

3 Contribute to the Environment and Society

Environmental Management



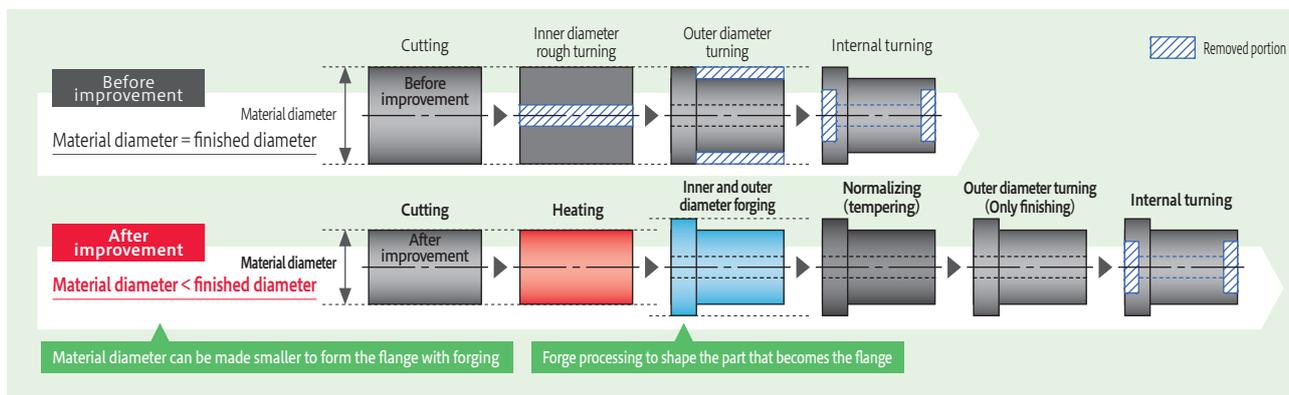
NSK's Approach

NSK's mission statement is to contribute to a safer, smoother society and help protect the global environment through its innovative technology integrating Motion & Control™. The environment is one of our core values. We aim to contribute to the realization of a sustainable society and improvement in NSK's corporate value through initiatives to maximize environmental contributions through products and reduce the environmental impact from our own business activities based on NSK's mission statement.

Examples of Fiscal 2020 Initiatives

Improved Steel Consumption Efficiency through Nut Forging of Large-Size Ball Screws

Ball screws used in machine tools, electric injection molding machines, and other machinery are machined to the shape of a nut that meets customers' specifications and are shipped together with the screw's shaft. Previously, when manufacturing nuts, a machine was used to shave off the excess portion from a cylindrical piece of steel that matched a flange with the nut's largest diameter. NSK has now reduced the volume of steel used by 44% from that prior to the improvement by employing a forging process with a smaller-diameter piece of steel.



Reducing Grinding Waste Liquid and Reusing Water

The process of grinding metal parts with a whetstone entails the use of grinding fluids made by adding a solvent to water. After repeated use, the grinding fluids become degraded and are disposed of as waste. Such waste liquid accounts for about 40% of the NSK Group's waste emissions, and we have therefore promoted countermeasures with the aim of reducing such waste.

At Amatsuji Steel Ball Mfg. Co., Ltd.'s plant in Shiga Prefecture, in February 2021 we deployed a waste liquid distillation concentrator to enable the performance of an on-site process in which by distilling waste liquid we could separate "water" and "concentrated waste liquid." This equipment is capable of distilling 250 tons of water per year, and this amount is equivalent to roughly 30% of the waste liquid volume emitted in the grinding process that takes place at the Shiga plant. The distilled water is reused to cool the facilities with the aim of effectively utilizing resources, and furthermore, the concentrated waste liquid is recycled outside the Company as fuel or another resource.



The waste liquid distillation concentrator deployed to Amatsuji Steel Ball Mfg. Co., Ltd. (Shiga plant)

Reducing Waste Materials in Distribution

Reduce, reuse, and recycle constitutes an initiative that the distribution division undertakes on a global scale as the Company endeavors to reduce waste materials.

In the Americas, after unpacking imported items, the packaging materials had previously been treated as waste, which became landfill. From fiscal 2020, this waste has been sold to a vendor, and through incineration it is reused as energy (thermal recycling).

In Europe, the wooden pallets used in shipping from Japan, being of a different size than standard European pallets ("EUR-pallet"), had been unable to be reused and were disposed of as waste. From fiscal 2020, however, the Company commenced returning these wooden pallets to the Japan, Asia, or Oceania regions, and subsequently they are being reused for inter-regional shipping. In this way, our operations in Europe were able to cut wasted pallets by around 70% from the previous fiscal year.



