

Spraying equipment

for surfaces and moulded parts

Venjakob

-Quality. For your success!

Spraying equipment

Venjakob. A renowned worldwide producer of spray equipment and conveyor technology, recognised for high quality and innovative designs.

The name is synonymous with close collaboration with the customer to produce a design which is economical and suitable for the environment.

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Spraying equipment

Flat and profiled surfaces are preferably coated using spray technology.

The experience we have gained over a period of 38 years in this sector has made us worldwide an innovative partner. The constantly increasing demands of the environment for the treatment of finishing systems and the high demands for the coating quality of workpieces have generated the continual and intensive advances in our spraying equipment.

The specialised customer requirements of the following branches:

- automotive- and suppliers industry
- wood
- furniture
- audio
- plastic
- glass
- building materials
- leather
- moulding
- rubber
- metal

place special demands on spraying technology. Accordingly, it is common that standard elements can be used for more purposes than is generally expected.



Surface installation for coating of plastic car parts

Spraying machines for surfaces

A high-performance linear unit with servomotor operation, oscillating at right angle to the conveyor direction serves as a spray gun drive.

The number and types of guns can be selected depending on the coating system and the objective regarding quality. At the same time, air, airmix and airless spraying systems can be combined.

All machines can be equipped and varied with conveyor units from our programme.

Type HGS-Z

With this model, the gun carrier mechanism is located in the centre of the spraying zone. The drive is situated outside of the spray vapour area and is supplied with filtered, pressurised air.

Surface spraying machine
type HGS/Z

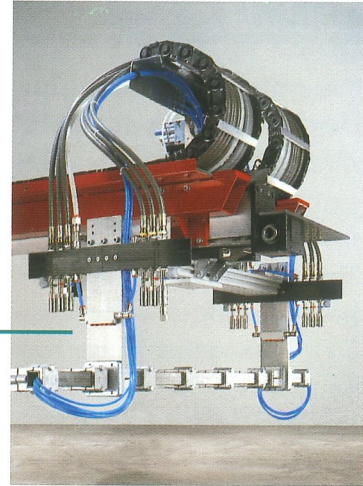


Type HGS-DUO/C

This design is the result of our further development of high-performance spray machines for maximum production output and quality requirements.

Both gun drives are located at the infeed and outfeed of the spraying zone. The gun drive itself is situated outside of the spray vapour area and is supplied with filtered, pressurised air.

Gun drive DUO/C with quick changing couplings



Spraying machine, type HGS-DUO/C combined with a 'clean room' facility



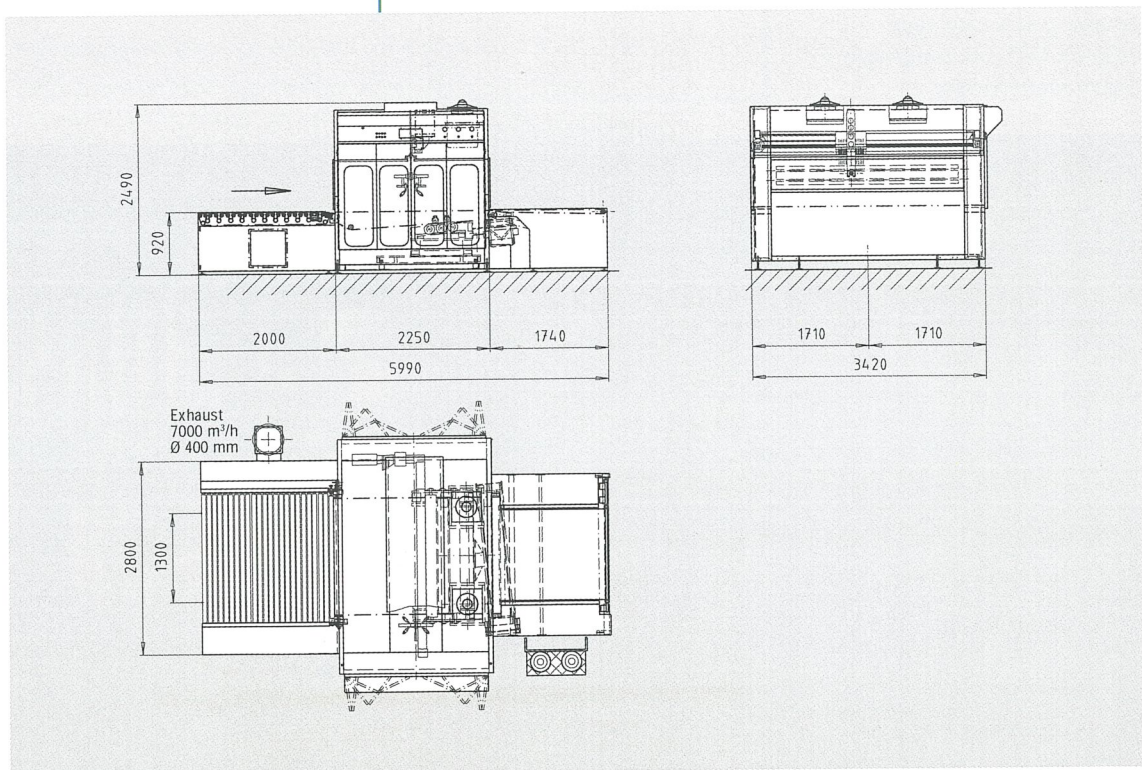
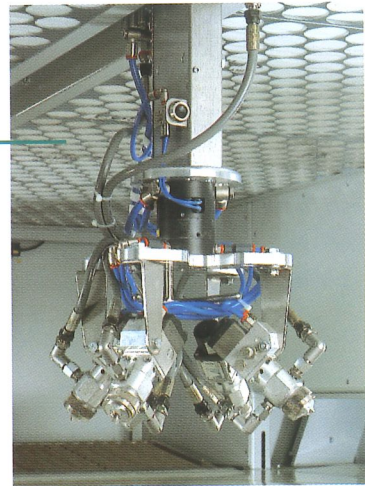
Spraying machines for surfaces

