



Tooling Catalog

T-42 Series Lathes with T Style System



T42 Main Spindle Tooling Layout

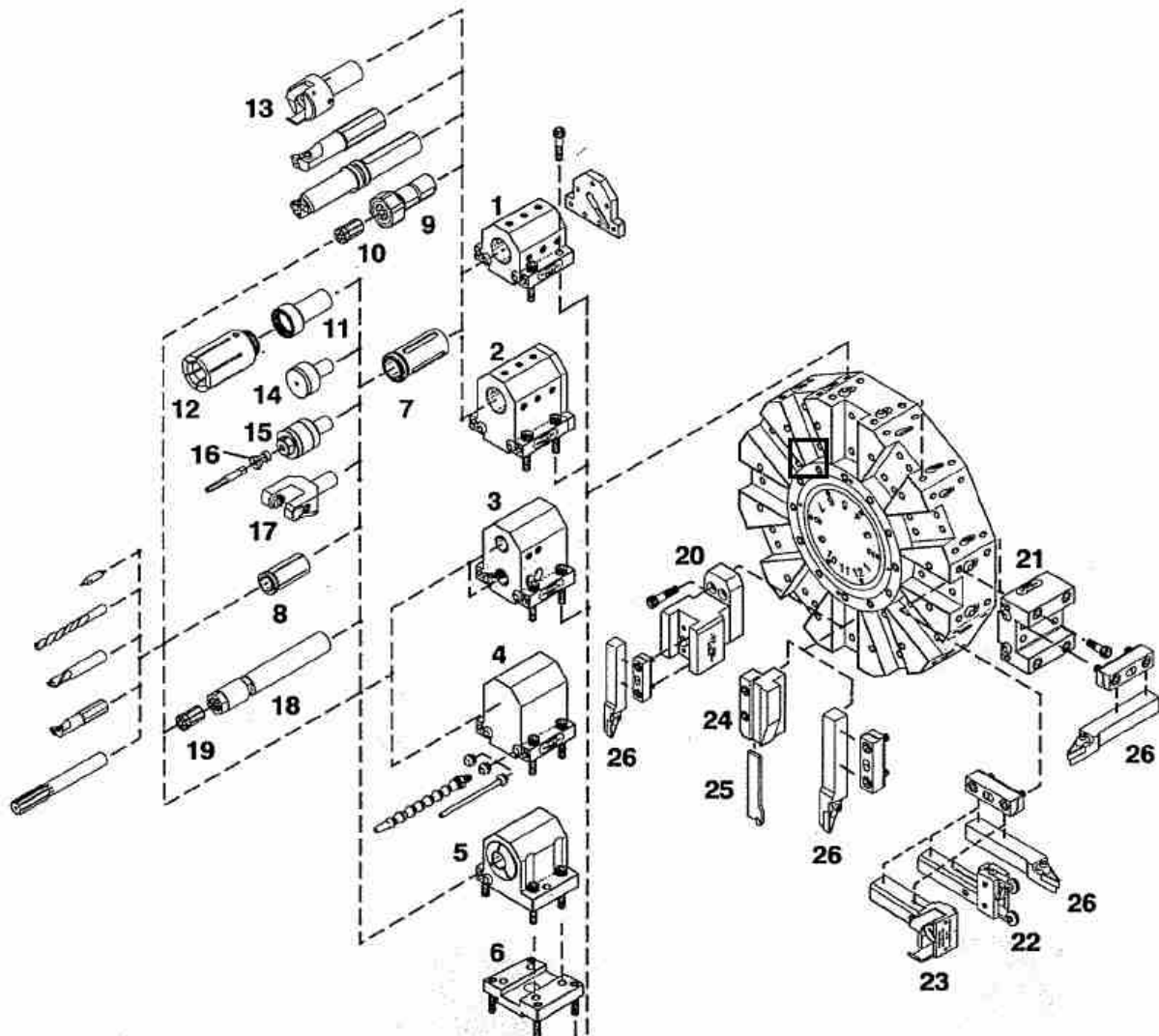


DIAGRAM KEY NO.	MASTER LISTING DESCRIPTION	MODEL NO.
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10- and 12-Station Vertical Turret Tooling

