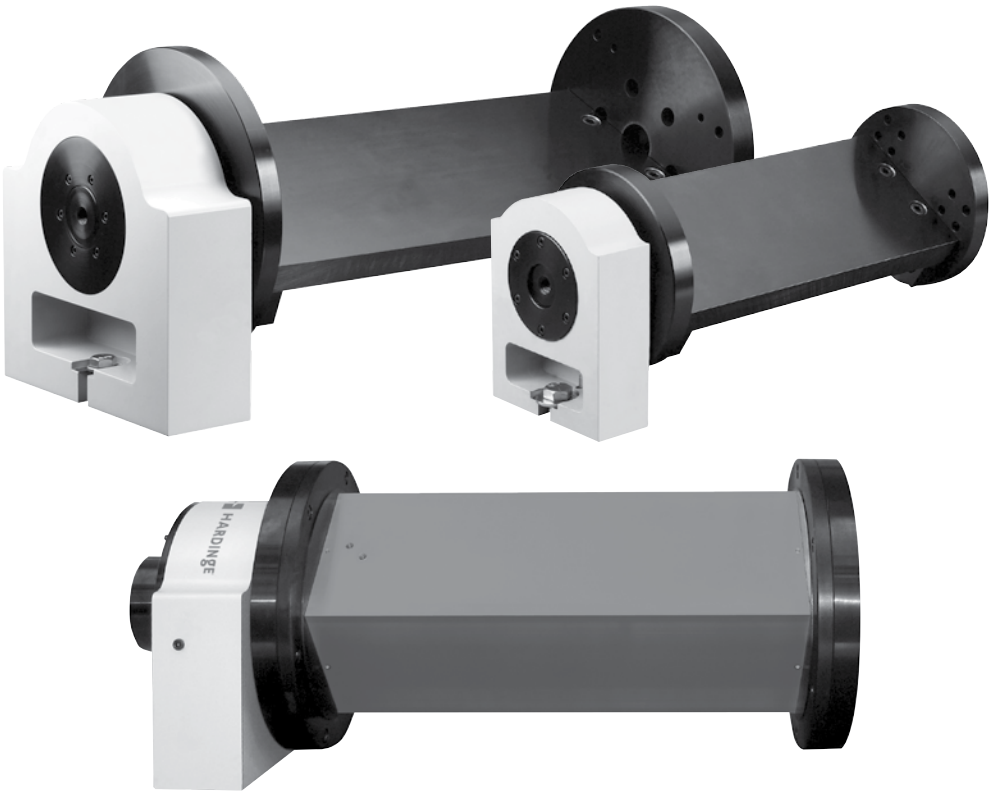


Setup and Operation
for Hardinge®

Plate and Cube Trunnions

Original U.S.A. Instructions

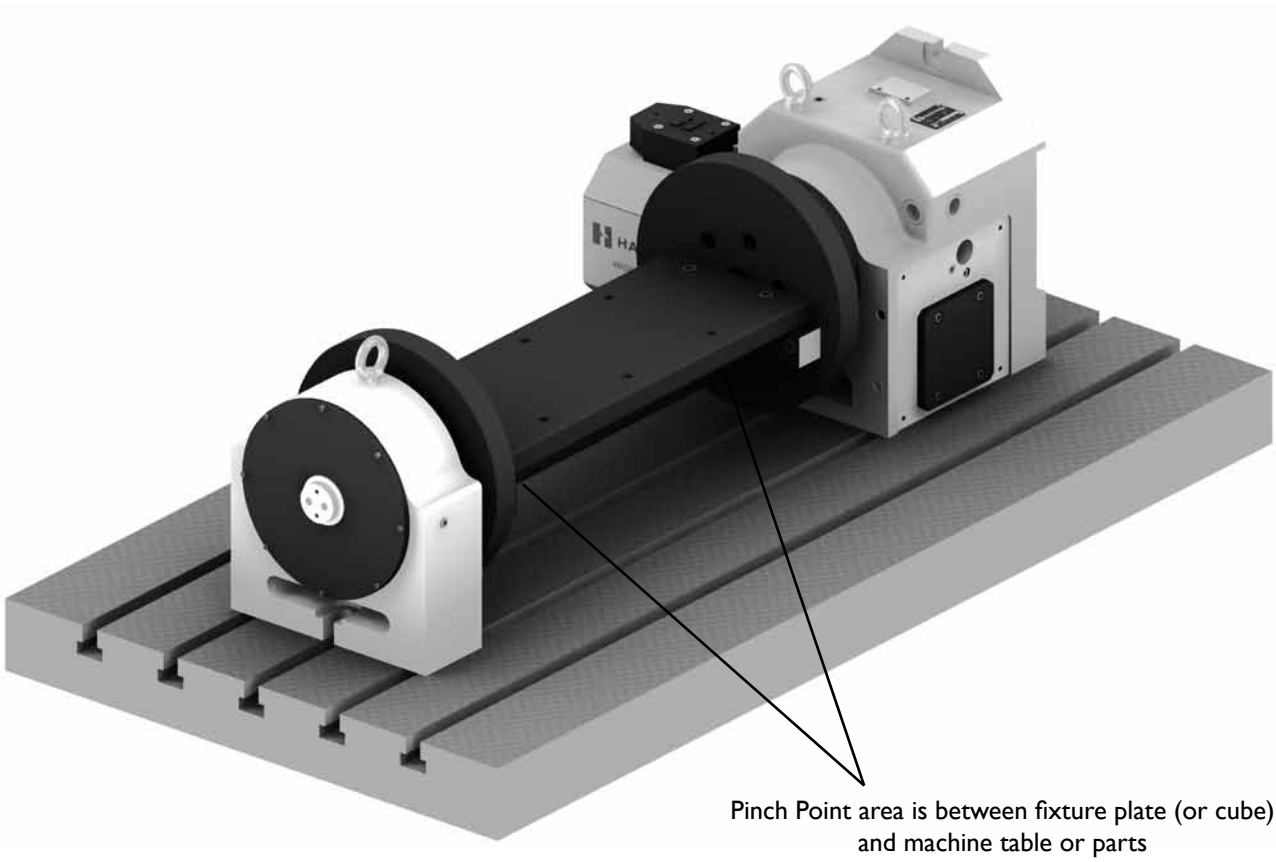
Part No. B -0009500-0163

Table of Contents

Part No. B -0009500-0163

Safety Recommendations

READ COMPLETE INSTRUCTIONS CAREFULLY BEFORE OPERATING THIS SYSTEM. Refer also to the user manual for the rotary table or indexer for important information relating to the safe operation of the system.



Pinch Point area is between fixture plate (or cube) and machine table or parts

Specific safety items associated with the Trunnion:

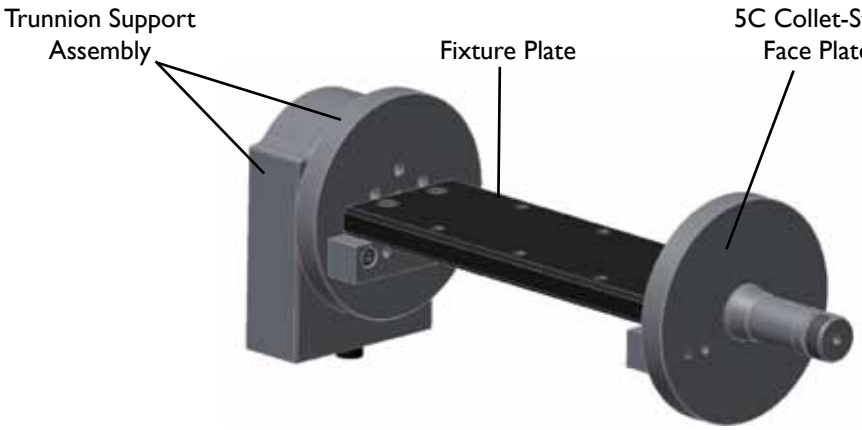
- Be cautious of pinch point areas, as seen in the above picture, while setting up jobs on the trunnion.
- Be aware that if used with a Hardinge Servo Control, opening the machine doors will NOT disable the trunnion and rotary table or indexer from rotating.
- During job setup no one should jog or run a program resulting in trunnion movement while anyone has their hands in the machine.
- Make sure parts and all workholding will clear machine table in a 360-degree move of the trunnion as the trunnion does not have any method of limiting trunnion position during initial power up. During power up the motor only homes in one direction. If the unit is on the wrong side of home, the indexer could rotate up to 360 degrees to find the home position. Once the indexer is home, software limits can be entered to limit travel. These software limits are only valid after initial power up and once the indexer is homed.
- The best practice in setup is to position the rotary table or indexer and then press the STOP button if using the Hardinge Servo Control. If using a 4th-axis configuration, push the RESET or STOP button on the machine control before approaching the unit.
- Set up the specific application following the space constraints defined in section 7 of this manual. Please note that the work envelope described in section 7 includes the workholding and the part piece.

NOTE: Failure to follow the procedures in this manual may result in damage to the unit which may void the warranty.