Option

The **quick gun changing device for two material circuits** allows the complete exchange of spraying equipment within a few minutes. Therefore only the required guns are located in the spray area. The other guns can be prepared for use outside the installation, for the next assignment.

Quick gun changer

Machine dimensions with conveyor belt type HGS/Z and HGS-DUO/C



Booth housing

All machines have a large capacity spraying area with extensive, smooth side walls in order to prevent the build up of material overspray.

Depending on the type of machine and requirements regarding quality, the booth roof is closed and constructed as a pressure supply air roof, through which the purified air is introduced into the spraying booth.

The use of the supply air filter also has the effect that no particles of dust can be extracted from outside and that the overspray from the spray guns is directed to the extraction area.

The models HGS-Z and HGS-DUO/C have the gun drives located within the supply air filter cover. They are supplied with clean air and can therefore not be contaminated with paint vapour. The degree of contamination of the filter is displayed outside.

Access to the guns is via large folding doors with inspection windows.

For high quality dust free finishing, the booth housing can be constructed as a **'clean room'** and equipped with large inspection windows and doors.

Fine filter ventilation is supplied over the complete roof area of the booth.

*Optional extra:
surface installation with a
'clean room' facility*



Conveyor systems

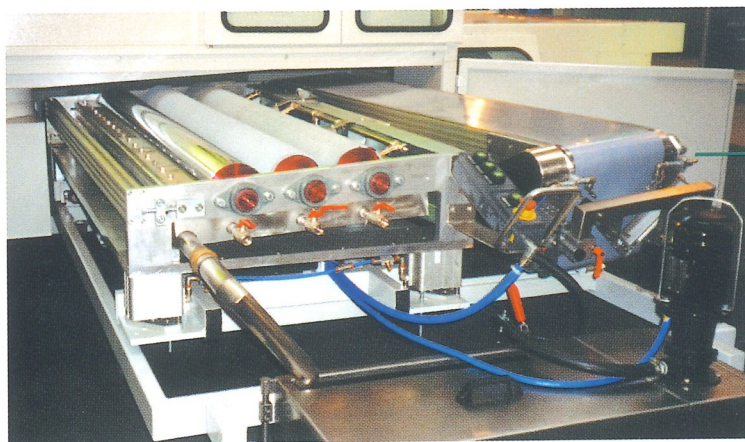
The following systems can be combined with each type of machine.

