

## A SHORT GUIDE ON BEATING PULP

Harry Reese (Spring 2005)

1. All three hollander beaters are Valley 1 1/2 lb laboratory beaters, made by Voith-Allis, a division of Allis-Chalmers Inc. This machine is an industrial tool without a brain. You have to supply the intelligence. Which means: do not assume a thing. Be careful at all times. It is a powerful tool that may cause harm if used improperly or carelessly. **Do not use the beater until you are completely familiar with, and trained, for all the safety and clean up procedures.**

2. The beater holds a maximum of 1 1/2 lb. dry weight fiber that has been suspended in approximately 7-8 gallons of water. Usually, you should add no more than 1 to 1 1/4 lb. dry weight, depending upon the specific fiber. It is also important to have enough fiber in the machine. The papermakers have a useful expression: "You can't beat water."

3. The secret to adding fiber to the beater is to do it slowly, in small increments. You need time, patience, and practice. It takes a long time to learn how to beat fiber. Take accurate notes about what you beat, how long it takes, etc. As a general rule, I use approximately 1 1/2 full cotton linters as dry weight per beater load. You may substitute other fibers for the linters – such as abaca, cloth, bast fibers, or scraps of various art papers.

**4. While you may work successfully in teams, only one person at a time should operate a beater.**

5. There are two primary settings for the bed plate. Although the blades on the roll are fixed permanently in position, papermakers customarily say that the blades of the roll may be in the "up" or the "down" position. By a mechanical connection, the set screw determines the relation of the bed plate to the blades.. When the contact between bed plate and blades is in its upper most position, pulp swirls around in the beater as if it were in a blender. There is little contact between the blades and the bed plate. In the "down" position, you can hear the roll blades scrape against the bed plate.

6. Most fibers beat best in the "down" position. Usually you will hydrate the pulp in the "up" position, then quickly move to the "down" position. The last 10 minutes of beating should be in the "up" position to "clear" the pulp, and remove clumps and knots. (My thanks to Peter Thomas for this tip.)

7. If the beater is clogged, then turn off the power and clear the backfall area by hand. Do not, under any circumstance, try to unclog the machine while the power is on. Never stick your hands into the beater while the power is on. Be careful not to lean on or over any off/on (reset) switch. Stay away from power switches. If the power cannot be restored, there is a good chance that a circuit, or GFI button, has been broken. We will discuss that procedure.

8. I refer to cotton linters as "bisquick," as they can take very little time (relatively) to beat. The longer you beat them the creamier the pulp will get. Plan on 30 minutes minimum beating time all the way to two hours. Another saying every papermaker will repeat: "Paper is made in the beater."

9. When using rags, cut them into small, approximately one inch, squares and feed them in slowly. Make sure you have at least three hours to do this properly. Remember: beating is an important part of the art, as necessary as cooking soup or baking bread. Be prepared to stop the motor and unclog the beater if needed. You should be around the beater to notice what is going on, so don't just turn on the machine and take off. Bring a book with you, preferably one on papermaking.

10. Clean up: give yourself at least 20-30 minutes to clean up. It is very important to flush out the beater and thoroughly clean out the rubber diaphragm area that is positioned under the roll and bed plate. A continuous flushing, with the built-in hoses or by hand, is necessary. Clean up everything, including the beater, all the tables, felts, and vats. Sweep up the yard, and empty the trashcans.