

Technology that Supports G-TEKT

For G-TEKT, engaged in the manufacture of auto body frame components and transmission components, our technology is the source of growth. In particular, press working, in which a metal plate is sandwiched between dies, has been honed since our founding, and we will continue to challenge ourselves in the pursuit of more advanced and highly efficient processing methods.

This time, we will introduce a technology known as “hot stamping processing” from among press working technologies that G-TEKT possesses. This technology is a processing method realized by the best of G-TEKT’s technological capabilities, including the management of a series of conditions to heat metal materials uniformly to over 900 °C, then quickly cool them, or control system to simultaneously process multiple materials in order to increase productivity. With this technology, we will significantly improve fuel efficiency by reducing the weight of auto body frames and build cars with less environmental burden.

We have also developed our proprietary traceability system because we believe that, as a manufacturer, we should be responsible for the quality of our products to the very end of the process.

G-TEKT will continue to contribute to the “future of people, automobiles and the Environment” through its technological capabilities.

Multiple simultaneous processing of hot stamping

Hot stamping is a processing method that enhances the strength of materials where steel sheets are heated, molded and immediately quenched (rapidly cooled down). Compared to normal press working, time required for the cooling process is longer, so the production speed becomes slower. In order to solve this problem, G-TEKT has been able to process more than four plates in a single press simultaneously, thereby succeeding in improving production efficiency. Multiple simultaneous processing requires a device to transport materials at a high speed at once as well as the ability to manage difficult heating conditions depending on the shape, size and thickness of materials. We have, however, developed proprietary technology to meet these challenges and to achieve mass production.



