

The Merrill – Williams Clamping System

The most toughly engineered clamping system available

The center weight and periphery ring are designed to function as a team. The mass distribution is optimal to achieve the most uniform pressure on the LP. To insure the periphery ring has a low resonance top it is formed from forged bronze. A damping inlay is inserted in the ring body to tune the resonance.

The cone shape of the center weight helps to eliminate the resonant peak. A rubber knob is placed at the top to help absorb energy. This knob also aids in handling. A damping pad is used to contact the LP. A rubber insert in the spindle bore decouples the weight from the record spindle.

Debunking LP Record Weights and Clamps by George Merrill

The LP record ranges in weight from approximately 80 grams (Dynaflex 1969) to 200 grams. Most pressings weigh from 100 to 130 grams. One reason the heavier and thicker records sound better is the vinyl will not vibrate to the degree as the light weight records. The 180 and 200 gram records are the choice for less vibration, and can render better sound. The rule is simple, the more damping applied to the LP the better it sounds. This result can be obtained from its own vinyl mass or external. To achieve the best external damping, the record vinyl needs to come in total contact with a vibration damping material (mat). In the past a few record mats have used small rings or points to support the record in a few places. This flies in the face of common logic. Holding the record to a damping material is the job of weights and clamps. An LP record's label is thicker than the vinyl playing surface.

The label varies from approximately 20 to 60 thousandths of an inch thicker than the vinyl. A record mat will have a depression in the center to allow the record vinyl to lay flat, otherwise the label would be the only contact point. If a center weight is used that is very heavy, let's say 2 lb. the lighter records will lift from the mat. This happens because the mat depression edge will act as fulcrum. This information tells us we should use a center weight tuned for the record thickness and weight. However this is impractical. Here is the solution: Use a center weight that weighs 8-10 oz or less. This weight will work with all but the lighter records. The alternative to a weight is the screw down clamp. These clamps have pluses and minuses. The plus is down force on the record can be controlled. The minus is if not designed properly (unfortunately most are not) spindle energy is coupled into the record. It takes very little intrusion of external energy to cloud the mechanical output of the stylus. (I wrote a paper on proper screw down clamp design about 25 years ago.)

The best answer is the periphery clamping weight along with a center weight. The weight balance between these two should be calculated for even and optimal down force on the entire vinyl area.

As the stylus traces the groove, energy is radiated in all directions, as it reaches the periphery of the record and then reflected back into the groove area. The periphery clamp will help damp this edge energy before it is reflected into the groove area. The center weight also acts as a damper. The first production periphery clamp was used on the Merrill Heirloom Turntable 1980. Kenwood also introduced theirs about the same time.