Conveyor belt with paint recovery

This is a closed belt on which the workpieces rest completely and are transported through the spraying area. At the same time, the underside of the workpiece remains clean. The overspray is collected by the conveyor belt and **can generally be recycled.**

Advantages:

- high transfer efficiency, combined with effective lacquer recovery, considerably reduces material usage
- better coating of edges and fewer work processes, made possible using reflection of the spray from the conveyor belt on the workpiece edge
- increased production output
- up to 90% reduction in material sludge
- lower disposal costs
- minimum use of coagulation media
- reduction in solid and solvent emissions
- reduced load on the exhaust air filter



The new 'V-belt lacquer recovery system'

'V-belt device' with conveyor belt cleaning in service position

Steel belt conveyor

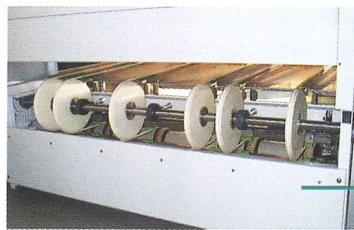
The steel belt conveyor system consists of individual, narrow, parallel steel bands led through the installation. These are freed from residual spray material in the return part using mechanical scraper devices and driven cleaning rollers, and they return to the feed position in a cleaned condition. The spraying material which has been removed is collected and withdrawn.



Steel belt conveyor

Round belt conveyor

A further transport variation is the round belt conveyor. The advantages of this system are the minimal contact surface to the workpiece and the easily cleanable PVC belts. It is primarily used in conjunction with water-based spray material.



Pallet conveyor

A special feature is a horizontally running pallet conveyor, which enables feeding and removal of workpieces and workpiece carriers by one person.

Rigid pallets connected to the drive system can be arranged to provide multi level drying in the curing area of the machine. This optimises the drying capacity.



Spraying machine, type HGS-DUO/C with pallet conveyor

Round belt conveyor

Extraction

There are four variants available, depending on requirements.

Type VAE/B, water wash

This type of extraction is used in conjunction with a **conveyor belt system**.

Two extraction troughs are installed, on both sides of the conveyor belt, in which circulating water flows together, centrally. The overspray, not collected on the conveyor belt, is extracted in the water-flooded shafts and washed out using intensive mixing.

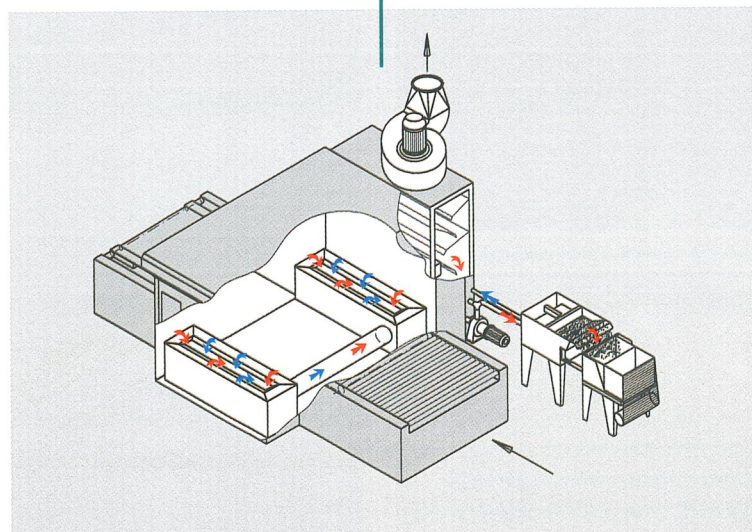
Both exhaust troughs are connected with each other and direct the washing water to a central exhaust point.

A further washing process for exhaust air takes place via a water curtain in the lateral extraction shaft. A portion of the circulation water is constantly fed to a separate filter basin mounted next to the machine, where the coagulated material sludge is manually skimmed off the surface or automatically fed

into the drainage and drying basket.

Airflow is so arranged that the amount of expenditure for cleaning and maintenance is minimal. Dosing of the coagulating material and the regulation of the water quality are carried out automatically.

Operating principle: extraction type VAE/B water wash



Advantages:

- fewer requirements for cleaning within the spray booth with long 'standing time' for the booth water
- automatic dosing of the coagulation medium with an automatic programme depending on the spraying process
- automatic regulation of the water level
- flooding of the interior of the booth prevents depositing paint in the spraying booth
- higher level of the washing out effect
- higher protection against fire
- less expenditure in terms of maintenance

Type VAE/B, dry

An alternative to the water wash extraction, in conjunction with the **conveyor belt system** is the most commonly used dry extraction.

This type of extraction allows an overall compact and narrow construction as the lateral exhaust shaft used in the water wash version is omitted and the ventilator is positioned in the infeed area of the booth.

Exhaust shafts are laid out parallel to the belt with filters for extracting overspray. Further filter units additionally clean the waste air.

