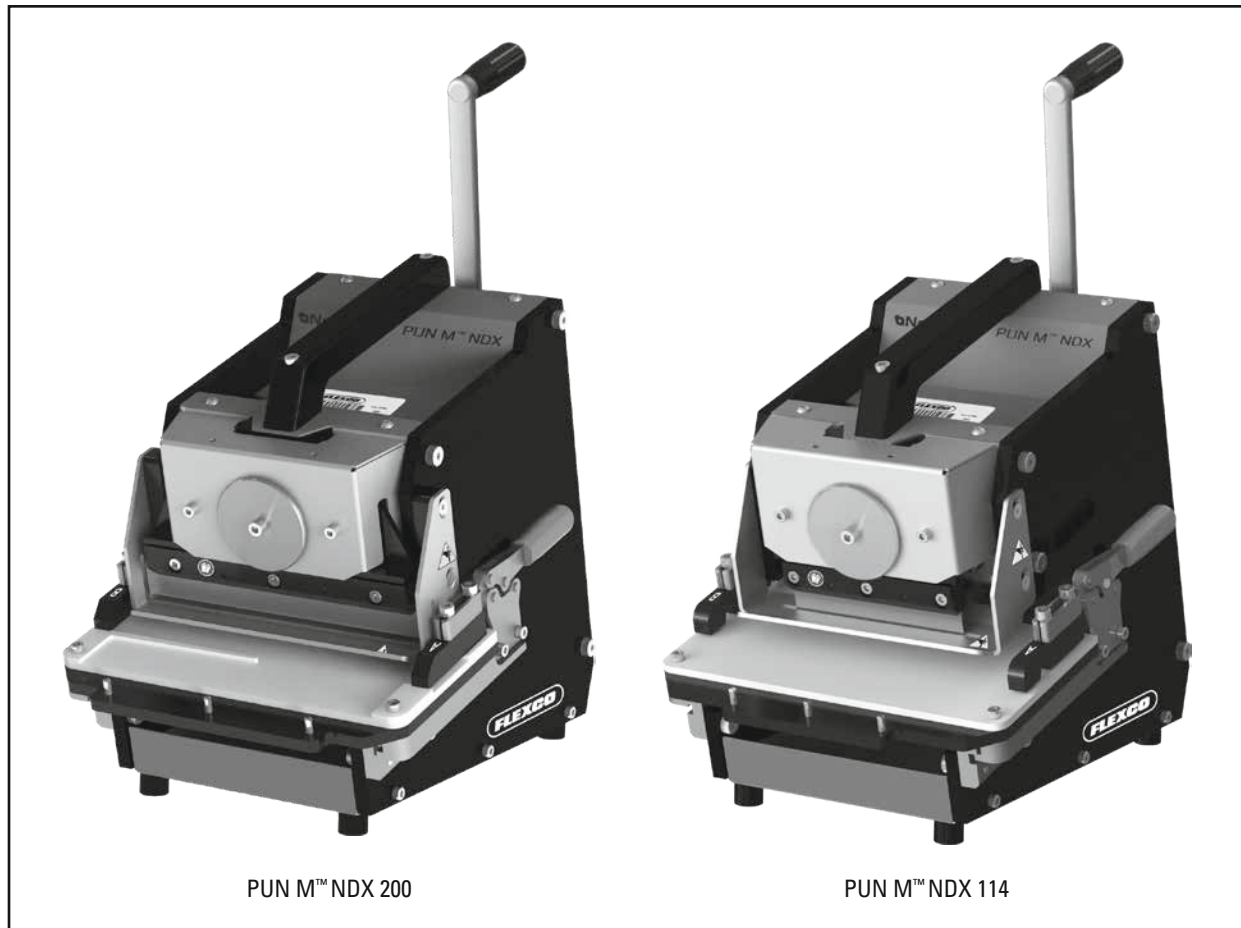


# **PUN M™ NDX Manual Finger Punch Safety and Operation Manual**

**For punching thermoplastic belting with and without aramid cords.**



## **WARNING**

IMPROPER OR UNSAFE use of this tool can result in serious bodily injury! This manual contains important information about product function and safety. Please read and understand this manual BEFORE operating the tool. Please keep this manual available for other users and owners before they use the tool. This manual should be stored in a safe place.

*Patent Pending*

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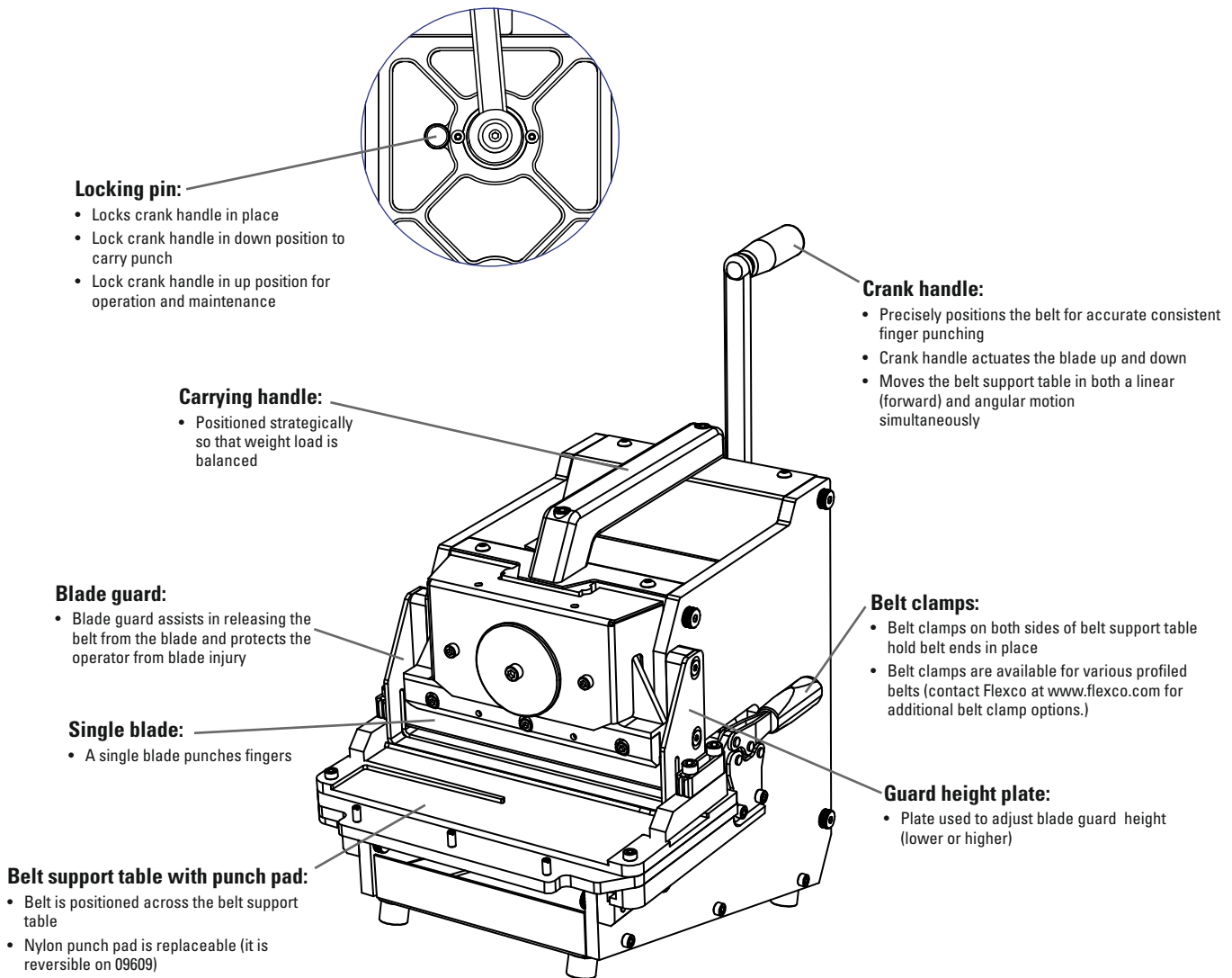
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# Pun M™ NDX Main Components