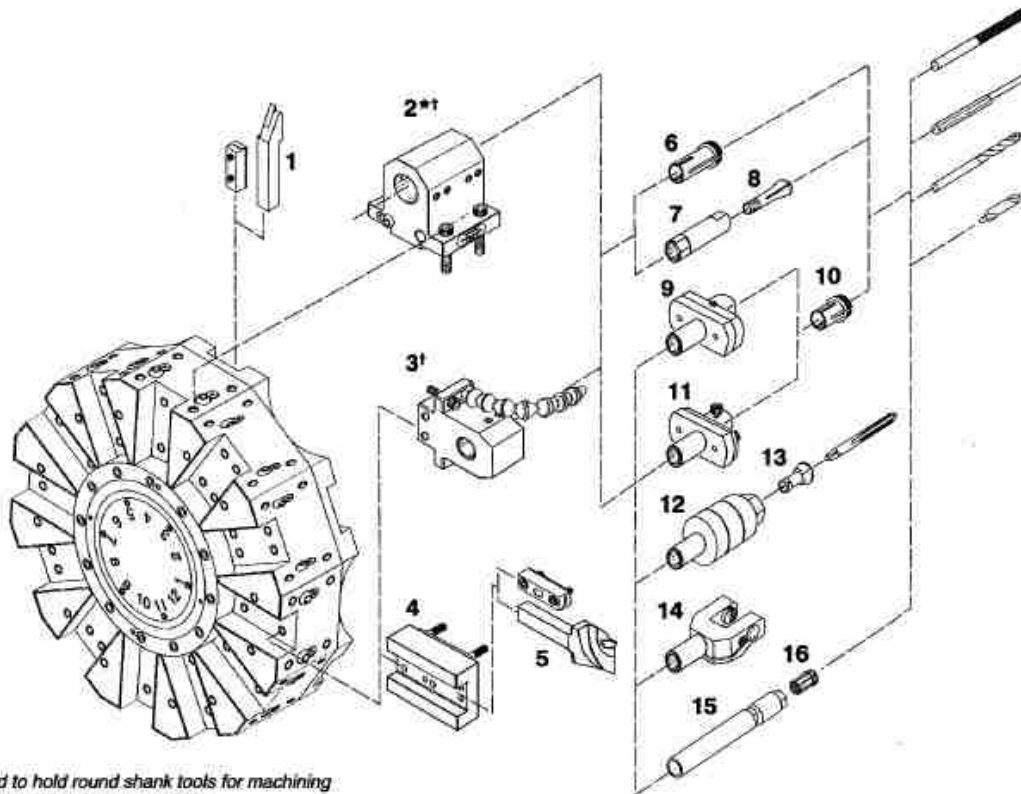
1	Round Shank Tool Holder (1-1/4" ID)	SG-21
	Round Shank Tool Holder (32 mm ID)	SG-20M
2	Round Shank Boring Tool Holder (1-1/4" ID)	SG-30
	Round Shank Boring Tool Holder (25 mm ID)	SG-27M
	Round Shank Boring Tool Holder (32 mm ID)	SG-30M
3	Round Shank Double Tool Holder (3/4" ID)	SG-34
	Round Shank Double Tool Holder (25 mm ID)	SG-34M
4	Inch Blank Tool Holder (bore to size)	SG-PS
	Metric Blank Tool Holder (bore to size)	SG-PM
5	5C Collet Tool Holder	CS-5C
6	Adapter Plate for 5C Collet Tool Holder	—
	Coolant Direction Balls and Tubes	—
7	Precision Solid Bushings (1-1/4" or 32 mm OD)	HDC-10/10M
	Precision Solid Preset Bushings (1-1/4" or 32 mm OD)	HDZ-10/10M
8	Precision Bushings (3/4" OD)	HDB-6
	Round Shank Tool Setting Gauge (Main Spindle)	—
9	Double-Angle Collet Holder, 180-Series (1-1/4" OD/32 mm OD)	SG-180/180M

DIAGRAM KEY NO.	MASTER LISTING DESCRIPTION	MODEL NO.
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10- and 12-Station Vertical Turret Tooling (Cont'd.)

