Shin-Nihon Tech Inc.

Aiming at solution proposal type firm super precision mold expert.

Utilizing high precision forming grinder “MEISTER” for mirror finish surface grinding of high hardness materials

Shin-Nihon Tech is an expert of super precision mold making, aiming at is not product out type “manufacturing”, but a market in type “value creating” for a solution proposal type firm.

Utilizing high precision forming grinder “MEISTER”, and high precision forming surface grinder “TECHSTER” for mirror finish surface grinding of high hardness materials such as tool steel, cemented carbide, ceramic and PCD.

Also “DV-1” with CCD image monitor provides high precision processing with a form accuracy of 1.5 μm or less, and mirror finish surface grinding with surface roughness Rz of 0.2 μm or less.

Aiming for a solution proposal type firm Expert of superprecision mold

“We are aiming for a solution proposal type firm. To provide technology, products and services that are required by time, industry and customers at the necessary timing - I express this concept as 'sushi shop type manufacturing'. We want to be a firm that can provide seasonal materials freshly and vigorously”, Mr. Yasuo Izumi, Representative Director emphasizes.

Shin-Nihon Tech Inc. was established in 1953 by the
grandfather of President Izumi, as a manufacturer of slide fastener used in clothes, bags, etc. The company once had occupied the second largest share in the industry next to YKK. Utilizing techniques in grinding work developed by the manufacture of fasteners, they established a mold department in 1975, and started to design and manufacture precision press molds and manufacturing precision molded parts. In 1998, they established a precision plastic molded parts department.

Now Shin-Nihon Tech is mainly dealing with design and the manufacturing of superprecision mold and molded parts, which are indispensable to the manufacturing of electronic parts and optical parts for which high functionality and downsizing are proceeding. As President Izumi said at the beginning, they have been contributing customers to improve their quality and productivity by developing products with the first priority on solving customers’ issues and providing timely unique super precision punch for press mold with thinnest portion being 30 m

President Izumi says “We aim at a company that can provides seasonal materials freshly and vigorously” and expresses its concept as “sushi shop type manufacturing”
techniques that capture their needs accurately.

They manufacturing not only presses molds but also plastic molds, and they are dealing with dicing blades to cut semiconductor, fluorine treatment of die blades, spray to remove adhesive stuck to the blades. Above all, patented “a scrap floating preventive laser processing” technique has a high reputation, and has received an award of excellence in the manufacture and production process section of “Fourth Monozukuri Nippon Grand Award” (Ministry of Economy, Trade and Industry).

In 2010, “OSAKACHAOS CO., LTD. was established by joint investment of 19 member companies of Osaka Doyu-kai including Shin-Nihon Tech. President Izumi serves as the representative of the association, and aims at information sharing and utilization, and joint order acceptance and joint development by the manufacturing companies,

In June 2013, the head office and plant of Shin-Nihon Tech received the visit of their Imperial Majesties, the Emperor and Empress.

Providing products that improve customer's productivity

President Izumi says, “aiming at a solution proposal type firm is dealing with the customer's “problems”.

The most important condition to our technical development is “to provide products that improve the customer's productivity”.

“The scrap floating preventive laser processing” technique that was developed in 2008 is a typical example of this. This technique is to prevent scraps from floating by making several continuous grooves of one to two microns on the surface of a die with laser processing. Scrap floating is a phenomenon that “punch scraps” generate in a punching process in a press work of lead frames or connector parts.
come out from a mold cutting blade along with the rise of a punch and may cause a mold failure or processing defect. With this technique, customers’ productivity was improved three times at maximum, and on this occasion, Shin-Nihon Tech strengthened the feature of the company, “solution proposal type firm”.

“The main market for machine tools has been transferred overseas and technology outflows like commodities. You cannot stop this movement. But the needs to solve “problems” keep remaining in Japan. Firms that stay in Japan must pursue such needs that cannot be mechanized”.

By dealing with the solution of “problems”, they developed various techniques. Field is not always molds. For example, in the processing process of adhesive films that are integrated in precision parts for smart phones, adhesive sticks to a punching blade that may affect processing accuracy. So, they developed a product called “SN fluorine coat”, where fluorine film of less than 1μm is baked onto a mold at a temperature of 98°C or less. “It was a result of stepping into the field of surface treatment, not sticking to molds” (President Izumi).

