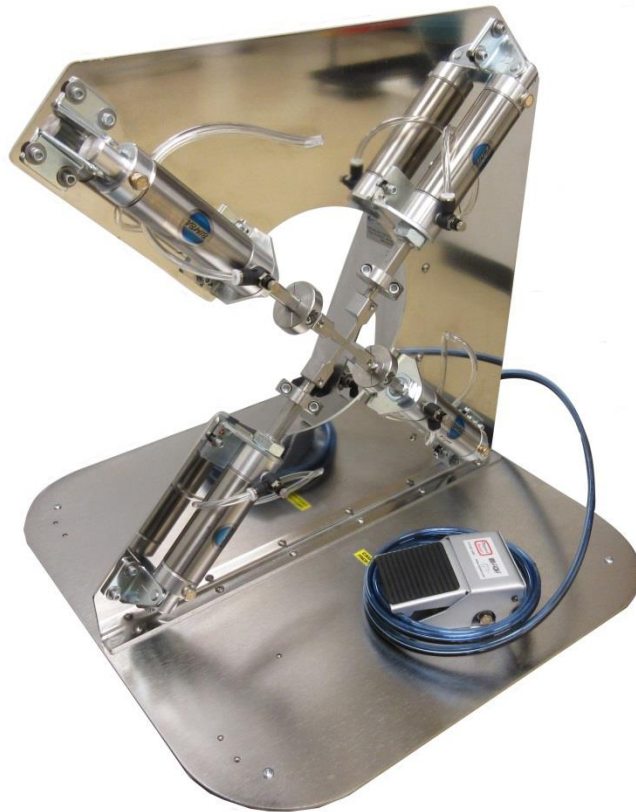


 **CLEAN ROOM DEVICES, INC.**

**CRD520
4-JAW TUBE EXPANDER**

OPERATIONS MANUAL



VERSION 1.1
LAST EDITED 11.29.2018
cleanroomdevices.com

Table of Contents

- Title Page.....1
- Table of Contents.....2
- 1.0 General Product & Safety Information.....3
 - 1.1 Product Information
 - 1.2 Safety Information
- 2.0 Installation.....3
 - 2.1 Air Supply
- 3.0 Operation.....4
 - 3.1 Jaw Alignment and Collar Position
 - 3.2 Tube Expanding
 - 3.3 Jaw removal and installation
- 4.0 Troubleshooting.....7
- 5.0 Maintenance.....7
 - 5.1 Periodic Cleaning (annually)
- 6.0 Product Specifications.....8
- 7.0 Durometer Scale.....8
- 8.0 Warranty.....9
 - 8.1 Warranty
 - 8.2 Warranty period

1.0 General Product & Safety Information

1.1 Product Information

- The expander unit is designed to expand most types of soft tubing; primarily silicone, latex, and soft (40-50) durometer PVC.
- The minimum/maximum inside tube diameter is 1/4" to 1 1/2".
- The expander jaws are designed to meet most applications.
- The units design allows for simple operator adjustment.

1.2 Safety Information

- This product uses an air cylinder and foot pedal to pneumatically actuate the expanding jaws. The unit is not intended to expand anything other than flexible tubing.
- The facility air supply should be free of moisture/contaminates, and a minimum 100 psi supply is recommended. It is also recommended that a suitable filter/regulator be installed onto the supply line prior to the unit to preserve the life expectancy of the air components.

2.0 Installation

Ensure all five (5) rubber feet are completely stabilized on your work surface prior to applying air pressure to the unit.

2.1 Air Supply

- Connect a 1/4" air supply hose to the fitting found on the regulator. The air supply should be free of moisture and contaminants. Adjust the regulator within the range of 40-80 psi for operation. Lower than 40 psi may affect the unit's ability to stretch the tubing properly with even pressure. Running pressures higher than 80 psi can damage the jaws.

