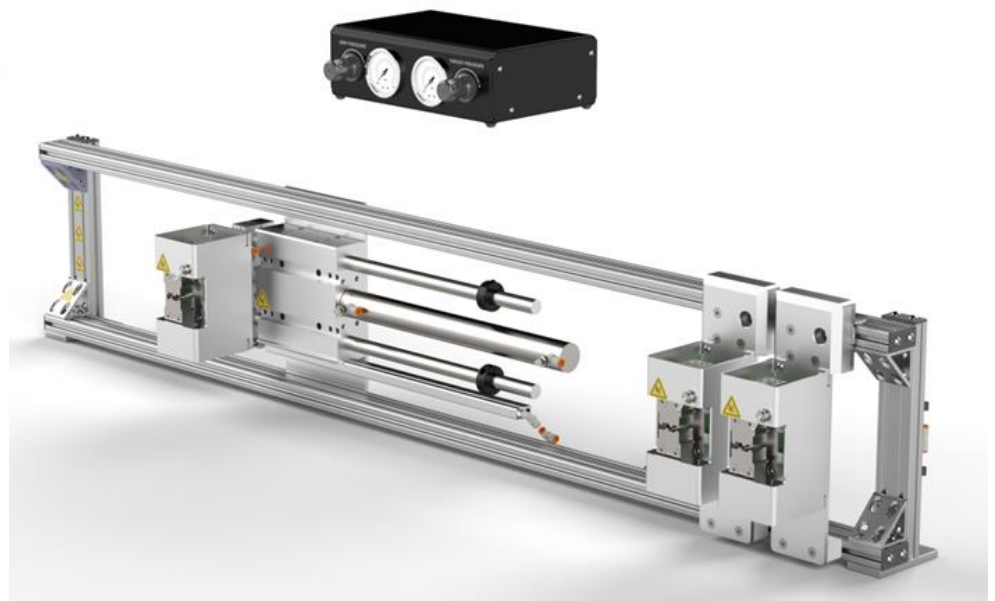


# MACHINE SOLUTIONS INC.



USER MANUAL

## BEAHM DESIGNS MANDREL STRETCHER MODEL C-75



**BEAHM**  
DESIGNS

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## WELCOME

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Machine Solutions, Inc. (MSI) would like to take this opportunity to thank you for purchasing your new C-75 Mandrel Stretcher machine. At MSI, we are dedicated to bringing innovative process development solutions to both medical device and nonmedical organizations. MSI looks forward to helping your organization provide life-improving devices to your customers, today and tomorrow.

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## MACHINE DESCRIPTION

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The Beahm Designs Inc. Model C-75 Mandrel Stretcher is a system for the purpose of removing a core mandrel from a shaft assembly by means of stretching the mandrel to reduce the diameter.

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## SAFETY

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- Place the system on a level, sturdy surface at an ergonomically viable height for the user.
- Use of eye protection when working with compressed gases and heated materials is advised.
- The maximum observed Sound Pressure Level is below 70 dBA.



**Caution: pinch point. Keep hands and body parts clear while in operation.**

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## USER ALERTS

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Do not use or otherwise operate the machine in any manner other than that in which it is explicitly intended. Examples: Do not attempt to sit on or climb on the equipment, do not place heavy objects or containers of liquid on the machine, do not to insert any foreign objects into the machine and do not attempt to bypass any guards.

**Note: This equipment is not for use in an ATEX environment.**

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## CONTENTS

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Included with the system are the following contents:

- Main C-75 stretch frame
- Grip and thrust pressure control box
- Pneumatic activation foot switch

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## INSTALLATION

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1. Place the system on a sturdy, and level surface.
2. Secure frame to surface.
3. Connect control box and foot switch to stretch frame.
4. Connect the air supply hose to the system, and then to a clean, dry, and filtered compressed air source.

## SYSTEM OPERATION

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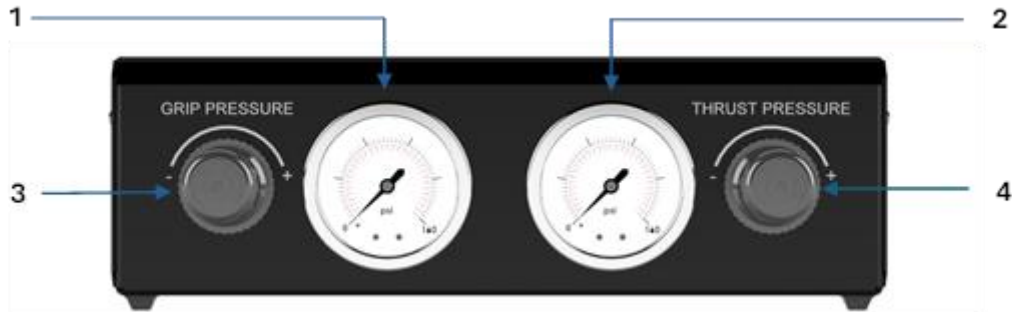
1. Ensure all grippers are in open positions.
2. Adjust gripper and thruster pressure.
3. Place mandrel in between thrust and stationary grippers.
4. While holding the mandrel in place toggle the thrust and stationary grippers closed.
5. Take hands away from system and toggle the thruster foot switch.
6. Remove product from grippers.

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## SYSTEM CONTROLS AND FEATURES

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Located on the front are the following controls and/or displays and their function.