Other examples of products in the new field are “diamond mold parts”, that improve the life 50 times longer compared to conventional cemented carbide and cleaners that removes the adhesive stuck to a blades.

“If you look at customers “problems”, your business expands. But problems that can be solved by only your company are not many. That is why I go to many places and meet many peoples. I feel a connection with people is more important than anything” (President Izumi).

“The PC dicing blade” that cuts semiconductors down to less than 50 μm was developed thanks to technical guidance from professor Junji Watanabe of Kumamoto University and the technical cooperation of TOKYO SEIMITSU.

“Time changes. If you are caught in your own trap by defining yourself as “a mold shop”, and are not able to adapt to the change, you cannot survive. All that is required is seasonal techniques demanded in time. We want to win the global competition with unique technology, and unique products to secure profit” (President Izumi).

Utilizing high precision forming grinder MEISTER for mirror surface grinding and long grain form grinding process

For the superprecision business, President Izumi expects, “When the effect of EV and fuel cell car spreads wider, needs for electronic parts that cannot be provided by conventional automobile industry will increase”.

According to current sales mix of Shin-Nihon Tech Inc., we manufacturing precision mold parts occupies 70% of total sales, design and manufacture of precision mold for metal press 20%, and design and manufacture of mold for plastics 10%. Customers are around 300 firms and companies that place order with them every month periodically are over 50 firms. Lead time for orders is usually three weeks for orders including designing of molds to manufacturing and one week to 10 days for mold parts but they say it is not rare that very short delivery, such as same day delivery, is required.
Metal plates, punches and dies for metal press; mold parts for cavities, and cores for plastic mold.

For superprecision mold parts, the cutting process is made by a machining center to manufacture metal plates, punches and dies for metal press; mold parts for cavities, and cores for plastic mold. And with the high precision forming surface grinder TECHSTER, the high precision forming grinder MEISTER (7 sets), and others, they are making a mirror surface grinding and a long grain form grinding process of high hardness material such as tool steel, cemented carbide, ceramic and PCD.

In 2009, they promptly introduced the first model of graphical profile grinder model DV-1.

“With refinement of electronic parts, the hardening and thinning of materials for electronic parts are being proceeded, and it becomes important to reduce the generation of particles during the press punching process and deformation of material. In such circumstances, high precision processing with an accuracy form of 1.5 μm or less, and mirror polishing process with surface roughness Rz of 0.2 μm or less, it is possible by not using an optical magnifying glass where magnification is limited to about 50 magnifications, but using a CCD image monitor (graphical type) of 350 magnifications. Sympathizing such a new concept, we introduced the first model of DV-1.

We have been addressing utilization of new processing techniques while discussing with AMADA MACHINE TOOL. We hope AMADA MACHINE TOOL will proceed in two directions, one is “like a machine represented by model DV-1, advanced flagship machine that enables what could not done before”, and “a reliable and robust standard machine with which you can easily make everyday’s usual processing” (President Izumi).

Persistent challenge -
From “manufacturing” to “value creating”

President Izumi leads a group of companies as a representative of OSAKACHAOS CO., LTD. established by the joint investment of 19 small companies in 2010.

Like “The Innovator’s Dilemma”, if manufacturing good products by only further cultivating technology, your area of specialty is narrowed and range of acceptable jobs gets smaller. What we are aiming at is not product out type “manufacturing”, but a market in type “value creating”. In order to make a valuable proposal to “problems” of customers by a small firm that has only limited management resources, it is necessary to strengthen proposal capability with enterprise partnership. In the case of a partnership with different types of industries through OSAKACHAOS, we are going to find out a missing link (undeveloped part) that “I would have been achievable if we had it, we could have done that”, and to develop it or connect firms - and to create “jobs”. As stated in “WIDE LENS” (published by Toyo Keizai Inc.) by Ron Adner, innovation cannot be achieved by your company alone. Doing everything by principle of self-sufficiency is same as not being able to do any. I think because we are in such an environment, individual companies can continues distinctive activities such as the development of unique technology, and it will result in cheering up this region” (President Izumi).