

IAQ QUALITY SUSTAINABILITY AWARD 2021 - ONE-PAGE SUMMARY

Project and contact details

The name of the quality sustainability project (max. 100 characters)

Construction of flexible production testing line for high precision servo products based on Combination quality tools

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Organisation(s), country, where the project-members are working, including Web-page links

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Project description

The development of flexible production testing line of high precision servo products is a scene management improvement project that combines information, networking, intelligent technology, measurement and control technology as well as lean management method, it fundamentally changes the production mode through system development. The project won the model case" award in the national scene management improvement project in 2021. The project started on March 1, 2020 and ended on April 30, 2021.

At present, with the increase of production tasks, some problems are exposed in the production test site, such as low product testing efficiency, high company production cost and heavy workload of operators. Therefore, it is urgent to explore a new hydraulic servo product test production line to improve production efficiency, ensure production quality and improve personnel value.

This project provides a system design method based on combined quality technology, forming a characteristic system development method based on Kano model and lean management method, engineering measure reference based on TRIZ theory, measure formulation based on QFD and measure implementation based on 5W1H.

—Kano model provides comprehensive and systematic requirements for the project.

—Lean management methods and IE tools provide measurement means for system identification and production line verification.

—TRIZ provides advanced and systematic design ideas for the rapid improvement of on-site management.

— QFD technology helps to ensure the unity of system design and user requirements in product design or service design.

— 5W1H provides scientific work analysis methods for project implementation and improves implementation efficiency.

The project has achieved outstanding results in safety, quality, efficiency, cost and personnel, which are mainly demonstrated at the characteristic lean production mode, transparent whole process quality management, safe and scientific site layout, continuous personnel promotion and flexible system design. The project has beneficial impacts on the economy, society and environment, which are in line with Articles 8 and 9 of the strategic objectives of sustainable development. On the one hand, it enhanced the flexibility and adaptability of manufacturing enterprises and created the best social value and economic benefits. On the other hand, the reuse of key equipment is actualized, which reduced the cost of the company and the environmental load.

The project pioneered the development method of a new digital system based on the combined quality technology, which is adopted different quality management methods in different development stages with the whole life cycle development process, involving demand investigating, scheme planning, measurements formulation, and countermeasure implementation. It embodies the concept of "customers first", "benchmarking", "system planning", "quantitative management" and "multi-disciplinary collaboration". In addition, the system design method based on combinatorial quality technology breaks through the original idea of solely relying on management technology or technology update, and organically combines operation improvement and equipment improvement, which achieves the deep integration of management technology with engineering and ensures more effective scene management promotion.

Project leverage potential

The achievement has been applied in the hydraulic servo products in the company's workshop with good effect. Standardized documents are prepared for the project and listed in the company's technical specifications, including <system operation instructions>, <system operation instructions> and relevant drawings. The technology has been applied to the testing of servo products with different types and principles, which is popularized easily, and can be extended to the construction of production test platforms in other industries.

Picture/Image describing the project

