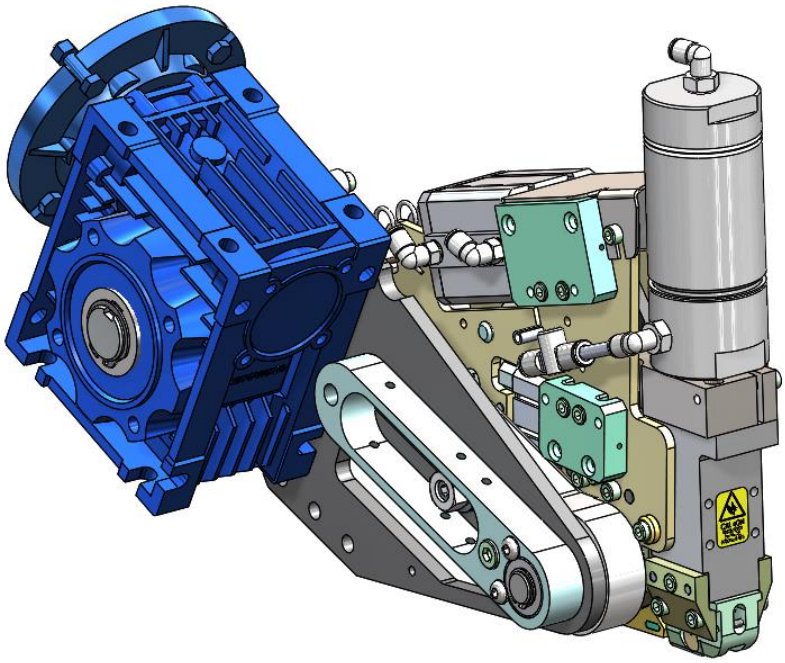
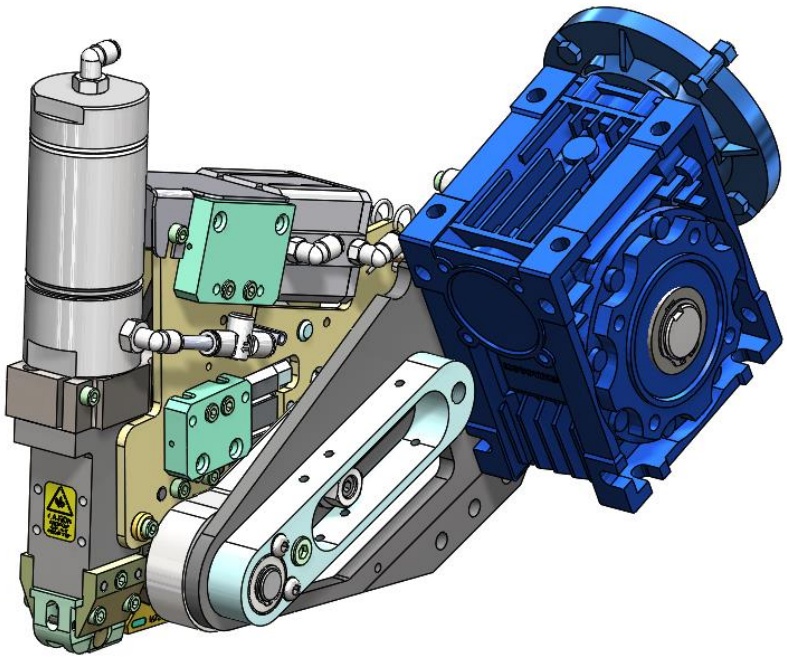
iCS250DL-A-011 and iCS250DL-A-013 Tool Manual



iCS250DL-A-011 (RH)



iCS250DL-A-013 (LH)

Original document
(not a translation)

Thank you for purchasing ***BAND-IT®*** products.

Save these instructions for future use.

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Document # P93950 Rev. E

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Safety Guidelines and Warranty

Read this manual to help you understand the intent and operation of this tool prior to the operation of installing clamps.

- This product manual contains detailed instructions for setting-up the tool and safely installing ***BAND-IT*** Dual-Lokt® clamps.
- Always wear safety glasses and appropriate gloves when operating this tool.
- Keep hands away from tool while installing clamps.
- Care should be taken to ensure fingers are not in the way of the clamp being applied.
- The iCS250DL-A-011 and iCS250DL-A-013 tools do not come equipped with electronic controls that would include shut-off switches, therefore the safety function of such additional equipment is the responsibility of the end user.
- Maintain the tool by following a scheduled preventative maintenance based upon intervals provided in this document.
- Always disconnect from air and electrical power sources before performing maintenance.

IMPORTANT:

- The object clamped and the ¼ " Dual-Lokt® band must be compatible with each other and the environment in which the final product will be used.

The iCS250DL-A-011 and iCS250-A-013 tools are designed for use with ***BAND-IT*** ¼ " Dual-Lokt® clamps only. Accordingly, BAND–IT–IDEX, Inc. makes no representations with respect to the compatibility of these tools when used with non-***BAND-IT*** clamps.

Warranty:
For warranty information go online at:

www.band-it-idex.com/en/Technology%20%26%20Resources/Warranty.html

Safety Guidelines / Warranty

This equipment has been tested by BAND-IT-IDEX and meets the requirement of stability during use, storage conditions, transportation, assembly, dismantling when out of service, testing or foreseeable breakdowns providing that the proper safety precautions are observed.

DANGER—Misuse of this equipment may result in serious injury to personnel.
- Only use the equipment for its intended purpose, as described in this manual
- Do not attempt to operate the equipment with covers removed
- Refer to the installation section before installing machine
- Do not operate machine with wet hands

Please read this entire manual before unpacking, setting up or operating this equipment. Pay attention to all danger and caution statements. Failure to do so could result in serious injury to the operator or other personnel, or damage to the equipment.

CAUTION

Caution – Equipment generates up to 70 db of audible noise when in use.
Hearing protection is advised for use of 8hr/day

Caution – Risk of electric shock

Caution – Refer to accompanying documents

It is the task of the employer to warn his or her staff of risks, to train them on prevention of accidents, and to provide necessary safety equipment and devices for the operator's safety.
Before starting to work with the machine, the operator should check the features of the machine and learn all details of the machine's operation. The machine should only be operated by staff members who have read and understand the contents of this manual.

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Guarding and Interlocks

Safeguards:

•Cutoff cylinder cover: Covers cylinder shaft and cutoff cam to prevent pinching during cutoff process.

•Gripper cylinder cover: Covers gripper cylinder and gripper arms to prevent pinching during gripping process.

•Enclosure covers: Seal the electronics from the industrial environment and prohibit intrusion while unit is energized.

Interlocking functions and features:

•The tool is not intended to operate without guards in place. The tool does not have any interlock functions or features that prevent operation if the guards are missing or enclosures are open. It is the responsibility of the user to provide safety interlocks if required.

Securing machine for safe maintenance:

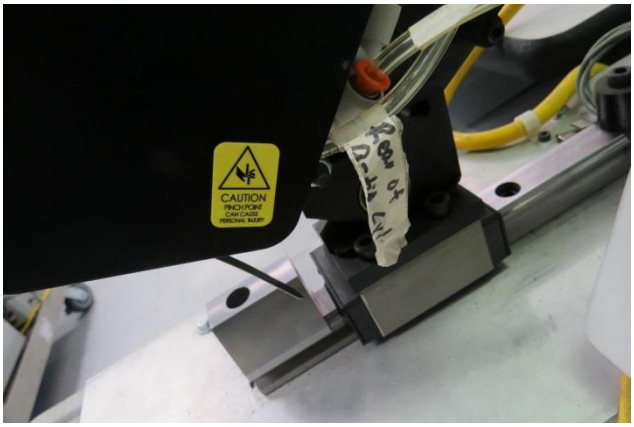
•The tool must have all power and compressed air sources removed before service.

•All guards must be replaced and enclosures closed before power and air sources are reconnected to the unit.

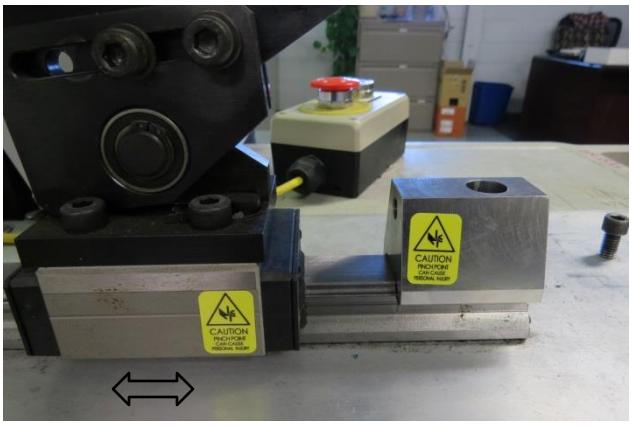
•Before preventive maintenance, disconnect device from wall. The appliance plug is the disconnect device .

Caution – Risk of pinch point

Warning:
Do not place fingers, hands, or any body parts under the **cutting head** while tool is running



Warning:
Do not place fingers, hands, or any body parts near the **outlet of the tail eject** while tool is running



Warning:
Do not place fingers, hands, or any body parts between the **tool head slider parts**

Transportation, Storage, Handling

Transportation	Avoid shocks Immediately check units for transport damage and inform your transport company, if necessary If possible, ship in original packaging
Storage	Store unit in a clean, dry place with air temperature between -25°C and +55°C
Handling	Use techniques appropriate for lifting and moving heavy objects.

Operating conditions

Normal operating conditions are defined as:

For Indoor Use ONLY
Temperature range from 5°C to 40°C (41ºF to 95ºF).
Max relative humidity 80% for temperatures up to 31°C (88ºF), decreasing linearly to 50% at 40°C (104ºF).
Conforms to Applicable RATED POLLUTION DEGREE 1.
Correct illumination for safety of operator (ISO 8995-89).
Avoid using the tool near equipment with strong EMI / RFI emission.
Avoid using the tool near equipment susceptible to EMI / RFI interference.
This tool has been tested for:
- Altitude: Sea level to 5690 ft (1730 m);
- Atmospheric pressure: 14.7 lbs/in^2 (1 Kg/cm^2) to 12 lbs/in^2 (0.85 Kg/cm^2)

Tool size:
- Tool head size: 32" Lx 12" W x 16" H (813 x 305 x 406 mm);
- Tool head weight: 40 lbs (18 kg)

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Tool Specifications

Clamp Type	***BAND-IT*** 1/4” Dual-Lokt® GCS (Galvanized Carbon Steel) Clamps
Max Pull Rate	100 mm / second (4 in/sec)
Max Tension	1510 N (340 Lbf)
Air System	Dry oil-free compressed air, 552 kPa (80 PSI) pressure.
Air Cylinders	Air tubing: 1/4” OD X 1/8” ID - polyurethane tubing.
Impact cylinder	Air pressure separately regulated from tool’s air system. 690 kPa (100 PSI) Max .
Weight	11.8 Kg (26 Lbf)

