



CRD171 SERIES LARGE MULTI- ANGLE TUBING CUTTER

OPERATIONS MANUAL



VERSION 1.0
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cleanroomdevices.com

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1.0 General Product & Safety Information

1.1 Product Information

- The CRD171 Tubing Cutter is designed to cut flexible tubing (including heat shrink) up to a Shore A 100 durometer, including any non-metallic braided materials. The CRD171 also features an adjustable blade that can be set to cut 45°, 60°, 75° and 90° angles. Only 45° large angle bushings are currently stocked. Other cut angles (60°, 75°, and 90°) may be custom ordered.
- Easily interchangeable bushings are available. The standard bushings include (9) sizes for the following outside tubing diameters: 9/16", 5/8", 3/4", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2", and 1-3/4". Note: Clean Room Devices machines bushings so they are 1/32" over the listed size to accommodate curl or surface features of the tubing. Custom sizes are also available. For tubing requiring a more precise fit in the bushing, custom sizes can be machined to exact diameters if needed.
- Maximum outside diameter (OD) tubing when making 90° cuts is 1-3/4".
- Maximum outside diameter (OD) when making 45° cuts is 1-1/2".
- The minimum/maximum measured cut lengths range from 3-1/16" to 24" long. All lengths within that range can be achieved within plus/minus 0.030" tolerance utilizing the slide block and scale. Minimum cut lengths of 3-1/16" can be achieved by visually locating the tube at the end of the bushing and depressing the foot pedal.
- Due to the configuration of the cutting mechanism, it is not recommended to use an adjustable stop pin for anything other than 90° cuts. Cut lengths down to 1/2" (+/- 0.005) can be obtained only during 90° cuts with a large adjustable stop pin.
- The CRD171 Series Large Angle Cutters are available with the following base and ruler lengths:
 - 24" stainless steel base with 24" stainless steel ruler. Comes standard with a non-certified ruler. May be upgraded with a certified, stainless steel ruler.
 - 36" stainless steel base with a 36" stainless steel ruler. Comes standard with a non-certified ruler. May be upgraded with a certified, stainless steel ruler.
 - 48" stainless steel base with a 48" stainless steel ruler. Comes standard with a non-certified ruler. May be upgraded with a certified, stainless steel ruler.
 - 60" stainless steel base with a 60" stainless steel ruler. Comes standard with a non-certified ruler.
- All CRD171 Series Large Angle Cutters come with a stainless steel electronics cover.

1.2 Safety Information

- This product uses a low-voltage (24VDC) electro-pneumatic system and an air cylinder to pneumatically actuate the cutting blade internal to the unit.

Do not attempt to replace the cutting blade without first disconnecting the air and power supply.

2.0 Installation

2.1 Air Supply

- Standard facility compressed air within the range of 100-120 psi is recommended. Lower than 100 psi may affect the “cut” quality. Higher than 120 psi may reduce the life expectancy of internal parts. The air supply should be free of moisture and contaminants.
- Connect a 1/4” air supply hose to the 1/4” “GREEN” bulkhead connector located on the rear of the cover. *Figure 2.1.1*

Input compressed air



Figure 2.1.1

2.2 AC Power

- This product uses standard 60Hz alternating current power provided by your local utility. Ensure that you use the correct power supply (120VAC/24VDC) for the type of power in your region. International power supplies are available from
- The power supply jack is located on the rear of the cover. *Figure 2.2.1*



Figure 2.2.1

2.3 Foot pedal

- A foot pedal is required for the operation of the CRD171.
- Insert the DIN Plug from the foot pedal into the receiving jack located on the rear of the cover. *Figure 2.3.1*



Figure 2.3.1

3.0 Operation

3.1 Bushing Removal

- Install both front and rear bushings appropriate to the outside tube diameter you intend to cut. Use the nearest equivalent if the exact size bushing set is not available.
- *NOTE: CUSTOM BUSHINGS SIZES CAN BE MADE TO ORDER BY CLEAN ROOM DEVICES, LLC.*

- To swap out or install new bushings, follow the steps below:
- Press the foot pedal to lower the cutting blade into the down position. Keep the foot pedal depressed and disconnect the air and power supply from the rear of the cover.
- Flip the cutter upside down, loosen the outlet bushing set screw and remove bushing from cutter. **Figure 3.1.2**