Delivery



Heating furnace



Feeding material into die



Multiple simultaneous processing



Water cooling die

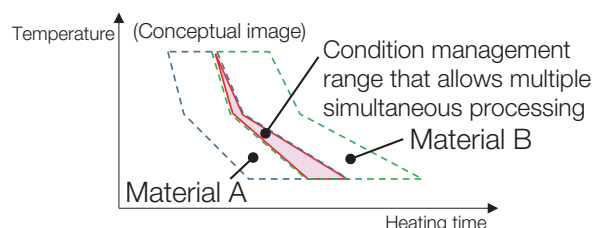


Multiple simultaneous processing

High-speed conveyance equipment for multiple simultaneous processing



Management of heating conditions of several materials with different thicknesses

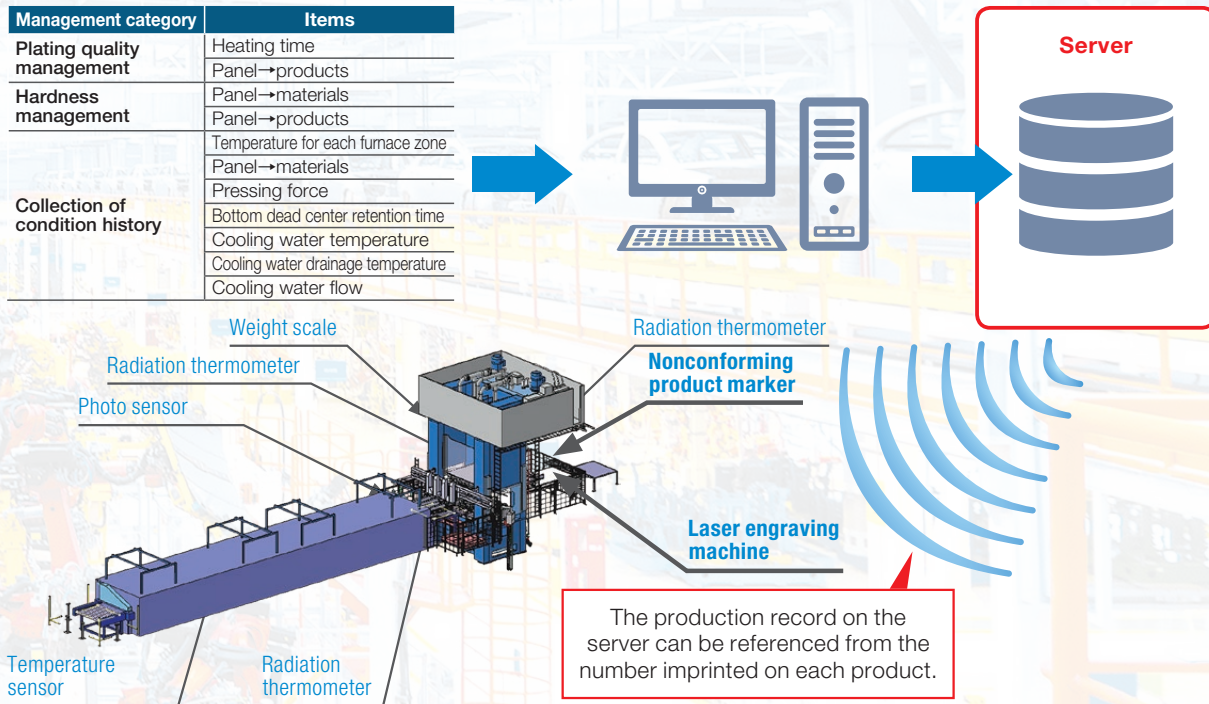


Please refer to our website for more information on hot stamping.

<https://www.g-tekt.jp/english/tecnology/lightweight.html>

Hot stamping traceability system

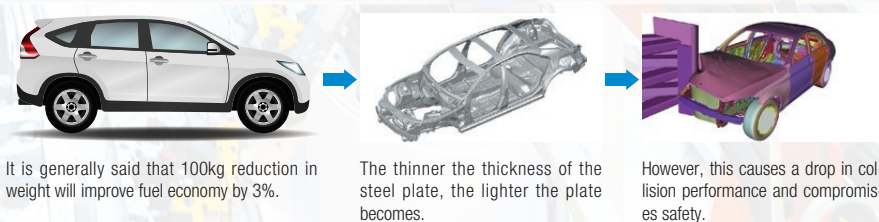
Hot stamping, which guarantees strength by manufacturing under predetermined conditions, requires the detailed management of processing conditions. In order to ensure that the daily production is processed under set conditions, we create a database from data collected using various sensors, and have in place a traceability system that imprints lot numbers on all products by a laser. If a product that deviates from set conditions is mistakenly processed, it is automatically disposed and the system does not allow non-conforming products to leak into the market. The system can match the lot number with the processing data stored and guarantees the quality of all products.



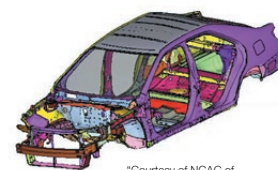
G-TEKT BODY, contributing to environmental performance through weight reduction

As environmental problems such as global warming become more serious, automobiles are being required to reduce exhaust emissions. Companies are working on ways to improve automobile fuel economy because, through improving fuel efficiency, it is possible to reduce exhaust emissions. G-TEKT can contribute to environmental performance by reducing the weight of auto body frame components.

Auto body frames are made mainly of steel, so it is possible to lighten the weight by reducing the thickness of steel plates. The lighter the body frame is, the better the fuel economy, but the collision performance will decrease, which will compromise safety and passengers cannot be protected from accidents. Therefore, by using ultrahigh tensile strength and hot-stamped materials with four to five times the strength of ordinary steel plates, the thickness of the plates can be reduced and lightened, while the safety is ensured at the same time by the high strength of these materials. In addition, we are working to further reduce weight by using aluminum in parts that have little impact on safety. By combining various materials such as steel and aluminum and using the right material in the right place, a multi-material body with light weight and sufficient strength can be created. G-TEKT will contribute to environmental performance by reducing auto body frame weight, making a full use of steel plate processing and joining technologies for each material that we have cultivated.



G-TEKT multi-material body



"Courtesy of NCAC of George Washington University"

Ultrahigh tensile strength materials and hot stamped materials are used to make the body safe and light weight. In addition, aluminum and other materials are used to reduce weight in parts that have little impact on safety.