## Description

The Pun M™ NDX is designed to punch narrow thermoplastic power transmission belting or lightweight thermoplastic belting that is guided. The Pun M NDX is manually operated and does not need electricity or air pressure for its operation. The punching force is created by rotating the hand crank. With its easy set-up and manual operation, it is convenient to move from one location to another for

belt end preparation. The maximum belt or guided belt thickness is 0.43 inches (11 mm).

Quality punched fingers are important as both belt end fingers need to be evenly dimensioned with no deformation at the edge to mesh together for the splice and for alignment in the tension direction on a conveyor system. Frayed aramid cords need to be limited as cords may reduce splice integrity.

# Tool Specifications

PUN M™ NDX DIMENSIONS						
Ordering Number	Length	Height		Width	Weight	Belt Thickness
		Handle Down	Handle Up			
PUN-M-NDX-114MM	17" (432 mm)	13" (330 mm)	18.5" (470 mm)	10.5" (267 mm)	47 lbs. (21 kg.)	0.43" (11 mm)
PUN-M-NDX-114MM-ARP-SDI	17" (432 mm)	13" (330 mm)	18.5" (470 mm)	10.5" (267 mm)	47 lbs. (21 kg.)	0.43" (11 mm)
PUN-M-NDX-200MM	17" (432 mm)	13" (330 mm)	18.5" (470 mm)	10.5" (267 mm)	48 lbs. (22 kg.)	0.43" (11 mm)

PUN M™ NDX ORDERING INFORMATION			
Description	Ordering Number	Effective Punch Length	Item Code
Up to 100 mm wide belt with guides	PUN-M-NDX-114MM	4.49" (114 mm)	09609
Up to 100 mm wide belt with guides	PUN-M-NDX-114MM-ARP-SDI	4.49" (114 mm)	09720
Up to 45 mm wide belt	PUN-M-NDX-200MM	7.87" (200 mm)	09663

PUN M™ NDX REPLACEMENT PARTS AND ACCESSORIES	
Ordering Number	Item Code
114MM-BLADES-3PK	09665
200MM-BLADES-3PK	09666
NYLON-PUNCH-PAD-114MM	09667
NYLON-PUNCH-PAD-200MM	09668
CLAMP-BAR-7MMBLT-SMOOTH-VGD	09701

**NOTE:** The blade kits (09665 and 09666) include cut-resistance gloves and hex wrenches for blade replacement.

# General Safety Rules –Save These Instructions–

## Signal words:

“DANGER” indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. The signal word is limited to the most extreme situations.

“WARNING” indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

“CAUTION” indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

## Safety Symbol



This international safety symbol is used to identify and call attention to specific safety matters.

## Safety Information

To Avoid Severe Personal Injury or Property Damage, read carefully and understand the following Safety Precautions.

### 1. WORK AREA

#### CAUTION

Only operate Pun M™ NDX with machine positioned on a level, firm work surface.

Ensure your work area is clean and well lit. Cluttered and dark areas invite accidents.

### 2. PERSONAL SAFETY

#### WARNING

Use safety equipment. Always wear eye protection, cut-resistance gloves during maintenance, non-skid safety shoes, and adhere to other safety standards of the facility where operating the punch.

Stay alert, watch what you are doing, and use common sense when operating this punch. Do not use punch while tired or under influence of drugs, alcohol, or medication. A moment of inattention while operating machines may result in serious personal injury.

Do not wear loose clothing or jewelry. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts. Abide by all instructions and warning labels. This equipment is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge of the equipment.

Do not overreach. Keep proper footing and balance at all times to enable better control of the tool in unexpected situations.

Never alter or remove safety devices.

Keep your hands and fingers away from the blades at all times.

### 3. MACHINE USE AND CARE

#### WARNING

Read and understand Pun M™ NDX operations manual before using punch.

#### CAUTION

Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect machine operation. If damaged, have machine serviced before using.

Only qualified repair personnel must perform machine service. Service or maintenance performed by unqualified personnel could result in a risk of injury.

Maintain machine in clean condition. Remove any oils, greases, or dirt from outside punch.

Always use two hands to operate the tool. Punching is to be performed with one hand on the carrying handle to stabilize the punch and the other hand to turn the crank handle.

### 3. MACHINE USE AND CARE (Con't.)

#### ⚠ CAUTION

The Pun M™ NDX is designed to be used by a single operator only. Keep all others away from machine while in use.

Do not allow others to assist the operator with the machine during use.

Do not use anything other than the Flexco provided crank handle to drive the punch. Substituting the crank handle with any other item or adding a 'cheater bar' to the handle can cause potential damage to the punch.

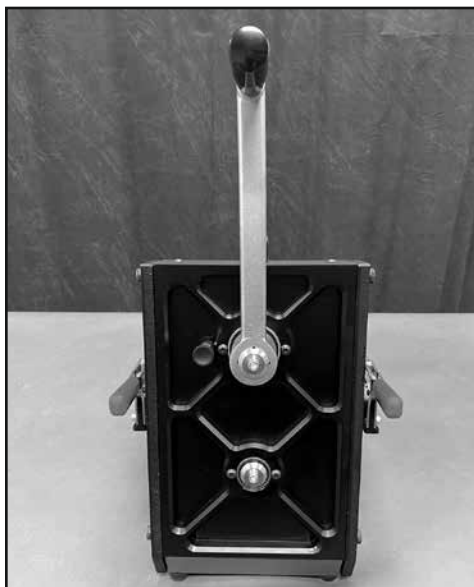
The punch should not be used to punch materials other than thermoplastic belting materials. The thickness of the belting material should never exceed 0.43 inch (11 mm).

When servicing a tool, use only original Flexco replacement parts.

### 4. SERVICE AND MAINTENANCE

#### ⚠ CAUTION

Only qualified repair personnel must perform machine service. Service or maintenance performed by unqualified personnel could result in a risk of injury.



Crank Handle Up

Ensure crank handle is locked in the up position by securing the locking pin prior to performing any maintenance; including removing punched belt ends, debris, blade height adjustment, guard height adjustment, or blade replacement.

### 5. BLADE REPLACEMENT

#### ⚠ WARNING

Always wear cut-resistant safety gloves and safety glasses when replacing the blade. The blade is razor sharp, treat it accordingly.