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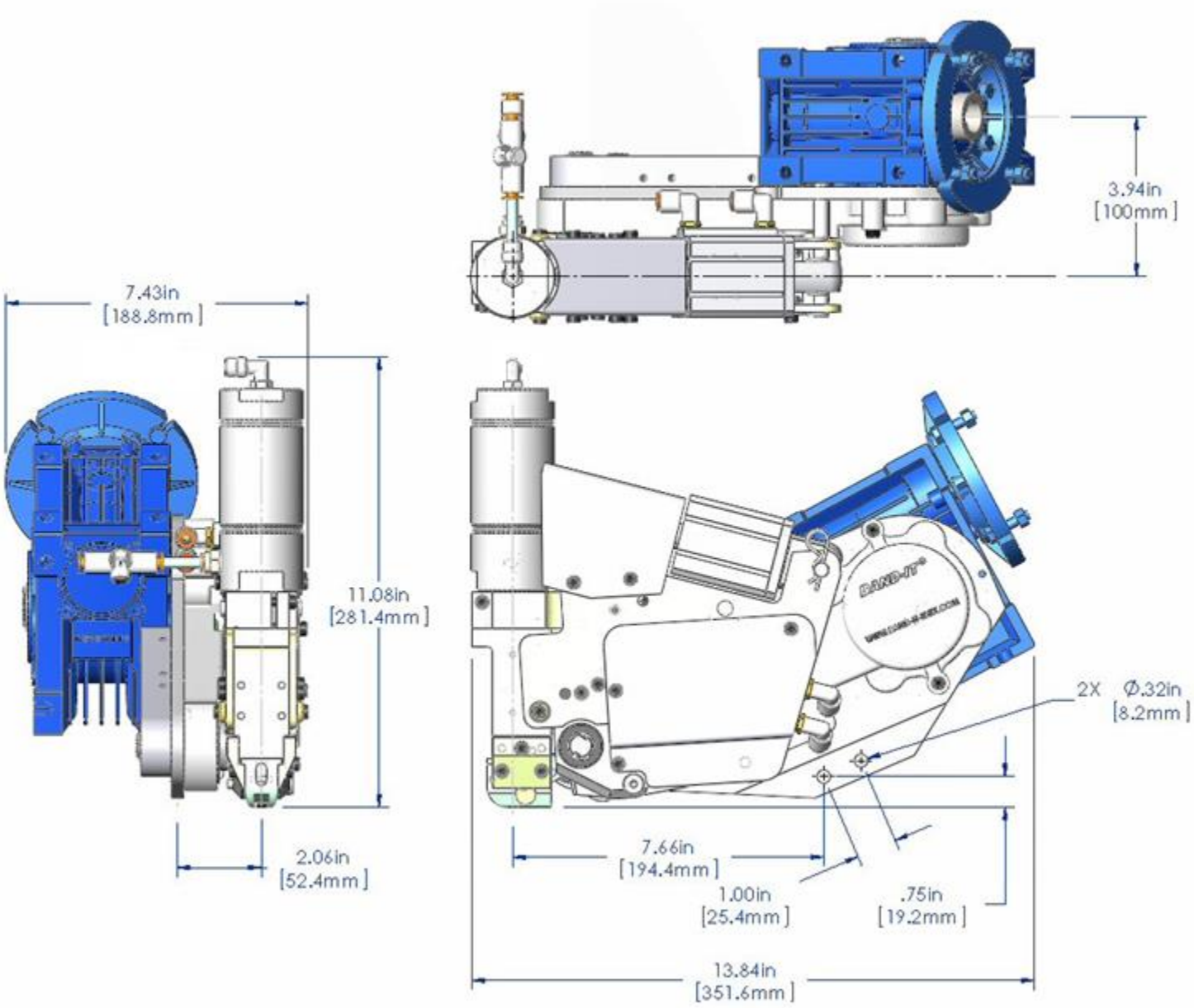
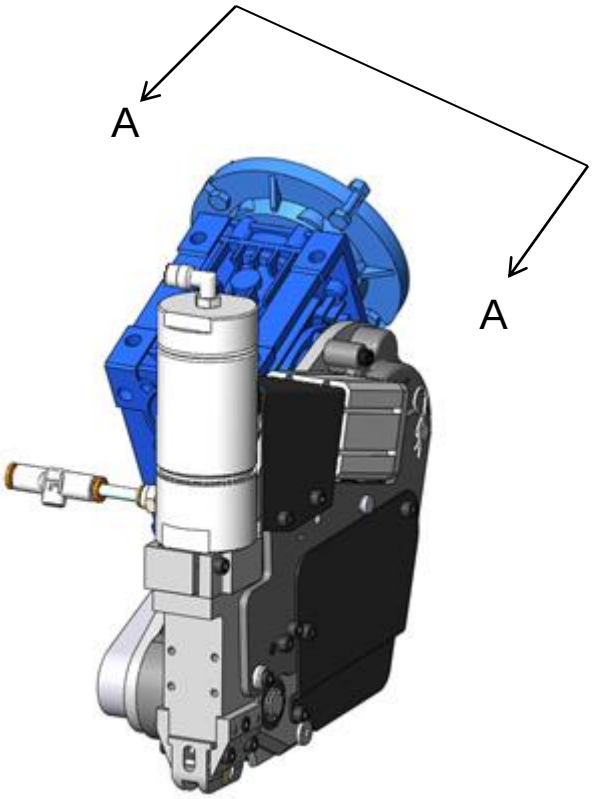
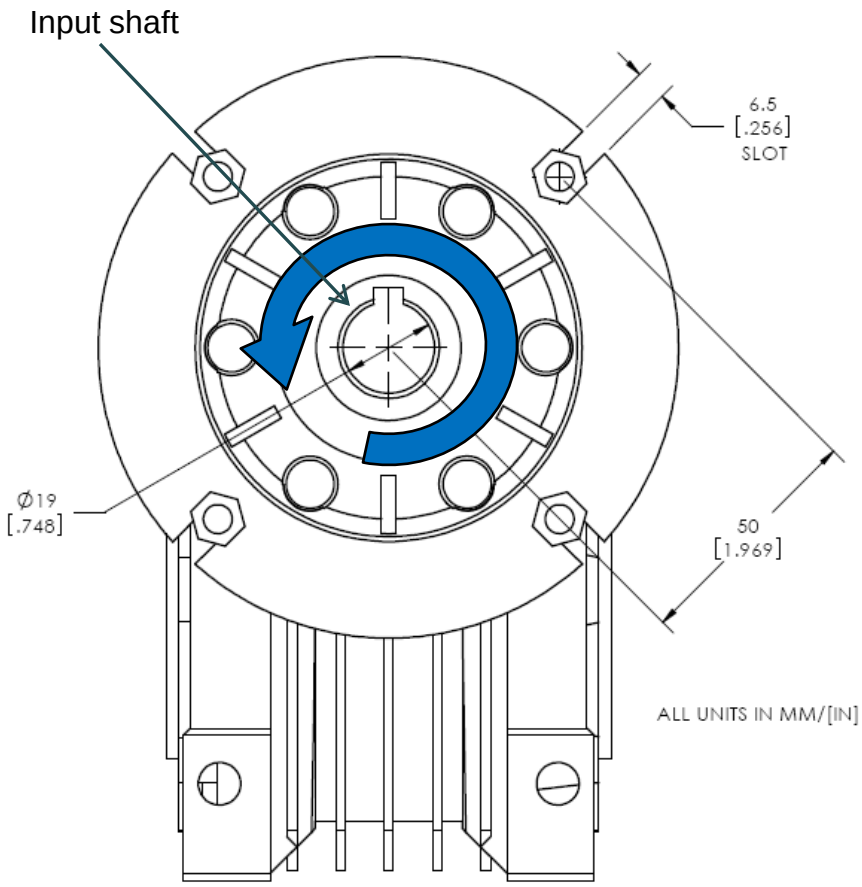
Overall and Mounting Dimensions



Note: Illustrations may vary from actual product.

Motor Mounting Configuration





VIEW A-A

Shaft is keyed for 0.236" (6mm) square machine key.

Turn input shaft counter-clockwise to tension clamp.

Direction of rotation is the same for both left and right handed tools.

Note: Illustrations may vary from actual product.

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Tool Mounting

Mounting instructions:

The tool has two clearance holes for 5/16” (8mm) bolts.

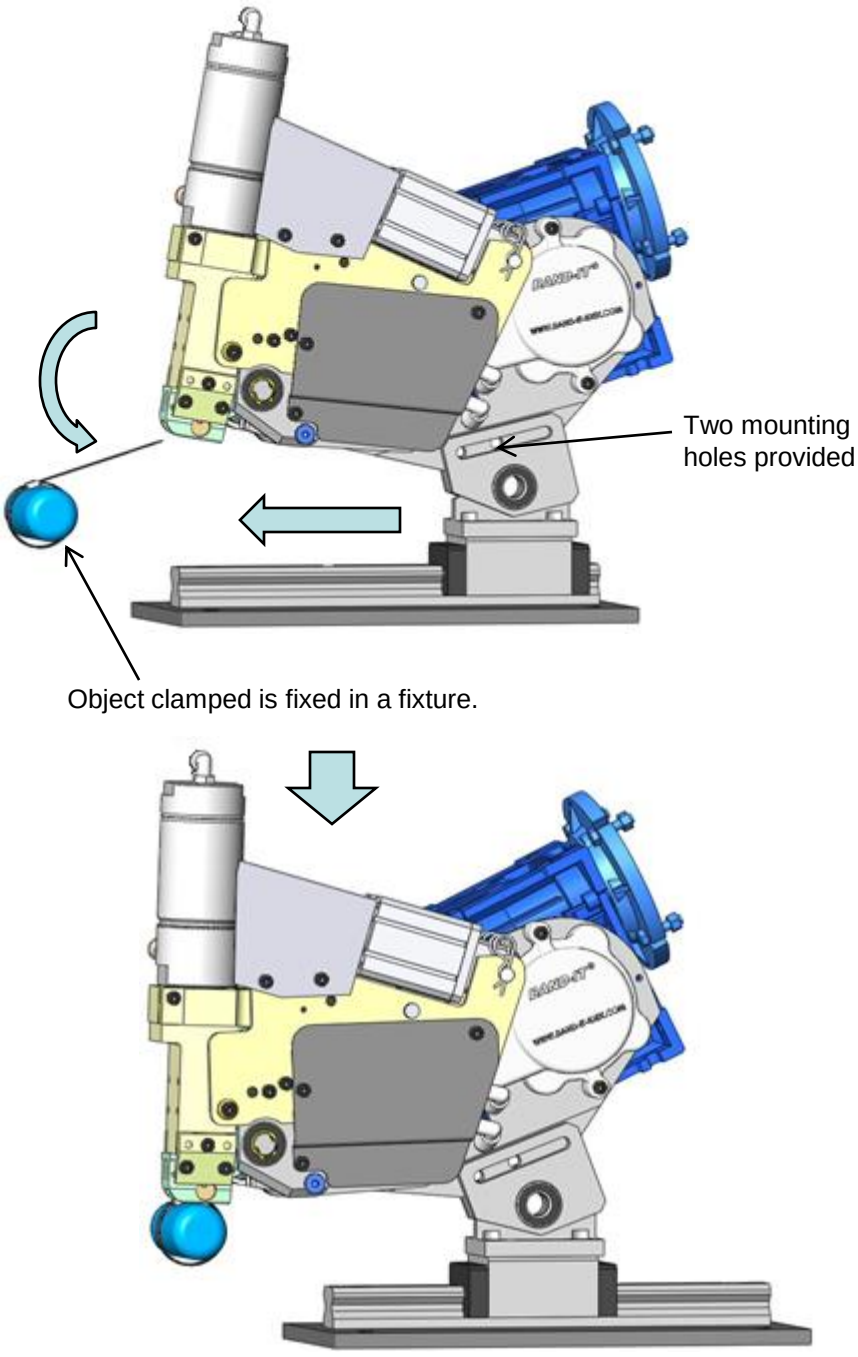
The mounting must include linear sliding and rotational motion as shown.

The linear sliding motion should be at least the clamp tail length of 3.5” (90mm) for easy clamp tail insertion. The tool head and punch center must be able to line-up with the center of the object clamped unobstructed.

The rotational motion should be ~15º or larger to allow the tool head to rest on the object clamped unrestrained.

The tool balance must be adjusted so it is biased / tipped forward and down on the object clamped when installing the clamp.

The tool is moved and rotated back up and away from the object after clamp installation for the scrap ejection.

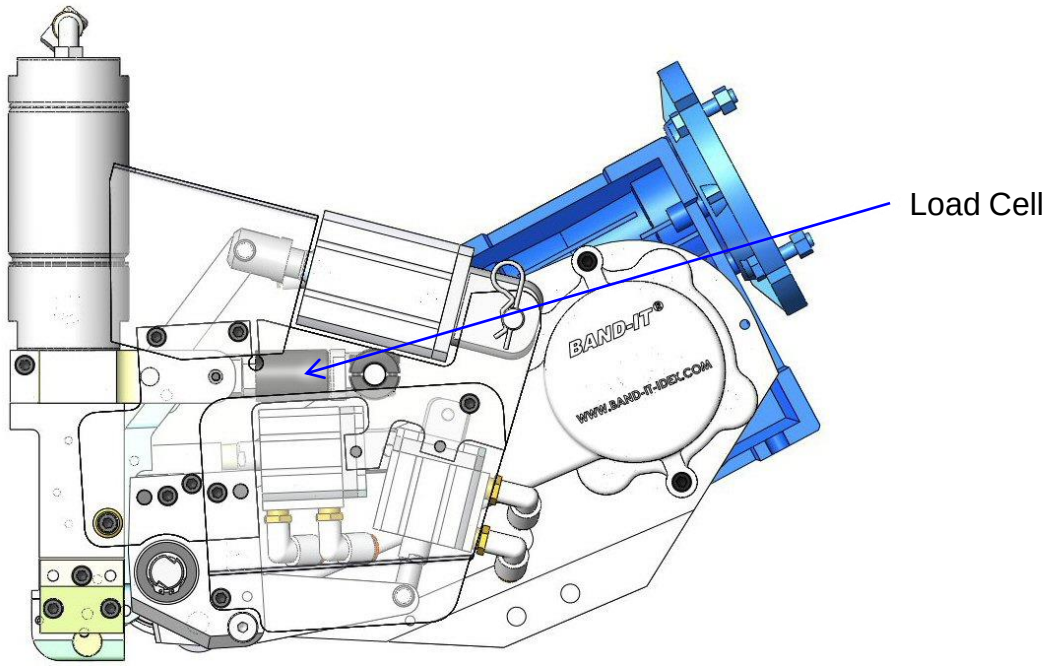


Load Cell Specifications

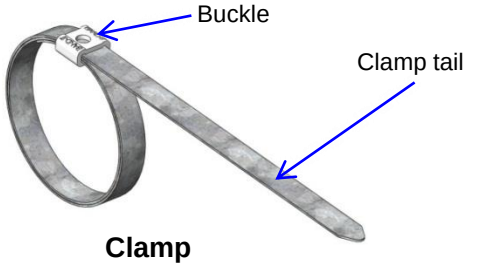
Load Cell Excitation: 10 VDC nominal, 15 VDC max.
Output: 2 mV/V, 2000 Lbf (8896 N) capacity or 1000 Lbf (4448 N) capacity for "-1K" tools.
Load cell force to clamp tail tension ratio is approx. 0.66:1
Do not shunt calibrate

LOAD CELL WIRING CODE	
RED	+EXC
BLACK	-EXC
GREEN	+OUT
WHITE	-OUT

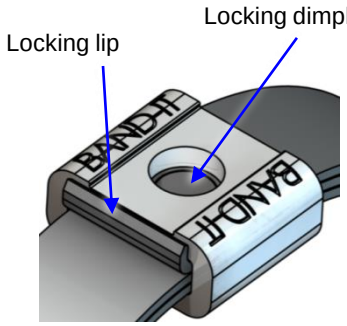
Use ***BAND-IT*** CAL500-250DL calibration device to calibrate tension force on the tool. See "Tension Verification".



