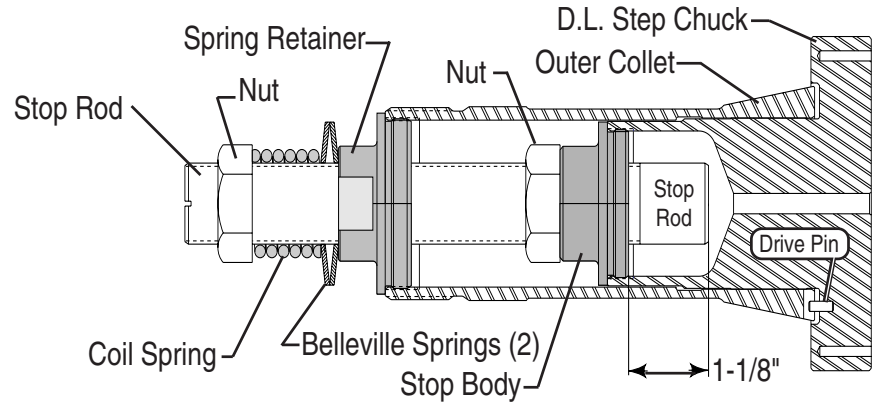
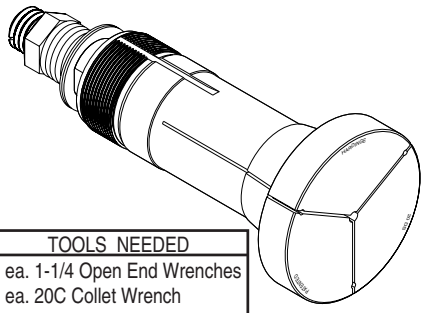
20C DEAD-LENGTH® STEP CHUCK

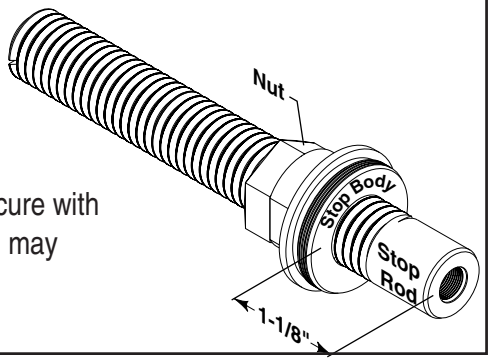




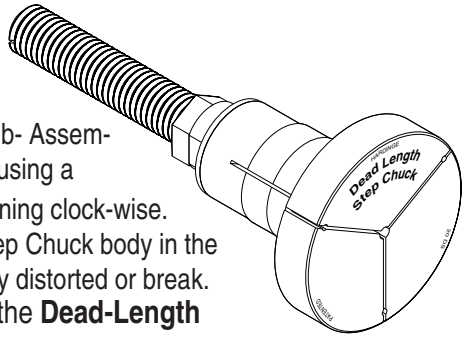
TOOLS NEEDED
2 ea. 1-1/4 Open End Wrenches
1 ea. 20C Collet Wrench
1 ea. Machinist Vise
1 ea. Moly-Lub Grease

MAIN INSTRUCTIONS

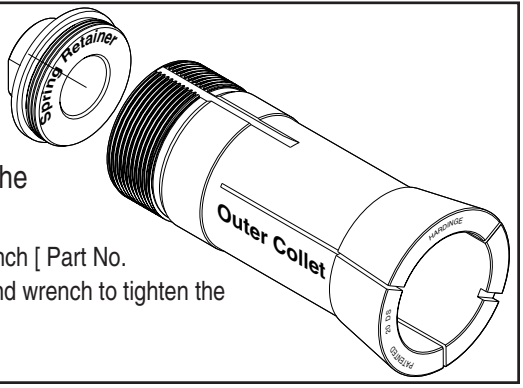
- Clean the Lathe Spindle , Draw Tube, and the parts of the 20C Dead-Length Step Chuck
- Set the face of the **Stop Rod** 1-1/8" from the face of the **Stop Body.** Secure with the **1-1/4" Hex Nut**. (This Dimension may already be set from the factory.)



