Monster Brewing Hardware - Monster Mill! - MM-2/3/2.0 Instructions

Congratulations on your purchase of one of the finest home brewery grain mills available. This mill is designed for a lifetime of use, and easy operation with fantastic performance. Please read these instructions carefully, they should help you avoid any problems with the performance of your mill. Most questions we receive are covered here.

The gap:

Leave it where it is to start! Most of your milling will be very close to, or a little tighter than the factory setting. The adjustable gap is set at 0.045" on all of our mills when they are assembled. The thumbscrews are tightened by hand, and should not be loose when you get the mill. If the adjustment knobs will turn when you receive the mill, then the thumbscrews may have loosened during shipment, and you will need to check the gap setting. As long as the setscrews have not loosened during shipment, I recommend that before you change the position of the idler roller that you get out a sharpie pen, and make small tic marks on the frames, and on the knobs, that line up with each other. Make a mental note that this mark is at .045", or label it as such. A center punch can also be used for a more permanent mark.

The base:

The four 1/4-20 bolts mount the frames to a base that will attach to a bench or sit on a bucket, hold a hopper, and allow the grain to pass from the hopper into the roller gap and out the bottom. The mill can be above or below the base. It is VERY important to use a straight flat base that will keep the frames aligned properly. If the frames aren't straight, you may have problems getting the idler rollers to spin freely, causing feeding problems. High-density fiberboard is a good choice. The 4 included mounting bolts are usually screwed into what is considered the top of the mill when the mill is assembled. If you are mounting the mill above the base, you'll have to remove them, and move them to the holes in the bottom of the frames when you mount the mill to its base. When the mill is mounted above, or below the base, the text on the side of the mill "MONSTER MILL" should still be upright.

If you have purchased our base and hopper assembly, and plan to drill drive your mill I recommend that you mount the drive shaft of the mill toward the center of the base. This will allow the weight of the mill to counter balance the weight of the drill, and should allow the mill to sit on top of your grist bucket without falling over. You will need to hold the drill sideways when it is mounted to the mill drive shaft, but this is easy to do, and will make the whole assembly balance. Be careful! if your grist bucket with the mill and base on top falls over with the drill mounted to your mill, it is possible to bend the drive shaft. (ask me how I know!)

The mounting bolts are centered at approximately 2-7/8 by 6-5/8" for the MM-2, and MM-3, and at 3- 7/8" by 6-5/8" for the larger MM2-2.0, and MM3-2.0 mills. Provide clearance in the holes by drilling with at least a 5/16" drill bit. This will allow room for adjustment. The input hole between the mill and the hopper can be as large as 5" by 1.5", centered over the gap. The crank can turn clockwise or counterclockwise when milling, as long as it turns such that the grain will be pulled down into the gap. As long as you're using the standard 3/8" drive shaft, the drive roller can be turned around easily if necessary to put the crank on the opposite end of the mill. Remove the drive roller from the frames, and turn it around so that the drive shaft is inside the opposite frame. If you have the larger ½" drive shaft it will be necessary to press the bushings for the driven roller out, and back into the opposite frames. Make sure to use a press or vice, and go slowly, as it's impossible to get them in straight with a hammer. Make sure that you press the bushings a tiny bit through the frame to the inside so that the rollers ride on the edge of the bushing, rather than against the aluminum frame. When mounting the frames to your base, first completely tighten one frame to the base, next feel for the center of the free play that is in the axles, and make sure that the rollers spin freely. They should keep spinning for a moment after you roll them quickly with your hand. After you find the middle of the free play, slowly tighten the other frame, making sure that the rollers continue to spin freely. Tighten and check until you have both frames snug to the base. You should also make sure that there isn't excessive endplay that will allow the rollers to slide back and forth too much. .030" is plenty. A little more or less is fine, but they shouldn't move that much.

The hopper:

A box or funnel can be fastened over the mill to channel the grain to the roller gap. Leave room to get to the frame mounting bolts and bushings to expedite maintenance. I personally use a square shaped cone made out of Masonite. It sits on top of the mounting base in the slot over the mill gap. A correctly designed hopper must channel the grain down into the gap of the mill, and not let it bounce over the tops of the rollers, or let it get caught between the ends of the rollers and frames. To do this properly, the slot feeding the mill should be less than or equal to 5"long, and the hopper or other base parts should almost touch the rollers to keep the grain from clogging up the non-driven rollers. Please see the pictures on our web site for ideas. A slot over the top of the mill dropping grain all over the top of the rollers won't work properly, and will cause feeding headaches right from the beginning. If you add sides to your mill when it is top mounted, grain can get caught between the idler rollers, and these sides causing feeding problems if your hopper doesn't correctly keep the grain directed down into the roller gap, and away from the ends of the rollers.