Advantages:

- lower procurement costs
- no disposal of water from the booth
- no use of coagulation media
- cost-effective disposal of waste, as only dry paint dust accrues

*Operating principle:
dry extraction type VAE/B*

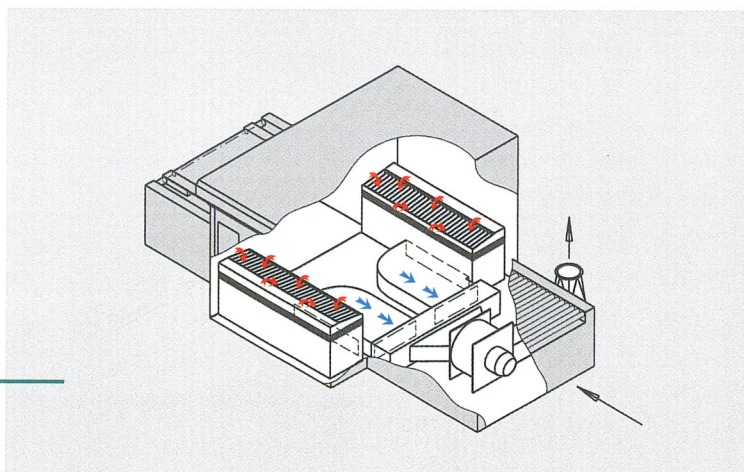
Standard type, water wash/dry

This form of extraction is used in conjunction with **steel belt, round belt or pallet conveyors**. It is available as water wash or dry design and extracts the material vapour downwards.

Extraction takes place via water wash on both sides, which is arranged transversely to the conveyor direction. The overspray is collected in a receiving tank which can be inserted in the center. An additional washing process for the waste air takes place via cascades of water in the shaft at the side.

Coagulation medium is added manually. The removal of the paint sludge is carried out manually or, optionally, by means of a removal system.

With the **dry extraction** version, the overspray is separated over baffle plates or paper filters as a prefilter. Additional cleaning of the booth air is accomplished using two stage, fleece filters, which can be easily removed. A removable overspray collection tray is installed on the extraction floor.



Extraction

Type VAE, water wash

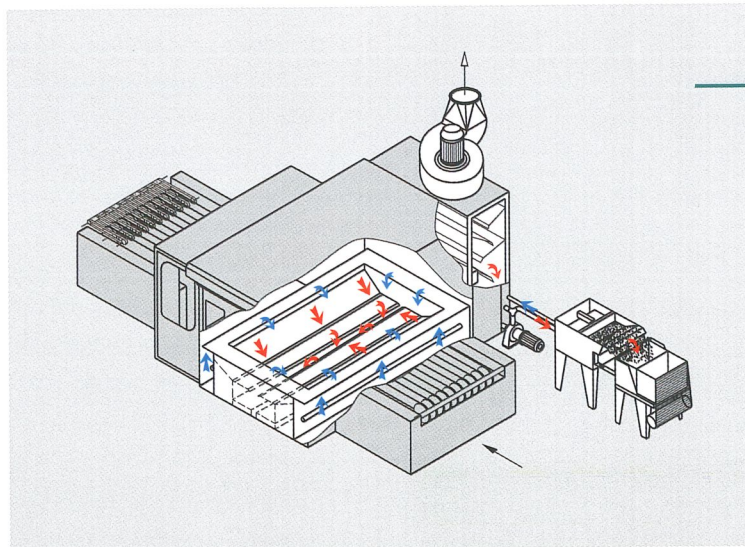
This type of extraction equipment is also used in combination with **steel belt conveyor, round belt conveyor and pallet conveyors.**

The complete booth below the conveyor system is flooded on four sides with water, so that no spray vapour can settle on the lower side walls.

The extracted air is passed through a longitudinal slot in conjunction with the circulating water. An additional washing process for the waste air takes place via the cascades of water in the extraction shaft, on the side.

Cleaning of the booth water is carried out by means of a separate filter basin. The coagulated paint sludge can be skimmed off manually on the surface or transported automatically into drainage and drying baskets.

The extraction equipment is so equipped that expenditure in terms of cleaning and maintenance is minimal. The dosing of the coagulation medium and regulation of the water level takes place automatically.



*Operating principle:
VAE, water wash*

Gun control

Our spraying machines are equipped with a PLC (programmable memory control) system.

Different variants of the control concept of the spray guns are available. The decision regarding a particular variant depends on the tasks required of the particular machine.

If the workpieces to be processed are approximately the same size, registration via a **photocell** in the intake is sufficient. In the case of different workpieces, the use of a **light barrier (EPS-CNC)** is appropriate, in order to automatically record the size of the workpieces.