- Thread the **Stop Rod/Body Sub-Assembly** into the **Dead-Length Step Chuck** and tighten securely.
  - Hold 1-1/4" Hex Nut of theStop Rod Sub- Assembly in a vise and tighten D.L. Step Chuck using a 20C Inner Collet Spanner Wrench and turning clock-wise. **CAUTION:** Do Not grip any part of the Step Chuck body in the vise. The Step Chuck may be permanently distorted or break.
- Coat the external bearing diameter of the **Dead-Length Step Chuck**, the internal bearing diameter and collet head angle of the **Outer Collet** with Molybdenum Disulfide grease (Moly-Lub). This will insure maximum life of the mating parts.



- Thread the **Spring Retainer** into the **Outer Collet** and firmly tighten.
  (Hold the Collet with the 20C Collet Wrench [Part No. CL-0011759-A] and use a 1-1/4" open end wrench to tighten the Spring Retainer.)



QUICK START

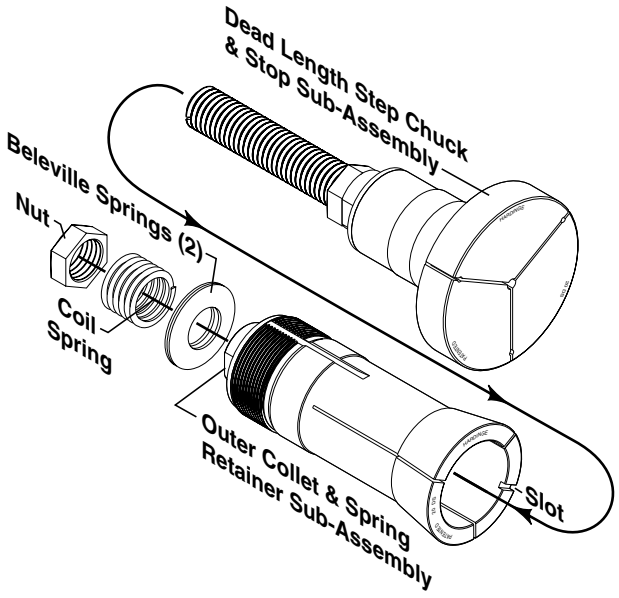
Quick Start instructions quickly guide you through the procedure. Read the main instructions first to thoroughly understand how to use the product.

- Clean parts & headstock spindle
- Set face of Stop Rod 1-1/8" from Stop Body face & secure
- Thread & Secure Stop Rod-Body Assembly into D.L. Step Chuck
- Coat Bearing surfaces with Molybdenum Disulfide grease
- Assemble and secure Spring Retainer into Outer Collet
- Insert D.L. Step Chuck-Stop Assembly into Outer Collet Aligning Pin with slot in Outer Collet Face
- Slide Belleville Washer Springs on Stop Rod
- Slide on the Coil Spring & lock finger tight with the Nut, fully compressing coil spring, then back off one full turn

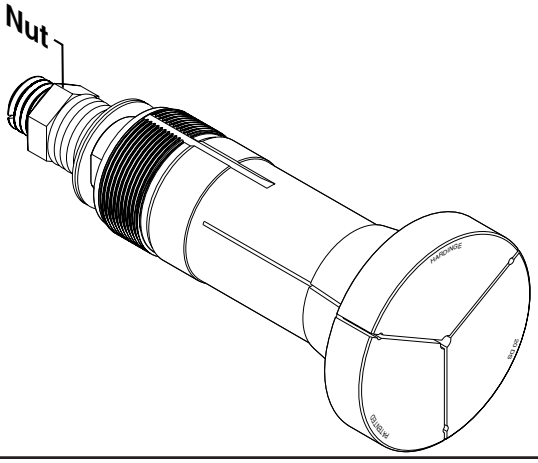
HARDINGE® SUPER-PRECISION®

MAIN INSTRUCTIONS (Continued)

- Insert **Dead Length Step Chuck & Stop Sub-Assembly** into the **Outer Collet & Spring Retainer Sub-Assembly**. Align the **Drive Pin** (shown on front page, 1st Figure) in the Step chuck with the **Slot** in the face of the **Outer Collet**.
- Slide the 2 **Belleville Spring** Washers on the T**hreaded Stop Rod** with the small end of the first washer towards the **Spring Retainer** and the Large end of the second washer flush with the large end of the first washer, as Illustrated.
- Slide the compression **Coil Spring** on to the **Stop Rod** up against the **Belleville Spring Washer**.

