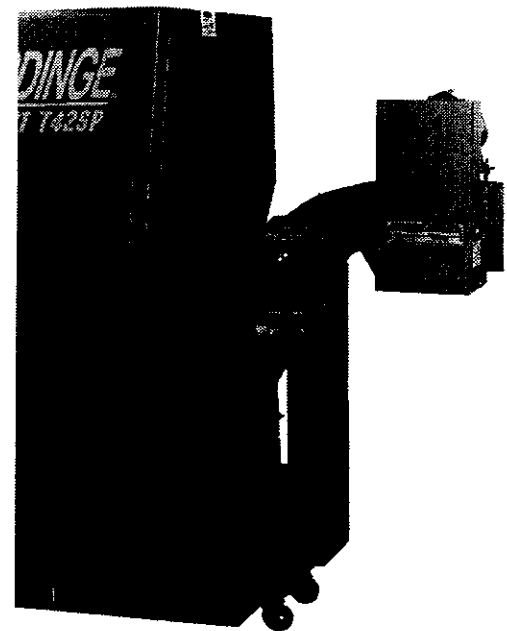
The End-Working Turret configuration (not shown) includes a parts catcher assembly that mounts to turret station number 2 and a cone to receive cut off workpieces. In operation, the catcher is programmed into position to accept the finished workpiece. After the workpiece is cut off from the vertical turret, the End-Working Turret indexes 180° and moves into position over the part chute mounted on the inside of the coolant guard door. An air cylinder plunger activates the parts catcher base, allowing the catcher cone to lower and release the workpiece into the chute. Finished workpieces can be removed by opening the hinged chute door on the coolant guard door.



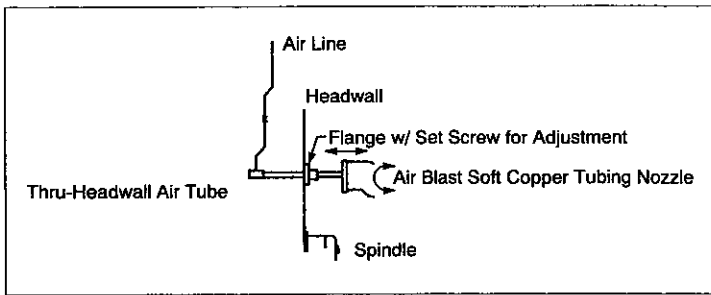
Sub-Spindle/tailstock parts removal system shown.

Chip Removal System

The chip removal system facilitates efficient removal of chips from the machine. The variable-speed motor provides a 17.3 fpm (5.3 mpm) maximum feedrate. Recommended feedrate is 4 fpm (1.2 mpm). Unit width is 12" (305 mm) and belt width is 10" (254 mm).



Air Blast System

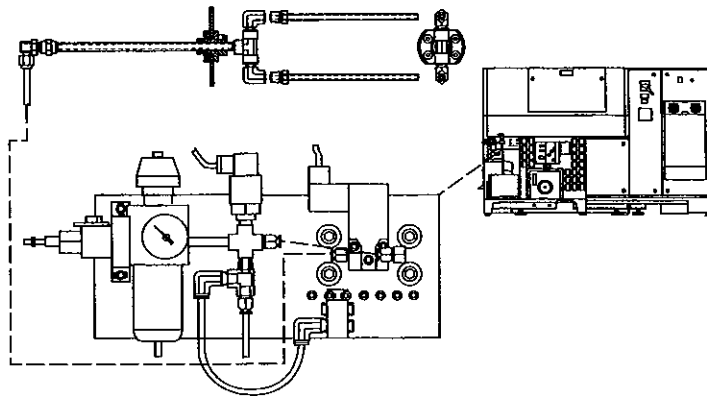


The Air Blast System can provide cost reduction through reduced cycle time because chips are removed from the workholding device and a cleaner gripping surface is possible to receive each part. When the machine's air system is active, the Air Blast System carries a force of air through the headwall from the standard machine air supply system.