Do not use dull or damaged blades.

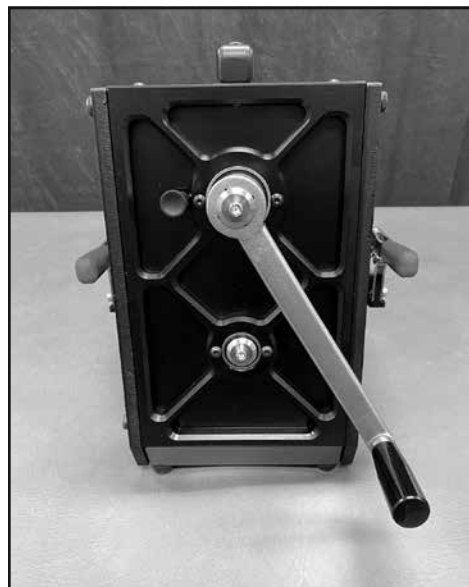
Do not attempt to resharpen blades. This will affect punching completely through belt.

Before performing a blade replacement, follow all procedures stated in manual.

Ensure crank handle is locked in the up position with securing the locking pin prior to performing a blade replacement or adjustment.

Test the punch after blade replacement to ensure that it can be used safely

Stow spare blades safely.



Crank Handle Down

## Pun M™ NDX Operation:

**Step 1:** Ensure the belt support table is all the way in the forward or rear position. Best practice is to start with table in rear position.



**Step 1a** Table Rear

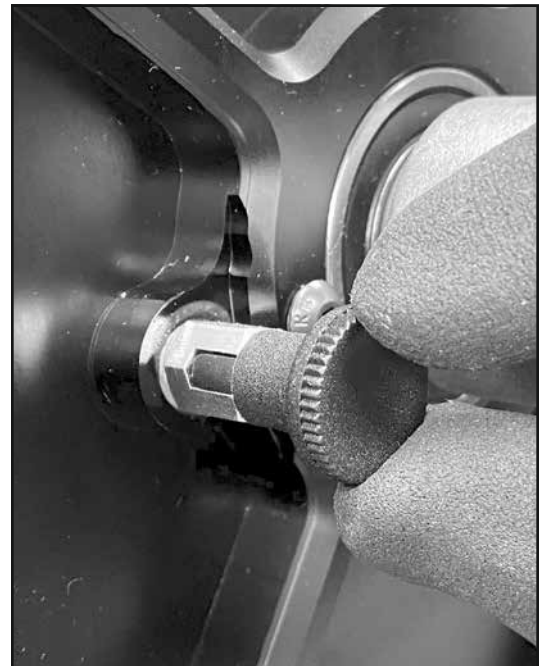


**Step 1b** Table Front

**Step 2:** Position crank handle in the up position and secure pulling and twisting the locking pin one quarter turn until engaged.



**Step 2a** Locking Pin Out



**Step 2b** Locking Pin Engaged





## Pun M™ NDX Operation

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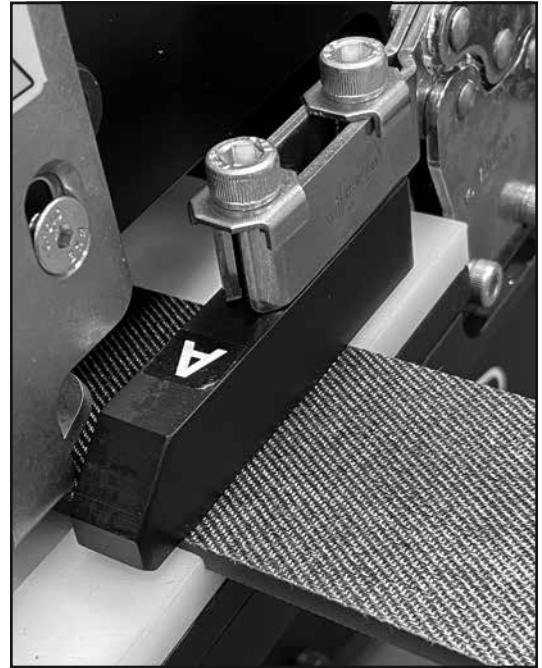
**Step 3:** Load belt fabric side up/bottom side up/guided side up from clamp A side to clamp B side of table with belt flush to edge.

Once belt is in position clamp both A and B clamps on both sides of support table to secure belt in place. Ensure belt is lying flat and is taut.

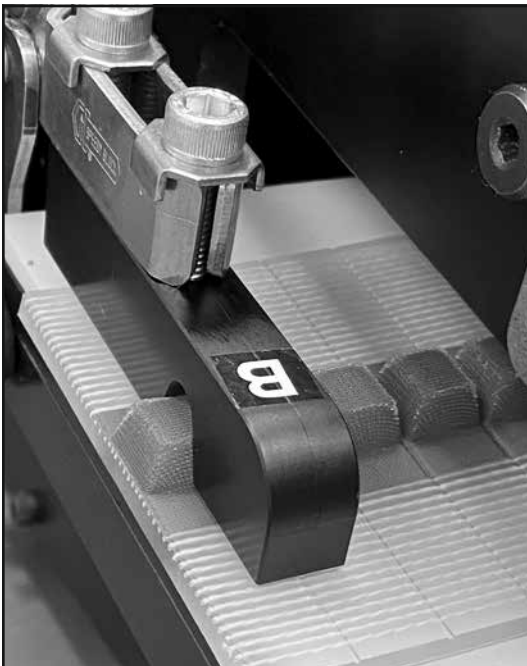
When punching a 77 mm wide belt with notched v-guide, clamp B clamp first into last notch of the belt end prior to clamping A clamp.



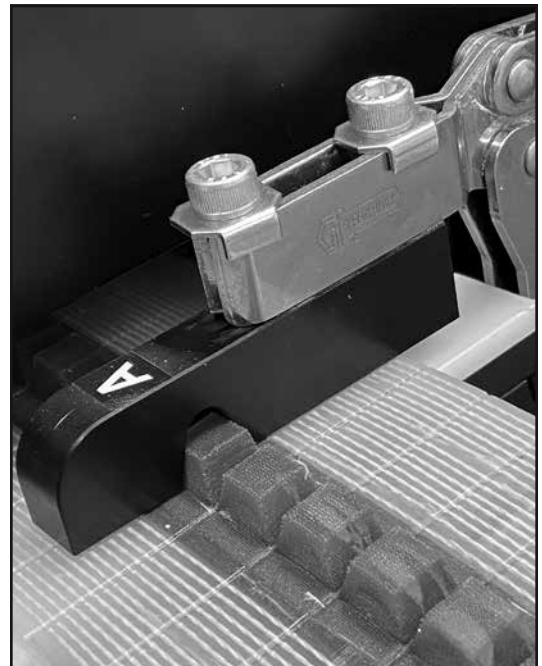
**Step 3a** Belt Flush to Clamp B Edge



**Step 3b** 45mm Belt



**Step 3c** Belt Clamped Into Last V-Guide Notch



**Step 3d** 77mm Belt



## Pun M™ NDX Operation

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**Step 4:** Unlock the crank handle by pulling and twisting the locking pin into self-retain position so the crank handle rotates continuously.