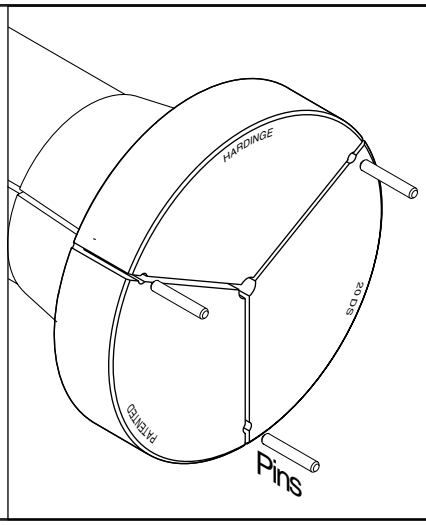


- Thread the Hex **Nut** on the **Stop Rod** by hand to completely compress the **Coil Spring**, then back the **Nut** off one full turn.



Boring Out the Dead-Length Step Chuck on the Lathe

- Place the three 1/8" diameter x 3/4" long pins in the holes on the face of the Dead-Length Step Chuck. (A small amount of grease on each pin will hold them in place.)
- Activate Closer to Open Position
- Slide the Dead-Length assembly into the spindle of the machine aligning the spindle key with the keyway on the Outer Collet.



QUICK START

Boring Out -D.L. Step Chuck

- Place 3 Pins in face of step chuck
- With closer in "Open" position, slide D.L. Step Chuck into spindle aligning Key
- Adjust Closer until back face of D.L. Step Chuck just Contacts spindle face
- Turn Closer 1/2 Turn more & Continue to next screw hole.
- Tighten Screws in Closer
- Adjust pressure: Low to Moderate force - Approx. 3,000 Lbs.
- Drill, rough bore ,and finish bore for the workpiece
- Remove & thoroughly clean
- Remount & Adjust Pressure on the workpiece: Max. 5,000 Lbs.

BORING OUT (Continued)

- Draw the assembly into the spindle by adjusting the collet closer draw tube until the back face of the Step Chuck just contacts the face of the spindle. A very noticeable increase in resistance will be felt at this point.
- Further tighten the draw tube 1/2 turn and then continue turning until the next screw hole lines up.
- Tighten the Screws on the collet closer.
- Make certain that the three 1/8" Diameter pins are fully bottomed in the Dead-Length Step Chuck.

CAUTION: Do not actuate the lathe's collet closer without either the three pins in the face of the Dead-Length Step Chuck or a workpiece in place. If the unit is closed without the pins or workpiece in place, both the Dead-Length Step Chuck and the Outer Collet will be permanently distorted and have to be replaced.

- Close the Step chuck using a low to moderate chucking force, approximately 3000 Lbs.

- Using the Illustration as a guide for Maximum Diameters and Depths, Drill, Rough Bore and then Finish Bore the Step Chuck out to the proper size for the workpiece.

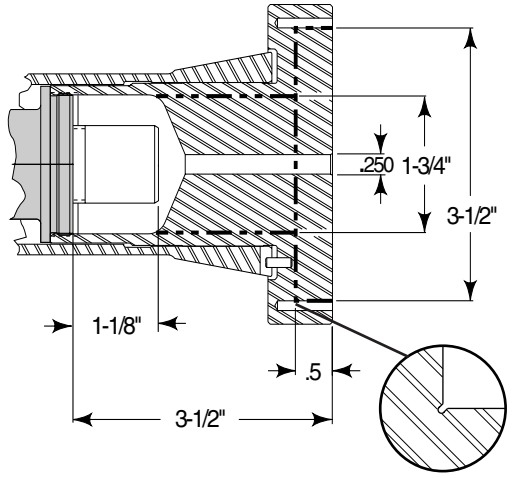
Maximum Accuracy and Repeatability:

Bore out to a dimension .001" **Greater Than** the O.D. of the workpiece.

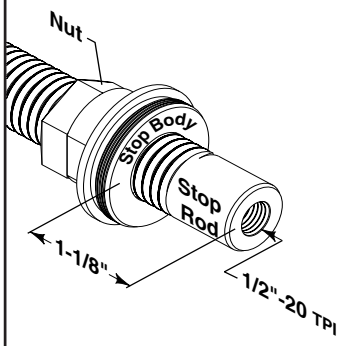
Maximum Holding Power:

Bore out to a dimension .001" to .002" **Less Than** the O.D. of the workpiece.

When a stepped type bore is required, finish bore to the proper size and then face the bottom of the bore to provide a square shoulder. It is recommended that the corner where the bore and shoulder meet be undercut to insure that the workpiece fully seats against the face of the step.



