

# **Translation of the original Operating manual**



# WÂGNER

# SuperCube - Plastic Booth



Installation example

- 1 Booth
- 2 to the final filter device
- 3 Cyclone unit
- 4 Recovery
- 5 Self-cleaning exhaust system
- 6 Control cabinet

- 7 Changeable drop side
- 8 External manual coating point
- 9 Parking position for manual gun
- 10 Powder spray guns with blow-off device
- 11 Reciprocator
- 12 Powder feed center

The SuperCube plastic booth is designed for a quick manual color change. It is suitable for automatic coating in multi-color operation, for coating operations with small and large piece numbers.

The booth is designed in different sizes with suitable apertures for coating different parts. The spray guns are supplied directly from a powder container or from a powder feed center.

Insufficiently coated and/or difficult parts of the work piece are recoated at this manual coating point. For this, the booth can be equipped with exterior manual coating points and a folding wall which can be opened to one or other sides by 90° or is fixed, depending on the model.

If the booth does not have any exterior manual coating point, an aperture on the front side is closed with a sliding door.

The booth walls and doors are manufactured from a special non-conducting plastic material.

The powder spray booth, with its integrated powder recovery system, meets the regulations for electrostatic powder coating and recovery and can be used for continuous operation.



# **Operation principle**



# **Circuit powder**

- 1 Powder feed center
- 2 Powder injector
- 3 Powder spray gun
- 4 Booth
- 5 Work piece
- 6 Belt and booth exhaust system
- 7 Cyclone unit
- 8 Peristaltic powder conveyor
- 9 Powder conveyor hose
- 10 Final filter device
- 11 Residual powder collector



A fixed, PVC sandwich construction serves as the floor. Powder is discharged automatically and continuously with blast rods in the booth.

The suction slits for booth air are located on the sides of the booth floor.

The powder recovered in the cyclone unit **7** is conveyed back to the powder feed center **1**. This closes the powder circuit. A small part of the fine particle fraction penetrates through to the final filter device **10/11** and is captured there.

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This manual contains information and hints for the service, repair and maintenance of the equipment. The user must obey all the rules of operation found in this manual; failure to do so will render the warranty invalid.

Wagner powder systems are designed to meet the most stringent safety requirements. They can be operated in compliance with generally applicable safety codes and applicable national safety regulations.

Please pay particular attention to the parts marked by the following symbols. Follow the instructions exactly, in the interests of both your own safety and the correct functioning of the unit.



#### Warning

This symbol draws attention to the fact that if the operating instructions, working instructions, prescribed working sequences etc. are not followed exactly; this can lead to injury or even fatal accidents.



### Caution

This symbol indicates that failure to follow the operating instructions, working instructions, prescribed working sequences etc. exactly can lead to material damage.



#### Hint

This symbol draws your attention to useful additional information and tips. Failure to observe these instructions can cause malfunctions.

# 1. Safety regulations

## 1.1 Safety hints



## Warning

This equipment can be dangerous if it is not operated in accordance with this operating manual!

There might be additional regulations to be observed, put into effect by governmental, state or other official agencies or local security (fire) departments!

The following rules must be observed in order to ensure a safe and efficient use of the equipment:

- Under no circumstance may persons with a 

   cardiac pacemaker come close to the area between the tip of the spray gun and the work piece to be coated!
- The user has to make sure, that the average powder/air concentration does not exceed 50% of the LEL (maximum allowed concentration of powder in air). If a reliable LEL value is not available, the average powder/air concentration may not exceed 10 g/m<sup>3</sup>.
- The user has to observe particularly the safety guidelines of the VdS or the local professional and security institutions.

If the powder concentration exceeds the permissible values when the total powder discharge is high, the user must contact the powder manufacturer. In this case, when the LEL value is determined accurately, generally the permissible maximum powder concentration is significantly higher.

		Allowed powder/air concentration	Max. total powder output quantity [g/h]	Max. total powder output quantity [g/h]	Output per gun 150 g/min	Output per gun 300 g/min
	unchecked powder	10 g/m³	120 000	2 000	max. 13 guns	max. 6 guns
12 000 m³/h	checked powder e.g. LEL $\geq$ 40 g/m <sup>3</sup>	20 g/m³	240 000	4 000	max. 26 guns	max. 13 guns
16 000 m³/h	unchecked powder	10 g/m³	160 000	2 666	max. 17 guns	max. 8 guns
	checked powder e.g. LEL ≥ 40 g/m³	20 g/m³	320 000	5 333	max. 35 guns	max. 17 guns

The following table shows the recommended values:



	unchecked powder	10 g/m³	200 000	3 333	max. 22 guns	max. 11 guns
20 000 m³/h	checked powder e.g. LEL $\geq$ 40 g/m <sup>3</sup>	20 g/m³	400 000	6 666	max. 44 guns	max. 22 guns

For guaranteed LEL values higher than 40 g/m<sup>3</sup>, the permissible number of guns increases accordingly.

- The main power connection for operation of the Wagner powder equipment **must** be electrically interlocked with the exhaust system of the powder coating booth.
- All individual booth components must be 
   grounded according to the regulations.
- Grounding cables must be checked regularly for proper functioning (see EN 60204)!
- In the event of faults or defects, repair work is to 
   be performed at the user's discretion.
- Specially trained personnel may only carry out repairs.
- Repairs must never be performed in an explosion-hazard area.
- The work area must have an electrostatically conductive floor (measured in accordance with EN 1081)

- All conductive parts in the work area must be electrostatically grounded (work area = 1 m around every spray location or opening in the booth).
- All persons inside the work area must wear electrostatically conductive footwear.
- Gloves are not to be worn! If gloves are used they **must** be made of conductive material.
- For removal of powder deposits use only mobile industry vacuum cleaners of protection class 1 (see ZH 1/487 for C-powder).
- The entering of the booth during the operation is forbidden.
- Suitable fire extinguishing equipment should be provided and maintained in perfect working order in rooms or areas where there is a risk of fire.

