ColorMax®
Engineered Booth

Customer Product Manual
Part 7156925-04
Issued 09/19

For parts and technical support, call the Industrial Coating Systems Customer Support Center at (800) 433-9319 or contact your local Nordson representative.

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NORDSON DEUTSCHLAND GMBH

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Change Record

Revision	Date	Change

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Safety

Read and follow these safety instructions. Task- and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate.

Make sure all equipment documentation, including these instructions, is accessible to all persons operating or servicing equipment.

Qualified Personnel

Equipment owners are responsible for making sure that Nordson equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

Intended Use

CAUTION: Use of Nordson equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property.

Some examples of unintended use of equipment include

- using incompatible materials
- making unauthorized modifications
- removing or bypassing safety guards or interlocks
- using incompatible or damaged parts
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

Regulations and Approvals

WARNING: Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Nordson equipment will be voided if instructions for installation, operation, and service are not followed.

All phases of equipment installation must comply with all local codes.

Personal Safety

To prevent injury, follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing any moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- Obtain and read Safety Data Sheets (SDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection devices.
- To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.
- Do not use the air blow gun to clean your body. Compressed air can pierce the skin and if directed towards the face it could cause a severe eye injury.

Fire Safety

To avoid a fire or explosion, follow these instructions.

- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Provide adequate ventilation to prevent dangerous concentrations of volatile materials or vapors. Refer to local codes or your material SDS for guidance.
- Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

Grounding

WARNING: Operating faulty electrostatic equipment is hazardous and can cause electrocution, fire, or explosion. Make resistance checks part of your periodic maintenance program. If you receive even a slight electrical shock or notice static sparking or arcing, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.

Grounding inside and around the booth openings must comply with EN50050-2, EN50177, EN16985, latest conditions.

- All electrically conductive objects in the spray areas shall be electrically connected to ground with a resistance of not more than 1 ohm when measured with an appropriate instrument.
- Equipment to be grounded includes, but is not limited to, the floor of the spray area, operator working area platforms, hoppers, photoeye supports, and blow-off nozzles. Personnel working in the spray area must be grounded.
- There is a possible ignition potential from the charged human body. Personnel standing on a painted surface, such as an operator platform, or wearing non-conductive shoes, are not grounded. Personnel must wear shoes with conductive soles or use a ground strap to maintain a connection to ground when working with or around electrostatic equipment.
- Operators must maintain skin-to-handle contact between their hand and the gun handle to prevent shocks while operating manual electrostatic spray guns. If gloves must be worn, cut away the palm or fingers, wear electrically conductive gloves, or wear a grounding strap connected to the gun handle or other true earth ground.
- After servicing equipment, reconnect all disconnected equipment, ground cables and wires.

Action in the Event of a Malfunction

If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:

- Disconnect and lock out electrical power. Close pneumatic shutoff valves and relieve pressures.
- Identify the reason for the malfunction and correct it before restarting the equipment.

Disposal

Dispose of equipment and materials used in operation and servicing according to local codes.

Description

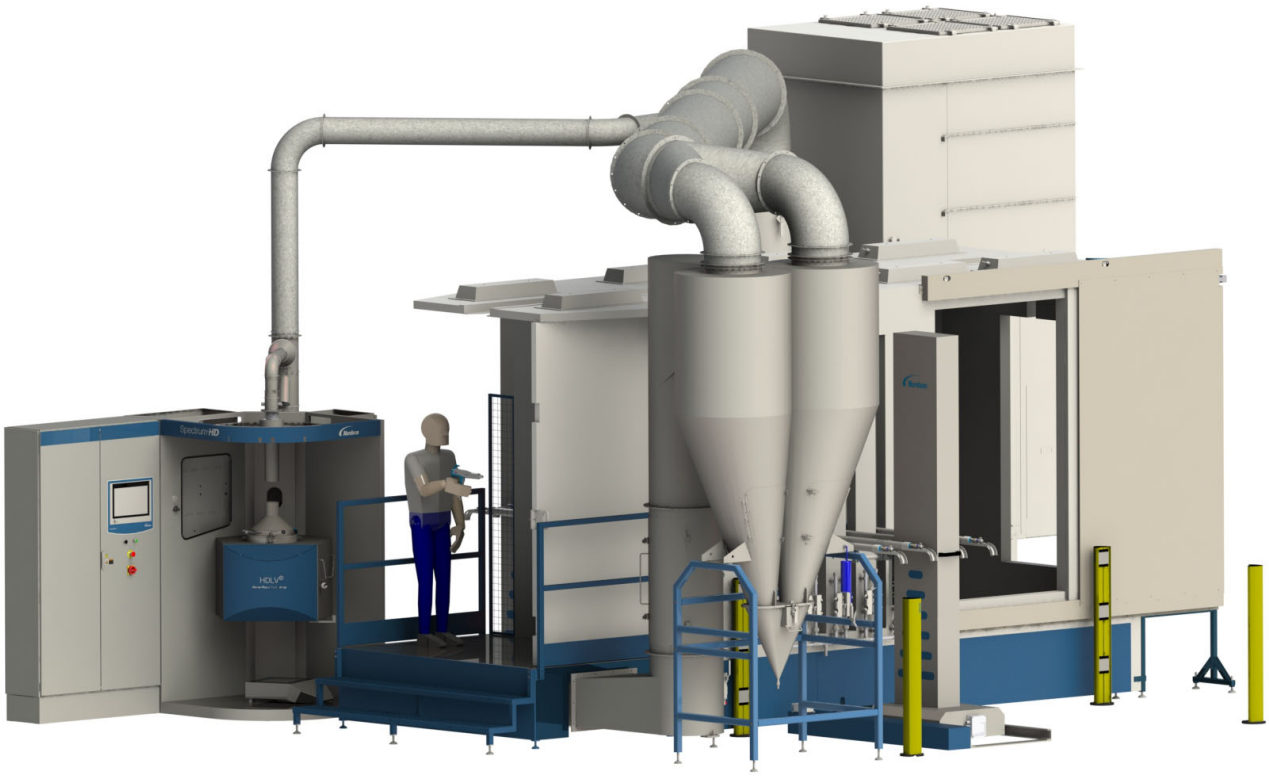


Figure 1 Typical ColorMax Engineered Layout - shown here with PPHD Controls, Spectrum HD Powder Feed Centre and Robot Opening (option)

This manual covers the ColorMax Engineered (CME) powder coating booth systems. It includes a description of the major system components and their operation, basic daily operation, general troubleshooting, booth maintenance and part numbers for normal wear & strategic parts. Because powder coating systems are customised to meet customer requirements, your system may have controls and equipment not described in this manual or located in different positions. Your Nordson representative can provide you with additional information and training to supplement this manual.

The Nordson ColorMax Engineered booth system forms part of a family of powder coating booths based on proven Nordson technology. It offers an economical easy clean solution due to the method of construction. With its modular design, each CME is engineered to the end user requirements whilst maintaining the standard Nordson technology and design. Using an Aerodeck system in the extract channel, airflow is balanced and regulated for optimal air flow in the booth.

For systems that include the optional robot, a pneumatically operated sliding door is fitted. The door opens to allow robot entry and remains open during production. During the colour change sequence, once the robot has retracted from the booth, the door automatically closes to aid interior cleaning of the booth.

Powder coating systems are engineered for the specific application. Nordson provides separate manuals for each component or sub-system, such as the feed center, automatic guns, automatic gun controllers, manual spray systems, powder pumps, fire detection systems, and gun movers. Refer to these manuals for more information on the operation and maintenance of these components. The booth structure is made up of a combination of stainless steel platform, Apogee® booth floor and PVC, which allows the powder to be blown and wiped away easily with a non-abrasive material.

