

Post Dicing Tape Expansion

Overview

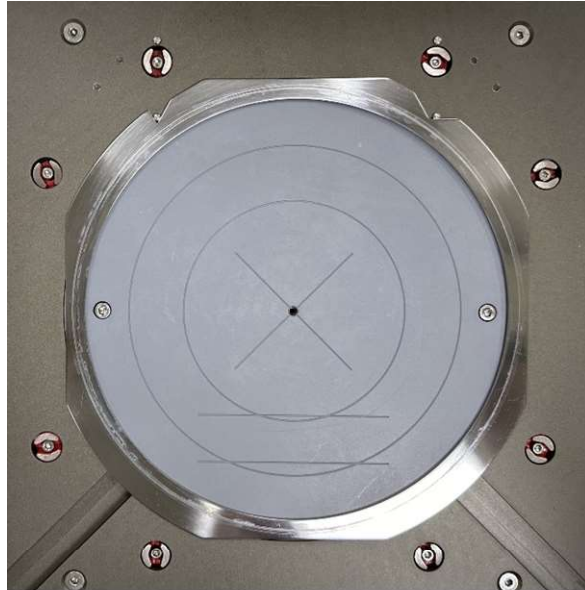
This SOP covers how to perform tape expansion post dicing using the SEMICORP 3150 Tape Applicator and the Loomis Expander Unit.

Restrictions & Precautions

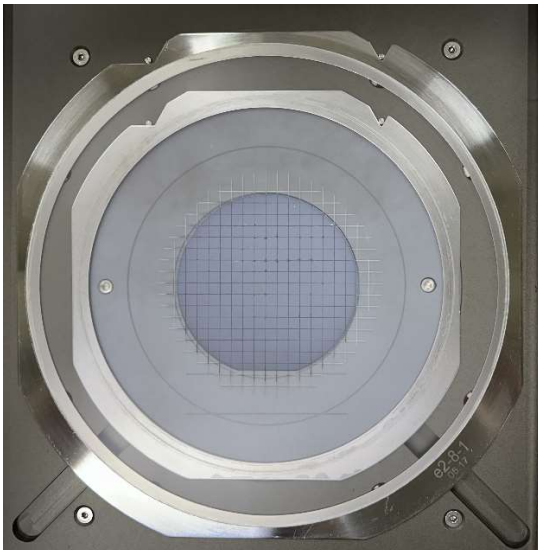
Wafer/sample area must be $\leq 6''$ in diameter

Operation

1. Open the cutter cover of the SEMICORP 3150 Tape Applicator. If there is not one present, place a 6" tape frame on the platen and push the notches of the frame against the frame locating pins to center.

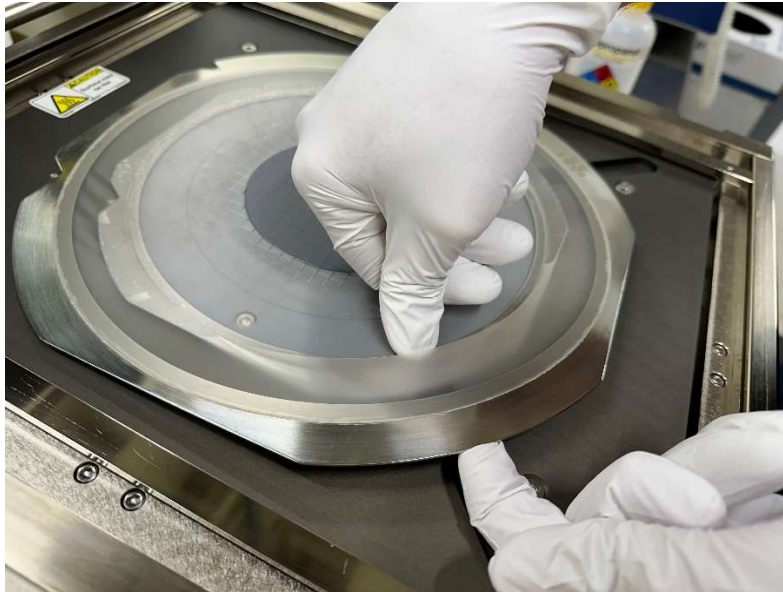


2. Place your 8" tape frame, sample/sticky-side down, onto the platen at an angle so that you are pushing the notches of the frame against the frame locating pins. Then slowly lay it down on top of the 6" tape frame below. Do not let it touch the 6" tape frame if it is not centered on the platen!