- Wear suitable work clothing
- Use breathing protection for work, which produces powder
- When entering the booth with fixed floor, always use the grounding strap supplied by the manufacturer!
- While coating, do not bend into the inner part of the booth! If necessary, use an extension for the manual spray gun!
- Check your equipment for damage Before using the system; carefully inspect slightly worn parts for proper operation. Check whether the moving parts operate properly, whether they jam and whether parts are damaged.

Damaged parts should be repaired or replaced by a Wagner customer service.

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 Risk of slipping: Clean the floor sheet and shoes regularly. Make sure that the area around the percent.

Make sure that the area around the person carrying out manual coating is clean! It is necessary to clean the area surrounding the booth regularly!

- Risk of tripping: You may step on the booth floor only after it has been cleaned! Before entering the booth, secure the drive motor against automatic start-up!
- Risk of injury: Do not bypass safety devices on reciprocators!

• Risk of injury:

The surface temperature of the drive motor of the conveyor belt can reach 90 °C, depending on the operating circumstances.

- Danger of explosion: No connectors may be removed during operation!
- Atex: (EWG 94/9) This unit is suitable for use in zone 22 (ExII3D).



# Warning

For your own safety, use only accessories and equipment listed in the operating manual. The use of individual parts other than those recommended in the operating manual may create a hazard to personal safety. Use only original Wagner replacement parts!

Alteration or repair of Wagner original spare parts may cause fatal accidents or explosions in the coating system!

# 1.2 Safety functions

The powder coating booth has the following safety devices:

- Lock for the booth control with the exhaust system.
- Safety door mechanism for the changeover wall: an electrical control unit controls the valves of the changeover wall, ensuring that the wall cannot be detached from the booth.
- Safety screens with mechanical or electrical lock are necessary for movable devices (not necessarily included in the items supplied by Wagner).
- Locking of the conveyor belt when the work piece inlet or outlet is closed.
- Connection to the fire alarm system.

### 1.3 Safety features

Plates bearing information for the user have been attached to the access and work openings of the powder coating booth. The following symbols have been used:

The plate size corresponds to the standard category  $\varnothing$  100 mm.

The label plates, which must be attached, are shown below.



High-voltage



Forbidden for unauthorized persons







Risk of falling down





Forbidden for persons with a cardiac pacemaker

Fire, open light and smoking prohibited

Wear electrostatically

conductive footwear



Explosive atmosphere

Follow the instructions in the operating manual



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HAZARD	PREVENTION
Electrostatic arcing may cause an explosion or fire. Mixtures of powder and	Operator must be grounded. Grounding straps must be used when wearing rubber soled shoes.
air can explode or ignite causing property damage and/or severe injury.	Operator must remove all metallic objects from his or her person, which are not grounded.
	• The object being sprayed must be grounded.
	• All metallic objects within the spray area must be grounded (including spray booth, part hangers, fire extinguishers, etc.)
	Grounded conductive floor must be provided in spray area.
	• Turn off the Power Pack and unplug from outlet before flushing out the gun, cleaning or replacing parts on the gun such as changing tips.
Explosion or fire. Mixtures of powder and air can explode or ignite causing	• Exhaust and fresh air introduction must be provided to keep the air within the spray area free of accumulation of flammable atmosphere.
property damage and/or severe injury.	Smoking must not be allowed in spray area.
	• Fire extinguishing equipment must be present and in working order.
	Electrostatic arcing must be prevented. (See Electrostatic arcing)
	When cleaning the system, use only materials recommended by the coatings manufacturer. Be sure Power Pack is turned off and unplugged.
	<ul> <li>Avoid all ignition sources such as static electricity sparks, open flames such as pilot lights, hot objects such as cigarettes and sparks from connecting and disconnecting power cords and working light switches.</li> </ul>
	• To prevent hazardous concentrations of flammable atmospheres, spray only in a properly ventilated spray booth.
	Never operate spray gun unless ventilation fans are operating properly.
	Check and follow all National, State and Local codes regarding air exhaust velocity requirements.
	Ventilation must be maintained during the cleaning operation.
Toxic Substances: Some materials may be harmful if swallowed or come in	Follow the requirements of the Material Safety Data Sheet supplied by the coatings manufacturer.
contact with the skin.	• Exhaust and fresh air introduction must be provided within the spray area to keep the air free of high powder accumulations.
	• Wear a mask or respirator. Read all instructions for the mask to insure that it will provide the necessary protection against the inhalation of powder.
General	Read all instructions and safety precautions before operating.
	Comply with all appropriate local, state and national codes governing ventilation, fire prevention, and operation of Electrostatic equipment usage.
	The United States Government Safety Standards have been adopted under the Occupational Safety and Health Act. These standards, particularly the General Standards, Part 1910 and the Construction Standard, Part 1926, should be consulted.
	<ul> <li>NFPA Standard No. 33 is to be followed when setting up your spray area. Contact the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts, 02269 for more information.</li> </ul>
	Check with insurance company for additional requirements.
	Use only identical replacement parts.
	• Personnel must be given training in accordance with the requirements of NFPA Standard No. 33 chapter 18.
	<ul> <li>It is the duty of all personnel responsible for the spray equipment operation and maintenance to read and understand all safety information furnished with this equipment.</li> </ul>

### **1.4 EU Declaration of conformity**

# **C** The Wagner Company declares herewith that the unit described in this Operating manual has been developed and manufactured in compliance with the pertinent directives:

- 42/2006/EG (Machinery directive)
- 94/9/EG (Equipment and safety systems intended for use in potentially explosive atmospheres)
- 2004/108/EG (Electromagnetic compatibility)

The following European standards were applied:

DIN EN ISO 12100: 2011	DIN EN 1127-1: 2008	DIN EN 349: 2008
DIN EN ISO 14121: 2007	DIN EN 13463-1: 2009	DIN EN 12981: 2010
DIN EN 60204-1: 2009	DIN EN 13463-5: 2004	
DIN EN 50050: 2011	DIN EN ISO 13489-1: 2008	

The following German standards and/or Guidelines were applied:

BGI 764

The product includes an **EU declaration of conformity**. This can be ordered again if necessary from your WAGNER dealer by giving details of the product and serial number involved.

