



Control Series Electronic Knifeholder

Installation and Maintenance



EN

MI 270015467 1 D

Class II and II
For use with the
Control Series Touchscreen User Manual 270015468
Optional PC Software Interface Guide 27L771975

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External links

Manuals

Electrical Drawings

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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, dust, and dirt from accumulating in storage and installation areas.

Before operation, check for damaged or missing fasteners. Control Series electronic knifeholders are designed to operate at optimal levels when all fasteners are installed and tightened to recommended torque values.

If any fasteners are damaged or missing, please contact the equipment manufacturer or Maxcess.

Before operation



Read the Safety section of this manual before installing the cabinet or handling a knifeholder.



If not using a PC supplied by Maxcess, install the software that was supplied with your knifeholders. This will ensure that you have the most current version of the software on your computer.



Before applying system power, ensure that all cables are properly plugged in.

About these instructions

These instructions contain important information for safe and efficient installation or maintenance of the Tidland Control Series electronic knifeholders. Observing these instructions helps to avoid dangers and increase the service life of the knifeholder.

The instructions must be carefully kept and must always be available throughout the service life of the knifeholder system.

When using these knifeholders, always follow basic safety precautions to reduce the risk of personal injury.

Your company's safety instructions and procedures should always be followed.

When using this product with any other equipment or machinery, all safety requirements stipulated by that equipment or machinery manufacturer must be followed.

Compliance with local, state, and federal safety requirements is your responsibility.

User interface manuals

This manual is intended to be used with the supporting documentation provided with your system:

Touchscreen operation	Touchscreen User Manual Part No. 270015468
PC software interface (optional)	PC Interface User Manual Part No. 27L771795
Wireless operation (optional)	User Manual Part No. 270015470

Proper use

Tidland Control Series knifeholders are designed and manufactured for cutting material webs according to the shear slitting procedure in the direction of motion of the material. Any other use is deemed as not being in accordance with the intended purpose. The manufacturer will not be liable for any damage resulting from this improper use. The user/operator bears sole responsibility for the risk.

Operating principle

The Tidland Control Series electronic knifeholder has motorized overlap and side force control. The knifeholder comes configured with a default overlap of 0.035" and 5 lbs of side force.

The touch-activated display screen allows operators to calibrate, engage, and disengage the knifeholder. Password protected security levels provide access to side force and overlap adjustment, blade life details, fault history, and other settings.

Maxcess can also provide an optional industrial touchscreen PC with software for knifeholder control and advanced diagnostics.

Safety equipment

With a Tidland 360 Degree Blade Guard Cartridge installed, the blade is fully guarded when the knifeholder is disengaged.

If the electrical power fails, the blade will stop and remain in that overlap and side force position.

All replacement parts used on this product shall be made to original Tidland specifications.

TUV and CE



TUV approved knifeholders have the TUV mark affixed to the back of the knifeholder.

Control Series electronic knifeholders comply with the 2006/42/EC Machinery directive and the 2004/108/EC Electromagnetic Compatibility directive.

Language

These are the original instructions, written in English.

Help tool

For systems with PC software control interface:

The Control Series Help Tool is for use with the Windows version of the Tidland Electronic Knifeholder Software System. It can be accessed through the menu bar on the interface display. If you have any questions that cannot be answered with the Help Tool, please contact Maxcess.

Emergency stop

E-stop circuit

This TUV approved device is not provided with its own E-stop and may only be installed in a completed system equipped with a compliant E-stop circuit.

The E-stop circuit gives the operator the ability to shut the entire system off quickly in case of an emergency.

Upon activation by an E-stop button, power shall also be removed from the system.

Removing the power from the cabinet creates a zero energy state, category 0, according to the NFPA-79* (controlled stop).

Upon releasing the E-stop button, power is not delivered until some deliberate action is completed. Restarting of the machine requires operation of the start button.

Follow local electrical codes to conform with E-stop conditions.

* EN60204-1 (European Union standard)

Lockout/tagout procedures

To prevent unexpected system startup, always obey your company lock-out/tag-out procedures and test the system for a zero-energy state before beginning maintenance on a Tidland knifeholder system.

Instructions for use

The problem-free and safe operation of the Tidland Control Series Knifeholders is reliant on proper transportation and storage, expert installation and commissioning, and on use in accordance with the intended purpose.

Only persons who are familiar with the installation, commissioning, operation and maintenance of the knifeholders and who possess the necessary qualifications for their activities may work on the knifeholders.

Please note the following:

- The content of these operating instructions
- Any safety instruction on the device
- The machine manufacturer's specifications
- The applicable accident prevention and environmental protection guidelines

Information about safety instructions

The safety instructions and symbols described in this section are used in these operating instructions. They are used to avoid possible dangers for users and to prevent material damage.



SIGNAL WORD

Source of danger and its results
Avoiding dangers

The signal word **DANGER** refers to the danger of death or serious bodily injuries.

The signal word **WARNING** refers to the danger of moderate to severe bodily injuries.

The signal word **CAUTION** refers to the danger of slight to moderate bodily injuries or material damage.

Safety symbols used in this manual



Caution

Reference to general hazards that may result in bodily injuries or damage to the device.



Warning

Knife blades are sharp.
Can cause serious injury to hands.
Do not remove safety guards.
Use only recommended tools when handling knife blades.



Warning

Pinch point.
Keep hands away from moving knifeholder parts.



Danger

Arc flash and shock hazard.
Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (PPE).



Information

Disconnect power before servicing the knifeholder cabinet.



Information

This mark identifies important information.



Caution

To avoid static discharge, use proper grounding methods.

Residual risk

A residual risk remains, even if all safety regulations during the operation of the knifeholders are observed. Any person working with the knifeholders should be aware of such residual risks and must follow the instructions intended to avoid such residual risks developing into accidents or damage.

**Warning**

Work on electrical equipment shall be performed by authorized professionals only.

Before beginning any maintenance on the knifeholder, turn off main switch on the power cabinet.

Obey your company lock-out/tag-out procedure to secure the unit against unintended restarting, and then test for zero-energy state.

**Warning**

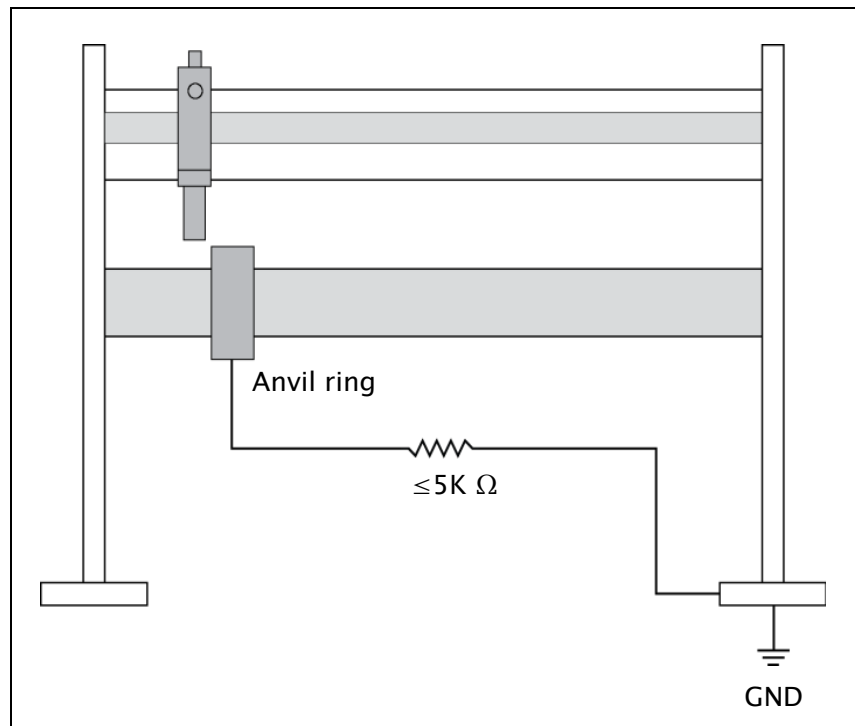
Duration of blade rotation during emergency shutdown (activation of the E-stop button) is system-dependent.

**Warning**

Keep hands away from moving knifeholder parts.

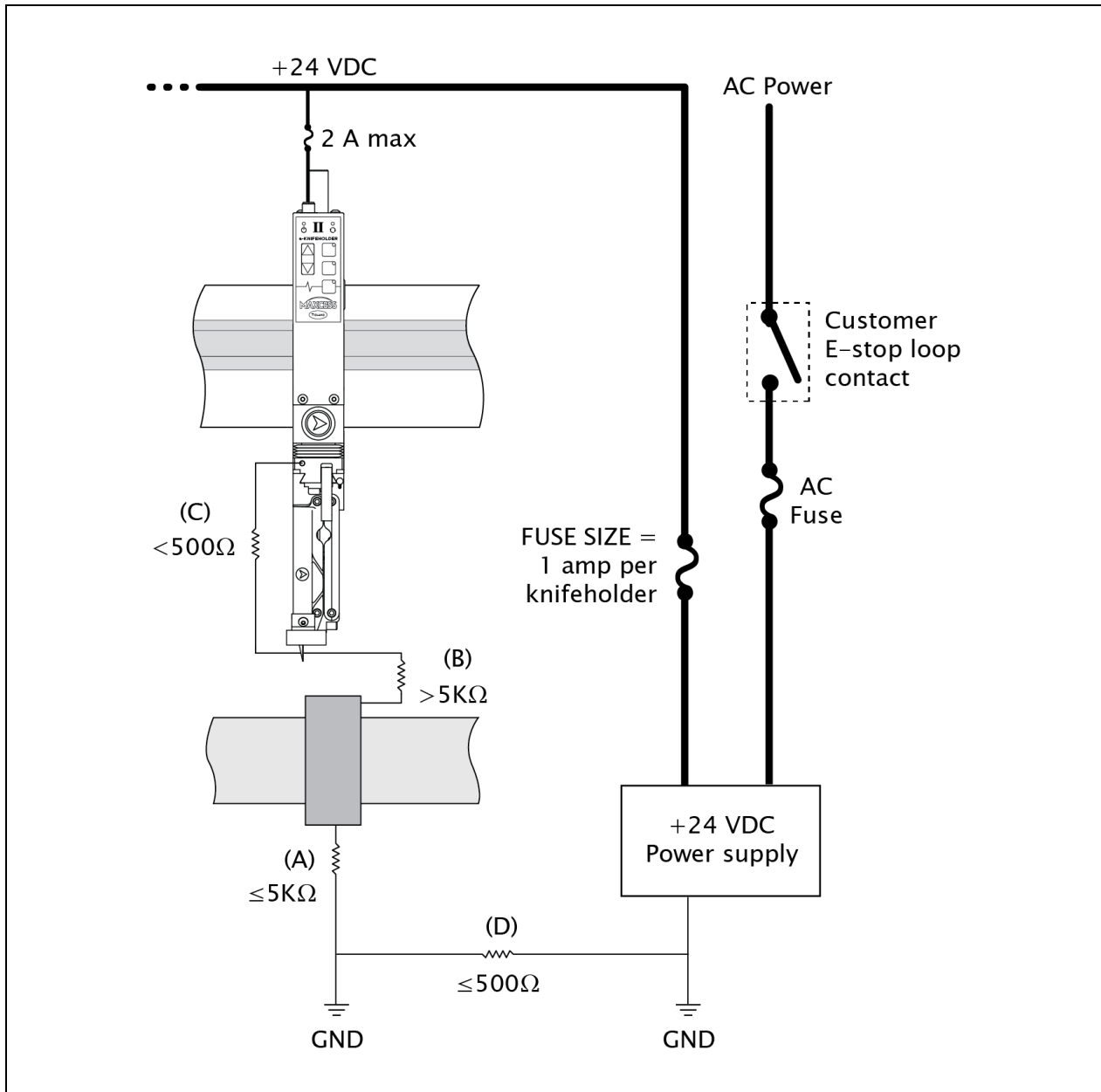
Continuity requirements

- For Tidland electronics knifeholders to calibrate and function properly, you must verify continuity between system components.
- Use an ohmmeter to confirm $\leq 5K\Omega$ between ground and the anvil ring.
- If using an expanding knife shaft, test with the shaft expanded.
- If resistance exceeds $5K\Omega$, call Maxcess Customer Service; modifications to improve continuity may be required.



At installation

- (A) Resistance between the anvil ring and ground must be $\leq 5K\Omega$.
- (B) Confirm $>5K\Omega$ between the knife blade and the anvil ring.
- (C) If resistance exceeds $5K\Omega$, confirm $\leq 500\Omega$ between the knife blade(s) and ground (D).