Part No. B -0009500-0163

1. Products

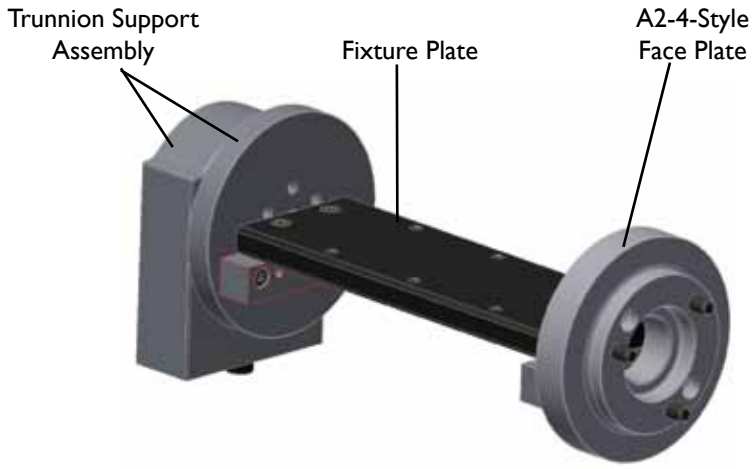
1.1 PT5C2 Plate Trunnion for use with GD5C2 Rotary Indexer



CI 0002483A	**PT5C2 Complete Trunnion Assembly** including trunnion support assembly, fixture plate and 5C collet-style face plate
CIA0002483	PT5C2 Trunnion Assembly without Fixture Plate
CIA0002483PB	PT5C2 Trunnion Support Assembly with Face Plate (shown right)
CI 000248307QC	PT5C2 Fixture Plate, 4 x 10" (101.6 x 254mm)

CIA0002483PB

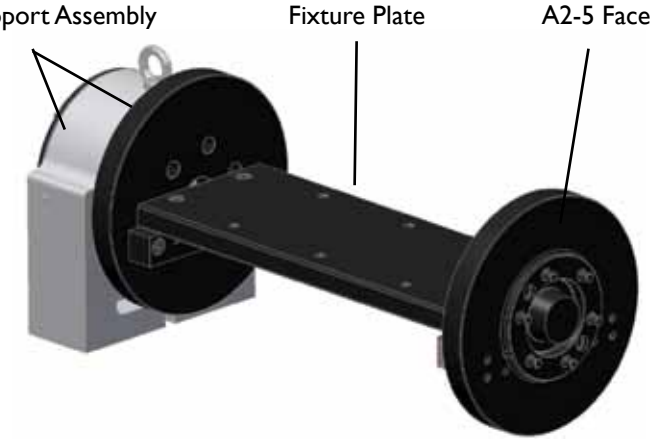
1.2 PTA24 Plate Trunnion for use with GD160LP and DD100 Rotary Indexers



RT 0002483A4A	**PTA24 Complete Trunnion Assembly** including trunnion support assembly, fixture plate and A2-4 face plate (for DD100)
RT 0002483A4	PTA24 Trunnion Assembly without Fixture Plate (for DD100)
LI 0002483A	**PTA24 Complete Trunnion Assembly** including trunnion support assembly, fixture plate and A2-4 face plate (for GD160LP)
LI 0002483	PTA24 Trunnion Assembly without Fixture Plate (for GD160LP)

Part No. B -0009500-0163

1.3 PTA25 Plate Trunnion for use with GD16C2, GD3J2, GD210LP, DD200 and DD300 Rotary Table Indexers



Optional Clamp
CJA0003048RTRL

(for GD16C2, GD3J2, GD210LP and DD200)

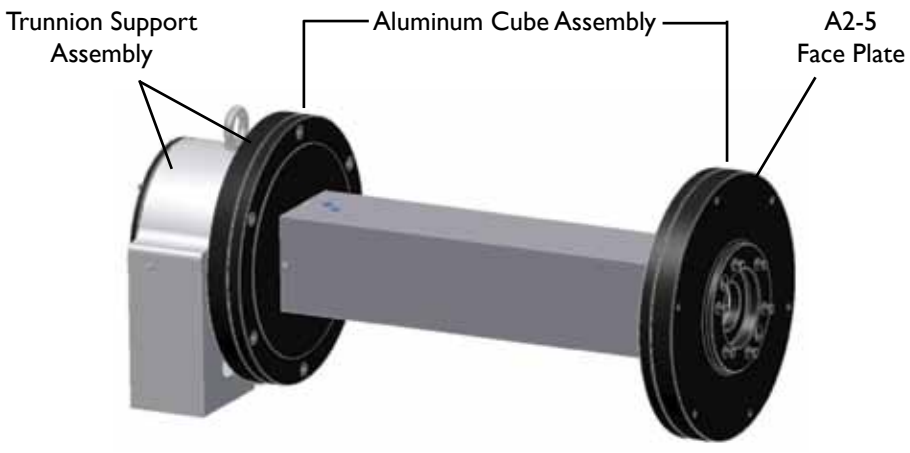
CJB0002483AL	**PTA25 Complete Trunnion Assembly** including trunnion support assembly, A2-5 face plate and fixture plate
CJB0002483L	PTA25 Trunnion Assembly without Fixture Plate
CJA0002483NP	PTA25 Trunnion Support without Face Plate (shown)
CJ 000248307QC	PTA25 Fixture Plate, 7 x 16.73" (177.8 x 425mm)
CJA0003048RTRL	PTA25/CTA25 Trunnion support Clamp option (shown)

(for DD300)

RTA0002483A	**PTA25 Complete Trunnion Assembly** including trunnion support assembly, A2-5 face plate and fixture plate
RTA0002483	PTA25 Trunnion Assembly without Fixture Plate
RTA0003048TCHK	PTA25/CTA25 Trunnion Support Clamp option

CJA0002483NP

1.4 CTA25-4IN and CTA25-6IN Cube Trunnion for use with GD16C2, GD3J2, GD210LP, DD200 and DD300 Rotary Table Indexers



Clamp Option

(for GD16C2, GD3J2, GD210LP and DD200)

CJA0002483A4	**CTA25-4IN Complete Trunnion Assembly** including trunnion support assembly, A2-5 face plate and 4" (101.5mm) aluminum cube assembly
CJA0002483A6	**CTA25-6IN Complete Trunnion Assembly** including trunnion support assembly, A2-5 face plate and 6" (152.4mm) aluminum cube assembly
CJ 0002483CTAK	CTA25 Rotary Union Air Kit option (all models)
CJA0003048RTRL	CTA25/PTA25 Trunnion Support Clamp option (for GD16C2, GD3J2 and GD210LP only)

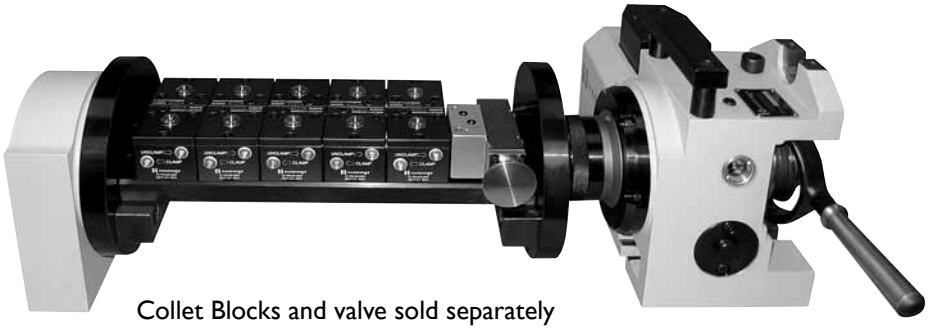
Rotary Union Option
CJ 0002483CTAK

(for DD300)

RTA0002483A4	**CTA25-4IN Complete Trunnion Assembly** including trunnion support assembly, A2-5 face plate and 4" (101.5mm) aluminum cube assembly
RTA0002483A6	**CTA25-6IN Complete Trunnion Assembly** including trunnion support assembly, A2-5 face plate and 6" (152.4mm) aluminum cube assembly
RTA0003048TCHK	PTA25/CTA25 Trunnion Support Clamp option (for DD200 and DD300)

Part No. B -0009500-0163

2. Description



Collet Blocks and valve sold separately

Hardinge offers plate and cube trunnions to expand the capability and flexibility of Hardinge rotary tables and indexers. Plate and cube trunnions permit operations with multiple part positioning. Coupled with the rotary table or indexer, the overall system provides for accurate positioning of parts in milling, drilling, and tapping applications.

The Hardinge® PT5C2 Plate Trunnion is a very adaptable system that can be mounted to any rotary table or indexer with a 5C collet-ready spindle. A collet closer or manual draw bar is required to hold the face plate to the rotary indexer. The PTA24 Plate Trunnion can be mounted to any rotary table indexer with an A2-4 spindle. The larger PTA25 Plate Trunnion and the CTA25 Cube Trunnion can be mounted to any rotary table or indexer that has an A2-5 spindle. Riser plates may be required under the trunnion support to adjust for spindle centerlines. Refer to the dimensional drawings in section 8.