10	180-Series Double-Angle Collets	—
	180-Series Double-Angle Collet Holder Spanner Wrench	—
11	Bar Stock Puller Adapter	—
12	Interchangeable Bar Stock Pullers	—
13	Round Shank Bar Puller (1-1/4" OD)	F125
14	Revolving Stock Stop	T20-3/4-16
15	Releasing "TT" Tap Holder (Collet-Type)	TT-
16	"TT" Tap Collets	TT (Size)
17	"Crush-Type" Knurling Tool	T-8
18	Double-Angle Collet Tool Holder, 100-, 200- and 300-Series	DA1-
19	Double-Angle Collets, 100-, 200- and 300-Series	—
20	Square-Shank Extension Tool Holder (3/4")	SG-TE
	Square-Shank Extension Tool Holder (20 mm)	SG-TEM
21	90° Square Shank Tool Holder (3/4")	SG-32
	90° Square Shank Tool Holder (20 mm)	SG-32M
22	Square Shank Knurling Tool	K075
23	Combination Round/Square Shank Bar Puller (3/4")	C100
24	Left-Hand Cut-Off Tool Holder	SB-5L
25	Hardinge-Belcar Cut-Off Blade and Inserts	G-21
	Hardinge-Belcar Square Shank Cut-Off Tool (3/4") and Inserts	G-23
26	3/4" Square Shank and 1" Round Shank Insert Cutting Tools	—
	3/4" Square Shank 35° and 55° Insert Profiling Tools	—

T42 Sub Spindle Tooling Layout



* Also used to hold round shank tools for machining workpieces in the main spindle

DIAGRAM KEY NO.	MASTER LISTING DESCRIPTION	MODEL NO.
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Sub-Spindle Turret Tooling

1	3/4" Square Shank Insert Cutting Tools 3/4" Square Shank 35° and 55° Insert Profiling Tools	— —
2	Double Round Shank Tool Holder (3/4" ID) Double Round Shank Tool Holder (25 mm ID)	SG-46 SG-47M
3	Round Shank Tool Holder (3/4" ID) Round Shank Tool Holder (25 mm ID)	SG-38 SG-39M
4	Square Shank Cut-Off Tool Holder (3/4") Square Shank Cut-Off Tool Holder (20 mm)	SG-CE SG-CEM
5	Hardinge-Belcar Square Shank Cut-Off Tool (3/4") and Inserts	G-23
6	Precision Bushings (3/4" OD)	HDB-6
7	1C Collet-Type Tool Holder (3/4" Shank)	T-17-3/4
8	1C Collets	—
9	Floating Reamer Holder (3/4" Shank)	T-19-3/4
10	Precision Bushings (1/2" OD)	HDB-2
11	Adjustable Holder (3/4" Shank)	00D-3/4
12	Releasing "TT" Tap Holder (Collet-Type)	TT-3/4
13	"TT" Tap Collets	TT (Size)
14	"Crush-Type" Knurling Tool	T-8
15	Double-Angle Collet Tool Holder, 200-Series	DAH-235
16	Double-Angle Collets, 200-Series Round Shank Tool Setting Gauge (Sub-Spindle)	— SG-4

Round Shank Tool Holder

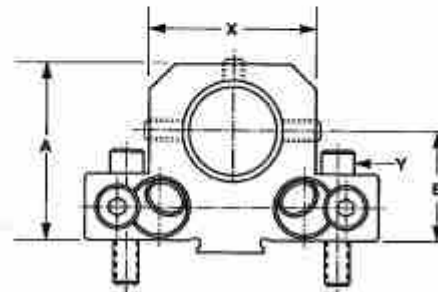
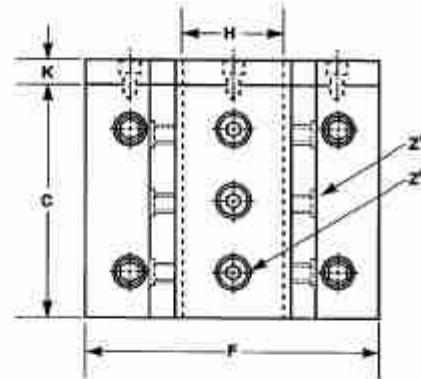
The round shank tool holder is used for operations such as center drilling, drilling, tapping, reaming, or bar stock pulling.

