SPTECH

# WE ARE SPTECH


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# welcome!

SPTECH is a corporation always caring about innovation and development. Having more than 40 years of experience and accumulated experience in the production of rigid plastic molds by injection method in 1996, our corporation has been developing and selling innovative solutions both at home and abroad on injection method plastic packing mold production since 1996 and on plastic injection automation solutions since 2006.

In summary, SPTECH designs, delivers and renders services the complete system solutions with perfect technology where all flows from injection molds to injection automation and even peripherals are in perfect harmony with each other.

WE ARE SPTECH

# Our **Vision**

SPTECH has acquired itself a vision to be among global scaled organizations by gaining the appreciation and satisfaction of our customers, employees, suppliers and the society we live in also taking the quality, technological advancement, teamwork, sharing, social responsibility and continuous improvement as basis.

To provide the best-in-class service and to establish strong ties with our customers in all areas where we operate, while providing our customers with high quality products in the most economical way and easily accessible,

To be one of the "determinant companies of the sector" in the home country and abroad by developing unique, scientific, innovative and world-class solutions without compromising on science and analytical thinking,

Respecting the values of our employees, society and customers while providing sustainable and stable earnings,
To increase the positive effectiveness of our country in terms of its place in the growing world economy and its participation in the expanding global markets.

# General

SPTECH has been providing professional services in the production of single-layer and two-layer molds for the plastic injection industry since 1996, and thanks to its years of experience and design and manufacturing technology, it is unrivaled in the development of thinner wall products/molds compared to other organizations in the sector. SPTECH uses advanced high-tech CNC machines and measuring devices (CMM) with 3 - 5 axes to improve machining precision, shorten the processing process and provide the earliest delivery date in production.

# **Product** Design

SPTECH considers a technical innovation, suitability for the purpose of use, simple geometry, economy, ease of use and moldability as the main principles of the design.

Design is made in our offices by using computer-aided software (CAE) via customer expectations or direct technical drawings. At this stage, which is also called CAD Design, the suitability of the products to the design objectives is analyzed by using advanced engineering software (CAE / FEA / CFD) in order to detect potential problems in the molding and mass production stages and to identify possible errors and risks. In this way, both the production stage of the mold and the high costs that may arise during the mass production process are prevented. Parameters such as material flow, pressure drop, joint trace, gas cavities, filling time, temperature distribution, injection pressure profile, cooling time, 3D tensile analysis, 3D distortion analysis and runner design of the design are determined using Autodesk MoldFlows simulations.

# Mold **Design**

Mold design and manufacturing is a complex industrial work that requires very high levels of precision, care and experience. SPTECH has the most up-to-date design, analysis / simulation, production and testing infrastructure with its experience in injection mold design and production for more than 20 years.

The design of the mold starts by analyzing and evaluating the customer requests and expectations in detail. The design stage is the most important stage among all stages, and a wrong decision can lead to serious costs. Fundamental issues such as production information, cycle time, investment budget, mold cavity, number of cavities, number of layers (for stack mold dies), moving cores, runner and pusher type, cooling system determined at this stage. Mold design is projected as a solid model by taking into consideration many important factors such as healthy processability of the mold parts, mountability, suitability of injection molding machine and easy intervention on the machine.

Designs, static force, flow, filling and temperature analysis are made by using auxiliary engineering software (FEA / CFD).

