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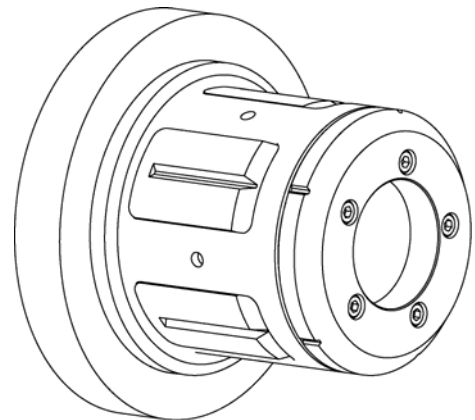
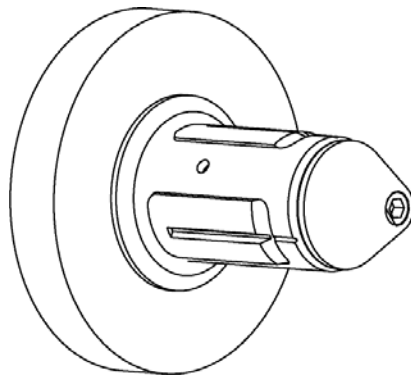
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TIDLAND

Tidland Raptor Series Torque Chuck

User Manual



EN

Includes 3", 4" 6" chucks and adapters

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CAUTION

- Wear eye protection when using tools or compressed air.
- Use care when lifting and installing.
- Use a hoist when lifting 6" chuck with adapter installed.
 - **3" chuck weight is 27 lbs.**
 - **4" chuck weight is 33 lbs.**
 - **6" chuck weight is 54 lbs.**
 - **Adapter weights range from 13-74 lbs.**



TIDLAND CUSTOMER SERVICE

1-800-426-1000

www.tidland.com

Visit the Tidland Repair and Return Center online to review our return policies or to submit an electronic Return Material Authorization Request.

www.tidland.com/returns

RECOMMENDED TOOLS

- Hex drive wrench: 6mm, 10mm
- *Dow Corning Molykote® 557 Dry Film Lubricant* (recommended)
- *LOCTITE® 242* (blue)

For more accessories to help with your winding processes, visit www.tidland.com.

MAINTENANCE SCHEDULE

Daily Maintenance

Throughout the operating shift, use compressed air to blow dust and debris from chuck. Ensure that lugs operate freely in their slots and that chuck body rotates easily.

Preventive Maintenance

Tidland recommends complete disassembly for cleaning and lubrication every 6 months; in severe applications, more frequent maintenance may be necessary. The chuck may be disassembled for cleaning while still on the machine.

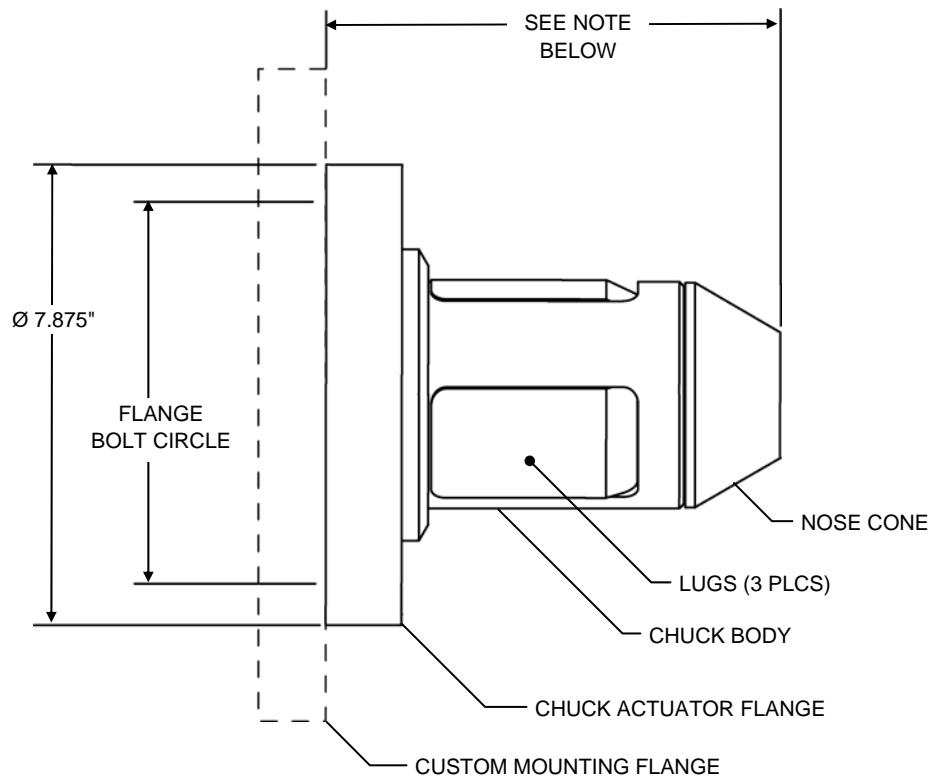
3" AND 4" TORQUE CHUCK

Technical Overview

The torque activated Raptor Series shaftless chucks allow expansion, retraction and disengagement with no operator intervention, tools or air supply. The design delivers torque output of over 500 lbs-ft on the core, per chuck, providing a non-slip grip, positive core centering, and continuous expansion throughout the roll set. The chucks are easy to use and maintain, and minimize core damage usually associated with shaftless winding.

The 3" Torque Chuck is designed to fit: 3" cores (+.010"/+.020").
The 4" Torque Chuck is designed to fit: 4" cores (+.010"/+.020") and
100mm cores (+.25mm/+.51mm)

**The torque chuck is for use primarily with mechanical braking systems.
It is not recommended for use with regenerative braking systems.**



If your setup requires a Custom Mounting Flange, the chuck will be shipped with the flange already mounted.

