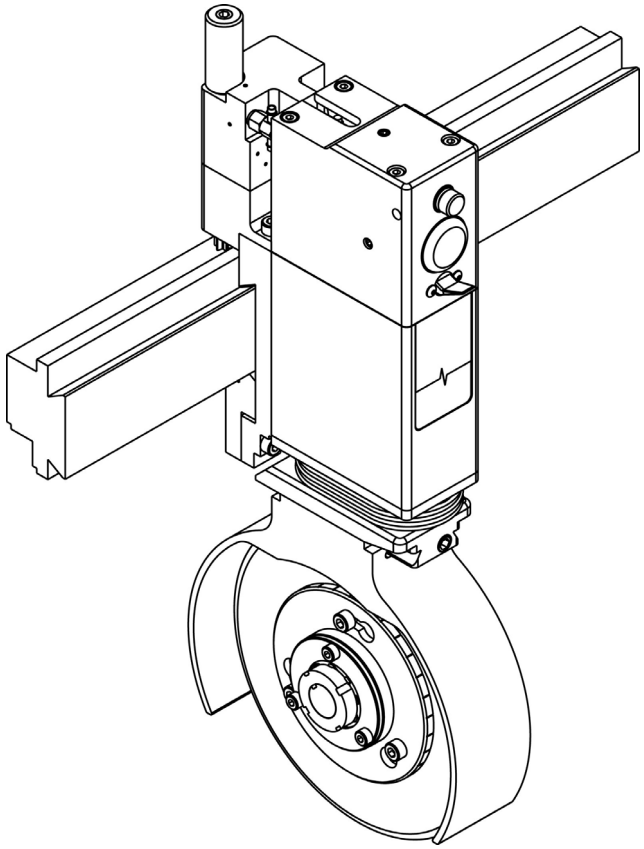
TIDLAND SLITTING SOLUTIONS

Tidland Performance Series
Crush Knifeholder

Installation, Operation and Maintenance



EN

CLASS II with Regulator and Gauge

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KNIFEHOLDER SAFETY

Important!

The Tidland Performance Series Knifeholder intended use is to produce a slit with an anvil system. There is no other intended purpose.

Read and understand all instructions before operating the knifeholder. Failure to follow instructions may cause the knifeholder to function incorrectly and can cause serious injury.

The knifeholder contains spring-loaded components. While operating the knifeholder, follow all existing plant safety instructions and/or requirements.

Always wear stainless steel protective gloves when changing or removing the knife blade.

Sharp knives can cause serious injury. Do not put hands in machines. Compliance with federal, state, and local safety regulations is your responsibility. Be familiar with them and always work safely.

Receiving and Unpacking

Handle and unpack the equipment carefully. Upon arrival, check shipment against the packing list.

Promptly report to the carrier any damaged equipment.

Equipment that will not be installed immediately should be stored in a clean, dry location.

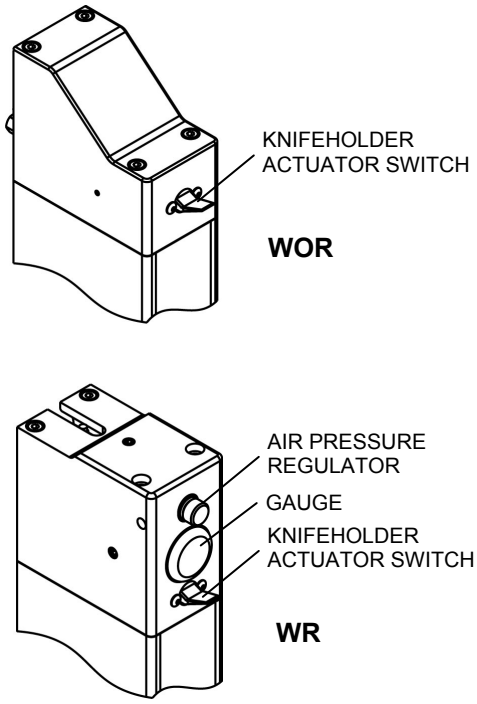
Be careful to prevent moisture.

OVERVIEW

Tidland Performance Series Crush Knifeholder

Models WOR and WR

Class I and II Performance Series Crush Knifeholders WOR (**without** regulator and gauge) and WR (**with** regulator and gauge) are equipped with features that allow for improved control of individual knifeholder operation and performance.
WR and WOR models are both equipped with an actuator switch that extends and retracts blade cartridges independently of one another without turning off the supplied air pressure to the knifeholders.
Model WOR knifeholders function at the supplied air pressure without individual down force controls. For best crush performance results, Tidland recommends the use of individual air pressure regulators for each knifeholder.
Model WR features a self-contained pressure regulator and air gauge that allows the operator to control the down force for individual knifeholders. Individual air pressure control at each knifeholder counterbalances variations in blade radii and blade condition, allowing for more consistent slit quality across the web.

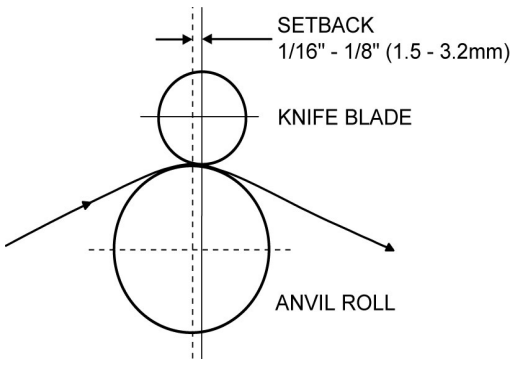


CLASS II SHOWN

Crush Slitting

- Score slitting, often referred to as "crush" slitting in international markets, is a common method employed in web separation and is normally configured for a wrap-slitting mode instead of a tangent web path.
- Crush slitting requires the anvil roll hardness to exceed the knife blade hardness by 4 to 6 Rc points. An anvil roll at Rockwell 64c is usually considered minimum.
- When configuring crush slitters, it is important that the centerline through the knife blade be placed slightly downstream of the centerline through the anvil roll and parallel to blade cartridge travel. This prevents lateral blade tracking. The goal is to have a slight castering effect. The actual offset is not critical; a reasonable offset is between 1/16" to 1/8".
- Tidland-Camas offers design assistance regarding your Crush Slitting System requirements. (1-800-426-1000)

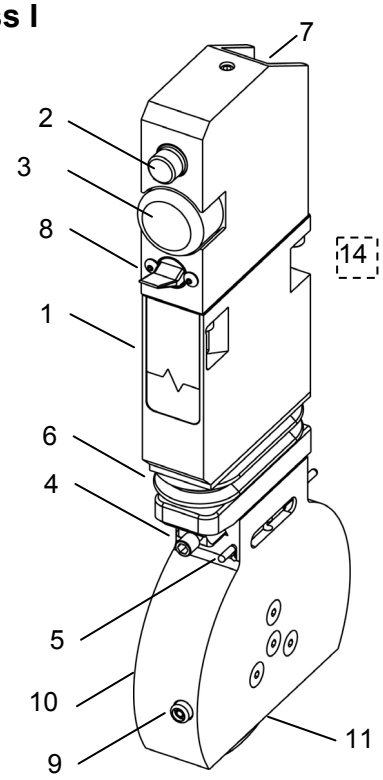
WRAP SLITTING MODE



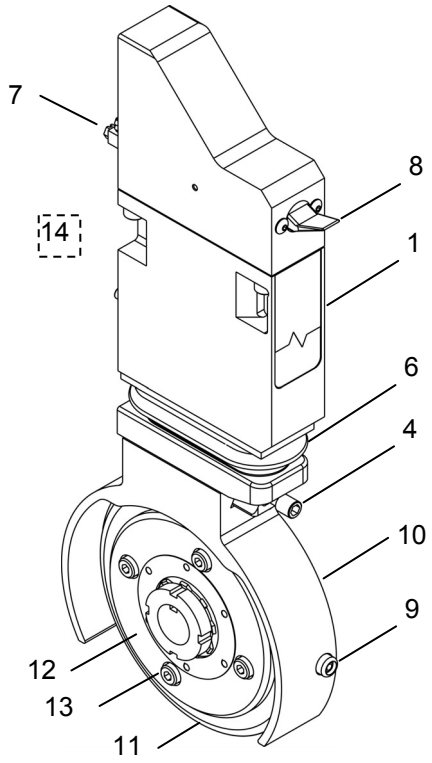
ORIENTATION

Knifeholder Components

Class I



WR – with Regulator and Gauge



WOR – without Regulator and Gauge

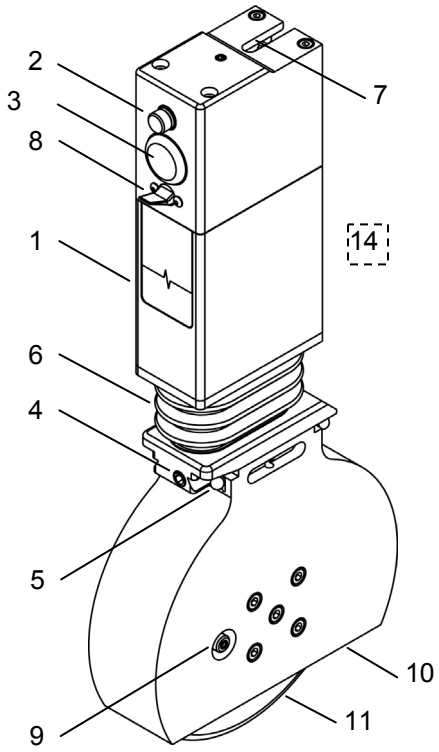
ITEM	DESCRIPTION	FUNCTION
1	Control Body	Holds blade cartridge
2	Air Pressure Regulator (WR only)	Controls knifeholder down force (0-60 psi)
3	Air Pressure Gauge (WR only)	Air pressure reference ((0-60 psi)
4	Lock Screw	Fastens blade cartridge to control body
5	Safety Lock Latch Assembly	Blade cartridge-to-control body locator and safety lock
6	Bellows	Prevents foreign matter from entering knifeholder
7	Air Supply Fitting	See Air Hose Fitting Chart , page 11.
8	Knifeholder Actuator Switch	Down – extends blade cartridge Up – retracts blade cartridge
9	Knife Blade Lock Latch	Stops blade rotation when removing or replacing blade
10	Blade Cartridge	Holds knife blade
11	Knife Blade	Crush cutter – slits web material
12	Blade Clamp	Secures knife blade to blade cartridge
13	Blade Clamp Fasteners	Secures blade clamp to blade cartridge
14	Knifeholder Mount Assembly	Mounts knifeholder to guide bar

Part numbers for all models begin on page 28.

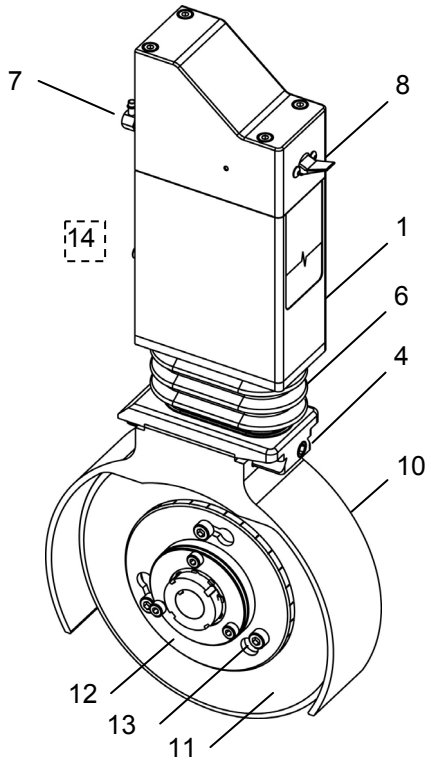
ORIENTATION

Knifeholder Components

Class II and III



WR – with Regulator and Gauge



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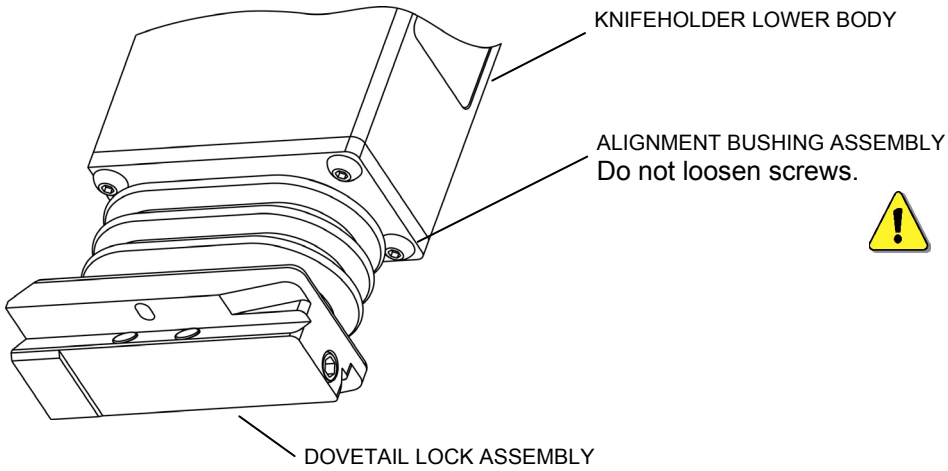
14	Knifeholder Mount Assembly	See *Mount Knifeholder to Guide Bar*, p. 17-18

Part numbers for all models begin on page 28.

