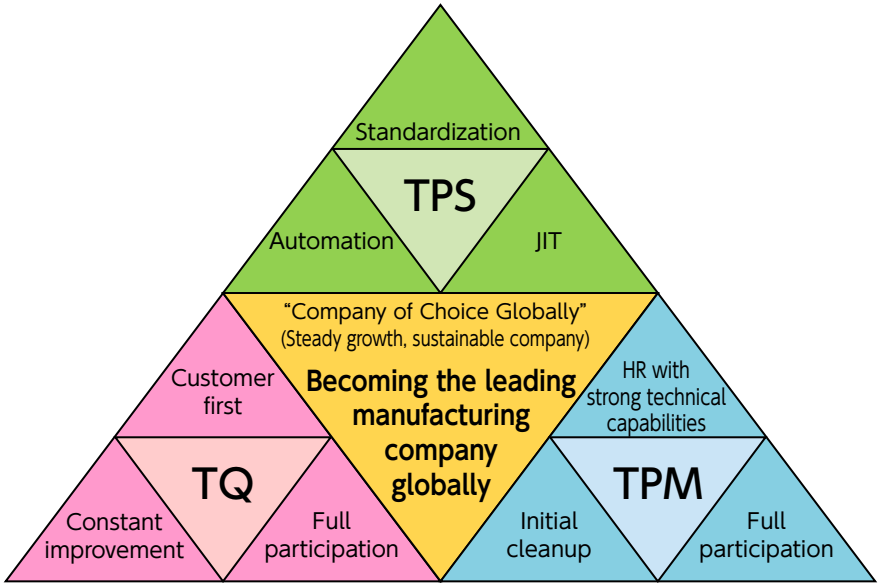
Quality and Production

Basic approach

Aichi Steel has always focused on the manufacturing capabilities of integrated forging with steel making processes, which cover everything from material design to production of steel, forged products, and electronic components. We have continued to provide our customers with highly functional and high-quality materials and parts with high strength, durability, and machinability, which are indispensable in the automotive and other industries. This stable supply of high-quality, low-cost products has been supported by the implementation of quality management and the evolution of manufacturing capabilities through the Toyota Production System (TPS), Total Quality Management (TQM), and Total Productive Maintenance (TPM). Using this as a foundation, we are working to build production systems that are resilient to changes as we face increasing uncertainty, including geopolitical risks and sharp price fluctuations.



TPS activities

Aichi Steel is striving to improve its efficient manufacturing capabilities by promoting cost reduction through thorough elimination of waste based on the two pillars of TPS: just in time (JIT) and automation. The in-house companies systematically address improvement themes for cost reduction identified from the perspective of TPS, and their results are shared companywide through a TPS convention held at the end of the fiscal year.

We have established a TPS trainee system to implement TPS, where we focus on human resource development. We train personnel selected as TPS promotion leaders through classroom lectures as well as practical learning, including case studies, in order to effectively apply TPS methods in the workplace. Also, to facilitate the smooth introduction of TPS to our production sites, we are promoting the acquisition of TPS methods appropriate to the role of each employee by providing a wider range of level-based training. With these two activities, cost reduction and human resource development, we are building flexible production systems that are resilient to change.

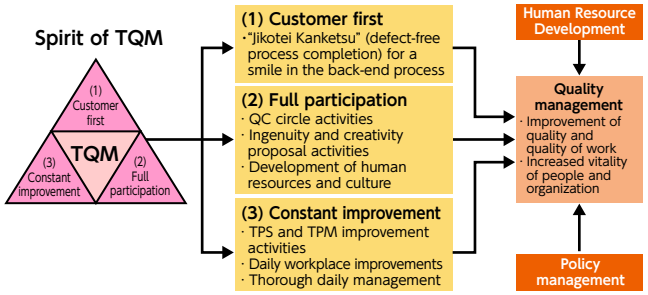

TPS Convention


Renewing TPS education into hands-on format

TQM activities

Implementation of quality management based on TQM

Based on the fundamental TQM principles of "customer first," "full participation," and "constant improvement," the Aichi Steel Group is engaged in TQM activities to implement quality management. This is done by "improving the quality of products and work" and "increasing the vitality of people and the organization."



To consistently meet quality requirements

The automotive industry is undergoing a once-in-a-century transformation, and its quality requirements are also changing. We are always trying to maintain and strengthen our competitiveness by delivering the level of quality that is required. One such initiative involves developing experts in technologies such as IoT, big data, and AI through the Toyota Group Machine Learning Practice Dojo. So far, we have trained 2 Shihan* (master instructors) and 3 Shihan-dai* (assistant instructors).

*Shihan (Master Instructor): Top talent in Toyota Group
Shihan-dai (Assistant Instructor): Associate top talent in Toyota Group

QC circle activities with full participation

Aichi Steel is working to establish and expand our QC circle activities as a means of improving operations in workplaces. We are working to develop human resources and revitalize our organization through consistent team efforts to identify problems, clarify issues, and formulate and implement countermeasures. In FY2024, 167 circles conducted activities, and 11 cases received external awards. For ingenuity and creativity proposal activities by individuals*, we set a target of at least one proposal per month, and all employees achieved the target throughout the year. As a result of these efforts, in FY2024 we received four awards from the Minister of Education, Culture, Sports, Science and Technology.

*Activities to encourage and evaluate employees' suggestions on how to improve the efficiency and quality of daily operations. Rewards are given based on the size of the effect, the number of proposals per year, and other factors in order to increase employees' motivation.

Winners of the Excellence Case Study Award at the National Convention Forging Plant's Driving & Engine Sect. (name at the time of the award) "good-ness II" Circle

Winners of the 2024 MEXT Minister's Award

TPM activities

We are committed to TPM activities to ensure efficient production of high-quality products. Based on the three key concepts of "full participation," "initial cleanup," and "HR with strong technical capabilities," we aim to transform people's behavior and on-site facilities to achieve zero breakdowns and zero defects by analyzing, addressing, and improving production facilities before breakdowns occur.

With operator self-maintenance as the most important activity, we have set quantitative targets for activities such as three zeros in equipment failure, quality defects, and occupational accidents, and productivity improvement through the reduction of production losses.

In FY2024, the number of Level 1 Certified Autonomous Maintenance Technicians reached 360, an increase of 91 from the previous year (certification rate: 31.1%). We have achieved steady results, including a 27.0% reduction in total facility failures (compared to FY2021.) To further promote and strengthen our TPM activities, we will work on improving quality and maintaining an efficient production system, such as by using DX for data analysis and visualization.

AICHI-style TPM Gold Award Model development

This model is for enhancing autonomous maintenance activities by utilizing DX and karakuri mechanisms, with a focus on Genryou Management* and utilization of aging facilities. Activities began in FY2023, and in FY2024, the binding machine in the Hagane Company's Steel Bar Rolling Section, and Line 31A of the Kitaeru Company's 3rd Forging Production Sect. received Gold Awards.

*Genryou Management (managing with limited order quantity) Management that achieves efficient production with limited personnel and equipment, lowering the break-even point and building a profitable business structure.

Improvement themes (QC circle)

Topics	Composition
Labor-saving	Improvement of single-person productivity per day, consolidation of equipment
Shortening of lead time	Reduction of production lot sizes, streamlining of production
Enhancement of production potential	Reduction of downtime, improvement of specific consumption
Reduction of man-hours	Reduction of downtime, shortening of MCT*

*Time required to machine and assemble a single part(Machine Cycle Time)