The Hardinge Plate and Cube Trunnions are fully adjustable and rigid enough to handle large parts due to its two fully-sealed bearings in the trunnion support. The trunnion is made up of a face plate that mounts to the rotary table or indexer, a trunnion support with attached face plate and a fixture plate (or cube) that is mounted between the two face plates. The unit is easy to remove and could be set up to have multiple plates (or cubes) for fast part loading and job changeover.

The PTA25/CTA25 Plate and Cube Trunnion can also be equipped with an optional clamp for jobs that have higher side cutting forces or that require increased accuracy. The optional clamp is configured to operate in parallel with the clamp system on the rotary table or indexer if applicable.

3. Features

RIGID DESIGN - Two preloaded bearings in the trunnion support, (4) bolts, and (2) locating pins insure no unwanted movement in the system.

ADJUSTABILITY - Mounting rails on plate trunnion face plates allow for multiple height adjustments of the fixture plate to aid in counter balancing heavier parts or to provide for different elevation work and workholding assemblies. In all cases it is ideal to balance the load as evenly as possible.

REMOVABLE FACE PLATES - Trunnion face plates are removable to allow the customer to custom machine face plates for specific applications. The face plates locate on the rotary table or indexer and trunnion support spindles. The PT5C2 face plate is a collet-style face plate that utilizes the accuracy of the collet seat in the 5C indexer spindle. The PTA24 face plate mounts on an A2-4 spindle nose. The PTA25 and CTA25 face plate mounts on an A2-5 spindle nose.

FIXTURE PLATE - The trunnion fixture plate is machinable for customizing or for "truing" the plate with the specific machine table. The customer can make his/her own custom plate based upon application or a custom plate can be ordered from Hardinge.

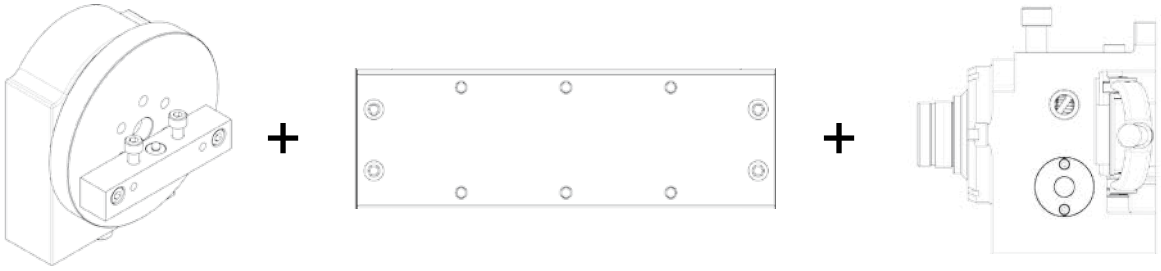
QUICK CHANGE POSSIBILITIES - The fixture plate or cube is easily removed by unbolting just (4) bolts, and is located with (2) pins for repeatability, allowing for quick part loading and easy job changes.

OPTIONAL TRUNNION CLAMP (PTA25/CTA25 only) - The PTA25 plate trunnion and the CTA25 cube trunnion is available with an optional clamp for larger parts or very precise jobs. The clamp is configured to operate in parallel with the clamp system on the rotary table indexer.

Part No. B -0009500-0163

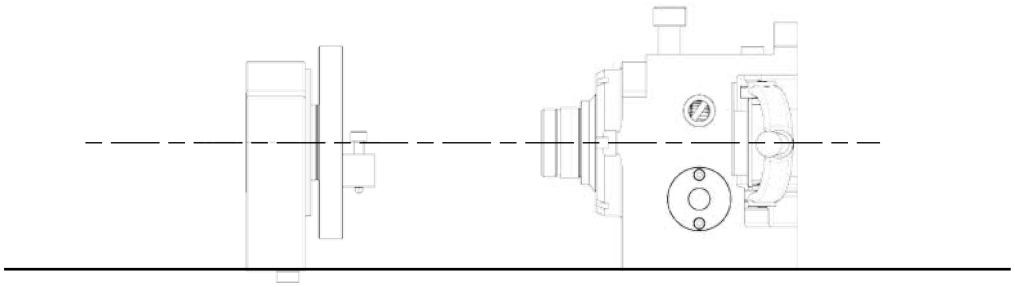
4. Set Up

The various trunnion systems outlined in this manual consist of three basic components: A trunnion support, a rotary table or indexer and a plate or cube fixture that connects the two.



Trunnion Support | Fixture Plate (or Cube) | Rotary Table Indexer

Great care is taken to insure that the spindle centerline of the trunnion support is at the same height and parallel with the indexer spindle centerline within 0.0002" (0.005mm).



Trunnion Support Centerline Height | Rotary Table Indexer Centerline Height

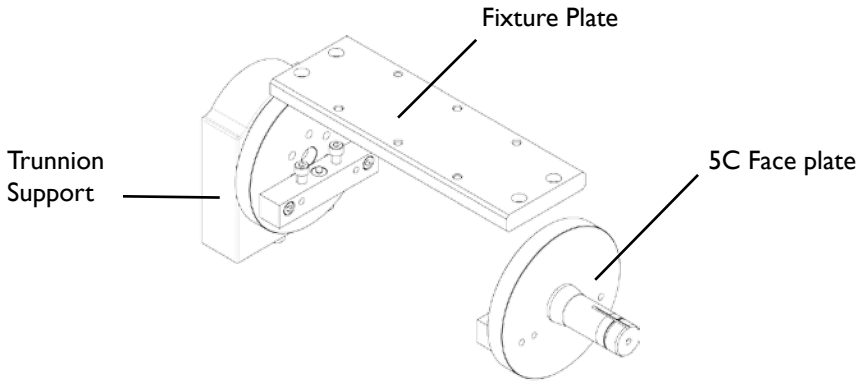
If the system was shipped together as a whole, the trunnion assembly should remain with the indexer with which it shipped. If the trunnion assembly was purchased at a later date or is being integrated with a non-Hardinge indexer, the trunnion support may have to be shimmed or machined to match with the mating indexer centerline. This is extremely IMPORTANT to achieve this alignment to insure that the function of the trunnion system will not put undue stresses into the indexer unit while rotating.

Inertia plays an important part in the accuracy and repeatability of the indexer unit. The system as a whole should be accurate and repeatable within the limits of the indexer specifications with normal loading. If the accuracy and repeatability of the system seems out of spec, the alignment of the trunnion system to the indexer should be immediately verified. If the alignment is verified, consider the inertia of the mass being rotated. If this exceeds or approaches the limit of the indexer, servo tuning the indexer may alleviate the problem. Consult a Hardinge Service Representative if this should be the case.

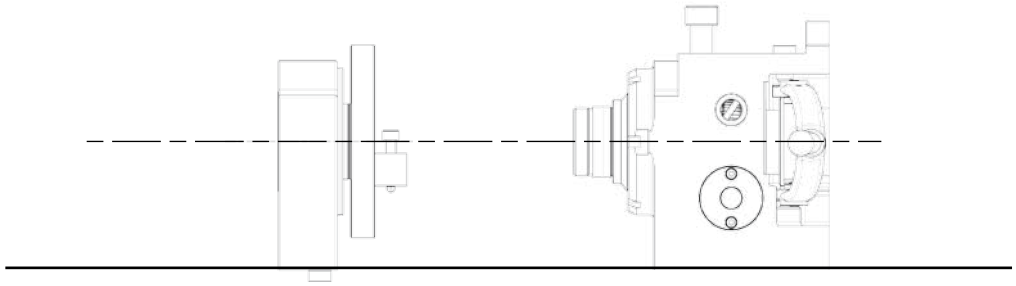
Proper alignment procedures will be discussed in the following installation sections.

Part No. B -0009500-0163

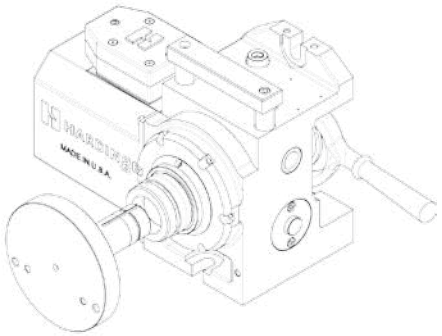
4.1 PT5C2 5C Plate Trunnion Set Up for GD5C2 and DD100 Rotary Indexers



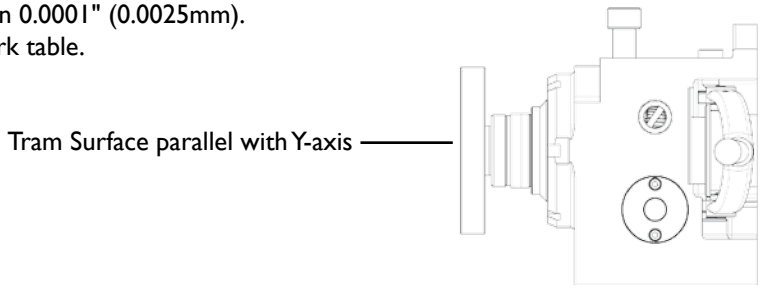
1. Verify that the spindle center heights of the trunnion support and indexer are within 0.0002" (0.005mm)