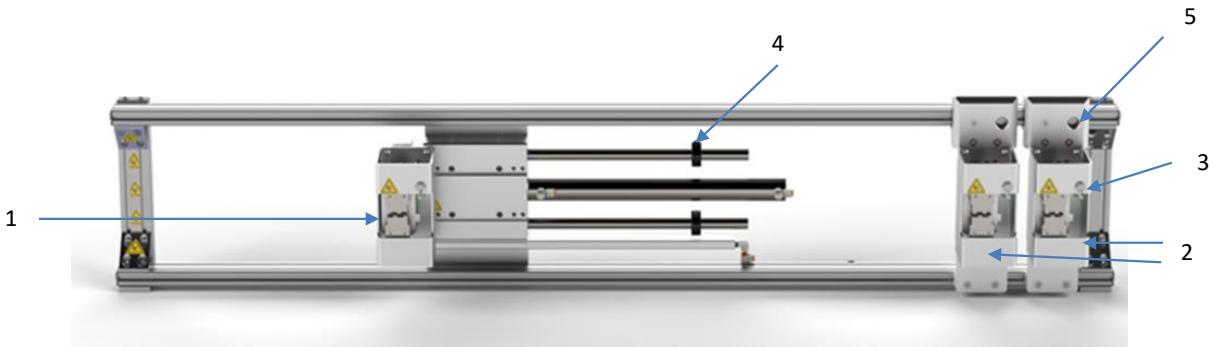


**Figure 1. C-75 Mandrel Stretcher Remote Box Front Panel**

**Table 1: Control Box Controls and Functions**

Item	Function
1	Displays air pressure supplied to machine grippers.
2	Displays air pressure supplied to pneumatic thruster.
3	Controls gripper air pressure.
4	Controls thruster air pressure.





**Figure 2. C-75 Gripper Assembly**

**Table 2: Controls and Functions**

Item	Function
1	Thrust gripper assembly
2	Stationary gripper assemblies
3	Toggles gripper open/close
4	Sets mandrel stretch distance
5	Loosen to adjust gripper distance. Tighten to lock down.

## PARAMETER SETTINGS

- Grip Pressure: 0 PSI to 120 PSI
- Thrust Pressure: 0 PSI to 120 PSI
- Stretch Distance: 0 inches to 13 inches

## SPECIFICATIONS

**Table 3: System Specifications**

Description	Range	Resolution	Accuracy
Pressure	0-160 PSI	4.0 PSI	+/- 1.6% F.S.

### *Facility Requirements*

- Compressed Air: 120 PSI

## MAINTENANCE

**Note: Ensure the machine is unplugged from air for any servicing or maintenance work.**



**Caution: pinch point/crush hazard. Keep fingers, hands, and clothing clear of moving parts.**

1. Use 99% isopropyl alcohol to wipe down the outside of the machine. Do not attempt to clean the inside of the machine. Machine should not be washed down.
2. Cleaning should be with a soft dry cloth only.

## CRITICAL PARTS

For replacement or spare parts, please contact us at [service@machinesolutions.com](mailto:service@machinesolutions.com), or call 928-556-3109.

**Table 4: Critical Spare Parts with Descriptions**

Part Number	Description
1346311-001	PRESSURE REGULATOR 1/4-NPT PORTS
1361904-001	GAUGE, 2.5IN DISPLAY, 0-160PSI, 1-4NPT
130118-001	VALVE, TOGGLE, 4WAY, 2 POSITION
1361727-001	FOOT SWITCH, VALVE, 5-2, 1-4 NPT, 150 PSI

## DIAGNOSTICS AND TROUBLESHOOTING

**Table 5: Diagnostics and Troubleshooting**

Issue	Possible Causes	Solution
Air hose coming loose from fittings	Air pressure above 120 PSI being used.	Regulate incoming air to 120 PSI
Mandrel slipping from grippers	Grip pressure too low Wrong mandrel material being used	Raise grip pressure Change to softer mandrel
Mandrel not stretching	Thruster pressure too low Wrong mandrel material being used	Raise thruster pressure Change to softer mandrel



## Equipment User Manual

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### CUSTOMER SUPPORT AND SATISFACTION

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Machine Solutions Inc. is proud of the advanced engineering and quality construction of each piece of equipment that we build. It is our goal to provide equipment that exceeds the expectations of the customer. By implementing the highest standards and applying our experience to provide a quality product, we maintain an ongoing, positive working relationship with all our customers.

Machine Solutions Inc. welcomes your comments and inquiries about our products and services.

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## WARRANTY AND LIMITATIONS

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### *General Warranty*

Machine Solutions Inc. (MSI) warrants its products to be free from defects in material and workmanship in normal everyday use and service for a period of one year from the date of shipment from the factory in Flagstaff, Arizona. MSIs obligation under this warranty shall be limited to the repairing or replacing of the product or parts thereof which upon MSIs inspection reveals them to be defective. MSI reserves the right and option to refund the purchase price in lieu of repair or replacement upon evaluation of the returned original part. Modifications, misuse, attempted repairs by others, improper calibration or operation shall render this guarantee null and void. MSI MAKES NO OTHER WARRANTY REGARDING THIS PRODUCT, INCLUDING ANY EXPRESS OR IMPLIED WARRANTY. SPECIFICALLY, THERE IS NO WARRANTY OF MERCHANTABILITY OF THIS PRODUCT OR OF THE FITNESS OF THE PRODUCT FOR ANY PURPOSES. THE SUITABILITY OF THIS PRODUCT FOR ANY PURPOSE PARTICULAR TO THE CUSTOMER IS FOR THE CUSTOMER, IN ITS SOLE JUDGEMENT, TO DETERMINE. MACHINE SOLUTIONS, INC. ASSUMES NO RESPONSIBILITY FOR THE SELECTION OR USE OF THIS PRODUCT BY CUSTOMER. This product has not been tested or approved by the U.S. Food and Drug Administration or any other agency of the U.S. government. This product is not a consumer product as that term is defined in the Magnuson-Moss Warranty – Federal Trade Commission Improvement Act, 15 U.S.C. § 2301 et seq.

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