



STEINWAY & SONS

INTRODUCTION



At Steinway & Sons, we have pioneered the design and development of piano building techniques to create the finest piano in the world. But we have never rested on the success of the past. Through a process of “Continuous Improvement,” we always seek and implement measures to enhance the appearance, touch, tone, structural stability, and every aspect of what makes a Steinway a Steinway. Today’s integration of old-world building methods with state-of-the-art technology and our significant and ongoing investment in new machinery and conditioning rooms have resulted in a piano that possesses the widest range of tonal colors and the most responsive touch of any piano we have ever built. In fact, it’s not even close. If you have yet to experience today’s Steinway, we invite you to find your Steinway showroom on Steinway.com and come in to play the finest pianos we’ve ever built.

FIT AND FINISH



Steinways are renowned for their incomparable tone, responsive touch, and investment value. Millions of dollars of investment in newly-designed machinery and processes ensure that your Steinway & Sons piano is not only an instrument of inspiration but a finely-crafted piece of furniture that will grace your home for many years to come.

Within the last five years, we have purchased and installed the best Italian furniture polishing equipment, which enables us to create a new high-gloss finish that is the best in the industry. Our new proprietary application of this high-quality finish is three times thicker than satin lacquer finishes and is more durable and resistant to scratches and fading. Our computer-controlled polishing equipment precisely monitors the amount of material applied, rubbed, and polished as well as the amount of pressure used during the application. This procedure produces a consistent and even finish on all parts of the piano and is far superior in application to hand rubbing.

Since 2008, we have made significant advances throughout the factory to protect our cabinetry during the manufacturing process. We installed a new veneer calibrating sander that sands our cases to a precise thickness to eliminate finish imperfections. We have installed new case part protectors which have greatly reduced the amount of factory case repairs or "rework" needed due to the small nicks and scrapes which are almost inevitable if there is no protective "armor" on pianos as they travel through certain departments. Also, we now clear-coat finish (as opposed to cover up with paint) the radial braces and woodworking that are underneath our pianos, a true testament that we perfect every detail, even the ones that you may not regularly see. Most importantly, with the installation of new CNC (Computer Numerically Controlled) enhanced saws and newly-developed machining procedures, we are able to reduce tolerances to provide more exacting specifications for our case parts. The result is that our parts fit together better. A better, more durable case provides the foundation for a better sounding piano. Lastly, our music desk is now adjustable to accommodate any book or piece of music.

Thanks to significant investments in new machinery, tooling, and processes, as well as a re-dedication of our American workforce, today's Steinway is the most attractive, beautiful, and durable piano we have ever created.

ACTION



At our New York factory, Steinway & Sons manufactures our own parts. We take pride in knowing that our piano action allows a pianist to seamlessly transfer their thoughts and inspiration through their fingers like no other piano. However, within the last decade, Steinway & Sons has built and installed more than 15 Programmable Logic Controlled (PLC) Conditioning rooms. With the implementation of the PLC conditioning rooms, we are able to manufacture parts that are more exacting in dimension and can better withstand the changes in temperature and humidity of the environment where a piano resides.

Recently, we developed and implemented a new way to ensure that we are meeting the precise specifications of the parts that we manufacture. A computer-monitored measuring machine was developed and installed by our engineers that checks our action parts daily so that they are measured to an exactness of 1/32,000th of an inch, a level never before attained. This proprietary measurement tool probes parts daily and takes multi-dimensional photographs to ensure that each part meets our vastly-improved specifications. With more exacting parts, we have been able to significantly improve the up-weight of our keys so that our pianos are more responsive than ever before. In fact, the improvement was so vast that 20 years ago we never could have imagined achieving such a responsive action that is able to repeat so quickly.

Additionally, new processes in the felting of our hammers and hammer skiving allows us to produce a denser hammer needing less lacquer than before, which provides superior tone. We have introduced new materials throughout our action that reduce resistance. These improved materials reduce action noise and wear-and-tear, so not only do our actions respond better and produce better tone, they also last longer and need less service.

Recent advancements in the control of the ambient conditions in our manufacturing process, the implementation of state-of-the-art machinery, and the introduction of superior materials have vastly improved the parts that make up our piano action, which allows our action to perform more responsively and create a wider palette of tonal colors. Never before has a Steinway played so well or sounded better.