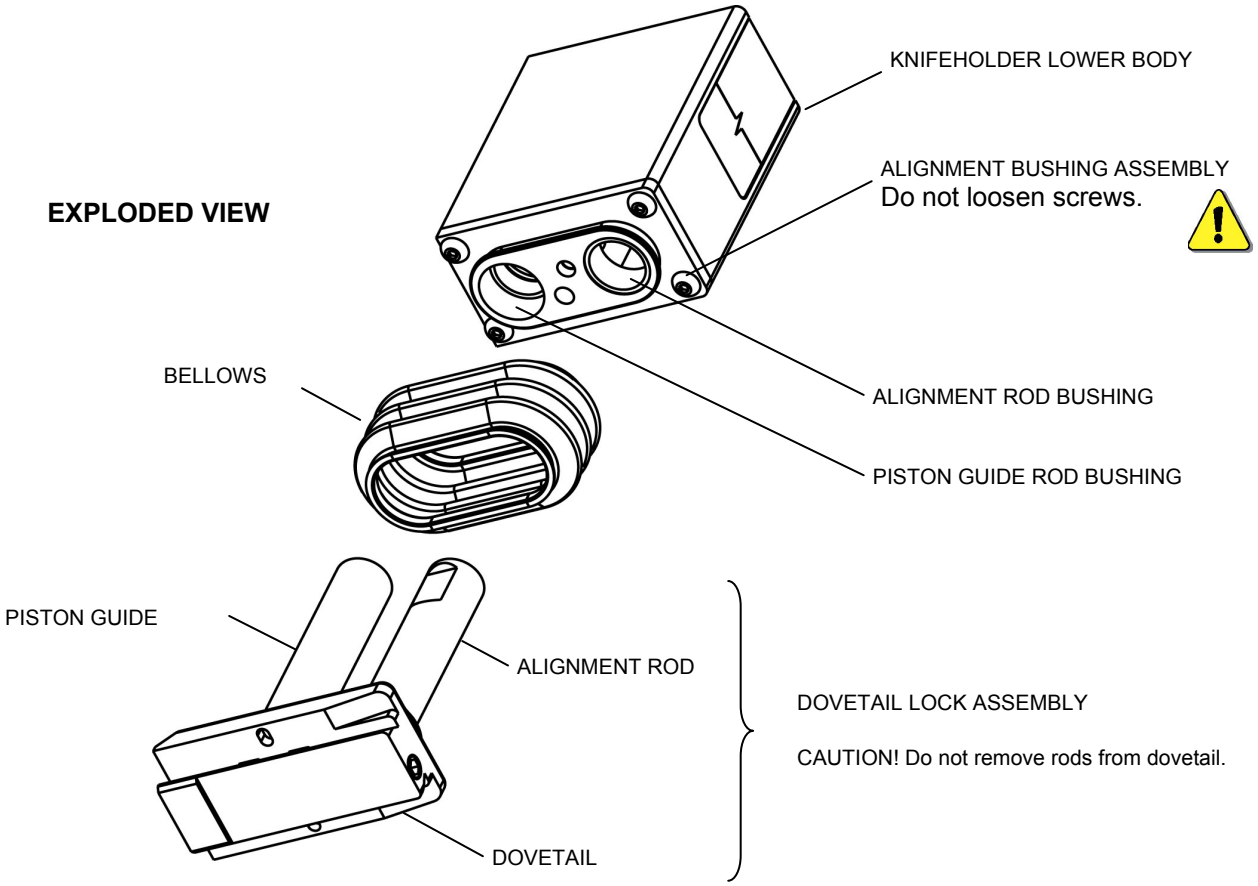
ORIENTATION

0° Cant Angle Setting

The 0° cant angle setting on the Alignment Bushing Assembly is factory set using the four screws at the bottom of the lower body. To maintain the alignment, do not remove or loosen the screws.



EXPLODED VIEW



Crush Slitting Blade Profiles

- These blade profiles should be viewed as reference points in determining the optimum profile for any given material.
- Smaller tip radii and acute angles result in rapid tip fracture and anvil roll grooving.
- Larger tip radii and included angles require more force to slit.
- To reduce chipping and rapid dulling of blades, it is important to remove burred edges from resharpened blades.
- Make sure to grind the blade edge smooth to avoid dust formation during the slitting process.
- See also: *Knifeholder Supply Pressure vs. Down Force Chart* on page 19.

<table>
<tr><td>Included Angle
DURABILITY</td><td>Tip Radius ——— DURABILITY ———>
R 0.002 to 0.004"
R 0.05 to 0.1mm</td><td>R 0.006 to 0.008"
R 0.15 to 0.2mm</td><td>R 0.010 to 0.012"
R 0.25 to 0.3mm</td></tr>
<tr><td>30°</td><td>R 0.1 mm x 30°
• Cellophane
• PSA (Pressure Sensitive Adhesives
• Cork
• Acetate</td><td>R 0.2 mm x 30°
• Paperboard
• Rubber
• Paper Backed Foil
• Pulp
• Plastics > 250μ (0.01")
• Surgical Adhesives</td><td></td></tr>
<tr><td>45°</td><td>• Glassine
• Plastics < 250μ (0.01")
• Tissue
• Newsprint
• Light Papers
• Crepe Paper
• Kraft Paper
• Masking Tape
• Coated Paper</td><td>R 0.2 mm x 45°</td><td>R 0.3 mm x 45°
• Waxed Paper
• Impregnated Paper
• Tissue</td></tr>
<tr><td>60°</td><td>R 0.1 mm x 60°
• Gauze
• Textiles</td><td></td><td>R 0.3 mm x 60°
• Sandpaper
• Abrasive Fabrics</td></tr>
</table>

Air Supply System

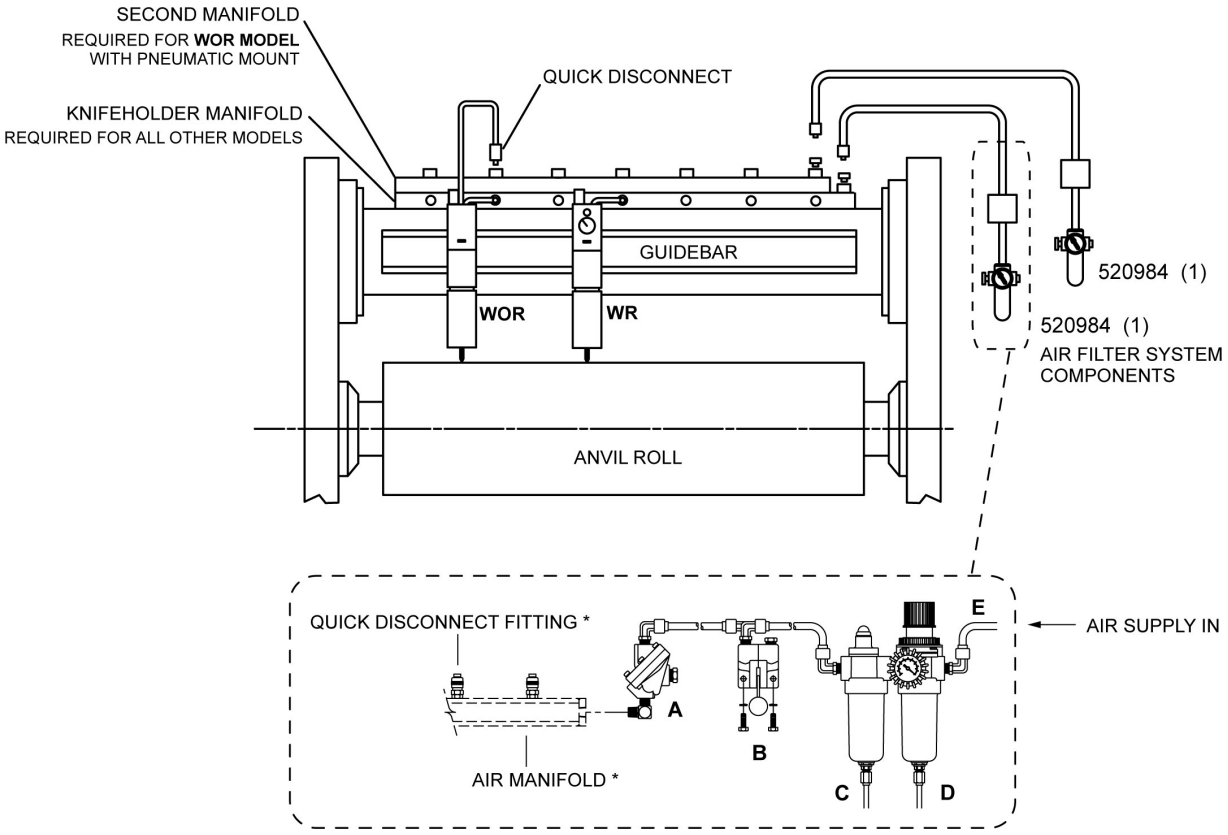
Tidland Corporation recommends:

- the use of a filtered and regulated pneumatic system to prevent airborne oil or water from contaminating the knifeholders. Clean, non-lubricated, dry air is required for optimal performance of the knifeholder.
- the use of individual regulators for each knifeholder for improved blade life and cut quality performance.

Individual air pressure settings will depend on blade conditions and web material.

Note: The WOR Model with pneumatic mount knifeholder requires two manifolds.

- One supplies the pneumatic mount;
- The other supplies each knifeholder independently for variable air pressure regulation. (See Air Hose Fitting Chart on page 11.)

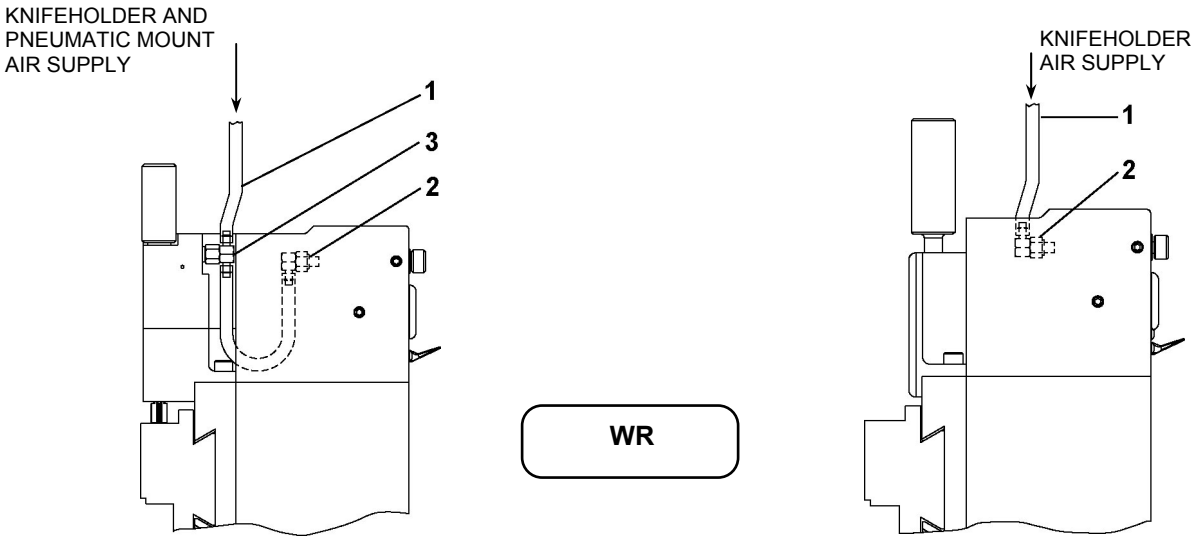


Part No. 520984 air filter system components include:

- **A -** Quick exhaust valve with muffler
- **B -** 3-way manual valve with muffler
- **C -** Coalescing filter
- **D -** 5 micron air filter / pressure regulator with gauge
- **E -** 3/8 (9.52mm) supply air lines

Model WOR with pneumatic mount requires two filter systems.

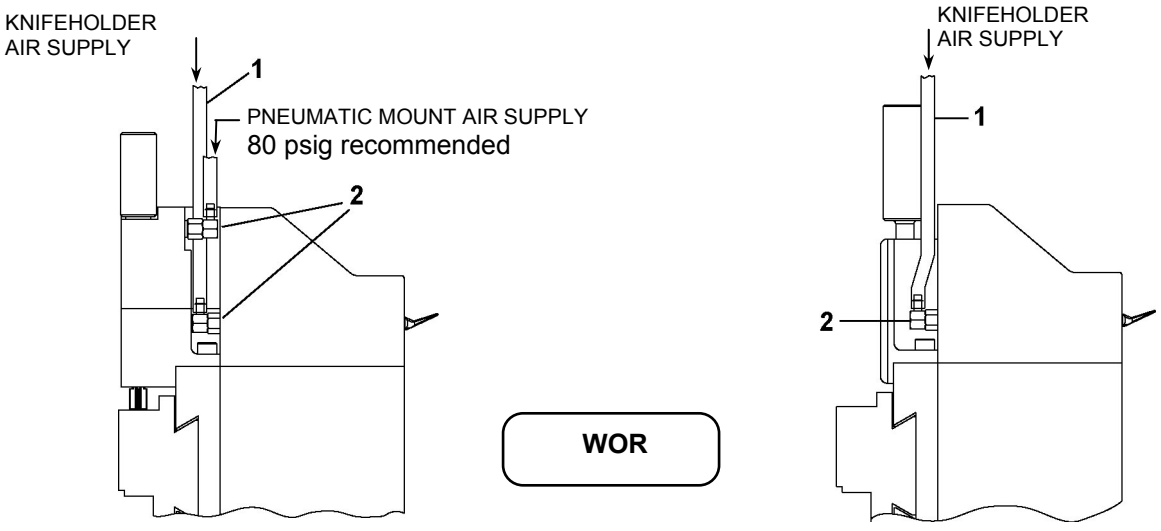
Knifeholder Air Supply Hoses And Fittings



PNEUMATIC MOUNT

MANUAL MOUNT

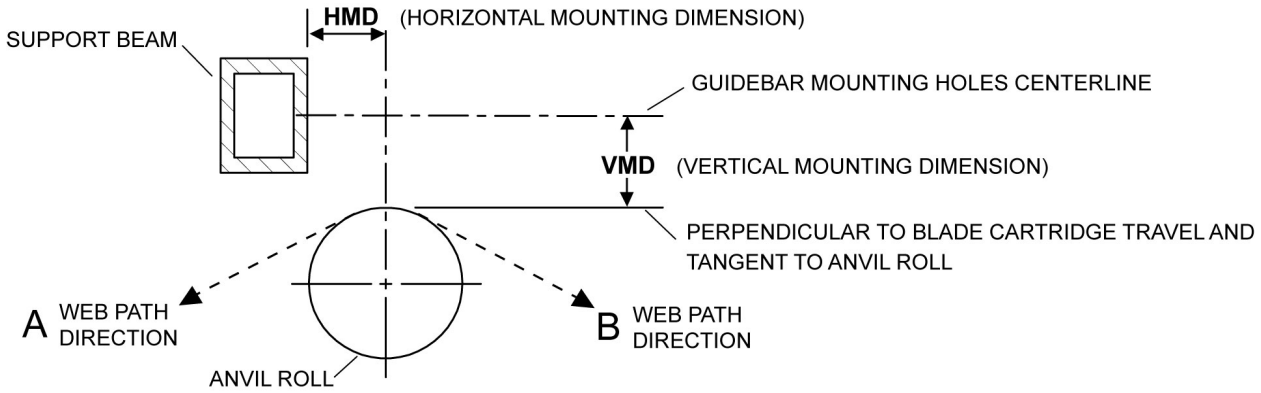
ITEM	DESCRIPTION	QTY	PART NO.
	CLASS I		
1	Hose Assembly	a/r	561042
2	Fitting – Elbow, Adjustable Position (M3 1/16" barb)	a/r	250425
3	Fitting – T, Adjustable Position (10-32 1/16" barb)	a/r	550731
	CLASS II, III		
1	Hose Assembly	a/r	570935
2	Fitting – Elbow, Adjustable Position (10-32 1/16" barb)	a/r	251535
3	Fitting – T, Adjustable Position (10-32 1/16" barb)	a/r	251536



PNEUMATIC MOUNT

MANUAL MOUNT

Determine Mounting Dimensions



Maximum anvil runout = .005" (.127 mm) T.I.R.

