**Suss Bonder Recipe Guidelines and Rules**

**Basic Recipe Sequence:**

1. Purge step to 1000 mbar with upper and lower limits set to 10%.
2. Pump down step to desired pressure.
   1. If pressure is of no concern, then set to 7.0e-1 and don’t set any limits.
   2. If wafer to wafer alignment is critical, then set to desired pressure with upper and lower limits set to 10%.
3. If wafer to wafer alignment is critical, then create an additional 3-minute wait step (Set Wait Time) at the desired pressure. This will reduce the possibility of substrate shifting due to pump down turbulence.
4. Contact step with Wafer Thickness set to 0.

**IMPORTANT:** Entering a substrate thickness at this step WILL cause damage to the bonding fixture and the tool!! If you lower the bottom plate before clamps and spacers are removed you run the risk of being so low that the tool cannot actuate the clamps and spacers. If needed, you can add a second contact step (see below).

1. Clamps Off step.
2. Spacers Out step (even if you are not using spacers).
3. Optional second Contact step with stack thickness specified. Second Contact step is used when entire stack thickness (subs, pucks, etc.) is >2,000 µm (2 mm). For reference, the SiC (chamfered edge) and graphite pucks are 4,000 µm thick.
4. Temperature ramp and stabilization steps to reach desired bonding temperature (**500°C max**). It is recommended to unselect the upper limit for both Top and Bottom Temp during ramp up and ramp down steps.

**IMPORTANT:** Temperature/Time Rules:

* 500°C for a maximum of 2 hours
* 475°C for a maximum of 4 hours
* 450° for a maximum of 8 hours
* 425°C for a maximum of 10 hours
* No time limits for 400°C and lower

**NOTE**: The top heater heats up slower than the bottom heater.

1. Tool Down step with Tool Pressure set to 0 and no limits set.
2. Tool Pressure steps to reach your desired Force (See Tool Pressure Rules posted at tool ).
3. Tool Pressure step with:
   1. Tool Pressure set to 0.
   2. Upper Limit set to 215
   3. Lower Limit set to 10.
   4. Wait Time set to 30 seconds.

**IMPORTANT:** YOU MUST HAVE THIS STEP OR SYSTEM DAMAGE WILL OCCUR!!

**NOTE:** If you don’t set this step up like this, the recipe will get stuck at this step.

**IMPORTANT:** ALL STEPS AFTER THIS MUST HAVE TOOL PRESSURE SET TO 0 WITH NO LIMITS SET OR SYSTEM DAMAGE WILL OCCUR!!

1. Tool Up step with Tool Pressure set to 0 and no limits set.
2. Temperate ramp down step(s).
3. Purge step to 1000 mbar with upper and lower limits set to 10%.

**NOTE:** When creating or modifying a recipe, always run a Recipe Check.