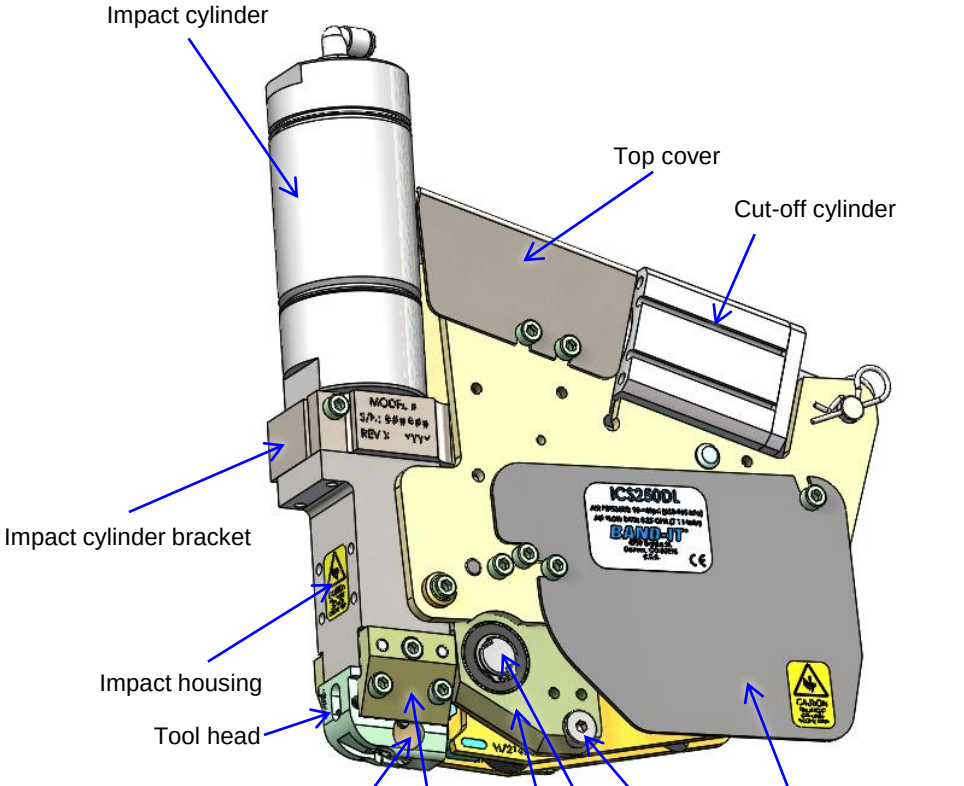
Part / Item Descriptions and Locations

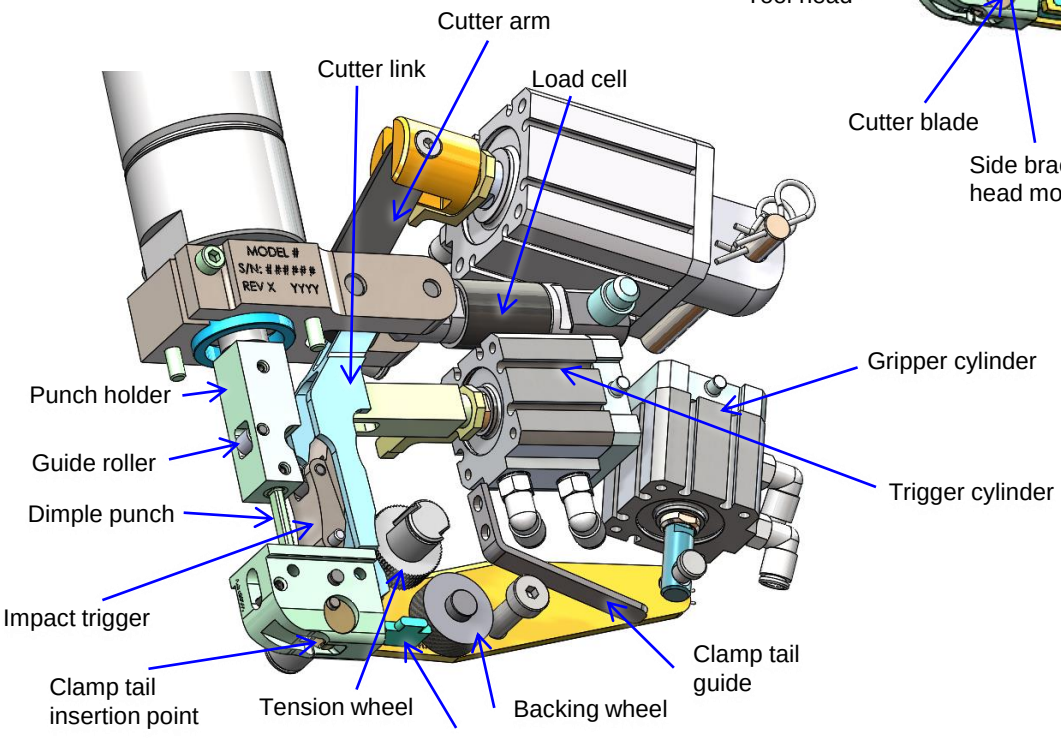


Clamp



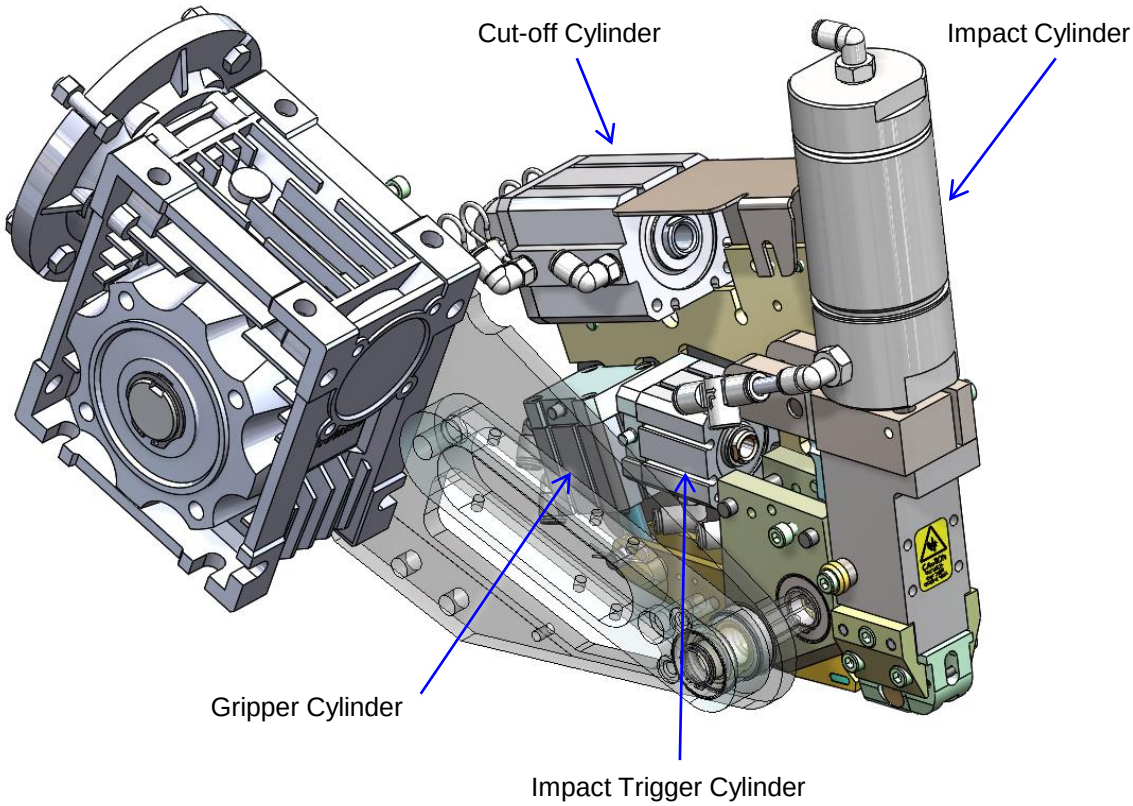
Installed clamp



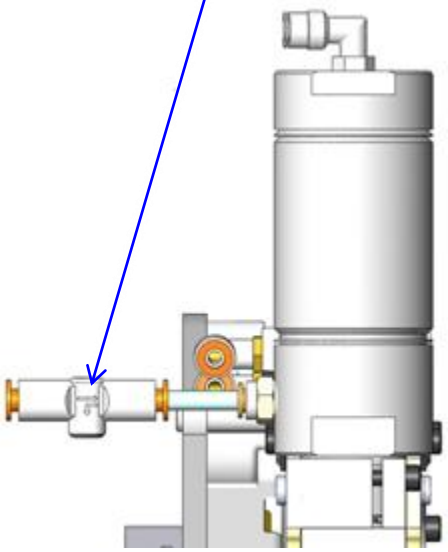


Note: Some components may vary in appearance from these illustrations.

Cylinder Air Connections



Orient quick exhaust valve as shown



Important:

All cylinders, except the Impact cylinder is operated on 552 kPa (80 PSI) pressure.

The Impact cylinder pressure is adjusted to provide sufficient dimple depth on the finished clamp. Amount of pressure required may vary depending on resiliency of object clamped and other variables. The presence of the indicator ring is an easy way to identify if the punch pressure is set high enough. Once the proper pressure needed is established, no further adjustments are required.

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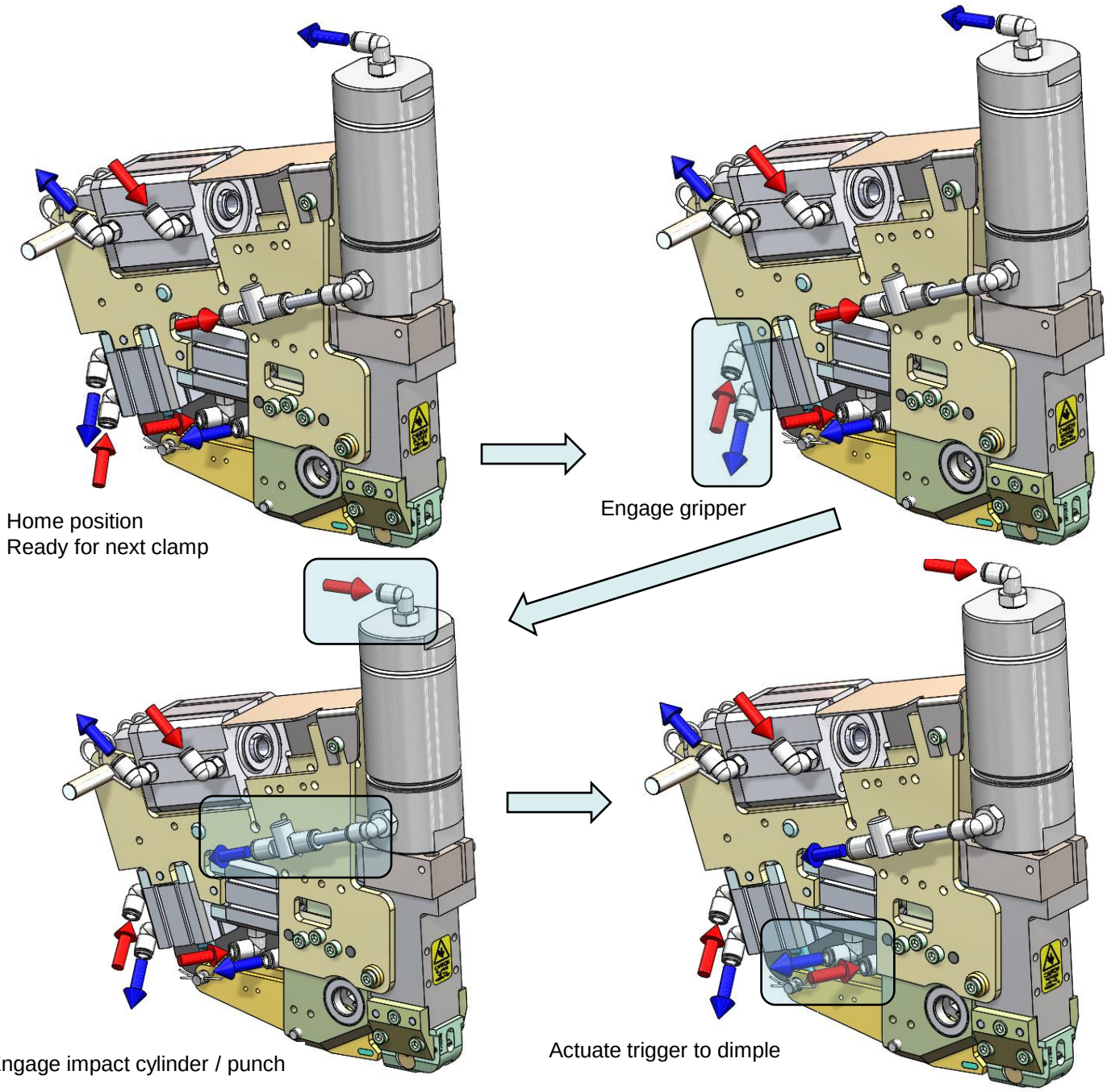
Air flow Sequence



Note: Red arrow denotes pressurized air flow direction.
Blue arrow denotes exhaust to atmosphere.

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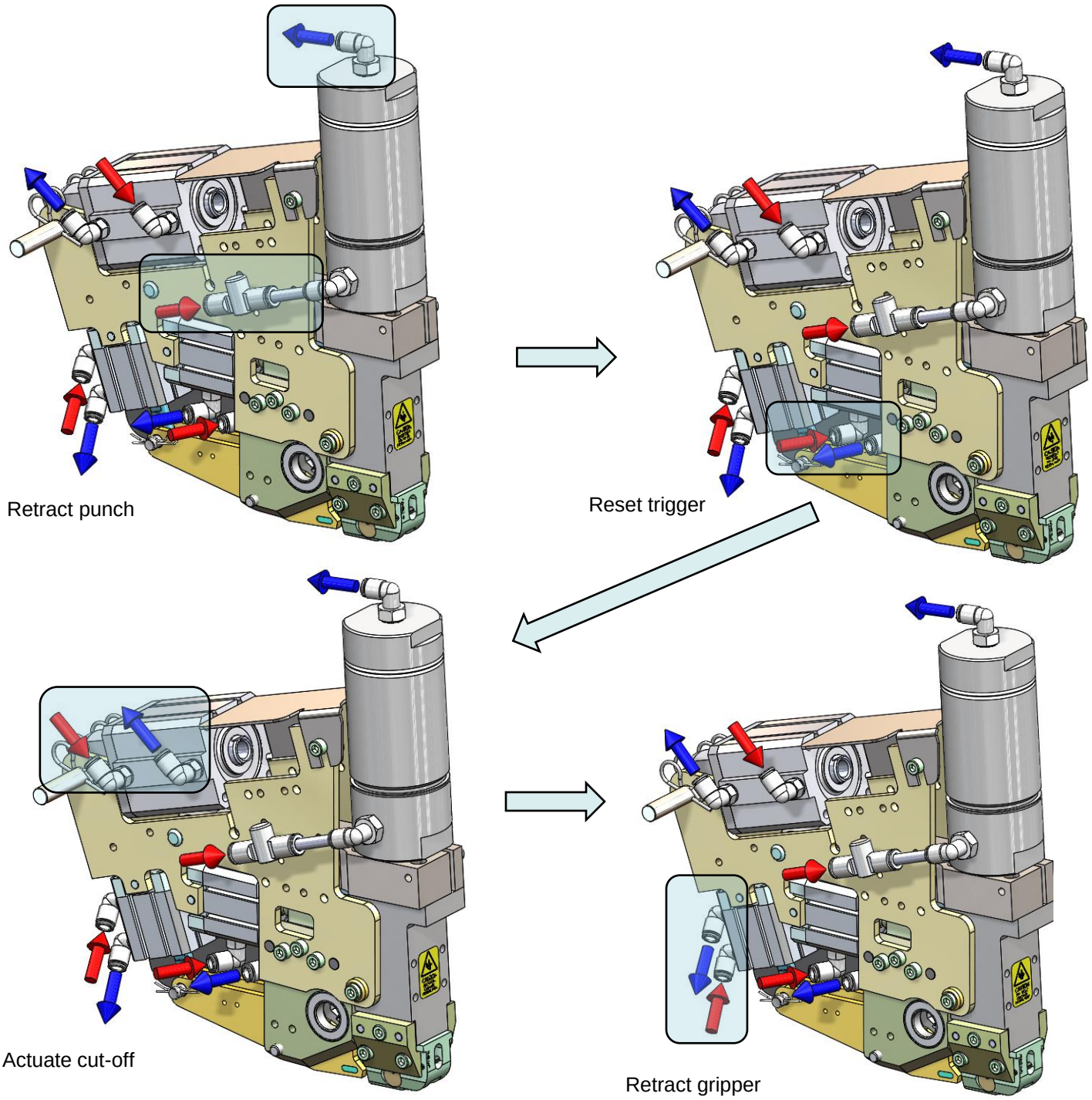
Air flow Sequence - continued



Note: Red arrow denotes pressurized air flow direction.
Blue arrow denotes exhaust to atmosphere.

