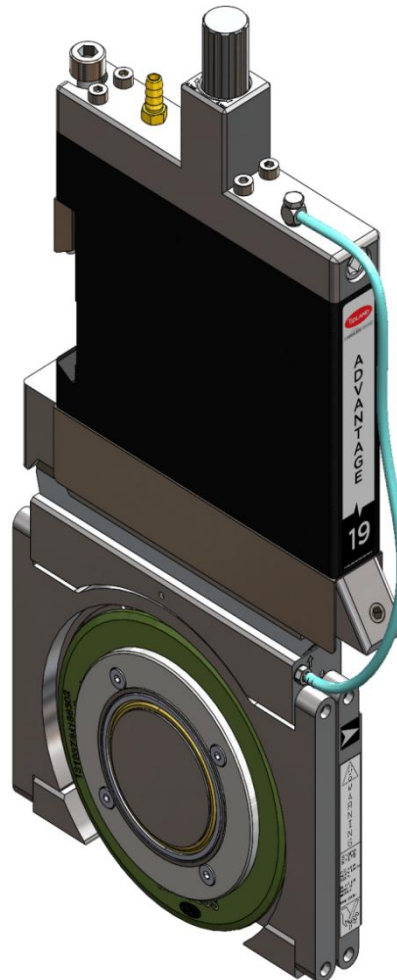




A **MAXCESS** BRAND

Advantage Series Tidland Knifeholder

User Manual



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IMPORTANT!

When using knifeholders , basic safety precautions should always be followed 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. No part of these or the following instructions should be construed as conflicting with or nullifying the instructions from other sources. Be familiar with the hazards and safety requirements in your work environment and always work safely.

- The Tidland Advantage Series Knifeholder is intended to be used to produce a slit when used with a driven anvil system, and 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 the shipment against the packing list.
- Any damage should be reported to the carrier at once.
- 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.

Knifeholder Overview

The Tidland Advantage Series Knifeholder is an air-actuated shear knifeholder that supports a removable rigid cartridge available in either a left or right cut side orientation. The depth control knob, cant key, and manual setup feature allow fast, accurate knifeholder setup and operation.

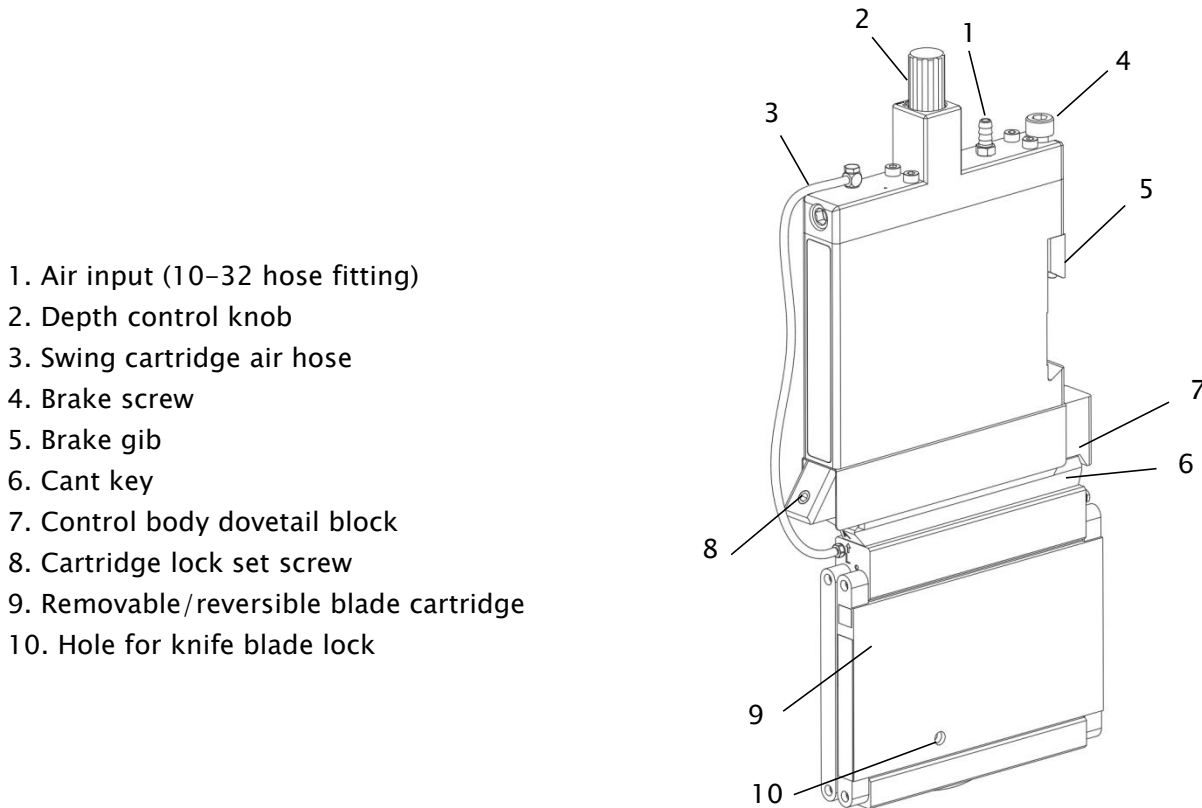


Figure 1: Knifeholder Features

Cant key

The cant key is screwed to the top of the cartridge and determines the slitting angle. The cant key also connects the cartridge and the control body together.

Cant keys are available with slitting angles of 0°, 0.25°, and 0.5°, with optional versions to match offset geometry of the prior model W19 knifeholder. (See parts table on page 22).

The proper choice of slitting angle is mainly determined by the material to be slit.