Photocell

The control system which is available (PLC) is extended in its functions for the purpose of gun control. A photocell registers the length of the workpieces before intake into the spraying machine. The spray width is set by the operator using a selection switch.

Advantages:

- low procurement costs
- simple operation

EPS-CNC

The CNC consists of precise electronic workpiece recognition and an industrial PC with appropriate software.

The Windows® operated software consists of:

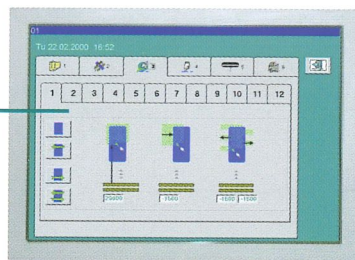
- spray gun control
- machine control
- process visualisation
- menu administration
- programming level

Critical levels are password protected.

Advantages:

- open concept and strict adherence to existing standards
- consciously visible operation via graphic symbols on the touch-screen
- paint application depending on workpiece shape and position, 12 spray guns are programmable with according parameters
- optional 'operating data collection' is available

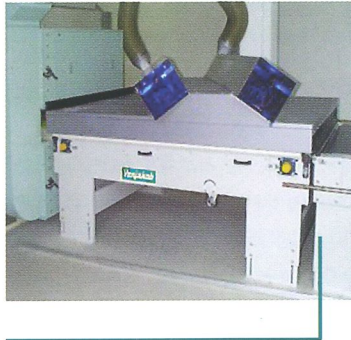
Gun control display



Drying

All of the spraying equipment described can, in each case, be extended to become complete painting units with a drying system matching the material type and can also be provided with different conveyor systems.

Increasingly, low emission material are coming into use, and dryers are being designed accordingly.



Partial view of a drying installation with UV curing and 6-level dryer

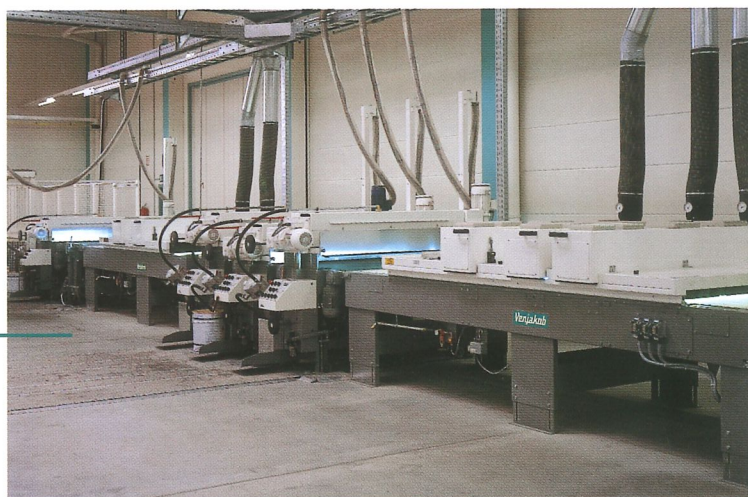
UV curing

UV curable materials are hardened in seconds using intense UV radiation. This equipment requires little space and enables high feed speeds.

The number of emitters required depends on the feed speed, type of lacquer film weight/amount and the work-piece shape.

Flat production line drying

This type of drying allows, with conventionally drying paint systems, the combination of evaporation areas, circulating air and jet dryers, as well as infrared dryers.



Painting line with UV curing

Vertical dryer

The advantage of this drying system lies in the mode of operation, which results in space saving whilst at the same time ensuring greater drying capacity.

The workpieces which have been finished are carried through the dryer on pallets. During that time, they run through the evaporation, drying and cooling areas. Coating and drying is by charge lengths so that the pallets can be transported vertically and horizontally through the drying areas.



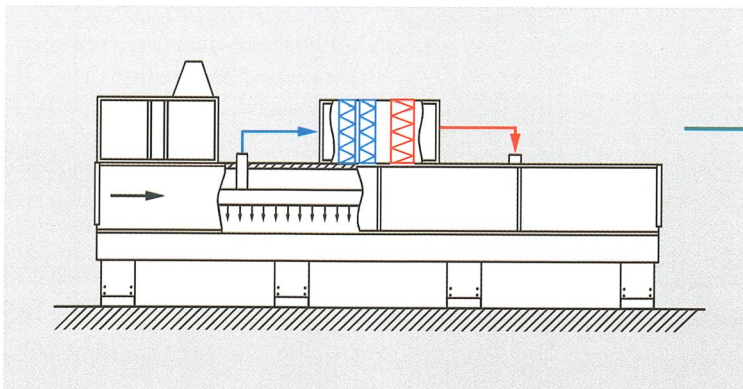
Spray plant with vertical dryer

Hydrex drying (cold drying)

In the case of **water-based** finishing systems, there is a great advantage, if the water collected, is quickly removed from the film after coating. In this way, fibre raising and edge sagging is minimised.