Air Flow and Air cylinder position sensor timing

Event description		Tool ready for next clamp	Engage gripper	Tighten clamp / engage impact cylinder with trigger	Actuate trigger to dimple	Retract punch	Reset trigger	Cut-off	Eject	Reset tool for next clamp
Timing / duration			Entire duration of tightening clamp and ejection of scrap	Entire duration of tightening clamp	Immediately after hold tension reached	250 ms	Must be after the punch is fully retracted and before next clamp	Immediately after full stroke confirmed	Retract gripper before scrap completely evacuates tension and pinch wheel	
Gripper cylinder	Extend	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	Retract									
Impact cylinder	Extend									
	Retract									
Trigger cylinder	Extend	ON	ON	ON	OFF	OFF	ON	ON	ON	ON
	Retract	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
Cut-off cylinder	Extend	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
	Retract	ON	ON	ON	ON	ON	ON	OFF	ON	ON

Pressurize
Exhaust

Sensor ON / OFF

Note:

Cutoff and trigger cylinder position sensors;
Both sensors will be off for the duration of cylinder movement.

Gripper cylinder sensor;
Normally always off, with the cylinder either fully retracted, or partially extended with the clamp tail present between the gripper wheels. If the clamp tail is not between the wheels, the cylinder fully extends and the tail sensor turns on. Under this condition the tension motor must be disabled to prevent the gripper wheels from grinding against each other.

Control System

Recommendations for programming control system

1. Clamp Insertion: Clamp tail is inserted into the bottom opening on tool head, with tail at ~30º to head, far enough to locate buckle under the head.

2. Clamp Tail Lock: The Gripper cylinder is manually actuated by operator to clamp down on the clamp tail. This prevents the tool from slipping back off the clamp tail. This cylinder remains actuated throughout the tensioning and scrap ejection cycle. At the same time the Impact cylinder is actuated to engage with the trigger.

3. Applying Tension: The tensioning cycle may be started remotely and can be done on several tools at the same time for simultaneous multiple clamp installations. While tensioning, the tension force applied to the clamp tail is monitored by the load cell at sampling rate of 1kHz minimum. When pre-set tension is reached, it is immediately lowered to a relaxed hold tension, in preparation for locking and tail cut-off. The recommended maximum tension is 340 Lbf and the relaxed hold tension is 150 Lbf. Relaxing the tension is necessary to form the locking lip. If attempt is made to form the locking lip under full tension, the locking lip is weakened or may not form at all.

4. To form locking dimple: Immediately after the hold tension is reached, the Trigger cylinder is actuated to generate impact. While this takes place the load cell is monitoring force changes caused by these operations. Once the Trigger cylinder is actuated the Impact cylinder is retracted in 50 ms (.05 seconds), then immediately the Trigger cylinder is extended. The Trigger cylinder should never be extended while the Impact cylinder is fully extended.

5. Cut-off: The Cut-off Cylinder is extended for 300 ms (.30 seconds) and retracted.

6. Scrap Ejection: After cutoff, the tension wheel is rotated as needed to eject excess band material.
7. **Important**: The pinch arms have been optimized to prevent the knurled wheels from touching. M72149 and newer pinch arms are required to prolong the life of the knurled wheels.

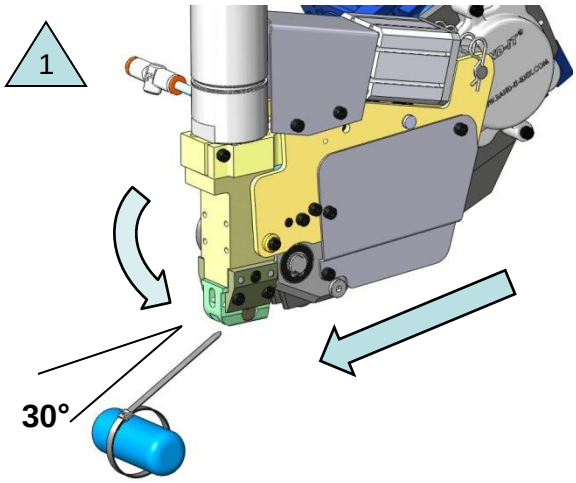
8. Data can be captured and written, and the clamp count updated.

9. Tool is ready for the next clamp.

Clamp Installation

Guidelines to properly install a clamp:

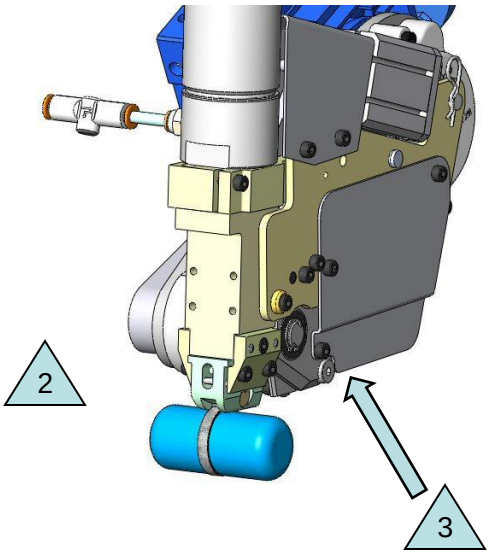
- Lock down object to be clamped in a fixture designed to prevent rotational or sliding movement of the object while installing the clamp.
- Locate the clamp's buckle over a solid surface. Avoid locating the buckle directly over gaps or narrow grooves which would interfere with the tool head near the buckle. Also, avoid locating the buckle over flexible or soft surfaces which would excessively absorb the impact necessary to form a good locking dimple.
- Tabs or ears of soft material being clamped should be folded in the same direction as clamp pull, to reduce bunching.
- Orient clamp perpendicular to axis of object.
- Allow tool to slide the approximate clamp tail length (~3.5" (90MM)) from the object clamped to ease clamp tail insertion.
- Allow tool to rotate at least 10º as clamp tightens on object and allow additional rotation to make sure tool's motion is not impeded when clamp gets tight.
- Do not force tool in any direction while installing clamps.
- Large starting gaps between clamp and object will increase installation time, wear on parts, and results in more scrap material.



Clamp installation:

STEP 1:

- Insert the clamp tail at approximately 30° and push all the way in.
- Position buckle as tightly against head as possible.
- Lock the tension wheel onto the clamp tail. This will prevent the clamp from falling back out.



STEP 2:

- Activate your automated sequence to tension and secure the clamp. This is when the tool will use its sliding and rotating mount to maintain the optimal angle between work piece and buckle.

STEP 3:

- Wait for scrap ejection and proceed with next clamp. Scrap ejects on the bottom of the tool.

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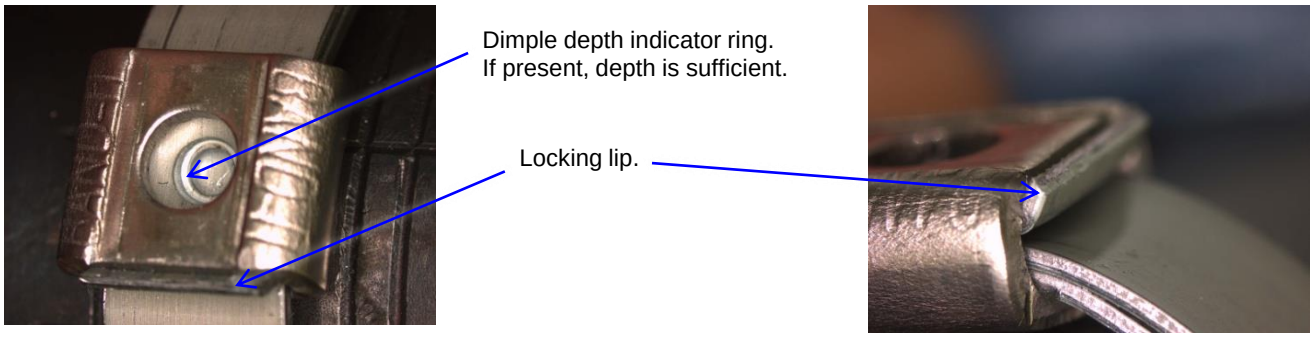
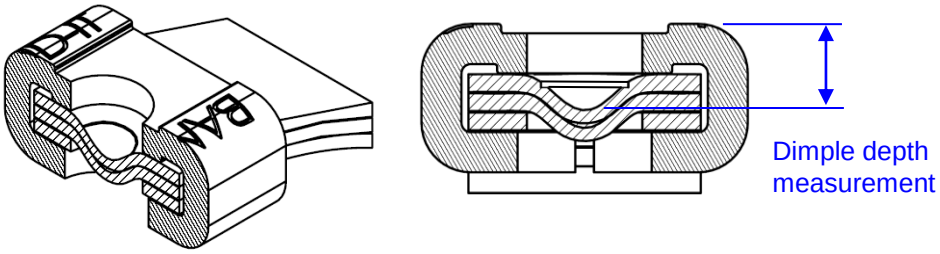
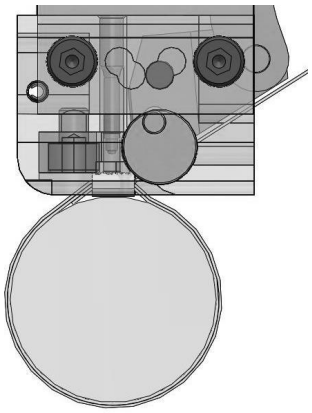
Clamp Inspection

After installing a clamp, check to verify the presence of the locking dimple and locking lip after the clamp has been applied. The dimple and locking lip is the locking elements of an installed clamp. The iCS250DL Tool forms a locking dimple into the center of the band inside the buckle and a fold into the band at the buckle edge with the cutter blade for increased clamping strength using two locking elements. If the locking dimple is too shallow, increase the air pressure to the impact cylinder until depth is sufficient. The square punch will prevent the tool from creating too deep of a dimple. Once the square punch hits the buckle, the dimple depth will not increase. By controlling and monitoring inputs that are needed to form a good lock, an operator can help insure that the clamp will be applied correctly without having to inspect every assembly.

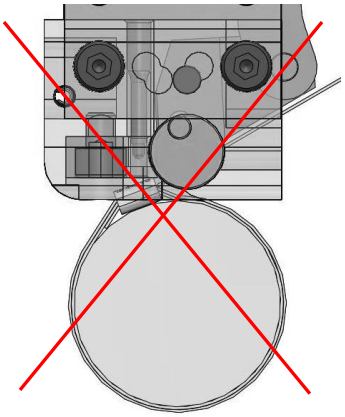




This is the proper installation position of the buckle. Note the buckle surfaces are flush with the tool head.



This is an improper installation position of the buckle and will not create an ideal dimple or locking lip. Note that the buckle surfaces are not lined-up with the tool head. This condition is due to over-travel of the tool while tensioning the band and can be prevented by implementing a hard stop.