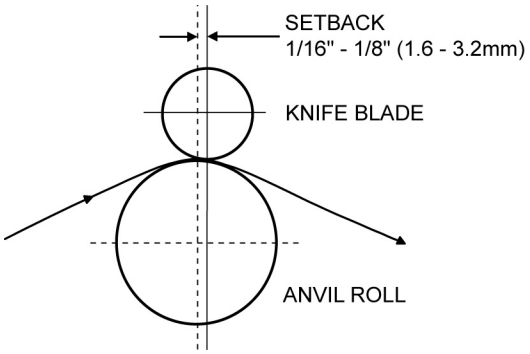
Wrap Slitting

Vertical Mounting Dimension (**VMD**)		
Class I	6.91”	175.5 mm
Class II	10.19”	258.8 mm
Class III	12.25"	311.2 mm

Horizontal Mounting Dimension (**HMD**)			
A web path direction		**B** web path direction	
2.54”	64.5 mm	2.36”	59.9 mm
3.04”	77.2 mm	2.86”	72.6 mm
3.56”	90.4 mm	3.38”	85.9 mm

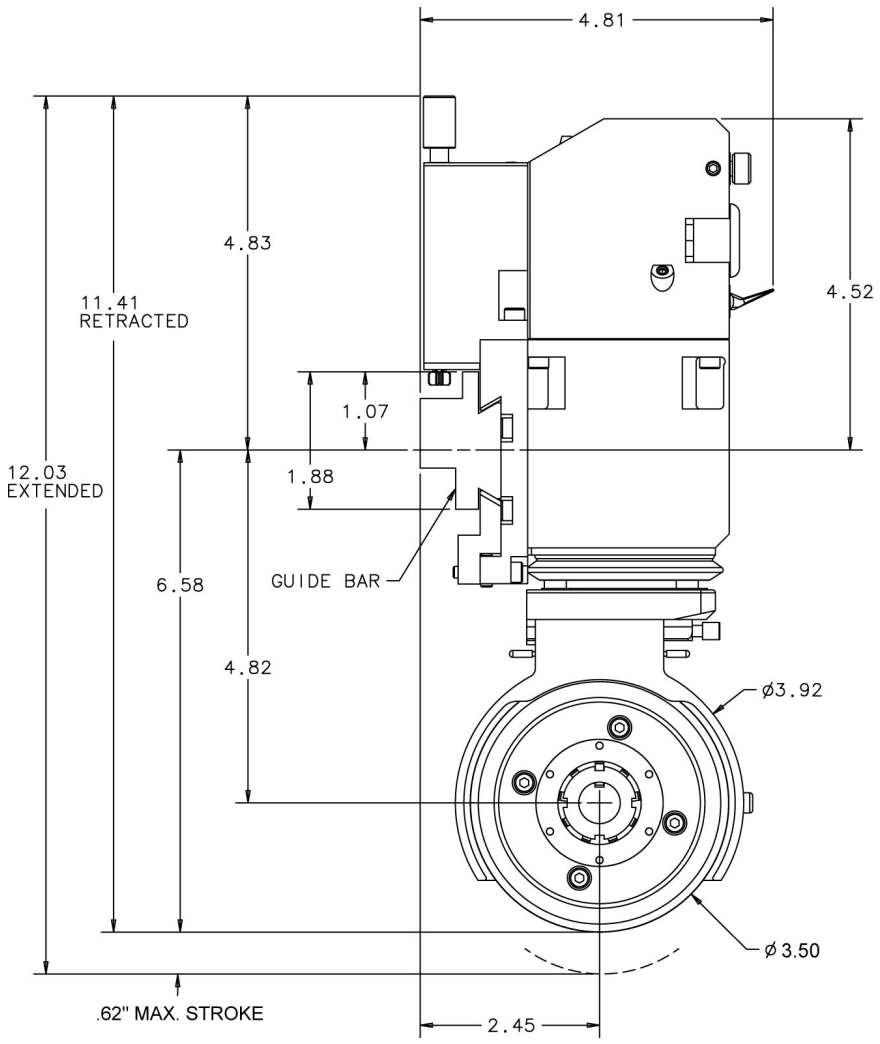
Knifeholder Setback

When configuring crush slitters, it is important that the centerline through the knife blade is placed slightly downstream of the centerline through the anvil roll and parallel to blade cartridge travel. This prevents lateral blade tracking. The goal is to have a slight castering effect. The actual offset is not critical; a reasonable offset is between 1/16" to 1/8".



Knifeholder Geometry

Class I

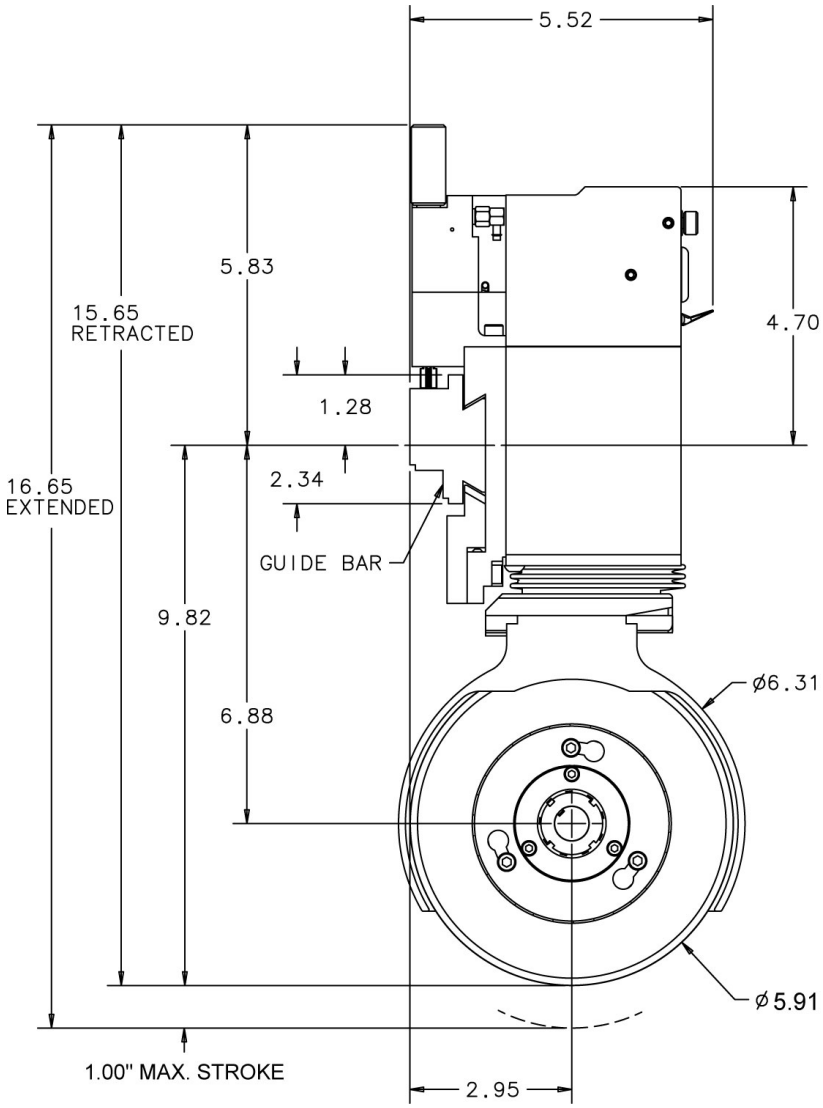


SIDE VIEW

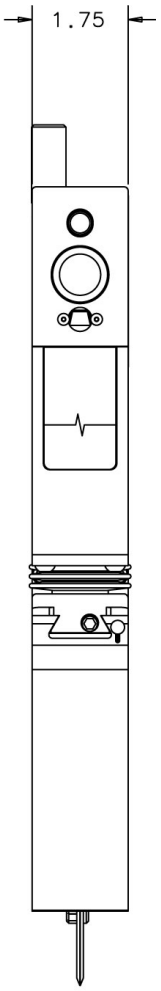
FRONT VIEW

Knifeholder Geometry

Class II



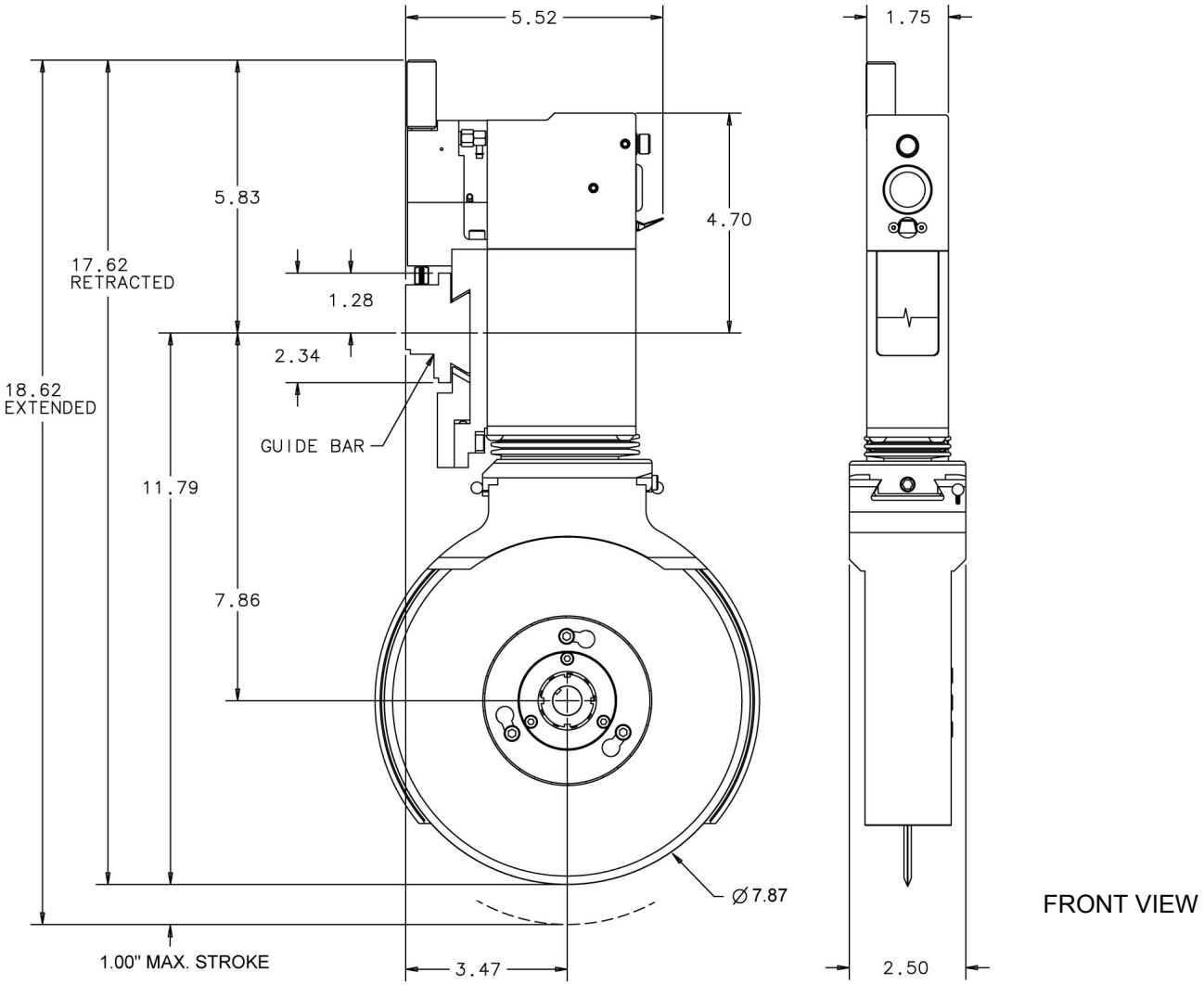
SIDE VIEW



FRONT VIEW

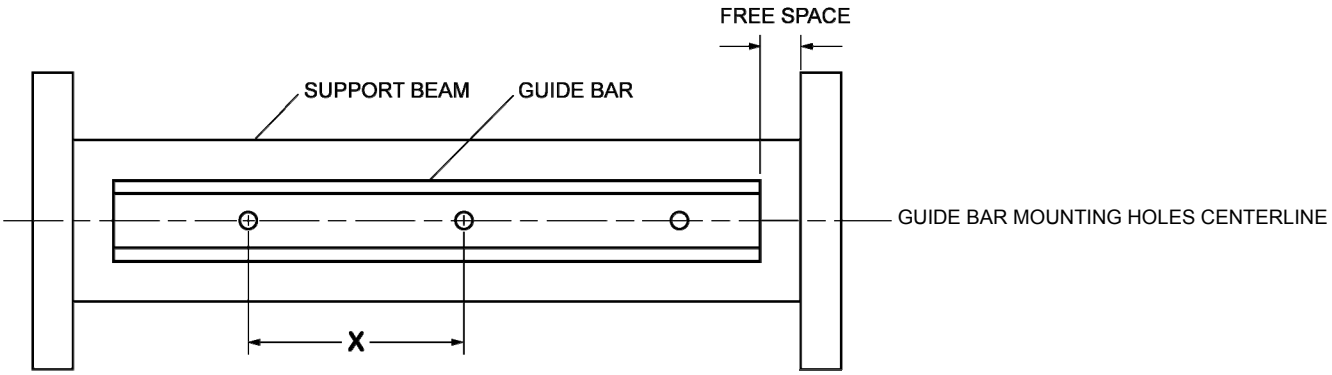
Knifeholder Geometry

Class III



Install Guide Bar on Support Beam

The guide bar must be straight within 0.010” (0.25 mm) on a rigid and vibration-free support.