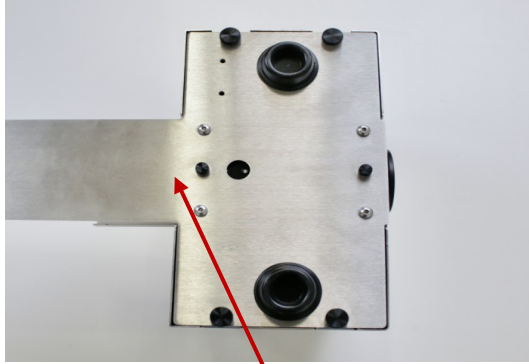


Figure 3.1.1 Outlet bushing

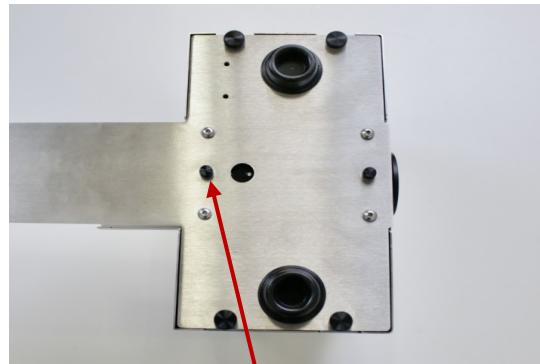


Figure 3.1.2 Bushing (outlet) set screw

- Loosen the inlet bushing set screw and remove bushing from cutter. **Figure 3.1.4**

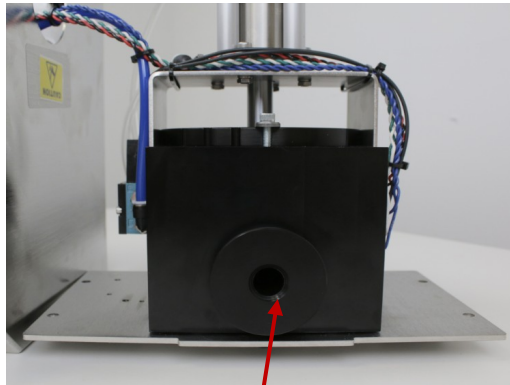


Figure 3.1.3 Inlet bushing

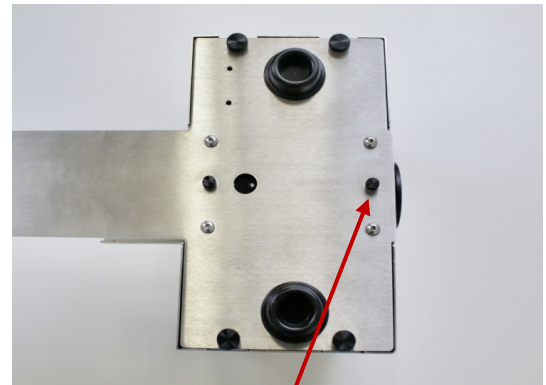


Figure 3.1.4 Bushing (inlet) set screw

(Note: Inlet bushing can be identified by the countersink shown above. Inlet and outlet bushings are **NOT** interchangeable)

3.2 Bushing Installation & Cut Angle Adjustment

- When changing bushings, cut angle may need to be adjusted to match angle of bushing set being installed. **Note: remove bushing prior to adjusting cut angle.**
- Cut angle can be adjusted using the following steps:
- Loosen screw at the rear of the knife block above the bushing hole. **Figure 3.2.1**
- Remove screw in the angle selection wheel. **Figure 3.2.2**