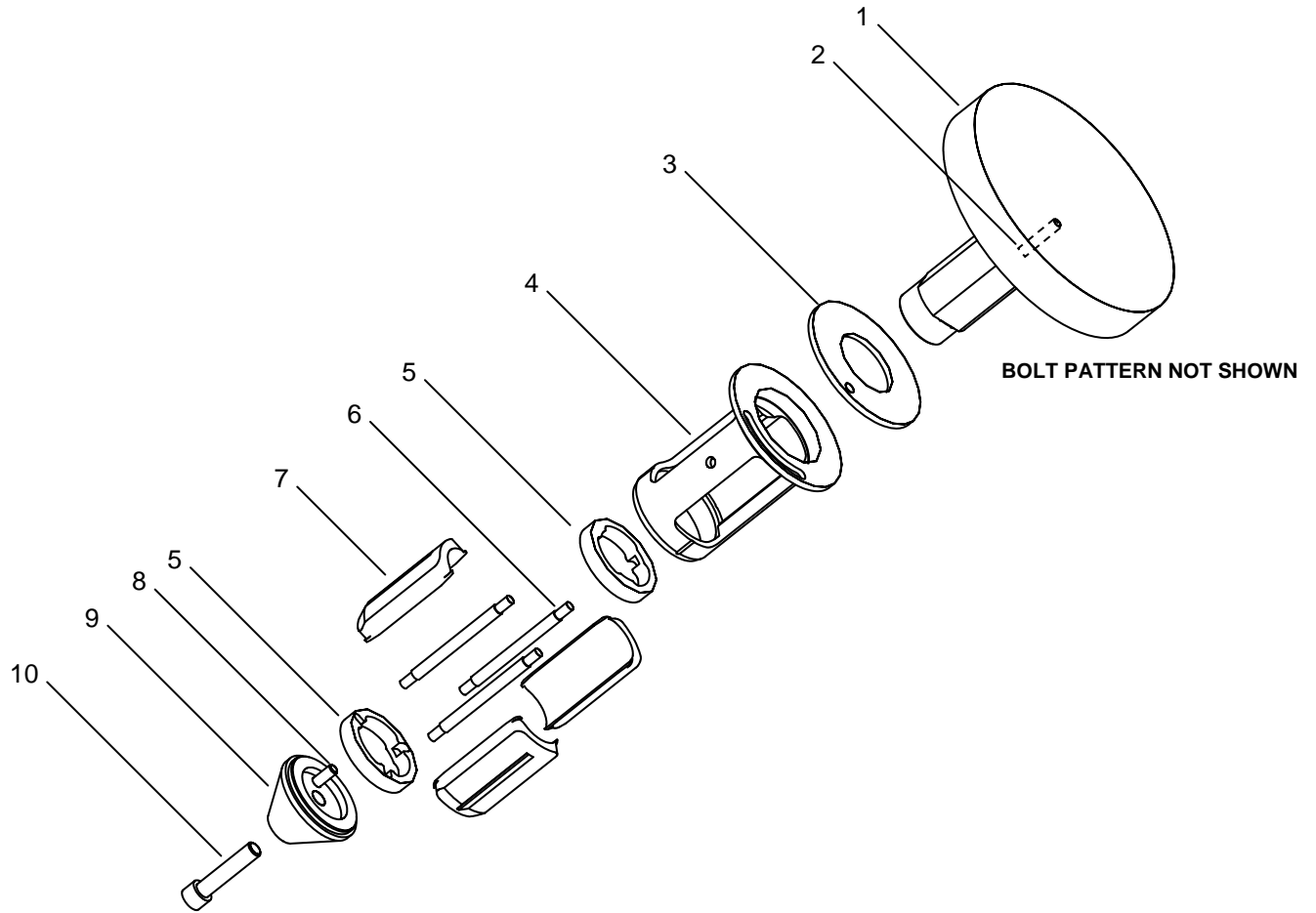
Note: Overall length of the 3" Torque Chuck is 7.80".
Overall length of the 4" Torque Chuck is 7.30"-7.80" depending on nose cone. Custom nose cones are available for the 4" chuck.

Contact a Tidland Customer Service Representative for additional information about custom options (1-800-426-1000).