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 rigidly 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				



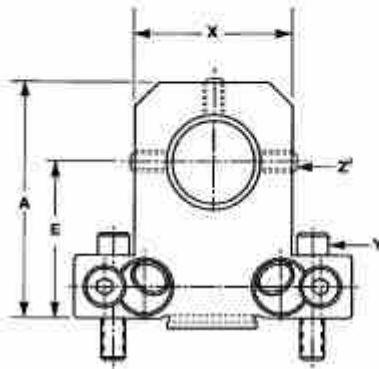
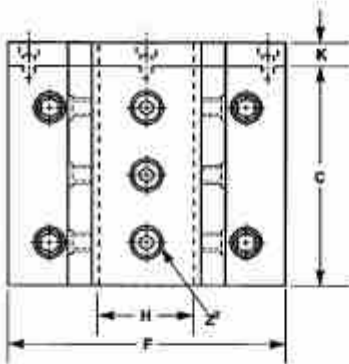
Round Shank Boring Tool Holder



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 rigidly 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						

Round Shank Double Tool Holder

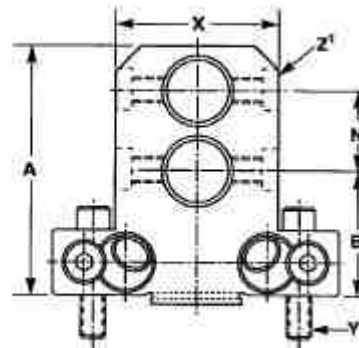
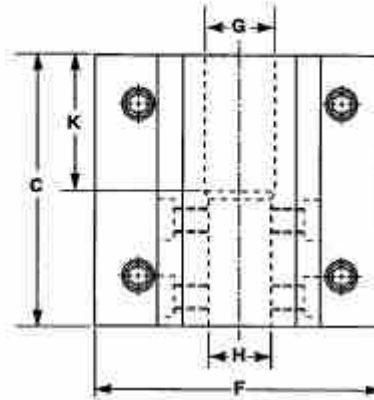
The round shank double tool holder is used for operations such as center drilling, drilling, tapping, reaming, boring, or bar stock pulling.

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 15.0 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	1.060	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 0573815			MS 0103620				



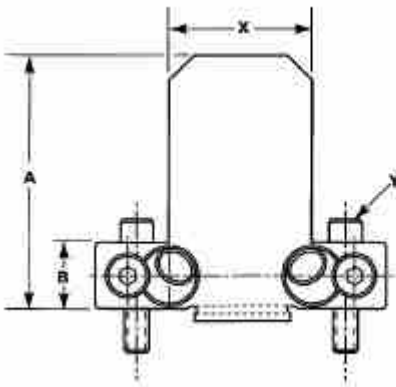
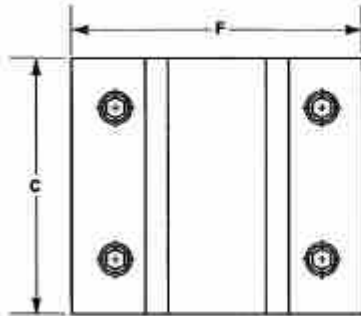
Blank Tool Holder



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.