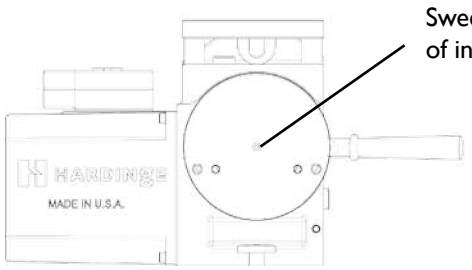
2. Install the indexer face plate into the indexer unit.
   - Align the collet key of the indexer spindle with the key seat on the face plate fixture
   - Tighten the drawbar to draw the fixture plate into the spindle
   - Actuate the closure and make adjustments until the fixture plate is seated



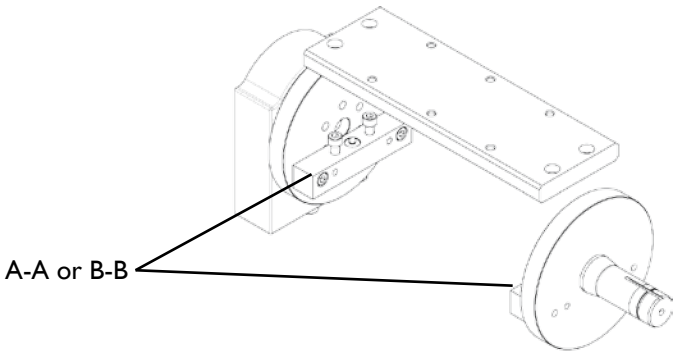
3. Home the indexer and loosen the T-nuts holding the indexer to the work table. Tram the face plate parallel with the Y-axis of the machine until it is within 0.0001" (0.0025mm). Secure the indexer to the work table.



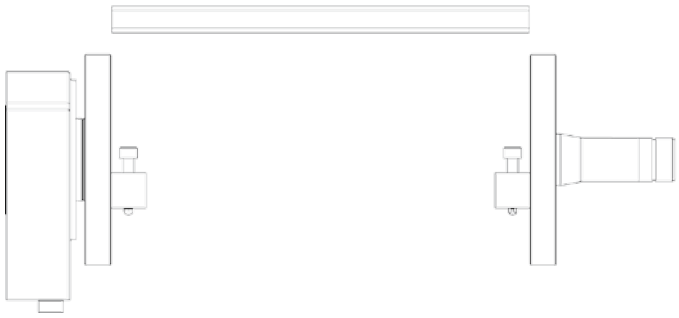
4. Once the indexer is locked down to the work table, sweep in the face plate to find the centerline of the indexer in the Y-axis and make that 0.000.



5. Verify that when the face plates of the trunnion support and indexer are oriented the same, the A and B on the mounting rails are lined up A-A and B-B.



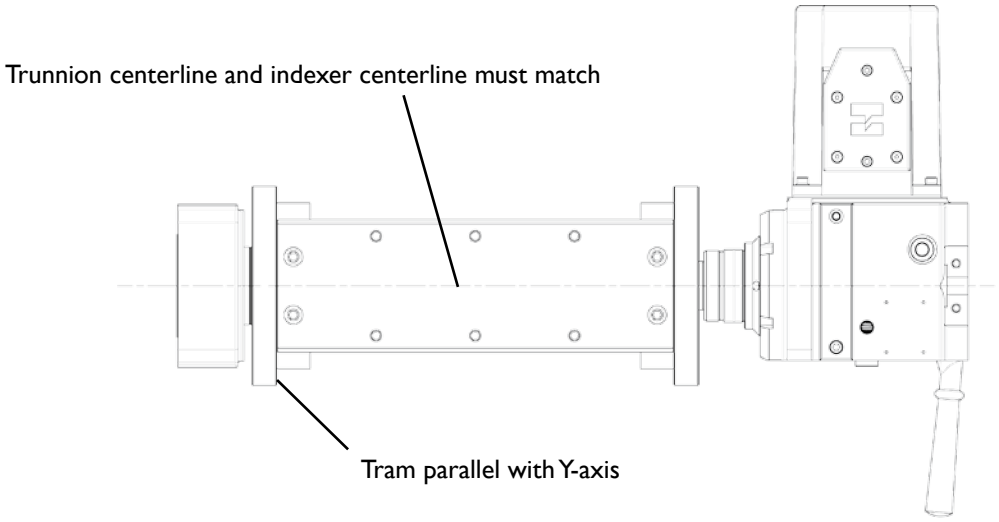
6. Loosely position the trunnion support to approximately line up with the indexer for the length of the fixture plate to be fitted.



7. Install the fixture plate over the locating pins.
8. Install the M8 bolts loosely to the fixture plate to secure it to the mounting rails.

Part No. B -0009500-0163

9. Tram the face plate of the trunnion support to be parallel with the Y-axis of the machine to within 0.0001" (0.0025mm).

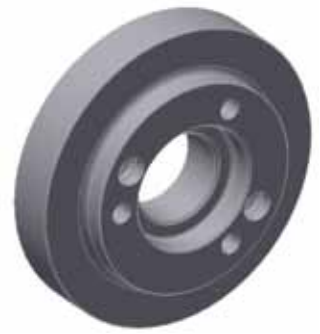


10. Sweep the trunnion face plate to find the centerline and compare it with the indexer center position. It must be within 0.0002" (0.005mm).
11. Once the trunnion face plate is parallel with the Y-axis and on the same centerline as the indexer, tighten the trunnion mounting bolt to the work table.
12. Re-verify alignment after tightening.
13. Tighten the M8 bolts of the fixture plate to the mounting rails and torque to 22 ft-lbs (30Nm).
14. Rotate the indexer and check the system for repeatability. If there are any issues, verify proper alignment.

The PT5C2 has four different positions for the fixture plate position. Refer to Section 6 of this manual.

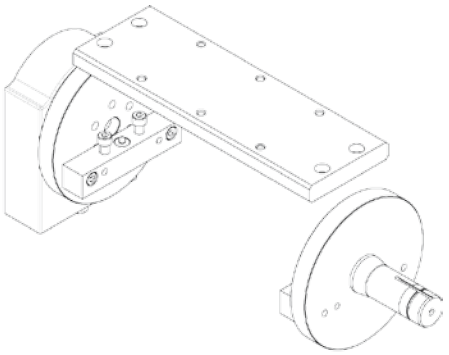
4.2 PTA24 Plate Trunnion Setup for GD160LP and DD100 Rotary Table Indexers

The setup procedure for the PTA24 is the same as the PT5C2 with the following exception. The face plate mounts to the spindle face of the indexer with A2-4 features. Attach to the units using (3) M10 x 25mm socket head cap screws and torque to 25 ft-lbs (34Nm) using a criss-cross pattern. Then torque the cap screws to full 40 ft-lbs (54Nm). Do NOT use Loctite.

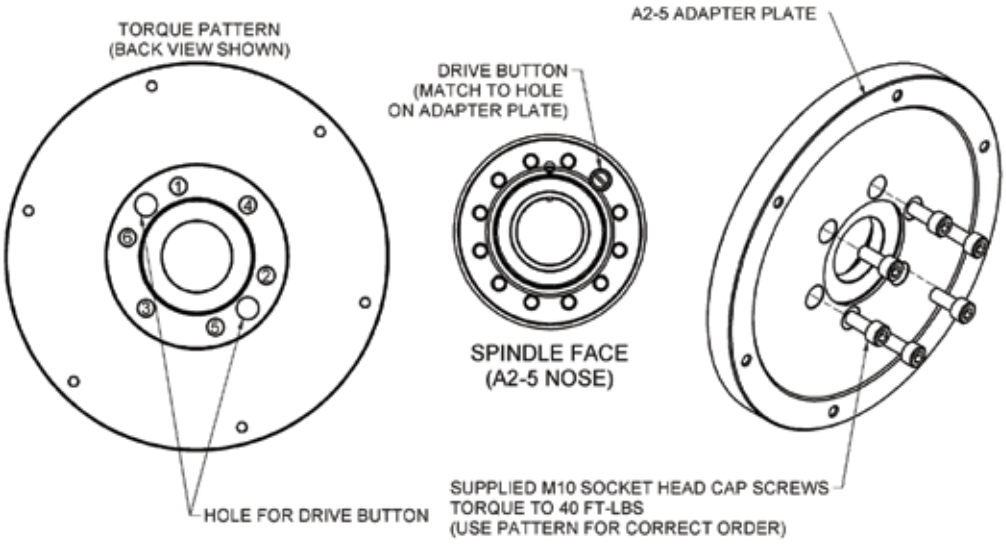


The PTA24 Trunnion has four different positions for the fixture plate position. Refer to Section 6 of this manual.