Specifications

Blade Diameter	90 mm (3.5 in.)
Minimum Knife Blade Diameter	80 mm (3.15 in.)
Minimum Slit Width *	19.5 mm (0.768 in.)
Maximum Horizontal Stroke (Knife)	2.8 mm (0.11 in.)
Vertical stroke (Max down stroke)	19.5 mm (0.768 in.)
Designed Maximum Speed **	1,067 m/min (3,500 ft/min)
Down Force at 6 bar (Vertical)	431 N (97 lbs)
Side Force at 6 bar (Horizontal)	20 N (4.5 lbs)
Operating Air Pressure	2.7 to 6.2 bar (40 to 90 psi)

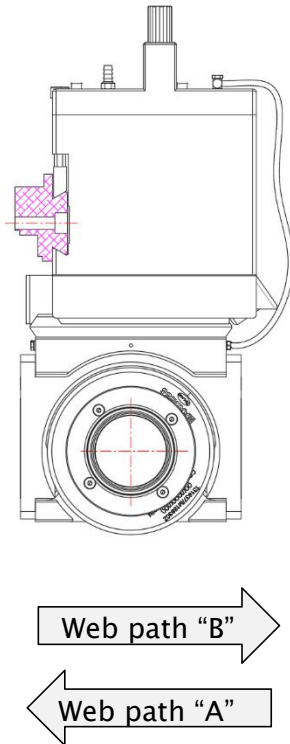
* If several knifeholders are installed in parallel and not all have the downstroke extended, then there must be a gap of 2 mm (0.0787 in.) between knifeholders, or the unused cartridges must be removed.

** The actual speed depends on the application and the material.

Installation

Installation of the cartridge

1. Direction of travel of web and contact side:



L

The contact side of the anvil ring is on the **left** side.



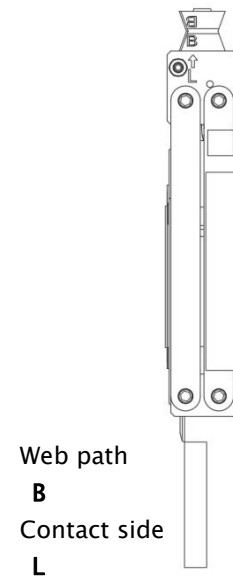
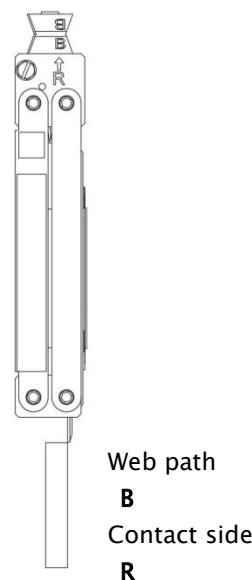
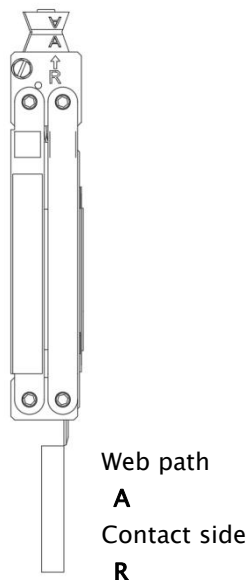
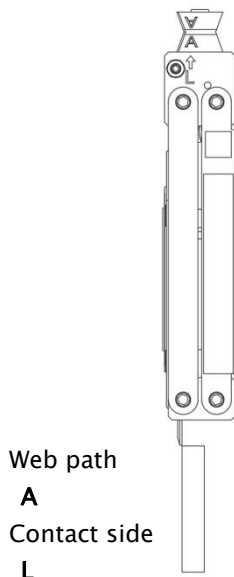
R

The contact side of the anvil ring is on the **right** side.

2. Mounting the cant key :

The cant key can have an angle of 0°, 0.25° , or 0.5°.

The web path "A" or "B" is written on the front side of the key. The letters "L" and "R" (referring to the left and right contact sides) can be found on opposite ends of the cartridge. When the cant key is mounted on the cartridge, the letter of the desired web direction on the cant key should be aligned with the arrow of the desired contact side on the cartridge (see examples below).



3. Mounting the cartridge

In the desired orientation, slide the cartridge with cant key into the groove on the control body dovetail block. Ensure the set screw is oriented with the flat end toward the cant key and hex socket facing out. Tighten the set screw to 5.0 to 6.0 in-lbs (0.56 to 0.68 N.m) torque to secure the cartridge.

Compressed air supply



Please be sure to wear protective goggles when you come into contact with compressed air and use tools.

The control body and the cartridge are equipped with separate compressed air hoses as shown in the Figure 2. The control body comes with compressed air fittings for polyurethane tubing with a 4 mm (0.157 in.) inner diameter. The cartridge is equipped with compressed air fittings for polyurethane tubing with a 2 mm (0.0787 in.) inner diameter.

The knifeholder requires a compressed air supply with filtered, oil-free and water-free air.

Air manifolds

Advantage Series knifeholders can be connected to either one air manifold, or two separate air manifolds depending on the intended operation.

If connected to one air manifold, the knifeholders will down-stroke and side-stroke by activating the air supply, and adjusting the air pressure will control both the down force and side force. To down-stroke only (during setup), the swing cartridge air hoses on the individual knifeholders should be disconnected.

If using two air manifolds, the control bodies of all knifeholders should be connected to one air manifold, and all cartridges should be connected to the second, separate air manifold. This allows for separate air pressure adjustments to control down force and side force. When operating, first activate the air supply for the control bodies to down-stroke all knifeholders. Then activate the air supply for the cartridges to side-stroke and engage the knives against the anvil rings. When retracting the knifeholders, first deactivate the air supply to the cartridges, then deactivate the air supply to the control bodies.

To set the input air pressure on the regulator, consult the charts of down force and side force as a function of air pressure on page 17.

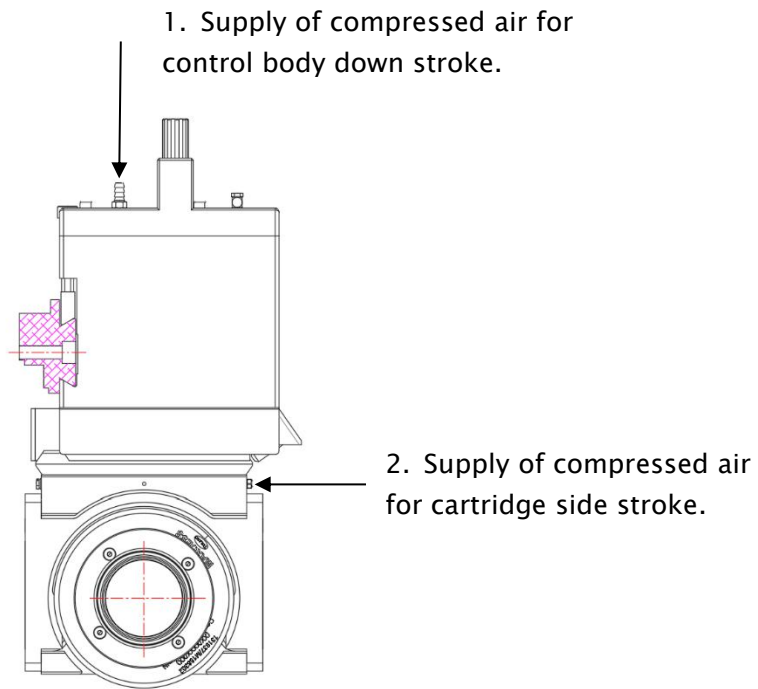


Figure 2: Air connections

Knifeholder with manual air input valve (available as option)