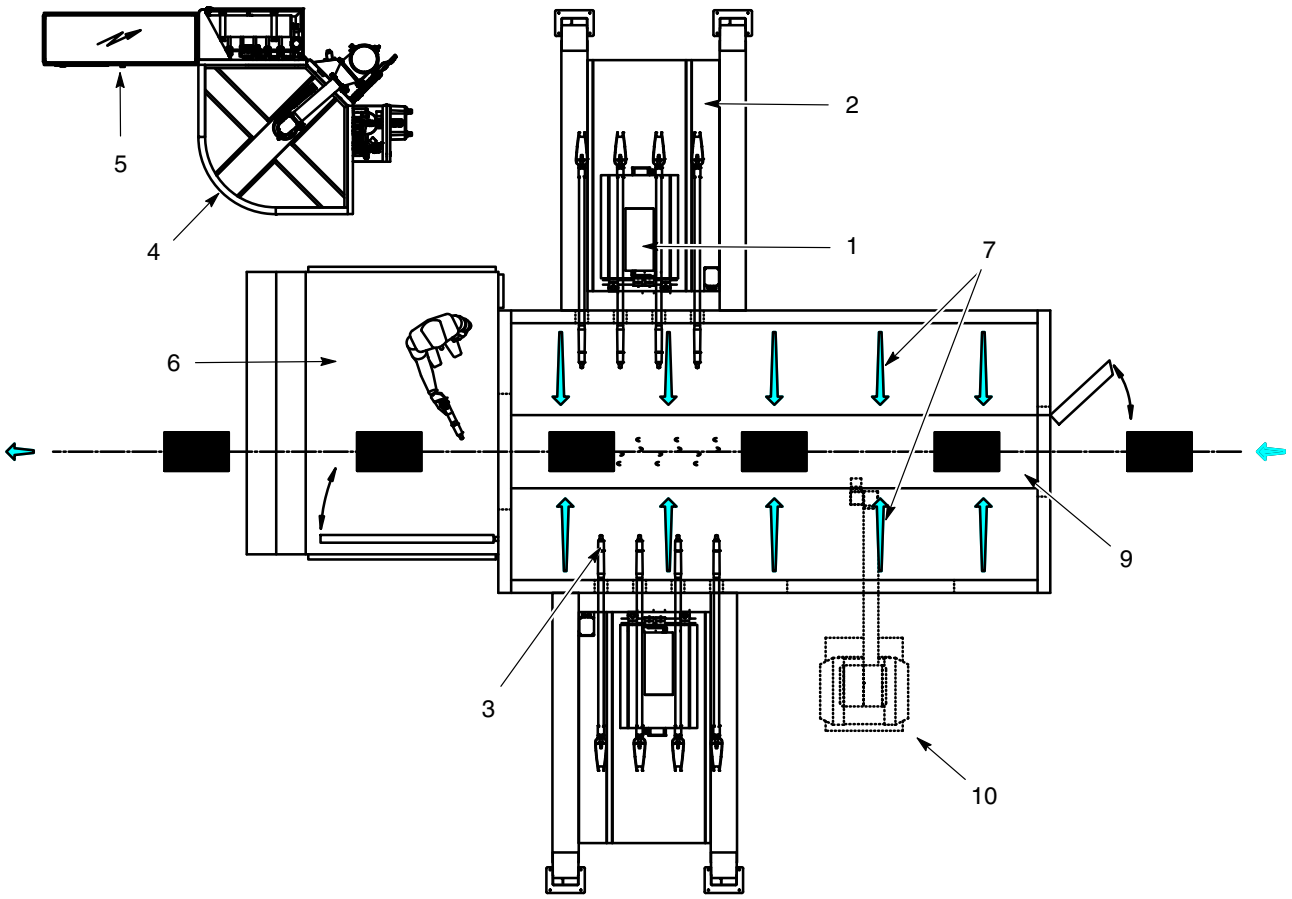


Figure 2 ColorMax Engineered Identification Layout

Item	Component	Function
1	Reciprocators	Reciprocates the spray guns vertically, in repetitive or variable patterns for thorough part coverage
2	Z-Axis	Moves the reciprocators carrying the spray guns, horizontally, into or out of the booth canopy for optimal application distance from the product
3	Guns	Powder application spray guns
4	Spectrum HD Feedcentre (SHD)	Powder is fed to the spray guns from here, then over-sprayed powder is returned, sieved and recycled ready to use again
5	System Control Panel	Controls all system components
6	Operator Platform (optional)	Optional platform on which the operator stands to manually coat products
7	Booth Floor with Aerowash™	Booth floor fitted with an automatic air wash cleaning system to minimise powder build up
8	Hinged Door	The hinged door acts as a wall during production then is closed during clean down and colour change
9	Central Extract Slot	Booth extraction point where the residual powder is extracted and reclaimed via the Twin Cyclone
10	*Application Robot (optional)	There is an option to include a robot that provides exceptional repeatability in the coating process of intricate components if required

See Figure 2

* If your system includes the option including a robot, please check the project specific documents appendix regarding the delivered robot concept and safety