3" AND 4" TORQUE CHUCK

Assembly Diagram and Parts List

3" Torque Chuck

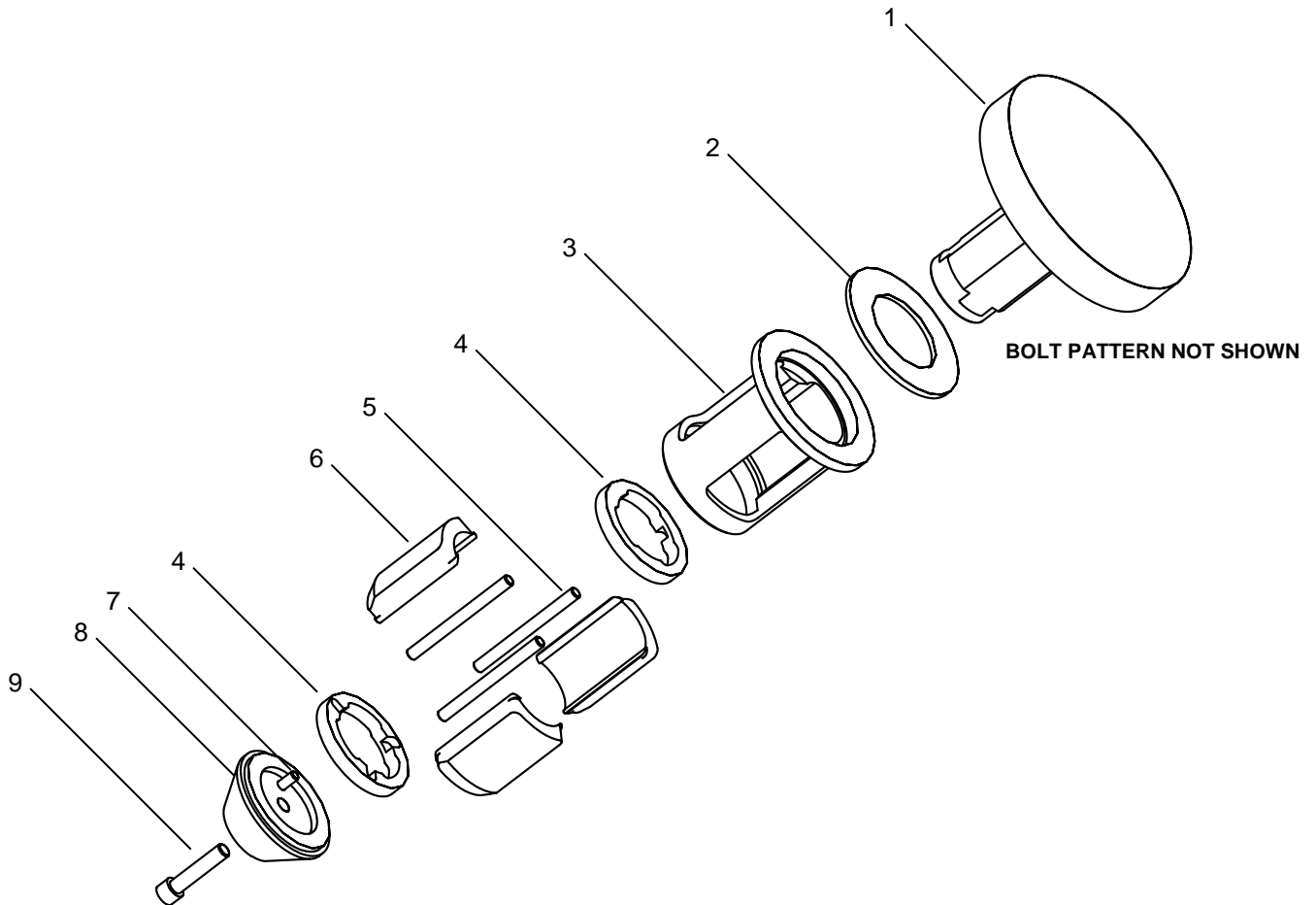


ITEM	DESCRIPTION — 3" TORQUE CHUCK	QTY	PART NO.
1	ACTUATOR	1	595561
2	DOWEL PIN 5/16 x 3/4" LG (LIMITING PIN)	1	604603
3	WASHER	1	596977
4	BODY, 3"	1	595554
5	SYNCHRONIZER RING	2	596975
6	ROLLER	3	596976
7	LUG	3	621929
8	DOWEL PIN 5/16 X 1" LG (LOCKING PIN)	1	596382
9	NOSE CONE	1	596978
10	SOCKET HEAD CAP SCREW M12 X 1.75 X 55 LG (GRADE 8)	1	596383

3" AND 4" TORQUE CHUCK

Assembly Diagram and Parts List

4" Torque Chuck



ITEM	DESCRIPTION — 4" TORQUE CHUCK	QTY	PART NO.
1	ACTUATOR	1	621907
2	WASHER	1	595558
3	BODY, 4"	1	595565
4	SYNCHRONIZER RING	2	595555
5	ROLLER	3	595557
6	LUG	3	621902
7	DOWEL PIN 5/16 X 1" LG (LOCKING PIN)	1	596382
8	NOSE CONE (CUSTOM NOSE CONE AVAILABLE)	1	595563
9	SOCKET HEAD CAP SCREW M12 X 1.75 X 55 LG (GRADE 8)	1	596383

3" AND 4" TORQUE CHUCK

Installation

1. Use caution when lifting and installing. Chuck weights range between 27-33 lbs.
2. Non-plated steel flanges should be protected with a corrosion inhibitor before installation.
3. Ensure both flange surfaces are clean and free of burrs and debris.
4. Flange mounted chuck should have a close fitting register to support all roll loads.
5. Apply *Loctite 242* to mounting bolt threads. Tighten bolts to appropriate torque specification for user machinery. **Do not operate chuck with missing bolts.**
6. Ensure flush flange mounting by hand rotation and visual check of chuck runout.
7. Ensure smooth and unrestricted lug movement. Place both hands around the lugs and rotate chuck in both directions.

Note: If lugs are stiff, disassemble the chuck and check for debris. See page 8 for complete disassembly instructions.

Chuck is ready for use.

To install Raptor Series Adapters, see page 17.

**Questions about installation or application of this product?
Call Tidland Customer Service 1-800-426-1000.**

Operation

The 3" Torque Chuck is designed to fit 3" cores.

The 4" Torque Chuck is designed to fit 4" cores.

1. Align chuck to core and insert.
2. Begin rotation: Torque activated lugs will expand to engage the core.
3. When roll run is complete, cut the sheet or turn off the brake to disengage the chuck.
4. Open the roll stand and remove the core.

Note: Excessive axial side force after chuck is fully inserted can damage cores and place unnecessary stress on the roll stand.

3" AND 4" TORQUE CHUCK



Wear eye protection when using tools or compressed air.

Daily Maintenance

Blow dust and debris from chuck. Ensure that lugs operate freely in their slots and that chuck body rotates easily.

Preventive Maintenance

Tidland recommends complete disassembly for cleaning and lubrication every 6 months; in severe applications, more frequent maintenance may be necessary. The chuck may be disassembled for cleaning while still on the machine.

3" and 4" Torque Chuck

To Disassemble Chuck

1. Remove adapter, if installed. Loosen – do not remove – the locking pins that hold the adapter in place.
2. Using 10mm hex drive wrench, remove the bolt from the nose cone.
3. Remove the nose cone.
4. Slide the chuck body forward slightly and remove the outer synchronizer ring.
5. Carefully remove the chuck body with lugs while holding the rollers in place on the actuator.
6. Remove the rollers.
7. Remove the inner synchronizer ring from the actuator.
8. Clean all chuck parts thoroughly.
9. Blow dust and debris from actuator and the plastic washer.

Note: Inspect plastic washer for dents, gouging or chafing. Replace if worn.