Manual input valve part numbers (optional):

Maxcess Asia PN: 620000295-001, Tidland PN: 270044090 (slider valve)

Maxcess Asia PN: 620000296-001, Tidland PN: 270044091 (thread adapter)

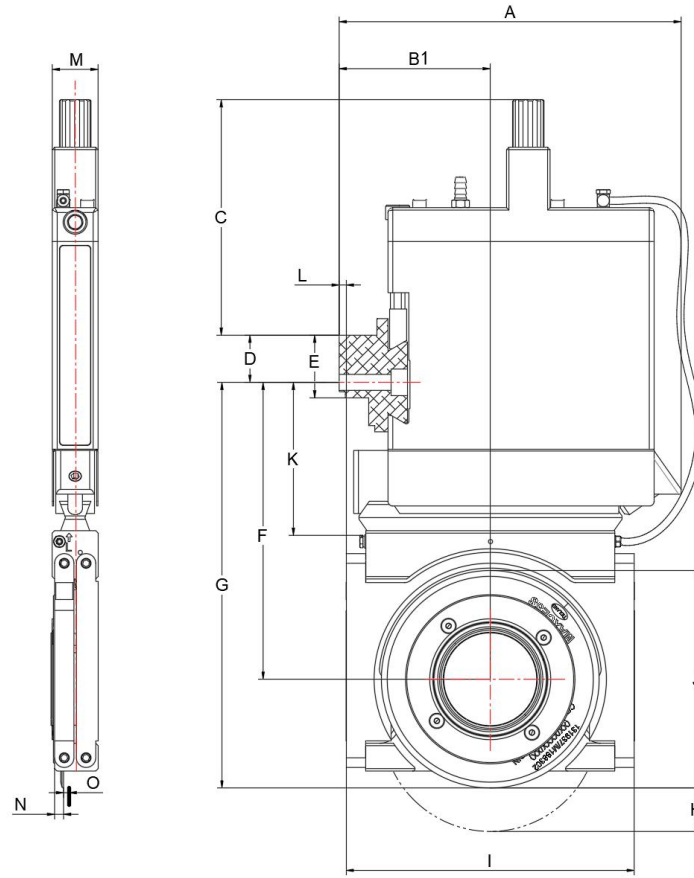
The Advantage Series base model is equipped with an air input fitting and polyurethane tubing for compressed-air supply. When the polyurethane tubing is connected to an active compressed air supply, then the control body will immediately make a down-stroke and side-stroke.

The Advantage Series with manual input valve and quick-disconnect allows for individual activation of the knifeholders, and easy disconnection of the cartridge to separate the down-stroke and side-stroke action. To activate the down-stroke only, disconnect the cartridge air hose, then slide the manual input valve to the open position. Reconnect the cartridge air hose to activate the side-stroke.

Note: For knifeholders connected to a single air manifold to control both down-stroke and side-stroke, the air input on the control body must be activated in order to engage the side-stroke.

Knifeholder Dimensions

With standard cant key



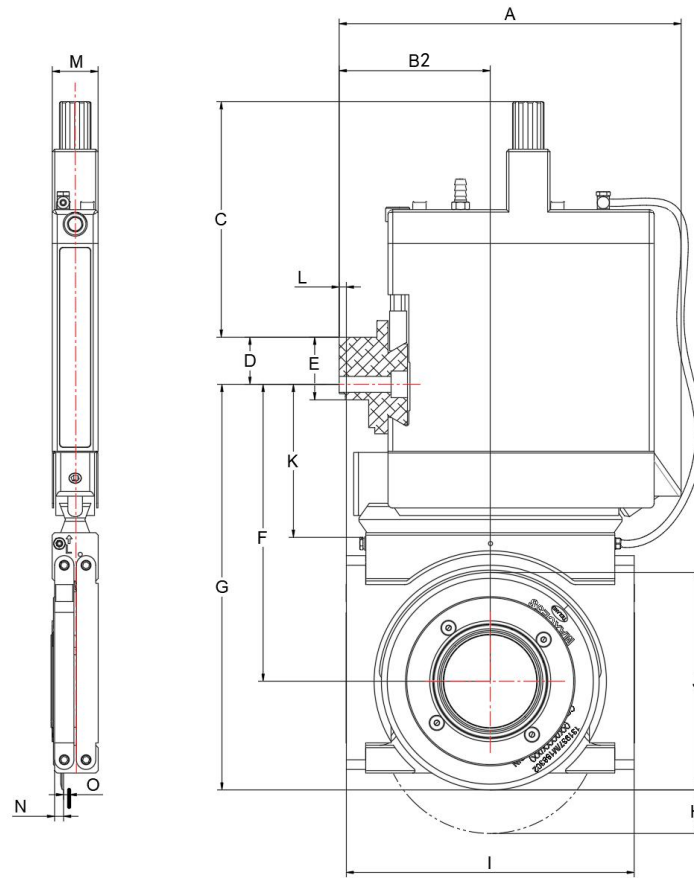
Size	Web-path	A	B1*	C	D	E	F	G	H	I	J	K	L1*	M	N	O
mm	A/B	141.3	62.5	97.5	19.5	25.9	122.9	167.9	19.5	119	90	63.3	3	18.9	3.7	2.8
in	A/B	5.56	2.46	3.84	0.77	1.02	4.84	6.61	0.77	4.69	3.54	2.49	0.12	0.74	0.15	0.11

*With standard cant key.