Powder Flow Process Diagram

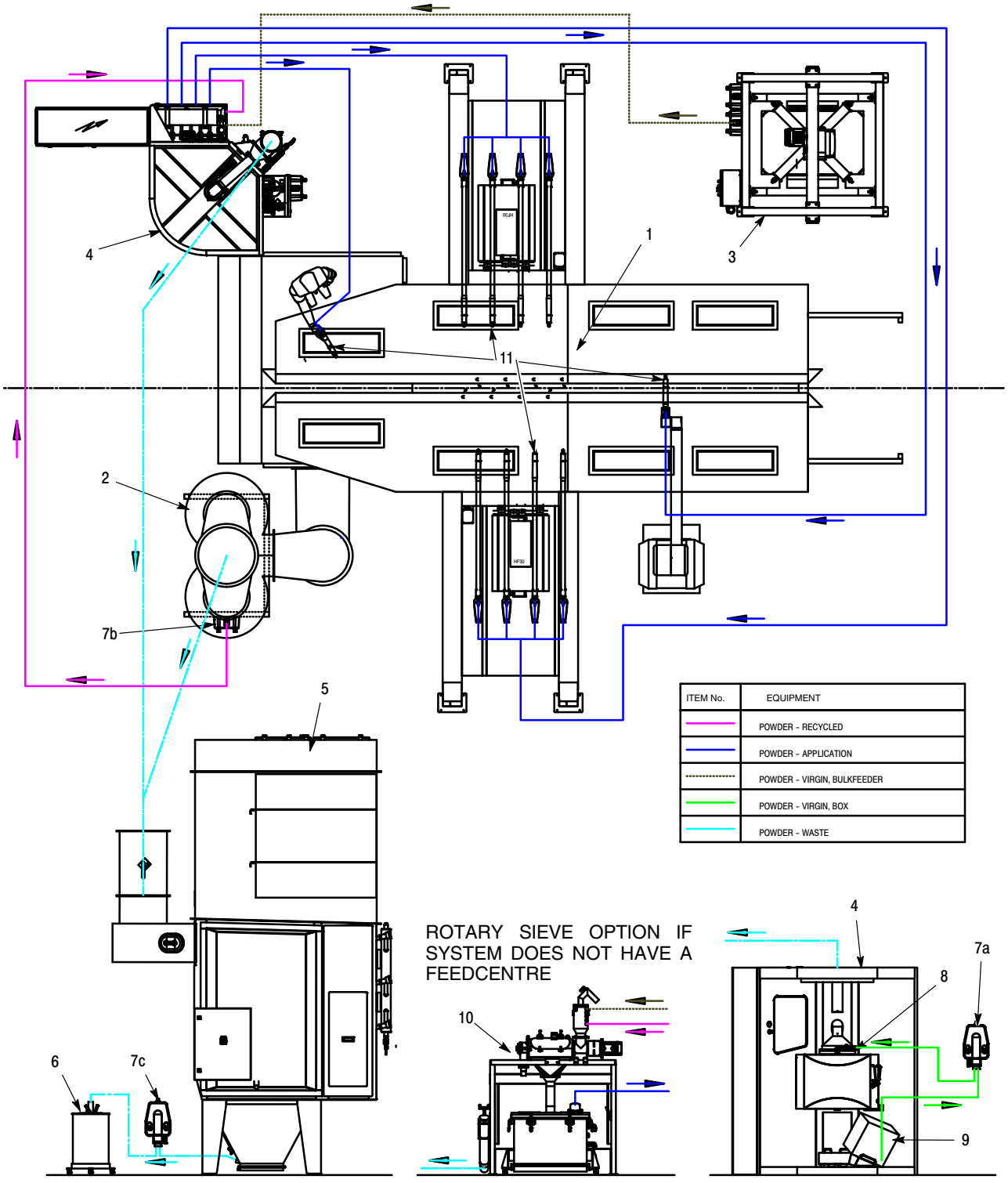


Figure 3 Powder Flow Diagram

Item	Component	Function
1	Booth	Powder coating enclosure
2	Cyclone	Integral part of the extract system that separates the good and bad powder for recycle or waste
3	Bulkfeeder (optional)	For larger volumes of powder use, an optional bulkfeeder can be installed to supply fresh powder
4	Spectrum HD Feedcentre (SHD)	Powder is fed from here to the spray guns. Reclaimed powder is returned here for sieving.
5	Afterfilter	This unit provides the extraction of air and over-sprayed powder from the system
6	Waste Bucket - Afterfilter	Waste powder is pumped into this bucket to enable the operator to dispose of correctly
7	HDLV Transfer Pump	Transfer the powder, either to a waste bucket or for fresh powder to the feedcentre
8	Sieve	Sieves the reclaimed powder
9	Powder Carton - Fresh	Used for lower volumes of fresh powder requirements
10	Rotary Sieve (optional)	This is used as an option instead of the Spectrum HD Feedcentre
11	Powder Application Spray Guns	The spray guns apply the powder to the product. Automatic guns are typically mounted on reciprocators and the Manual gun are handheld by operators.

See Figure 3

Powder Flow Process Description

The Powder Flow Diagram shows how the system is connected for optimum powder application and recovery. A fresh box of powder (9) is mounted inside the Spectrum HD Feedcentre (SHD) (4). The fresh powder is transferred into the feed hopper via the HDLV Transfer Pump (7a - green lines). Powder is fed from this hopper to each of the automatic and manual application spray guns (11 - dark blue lines). Residual powder is reclaimed from the coating process via the booth extraction slot and into the cyclone. The cyclone (2) separates the undersized particles and sends them to the afterfilter (5 - light blue lines). The remaining powder falls into the surge hopper of the cyclone where it is then transferred back to the SHD using a HDLV Transfer Pump (7b - pink lines). The reclaimed powder is then sieved (8) and mixed with fresh powder into the hopper of the SHD, ready to be used again. Cartridge filters inside the afterfilter (5) are pulse cleaned automatically, during this process the waste powder falls into the hopper at the bottom. This waste powder is transferred using a HDLV Transfer Pump (7c - light blue lines) to a waste hopper (6)that is convenient for the operator to dispose of correctly.

If the option of the bulkfeeder system (3) is installed, this will feed fresh powder to the SHD when necessary. This is done using powder level sensors which detect current levels and signal when more fresh powder is required.

It is possible that your system is not fitted with a Spectrum HD Feedcentre. If this is the case, there will be a Rotary Sieve system (10) installed. The principle is the same as with the SHD and the coloured lines with arrows indicate the direction and type of powder: *Fresh - Application Spray Guns - Reclaim - Waste*.

Installation

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

NOTE: Pneumatic (including pressure and quality) and electrical supplies must be in accordance with the system drawings supplied by Nordson.

Transport

Transport the unit so as to avoid damage. Use suitable packaging materials. Protect the unit from humidity, large temperature fluctuations (condensation), dust and vibrations.

Unpacking

Unpack the unit carefully to avoid damage. Inspect for any damage caused during transport. Save packing materials for possible later use, or otherwise dispose of properly according to local regulations.

Storage

Use suitable packaging materials. Protect the unit from humidity, large temperature fluctuations (condensation), dust and vibrations.

Preparing for Installation

NOTE: Booths are generally delivered flat pack for on-site assembly. Installation of the booth should not be undertaken without the presence of a Nordson representative or a suitably qualified person.

1. Choose a level site on which to install the ColorMax Booth, away from drafts or any other airborne contaminates.
2. Seal concrete floors with a suitable material to avoid dust. Other floor surfaces should be of a type that is easy to keep clean.

System Setup Values

NOTE: The default values may need to be adjusted per application and can vary from system to system

Item	Booth Base	Default Value
1	Airknife pulse duration	0.8 seconds
2	Airknife time between pulses	10 seconds
3	Airknife total cycle time	32.4 seconds
4	Booth cleaning lance air pressure (5.5 - 6.5 bar Maximum)	5.5 bar
5	Airknife tank pressure (1 - 3.5 bar Maximum)	2 bar
6	External gun blow off - left side (4.5 - 5.5 bar Maximum)	5 bar
7	External gun blow off - right side (4.5 - 5.5 bar Maximum)	5 bar
8	Jig or Flight Bar cleaning nozzle (if fitted) (1 - 3.5 bar Maximum)	3 bar

Airflow Sensor Setup

The airflow switch measures air flow from the booth. If there is not enough air flow detected, the system will alarm and shut down the guns to prevent powder escape. It is located in the vertical section of ductwork between the booth base and the Twin Cyclone. This duct has an inspection door in it and the sensor is mounted opposite.

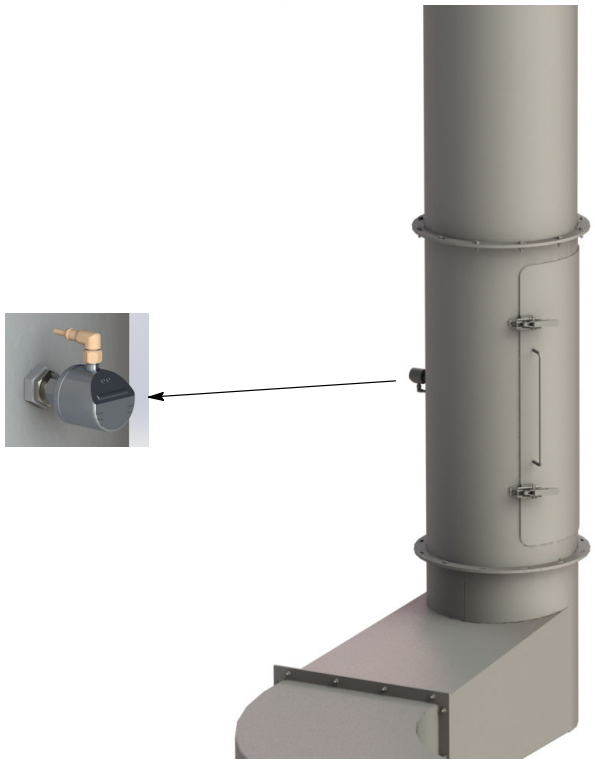


Figure 4 Airflow Sensor Location (also see Parts list on page 19)

Operational Display

During normal operation, the green LED bar ranges from 0 to 9. A minimum flow rate is represented by only lighting the LED 0 and the maximum flow is represented by lighting all 10 LED's. One LED will be lit in colour orange. This LED represents the switching point. If the flow falls below this LED in the scale, the sensor output will be off and this LED will then illuminate red. If the flow is above this LED in the scale, the sensor output will be on and this LED will then illuminate green.

Operation

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

Daily Operation

The majority of systems are installed with a Powder Feed Centre. If a Powder Feed Centre is not present, please ignore the steps where it is mentioned.

In order to successfully colour change the booth and application system, refer to Appendix A.

WARNING: Do NOT step on the Aerodeck at any time during colour change, maintenance or inspection.

Start Up Procedure

NOTE: For information on the PPHD (Powder Pilot HD - main system controls) can be found at: *http://emanuals.nordson.com/finishing/* under the folder Powder-Europe. Part number 7156953.

1. Put a box of powder onto the vibrator table in the powder feed centre.
2. On the booth control panel, turn the isolator on and press the control reset button. After approximately 5 seconds, the Afterfilter controller will be initialised.
3. Start booth extraction and the powder feed centre by pressing the start button on the touch screen of the PPHD.
4. Ensure the fresh powder feed pump button is selected as enabled on the Spectrum HD control screen. Pressing the image of the Spectrum HD powder feed centre on the Main Screen of the PPHD will open the Spectrum HD control screen.
5. Allow the hopper to fill until the fresh powder pump automatically stops. The display will indicate that the powder is now at the mid level.
6. Move the reclaim transfer hose, identified with the red clip, into the waste coupler next to the sieve lid.
7. Start the gun movers on the PPHD.
8. Enable the recycle mode by ensuring the reclaim pump button is selected as enabled on the Spectrum HD control screen.
9. Start spraying powder and run production.
10. After approximately 2 minutes of recycled powder being returned back through the recycle hose, disable the reclaim pump then move the hose into the production coupler on the sieve lid.
11. Enable the recycle mode again as per point 8.