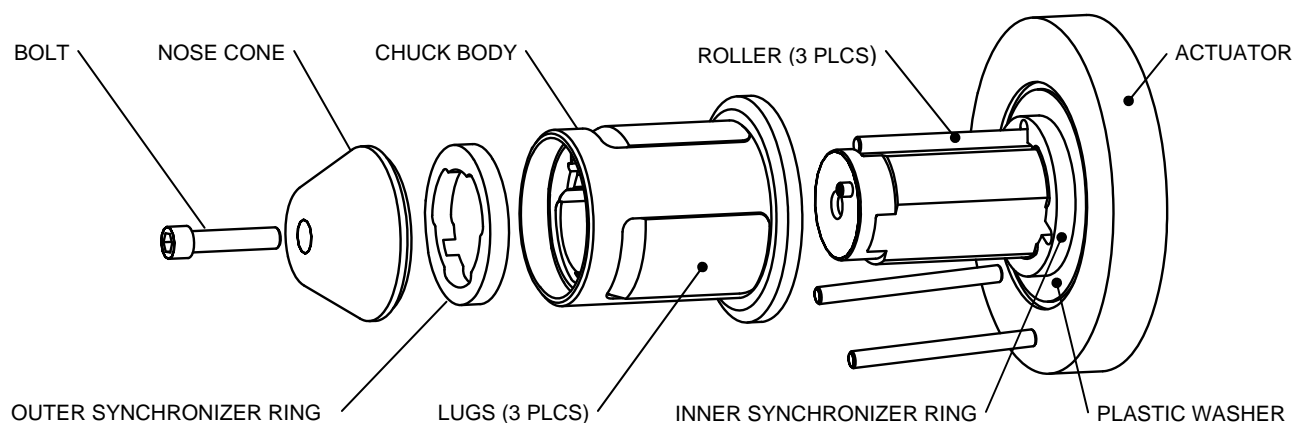


Fig. 1

3" AND 4" TORQUE CHUCK

Maintenance (continued)

To Reassemble Chuck

Recommended: Apply a light coat of silicone dry film lubricant spray to the contact sides of the clean chuck parts and actuator shaft. **Do not use grease products.**

1. Install inner synchronizer ring on the actuator shaft with the roller slots facing away from plastic washer.
2. Insert rollers into position in the synchronizer ring on the actuator shaft.
3. Holding the rollers in place, slide the chuck body, with lugs installed, onto the actuator shaft. (Fig 2)

Note: Ensure that the lugs are aligned over the rollers as in Fig. 3.

Caution! For 3" Torque Chuck only — limiting pin on actuator must align inside the groove on back face of chuck body. (Fig. 4)

Refer to Fig. 1 on page 8 for completing the following steps 4 through 6.

4. Install outer synchronizer ring, turning chuck body until the ring seats fully into place over rollers. Nose cone will not fit properly if ring is not fully seated.
5. Install nose cone, aligning locking pin on actuator with hole in the nose cone. (Fig. 5)
6. Apply *Loctite 242* to M12 bolt threads and install bolt. Torque to 90 ft.-lbs.

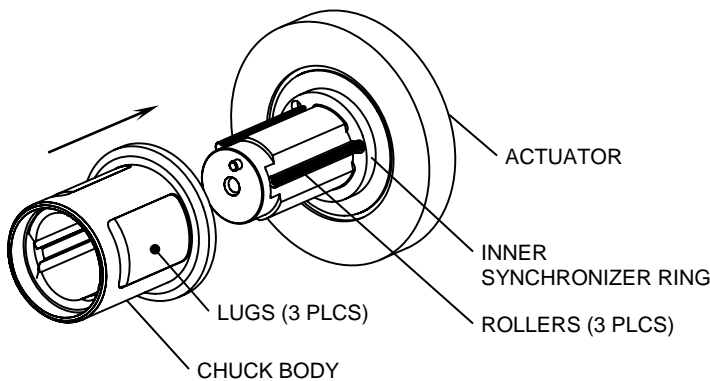


Fig. 2

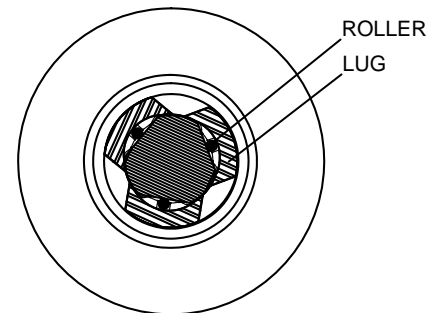


Fig. 3

3" TORQUE CHUCK ONLY

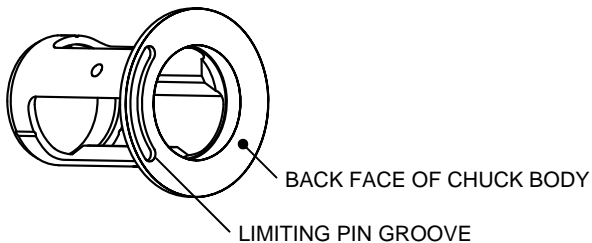
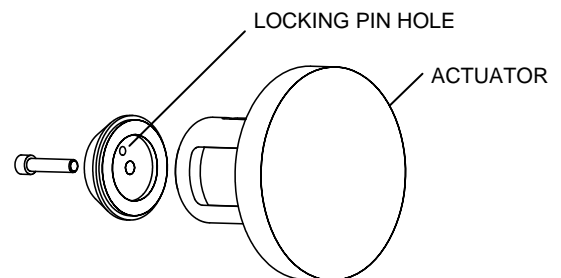