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

Knifeholder Dimensions

With W19 adapter cant key (use to retrofit Advantage Series onto existing systems with the W19 knifeholder)



Size	Web-path	A	B2**	C	D	E	F	G	H	I	J	K	L2**	M	N	O
mm	A/B	141.3	61.7/67.9	97.5	19.5	25.9	122.9	167.9	19.5	119	90	63.3	2.2/8.4	18.9	3.7	2.8
in	A/B	5.56	2.43/2.67	3.84	0.77	1.02	4.84	6.61	0.77	4.69	3.54	2.49	0.09/0.33	0.74	0.15	0.11

**With W19 adapter cant key.

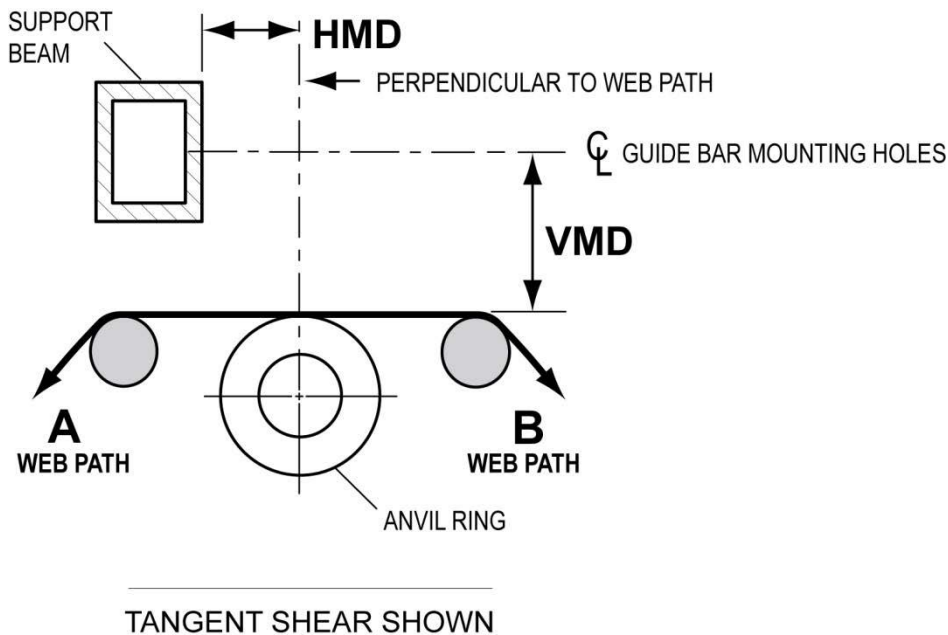
Note: Dimensions are nominal and represent the average of assembled units. These are not the specifications of individual parts nor do they reflect manufacturing tolerances.

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 to the vertical centerline through the center of the anvil ring.



VMD (Vertical Mounting Dimension)

Tangent & Wrap Slitting	
Advantage Series 19	6-29/32" (175.4 mm)

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

HMD (Horizontal Mounting Dimension)

Tangent Slitting *			Wrap Slitting **
	'A' Web Path	'B' Web Path	'A' or 'B' Web Path
Advantage Series 19	2-9/16" (65.1 mm)	2-5/16"(58.7mm)	2-7/16" (61.9mm)

*These dimensions will result in the recommended setback of 1/8" (3.18mm) for paper-based products.

** These dimensions provide no setback as recommended for wrap applications.

For assistance with mounting dimensions for other web materials, contact Customer Service.

Setting the blade overlap

The blade overlap between knife blade and anvil ring shall be 0.8 mm (0.03 in).

The blade overlap can be increased or decreased with the depth control knob.

Turn the depth control knob counterclockwise in order to increase the blade overlap.

Turn the depth control knob clockwise in order to decrease the blade overlap.

Per index, the blade overlap is increased or decreased by about 0.1 mm (0.0039 in.). A complete revolution increases or decreases the blade overlap by about 1.0 mm (0.039 in.).

Replace the knife blade



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

Knife blade part number: T131937 (Tidland PN: 27L131937)

Blade retainer part number: 620000118-001 (Tidland PN: 270044068)

FHCS alloy M3x8 part number: C200259-123 (Tidland PN: 270044075)

In order to lock the knife, it is recommended to attach a safety guard (Part No. 270043481) to the cartridge, or insert a retention pin into the hole on the back side of the cartridge. Next, remove the blade hub screws, blade retainer, and old blade. The new blade should be placed on the blade hub, making sure it rests fully flat. Position the blade retainer on the knife blade, install and tighten the screws to 2.7 to 3.5 in-lbs (0.3 to 0.4 Nm) of torque.



DANGER! Loose blades can become a projectile!
Always install blade retainer and torque all screws to the required setting before use.

Mounting the knifeholder on the guide bar



Safety Recommendation
Remove blade cartridge from knifeholder before handling.

The brake screw will be tightened by an Allen wrench after the knifeholder is positioned on the guide bar.

Operation

Removing the cartridge from the control body

Turn the hex socket set screw counterclockwise to loosen until the bottom end clears the cant key. Slide the cartridge outward toward the front of the knifeholder.

To insert the cartridge into the body, first ensure the hex socket set screw is clear of the cant key slot. It should be installed with flat side down, and hex socket facing outward. Align the cartridge and cant key to the cant key slot, and insert into the knifeholder, then tighten the set screw to 5.0 to 6.0 in-lbs (0.56 to 0.68 N.m) of torque.