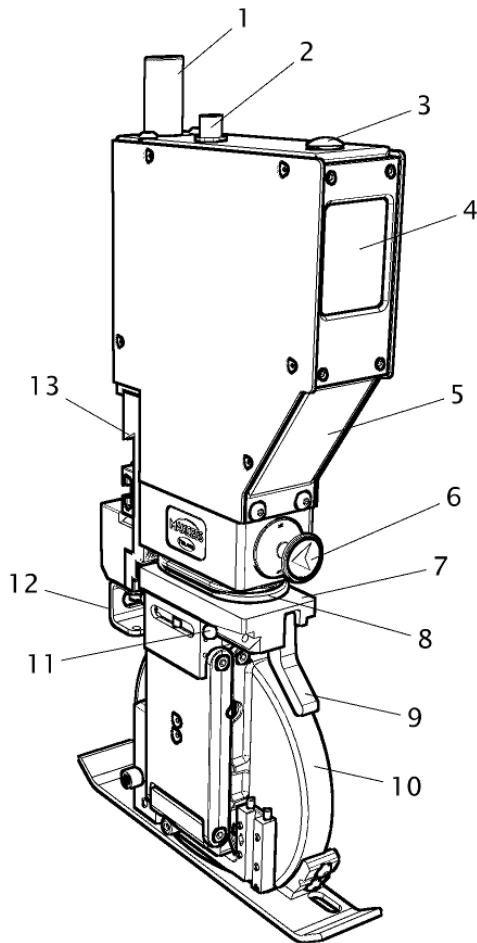
E-stop circuit

- This TUV listed device is not provided with its own E-stop and may only be installed in a completed system equipped with a compliant E-stop circuit.
- The E-stop circuit gives the operator the ability to shut the entire system off quickly in case of an emergency.
- Upon activation by an E-stop button, power shall also be removed from the system.
- Removing the power from the cabinet creates a zero energy state, category 0, according to the NFPA-79* (controlled stop).
- Upon releasing the E-stop button, power is not delivered until some deliberate action is completed. Restarting of the machine requires operation of the start button.
- Follow local electrical codes to conform with E-stop conditions.
- TUV approved knifeholders have the TUV mark affixed to the back of the knifeholder.

* EN60204-1 (European Union standard)

Knifeholder components

Class II shown



- | | |
|----|--|
| 1 | Brake knob |
| 2 | Power/communication cable (page 4-2) |
| 3 | Status LED* |
| 4 | LCD touchscreen** |
| 5 | Control body |
| 6 | Cant key |
| 7 | Control body to cartridge dovetail interface |
| 8 | Knifeholder bellows |
| 9 | Lock/unlock lever (cartridge to knifeholder) |
| 10 | 360° blade guard cartridge |
| 11 | Safety latch pin |
| 12 | 360° blade guard engagement bracket |
| 13 | Guide bar mount assembly (gib or linear bearing) |

* Class II – top of knifeholder
Class III – front of knifeholder

** For complete description, see the Touchscreen
Operation Manual (PN 270015468).

Cartridge assembly part numbers: page 8-15

Knifeholder power and communication

Power and communication are integrated and supplied through a power cable, typically shipped with each knifeholder assembly.



Maxcess recommends turning off the power before connecting or disconnecting the knifeholder power/communication cable.

Power/communication cable

75 VDC, 2 A, 8x24 AWG, 50 deg C

	1 = Engage	5 = Rx-
	2 = Tx+	6 = COM GND
	3 = Tx-	7 = VDC GND
	4 = Rx+	8 = +24 VDC
	Female end view (* = shield)	

Typical

Cable with strain relief is connected to the knifeholder internally.

	Straight shielded	270015300
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Optional

The knifeholder is assembled with an external M12, 8-pin connector for use with a separate cable.

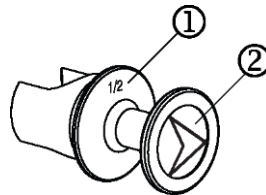
	Straight shielded	27L896870
	90° shielded	27L768879

Cant key

Selection

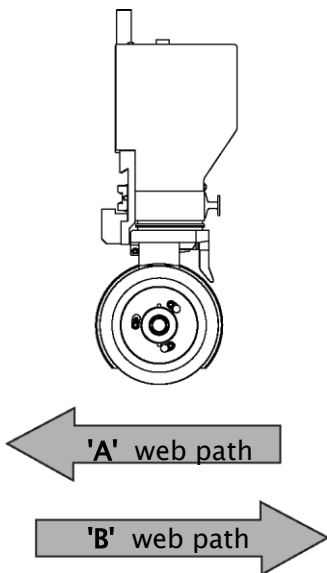
Cant angle options: 0°, 0.25°, 0.5°, or 1.0°

The angle is engraved in the key.



1	Cant angle
2	Cant arrow label (red or blue)

Orientation



The arrow on the cant key label should:

- point to the nip point (blade contact side) of the anvil ring.
- point in the same direction as the arrow on the blade cartridge.

If the arrows point in opposite directions:

- the nip point will not be closed, resulting in poor slit quality, and
- the cant key orientation needs to be reversed, **or**
- the cartridge orientation must be changed.

Cant key - continued

To change cant key orientation, pull the cant key all the way out of the control body, rotate it 180° and reinstall, pushing it firmly into the control body.

To install a new cant key, pull the old key out of the control body and replace it with the new key, making sure that the cant key arrow points in the same direction as the blade cartridge arrow. Make sure there is an o-ring installed on the cant key.

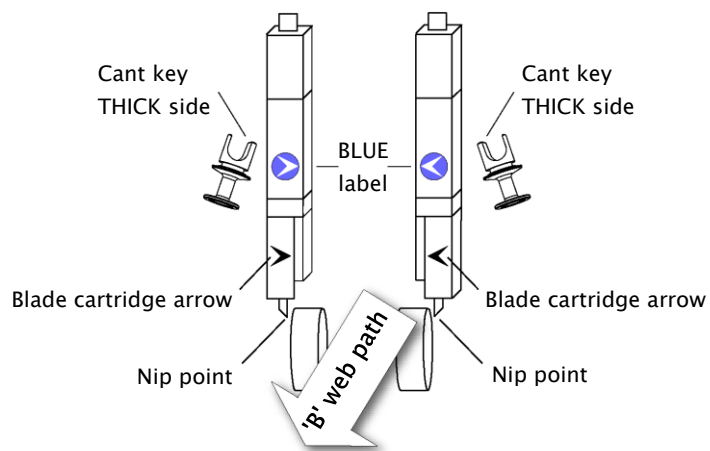
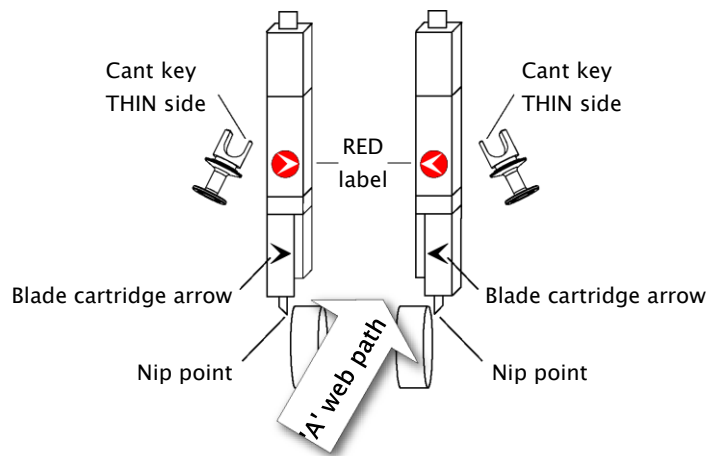
- The cant key label color, red or blue, indicates the web path direction as determined at time of sale.
- If the web path needs to be reversed at any time, Maxcess recommends replacing the cant key with one of the correct color.



If you remove and reverse the blade cartridge, you must also reverse the cant key. Pull it out of the knifeholder, rotate to match the direction of the arrow on the cartridge and reinstall.

Web path

- 'A' web path**
- Web moves **from the control side of knifeholder** toward the guide bar mount.
 - Cant key label is RED.
 - Cant key arrow points toward THIN side of the cant key.
 - Blade cartridge arrow points to the nip point (contact side of anvil ring.)
- 'B' web path**
- Web moves **from the guide bar mount** toward the control side of knifeholder.
 - Cant key label is BLUE.
 - Cant key arrow points toward THICK side of the cant key.
 - Blade cartridge arrow points to the nip point (contact side of anvil ring.)



Installing the power cabinet



Danger

Arc flash and shock hazard.

Installation must comply with federal, state and local electrical codes.

Install the cabinet according to the Tidland electrical drawings provided with your unit.

Electrical ratings

See the label inside the power cabinet for your model number.

Cabinet Model	EKH5-5S EKH5-5W	EKH5-1S EKH5-1W	EKH20-1S EKH20-1W	EKH20-1T N/A	EKH2-2N
Input rating	100-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC
	1.65 A	1.65 A	4.6 A	6.6 A	1.2 A
	50 Hz or 60 Hz single-phase	50 Hz or 60 Hz single-phase	50 Hz or 60 Hz single-phase	50 Hz or 60 Hz single-phase	50 Hz or 60 Hz single-phase
Output rating	24-29 VDC	24-29 VDC	24-29 VDC	24-29 VDC	24-29 VDC
	1 A per cable	5 A	15 A	15 A	1 A per cable
Short circuit rating	200 kA RMS	200 kA RMS	200 kA RMS	200 kA RMS	200 kA RMS

Commissioning the power cabinet

**Before connecting the knifeholders:**

1. Turn the cabinet power on. (Turn knob clockwise one-quarter turn.)
2. Verify the voltage at the knifeholder end of each cable connector, according to the electrical drawing supplied with your system.
3. Turn off the power.
4. Connect the knifeholders.
5. Turn the power on again.

Servicing the power cabinet



Danger

Arc flash and shock hazard.


Service to be performed by qualified personnel only.

Disconnect power before servicing the cabinet.

Fuses

Replacing a fuse in the cabinet

For knifeholder fuses see page 8-21.

 To reduce the risk of fire, replace fuses only with the same type as indicated for your cabinet model.			
Cabinet Model	EKH20-1S EKH20-1T EKH20-1W	EKH5-5S EKH5-5W	EKH5-1S EKH5-1W
Input fuse Class J, 600 V	F10 and 11 10 A	F10 and 11 3 A	F10 and 11 3 A
Output fuse 3AC time delay, 250 V	F1, 15 A F2, 1 A	F1-F6, 1 A	F1, 5 A F2, 1 A

Power supply

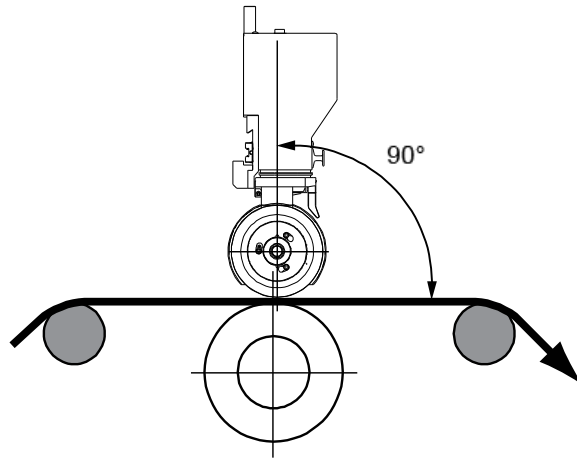
Replacing the power supply

Replace power supply with same make and model only.

Contact Maxcess for pricing.

Select slitting type

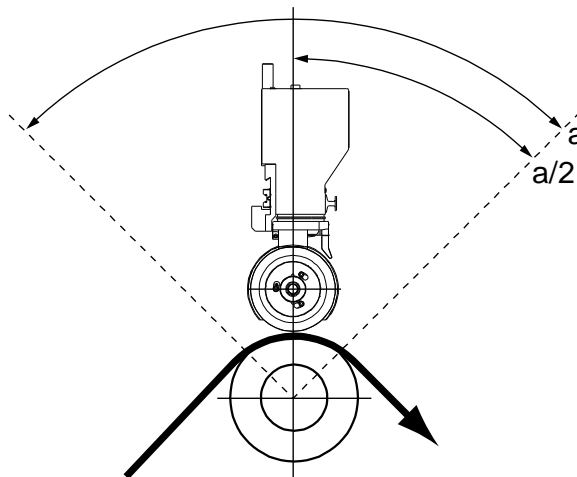
Class II profile shown



TANGENT

Knifeholder axis is 90° to web path.

Tangent slitting requires knifeholder setback.



