

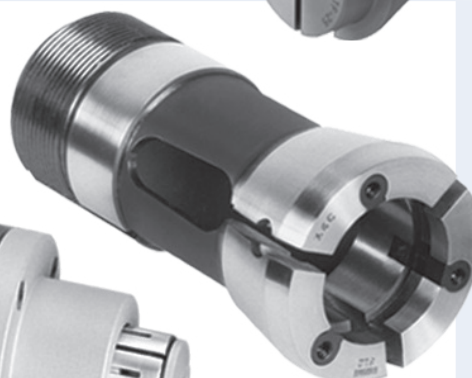
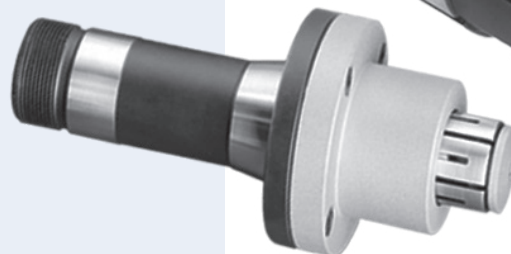
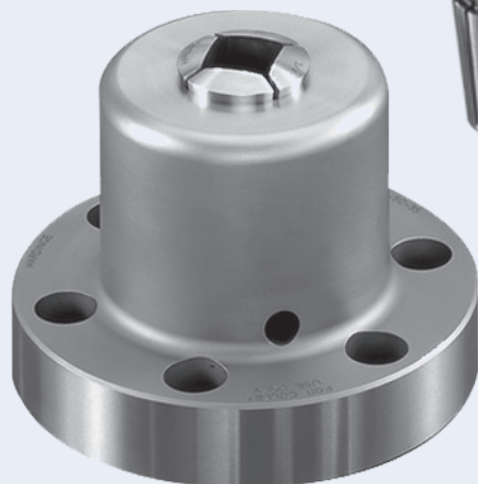
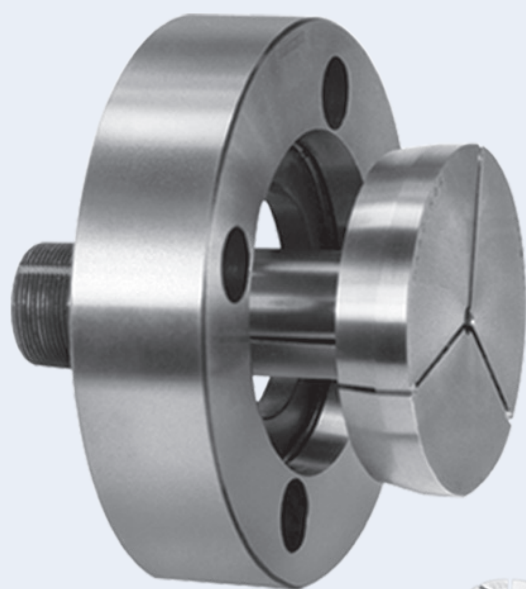
HARDINGE WORKHOLDING

Gripping Options for Collet-Ready Spindle



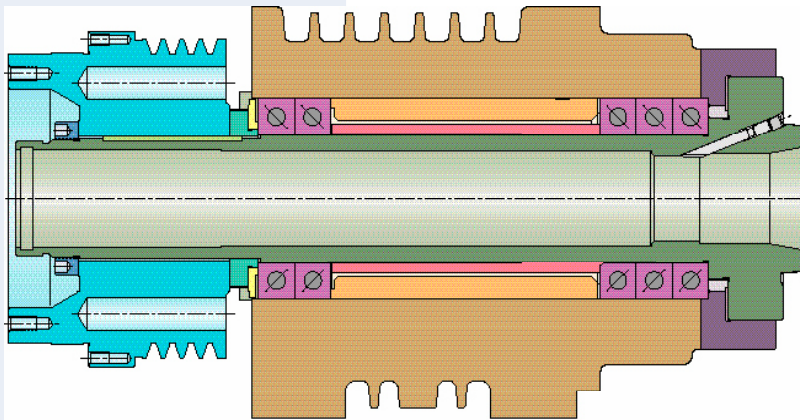
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WWW.HARDINGE.COM





The most Flexible Spindle on the Market!

The Hardinge® Spindle with Collet Seat



Cross-section of the Hardinge-designed spindle with collet seat and ANSI A2 spindle mount

The collet angle, back bearing, spindle face, nose taper and locating shoulder are finish ground to ensure maximum spindle accuracies.

Best possible spindle runout T.I.R. (total indicator reading) with submicron accuracy on every spindle.

Hardinge Inc. has provided workholding solutions for machine tool users for over a century. They are the only machine tool builder that also designs and manufactures a comprehensive range of workholding systems. This strategy has produced the most adaptable, flexible and complementary workholding and CNC turning machine packages available on the market!

The Hardinge spindle tooling systems are specifically designed to match the spindles of the Hardinge collet-ready spindle machines to meet all of your machining requirements. **The unique Hardinge jaw chuck / collet-ready spindle design with A2 spindle mount allows quick changeover capability with the flexibility to change from through-spindle bar work to second operation and chucking work without the time penalties and alignment problems associated with other machine tool builders' systems.**

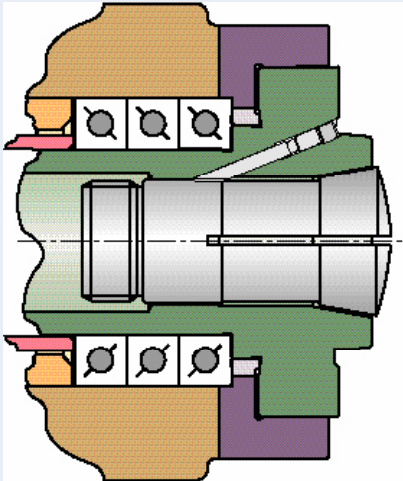
The range and adaptability of Hardinge workholding systems for second operations, blanks and castings are second to none. These are adapted from standard off-the-shelf blank "emergency-style" step chucks for holding round and non-round shapes. Short grip length and minimum distortion are just two of the many benefits realized.

For maximum reduction of setup time, the FlexC® quick-change collet system has a distinct advantage over other collet systems. Changing from collet-to-collet takes just seconds with accuracy within .0004" T.I.R.

For internal part gripping, Hardinge Sure-Grip® expanding collets with machinable Dead-Length® work stops provide equally effective solutions for machining parts with relationship to a pre-machined bore.

One spindle—many gripping options!

