DYNAMESH

G-METER TENSION METER

The DYNAMESH G-Meter Tension Meter is a highly accurate, gravity-driven, field-repairable tension meter.

ADVANTAGES

- Simple to use
- Clearly marked dial ranging from 11 to 50 N/cm
- Compact and light (3” x 5” x 2”, 1.8 lbs)
- Solid construction

USAGE

1. Place the meter on the screen.
2. Read screen tension directly from the dial. Tension is displayed in Newtons per centimeter (N/cm).

Screens are usually made with “warp” and “weft” threads running parallel to the frame and perpendicular to each other. Ideally, the tension in the warp threads should be the same as in the weft. The G-Meter measures tension parallel to the measurement bar, from left to right when viewing the front of the dial. To measure tension in the opposite thread direction, simply rotate the meter 90 degrees so that it is parallel to the threads you would like to measure.

When tensioning a mesh along either the warp or weft threads, the tension in the opposite direction will be affected, though not to the same degree. This is due to the interlocking pattern of the woven threads. Placing the G-Meter diagonally relative to the weave pattern provides a composite tension reading influenced by both warp and weft tensions. Note too that tension varies across different portions of a stretched screen. Most printers will be interested primarily in the tension within or at least very near the print area of the screen.

MAINTENANCE

It is very important to keep the G-Meter clean, especially the three stainless steel screen contacts. Any dirt or residue that adheres to any of those three parts will cause the meter to give inaccurate measurements. This includes emulsion, ink, screen adhesive, tape, or even tape residue. A small piece of masking tape, for example, can cause the reading to deviate by up to 5 N/cm. The magnitude of the variance will only increase as screen tension increases.

While the wide measurement bar makes the G-Meter more resistant to such issues, no device is immune. As a result, it is critical to keep the stainless steel contact surfaces clean. These contact points can be cleaned using emulsion remover, mineral spirits, lacquer thinner, or isopropyl alcohol, which will not harm the stainless steel or paint. Apply these solvents sparingly using a cotton swab or small cotton ball.

It is not necessary to perform a zero check before each use. However, it should be performed as part of regular maintenance. To do so:

1. Use the surface plate included in the meter storage case. The plate must be perfectly clean.
2. Gently place the meter on the plate. The indicator hand should rotate two revolutions and come to rest in the straight up—or twelve o'clock—position directly over the zero mark on the dial.
3. If needed, adjust the location of the zero mark on the dial either to the right or the left, though not more than 30° (the one o'clock or eleven o'clock position).
4. After rotating the bezel ring, gently re-tighten the clamp screw.

If the meter cannot be zeroed within the 30° range, the entire indicator head will need to be adjusted either up or down against the top plate of the meter body. To do so:

1. Place the G-Meter firmly on the included surface plate.
2. Locate the small hole in the rear center of the top plate and insert a 5/64 hexagon key (Allen wrench) into the hole until it engages the set screw within. This screw holds the indicator in place.
3. Loosen the screw a half turn or less.
4. Move the indicator up or down very slightly and very carefully. As you do, the hand will move. Adjust the vertical position of the indicator until the hand is pointing straight up.
5. Tighten the set screw.
6. Carefully rotate the bezel ring as needed so that the zero mark falls directly under the hand.
7. Lift the meter off the surface plate and gently place it down again while observing the hand. It should rotate through two revolutions.
8. Repeat the vertical adjustment until the device is properly zeroed.

Once zeroing is complete, the meter will automatically calibrate itself and remain accurate unless it is damaged. The indicator will not ordinarily shift in the meter body unless the G-Meter has been handled roughly or dropped. If it becomes necessary to perform the above adjustment, be sure to inspect the entire meter for damage.

> **NOTE:** When the meter is lying in its storage case or when it is held by hand the indicator hand may rest at any location on the dial. That is normal. Do not adjust the bezel ring unless the meter is on the surface plate.

If the meter no longer operates smoothly, there may be damage to one or more components. To inspect for damage:

- Check the main cylinder at the center of the meter for dents.
- Check the bottom of the meter. Inspect the slot that houses the bar for accumulated dirt or foreign matter.
- Carefully inspect the indicator head. If it is damaged or bent there may be internal damage as well. As the indicator head is not user repairable, please contact NBC Meshtec Americas for a replacement part.
- Hold the meter upright in one hand, as if to place it on a screen. Use a finger to raise and lower the measurement bar in the middle of the base. It should move smoothly without any perceptible roughness. If there is some roughness or binding, follow the instructions below for disassembling the meter.

DISASSEMBLY

The G-Meter must be disassembled to clean the interior or inspect the inside of the cylinder. To do so:

1. Locate the small hole in the rear center of the top plate and insert a 5/64 hexagon key into the hole until it engages the set screw within.
2. Loosen the set screw until the indicator head can be fully removed.
3. The top plate of the meter has two stainless steel screws that hold the meter together. Before removing the screws, look at the back of the large center cylinder, near the bottom of the left-hand assembly screw. Locate the small stainless steel pin inside the small slot at the bottom of the cylinder and take note of their positions. When reassembling the meter, the pin and slot will need to be returned to this exact orientation. (The purpose of the slot and pin is to keep the bar aligned with the exit slot in the bottom plate.)
4. Use a 3/16-inch hex key to remove the two assembly screws along with their sleeves and O-rings.
5. Lift the top plate away from the cylinder.
6. Lift the cylinder up and away from the brass piston that is inside the cylinder.
7. Carefully clean all parts. As there is very little clearance between the piston and the cylinder, foreign matter of any kind can cause the piston to bind inside the cylinder. Clean the inside of the cylinder and the outside of the piston. Look inside the hole at the top of the piston to ensure there is no foreign matter within, especially at the bottom of the hole.

To reassemble the meter:

1. Replace the parts in the reverse order in which they were removed.
2. With the bottom plate resting on a table or workbench, place the piston in the cavity of the lower plate. Ensure that the small stainless steel pin is at or very near the previously observed position.
3. Slide the cylinder down over the piston, keeping the small slot of the cylinder lined up with the pin embedded in the piston. The slot in the cylinder must be at the bottom as it engages the pin.
4. Place the top plate over the cylinder so that the shallow cavity in the plate engages the top of the cylinder.
5. Replace the two large assembly screws along with their sleeves and O-rings.
6. Tighten the two screws carefully. You should feel the top plate contact the top of the cylinder. Tighten the screws evenly so that the top plate is level with the bottom plate. Check the vertical motion of the bar. It should move smoothly without any resistance beyond that of its own weight.
7. Replace the indicator head and tighten its set screw.
8. Re-zero the G-Meter according to the above instructions.

The meter is now ready for service and will maintain its accuracy without any further adjustment.