4.3 PTA25 Plate Trunnion Set Up for GD16C2, GD3J2, GD210LP, DD200 and DD300 Rotary Table Indexers



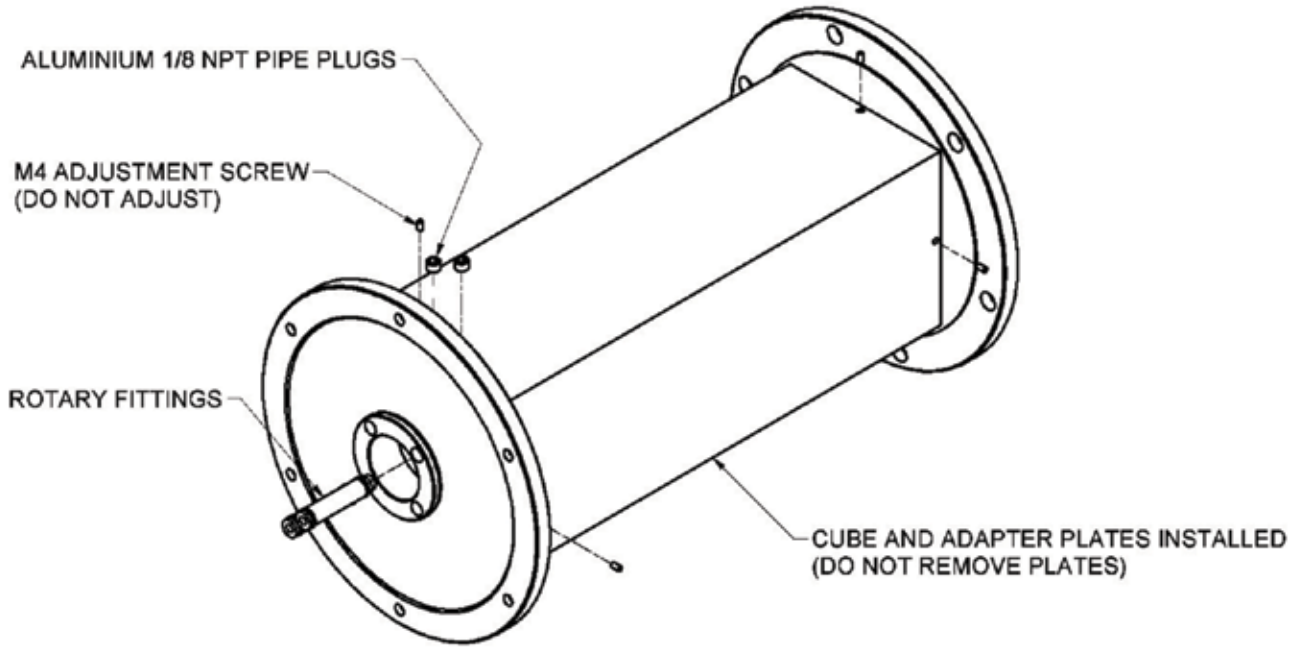
The setup procedure for the PTA25 is the same as the PT5C2 with the following exceptions. The face plate mounts to the spindle face of the trunnion support and indexer with A2-5 features. Attach to the units using (6) M10 x 25mm socket head cap screws and torque to 25 ft-lbs (34Nm) using a criss-cross pattern. Then torque the cap screws to full 40 ft-lbs (54Nm). Do NOT use Loctite.



The PTA25 is adjustable and has seven different mounting positions. Refer to Section 6 of this manual.

Part No. B -0009500-0163

4.4 CTA25 Cube Trunnion Set Up for GD16C2, GD3J2, GD210LP, DD200 and DD300 Rotary Table Indexers



- The surfaces of the aluminum cube used for locating fixtures and parts are in an unfinished state. Check flatness and parallelism and determine if this is acceptable for your application.
- Do not change or adjust the end plates of the trunnion assembly, these are dialed in at Hardinge. If any machining is required on the cube, do not remove the adapter plates. The cube coupled with the adapter plates can be taken off the trunnion assembly by loosening the (6) M8 SHCS. To retighten, torque to 22 ft-lbs (30Nm).
- If removal of the cube is necessary, be careful as not to damage the rotary fittings inside the cube. Slide cube away from trunnion to safely remove the rotary fittings.
- Do not allow chips in the holes that are plugged on the aluminum cube. These are the air ports and damage to equipment could occur.

When installing the Cube Trunnion on a machine, don't try to lift the whole system together. Put the rotary table or indexer and trunnion support on the machine separately. Use the lifting eye hook on top of the trunnion support and/or the rotary table or indexer to lift it in place on the machine bed. Bolt the rotary table or indexer to the machine table following the setup directions in the rotary table or indexer user manual. The trunnion support has a locating button just like the rotary table or indexer does. Put the trunnion support on the table so that the locating button is in the T-slot and begin bolting the trunnion support to the table with a T-nut. Leave the bolt loose so that you can position the assembly to accommodate the cube assembly.

1. Home the rotary table or indexer before mounting the A2-5 face plate. Install the A2-5 face plate to the rotary table or indexer housing. Torque M10 x 25mm socket head cap screws to 25 ft-lbs (34Nm) using the pattern shown below. Then torque cap screws to full 40 ft-lbs (54Nm). Do NOT use Loctite.
2. Verify that the spindle center heights of the trunnion support and indexer are within 0.0002" (0.005mm)
3. The cube is now ready to be assembled as part of the trunnion. Do NOT disassemble the cube assembly. The adapter plates attached from the factory are dialed in to the cube by Hardinge. Lift the cube using a lift or crane. The surface with the drilled holes will be oriented on the top for assembly purposes. The two outside holes, one on each end, are adjustment screws. The other two holes closer to the center are intended as air ports for models equipped with the union air kit assembly. Orient these holes toward the trunnion support.

Part No. B -0009500-0163

CAUTION: To tap the air ports, have air on both ports to prevent aluminum chips from possibily damaging (or plugging) any fittings or tubing.

4. Now move the cube into position. When the cube nears the trunnion, the rotary fittings will be the first part to be seated into position. Be careful when moving the cube near the fittings, as damage to the spindle, fittings or O-rings may result.
5. When the rotary fittings are properly seated, move the cube so that the pilot diameter will sit in the adapter plate pilot counterbored hole. Use the supplied M8 x 20mm socket head cap screws to attach the cube and adapter plates. This should be a two person operation. One person should hold the orientation of the cube in place and the other can be tightening the fasteners. Hand tighten the cap screws in the correct order as shown in Figure 1 (if #5 cannot be reached, it can be installed later when the cube is attached to the indexer.) Torque the screws to 25 ft-lbs (34Nm) for now.
6. Move the indexer into position. Tap in OD of cube assembly mounting plates to both support face plates until running concentric within 0.0003" (0.007mm). Torque the M8 screws to full 22 ft-lb (30Nm). With the indexer homed and the holes on the cube on the top, the adapter plate and cube will line up. If the screw #5 in the torquing pattern was not tightened and only after clearing any straps that were used to lift the cube, use the indexer to rotate the holes into a position that is easier to reach.

CAUTION: Do not operate the cube trunnion assembly with only five of the M8 screws fastened.

CAUTION: If altering the aluminum cube, air MUST be on both ports when either hole is being tapped. Aluminum chips must not fall into the trunnion or rotary fittings.

5. Optional Trunnion Clamp

5.1 PTA25/CTA25 Trunnion Clamp information

The PTA25 and CTA25 trunnion supports have the option of adding a clamp. This is a failsafe clamp that uses springs to clamp the trunnion spindle. It requires 85 psi (5.8 bar) minimum to open the clamp and allow the spindle to rotate. The trunnion clamp is tied into the clamping system of the rotary table and the two clamps are actuated by the rotary table clamp valve. On the geared rotary tables, the motor cover is modified to put a bulkhead connector in the motor cover. An air hose is provided to supply the air connection to the trunnion support.

CJ 0003048RTRL
for geared rotary systems

IMPORTANT: The air line be MUST BE CONNECTED to the trunnion support prior to trying to index the rotary table. If the air supply is not connected, the failsafe clamp will damage the gears in the rotary table as the motor tries to overcome the clamp to index. This will cause the gearing system to fail and void the warranty of the system. The clamp is capable of putting out 275 ft-lbs (372Nm) of clamping torque.

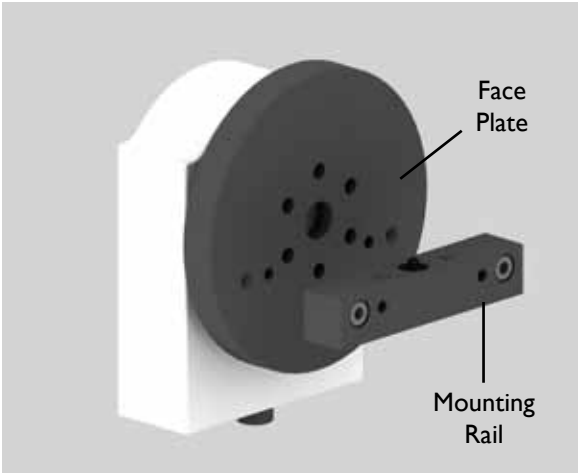
For the direct-drive rotary systems, the clamp valve is located either in the wireway of the machine tool or in the top of a control box system. A longer air hose is supplied to allow the air to be connected to the trunnion support.