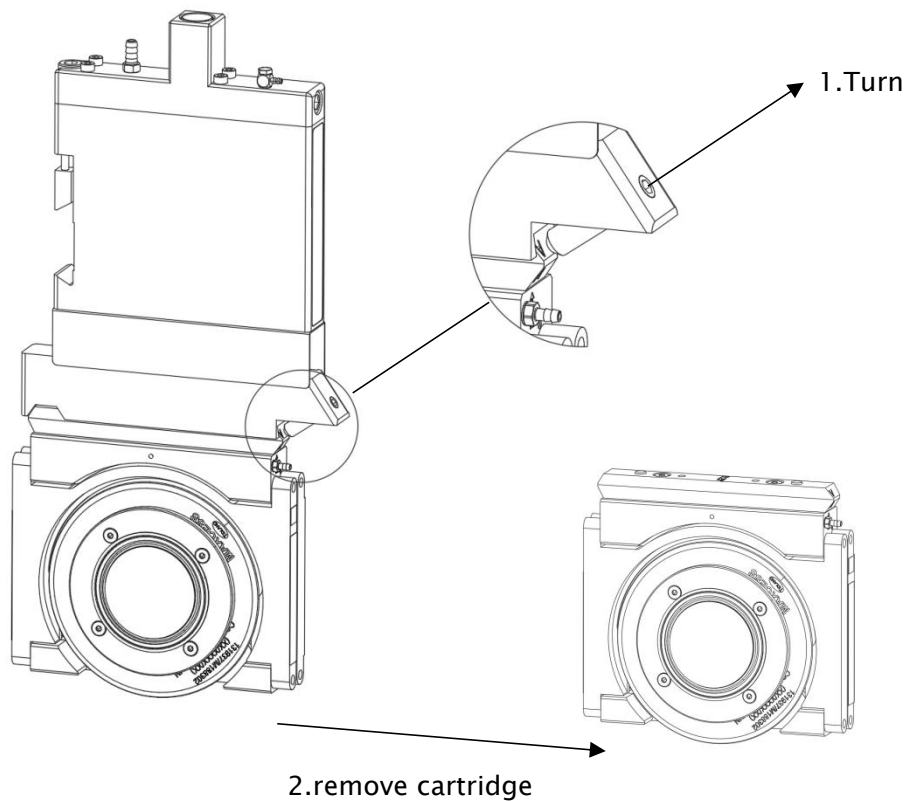
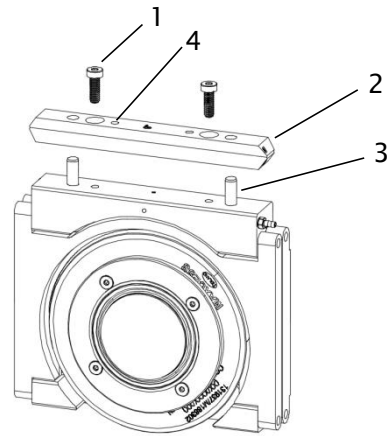


Figure 3: Hex socket set screw and cartridge removal

Removing the cant key from the cartridge

1. Socket head cap screw
2. Cant key
3. Dowel pin
4. Forcing thread (N14X16)

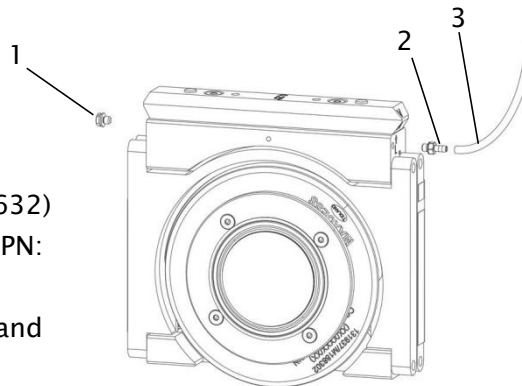


Remove the cartridge first before loosening the cant key.

Unscrew the socket head cap screws on the top face of the cartridge (Hex wrench required). The cant key is then still held to the cartridge by straight dowel pins. The cant key can either be pulled off towards the top, or can be uniformly forced of with screws using the forcing threads. To reinstall the cant key, set the alignment according to the instructions on page 7. Push the cant key onto the dowel pins, add Loctite 222 onto the threads of the socket head cap screws, and install through the top of the cant key. Tighten to 15 in-lb (1.7 Nm) torque.

Turning the cartridge

1. M3plug (M272632, Tidland PN: 52M272632)
2. M3 hose barb fitting (M272540, Tidland PN: 52M272540)
3. 1/8 x 1/16 blue air hose (T132556, Tidland PN: 27L132556)



For shear slitting, the cartridges can be removed and rotated 180 °, thereby it can be set to contact the left side or the right side of the anvil rings.

The air hook-up is positioned on the front side of the cartridge where the air hose is located as well. To rotate the cartridge, first remove and reinstall the cant key in the proper alignment (see page 7), then exchange the blind plug and the compressed air supply fitting.

Setup

Ensure that:

- Anvil rings are in the desired slit position
- Blade cartridge is secured in the control body
- Air supply is attached and set to minimum pressure required to slit your web material

1. Adjust depth control knob to the desired overlap, ensuring knob extends up from the control body. DO NOT SCREW the depth control knob all the way into the body – there will be no travel during carriage extension.

2. Loosen the guide bar brake screw.

3. Manually slide the knifeholder along the guide bar until knife blade is close to, but not touching, the cut side of the corresponding anvil ring. Hand tighten guide bar brake screw as needed to hold position.

Ensure the knife blade is not directly over the anvil ring in order to prevent damage by collision when the blade cartridge is extended.

4. Press the depth control knob downward, or disconnect the cartridge air hose and activate the input air in order to extend the blade cartridge down without the side stroke.

5. Hand tighten or loosen guide bar brake screw as needed to adjust position. Slide the knifeholder along the guide bar until the knife blade and anvil ring are separated by a gap <1mm (0.039 in.), but are not touching.