Maintenance

WARNING: Breathing in certain airborne dusts (including finishing powders) may be hazardous to health. Ask the powder manufacturer for a Material Safety Data Sheet (MSDS) for information. Use appropriate respiratory protection.

CAUTION: It is important to follow the specific maintenance instructions of each product.

Daily Maintenance

Equipment	Procedure
Cables and Hoses	Visually check all external cables and hoses. Repair or replace if necessary
Powder Reclaim Transfer System from Cyclone	Check the powder reclaim transfer system is functioning correctly and has sufficient new powder. Inspect the pinch valve body for signs of powder leakage. If you see powder in the pinch valve body or stress cracks in the pinch valves, replace the pinch valves. Clean and remove any blockages if necessary. Refer to the pump manual for long term maintenance and repair procedures.
Fresh Powder Feed Transfer System (if fitted)	Check the fresh powder feed transfer system is functioning correctly and has sufficient new powder. Inspect the pinch valve body for signs of powder leakage. If you see powder in the pinch valve body or stress cracks in the pinch valves, replace the pinch valves. Clean and remove any blockages if necessary. Refer to the pump manual for long term maintenance and repair procedures.
Afterfilter Waste Powder Transfer Pump	Disconnect the transfer hoses from the pumps. Blow out the powder from the hoses with compressed air. Remove the transfer pumps from the adaptors. Blow out the adaptors and pickup tubes. Disassemble the pumps. Clean the parts with a low-pressure air gun and a clean cloth. Replace any worn or damaged parts. Check the waste powder bin level and empty as required.
Booth Interior	With the extract system running, clean the booth interior. Also refer to the Booth Conditioning and Cleaning Procedure, page 15 of this manual.
Flame Detector System (if fitted)	Check the detector lenses and clean if necessary. Ensure the built-in airwash system is supplying sufficient air to the detector lens. Do NOT blow high pressure air onto the lenses, this can damage them or block the airwash system.
Vent Hoses (systems with a rotary sieve fitted)	Check for damage and blockages. Clean and refit or replace as required

NOTE: For daily maintenance of the Afterfilter, Sieve and Powder Feed Centre, application equipment or gun moving equipment, refer to the relevant individual technical manuals.

NOTE: For the Colour Change procedure, please refer to the Appendix A.

Weekly Maintenance

Equipment	Procedure
Booth Enclosure	Clean the booth exterior, all attached equipment, and the spray room. Check the canopy for damage and dirt. Clean as necessary. Also refer to the Booth Conditioning and Cleaning Procedure, page 7 of this manual.
Afterfilter	Ensure the cartridge pulse cleaning system is functioning correctly. Also refer to the Afterfilter technical manual.
Powder Spray Guns	Clean the spray guns and carry out maintenance in accordance with the associated technical manual.
Powder Feed Pumps and Hoses	Purge clean all guns, pumps and hoses, ensuring there are no blockages. Disassemble and clean then reassemble, replacing any damaged or worn parts, according to the associated technical manual.
Seals and Gaskets	Inspect all seals and gaskets on the system for damage. Clean or replace if necessary

NOTE: For weekly maintenance of the Afterfilter, Sieve and Powder Feed Centre, application equipment or gun moving equipment, refer to the relevant individual technical manuals.

Monthly Maintenance

Equipment	Procedure
Afterfilter	Empty and clean the hopper (bottom section) ensure there are no blockages in the outlet to the powder transfer pump.
Air Dryer	Check the air dryer operation. Refer to your air dryer manual for maintenance procedures and schedules.
Electrical Connections	Check all terminal blocks and junction boxes for loose wires. Tighten any loose connections and inspect the system wiring. Replace any damaged wires.
Equipment Grounds	Check all equipment grounds. Repair or replace unconnected or damaged ground cables. Refer to individual product technical manuals where necessary
Booth Conditioning & Cleaning (see page 11) (also refer to Appendix A for the Colour Change procedure)	For the first 8 weeks of use, perform this procedure once per week. After the first 8 weeks of use, perform this procedure once per month.
Twin Cyclone	Follow the procedure under the maintenance section of the Twin Cyclone technical manual, part number 768641_#, page 6

NOTE: For monthly maintenance of the Afterfilter, Sieve and Powder Feed Centre, application equipment or gun moving equipment, refer to the relevant individual technical manuals.

Booth Conditioning and Cleaning Procedure

CAUTION: Always wear appropriate Personal Protective Equipment/Clothing. Skin oils and other contaminants will affect the ability of the canopy to shed powder during blow down. Operators should wear cotton gloves when working with the canopy.

1. If performing this procedure for the time after installation, ensure all installation materials and debris are removed from inside the booth.
2. Switch on the booth extraction system by pressing *Fan start* on the booth control panel then switch off *Recycle mode.* The *Recycle system* now operates in the spray to waste mode. Refer to the associated technical manual for your system control panel.
3. With all doors closed, use the blow lance to blow internal booth faces free of powder, avoid contact of the lance with the canopy.
4. Dampen a sponge with water and wring out any excess water so the sponge only feels damp, not wet and without drips of water. (a drop of dish washing detergent may be used in the bucket of water for the first wash). Then repeat the cleaning process twice with fresh clean water only. Sponge part number 393410 - cut to required size as shown below.

Figure 5 Start of Booth Conditioning Procedure

Continued...

5. Ensure to wipe clean the internal booth faces in a vertical motion from top to bottom, in the direction of the powder flow to the extract, as shown below.

Figure 6 Direction of Strokes for Booth Conditioning Procedure

6. The blow lance may be used to decrease the drying time, avoid contact of the lance with the booth canopy.
7. Allow to fully dry.
8. For initial cleaning only, prior to first use in production: Spray powder to waste for 5 minutes, re-clean any areas which preferentially collect powder.
9. Clean cyclone and recycle in the normal way, according to the associated technical manual.
10. The system is now ready for use.

NOTE: For the first 8 weeks of use, perform this procedure once per week. After the first 8 weeks of use, perform this procedure once per month. It is important not to touch the internal face of the booth with bare hands.

Troubleshooting

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

NOTE: A fault can occur for several reasons. It is advisable to check all possible causes for a given fault. Obvious causes of malfunction such as broken wires, missing fasteners etc., should be noted during visual inspections and corrected immediately. These troubleshooting procedures cover only the most common problems. If you cannot solve a problem, contact your Nordson representative.

Problem	Possible Cause	Corrective Action
1. Powder leakage from booth	**In Normal Operation**	
	Air volume control damper incorrectly set	Open damper until powder is retained in the booth sufficiently
	Filter elements blocked, exhaust fan suction insufficient to retain powder within booth enclosure	Refer to *Afterfilter* manual for instructions on how to replace
	Cartridge filter pulse cleaning system malfunctioning	Refer to *Afterfilter* manual for instructions on how to fault find and repair
	Excessive internal or external draft	Close all factory doors or erect barrier to eliminate draft
	Parts are entering the booth too hot	Increase cool down time from dry off oven (if preheated)
	Workpieces too large for booth	Contact your Nordson representative
	Air leaks in ducts, duct extensions, or duct seals	Inspect duct joints, extensions, and seals for air leaks. Repair and seal all leaks
	On Colour Change	
	Check booth doors are fully closed	Close doors if open
	Auto guns positioned too far into booth	Position guns so nozzles are level with the booth internal wall
2. Contamination on colour change	Inadequate cleaning	Re-clean system according to the Booth Conditioning Procedure in this technical manual
	Insufficient or no spray to waste on start up with new colour	Check recycled powder for contamination, collect a small amount on aluminium foil and cure
	Booth retains powder	Clean and condition booth as per set up procedure
	Cyclone retains powder	Clean cyclone using the cleaning pellets. See the Twin Cyclone technical manual 768641
	Sieve screen damaged	Replace sieve screen (refer to feed centre manual)