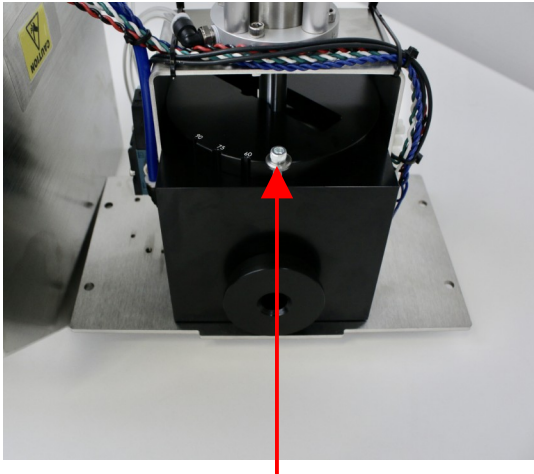


Figure 3.2.1 Loosen screw

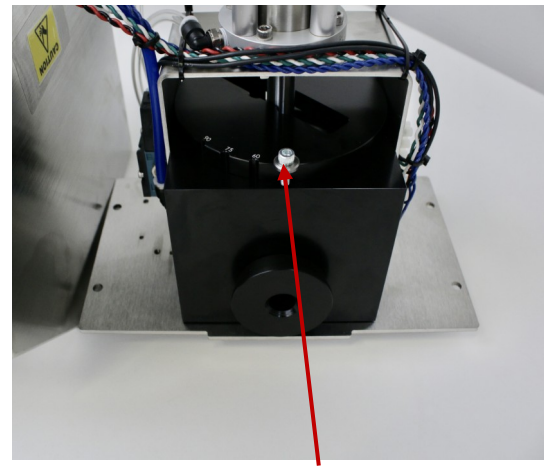


Figure 3.2.2 Remove screw and washer

- Turn angle selection wheel to desired angle to match bushing set being used and re-insert screw into the groove matching desired angle. Tighten screw.
- When installing bushings push cutting blade holder all the way down by hand or with a rounded end tool. Be careful to not damage the knife holder. ***Figure 3.2.3 (make sure air line and power are disconnected!)***

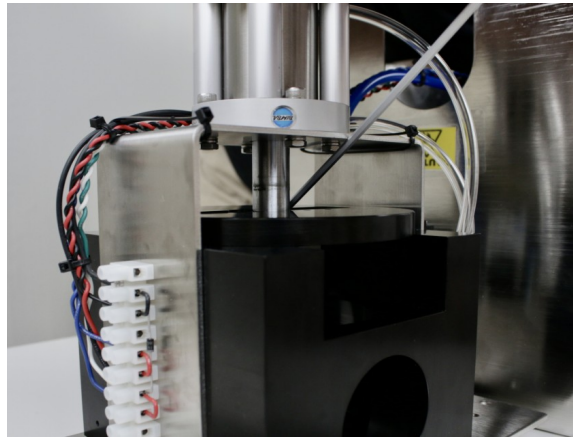


Figure 3.2.3 Push knife holder down with forefinger or a rounded end tool.

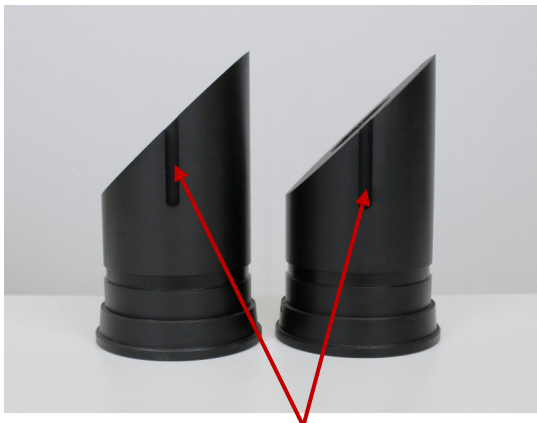


Figure 3.2.4 Bushing keyways

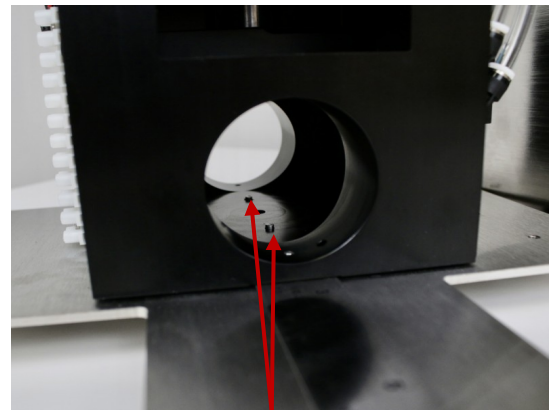


Figure 3.2.5 Keyway pins in knife block

- Bushings are keyed so as to match the angles on the bushings. **Figure 3.2.4**
- Align keyways to pins in knife block when installing bushings. **Figure 3.2.5**
- Insert bushings into knife block and squeeze bushing together to sandwich blade between the bushings. **Figure 3.2.6**
- While holding bushings against blade, tighten inlet and outlet set screws. **Figure 3.1.2&3.1.4**

