Specializing in Large Chucks

The "Gripping" Technology That Supports Manufacturing

Kawatatec Corp.
Board Member, Sakurai Tax Association
President Masahiro Kawata

Firmly gripping and securing rapidly rotationg metal workpieces.

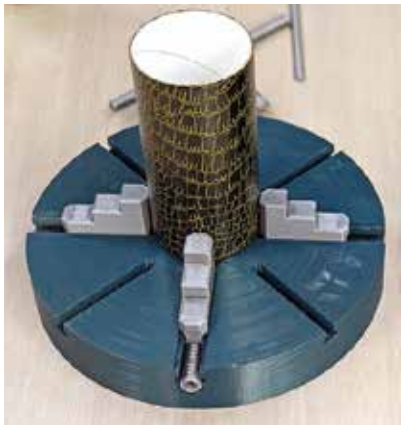
——Please tell us about your business activities.

We design and manufacture peripheral equipment for machine tools used in cutting machining processes. Machine tools, also known as mother machines, are essentially "machines for making machines. " The component called a "chuck, " which is one of these peripheral devices, accounts for 80% of our sales.

——Of course, it's different from the zipper on clothing, right? (In Japanese, a zipper is commonly called and pronounced "chuck.")

There are types of machine tools that press a rapidly rotating cutting tool against the metal material to be processed and machine it. Conversely, there are types where the material itself is rotated at high speed, and the cutting tool is applied to machine it. In these machines, the device that "grips and secures" the metal material is the chuck.

Chuck Example: Securing a Cylindrical Workpiece with Multiple Jaws



Exhibiting at MECT Japan 2025, Japan's Leading Machine Tool Trade Show

The size and shape of chucks vary, but among them, we handle large chucks with diameters ranging from 60 cm to 2 m. Some materials to be gripped weigh up to 100 tons.

——What are the machine tools with large chucks used to produce?

They are used to produce parts for gas turbines, wind power generation equipment, oil drilling drills and pipes, large construction machinery, aircraft, and railway vehicles. The items mentioned must be made with high precision, so precision is also required for the chucks that grip them. Additionally, since large and heavy materials rotate at high speed during processing, if they are not securely fixed, it can lead to major accidents. Therefore, the holding power when gripping is also crucial for chucks.

Responding to the needs for large chucks with flexible solutions

——When was the company founded?

1933. Initially, we made small chucks, but due to intense competition, we faced difficulties and shifted our focus to large chucks in 1965. Large chucks cannot be mass-produced and must be made from scratch for each order, which other companies tended to avoid. The materials processed are diverse, and with the increasing complexity of machine tools recently, chucks are increasingly being custom-designed to meet individual specifications. Sometimes, we receive requests to reproduce old chucks that have deteriorated in customers' factories. By flexibly responding to these individual customer needs, we have been able to gain trust.

——Switching to large chucks was a turning point, wasn't it

Our large chucks have been recognized not only by domestic machine tool manufacturers but also by overseas trading companies, and we began exporting to the United States in 1979. Currently, as the only domestic and one of the few specialized large chuck manufacturers in the world, our overseas clients have expanded to Asia, Oceania, and Europe.
Thanks to the relationships we have built with machine tool manufacturers, we have also started handling peripheral equipment for machine tools other than chucks. This includes the "pallet changer, " which automatically exchanges pallets that hold the materials to be processed. We began manufacturing it in the 1980s at the request of customers, and at one point, it expanded to account for nearly half of our sales. We continue to produce it at a scale of about 10% of our sales today.

——Has the demand for large chucks been increasing recently?

Since around the 2000s, with the increase in wind power generation and the growth of construction machinery due to China's economic growth, the use of machine tools that utilize large chucks has also increased. Following this, there has been growth in nuclear power generation, oil drilling, semiconductor manufacturing equipment, and recently, aircraft manufacturing and power generation machinery due to the power demand of AI data centers. The growth of such facilities has led to an increase in demand for large chucks along with the machine tools used to create them.

While demand changes with trends in the world, large metal materials will not disappear. Japanese-made machine tools are widely used overseas, so we believe there are opportunities for further expansion of overseas sales channels for large chucks.

Challenge to New Technology Development

——Hre there any changes in the needs for the chuck itself?

With the times, machine tools have become more multifunctional and complex, and various devices have been added. As a result, the space available for mounting the chuck has become smaller, leading to requests for "thinner and lighter chucks. "

In response to this, we developed a chuck that achieved thinness and lightness while maintaining rigidity 10 years ago, which has been well-received and has become a pillar of our company. Additionally, recently, regulations on the safety of machine tools have become stricter, so chucks that comply with these regulations are also in demand.

Our company is actively engaged in the development of new technologies and has previously challenged joint research and development with universities. Although it has not yet resulted in commercialization, we were able to learn many things, and the overall technical level of our company has greatly improved. I believe that technology development must continue in the future.

Continuing to challenge while adapting to societal changes

——Please tell us what you are currently focusing on.

Factories, which are the end-users of machine tools, are facing labor shortages everywhere. Therefore, we are working on automating the process where the chuck grips the material.

Design and Manufacturing of Large Chucks

——Is it basically manual?

There are both manual and automatic types. The chuck grips and fixes the material with multiple jaws. If the material is cylindrical, it is easy to have the jaws grip it automatically, but it is difficult when the shape is a distorted circle or irregular. Each jaw position must be adjusted so that the material is fixed in a position that is easy to machine. Traditionally, users on-site had to do this manually, which was quite labor-intensive. If this can be automated, it should become more user-friendly. Detecting such needs and being able to propose them to machine tool manufacturers is the current challenge.

——If there is anything else you have been focusing on recently, please let us know.

Due to societal changes, it has become increasingly difficult to hire young talent, and there are also limits to the capabilities of veteran workers. Therefore, we are challenging ourselves to hire international students and highly skilled foreign personnel in the sciences. Furthermore, for several years now, we have been thinking that we must skillfully utilize the latest information technology and new tools to simplify various tasks. There is no other way to solve the issue of labor shortages.

However, for veterans, it is faster and more reliable to work using the traditional methods rather than learning how to use new tools. Therefore, veterans tend to resist the introduction of new methods. Thus, we have adopted a method where young employees first learn the new tools, demonstrate that they can achieve results in actual work, and then gradually introduce them to veterans.

——Finally, please tell us about your future prospects.

As the population ages and working hours decrease, the primary goal is to change the company's structure to adapt to societal changes. For example, not limited to the manufacturing of chucks, we aim to automate the work done within the company. Once we acquire the know-how of automation, we will consider methods to commercialize it in some form and offer it to our customers.

President Kawata and the Kawatatec Team

Kawatatec Corp.

Business Activities ● Design, Manufacture, and Sales of Machine Tool Accessories

Location ● Sakurai City Nara　　Established ● 1933　　Website ● https://kawatatec.co.jp/