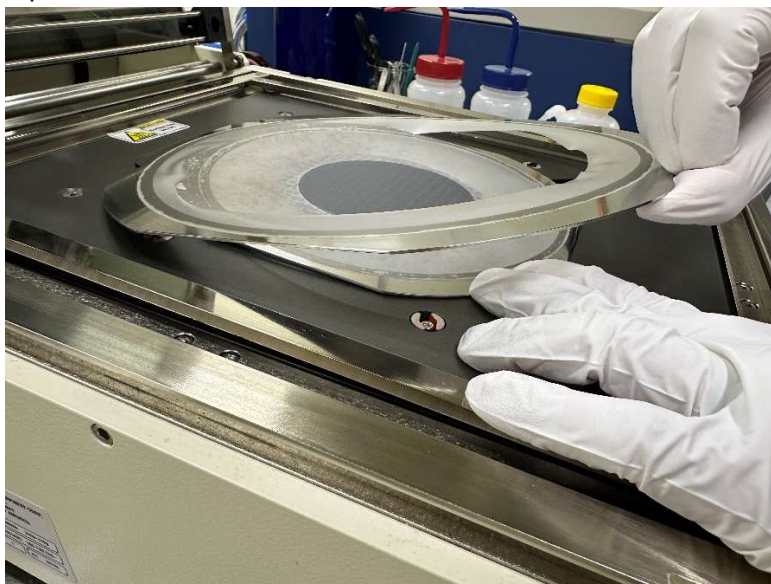


Post Dicing Tape Expansion

3. **OPTIONAL:** Turn on the chuck vacuum.
4. Use a finger to press the tape on to the inner half of the 6" tape frame.
5. Close the cutter cover and use the circular cutter to trim off the excess tape around the 6" tape frame by pushing down on the cutter handle and rotating it in a full circle. A couple of passes should be adequate.
6. Open the cutter cover and carefully remove the 8" tape frame along with excess tape around the 6" tape frame. One way to do this:
 - a. Press a finger against the inside edge of the 6" tape frame and use a finger from your other hand to begin lifting up the 8" tape frame from one of the front corners.



- b. Once you get the 8" tape frame high enough, stop pulling up on it.
- c. Remove your finger from the 6" tape frame and use that hand to grasp the 8" tape frame. Now use your other hand to hold down the 6" tape frame and remove the 8" tape frame.

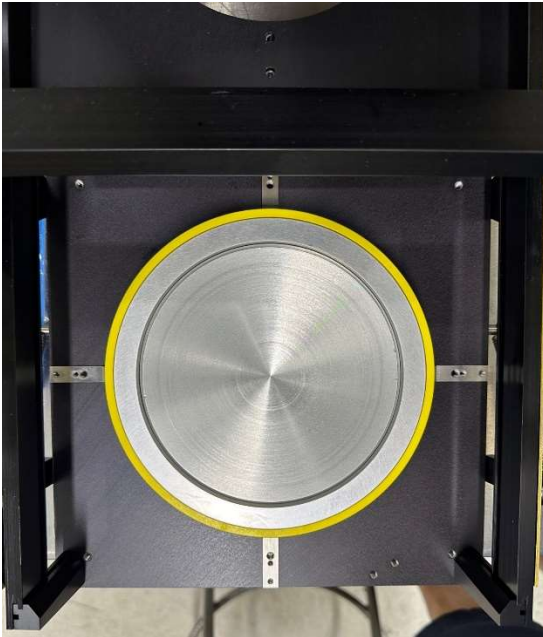


Post Dicing Tape Expansion

7. Turn off the chuck vacuum, if used, and remove the 6" tape frame which now has your sample transferred to it.
8. Place the center disc and 7" ring adapter on the Loomis expander unit.