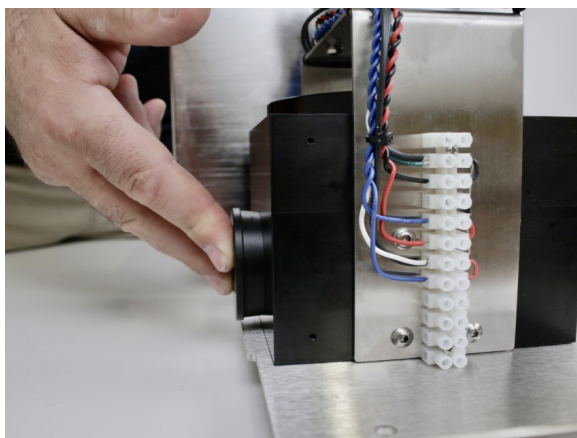


Figure 3.2.6

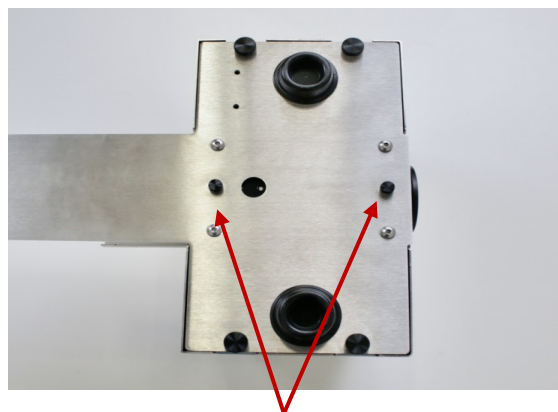


Figure 3.2.7

- Attach cover using thumb screws. **Figure 3.2.7**

3.3 Cutting

- Position the slide block to the desired cut length using the scale. Secure the slide block in position by tightening the thumb-screw clockwise; take care not to over tighten.
- Insert the tubing end into the bushing towards the direction of the slide block. Once the tubing has cleared the cover continue to pull the tubing through to where it makes contact with the slide block. Then activate the foot pedal to cut the tubing. Once cut, remove the tubing front the unit and repeat as needed.

4.0 Troubleshooting

Operating Error	Action
Unit does not have power.	1. Check the electrical outlet or receptacle connection. 2. Check the power supply jack on the cover to see if it is properly installed.
Cutting blade does not actuate.	1. Check the facility air supply(must have a minimum of 80 psi) 2. Check electrical connection.

Cutting blade makes bad cuts or leaves burrs.	1. Ensure the tubing being cut does not exceed the recommended durometer. 2. Ensure the proper bushing sizes on both sides have been installed correctly. 3. Verify facility air supply psi 4. Check the cutting blade for wear or damage and possible replacement. 5. Slide block is not tight.
Counter is not functioning properly.	1. Verify the counter has been reset between batch cuts or production runs. 2. Check plug on counter is secure
Slide block does not move in either direction.	1. Fully loosen the thumb screw to slide. 2. Visually inspect the slide path for dirt or debris.

5.0 Maintenance

5.1 Blade Replacement

- Replacement blades can be purchased from *Clean Room Devices, LLC*.
- Ensure air and power supply has been disconnected from the unit prior to removing the cover. Remove the four (4) thumbscrew cap screws securing the cover to the base plate. Lift cover out of the way.
- Remove bushings and rotate angle selection wheel to 90°
- You now have access to the cutting blade via the replacement window in the knife block housing. Take this opportunity to blow out any debris found within the cutter housing.
- Place a magnet-tipped tool on the cutter blade, then remove two (2) mounting screws using a 1/8" hex key/wrench. (*T-handle preferred*) **Figure 5.2.1**