1. Determine the center-to-center distance between the mounting bolt holes (**X**) on the guide bar.
   - Standard pre-drilled dimension (**X**) is 12" (304.80 mm).
   - Drill and tap support beam for pre-drilled guide bar: 3/8"-16NC holes

2. **Before transferring dimension (X) onto the support beam,** make sure there will be enough free space at one end of the beam for knifeholder installation and removal once the guide bar is mounted.

	Minimum Space Recommended for Removal (Free Space)
Class I	2" (50.8 mm)
Class II	3" (76.2 mm)
Class III	4" (101.6 mm)

Mount Knifeholder to Guide Bar

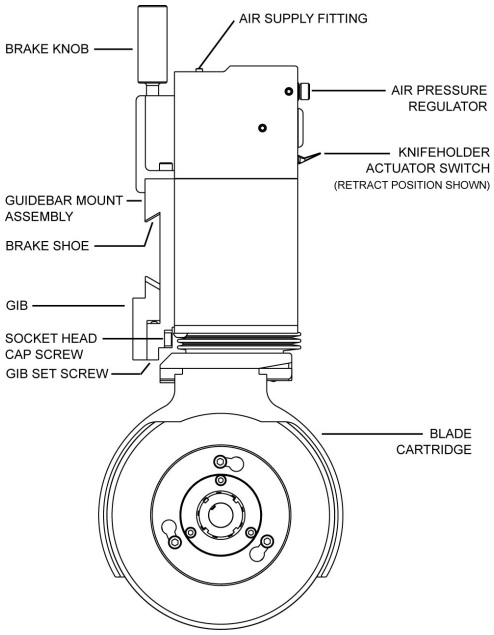
Manual Lock

Blades are sharp! Tidland recommends wearing stainless steel protective gloves to avoid injury when handling blades.

Note: Control body can be installed with the blade cartridge attached.

Installation at end of Guide Bar (recommended)

1. Turn the brake knob counterclockwise enough to allow the brake shoe to be manually retracted into the mount. (Push the brake shoe up into mount if extended out.)
2. Align the guide bar mount assembly with the guide bar end.
3. Slide the knifeholder onto guide bar. If clearance is restricted, remove blade cartridge (p. 23).
   Note: See next section for gib adjustment, if necessary (*Installation at Center of Guide Bar*, Step 6c).
4. Turn the brake knob clockwise to secure the knifeholder in position.
5. Lift the knifeholder actuator switch up (**retract**).
6. Lower the air pressure and connect the knifeholder air supply line to the supply manifold. (See *Knifeholder Hose and Fitting Chart* on p. 11).
7. Before attempting to operate knifeholder, refer to knifeholder *Operation* on p. 20.



Installation at center of guide bar

1. Remove blade cartridge from the control body (p. 23).
2. Remove the two socket head cap screws that secure the gib to the mount.
3. Remove the gib.
4. Turn the brake knob counterclockwise to fully retract the brake shoe into the mount. (Push the brake shoe up into mount if extended out.)
5. Place the control body onto the guide bar.
6. While holding the control body securely in place, reinstall the gib.
   a. Align the gib socket head cap screw holes with the holes in the mount assembly.
   b. Install and tighten the socket head cap screws to secure the gib in place.

   To adjust gib:

   c. Loosen the two gib socket head cap screws.
   d. Tighten or loosen the gib set screw to achieve a secure fit and good knifeholder traverse action on the guide bar. **Recommended: 1/4 turn per adjustment.**
   e. Tighten the two gib socket head cap screws.
   f. Readjust as necessary.
7. Turn the brake knob clockwise to secure the knifeholder in position.
8. Lift knifeholder actuator switch up (**retract**)**.**
9. Reinstall the blade cartridge onto the control body (p. 23).
10. Lower the air pressure and connect the knifeholder air supply line to the supply manifold. (See *Knifeholder Air Hose and Fitting Chart* on p. 11).
11. Before operating the knifeholder, refer to knifeholder *Operation* (p. 20).

Mount Knifeholder to Guide Bar

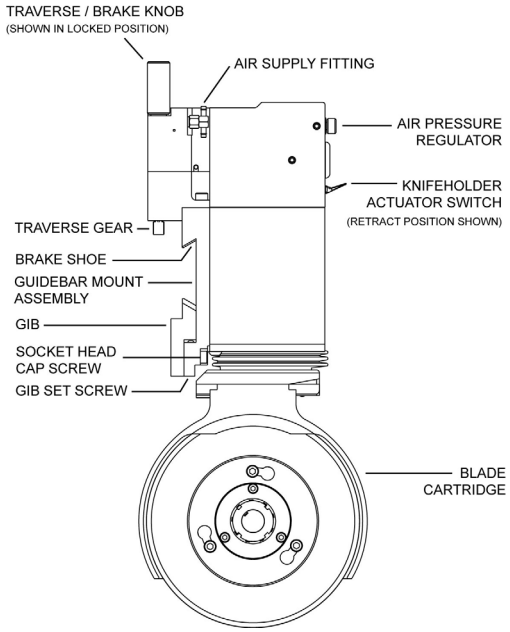
Pneumatic Lock

Blades are sharp! Tidland recommends wearing stainless steel protective gloves to avoid injury when handling blades.

Note: Control body can be installed with the blade cartridge attached.

Installation at end of guide bar (recommended)

1. Align the guide bar mount assembly and traverse gear with the guide bar end and gear rack.
2. Make sure the traverse/brake knob is up (**unlocked**). Push the brake shoe up into the mount if extended out.
3. Slide the knifeholder onto the guide bar. If clearance is restricted, remove blade cartridge (p. 23).
4. Turn the traverse knob to move the knifeholder into position. **Note:** See next section for gib adjustment, if necessary (*Installation at Center of Guide Bar*, Step 6c).
5. Lift the knifeholder actuator switch up and connect the air supply line.
6. Push the traverse/brake knob down (**locked**).
7. Lower the air pressure and connect the knifeholder air supply line to the supply manifold. (See *Knifeholder Hose and Fitting Chart* on p. 11).
8. Before attempting to operate knifeholder, refer to knifeholder *Operation* (p. 21).



Installation at center of guide bar

1. Remove the blade cartridge from the control body (p. 23).
2. Remove the two socket head cap screws that secure the gib to the mount.
3. Remove the gib.
4. Push the brake shoe up into mount if extended out.
5. Place the control body onto the guide bar.
6. While holding the control body securely in place, reinstall the gib.
    a. Align the gib socket head cap screw holes with the holes in the mount assembly.
    b. Install and tighten the socket head cap screws to secure the gib in place.

    To adjust gib:
    c. Loosen the two gib socket head cap screws.
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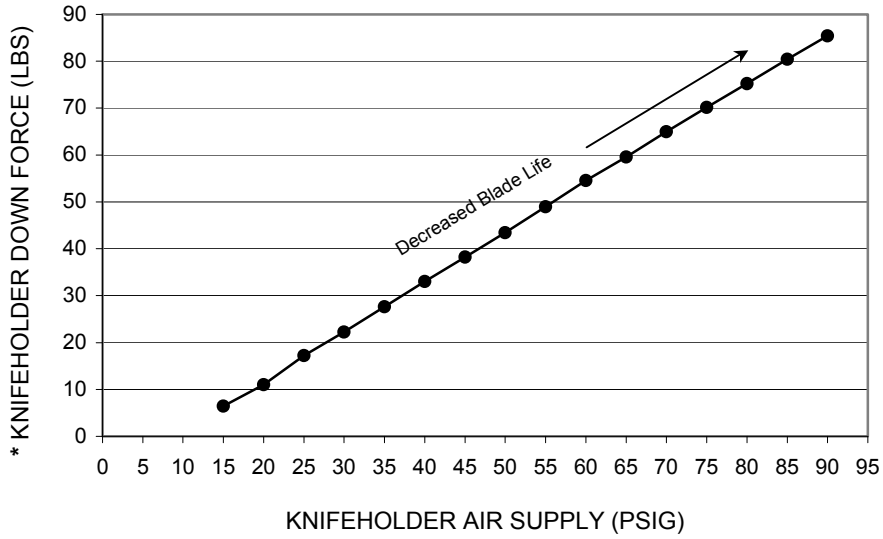
    e. Tighten the two gib socket head cap screws.
    f. Readjust as necessary.
7. Turn the traverse knob to move the knifeholder into position.
8. Push the traverse/brake knob down (**locked**).
9. Lift knifeholder actuator switch up (**retract**).
10. Reinstall the blade cartridge onto the control body (p. 23).
11. Lower the air pressure **before** extending the knifeholder.
12. Before operating the knifeholder, refer to knifeholder *Operation* (p. 21).

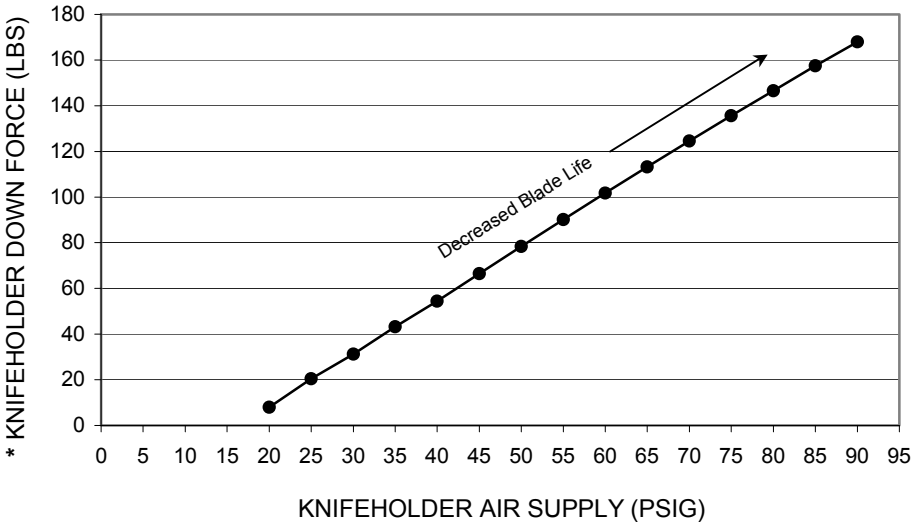
Knifeholder Air Supply Pressure Vs. Down Force

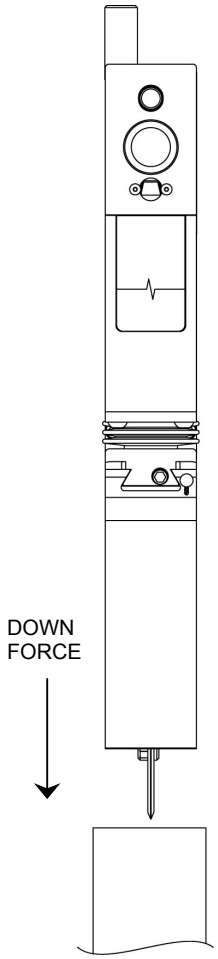
For longer blade life, Tidland recommends slitting at the **minimum air pressure required**, which will vary depending on blade radius/hardness, web material and operating speed.
See also: *Crush Slitting Blade Profiles* on page 9.

CLASS I



CLASS II and III





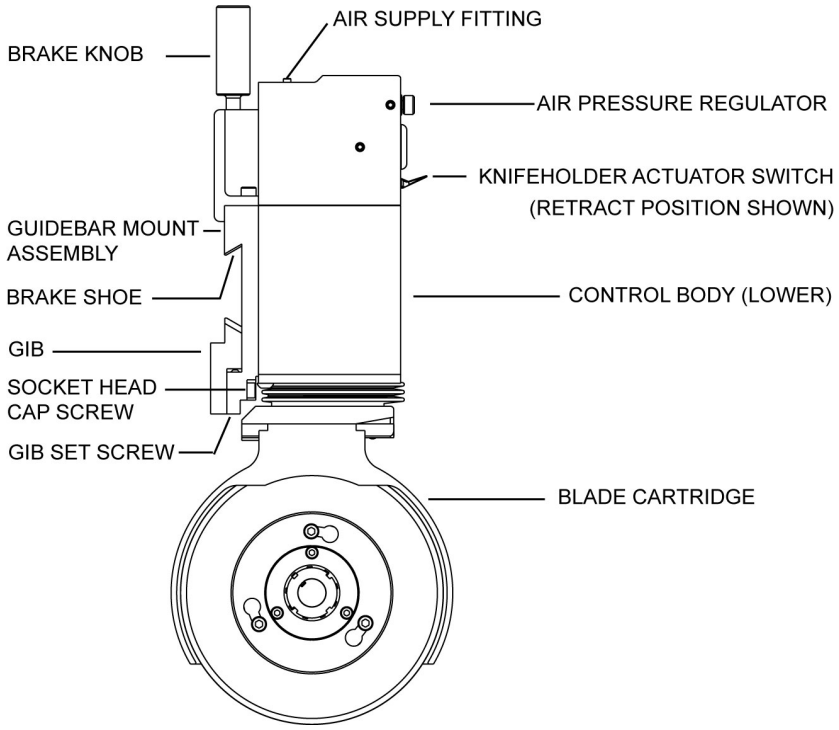
***** Knifeholder down force will vary slightly from averages shown.

OPERATION

Manual Lock

Ensure that:

- the blade cartridge is securely locked to the control body (p. 23);
- knifeholder air hose is connected to the manifold (p. 10);
- knifeholder actuator switch is lifted up (in **retract** position);
- knifeholder air pressure regulator is turned **off** or set at selected pressure setting;
- brake knob is loosened (rotate knob counterclockwise to loosen).



1. Hold the lower body of the knifeholder with your hand and manually slide the knifeholder along the guide bar to the selected position.
2. Lock the knifeholder to the guide bar with brake knob (rotate knob clockwise to tighten).
3. Place the knifeholder actuator switch in the down position to extend the knife blade for operation in the crush mode.

