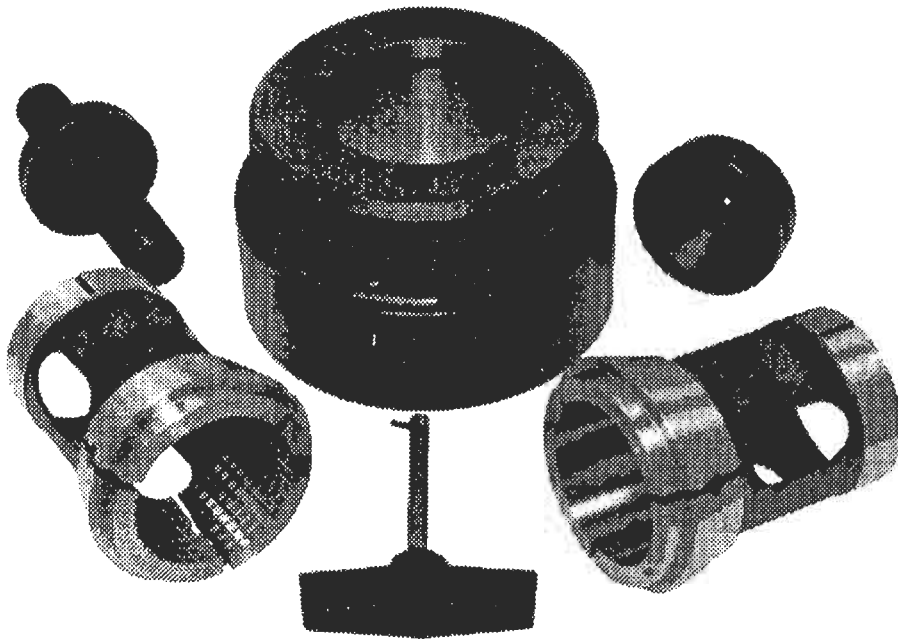


HARDINGE®

INSTRUCTION MANUAL FOR:



**B65, B42 and #22 Brown & Sharpe Collet Chucks for the
QUEST® / CONQUEST® TwinTurn® 65 CNC Turning Centers**



Hardinge Inc.
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B101N
Part Number: B N-0009500-0101
December 2001

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B65 Collet Chuck

(65mm – 2.559" capacity)

Setting Hydraulic Valve for Collet Closer

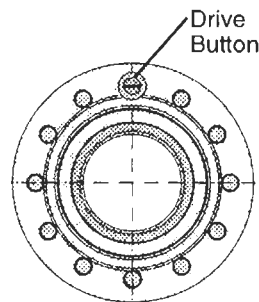
Set the hydraulic collet closer valve to move the draw tube back when the collet closer is activated to the open position.

- The valves are located in the hydraulic manifold assembly at the end of the lathe (Operator's Manual M-322 figure 5.1).
- There are two valves, one for each collet closer (figure 5.2, valve B for the main spindle and valve C for the secondary spindle collet closer).
- Turn valve clockwise to set the "Collet Close" to push the draw tube forward for stationary collets (B65, B42 & #22).

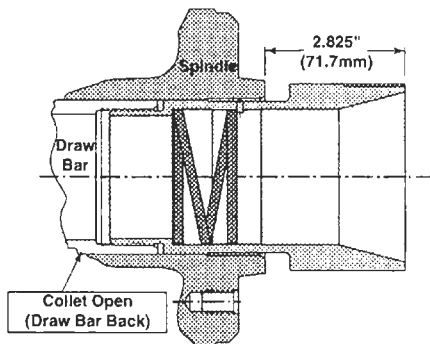
Caution: Do not actuate the collet to the closed position after the sleeve and mount are installed before installing the cap. If the collet closer is activated, the key screw (#4 from the parts list) in the mount will be sheared off by the collet sleeve.

Installing the Sleeve

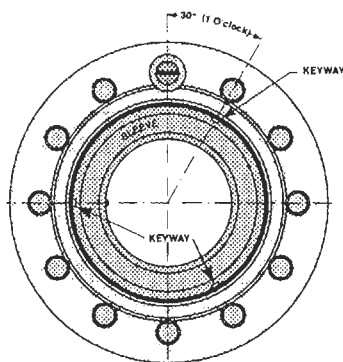
1. Rotate the free spindle until the Drive Button is at the 12 o'clock position.
 - Lock the spindle
2. Make certain that the closer is in the rear position (push "Collet Open" button to move the draw tube to its full rear position).



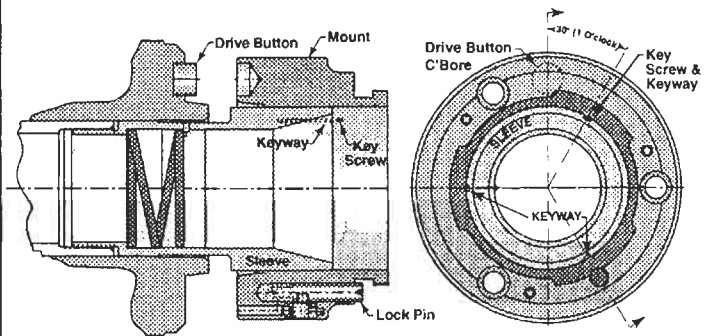
3. Thread the sleeve into the draw tube until you have approximately 2.825" (71.7mm) between the face of the collet and the shoulder of the sleeve.



4. Rotate the sleeve until the closest of the 3 keyways is at the 1 o'clock position. This will change the 2.825" dimension a small amount, which is okay.

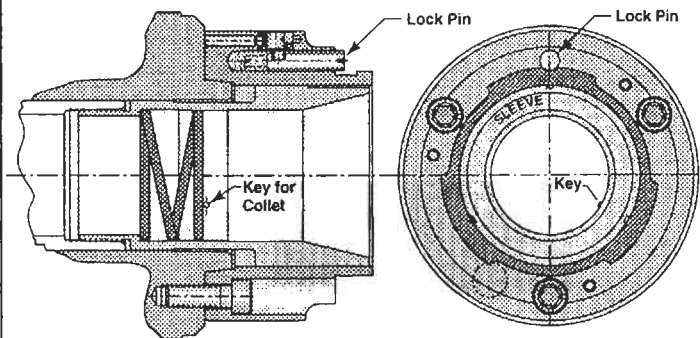


5. Using the drive button counterbore opposite the lock pin, install the mount over the sleeve. Align the key screw in the mount with the keyway in the sleeve that is at the 1 o'clock position. (See illustration below.)
6. Push the mount back to the spindle face. You may have to rotate the mount slightly to align the drive button with the mating counterbore.



7. Bolt the mount on with the three M12-1.75 socket head cap screws. Tighten alternately using 90 ft. Lbs (122 Nm) of torque.

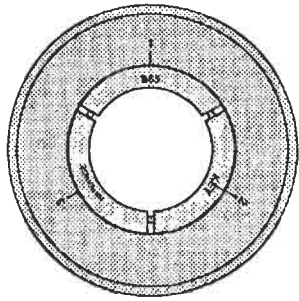
Caution: Do not actuate the collet to the closed position without first installing the cap to the front of the mount.