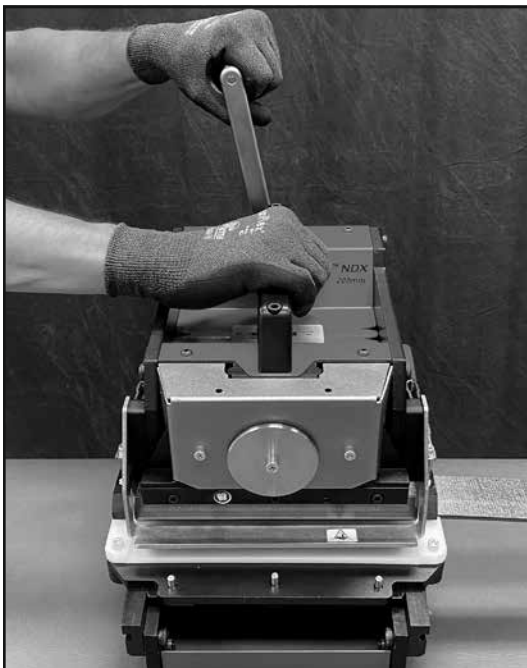


**Step 4a** Locking Pin Out



**Step 4b** Locking Pin Self-Retain Position

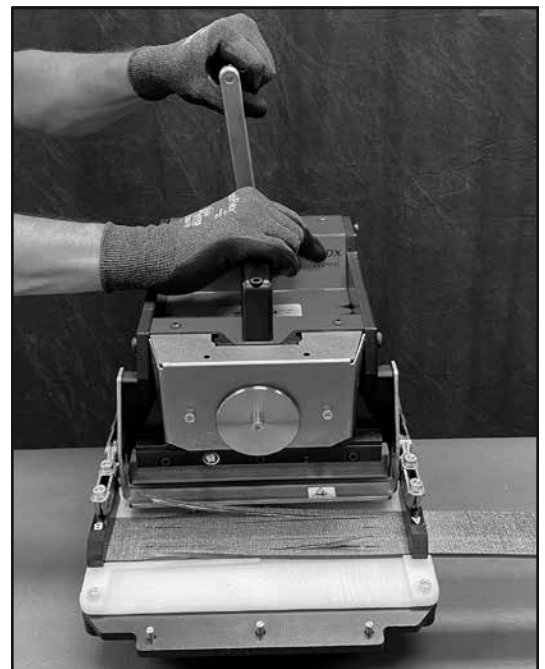
**Step 5:** Place one hand on the carrying handle to hold the punch in position and one hand on the crank handle.



**Step 5** Carrying Handle & Crank Handle

**Step 6:** If the table is in the rear position, turn the crank handle clockwise rotating the crank handle until the belt is fully punched. Rotate crank handle until belt support table is all the way in the forward position punching slightly beyond the punched belt.

**NOTE:** Do not reverse the cranking direction without removing the belt sample as this may cause inconsistent geometry from double punches.



**Step 6** Punched Belt



# Pun M™ NDX Operation

**Step 7:** Position crank handle in the up position and secure pulling and twisting the locking pin one quarter turn until engaged.

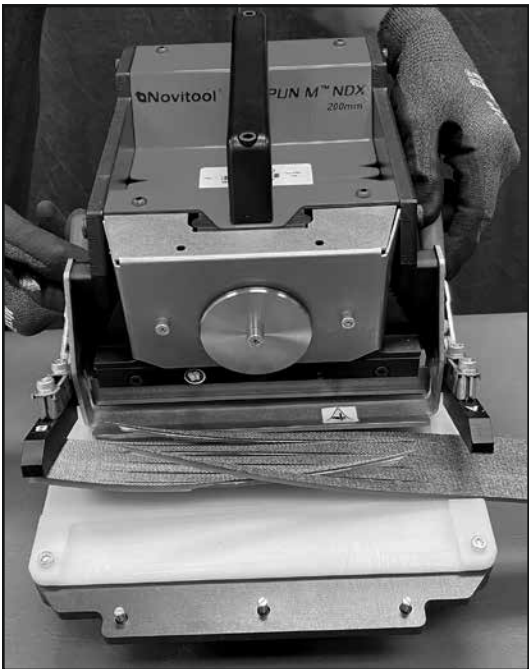


**Step 7a** Locking Pin Out

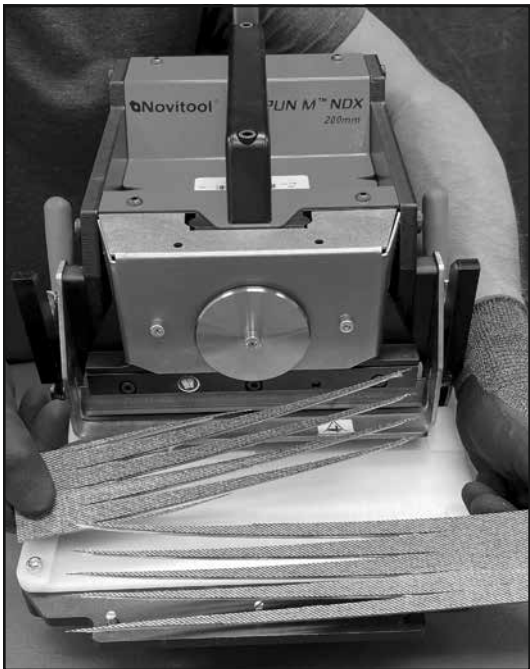


**Step 7b** Locking Pin Engaged

**Step 8:** Release belt clamps and remove belt.



**Step 8a** Release Belt Clamps



**Step 8b** Punched Belt Fingers

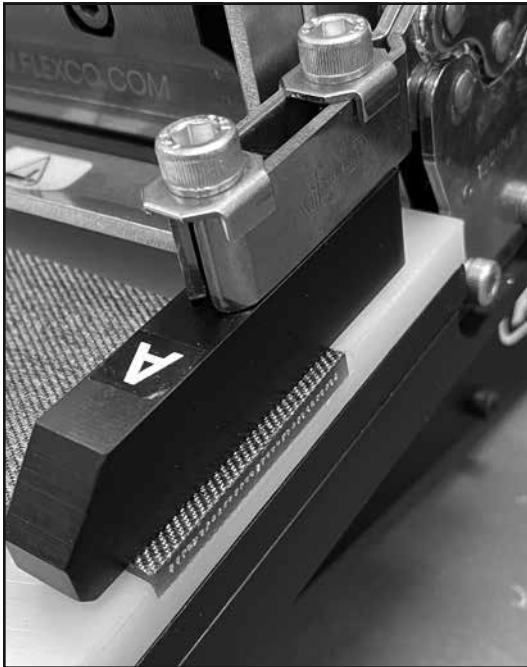
## Pun M™ NDX Operation

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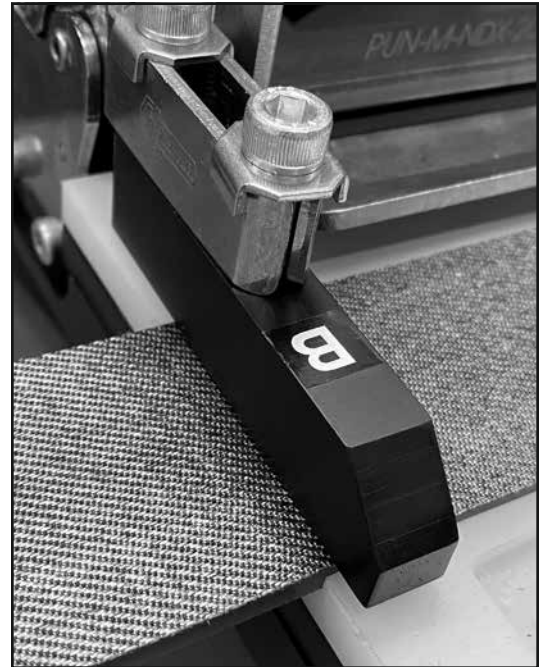
**Step 9:** Repeat process loading second belt fabric side up/bottom side up/guided side up from clamp B side to clamp A side of table with belt flush to edge.