The number of the EU declaration of conformity is **3304093**.



#### 2. Preparation for starting up the plant

#### 2.1 Transport, handling and assembly of the plant

The powder coating booth is delivered in parts to the place of installation. Assembly is performed on site.

Normally, the delivery consists of a pre-mounted basic frame and pallets with packed elements.

The pallets must be moved with standard industrial trucks. The basic frame has support points for forklift arms. They can be used for transport on the floor and for attaching ropes.

To transport the parts to the place of installation, there must be an opening with a width of minimum 2500 mm. There must also be sufficient space in front of and behind the opening to maneuver parts with a length of up to 8000 mm. However, this length depends on the system in question.

The system is assembled according to special assembly and service instructions.

During all transport, handling and assembly activities, the related safety measures stipulated (safety clothing, aids, etc.) are to be observed.

#### Transport conditions:

•	Allowed air temperature:	+41 °F to max. +104 °F (+5 °C to max. +40 °C)
•	Allowed plastic surface temperature:	+41 °F to max. +104 °F (+5 °C to max. +40 °C)
•	Relative humidity:	< 75%

Relative humidity:

#### 2.2 Supply connections

#### **Electrical:**

Three-phase current connection:22System Ground (strip or ground rod):acN	20-240 / 380-420 V at 50 Hz (or IEC 38) ccording to VDE 0141 low impedance with YAF $>$ 16 mm <sup>2</sup>
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#### **Pneumatic:**

Compressed air connection:

87 ... 116 psi (6 - 8 bar)

#### Compressed air quality according to ISO 8573-1, (class 3.5.2):

Residual water in the compressed air:	max. 1.3 g H <sub>2</sub> O/Nm <sup>3-</sup> at a pressure dew point of +44.6 °F (+7 °C) and 700 kPa
Residual oil in the compressed air:	max. 0.1 mg oil/Nm <sup>3</sup>
Residual dust in the compressed air:	max. 5 mg dust/Nm <sup>3</sup>
Particle size in the compressed air:	max. 5 μm

#### Compressed air requirement:

The compressed air requirement for gun blow-off significantly depends on the number of gun slits and the color change frequency. Therefore, it is not possible to specify an exact value for the compressed air requirement. The specified compressed air requirement figures for floor cleaning are estimated values.

Number of slits per booth side	1	2	3
Automatic floor cleaning [m <sup>3</sup> /h]	4.8	4.8	4.8



#### 2.3 Requirements to be met by the place of installation

- The plastic booth may not be installed in rooms with high temperatures. Powders with a
  gelling tendency should be processed at low temperatures. If low temperature curing
  powders are used the ambient temperature has to be lower than 95 °F (35 °C). Please
  observe the specifications of the powder manufacture.
- Relative humidity must not exceed 75 %.
- A minimum distance of 1.00 m **must** exist between the final filter unit blowout aperture and the ceiling.
- The free movement area at the work place **should be** at least 1.5 m<sup>2</sup> and at **no place** less than 1.00 m wide.

#### Conditions for installation and operation:

•	Allowed air temperature:	+41 °F to max. +104 °F (+5 °C to max. +40 °C)
•	Allowed part surface temperature:	+41 °F to max. +122 °F (+5 °C to max. +50 °C)
•	Allowed plastic surface temperature:	+41 °F to max. +104 °F (+5 °C to max. +40 °C)
•	Air currents near the booth:	< 0.1 m/sec
•	Relative humidity:	< 75%

#### 2.4 Control and plant settings



### Caution

Pay attention to the operating manual of the **control cabinet** for **controlling** and **starting up** the system.

- For a detailed description of the control, see the special, enclosed operating manual of the control.
- The powder coating booth offers various setting possibilities on the booth control cabinet as well as on the devices attached to the booth. These setting possibilities are described in detail in the corresponding, enclosed operating manuals.
- The air pressure for gun blow-off may not exceed 2.5 bar (36.3 psi) in order to keep the noise within the prescribed limits.

#### 2.5 Grounding

For security reasons, the floor respectively the basis rack of the **plastic booth** must be properly grounded. The use of a minimum 16 mm<sup>2</sup> cooper cable with sufficient mechanical strength is recommended for the connection to the System Ground.

In order to achieve a good powder coating, proper grounding for the **work piece** is absolutely essential. A poorly grounded work piece causes:

- Very bad wrap-around
- Uneven coating
- Back-spray onto spray gun and user
- Dangerous electric charging of the work piece



## Warning

Sparks between work piece and conveyor hooks (hangers) can occur if hooks or other hanger parts are not completely cleaned! These sparks can cause heavy radio frequency interference.

Preconditions for good grounding as well as coating are:

- Electroconductive conveyor up to the transport device for the work piece to be coated.
- The customer must connect the powder booth, the transport device and the conveyor with a copper wire, minimum cross sectional area 16 mm<sup>2</sup>, to the System Ground.
- Regular cleaning of the conveyor to remove powder deposits.
- A grounding resistance of the work piece of maximum 1 M $\Omega$  (Mega Ohm).
- The connection of a Ground Strap to the control unit or control cabinet.



# Warning

Before entering the inner part of the booth (booth without powder discharge belt), the operator must wear the supplied grounding strap on the wrist and ensure that the grounding cable is properly connected to the grounding point of the booth and the grounding strap!



## Caution

The control **must** be electrically interlocked with the exhaust air! Conductive parts (tools) may not be left unattended! Ground conductive parts!