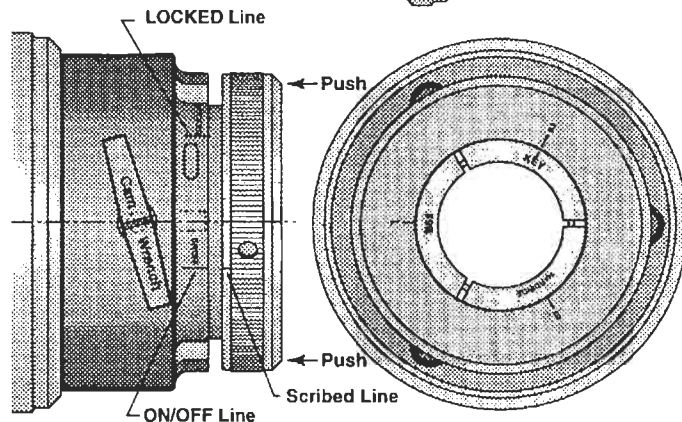
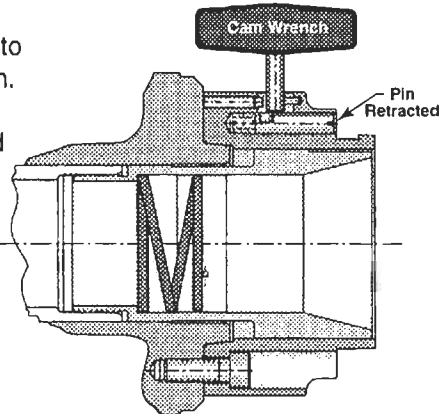
Collet and Cap Alignment

1. Free the spindle lock.
2. First, rotate the spindle until the Lock Pin in the mount is at the 12 o'clock position (150° counterclockwise) as shown in the illustration above.
3. Lock the spindle.
4. Note the position of the collet key in the sleeve. It will either be at the 12 o'clock, 4 o'clock or 8 o'clock position. The illustration above is shown at the 4 o'clock position.
5. Collet and Cap are installed into the mount as a unit.
 - Press the cap onto the nose of the collet by hand.

6. One of the numbers on the cap must be lined up with the word "Key" on the face of the solid collet. On Master Collets, align with the center of the clamp screw that is in line with the collet keyway.
- If the collet key in the sleeve is at 12 o'clock, the collet and cap should be aligned with number 1, if at 4 o'clock align with number 2 (as shown), if at 8 o'clock align with number 3.

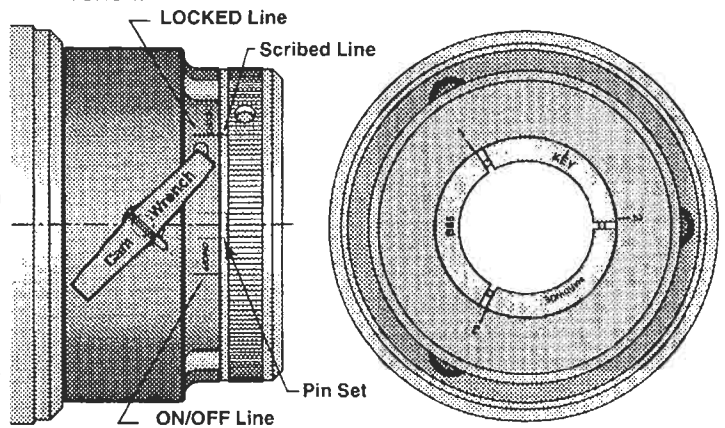


7. Turn cam wrench counterclockwise to retract the lock pin. The spindle may have to be rotated for easy access. Once the pin is retracted, the wrench cannot be removed.



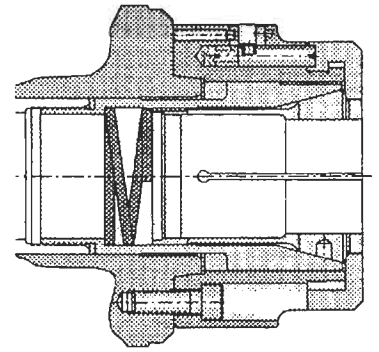
8. Line up the scribed line on the cap/collet assembly with the ON/OFF scribed line on the mount.
9. Push the cap/collet assembly onto the mount. The collet keyway and the key in the sleeve are lined up for easy assembly.
- Once the key is mated with the keyway, continue pushing the assembly until the face of the cap and mount are flush.
 - If you have trouble pushing the assembly together, check the alignment of the line on the cap with the ON/OFF line on the mount.
 - Turn the cap until the line on the cap is opposite the LOCK line on the mount. You may have to use an adjustable Pin wrench (Armstrong Number: 34-366) to turn the cap.

10. Turn cam wrench clockwise to set lock pin. Remove wrench.



Warning: If the wrench is not removed and the spindle is rotated, there may be damage to the machine and/or severe personal injury.

11. Put a bar or workpiece in the collet and close it.
- Adjust the collet closer with enough force to properly hold the workpiece.



Alternate Method

If a collet has a lot of spread, it may take considerable force to put the nose of the collet through the hole in the cap. It is easier to accomplish this on a workbench using the first method than at the spindle of the machine.

The alternate method mounts the cap with the collet already in the spindle.

Follow steps 1 through 10, then:

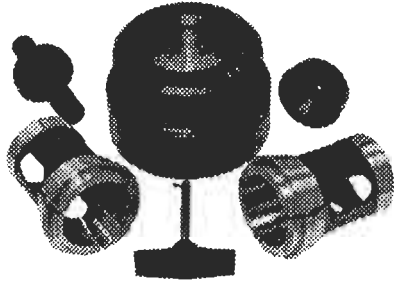
- Align the collet keyway with the key in the sleeve and mount the collet, pushing it back until it rests against the spring.
- Retract lock pin. Turn cam wrench counterclockwise.
 - Once the lock pin is retracted, the wrench cannot be removed.
- Align the scribed line on the cap with the ON/OFF line on the mount, see third illustration in the first column.
- Push the cap onto the collet.
 - If the tension on the collet is too great, the spring behind the collet will be pushed back but the nose of the collet will not compress enough to go into the hole in the cap.
 - If the cap cannot be mounted on the collet, the original method will have to be used.

- Once the cap is on the collet and the lines on the cap and mount are aligned, continue pushing until the cap is flush with the face of the mount.
- If the cap does not go on the mount, recheck the alignment of the scribed lines on the cap and mount.
- Turn the cap, aligning the scribed line on the cap with the LOCK line on the mount, see the last illustration in the first column, page 3.
- Turn cam wrench clockwise to set lock pin. Remove it.

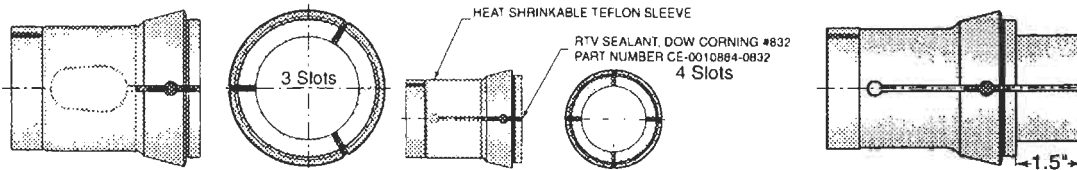
Warning: If the wrench is not removed and the spindle is rotated, there may be damage to the machine and/or severe personal injury.

- Put a bar workpiece in the collet and close it.
 - Adjust the collet closer with enough force to properly hold the workpiece.

Note: Periodic cleaning of the B65 Collet Chuck assembly is necessary to maintain optimum performance.



The B65 collet chuck, used on the Twin Turn machine, is a Dead-Length system designed to provide very precise length control of the workpiece. This dead-length feature makes it possible to accurately transfer parts from one spindle to the other within .0005" (.0127 mm). The system uses either B65 Solid or B65 Style S22 Master Collets and pads.



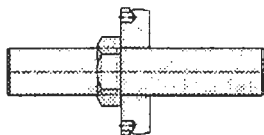
The B65 collet is used as a stationary collet in the B65 Chuck. The range for the B65 solid collets is from 1/16" to 2.559" (1.58mm to 65mm); hex collet range 1/16" to 2.216" (1.58mm to 56.2mm); and square collet range 1/16" to 1.809" (1.58mm to 45.9mm). The range for the B65 Style S22 Master Collets is 1/8" to 2 1/4" (3.17mm to 57.15mm); hex collet range 1/4" to 1 5/16" (6.35mm to 49.21mm); and square collet range 1/4" to 1 3/4" (6.34mm to 40.08mm).