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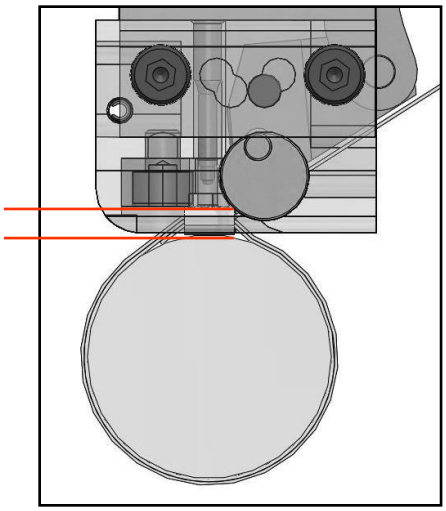
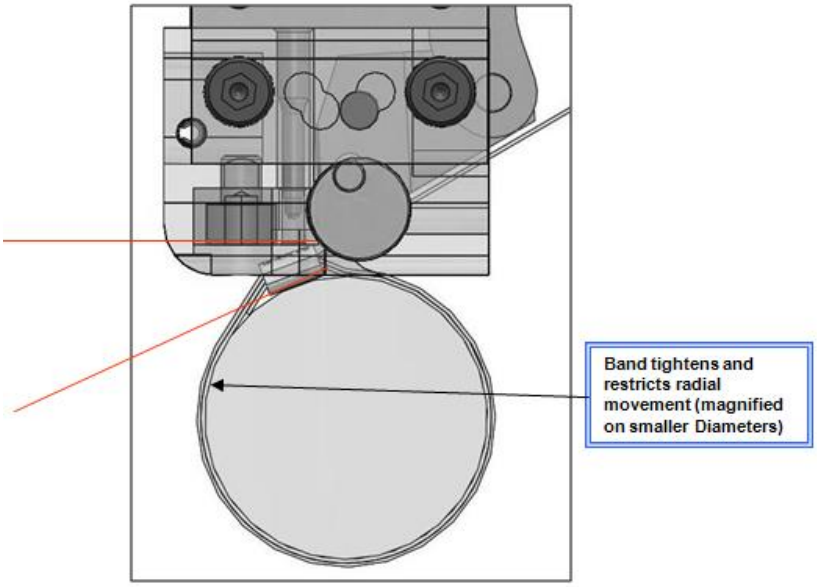
Buckle Position

Good Dimple Depth

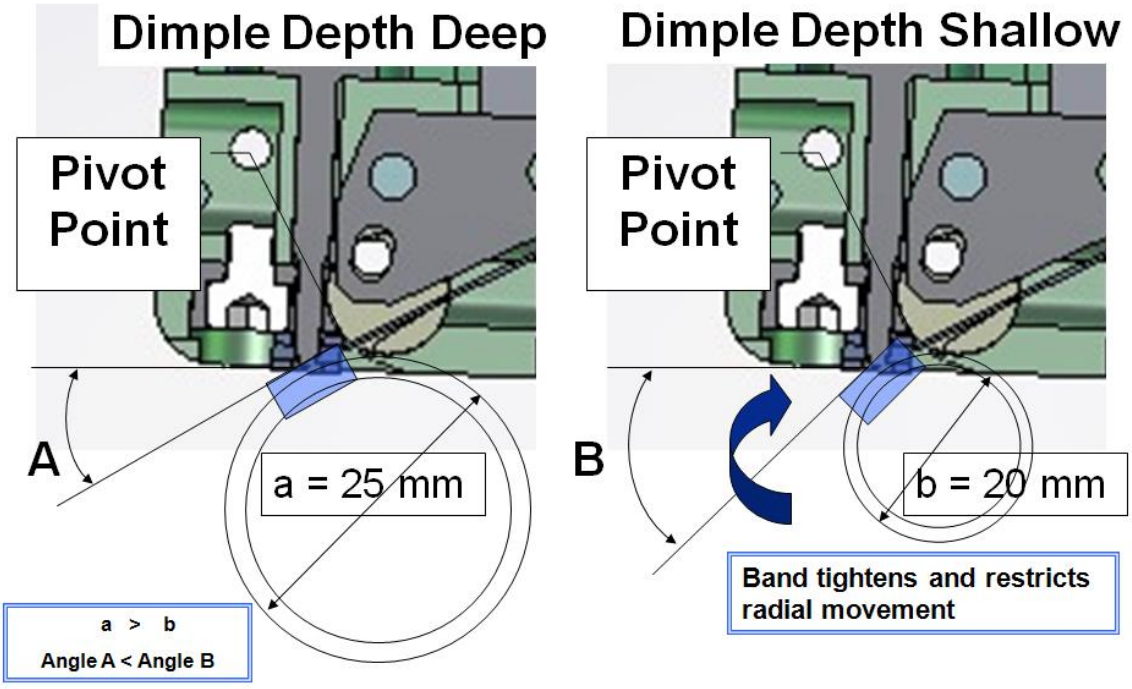


Buckle parallel in Tool head

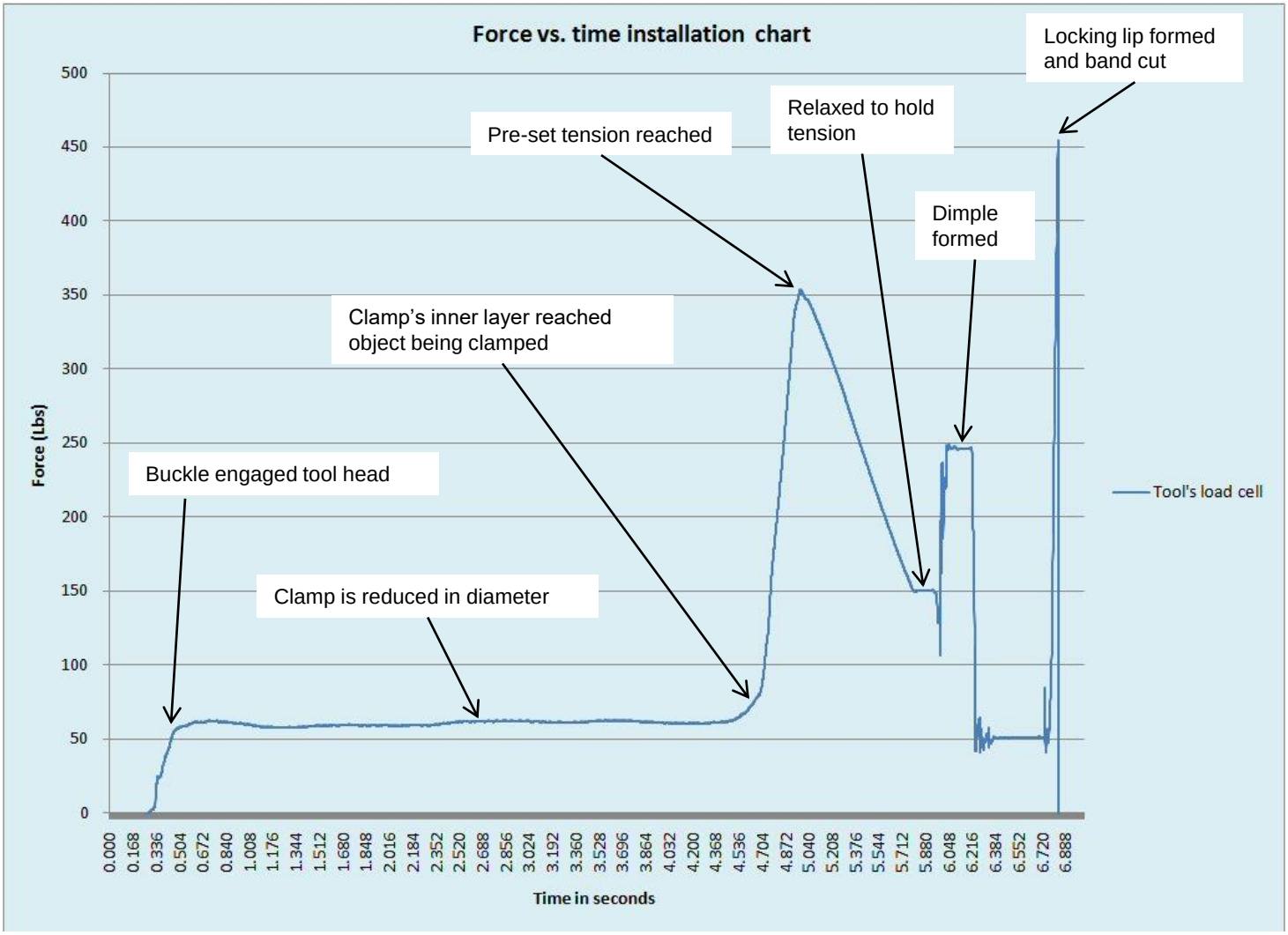
Not Good : Shallow Dimple Depth



Buckle not parallel in Tool head



Captured Data from Clamp Installation (Load Cell Output)



Typical clamp installation curve shown

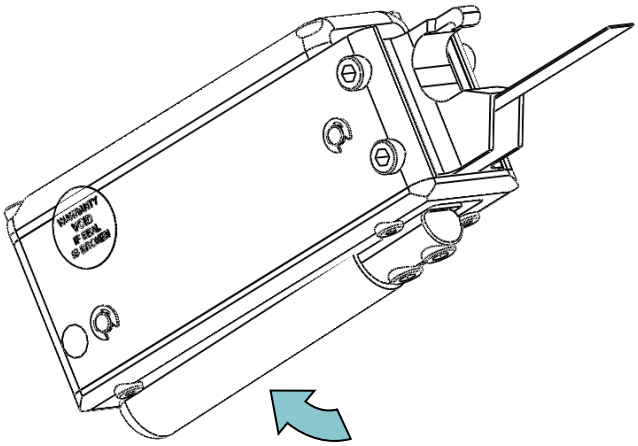
Tension Verification and Calibration

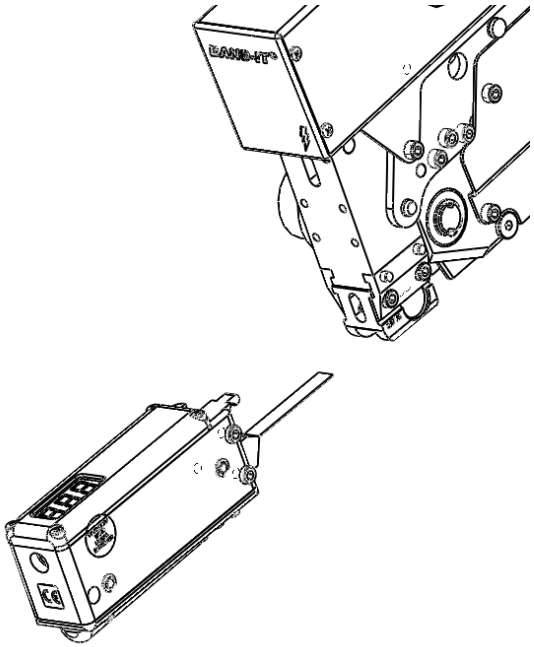
Available tension verification device for your tool:
CAL500-250DL

Available with accompanying test bands.
Contact ***BAND-IT*** Sales for inquiries.

Calibration Overview;

- For detailed instructions on how to use the CAL500-250DL calibration device, please consult the device’s manual.
- A sample ¼” wide x .019” thick stainless steel band is inserted into the tool with one end attached to the CAL500-250DL device. The remainder of the band is inserted into the tool and the calibration device is hooked into place.
- As it is engaged by the tool’s gripping system, the tension read-out will begin.
- The CAL500-250DL displays actual tension output of the tool. Synchronize tool to the CAL500-250DL device.





Note: Illustrations may vary from actual product.

Maintenance Schedule

The iCS tool requires periodic maintenance to prevent malfunction or damage. Refer to the table below for recommended maintenance intervals of critical tool components. Intervals may vary depending on the operating environment and use of talc powder.

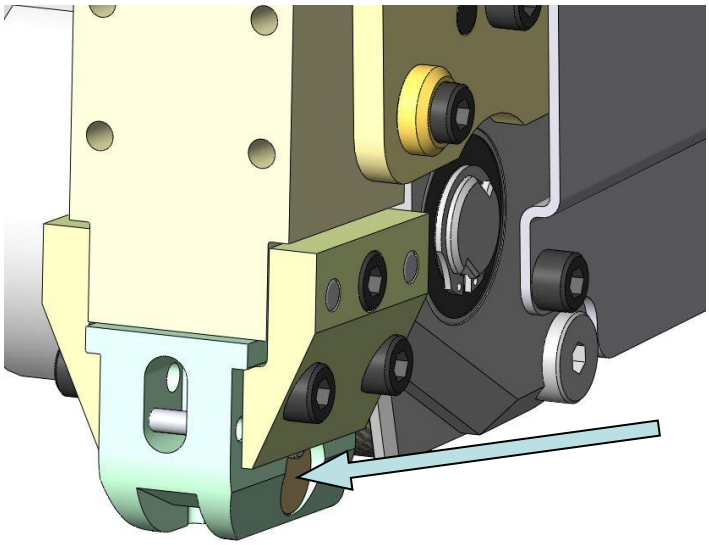
Components	Recommended Service	Recommended Interval	Page Ref.
Blade	Lubricate	Every 12,000 clamps	26
	Inspect and replace if worn	100,000 clamps More frequently after	31
Tool Head (Nosepiece)	Inspect, and replace if worn	Every 12,000 clamps	34
Retaining Ring	Inspect and replace if worn	Every 25,000 clamps	32
Tension Wheel & Backing Wheel	• Clean with wire brush • Lubricate pin	Every 5,000 clamps	27
	Inspect and replace if worn	100,000 clamps More frequently after	32
Impact assembly	Inspect and replace if worn	200,000 clamps More frequently after	28-29
Gear reducer (Gear box)	Maintenance free / sealed for life	N/A	-
Calibration	Check and verify tension calibration	Every 25,000 clamps	24
Head mounting screws	Check tightness	Every 25,000 clamps	31
Belt and pulleys	Check for wear and adjust belt tension	Every 500,000 clamps	33
	Replace	Every 3,000,000 clamps	33

For best performance and to extend tool life:

- Do not use degreaser on any part of the tool.
- Do not spray any lubricant or cleaner into the pneumatic system.
- Do not remove factory-applied lubrication from inside tool unless performing a thorough maintenance procedure and then replacing with clean lubricant immediately.
- Follow preventative maintenance and parts replacement instructions at appropriate service intervals.
- Use nominal recommended tension setting. Higher tension may not result in a tighter clamp, but increases the likelihood of damage to the clamp.
- For maintenance beyond what is described in this manual, contact ***BAND-IT***.

Cutter Blade Lubrication

Lubricate cutter blade with Chevron SRI Grease 2. To remove blade, follow instructions on page 31.



Important:
Prior to any maintenance or disassembly, be sure to disconnect all power sources to the tool and discharge pressurized air from the air system.

Tension and Backing Wheel Cleaning

STEPS:

Backing Wheel

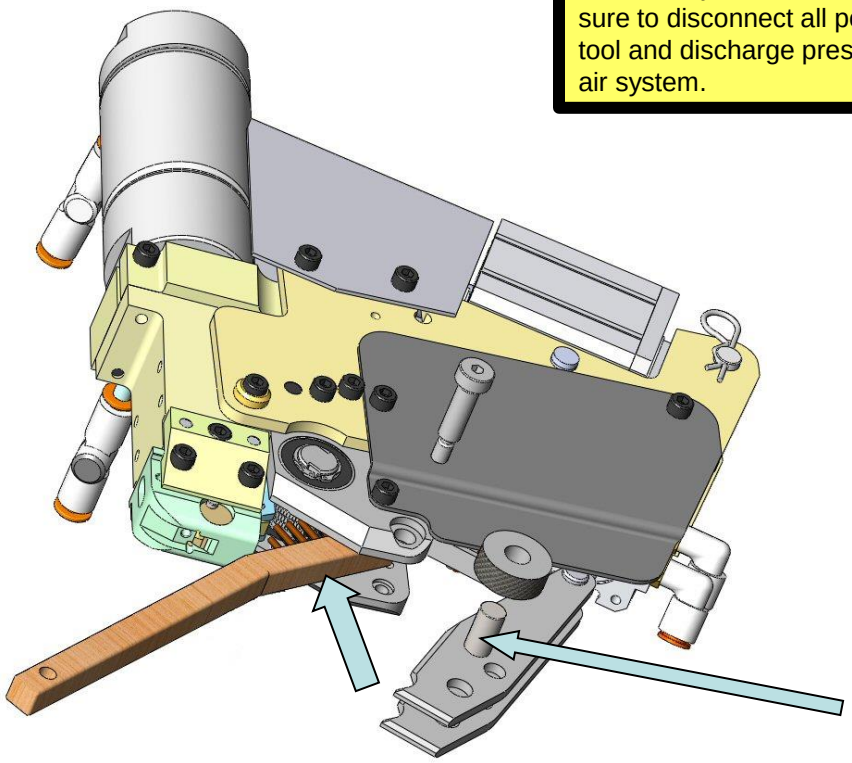
1. Remove the shoulder bolt to allow the pinch arms and backing wheel to swing down.
2. Remove the backing wheel and pin.
3. Clean backing wheel with wire brush.
4. Apply Chevron SRI Grease 2 to backing wheel pin.