3.0 Operation

3.1 Jaw Alignment and Collar Position

- Start by ensuring the jaws are properly aligned with each other. Maintaining this alignment is critical to the correct operation of this expander.
- Break loose the set screws on all four (4) jaws using a 1/8" hex wrench. (**Figure 1**)
- Adjust the jaws by letting all four (4) jaws come together (they will somewhat self-align) twisting the jaw slightly by hand or using an 11/16 open end wrench will ensure that the jaws are properly seated together. (**Figure 2**)
- Once aligned use the 1/8" hex wrench to tighten all four (4) set screws in the jaws. (**Figure 1**)
- The jaws should form a tight circle when properly aligned, no gaps between jaws. (**See figure 2**)
- The graduations on the cylinders represent approximately 0.072 of an inch. (**Figure 3**)
- Break loose the two (2) bolts on each of the four (4) stop collars using a 3/16" hex wrench. Position the stop collars at the same indicator mark on all four (4) cylinder shafts and retighten the bolts. (**Figure 4**)
- Repeat this process until the desired expansion distance is reached.

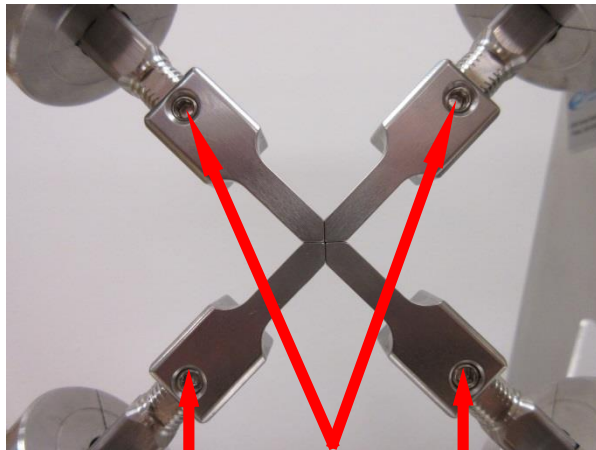


Figure 1
Set screws

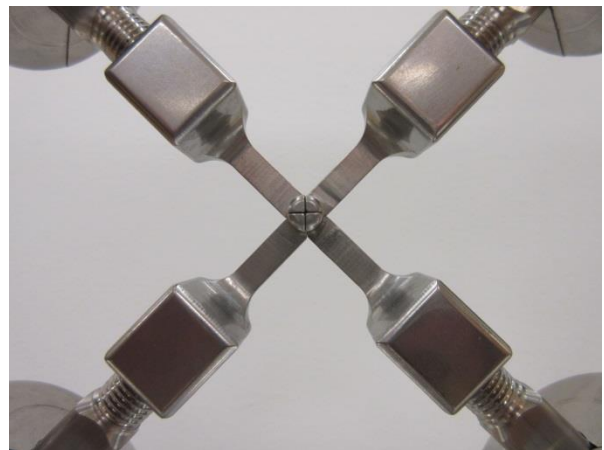


Figure 2
Proper Jaw alignment

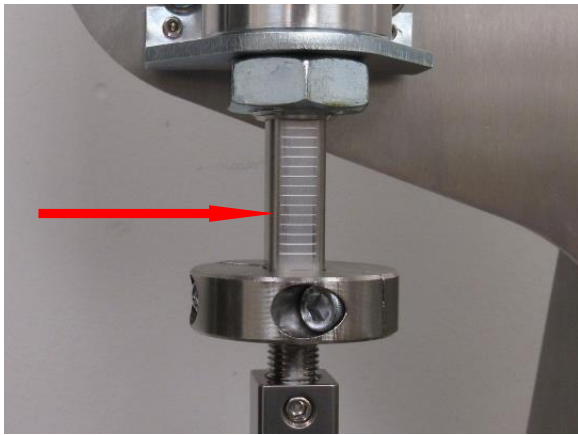


Figure 3
Cylinder graduations

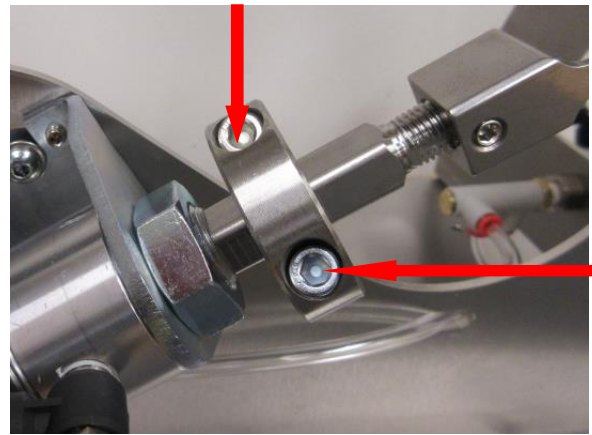


Figure 4
Stop collar bolts

3.2 *Tube Expanding*

- Place the end of the tubing to be expanded over the ends of **all four (4)** expander jaws to the depth needed to allow the barb to be inserted properly.
- Activate the expander by fully depressing the foot pedal.
