



TKMP has developed material innovations utilized in their latest product lines which they believe will significantly advance and even redefine the state-of-the-art of saxophone mouthpieces.

Comments from **Frank Klum, VP and Director, Product Development Ted Klum Mouthpieces, L.L.C., (TKMP)** on the introduction of two new product lines:



*The Acoustimax Resin  
Mouthpiece Line for Alto*



*The Precision Model Metal  
Mouthpiece Line for Tenor*



Extraordinary acoustical performance is, and always has been, the first and foremost objective in all of TKMP mouthpiece offerings. TKMP has established a reputation over many years of producing what many customers consider to be the finest handcrafted and hand finished saxophone mouthpieces in the world, each one finished to a level of a true artisan's masterpiece. Accordingly, TKMP mouthpieces are not rushed through production, but are rather methodically formed and finished to a state of uncompromising perfection. Before leaving the factory, each *Ted Klum Signature Series* mouthpiece in our current established models is tested and on approval, signed by our president and founder Ted Klum.

Core to our business, TKMP plans to continue to expand, develop, and refine methods, processes, and offerings within all of our current established 'signature' product lines in an attempt to keep pace with continually increasing demand. Going forward, we anticipate that the supply of the signature product lines, though increasing, will continue to be of limited availability compared to demand. These signature product lines currently include the different varieties of the **Handcrafted** metal alto, tenor, and baritone mouthpieces, which are offered in



a variety of materials, styles, and sizes, and the **Acoustimer** alto and tenor resin mouthpiece series, with their unique highly-filled composite material and variety of sizes and core styles.



TKMP has recently evolved to new levels of production capacity with the introduction of two new higher-volume models; the **Acoustimax** alto resin mouthpiece, and the **Precision Model** tenor metal mouthpiece. TKMP did not waver from its essence of purpose while increasing capacity with these new product lines. Rather, TKMP expanded its reach of product offerings by melding Ted's knowledge, experience, inspiration, and expertise with some of the most advanced technologies and materials currently available. Our approach in this endeavor has been not to emulate, but to innovate, and to 'push the envelope' of what has been done in the past. Driving principles in this initiative are:

- To emphasize enabling and developing the best conduits possible for Ted to express his knowledge and creativity in mouthpiece design and craftsmanship through the use of scalable and extensible technologies.
- To continually strive to surpass our current best.
- To relentlessly explore different designs, materials, and processes, and persevere on research and development until achieving truly extraordinary market changing results.
- To selectively seek out, utilize, and grow for mutual benefit, specialized 'game-changing' vendor alliance relationships with the absolute best in class who share our vision and determination.

The latest outcome of this initiative, which has taken a great deal of time and effort, is reflected in these two new TKMP product lines. These product lines leverage both teaming with strategic vendors, and breakthroughs for our business in the application of several areas: Computer Aided Design / Computer Aided Manufacturing (CAD/CAM), prototyping, material science, and acoustical testing, to name a few. In these new product lines, we continue to utilize artisan 'hands-on' operations, in conjunction with the latest automated technologies and finishing processes to achieve the final 'magical' levels of perfection we require. Note that all of the research, development, manufacturing, and finishing of all TKMP mouthpiece models are done exclusively within the United States.

While we rigorously pursue operational efficiencies in our business and strive to maintain costs to maximize accessibility of our products to our customers, mass-producing an inexpensive, mediocre saxophone mouthpiece has never been, and will likely never be, part of our corporate mission. Performance from design, precision, and quality, are paramount for us. Cost, while important, is secondary.



### ***Acoustimax Material***

In our research leading to the development of the *Acoustimax* resin mouthpiece, we decided that our material analysis should include the most modern and advanced materials available, in addition to the traditional material choices of hard rubber, commodity and engineering grade polymers, and various phenolics. While recognizing and appreciating the various characteristics or ‘personalities’ of different traditional materials, we were compelled to find a non-traditional, new material having properties which could enable the creation of superior products. In doing so, we discovered a correlation within a select group of high-performance polymers to measurable acoustical properties.



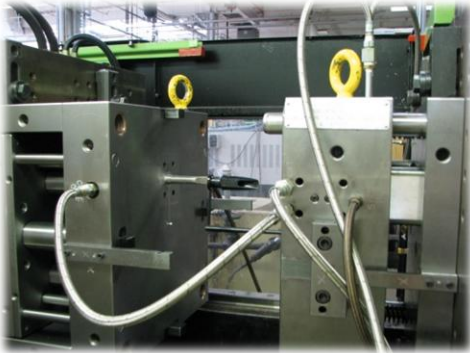
Our research ultimately lead us to a medical-grade, high-performance polymer which, while primarily chosen for its acoustical properties for this application, also happens to have unprecedented strength, impact resistance, operating temperature range, chemical resistance, and certifiable biocompatibility properties. Our discovery of this material for our application led to further research and development of our own custom *Acoustimax* composite, which has additional biocompatible ingredients and further enhanced acoustical properties.

TKMP has tested the *Acoustimax* material in ways that would clearly be detrimental to non-metal mouthpieces made from some of the traditional materials. Note that TKMP recommends for our customers **not** to do any of the following described tests to **any** mouthpiece, including *Acoustimax* mouthpieces. TKMP subjected *Acoustimax* mouthpieces to boiling water, steam, multiple cycles through an automatic dishwasher, cleaning in pure bleach, various alcohols, strong detergents, drop testing onto cement, and even ‘throw testing’ onto cement. The results showed no adverse effects. The *Acoustimax* compound is a remarkable material!