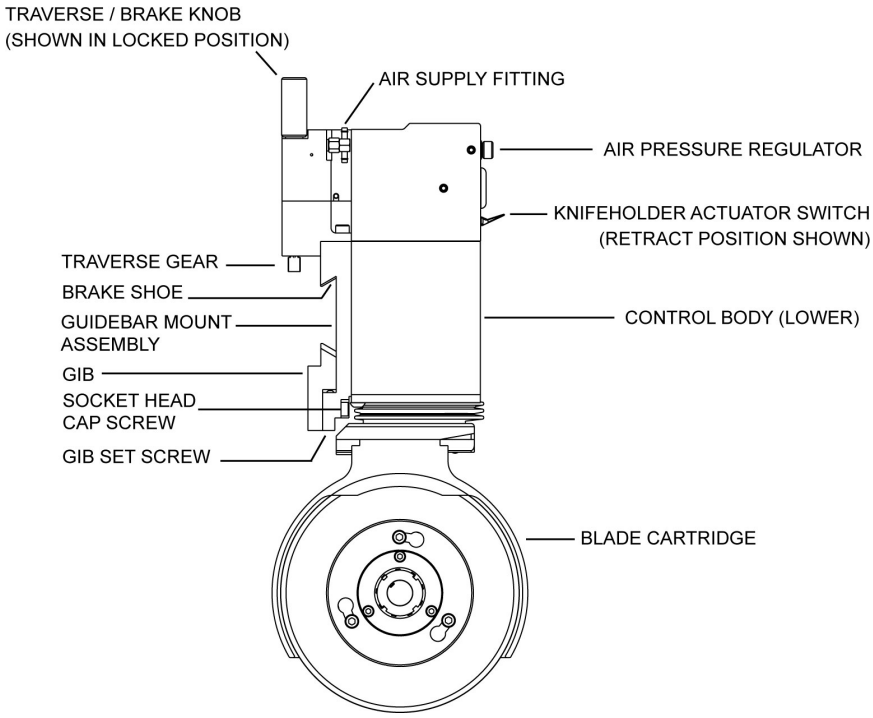
   Note: Air pressure selection will vary depending on materials, operation speeds and individual blade condition. For best results, start with minimum air pressure and increase as required.

SPECIFICATIONS	Class I	Class II	Class III
Blade Diameter	3.5" (90mm)	5.9" (150mm)	7.9" (200mm)
Minimum Blade Thickness	.098" (2.5 mm)	.118" (3 mm)	.157" (4 mm)
Minimum Slit Width	1.0" (25.4mm)	2.0" (50.8mm)	3.0" (76.2mm)
Recommended Maximum Speed (Actual speed is dependent on application and material)	700 fpm	1000 fpm	1000 fpm
Maximum Anvil Runout	.005" (.127 mm) T.I.R.		

Pneumatic Lock

Ensure that:

- the blade cartridge is securely locked to the control body (p. 23);
- knifeholder air hose is connected to the manifold (p. 10);
- knifeholder actuator switch is lifted up (in retract position);
- knifeholder air pressure regulator is turned off or set at selected pressure setting;
- brake knob is pulled up (unlock position).



1. Hold the lower body of the knifeholder with your hand and manually slide the knifeholder along the guide bar to the selected position.

   Note: If the guide bar supports a gear rack, use the traverse/brake knob when moving short distances or when multiple knifeholders are closely spaced.
2. Lock the knifeholder to guide bar by pushing down on the traverse / brake knob.
3. Place the knifeholder actuator switch in the down position to extend the knife blade for operation in the crush mode.

SPECIFICATIONS	Class I	Class II	Class III
Blade Diameter	3.5" (90mm)	5.9" (150mm)	7.9" (200mm)
Minimum Blade Thickness	.098" (2.5 mm)	.118" (3 mm)	.157" (4 mm)
Minimum Slit Width	1.0" (25.4mm)	2.0" (50.8mm)	3.0" (76.2mm)
Recommended Maximum Speed (Actual speed is dependent on application and material)	700 fpm	1000 fpm	1000 fpm
Maximum Anvil Runout	.005" (.127 mm) T.I.R.		

MAINTENANCE

Preventive

Blades are sharp! Tidland recommends wearing stainless steel protective gloves to avoid injury when handling blades.

- Keep anvil rings and knifeholder blades clean and balanced.
- Do not use oil lubricants in knifeholder. Oil lubricants may cause the knifeholder to function improperly. Use only those lubricants recommended in this publication.

Daily

- Keep all knifeholders clean of debris.
- Check air pressure to the knifeholders: Clean, dry, non-lubricated air is essential for optimal knifeholder performance.
- Check for air leaks at the knifeholder and manifold.

  Note: DO NOT IMMERSE knifeholders in solvents. Wipe the outer surfaces with a clean, dry rag.

Weekly

- Blow down the blade cartridge to remove dust buildup.
- Check hose connections to the knifeholders for leaks or cracks.

Monthly

- Check adjustment of gib to the guide bar for minimal clearance between knifeholder mount and guide bar.
- Clean all surfaces of the control body and blade cartridge.

Bi-Yearly

- Inspect bellows for tears around dovetail mount. Replace if necessary.
- Clean and inspect blade cartridge bearings for looseness.

Guide Bar Cleanup

Periodically wipe off the dovetail guide bar and lubricate with a silicone dry film lubrication. Tidland Corporation recommends using *Dow Corning 557 Silicone Dry Film Lubrication* to assure smoother knifeholder movement.

Blade Cartridge

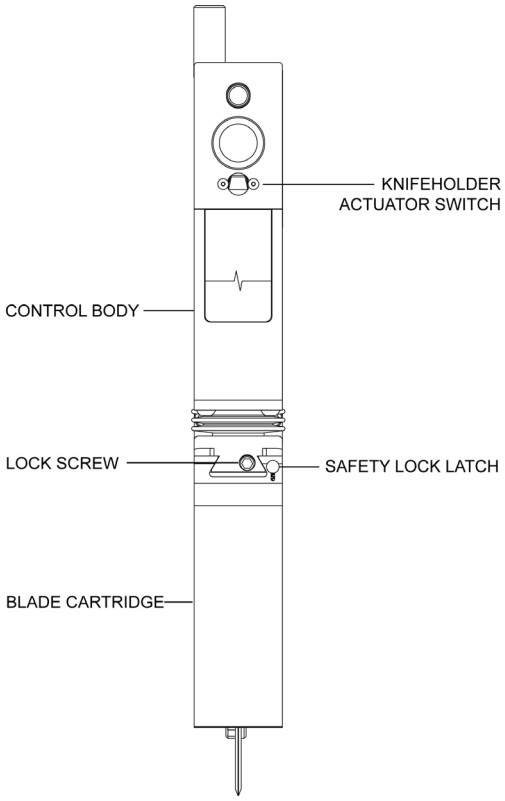
The blade cartridge on a crush knifeholder can be installed in either direction. The safety lock latch shown in the illustration will operate on either side of the dovetail assembly.

Installing

1. Slide the blade cartridge onto the control body.
2. The safety lock latch will 'snap' into place when the blade cartridge is in the correct position.
3. Tighten the lock screw to secure the blade cartridge to the control body:
   Class I M3 hex drive wrench
   Class II and III M4 hex drive wrench

Removing

1. Place the knifeholder actuator switch in the up (**retract**) position.
2. Loosen the lock screw to unlock the blade cartridge from the control body:
   Class I M3 hex drive wrench
   Class II and III M4 hex drive wrench
3. Press and hold down the safety lock latch and slide the blade cartridge off the control body.

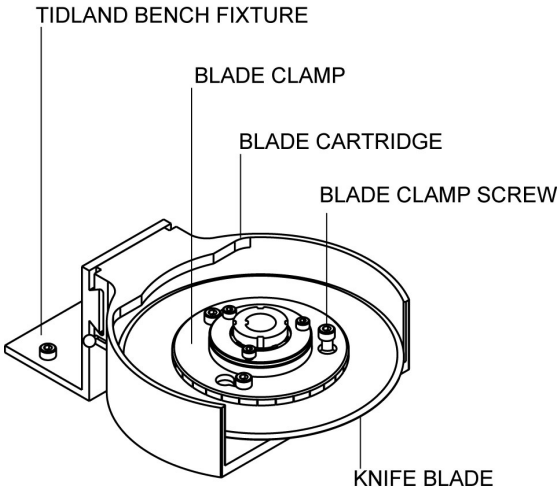


Knife Blade

Blades are sharp! Avoid injury – always wear stainless steel protective gloves when handling blades.

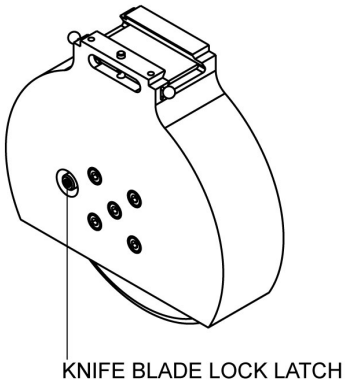
Removing

1. Remove the blade cartridge (p. 23).
   Note: Mount the blade cartridge to a Tidland bench fixture for safety and ease of blade removal. (See *Recommended Accessories,* p. 38.)
2. Press and hold the knife blade lock latch and rotate the blade clamp until it stops.
3. Loosen the three blade clamp screws.
   Class I M3 hex drive wrench
   Class II and III M4 hex drive wrench
4. Rotate the blade clamp counterclockwise and remove it from the blade cartridge assembly.
5. Remove the knife blade.



Reinstalling

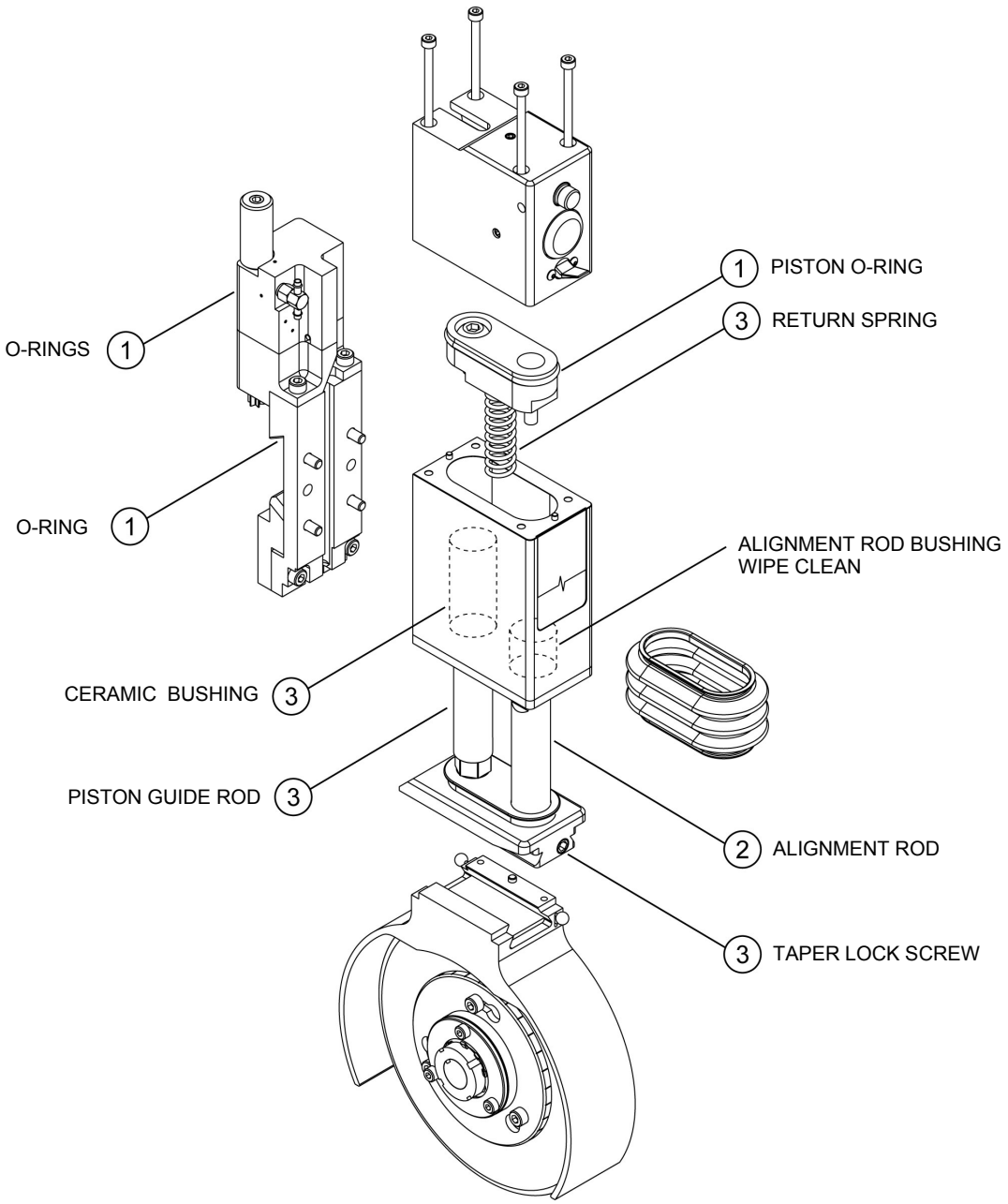
1. Make sure the blade cartridge is held securely.
   Note: The Tidland bench fixture is recommended.
2. Clean the blade hub surface where the blade mounts to ensure secure blade fit and help prevent blade wobble.
3. Reinstall the knife blade.
4. Reinstall the blade clamp onto the blade hub by rotating the blade clamp clockwise.
5. Tighten the three Grade 8.8 blade clamp screws to the appropriate torque value:
   Class I 2.1 ft.lbs (2.85 Nm) – M3 hex drive wrench
   Class II and III 4.3 ft.lbs (5.83 Nm) – M4 hex drive wrench
6. Reinstall the blade cartridge onto the control body (p. 23).



Lubrication Schematic

Class II WR shown. Parts requiring lubrication are common to all models.
Disassembly Procedure starts on page 34.