Wear conductive shoes! Do not wear insulated gloves! Persons with cardiac pacemakers may not stand in the spray area!

### 2.6 Fire detection and fire extinguishing measures

The booth must be prepared for the installation of flame detectors. At fire detection a quenching gas is released into the booth to suffocate the fire. See operating manual of the fire extinguishing system.



### Warning

The flame detection and fire extinguishing systems **must** be ordered and installed **separately**. These systems are **not** included in the standard scope of delivery of the booth.

### 2.7 Internal cleaning of booth and reviving plastic booth walls before initial start up



#### Caution

Before initial start-up, the powder coating booth must be cleaned thoroughly. This must be done to remove any dirt and production/assembly residues.

During the cleaning procedure, it is also very important to remove electrostatic charge from inner surfaces!

The procedure is described in chapter 4.3 of this manual.

# 3. Operation



# Caution

To achieve best coating results, it is absolutely necessary to degrease the booth and clean the walls from the inside before start-up or after a long shutdown period!

The procedure is described in chapter 4.2 of this manual.

## 3.1 Switching on the plant



Proceed as follows:

Step	Operation				
1	Control cabinet final filter				
•	Activate exhaust system 2.				
	• Wait until the start-up procedure is completed and the signal lamp "Booth OK" lights up on the high-voltage control cabinet 6.				
	Powder feed center 12				
2	Switch on main switch.				
	Check if peristaltic powder conveyor is turned <b>on</b> .				
	• Leave the powder center switched to "Manual operation".				
	Align and secure the container on the circuit powder vibrator table.				
	Switch powder feed center to "Automatic".				
	Switch on screen vibrator.				

Step	Operation
2	Control cabinet high-voltage 6
3	Switch on control system.
	If an error is displayed, acknowledge and remedy.
	Switch on reciprocators 11.
	Switch on high-voltage.
	• The powder discharge belt is automatically activated when the switch is in the switch-on position.
	• The floor cleaning of the fixed floor is automatically activated when the switch is in the switch-on position.
	Switch from "Manual-Auto" to "Manual".
	• Switch on spray guns <b>10</b> and check their function.
	Switch from "Manual-Auto" to "Auto".

#### 3.2 Manual coating

The manual coating point allows the operator to manually correct or complete the coating of work pieces before or after automatic coating.

#### External manual coating point:

- The person carrying out manual coating stands on a platform outside the booth and has direct access to the work piece.
- For manual coating, he/she must move the gun at the correct distance with regard to the work piece (see operating manual of the gun).

The booth should be entered with the access points provided for this purpose. If this access point is the manual coating point, powder must be removed from the manual coating platform and the booth floor before entering the booth.

# 了 Hint

Normally, it is not necessary to enter the booth! Before entering the booth, **secure it against start-up**! Before entering the booth, **wear the wrist-band**! Do **not** jump into the booth! Before entering the booth, **blow off the powder** from the booth floor!



#### 3.3 Switching off the plant without cleaning

Proceed as follows:

Step	Operation
1	<ul> <li>Control cabinet final filter</li> <li>Switch off final filter system 2.</li> <li>→ The screen vibrator and high-voltage functions are turned off automatically.</li> </ul>
2	<ul> <li>Powder feed center 12</li> <li>Switch from "Manual-Auto" to "Manual".</li> <li>Switch off peristaltic powder conveyor.</li> <li>Switch off powder center according to separate operating manual.</li> </ul>

#### 3.4 Performing a color change

All powder transporting components of the entire coating system **must** be cleaned **thoroughly** when changing colors.



#### Caution

The booth and powder center exhaust systems **must** remain **switched on** during the entire cleaning procedure.

If a switch is made from Tribo to Corona coating, the booth **must** be **neutralized**. This means that the booth **must be cleaned with demineralized water**.

The following diagram provides a brief overview of the cleaning procedure. The procedure is described in detail after the diagram.



Two people are required for a quick color change. The numbers in the table indicate the order of steps.



The following table describes the steps to be performed by two operators during the cleaning procedure.

	Operator 1	Operator 2		
1	<ul> <li><u>Control cabinet high-voltage 6</u></li> <li>Switch off spray guns 10 and reciprocators 11.</li> <li>Switch off the high-voltage and secure against unauthorized reactivation.</li> <li>Switch from "Manual-Auto" to "Manual".</li> <li>Switch off floor blow-off.</li> </ul>	<ul> <li>Powder feed center 12</li> <li>Switch off peristaltic powder conveyor.</li> <li>Switch powder feed center to "Manual".</li> <li>Position an empty container on the circuit powder vibrator table and hang the hose of the peristaltic conveyor in the container.</li> <li>Switch on again peristaltic powder conveyor.</li> </ul>		
2	<ul> <li>Manual coating point 8</li> <li>Vacuum manual coating point 8 or blow fresh powder in the booth (floor, wall and ceiling).</li> <li>From the exterior manual coating point 8, clean the spray wall and the roof from top to bottom and from the outside to the inside with the jet blast unit.</li> <li>Also clean the floor from the outside to the inside with the jet blast unit.</li> <li>Clean the rear wall and the floor with a mop, depending on the degree of dirt.</li> </ul>	<ul> <li>Powder feed center 12</li> <li>Move the powder center suction system downwards.</li> <li>Switch on the injector cleaning system on the powder center.</li> </ul>		