6. Tighten the guide bar brake screw.

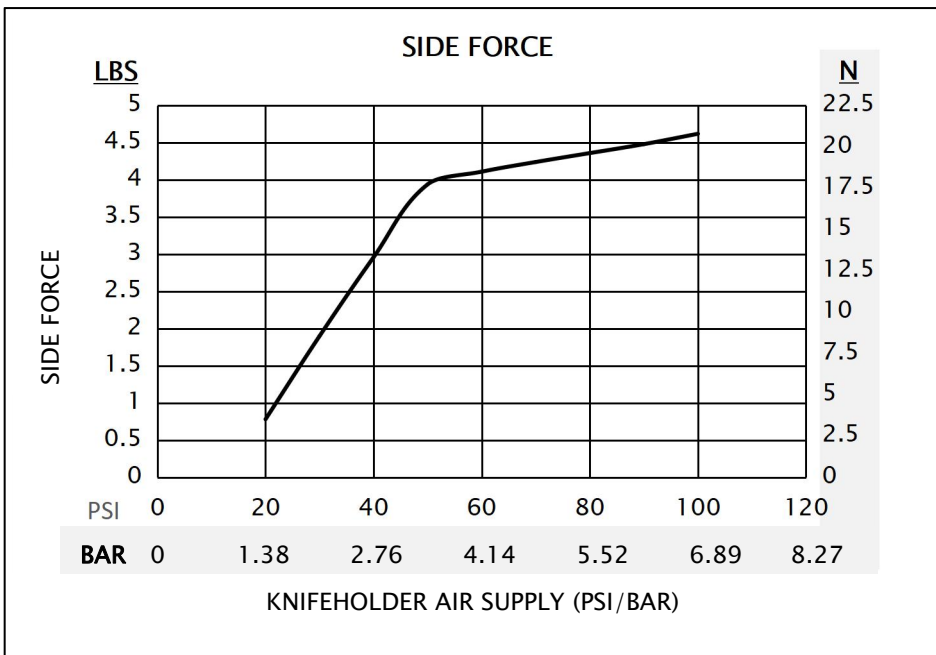
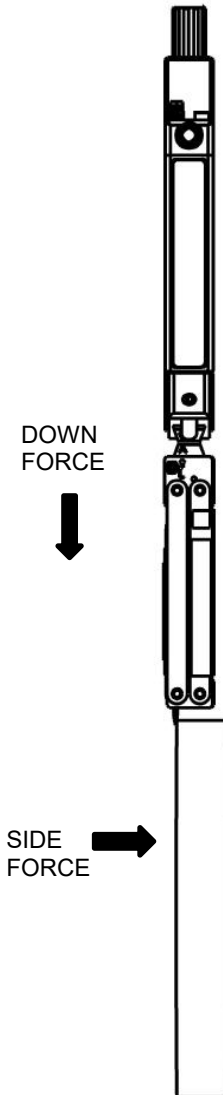
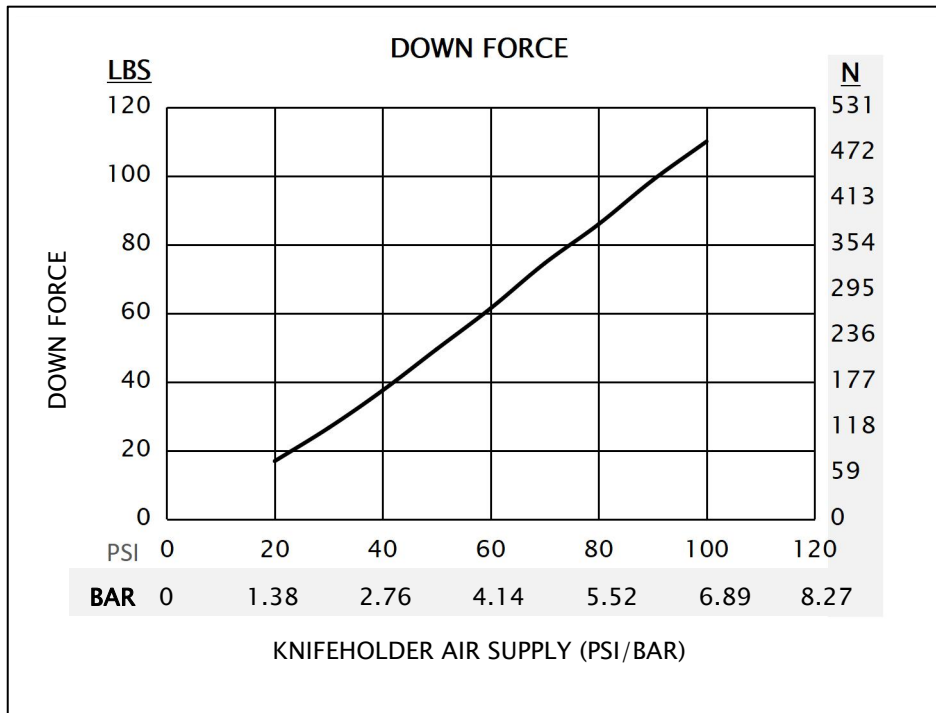
7. Release the depth control knob, or deactivate the input air and reconnect the cartridge air hose.

Operate

Engage the blade by activating the air supply using an external switch or regulator. For models with a slider valve fitted to the control body input air hose, activate the input air and use the slider valve to engage and disengage the knifeholder.

Operating Air Pressure

Down Force and Side Force



Options

Guide Bar

Use a C1 guide bar!

The guide bar is installed in the slitting unit. The knifeholder can be arrested on the guide bar and can be slid to the desired position.

Blade Change Safety Guard

Part number: 270043481

The safety guard may be snapped onto the blade cartridge prior to removal from the knifeholder control body. Align the locking pin with the hole on the cartridge, and rotate the blade hub by hand until the guard locks in place.

Maintenance

Preventive

- 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.
- Check that blade clamp and screws are tight (see page 13).
- Check that cartridge set screw is tight (see page 14).

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

Weekly

- Check knifeholder air pressure. Knifeholder air pressure requirements:
1½ Cfm @ 40–90 psi (2.7–6.2 bar).
- Blow down the blade cartridge to remove dust build-up.
- Check hose connections to the knifeholders for leaks or cracks.
- Check blade cartridge stroke function.

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

- Clean and inspect blade cartridge bearings for looseness.
- Remove blade cartridge and inspect cant key for excessive wear. Clean both cant key and control body dovetail, replace cant key if necessary.

Guide Bar Cleanup

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

Decommissioning

Note that oil and waste materials containing oil pose a high potential risk to the environment. The legal obligations with regard to waste prevention and proper use/removal must be complied with when carrying out installation, repair, or maintenance work on the knifeholder. When the knifeholder is finally decommissioned, the applicable laws and legal regulations with regard to recycling and disposal must be followed.

Service

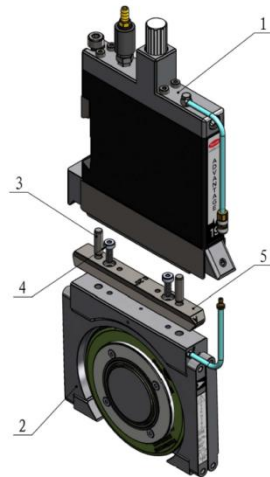
To request service or replacement parts, please contact one of the addresses found on the back page.

When requesting service, please have a copy of the order confirmation ready with the order number.

When ordering replacement parts, please indicate (where possible) the Part Number, Drawing Number, and Model description.

