



POWERMATIC 209HH, 20" Planer

The ability to accurately dimension wood with parallel faces is crucial to virtually any woodworking task. Producing an ultra smooth, tear out-free surface at the same time is just as important. The POWERMATIC 209HH has been designed to handle these tasks with the accuracy, durability and repeatability you need. Robust construction, a powerful motor, precision cut depth adjustments and the legendary Byrd® helical cutterhead are just some of the reasons the POWERMATIC 209HH is setting the standard for modern planers.



The POWERMATIC 209HH makes planing wide stock easy and the Byrd helical head produces a superior finish.

Built atop a fully enclosed, welded steel base cabinet, the POWERMATIC 209HH uses numerous precisely machined iron castings to insure durability and precise, repeatable operation. A heavy-duty caster system built into the base makes moving the 801-lb POWERMATIC 209HH around the shop surprisingly easy. A foot-operated brake locks the casters to keep it stationary during use.



The all-steel base cabinet keeps the 209HH steady. It also has internal wheels that make moving this 801-lb machine within the shop easy.

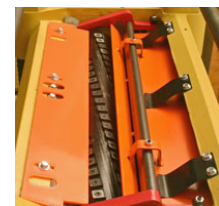
Should lifting the POWERMATIC 209HH be necessary, four pull-out rods are built into the cast iron base. These rods provide safe lifting points for straps or forklift arms.

The POWERMATIC 209HH (209HH-1, #1791315) in the accompanying photos has a powerful 5HP, (continuous duty rating) 230V, 1PH, TEFC (totally enclosed fan cooled) motor. This same machine is available (209HH-3, #1791316) with 5HP, 230/460V, 3Ph TEFC motor. Also available are two straight knife versions, (209-1, #1791296) with a 5HP, 230V, 1Ph TEFC motor and another (209-3, #1791297) with a 5HP, 230/460V, 3Ph TEFC motor.

In all versions, the motor is mounted within the base cabinet and its power transmitted to the fixed cutterhead assembly by three v-belts running on precision-machined, multi-groove pulleys. A full-length belt cover is easily removed for maintenance by spinning off a pair of finger-operated knobs. The motor is operated and protected by a true magnetic switch mounted on the head assembly where it is within easy reach.

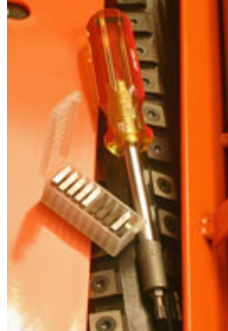
Byrd® Helical Cutterhead

There are many cutterhead designs that carry the helical moniker, including simple straight blades broken into segments and dispersed around the cutterhead cylinder. However, despite the name, they retain many of the liabilities of the long blade designs. While designing the POWERMATIC 209HH we wanted to incorporate the finest cutterhead available to insure the unmatched performance of a true segmented, shear-cutting helical head. That criterion meant the choice was very simple. POWERMATIC teamed with Tom Byrd and installed his famous, US-made Byrd® helical cutterhead in the POWERMATIC 209HH as standard equipment.



The Byrd cutterhead is second to none in terms of efficiency, quality of the surface produced and the longevity of the cutting inserts.

The Byrd® cutterhead is so effective because its 132 carbide inserts are arranged in spiral-shaped rows. The inserts have a 4” radius ground into them and are mounted so that they approach the wood at a 14-degree angle. That creates a true shear cut that dramatically reduces impact and the resulting fiber disturbance other cutterhead designs deliver to the wood.



Each of the carbide inserts (left) has four cutting edges that can be easily indexed should one edge go dull or be damaged. We even include a set of inserts and the Torx wrench (right) needed to make the change!

The Byrd® cutterhead is so efficient that it makes surprisingly little noise when cutting wood. In fact, it is so quiet, new POWERMATIC 209HH users often think it is not cutting wood at all, until they see the results. The shearing effect of the Byrd® cutterhead produces a remarkably smooth surface on even heavily figured wood.

The Byrd® cutterhead inserts are precisely machined from solid high-grade carbide, each with four identical cutting edges. If an edge eventually goes dull, you simply index it to the next cutting edge! Each insert has a marking at one corner that makes indexing all or any number of them the same way very easy, though needing to do that is unlikely.