Once belt is in position clamp both B and A clamps on both sides of support table to secure belt in place. Ensure belt is lying flat and is taut.

When punching a notched v-guide belt, clamp A clamp first into last notch of the belt end prior to clamping B clamp.



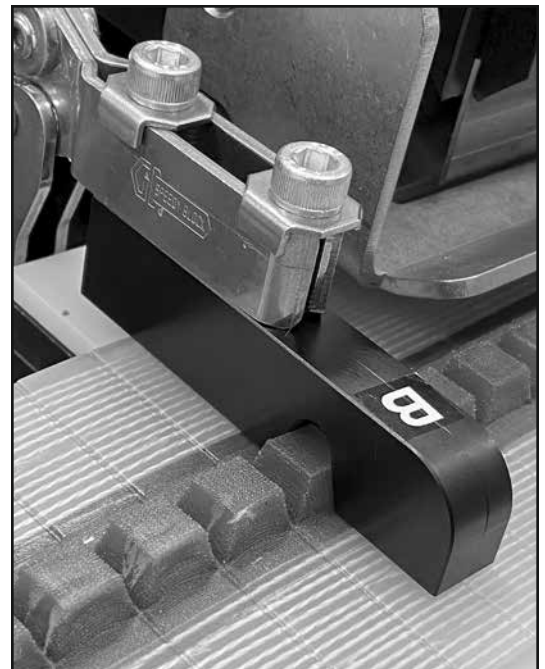
**Step 9a** Belt Flush to Clamp A Edge



**Step 9b** 45 mm Belt



**Step 9c** Belt Clamped into Last V-Guide Notch



**Step 9d** 77 mm Belt





## Pun M™ NDX Operation

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**Step 10:** Unlock the crank handle by pulling and twisting the locking pin into the self-retain position so the crank handle rotates continuously.



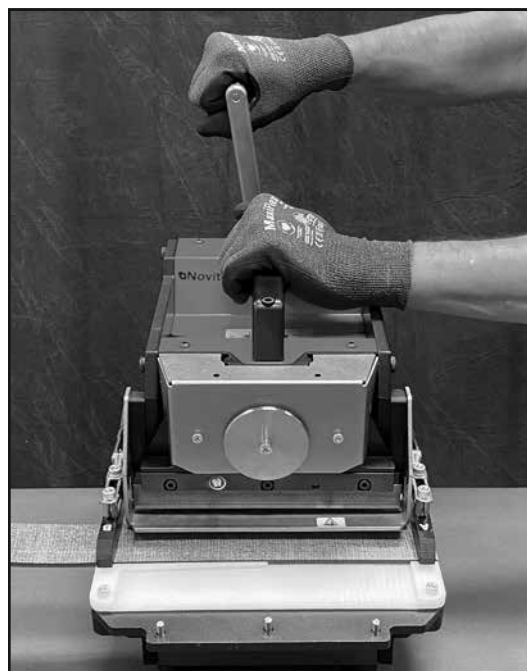
**Step 10a** Locking Pin Out



**Step 10b** Locking Pin Self-Retain Position

**Step 11:** If the table is in the forward position, turn the crank handle counterclockwise rotating the crank handle until the belt is fully punched. Rotate crank handle until belt support table is all the way in the rear position punching slightly beyond the punched belt.

**NOTE:** Do not reverse the cranking direction without removing the belt sample as this may cause inconsistent geometry from double punches.



**Step 11a** Carrying Handle & Crank Handle

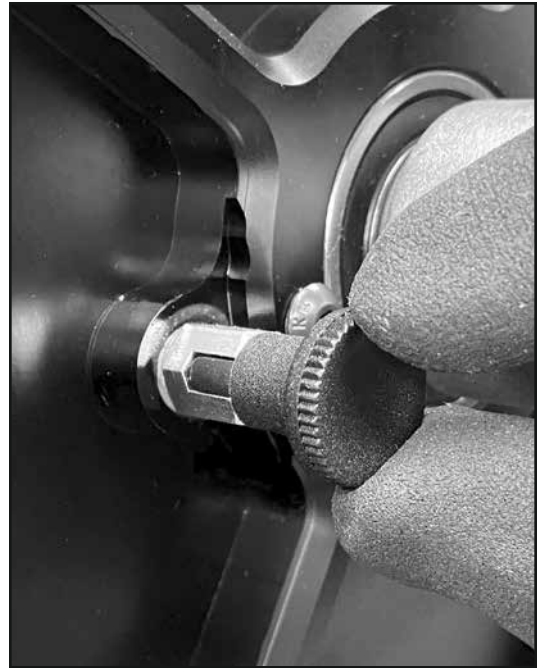
## Pun M™ NDX Operation

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**Step 12:** After punch is complete, position crank handle in the up position and secure pulling and twisting the locking pin one quarter turn until engaged.



**Step 12a** Locking Pin Out

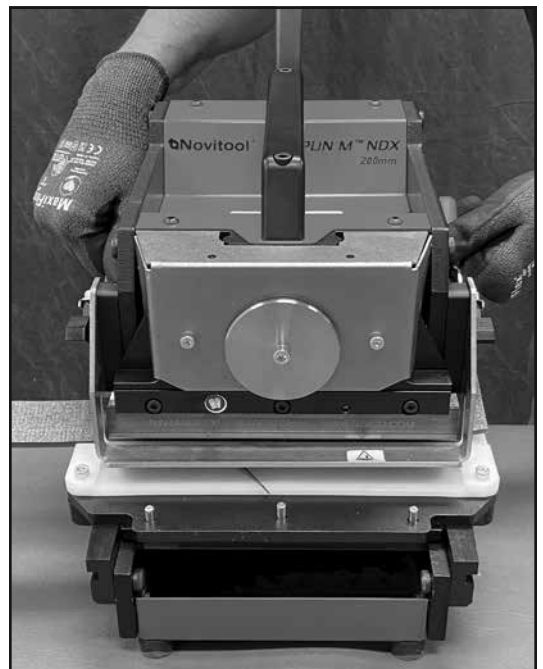


**Step 12b** Locking Pin Engaged

**Step 13:** Release belt clamps and remove belt.

**NOTE:** Periodically inspect punch pad for excessive wear as this can affect punch quality. Replace punch pad as needed.