DO NOT ALLOW LUBRICATION TO CONTACT THE KNURLED SURFACE OF THE WHEELS

Tension Wheel

4. Enter manual mode to drive the tension wheel for a few revolutions with the wire brush pressed firmly up into the rotating wheel.
5. Before reassembly, re-center the tension wheel in the tension housing to allow pinch arms properly re-assembled.
6. Re-assemble remaining components in reverse order.

Important:
Prior to any maintenance or disassembly, be sure to disconnect all power sources to the tool and discharge pressurized air from the air system.



Note: Illustration may vary from actual product.

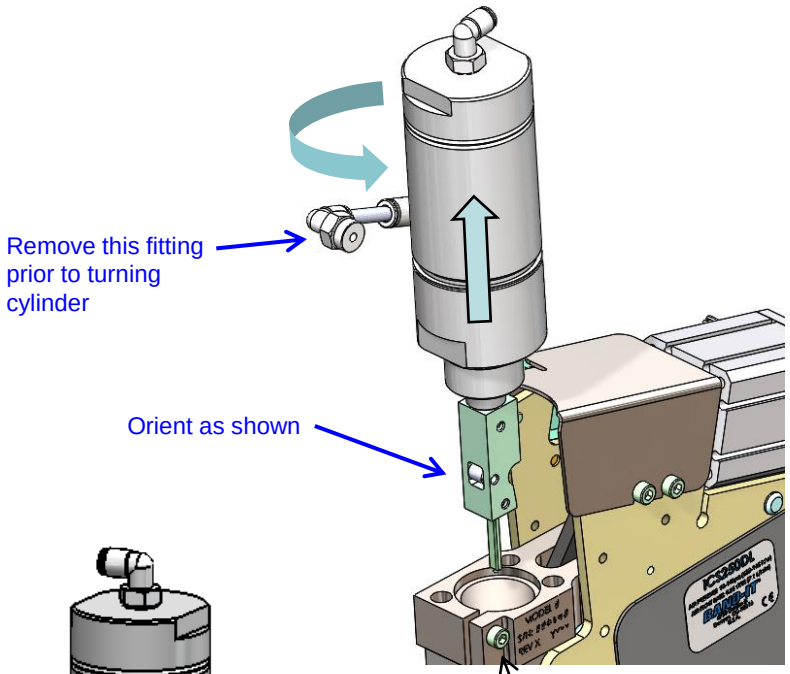
Impact Cylinder Assembly Removal and Installation

To remove impact cylinder assembly:

1. De-pressurize air system.
2. Disconnect air tubing from the Impact cylinder.
3. Loosen screw (2) in the impact cylinder bracket.
4. Remove lower air fitting from cylinder.
5. Grasp cylinder body and turn counter-clockwise until cylinder is freed.

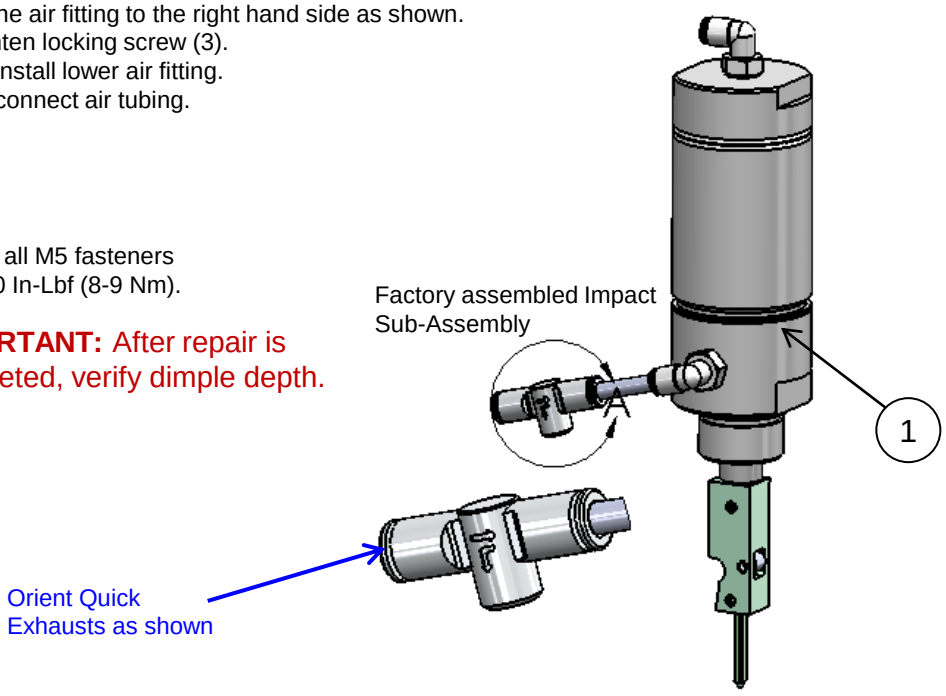
To install:

1. Line-up impact assembly with impact housing and insert into it. Punch holder must be oriented as shown with the Guide roller facing the front.
2. Grasp cylinder body and turn cylinder clockwise to screw into impact housing until bottomed out.
3. Turn cylinder body back out just enough to line-up the air fitting to the right hand side as shown.
4. Tighten locking screw (3).
5. Re-install lower air fitting.
6. Re-connect air tubing.



NOTE:
Tighten all M5 fasteners to 70-80 In-Lbf (8-9 Nm).

IMPORTANT: After repair is completed, verify dimple depth.



REPLACEMENT PARTS LIST			
Item	**Part Number**	**Quantity**	**Description**
1	M72042	1	COMPLETE IMPACT SUB-ASSY
2	M67087	1	SOCKET HEAD CAP SCREW, M5X0.8 X 16MM LONG

Important:
Prior to any maintenance or disassembly, be sure to disconnect all power sources to the tool and discharge pressurized air from the air system.

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Impact Cylinder Assembly

Punch and punch holder installation.

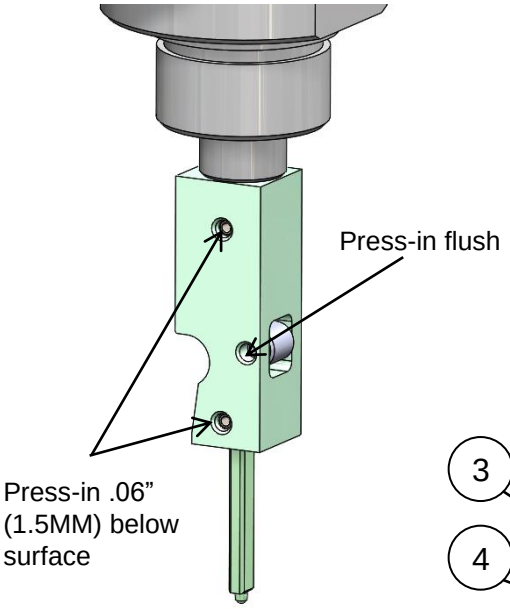
To remove and replace the Punch:

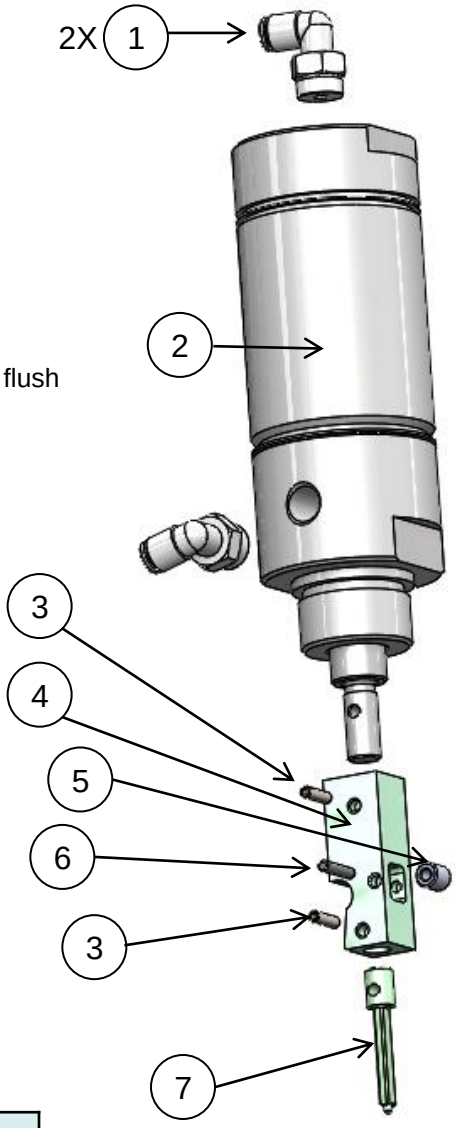
Remove Pin (4), remove the Dimple punch (8) from the Punch holder (5) and replace with new one. Once Pin (4) is removed, discard and replace with new one. Pin must be pressed-in .06" (1.5MM) below surface to center in Punch holder.

To remove and replace Punch holder from the Impact cylinder:

Remove Pin (4) and remove the Punch holder (5) from the Impact cylinder (2). Replace with new one. Once Pin (4) is removed, discard and replace with new one. Pin must be pressed-in .06" (1.5MM) below surface to center in Punch holder.

Note: Take extra care not to damage the Impact cylinder's rod while doing the repair work.





Note: This assembly is available as a complete unit - order part number **M72042**.

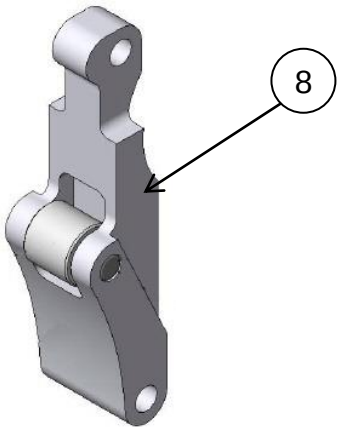
Note: A round punch can be ordered, but must be installed with the round style tool head.
-order part numbers **M67987** (Punch) & **M72125** (head).

IMPORTANT: After repair is completed, verify dimple depth. The indicator ring must be present.

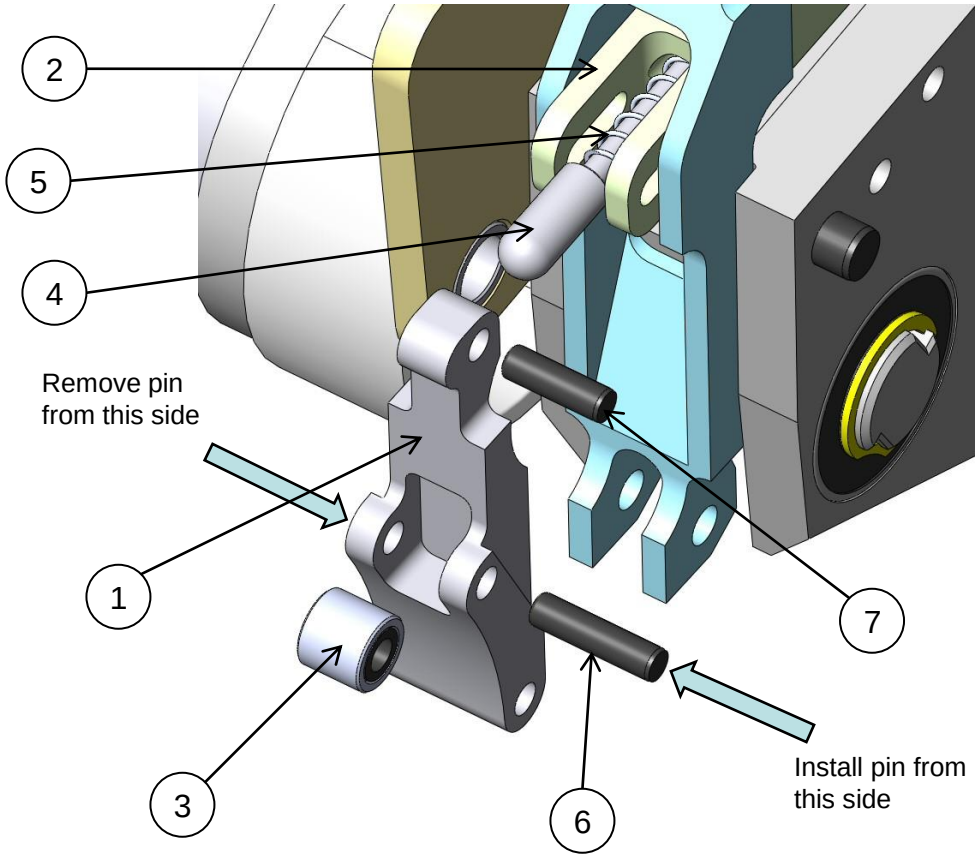
REPLACEMENT PARTS LIST			
Item	**Part Number**	**Quantity**	**Description**
1	M72139	2	FITTIING, 1/4 NPT UNIV, ELL, 6MM OD TUBING
2	M68287	1	IMPACT CYLINDER, iCS250DL
3	M66987	2	PIN, COILED, 1/8" DIA X ½" LONG
4	M68487	1	PUNCH HOLDER, iCS AIR IMPACT
5	M69387	1	GUIDE ROLLER, iCS250DL
6	A03787	1	PIN, DOWEL, 1/8" DIA X 5/8" LONG
7	M67995	1	PUNCH, SQUARE, iCS250DL

Important:
Prior to any maintenance or disassembly, be sure to disconnect all power sources to the tool and discharge pressurized air from the air system.