WRAP

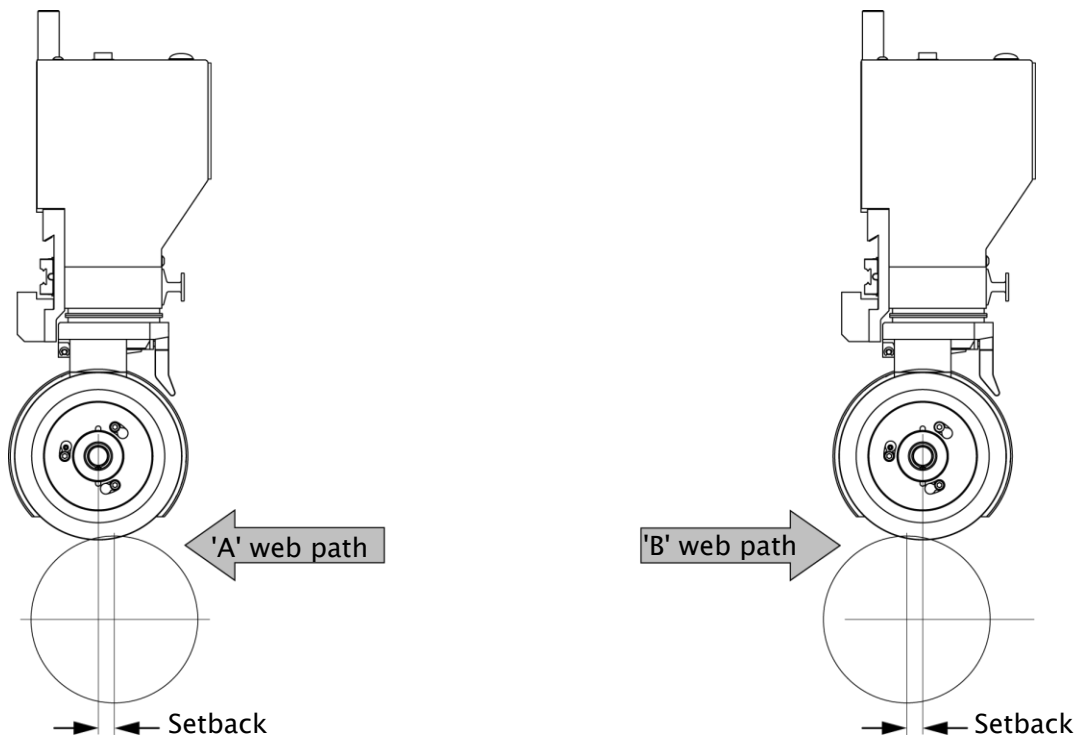
a = wrap angle

Knifeholder axis bisects the wrap angle.

Knifeholder setback is not required.

Knifeholder setback

- For tangent slitting only.
- Class II profile shown.
- For best slit result, the web must be in contact with the lower knife ring at the cut point. If the web contacts the top blade ahead of the cut point, the material will tear instead of slitting cleanly.
- Geometry shown is based on medium weight kraft paper. For assistance with other web materials, call Maxcess Customer Service.



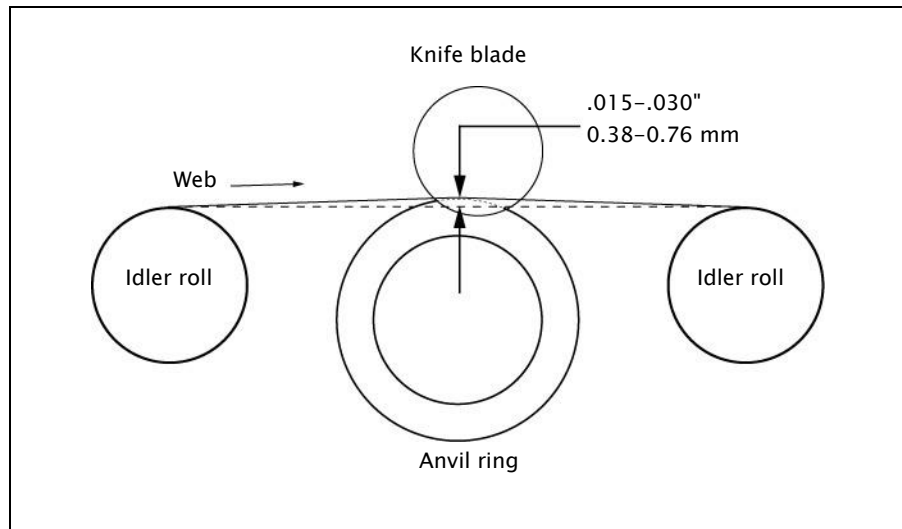
Recommended setback for paper-based products		
Class II	1 / 4"	6.35 mm
Class III	3 / 8"	9.53 mm

Web penetration

Tangential slitting applications

To maximize web stability at the cut point, Maxcess recommends web penetration by the anvil ring of 0.38–0.76 mm [.015"–.030"].

Check this measurement by laying a straight edge across the idler rolls to represent the web. Measure how far the anvil ring "penetrates" the plane created by the straight edge.

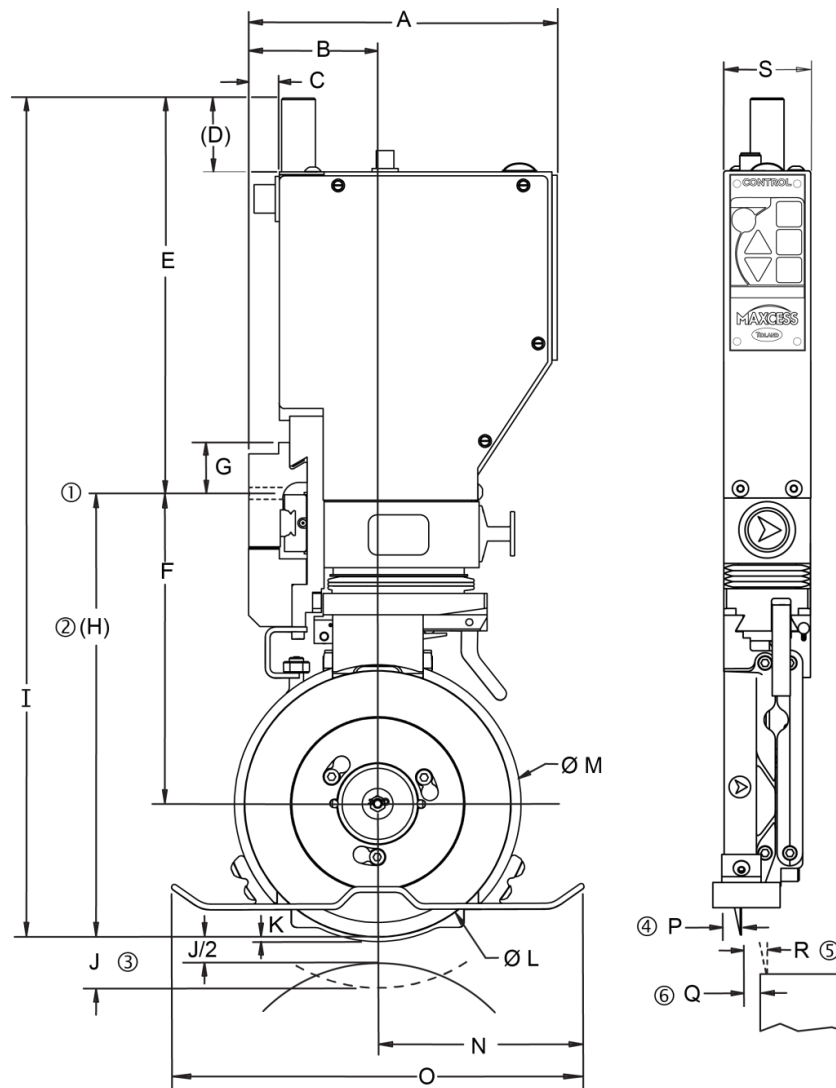


Thicker web materials require more penetration, while thinner or sensitive materials may require no penetration. Call Maxcess Customer Service for assistance.

Mounting the guide bar

Space requirements

Class II is shown here.



- | | |
|---|---------------------------------|
| ① Center line of guide bar mounting holes | ④ Blade position when retracted |
| ② When knifeholder is retracted | ⑤ Full stroke |
| ③ Maximum vertical stroke | ⑥ Half stroke |

CLII	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Inches	7.03	2.94	0.74	1.75	8.78	6.81	1.23	9.76	18.54	.965	.093	5.91	6.33	4.56	9.12	0.49	0.07	0.20	1.94
mm	178.6	73.7	18.8	44.4	223.0	173.0	31.2	247.9	470.9	24.5	2.4	150.1	160.8	115.8	231.6	12.4	1.8	5.1	49.3
CLIII	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Inches	7.46	3.45	0.61	.074	6.76	7.74	1.23	11.68	18.43	1.00	0.15	7.87	8.35	5.02	10.05	0.65	0.12	0.33	2.91
Mm	189.5	87.6	15.5	18.8	171.7	196.6	31.2	296.7	468.1	25.4	3.8	199.9	212.1	127.5	255.3	16.5	3.0	8.4	73.9

Dimensions are nominal and represent the average of assembled units. These are not the specifications of individual parts, nor do they reflect manufacturing tolerances.

Dimension 'P' (front view) is from the edge of the knifeholder control body to the inside of the knife blade.

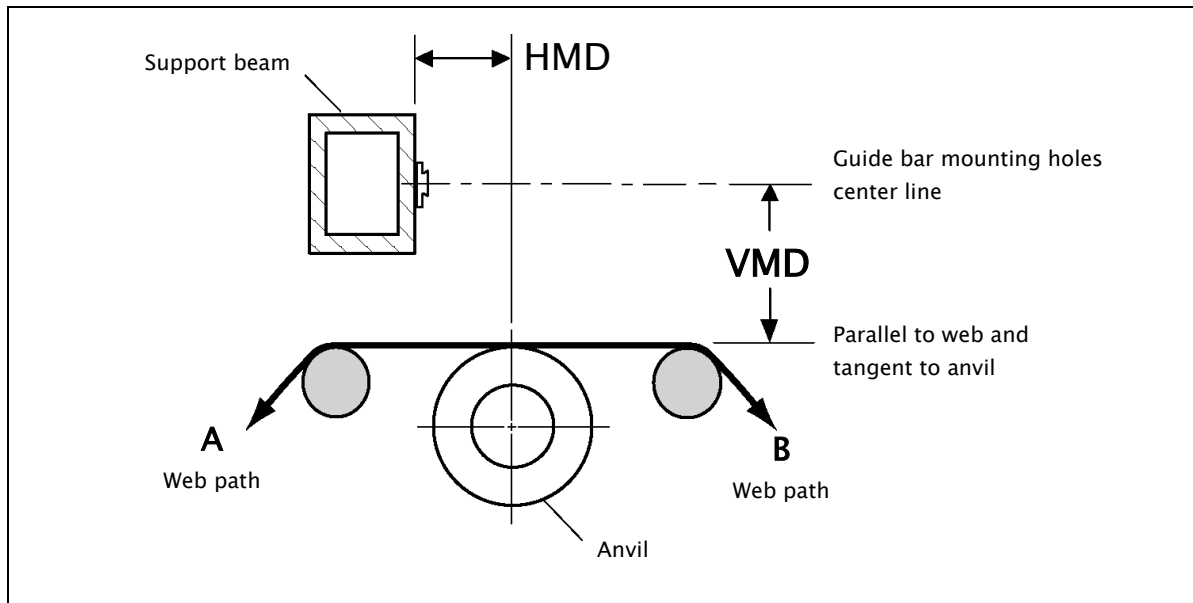
Determine mounting dimensions

Vertical Mounting Dimension – VMD

The distance from the centerline of the guide bar mounting holes to the anvil roll or ring O.D. and perpendicular to the web path.

Horizontal Mounting Dimension – HMD

The distance from the support beam face (guide bar mounting surface) to the vertical centerline through the center of the anvil ring.



VMD

Tangent & Wrap Slitting		
Class II	10-3/16"	(258.8 mm)
Class III	12-1/4"	(311.2 mm)

These dimensions reserve approximately 1/2 of blade cartridge stroke for blade regrinding.