- Once the tubing is expanded satisfactorily, push the fitting through the jaws and into the tubing.
- The tubing and fitting may need to be spooned off of the side of the jaws rather than pushed through the center, depending on fitting size and shape.

3.3 *Jaw removal and installation*

- Remove all four (4) set screws on the jaws using a 1/8" hex wrench. **(Figure 1)**
- Using a 3/16" hex wrench, loosen the two (2) bolts on all four (4) stop collars and slide them forward on the cylinder shaft to where the threads start. Retighten the bolts on all four (4) stop collars using the 3/16" hex wrench. **(Figure 5)**

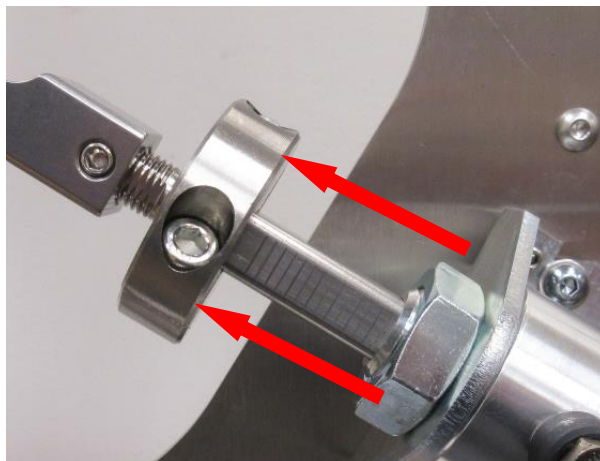


Figure 5

Stop collar shown all the way forward

- Activate the expander by pressing on the foot pedal and keep it depressed while performing the jaw removal and installation. **(Figure 6)**

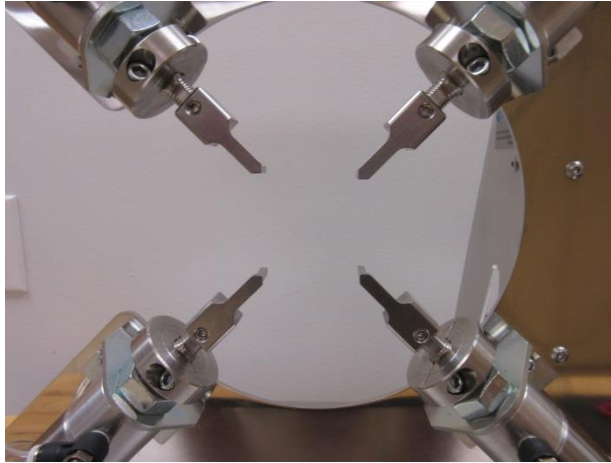


Figure 6
Jaws shown in the fully open position

- Remove the jaws from each cylinder shaft (turning the jaws counter clockwise).
- While keeping the expander activated, with your foot on the foot pedal, thread the new jaws onto each cylinder. Start the set screw into each jaw but do not tighten.
- De-activate the expander by taking your foot off of the foot pedal.
- Ensure that the jaws are aligned properly, as shown in **Figure 1 & 2**. Using a 1/8” hex wrench, tighten the set screws on each jaw after you have the jaws properly aligned. **(Figure 2)**
- Re-adjust the stop collars to the desired opening you need and tighten the bolts. **(Figure 3)** *See Section 3.2 for details.*