Problem	Possible Cause	Corrective Action
3. System efficiency low	**<u>High percentage over-spray</u>**	
	Poor product hangers	Replace with new hangers
	Poor gun triggering	Contact Nordson to rectify
	Low gun Kv or wrong setting	See application manuals
	<u>Cyclone efficiency loss</u>	
	Inspection doors or surge hopper seals faulty	Replace seals (refer to Twin Cyclone Manual)
	Surge Hopper over-filling	Check recycle system for blockages and functionality of the powder transfer pump
4. System shuts down or will not start	Flame detector system sees a flame or spark, or is malfunctioning	Check the inside of the canopy; the detector head aim; and the workpiece and conveyor grounds. Follow the trouble shooting procedures in the flame detector system manual.
	Filter elements blocked, exhaust fan suction insufficient	Refer to *Afterfilter* manual for instructions on how to replace
	Airflow sensor switch failed	Replace the airflow sensor
	Fuse(s) blown	Check the fuses in the system control panel. Replace the blown fuse(s). If the fuses continue to blow, fix the electrical problem
	Electrical failure	Trace the circuits and correct the problem
5. Spray guns are surging or spitting; powder flow is inadequate or intermittent	Refer to the appropriate technical manual for the spray guns	Refer to the appropriate technical manual for the spray guns
6. Problems with coating uniformity, edge coverage, film build, wrap, or penetration into recesses	Refer to the appropriate technical manual for the spray guns	Refer to the appropriate technical manual for the spray guns

Parts

To order parts, call the Nordson Industrial Coating Systems Customer Support Center at (800) 433-9319 or contact your local Nordson representative.

See Figure 7 - page 20

Item	Part	Description	Quantity	Note
1	7035207	LED LAMP - 60 WATT - BOOTH CANOPY	AR	B
2	737752	SENSOR,AIR FLOW,ATEX,DUCT MOUNT	1	
3	736154	VALVE,S/NOID,1",24VDC,FULL IMMERSION,PFC	AR	C
NS	736856	MEMBRANE,PILOT VALVE 1"IMMERSION	AR	A
NS	7034502	AIRKNIFE_ASSY,CMX3,FLOOR_CLEANING	AR	
NS	7035270	HOSE, 1" I.D., BLACK RUBBER	Per meter	
4	7035265	HOSE REEL, BLOW LANCE, RETRACTABLE	1	
5	7032368	KIT, BLOW GUN W/SPIRAL TUBE	1	
6	7035266	LANCE,CLEANING,1M_PVC	1	
6	7035267	LANCE,CLEANING,1.5M_PVC	1	
6	7035268	LANCE,CLEANING,2M_PVC	1	
NS	393410	CLEANING SPONGES	1	
7	7033130	KIT,CME AERODECK SUPPORT 1xLH & 1xRH	AR	

NOTE A: Diaphragm kit for solenoid valve 736154

B: Only suitable to replace existing LED booth lights.

C: The current valves are electrically operated. Previous versions were air operated. If your system has the air operated version fitted, please refer to technical manual 7135457

AR: As Required

NS: Not Shown

Figure 7 Spare Parts Identification Images

Specifications

Refer to the Services drawing supplied with the system for exact specifications. Multiple connection points may be required. Below, you can see the typical values.

Description	Values
Factory ambient temperature	5°C - 35°C
Electrical connection	50Hz - 3 phase 380v (N+E) - 1 phase 230v
Pneumatic connection	1.5” BSP
Maximum air pressure	8 bar
Minimum air pressure	6 bar
Air quality	2°C or less dewpoint - oil free - filtered to 5µ or less
Typical air consumption (booth only)	In production 36 m^3/hour - During colour change 85 m^3/hour
Noise	80 dB Maximum during production. Levels can be higher for 5 - 10 minutes during colour change.

Pneumatic and Electrical Diagrams

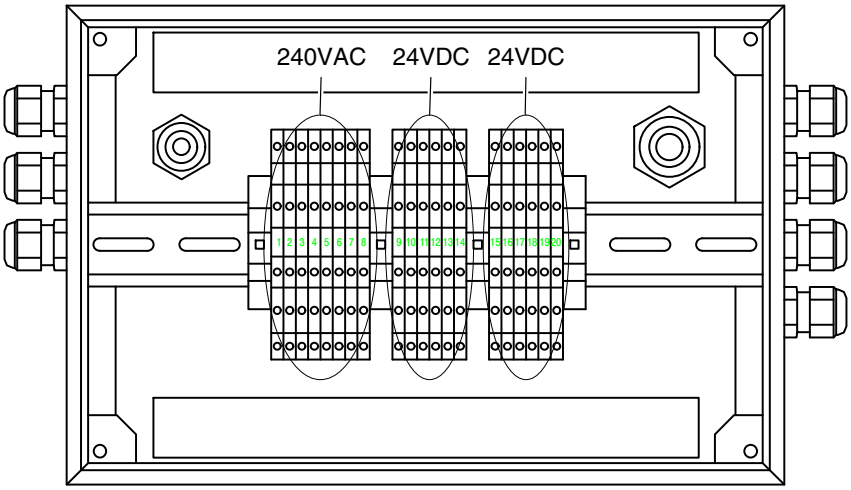


Figure 8 Electrical Connections - systems with up to 6 airknives only

Wire No. (240 VAC)	Terminal No.	Function
1	1	Booth Light 1
	2	Booth Light 2
	3	Booth Light 3
	4	Booth Light 4
	5	Booth Light 5
	6	Booth Light 6
	7	Booth Light 7
	8	Booth Light 8
2	N	Neutral
GR/YE	GR/YE	Earth
Wire No. (24 VDC)	**Terminal No.**	**Function**
1	9	Air Knife
2	10	Air Knife
3	11	Air Knife
4	12	Air Knife
5	13	Air Knife
6	14	Air Knife
7	0v	0v DC
Wire No. (24 VDC)	**Terminal No.**	**Function**
8	15	Gun Blow Off 1
9	16	Gun Blow Off 2
10	17	Gun Blow Off 3
11	18	Gun Blow Off 4
12	19	Spare
13	20	Spare
14	0v	0v DC
GR/YE	GR/YE	Earth

See Figure 8

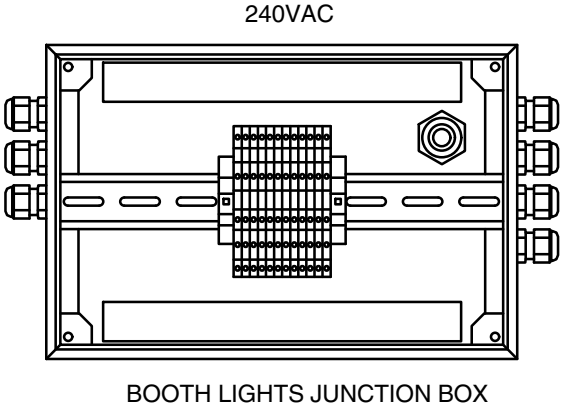


Figure 9 Electrical Connections - systems with 8 airknives and above

Booth Lights Junction Box

Wire No. (240 VAC)	Terminal No.	Function
1	1	Booth Light 1
	2	Booth Light 2
	3	Booth Light 3
	4	Booth Light 4
	5	Booth Light 5
	6	Booth Light 6
	7	Booth Light 7
	8	Booth Light 8
	9	Booth Light 9
	10	Booth Light 10
	11	Booth Light 11
	12	Booth Light 12
2	13	Neutral
GR/YE	GR/YE	Earth

See Figure 9

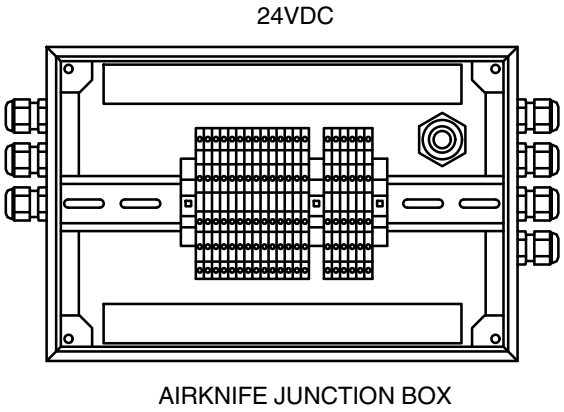


Figure 10 Electrical Connections - systems with 8 airknives and above

Airknife and Gun Blow Off Junction Box

Wire No. (24 VDC)	Terminal No.	Function
1	1	Air Knife 1
2	2	Air Knife 2
3	3	Air Knife 3
4	4	Air Knife 4
5	5	Air Knife 5
6	6	Air Knife 6
7	7	Air Knife 7
8	8	Air Knife 8
9	9	Air Knife 9
10	10	Air Knife 10
11	11	Air Knife 11
12	12	Air Knife 12
13	13	Air Knife 13
14	14	Air Knife 14
15	0v	0v DC
Wire No. (24 VDC)	**Terminal No.**	**Function**
16	15	Gun Blow Off 1
17	16	Gun Blow Off 2
18	17	Gun Blow Off 3
19	18	Gun Blow Off 4
20	19	Spare
21	20	Spare
22	0v	0v DC
GR/YE	GR/YE	Earth