Fig. 4

Fig. 5



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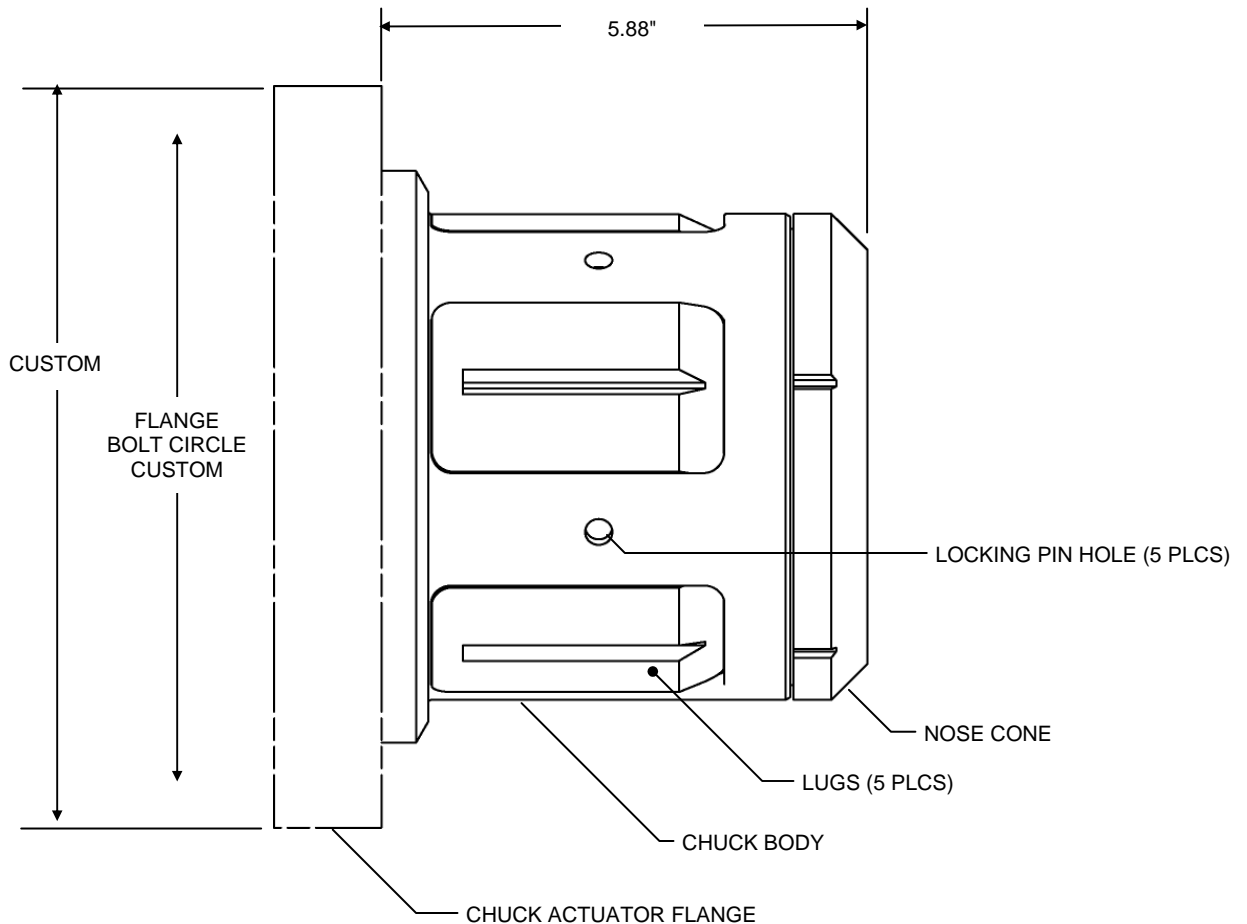
6" TORQUE CHUCK

Technical Overview

The torque activated Raptor Series shaftless chucks allow expansion, retraction and disengagement with no operator intervention, tools or air supply. The design delivers torque output of over **1500 ft-lbs** on a fiber core, per chuck, providing a non-slip grip, positive core centering, and continuous expansion throughout the roll set. The chucks are easy to use and maintain, and minimize core damage usually associated with shaftless winding.

The 6" Torque Chuck is designed to fit: 6" cores (+.010"/+.020") and 150mm cores (+.25mm/+.51mm)

**The torque chuck is for use primarily with mechanical braking systems.
It is not recommended for use with regenerative braking systems.**



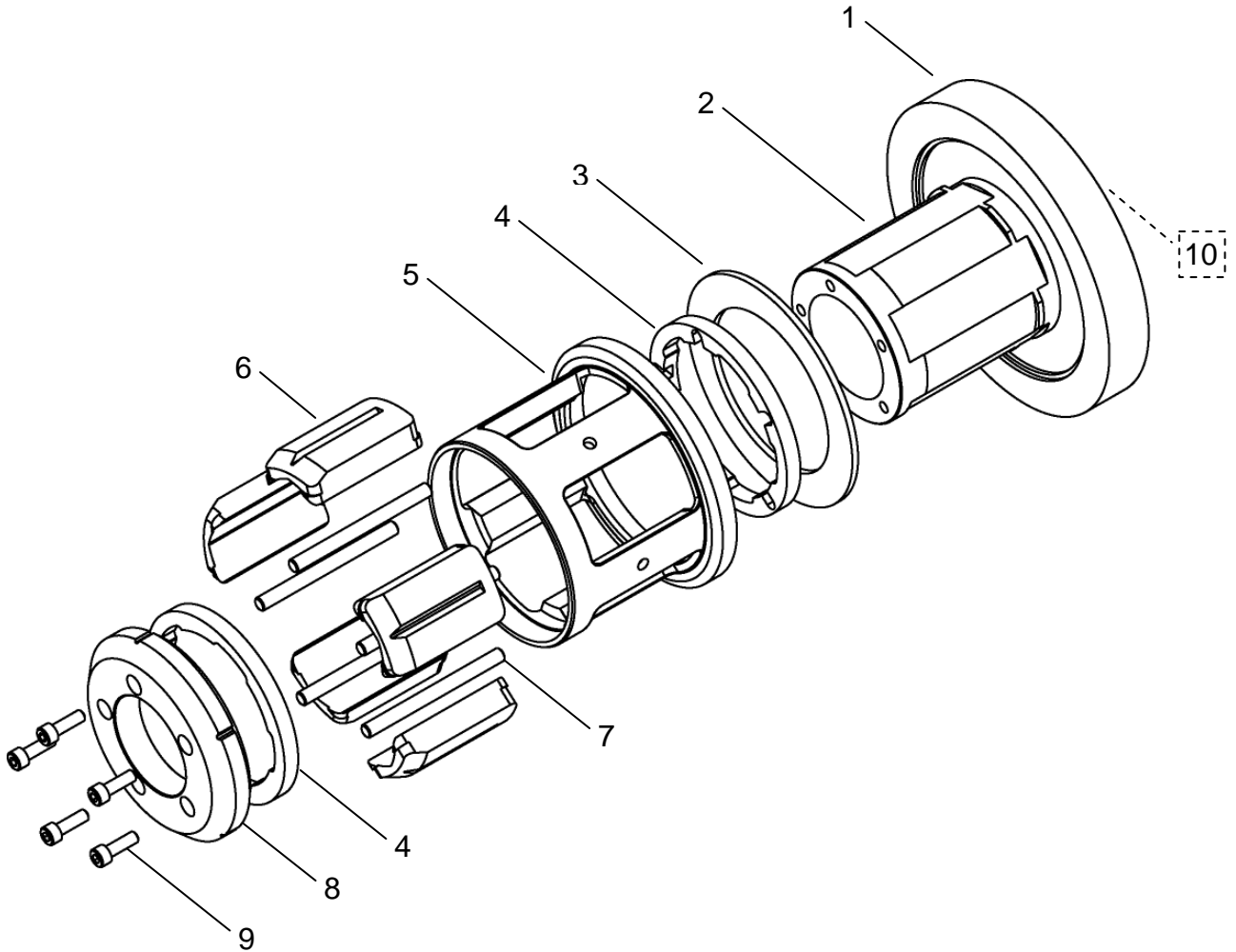
The 6" Torque Chuck flange bolt circle is drilled to customer specifications at time of order. If a Custom Mounting Flange is required, your chuck will be shipped with the flange already mounted.