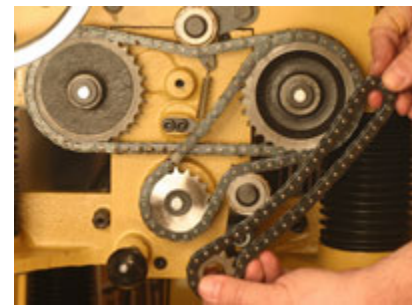
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Because the inserts themselves and the seats into which they fit are so precisely machined, there is no adjustment or “fitting” necessary. Indexing or replacing an insert takes just seconds. Simply loosen the T25 Torx screw (wrench included), turn the insert to its new position and tighten the screw.

The durability of the carbide combined with the low impact, shear cutting action mean the Byrd® inserts have an extremely long life, far exceeding that of straight blades. The potential life span of these carbide inserts means that many woodworkers may go years before having to index them. Should a hidden piece of metal be encountered and actually damage a few of the carbide inserts only those need to be indexed or replaced. Just in case you accidentally encounter a hidden metal object, we include a package of ten spare inserts and a wrench with the POWERMATIC 209HH.

Feed & Rollers

The POWERMATIC 209HH has two material feed rate ranges with four actual speeds. As shipped the available feed rates are 31 FPM (Feet Per Minute) used primarily for rough dimensioning and 24 FPM that increases the cuts-per-inch to create a silky-smooth surface. We



The two speed feed rates are controlled by a simple push/pull knob (left) on the side. We include a chain and sprocket (right) that allows you to change to a second set of feed rates.

also include a 50P chain and 12T sprocket that allows converting the gearbox to feed rates of 20 FPM and 16 FPM. Installing the chain and sprocket is easy with full instructions provided in the instruction manual.

A push/pull knob shifts between the slow and fast feed rates on the fly. (Shifting can only be done with the machine running.) The rollers are driven by a gear and chain drive with an automatic chain tensioner, housed in a cast iron case. The gear section runs in an industrial style oil bath for maximum control and remarkable long-term wear resistance.



A look under the cutterhead assembly shows the specially designed features that make this machine consistent and safe.

For the ultimate in dependability we designed a serrated steel infeed roller and a smooth steel outfeed roller. Both rollers and the chip breaker are precisely set at the factory but have user accessible adjustments that allow keeping the POWERMATIC 209HH perfectly tuned in years to come. We also provide infeed and outfeed roller spring tension adjusters that are accessible without having to disassemble the cutterhead covers. The operators' manual

included with the POWERMATIC 209HH has a full set of illustrated instructions for making these adjustments.

To enhance operator safety, we added a row of closely spaced anti kickback fingers under the infeed side of the cutterhead housing. These steel fingers are gravity operated and require no adjustment. They automatically engage the wood as it enters the cutterhead and help prevent it from being kicked out.

While the POWERMATIC 209HH is capable of 3/16"-deep cuts on most stock widths, a limiter plate at the center of the cutterhead limits full-width cuts to 1/8" or less. Controlling full-width cut depth avoids applying excessive strain to the machine but also prevents damaging the wood. Deep cuts are far more likely to produce chipping and tearout because of the extraordinary stress applied to the wood fibers.

Dust Collection

The POWERMATIC 209HH generates large quantities of dust and chips that must be evacuated to maintain performance at the cutterhead. The efficiency of the POWERMATIC 209HH doesn't reduce that quantity though its cutting action does tend to produce smaller particles than a long knife machine. We recommend a 900CFM (cubic feet per minute minimum) dust collector to handle the flow of chips properly.



A dust shroud with a 5"-diameter discharge port handles moving the debris away from the cutterhead.

An all-metal dust hood comes with the POWERMATIC 209HH that creates a short, direct path for the debris from the cutterhead. The hood terminates with a 5"-diameter port.

Table and Adjustment



The large cast iron handwheel makes height changes effortless. The locking knobs (arrow) secure the table to the lead screws within the front and rear columns. These knobs can be moved to the other side of the machine if space is tight.