Style	Rd. Smooth Part #	Rd. Serrated Part #	Hex Part #	Square Part #
B65 Solid Collet	3743-00-19-	3743-00-59-	3743-00-29-	3743-00-39-
B65 S22 Master Collet	5311-00-00-000000			
S22 Pads	5611-00-19-	5611-00-59-	5611-00-29-	5611-00-39-

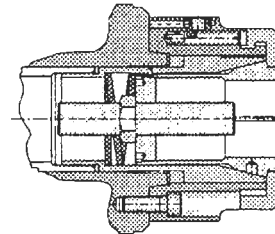
B65 Emergency Collets	
Standard Emergency	3743-14-10-000000
Extended Nose	3743-14-13-005000

B65 Threaded Stop Assembly

The Stop Assembly is threaded into the back of the collet and can be machined to locate the part for accurate length control.



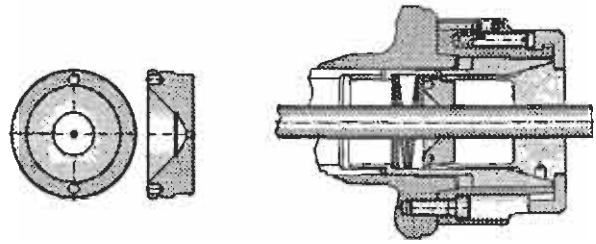
Item	Part Number
Assembly	3759-00-00-000000
Body	3759-00-00-000001
Nut	1185-00-00-000000
Stop Rod	1363-00-00-000000



Note: The stop can be installed in all solid and master collets internally threaded with bores up to: Round – 2.530" (64.2mm); Hex – 2.191" (55.6mm); Square – 1.789" (45.4mm)

B65 Guide Bushing

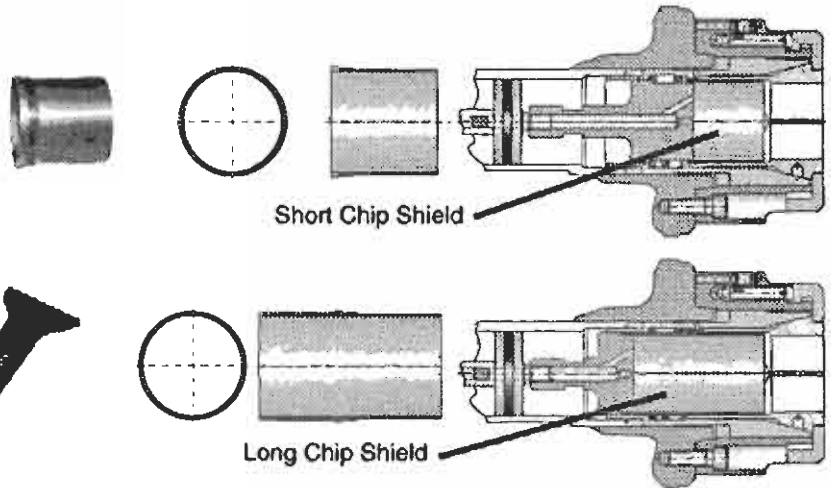
The Guide Bushing is used to guide and support the bar stock into the bore of the collet when changing bars. The hole in the bushing should be $\frac{1}{32}$ " (.79mm) larger than the bar stock.



B65 Guide Bushing – Part Number: 3761-00-00-000000

B65 Chip Shield Kits

The shield reduces the possibility of chips going through the slots of the collet when through drilling or boring second operation work. The threaded stop or guide bushing cannot be used with the shield.



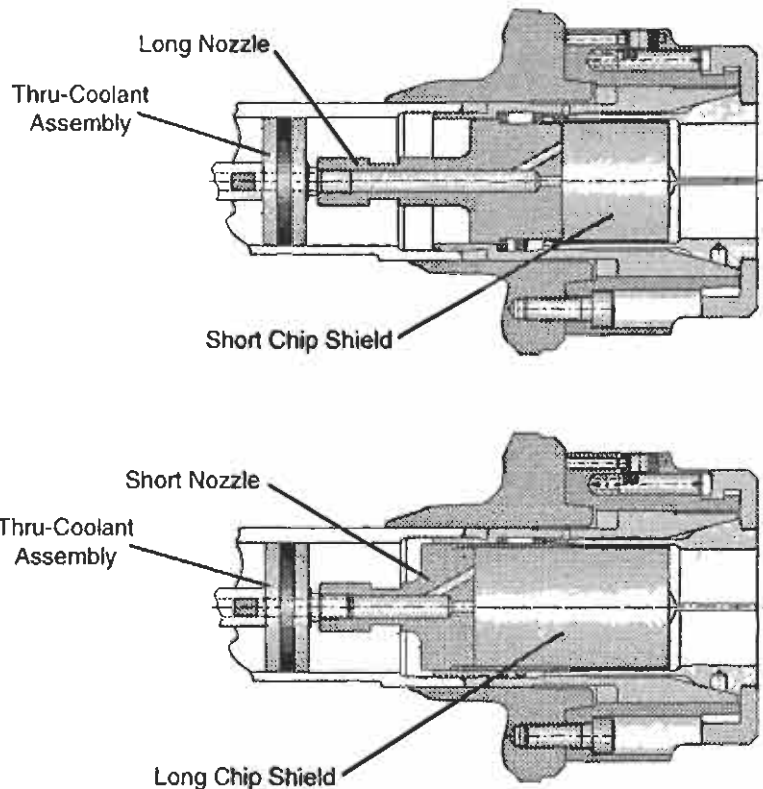
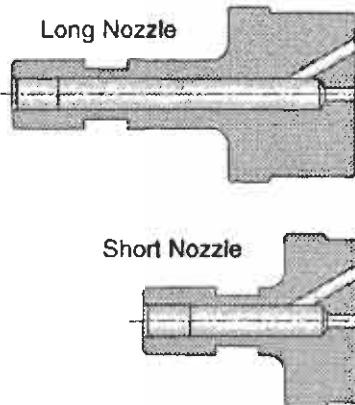
Item	Part Number
Short Shield Kit	3757-00-00-000010
Shield	3757-00-00-000011
Wrench	3757-00-00-000012
Long Shield Kit	3757-00-00-000013
Shield	3757-00-00-000014
Wrench	3757-00-00-000012

Note: The chip shield can be installed in all solid and master collets below 2.43" (61.7mm) round.

B65 Coolant Nozzle

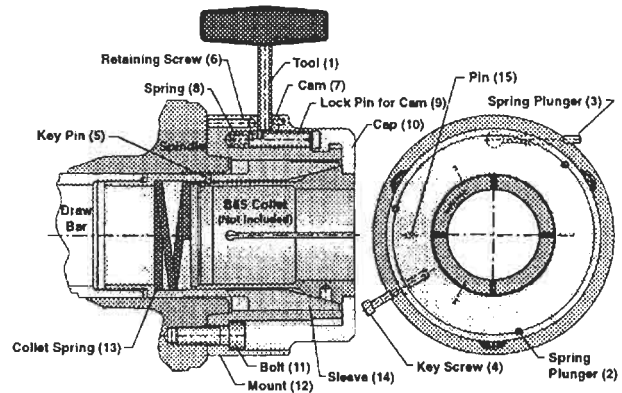
The Coolant Nozzle is threaded onto the end of the thru-spindle coolant assembly before the unit is inserted into the draw tube. The short nozzle is for the long chip shield and the long nozzle is for the short chip shield.