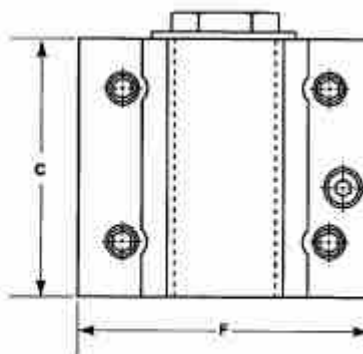
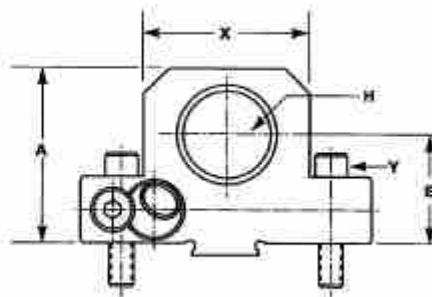
An extensive line of Hardinge 5C collets are available: fractional, letter, number and millimeter sizes; smooth and serrated configurations; emergency, extended-nose and step collets; and special-accuracy collets and collet sets. The tool can also be "preset" using a 5C solid stop, eliminating tool "pushback"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

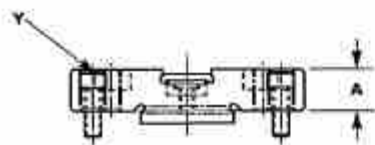
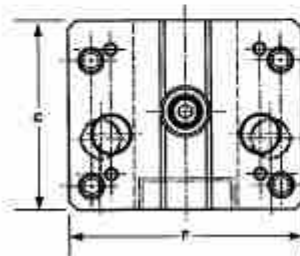


Collet not included.



Model No.	Part No.	Dimensions						
		A	C	E	F	H	X	
CS-5C	CS 00119445C	Inch	2.450	3.150	1.500	3.348	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

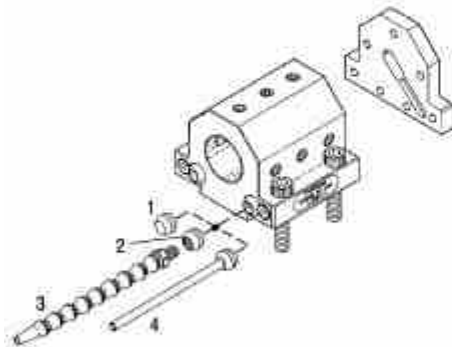


The adapter plate is used to mount the 5C tool holder described on the previous page. The plate can also be used to mount "old-style" inch or metric CONQUEST 42 round shank tool holders to CONQUEST T42 vertical turrets. For optimum tool rigidity, it is advisable to use the tool holders developed specifically 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	A	C	F	
		Inch	.830	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.

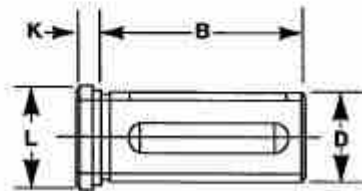
HDZ bushings provide all the advantages of the HDC bushings, plus the added benefit of precisely presetting the tool to a specific dimension. By placing the tool into the bushing, measuring it from the locating shoulder and locking it in place by tightening the set screws, tools may be set up prior to 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

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

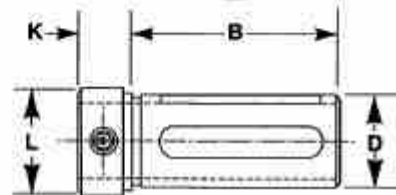
Dimensions				
	B	D	K	L
Inch	3.000	1.250	.560	1.500
MM	76.20	32.00	14.22	38.10

HDC Bushings



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

HDZ Bushings

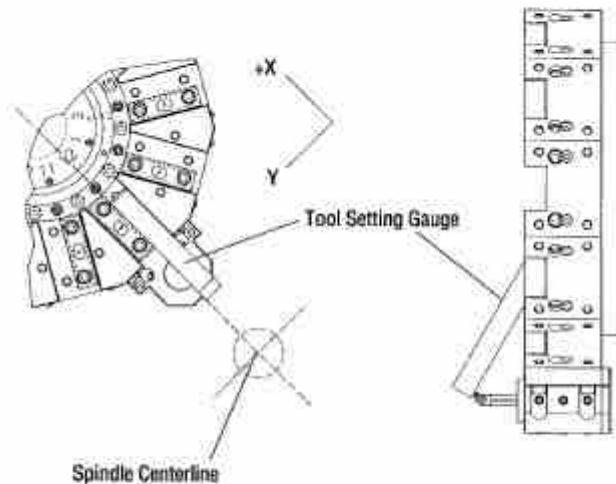


Round Shank Tool Setting Gauge (Main Spindle)