See Figure 10

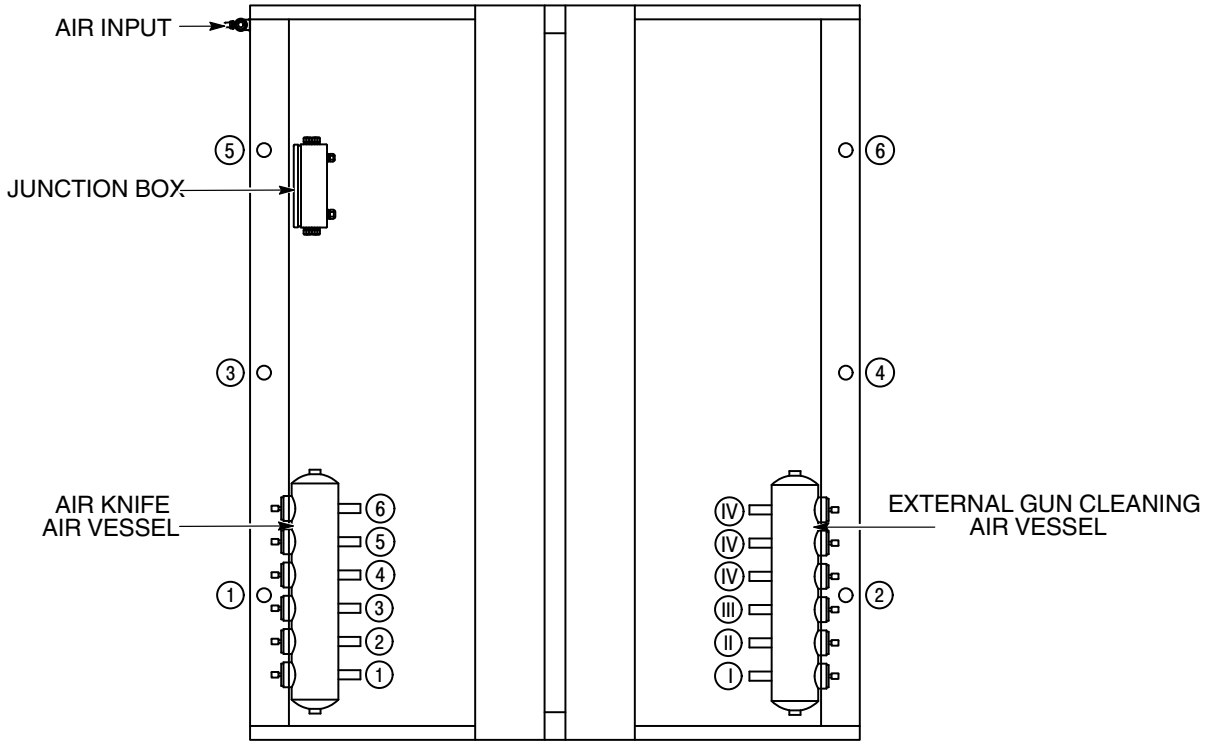


Figure 11 Pneumatic Connections - airknives Max 6 & external gun cleaning Max 6

Item	Description
1	AIR KNIFE 1
2	AIR KNIFE 2
3	AIR KNIFE 3
4	AIR KNIFE 4
5	AIR KNIFE 5
6	AIR KNIFE 6
I	GUN BLOW OFF 1
II	GUN BLOW OFF 2
III	GUN BLOW OFF 3 (OPTIONAL)
IV	GUN BLOW OFF 4 (OPTIONAL)
V	GUN BLOW OFF 5 (OPTIONAL)
VI	GUN BLOW OFF 6 (OPTIONAL)

See Figure 11

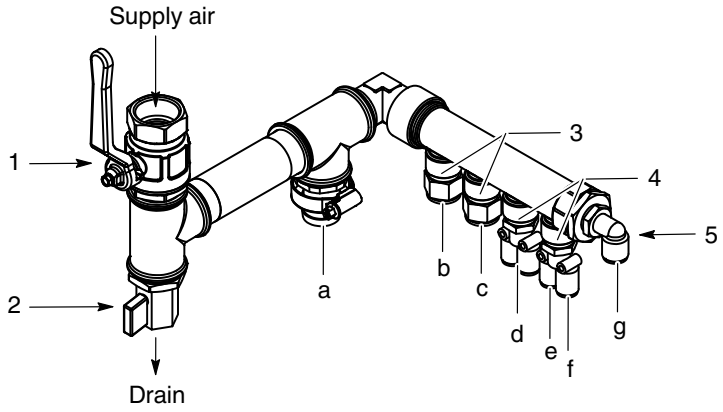


Figure 12 Air Service Unit Components

Item	Description	Quantity
1	BALL VALVE 1.5”	1
2	BALL VALVE ½” O.D./ I.D. (DRAIN)	1
3	PUSH IN FITTING ½” O.D. - 16MM	2
4	PUSH IN FITTING ½” TO 2x10MM	1
5	PUSH IN FITTING, ELBOW 90°, ½” TO 12MM	2
a	GUN PURGE CLEANING SUPPLY	-
b	BOOTH CLEANING BLOW LANCE	-
c	SPARE	-
d	2 x MANUAL GUN SUPPLY	-
e	CYCLONE BLOW GUN	-
f	SPARE	-
g	AIR KNIFE SUPPLY	-

See Figure 12

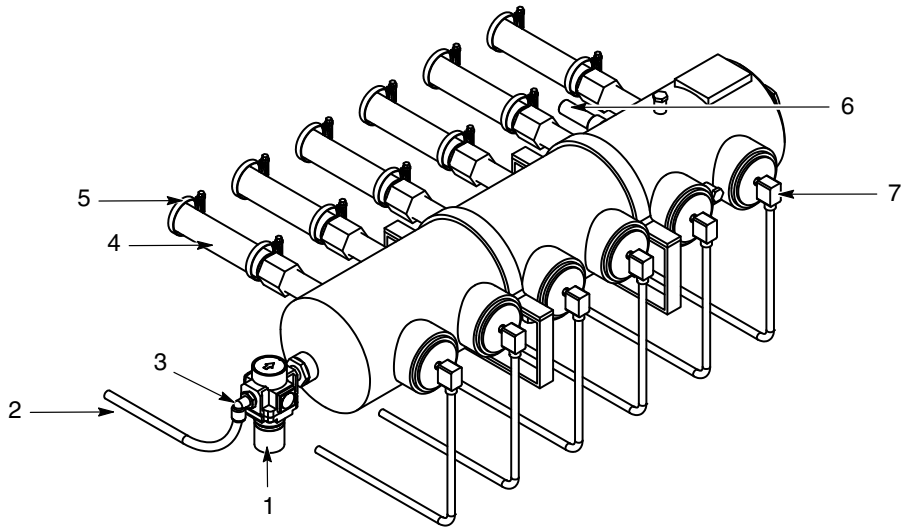


Figure 13 Air Knife Supply Vessel

Item	Description	Quantity
1	PRESSURE REGULATOR G½”	6
2	PNEUMATIC TUBE 12MM O.D.	1
3	PUSH IN FITTING ELBOW 90°, ½” TO 12MM	1
4	HOSE, 25MM I.D. x 39MM O.D., BLACK	1
5	HOSE CLIP, 35-50MM	A/R
6	PRESSURE RELEASE VALVE - 8 BAR	A/R
7	VALVE, PILOT, PNEUMATIC, 1” DIA. IMMERSION - PART NUMBER 736857	12