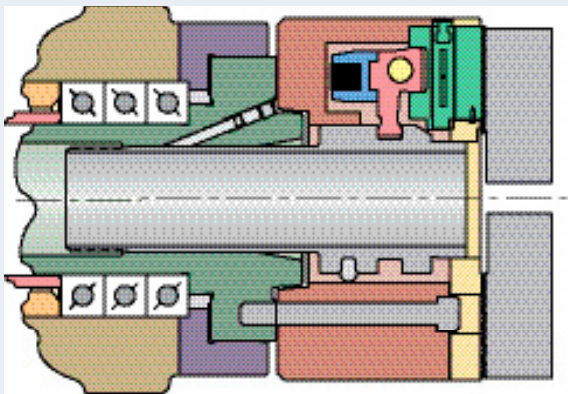
Advantages of the Hardinge® Spindle



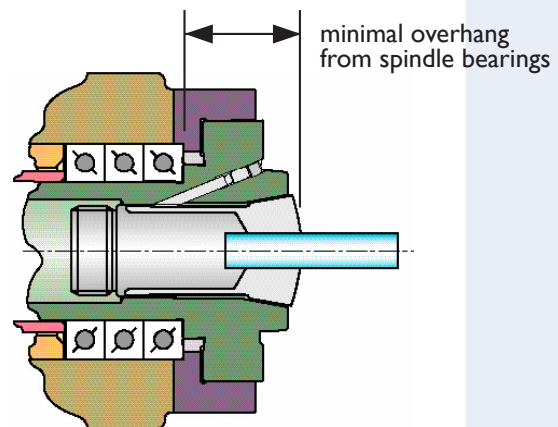
Hardinge Spindle
shown with Collet

The Hardinge spindle design is both collet and jaw chuck-ready and does NOT require a spindle adapter.

- Collet seats directly in the Hardinge spindle
- Minimum overhang from the spindle bearings assures that spindle accuracy is transferred directly to the workpiece
- Maximum rigidity and gripping power is transferred to the part
- Minimum weight on spindle
- Maximum utilization of RPM
- Optimum T.I.R.
- Gripping force directly over the workpiece
- Superior tolerances and finishes
- Capable of using maximum machine stroke capacity
- Quick changeover—collet draw tube is easily and accurately adjusted from the back of the spindle
- Longer tool life
- Ability to use a wide variety of workholding devices: 3-jaw chucks, collets, FlexC™ quick-change collets, step chucks, Sure-Grip® expanding collets, Dead-Length® systems and others

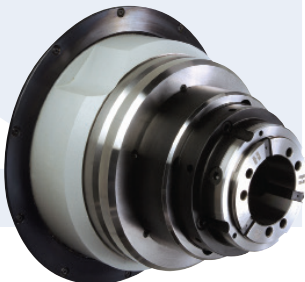
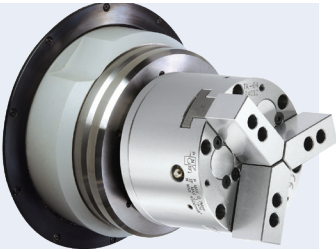


Hardinge Spindle
shown with 3-Jaw Chuck



Wide Range of Spindle Tooling

with quick and efficient changeover



Collets

Solid Collets, Master Collets & Pads, Emergency Collets, Threaded Stops for Collets, Dead-Length® Collets and Special Collets—[pages 7-11](#)

3-Jaw Power Chucks

BUCK 3-Jaw Power Chucks—[page 6](#)

FlexC® Quick-Change Collet Systems

Vulcanized collet heads with spindle mount—[page 7](#)

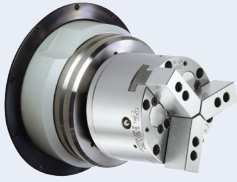
Step Chucks

Step Chucks, Dead-Length® Step Chucks, Dead-Length Spider-Style Step Chucks, Step Chucks for Precision Die Castings or Non-Round Workpieces, and Special Step Chuck Applications—[pages 11-15](#)

Sure-Grip® Expanding Collet Systems—[page 15](#)

Hardinge CNC Lathe Reference Charts

Spindle Tooling compatibility by machine model—[pages 18-23](#)



BPC High-Speed, Thru-Hole 3-Jaw Power Chuck

Wedge Type - Direct OEM Replacement

FEATURES & BENEFITS:

- High-quality alloy steel body allows for higher speeds
- Sharply increased dynamic gripping force greatly improves work efficiency and safety
- Interchangeable top tooling with 1.5 mm x 60° jaw serration pitch
- Compact and lightweight, allowing for improved efficiency
- Direct mounting to fit ASA B5.9 Type A spindle
- Improved lubrication system for high accuracy and endurance
- Heat-treated alloy steel for high durability

CHUCK SHIPS COMPLETE WITH:

- ASA B5.9 Type A spindle adapter
- 1 set of soft top jaws
- Wrench



BBC High-Speed, Large Bore 3-Jaw Power Chuck

Wedge Type - Direct OEM Replacement

FEATURES & BENEFITS:

- High-quality alloy steel body allows for higher speeds
- Sharply increased dynamic gripping force greatly improves work efficiency and safety
- Interchangeable top tooling with 1.5 mm x 60° jaw serration pitch
- Compact and lightweight, allowing for improved efficiency
- Direct mounting to fit ASA B5.9 Type A spindle
- Improved lubrication system for high accuracy and endurance
- Heat-treated alloy steel for high durability

CHUCK SHIPS COMPLETE WITH:

- ASA B5.9 Type A spindle adapter
- 1 set of soft top jaws
- Wrench

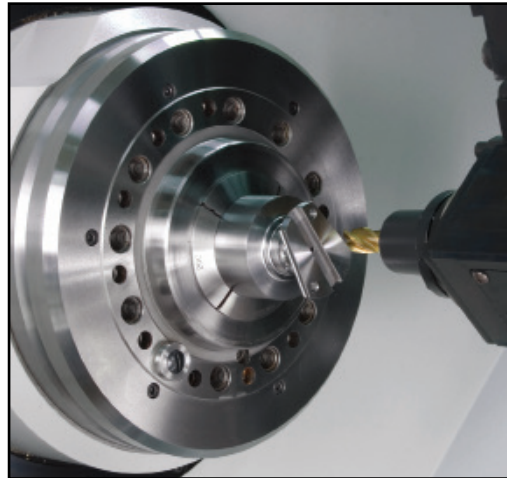


Hardened & Ground Collets

Bar Work and First
and Second Operations

- Hardened and ground bores
- Metric and fractional sizes from stock
- Most accurate location
- Round, hexagon and square
- Special profiles—made to order
- Serrated bores—greater gripping power