The ideal drying system for this purpose is the **hydrex dryer** which, depending on the thickness of the film, requires a drying period of 4-10 min.

The fully enclosed drying process allows constant drying conditions in all weather situations.



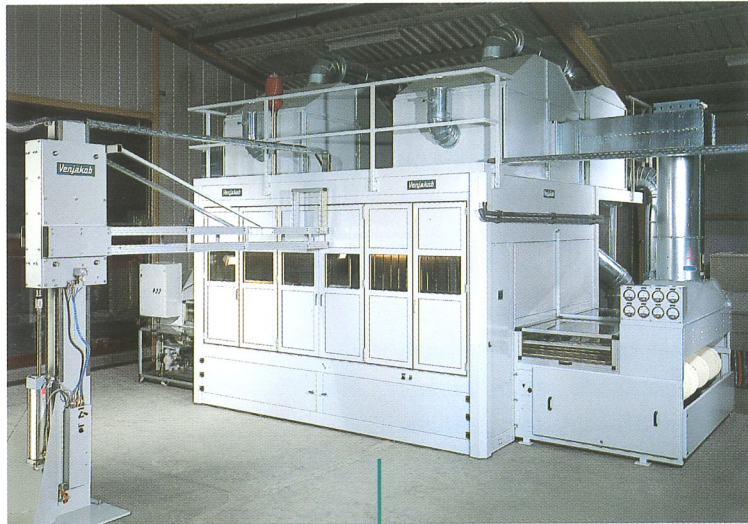
Circulating air for the process is led through a refrigeration unit where it is condensed on cold surfaces and is dehumidified. As a direct result of following rewarming, process air forms which has an extreme drying effect

Special installations

Exceptional customer requirements have always given the impetus for the production of special machines and equipment. They have never been produced before in this form.

Example:

Paint application onto doors is carried out in spray machines which achieve a transfer efficiency well above 90% and which require little maintenance. In this system, coolac® technology is used.



View of a cabin with removable spray carrier arm



Inner view of spray cabin with coolac® paint recovery system for water-based paints



*Automatic spindle machine (left)
for coating hollow cylindrical
components in combination
with a vertical dryer*

