TAIKI-SHA

News Release

November 29, 2024
Taikisha Ltd.

Completed Demonstration Line for Dry Decoration System

- Enabling customers to experience next-generation production technology and verify it for practical application -

Taikisha Ltd. (Head Office: Shinjuku-ku, Tokyo, Japan; Representative Director: Masashi Osada; hereinafter referred to as "Taikisha") is pleased to announce that it has completed a demonstration line that will allow customers to experience the innovation of its dry decoration system at its own research and development facility in Zama City, Kanagawa Prefecture. The dry decoration system decorates automobile exteriors and other parts by applying films instead of the conventional method of spray painting (wet painting). The development of this dry decoration system was part of Taikisha's efforts to achieve carbon neutrality.

■Background of the installation of the demonstration line

The automobile industry is currently in a period of major change due to the global movement toward carbon neutrality as well as changes in production processes caused by the advent of electric vehicles. In the conventional automotive painting process using spray paint (wet painting), paint is applied repeatedly from the electrodeposition to the intermediate and top coatings. During each of these steps, a great deal of airflow is used to ventilate the paint booths and products are rapidly heated in drying ovens with a large amount of heat before being rapidly cooled for the next process. This painting process accounted for the greatest amount of energy usage in the automotive production process, which is why Taikisha has long been working with automobile manufacturers to develop and improve painting equipment that contributes to reducing CO_2 emissions.

Meanwhile, from a medium- to long-term perspective, Taikisha is exploring next-generation production technologies that are drastically different from existing production technologies. One example of this is the development of this dry decoration system that applies films using vacuum-pressure molding technology. This system can reduce energy consumption by at least 50% compared to conventional coating with paint, and the multifunctionality of films allows it to produce a wide variety of colors and textures that cannot be achieved with wet painting. There is also a great deal of interest in this system among automobile manufacturers as it is highly compatible with the unboxed process (a method in which parts are manufactured separately as modules and then assembled into a single vehicle), which is a new production process developed for electric vehicles.

In order to provide a place where customers can experience the innovation of this clean and compact dry decoration system and verify it for deployment to their own actual production lines, we have constructed a demonstration line that simulates a mass production line at our Technical Center (Zama

City, Kanagawa Prefecture), which serves as the research and development facility for the Paint Finishing System Business.

■Dry decoration

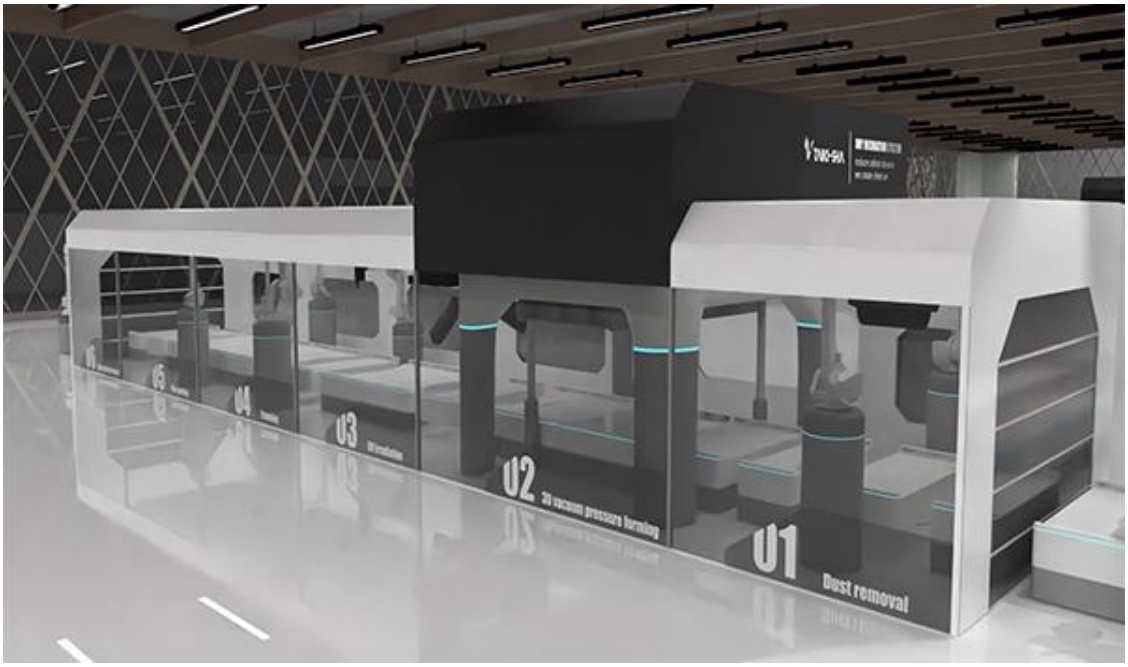
Dry decoration is a technology in which vacuum pressure is used to apply films, on which a coating film has already been formed, to base materials without leaving any wrinkles. It is a painting and decorating process that is completely different from conventional wet painting.

Problems with conventional dry decoration technology include difficulties in applying films to complex three-dimensional shapes with uneven surfaces, as well as non-uniform color tones caused by differences in film extension percentages. To address these problems, we modified a three-dimensional vacuum pressure thermoforming method to precisely control an automatically transformed clamp mechanism that adjusts films to the shape of the base material before application as well as the vacuum, heating, and pressuring processes.

The dry decoration system does not need the paint booths, drying ovens, or drainage and exhaust equipment that conventional spray painting requires, making it possible to reduce energy consumption by at least 50%. We can expect further reductions in energy consumption if this system is combined with circular economy initiatives, including recycling of base materials of films and objects for painting.

■Composition of the demonstration line

The demonstration line we recently installed involves the processes of film application, film curing, film trimming, film scrap collection, and other processes that simulate the production of bumpers or engine hoods.



Conceptual image of the demonstration line for the dry decoration system

■Toward the future

Going forward, Taikisha will improve the precision of the equipment toward commercialization and also verify the operation and quality for actual deployment in customers' factories through tests by customers utilizing this demonstration line, aiming for early adoption on the production lines of automakers. We will continue to further improve our dry decoration system as an alternative to painting in order to contribute to the achievement of carbon neutrality and the creation of new value for all customers who require painting and decoration services.

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