

Subject: (NOMINAL) THICKNESS & MEASUREMENTS

Reason for Bulletin: Clarity on what nominal thickness is; as it relates to Dec-Tec; a method for measurement.

Details:

Single Ply Membranes are measured in "mils". What is a mil? A mil is a measurement that equals one-thousandth of an inch, or 0.001 inch. One mil also equals 0.0254 mm (millimeter). Thus, a mil is not the same thickness as a millimeter. The term "mil" is not an abbreviation but a definitive unit of measure. To provide meaningful perspective, please see the chart below:

Thickness	Item
1 mil	Human Hair
3 mils	Plastic Grocery Bag
4 mils	Standard Piece of Paper
6 mils	Plastic Poly for Homes
10 mils	Business Card
30 mils	Credit Card
53 mils	Dime
60 mils	Penny
75 mils	Nickel
750 mils	Common Playing Deck of Cards including Box

Dec-Tec membranes have a "nominal" thickness of 60 and 80 mils. What is nominal thickness? In manufacturing, a nominal size is a size "in name only" used for identification. The nominal size may not match any dimension of the product, but within the domain of that product the nominal size may correspond to a large number of highly standardized dimensions and tolerances.

These tolerances can be best understood when looking at the difference between "real value thickness" and "nominal value thickness". From a philosophical viewpoint, nominal value represents an accepted condition, which is a goal or an approximation, as opposed to the real value, which is always present. Often a nominal value is de facto rather than an exact, typical, or average measurement.

Test Agencies such as the American Society for Testing Materials (ASTM) allow manufacturers to produce a membrane 10 percent thinner, or thicker, than its labeled thickness, meaning that a membrane labeled 60 mils could actually be 54 mils to 66 mils and still be in compliance.

Based on the above, and as it relates to Dec-Tec:

- a.) 60 mil nominal thick membrane could be measured to an actual thickness range between 54 and 66 mils thick.
- b.) 80 mil nominal thick membrane could be measured to an actual thickness range between 72 and 88 mils thick.

Note: Dec-Tec is manufactured with realized actual thickness variances that are more within the 5% tolerance range.

This exceeds the ASTM tolerance. Therefore:

- a.) 60 mil nominal thick Dec-Tec membrane typically measures to an actual thickness range between 57 and 63 mils thick.
- b.) 80 mil nominal thick Dec-Tec membrane typically measures to an actual thickness range between 76 and 84 mils thick.

How to Measure a Single Ply Membrane:

A common method to measure thickness is to use an Electronic Digital Caliper tool.

Features include:

- Use for inside, outside and depth measurements
- 6" range (150mm)
- Easy to read large LCD display
- Set zero at any position in measuring range
- Lock knob
- Fine-adjust thumbwheel
- Stainless steel components
- Protective storage case
- Includes battery in device and spare



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- Step 01** Loosen lock knob.
- Step 02** Push ON/OFF button to turn tool on.
- Step 03** Check to ensure caliper is completely closed by turning thumb screw clockwise.
- Step 04** Press the Zero button to confirm zero point.
- Step 05** Press the inch/mm button to toggle between inches or millimeters.

NOTE: This device measures inches to one thousandth of an inch (0.001), which we now know is equal to 1 mil. Therefore, simply ensure your setting is always on inches and the reading when measuring membranes, will always easily be interpreted as mils.

- Step 06** Rotate thumb screw in a counter-clockwise direction until the inside measure faces the surface of the bottom and top of the membrane being measured.

Note: As PVC is a product that has some compressibility, you want to make sure not to clamp down tightly on the membrane. The caliper should be snug but still be able to slide on the membrane. A tight clamp would compress the membrane and yield a false reading.

- Step 07** The LCD display now shows the dimension of the object.
- For Dec-Tec 60mil it will read a thickness of 0.060 (+/- 5%)
 - For Dec-Tec 80mil it will read a thickness of 0.080 (+/- 5%)



If you have any questions concerning this bulletin, please e-mail Dec-Tec, Technical Support at technical@dec-tec.com

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