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

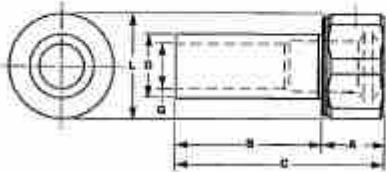
The SG-180/180M double-angle collet holders can be quickly mounted directly into a round shank tool holder to hold 3/4" (19 mm) or smaller diameter boring bars, center drills, reamers, end mills, and other round shank tools accurately. With a 180-series collet, the shank of the tool can be as much as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

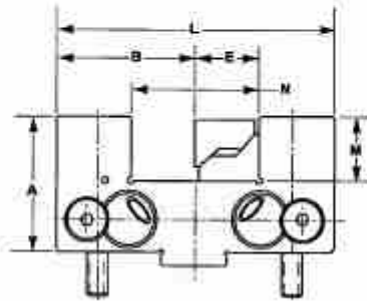
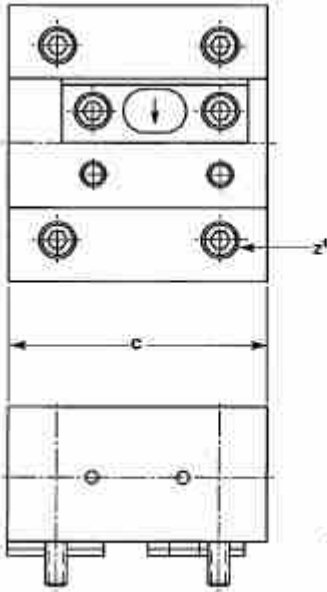
90° Square Shank Tool Holder



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									



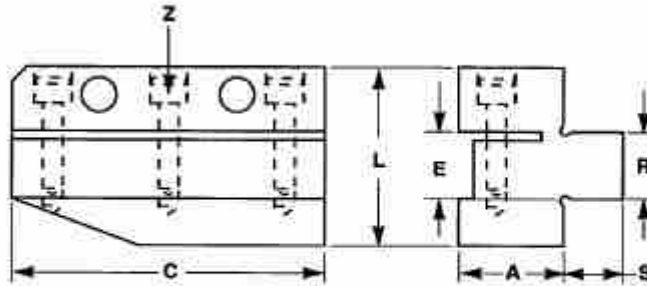
Left-Hand Cut-Off Tool Holder

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									



Double Round Shank Tool Holder (Sub-Spindle)

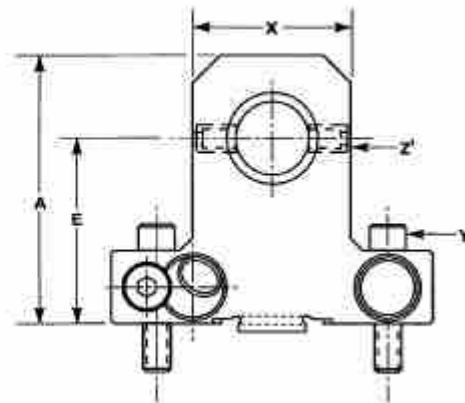
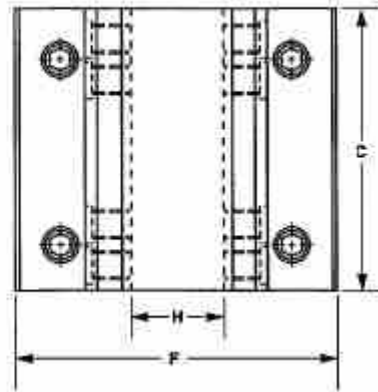
The double round shank tool holder is used to hold two round shank tools from either end simultaneously for operations such as center drilling, drilling, tapping, reaming, boring and large hole boring on workpieces held in the Sub-Spindle or the main spindle.

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				



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				