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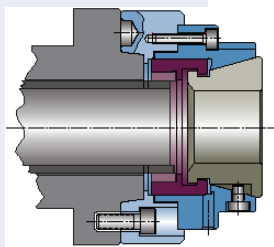


FlexC® Collet Systems

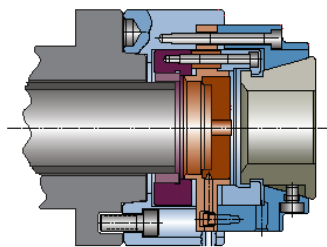
Bar Work and First
and Second Operations

- Vulcanized collet heads interchange in seconds
- True parallel gripping minimizes stock "push back" and requires less draw bar force
- Accuracy within .0004" (.010) T.I.R.
- Round, hex and square – plus emergency style
- Grip range of $\pm .20$ " (.5mm) to allow variation in bar stock

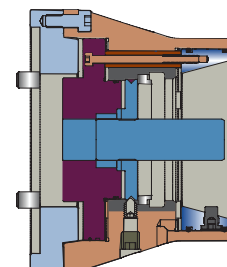
Request brochure #2382



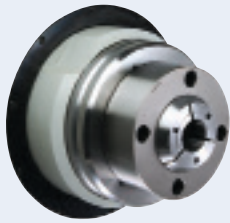
Style D
pull-back with thru-hole



Style A
pull-back with dead-length®
work stop



Style DL
push-to-close with dead-length®
work stop



Master Collets and Pads

Pads change from the face of the collet

- Hardened and ground
- Round, hexagon and square
- Serrated bores—greater gripping power
- Lower cost per bar size
- I6C, 20C and 25C versions
- S12 (I6C) collet seats in spindle – all other sizes require closing ring

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Style "S" Master Collet System



Soft Emergency-Style Collets

Second Operation Systems

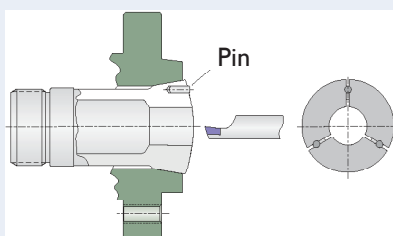
Bore out emergency collet

- Bore to suit application
- Absolute precise concentricity—bored in place matches spindle bearing T.I.R.
- 99% gripping around the part—minimal distortion
- Short gripping length
- Various size pilot holes—various nose lengths available
- Reusable many times—up to the bar capacity of the machine

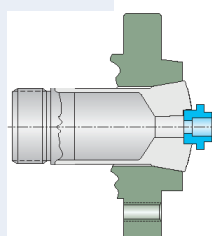
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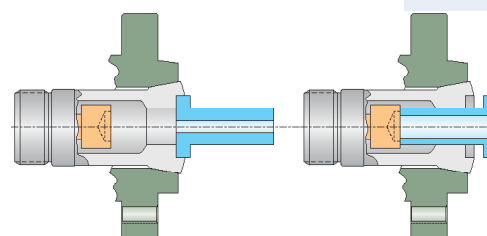
Boring the Collet
3 pins hold collet in nominal clamped position for boring to size



Step Collet
(part shown in blue)



End-for-end part in Step Collet
(part shown in blue)



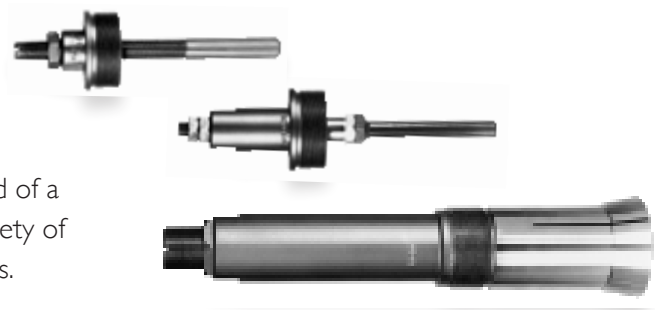


Threaded Stops

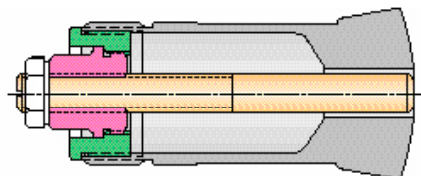
For Hard and Soft Collets

Solid Stops, Ejector Stops and Long Stops all have adjustable and machinable stop rods to suit your application. Stops lock against the end of a Hardinge collet to permit a wide variety of chucking work to desired part lengths.

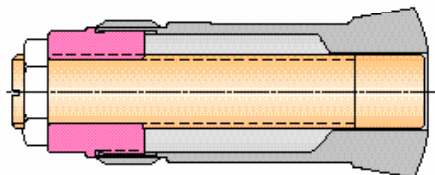
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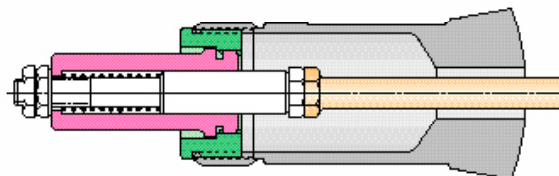
Solid Stop with Adapter



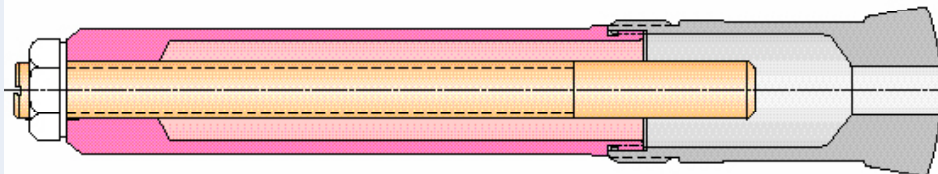
Solid Stop



Ejector Stop with Adapter



Long Stop





Special Collets

Hardinge has a "special collet" department dedicated to the manufacture of special-shaped and special-accuracy collets and step chucks. Hardinge is world renowned for having the ability to produce very precise hardened collets for gripping extruded stock for bar work, as well as step chucks for gripping large round and irregular-shaped parts for first operation and secondary work. This department has complete facilities to either ram or wire EDM complex contours needed for gripping your workpiece.