Expectedly, the *Acoustimax* composite material is significantly more expensive than traditional alternatives, both in raw material and particularly in tooling, injection molding, and manufacturing costs. In our insistence in specifying the *Acoustimax* compound, several manufacturing experts we approached declined to quote our *Acoustimax* project, and expressed doubts that we could ever get our design geometry injection molded in this compound.



We persevered and found a manufacturer who ultimately prevailed and successfully injection molds the *Acoustimax* blanks in this compound for us now. To meet our exacting tolerances, multiple subsequent precision machining operations are applied and followed with TKMP hand finishing and other operations to achieve the *Acoustimax* product line we have today.



### ***Acoustimax Alto Design***

The combination of the material and design geometry in the *Acoustimax* has the potential to be transformational. Take a look into the baffle and core of an *Acoustimax* mouthpiece; some striking and defining geometric characteristics can be observed:

- There is no 'hard stop', edge or lip in the middle of the interior where the baffle transitions to the core. The transition area from the baffle to the core is completely uniform and smooth – a large series of gently swept curves. This is referred to as the *clear core* design feature.
- The gently swept area between the baffle and the core actually bulges (cheeks) out slightly increasing cross sectional volume in the middle as it extends to the core. This is referred to as the *cheeked baffle* design feature.



The combination of the *cheeked baffle* and *clear core* design features make for an extremely difficult part to mold. Despite the challenges, Ted was insistent and uncompromising on retaining these features in the *Acoustimax* design, with good reason, as these features have a profound effect on the performance of the mouthpiece. The fact that our strategic injection molding vendor was able to successfully mold the *Acoustimax* design geometry, retaining these key design features, and using the *Acoustimax* material, is really quite amazing.

The result we have achieved with the combination of geometry, material, and finish in this mouthpiece has exceeded our expectations. In evaluations, we have received outstanding



feedback on the *Acoustimax* alto mouthpiece, from comments on its vibrancy and projection to how easy it is to play to how in-tune it plays. We welcome the opportunity for the broader market to be the ultimate judge. The *Acoustimax* is not an inexpensive mouthpiece, but has achieved its goal of being an *extraordinary* mouthpiece.

### ***The Precision Model in Metal for Tenor***

The *Precision Model* “blank” is machined in one piece from extruded brass rod-stock, rather than cast as in the *Handcrafted* models. Machined extruded brass has favorable metallurgic attributes in terms of density and consistency. For the *Precision Model* machining, we engaged the services of an ultra-precision manufacturing company which routinely machines down into the micron range of tolerances. Similar to the *Acoustimax* project, this project was declined by several high-end manufacturers prior to engaging with our now-established *Precision Model* machining and polishing strategic vendor.



As in the *Acoustimax* project, the features of the *Precision Model*, the baffle and core geometry in particular, are acoustically uncompromising and challenging to manufacture. The tolerances we require are extremely demanding. To that effect, each *Precision Model* “blank” has had the tip, curve and baffle profile completely hand cut in the time honored artisanal way. This combination of old world craftsmanship and high-tech manufacturing ensures the tone and response of each and every *Precision* meets the universally acclaimed Ted Klum standard of craftsmanship.

Our vendor for machining the blanks for this product line is well-known in the high-end medical orthopedic market for machining human vertebrae out of titanium, a very complex endeavor with elaborate surfaces and curves machined from a very hard material.



We believe TKMP’s results achieved in working with our machining and polishing strategic vendor for the *Precision Model* to be the most precise metal mouthpiece blank ever manufactured, with overages optimized for the TKMP hand finishing process to bring in the final custom facing and baffle geometries to exacting standards.



After machining, polishing, and TKMP hand finishing, the *Precision Model* processing includes the most advanced plating options. Jeweler's grade nickel-rhodium plating is TKMP's traditional plating option for both brass and bronze mouthpieces. Rhodium is among the most rare and expensive precious metals, much more expensive than gold, and provides an extremely hard, durable, inert, silvery-white finish which has excellent acoustical and dimensional benefits in our applications. Note that the exception to plating options in our metal mouthpiece line is the popular *Handcrafted Silver* mouthpiece which is solid Sterling – not plated.



The culmination of these processes for the *Precision Model* has produced a truly extraordinary mouthpiece. The *Precision Model* has surpassed and replaced the *Standard Model*, and provides a compelling and complementary supplement to the *Handcrafted Model* for our metal mouthpiece product families. Here again, the result is not an inexpensive mouthpiece, but is truly an *extraordinary* mouthpiece.

The saxophone mouthpiece is the point of origin of the player's sound. We derive great satisfaction in hearing from our satisfied customers whose experience with their instruments has been enhanced and often dramatically transformed through the use of our products. We look forward to continuing to provide pleasure and fulfillment to the saxophone community, and to continue the advancement of the state-of-the-art through our ongoing product development and offerings.

*Frank Klum*

VP and Director, Product Development

Ted Klum Mouthpieces, L.L.C.

11 Shipley Drive

Hollis, NH 03049

☎ (603)880-6896

☎ (603)264-4586

✉ <mailto:frankk@tedklummouthpieces.com>

🌐 <http://www.tedklummouthpieces.com>