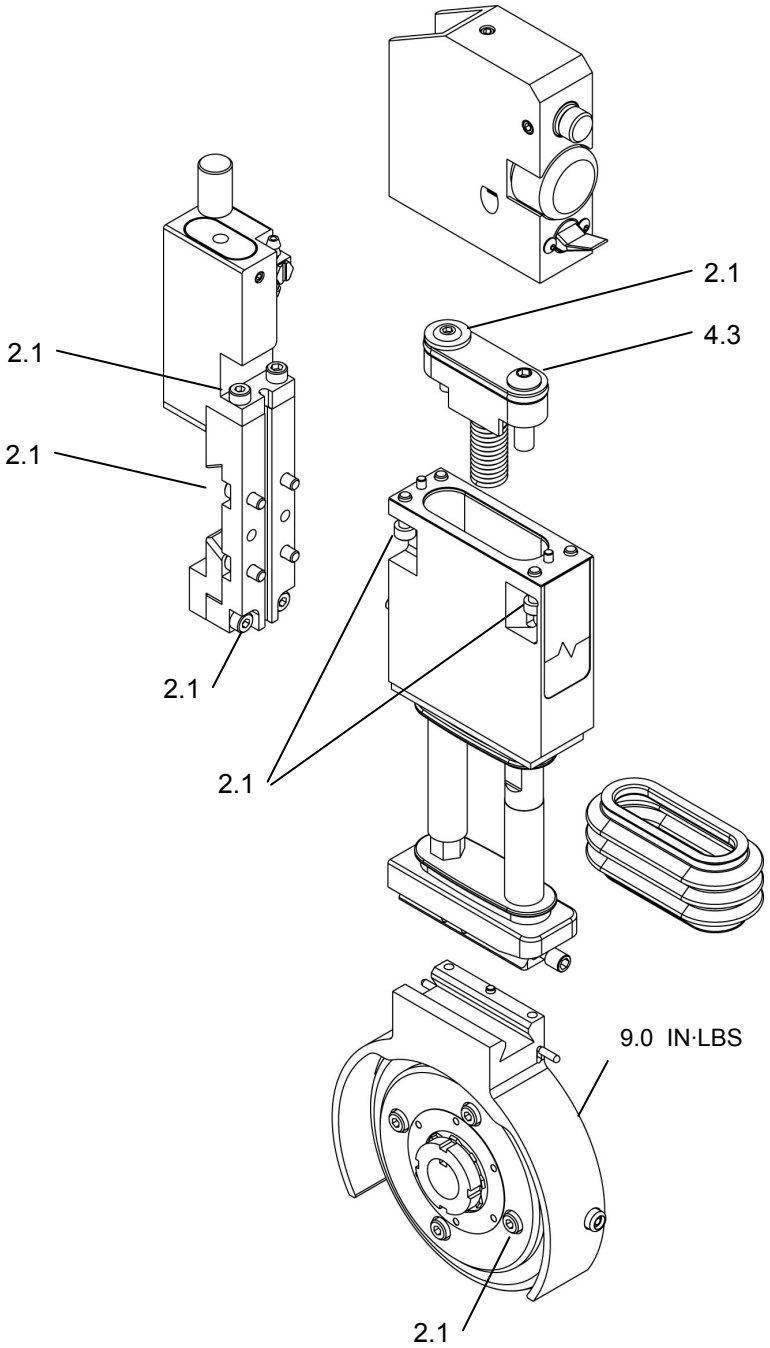
1. Parker Super O-Lube (o-ring lubricant)
2. Dow Corning 557 Dry Film Lubricant
3. Lubriplate EMB Polymer Grease LC148-098



Torque Values

CL I Fasteners

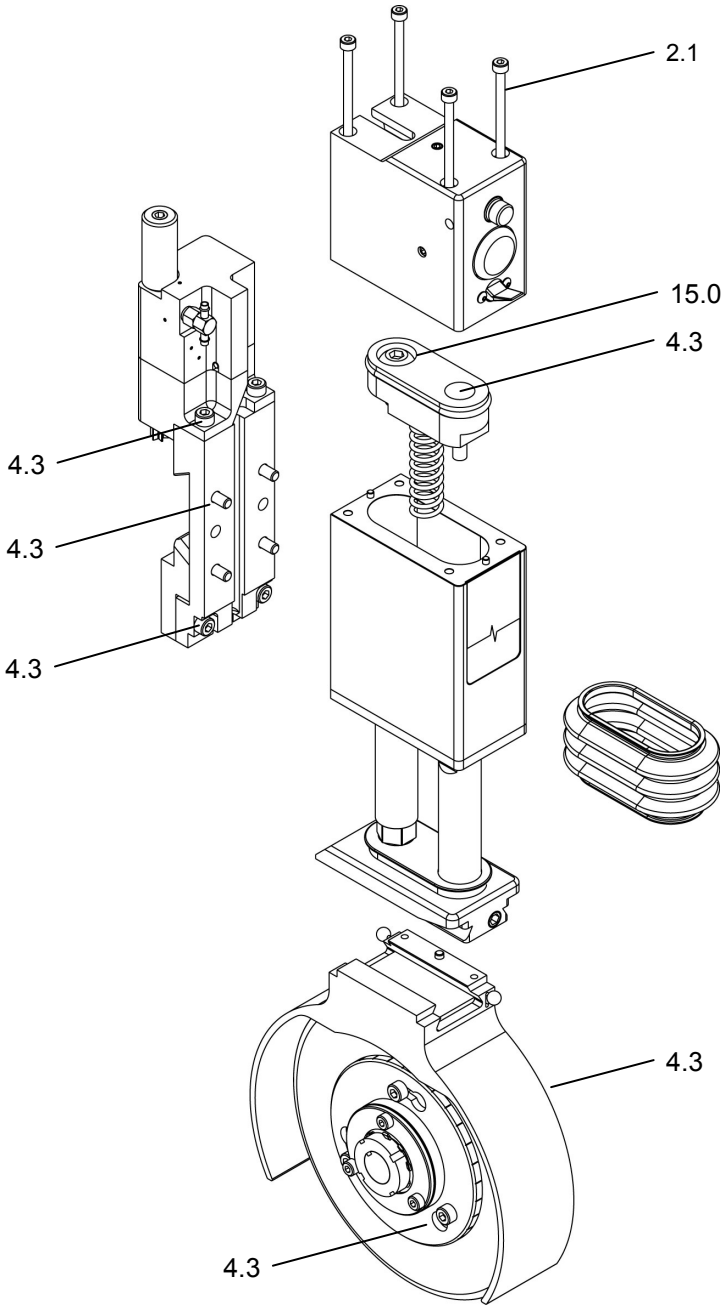
All values are in **ft·lbs** unless otherwise noted.



Torque Values

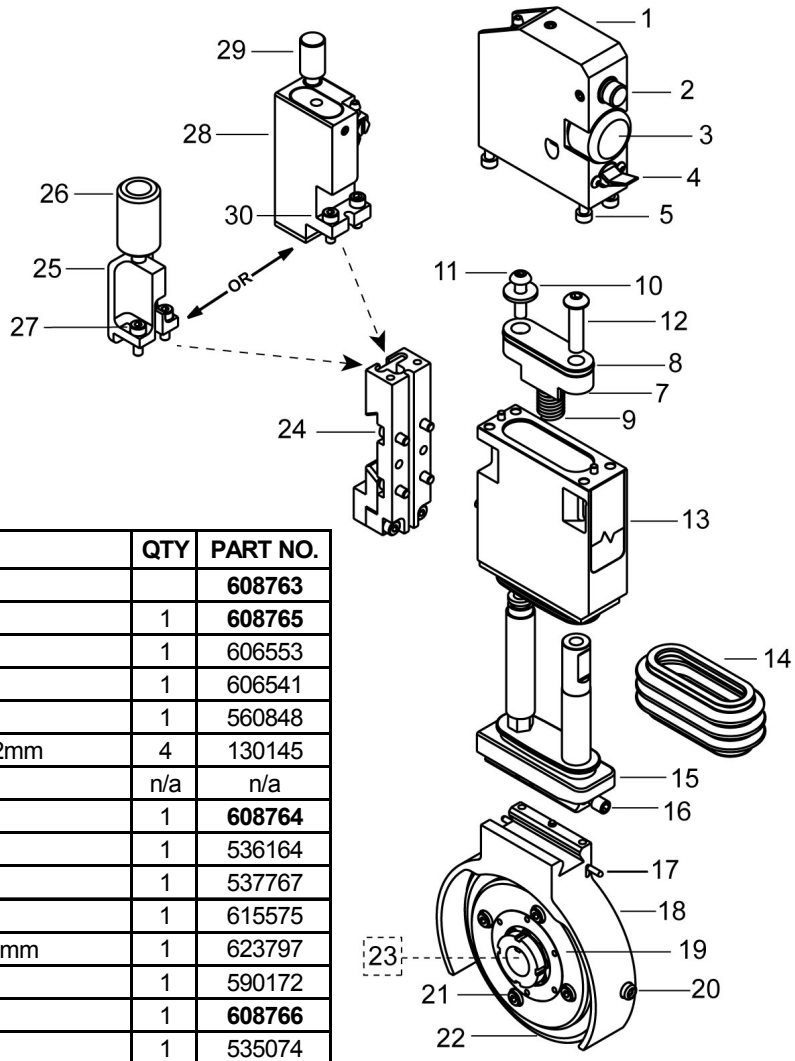
CL II and III Fasteners

All values are in **ft·lbs** unless otherwise noted.



KNIFEHOLDER PARTS

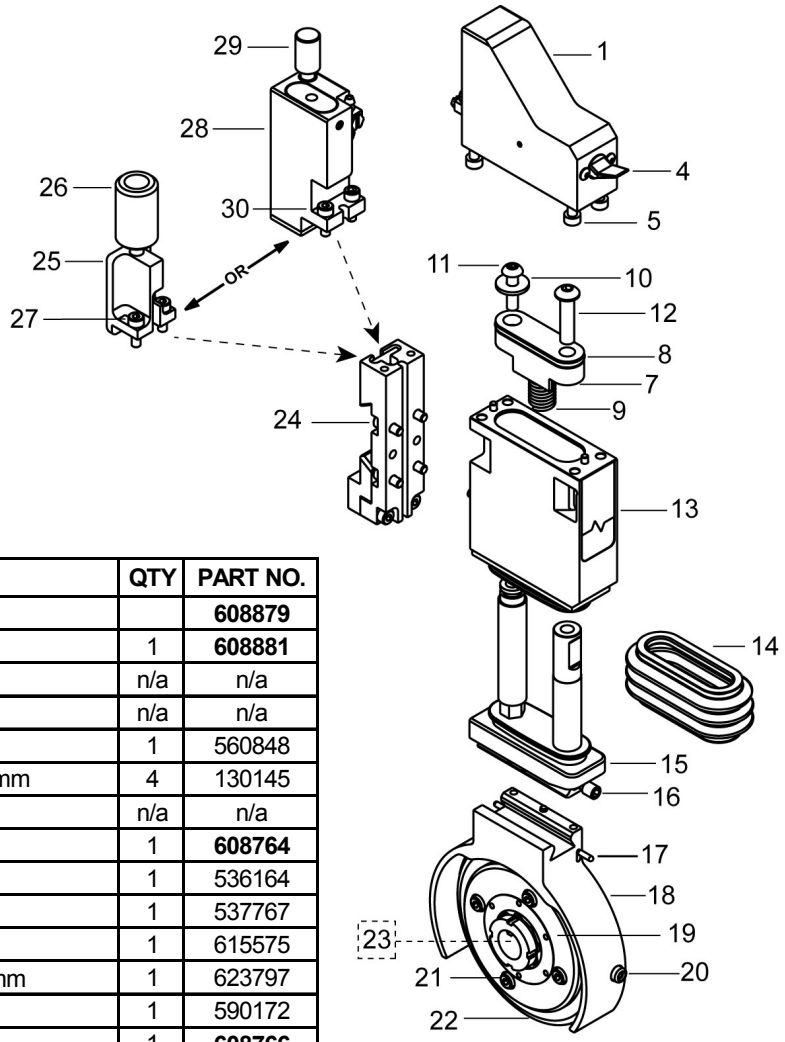
Class I – WR



ITEM	DESCRIPTION	QTY	PART NO.
	Control Body		**608763**
1	**Upper Body Assembly**	1	**608765**
2	Regulator	1	606553
3	Gauge	1	606541
4	Actuator Switch	1	560848
5	Socket Head Cap Screw M4 x 0.7 x 12mm	4	130145
6	n/a	n/a	n/a
7	**Piston Assembly**	1	**608764**
8	Piston O-ring	1	536164
9	Piston Return Spring	1	537767
10	Flat Washer SAE #10	1	615575
11	Button Head Cap Screw M5 x 0.8 x 20mm	1	623797
12	Button Head Cap Screw (special)	1	590172
13	**Lower Body Assembly**	1	**608766**
14	Bellows	1	535074
15	**Dovetail Lock Assembly**	1	**616863**
16	Lock Screw	1	546909
	Blade Cartridge Assembly - Class I		**568412**
17	Safety Lock Latch Assembly	1	call
18	Blade Guard		568384
19	Blade Clamp	1	130242
20	Blade Lock Pin	1	call
21	Socket Head Cap Screw M4 x 0.7 x 8mm	4	131156
22	Blade	1	129835
23	Bearing (not shown)	1	130246
	Back Plate Assembly	1	**550708**
24	Socket Head Cap Screw M4 x 0.7 x 10mm	4	130184
	Top Block Assembly Options		
25	**Manual Lock Top Block Assembly**	1	**555538**
26	Brake Lock Knob	1	537973
27	Socket Head Cap Screw M4 x 0.7 x 12mm	2	130145
28	**Pneumatic Lock Top Block Assembly**	1	**555539**
29	Traverse Knob	1	550314
30	Socket Head Cap Screw M4 x 0.7 x 12mm	2	130145