- Special Accuracy
- Special Shapes
- Off-Center
- Threaded
- Extruded Stock
- Multi-Stepped Parts
- Oversize Step Chucks
- Specialty Machines and High-Speed Production

Request brochure 2349



Dead-Length® Collet and Step Chuck Assemblies

- Absolute length control regardless of gripping diameter variations
- Emergency styles bore to size on machine – round or non-round shapes
- Hardened and ground to your workpiece diameter

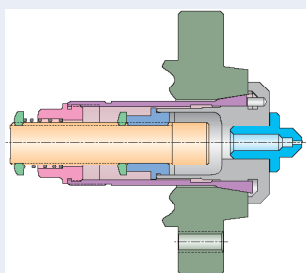
Request brochure #2348



Dead-Length Collet Assembly

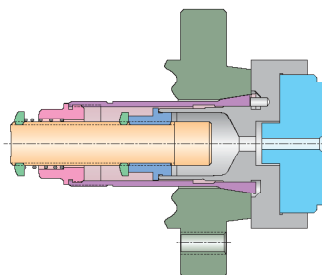
Parts are loaded against an adjustable solid stop which is threaded into the inner collet. The inner collet is pinned to the outer collet and spring-loaded against the spindle face.

RESULT: No end movement.

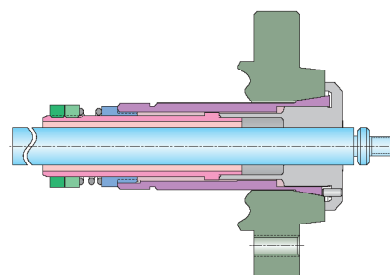


Dead-Length Step Chuck Assembly

Work with larger part sizes and shapes – same design concept as the collet assembly.



Dead-Length Thru-Collet Assembly for Bar Work



Shoulders and faces can be machined to exact length. The outer collet (illustrated in purple) is interchangeable between the collet and the step chuck assemblies. Workpiece examples are shown in blue.

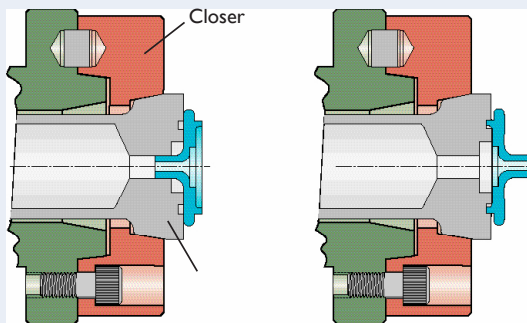


Step Chucks – The Gem of Hardinge Workholding Systems

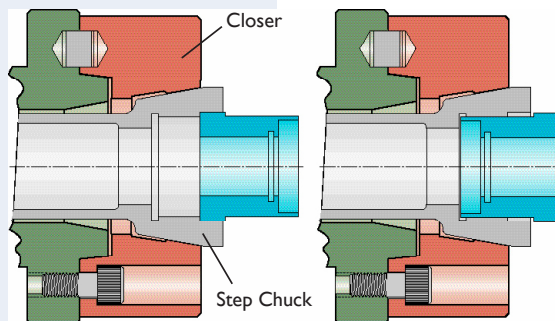
- Extends the collet gripping principle to the maximum chucking capacity of the machine tool
- Run at maximum RPM – no grip force lost due to centrifugal force with step chuck and closer
- Infinitely adaptable – round and non-round shapes
- Excellent for short grips – no distortion
- Multiple grips "end-for-end" – one machining sequence to completely finish the part
- Eccentrics with synchronized locations eliminate special workholding fixtures
- Hardened and ground to order



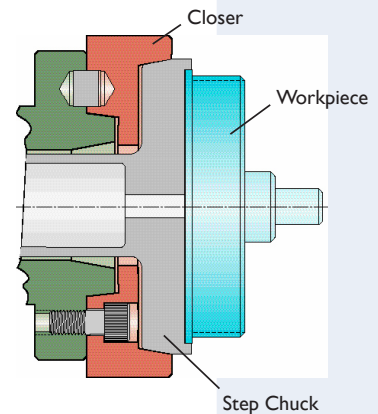
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End-for-End Step Chuck
with Two Gripping Diameters

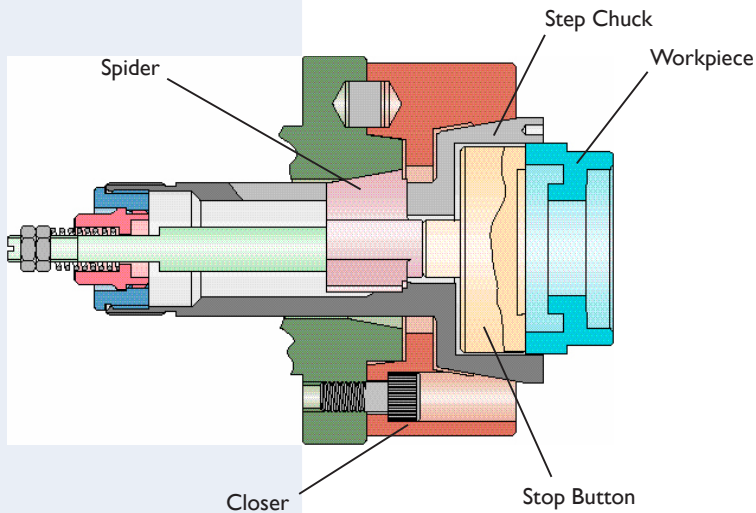


End-for-End Step Chuck
with Two Steps





Dead-Length® Spider-Style Step Chucks



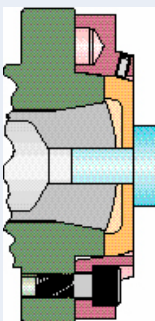
- Up to a 4" diameter workpiece
- Absolute length control regardless of gripping diameter variations
- Most accurate T.I.R. (only one moving part)
- Locates against the collet angle of the spindle
- Emergency styles—bore to size on machine—round or non-round shapes
- Hardened and ground to order

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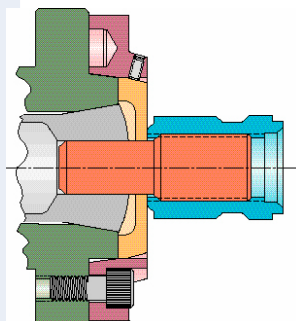
Dead-Length® Work Stop Assembly

Another Hardinge innovation for providing absolute part length control using standard workholding components. Work stop assemblies are spindle-nose mounted.