SOUNDBOARD



The tone of a piano is created in the soundboard. Thus, the potential of creativity is maximized or limited depending on the design and materials utilized in the manufacture of the soundboard. At Steinway, we build our soundboards differently from every other manufacturer. A piano without a genuine Steinway & Sons soundboard is not and will not sound like a Steinway—nor will it maintain the investment value unique to Steinway & Sons pianos.

A Steinway soundboard is unique in thickness and shape from that of all other pianos.

In 1936, at the request of the first head of the piano department at the Curtis Institute of Music, Josef Hoffmann, Steinway & Sons designed and fabricated a soundboard distinctively capable of producing more tonal colors and projection of sound: our Diaphragmatic Soundboard.

Since 2008, we have implemented state-of-the-art machinery and highly monitored, programmable, logic-controlled conditioning rooms to better meet the specifications of our soundboard design.

Distinct from all other manufacturers, Steinway soundboards are diaphragmatic, meaning that their thickness is gently tapered from center to edge, resulting in a freer, more uniform vibration throughout the entire board. This tapering is slightly different based on the model/size of each piano to achieve maximum sound for each individual piano. The taper cannot be replicated without the proprietary technology used to create it to exacting specifications. Additionally, the Steinway soundboard is double crowned. This design permits complete freedom of movement while displacing a greater amount of air, which provides our pianos with unparalleled richness, sonority, and sustain.

Steinway soundboards are fashioned from expertly-selected, matched, solid quarter-sawn planks of even growth Sitka Spruce with a minimum of ten grain lines per inch. Since sound waves travel along the wood grains, this

close-grained wood is vital for a great soundboard. We have the strictest guidelines of lumber selection in the industry. Additionally, each piece of lumber that enters our yard undergoes very specific, computer-aided measuring processes and guidelines to determine that board's best specific use. In fact, despite the fact that we purchase the top one percent of the Sitka Spruce available, only about half of that top one percent will meet the exacting standards that we have for our soundboards. After each piece of lumber is selected, it is placed in our newly-installed and continuously-monitored programmable logic conditioning room, which helps maximize the durability, longevity, and shape of the lumber.

The lumber utilized in each part of our piano is clearly specified, and we proudly share the Steinway specifications for each piano model we manufacture. Many other manufacturers will not report what species of woods they utilize in particular parts of their pianos or will use general terms like "various hardwoods" or "European Spruce" for different components. This grants them the flexibility to change their parts when price fluctuations occur in the lumber industry or when they simply want to meet a price point and downgrade to a lower grade of lumber. Quite simply, we specify wood types for fitness of usage. At Steinway & Sons, we always build to a quality standard, never to a price point.

In 2008, Steinway engineers designed and implemented a segmented sander which vastly improves our soundboards. Our segmented sander is able to sand our soundboards to more precise specifications that enhance our unique diaphragmatic design. Previously, this task was completed by hand, but now our programmable segmented sander ensures that each soundboard is perfect in fabrication and design. Although our pianos have historically been known for their rich and versatile tone, this significant upgrade has vastly improved our soundboards; never before have they produced the range of tonal colors that they do today.

As each Steinway & Sons rim is bent by hand and crafted from wood that has natural variances, each one is unique in shape. This difference might not be visible to the eye, but a $\frac{1}{4}$ " difference one way or the other, even in a nine-foot concert grand, is a big deal when you are seeking the exacting precision of a Steinway. In the 1990's, we developed a new method by which soundboards are cut to be placed within our rims. Our engineering staff developed and implemented a laser guided fraizing saw that precisely fits each soundboard to the rim in which it is being placed. A perfectly-fitted soundboard vibrates more freely and provides the longer sustain for which Steinway pianos are renowned.

Based on our recent advancements in lumber selection, conditioning processes, and the ability to meet precise specifications in fabrication and installation, the soundboards that we manufacture today remain not only the industry standard but are vastly superior in tone and durability to the ones that we built in the past.