ASSEMBLY

Advantage Series Assembly



Pos.	Qua.	Maxcess Asia P/N	Tidland P/N	Description
1	1	620000145-001	270043425	Control body Base model
1	1	(620000145-001+T567944+620000294-001)	270043429	Control body with quick-disconnect and manual input valve
2	1	620000144-001	270043426	Cartridge base model
2	1	(620000144-001+M332584)	270043428	Cartridge with quick-disconnect hose
3	2	C200180-033	270044074	Dowel pin 5mm x 18
4	2	C200698-013	270044073	Cant key LHCS M4 x 12
5	1	(See the list for specific configuration)	(See the list for specific configuration)	Cant Key

Cant Key Specific Configuration List

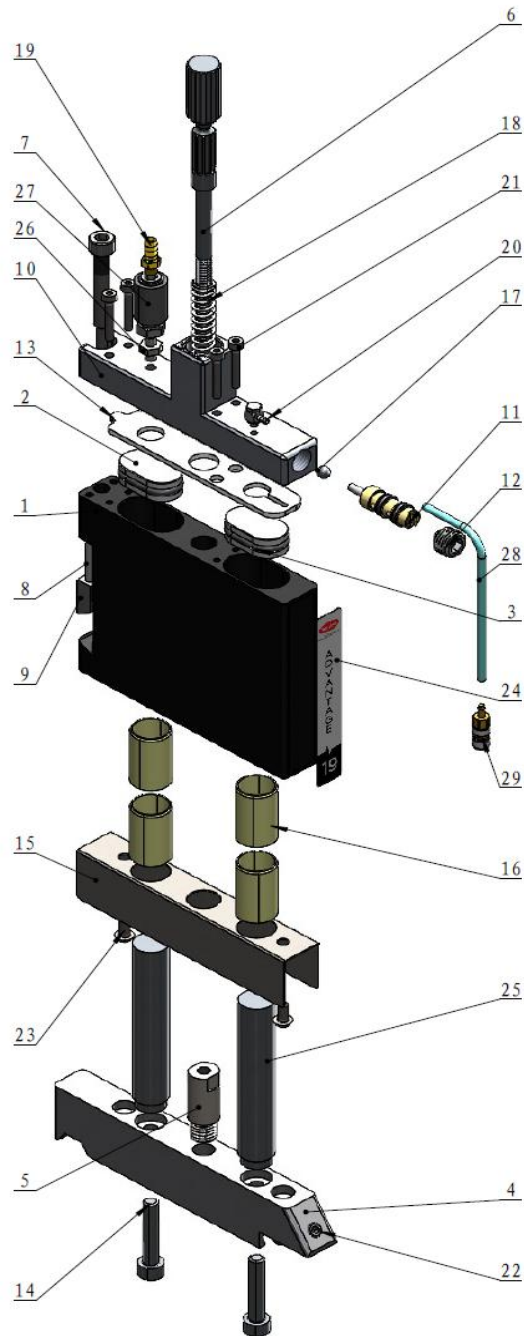
Maxcess Asia P/N	Tidland P/N	Description
620000122-001	270043431	Cant Key, STD, 0 deg
620000122-002	270043432	Cant Key, STD, 0.25 deg
620000122-003	270043433	Cant Key, STD, 0.5 deg
620000185-001	270043434	W19 adapter cant key 0 deg
620000185-002	270043435	W19 adapter cant key 0.25 deg
620000185-003	270043436	W19 adapter cant key 0.50 deg

Control Body Assembly

Advantage Series 19 Control Body – Base Model – Tidland Part No. 270043425

Advantage Series 19 Control Body – with cartridge quick-disconnect and input valve –
Tidland Part No. 270043429

(The diagram below is Control Body with cartridge quick-disconnect and input valve)