# Mold Production

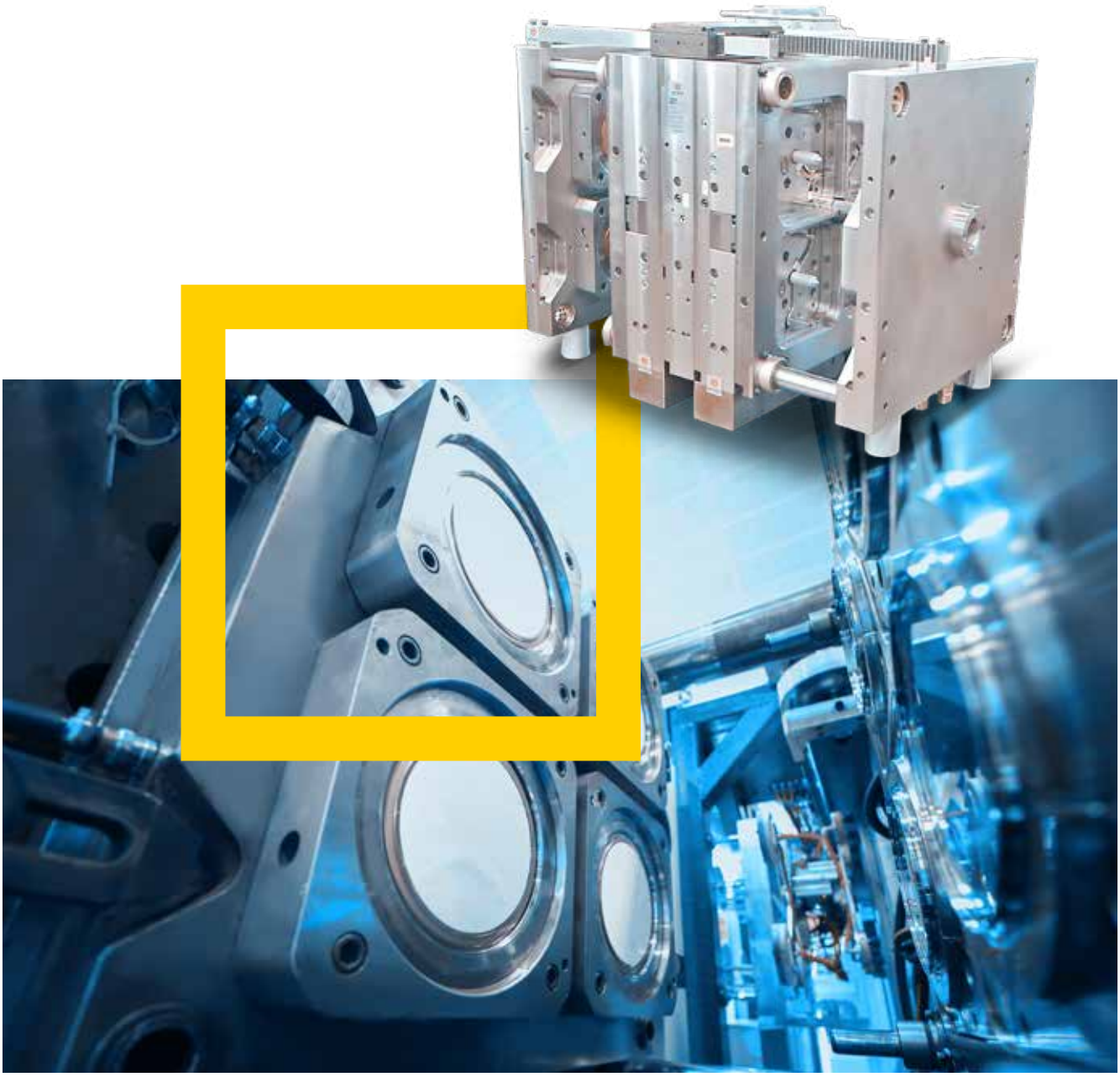
The process from the idea stage of the desired product to the mass production is the mold production. Mold production with direct effect on the final product is a production process that requires CNC (Computer Numerical Control) machines which require precise and technical workmanship, modeling, drawing and processing in computer environment with advanced technology software and shaping steel with 0.005 percent of 1 mm.
At SPTECH, mold production is made on high precision machine tools with the experience gained from the rich knowledge of the past years, and every stage of production is continuously controlled by high-tech precision measurement and control equipment (CMM). The environment in which the mold is produced is in a completely enclosed and controlled environment which is specially conditioned at +22 °C. Each part which forms the mold is checked through the relevant production stages in accordance with the prepared production schedule. Ultimately, all the parts forming the mold are mounted (assembled) and have a mechanical structure to be opened and closed.