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	Operator 1	Operator 2
3	<ul> <li>Booth</li> <li>Close the sliding door or spray wall provided for cleaning purposes.</li> <li>Clean the reciprocators 11 and spray guns 10 roughly from outside with blasting lances.</li> <li>Take the nozzle systems deflector cone or fan spray nozzle) from the spray guns and transfer to the operator 2.</li> </ul>	<ul> <li>Powder feed center 12</li> <li>Clean the powder center roughly with a blasting pistol.</li> <li>Blow out the nozzle systems 7a received from operator 1 until clean.</li> </ul>
4	<ul> <li>Control cabinet high-voltage 6</li> <li>Switch on the automatic spray gun blasting equipment:</li> <li>→ The spray guns 11 run out off the booth during blasting.</li> </ul>	<ul> <li>Powder feed center 12</li> <li>Move the powder center suction system upwards.</li> </ul>
5	<ul> <li>Booth</li> <li>Clean the interior of the booth from top to bottom from outside with the blasting lance.</li> <li>Clean the booth interior again with a mop, depending on the degree of dirt.</li> </ul>	<ul> <li>Clean entire interior of powder center with a blasting pistol.</li> <li>Dismantle the powder injector nozzles on the suction system and blow out both.</li> <li>Fine clean the fluidizing equipment of the suction system and the circuit powder fitting.</li> <li>Refit the powder injectors.</li> <li>Switch off the peristaltic powder conveyor again.</li> <li>Insert and secure the hose of the peristaltic powder conveyor in the blow-out device.</li> </ul>
6	<ul> <li>Powder deposits can form on the exterior when cleaning the booth from the inside out. Subsequent fine cleaning of the booth exterior should therefore be carried out with the blasting lance.</li> <li><u>Control cabinet high-voltage 6 / booth</u></li> <li>Run the spray guns 11 into the booth.</li> <li>Mount the nozzle systems on the spray guns.</li> </ul>	
7	<ul> <li><u>Control cabinet final filter</u></li> <li>Switch off screen vibrator.</li> <li>Lower the funnel 4.</li> <li>Swivel the screen out of the cyclone 3 and blow out the cyclone from bottom to top.</li> <li>Blow out the funnel and leave in the lowered position.</li> <li>Swivel in the screen and funnel.</li> <li>Close the cyclone 3.</li> </ul>	<ul> <li>Switch on the flushing of peristaltic powder conveyor hose.</li> <li>Remove the container from the fresh powder vibrator table.</li> <li>Blow out residual dust.</li> <li>Booth <ul> <li>Fine clean the manual spray guns.</li> <li>Blow out the suction cover and maintenance hatch.</li> <li>Insert new color container.</li> </ul> </li> </ul>
8	Start up       with new color:         Caution!       The peristaltic conveyor should only 10 minutes!	be turned on after a coating operation of approx. 3 to



# 4. Maintenance and cleaning



#### Caution

Only trained personnel may perform maintenance and repair work.

The manufacturer's instructions provided by Wagner must be strictly observed!

Before you start the maintenance work, you **must** switch off the entire plant and **secure it against inadvertent switch on!** 

#### 4.1 Cleaning instructions



#### Caution

Repairs to the plastic elements of the booth (e.g. cracks, chips or holes) may only be carried out by **Wagner** personnel.

If these rules are not adhered to the interior of the booth may suffer damage or accumulations of powder deposits due to static charge on walls may occur:

- USE ONLY **DEMINERALIZED WATER** FOR CLEANING.
- DO NOT USE CLEANING CLOTHS THAT PRODUCE A **STATIC CHARGE** (NO COTTON CLOTHS ETC.).
- USE ONLY **SOFT CLOTHS**.
- DO NOT USE SCOURING POWDER OR OTHER ABRASIVES.
- DO NOT USE HOUSEHOLD CLEANING AGENTS.
- FOR FIRE AND EXPLOSION PREVENTION FLAMMABLE CLEANING AGENTS ARE PROHIBITED.
   <u>EXCEPTION</u>: REFRESH CLEANING OF THE PLASTIC WALLS (ACCORDING TO CHAPTER <u>4.3</u>.



#### Warning

Always ensure that there is adequate ventilation, by leaving on the exhaust system.

Cleaning agent vapors can form explosive mixtures with air!



#### 4.2 Maintenance of the booth

Designation	Check interval	Comment / Cleaning
Booth interior and manual coating point	Daily	<ul> <li>Check if powder has accumulated and blow it off if necessary.</li> <li>Blow off at least with every shift change.</li> </ul>
Booth exterior	Monthly	Use cleaning agent and demineralized water.
Booth roof outside, exhaust air channels etc.	Monthly	Vacuum outside, remove dust deposits.
Exhaust and filter system	In accordance with the operating manual of the final filter unit.	In accordance with the operating manual of the final filter unit.
Lateral suction tube	Weekly	With cleaning torpedo or suitable round cleaning device which does not produce any scratches.
Suction connection	Monthly	<ul> <li>Inspection</li> <li>Remove any powder, which may have accumulated (baked powder).</li> </ul>
Grounding check	In accordance with the specifications and the manufacturer's documentation.	In accordance with the specifications and the manufacturer's documentation.
Cleaning the booth interior and furbishing the plastic walls	In accordance with chapter <u>4.3</u>	

Attention: When using the booth during a monochrome operation, perform a daily basic cleaning of the booth and the suction tubes, using a damp wiper.

#### 4.3 Internal booth cleaning and reviving plastic booth walls

#### Example for the necessity of cleaning:





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# Warning

When using cleaning agents, make sure that the operator is grounded at any time. Static charge can generate sparks and ignite the solvent vapors.

The following chart indicates the time intervals and the number of individual cleaning processes.

Application / Time interval	Cleaning process / Number							
	1	2	3	4	5	6	7	8
Initial start up	2x	2x	✓	~	~	✓	~	~
Weekly						~	~	
Monthly						✓	~	~
Semiyearly	~	✓						
Yearly				~	~			
After a long shutdown period (e.g.: vacation)								✓
After extensive use	2x	2x		~	~	✓	~	

4.3.1 Reviving plastic booth walls after extensive use

2

The use of scrapers and blasting lances for cleaning, and when changing powder, results in very fine powder scaling on the walls of the booth. This should be cleaned off occasionally in order to keep the plastic surface in a condition as good as new.