RT 0003048TCHK
for DD200 and DD300 rotary systems

Part No.B -0009500-0163

6. Height Adjustment

6.1 PT5C2 and PTA24 Height Adjustment



Correct orientation of holes for adjusting the mounting rail on the PT5C2 and PTA24

The trunnion fixture plate has height adjustment capabilities to accommodate different part sizes. This is achieved by flipping the rails over in the locating holes of the face plate and/or by mounting the fixture plate to the other side of the rails. The trunnion system has the capability of positioning the fixture plate anywhere from on-center with the spindle to 1.750" (44.45mm) off-center from the spindle centerline. This off-center distance is measured from the spindle centerline to the center of the .750" (19.05mm) thick fixture plate cross section. This means that you have to add or subtract .375" to figure out the distance to the mounting surface from the spindle centerline depending on what side of the plate you mount your parts to. The mounting rails have two sides that are marked for mounting the fixture plate to – sides A and B.

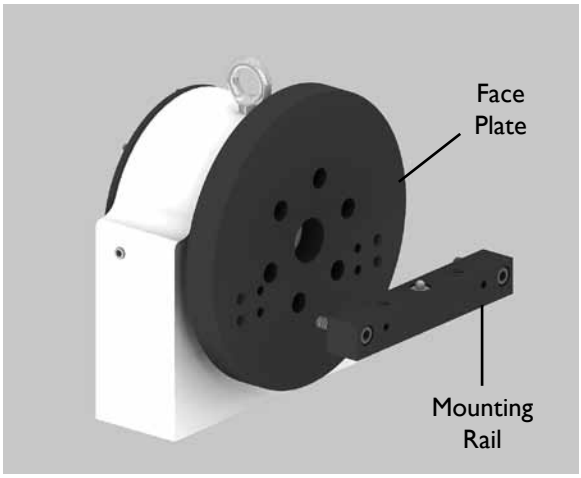
Use the table below as a guide to achieving your desired fixture plate offset. Make the changes to your mounting rails with the trunnion positioned in such a way that the mounting holes in the face plates are closer to the machine table as shown in the picture above. Torque the M8 bolts that attach the mounting rails to the face plates to approximately 25 ft-lbs (34Nm).

Position	Offset	Rail Side Up	Mount Fixture Plate to Rail Side
1	0	A	A
2	1.75	A	B
3	0.25	B	B
4	1.5	B	A

Refer to the Machineable Part Size drawings in Section 7 for more information.

Part No. B -0009500-0163

6.2 PTA25 Height Adjustment



Correct orientation of holes for adjusting the mounting rail on the PTA25

The trunnion fixture plate has height adjustment capabilities to accommodate different part sizes. This is achieved by moving the locating rails to a different set of holes on the face plate, by flipping the rails over in the same holes of the face plate, and/or by mounting the fixture plate to the other side of the rails. The trunnion system has the capability of positioning the fixture plate anywhere from on-center with the spindle to 3.000" (76.2mm) off-center from the spindle center line. This off-center distance is measured from the spindle center line to the center of the 1" (25.4mm) thick fixture plate cross section. This means that you have to add or subtract .500" (12.7mm) to figure out the distance to the mounting surface from the spindle center line depending on what side of the plate you mount your parts to.

The mounting rails have two sides that are marked for mounting the fixture plate to – sides A and B. Use the table below as a guide to achieving your desired fixture plate offset. Make the changes to your mounting rails with the trunnion positioned in such a way that the mounting holes in the face plates are getting closer to the machine table as shown in the picture above. Torque the M10 bolts that attach the mounting rails to the face plates to approximately 30 ft-lbs (40Nm).

Position	Desired Offset	Rail Side Up	Set of Mounting Holes Used	Mount Fixture Plate to Rail Side
1	0.000	A	Top	A
2	0.500	B	Bottom	B
3	0.750	A	Bottom	A
4	2.000	B	Top	A
5	2.250	A	Top	B
6	2.750	B	Bottom	A
7	3.000	A	Bottom	B

Refer to the Machineable Part Size drawings in Section 7 for more information.

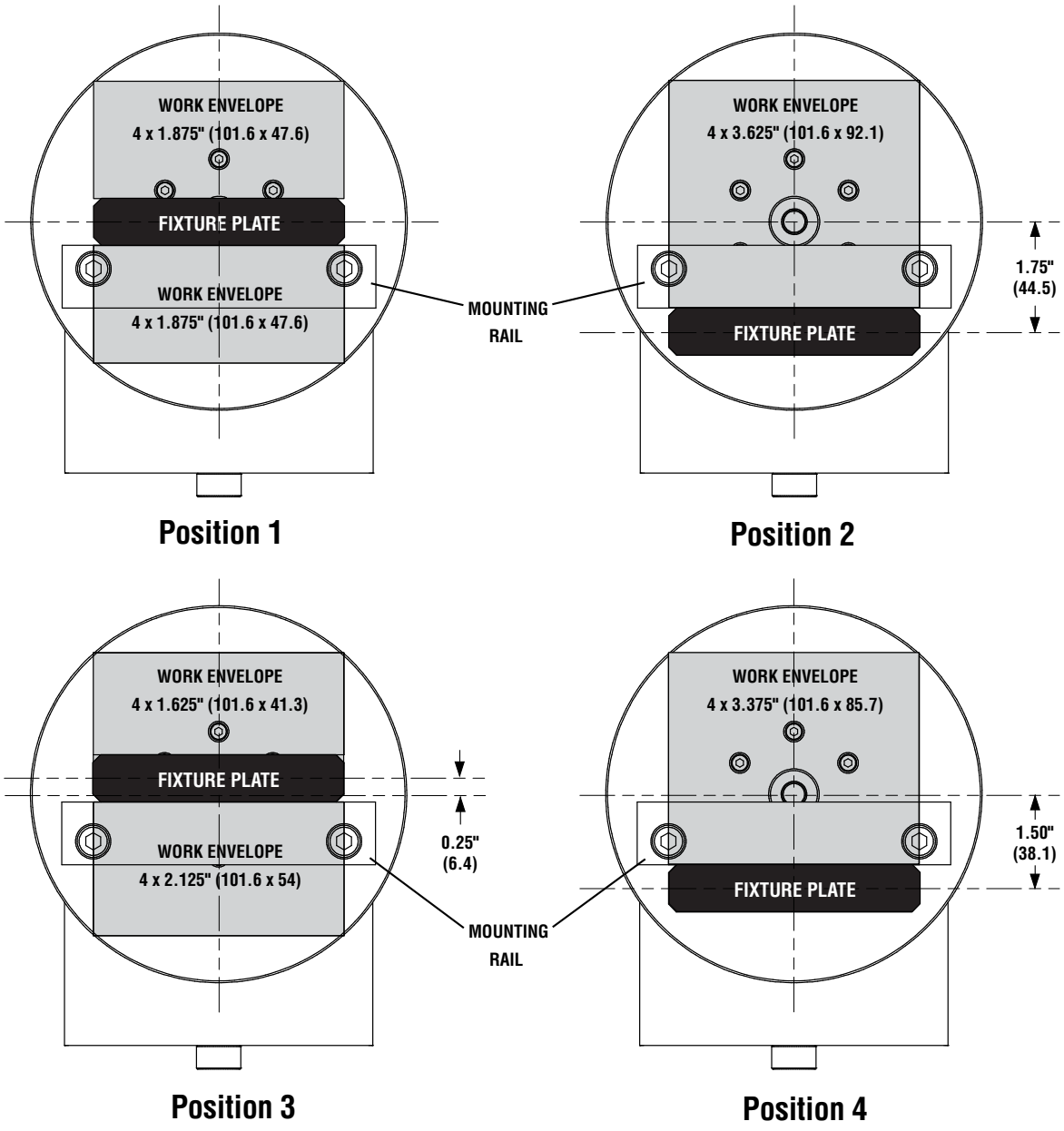
Part No. B -0009500-0163

7. Machinable Part Size

7.1 PT5C2 and PTA24 Machinable Part Size

The Hardinge PT5C2 and PTA24 have been designed to handle a variety of part sizes, but due to its adjustability, pinch points may be created with certain size parts. The available part size envelope while the fixture plate is in the center position is approximately 4" wide x 1.875" tall (101.6 x 47.62mm). As a rule of thumb, if the part and workholding do not protrude past the diameter of the 6" (152.4mm) face plate, then you are within the available part size envelope. See illustrations below for work envelope for every position of the fixture plate.

IMPORTANT: FAILURE TO STAY WITHIN THE PART SIZE ENVELOPE MAY RESULT IN DAMAGE TO EQUIPMENT OR INJURY TO THE OPERATOR. HARDINGE IS NOT RESPONSIBLE FOR ANY DAMAGE INCURRED WHEN LARGER WORK ENVELOPES ARE USED.

