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NEWMAN ROLLER FRAMES®

CONSTANT FORCE RETENSIONING on the **Newman Roller Master™**

Stretch the mesh quickly (**approximately** 1 minute) to the recommended tension level. Hold the tension for **approximately** 3 minutes and then lock the bolts as normal.

The low friction, 4-way simultaneous tensioning on the Newman Roller Master™, combined with a 3 minute holding stress, is equivalent to approx. 7 to 10 retensionings.

Retensioning mesh with the Newman Roller Master™ after the 1st print run and reclaiming combined with a 1 minute holding stress is equivalent to approx. 3 - 4 retensionings.

All the latest generations of super-high strength filaments prefer to be tensioned and retensioned quickly to high Newton levels.

The following tensioning, retensioning, and printing data is the result of 10 months of intensive research and testing at the Stretch Devices, Inc. technical facility and field test sites. Tests were conducted on the Newman Roller Master™ using Newman Roller Frames®.

Mesh tensioned on the Newman Roller Master™ using these procedures increases the rate and level in which the mesh both work-hardens during the initial tensioning and during subsequent retensioning after the 1st and 2nd print runs. Retensionings thereafter will be much less frequently required. A quick check of your screen tension level with your meter should be made after each print run. Generally it should **only** be necessary to retension your screen if it has lost 2 Newtons or more. This quick procedure will keep your screen as a **CONSTANT**. The mesh tensioned in this way will exhibit very stable and durable properties.

This method of tensioning allows virgin mesh (new screens) to be far more stable during the first print run. As always, virgin mesh will not be as dimensionally stable as mesh that has been printed with, reclaimed and then retensioned back to the same **CONSTANT NEWTON** level.

TECHNICAL FOOTNOTE: The mesh tensioned in this way will exhibit less overall internal differential stress.

Don Newman, President
Stretch Devices, Inc.
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NEWMAN ROLLER MASTER™ INSTRUCTIONS

READ ALL INSTRUCTIONS PRIOR TO USING!

1. Position your NRM (Newman Roller Master™) and make sure that it is level on the floor. Underneath one leg is a leveling bolt for height adjustments.
2. When you receive your NRM you will notice the control panel with two air valves attached to one side of the table top. The control panel is attached this way to avoid any damage during shipping. Remove the hex screws on the top bar of the control panel and remove the control panel from the table. Position the control panel to line up the hex screw holes on top of the bar and attach the control panel so it is now in the horizontal position and you are now looking down at the air gauges. **(MAKE SURE THE SWITCHES ARE IN THE “OFF” POSITION PRIOR TO CONNECTING THE AIR!)**
3. Connect the air hose to the main regulator valve. Just above the connector valve is the air flow valve which you will need to open. Turn this valve counter-clockwise about 4 full turns. **WE RECOMMEND THAT YOU KEEP MOISTURE OUT OF YOUR AIR LINES TO YOUR NRM.**
4. Check your air pressure and make sure both air regulators are set to the zero “0” position. This can be done without turning the switches on.
5. Ensure all 4 wrenches are attached to the cable and are above the table.
6. Prior to setting your frame on the NRM, make sure that the black set-screws (or frame locators) are positioned for your size/model frame. There is a plate with size and frame model indicators to follow. Use an Allen Wrench or Hex Key to make this adjustment.
7. You are now ready to stretch your frame.

Stretching With Your Newman Roller Master™

1. Place your NRF (Newman Roller Frame®) (mesh inserted properly) with mesh side up on your NRM locating or positioning the frame's corners to the black set-screws. These are simply used as guides to locate your frame quickly in position so the corners and black set-screws won't necessarily fit perfectly. This is normal. The black set-screws should not be underneath the corners.
2. Place each wrench onto the hex nut or end plug of the frame making sure that each wrench is centered to the slot that it will travel down into.
3. Loosen each bolt on your frame about two full turns.
4. With the air hose attached set both air regulators to 20psi. If the air regulator knob will not turn, gently pull up on the knob to unlock. You should hear a click sound.
5. Turn both air switches “on” simultaneously. This will rotate all 4 rollers at the same time. Make sure that none of the wrenches are hitting the table top during this process. If they are, turn off the air and reposition the wrenches. **DO NOT MANUALLY FORCE ANY OF THE WRENCHES TO ROTATE AT ANY TIME DURING THE TENSIONING PROCESS!**

6. Place your tension meter on the mesh in the center of your screen. Check your tensions in both directions keeping the meter in the same centered location. Proceed by increasing the tension in the direction of the lowest tension reading. To do this, you must slowly increase the air using the air regulator. Selecting the correct air regulator is important. Labeled above each air regulator is a white “directional indicator arrow” indicating which direction it controls. Increase the air and tensions from both directions until you have finally achieved your desired tensions. A Newman Roller Mesh tension chart is provided. If other mesh is used, contact your mesh manufacturer for recommended tensions.

Note: Do not manually force any of the wrenches to turn! Slowly increase the air while watching the tension meter. The amount of psi on the regulator gauge does not relate to tension or Newtons. It is important to always use a properly calibrated tension meter to ensure accuracy. It is also normal for the air to increase initially before you will see your tensions increase. For this reason, we suggest you increase the air slowly and then wait a few seconds for the tension to increase.

7. Once you’ve achieved your desired screen tension remove your tension meter and place it back in its case. Leave your NRF on the NRM for a minimum of 3 minutes before tightening the bolts.

Final Process

1. After 3 minutes, using your SDI Calibrated and Certified Torque Wrench (set at a minimum of 45 foot pounds) turn each bolt in a clockwise direction until you start to feel resistance and then **STOP! DO NOT FULLY TORQUE!** Do this for every bolt in a clockwise direction finishing up at the corner you started with.
2. Starting with the very first bolt again, and in a clockwise direction you will now FULLY TORQUE each bolt until you hear a “Click” indicating that you have reached the required degree of torque. Do not turn the torque wrench past the “Click” sound, or you may over-torque the bolt. Continue to FULLY TORQUE, finishing up at the corner you started with.
3. Your frame is now finished and no further tensioning is required until it has gone through a full printing cycle and brought back for re-tensioning.

NOTES:

- Do not manually force the NRM wrenches to turn.
- It is common that during the final process of torquing the bolts you may see up to a 4 to 6 Newton increase in your tension. Should this happen, simply reduce your initial tension therefore achieving allowing the increase to make up the difference.
- The wrenches on the NRM are independent in two directions by design to allow it to work with the mesh during stretching. Do not expect all 4 wrenches to move equally as it rotates. Wrenches in different positions is normal as long as your screen tensions are even and consistent in both directions and throughout your image area.

For additional questions please don’t hesitate to contact us or your nearest local dealer for assistance.

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NEWMAN ROLLER MESH® TENSION CHART

Mesh Count	CM	% Open Area	Max. Tension Newton/cm	Weave	Color
N40	16/cm	64	60	PW	Yel
N58	24/cm	47	75	PW	Yel
N88	34/cm	48	80	PW	Yel
N102	43/cm	55	48	PW	Yel
N115	45/cm	42	75	PW	Yel
N128	50/cm	47	65	PW	Yel
N166	65/cm	39	63	PW	Yel
N205	81/cm	38	62	PW	Yel
N228	90/cm	36	62	PW	Yel
N272	107/cm	37	52	PW	Yel
N300	118/cm	32	43	PW	Yel
N380	150/cm	33	34	PW	Yel
N380	150/cm	34	28	PW	Yel

NOTE: For mesh brands other than Newman Roller Mesh®, please consult the mesh manufacturer for recommended mesh tension levels.

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