Adjusting the gap:

You've already milled, and brewed with some grain that you crushed with the factory gap setting, right? Now your ready to test the mettle of your lauter ton, and turn up the efficiency. Loosen the setscrews. Turn the stainless knobs to change the gap. The gap that you want to set is between the drive roller, and the idler roller on the MM-2/MM2-2.0 (the only gap), and between the top DRIVEN roller, and the bottom third roller on the MM-3/MM3-2.0. The grain will exit this gap at an angle when milling on the MM-3/3-2.0, and straight down out the bottom on the MM-2/2-2.0. When setting the gap on the 3-roller mills it is important to make sure that you set the gap such that the area in the middle of the 3 rollers is maximized, that the bottom idler is furthest away from the top non-driven idler roller, and that both ends of the adjustable roller are set in the same manner. It is possible to set the same gap spacing with the knobs in two different positions. If you are looking at the mill from the drive shaft end, drive shaft to the left, and the adjustable bottom roller is set at its lowest position (6 o'clock), you must turn the adjustment knob clockwise until the gap is correct. This setting is **VERY** important for the 3-roller mills to feed properly. Looking at the opposite end of the mill, you need to turn that knob in a CCW direction to set the gap. If your mill is gapped incorrectly, you will have problems with feeding, and the bottom roller may bind. Its important if you top mount the three roller mill that you cover the side of the mill to keep grain from spilling out all over the place. Sheet plastic from the hobby store works great. When making adjustments, the knobs should be turned the same amount and direction to keep the idler roller parallel to the drive roller. Tighten the setscrews by hand as tightly as you can using your fingers. The radiused end of the thumbscrew should grab the matching groove in the knob, and keep it from moving. Excessive pressure shouldn't be necessary. If you have any problems with the knobs coming loose, you can use a small set of pliers to tighten the thumbscrews. To measure and repeat the setting, you'll want to calibrate your mill. Use a feeler gauge, and pick a measurement that you'll want to repeat. A feeler gauge is a commonly available tool at most auto parts stores consisting of a small stack of metal blades of different thicknesses. I suggest .045" as a good starting point. Your mill should be factory set at .045" out of the box, and the setscrews should be tight. Loosen the thumbscrews, open the mill gap, and insert the shim stack that you want to use for calibration. It's fine to use more than one shim that adds up to the gap you want to measure. Slide the shims into the gap on one end of the roller. Tighten the adjustment knob on that end so that the feeler gage is tight in the gap, and then tighten the thumbscrew on that knob. Repeat this process for the opposite end of the roller. The feeler blades should go into the gap with reasonable force, and be tight enough to make the rollers spin. Make a small tic mark on both the knob, and frame that line up, and label the tic mark on the frame with the measurement that you made. This will allow you to go back to this setting any time, and go tighter or looser depending on how fine you want your crush.

Maintenance:

After milling, brush the grain dust off the rollers with a dry brush. Do not use water. Keep the frame mounting bolts tight. The bushings are impregnated with clean oil. All moving surfaces are oiled with food grade mineral oil when your mill is assembled. If you decide to add more oil, and are concerned with oil contacting the grain, then you are using an excessive amount. The rollers' surfaces may be covered with the same food grade mineral oil that we use to lubricate the axles to protect them from corrosion during storage, and shipping. It's harmless, and will come off the first time you mill. We do not oil the stainless rollers, except on the axles. If you're worried about corrosion, we offer small bottles of our food grade mineral oil for sale. It is safe for food contact, and can be used on all the mill surfaces.

Use:

Once you've set the mill up with a base and a hopper, fastened it to something sturdy, and checked to see that it's safe, attach your drill to the drive shaft. A gap of .045" will produce a medium crush. .055" turns out a coarse crush. .038 to .040" should provide a great fine crush with great extraction efficiencies. Experimenting with different settings can improve yields. Recipes including wheat and rye sparge easier with a coarse barley crush. If you have any problems or questions please feel free to contact info@monsterbrewinghardware.com. Before using your mill the first time, run a pound or so of malt through it a few times to clean the rollers. This will assure you that you won't get anything you don't want in your first Monster beer.

Drill driving:

It's important to use a high quality drill to drive your Monster Mill. The MOST important thing to do is to make sure that the fingers of the drill chuck grab the mill's drive shaft on the three flats that are machined onto the shaft. As long as the chuck is tight, and lined up on the three flats, you should eliminate any chance of the drive shaft slipping, and will avoid damage to your new mill. All of our mills, and especially the 3-roller models require a decent amount of power to turn effectively, and an el-cheapo 3/8" drill might kick the bucket in the middle of a long crush session. If you have the standard 3/8" drive shaft on your mill, then a high quality corded 3/8" drill should do the job. If you opted for the larger ½" drive shaft for future motorization, you'll need a better, bigger ½" drill to accommodate the large shaft. Drills are sized according to the largest shaft size that the included chuck will handle. In general, a larger chuck, also equates to a larger motor, and more power too. It's also important to get a drill that has variable speeds. Most drills today are variable speed, but many lower quality models can have a single speed, which will most likely be too fast for milling. I generally run my ½" Dewalt as slowly as it'll go without stalling, plus a little. We recommend a drive speed of between 150, and 250 rpms, with the slow end of the range considered better. If you're a little faster or slower, it shouldn't be a major problem.