Item	Part Number
Short Coolant Nozzle	3757-00-00-000016
Long Coolant Nozzle	3757-00-00-000015



B65 Parts List

Item	Part Number	Qty	Description
1	37570000000009	1	Tool
2	CE 0375711	3	Spring Plunger Reid # ST-4N
3	CE 0375712	1	Spring Plunger Reid # K2-N
4	37570000000008	1	Key Screw
5	37570000000007	1	Key Pin
6	37570000000006	1	Retaining Screw
7	37570000000005	1	Cam
8	CE 0360047100M	1	Spring-Spec. # C-0360-047-1000-M
9	37570000000004	1	Lock Pin for Cam
10	37570000000002	1	Cap
11	MS 0104220	3	M12 x 30 Socket Head Cap Screw
12	37570000000001	1	B65 Mount
13	CE 0375710	1	Collet Spring
14	37570000000003	1	Collet Sleeve
15	0004628	1	1/8" Dia. x 5/16" Dowel Pin



B65 Collets for Your Special Requirements

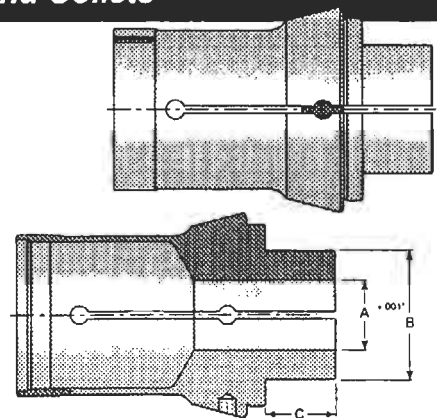
for Hardinge® QUEST® / CONQUEST® TwinTurn® 65 CNC Turning Centers

Special Extended-Nose Hardened & Ground Collets

Hardinge designed these Special Hardened & Ground Collets for the times that require extended-nose collets due to tooling interference. The hardened & ground collets are most economical for long run jobs. They also eliminate the time required to bore out an emergency extended nose collet.

"A"	"B"	"C"	
Smooth or Serrated Bore	Nose Diameter	Extension	Part Number
1/8" to 2 ³³ / ₆₄ " (3.17 to 63.89)	Special Requirements		93743-67-18-

Millimeters in parentheses

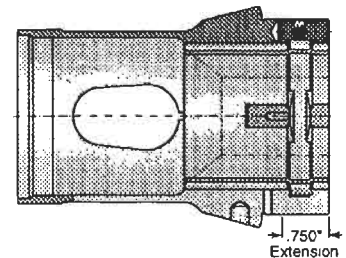


Style "S22" Extended-Nose Master Collet

The Style "S22" Extended-Nose Master Collet reduces the cost of doing bar work. Only the pads need to be changed from one bar size to another, much quicker than changing standard collets. The pads take up less storage space and are less expensive than standard collets.

Description	Nose Diameter	Part Number
B65 S22 Master Collet	3.188" (80.97)	5311-54-00-000000

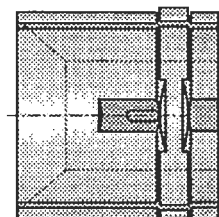
Millimeters in parentheses



Special "S22" Extended-Nose Emergency Pads

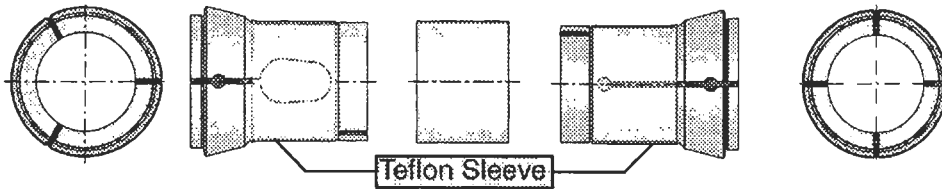
The Special Style "S" Extended-Nose Emergency Collet Pads are specifically designed for the Extended-Nose "S22" Master Collet. The back of the pad extends the full length of the master collet bore. The design ensures that the closing forces are directly over the collet pads.

Description	Part Number
S22 X-Nose Emergency Pad	95611-67-00-0769Q



B65 Heat Shrinkable Teflon Sleeve

The heat shrinkable Teflon sleeve is standard on all B65 collets with the straight slots which have a relief hole at the end. Older collets with the tear-drop slot may not have the sleeve. Its purpose is to help eliminate chips from getting into the collet chuck assembly. The Teflon sleeve can easily be replaced if it becomes damaged. It can also be added to older B65 collets. The slots are sealed up to the sleeve with RTV sealant (Dow Corning #832).



Heat Shrinkable Teflon Sleeve – Part Number: 3757-00-00-000A19

RTV Sealant – Part Number: CE-10884-0832

B42 Collet Chuck

(42mm – 1.654" capacity)

B42 Sleeve Setup

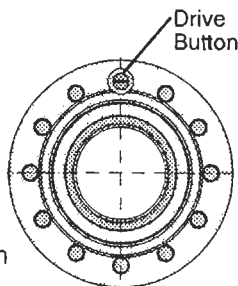
Setting Hydraulic Valve for Collet Closer

Set the hydraulic collet closer valve to move the draw tube back when the collet closer is activated to the open position.

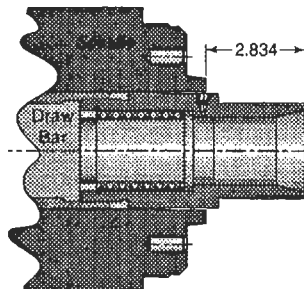
- The valves are located in the hydraulic manifold assembly at the end of the lathe (Operator's Manual M-322 figure 5.1).
- There are two valves, one for each collet closer (figure 5.2, valve B for the main spindle and valve C for the secondary spindle collet closer).
- Turn valve clockwise to set the "Collet Close" to push the draw tube forward for stationary collets (B65, B42 & #22).

Installing the Sleeve

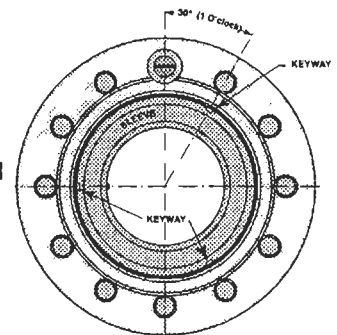
1. Rotate the free spindle until the Drive Button is as shown.
 - Lock the spindle
2. Make certain that the closer is in the rear position (push "Collet Open" button to move the draw tube to its full rear position).



3. Thread the sleeve into the draw tube until you have approximately 2.834" (71.9mm) between the face of the collet and the shoulder of the sleeve.



4. Rotate the sleeve 30° until the closest of the 3 keyways is at the position shown. This will change the 2.834" dimension a small amount, which is okay.



5. Using the drive button counterbore opposite the lock pin, install the mount over the sleeve. Align the key screw in the mount with the keyway in the sleeve.
6. Push the mount back to the spindle face. You may have to rotate the mount slightly to align the drive button with the mating counterbore.
7. Bolt the mount on with the three M12-1.75 socket head cap screws. Tighten alternately using 90 ft. Lbs (122 Nm) of torque.

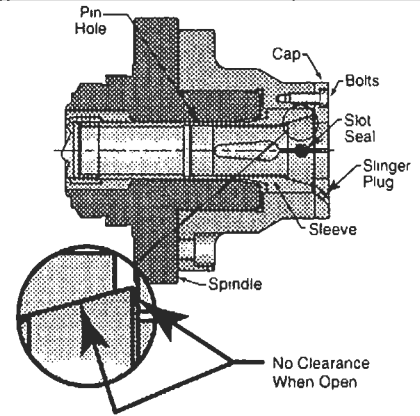
Caution: Do not actuate the collet to the closed position without first installing the cap to the front of the mount.

Item	Part Number
Sleeve	3719-00-00-000004

B42 Plastic Plugs

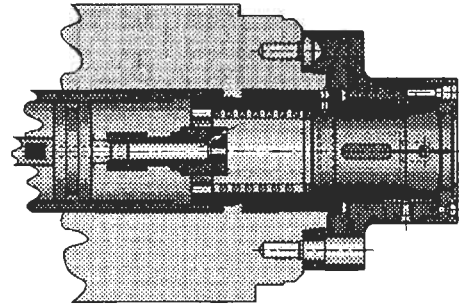
There are four "slinger" holes located in the cap of the B42 collet adapter. These holes can act as an escape route for chips and coolant to exit the contact area around the collet, sleeve and cap, providing the chips are small enough to fit through the holes. This is usually most important during operations such as thru-hole drilling where chips are forced inside the collet chuck. Some form of thru-spindle coolant or air blast is usually necessary to force the chips back out the front of the assembly.