MOLD

# Testing and **Commissioning**

The molds we produce are tested by being coupled to injection molding machines within SPTECH. Test suitability to the project, tightness test, strength test and performance measurement checks (cycle time, product weights, etc.) are performed. The results of the test samples and production parameters are evaluated together with our customers and approved. After the test results are approved, the mold is subjected to final checks, documentation for use is prepared and delivered to the customer.

When necessary, the mold is tested again at the customer's own workplace. The results are approved, mold usage and routine maintenance trainings are applied to the users and the mold is commissioned and delivered to the customer.




# Quality **Control**

Measurement controls of the parts forming the mold are made with CMM measuring devices. The measurements are carried out with high precision both during production and before assembly. With the approval of the measurement controls, the mold mounting (assembly) process begins. After the mold mounting process, pressuring tests are started.

# AUTOMATION

## General

With the development of technology, enterprises have made the best use of technology and started to invest in which they can make more economic profit by minimizing the unit cost and manpower usage of everything to be used in the services and products which they will provide to their customers.
Today, especially with the accelerated works with Industry 4.0, it has now led to the necessity of using robotic systems for fast production, ready-to-market products, packaging, cutting and / or shaping without touch.
SPTECH has been offering its customers developing integration services for advanced automation solutions for injection production since 2006.

## In-Mold Labeling (IML) Robots

In-mold labeling (IML) consists of the initials of In Mold Labeling. IML Robots are the robots which take the products produced by plastic injection machines from the mold to the work area and place the label to be printed on the product in the injection mold.
Plastic packaging decorated with high print quality is obtained by placing the labels which were pre-printed on PP-based paper and cut according to the product form into the mold by means of the robot arm and the molten PP injected into the mold with the label.
These robots, which are made in various types according to the product produced, are completely customer-oriented and shaped according to the customer's needs.

## In-Mold Labeling (IML)

In-mold labeling (IML) is one of the most effective and fastest packaging techniques for labeling plastic packaging containers. The multi-color label, where the desired image is printed and cut according to the product, is turned into a package with high quality printing and high resolution image in a single process.

In light of developing technology, IML has high print quality; colors are more vibrant and brighter, visuals are deeper.

By integrating the label and container during production, 100% hygiene is provided in the labeled container. When the production of the packaging is completed, it becomes ready for filling at the same time. The container with the IML label makes an extra layer on the outer surface, making the container more resistant to external factors. The container continues to be used even after the product in the package is used.

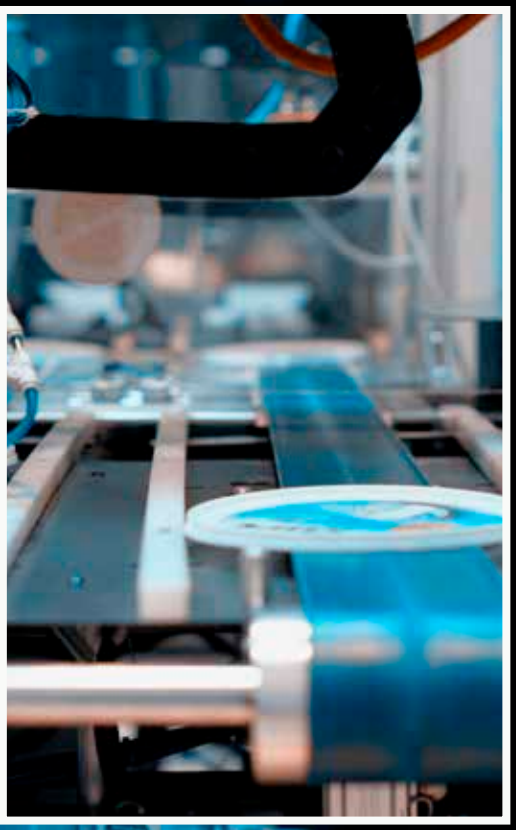
Since the label forms a whole with the packaging, the recycling of the container is also carried out together, thus making the recycling process easier and with fewer budgets. Besides, the fact that raw the materials of the label and the container are the same provides a recycling feature for the whole product.