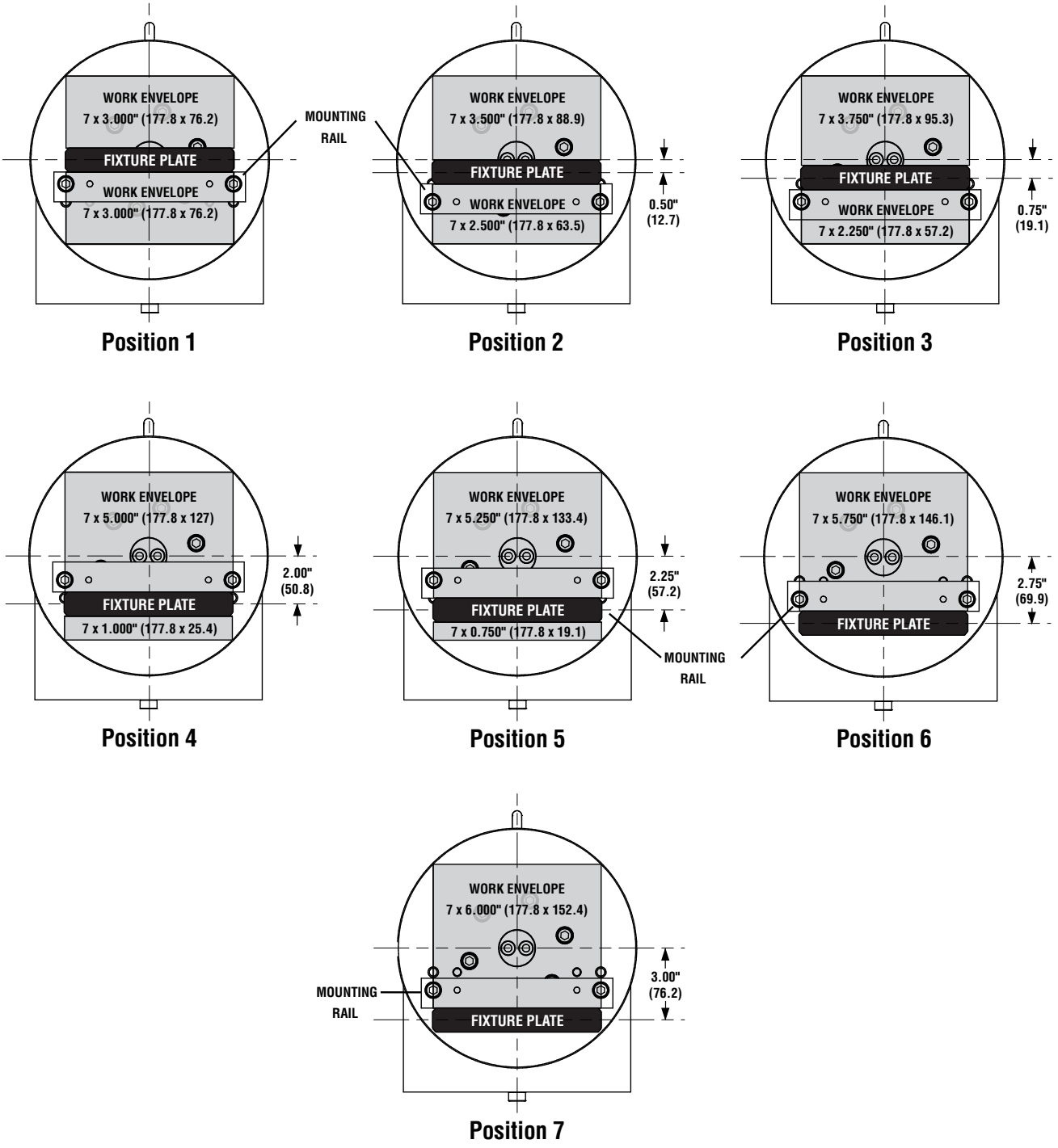


Part No. B -0009500-0163

7.2 PTA25 Machinable Part Size

The Hardinge PTA25 Trunnion has been designed to handle a wide variety of part sizes, but due to its adjustability, pinch points may be created with certain size parts. The available part size envelope, while the fixture plate is in the center position, is approximately 7" wide x 3" tall (177.8 x 762mm). As a rule of thumb, if the part and workholding do not protrude past the diameter of the 10" (254mm) face plate, then you are within the available part size envelope. See illustrations below for work envelope for every position of the fixture plate.

IMPORTANT: FAILURE TO STAY WITHIN THE PART SIZE ENVELOPE MAY RESULT IN DAMAGE TO EQUIPMENT OR INJURY TO THE OPERATOR. HARDINGE IS NOT RESPONSIBLE FOR ANY DAMAGE INCURRED WHEN LARGER WORK ENVELOPES ARE USED.

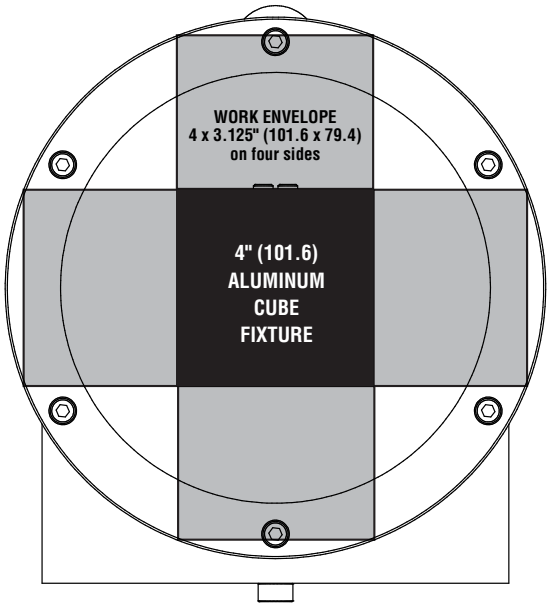


Part No. B -0009500-0163

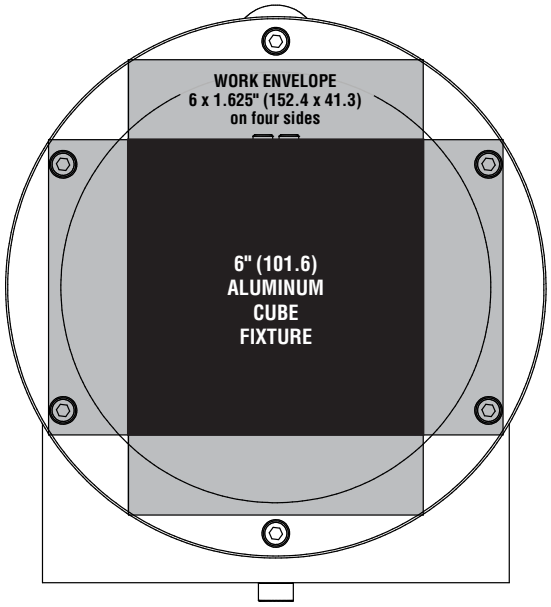
7.3 CTA25 CUBE Machinable Part Size

The Hardinge CTA25 Cube Trunnion has been designed to handle a variety of part sizes. As a rule of thumb, if the part and workholding do not protrude past the diameter of the 10" (254mm) face plate, then you are within the available part size envelope. See illustrations below for work envelope for the 4" and 6" (101.4 and 152.4mm) cube models.

IMPORTANT: FAILURE TO STAY WITHIN THE PART SIZE ENVELOPE MAY RESULT IN DAMAGE TO EQUIPMENT OR INJURY TO THE OPERATOR. HARDINGE IS NOT RESPONSIBLE FOR ANY DAMAGE INCURRED WHEN LARGER WORK ENVELOPES ARE USED.