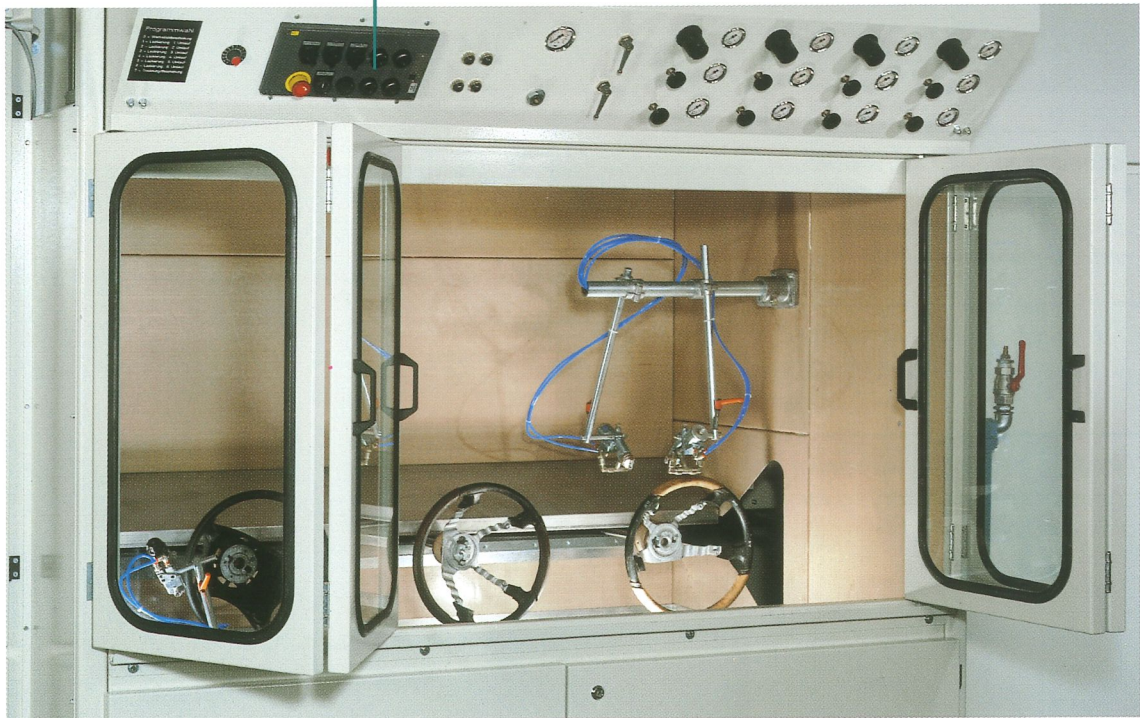


*Finishing installation with pallet
conveyor system and drying for
plastic parts*

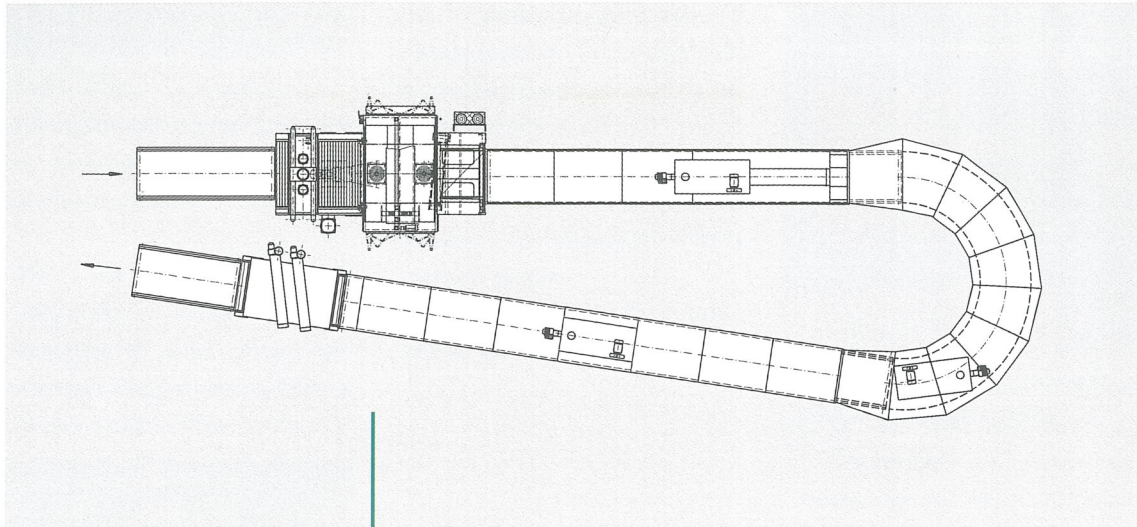
Special installations

Powder coating machine for rubber/metal pieces with following **induction curing**

Coating installation for rotating workpieces, eg. for steering wheels coated with high gloss UV curable paint

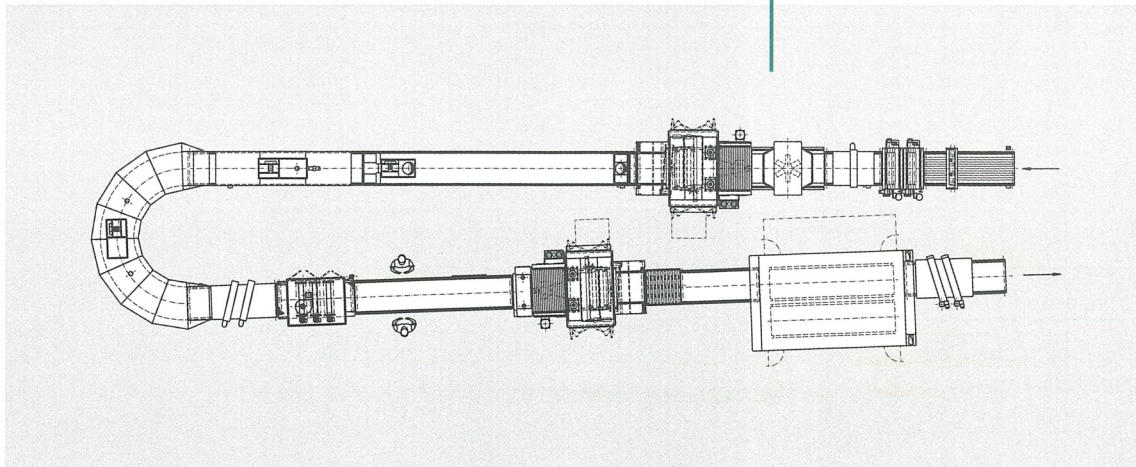


Installation layouts



*Finishing line for solvent-free
and water-based UV materials*

*Finishing line in continuous
running mode, suitable for most
lacquer systems for base and
top coat applications*



Denibbing machine

Type VBS 1300/40

This machine is used for finishing profiled surfaces, bodies and moulded parts. Depending on requirements different brush types and designs can be chosen.