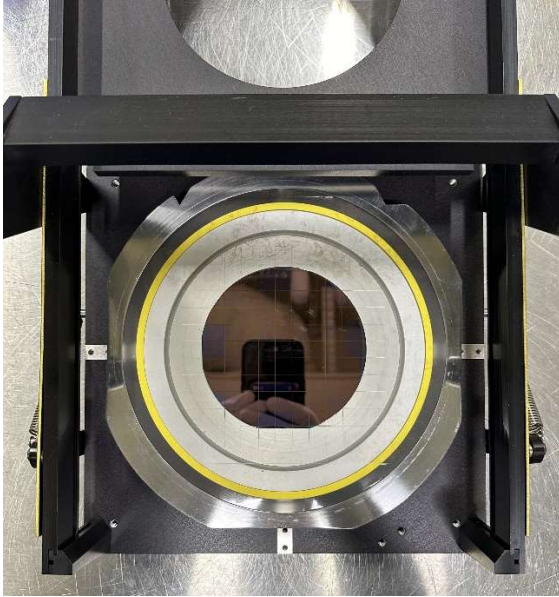


9. Place the inner/smaller hoop of the 7" hoop set around the adapter. The hoops have a rounded edge and a sharper edge. The rounded edge must be facing up for the inner hoop, as shown in the sketch below.

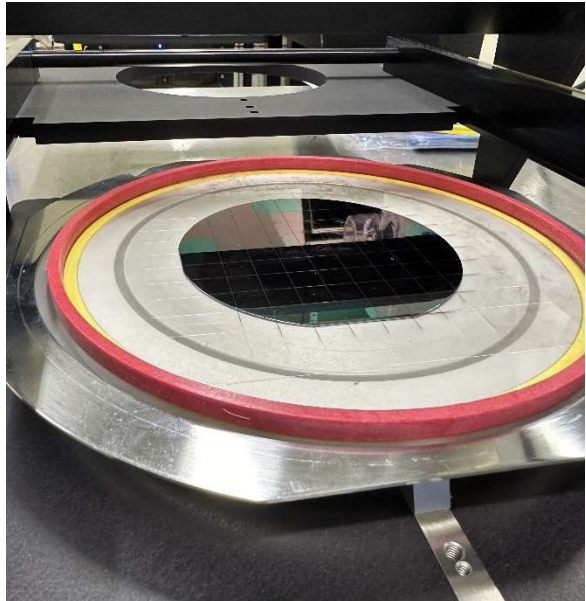
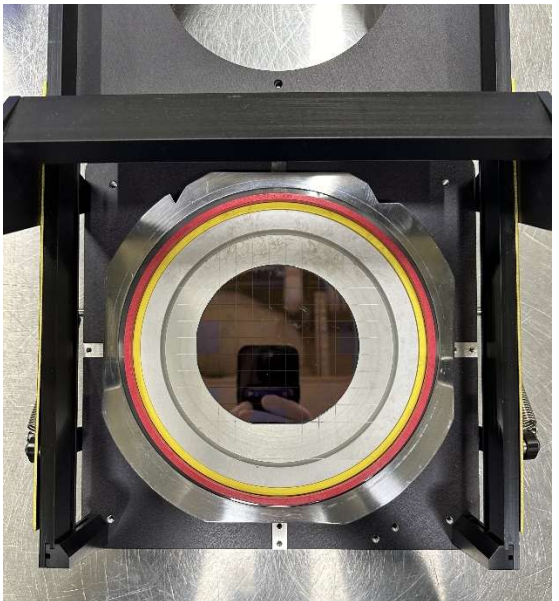


Post Dicing Tape Expansion

10. Place the 6" tape frame, sample/sticky side up, on top of the disc and adapter. Visually center the tape frame around the hoop.