When machining parts that have no thru-holes, the slinger holes can be plugged with the enclosed nylon plugs to prevent chips and coolant from entering the assembly.



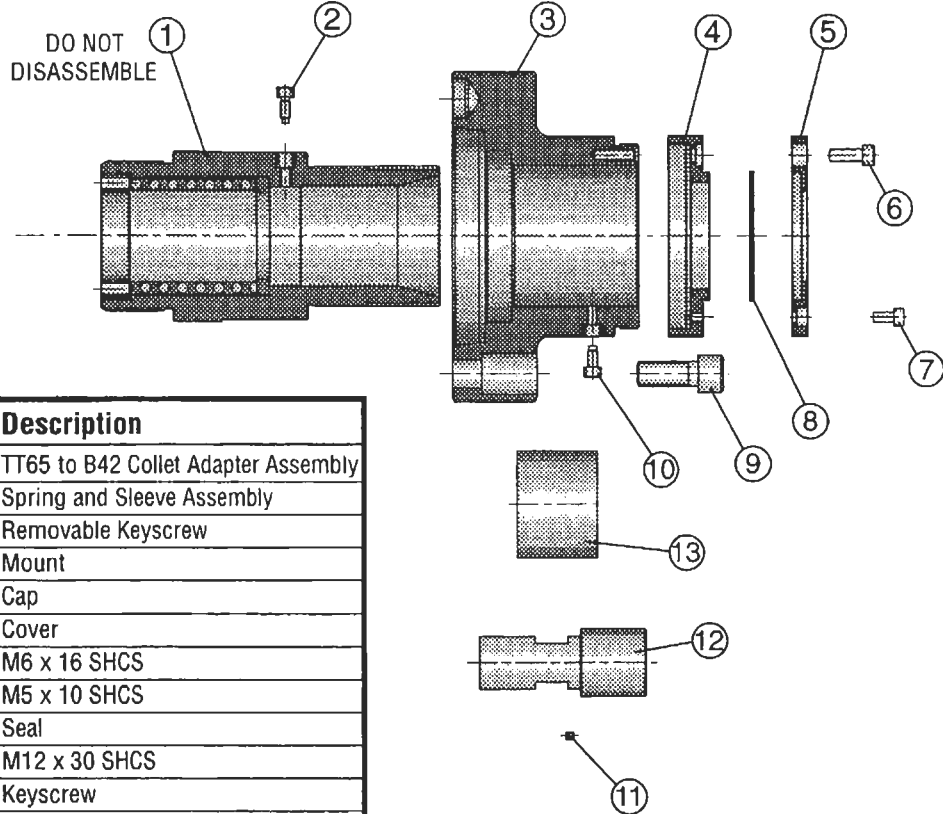
B42 Coolant Nozzle

The Coolant Nozzles are threaded onto the end of the through-spindle coolant assembly before the unit is inserted into the draw tube. A coolant nozzle is included in each assembly.



Item	Part Number
Coolant Nozzle	3111-00-00-000011

B42 Parts List



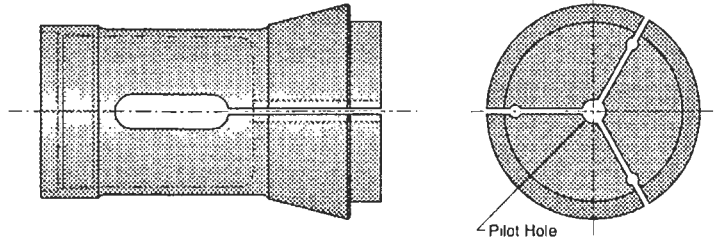
Item	Part Number	Qty	Description
0	3719-00-00-000001	1	TT65 to B42 Collet Adapter Assembly
1	3719-00-00-000015	1	Spring and Sleeve Assembly
2	3111-00-00-000007	1	Removable Keyscrew
3	3719-00-00-000002	1	Mount
4	3719-00-00-000003	1	Cap
5	3719-00-00-000005	1	Cover
6	MS0103617	4	M6 x 16 SHCS
7	MS0103515	4	M5 x 10 SHCS
8	3719-00-00-000006	6	Seal
9	MS0104019	4	M12 x 30 SHCS
10	3111-00-00-000008	1	Keyscrew
11	3075-00-00-000004	6	Plug
12	3111-00-00-000011	1	Coolant Nozzle
13	3719-00-00-000012	3	Teflon Sleeve

B42 Collets for Your Special Requirements

for Hardinge® QUEST® / CONQUEST® TwinTurn® 65 CNC Turning Centers

Special B42 Emergency Collets

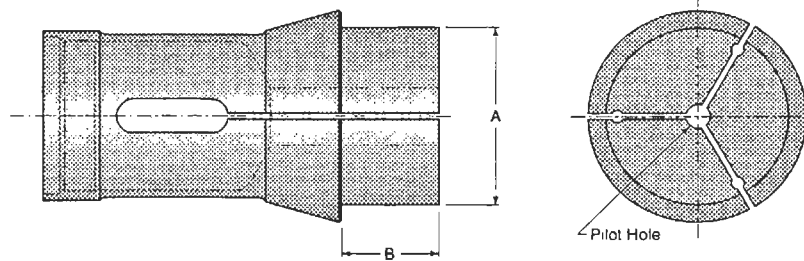
Even with the best planning, emergencies arise when your tool room and production departments require a stepped, odd size or special shaped collet. On such occasions, use the Hardinge emergency collet. The soft face and pilot hole permit rapid drilling, boring or stepping out to the exact required size. Emergency collets have internal threads for positive stops.



Description	Part Number	Pilot Hole
B42 Emergency Collet	3719-14-10-000000	.250" (6.35mm)

Special B42 Extended-Nose Emergency Collets

Extended-Nose Emergency Collets are used for the same applications as regular Emergency Collets. The extended-nose permits deeper counterbores, when required, and tool clearance for extended work. Extended-nose emergency collets have internal threads for positive stops.



Description	Part Number	Pilot Hole	A Nose Diameter	B Nose Length
B42 Extended Nose Emergency Collet	3719-14-11-000007	.250" (6.35mm)	1.970" (50mm) (Standard)	1.250" (31.75mm) (.875" over Standard)

#22 B&S Collet Chuck

(31.75mm – 1.250" capacity)

#22 B&S Sleeve Setup

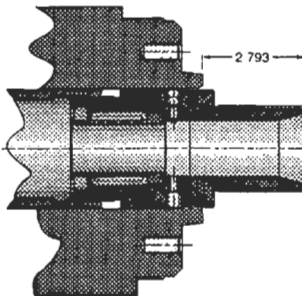
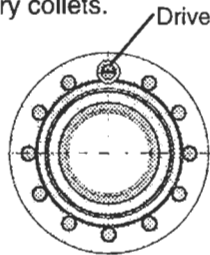
Setting Hydraulic Valve for Collet Closer

Set the hydraulic collet closer valve to move the draw tube back when the collet closer is activated to the open position.

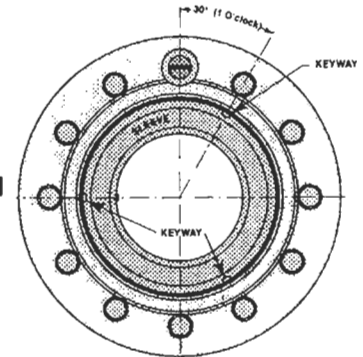
- The valves are located in the hydraulic manifold assembly at the end of the lathe (Operator's Manual M-322 figure 5.1).
- There are two valves, one for each collet closer (figure 5.2, valve B for the main spindle and valve C for the secondary spindle collet closer).
- Turn valve clockwise to set the "Collet Close" to push the draw tube forward for stationary collets.