ASSEMBLY

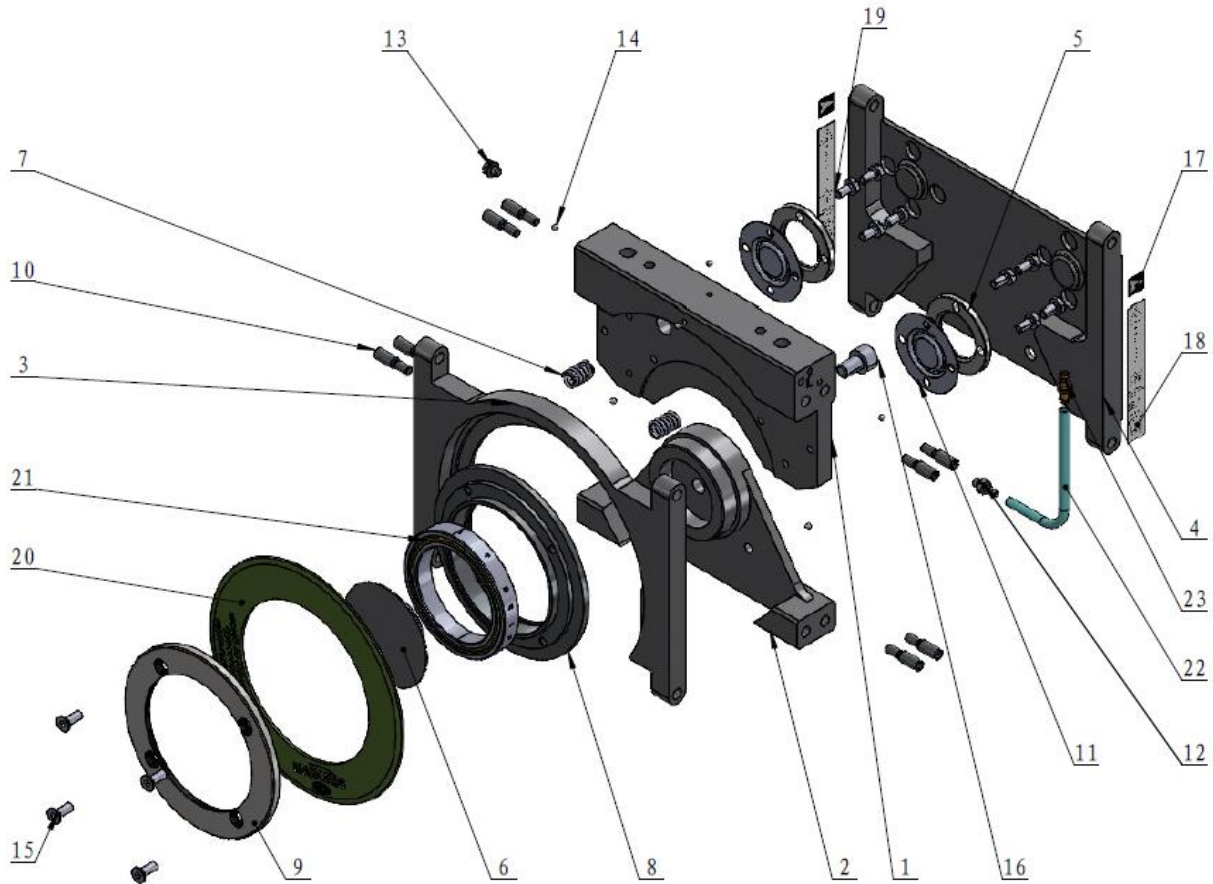
Pos.	Qua.	Maxcess Asia P/N	Tidland P/N	Description
1	1	620000126-001	270044044	Control Body
2	2	620000132-001	270044050	Oval Piston
3	2	620000142-001	270044055	O-ring
4	1	620000134-001	270044052	Female dovetail block
5	1	620000133-001	270044051	Limit adjustment screw
6	1	620000127-001	270044045	Depth control rod
7	1	620000130-001	270044048	Brake screw
8	2	C200180-034	270044056	Dowel pin 3 x 25
9	2	620000131-001	270044049	Brake Gib
10	1	620000135-001	270044053	Cylinder head upper block
11	1	M358386	270044682	Three-way air valve
12	1	C200056-005	270044057	Set screw
13	1	620000128-001	270044046	Gasket
14	2	C200225-076	270044058	M6x30 SHCS
15	1	620000136-001	270044054	Sheet metal guard
16	4	620000137-001	270044059	Igus Bushing
17	1	M293057	52M293057	Steel ball $\phi 5$
18	1	620000138-001	270044060	Compression Spring
19	1	T132239	27L132239	10-32 Hose fitting
20	1	T528697	27L528697	M3 elbow barb fitting
21	4	C200225-026	270044061	SHCS M3 x 20
22	1	620000140-001	270044062	M6 x 25 set screw
23	2	C200240-113	270044063	M4 x 8 BHCS
24	1	620000186-001	270044064	Front Label
25	2	620000129-001	270044047	Guide Rod
26	1	620000296-001	270044091	M5 Thread Adapter (Optional)
27	1	620000295-001	270044090	Slider Valve (Optional)
28	1	T132556	27L132556	1/8 x 1/16 air hose
29	1	T567943	27L567943	Quick-disconnect socket (Optional)

Blade Cartridge Assembly

Advantage Series 19 Blade Cartridge – Tidland Part No. 270043426

Advantage Series 19 Blade Cartridge with quick-disconnect air hose – Tidland Part No. 270043428

(The diagram below shows the blade cartridge with quick-disconnect)



ASSEMBLY

Pos.	Qua.	Maxcess Asia P/N	Tidland P/N	Description
1	1	620000119-001	270044069	Upper Block
2	1	620000115-001	270044065	Lower Mount
3	1	620000120-001	270044070	Inboard Guard Strut
4	1	620000121-001	270044071	Outboard Strut
5	2	M272513	52M272513	Diaphragm Retaining Ring
6	1	620000117-001	270044067	Brg Retainer Cap
7	2	M275312	52M275312	Compression Spring
8	1	620000116-001	270044066	Blade Hub
9	1	620000118-001	270044068	Blade Retainer
10	8	T545948	27L545948	Pivot Pin
11	2	M272515	52M272515	Diaphragm
12	1	M272540	52M272540	M3 hose barb fitting
13	1	M272632	52M272632	M3 plug
14	6	T557259	27L557259	Steel ball $\phi 2$
15	4	C200259-123	270044075	FHCS alloy M3x8
16	1	T549838	27L549838	M5 x 8 SHCS
17	2	620000187-001	270044077	Arrow label
18	2	T130923	27L130923	Safety label
19	8	C200698-014	270044076	M3 x 6 Screw
20	1	T131937	27L131937	Knife Blade
21	1	620000125-002	270044072	Bearing
22	1	T132556	27L132556	1/8 x 1/16 air hose
23	1	M332584	270044078	Quick-disconnect plug (Optional)

TROUBLESHOOTING

Problem	Possible Cause	Recommended Solution	Page
Knifeholder does not fully retract (upstroke)	Cartridge set screw too tight	Loosen and tighten set screw to recommended torque	14
	Binding inside control body	Clean guide rods and bushings	19, 23
	Malfunction in three-way air valve on control body	Clean exhaust hole on top of control body; remove and replace valve	23, 24
	Failure of compression spring	Remove and replace spring	23, 24
Knifeholder will not downstroke	Input air pressure is too low	Apply minimum air pressure	6, 17
	Input air valve is shut or damaged; or hose is disconnected	Open air valve and check hose connection. Replace if needed	9, 23, 24
Knifeholder will downstroke but not side-stroke	Input air pressure is too low	Apply minimum air pressure	6, 17
	Air hose between control body and cartridge is damaged or disconnected	Reconnect or replace air hose	9, 15
	Malfunction in three-way air valve on control body	Check still ball is in place; Remove and replace valve	23, 24
Loose control body, dovetail bloc, or depth control rod	Depth control rod removed or overlap setting is too large (no clicks when turned)	Decrease overlap setting (turn control rod clockwise)	13
Poor slit quality	Loose blade cartridge	Tighten set screw to recommended torque	14
	Knifeholder loose on guidebar	Tighten guide bar brake screw	13, 16
	Loose blade clamp screws	Tighten the blade clamp screws	13



AMERICAS

Tel +1.360.834.2345
Fax +1.360.834.5865
sales@maxcessintl.com
www.maxcess.com

EUROPE, MIDDLE EAST
AND AFRICA

Tel +49.6195.7002.0
sales@maxcess.eu
www.maxcess.com

CHINA

Tel +86.400.830.1898
asia.sales@maxcessintl.com
www.maxcess.com

INDIA, NORTH ASIA, SE ASIA,
OCEANIA

asia.sales@maxcessintl.com
www.maxcess.com