For this, the "Cleaning processes" mentioned in the overview table in chapter 4.3

6

7

5



The cleaning processes are described in the following chapter 4.3.2.

4

## Cleaning material:

- Alcoholic cleaning agent with a flash point of 10 K above the ambient temperature
- Industrial paper e.g. Wagner article no. 3311137
- Industrial polishing machine
- Jet blast unit (included in the delivery)

- - Sponge wiper

• Demineralized water

Atomizer

# Caution

The following instructions must be observed while cleaning:

Always wear cotton gloves (finger marks cause the . powder to stick)!

3301905 - SuperCube Booth

Always wear suitable shoe covers!















#### 4.3.2 Cleaning procedure



Degrease with cleaning agent on paper. Only 0.5 m<sup>2</sup> surface per cleaning procedure, otherwise the plastic may be damaged.

Immediately wipe the cleaning agent with a fresh paper before it evaporates.

2 There mustn't be any residual cleaning agent vapors remaining in the booth.



#### Warning

For safety reasons, work with cleaning agents must be performed under the following conditions:

- The final filter and the cyclone **must** be switched off.
- All booth doors **must** be open.
- A suitable breathing mask must be used.
- Any electrical device used **must** be protected against explosions!



3 Polish all inner surfaces with an industrial polishing machine with soft attachment (similar to the polishing attachment used in the automobile industry).

This must be done during initial start-up or furbishing.



#### Hint

Press the polishing machine **lightly** to avoid **excess material discharge**. Work with circular movements to avoid overheating of the plastic material.



Remove small PVC parts, which remain after smoothening.





Moisten the paper with demineralized water. Dab the walls with the moistened paper.



#### Hint

Do not wipe as this causes electrostatic charge.





**6** Use the atomizer to apply demineralized water evenly from top to bottom on a small wall surface and take care that no drops are formed. For this work, the booth must be completely free of dust.

7 Dry the walls completely with a sponge from bottom to top. There may not be any water residue on the surface. Before using the sponge for the first time, soften it with demineralized water.

Press the sponge well to ensure that it does not contain any water.

**8** Cleaning the suction channel:

- a) Use the cleaning torpedo with sponge.
- b) Moisten the sponge with demineralized water (do not soak it!).
- c) Wring out the sponge and attach it to the torpedo.
- d) Insert the torpedo in the suction tube and push it along the pipe.
- e) Pull out the cleaning torpedo from the suction tube.
- f) Repeat steps a) to e) for the suction tube on the opposite side.

#### 4.4 Cleaning the individual components



## Caution

- The booth exhaust system **must** be switched on.
- The gun control **must** be switched off.



#### 4.4.1 Blowing out powder hoses and guns



### Caution

- The powder center must be switched on.
- The final filter device must be switched on.
- 1. Remove the injector suction tube from the powder container.
- 2. Separate the powder recovery hose from the powder container and hang it in the powder center.
- 3. Disconnect the powder container connections (from the fluid floor and from the lid exhaust unit, if the latter exists).
- 4. Take out the powder container from the powder center.
- 5. Clean the exhaust system with the blasting gun of the powder center towards the floor of the powder center.
- 6. Lower the suction tube.
- 7. Start the automatic blow-off mode for the powder hoses and the guns.

#### 4.4.2 Cleaning the powder center and the filter of the powder center

- 1. Switch on the exhaust system of the powder center or the exterior exhaust system, check whether the floor is clean and clean it if necessary.
- 2. Switch off the impulse cleaning (if it exists) in the powder center.
- 3. Switch off the exhaust system of the powder center.
- 4. Detach and remove the powder collecting container.
- 5. Vacuum or empty the powder collecting container.
- 6. Insert and attach the powder collecting container.

#### 4.4.3 Cleaning the guns and the booth

- 1. Vacuum the manual coating point (if it exists) or blow air into the booth with the jet blast unit.
- 2. Close the sliding door or spray wall provided for cleaning purposes.
- Start automatic gun cleaning: first one side and then the opposite side (depending on the accessories, the feed devices automatically move out of the booth).
- 4. Use the jet blast unit to blow off the powder from the booth walls and the roof from the outside.
- 5. Blow out the suction slit with the special jet. Begin with the booth end, which is opposite to you. Insert the transverse tube at the end of the special jet into the suction slit and then turn it 60°-90° with regard to the slit direction. Keep the tube in this position and blow off along the suction slit. After this, remove the special jet.
- 6. Open the cleaning door/spray wall.



#### 4.4.4 Cleaning the cyclone screen

- 1. Lower the cyclone funnel.
- 2. Swivel out the screen from the cyclone.
- 3. Vacuum or blow off the powder residue.
- 4. Replace the screen with baked powder with a clean screen.
- 5. Blow off the funnel.
- 6. Insert the screen again and raise the funnel.

#### 4.4.5 Emptying the residual powder container in the final filter

- 1. Switch off the ventilator of the final filter.
- 2. Lower the filter carriage and move it out.
- 3. Vacuum or empty the filter carriage.
- 4. Move in the filter carriage and fasten it.

#### 4.4.6 Recommissioning the powder center:

- 1. Raise the exhaust system.
- 2. Place the powder container on the vibrator table.
- 3. Lock the powder container.
- 4. Set the exhaust system to Auto.
- 5. The exhaust system automatically moves into the powder container.
- 6. Connect the hose of the powder recovery unit to the exhaust system.



#### 4.5 Disposal

We recommend tasking Wagner or another specialist disposal firm with disassembling the system.

Before starting disassembly, all supply media (electricity, compressed air) must be disconnected at the connection points. All powder paint lines must be thoroughly emptied and then rinsed. Paint residues must be disposed of in line with statutory requirements.

Before starting disassembly, check whether the supply lines have actually been interrupted and have been depressurized and/or de-energized if necessary.