In the case of profiles and edges a moulding depth of up to 35 mm is possible. The brushes can easily be exchanged by using the quick change system. The machine can be used prior to finishing processes, or as well as, between finishing steps.

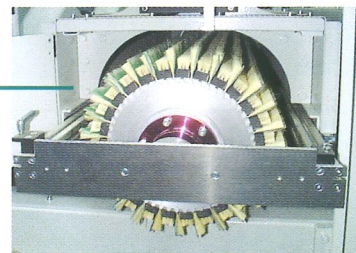
The working principle of the machine is based on 4 driven brushes, arranged at right angles to the conveyor direction. Each brush is individually adjustable in speed, direction and height.

Sanding dust is extracted over the complete working width.

The vacuum conveyor belt allows the treatment of small parts.

The machine can be integrated into the finishing line or operated as a separate machine.

Quick changeable brush



*Denibbing machine,
type VBS 1300/40*



Wiping machine

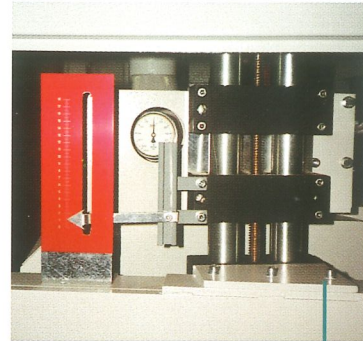
Type VBV/VBE 1300

Depending on requirements, this machine can be designed for treating stained, oiled or waxed wooden workpieces.

The brushes, arranged diagonally in relation to the direction of feed ensure an even levelling of the surface of the workpiece. The machine is equipped with a fast change system, for exchanging or cleaning the brushes.

Each brush rotation can be adjusted infinitely. The removal of solvent is carried out by an extraction device.

The conveyor unit can, if required, be equipped with a vacuum system.



Vertical adjustment with display



Wiping machine for oil and wax, type VBE 1300

Service



The result of an exceptional production solution for high customer requirements for flat part finishing

Performance spectrum

All products conform to international valid technical standards.

We enclose comprehensive documentation with our equipment which, in conjunction with other items, enables a rapid diagnosis in the event of a fault arising.

Long-distance maintenance by modem is also an option.

Our extensive store of replacement parts guarantees a fast spare parts service. This is supported by our customer service and installation department, with specialists in mechanics and electronics.

With all Venjakob products, the individual wishes of the customer represents for us the challenge and incentives to find the best solutions to rectify problems.

Technical laboratory

Our laboratory has the facilities to test equipment similar to those used on individual projects. This allows the individual customer to test, prior to ordering the proposed system, giving him complete confidence in the purchase of the system, which includes spraying, curing and sanding.



Laboratory, part view

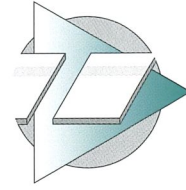


How to get there

You leave the **A 2** at exit **Nr. 23 Rheda-Wiedenbrück**. Follow the **B 64** for 4 km in the direction of Münster, as far as the exit Harsewinkel/**Industriegebiet Pixeler Strasse** and then here you turn right. At the stop sign, turn right again and after 2 km you arrive at the entry to the town of **Rheda**. The second street on the right (Augsburger Strasse) will lead you directly to us.

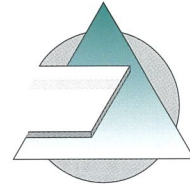
Conveyor technology

Linear conveyors
Conveyor curves
Delivery
Complete installations



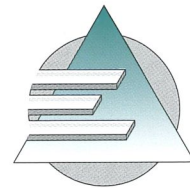
Spraying equipment for surfaces and moulded parts

Spraying machines
Air technology, dryers
Complete installations
Special machines

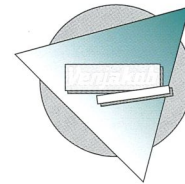


Spraying equipment for mouldings and profiles

Spraying machines
Air technology, dryers
Complete installations
Special machines



Company profile



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