KNIFEHOLDER PARTS

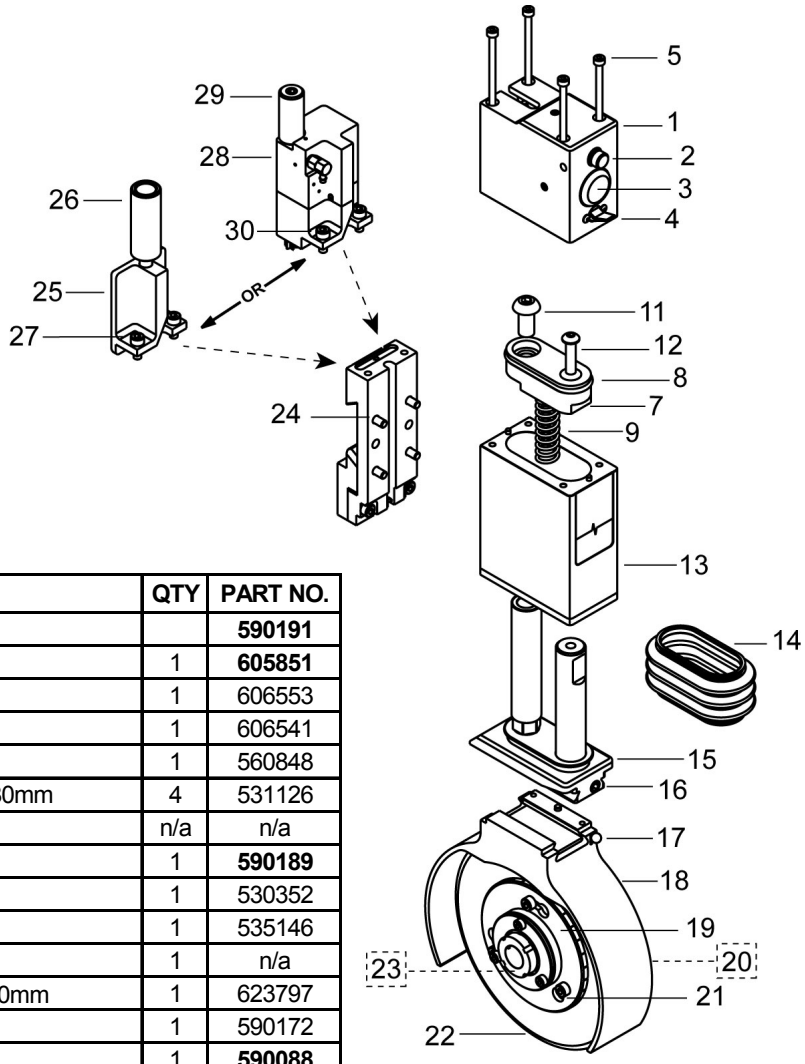
Class I – WOR



ITEM	DESCRIPTION	QTY	PART NO.
	Control Body		**608879**
1	**Upper Body Assembly**	1	**608881**
2	n/a	n/a	n/a
3	n/a	n/a	n/a
4	Actuator Switch	1	560848
5	Socket Head Cap Screw M4 x 0.7 x 12mm	4	130145
6	n/a	n/a	n/a
7	**Piston Assembly**	1	**608764**
8	Piston O-ring	1	536164
9	Piston Return Spring	1	537767
10	Flat Washer SAE #10	1	615575
11	Button Head Cap Screw M5 x 0.8 x 20mm	1	623797
12	Button Head Cap Screw (special)	1	590172
13	**Lower Body Assembly**	1	**608766**
14	Bellows	1	535074
15	**Dovetail Lock Assembly**	1	**616863**
16	Lock Screw	1	546909
	Blade Cartridge Assembly - Class I		**568412**
17	Safety Lock Latch Assembly	1	call
18	Blade Guard		568384
19	Blade Clamp	1	130242
20	Blade Lock Pin	1	call
21	Socket Head Cap Screw M4 x 0.7 x 8mm	4	131156
22	Blade	1	129835
23	Bearing (not shown)	1	130246
	Back Plate Assembly	1	**550708**
24	Socket Head Cap Screw M4 x 0.7 x 10mm	4	130184
	Top Block Assembly Options		
25	**Manual Lock Top Block Assembly**	1	**555538**
26	Brake Lock Knob	1	537973
27	Socket Head Cap Screw M4 x 0.7 x 12mm	2	130145
28	**Pneumatic Lock Top Block Assembly**	1	**555539**
29	Traverse Knob	1	550314
30	Socket Head Cap Screw M4 x 0.7 x 12mm	2	130145

KNIFEHOLDER PARTS

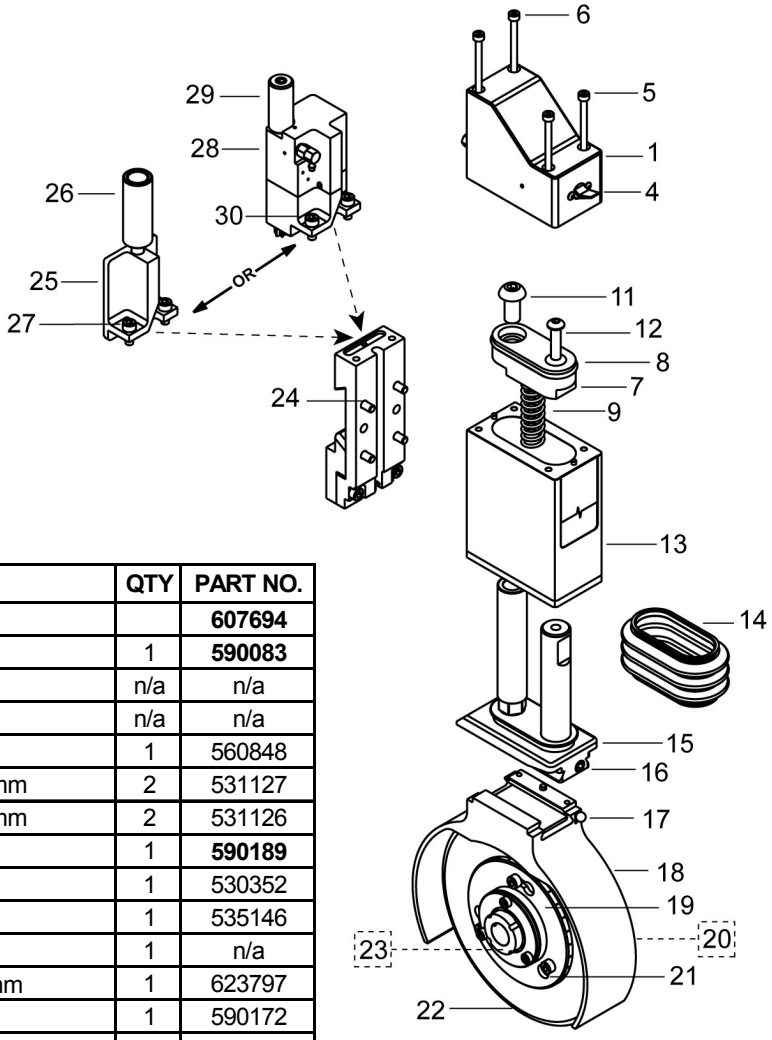
Class II – WR



ITEM	DESCRIPTION	QTY	PART NO.
	Control Body		**590191**
1	**Upper Body Assembly**	1	**605851**
2	Regulator	1	606553
3	Gauge	1	606541
4	Actuator Switch	1	560848
5	Socket Head Cap Screw M4 x 0.7 x 80mm	4	531126
6	n/a	n/a	n/a
7	**Piston Assembly**	1	**590189**
8	Piston O-ring	1	530352
9	Piston Return Spring	1	535146
10	n/a	1	n/a
11	Button Head Cap Screw M5 x 0.8 x 20mm	1	623797
12	Button Head Cap Screw (special)	1	590172
13	**Lower Body Assembly**	1	**590088**
14	Bellows	1	528809
15	**Dovetail Lock Assembly**	1	**616876**
16	Lock Screw	1	545855
	Blade Cartridge Assembly - Class II		**568924**
17	Safety Lock Latch Assembly	1	call
18	Blade Guard		568929
19	Blade Clamp	1	549098
20	Blade Lock Pin (not shown)	1	call
21	Socket Head Cap Screw M5 x 0.8 x 10mm	3	130168
22	Blade	1	129839
23	Bearing (not shown)	1	130261
	Back Plate Assembly	1	**550709**
24	Socket Head Cap Screw M5 x 0.7 x 12mm	4	130467
	Top Block Assembly Options		
25	**Manual Lock Top Block Assembly**	1	**544156**
26	Brake Lock Knob	1	531754
27	Socket Head Cap Screw M5 x 0.7 x 12mm	2	130467
28	**Pneumatic Lock Top Block Assembly**	1	**550707**
29	Traverse Knob	1	539088
30	Socket Head Cap Screw M5 x 0.7 x 12mm	2	130467

KNIFEHOLDER PARTS

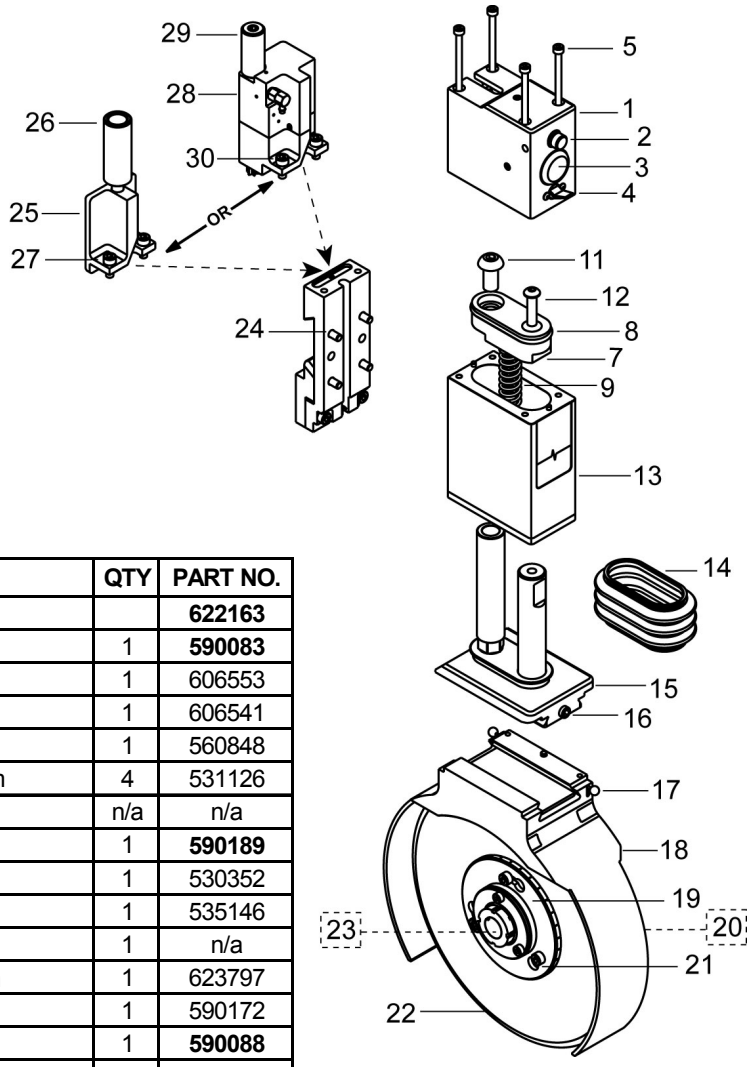
Class II – WOR



ITEM	DESCRIPTION	QTY	PART NO.
	Control Body		**607694**
1	**Upper Body Assembly**	1	**590083**
2	n/a	n/a	n/a
3	n/a	n/a	n/a
4	Actuator Switch	1	560848
5	Socket Head Cap Screw M4 x 0.7 x 50mm	2	531127
6	Socket Head Cap Screw M4 x 0.7 x 80mm	2	531126
7	**Piston Assembly**	1	**590189**
8	Piston O-ring	1	530352
9	Piston Return Spring	1	535146
10	n/a	1	n/a
11	Button Head Cap Screw M5 x 0.8 x 20mm	1	623797
12	Button Head Cap Screw (special)	1	590172
13	**Lower Body Assembly**	1	**590088**
14	Bellows	1	528809
15	**Dovetail Lock Assembly**	1	**616876**
16	Lock Screw	1	545855
	Blade Cartridge Assembly - Class II		**568924**
17	Safety Lock Latch Assembly	1	call
18	Blade Guard		568929
19	Blade Clamp	1	549098
20	Blade Lock Pin (not shown)	1	call
21	Socket Head Cap Screw M5 x 0.8 x 10mm	3	130168
22	Blade	1	129839
23	Bearing (not shown)	1	130261
	Back Plate Assembly	1	**550709**
24	Socket Head Cap Screw M5 x 0.7 x 12mm	4	130467
	Top Block Assembly Options		
25	**Manual Lock Top Block Assembly**	1	**544156**
26	Brake Lock Knob	1	531754
27	Socket Head Cap Screw M5 x 0.7 x 12mm	2	130467
28	**Pneumatic Lock Top Block Assembly**	1	**550707**
29	Traverse Knob	1	539088
30	Socket Head Cap Screw M5 x 0.7 x 12mm	2	130467

KNIFEHOLDER PARTS

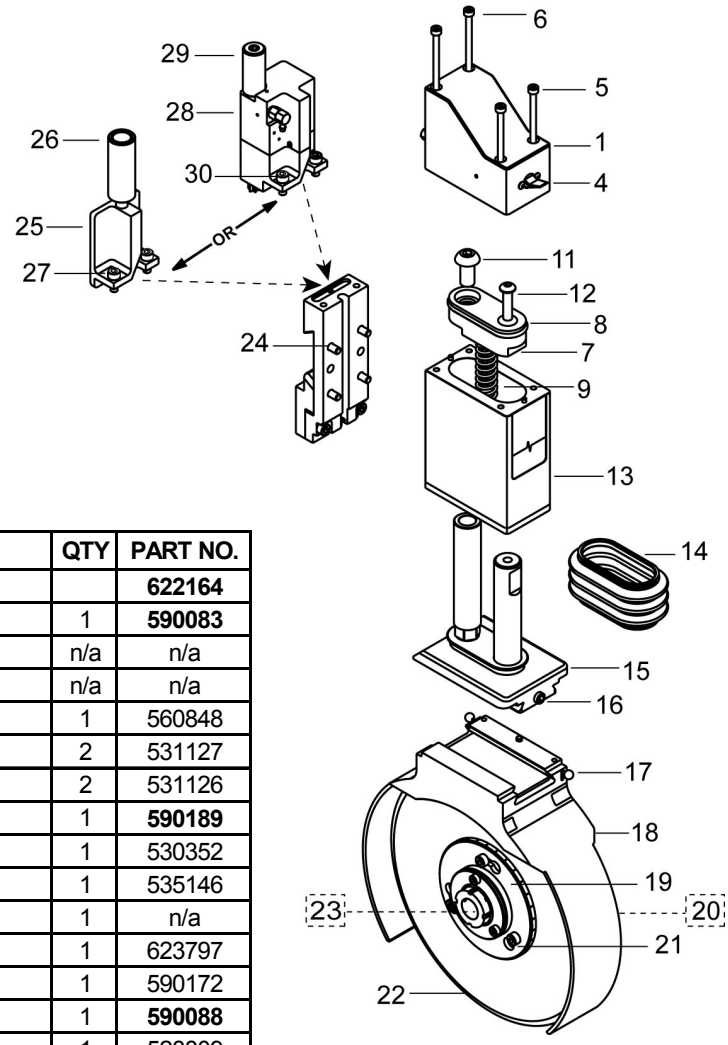
Class III – WR



ITEM	DESCRIPTION	QTY	PART NO.
	Control Body		**622163**
1	**Upper Body Assembly**	1	**590083**
2	Regulator	1	606553
3	Gauge	1	606541
4	Actuator Switch	1	560848
5	Socket Head Cap Screw M4 x 0.7 x 80mm	4	531126
6	n/a	n/a	n/a
7	**Piston Assembly**	1	**590189**
8	Piston O-ring	1	530352
9	Piston Return Spring	1	535146
10	n/a	1	n/a
11	Button Head Cap Screw M5 x 0.8 x 20mm	1	623797
12	Button Head Cap Screw (special)	1	590172
13	**Lower Body Assembly**	1	**590088**
14	Bellows	1	528809
15	**Dovetail Lock Assembly**	1	**610082**
16	Lock Screw	1	545855
	Blade Cartridge Assembly - Class III		**569508**
17	Safety Lock Latch Assembly	1	call
18	Blade Guard		569505
19	Blade Clamp	1	549098
20	Blade Lock Pin (not shown)	1	call
21	Socket Head Cap Screw M5 x 0.8 x 10mm	3	130168
22	Blade	1	129876
23	Bearing (not shown)	1	130261
	Back Plate Assembly	1	**550709**
24	Socket Head Cap Screw M4 x 0.7 x 12mm	4	130467
	Top Block Assembly Options		
25	**Manual Lock Top Block Assembly**	1	**544156**
26	Brake Lock Knob	1	531754
27	Socket Head Cap Screw M4 x 0.7 x 12mm	2	130467
28	**Pneumatic Lock Top Block Assembly**	1	**550707**
29	Traverse Knob	1	539088
30	Socket Head Cap Screw M4 x 0.7 x 12mm	2	130467