CTA25-4IN Cube Trunnion

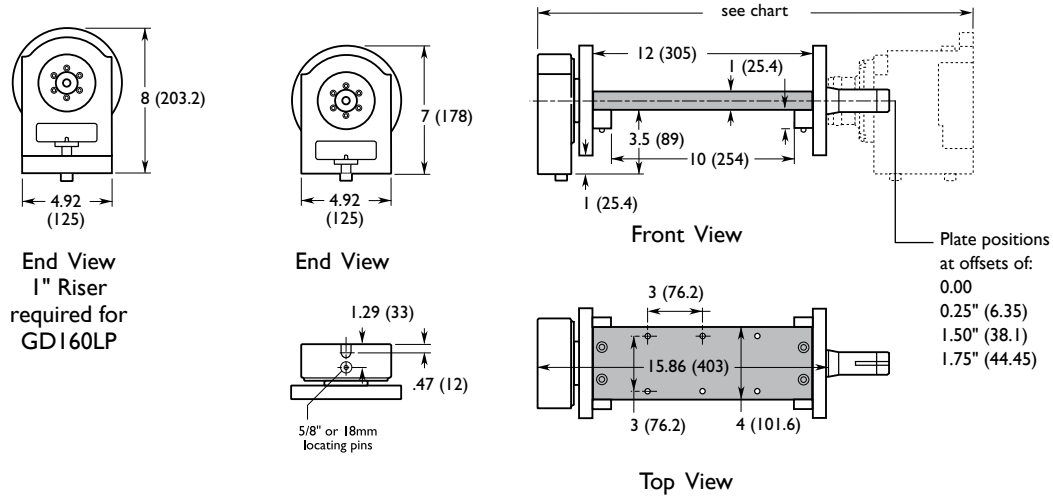


CTA25-6IN Cube Trunnion

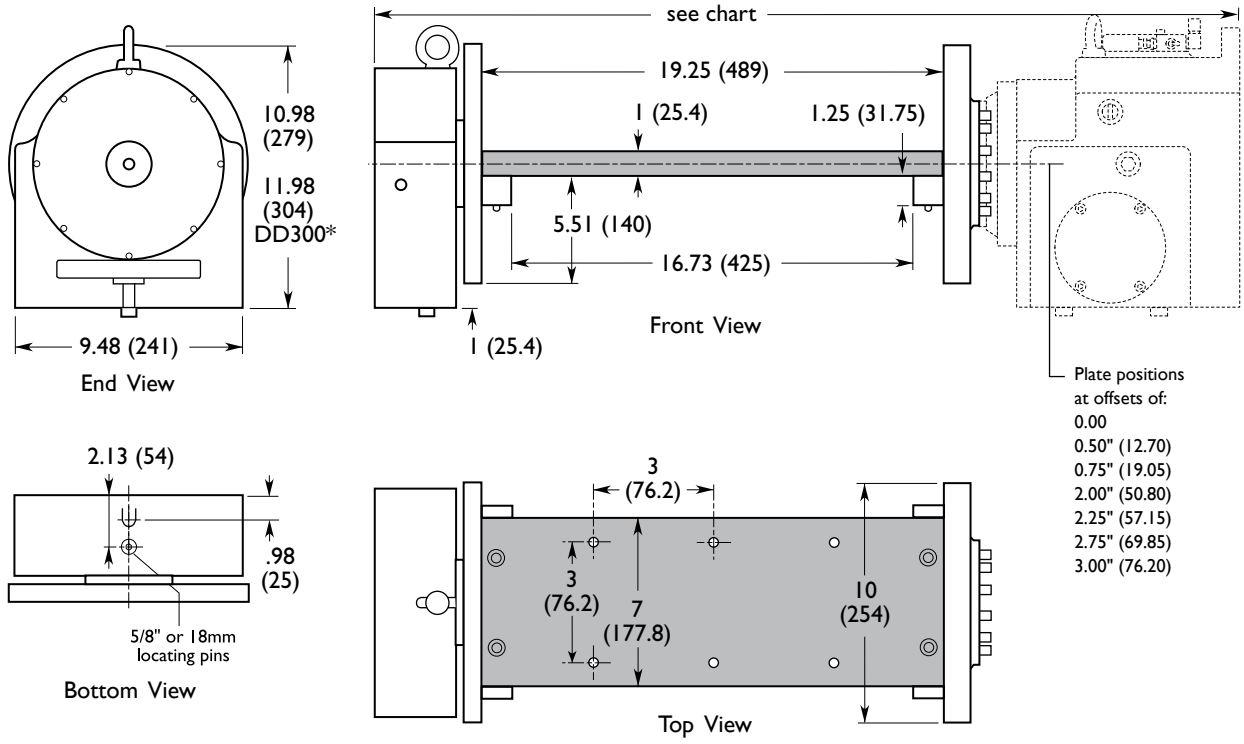
Part No. B -0009500-0163

8. Dimensions

8.1 PT5C2 for Hardinge GD5C2, GD160LP and DD100 Rotary Units - Dimensions



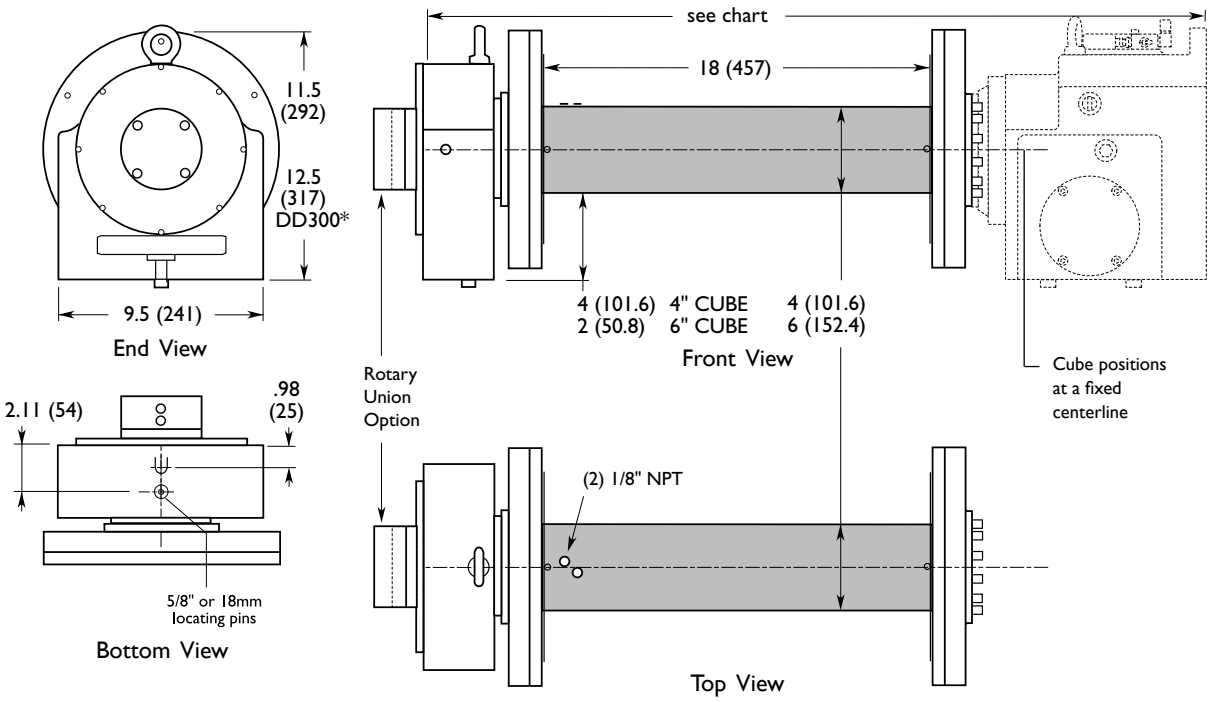
8.2 PTA25 for Hardinge GD16C2, GD3J2, GD210LP, DD200 and DD300 Rotary Units - Dimensions



(millimeters in parentheses)

Part No. B -0009500-0163

8.3 CTA25-4IN and CTA25-6IN for GD16C2, GD3J2, GD210LP, DD200 and DD300 Rotary Units - Dimensions



(millimeters in parentheses)

Hardinge Rotary Table and Indexer Compatibility Chart:

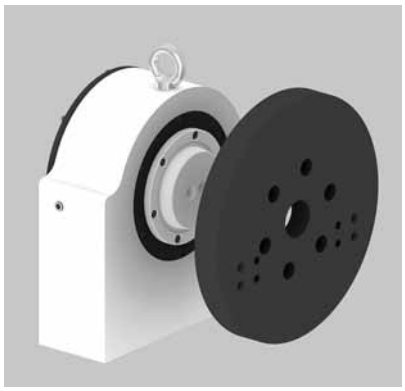
ROTARY DEVICE COMPATIBILITY	PT5C 5C PLATE	PTA25 A2-5 PLATE	CTA25 A2-5 PLATE
GD5C2	YES		
Centerline	4" (101.6)	NO	NO
Overall Length	23.80" (607)		
DD100	YES		
Centerline	4" (101.6)	NO	NO
Overall Length	28.82 (732)		
GD160LP	YES		
Centerline	5" (127.0)	NO	NO
Overall Length	23.48 (596)		
GD16C2		YES	YES
Centerline	NO	6" (152.4)	6" (152.4)
Overall Length		37.54" (954)	37.48" (952)
GD210LP		YES	YES
Centerline	NO	6" (152.4)	6" (152.4)
Overall Length		31.04" (788.3)	32.07" (814.7)
DD200		YES	YES
Centerline	NO	6" (152.4)	6" (152.4)
Overall Length		37.68 (957)	37.63(956)
DD300		YES	YES
Centerline	NO	7" (177.8)	7" (177.8)
Overall Length		37.87 (962)	37.82 (961)

Part No. B -0009500-0163

9. Removing the Trunnion Support Face Plates

To remove the trunnion support face plates, simply remove the (6) bolts shown in the appropriate picture below. Once all of the bolts are removed, it may be necessary to lightly tap the face plate with a rubber hammer or a piece of brass in order to break the plate free from the spindle nose. To replace the face plate, simple set it up against the spindle nose and replace the bolts tightening them to approximately 5 ft-lbs (7Nm) to seat the plate on the spindle nose.

PT5C2



PTA25 and CTA25

10. One-Year Limited Warranty

The Hardinge Plate and Cube Rotary Trunnions are provided with a one-year limited warranty against any defects in material and workmanship. Specific details of the warranty can be found in the Hardinge Terms and Conditions document associated with the purchase agreement.

Part No. B -0009500-0163

NOTES:

Part No. B -0009500-0163

Hardinge Inc. One Hardinge Drive | P.O. Box 1507 | Elmira, New York 14902-1507 USA
USA: 800-843-8801 | Canada: 800-468-5946 | Fax: 607-734-3886
To Order Online: www.shophardinge.com | Corporate Homepage: www.hardinge.com | E-mail: info@shophardinge.com | Live Online Support: www.shophardinge.com

Instruction Manual B-163 • Litho in USA • ©Hardinge Inc. 2012