11. Place the outer hoop on top of the tape with the rounded edge side down. Visually center it around the inner hoop as you place it on the tape as it will stick to the tape.

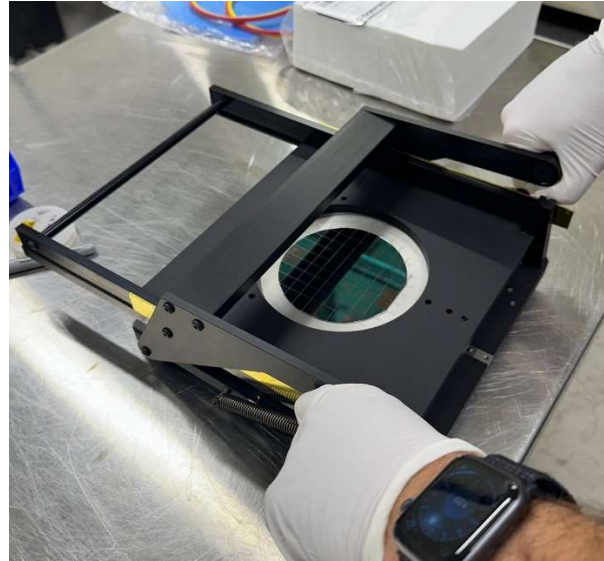
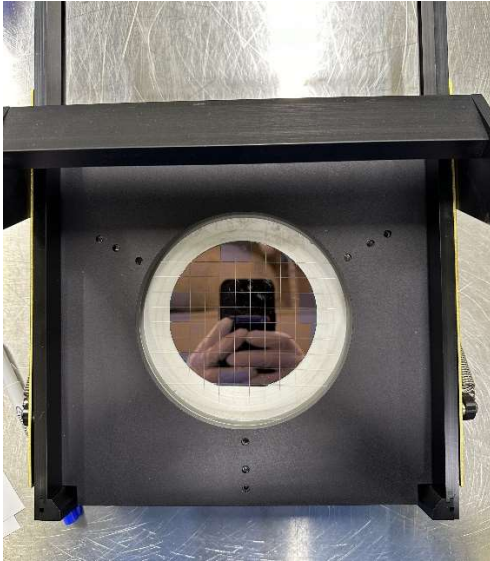


NOTE: The side of the hoop that should be facing up has PERFECTION stamped on it.



Post Dicing Tape Expansion

12. Slide the upper plate towards the sample until it stops and then push the handles down. This will engage the rings with the dicing tape in between them. As the rings are pressed together, they capture the film and stretch it along with the diced wafer.



13. Release the handles. If the sample sticks to the upper plate, push down on tape to release it and then slide the upper plate out of the way.
14. Use an Exacto knife or razor blade to carefully cut away the extra tape along the edge of the outer hoop. This is easily performed by holding the blade stationary and rotating the tape frame.



15. Remove your hoop mounted sample and the tape frame from the expander. Peel off the excess tape from the tape frame and discard it in the trash. Return the tape frame to the SEMICORP 3150 Tape Applicator (see Step 1).
16. Your hoop mounted sample can now be placed in the UV release system.
NOTE: Starting with an initial cut width of $120\ \mu\text{m}$, one tape expansion process resulted in the die being $350\ \mu\text{m}$ apart. Performing an additional tape expansion increase the gap to $490\ \mu\text{m}$.

Post Dicing Tape Expansion

17. To perform an additional tape expansion; place the sample back in the expander unit and place another outer hoop over the existing outer hoop with the rounded edge side down. Now repeat Steps 12 and 13, then remove you hoop mounted sample.