Contact a Tidland Customer Service Representative for additional information about custom options (1-800-426-1000).

6" TORQUE CHUCK

Assembly Diagram and Parts List

6" Torque Chuck – Part No. 667027



ITEM	DESCRIPTION	QTY	PART NO.
1	FLANGE, BLANK	1	668457
2	ACTUATOR	1	667028
3	WASHER, PLASTIC	1	637892
4	SYNCHRONIZER RING	2	667029
5	BODY, 6"	1	669806
6	LUG	5	637890
7	ROLLER	5	667030
8	NOSE CONE	1	668456
9	SOCKET HEAD CAP SCREW M8 X 1.25 X 25 LG (GRADE 8)	5	250143
10	SOCKET HEAD CAP SCREW M10 X 1.50 X 25 LG (GRADE 8) (NOT INTENDED TO BE REMOVED)	10	639309 NOT SHOWN

6" TORQUE CHUCK

Installation

1. Use caution when lifting and installing. Chuck weight is approximately 54 lbs.
2. Non-plated steel flanges should be protected with a corrosion inhibitor before installation.
3. Ensure both flange surfaces are clean and free of burrs and debris.
4. Flange mounted chuck should have a close fitting register to support all roll loads.
5. Apply *Loctite 242* to mounting bolt threads. Tighten bolts to appropriate torque specification for user machinery. **Do not operate chuck with missing bolts.**
6. Ensure flush flange mounting by hand rotation and visual check of chuck runout.
7. Ensure smooth and unrestricted lug movement. Place both hands around the lugs and rotate chuck in both directions.

Note: If lugs are stiff, disassemble the chuck and check for debris. See page page 14 for complete disassembly instructions.

Chuck is ready for use.

To install Raptor Series Adapters, see page 18.

Questions about installation or application of this product?

Call Tidland Customer Service 1-800-426-1000.

Operation

1. Align chuck to core and insert.
2. Begin rotation: Torque activated lugs will expand to engage the core.
3. When roll run is complete, cut the sheet or turn off the brake to disengage the chuck.
4. Open the roll stand and remove the core.

Note: Excessive axial side force after chuck is fully inserted can damage cores and place unnecessary stress on the roll stand.

Daily Maintenance

Blow dust and debris from chuck. Ensure that lugs operate freely in their slots and that chuck body rotates easily.

Preventive Maintenance

Tidland recommends complete disassembly for cleaning and lubrication every 6 months; in severe applications, more frequent maintenance may be necessary. The chuck may be disassembled for cleaning while still on the machine.



Wear eye protection when using tools or compressed air.

6" TORQUE CHUCK

Maintenance

To Disassemble Chuck

1. Remove adapter, if installed. Loosen – do not remove – the locking pins that hold the adapter in place.

Warning! Use a hoist to remove adapter.

Adapter weights for 6" chucks range from 18-74 lbs.

2. Rotate the chuck on the machine until one lug is at the 6 o'clock position (Fig. 6).
3. Remove the five bolts from the nose cone, using a 6mm hex drive wrench, and remove the nose cone from the chuck body (Fig. 7).
4. Slide chuck body away from flange about 1/2" until outer synchronizer ring comes loose; remove the ring (Fig. 3). DO NOT REMOVE CHUCK BODY YET – internal parts will fall.
5. Remove the three bottom rollers from their slots in the inner synchronizer ring (Fig 8).
6. **Caution!** The top lugs will fall toward center of body when the body is pulled off the actuator shaft. Reach inside the chuck and hold the two top lugs in place; carefully slide the chuck body off of the actuator shaft (Fig. 9). The five lugs will be loose in the body; set it down carefully.
7. Remove the remaining two rollers, inner synchronizer ring and plastic washer from the actuator shaft (Fig. 10). **Note:** To maintain the integrity of the assembly, do not remove the actuator shaft from the flange (if chuck is removed from machine).
8. Blow dust and debris from actuator shaft.
9. Clean all chuck parts thoroughly and inspect for excessive wear.

Note: Inspect plastic washer for dents, gouging or chafing. Replace if worn.

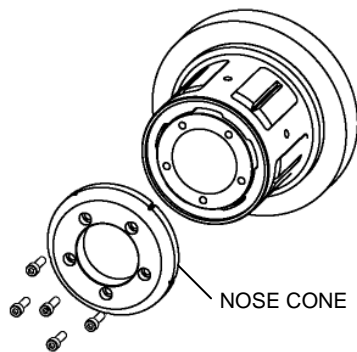
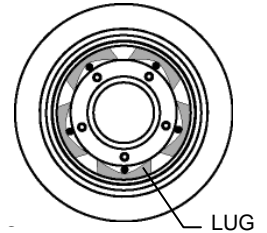


