Increasing efficiency with a gradual transition to automation

"In the support package from BOI we received a three-year corporate income tax exemption (not exceeding 50 percent of our investment), so we will reach our breakeven point in a shorter time - in 3-4 years. This accelerated our decision to invest."

Mr. Chalermrat Sriborisuth
General Manager

SRIBORISUTH FORGING TECHNOLOGY CO., LTD

Boosting company reliability through improved manufacturing process efficiency, and implementing effective cost management strategies are key tools that companies use to enhance their competitive advantage. One such company is Sriborisuth Forging Technology Co., Ltd, a manufacturer of high precision automotive parts created through the process of hot metal forging. This company, located in Chonburi province, has found multiple opportunities to improve its manufacturing efficiency for better cost management, increased productivity as well as sustainable growth of their business, with the help of investment support measures provided by the BOI.

Mr. Chalermrat Sriborisuth, General Manager of Sriborisuth Forging Technology Co., Ltd, indicated that his company is the second hot forged automotive parts manufacturing business created by the family. The first was established 30 years ago under the name "Sriborisuth Industrial Co., Ltd" by Mr. Somchai Sriborisuth, his father. The company produces parts for cars, trucks and motorcycles. Among them are common rail fuel injection system for diesel engines, power-train systems, steering systems and suspension systems. Tractor parts and automotive bearings are additional products produced by this company, whose key customers are the Japanese business owners who have invested in automotive assembly in Thailand.

According to Mr. Chalermrat, hot metal forging is one of the oldest known metalworking processes and is widely used to make parts for mechanisms, machines and

equipment requiring high strength. Machines use compressive forces to deform and form the heated metal to increase its strength in the required direction for its intended purposes. The steps involved include obtaining the proper raw material - steel bar or steel shaft – which meet the customer's specifications, cutting the metal to the proper size as required for production, elevating the temperature of the material to 1,200°C followed by the pressing, molding, trimming and piercing of the metal part. Finally, the steel is quenched to increase the material's strength and finishing or other surface treatment is applied, followed by quality inspection, packing and delivery.

In 2019 the company established an "Innovation Development" department under the supervision of Mr. Chalermrat to facilitate and improve work processes and to increase plant productivity. Technologies were implemented to boost production efficiency such as Computer Aid Engineering (CAE) to improve the quality of moldings, using 3D printers save time in preparing the prototype during the design phase, and using automated Image Dimension Measurement machines to shoot product photographs, measure its dimensions, and record the data at the same time. This reduces human error in measuring dimensions and increases the speed of the final quality check. In 2019, the company implemented a 0.766 MW Solar Rooftop System, which was made feasible due to the company receiving efficiency improvement support from the BOI for the upgrade of technology and machinery for manufacturing. Mr. Chalermrat noted that "With this system, we are able to produce about 900,000 units of electricity per year. Our electricity fee equates to Baht 3.6 million per year or about Baht 300,000 per month. The investment for this project was Baht 20 million, so we would normally have reached a breakeven point in 7-8 years. In the support package from BOI, however, we received a three-year corporate income tax exemption (not exceeding 50 percent of our investment), so we will reach our breakeven point in a shorter time – in 3-4 years. This accelerated our decision to invest."

Vision for the Future

Said Mr. Chalermrat, "Our short-term goal is to use technology to improve our productivity to be competitive to manufacturers from Japan or European countries. It takes about 7 seconds for manufacturers in Japan, Europe and Taiwan to finish 1 piece of product, while it takes us about 10-12 seconds for the same activity. We see the need to close that time gap and can improve here. Technology can help us both reduce the labor force required, and remove other obstacles, leading to decreased production time and costs. If we can produce more pieces of product in the same time, our average cost will also decrease."

The company successfully started transitioning the finishing process to automation at the beginning of 2020. An additional request for support had then be submitted to BOI for the measure of upgrading technology and machinery for manufacturing to improve production efficiency. Mr. Chalermrat shared that the installation of this system would lead to the increase of production efficiency of the department by 30%. "Usually, the time consumed to create one piece of work is 3.6 seconds. By using robots, we aim to reduce the production time to 2.5 seconds per piece – aligning to the time consumed during our trial production. This 30% improvement in productivity can reduce production costs and will increase our competitive advantage."

The BOI promotion measure provides:

1. An exemption of import duty on machinery.
2. A three-year corporate income tax exemption on the revenue from an existing project, with the corporate income tax exemption cap not to exceed 50 percent of the investment capital (excluding cost of land and working capital)
3. In the case of investment in automation systems, the corporate income tax exemption cap is raised to 100% of the investment excluding land cost and working capital if the value of the linkages to the Thai automation industry reaches at least 30% of the total value of the automation system.
4. The corporate income tax exemption

period starts from the date of revenue derivation after the promotion certificate is issued.

"We chose to do a gradual transition to ensure that our people have a strong foundation and clear understanding of the automation process. When we are confident that our semi-automation process is under control, we will proceed to implement full automation in the future. This method takes time but we are looking to create sustainable and efficient improvement which is less prone to mistakes or failure." said Mr. Chalermrat. He continued, "If we don't have manpower with sufficient skill to handle the manufacturing process during a breakdown, we would have to stop the production thus affecting the on-time delivery to customers. To gain profit from automation, it must deliver better, faster and more accurately that a human would."

Attractive BOI Incentives

The Thailand Board of Investment (BOI) offers a wide range of tax and non-tax incentives for projects that meet national development objectives. Tax-based incentives include an exemption or reduction of import duties on machinery and raw materials, as well as corporate income tax exemptions of up to eight years. Non-tax incentives include permission to bring in expatriates, own land and take or remit foreign currency abroad.

Additional information about specific activities relating to the automotive parts industries can be found by clicking here or contacting the BOI's Investment Promotion Bureau 2.

Source: *BOI e-Journal*, 4 (2), 10-15
As of April 2021