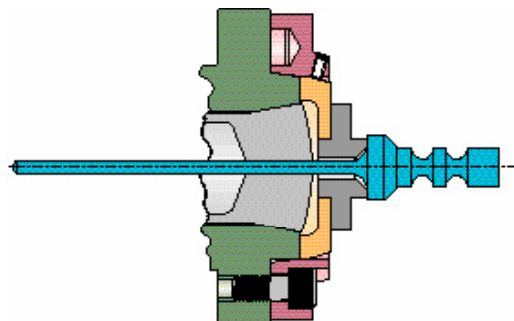
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Work Stop and Spindle Mount



Work Stop & Spindle Mount
(Threaded arbor for quick loading off the machine)



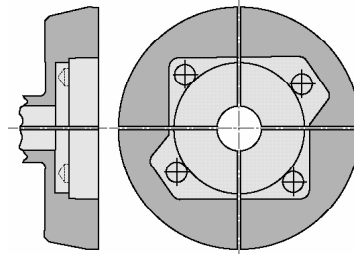
Work Stop & Spindle Mount with Adapter
(Long stem part with special locating surface)



Special Step Chuck Applications

Soft Emergency Step Chucks for Irregular Shape Die Castings and Non-Round Workpieces

This method of accurate and secure gripping in a Hardinge step chuck eliminates 2-jaw chucking and elaborate special fixtures. Supplied "off-the-shelf", Hardinge soft step chucks can easily be machined to receive irregular-shaped die castings. Hardinge can manufacture hardened and ground step chucks for your longer production runs. Our specials department can satisfy your requirements with short lead times. Step chucks are available with three or four splits to suit diverse workpiece configurations.

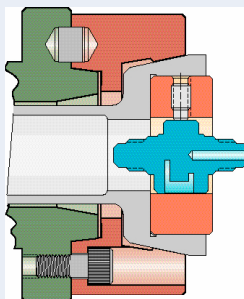


Step Chuck for a Precision Die Casting

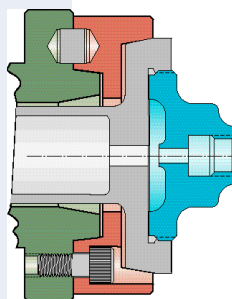


Hardened and Ground Step Chuck for a Non-Round Workpiece

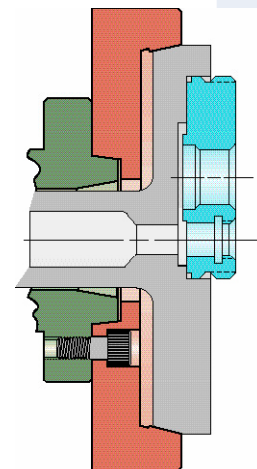
Hardinge emergency spindle tooling systems and peripheral accessories are made to be adapted by the customer on the machine that will be used for the production operation. For volume production or larger batch work, hardened and ground versions or other special features can be supplied.



End-for-End Round Fixture in Single-Step Precision Step Chuck
Fixture Loaded Off the Machine



Threaded Solid Step Chuck



Eccentric Part in Step Chuck
(counterweight not shown)



Hardinge Force-Limiting Step Chuck

Solutions for thin-wall or delicate parts

- Adjusts grip in a fail-safe process eliminating the nuisance of manually adjusting your drawbar force
- Operate at normal pressure with the properly selected spring in accordance with the wall thickness of your workpiece
- Maintains ID and OD concentricity
- Grip up to a 6" workpiece
- Increases cycle time
- No more out-of-round or crushed parts



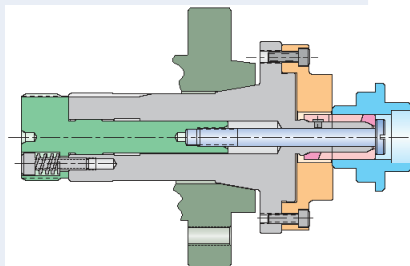
Sure-Grip® Expanding Collet Systems

ID gripping solutions

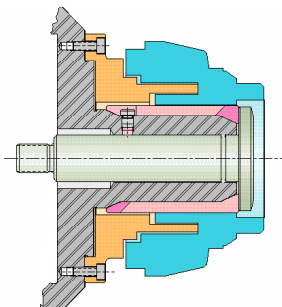
- True parallel internal gripping from 1/8" to 4" (3mm to 100mm) diameters on a series of six expanding arbor sizes
- Complete range of machinable work stops to ensure precision length control
- Collets will accept 1/64" (.4mm) variation of ID chucking diameter
- Heavy-duty machining capabilities using the Sure-Grip system, with or without tailstock support



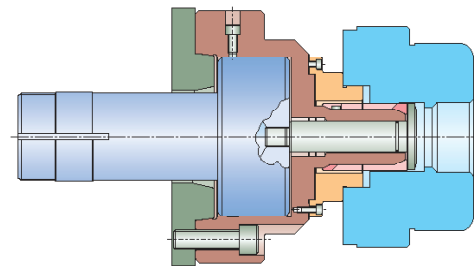
Request brochure #2270



Precision length control using stop plate



Stop locates against bottom of trepan in workpiece



Stepped stop plate to locate on counterbore

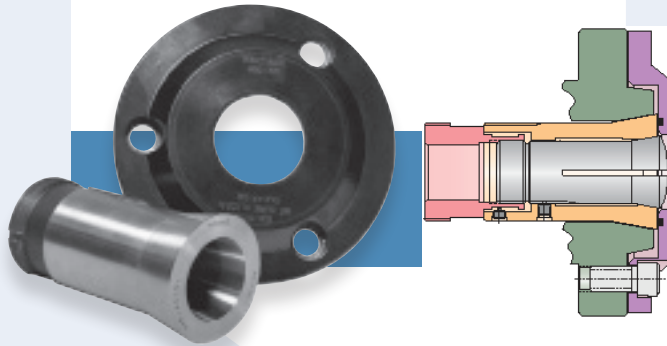
Other Hardinge Workholding Systems

Spindle Reducer Collet Adapters

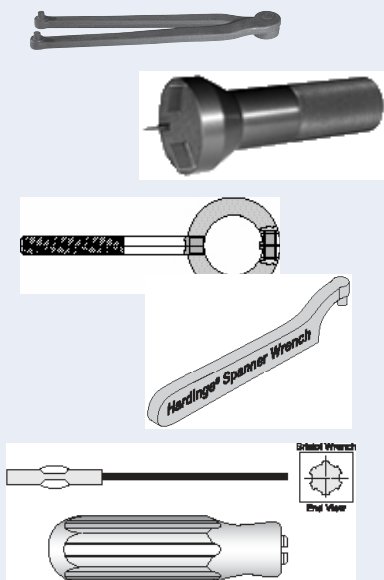
16C to 5C
20C to 16C
25C to 16C

Adapters enable the use of small-size collets in larger spindle capacity machines. There is also a 20C-to-16C step chuck adapter available for 20C machines.