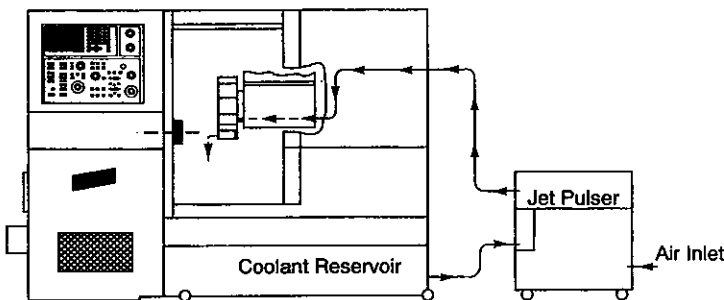
The adjustable air carrier tube is mounted by a flange on the headwall. A set screw in the flange allows the tube to be positioned closer to or away from the headwall and to be rotated for an optimum blast angle to clean the area. Standard brass elbow fittings from a "T" fitting and flexible copper tubing directs air at any position desired by the operator. The thru-headwall air line is added to the existing air system and is activated by a solenoid valve.

All lines required to use the Air Blast System will be installed at the time the machine order is placed, or they can be installed in the field.

The Air Blast System is included on machines equipped with the Sub-Spindle option.



Hi-Pressure Coolant System



The Hi-Pressure Coolant System is used when special coolant-fed tools are mounted in the turret. The system employs a jet pulse unit that lowers cycle times and improves production rates through the following means:

- Higher permissible speeds and feeds
- Elimination of peck drill operations
- Cooler running and longer lasting tools
- Smoother surface finishes and possible elimination of other machining operations

The coolant system features a 10:1 ratio pressure pump that supports drills up to and including 1-1/2" (38 mm). The system delivers coolant at a maximum of 10 gpm (38 lpm) using a rate of 10x incoming air pressure. The Hardinge CNC control uses "M" functions in the part program to control the Hi-Pressure Coolant System with the standard coolant system (the standard machine coolant system is disabled when using this option).

All required plumbing is performed at the factory during machine assembly, or the system may be installed at a later date. Service for the unit is provided by the coolant system manufacturer.

This feature is also available for the end-working turret option.

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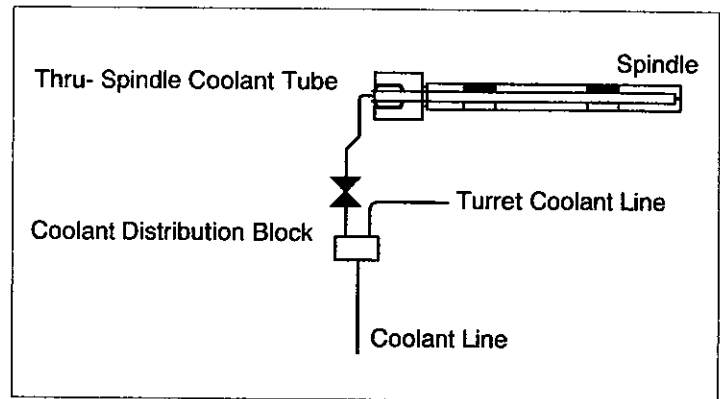
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Thru-Spindle Coolant System

The Thru-Spindle Coolant System carries coolant through the main spindle from the standard coolant system. When the machine's coolant system is active, coolant can be directed from inside the spindle to effectively clean chips from the spindle and workpiece.

The spindle coolant carrier tube is mounted and sealed within the spindle shaft, but it can be removed when necessary by loosening the nut that expands the o-rings within the spindle. The thru-spindle coolant line is tapped into the turret coolant line behind the headwall, but has a separate mechanical valve. The 1/2-20 threaded coolant tube tip makes it possible to create and mount specialized nozzles.

All required plumbing is performed at the factory during machine assembly, or the system may be installed at a later date.



