NEWS RELEASE

September 28, 2024
AMADA CO., LTD.

Increasing production capacity through manufacturing reform using DX

Aiming for next-generation manufacturing that is friendly to people and the environment

AMADA CO., LTD. (Isehara, Kanagawa, Japan, Representative Director, President: Takaaki Yamanashi) has increased its production capacity for sheet metal processing products by using DX to reform its production methods and increase the efficiency of its indirect operations.

In recent years, the manufacturing industry has experienced increasingly serious labor shortages due to the decrease in the working population because of the declining birthrate and aging population. Additionally, demands for higher production efficiency are increasing due to shorter delivery times and shortages in the supply of some parts and materials due to growing geopolitical risks.

At the AMADA Fujinomiya Works, which is our main plant, we constructed a module plant in April 2020 to increase our production capacity for core modules. This plant has supplied the core modules to our manufacturing bases in Japan and overseas. We also built the AMADA Satellite Park nearby for the assembly of control panels and large parts. Suppliers that were previously in various locations have been concentrated in this park and we cooperate with them to improve production and distribution efficiency and reduce production costs.

In addition to these existing efforts, the new implementation of manufacturing reform utilizing DX has enabled us to further improve productivity, to improve the efficiency of the entire plant, and to strengthen our cooperation with suppliers. Through the new reforms, the production capacity of our mainstay fiber laser machines is expected to increase by

approximately 30% and the lead time from order receipt to delivery is expected to be reduced by 20%.

■Reform of production methods

The production method at AMADA is based on a stall booth production method, in which assembly is performed inside a booth. The stall booths have centralized piping installed and the jigs and tools are placed in each booth to form mini-factories. The parts needed for the assembly are supplied in the form of kits and are delivered inside the booth.

In this stall booth production method, a booth team method is adopted in which assembly teams, adjustment teams and shipping preparation teams enter the booths in turn and perform the assembly and shipping of equipment with a lead time of around 10 to 20 days. This system has the advantage that any variation in work proficiency between individuals is covered as the team. The system also makes it easier to promote multiple skill development. However, as the machines became increasingly multifunctional in recent years, the production became a mixture of models with different specifications and lead times. This led to the problem that some waiting time occurred. This mixed production was also requiring a lot of management work to organize the teams and assign the booths.

To respond to this, we adopted the booth-line method as a new production method for our mainstay fiber laser machines. In this production method, the assembly processes are evened out to subdivide the processes into daily units, and each process is entrusted to a specialist. By repeating the standardized work processes, the level of work proficiency is easily raised and the lead time was reduced by approximately 20%.

At the same time, we are also using our conventional booth team method for products that require a lot of specialized skills during their assembly and for products that exceed the production plan of the booth-line method. This parallel use of methods maintains a flexible production system.

Furthermore, the booths are allocated in a manner that ensures that processes requiring the delivery of large volumes of parts are not in adjacent booths. This has made it possible to use shared delivery areas and reduced the area of the booths. This enabled us to increase the number of booths for fiber laser machines by 20% and improved the area productivity by approximately 30%.

■Improvement of indirect operation efficiency

AMADA constructed the “AM-HIT's” system as an original integrated production information system. This system is based on a production seating chart. The production capacity within the plant is shown as seats and the machines for which orders have been received are registered in the system and managed using serial numbers. The assembly and processing schedules for each day are automatically generated from the production seating chart. Based on the schedules generated, the production management system "ATS" formulates a production plan using MRP, refers to the BOM to create a parts order sheet, and then

places the orders and manages the inventory.
In recent years, the increasingly sophisticated customer needs have meant that product specifications have become more diversified. In production management, a lot of work was required to check and correct the machine specification information and production plans. In procurement too, it was necessary to perform steps such as the revision of the requirement information sent to suppliers and the confirmation of delivery dates. This placed a heavy burden on both parties. In the manufacturing workplaces, managing progress with the various documents and forms was becoming increasingly complicated.
The new production management system "APEX (AMADA Production Environment Transformation)" is an evolution of the previous system. The use of DX has greatly improved efficiency in response to the high production loads and the increase in indirect work caused by diversifying specifications. Furthermore, to restructure the engineering chain, we have created an "Integrated BOM" that links the design BOM with the production BOM and the service BOM. This makes it possible to utilize the centralized management and visualization of technical information on the same platform.
In production management, it became possible to reliably perform the arrangements for the manufacturing based on the design information. The arrangement information required for machine production preparation is automatically registered in the production seating chart. This is performed via the design specification information, which comes from the final, customer's required specifications. Additionally, it is now possible to use the BOM for each serial number actually used in the manufacturing to automatically generate a 3D parts list for maintenance purposes for each customer machine. This further strengthens the coordination between SCM and ECM in a manner unique to AMADA as a company performing direct sales and direct service.
In procurement, we newly constructed the AMADA Supplier Portal Site to strengthen cooperation with suppliers. This enables data such as production plans, ordering information, and inventory information to be shared with suppliers in real time from the AMADA production management system. It also makes it possible to share important information such as technical, quality, and pricing information in a more secure environment. We also plan to enable collaboration with the production management software and manufacturing DX solutions from AMADA that have been installed by our suppliers. We expect that the sharing of production plans and progress in both directions in real time will greatly improve the efficiency of indirect operations.
In the manufacturing workplaces, a combination of electronic paper and RFID tags is used to manage the location and completion information of internally processed products such as frames and core modules. This management is conducted in real time from the receipt of materials to the assembly and shipment of machines. Additionally, we have created a serial portal that aggregates the sales, manufacturing, and quality information for each machine serial number. The workers can access the data on tablets to check the production specification information in real time, and to share manufacturing and quality information

with the management department.

As activities for the long-term growth strategy set forth in our 2025 Medium-Term Business Plan, we are strengthening our overseas supply system through global manufacturing reforms and strengthening our manufacturing bases in Japan, Europe, and North America. We plan to continue to promote DX and to deploy it at our plants in Japan and overseas.
To achieve our Long-term Vision in 2030, we will build a solid manufacturing system and further strengthen our supply chain coordination while aiming to realize next-generation manufacturing that is friendly to people and the environment.

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* The information in this release is subject to change without notice.