HMD

Tangent Slitting *			Wrap Slitting **
	'A' Web Path	'B' Web Path	'A' or 'B' Web Path
Class II	3-7/32" (81.8 mm)	2-23/32" (69.1 mm)	2-15/16" (74.6 mm)
Class III	3-27/32" (97.6 mm)	3-3/32" (78.6 mm)	3-15/32" (88.1 mm)

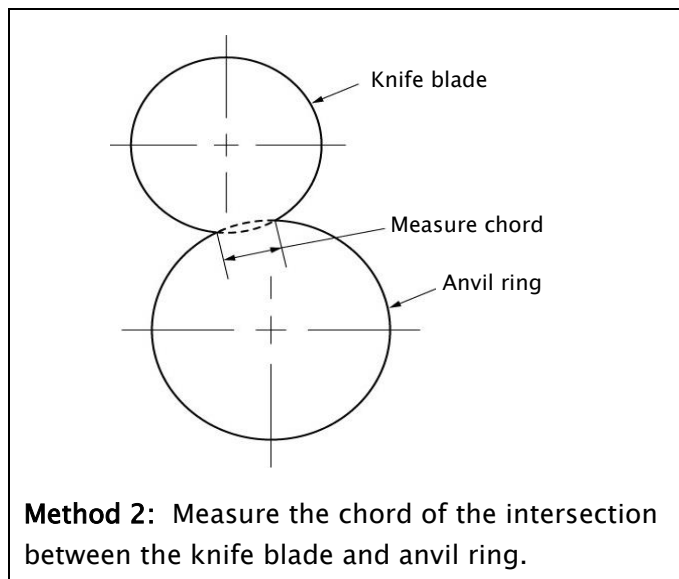
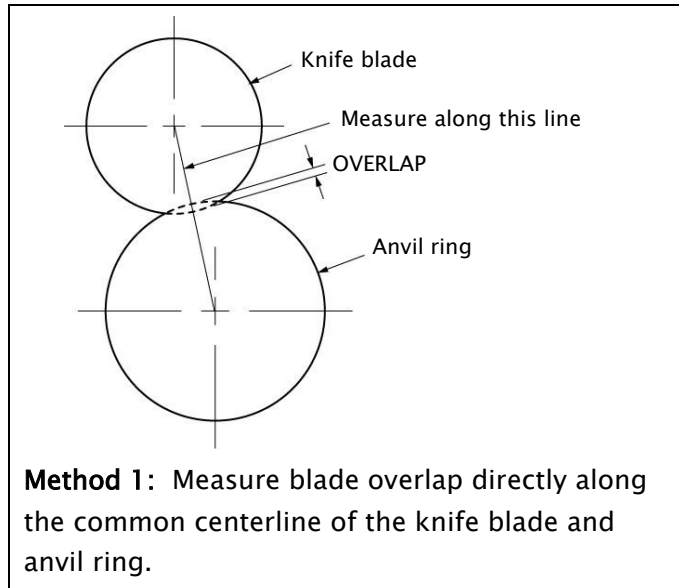
* These dimensions will result in setbacks as listed on page 7-2 .

** These dimensions provide no setback.

Blade overlap

Methods for measuring overlap

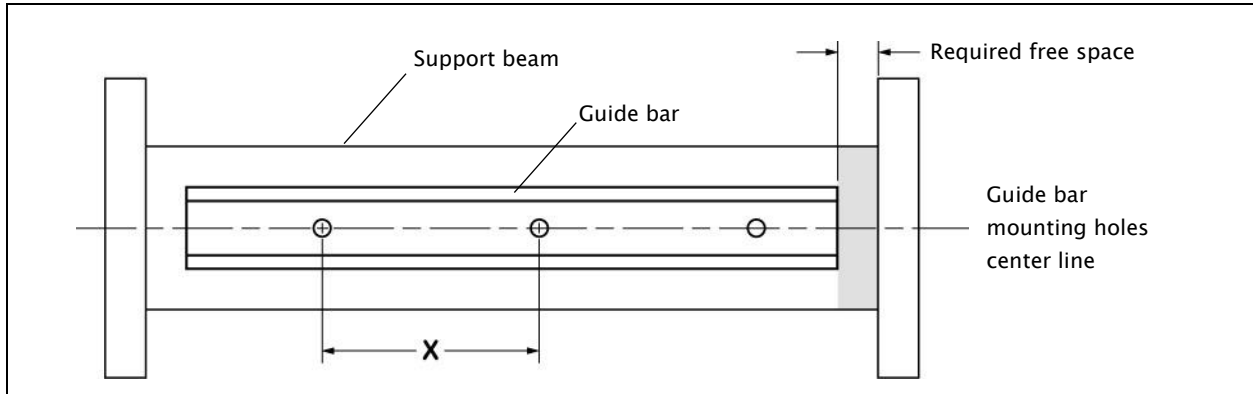
The e-Knifeholder automatically sets blade overlap. This graphic is for reference only.



Installing guide bar on support beam



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



Determine the center-to-center distance between the mounting bolt holes (X) on the guide bar.

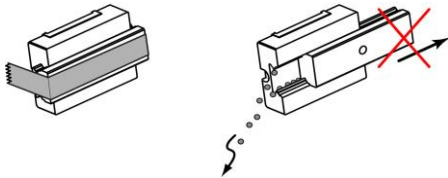
- Standard pre-drilled dimension (X) is 12" (304.80 mm).
- Drill and tap support beam for pre-drilled guide bar: 3/8"-16NC holes

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 when the guide bar is mounted.

	Recommended Free Space (minimum)
Class II	3" (76.2 mm)
Class III	4" (101.6 mm)

Installing the knifeholder

Easy Glider linear bearing

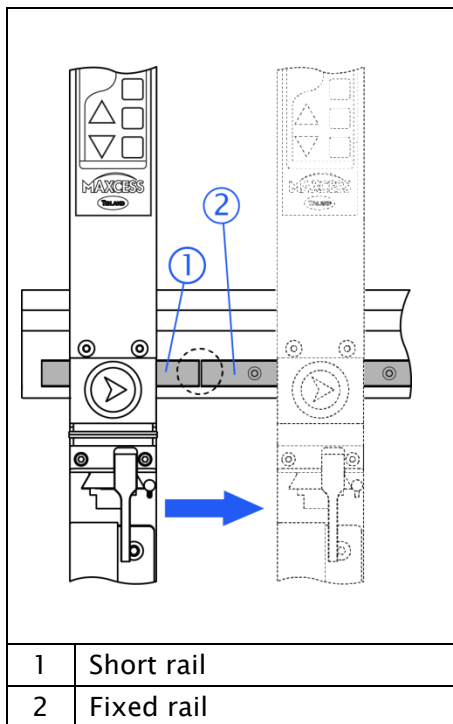


- Do not remove the factory-installed short rail section from the linear bearing: you will use it to install the knifeholder onto the guide bar rail.
- Failure to use this rail section when installing the knifeholder may result in bearing damage and **void bearing warranty**.

Mounting the knifeholder



Remove blade cartridge(s) from knifeholder(s).



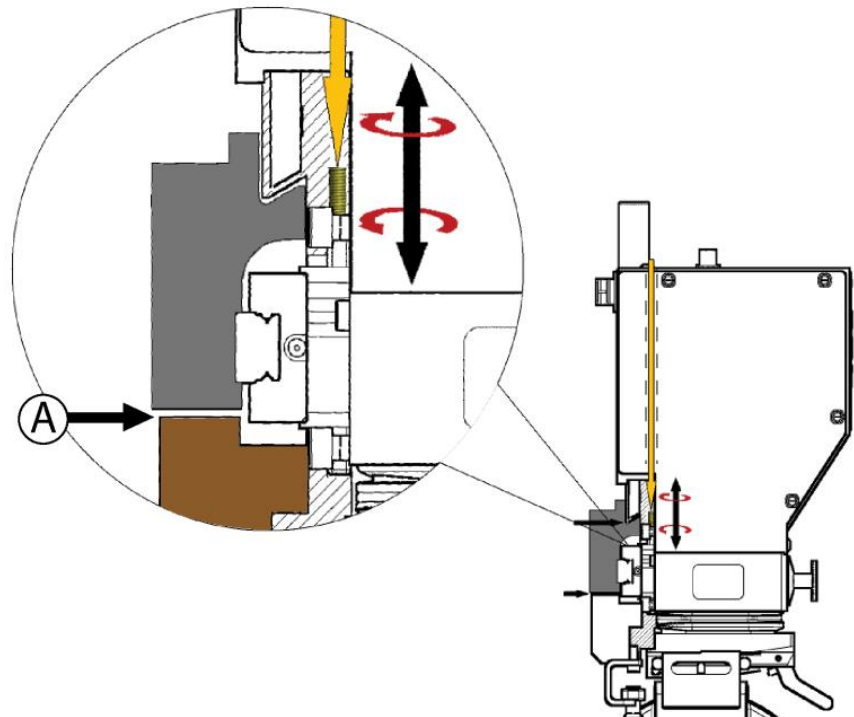
1. At the mounting end only, locate and remove the #10-32 screw on the face of the guide bar.
2. Do not remove the short rail from the knifeholder bearing.
3. Turn the brake knob counterclockwise to unlock.
4. Push the knifeholder brake shoe up into the back plate if protruding.
5. Hold the short rail section securely in the knifeholder.
 - a. Place rail section, with knifeholder, into the keyway on the guide bar.
 - b. Align the short rail section with the fixed bearing rail on the guide bar.
 - c. Slide the knifeholder onto fixed bearing rail.
 - d. Save the short rail piece for future use when removing knifeholders from the guide bar.
6. After all knifeholders are installed, reinstall the #10-32 socket head cap screw in guide bar.
7. Reinstall blade cartridge(s) on knifeholder(s).

Easy Glider linear bearing adjustment

1. Your linear bearing mount was adjusted to a guide bar at the factory. It may need to be re-adjusted for an optimal fit to your guide bar.
2. Remove the set screw plug on top of the knifeholder to access the adjustment screw.

Class II: Plug is located near the lock knob on top of the knifeholder.

Class III: Remove the lock knob: loosen the set screw on the back of the knifeholder control body until you can pull the lock knob shaft from the body. Remove the set screw plug.



Maxcess can supply the necessary 2 mm hex wrench (9" long).
Part No. 27L770274

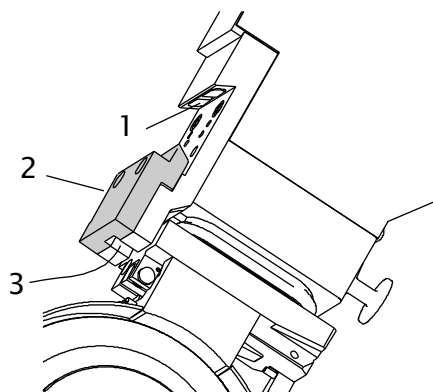
continued

Easy Glider adjustment – continued

1. Insert a .002" feeler gauge at 'A' (between the guide bar and the brown stop block).
2. Push the knifeholder against the guide bar, and toward the linear bearing mount (up or down depending upon your knifeholder installation).
3. Turn the set screw in the direction indicated to tighten or loosen knifeholder movement on the guide bar. The resulting gap at 'A' should be .002–.005". When complete, a .004" feeler gauge should feel very snug in that gap.
4. Reinstall the set screw plug to prevent dust and debris from entering the hole.
5. After adjustment, the knifeholder should move smoothly and easily along the guide bar, without tilting on any axis.

Manual mount

1. Make sure the blade cartridge is retracted.
2. Turn the brake knob (on top of the control body) counterclockwise enough to allow the brake shoe to be manually retracted into the mount. (Push the brake shoe up into mount if extended out.)
3. Align the mount with the end of the guide bar and slide the knifeholder onto the guide bar.
4. Turn the brake knob clockwise to secure the knifeholder in the desired position.
5. Connect the power/communication cable(s) before turning on the system power.



1	Brake shoe
2	Gib
3	Gib set screw

Adjusting the gib

You may need to adjust the gib to ensure that the knifeholder is perpendicular to guide bar.

1. Loosen the two gib socket head cap screws. (4 mm hex)
2. Tighten or loosen the gib set screw to achieve a perpendicular fit: ¼ turn per adjustment. (2 mm hex)
3. Tighten the two gib socket head cap screws: torque to 5.83 Nm [4.3 ft·lbs].
4. Gib should be tight enough to maintain perpendicular fit when locked to the guide bar, and loose enough to provide smooth movement.

Preventive maintenance

**WARNING**

Hand hazard.

Knife blades are sharp.

Use only recommended tools when handling knife blades.

- This recommended maintenance schedule is dependent upon machine use and environment.
- 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.
 - Clean the cartridge-to-knifeholder interface parts.
 - Calibrate the knifeholder whenever it is moved or a blade is changed.
 - DO NOT IMMERSE knifeholders in solvents. Wipe the outer surfaces with a clean, dry rag.

- Weekly**
- Use compressed air to remove dust build-up from the blade cartridge.
 - Check electrical cable to the knifeholders for wear or cracks.
 - Make sure all cable connectors are secure.
 - Inspect control body dovetail assembly and remove all dust and debris.

continued

Preventive maintenance – continued

- Monthly**
- Check for minimal clearance between knifeholder mount and guide bar.
 - Clean all surfaces of the control body and blade cartridge.
 - Inspect bellows for tears around dovetail mount. Replace if torn or stretched.
 - Inspect the power supply for proper voltage: +24vDC
 - Check the resistance between the cartridge dovetail and the knife blade. See page 8-4.
- Bi-Yearly**
- Clean and inspect blade cartridge bearings for excessive free play.
 - Remove cant key and o-ring and inspect for excessive wear. Replace if necessary.
 - Check cant key o-ring for damage. Replace if necessary.