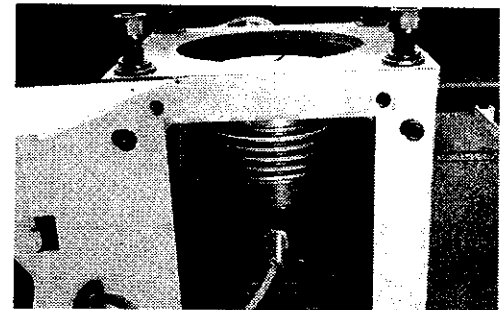
Headwall Coolant Control

The Hardinge CNC control uses "M" functions in the part program, allowing automatic on/off control of coolant through the headwall coolant nozzles. A programmably controlled valve is provided in the coolant line behind the headwall.

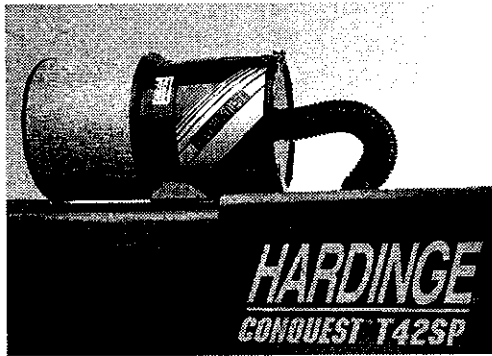
X-Axis Torque Limiter

An X-Axis Torque Limiter, or safety coupling with "resetting" feature, is available as an option for CONQUEST T42 lathes equipped with a tailstock. The x-axis torque limiter is standard equipment on all CONQUEST T42SP lathes and on CONQUEST T42 machines equipped with the Sub-Spindle or End-Working Turret option. All CONQUEST T42, T42-L and T42SP lathes feature a torque limiter on the z-axis ball screw.

In the event of a "crash", the torque limiter uncouples, thus reducing costly damage to the machine. Damage is limited to broken tools rather than to spindle bearings and/or linear guides. Realignment procedures are also avoided. Typical time to recover from a crash is 5-to-15 minutes compared to 4-to-8 hours.



Mist Collector

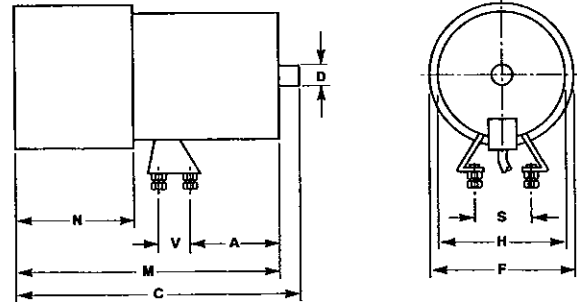


The Filtermist mist collector is recommended as a quiet and efficient system to quickly filter and eliminate oil mist and dry smoke from the machine enclosure, return collected coolant to the machine, and pass filtered air into the shop. The mist collector consists of a self-cleaning filtration unit and after-filter. The 1-1/2 hp (1 kW) electric drive motor is totally enclosed with sealed bearings.

To facilitate easy installation to the top of the machine, the machine enclosure features factory-drilled holes for the four anti-vibration shock-mounts, ducting and drain tube.

It is the customer's responsibility to provide a power supply to this option separate from the machine's power supply. Voltage must be specified at the time of order (voltage may be different than the machine voltage).

Dimensions									
	A	C	D	F	H	M	N	S	V
Inch	9.00	33.00	3.95	19.38	17.38	31.25	15.00	12.00	6.00
MM	228.6	838.2	100.4	492.1	441.3	793.8	381.0	304.8	152.4

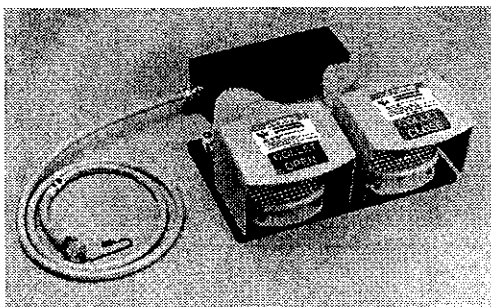


Auto Door

The Auto Door feature helps reduce operator fatigue—especially useful on fast-cycle part production. Additionally, this option helps ensure operator safety by not allowing the door to close until the operator's hands are clear of the work area.