A reused wooden pallet

▶ Please see our website for more information. <https://www.nsk.com/sustainability/environment/index.html>

Safety Management



NSK's Approach

NSK has positioned safety as one of its core values. While continuously striving to further increase employee awareness, employees rely on safety as the basic judgment for all their actions. To protect the safety and health of every employee, and to guarantee the safe conduct of all employees, NSK is implementing various measures based on its Safety Philosophy. Never content with the status quo, NSK is constantly working to further raise the level of safety.

Examples of Fiscal 2020 Initiatives

Raising the Safety Management Level for Construction by Outside Contractors

By using a web system to manage the work performed by outside contractors, NSK was able to lighten the workload of people in charge and substantially improve operational speed. In addition, it enabled the smooth confirmation of various preparatory tasks, and this system was used to expand and develop safety management for internal construction as well.

Activities to Foster an Interdependent (Mutually-Enlightening) Safety Culture

As activities to foster a culture of safety at production bases, NSK began conducting safety culture workshops. These workshops seek to facilitate an understanding of current levels of safety culture at production bases, and department managers discuss and set tasks geared toward raising that level, which leads to a cascading knowledge according to rank.

In addition, as an opportunity to learn about “felt leadership” (leadership that enables workers to understand and “feel” management’s thoughts on safety), from fiscal 2020 NSK commenced the holding of a core value workshop for executive management and the rollout of this is ongoing.



The Fiscal 2020 Executive Management Core Value Workshop (while taking measures against COVID-19)

Introduction and Operation of Video Risk Assessment to Raise the Level of Work Risk Assessments

By utilizing videos of actual work for the risk assessment of operations, the risky tasks and actions, as well as dangerous spots that had typically been difficult to discern, have now come to be easily identified. Having plant operators participate in the video risk assessments effectively enables the reduction of operational risks and leads to putting in place safe standardized tasks.



Conducting the risk assessment by video (Fujisawa Plant)

▶ Please see our website for more information. <https://www.nsk.com/sustainability/hs/index.html>

Supply Chain Management



NSK's Approach

NSK is supported by many suppliers. We consider suppliers to be essential business partners and will seek mutual development while building relationships of trust.

Examples of Fiscal 2020 Initiatives

Supplier CSR Self-Assessment

The NSK Group distributes the “NSK Supplier CSR Guidelines” to its suppliers and asks them to ensure compliance with competition laws and anti-bribery laws, to respect the basic human rights of workers by prohibiting child labor and forced labor and maintaining occupational safety and health, to make efforts to preserve the environment through activities such as managing environmentally harmful substances, and to assess and mitigate risks that could impact business activities at their own company.

Based on these guidelines, the NSK Group asks its suppliers to perform CSR self-assessments and monitors the condition of their operations (every two years). We then report the results of our evaluation of their activities back to suppliers.

In fiscal 2018, we implemented audits conducted by a third-party organization

in five areas—labor, ethics, safety and health, the environment, and management systems—in accordance with Responsible Business Alliance Standards. Based on the results, for fiscal 2020 assessments covering approximately 930 companies in Japan and China, we strengthened initiatives to reduce risk, revising content by adding new items to the assessment form on a whistleblower system that concerned human rights and labor, the status on workplace accidents that require time off work, and the record of labor time management.

At NSK Group companies in the United States and Europe, China, and around the world, Supplier CSR Guidelines are posted to websites in efforts to effectively reach all our suppliers.

We will continue to take on CSR issues that society needs to strengthen, such as the transition to a carbon-neutral society.

▶ Please see our website for more information. <https://www.nsk.com/sustainability/supplier/index.html>

Quality Management

NSK's Approach

With quality as one of its four core values, NSK aims to become “No. 1 in Total Quality.” In other words, we are working to achieve the industry’s best quality in everything we deliver—not only products and services but also information. We believe that this commitment to quality ensures that our products will satisfy customers all over the world.

To achieve its Quality Assurance Vision 2026 (100% quality products that put the customer first), we engage in activities based on the Three Pillars of NSK Quality Assurance.