Installing the Sleeve

1. Rotate the free spindle until the Drive Button is as shown.
 - Lock the spindle
2. Make certain that the closer is in the rear position (push "Collet Open" button to move the draw tube to its full rear position).
3. Thread the sleeve into the draw tube until you have approximately 2.793" (70.9mm) between the face of the collet and the shoulder of the sleeve.



4. Rotate the sleeve 30° until the closest of the 3 keyways is at the position shown. This will change the 2.793" dimension a small amount, which is okay.



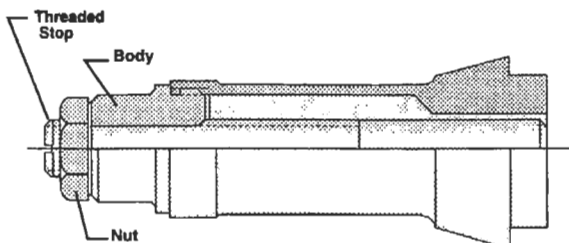
5. Using the drive button counterbore opposite the lock pin, install the mount over the sleeve. Align the key screw in the mount with the keyway in the sleeve.
6. Push the mount back to the spindle face. You may have to rotate the mount slightly to align the drive button with the mating counterbore.
7. Bolt the mount on with the three M12-1.75 socket head cap screws. Tighten alternately using 90 ft. Lbs (122 Nm) of torque.

Caution: Do not actuate the collet to the closed position without first installing the cap to the front of the mount.

B&S Stop Assemblies for #22SC Collet

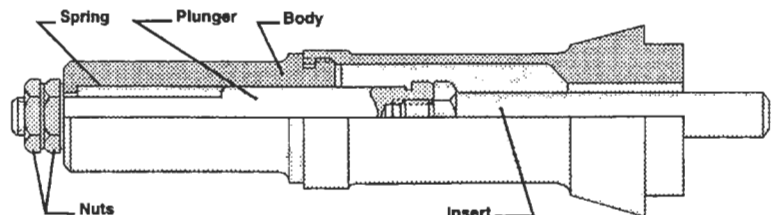
The solid stop assembly is threaded into the back of the #22 B&S collet and the stop rod can be machined to length to locate the part.

Item-Solid	Part Number
Assembly	3269-00-00-000000
Body	3271-00-00-000000
Nut	5-0001466-B
Stop Rod	1071-00-00-000000



The threaded ejector stop assembly is threaded into the back of the collet. The insert can be machined to locate the part.

Item-Ejector	Part Number
Assembly	3273-00-00-000000
Body	3275-00-00-000000
Plunger	3277-00-00-000000
Insert	3279-00-00-000000
Nut (2 ea.)	5-0001466-B
Spring	3281-00-00-000000



#22 B&S Dead-Length® Collet Chuck System

When your work is 1¼" diameter or smaller, the #22 B&S Dead-Length Collet Chuck System used on both of the QUEST® / CONQUEST® TwinTurn® 65 CNC Turning Center spindles will provide minimal tool interference while achieving shorter cycle times.

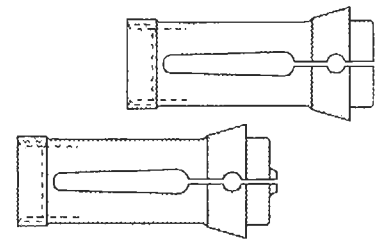
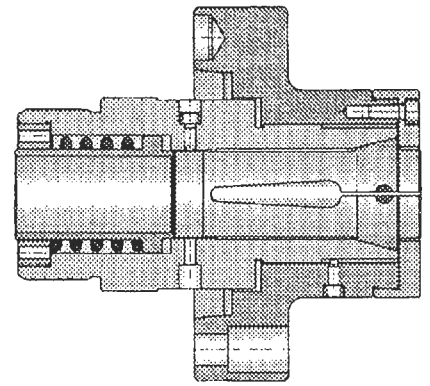
The nose diameter is just 3.5" x 2.3" (88.9 x 58.4mm) long with an overall chuck length of 3.783" (96mm) from the spindle locating surface.

This is a stationary collet design which provides precise length control of the workpiece. The dead-length feature makes it possible to accurately transfer parts from one spindle to the other within .0005" (.0127mm). The system uses either #22 or #22SC B&S collets.

Part Number – 3111-00-00-000001

#22 B&S Collets

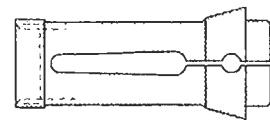
The #22 B&S collet, used in the #22 chuck, offers a round collet range from ¼" to 1¼" (1.58mm to 31.75mm); hex collet range: ¼" to 1½" (1.58mm to 27.38mm); and square collet range: ¼" to ⅞" (1.58mm to 22.22mm).



Style Collet	Round Smooth Part No.	Round Serrated Part No.	Hex Part No.	Square Part No.	Maximum Collet Capacity		
					Round	Hex	Square
#22 B&S Standard	3111-00-19-	3111-00-59-	3111-00-29-	3111-00-39-	1¼" (31.75)	1½" (27.38)	⅞" (22.22)
#22SC B&S Stop	3227-00-19-	3227-00-59-	3227-00-29-	3227-00-39-	1¼" (31.75)	1½" (27.38)	⅞" (22.22)

Emergency	Pilot Hole	Part Number
#22SC-E	¼"	3233-14-10-000000
#22SC-E1	⅛"	3233-12-10-000000
#22SC-E2	⅜"	3233-13-10-000000
#22 Collet Blank	0	3111-10-00-000000

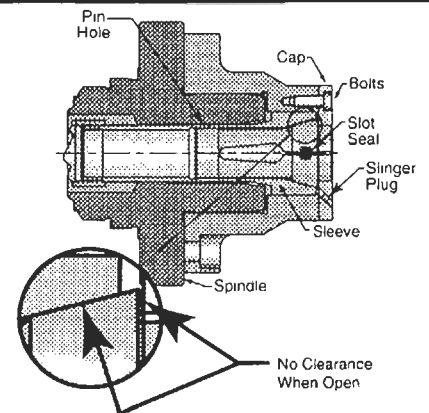
Millimeters in Parenthesis



#22 B&S Plastic Plugs

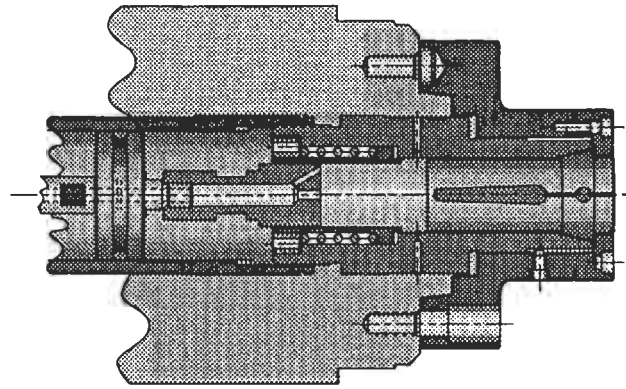
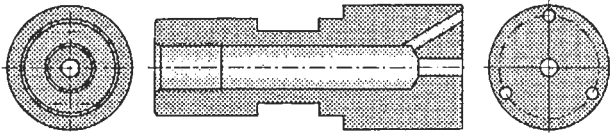
There are four "slinger" holes located in the cap of the #22 B&S collet adapter. These holes can act as an escape route for chips and coolant to exit the contact area around the collet, sleeve and cap, providing the chips are small enough to fit through the holes. This is usually most important during operations such as thru-hole drilling where chips are forced inside the collet chuck. Some form of thru-spindle coolant or air blast is usually necessary to force the chips back out the front of the assembly.

When machining parts that have no thru-holes, the slinger holes can be plugged with the enclosed nylon plugs to prevent chips and coolant from entering the assembly.