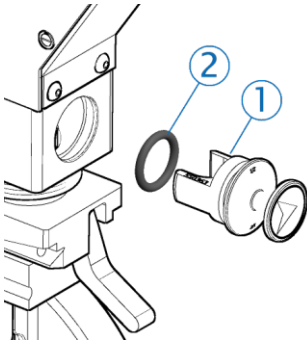
Recommended tools and supplies

Dow Corning Molykote® 557 Silicone Dry Film Lubrication
Parker Super O-lube O-ring Lubricant (no substitutes)
Hex key wrenches, metric
9" hex key wrench, 2 mm

Guide bar

Periodically wipe the dovetail guide bar clean and lubricate with silicone dry film lubrication. Maxcess recommends using *Dow Corning Molykote® 557 Silicone Dry Film Lubrication* to ensure smooth movement.

Cant key o-ring



If the cant key (1) becomes loose in the body or if cracks in the o-ring (2) are visible, replace the o-ring. Lubricate the new o-ring and the cant key o-ring groove. Use only *Parker Super O-Lube* (no substitutes).

Reinstall the cant key in the knifeholder body with the arrow oriented in the correct direction for your web path.

Cartridge-to- knifeholder interface



For proper knifeholder operation, keep the interface clean between the cartridge and the knifeholder control body dovetail.



WARNING! Hand hazard.

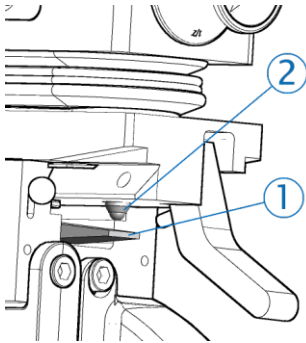
Knife blades are sharp. Maintenance may be performed only by qualified personnel and only in a designated area. For added protection, Maxcess recommends the use of stainless steel mesh gloves when handling knife blades.



Remove the cartridge from the control body.

- Clean the side-stroke lever on the knifeholder dovetail assembly. (Page 8-5)
- Clean the side-stroke actuator parts. (Page 8-6)
- Measure the resistance between the cartridge dovetail assembly and the knife blade. (Page 8-6)

Side-stroke lever



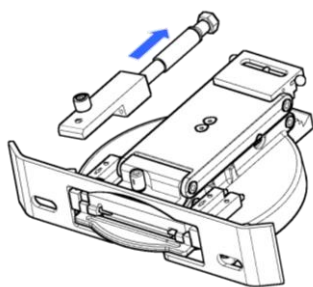
During operation, the side-stroke lever (1) is activated by the side-stroke actuator (2) located at the cartridge-to-dovetail interface. If this area becomes clogged with dust and debris, the actuator can become stuck, resulting in loss of side-stroke.

Inspect the area often and clear debris using compressed air. In high dust level environments, you may need to clean the area **before** disengaging the blade from the anvil in order to prevent the side-stroke actuator from sticking.

Repair options if the actuator is stuck:

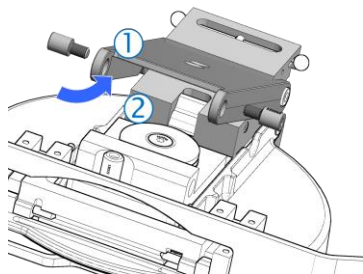
Return the unit to Maxcess or call for assistance with **Maintenance Mode**.

Cleaning side-stroke actuator parts

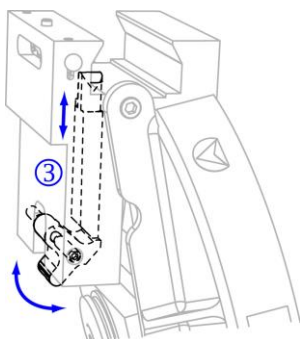


Clean regularly depending on the application and dust levels of your operation.

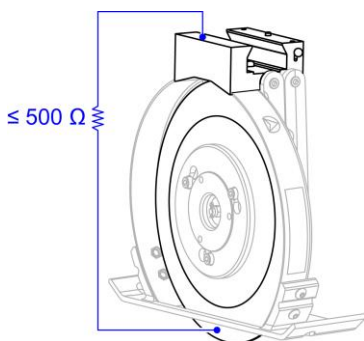
1. If installed, remove the 360° blade guard actuator.
If not installed, go to Step 2.



2. Using 4 mm hex drive, remove two pivot pins and lift up the cartridge strut (1).
3. Lift the dovetail assembly (2) and use compressed air to blow dust and debris from the moving parts.



4. Manually actuate the sidestroke key and the cam (3) parts, checking for free and smooth movement. If parts are sticking, call Maxcess Customer Service for assistance.
5. Reassemble the cartridge.



6. Use an ohmmeter to measure for $\leq 500 \Omega$ between the top of the cartridge dovetail and a point on the knife blade. Rotate the blade and measure in several places.

Note: The dovetail point must be a non-anodized surface, as shown in the illustration.

If any point on the blade measures more than 500 Ω , the cartridge bearing must be replaced. Contact Maxcess Customer Service.

Removing knifeholder from guide bar



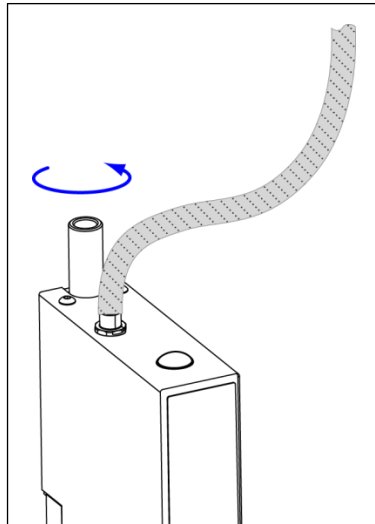
Warning – danger due to cutting or crushing

Before removing the knifeholder from the guide bar:

- Retract the blade cartridge.
 - Turn off power to the knifeholder.
 - Disconnect the power/communication cable from the knifeholder.
 - Remove the blade cartridge
-

Manual mount

1. Disconnect the knifeholder power cable at the beam.
(If your knifeholder has an externally connected cable, you may disconnect it at the knifeholder.)
2. Locate and remove the #10-32 screw from the end stop on the face of the guide bar.
3. Unlock the brake.
4. Slide the knifeholder off of the guide bar.



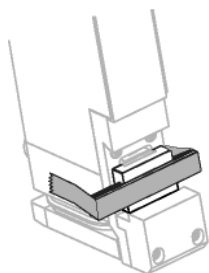
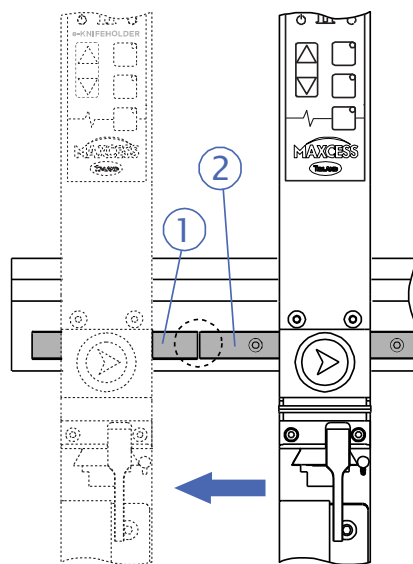
Class II shown

Easy Glider linear bearing mount

Class II shown here

1. Disconnect the knifeholder power cable at the beam.
(If your knifeholder has an externally connected cable, you may disconnect it at the knifeholder.)
2. Choose at which end of the guide bar the knifeholder will be removed; move the knifeholder just to the end of the fixed rail on the guide bar.
3. Locate and remove the #10-32 screw from the end stop on the face of the guide bar.
4. In the space at the end of the guide bar, align the short piece of rail (1)* with the fixed rail (2) and transfer the knifeholder from the fixed rail to the short rail.
5. Hold the knifeholder and the short rail together and carefully remove them from the guide bar. Do not remove the short rail from the knifeholder bearing mount. You will need it to reinstall the knifeholder on the guide bar.

* Shipped with each *Easy Glider* bearing mount.



★ TIP

Secure the short rail to the linear bearing with a small piece of tape to retain the bearing balls during maintenance. You will need the short rail to reinstall the knifeholder on the guide bar.

Knife blades

The problem-free and safe operation of Tidland knifeholders is reliant on proper transportation and storage, expert installation and commissioning, and on use in accordance with the intended purpose.

Only persons who are familiar with the installation, commissioning, operation, and maintenance of the knifeholders and who possess the necessary qualifications for their activities may work on the knifeholders.



WARNING

Hand hazard.

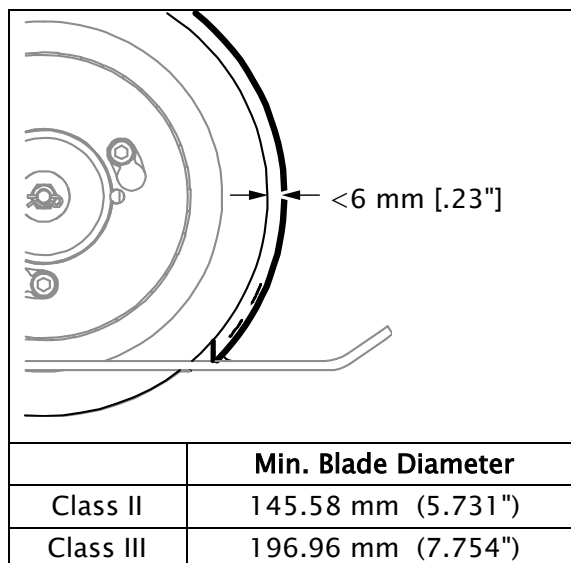
Knife blades are sharp.

Maintenance may be performed only by qualified personnel and only in a designated area.

Minimum blade diameter

For safety, Maxcess recommends changing knife blades when the minimum blade diameter for CE compliance is reached.

These blade diameters ensure that a <6 mm [.23"] gap is maintained from blade edge to the inside edge face of the cartridge guard.



	Min. Blade Diameter
Class II	145.58 mm (5.731")
Class III	196.96 mm (7.754")

Changing a knife blade



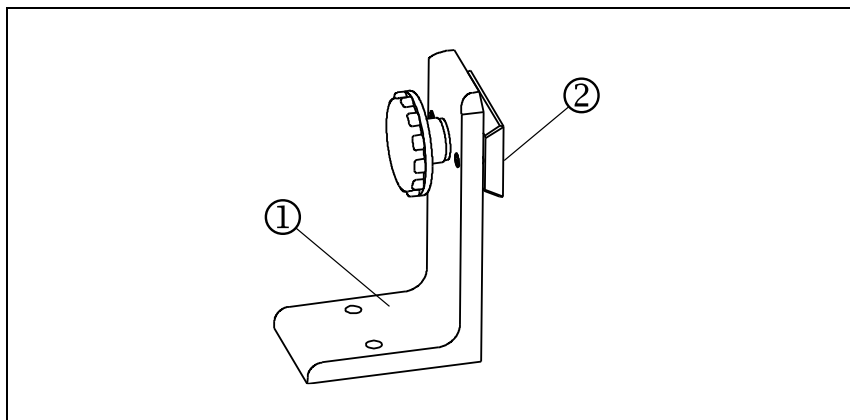
WARNING

Hand hazard.

Knife blades are sharp. Maintenance may be performed only by qualified personnel and only in a designated area.

For added protection, Maxcess recommends the use of stainless steel mesh gloves when handling knife blades.

For safety and ease during blade maintenance, Maxcess recommends securing the cartridge with a bench fixture assembly while changing the blade.



		Class II	Class III
Complete assembly		731404	772401
1	Bracket kit	733657	733657
2	Class II dovetail	731409	731776

Removing the knife blade



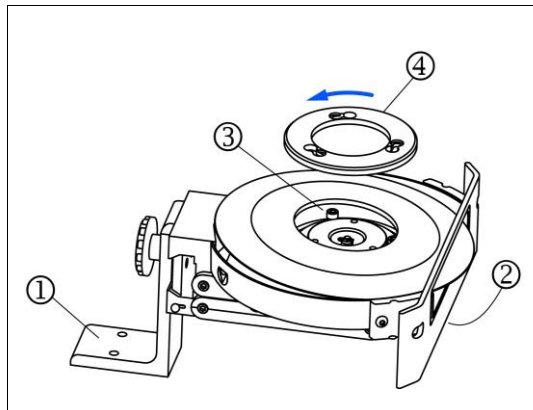
WARNING

Hand hazard.

Knife blades are sharp. Maintenance may be performed only by qualified personnel and only in a designated area.