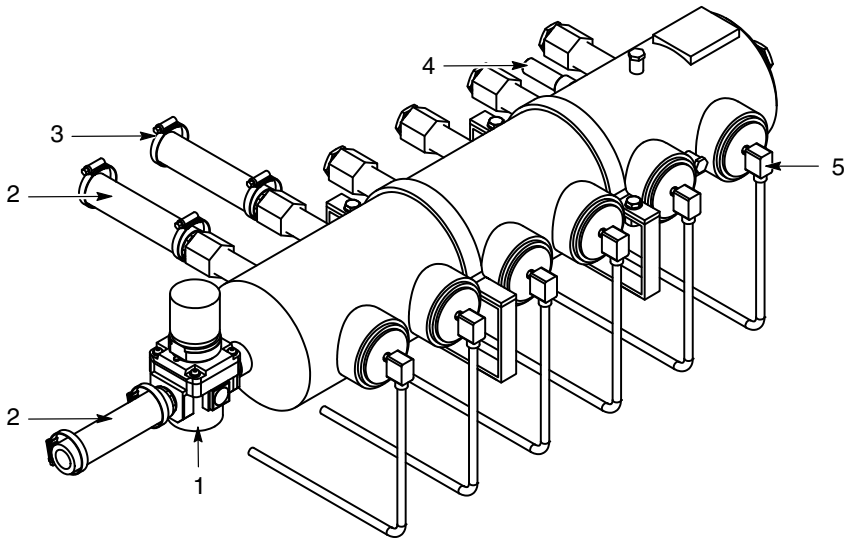


Figure 14 External Gun Cleaning Supply Vessel

Item	Description	Quantity
1	PRESSURE REGULATOR G1”	1
2	HOSE, 25MM I.D. x 39MM O.D., BLACK	A/R
3	HOSE CLIP, 35-50MM	4
4	PRESSURE RELEASE VALVE - 8 BAR	1
5	VALVE, PILOT, PNEUMATIC, 1” DIA. IMMERSION - PART NUMBER 736857	6

Appendix A

Colour Change Procedure

Step 1 - Close the Booth Door

Figure 15 Booth door closed

Step 2 - How to Start the Colour Change process

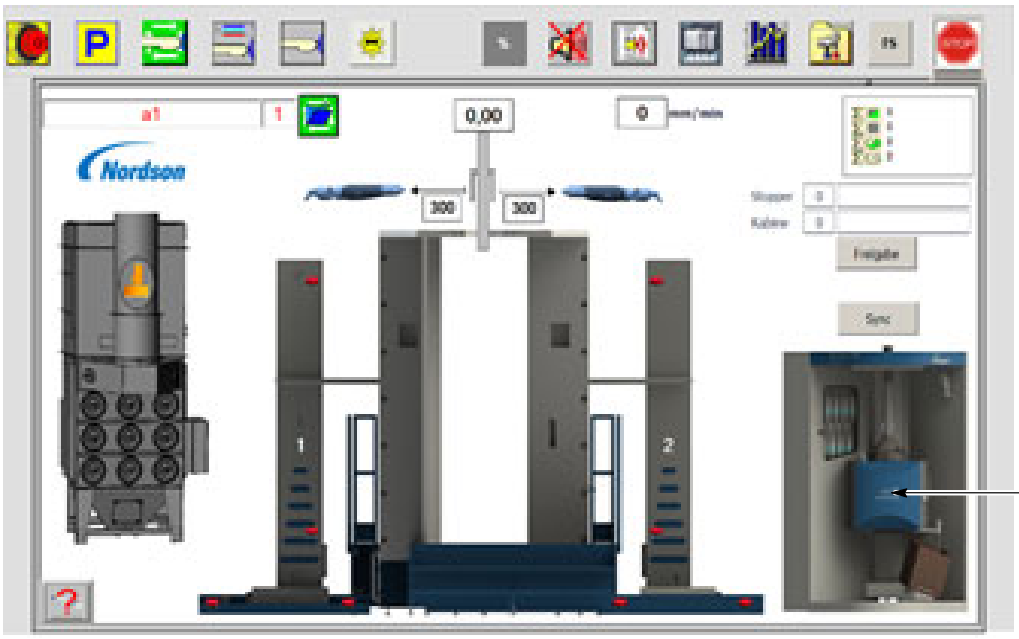
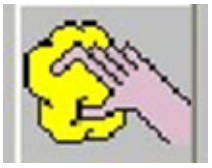


Figure 16 Home Page screen display

1. Touch the image of the Powder Feed Centre (1) to open the Feed Centre controls page.
2. Then press the Colour Change button  , go to next step.

Step 3 - Cleaning of the Guns & Pumps

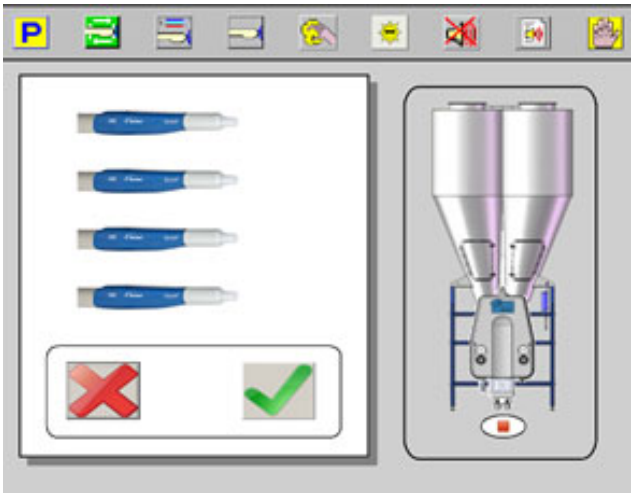


Figure 17 Clean guns acknowledge screen display

1. Press the green tick to start the cleaning of the guns & pumps.
2. Remove the suction tube from the powder box.
3. Clean the tube with the blow gun and put the tube into the cleaning position.
4. Wait until the cleaning process of the guns is complete then proceed to the next step.

Step 4 - Recover the Powder and Clean the Booth

Figure 18 Start powder recovery screen display

1. Place the powder box under the hopper.
2. Press the green tick to start the process.
3. Clean the booth interior using the cleaning lance.
4. When the countdown timer reaches zero (0) press the green tick to proceed to the next step.

Step 5 - Cleaning of the Hopper

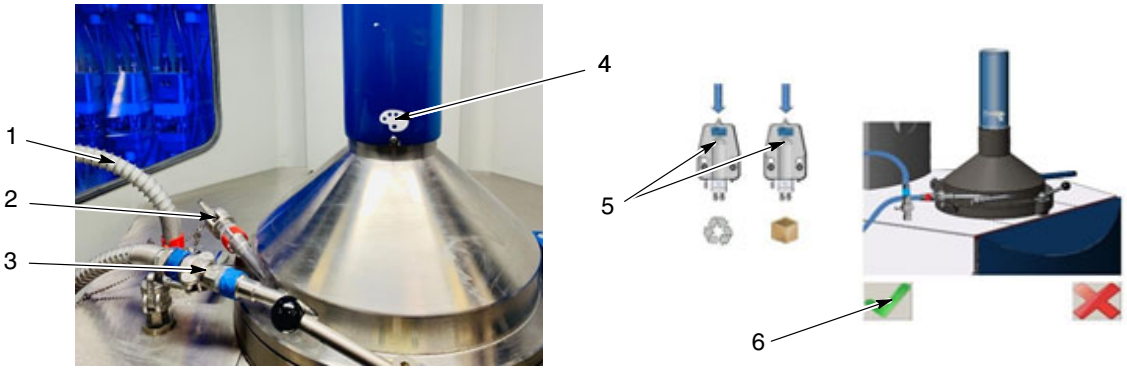


Figure 19 Hose connection to hopper lid

1. Disconnect the recovery tube from the hopper lid, identified with the red clip, then connect it to the exhaust connector on the main frame (1).
2. Close the hopper inlet using the plug (2). Leave the fresh powder tube connected to the hopper lid, identified with the blue clip (3).
3. Rotate the vent/extract duct above the hopper lid (4) so the colour palette symbol faces the front.
4. Press both pump symbols (5) on the control screen to start the purging process of the HDLV transfer pumps.
5. Press the green tick to confirm (6).