The empty system should be thoroughly cleaned. In particular fire loads such as unused paint in exhaust air pipes etc. should be removed to keep the risk of fire during disassembly as low as possible.

We recommend reporting to the responsible bodies the fact that systems with mandatory approval requirements are decommissioned.

Separate all materials encountered during disassembly as clearly as possible in line with statutory requirements. Take appropriate actions to ensure that no dangerous substances enter the system during disassembly. All waste produced must be separated and disposed of in line with local requirements.

Materials used:

-steel, -PVC plastic, -cables, ...



# 5. Rectification of malfunctions

Malfunction	Cause	Rectification
The exhaust performance is	Filter cleaning system not turned on.	See separate operating manual of suction system.
inadequate (powder cloud outside the booth)	Filter cleaning system throttled- down.	
	Maintenance hatch of central suction system is not positioned correctly.	Position maintenance hatch correctly.
Floor blow-off is not functioning	No compressed air supply.	Check the compressed air connection; set the pressure regulator to 2 bar (29 psi).
	Control is defective.	Check the connections; if necessary, contact our service department.
Guns are not cleaned	Gun blow-off device is set	Set the blow-off nozzles again.
sufficiently	incorrectly or defective.	Check the compressed air settings.
		Replace defective nozzles.
	Powder is highly adhesive.	Take additional cleaning measures.



## 6. Spare parts lists and accessories

#### 6.1 How to order spare parts

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Faulty and unserviceable parts are replaced in accordance with our General Terms and Conditions of Delivery.

In order to be able to guarantee safe and smooth spare parts delivery, the following information is necessary:

- Invoicing address
- Delivery address
- Name of contact persons for check back
- Type of delivery
- Quantity ordered, article number and designation

#### 6.2 Spare parts

Article No.	Description	Use	Manufacturer / Supplier
3303641 **	Shower nozzle joint for gun blow-off: (LOC-LINE article no. 49450)	Spray gun blow-off	LOC-LINE
3158891 **	Solenoid valve for the spray gun blow-off: (Festo article no. 161732)	Spray gun blow-off	Festo
3157599 **	Pressure regulator valve with manometer for blowing off the gun: (Festo article no. 159627)	Spray gun blow-off	Festo
**	Valve for blast rod (Mecair article no. VEP506)	Floor cleaning	Mecair
3304491	Substitute diaphragm for VNP/VEP 506	Floor cleaning	
2318129	Pilot valve with cover VNP 506	Floor cleaning	
3134544	Sponge <b>A</b> for cleaning torpedo the length can be cut to size depending on the required torpedo	Cleaning	Wagner

- \* Wearing part
- \*\* Customers can purchase this part on their own.



Article No.	Description	Use	Manufacturer / Supplier
3916403	2x18 W lamp with 2x illuminant	Illumination	Phillips
3919518	2x36 W lamp with 2x illuminant	Illumination	Phillips
**	18 W illuminant (short tubes): type TLD 18	Lamp 3916403	
**	36 W illuminant (long tubes): type TLD 36	Lamp 3919518	
3920048	Manual blasting gun		Wagner
3921960 3920051 3920052 3923041 3927555 3927556	Extension for manual blasting gun Length 460 Length 960 Length 1460 Length 1960 Length 2500 Length 3000		Wagner
3026328	Proximity switch inductive IAS-10-A12-S	"Klip/Klap"-door Manual	Rechner

\* Wearing part

\*\* Customers can purchase this part on their own.



# 6.3 Cleaning accessories

Article No.	Description	Use / Supplier
3301015	Shoe covers	to be used by operating personnel when they enter the booth
3920060	Cyclone cleaning jet unit	Cyclone 16 000 20 000 m <sup>3</sup> /h
3311137	Wiper	Wagner

\*\*\* Customers can purchase this part on their own.



# 7. Technical data

7.1 Booth

#### Dimensions:

Inner width *	(1600)/1800/2000 mm
External width *	(1930)/2130/2330 mm
External width with platforms (system-specific) *	max. 4500 mm
Inner length (system-specific) *	2500 mm
External length (system-specific) *	from 3000 mm
Inner height over the hall floor *	2850 to 3920 mm
Distance between gun slits	300 mm
Width of the gun slit	100 mm
Distance of the work piece from the hall floor	900 to 1180 mm
Suction capacity *	12000 to 20000 m <sup>3</sup> /h
Work piece heights (standard) *	1400 to 2200 mm
Work piece widths (standard) *	600, 800, 1000 mm
Weight (project-specific)	min. 1700 kg

\* see the system layout for the dimension of this booth

# Electrical:

Illumination **	Booth:	max.	4x 72 W + 4x 36 W
	1 manual coating stand		2x 72 W
	2 manual coating stan	ds	4x 72 W
Application	7 to 10 KW		
Suction system	also refer to the follow	ing cha	apter

\*\* System-specific

#### 7.2 Suction system

Manufacturer	Suction capacity	El. connection value	Largest consumer
Scheuch	12000 m³/h	23 kW	22 kW
Scheuch	16000 m³/h	31 kW	30 kW
Scheuch	20000 m³/h	38 kW	2 x 18.5 kW
Wagner	12000 m³/h	23 kW	22 kW / S class filter 30 kW
Wagner	16000 m³/h	31 kW	30 kW / S class filter 37 kW
Wagner	20000 m³/h	38 kW	37 kW / S class filter 45 kW

Chart 1.: Connection data of the recovery units

#### Medium air current speed:

0.7 m/s

#### Maximum pressure loss of the air filter system:

500 to 2000 Pa

#### Noise emission:

The noise emission of the powder coating booth depends on the model and the connected suction capacity.