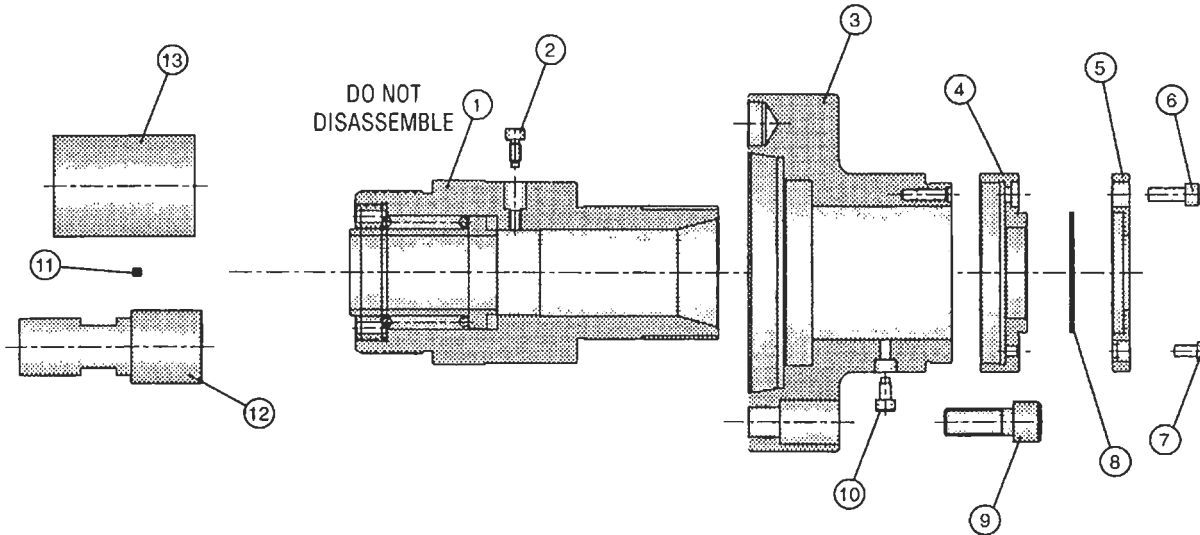
#22 B&S Coolant Nozzle

The Coolant Nozzles are threaded onto the end of the through-spindle coolant assembly before the unit is inserted into the draw tube. A coolant nozzle is included in the assembly.



Item	Part Number
Coolant Nozzle	3111-00-00-000011

#22 B&S Parts List



Item	Part Number	Qty	Description
0	3111-00-00-000001	1	TT65 to #22 B&S Collet Assembly
1	3111-00-00-000015	1	Spring and Sleeve Assembly
2	3111-00-00-000007	1	Removable Keyscrew
3	3111-00-00-000002	1	Mount
4	3111-00-00-000003	1	Cap
5	3111-00-00-000005	1	Cover
6	MS0103617	4	M6 x 16 SHCS
7	MS0103515	4	M5 x 10 SHCS
8	3111-00-00-000006	6	Seal
9	MS0104019	4	M12 x 30 SHCS
10	3111-00-00-000008	1	Keyscrew
11	3075-00-00-000004	6	Plug
12	3111-00-00-000011	1	Coolant Nozzle
13	3111-00-00-000012	3	Teflon Sleeve

Note: Keyed collets are not standard.

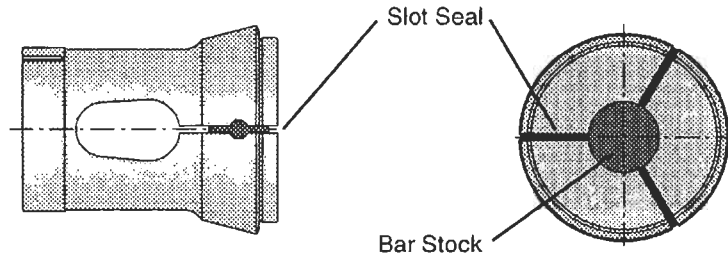
Helpful Hints to Control Chips Bar Work

When using a stationary collet, very fine chips (the size that can work their way through the slots of the collet or longitudinal slots of the serrations) have a tendency to cause the closing mechanism to malfunction.

Here are some helpful hints to minimize chips from entering the closing mechanism of your machine. Please remember that controlling chips is strongly application dependent. The solutions may work when machining one workpiece but not when machining another workpiece with a different configuration.

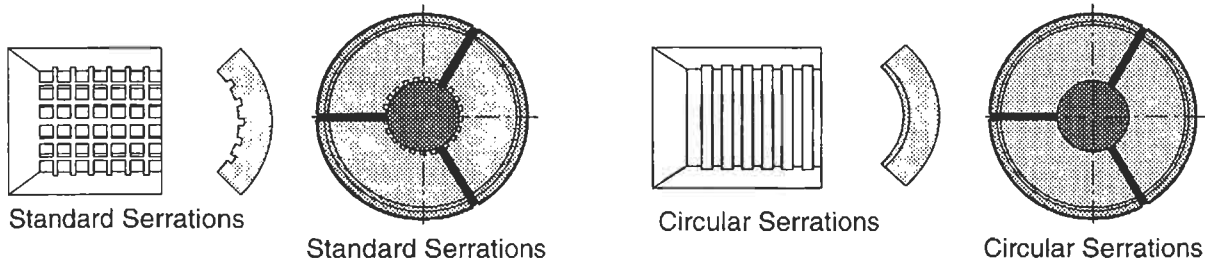
For 1st operation bar work and 1st or 2nd operation work that does not have a thru hole

- Cut the molded rubber slot seals to the proper length. They should extend completely down to the bar to prevent chips from entering the collet slots and into the closing mechanism.



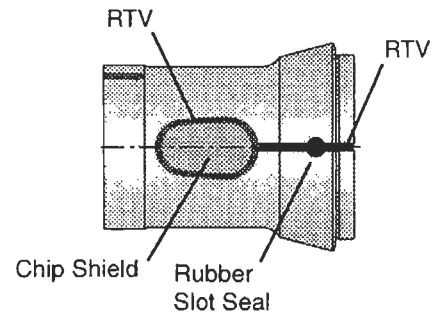
For operations on material that result in very small chips, it is possible for these chips to migrate through the lengthwise serrations of a standard serrated collet back into the closing mechanism.

- For these applications, Hardinge can supply collets with circular serrations only (lengthwise serrations omitted).



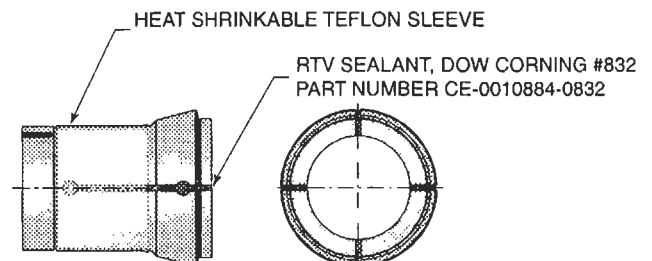
In situations involving small chips (generally brass or cast iron)

It may be necessary to completely seal around the outside profile of the collet slots using an RTV sealant. With the chip shield (see page 3) and the rubber slot seal in place, apply sealant completely around the collet slot windows to the chip shield, into the slot between the chip shield and slot seal, and in front of the slot seal.



Added insurance against chips

A heat-shrinkable Teflon sleeve may be used as an alternative to metal chip shields. RTV sealant (Dow Corning #832, Hardinge P/N CE-0010884-0832) should be used to seal the slots forward of the Teflon sleeve. Collets should be clean and dry before application of sealant, and the sealant should be allowed to cure at least 24 hours.