For added protection, Maxcess recommends the use of stainless steel mesh gloves when handling knife blades.

1. Remove the cartridge from the knifeholder.
2. At the maintenance area, install the cartridge on a bench fixture (1) for stability.
3. Press and hold the blade lock pin (2) to keep the blade hub from rotating. (Pin is on opposite side of cartridge.)
4. Use a 4 mm hex wrench to loosen the three blade clamp screws (3).
5. Still pressing the blade lock pin, rotate the blade clamp (4) counterclockwise until you can lift it from the hub.
6. Remove the knife blade from the blade hub.

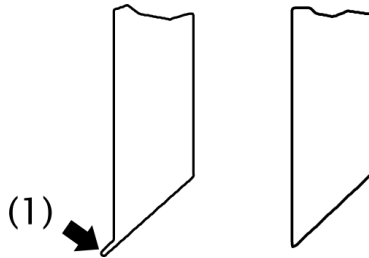


Reinstalling the knife blade

1. Before reinstalling the knife blade, clean the blade and the blade hub surface to ensure best fit and performance.
2. Reinstall blade and blade clamp: Tighten the three blade clamp screws to 5.10 Nm (45 in · lbs).

Blade grinding and finishing

See minimum blade diameter specifications; page 8-9.

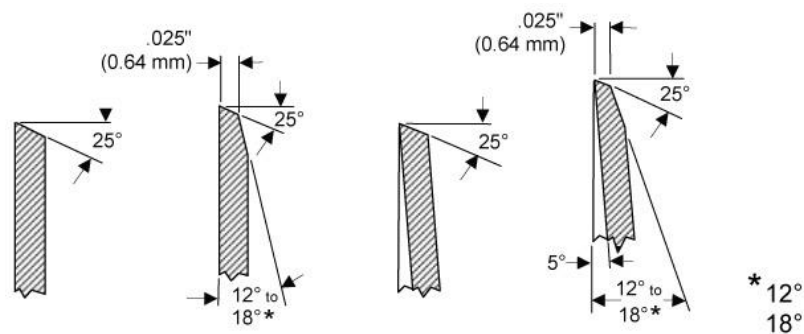


- Correct blade sharpness is essential for shear and crush slitting operations.
- To reduce chipping and rapid dulling of blades, it is important to remove burred edges (1).
- Grind the blade edge as smooth as possible to avoid dust formation during the slitting process.
- **Before putting the blade into operation**, install the blade and set up the knifeholder at the anvil ring. Manually rotate the blade against the anvil in the reverse direction for a few revolutions. This will help deburr the blade after grinding and provide a smooth slitting edge.

Suggested blade grinding procedures on next page.

Suggested blade grinding procedure

Step	Procedure	Wet/Dry	Grit/Hardware
1	Grind to remove chips, restore roundness, etc.	Wet	46/60 med./soft
2	Rough grind blade edge	Wet	100 medium
3	Finish grind blade edge	Wet	180 med./hard
4	Debur	Dry (hand)	Oilstone



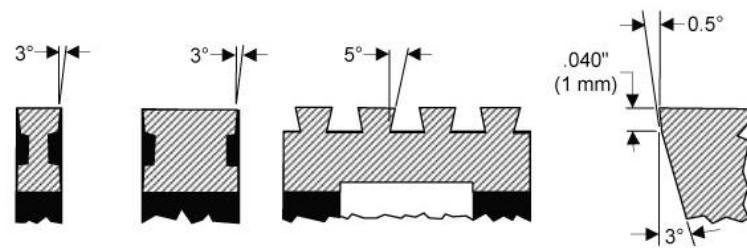
Flat,
Single bevel

Flat,
Compound bevel

Dished,
Single bevel

Dished,
Compound bevel

* 12° for blades Ø150 mm and smaller / 18° for blades Ø180 mm and larger



Dual edge,
All sizes

Dual edge,
All sizes

Multi-ring, custom-made
to customer specifications

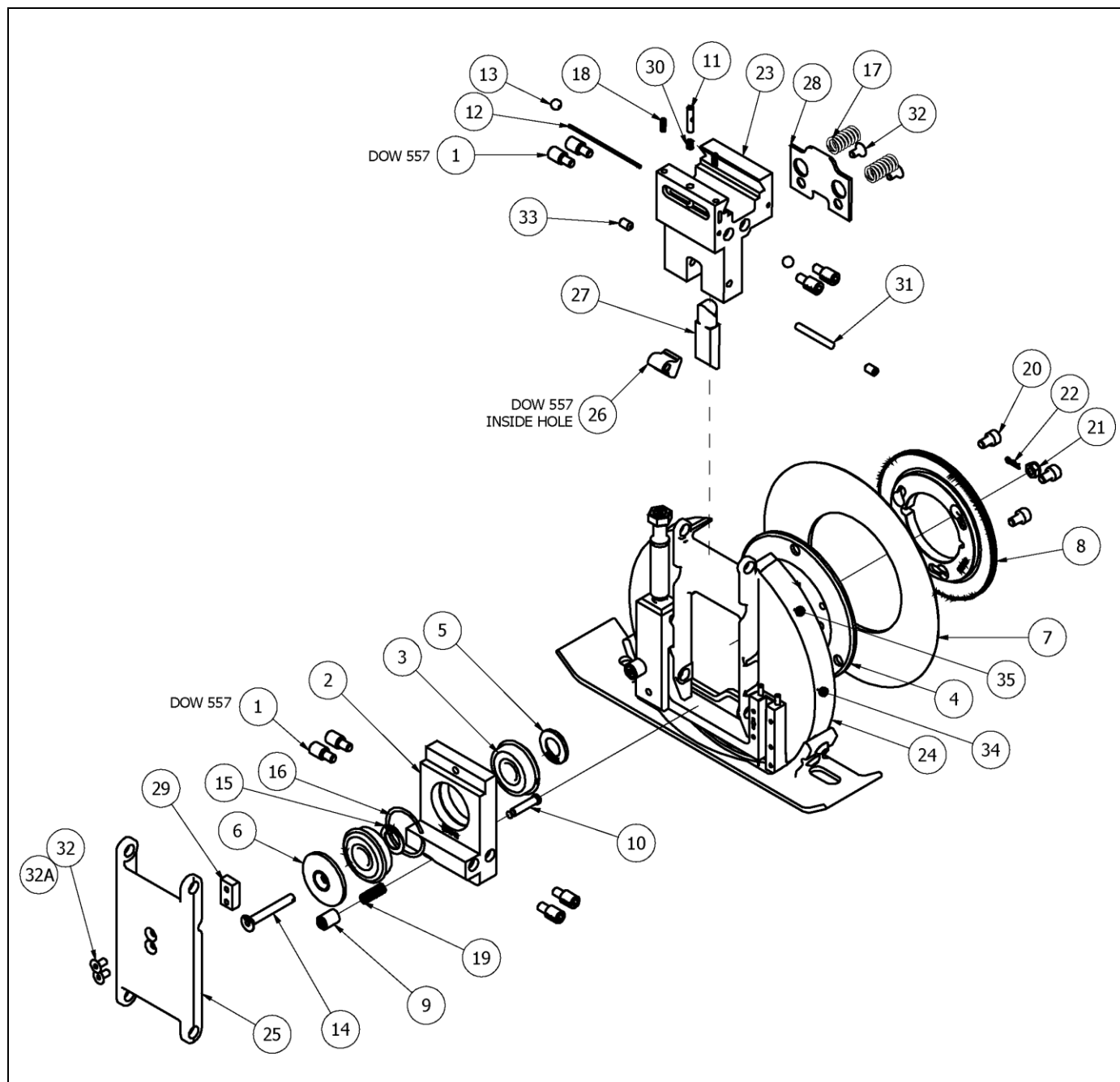
Carbide edge

360° blade guard cartridge

Assembly diagram

Class II, Part No. 27L749142

Class III, Part No. 27L753161



Cartridge without 360 degree blade guard, with guard attachment installed:

Class II: Tidland Part No. 27L696317

Class III: Tidland Part No. 27L700518

360° blade guard cartridge

Parts list

All Tidland part numbers are preceded by 27L.

	Item	Description	Qty	Class II	Class III
*	1	Pivot pin stud	8	535263	525263
	2	Machining bearing housing	1	524542	536837
*	3	Bearing NTN #6201-LLB-NR/CN <i>(See Note 1.)</i>	2	743019	743019
	4	Blade hub	1	524544	135009
	5	Shoulder ring	1	631251	631251
	6	Bearing cap assembly	1	515511	515511
*	7	Knife blade	1	128401	129833
	8	Blade clamp	1	524543	135010
	9	Lock pin cap	1	130173	130173
	10	Blade lock pin	1	130172	130172
	11	Safety lock pin	1	131114	131114
	12	Safety latch pin	1	131115	132891
*	13	Safety latch knob	2	131116	131116
	14	Flat head cap screw – bearing retainer	1	524549	518520
	15	Bearing assembly	1	134304	133184
	16	Snap ring (Smalley #BH-125)	1	134305	134305
	17	Return spring	2	131118	131118
	18	Safety lock spring	2	131119	131119
	19	Blade lock pin spring (Century Spring #VV-2)	1	130179	130179
*	20	Soc hd cap screw M5 x 8 mm, zinc plate	3	549838	130168
	21	Lock nut M5 x 0.8	1	133235	133235
	22	Hair pin	1	133710	133710
	23	Dovetail	1	696321	708444
**	24	360 degree blade guard assembly	1	749008	749589
	25	Strut, outboard	1	696323	708442
	26	Crank lever	1	696322	708443
	27	Side stroke key	1	696320	708446
	28	Side stroke key retainer	1	696319	708445
*	29	Plastic ramp	1	696324	696324
	30	Continuity spring	1	562861	562861
	31	Dowel pin M4 x 30 mm LG	1	696325	696325
	32	Flat hd cap screw M4 x 8 mm DIN 912	4	696326	—
			2	—	535196
	32A	Flat hd cap screw M4 x 10 mm DIN 912	2	—	250044
	33	Set scr M5 x 8 mm, zinc plate DIN 916	2	745182	557274
	34	Label, warning	2	130921	130920
	35	Label, cant angle direction	2	547635	547635

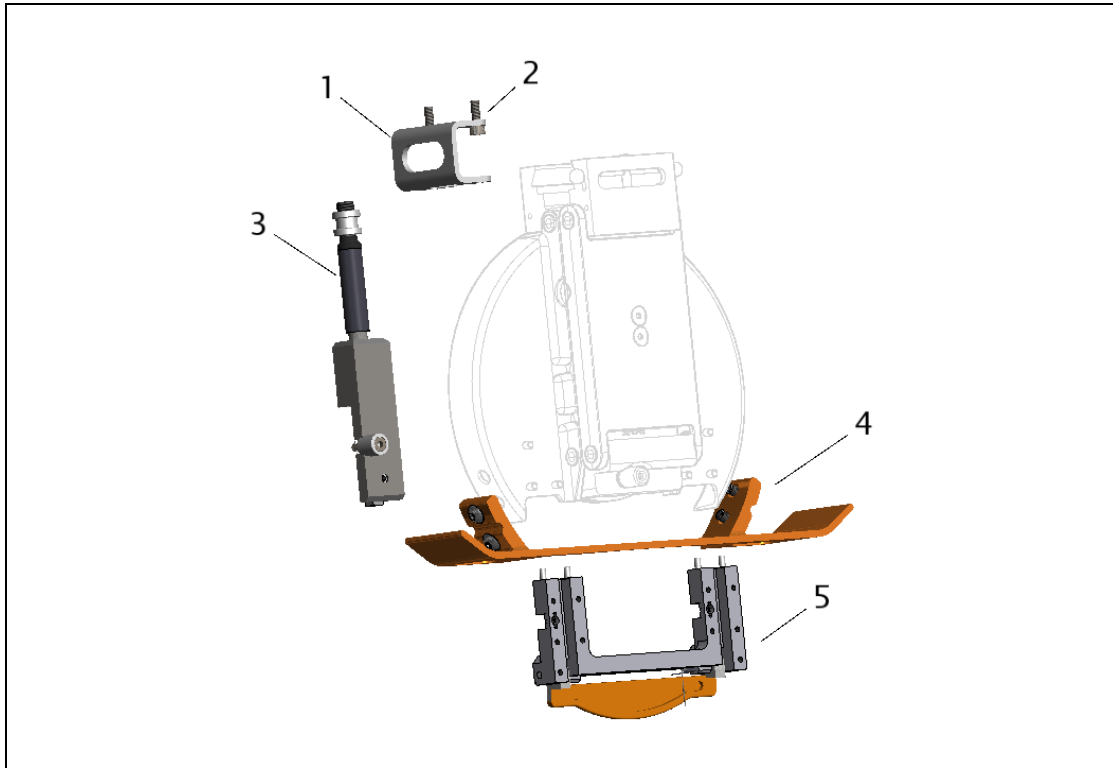
* Recommended spare parts

** See page 8-16 for guard sub-assemblies.

Note 1. Lubricate cartridge bearing with conductive grease – Nye 758G. Use no substitutes.

