System concept from Venjakob with Ven Spray Vario

**Continuous Spray Coating - without stop & go**

*The magic formula for cost-effectiveness and flexibility in the coating of furniture elements is based on the intelligent interaction of powerful individual machines that are adapted to customer requirements. From cleaning the surfaces to spray coating and drying. The forward-looking modular concept from Venjakob uses all possibilities to create customized* *solutions.*

The requirements that companies place on machines in the field of surface coating are as diverse as the companies themselves. The size, shape and material of the workpiece, the type of coating, demands on quality, and variable usability of the machines. The planning of a spray coating system or a new system concept is based on many criteria. Venjakob meets these different requirements with individually customized solutions and modern technologies.

**Strong double in the Spray Coating System**

The example at hand is a modular overall system for coating furniture fronts. In the center of the coating line is the Ven Spray Vario spray coating machine, which is characterized by high productivity. The reason for this lies in the technology used by Venjakob: a combination of coating robot and surface spray coating system. Another plus is the flexible use of the spray coating machine. Depending on the furniture element, only the area mode or only the use of robots can be selected.

**High system availability and reliable process data**

In the selection and technical configuration of the individual components, the customer's request for high performance and high system availability was met. In addition, when planning the process chain, the focus was on achieving high surface quality and the variable use of individual machines. For example, traditional, high-quality PU wood varnishes on a solvent basis as well as water-based coatings can be used. The status data of the individual machines can be recorded centralized and analyzed by software. This means that the system operator always has important data available about possible wear parts at an early stage or to be able to better plan requirements and productivity. Process data that can be reproduced at any time, which provides a measurable basis for the trust between customer and supplier.

**Surface quality begins with cleaning**

Before the actual coating process in the automatic spray coating unit, there is cleaning. This plays an important role for a good coating result. Since finest particles are released when working with wood, which cannot always be completely removed even with good exhaust systems, a dust removal device with an ionizing system is used to clean the furniture fronts. After pre-cleaning and removal of the suspended particles, the static surface charge is neutralized using an ionization system. The workpieces leave the pre-cleaning in a clean and charge-neutral state.

**Consistent coating of furniture components**

The workpieces are transported to the spray coating area via a closed belt system. While the ABB robot arm thoroughly pre-coats the outer edges of the furniture elements, the conveyor belt continues to run to the second zone, coating the surfaces and edges of the workpieces evenly with four spray guns. During the transport from the robot zone to the surface coating zone, the first coating layer is already dry to recoat, so the second coating can be applied to the edges. Since the belt does not stop here, but continues to run, the coating performance (area / minute) is 50 percent higher than with other robot coating systems, “says Oliver Milde from the German family-owned company Venjakob.

**Color change and cleaning are carried out automatically**

The high performance of the Ven Spray Vario is complemented by the automatic color change management system. In interaction with the higher-level system control, a color change including the necessary cleaning is carried out automatically. Each color can be prepared in parallel with ongoing production and activated within a very short time via a central control panel that controls the entire system via an Ethernet connection. This increases the flexibility of the system. 1-, 2- and 3-component paint systems can be processed. Nine paint pumps, two hardener pumps and three detergent pumps are available for this.

**Paint consumption is significantly reduced**

The paint consumption for each spray gun can be optimized via the machine control. For this purpose, the furniture elements are scanned on the entry side and the format and position data are fed to the control. The spray system is also equipped with an application-adapted exhaust system that, in conjunction with an adjustable fresh air supply, ensures optimal removal of the overspray that occurs. For paint recovery, the paint that falls on the conveyor belt in the offset area during the coating process is recovered using a belt cleaning system. Depending on the paint, this can also be filtered and used again. The spray coating machine can be equipped with a second, decoupled washer, so that the required cleaning can be done in parallel to the production operation. Consequently, the switch-over can be accomplished in the shortest possible time and productivity is further increased.

**The drying process is important for the surface result**

After coating, the furniture fronts are moved to the dryer by the conveyor belt. The temperatures can be freely configured and adapted to the coatings used. The air speed and, optionally, the humidity can also be set within the drying system. To stabilize the sensitive coating surface, the freshly coated elements are pre-dried in filtered air in a flash-off tunnel with a laminar flow for about five minutes. They are then sent in batches to the Ven Dry Vario Time multi-level dryer, where they are stored on 62 floors with a length of 5,500 mm for curing and individually and continuously dried according to a previously defined schedule. At the end of the drying process, the furniture elements leave the dryer via the transport belt. At the unloading point they are removed or coated again. If necessary, a UV channel can be retrofitted for UV-curing coating systems.

The modular system concept from Venjakob leaves a lot of leeway for the needs of a customer. Both, the individual machines with the process steps required for coating, as well as the entire system, can be expanded at any time and adapted to new requirements on the customer side.

**Link to the images:** [**https://my.hidrive.com/share/5.dwq-nnlr**](https://my.hidrive.com/share/5.dwq-nnlr)

**Photo line:** Ven Spray Vario

Coating surfaces and edges in one pass - the Ven Spray Vario spray coating machine with integrated coating robot and four spray guns for the surface.

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**Photo line 2** - overall system

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The workpieces run on a conveyor belt through the pre-cleaning for spray coating to the 62-storey dryer and can then be removed or coated again.

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