- The **Stop Rod** is set at a 1-1/8" dimension from the face of the Stop Body. The **Stop Rod** can be machined to decrease its length. Custom **Stop Rod Extensions** can be made that are threaded into the **1/2"-20 TPI** internal thread in the **Stop Rod**.



- Remove the **Dead-Length Step Chuck Assembly** from the spindle and thoroughly clean out chips from the slots and the bore. Debur the edges of the machined surfaces.

Mounting a Machined Dead-Length® Step Chuck in the Lathe

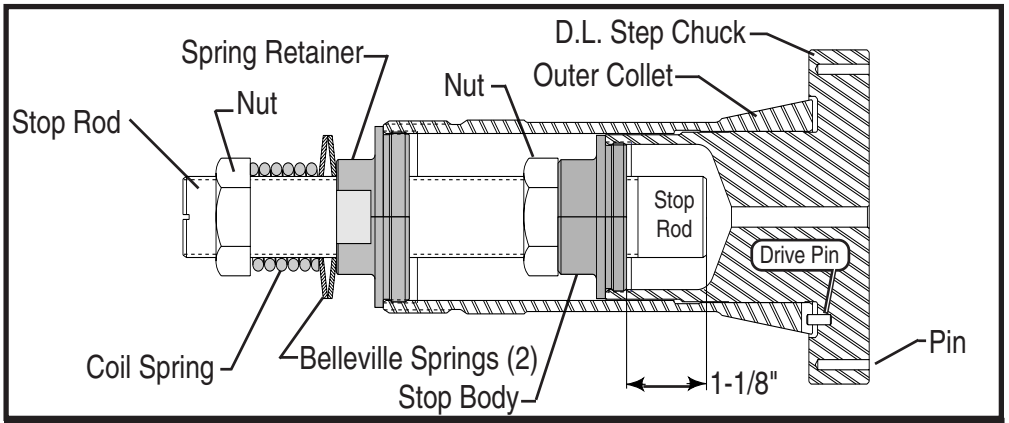
- Clean the machine spindle & the Dead-Length Step Chuck.
- Activate Closer to its *"Open"* Position.
- Slide the complete assembly into the spindle of the machine aligning the spindle key with the keyway on the Outer Collet.
- Place a workpiece in the bore of the Dead-Length Step Chuck.
- Draw the assembly into the spindle by adjusting the collet closer draw tube until the back face of the Step Chuck just contacts the face of the spindle. A very noticeable increase in resistance will be felt at this point.
- Further tighten the draw tube 1/2 turn and then continue turning until the next screw hole lines up.
- Tighten the Screws on the collet closer.
- Close the collet closer.
- Adjust the collet closer to the proper closing force. Maximum Recommended Force: 5,000 pounds.

QUICK START

Mounting-D.L. Step Chuck

- Clean Spindle & D.L. Step Chuck
- Open the Collet Closer
- Slide DL Step Chuck into spindle aligning Key with Keyway
- Put the workpiece in the Dead-Length Step Chuck
- Adjust Closer until back face of DL Step Chuck just Contacts spindle face
- Turn Closer 1/2 Turn more & Continue to next screw hole.
- Tighten Screws in Closer
- Do not exceed a chucking force of 5,000 pounds

PARTS LIST



Description	Hardinge Part Number	Quantity
20C Dead-Length Step Chuck Assembly	2041-00-00-000000	1
– Emergency Dead Length Step Chuck	2037-00-00-000000	1
- Pin (Used when machining out the step chuck)	7731-00-00-000000	3
- Drive Pin	7734-00-00-000000	1
– Nut	1185-00-00-000000	2
– Outer Collet Body	2039-00-00-000000	1
– Spring - Coil	1187-00-00-000000	1
– Spring - Belleville	AM-9011700	2
– Spring Retainer	1815-00-00-000000	1
– Stop Body	1813-00-00-000000	1
– Stop Rod	1271-00-00-000000	1
20C Collet Wrench(For holding Outer Collet during assembly)	CL-0011759-A	1
20C Inner Collet Spanner Wrench	7897-00-00-0000001	1
Molybdenum Disulfide Grease (Moly-Lub,3 Oz.)	VS-10440	1

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One Hardinge Drive, PO Box 1507
Elmira, New York 14902-1507 USA

Form No. B-67A
Part No. BA -0009500-0067

To Order call: 800-843-8801 • Canada : 800-468-5946 • Phone: 607-734-2281 • FAX: 607-734-3886

Litho in U.S.A.
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