The main and extension cast iron table surfaces are precision ground for precise planing. The main table surface is 25 1/2"-long by 20"-wide and is fully captured on four round, precision ground steel posts. Each corner of the table is captured onto a lead screw within its post that controls the up and down movement. The lead screws are driven by a single chain through a gear drive. A large 7 3/4"-diameter cast iron handwheel with spinner handle drives the height adjustment mechanism. Each full revolution of the handwheel produces just over 1/16" of change to make the ultra fine adjustments necessary to hit a specific thickness easy to achieve. Though unlikely, the lead screws can be adjusted individually should the table ever get out of alignment.

The table is locked in place by a pair of knobs each securing both lead screws at that end. The locking handles can be moved to either side of the POWERMATIC 209HH to make them more easily accessible if one side of the machine has limited access.

A pair of rollers set into the main table surface below the cutterhead help maintain smooth movement of rough stock through the POWERMATIC 209HH. The above table height of the rollers is easily adjustable.

We also include a pair of 15"-long by 21 1/8"-wide cast iron extension tables rather than the roller types. When installed they extend the overall support surface to 55 1/2" in length.

The smooth surface of cast iron extension tables makes it easier to introduce wood into the machine, particularly when "training" one piece against the end of the one before it. They also eliminate the possibility of pinching a finger between the stock and a roller as the stock exits the machine.



The cast iron main and extension tables (left) provide lots of support for the long work pieces. We even added a set of bed rollers (right) that make working with rough stock easier. The bed rollers are easily adjustable without taking anything apart.

The cast iron extension tables mount to the primary table with bolts but have set screws below each of them that allow fine tuning the angle of their surface to the primary table. This is a far more efficient system than trying to shim the extension tables to bring them into alignment with the primary table surface.

Top Rollers



The top rollers make moving long stock back for another cut easy and safe.

To make moving the stock from the outfeed side of the POWERMATIC 209HH to the infeed side for repeat cuts easier we added a pair of material rollers to the cutterhead. The iron rollers are spaced above the cutterhead, putting the often-heavy stock at a comfortable 44" above the floor.

Accessories

Digital Scale

We offer a fully digital scale (DRO Retrofit Kit #708520) that brings true digital accuracy and flexibility to your POWERMATIC 209HH. The DRO kit installs easily with its included hardware and precise calibration is a snap.

The DRO has built-in modes that make many planing tasks easier and dead on accurate. It can also be changed to display inch or metric dimensions with the push of a button. The SET mode is used to program in a dimension and makes "dialing" the DRO in very easy. Plane a board and measure its thickness, preferably using digital calipers. Enter that dimension into the DRO and it is dead on accurate.



The digital accuracy of the DRO brings a new level of precision to planing wood.

The Absolute mode (most commonly used) shows the precise distance from the cutterhead to the table with a resolution of thousandths of an inch! Switch to the Relative mode and the DRO considers the present thickness to be zero and shows precisely how much material a table height change will remove.

The HOLD mode retains the current setting and allows moving the table to clear a damaged or jammed piece of wood. The table can then be returned to that exact dimension to continue planing.

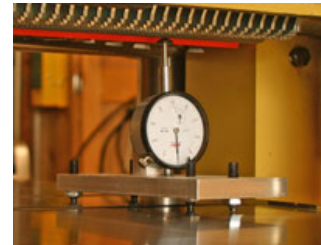
The DRO also has a Tolerance mode that is more specialized and while not often used in woodworking, could come in handy for some woodworkers.

Bed and Feed Roller Gauge

The specially designed Bed and Feed Roller Gauge (#2230002) is an ultra precise instrument that makes setting the POWERMATIC 209HH bed and feed rollers exactly with a level of confidence possible only with a dial indicator. When 0.001” either way makes a difference, the Bed and Feed Roller Gauge is the tool you need.

The Bed and Feed Roller Gauge kit includes a specially designed base with four legs arranged to clear the bed rollers while measuring the feed rollers above. The legs also straddle the bed rollers when measuring them.

The quality dial indicator can be aimed downwards, its probe passing through a hole in the base to set up the bed rollers. It can also be aimed upwards on the same mount to set the infeed and outfeed rollers. Because the Bed and Feed Roller Gauge stands on its own, your hands are free to make the adjustments without accidentally influencing the dial indicator.



Setting the bed or feed rollers has never been easier or more precise than with the Bed and Feed Roller Gauge.