Fig. 7

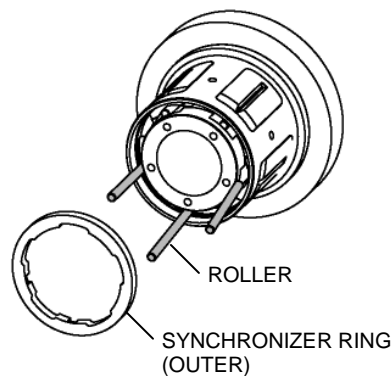


Fig. 8

Fig. 9

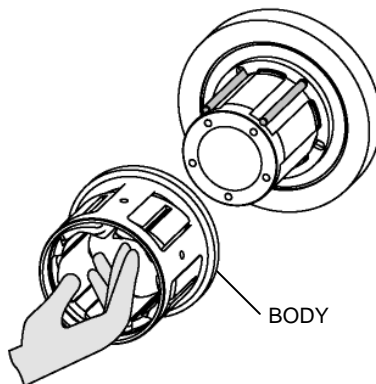
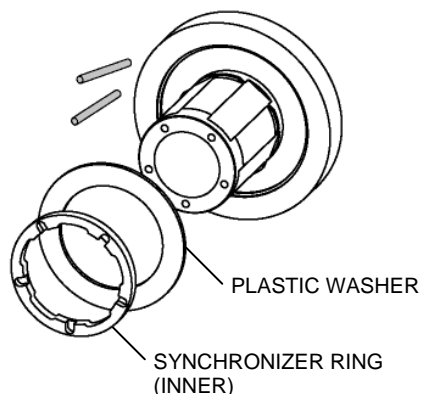


Fig. 10



6" TORQUE CHUCK

Maintenance

To Reassemble Chuck

Recommended: Apply a light coat of silicone dry film lubricant spray to the contact sides of clean chuck parts and actuator shaft. **The use of grease products will result in contamination and allow dirt and dust to accumulate on chuck and adapter parts.**

Refer to illustrations on previous page.

1. Install the plastic washer in its slot on the actuator flange (Fig. 10).
2. Install inner synchronizer ring on the actuator with the roller slots facing away from plastic washer (Fig 10).
3. Insert two rollers into the top positions in the synchronizer ring on the actuator (Fig. 9).
4. Make sure all lugs are installed in chuck body. Holding the top two lugs in place, align the lugs over the rollers and carefully slide the body over the rollers and onto the actuator shaft (Fig. 9).
5. Install the remaining three rollers. Ensure that they fit into the slots on the inner retainer ring (see note in Fig. 11 below).
6. Install the outer synchronizer ring and rotate it with your fingers until the ring seats fully into place over the rollers (Fig. 8). The nose cone will not fit properly if the synchronizer ring is not fully seated.
7. Install the nose cone (Fig. 7).
8. Apply *Loctite 242* to M8 bolt threads and install bolts in nose cone. Torque to 21 ft·lbs.
9. Ensure that the chuck rotates freely and that the lugs do not stick.

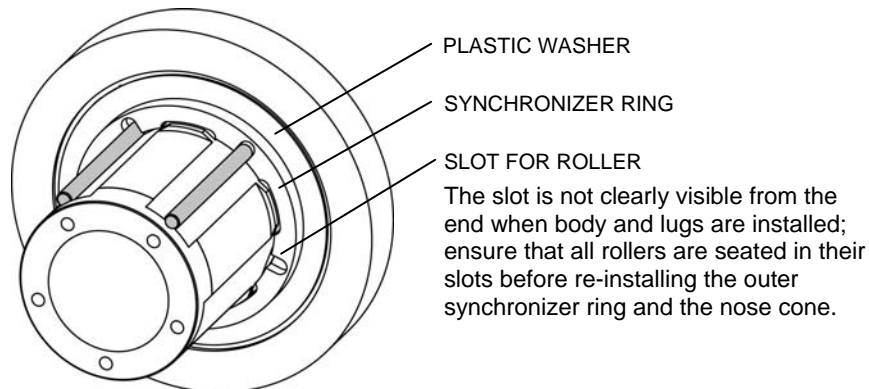


Fig. 11

TROUBLESHOOTING

3", 4" and 6" Torque Chuck

Problem	Possible Cause	Recommended Solution	Page
Lugs don't retract	Lugs still activated by actuator	Rotate chuck backwards until lugs retract.	
	Chuck lugs jammed with core fibers	Remove core. Disassemble and clean chuck.	3"/4" – 8 6" – 14
	Broken rollers or lugs inside chuck body	Remove core. Disassemble and clean chuck. Replace broken parts.	3"/4" – 8 6" – 14
	Internal core damage can create buildup of debris between core and chuck body.	Remove core. Disassemble and clean chuck.	3"/4" – 8 6" – 14
Core will not fit on chuck body	Lugs not fully retracted	Rotate chuck backwards until lugs retract.	
	Wrong core size	Check core and install correct size.	
Chuck locked	Undersized core	Remove core and install correct size.	
Chuck will not actuate or expand lugs	Oversized core	Check core and install correct size.	
Chuck body doesn't turn easily on actuator shaft	Chuck lugs jammed with core fibers	Clean chuck lugs.	3"/4" – 8 6" – 14
	Broken rollers or lugs inside chuck body	Disassemble chuck and replace parts.	3"/4" – 8 6" – 14
Excessive lateral movement of chuck body	Nose cone loose	Tighten nose cone bolt. Use <i>Loctite 242</i> on threads.	3"/4" – 8 6" – 14
	Plastic washer worn	Disassemble chuck and check washer for wear. Replace worn washer.	3"/4" – 8 6" – 14

TORQUE CHUCK ADAPTERS

For complete operation and maintenance instructions for the Raptor Series Chuck Adapters, please see Tidland publication 643236. The information provided here covers basic installation only.

3" Adapter Series

3" - 5"	–	Part No. 622178
3" - 6"	–	Part No. 586289
3" - 6.75"	–	Part No. 652130
3" -150mm	–	Part No. 629669
3" - 7.415"	–	Part No. 678591
3" - 8"	–	Part No. 652736

These adapters are installed only onto the Raptor Series 3" Torque Chuck to run various core applications. Adapter installation and removal can be performed without removing the chuck from the machine.

Adapter weights for 3" chucks range from 13-32 lbs.