KNIFEHOLDER PARTS

Class III – WOR



ITEM	DESCRIPTION	QTY	PART NO.
	Control Body		**622164**
1	**Upper Body Assembly**	1	**590083**
2	n/a	n/a	n/a
3	n/a	n/a	n/a
4	Actuator Switch	1	560848
5	Socket Head Cap Screw M4 x 0.7 x 50mm	2	531127
6	Socket Head Cap Screw M4 x 0.7 x 80mm	2	531126
7	**Piston Assembly**	1	**590189**
8	Piston O-ring	1	530352
9	Piston Return Spring	1	535146
10	n/a	1	n/a
11	Button Head Cap Screw M5 x 0.8 x 20mm	1	623797
12	Button Head Cap Screw (special)	1	590172
13	**Lower Body Assembly**	1	**590088**
14	Bellows	1	528809
15	**Dovetail Lock Assembly**	1	**610082**
16	Lock Screw	1	545855
	Blade Cartridge Assembly - Class III		**569508**
17	Safety Lock Latch Assembly	1	call
18	Blade Guard		569505
19	Blade Clamp	1	549098
20	Blade Lock Pin (not shown)	1	call
21	Socket Head Cap Screw M5 x 0.8 x 10mm	3	130168
22	Blade	1	129876
23	Bearing	1	130261
	Back Plate Assembly	1	**550709**
24	Socket Head Cap Screw M5 x 0.7 x 12mm	4	130467
	Top Block Assembly Options		
25	**Manual Lock Top Block Assembly**	1	**544156**
26	Brake Lock Knob	1	531754
27	Socket Head Cap Screw M5 x 0.7 x 12mm	2	130467
28	**Pneumatic Lock Top Block Assembly**	1	**550707**
29	Traverse Knob	1	539088
30	Socket Head Cap Screw M5 x 0.7 x 12mm	2	130467

DISASSEMBLY PROCEDURES - CLASS I AND II CONTROL BODY

- Disassembly instructions in this manual are for your safety and protection. They are a guide for selective sub-assembly inspection, maintenance and part replacement.
- To avoid warranty violations, consult with a Tidland Knifeholder Service Technician for any disassembly not covered in this publication: **1-800-426-1000**.

Recommended tools:
Class I hex drive wrenches: 3 and 4 mm
Class II hex drive wrenches: 3, 4, and 6 mm
Spanner socket (for bearing lock nut removal; e.g., Whittet-Higgins BAS-02, BAS-03)
Parker Super O-Lube O-ring Lubricant (use no substitutes)
Dow Corning 557 Dry Film Lubricant
EMB Polymer Grease LO148-098

See illustrations for item and part numbers:
Class I pages 28, 29
Class II pages 30, 31
Class II and III pages 32, 33

Do not remove the Alignment Bushing Assembly (p. 8). Removal will change the factory set zero degree cant angle.

DISASSEMBLY INSTRUCTION	CLASS I	CLASS II AND III	
	ITEM #	ITEM #	
	WR / WOR	WR	WOR
1. Disconnect air supply hose at manifold.	–	–	–
2. Remove knifeholder from guide bar.	–	–	–
3. Remove blade cartridge from control body and place the control body on a workbench.	see p. 23	see p. 23.	
4. For **pneumatic lock assemblies only**, remove the two fasteners that hold the pneumatic lock to the backplate and disconnect the air hose from the T-fitting.	28, 30	28, 30	
5. Remove body fasteners.	5	5	5, 6
6. Remove upper body.	1	1	
7. Remove piston assembly. **Caution!** Piston assembly is under spring tension. Hold firmly when removing the fasteners. 8. Spring will be loose in lower body when piston is removed. Note its orientation for reassembly.	7, 8, 9, 10, 11, 12	7, 8, 9,11, 12	
9. Remove the dovetail lock assembly from the lower body assembly and remove the bellows.	13, 14, 15	13, 14, 15	
End of disassembly procedure.			

DISASSEMBLY PROCEDURE

Maintenance

See illustration on page 25 for lubrication callouts.

- Piston and Piston O-ring
  Inspect, wipe clean and relubricate with *Parker Super O-Lube* (no substitutes)

- Guide Rod Bushing (in lower body)
  Lubricate with *EMB Polymer Grease LO148-098.*

- Alignment Rod And Alignment Rod Bushing Assembly

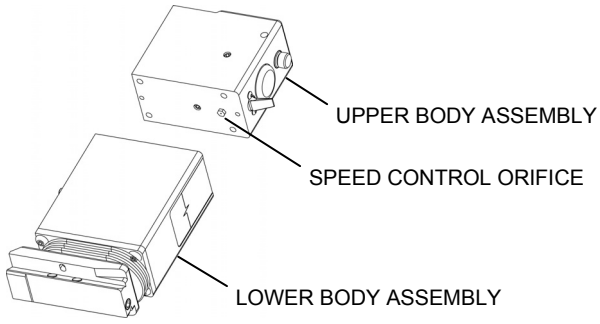
  Do Not Remove Alignment Bushing Assembly from the Lower Body!
  Removal will change the factory set cant angle. See page 8.

  Do not remove rods from dovetail lock assembly.
  Wipe with clean, soft cloth and spray with *Dow Corning 557.*

- Inspect speed control orifice on underside of upper body assembly to ensure that it is not plugged with debris.

  To clean: Remove orifice using a 5 mm wrench. Blow out the debris, then reinstall the orifice.

Do not apply air to the orifice without removing it or debris will be forced back into the knifeholder air system**.**



Reassembly

Refer to page 26 (CL I) or 27 (CL II) for all required torque values.

1. Reinstall the bellows.
2. Reinstall the dovetail lock assembly into the lower body assembly. Ensure that the spring is in position inside the lower body.
3. Reinstall the piston assembly, aligning the top of the spring in the round groove at the bottom center of the piston.

   Caution! Hold the spring-loaded piston assembly firmly in the lower body while securing the guide rod and alignment rod fasteners.
4. Reinstall the upper body and lock top block assemblies, pneumatic or manual, if removed. Secure to body and mount with fasteners.
5. Install the air supply line and verify control body performance (extension and retraction) before placing the control body on the guide bar.
6. Reinstall the blade cartridge (p. 23).

Slit Quality

Call a Tidland Knifeholder Technician (1-800-426-1000) for more information.

Problem	Possible Cause	Recommended Solution
Fuzzy or ragged on both edges	Dull blade Blade reground incorrectly Damaged blade	Replace blade.
	Radial play too loose, allowing blade to oscillate (wobble)	Replace blade cartridge assembly bearing.
	Heavy vibration at higher speeds	Reduce speed.
Slit line not perfectly straight	Knife blade wobbles due to worn bearings	Replace blade cartridge assembly bearing.
	Radial play too loose, allowing blade to wobble	Replace blade cartridge assembly bearing.
Very short blade life	Blade reground incorrectly	Replace blade.
	Air pressure too high	Decrease air pressure.
	Rough anvil roll surface	Resurface anvil roll.
	Radial play too loose, allowing blade to wobble	Replace blade cartridge assembly bearing.
	Heavy vibration at higher speeds	Reduce speed.
Interrupted slitting	Air pressure too light	Increase air pressure.
	Damaged blade edge	Replace blade.
	Rough anvil roll surface	Resurface anvil roll.

TROUBLESHOOTING

Knifeholder Performance

Note: Any problems experienced upon initial start up of the knifeholder system should be reported promptly to a Tidland Knifeholder Representative (1-800-426-1000).

Problem	Possible Cause	Recommended Solution
Sluggish knifeholder action (extension or retraction)	Upper to Lower Body gasket leak	Check for loose screws. or Replace gasket.
	Piston Assembly o-ring needs lubrication	See Disassembly Procedures p. 34.
	Piston Assembly sticking due to knifeholder abuse	Dropping knifeholder or striking with hammer can cause binding. Rebuild knifeholder and replace non-repairable parts.
	Piston Guide Rod Bushing needs lubrication.	See Lubrication Diagram p. 25. (Ceramic Bushing)
	Alignment Rod Bushing needs lubrication.	See Lubrication Diagram p. 25. (Dovetail Lock Assembly)
	Speed control orifice is plugged	See Maintenance, p. 35.
Knifeholder doesn't retract	Broken piston return spring	Replace spring. See Disassembly Procedure p. 34.
Difficult knifeholder movement on guide bar	Dirty guide bar	Clean and lubricate guide bar with Dow Corning 557 Dry Film Lubricant.
	Sticky brake shoe	Clean brake shoe. Clean and lubricate brake shoe o-ring. Use Dow Corning 55 O-ring Lubricant.
	Brake knob not loose	Loosen brake knob.
	Gib not adjusted correctly	Check gib adjustment. Manual Lock (Step 6c), p. 17. Pneumatic Lock (Step 6c), p. 18

CONTROL BODY AND BLADE CARTRIDGE INTERCHANGEABILITY CHART

Performance Series and C Series – Class I, II and III

All marked squares indicate the only acceptable combinations for control body to blade cartridge assembly. See notes at bottom of page to determine availability.
NOTE: Use of any other combinations may cause damage to knifeholder or blade cartridge and void warranty.

CLASS I			CONTROL BODY				
			PS Shear Automatic	PS Shear Manual	PS Crush	CS Shear	CS Crush
			536160	543919	608763 608879	131892	131902
BLADE CARTRIDGE	PS Swing Automatic Shear	547613	✓				
	PS Swing Automatic Shear w/ 360 Degree Blade Guard	718312	✓				
	PS Swing Manual Shear	551430		✓		✓	
	PS Crush	568412	✓	✓	✓	▲	▲
	PS Razor	566769	✓	✓		▲	▲
	CS 25mm Shear	130751				✓	
	CS 33mm Shear	131611				✓	
	CS Crush Hybrid	578782		✓	✓	▲	▲
	CS Crush	130255					✓
	CS Razor	135064				✓	✓
CLASS II			PS Shear Automatic	PS Shear Manual	PS Crush	CS Shear	CS Crush
			530527	535761	590191 607694	131921	131922
BLADE CARTRIDGE	PS Swing Automatic Shear	524508	✓				
	PS Swing Automatic Shear w/ 360 Degree Blade Guard	548274	✓				
	PS Swing Manual Shear	569393		✓		✓	
	PS Crush	568924	✓	✓	✓	✓	✓
	CS Swing	131061		✓		✓	
	CS Swing w/ 360 Degree Blade Guard	Custom				Requires alteration	
	CS Rigid	130237		✓		✓	
	CS Crush	130271		✓	✓	✓	✓
	CS Razor	133188	✓	✓		✓	✓
CLASS III			PS Shear Automatic	PS Shear Manual	PS Crush CL 2 MOD	CS Shear	CS Crush
			528812	543324	N/A	131923	131923
BLADE CARTRIDGE	PS Swing Automatic Shear	535264	✓				
	PS Swing Automatic Shear w/ 360 Degree Blade Guard	548275	✓				
	PS Swing Manual Shear	569394		✓		✓	
	PS Crush	569508		✓	✓	✓	✓
	CS Swing	569394		✓		✓	
	CS Swing w/ 360 Degree Blade Guard	Custom				Requires alteration	
	CS Rigid	130653		✓		✓	
	CS Crush	130814		✓	✓	✓	✓

currently manufactured ✓ control body / blade cartridge compatibility

▲ no longer manufactured - knifeholder must have cant key update to mount new cartridge

✓ **cartridge safety lock pin update required - order Part No. 131757 REV C**
(units manufactured before March 2002 are not equipped with the Rev C safety lock pin)

RECOMMENDED ACCESSORIES

Bench Fixture
Tidland bench fixtures may be mounted at any angle and allow easy and safe off-machine blade changes and adjustments.
Part Number: 130796 – Class I
130788 – Class II
130822 – Class III

Stainless Steel Protective Glove
This glove is made with woven metal fibers to provide protection from slicing-type hazards. Always work safely.
Part Number: 132084

'T' Handle Hex Wrenches, Metric
This set contains 2.5 mm, 3 mm, and 4 mm long reach 'T' handle hex wrenches to perform standard adjustments and maintenance procedures required on knifeholders.
Part Number: 132146

'L' Handle Hex Wrenches, Metric
This set contains 1.5 mm, 2 mm, 2.5 mm, 3 mm, 4 mm, and 5 mm 'L' handle hex wrenches to perform the standard knifeholder adjustments and maintenance procedures.
Part Number: 128363

Coalescing Filter / Air Regulator Kit
The Coalescing Filter/ Air Regulator is designed to fit between plant air supply and the knifeholder air manifold.
Part Number: 520984 – single manifold
520985 – dual manifold

Crush Cartridges with Knife Blades - Performance Series
Complete cartridge replacements allow quick blade changes.
Part Number: 568412 – Class I
568924 – Class II
569508 – Class III

Knife Blades
Part Number: 129835 – Class I
129839 – Class II
129876 – Class III

Technical Documentation
These manuals are guides for operators installing, operating, and maintaining Tidland Performance Series Knifeholders.
Part Number:
557416 – Performance Series Manual Shear Knifeholder
557417 – Performance Series Automatic Shear Knifeholder
612075 – Performance Series Crush Knifeholder

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