Manufacturer	Suction capacity [m³/h]	Emission [dB A]
Scheuch	12000	<=75 (cleaning pulse approx. 80/82)
Scheuch	16000	<=75 (cleaning pulse approx. 80/82)
Scheuch	20000	<=75 (cleaning pulse approx. 80/82)
Wagner	12000	<=75 (cleaning pulse approx. 80/82)
Wagner	16000	<=75 (cleaning pulse approx. 80/82)
Wagner	20000	<=75 (cleaning pulse approx. 80/82)

Chart 2.: Noise emission of the recovery units

If the operating pressure is set correctly (36.3 psi / 2.5 bar), the pneumatic floor cleaning device emits a brief noise of 84 dB(A).

## 8. Warranty



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#### What is covered by this warranty?

Faulty or defective parts are replaced according to our general delivery conditions.

Within the applicable warrant period, Wagner will repair or replace, at our option, defective parts without charge if such parts are returned with transportation charges prepaid to the nearest authorized service center. If Wagner is unable to repair this product so as to conform to this Limited Warranty after a reasonable number of attempts, Wagner will provide, at our option, either a replacement for this product or a full refund of the purchase price of this product.

# These remedies are the sole and <u>exclusive</u> remedies available for breach of express and implied warranties.

#### What is not covered by this warranty?

This warranty does not cover any of the following damages or defects:

- 1. Damages or defects caused by use or installation of repair or replacement parts or accessories not manufactured by Wagner,
- 2. Damages or defects caused by repair performed by anyone other than a Wagner authorized service center, or
- 3. Damages or defects caused by or related to abrasion, corrosion, abuse, misuse, negligence, accident, normal wear, faulty installation or tampering in a manner which impairs normal operation.

#### Limitation of remedies:

IN NO CASE SHALL WAGNER BE LIABLE FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSS, INCLUDING TRANSPORTATION COSTS, WHETHER SUCH DAMAGES ARE BASED UPON A BREACH OF EXPRESS OR IMPLIED WARRANTIES, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT, OR ANY OTHER LEGAL THEORY.

#### Disclaimer of implied warranties:

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

#### No ability to transfer:

This warranty is extended to the original purchaser only and is not transferable.

#### Your rights under state law:

Some states do not allow limitations on how long an implied warranty lasts or the exclusion of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights; you may also be entitled to other rights, which vary from state to state.

# WÂGNER

#### **ADDRESSES**

**Germany** J. WAGNER GmbH Otto-Lilienthal-Str. 18 D-88677 Markdorf

Phone: +49/ 7544/ 505-0 Fax: +49/ 7544/ 505-200 E-mail: service.standard@wagner-group.com

#### Austria

J. WAGNER GmbH Otto-Lilienthal-Str. 18 Postfach 1120 D- 88677 Markdorf

Phone: +49/ 7544/ 505-0 Fax: +49/ 7544/ 505-200 E-mail: service.standard@wagner-group.com

#### Belgium

Estee Industries Leenbeekstraat 9 B- 9770 Kruishoutem

Phone: +32/ 9/ 388 5410 Fax: +32/ 9/ 388 5440 E-mail: info@estee-industries.com

#### Sweden

WAGNER Industrial Solutions Scandinavia Skolgatan 61 SE - 568 31 SKILLINGARYD

Phone: +46/ 370/ 798 30 Fax: +46/ 370/ 798 48 E-mail: info@wagner-industri.com

#### **Great Britain**

WAGNER Spraytech (UK) Ltd. The Coach House 2, Main Road GB- Middleton Cheney OX17 2ND

Phone: +44/ 1295/ 714200 Fax: +44/ 1295/ 710100 E-mail: enquiry@wagnerspraytech.co.uk Switzerland J. WAGNER AG Postfach 109 Industriestrasse 22 CH-9450 Altstätten

Phone: +41/ 71/ 757 2211 Fax: +41/ 71/ 757 2222 E-mail: rep-ch@wagner-group.ch

#### Netherlands

WAGNER Systemen Nederland Proostwetering 105 C NL- 3543 AC Utrecht

Phone: +31/ 30/ 2410 688 Fax: +31/ 30/ 2410 765 E-mail: info@wagnersystemen.nl

#### Denmark

WAGNER Industrial Solution Scandinavia Viborgvej 100, Skægkær DK-8600 SILKEBORG

Phone: +45/ 70 200 245 Fax: +45/ 86 856 027 E-mail: info@wagner-industri.com

#### USA

WAGNER Systems Inc. 300 Airport Road, Unit 1 Elgin, IL 60123

Phone: +1/ 630/ 503-2400 Fax: +1/ 630/ 503-2377 E-mail: info@wagnersystemsinc.com



#### **ADDRESSES**

#### Japan

WAGNER- HOSOKAWA Micron Ltd. No. 9, 1-Chome Shodal Tajka, Hirakata-Shi Osaka 673-1132

Phone: +81/728/566751 Fax: +81/728/573722 E-mail: sempara@kornet.net

#### China

WAGNER Spraytech Shanghai Co Ltd. 4 th Flr. No. 395 Jiangchanxi Road Shibei Industrial Zone Shanghai 200436

Phone: +86/ 2166 5221 858 Fax: +86/ 2166 5298 19 E-mail: wagnersh@public8.sta.net.cn

#### France

Wagner - Division Solutions Industrielles Parc Gutenberg - Bâtiment F 8 voie la Cardon F- 91127 PALAISEAU Cedex

Phone: +33/ 1/ 825/ 011111 Fax: +33/ 1/ 69 19 46 55 E-mail: division.solutionsindustrielles@wagner-france.fr

#### Italy

WAGNER Itep S.p.A. Via Santa Vecchia, 109 I-22049 Valmadrera - LC

Phone: +39/ 0341/ 212211 Fax: +39/ 0341/ 210200 E-mail: wagnerit@tin.it

#### Spain

WAGNER Spraytech Iberia S.A. P.O. Boc., 132, Ctra. N- 340, KM 1245,4 E-08750 Molins de Rei (Barcelona)

Phone: +34/ 93/ 680 0028 Fax: +34/ 93/ 680 0555 E-mail: info@wagnerspain.com