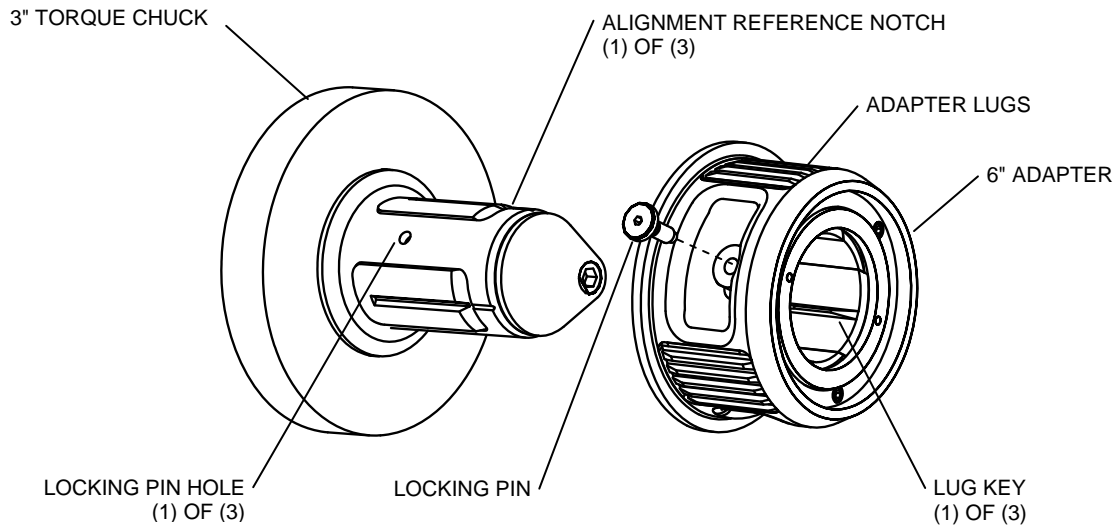
Installation

1. Ensure that chuck lugs are completely retracted.
2. Align center of adapter lug with center slot on chuck lug.
3. Slide the adapter onto the chuck body.
4. When the adapter contacts the back flange of the torque chuck, hand-tighten the locking pin until the adapter is secure.

Note: If the pin does not seat in one of the three locking pin holes, ensure that the adapter lug keys are properly aligned on the chuck lugs.

The locking pin keeps the adapter from sliding off the chuck: It does not transfer torque. Torque is transferred from chuck to adapter through lug keys on underside of adapter lugs.

Adapter is ready for operation.



TORQUE CHUCK ADAPTERS

6" Adapter Series

6"-8" – Part No. 638413	These adapters are installed only onto the Tidland 6" Torque Chuck to run 8", 10", or 12" core applications. Adapter installation and removal can be performed without removing the chuck from the machine.
6"-10" – Part No. 638414	
6"-12" – Part No. 638415	

WARNING

Adapter weights range from 18-74 lbs. depending on size. Use a hoist and safe handling procedures during installation. The adapter is equipped with a 3/8-16 threaded hole accommodate a screw eye for lifting.

Installation

- The locking pins keep the adapter from sliding off the chuck – they do not transfer torque. Torque is transferred from chuck to adapter through lug keys on underside of adapter lugs.
- The 6"-8" adapter uses two setscrews instead of locking pins.

1. Ensure that chuck lugs are completely retracted.

1. Align center of any adapter lug with any center slot on chuck lug.

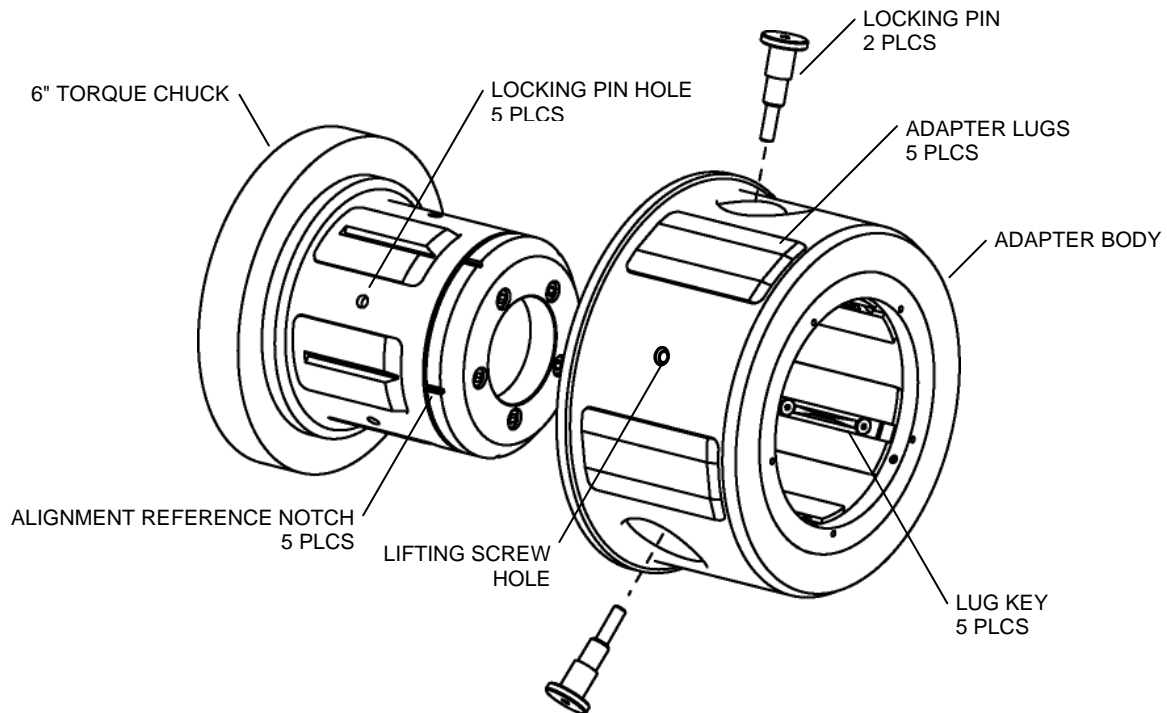
2. Slide the adapter onto the chuck body, using the alignment reference notch on the chuck body as a guide. There is a corresponding "key" (ridge) on the underside of each adapter lug that slides into the slot on top of each chuck body lug.

3. When the adapter contacts the back flange of the chuck, hand-tighten the two locking pins until the adapter is secure.

Note: The 6"-8" adapter uses two setscrews instead of locking pins. (3/16 hex drive)

Caution! Do not install the locking pin/setscrews in the threaded insert. It is not threaded all the way through the adapter body.

Note: If the locking pins/setscrews do not seat in locking pin holes, ensure that the adapter lug keys are properly aligned on the chuck lugs.



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