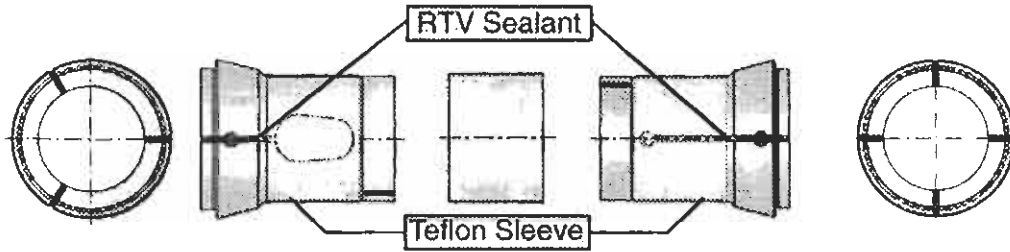


Helpful Hints to Control Chips

1st or 2nd Operation work when the part has a thru-hole

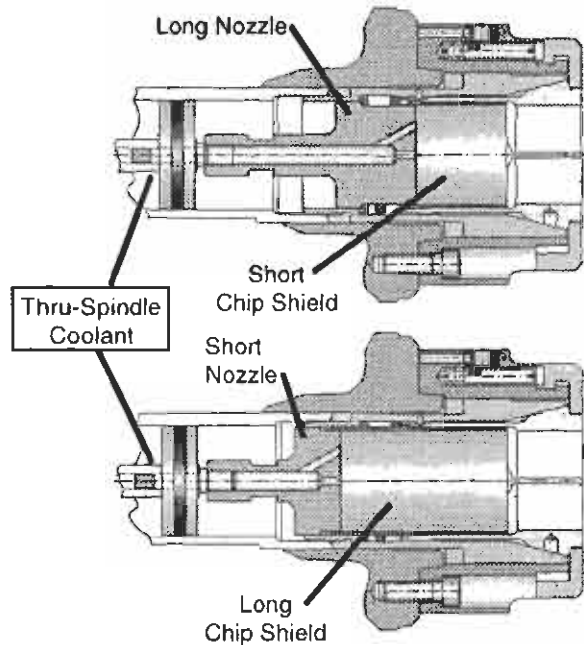
Heat Shrinkable Teflon Sleeve

The heat shrinkable Teflon sleeve is now standard on all B65 collets with the straight slots which have a relief hole at the end. Older collets with the tear-drop slot may not have the sleeve. Its purpose is to help eliminate chips from getting into the collet chuck assembly. The Teflon sleeve can easily be replaced if it becomes damaged. It can also be added to older collets.



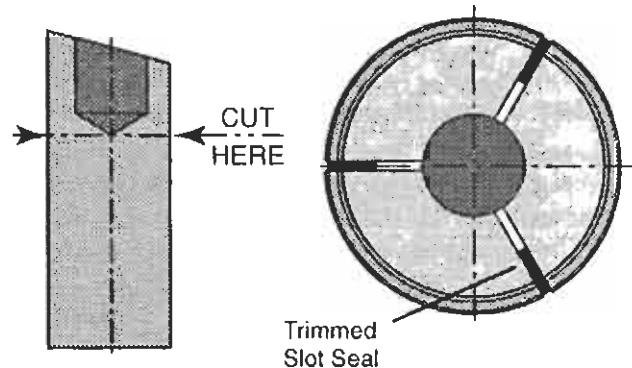
Helpful Hints for 1st and 2nd operation work when the part has a thru-hole that will allow chips to enter the collet closing area:

- **The first key to thru-hole chip control** is to use thru-spindle coolant to flush the chips back out the front of the collet. This positive outward force of coolant helps eliminate chips from entering the slots.
- **When drilling or boring through the part**, chips can get inside the collet, and then to the collet OD and the closing mechanism. Thru-spindle coolant should be used in combination with the chip shields and nozzles to prevent the chips from going from the collet ID to the collet OD. This combination will direct the coolant and force the chips out the front of the collet. Two different chip shields are supplied with the thru-spindle coolant option on the B65 collet chuck, a short chip shield, and for longer parts (deeper into the collet), a long chip shield.
- Nozzles are threaded onto the end of the thru-spindle coolant pipe. These nozzles extend the thru spindle coolant up inside the chip shield. Two different nozzles are supplied with the thru spindle coolant option: the long nozzle (used with the short chip shield), and the short nozzle (used with the long chip shield).



- **With thru-hole applications where the workpiece has cross holes** that allow chips to escape into the area outside the part, but inside the collet, it may be helpful to completely open up the slots rather than close them. This allows the chips to come back out (forward) through the slots. To open the slots, cut the molded rubber slot seal as short as possible.

Note: The slot seal cannot be left out; it is necessary for sealing around the collet and cap.

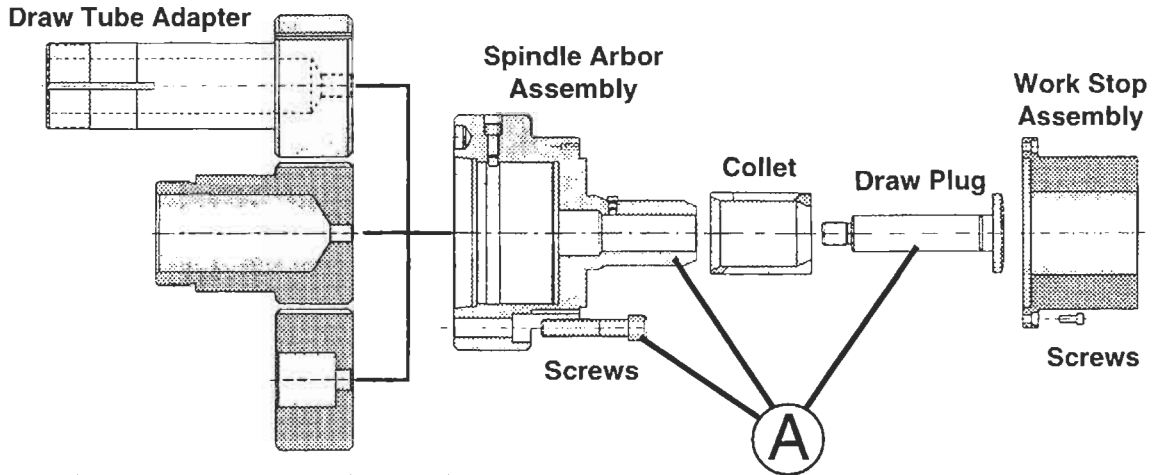


Special configurations for chip control:

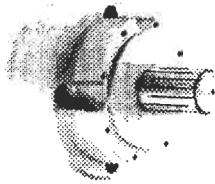
Hardinge can also manufacture collets and related items in any custom configuration that would help alleviate chip problems. Please contact Hardinge for application assistance and quotation.

A2-6 Spindle Mount Sure-Grip® Expanding Collet Systems
for the QUEST® / CONQUEST® TwinTurn® 65 Machine

#300 to #600 Sure-Grip Expanding Collet Systems



Note: Expanding collet not included in collet arbor assembly



Collet Model	Working Range	Collet Part No.	Draw Tube Adapter	"A" - Spindle Arbor Assembly	Work Stop Assembly
A2-6-300	1" to 1.515" (25.40 to 38.48mm)	1837-00-19	7917-00-00-000300	1857-00-00-000300	1855-00-00-000300
A2-6-400	1½" to 2.265" (38.10 to 57.53mm)	1839-00-19	7917-00-00-000400	1857-00-00-000400	1855-00-00-000400
A2-6-500	2¼" to 3.015" (57.15 to 76.58mm)	1841-00-19	7917-00-00-500600	1857-00-00-000500	1855-00-00-000500
A2-6-600	3" to 4.015" (76.20 to 101.98mm)	1843-00-19	7917-00-00-500600	1857-00-00-000600	1855-00-00-000600

Note: Expanding collets not included in collet arbor assemblies
Cap Screws for Work Stop – Part Number: 0100308

Note: Collets are available in 1/64" increments within the above stated ranges. Each collet will hold a workpiece with a bore of -.001" (.025mm) under the size of the collet to +.015" (.381mm) over the size of the collet.