360 degree blade guard sub-assemblies

Note: These assemblies are for replacement only. They cannot be used to modify a standard cartridge for use as a 360 degree guarded cartridge.



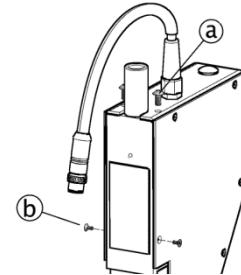
Item	Description	Class II	Class III
1	Catch bracket	748693	752487
2	Soc hd cap screw, M4 x 12 mm (w/ patch lock)	130145	130145
3	Actuator assembly	769350	769351
4	Guard attachment	659076	659077
5	Guard mechanism assembly	769352	769353

Replacing the *Easy* Glider linear bearing

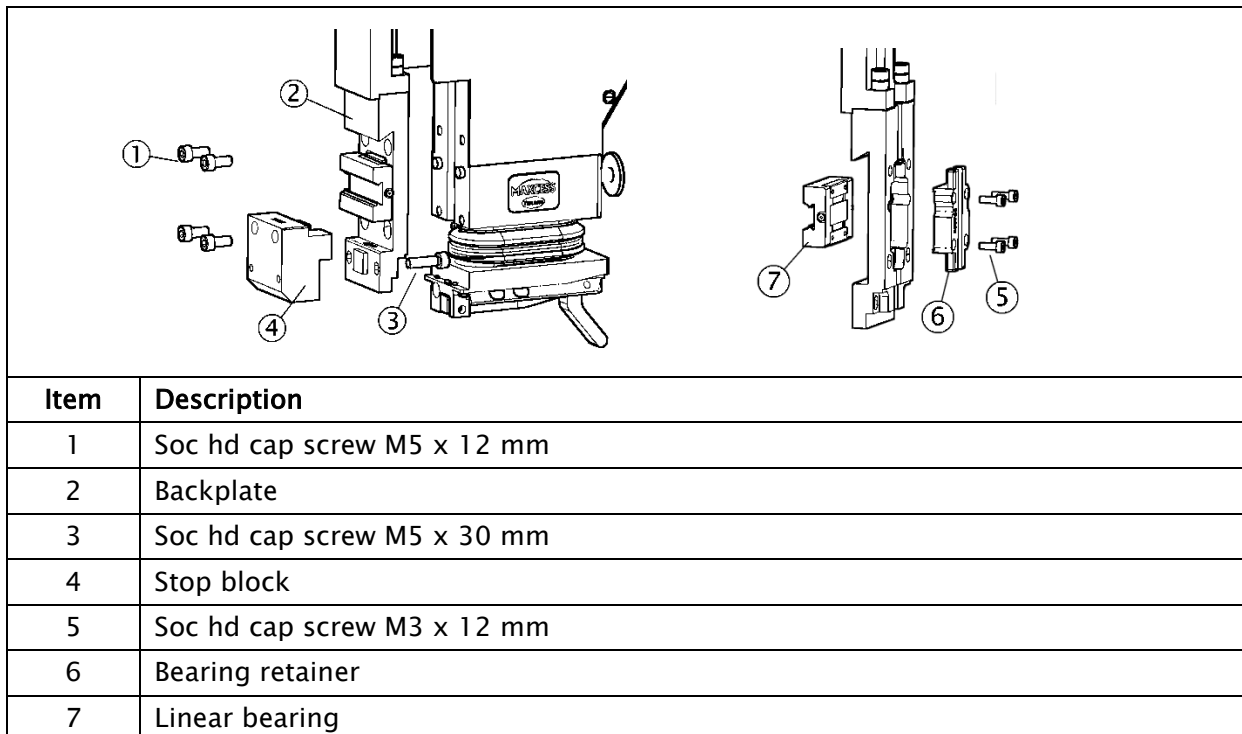
Class II

1. Remove the blade cartridge and extend the knifeholder.

2. Remove two screws (a) and two screws (b) from the top cover.



3. Remove screws (1) and backplate (2).
4. Remove screws (3) and stop block (4).
5. Remove screws (5) that secure the bearing retainer (6) to the bearing (7).
6. Use Loctite 222 on item 5 when reassembling.
7. The bearing assembly should float freely in the backplate when assembled. See page 7-9 for *EasyGlider* adjustment on the guide bar.



Item	Description
1	Soc hd cap screw M5 x 12 mm
2	Backplate
3	Soc hd cap screw M5 x 30 mm
4	Stop block
5	Soc hd cap screw M3 x 12 mm
6	Bearing retainer
7	Linear bearing

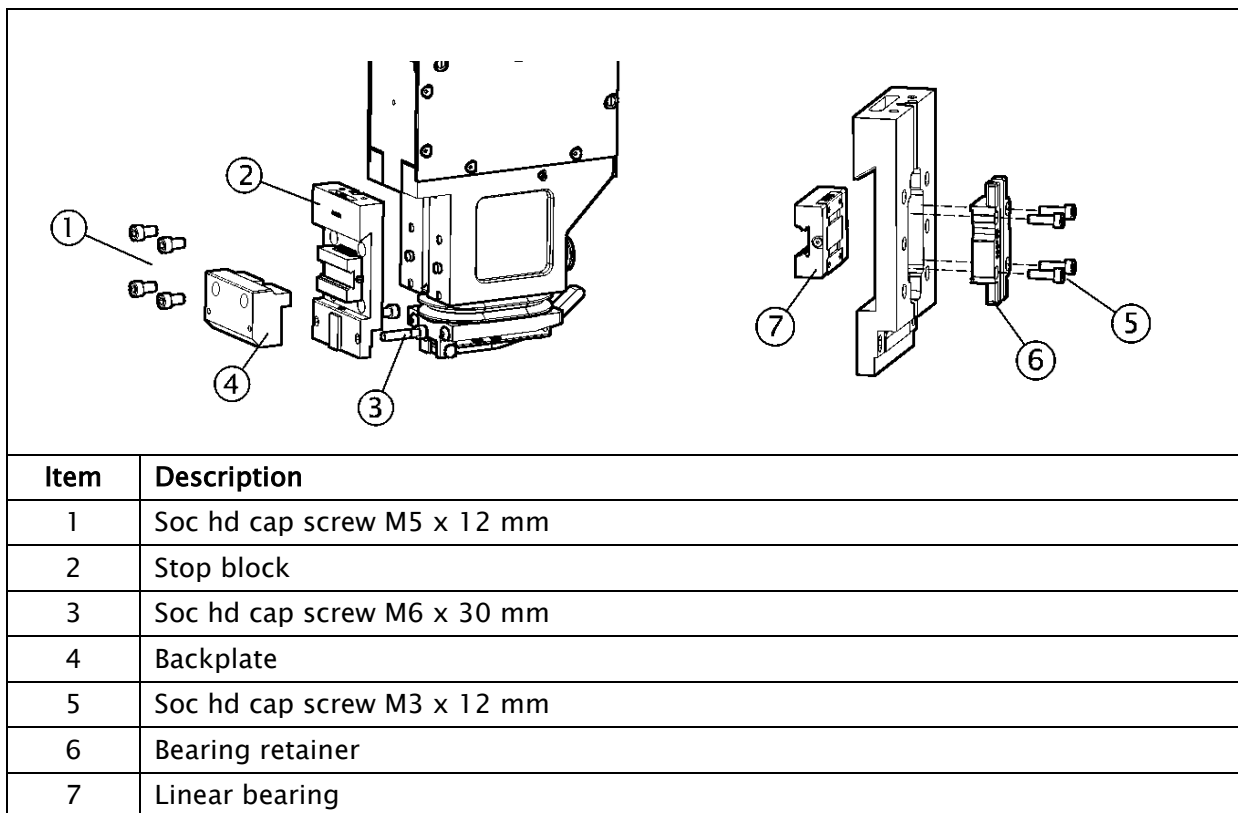
See page 8-19 for complete guide bar mount assemblies and part numbers.

Replacing the *Easy* Glider linear bearing

Class III

1. Remove the blade cartridge.
2. Turn the lock knob to retract the brake shoe.
3. Remove screws (1) and backplate assembly (2).
4. Remove screws (3) and stop block (4).
5. Remove screws (5) that secure the bearing retainer (6) to the bearing (7).
6. Use Loctite 222 on item 5 when reassembling.

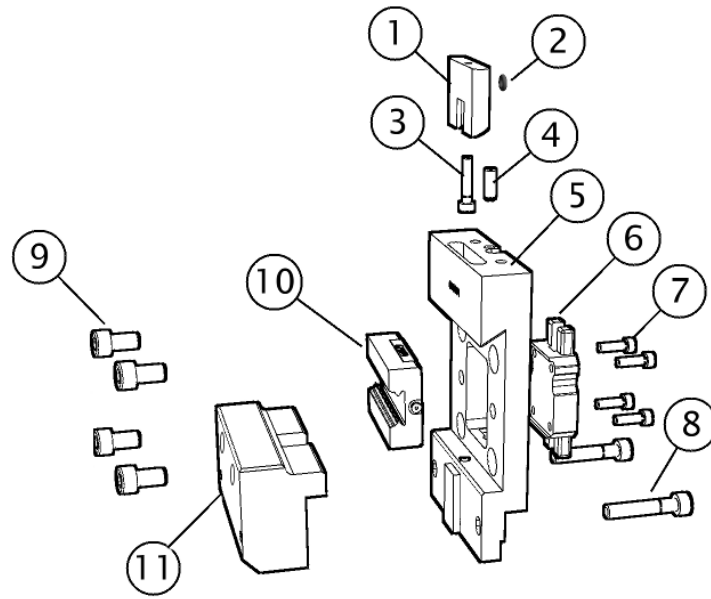
The bearing assembly should float freely in the backplate when assembled. See page 7-9 for *Easy* Glider adjustment on the guide bar.



See page 8-19 for complete guide bar mount assemblies and part numbers.

Guide bar mount parts

Easy Glider linear bearing

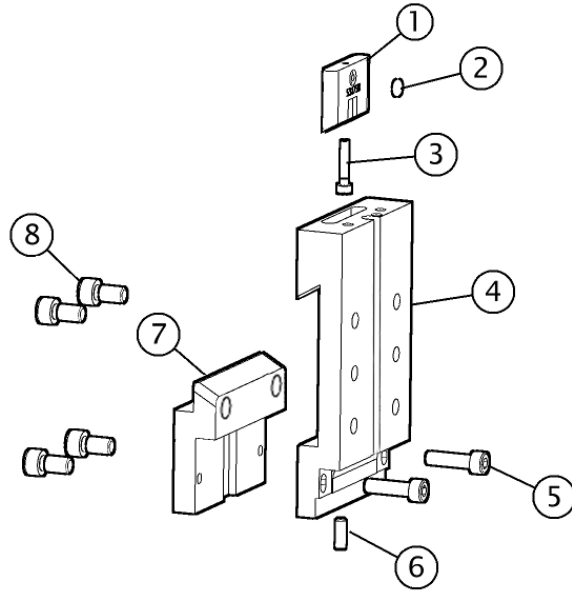


Item	Description		Qty	Class II	Class III
1	Brake shoe		1	531758	531758
2	O-ring		1	130136	130136
3	Adjustment screw (brake shoe)		—	not used on the CS KH	
4	Adjustment set screw (linear bearing)		1	130149	130149
5	Backplate (Class III includes gasket 708594)		1	595748	619001
6	Bearing retainer		1	595703	595703
7	Soc hd cap screw M3 x 12 mm		4	133180	133180
8	Soc hd cap screw M5 x 30 mm		2	132265	132265
9	Soc hd cap screw	M5 x 12 mm	4	542945	—
		M6 x 12 mm	4	—	250116
10	Linear bearing		1	621879	621879
11	Stop block		1	595766	619027

Class II: This backplate assembly is attached to the top block mount. See page 8-17 for removal instructions.

Guide bar mount parts

Gib mount



Item	Description		Qty	Class II	Class III
1	Brake shoe		1	531758	531758
2	O-ring		1	130136	130136
3	Adjustment screw (brake shoe)		—	not used on the CS KH	
4	Backplate (Class III includes gasket 708594)		1	531759	538153
5	Soc hd cap screw	M5 x 20 mm	2	544155	—
		M5 x 30 mm	2	—	132265
6	Adjustment screw (gib)		1	130149	130149
7	Gib		1	531749	538154
8	Soc hd cap screw	M5 x 12 mm	4	542945	—
		M6 x 12 mm	4	—	250116

Class II: This backplate assembly is attached to the top block mount.
To remove the gib, extend the knifeholder for access to item 5.