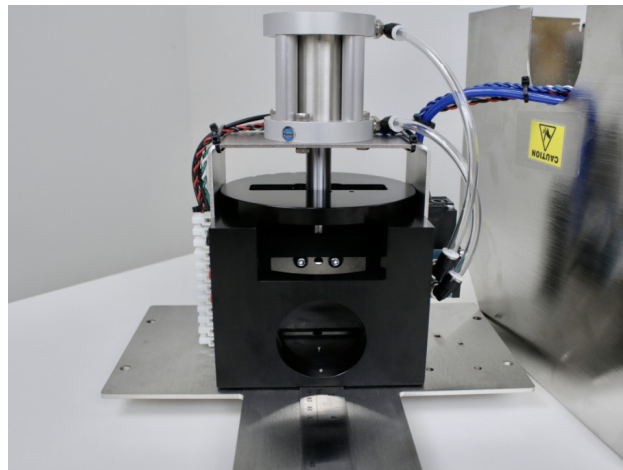


Figure 5.2.1

WARNING

Although the blade may require replacement it remains extremely sharp, handle with care. To avoid injury, proper disposal is highly recommended.

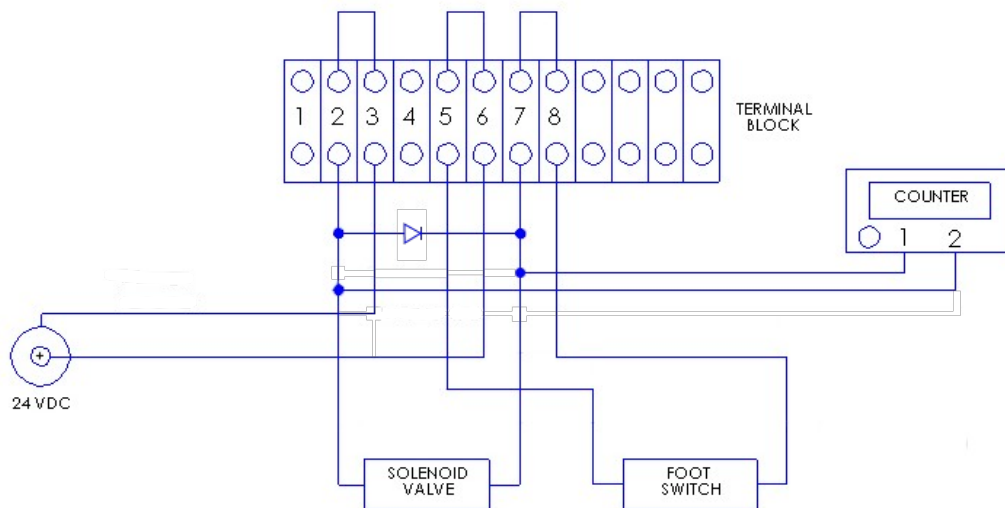
- Install the new cutting blade using a magnet-tipped tool and reusing the same screws.
- Rotate blade back to desired angle and reinstall bushings (section 3.2).
- Re-install the cover and tighten mounting screws and reconnect air supply. Make a few test cuts to verify quality and that the unit is working properly prior to production runs.
- The knife blade screws should be checked periodically for tightness. ***Do not over tighten.***

5.2 Periodic Cleaning (annually or as needed)

- Wipe down outer surfaces with alcohol, septihol/70% isopropyl alcohol or mild detergents, specifically those surfaces/grooves that come in contact with the slide block.
- Inspect the blade housing cavity (by removing the cover), blow-out any/all debris.

6.0 Product Specifications and Electrical Diagram

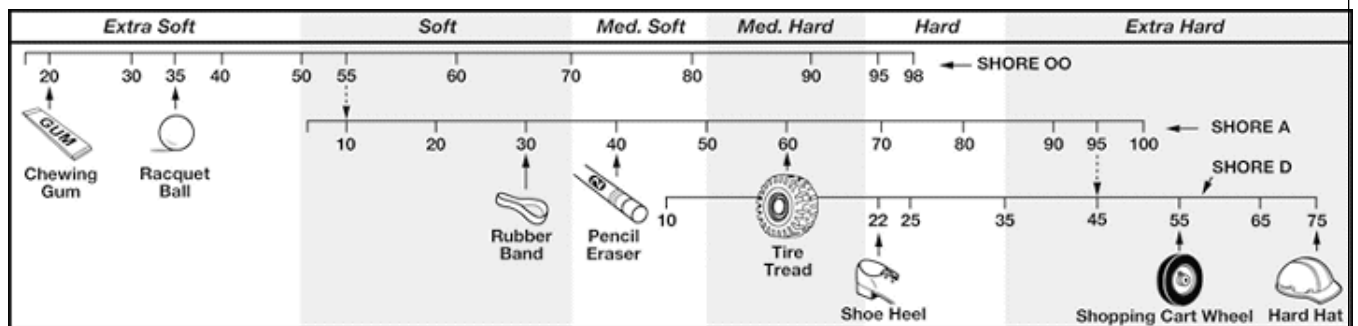
Unit Weight	8.5 LBS / 3.85 KG
Overall Dimensions	28" lg. x 9 3/16" w x 6 3/8" ht.
Minimum/Maximum PSI	100 PSI / 120 PSI
Electrical Power	120VAC/24VDC Power Supply



