

MASUNAGA

Ultra-high-speed, 46,000 min⁻¹ spindle reduced die machining time by 66%.

Products & Advantages
LV-500

Reduce machining time by 66%

 High peripheral speed even for micro tools with 46,000 min⁻¹ spindle

Direct machining of dies

Shorter lead time and lower cost than die making with prototypes

Reduce polishing time by 50%

Superb surface quality by newly developed ultra-low vibration spindle

High value manufacturing

Ultra-precise micromachining on complex shapes using micro tools

Eyeglass manufacturing is now a major industry in Fukui, Japan. The history of Fukui eyeglass industry dates back to 1905, when Masunaga Optical Mfg was founded and began eyeglass manufacturing with the idea of "establishing a local industry here in Fukui." As the methods of die manufacturing for eyeglass frames have advanced throughout the ages, the company, which has long relationship with Matsuuura, newly installed the **LV-500**, a high precision linear motor machine in 2022.

Background

From die making using prototype to die making by direct machining

"Originally, we made press dies by manufacturing the original prototype of an eyeglass part and then pressing it into cold hobbing steel, but in recent years, we have shifted to direct machining. However, with our existing machining center, which is more than 30 years old, direct machining was time-consuming, and surface quality is limited so polishing was also time-consuming," recalls Soutaro Masunaga, President of Masunaga Optical Mfg.

Since these are press dies, after machining process, there is a polishing process using die grinding whetstone and compounds until the dies reach a near-mirror surface. Therefore, surface quality is the most important in the machining process, and the company was seeking a high-speed, high-precision machining center capable of machining within the target tolerance of 1µm.



Results

Reduce production lead time + Challenge machining of complex shapes

The **LV-500**, which offers both high speed and high precision, has solved the issue of machining time and surface quality. "The **LV-500** has a spindle speed of 46,000 min⁻¹, so it can maintain a high peripheral speed even when using small-diameter tools. The machining time was reduced by 66%," Masunaga appreciated. The newly developed ultra-low vibration spindle contributed to the improvement of the surface quality. "The surface roughness is very good compared to the previous machine, and the time for polishing has been reduced by 50%," Masunaga added.

The advantages of direct machining are not only shorter lead times and lower material costs. It also allows them to take on the challenge of manufacturing higher value-added products, such as dies with complex shapes using micro tools, which was difficult with conventional methods. "Ultimately, we aim to finish complex shapes with superb surface accuracy," Masunaga concluded.


Masunaga Optical Mfg. Co., Ltd.

Headquarters : 4-15 Imaichi, Fukui-city, Fukui, Japan
 Foundation : 1905
 # of employee : 182
 Business : Manufacturing & sales of high quality optical frames.


[Watch the video](#)


The reduction of machining time has created room in the mind of our staff at manufacturing department. With this more time to spare and more room in our mind, we are now able to work on the effort to improve our operations in the field.

*The **LV-500** is a machine that has triggered a positive change in our manufacturing, creating a virtuous cycle.*

Soutaro Masunaga
 President, Masunaga Optical Mfg