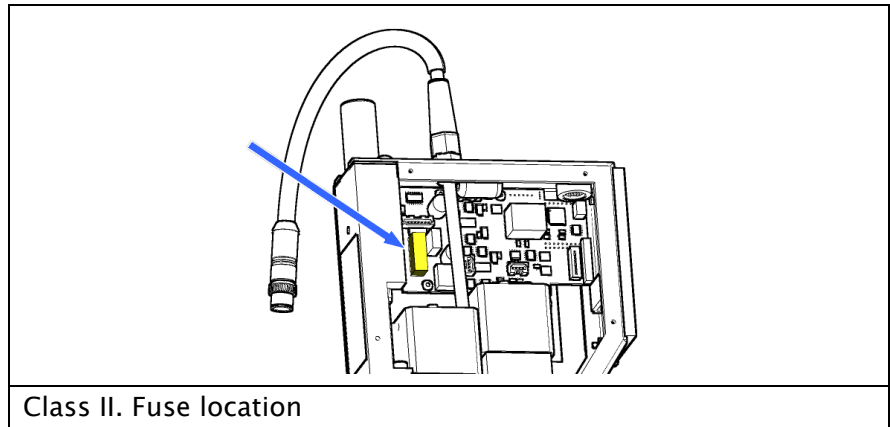
Replacing a fuse in the knifeholder

These instructions are for replacing the fuse in the knifeholder control body. For cabinet fuses see page 6-3.

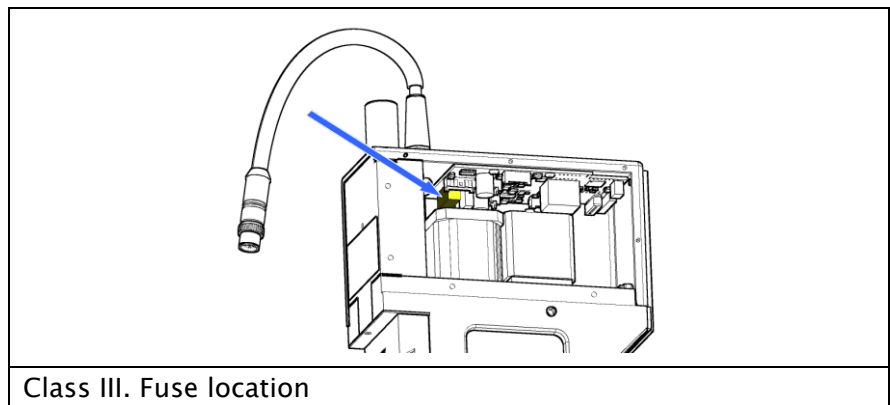


To reduce the risk of fire, replace only with the same type 1A, minimum 24 VDC fuse.

1. Turn off power to the knifeholder.
2. Disconnect power/communication cable from the knifeholder.
3. Remove the knifeholder from the guide bar.
4. Remove the cartridge from the control body- recommended for safe handling of knifeholder).
5. Remove the side cover from the control body.
6. Remove and replace the fuse.



Class II. Fuse location



Class III. Fuse location

Status LED

The Status LED allows operators to see from a distance what state each knifeholder is in. It is typically located on the top or the front of the knifeholder.

LED Color	Appearance	Knifeholder status
Red	Steady	Knifeholder disengaged
	Blinking	Knifeholder disengaging/retracting
	Steady / green flash	Knifeholder disengaged; ready to engage
	Blinking / yellow flash	Knifeholder disengaging; will calibrate when complete
	Blinking / green flash	Knifeholder disengaging; will engage when complete
	Steady / white pulses	Knifeholder disengage error*
Yellow	Steady	Knifeholder calibration complete
	Blinking	Knifeholder calibrating
	Blinking / red flash	Knifeholder calibrating; will disengage when complete
	Blinking / green flash	Knifeholder calibrating; will engage when complete
	Steady / white pulses	Knifeholder calibration fault*
Green	Steady	Knifeholder engaged/slitting
	Blinking	Knifeholder engaging
	Alternating Green/Orange	Knifeholder engaged and blade use alarm condition
	Steady / white pulses	Knifeholder engage fault*
Blue	On	Knifeholder in manual/jog mode
	Alternating blue / yellow	Knifeholder in manual/jog mode and blade is touching anvil

* Fault codes appear on the knifeholder touchscreen (page 9-2).

Fault codes



If an error occurs during normal operation the knifeholder will enter a faulted state. The alphanumeric fault code and a short description of the fault are displayed. Refer to the fault codes in the table below.

The status LED will be in a steady color state with an intermittent white flash; the color will correspond to the knifeholder function at the time of the error.

RED	Disengage error
YELLOW	Calibration error
GREEN	Engage error



Returns the operator to the Main Screen, but does **NOT** clear the fault.

Press the red button to clear the fault; this will initiate the disengage/retract sequence. In most cases, this will clear the fault.

First digit	Description
H	Fault occurred while disengaging
C	Fault occurred while calibrating
E	Fault occurred while engaging

Second digit	Description
0	No fault
1	Unexpected anvil touch
2	Anvil not detected
3	Cannot achieve side force
4	Cannot achieve overlap
5	Problem finding home sensor
6	Problem leaving home sensor
7	Action aborted by user
8	Knifeholder not calibrated
9	EEPROM memory error
A	Check cartridge
B	Cut quality problem

Faults are stored in history:

Knifeholder main screen > Setup > ➔ > Faults > History (2.4.2.1)

Knifeholder performance

You can also check knifeholder status using the Fault Codes guide on page 9-2.

Problem	Possible cause	Recommended solution
Knifeholder disengages/retracts without operator command	Improper shield termination on the knifeholder power/communication cable at the cabinet	All cable shielding must be grounded close to where cables enter the power cabinet. (Refer to electrical drawings supplied with the system). Call Maxcess for assistance or to order a parts kit.
	Bad cable (usually the communication/power cable on the knifeholder).	Replace the cable.
	Faulty wiring at the remote engage switch	Check that all wiring for the remote engage switch is secure. (Refer to electrical drawings supplied with the system).
Cartridge moves but does not calibrate, OR Blade drives into anvil; does not calibrate	Resistance threshold exceeded	Use an ohmmeter to confirm $\leq 5K\Omega$ between ground and the anvil ring. Verify $\leq 500\Omega$ between the knife blade and the control body dovetail. Renew contact between cartridge and control body.
Cartridge does not engage, calibrate or jog down	Resistance threshold exceeded	With the knife blade not touching anything, use an ohmmeter to verify $\leq 500\Omega$ between the knife blade and ground.
	Internal binding	Call Maxcess for assistance with Maintenance Mode.

continued

Knifeholder performance – continued

Problem	Possible cause	Recommended solution
Knifeholder does not operate – power LED is OFF	No power	Plug in power cable. Check power supply output/fuse.
	Fuse blown at knifeholder	Replace only with the same type, 1A, minimum 24 VDC fuse
Knifeholder does not operate – power LED is ON	Remote engage is off	To extend/retract the knifeholder, the remote engage input must be on. Check the remote engage relay in the Interface Cabinet.
Sluggish knifeholder action (extension or retraction)	Control body worn or motor malfunction.	Return knifeholder to Maxcess for repair.
Knifeholder does not retract when red button is pressed	Internal binding	Call Maxcess for assistance with Maintenance Mode.
	No power (power LED is off)	Plug in power cable. Check power supply output / fuse.
Difficult knifeholder movement on guide bar	Dirty guide bar	Clean and lubricate guide bar with <i>Dow Corning 557 Dry Film Lubricant</i> .
	Sticky brake shoe	Clean brake shoe. Clean and lubricate brake shoe o-ring. Use <i>Parker Super O-Lube</i> .

continued

Knifeholder performance – continued

Problem	Possible cause	Recommended solution
No Side Stroke (run or setup)	Blade cartridge not fully installed	Ensure blade cartridge is pushed securely into place on knifeholder and that the lock/unlock lever is in the locked position.
	Test to determine if problem stems from control body or blade cartridge	Remove non-functional blade cartridge and replace with functional blade cartridge.
	If after replacing the blade cartridge the control body is functional but the blade cartridge is not	Return control body and blade cartridge to Maxcess for repair.
	Control body to blade cartridge interface	Ensure that blade cartridge safety lock pin is fully engaged with the control body and that the lock/unlock lever is in the locked position.
		Sidestroke components are clogged with dust at the interface.
	Internal binding	Call Maxcess for assistance with Maintenance Mode.

continued

Knifeholder performance – continued

Problem	Possible cause	Recommended solution
Side stroke occurs before completing down stroke	Bad calibration	Recalibrate the knifeholder.
Blade cartridge does not disengage	Internal binding	Call Maxcess for assistance with Maintenance Mode.
Cannot remove blade cartridge	Sidestroke components are clogged with dust at the interface.	Extend blade cartridge, pull back the bellows and blow dust buildup from the cavity between cartridge and control body.
Knife blade rides up on top of anvil ring	Maximum side force combined with minimum overlap	Reduce side force or increase overlap.
Short blade life or damaged blade edge	Too much overlap	Calibrate to correct overlap.
	Side force too high	Adjust Side Force to the minimum necessary to produce a good slit.
	Driven anvil run-out	Reset anvil ring.
	Maximum side force combined with minimum overlap	Reduce side force or increase overlap.

Slit quality

Problem	Possible cause	Recommended solution
The slit edge is fuzzy	Dull blade	Replace blade.
	Loss of cant angle (worn parts)	Replace cant key
	Wrong cant key	Replace cant key.
	Knifeholder is loose on the guide bar	Make sure guide bar mount is secure to knifeholder. Check the adjustment of the mount to the guide bar.
	Too much overlap	Calibrate to correct overlap.
	Incorrect setback	Check geometry.
	Maximum side force combined with minimum overlap	Reduce side force or increase overlap.
Slit line is not straight	Driven anvil run-out	Reset anvil ring.
	Knifeholder is loose on the guide bar	Make sure guide bar mount is secure to knifeholder. Check the adjustment of the mount to the guide bar.
Web tears or splits	Incorrect setback	Check geometry.
	Loss of cant angle (worn parts)	Replace cant key
	Bad calibration	Re-calibrate the knifeholder
		Adjust the overlap to the minimum required to slit the material.
	Insufficient overspeed of the driven anvil	Adjust overspeed to be 3-5% greater than the winder speed.

continued

Slit quality – continued

Problem	Possible cause	Recommended solution
Web folds down	Loss of cant angle (worn parts)	Replace cant key
	Wrong cant key	Install correct key
	Cant key is incorrectly installed	Check web direction.
	Dull blade	Replace blade.
	Incorrect setup	See Keypad and Operation sections.
Web breaks	Web tension is too high	Reduce tension.
	Low driven anvil speed	Check the driven anvil speed.
Web bunches up in front of knife blade	Insufficient overspeed of the driven anvil	Adjust overspeed to be 3-5% greater than the winder speed.
Change in roll width	Knife blade riding up on top of anvil ring caused by maximum side force combined with minimum overlap	Reduce side force or increase overlap.

Specifications

Control Series knifeholder	Class II	Class III
Blade diameter	150.14 mm [5.911"]	200.13 mm [7.879"]
Minimum blade diameter [to maintain CE compliancy]	145.58 mm [5.731"]	196.96 mm [7.774"]
Blade overlap (accuracy)	±0.013 mm [± .0005"]	±0.013 mm [± .0005"]
Minimum slit width	50.8 mm [2.0"]	76.2 mm [3.0"]
Reversible blade cartridge	Yes	Yes
Designed maximum speed	1,676 mpm [5,500 fpm]	3,049 mpm [10,000 fpm]
Maximum down stroke	25.4 mm [1"]	25.4 mm [1"]
Maximum down force	445 N [100 lbs]	890 N [200 lbs]
Minimum side force	8.9 N [2 lbs]	8.9 N [2 lbs]
Maximum side force	53.4 N [12 lbs]	88.9 N [20 lbs]
Calibration time	11 seconds	11 seconds
Cant angles	1/2°, 3/4°, 1°	1/2°, 3/4°, 1°
Seal effectiveness	n/a	IP34
Power	24 VDC, 1 A	24 VDC, 1 A
Fuse	1 A; lag-time type buss S505	1 A; lag-time type buss S505
Operating temperature	0 to 40 °C [32 to 140 °F]	0 to 40 °C [32 to 140 °F]
Knifeholder system cabinet		
Electrical ratings	See page 6-1	
Fuses	See page 6-3	
Operating temperature	0 to 40 °C [32 to 140 °F]	0 to 40 °C [32 to 140 °F]
Option: pneumatic engage	2.8 to 6.2 bar [40-90 psi]	2.8 to 6.2 bar [40-90 psi]



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