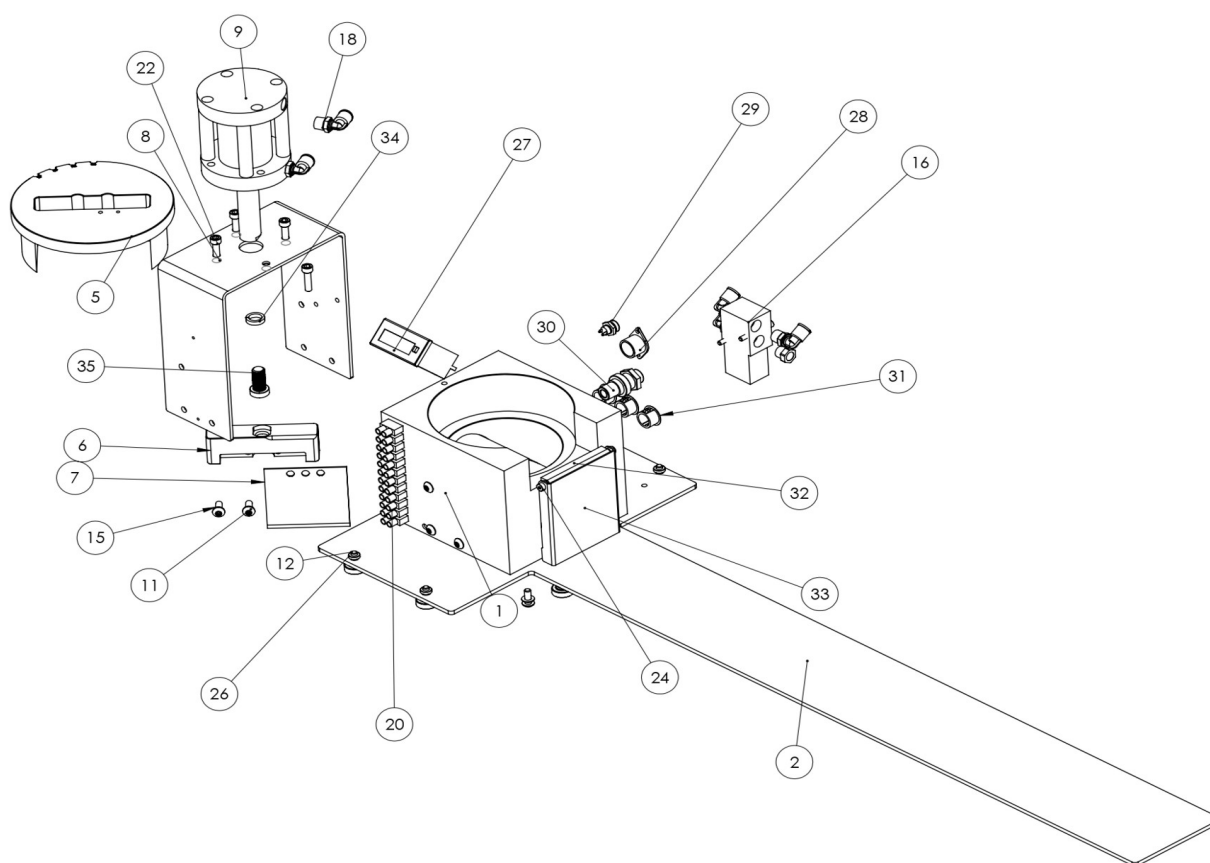
WIRING DIAGRAM

NOTE: Schematic drawings are for troubleshooting purposes only – not for modifying the machine in any way.