Steinway does not sell its proprietary soundboards or pinblocks to any rebuilding shop or distributor. Steinway's extensive shop facilities and the machinery required to perform this specialty work ensure that your Steinway will be built or rebuilt to Steinway standards, using genuine Steinway parts, and will carry a warranty directly from Steinway & Sons. No other rebuilder has the experienced level of craftsmanship, the technical expertise, or the facilities and machinery to build or "restore" a Steinway properly. Without a Steinway soundboard, a Steinway piano is not capable of sounding like a Steinway and is not capable of producing the magnificent tone for which Steinways are renowned.

RIM



A Steinway carries up to 46,000 pounds of tension from its strings. The rim supports this tension while enhancing the acoustic properties of the soundboard. The Steinway & Sons rim design and process was patented by C.F. Theodore Steinway in 1878. Strength is obtained by bending laminates of hard, dense maple in an unbroken curve from bass to treble. The curvature distributes the scale tension uniformly through its entire length. While the process of hand bending our rims has taken place in our factory for over 100 years, recent developments in our rim presses and our process are producing a vastly superior piano rim in dimension and longevity.

Within the last ten years, we have vastly improved our rim presses and the conditioning process of our hand-bent rims. We have developed and installed new and reinforced cauls which allow us to improve the precision of the curve of the rim. Recently-developed pneumatic wrenches that release at the precise rim pressure guarantee the proper amount of glue between laminations, which reduces lamination failure and produces a much stronger rim with greater longevity. After our rims are bent, we insert new rim stabilizers (introduced within the last decade) that ensure our rims maintain the desired shape. Additionally, our rims are placed in Programmable Logic Controlled conditioning rooms that ensure proper curing.

Today's Steinway rim has the best design, shape, and strength—which allows our unique diaphragmatic soundboard to vibrate more freely. Never before has our rim allowed our soundboard to produce such a magnificent tone.

PLATE



The cast-iron plate is analogous to the “backbone” of a piano. It must be exceptionally strong in order to withstand over 20 tons of string tension. Steinway & Sons patented the use of cast-iron plates in its pianos in 1876. Since 1938, The O.S. Kelly Foundry has been making Steinway's plates. In 2003, Steinway & Sons purchased O.S. Kelly so that we could have greater input in the design and manufacture of the plates that we utilize for our pianos. The resulting advancements have made our plates the best ever manufactured.

After the purchase of O.S. Kelly, Steinway & Sons engineers improved processes and created new plate molds. Our improved plates are one of the reasons why the pianos we build today sound and play better and last longer than the ones built only ten years ago. With major investments in new machinery, we are able to better control the cooling of the iron during our casting process. The boring and drilling of our tuning pins and hitch pin holes is vastly more precise, and the milling and the routing of edges on our plates is more exacting. Additionally, the surfaces of our plates are now smoother, and with the reduced tolerances of the dimensions of our plates, our plates fit better to the wrestplank (pinblock). A better fit to the wrestplank provides a much greater level of tuning stability and enhances the longevity of the piano.

CHECKLIST: THE BENEFITS OF TODAY'S STEINWAYS

FEATURE/ BENEFIT	TODAY'S STEINWAY	REBUILT BY STEINWAY	OUTSIDE REBUILDER
Steinway Factory-Made Soundboard Installed by Laser-Guided Fraizing Saw	Yes	Yes	No
Steinway Diaphragmatic Soundboard Taper + Clean Room Soundboard Varnishing	Yes	Yes	No
Steinway Factory-Made Hexagrip Pinblock	Yes	Yes	No
Genuine Steinway Action Parts	Yes	Yes	?
Steinway DiamondGloss Finish	Yes	Available	No
Steinway & Sons Factory Warranty	Yes	Yes	No
Multi-million-dollar Proprietary Steinway Custom Tooling	Yes	Yes	No
New, Improved Steinway Cast-Iron Plate	Yes	No	No
Rim Stabilizers	Yes	No	No
Precision Humidity and Temperature- Controlled in Key Areas	Yes	Yes*	No
100% GENUINE STEINWAY:	YES	YES	NO

* "Yes" for all parts replaced in the restoration, not for original rim, furniture, and other components not replaced in restoration.

PHOTOGRAPHY BY CHRIS LEE

97% OF PIANO SOLOISTS
Choose the Steinway Piano.

“I’ve been playing Steinway pianos exclusively for many years. In my experience, they keep getting better every year, and I have no doubt that the best Steinways ever produced are the ones being built today.”

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