Step 6 - Cleaning of the Suction Tubes and Pumps

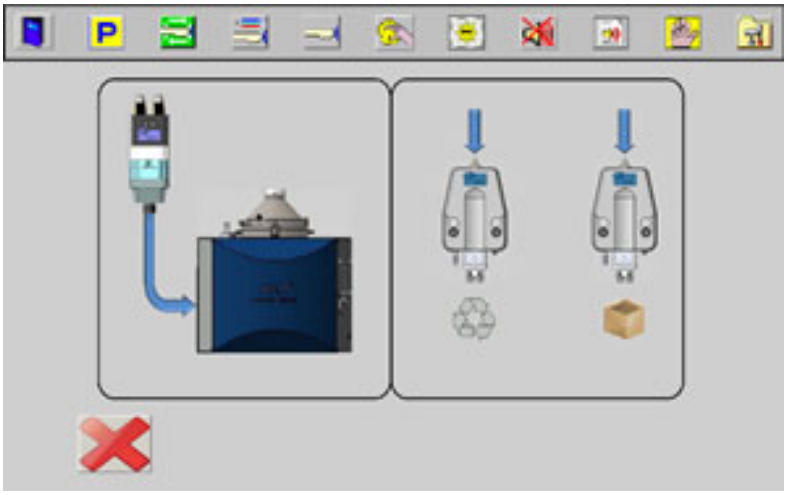


Figure 20 HDLV Pump cleaning screen display

The suction tube of each HDLV powder pump will be cleaned.

Wait until the green tick appears then press it to confirm and proceed.

Step 7 - Remove the Ultrasonic Sieve

Figure 21 Ultrasonic Sieve

Remove and clean the ultrasonic sieve then place it in the support brackets on the side of the hopper.

Step 8 - Cleaning the Hopper

Figure 22 Hopper

1. Move the box of powder from under the hopper and close the lid to avoid contamination.
2. Clean the hopper internally using the hand blow gun.
3. Also clean any other surfaces that have powder on them.

Step 9 - Cleaning the Duct Inspection Door

CAUTION: High velocity airflow will be inside the duct and Twin Cyclone.

Figure 23 Vertical extract duct inspection door

1. Open the inspection/maintenance door of the vertical duct.
2. Clean the inside face and seal using the hand blow gun. Be careful not to damage the seal.
3. Then clean the airflow sensor that is directly opposite you when looking through the inspection door.
4. Close the door.

Step 10 - Cleaning Twin Cyclone Inspection Doors

Figure 24 Twin Cyclone inspection door

1. Open both of the Twin Cyclone inspection doors, clean the inside face and seal of both doors using the hand blow gun. Be careful not to damage the seal.
2. Close the doors.

Step11 - Cleaning the Twin Cyclone Surge Hopper

CAUTION: High velocity airflow/vacuum under the Twin Cyclone

Figure 25 Twin Cyclone Surge Hopper

1. Open the Surge Hopper.
2. Clean the inside face and seal using the hand blow gun. Be careful not to damage the seal.
3. Close the Surge Hopper then press the green tick on the control screen to acknowledge completion.

Step 12 - Reassembly Ready for the New Colour

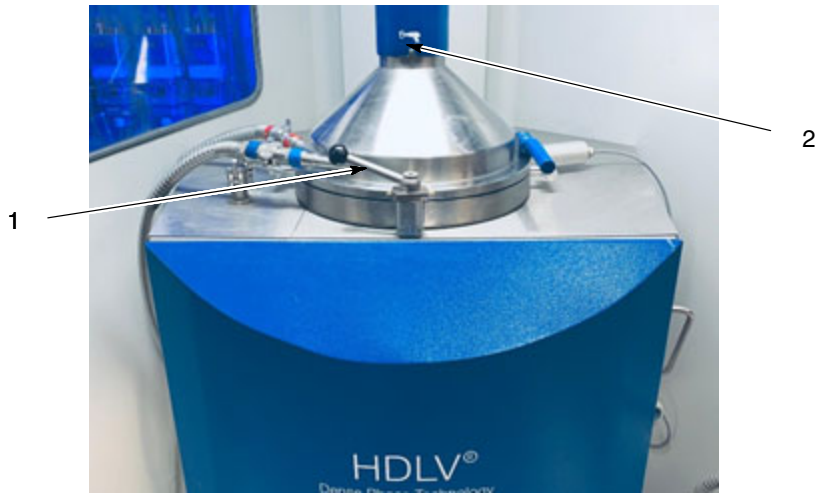


Figure 26 HD Hopper ready for new colour

1. Reinstall the ultrasonic sieve and close the hopper lid, secure with the lever (1).

   NOTE: At this stage, do not reconnect the reclaim hose, identified with the red clip, to the hopper lid.

2. Pull the vent pipe (2) down to the hopper lid and rotate so the Gun symbol is at the front like shown.

Step13 - Preparing the System with the New Colour

Figure 27 Fresh powder / new colour

1. Place the new powder box onto its station and open, ready to insert the powder pick-up tube and hose.
2. Lower the pick-up tube (1) through the support bracket and into the powder.

Powder will automatically start to feed into the hopper.

3. Wait until the hopper has reached the working level (middle). Visualisation on the control screen below (2).
4. Spray powder for at least 30 seconds into the empty booth, ensure no products are inside the booth.

Continued...

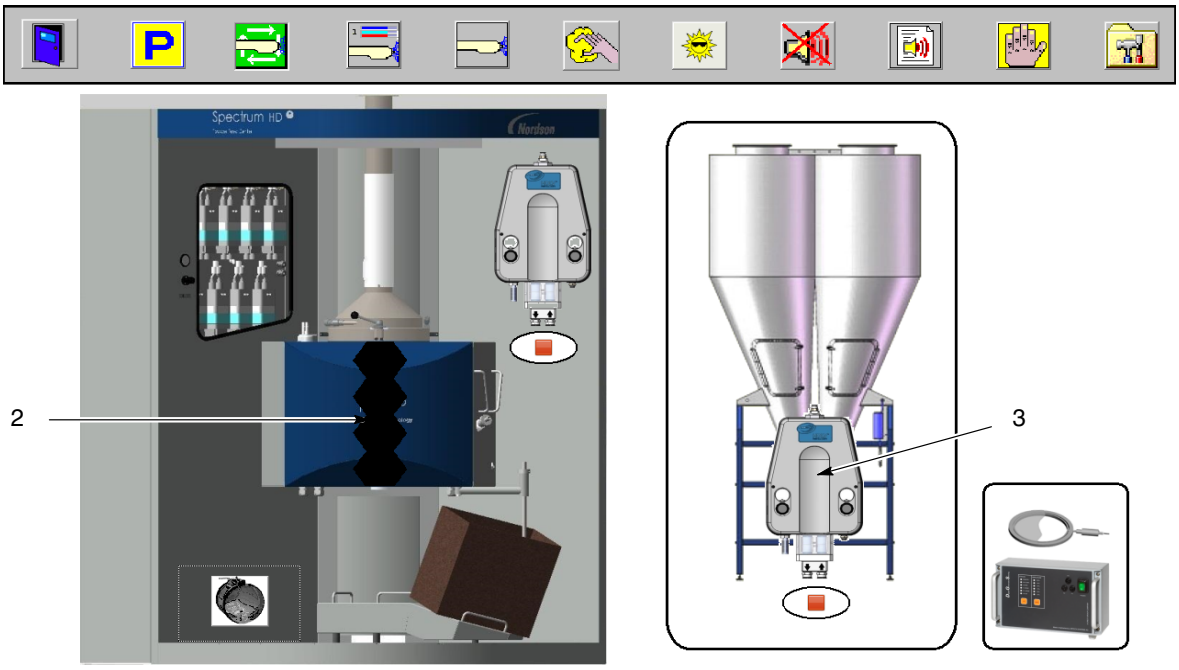


Figure 28 Spectrum HD Control Screen

5. After spraying for this initial 30 seconds, disable the reclaim pump (3) then reconnect the recovery hose with red clip, to the hopper lid.
6. Close the exhaust connector with the plug then enable the reclaim pump (3)

You are now ready for production.