Impact Trigger Assembly



Factory assembled trigger



Lubricate Items 1, 4, 5 and 6 with Chevron SRI Grease 2.

REPLACEMENT PARTS LIST			
Item	**Part Number**	**Quantity**	**Description**
1	M68787	1	SEAR, iCS250DL
2	M72068	1	CLEVIS, IMPACT RELEASE, ICS250
3	M68687	1	IMPACT ROLLER, iCS250DL
4	M69087	1	PLUNGER, iCS AIR IMPACT
5	A27787	1	SPRING, COMPR, .180 DIA X 1.25 LONG
6	A42587	1	PIN, DOWEL, .156 DIA X .63 LONG
7	M66887	1	PIN, DOWEL, .156 DIA X .50 LONG
8	M72045	1	TRIGGER SUB-ASSY

Important:
Prior to any maintenance or disassembly, be sure to disconnect all power sources to the tool and discharge pressurized air from the air system.

Cutter Blade Replacement

Cutter blade removal and installation.

Remove the 6 screws (1) and Side Brackets (2).

Push pins (4) and (5) out and pull the Tool head (3) down to free it from the linkages. Do not remove Lower cutter arm (7).

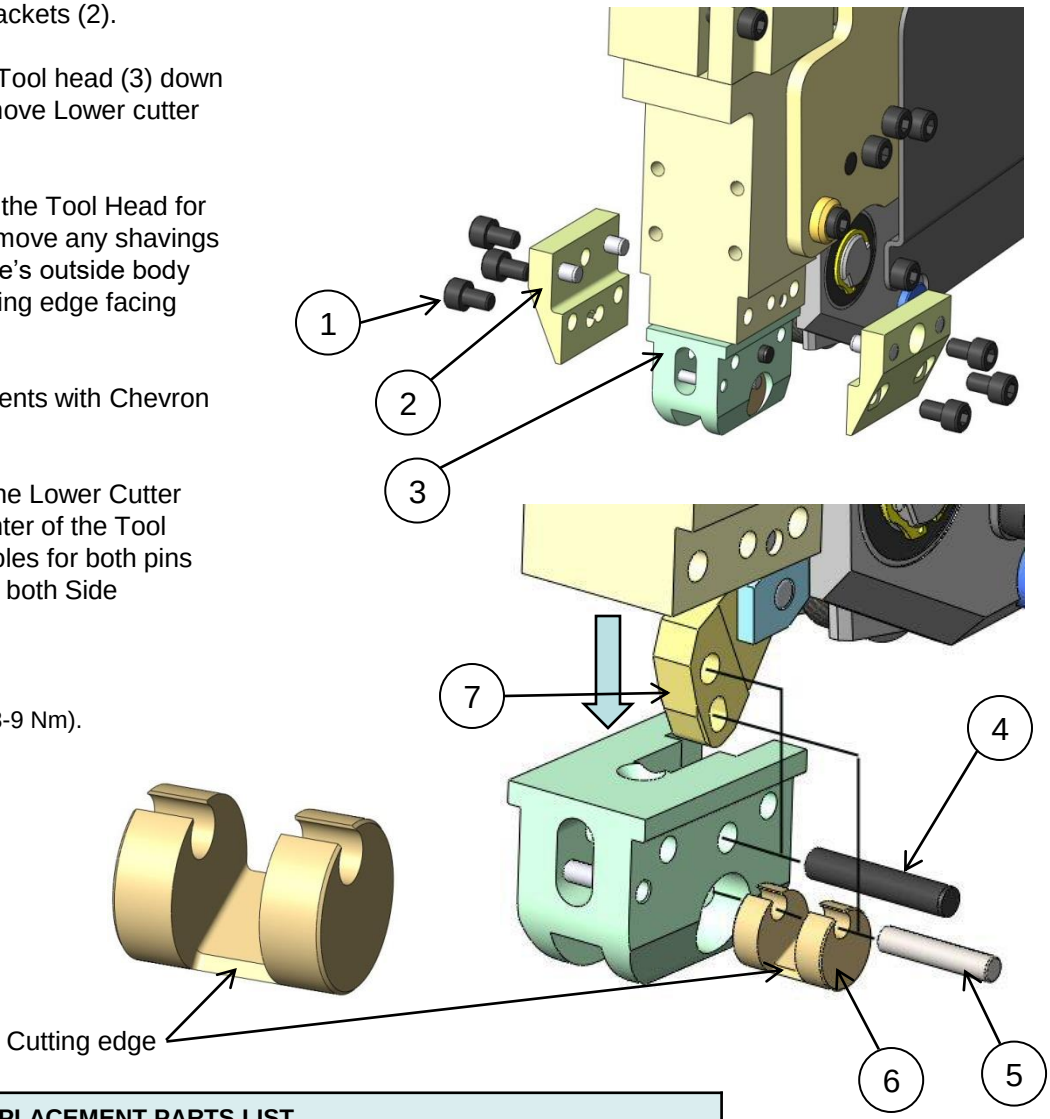
Slide out the Cutter Blade (6). Inspect the Tool Head for excessive wear or chipped edges. Remove any shavings built up. Lubricate the new Cutter blade's outside body and insert into the Tool Head with cutting edge facing forward as shown.

Lubricate all pins and moving components with Chevron SRI Grease 2.

Push Tool head up into position with the Lower Cutter Arm (7) reaching down though the center of the Tool Head and Cutter Blade. Line-up the holes for both pins and insert them. Re-install and tighten both Side Brackets.

NOTE:
Tighten all M5 fasteners to 70-80 In-Lbf (8-9 Nm).

IMPORTANT: The M84687 Cutter Blade has only one cutting edge. This edge must be properly oriented as shown when installing.
Check calibration after repair is completed.



REPLACEMENT PARTS LIST			
Item	**Part Number**	**Quantity**	**Description**
1	M67187	6	SOCKET HEAD CAP SCREW, M5X0.8 X 8MM LONG
2	M72044	2	SIDE BRACKET SUB-ASSY
3	M72199	1	HEAD ASSY, SQUARE, iCS250DL
4	M89687	1	PIN, DOWEL, 3/16" DIA X 1.00 LONG
5	M87687	1	PIN, .156 DIA X .800 LONG
6	M84687	1	CUTTER BLADE, ¼" DL, iCS TOOL
7	M67887	1	LOWER CUTTER ARM, iCS250DL

Important:
Prior to any maintenance or disassembly, be sure to disconnect all power sources to the tool and discharge pressurized air from the air system.

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Tension and Backing Wheel Replacement

To replace the tension and backing wheels:

Remove Shoulder screw (1) and let the pinch arms swing down.

Remove Retaining ring (2) from shaft.

Slide out Ball bearing (6) to the right.

Slide Tension wheel (5) off the shaft.

Lightly lubricate the tension shaft and replace the Tension wheel, oriented as shown. Position the Tension wheel centered in the tension housing.

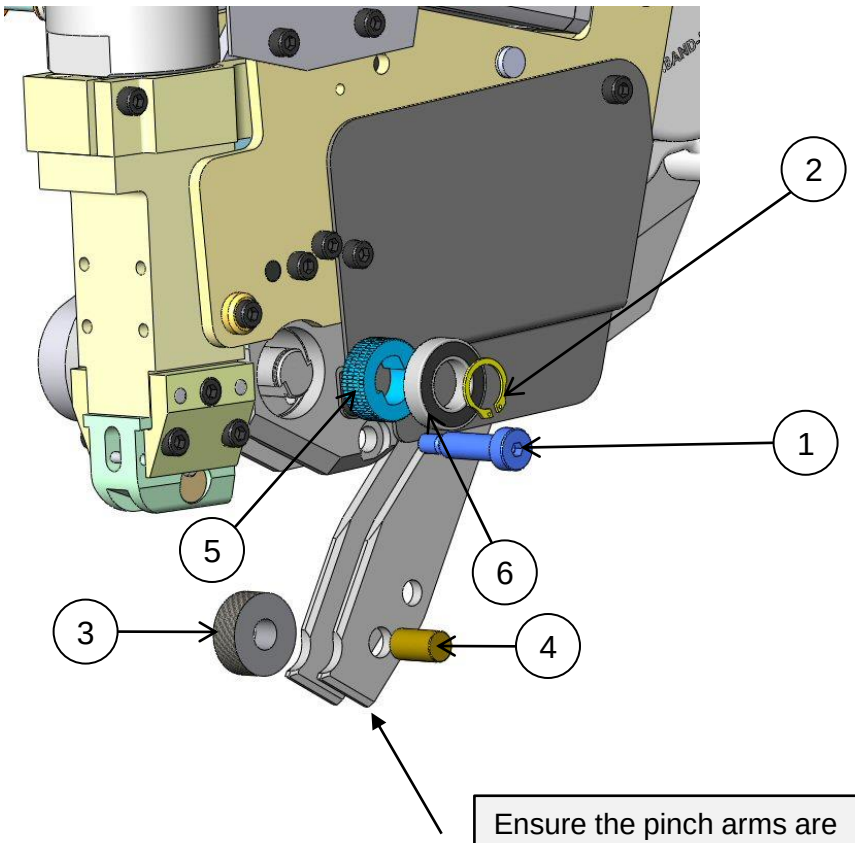
Re-assemble the Bearing and Retaining ring.

Remove the Backing wheel (3) and Pin (4).

Lubricate the Backing wheel's pin with Chevron SRI Grease 2, than re-assemble with new wheel into the Pinch arms.

Swing Pinch arms back up, line up holes for shoulder screw and install it.

NOTE:
Tighten all M5 fasteners to 70-80 In-Lbf (8-9 Nm).



Ensure the pinch arms are part number M72149 or a later version to prevent shortened wheel life.
Kit order Number: **M72150**

IMPORTANT: Do not allow lubrication to contact the knurled surface of the wheels.

REPLACEMENT PARTS LIST			
Item	**Part Number**	**Quantity**	**Description**
1	M92487	1	SCREW, SHOULDER, 8MM DIA X 25MM LONG
2	M91787	1	EXTERNAL RETAINING RING, 15MM SHAFT DIA
3	M90887	1	BACKING WHEEL, TENSION, iCS
4	M87587	1	PIN, .375 DIA X .705 LONG
5	M90987	1	TENSION WHEEL, iCS TOOL
6	M88687	1	BALL BEARING, 15MM ID, 28MM OD

Important:
Prior to any maintenance or disassembly, be sure to disconnect all power sources to the tool and discharge pressurized air from the air system.

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Belt and Pulley Replacement

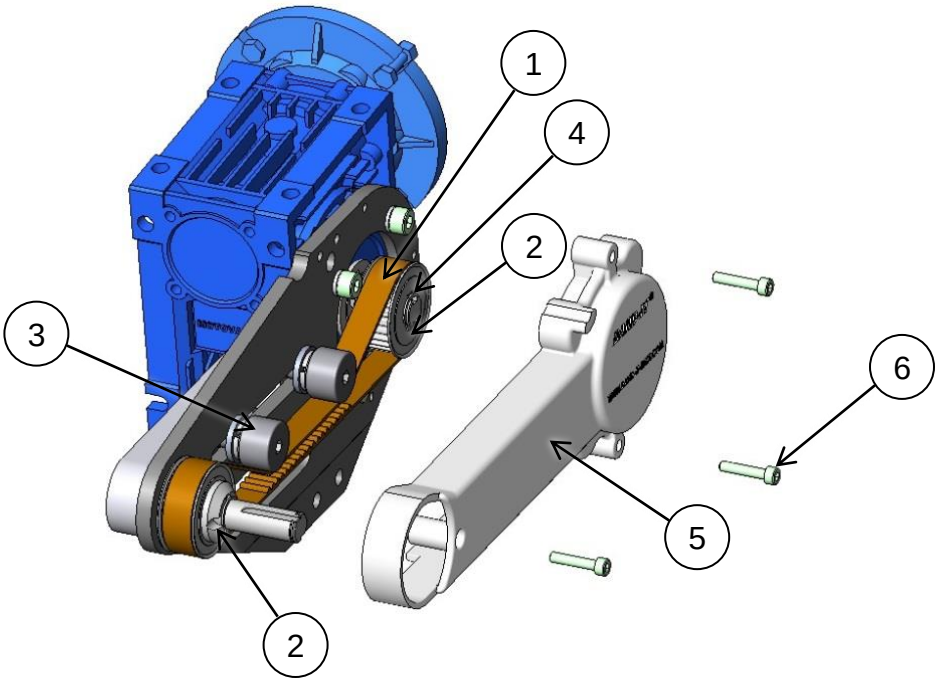
To gain access to the belt drive:

Follow instructions on Page 34 on how to remove and slide off the head assembly. If air tubing and electrical wiring is sufficiently long enough to safely remove the head assembly, then it is not necessary to disconnect them. Remove cover (5).

To replace belt and pulley:

It is recommended to replace the belt and pulleys at the same time.
Loosen front cam follower (3) and slide all the way back against the second cam follower. Remove belt. Remove snap ring from the drive shaft and slide pulley off. When installing the new pulley, be sure to reinstall both keys on each shaft. Reinstall belt routed as shown, and pull cam follower forward to apply tension to the belt. Sufficient tension is applied when the belt flexing is less than 1/8" (3MM) when pushed up from bottom center. Tighten the cam follower and check tension again.
Reinstall all other components in reverse order to complete the process.

Note: Verify that the two pulleys are made out of steel. If made out of aluminum, it is strongly recommended to upgrade to the latest version. Kit Order Number: **M72130.**



REPLACEMENT PARTS LIST			
Item	**Part Number**	**Quantity**	**Description**
1	M88487	1	BELT, 15MM
2	M72134	2	PULLEY, iCS TOOL
3	M90187	2	CAM FOLLOWER, 1" DIA
4	M72135	4	KEY, .18" X .18" X 1"
5	M97587	1	BELT COVER, iCS TOOL
6	M92187	3	SCREW, CAP, M5 X 25MM

Important:
Prior to any maintenance or disassembly, be sure to disconnect all power sources to the tool and discharge pressurized air from the air system.

