Sharp Shape Newsletter

How to select milling equipment

Alex Shang, November 30, 2002

It is a very, if not the most, important decision to make on the kind of milling equipment to purchase for the AOMS. While mills were used for ten years in our systems, routers were adopted about five years ago. Either with a mill or a router, there are some important factors to consider.

1. **Fitness**: Our systems can produce wood molds, polypro orthotics, or EVA insoles. You want to decide what you are going to make with the machine before you select one. A mill is better for milling molds and orthotics. A router is better for carving molds and insoles. Some people say it is an overkill to use an industrial mill in the system. I don't fully agree. Investment can be paid off if the mill is durable.
2. **Size**: The X-Y travel of the mill/router should be adequate. Typical machines can facilities 6 pairs of molds and 4.5 pairs of orthotics. It is not wise to pursue size without thinking about the cost. The cost usually increases with the machine size.
3. **Speed**: In general, mills and routers run comparable speeds. There are both fast and slow mills and routers out there. High feedrate can raise production. However, some considerations, such as clamping, do not allow very high speed.
4. **Accuracy**: The accuracy in almost all the machine specs satisfies our need. Although mill and router manufacturers claim their machine accuracy, it is a different matter in practice. Because of the constructions, a mill has better accuracy. For milling molds, you can use a mill or a router. For milling orthotics, I suggest that you use a mill.
5. **Cost**: One can find a router price much lower than the price of a mill. Depending on the brand and size, some routers can cost a lot. The machines that we have used fall into the low and medium cost range. There are really expensive machines out there for good accuracy and high speed. In fact, you get what you pay for.
6. **Durability**: Mills are usually stronger and durable than routers. But it is not an absolute formula. It also depends on how the users maintain the machines.
7. **Space**: The size and weight are concerns to some customers. These customers don't have enough floor space. For the same price, routers are usually lighter and easier to move around. This makes some customers choosing small routers or mills.
8. **Safety**: A desirable machine should have an enclosure for safety and clean environment reasons. However this feature will increase the price. Not all the machines have the enclosures. If you don't have enough budgets and you don't want to sacrifice safety, you can build one by yourself.
9. **Accessories**: The mills are usually equipped with a coolant option, which is not used in our application. Routers don't usually have that construction, which reduce the cost. Mills have more G-code functions, such as tapping. These accessories are the leverages when you re-sell the machine or when you do some work beside the orthotic application.

In short, it depends on which is on top of your criteria. By statistic, seventy percent of the milling equipment are mills. Among routers, Techno routers are most often used, followed by CAM Tech, Precix, Northwood, and Thernowood. Some customers are now looking into some brands that have never been heard of. The cost can be as low as $7,000. You take a bigger risk if you are the first one to try.

Celebrating Ten Years of Innovation

Sharp Shape had a sharp vision. This vision led to an innovative approach to the manufacturing process of foot orthotics. Sharp Shape was founded at the beginning of 1993 in response to the needs for cost effective and accurate automated orthotic production systems. From being an alternative system to being the dominating one in the orthotics market, the Automated Orthotic Manufacturing System (AOMS) has produced more than a million orthotics and molds by estimate.

AOMS is an easy to use, affordable, yet powerful manufacturing system for foot orthotic labs. AOMS is a thoughtful balance of functionality and ease of use for the customers. AOMS' self-sufficient features include foot/cast scans, CAD/CAM designs, and CNC machinery setups. AOMS can produce molds, orthotics, and insoles. Because AOMS is compatible with many types of milling equipment, customers can make cost-effective and production-efficient decisions regarding system configurations.

One key to our success is our commitment to make all critical components in-house, while not reinventing off-the-shelf products. We integrate our unique scanners and AOMS software with the computers and milling equipment purchased from distributors. This allowed us to control the quality, cost, and availability of our products, and allowed us to pass the benefits on to our customers. We guarantee the following to all of the customers who are serious in doing business with us.

1. No royalty. The more you use our system, the more you benefit from it. Without royalty, we are committed to a business that only a few providers can sustain.
2. No audit. We do not use software mechanisms to record, report, or control the times that you use the system. You run an independent and private system.
3. No gimmicks. We communicate with our customers through e-mail, fax, and phone. Unlike big companies, who can put you on hold for hours, we usually reply in short time with writing. We have not yet charged fees for our tech support.

The ten-year history is not the end of our innovation. We have strong ideas to further innovate and develop the orthotic manufacturing systems in the next decade.

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