Powermat 12,000 RPM Moulders Frequently Asked Questions

Q: How should the knives be balanced in PowerLock cutterheads?
A: All knives and filler strips must have the same thickness and length, and MUST be balanced within 0.1 gram (0.0035 oz) of each other for proper performance of the spindle bearings and product finish quality.

Balance procedures should be as follows:

1. After the steel is cut to length, balance the knives to the above-listed tolerance. It is recommended that all knives for each profile be cut from the same bar, in order to keep a consistent corrugation match.
2. Complete the rough-grind on the knives.
3. Remove the knives from the cutterhead, rebalance to within 0.1 gram, and then re-install into the cutterhead.
4. Complete the finish grind on the knives. Never assume that someone else has balanced tools. Balance is extremely critical at the higher spindle rpm.

Q: Is it true that cleanliness is more important when running at higher spindle rpm?
A: Cleanliness is EXTREMELY important between the PowerLock shank and receiver. Perform frequent visual inspections for burrs, wood-dust accumulation or damage on the tool taper, as tool breakage can occur if there is contamination. Use of the PowerLock cleaning device #006-03226 on the tool receiver is recommended with every tool change. Use of a suede glove for additional cleaning of the receiver area also is helpful.

Q:We always see an accumulation of wood dust and resin on the tool body. How does this affect the performance of the tool?
A: All PowerLock cutterheads are balanced to a tolerance that allows maximum operating efficiency, without damage to spindle bearings. An excess accumulation of wood dust or resin will cause the tool to become out of balance, thus creating stress on the spindle bearings. It is a good practice to soak cutterheads in CutterGuard after each production run, in order to remove this material from the surface of the tool, bottom of the knife pockets, corrugations, and gibs.

Q: Why are PowerLock tools manufactured with a smaller diameter, as compared with my standard moulder tooling?
A: There are two reasons. (1) Since you do not have a bore in these cutterheads, there is no need for a larger diameter. (2) Due to the HSK locking system used on Powermat moulders, there is a weight limitation of 30 pounds per tool. In order to run 240mm cutterheads, this smaller diameter is needed to meet this weight limitation. More importantly, this permits the chipbreaker shoes, hold-downs, and table plates to be brought closer to the cutterheads, ensuring more rigid control of the material as it moves through the moulder, and resulting in better finish quality.

Q:We already have other moulders that run at 6000 rpm. Is there anything different in operating procedures on tooling to be used on 12,000 rpm moulders?
A: Definitely YES! Many operators have developed habits that are satisfactory for lower rpm moulders, but are not sufficient for the higher rpm. Retraining for these

operators is strongly recommended. To get proper performance for your moulder, tool balance, safety, cleanliness, proper gib screw torque, and weight restrictions are much more critical at 12,000 rpms.

Q: Why can't I run my conventional cutterhead at 12,000 rpm on a spindle adapter?
A: First of all, your standard cutterheads are probably rated for 9000 rpm maximum, and you should never exceed the rating stamped on the cutterhead. Also, the conventional cutterhead/spindle adapter combination may create a tool that exceeds the weight limitations specified for safe operation on the Powermat moulder. Please remember that on combination tools manufactured for your moulder, all components of the tool must be rated for 12,000 rpm operation both individually and collectively, and must be balanced to G2.5 balance rating as a complete unit.

Q:We only have 100mm and 240mm PowerLock cutterheads with our new Powermat. Is it okay to run smaller profiles in these tools?
A: The answer to this question is both yes and no. Although it is possible to run smaller profiles in longer cutterheads, this practice is strongly discouraged. Unless you can guarantee that your knives are perfectly aligned, and that the filler strips used in the balance of the empty slot are perfectly balanced and aligned, then you will create imbalance in your cutterheads. This will, in turn, affect the life of your spindle. Or, if you are grinding a small profile into a knife the length of your cutterhead, you are wasting knife steel, grinding supplies, and grinding time. It is ALWAYS recommended to use the smallest possible cutterhead required for your profile.

Q: Can we offset our knives (aka "split knives") in PowerLock tools running at 12,000 rpm?
A: NO, for reasons of balance and the resulting spindle damage. The maximum offset that is allowed in ground corrugated knives is 0.030". This offset should only be used to correct dimensioning of regrinds of 90° profiles, and never for long knives such as flooring relief cutters.

Q: Many companies supply tooling for standard 6000 rpm moulders. Is this also true for Powermat moulders?
A: Although this market has been opened to all tooling manufacturers, we urge you to be extremely careful in your selection of tooling suppliers. They MUST be able to furnish a tool-speed test certificate, verifying that the tool has been qualified for safe operation at the fixed spindle rpm. Without this assurance, you can jeopardize the performance of your moulder, voiding any warranty that you might have or causing premature spindle failure. You also should insist on a balance certificate, certifying that the tool is balanced to a G2.5 level, for the same reasons just listed.

Q: Why is the 4-knife PowerLock cutterhead closed on the non-clamping end of the tool?
A: This extra ring is part of the manufacturing process. It provides additional strength and stability due to the increase in metal stress created by centrifugal force. Please note that 4-knife cutterheads, although certified for operation up to 12,000 rpm, are designed for exclusive use on Powermat 2000 moulders.