3.4 *Ordering Additional or Replacement Jaw Sets*

- To order additional jaw sets, please specify the part number CD520-D-L (Example: CD520-.188 x .375) where D is the jaw set diameter, and L is the desired length. Also, add the suffix “S” for straight jaws or the suffix “T” for tapered jaws.
- To order replacements jaws, please call in the part number or measure your current jaws and provide the D (jaw set diameter), L (the length of the jaw) and S or T (straight or tapered option).

Important Note:

The CD005-D-L(T/S) jaws used by the 3-jaw expander models CRD500, CRD500SS and CRD510 are NOT compatible or interchangeable with the 4-jaw expander model CRD520.

4.0 Troubleshooting

Operating Error	Action
Unit does not operate.	<ol style="list-style-type: none">1. Check the facility air connection.2. Check all air hose connections on the unit.3. Verify the regulator is set between 40-80 p.s.i.
Jaws do not spread.	<ol style="list-style-type: none">1. Ensure no obstructions are keeping the jaws from expanding.2. Completely depress the foot pedal to actuate.3. Verify that the flow valves are open.
Flexible tubing is splitting/tearing.	<ol style="list-style-type: none">1. Ensure the tubing being expanded does not exceed the performance of the material.2. Ensure the lower jaw has been adjusted correctly for the tubing inside diameter (I.D.).3. Verify facility air supply psi or unit pressure adjustment.

5.0 Maintenance

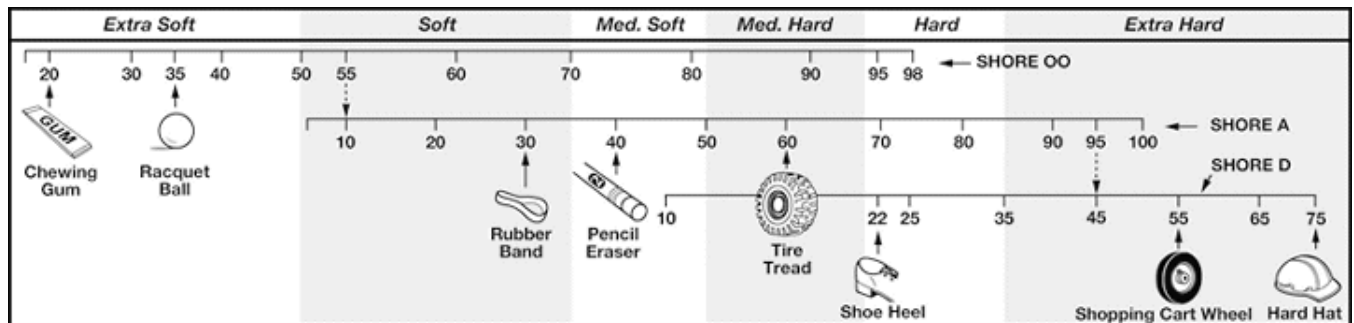
5.1 *Periodic Cleaning (annually, or as needed)*

- Wipe down outer surfaces with alcohol, septihol or mild detergents as required.

6.0 Product Specifications

Unit Weight	40 LBS / 18KG
Overall Dimensions	21 in. (53cm) lg. x 21 in. (53cm) w. x 21 in. (53 cm) ht.
Minimum/Maximum PSI	40 PSI / 80 PSI

7.0 Durometer Scale



8.0 Warranty

8.1 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.

8.2 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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