Request brochure #2348



Accessories



Wrenches

Bar Stock Pullers & Knurling Tools

Ejector Stops for Dead-Length® Collets and Step Chucks

Bushings and Tool Holder Collets

Collet racks

Request brochure #2351



Spindle Tooling for Hardinge CNC Lathes

T-Series and CONQUEST H5 I



T-SERIES	T 42 Main & Subspindle	T51, CONQUEST H5 I	T65	T51, T65, CONQUEST H5 I Subspindle
Spindle Tooling	A2-5	A2-6	A2-6	A2-6
Collets (maximum capacities)	16C	20C	25C	20C
Round-Smooth & serrated	1 5/8"	2"	2.559"	2"
Hex-Smooth	1 13/32"	1 3/4"	2.216"	1 3/4"
Square-Smooth	1 9/64"	1 27/64"	1.808"	1 27/64"
Collet Stops	Solid, Long, Ejector and Universal	Solid	Solid	Solid
Emergency Collet (pilot hole size)	1/4", 1/16", 1/8", none	1/4" and none	1/2" and none	1/4" and none
Extended-Nose Emergency Collet (ext. length)	1/2" and 1"	3/4" and 1 1/2"	—	3/4" and 1 1/2"
FlexC™ Collet Systems (max. capacities**)	Style D, A, DL	Styles D, A, DL	Styles D, A, DL	Styles D, A, DL
Round-Smooth & serrated	2 9/16" / 65mm	2 9/16" / 65mm	2 9/16" / 65mm	2 9/16" / 65mm
Hex-Serrated	2 1/8" / 56mm	2 1/8" / 56mm	2 1/8" / 56mm	2 1/8" / 56mm
Square-Smooth	1 13/16" / 46mm	1 13/16" / 46mm	1 13/16" / 46mm	1 13/16" / 46mm
Master Collets & Pads-Style "S" (maximum round capacities)	S12-1 1/4", S16-1 5/8"	S20-2"	S26-2 5/8"	S20-2"
Sure-Grip® Expanding Collet System (capacity)				
Collet-Style	1/2" to 4"	—	—	—
Spindle-Mount Style	1/8" to 4"	1" to 4"	1" to 4"	1" to 4"
Master Expanding Collets - emergency pads	1/4" to 3"	—	—	—
Step Chucks & Closers - Emergency Style*				
Regular-Depth Emergency (max. dia./depth)	2" to 6" / 1/2"	—	—	—
Extra-Depth Emergency (max. dia./depth)	2" to 6" / 1 1/4"	3" to 6" / 1 1/4"	4" - 8" / 1 3/4"	3" to 6" / 1 1/4"
Force-Limiting Step Chuck	on application	on application	on application	on application
Dead-Length Control - Emergency Style *				
Collet style (max. diameter bore)	1 13/32"	—	—	—
Thru-hole Collet (max. round capacity)	1 3/16"	—	—	—
Step Chuck (max. diameter bore)	2 3/4"	3 1/2"	—	3 1/2"
Spider-Stop Step Chuck (max. diameter bore)	3", 4"	—	—	—
Sub-Spindle Adapter for 16C to #22 B&S	—	—	—	—
BUCK 3-Jaw Power Chuck (diameter)	6", 8" opt.	8", 10" opt.	8" - 10" opt.	8", 10" opt.
Headstock Centers	YES	YES	YES	YES
Spindle Adapters	16C to 5C	20C to 16C	25C to 16C	20C to 16C

* Also available hardened and ground

Spindle Tooling for Hardinge CNC Lathes

RS-, QUEST®- and ELITE®-SERIES II

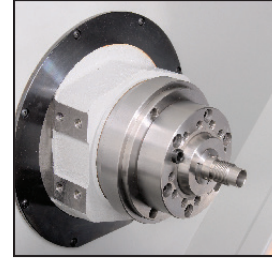


RS-SERIES QUEST-SERIES ELITE-SERIES II	RS 42 6/42, 6/42SP 42, 42 MS	RS 51 8/51, 8/51SP 51, 51 MS	RS 65 10/65, 10/65 SP	Sub-Spindle
Spindle Tooling	A2-5	A2-6	A2-6	A2-5
Collets (maximum capacities)	16C	20C	25C	16C
Round-Smooth & serrated	15/8"	2"	2.559"	15/8"
Hex-Smooth	1 13/32"	1 3/4"	2.216"	1 13/32"
Square-Smooth	1 9/64"	1 27/64"	1.808"	1 9/64"
Collet Stops	Solid, Long, Ejector & Universal	Solid	Solid	Solid
Emergency Collet (pilot hole size)	1/4", 1 1/16", 1/8", none	1/4" and none	1/2" and none	1/4", 1 1/16", 1/8", none
Extended-Nose Emergency Collet (ext. length)	1/2" and 1"	3/4" and 1 1/2"	—	1/2" and 1"
FlexC™ Collet Systems (max. capacities*)	Style D, A, DL	Styles D, A, DL	Styles D, A, DL	Style D
Round-Smooth & serrated	29/16" / 65mm	29/16" / 65mm	29/16" / 65mm	29/16" / 65mm
Hex-Serrated	2 1/8" / 56mm	2 1/8" / 56mm	2 1/8" / 56mm	2 1/8" / 56mm
Square-Smooth	1 13/16" / 46mm	1 13/16" / 46mm	1 13/16" / 46mm	1 13/16" / 46mm
Master Collets & Pads-Style "S" (maximum round capacities)	S12-1 1/4", S16-15/8"	S20-2"	S26-25/8"	S12-1 1/4", S16-15/8"
Sure-Grip® Expanding Collet System (capacity)				
Collet-Style	1/2" to 4"	—	—	1/2" to 4"
Spindle-Mount Style	1/8" to 4"	1" to 4"	1" to 4"	1/8" to 4"
Master Expanding Collets Emergency pads	1/4" to 3"	—	—	1/4" to 3"
Step Chucks & Closers Emergency Style*				
Regular-Depth Emergency (max. dia./depth)	2" to 6" / 1/2"	—	—	2" to 6" / 1/2"
Extra-Depth Emergency (max. dia./depth)	2" to 6" / 1 1/4"	3" to 6" / 1 1/4"	4" - 8" / 1 3/4"	2" to 6" / 1 1/4"
Force-Limiting Step Chuck	on application	on application	on application	on application
Dead-Length Control - Emergency Style*				
Collet style (max. diameter bore)	1 13/32"	—	—	1 13/32"
Thru-hole Collet (max. round capacity)	1 3/16"	—	—	1 3/16"
Step Chuck (max. diameter bore)	2 3/4"	3 1/2"	—	2 3/4"
Spider-Stop Step Chuck (max. diameter bore)	3", 4"	—	—	3", 4"
Sub-Spindle Adapter for 16C to #22 B&S	—	—	—	16C to #22 B&S
BUCK 3-Jaw Power Chuck (diameter)	6", 8" opt.	8", 10" opt.	8" - 10" opt.	6", 8" opt.
Headstock Centers	YES	YES	YES	YES
Spindle Adapters	16C to 5C 16C to #22 B&S	20C to 16C	25C to 16C	16C to 5C 16C to #22 B&S