**NOTE:** Clean belt debris out of punch pad area with compressed air.



**Step 13** Release Belt Clamps

# Pun M™ NDX Blade Height Adjustments:

➡ **WARNING** Use safety equipment. Always wear eye protection, cut-resistance gloves during maintenance, non-skid safety shoes, and adhere to other safety standards of the facility where operating the punch.

## Blade Height Adjustment

There may be conditions when the blade requires an adjustment.

- Belt thickness, construction and aramid cord configurations (quantities and diameters will vary) requires more or less cutting force.
- When blade is not completely cutting through the belt because the punch pad is worn (start with Step 6)
- After installing a new blade and not changing or flipping (114 mm only) the punch pad (start with Step 6)
- After installing a new or flipping (114 mm only) punch pad (start with Step 1)

**Step 1:** Position crank handle in the up position and secure pulling and twisting the locking pin one quarter turn until engaged.



**Step 1a** Locking Pin Out



**Step 1b** Locking Pin Engaged



## Pun M™ NDX Blade Height Adjustments:

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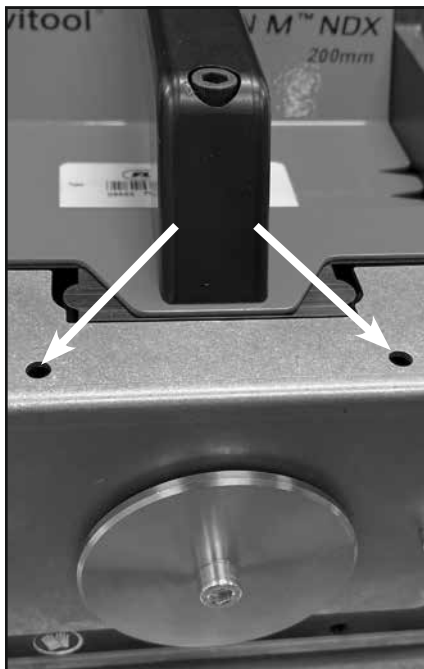
**Step 2:** With 4 mm hex wrench loosen and remove the three screws on front of blade holder.

**NOTE:** When making a slight adjustment the screws do not need to be removed.



**Step 2** Loosen Screws

**Step 3:** With 3 mm hex wrench, loosen both fine adjustment set screws located in pilot holes on top of front cover at least two full rotations.



**Step 3a** Fine Adjustment Set Screws



**Step 3b** Right Side Fine Adjustment



**Step 3c** Left Side Fine Adjustment



## Pun M™ NDX Blade Height Adjustments:

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**Step 4:** Apply upward force so blade holder rests flat against shelf. If blade holder can not rest flat against the shelf; repeat step 3 with an additional rotation of the set screws. While holding blade holder in place, use 4 mm hex wrench to tighten all three blade holder screws.



**Step 4a** Blade Holder Against Shelf



**Step 4b** Secure Blade Holder

**Step 5:** With 3 mm hex wrench turn both fine adjustment set screws clockwise until light contact is made with top of blade holder.



**Step 5** Contact with Top of Blade Holder

## Pun M™ NDX Blade Height Adjustments:

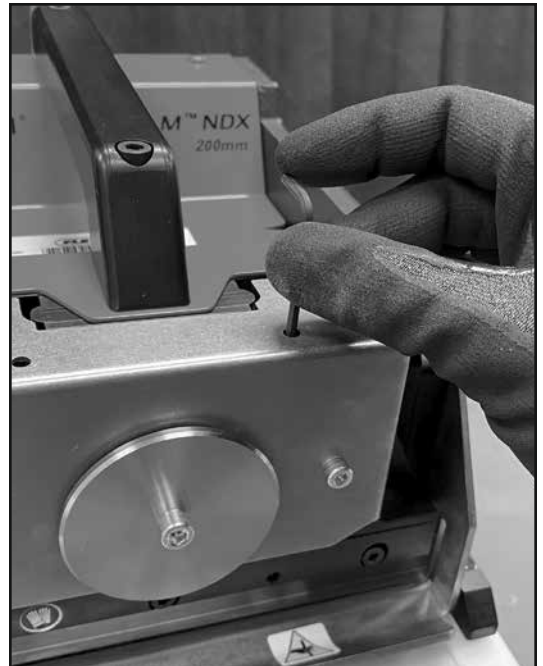
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**Step 6:** While holding blade holder up against shelf, with 4 mm hex wrench, slightly loosen all three blade holder screws so that blade holder still remains securely in place, but can move with the set screw adjustment.



**Step 6** Slightly Loosen Screws

**Step 7:** With 3 mm hex wrench, make one full clockwise rotation of both fine adjustment set screws.



**Step 7** One Clockwise Rotation



## Pun M™ NDX Blade Height Adjustments:

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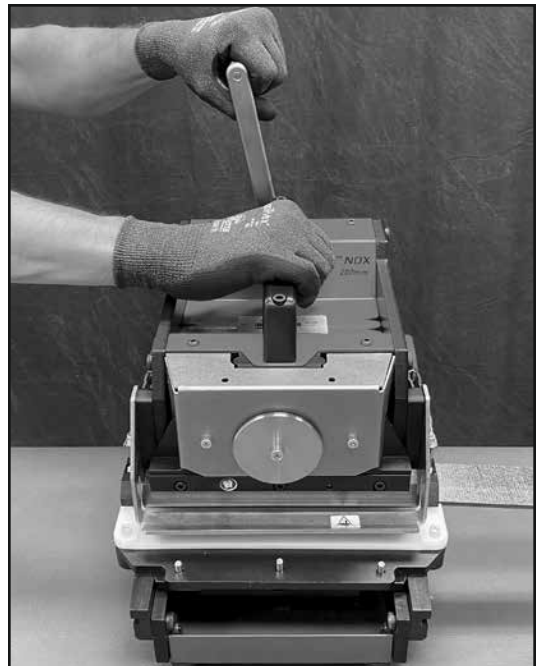
Step 8: While holding the blade holder against shelf, with 4 mm hex wrench, tighten three blade holder screws.

**NOTE:** It is important that the gap between the blade holder and shelf is even across the entire width.



**Step 8** Secure Blade Holder

**Step 9:** Test by punching a belt sample.



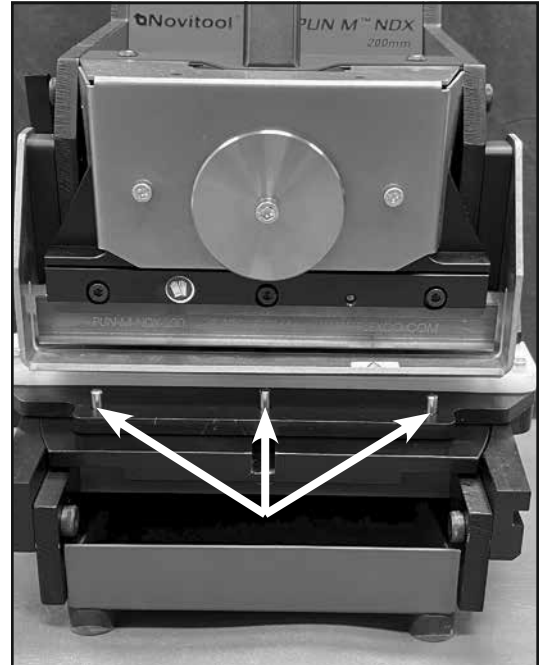
**Step 9** Test Punch with Belt

**Step 10:** If fine adjustment is further needed, start with Step 6 making a one-quarter turn adjustment equally to both set screws.