Examples of Fiscal 2020 Initiatives

Introduction of the “Dantotsu” Global Award System

In fiscal 2020, we implemented *Dantotsu* (improvement activities) efforts for zero defects at 42 plants around the world in a total of 61 categories, more than doubling from the previous fiscal year the number of items where we achieved our goals, and took this activity from Japan to points across the globe. Covering all locations worldwide, we newly instituted the “*Dantotsu* Global Award,” which honors activities covering a wide range of categories in addition to the achievement of the conventional consecutive zero-defect goals. Through the awards and the sharing of positive case studies, employee motivation is heightened and activities are energized.

Comments from an activity member

We were able to bring to the surface errors in equipment specifications and troubles experienced by operators, and to reveal what each specific cause of a problem was by going over things at morning meetings. This strengthened the bonds between team members.



Group at NSK Kyushu Co., Ltd., recipient of the *Dantotsu* Global Award

Implementation of FMEA Education with First Internal e-Learning Regarding Quality Training

In the risk analysis that takes place while establishing new development projects, amendments to processes, and other points to change, NSK looks at FMEA as an item for assessment. The goal is to understand the objective of FMEA and to utilize it effectively. This is not just for the development, design, or manufacturing departments; we have conducted this as basic e-learning, covering approximately 9,000 employees in all major departments in Japan.

The focus was placed on typical daily themes, and commentary in line with the flow of FMEA, from customer orders to completed product, was provided in an easy-to-understand manner that participants were able to take to heart. Based on an understanding of the importance of FMEA, there was an explanation of the strict scoring on degree of importance (degree of impact, seriousness, and severity), degree of occurrence (frequency), and detectability (difficulty in detection). The course helped participants understand the effectiveness of assessments.

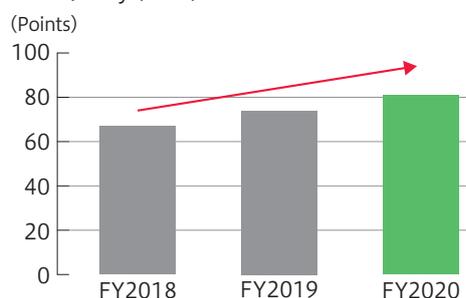
By conducting a survey at the conclusion of the course it was understood that course participants had a sufficient understanding. In addition, we were able to collect opinions from a wide range of departments about quality, and this generated hints on the next measures to be taken to raise quality. As an effective tool in upcoming quality training sessions, we aim to make further use of e-learning.

NPDS Design Review (DR) Quality Improvement Activities

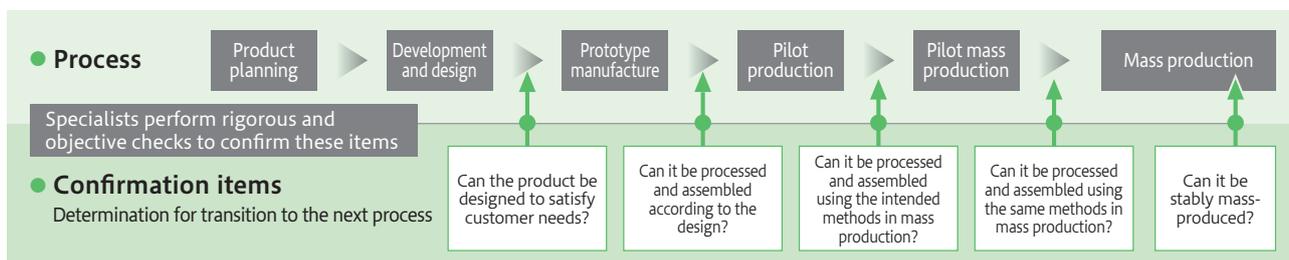
NPDS is an acronym for “NSK Product Development System.” Having in place a mechanism to implement “a series of operations to create quality, from the start of a project to launch of mass production,” NSK recognizes that enhancements through these activities lead to a greater degree of customer satisfaction.

At each stage of NPDS—design, preparation for production, or other task—those people engaged in a project gather and perform design reviews (DRs). In tandem with this, DR experts with a wealth of experience conduct an evaluation of the DR quality. At each stage of a DR, experts assess to what extent the items to be considered were effective, and the results obtained are provided by management to participants. This cycle repeats itself so that every year DR quality improves. We will continue to make further advances, utilizing DR to eliminate oversights and omissions, and will strive to take this to a higher level to be able to offer firm product assurances at the product planning stage.

■ DR Quality (score) Assessment Trends



■ Outline of NPDS



▶ Please see our website for more information. <https://www.nsk.com/sustainability/qa/index.html>