7.0 Durometer Scale



8.0 Parts List



Item	Part Number	Description	Item	Part Number	Description
1	CD171-001	XL Angle Cut Knife Block	18	P00063	90° Elbow, 1/4" PTC
2	CD185-021	24" Base, Large Tubing Cutter	20	P00217	Terminal Strip, 12-Pole
3	CD171-006-45 Degree	Bushing, Inlet, 45° Cut RB171	22	P00227	SHCS #10-32 x 3/4"
4	CD171-007-45 Degree	Bushing, Inlet, 45° Cut RB171	23	P00542	#5 Nylon Washer
5	CD171-005	Insert, Rotation	24	P00523	1/8" x 9/32" Shoulder Screw
6	CD171-002	Knife Holder RB171	25	P00536	Rubber Foot
7	RB171	XL Cutter Blade	27	P00001	Counter
8	CD171-004	Cylinder Bracket	28	P00205	Foot Pedal Jack
9	P00537	Air Cylinder	29	P00006	Jack, DC Power
10	P00366	Shoulder Washer, 0.243, Nylon	30	P00495	1/4" Bulkhead
11	P00144	BHCS #10-32 x 1/2"	31	P00372	9/16" Hole Plug
12	P00541	Cover Screw	32	CD185-014	Pivot, Flapper
13	P00534	Plastic Screw Head	33	CD185-015	Flapper
15	P00184	#10 Lock Washer	34	P00545	3/8" Lock Washer
16	P00008	MAC Solenoid Valve 4-way	35	P00829	3/8" Low Profile SHCS
17	P00174	Bushing Screw			

9.0 Warranty

9.1 Warranty

The manufacturer warrants the product manufactured by it, when properly installed, operated, applied and maintained in accordance with the procedures and recommendations outlined in the manufacturer's operation manual, to be free from defects in material or workmanship for a period as specified below, provided such defect is discovered and brought to the manufacturer's attention within the stated warranty period.

The manufacturer will repair or replace any product or part determined to be defective by the manufacturer within the warranty period, provided such defect occurred in the normal service and not as a result of misuse, abuse, neglect or accident. Normal maintenance items requiring routine replacement are not warranted. The warranty covers parts and labor for the warranty period unless otherwise specified. Repair or replacement shall be made at the factory or the installation site, at the sole discretion of the manufacturer. Any service performed on the product by anyone other than the manufacturer must first be authorized by the manufacturer.

Unauthorized service voids the warranty and any resulting charge or subsequent claim will not be paid. Products repaired or replaced under warranty shall be warranted for the unexpired portion of the warranty applying to the original product.

The foregoing is the exclusive remedy of any buyer of the manufacturer's product. The maximum damages liability for the manufacturer is the original purchase price of the product or part.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL, OR STATUTORY, AND IS EXPRESSLY IN LIEU OF THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. THE MANUFACTURER SHALL NOT BE LIABLE FOR LOSS OR DAMAGE BY REASON OF STRICT LIABILITY IN TORT OR ITS NEGLIGENCE IN WHATEVER MANNER INCLUDING DESIGN, MANUFACTURE OR INSPECTION OR THE EQUIPMENT OR ITS FAILURE TO DISCOVER, REPORT, REPAIR, OR MODIFY LATENT DEFECTS INHERENT THEREIN.

THE MANUFACTURER, HIS REPRESENTATIVE OR DISTRIBUTOR SHALL NOT BE LIABLE FOR LOSS OF USE OF THE PRODUCT OR OTHER INCIDENTAL OR CONSEQUENTIAL COSTS, EXPENSES, OR DAMAGES INCURRED BY THE BUYER, WHETHER ARISING FROM BREACH OF WARRANTY, NEGLIGENCE OR STRICT LIABILITY IN TORT.

The manufacturer does not warrant any product, part, material, component, or accessory manufactured by others and sold or supplied in connection with the sale of manufacturer's products.

9.2 Warranty Period

Parts and labor are for ninety (90) days from the date of shipment from the factory. Freight to the factory on units that the manufacturer requests to be returned shall be paid by the purchaser, all return freight to be paid by the manufacturer; means of transportation to be specified by the manufacturer.



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