# Pun M™ NDX Blade Replacement:

**⚠ WARNING** Use safety equipment. Always wear eye protection, cut-resistance gloves during maintenance, non-skid safety shoes, and adhere to other safety standards of the facility where operating the punch.

**Step 1:** Ensure belt support table is positioned so there is sufficient access to the three blade pins at front of table.



**Step 1** Blade Holder Pins

**Step 2:** Position crank handle in the up position and secure pulling and twisting the locking pin one quarter turn until engaged. Try to rotate crank handle to ensure locking pin is engaged.



**Step 2a** Locking Pin Out



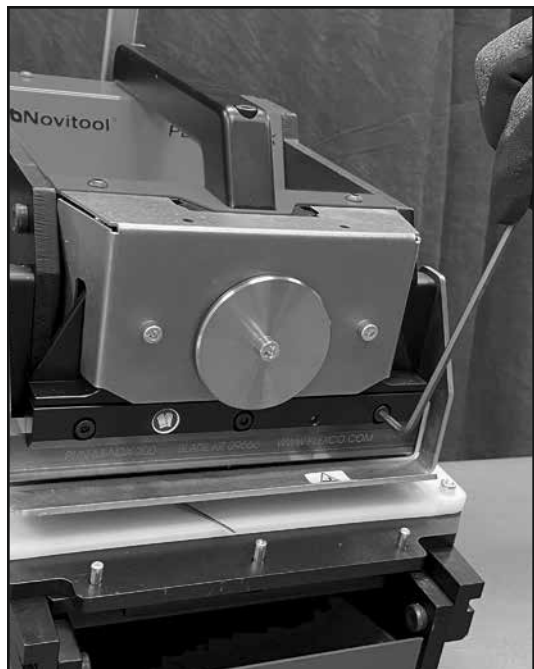
**Step 2b** Locking Pin Engaged



## Pun M™ NDX Blade Replacement

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**Step 3:** With a 4 mm hex wrench loosen and remove the three screws holding the blade holder to the punch.



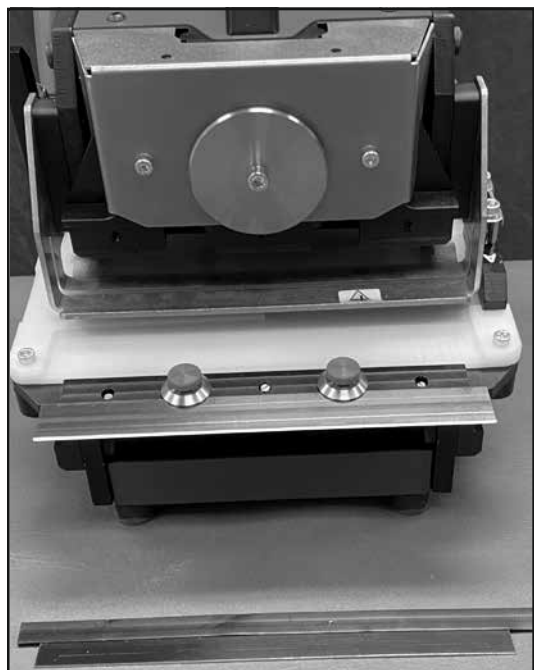
**Step 3** Loosen Screws

**Step 4:** Remove the blade holder with the blade from the punch.



**Step 4** Remove Blade Holder

**Step 5:** Place blade and blade holder upside down over pins on the front of the belt support table.



**Step 5** Blade Holder on Pins

**Step 6:** Loosen two red thumbscrews on rear of blade.



**Step 6** Loosen Thumbscrews



## Pun M™ NDX Blade Replacement

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**Step 7:** Carefully remove the old blade.



**Step 7** Remove Blade

**Step 8:** Insert new blade up against the ridge centering the blade on the blade holder.



**Step 8** Insert Blade

**Step 9:** Tighten two red thumbscrews on rear of blade.



**Step 9** Tighten Thumbscrews

**Step 10:** Remove protective blade cover.



**Step 10** Remove Protective Cover



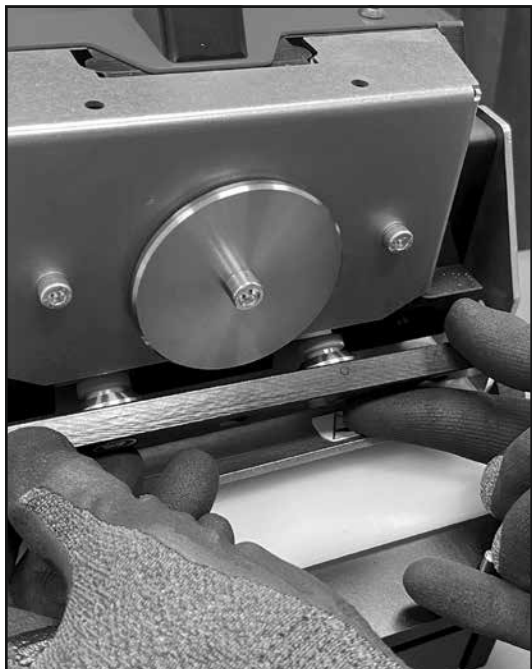
## Pun M™ NDX Blade Replacement

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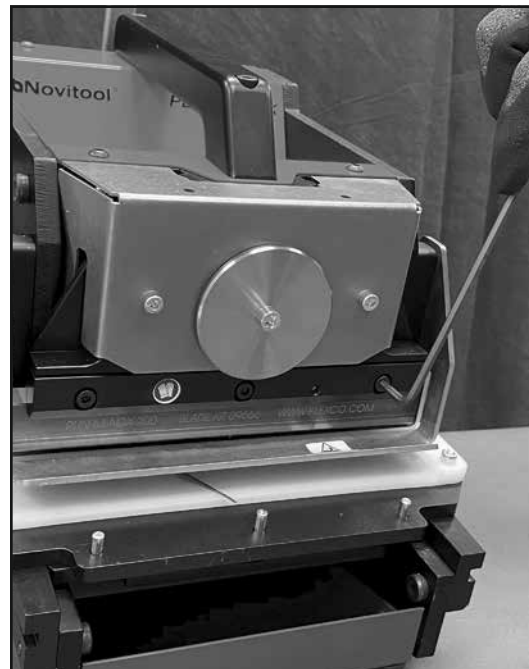
**Step 11:** Position blade holder against shelf. With 4 mm hex wrench, secure blade holder to punch with three screws.

**NOTE:** Ensure blade lies even across punch pad.

**NOTE:** Ensure blade screws are tight as loose screws may cause blade to pull out from tool during use.



**Step 11a** Position Blade Holder



**Step 11b** Tighten Screws

**NOTE:** Refer to Blade Height Adjustment Section on page 14 for blade height instructions.

## Pun M™ NDX Guard Height Adjustments:

**Step 1:** Position crank handle in the up position and secure pulling and twisting the locking pin one quarter turn until engaged.