The door is programmed to automatically open at the end of a machining cycle. After the operator has loaded the next workpiece in the workholding device, the operator simply closes the door by pressing on two push buttons (Palm Button style) or placing both hands in front of two light beam sensors (Light Touch style). The next machining cycle begins once the door completely closes.

Collet Closer Foot Switch



The collet-open and collet-close foot switch offered by Hardinge allows the machine operator to free both hands for loading/unloading workpieces from the machining area. A cable for direct hook-up with the machine's interface connection is included.

Voltage Transformers

CONQUEST lathes are completely wired and assembled when delivered for 230 volts, 60 cycle, 3 phase operation. An externally-mounted supplementary power transformer is required for 208-, 460- and 575-volt machines. A 230/460-volt transformer is offered that will provide extra protection for 230-volt machines when installed in areas where lightning or electrical surges are a concern. Specification for the necessary transformer must be made at the time the machine is ordered.

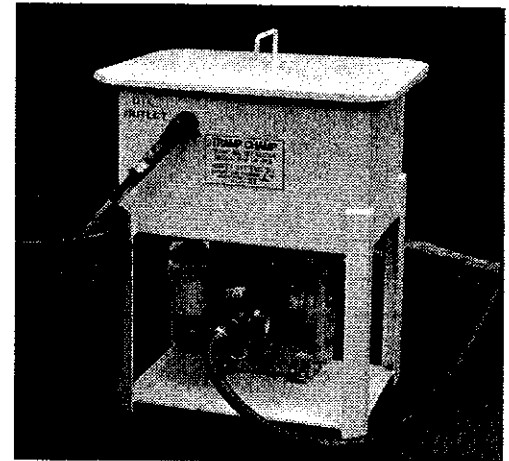
Tramp Oil Recovery System

The best way to realize minimal downtime, increased productivity and increased profits is to adapt an automatic tramp oil recovery system to CONQUEST Lathes.

Offered directly from Hardinge Inc., the **Tramp Champ™** principle of operation is simple—gravity and coalescence. Unless chemically emulsified, oil and water do not mix. They will, however, separate from each other under gravity.

The time and the expense to change and dispose of coolants can be substantially reduced with the Tramp Champ from Porter Systems. The Tramp Champ allows you to concentrate on producing precision parts instead of changing contaminated coolants.

The **Tramp Champ** comes complete with floating pickup skimmer, custom coolant tank cover, and suction and return hoses. Electric- and air-operated models are offered. See brochure 1304 for detailed information on this time- and money-saving product from Hardinge.



Tramp Champ is a trademark of Porter Systems, Inc.

T.E.A.C.H.® Training Programs

Tuition-free classroom programmer's and hands-on training is offered at Hardinge for customers who purchase a new CONQUEST lathe. While the best method for training involves one-on-one instruction, the realities of doing business in the '90s make audio/visual training a practical and effective solution for most manufacturers.

Here are some of the benefits of Hardinge T.E.A.C.H. (Tape-based Education At the Customer's Home) programmer's and hands-on training programs —

- Accurate Instruction—Hardinge-written, -produced and -tested
- Less downtime—No interruption of production; train when and where it's most convenient
- User-friendly—learn at individual pace
- Accessibility—review as needed; ideal for employees who attended the formal training and for new employees
- Low cost—use individually or in groups

Audio (Programming) Part No.	Video (Hands-On) Part No.	Combination Package Part No.
18 0012040 A	18 0012040 V	18 0012040 C



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