* Also available hardened and ground

Spindle Tooling for Hardinge CNC Lathes

ELITE® 27MS

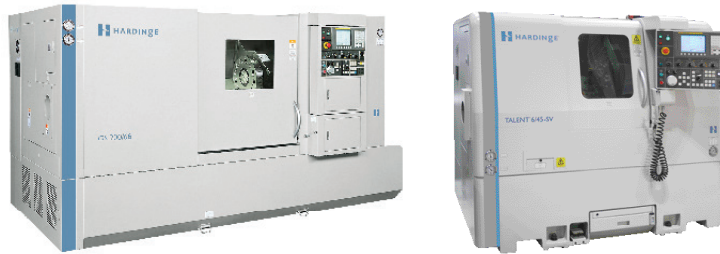


ELITE 27 MS	Main Spindle	Sub-Spindle
Spindle Tooling	A2-4	
Collets (maximum capacities)	5C	S25 HS
Round-Smooth & serrated	1 1/16"	1"
Hex-Smooth	29/32"	.866"
Square-Smooth	3/4"	.707"
Collet Stops	Solid, Long, Ejector, & Universal	—
Emergency Collet (pilot hole size)	1/4", 1/16", 1/8", none	1/16"
Extended-Nose Emergency Collet (ext. length)	1/2" and 1"	1/2"
HQC® Quick-Change Collets (max. capacities)	A2-4, 5C	—
Round-Smooth & serrated	1 1/16"	—
Hex-Smooth	7/8"	—
Square-Smooth	3/4"	—
Sub-Spindle Parts Ejector	—	Yes
Sure-Grip® Expanding Collet System (capacity)		
Collet-Style	1/8" to 3.015"	—
Master Expanding Collets - emergency pads	1/4" to 3"	—
Step Chucks & Closers (maximum diameter / depth)		
Regular-Depth Emergency	2" to 6" / 1/2"	—
Extra-Depth Emergency	2" to 6" / 1 1/4"	—
Regular-Depth Hardened & Ground	2" to 6" / 1/2"	—
Extra-Depth Hardened & Ground	2" to 6" / 1 1/4"	—
Force-Limiting Step Chuck	on application	—
Dead-Length Control - Emergency Style*		
Collet style (max. diameter bore)	55/64"	—
Thru-hole Collet (max. round capacity)	3/4"	—
Step Chuck (max. diameter bore)	2"	—
BUCK 3-Jaw Power Chuck (diameter)	5"	—
Headstock Centers	YES	—

* also available hardened and ground

Spindle Tooling for Hardinge CNC Lathes

GS- & SV-Series and TALENT® (jaw chuck spindle)

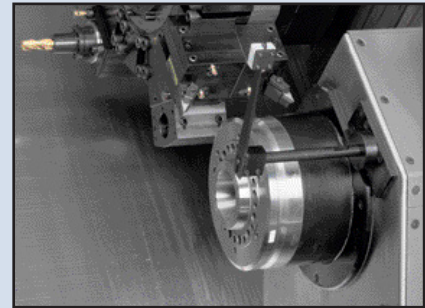
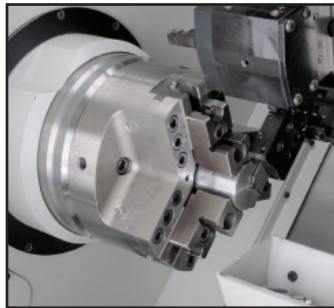


Machine Model (jaw chuck spindle)	GS150, SV150, TALENT 6/45	GS200, SV200, TALENT 8/52	GS200/66 TALENT 8/66	GS250 TALENT 10/78
Spindle Tooling	A2-5	A2-6	A2-6	A2-8
FlexC™ Collet Systems	Style D, A, DL	Styles D, A, DL	Styles D, A, DL	Styles D, A
Round-Smooth & serrated	29/16" / 65mm	29/16" / 65mm	29/16" / 65mm	29/16" / 65mm
Hex-Serrated	21/8" / 56mm	21/8" / 56mm	21/8" / 56mm	21/8" / 56mm
Square-Smooth	113/16" / 46mm	113/16" / 46mm	113/16" / 46mm	113/16" / 46mm
BUCK 3-Jaw Power Chucks	6"	8"	8"	10"
Collet Adaptation Chucks*				
Adapt to 5C	7803-00-00-645000	7805-00-00-852000	7805-00-00-866000	—
Adapt to 16C	7817-00-00-645000	7819-00-00-852000	7819-00-00-866000	—
Adapt to 3J	7811-00-00-645000	7813-00-00-852000	7813-00-00-866000	—
Adapt to S20 (masters)	—	7837-00-00-852200	—	—
Adapt to S26 (masters)	—	—	7850-00-00-866000	—
Adapt to S30 (masters)	—	—	—	7850-00-90-107800
Adapt to A2-5, 16C	7833-00-00-64500	7903-00-00-852000	7903-00-00-866000	—
Adapt to B42	7842-00-00-64500	—	—	—
Adapt to B60	—	7860-00-00-852000	7860-00-00-866000	—
Master Collets & Pads-Style "S"	—	S20	S26	S30
Round (maximum capacity)	—	2"	2 5/8"	3"
B-Style Collets (maximum capacities)	B42	B60	B60	—
Round-Smooth & serrated	15/8"	23/8"	23/8"	—
Hex-Smooth	113/32"	23/64"	23/64"	—
Square-Smooth	19/64"	143/64"	143/64"	—
Round Emergency (pilot hole)	1/4"	1/4"	1/4"	—
Sure-Grip® Expanding Collet Systems	100-600	300-600	300-600	300-600
Spindle-Mount Style (working range)	1/8" - 4"	1" - 4"	1" - 4"	1" - 4"