**Step 1a** Locking Pin Out



**Step 1b** Locking Pin Engaged

**Step 2:** With 3 mm hex wrench, loosen the two screws on guard height plates on both sides of frame. Adjust the plates to be at equal height either raising or lowering the guard. Tighten screws when located in desired position.



**Step 2** Guard Height Plate

# Belt Clamp Adjustments & Replacement

## Belt Clamp Adjustment

**Step 1:** With 5 mm hex wrench, loosen two screws on top of clamp.



**Step 1** Loosen Screws

**Step 2:** Move clamp forward.



**Step 2** Push Clamp Forward

**Step 3:** Tighten two screws on top of clamp.



**Step 3** Tighten Screws



## Belt Clamp Adjustments & Replacement

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### Belt Clamp Pressure Adjustment

**Step 1:** Belt clamp toggle side plate is flat to support table.



**Step 1** Belt Clamp Base Flat

**Step 2:** With 5 mm hex wrench, loosen two screws on clamp toggle side plate.



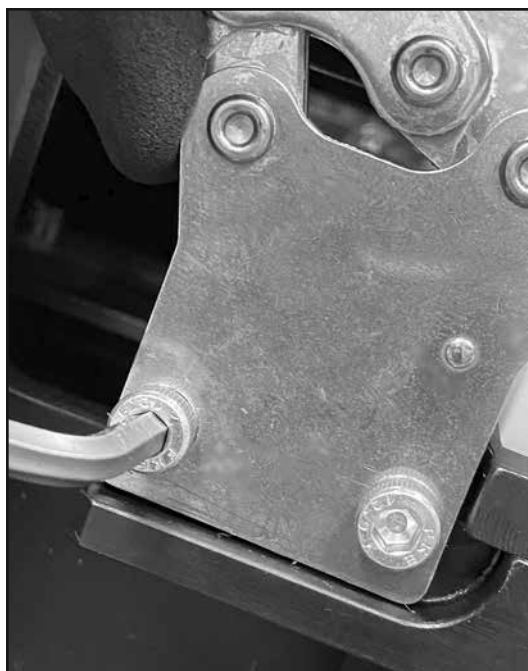
**Step 2** Loosen Belt Clamp Base

**Step 3:** Slightly tilt toggle side plate forward.



**Step 3** Slightly Tilt Base

**Step 4:** Tighten two screws on clamp toggle side plate.



**Step 4** Tighten Screws



# Belt Clamp Adjustments & Replacement

## Belt Clamp Replacement

**Step 1:** With 5 mm hex wrench, loosen two screws on top of clamp.

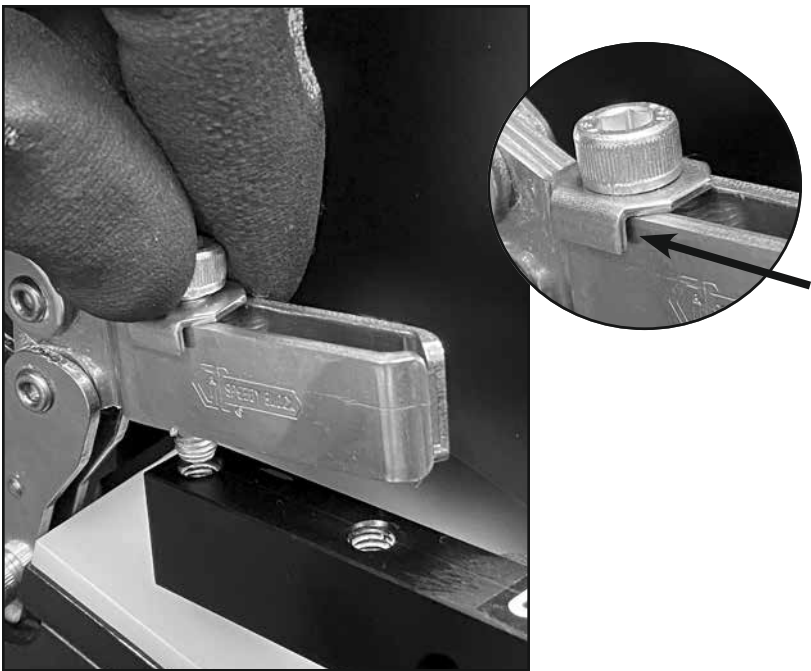


**Step 1a** Loosen Screws



**Step 1b** Clamp & Screws Removed

**Step 2:** Insert fasteners into top of replacement clamp.  
**NOTE:** Ensure the tabbed washer is seated on the clamp holder edges.



**Step 2a** Install Clamp



## Belt Clamp Adjustments & Replacement

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**Step 3:** Fasten screws.



**Step 3** Fasten Screws

**Step 4:** Tighten screws.



**Step 4** Tighten Screws

# Troubleshooting Guide

Problem	Issue	Possible Solution
<b>Inconsistent finger geometry</b>	Belt not taut	Ensure belt is flat and taut
	Punching fabric/bottom side down	Punch fabric/bottom side up
	Belt not clamped well	Ensure both clamps are secure
	Belt guard height not correct	Properly adjust belt guard height
	Blade may be worn	Replace blade
	Punch pad may be worn	Replace punch pad
<b>Excessive force required</b>	Blade may be adjusted too low	Adjust blade height, check blade height, and check blade clamping
	Blade may be worn	Replace blade
	Punch pad may be worn	Replace punch pad
	Foreign object under blade	Carefully remove foreign object & confirm blade is sharp & height adjusted
<b>Handle locks at every rotation</b>	Locking pin is not locked in the retracted position	Lock pin in retracted position

# Replacement Parts

## Pun M™ NDX Replacement Parts

Ordering Number	Item Code
114MM-BLADES-3PK	09665
200MM-BLADES-3PK	09666
NYLON-PUNCH-PAD-114MM	09667
NYLON-PUNCH-PAD-200MM	09668

**NOTE:** The blade kits (09665 and 09666) include cut-resistance gloves and hex wrenches for blade replacement.



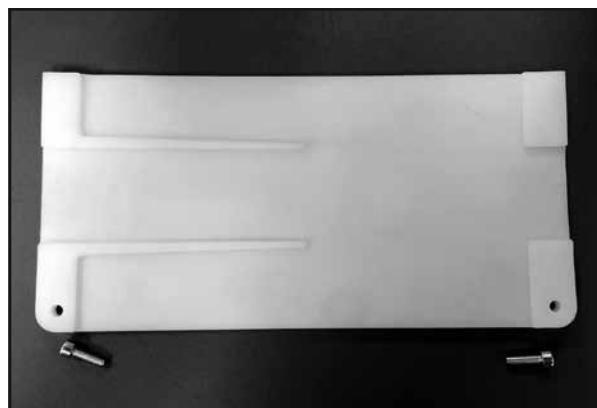
09665 Blade Kit, 114 mm



09666 Blade Kit, 200 mm



09667 Nylon Punch Pad, 114 mm



09668 Nylon Punch Pad, 200 mm

Patent Pending







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