Labeling and packaging production in packages using IML combined in one operation and enables faster production and economy in production costs.

IML labels are also advantageous in the overall cost of packaging as they provide better visual results at lower cost compared to other labels.

# **Image Processing** and Quality Control

Poor product quality or interruptions in the manufacturing process can have far-reaching effects for each company. Camera image processing technologies are utilized to minimize these risks and improve product quality.
Camera image processing systems (quality control) are artificial vision systems which perform quality control operations used to be made the human eye with the camera and related software.
In other words, artificial vision is the analysis of quality control processes performed visually with camera systems.
In order to make the production more efficient and faster, SPTECH offers the automation applications such as product quality control, label position control, label availability control, part selection and classification, product counting and defect detection, product deformation analysis, product availability/absence detection, precision measurement processes, OCR and multiple barcode reading systems in plastic injection production using the advantages of image processing systems by integrating with robotic systems.

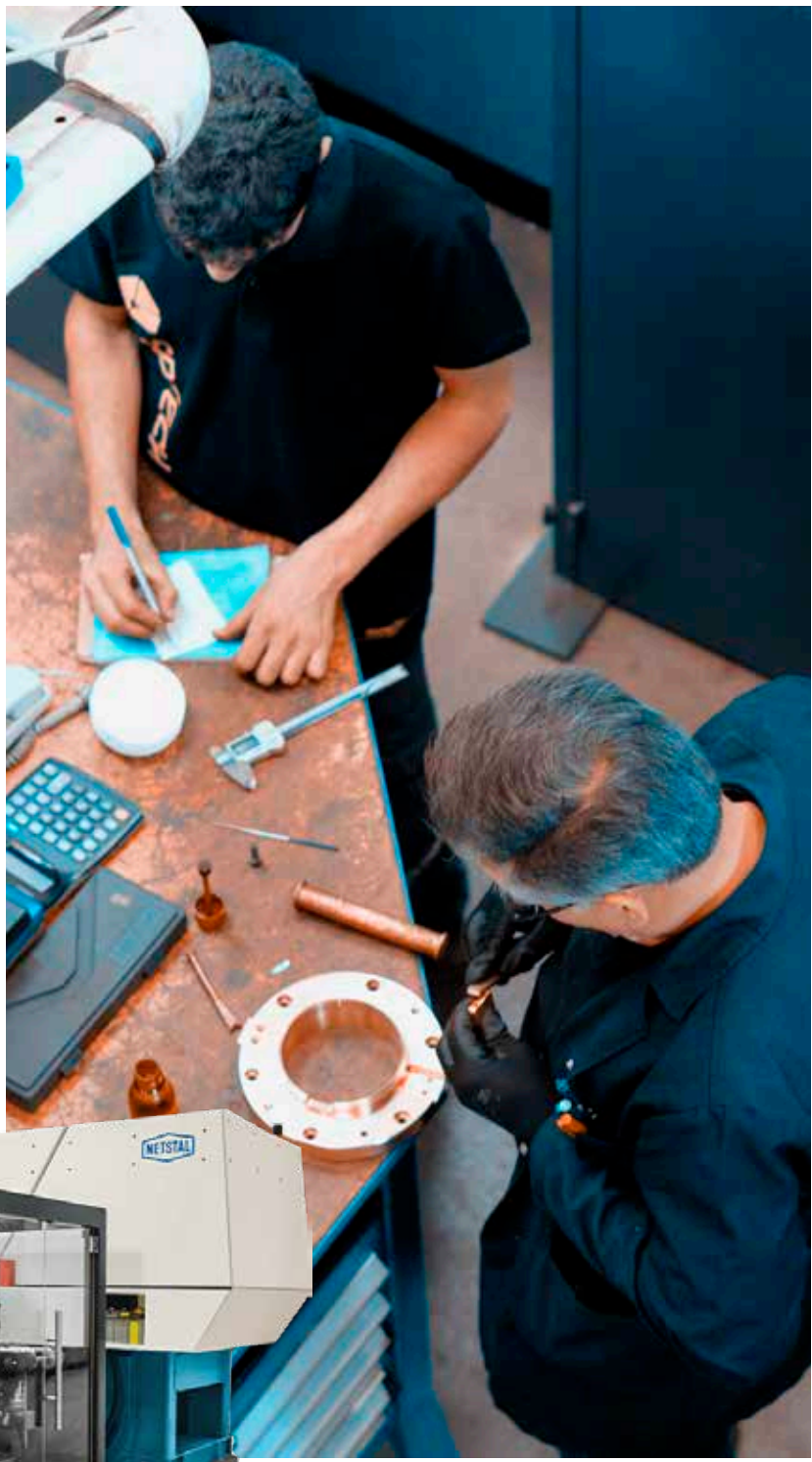


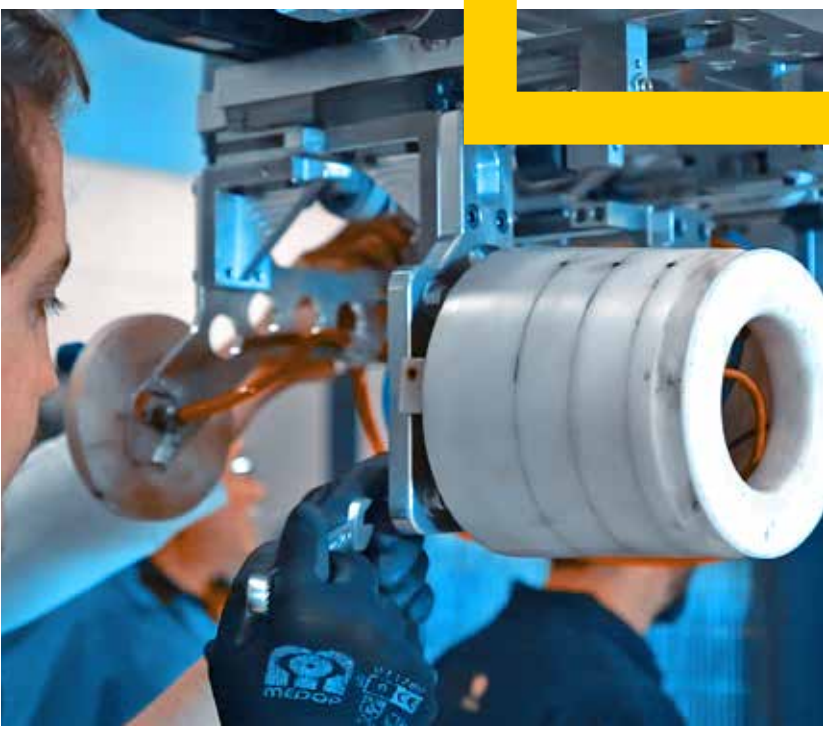
# Packing

Robotic plastic injection automation products are placed in boxes/packages again with robotic systems. As SPTECH, automation systems at the end of the line are designed to be suitable for the product and the current location and specially designed for our customers.

# TURNKEY DELIVERY PROJECTS

SPTECH carries out fully automated turnkey automation projects starting from zero for plastic injection production in accordance with customer requests. With the establishment of such systems, the productivity increases in production as a perfect compatibility between injection machine, injection mold and robot automation system will be ensured,



# TECHNICAL SERVICE

SPTECH also offers modification and maintenance services for molds and automation systems according to the demands of our customers.

SPTECH

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ARE
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