* see collet capacities on page 23

Spindle Tooling for Hardinge CNC Lathes

SR-Series (jaw chuck spindle)



Sub-Spindle all models

Machine Model (jaw chuck spindle)	SR150	SR200	SR200 BB
Spindle Tooling	A2-6	A2-6	A2-8
BUCK 3-Jaw Power Chucks	8", 10" OPT	8", 10" OPT	10", 12 OPT
Collet Adaptation Chucks	on application	on application	on application
FlexC™ Collet Systems	Styles D,A, DL	Styles D,A, DL	Styles D,A
Round-Smooth & serrated	2 9/16" / 65mm	2 9/16" / 65mm	2 9/16" / 65mm
Hex-Serrated	2 1/8" / 56mm	2 1/8" / 56mm	2 1/8" / 56mm
Square-Smooth	1 13/16" / 46mm	1 13/16" / 46mm	1 13/16" / 46mm
Sure-Grip® Expanding Systems	#300/#600	#300/#600	#300/#600
Spindle-Mount Style (working range)	1 to 4.015"	1 to 4.015"	1 to 4.015"



FlexC™ Collet Systems

- Vulcanized collet heads interchange in seconds
- True parallel gripping minimizes stock "push back" and requires less draw bar force
- Accuracy within .0004" (.010) T.I.R.
- Round, hex and square
- Grip range of $\pm .20"$ (.5mm) to allow variation in bar stock

Request brochure #2382

Spindle Tooling

A2-5

Collets (max. capacities)	I6C
Round-Smooth & serrated	1 5/8"
Hex-Smooth	1 13/32"
Square-Smooth	1 9/64"
Collet Stops	Long, Solid, Ejector
Emergency Collet (pilot hole)	1/4", 1/16", 1/8", none
Extended-Nose Emergency Collet (extension length)	1/2" and 1"
FlexC™ Collet Systems	Style D,A, DL
Round-Smooth & serrated	2 9/16" / 65mm
Hex-Serrated	2 1/8" / 56mm
Square-Smooth	1 13/16" / 46mm
Master Collets Style "S" (maximum round capacities)	S12-1 1/4", S16-1 5/8"
Sure-Grip® Expanding Systems	
Collet-Style (capacities)	1/2" to 4"
Spindle-Mount Style	1/8" to 4"
Master Expanding Collets with Emergency pads	1/4" to 3"
Step Chucks & Closers (max. dia./depth)	
Emergency Style *	
Regular-Depth Emergency	2" to 6" / 1/2"
Extra-Depth Emergency	2" to 6" / 1 1/4"
Dead-Length Control	
Emergency Style *	
Collet style (max. bore)	1 13/32"
Thru-hole Collet (max. round)	1 3/16"
Step Chuck (max. bore)	2 3/4"
Spider-Stop Step Chuck (max. bore)	3", 4"
Headstock Centers	YES
Spindle Adapters	I6C to 5C I6C to #22 B&S

* also available hardened and ground

Collet and Step Chuck Capacities

C-series, B-style, FlexC™, S-masters and Step Chucks



Collet Style	Round Smooth & Serrated	Hex	Square Nose Collet	Extended Collet	Emergency Collet	Emergency Ext. Nose
5C	1 1/16" / 26.99	29/32" / 23.02	3/4" / 19.05	YES	YES	YES
16C	15/8" / 41.28	1 13/32" / 35.72	19/64" / 28.97	—	YES	YES
20C	2" / 50.80	1 3/4" / 44.45	127/64" / 36.07	—	YES	YES
25C	2.559" / 65.00	2.216" / 56.29	1.808" / 43.95	—	YES	YES
3J	1 3/4" / 44.45	1 17/32" / 38.89	1 1/4" 31.75	—	YES	YES
22 B&S	1 1/4" / 31.75	15/64" / 27.38	7/8" / 22.22	—	YES	—
B42	15/8" / 41.28	1 13/32" / 35.72	19/64" / 28.97	—	YES	YES
B65	2.559" / 65.00	2.216" / 56.20	1.809" / 45.90	YES	—	YES
FlexC 65	29/16" / 65.00	21/8" / 56.00	1 13/16" / 46.00	—	YES	—
S10 (B42)	1" / 25.40	55/64" / 21.83	45/64" / 17.86	—	PADS 1	—
S12 (16C)	1 1/4" / 31.75	15/64" / 27.38	7/8" / 22.23	—	PADS 1	—
S16 (16C)	15/8" / 41.28	1 13/32" / 35.72	19/64" / 28.97	—	PADS 1	—
S20 (20C)	2" / 50.80	123/32" / 43.66	1 13/32" / 35.72	—	PADS 1	—
S22 (B65)	2 1/4" / 57.15	1 15/16" / 49.21	137/64" / 40.08	—	PADS 1	—
S26 (25C)	25/8" / 66.68	2 17/64" / 57.55	127/32" / 46.83	—	PADS 1	—

Collet Style	Emergency 2 Step Chuck Regular-depth diameter {depth}	Emergency 2 Step Chuck Extra-depth diameter {depth}	Emergency Dead-Length Step Chuck max dia. bore	Dead-Length Spider-Stop Step Chuck max dia. bore	Dead-Length Collet ² max thru bore	Dead-Length Thru-Hole Collet ² max round capacity
5C	2"-6" {1/2"} 50.80-152.40 {12.70}	2"-6" {1 1/4"} 50.80-152.40 {31.75}	2" / 50.80	—	55/64" / 21.83	3/4" / 19.05
16C	2"-6" {1/2"} 50.80-152.40 {12.70}	2"-6" {1 1/4"} 50.80-152.40 {31.75}	23/4" / 69.85	3", 4" / 76.20, 101.60	1 13/32" / 35.72	13/16" / 30.16
20C	—	3"- 6" {1 1/4"} 76.2-152.4 {31.75}	31/2" / 88.90	—	—	—
25C	—	4-8" {1 3/4"} 101.6-203.2 {44.45}	—	—	—	—
3J	2"-6" {5/8"} 50.80-152.40 {12.70}	—	—	—	—	—

NOTES: 1 - Pads available in standard, soft emergency and semi-hard emergency. Dimensions shown in inch / millimeter
2 - Available in emergency, hardened and ground





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