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Tool Head (Nosepiece) Style & Inspection

Punch Style

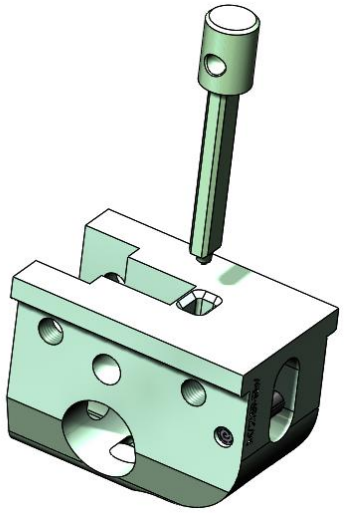
There are two punch styles for the iCS tool, *Round* and *Square.* The function is the same, but the square punch has a buckle-stop feature that prevents it from creating too deep of a dimple.

The square style is now standard for all tools, but the round punch can still be ordered.

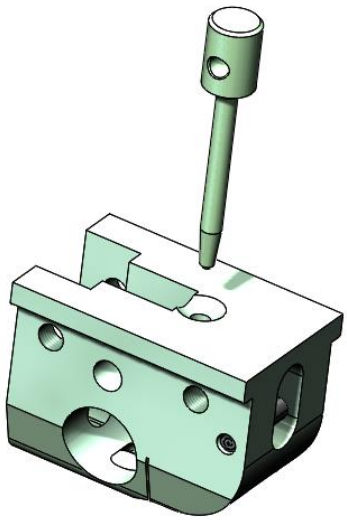
Note: The tool head **must** match the punch style. If a round punch is ordered, the corresponding tool head has to be installed on the tool.

Part Numbers	**Square**	**Round**
Tool Head	M72199	M72125
Punch	M67995	M67987

"Square" Tool Head & Punch



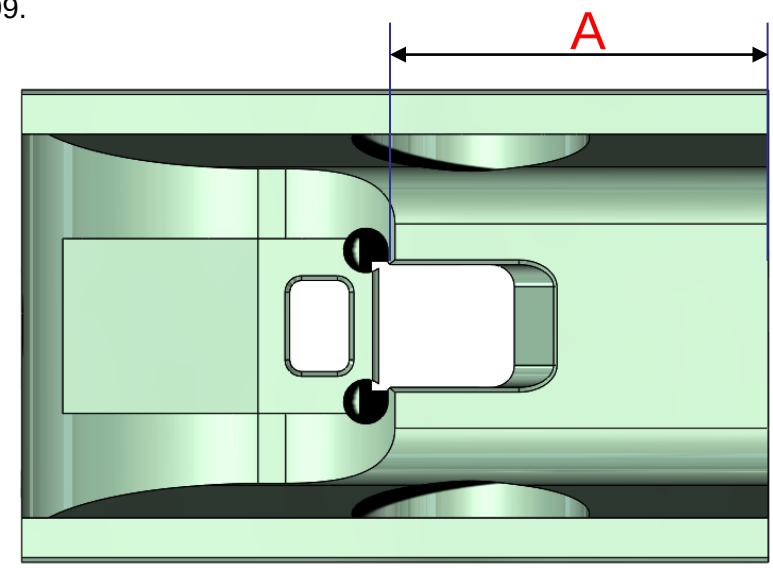
"Round" Tool Head & Punch



Tool Head Inspection

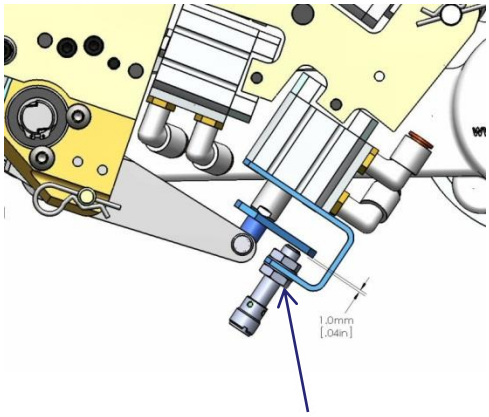
Buckle landing wear will eventually cause absence of secondary locking mechanism (lip lock).

Measure the A dimension below. If the measurement is less than .789", the tool head should be replaced. The order number is M72199.



Important:
Prior to any maintenance or disassembly, be sure to disconnect all power sources to the tool and discharge pressurized air from the air system.

Clamp Tail Sensor -Sensing Gap Adjustment



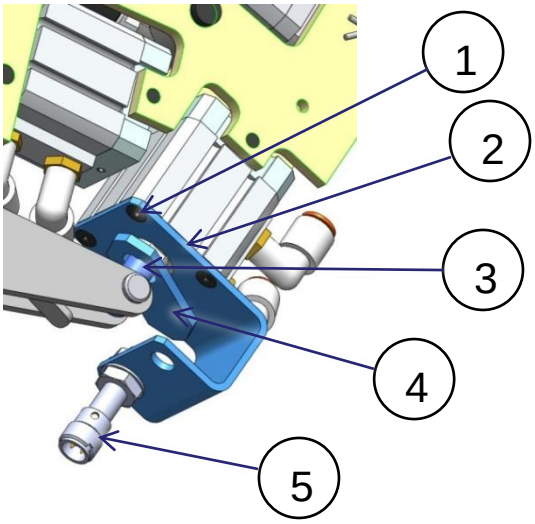
Mounting Nut

Gap adjustment:
Fully extend the Gripper Cylinder and adjust gap between Sensor tip and Sensor plate to 1mm . Tighten Mounting Nut. Be sure to make the gap adjustments without Clamp Tail or any band material present in the Tool.

Function check:
With Clamp Tail present in the Gripper Mechanism and Gripper Wheels are closed, the Sensor should not detect the Sensing Plate. If Clamp Tail is not present in the Gripper Mechanism and Gripper Wheels are closed the Sensor should detect the Sensing Plate. Use this signal to disable the Tension Motor and keep it from running under any conditions.

IMPORTANT: These Clamp Tail Sensor parts are compatible only with Sensors having M8 threaded body and 2mm sensing range.

Clamp Tail Sensor -Replacement Parts



REPLACEMENT PARTS LIST			
Item	**Part Number**	**Quantity**	**Description**
1	M54487	4	SCREW, FLAT HEAD, #6-32 X .38 L
2	M72019	1	SENSOR BRACKET
3	M72024	1	GRIPPER CYLINDER CLEVIS
4	M72025	1	SENSOR PLATE
5	M72038	1	SENSOR, PROXY, M8 BODY, 2MM RANGE, N.C.

Note: The clamp tail sensor is **not** included with the tool, but is available as an add-on.

Troubleshooting Guide

Observed Problem	Possible Cause	Solution
Clamp tail does not insert into tool.	Backing Wheel is touching Tension Wheel..	Verify the return cycle of the Gripper Cylinder is unimpeded and gripper cylinder is fully retracted.
	Excess material from previous operation did not fully eject.	Clean Tension and Backing Wheels with wire brush.
		Verify the Tension Wheel rotates enough for ejection.
Clamp tail slips out of Tension Wheel.	Clamp tail is not fully inserted into tool head assembly.	Make sure clamp buckle touches head before engaging Gripper Cylinder.
Tension wheel does not rotate while tensioning.	Drive-train failure.	Inspect drive belt and pulleys. If damage is found, contact ***BAND-IT***. Check for foreign object present or other obstructions.
Pre-set tension is not reached.	Tension Wheel slipping.	Inspect clamp tail for evidence of slipping. Clean Tension and Backing Wheels with wire brush. Check calibration of tool. If slipping persists, replace Tension and/or Backing Wheel.
	Loss of air pressure to tension pinch cylinder (<80 PSI).	Verify that air source and fittings are pressurized, unobstructed, and not leaking.
	Drive-train failure.	Inspect drive belt and pulleys. If damage is found, contact ***BAND-IT***.
	Tool is out of calibration.	Calibrate tool, verify tension output.
	Clamp tail pinched off at tension wheel due to high pinch force on backing wheel.	Verify air pressure to Gripper Cylinder does not exceed 80 PSI.
	Tension setting too high for clamp/application.	Ensure tension setting is correct for clamp type and application.
Failure to cut clamp tail.	Loss of air pressure to cut-off cylinder (<70 PSI).	Verify that incoming air pressure meets minimum requirements. Check for leaks or obstructions.
	Excessively worn or damaged cutter blade edge.	Replace cutter blade.
	Cut-off link jam.	De-energize system for safety. Contact ***BAND-IT***.
	Under-tensioned clamp.	Calibrate tool, verify tension output.
	Cut-off Cylinder arm not connected properly.	Verify Cut-off Cylinder arm is connected properly, with pins fully inserted.
	Cut-off cylinder actuation timing is less than recommended.	Actuate cutoff cylinder for at least recommended timing.

Troubleshooting Guide

Observed Problem	Possible Cause	Solution
Locking dimple too shallow.	Impact pressure too low.	Check pressure setting. Check air tubing and fittings for obstructions.
	Clamp buckle located above void or opening.	Be sure to locate buckle on fully supported surface.
	Object being clamped is hand held.	Small light-weight objects clamped must be properly held in place in a fixture.
	Object being clamped is soft with thick wall.	Adjust the impact pressure higher and verify dimple depth. Be sure that object clamped is held in place and locked down in fixture. Adjust tension and hold force settings if necessary.
	Tool motion is impeded and does not reach object clamped properly.	Check for obstructions in tool's sliding motion and rotational motion to make sure nothing impedes tool's ability to line-up with clamp buckle and to allow the clamp to cinch down properly.
	Buckle not lined-up in tool head properly.	Verify that punch centerline is in line with buckle center on object, when pre-set tension on clamp tail is reached.
Locking dimple too deep.	Impact cylinder pressure too high.	Adjust to a lower pressure.
Improperly formed or missing locking lip.	Excessive wear or damage to tool head cutting components.	Check cutting components on tool head for wear or damage. Replace parts as necessary.
	Forming lock and cutting is attempted under high tension on clamp tail.	Verify that hold tension setting and output is correct. Calibrate tool if necessary.
	Object being clamped is hand held.	Object must be properly locked down in a fixture.
	Cut-off Cylinder arm not connected properly.	Verify Cut-off Cylinder arm is connected properly, with pins fully inserted.

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Troubleshooting Guide

Observed Problem	Possible Cause	Solution
Rise in Cut-off Force.	Blade, links un-lubricated.	Lubricate.
	Cutter edge chipped.	Replace cutter blade.
	Cutter edge excessively worn.	Replace cutter blade.
	Loose head mounting and screws.	Tighten all mounting screws.
Installed clamp is loose on work piece.	Tool is out of calibration.	Calibrate tool, verify tension.
Installed clamp is too tight on work piece	Tool is out of calibration.	Calibrate tool, verify tension.
Clamp tail does not eject	Excessive scrap build-up.	Remove scrap or foreign objects from gripping system. If clamp is still stuck, cycle tension wheel to eject clamp tail.
	Excess material too long	Select a different diameter clamp which is better suited for the application.

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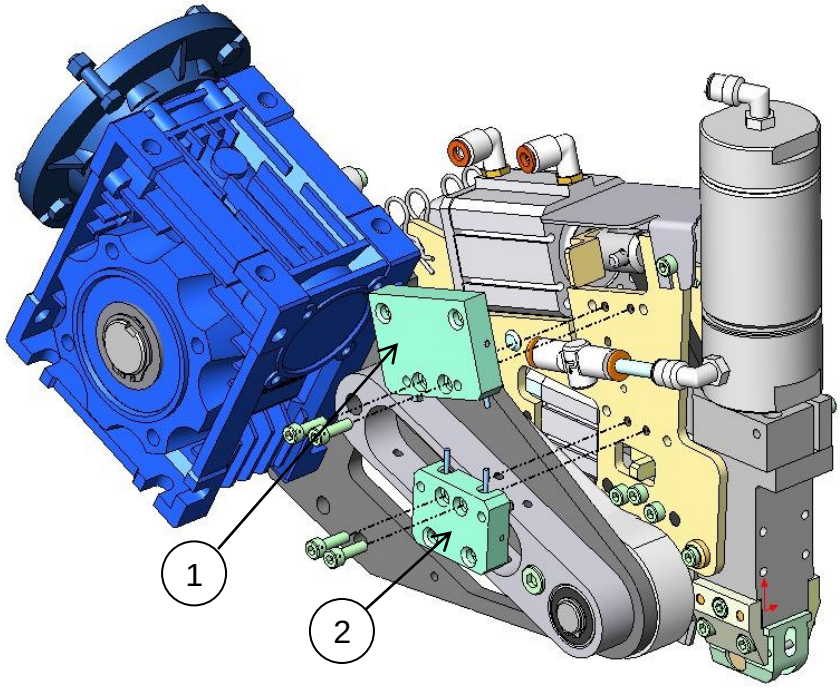
Sensor installation

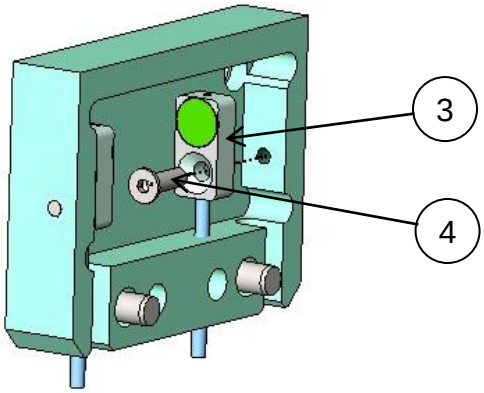
To install the sensors:

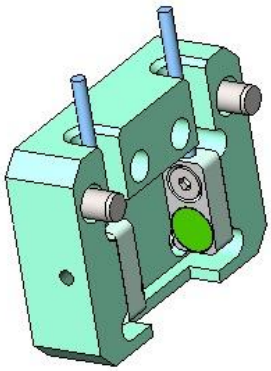
Remove both the cutoff cylinder (1) and trigger cylinder (2) sensor brackets.

Install the Baumer IFFM 08P17A6/KS35L sensor (3) using M3X0.5 10MM long flat head screws (4) inside the bracket, 4 places total. The sensors and screws are not included.

Reattach the brackets to the side plate.







IMPORTANT: Completed tool must be calibrated after conversion.
The sensor brackets were designed exclusively for Baumer IFFM 08P17A6/KS35L inductive proximity sensors.

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