

Operating Manual

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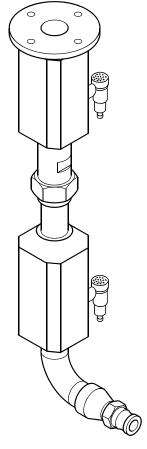
Peristaltic Powder Pump



High Voltage! Turn power off before servicing!



Read rules for safe operation and instructions carefully!







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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.

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1. **General description**

Scope of delivery 1.1

Peristaltic Powder Pump straight	Article No. 3145 309
Peristaltic Powder Pump cranked	Article No. 3145 301

1.2 Technical data

Input air pressure	max. 87 psi (max. 6 bar)	
Compressed air requirement	approx. 4.5 Nm³/h	
Control cabinet	24 VDC – 25 W - IP 55	
Dimensions control cabinet (H/W/D)	600 x 600 x 210	
Output	100 – 120 kg/h – acc. to powder quality	
Powder feed distance	max. 12 m	
Powder feed height	max. 1.5 m	

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Required compressed air quality:

Quality class	Compressed air quality according to ISO 8573.1	
5	Max. residual water: (pressure dew point in in °F at 100 psi / °C at 700 kPa)	+44.6 °F / +7 °C
2	Max. oil contents:	0.1 mg oil/m ³ / 0.1 oz/ft ³
3	Max. concentration:	5 mg/m ³ / 5 oz/ft ³
3	Max. particle size:	5 μm / 5 microns

Ambient conditions:

If low temperature powders are used, the ambient temperature may have to be lower than 86 °F (30 °C).



Volume measures:

For volumes, specified in Nm³ (standard cubic meters). One cubic meter of a gas at 32 °F (0 °C) and 1.013 bar is called norm cubic meter. $1 \text{ Nm}^{3}/\text{h} = 35.3 \text{ ft}^{3}/\text{h}$; 1 bar = 14.504 psi

1.3 Utilization



Caution

The Peristaltic Powder Pump may not be used for any purpose other than that described below. The minimum and maximum values described in the specifications should **never** be exceeded.

The Peristaltic Powder Pump can be used for dust free feeding of the powder recovered by a Wagner powder coating booth to the powder container (e.g. powder feed center).

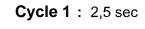
All coating powders e.g. epoxy, polyester including Tribo powders can be processed with this system.

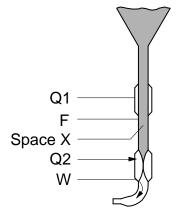
1.4 Description of function

The powder captured in the cyclone reaches the surface of the screen with the discharge flow. There, the large particles of dirt are trapped, while the powder passes through the screen and slides along the funnel to the Peristaltic Powder Pump, from where it is conveyed to the container or powder feed center.

1.4.1 Operation cycle Peristaltic Powder Pump (4 cycles)

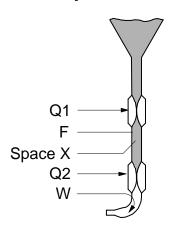
Legend: Q1 = Peristaltic valve 1 Q2 = Peristaltic valve 2 F = Feed air W = Swirl air





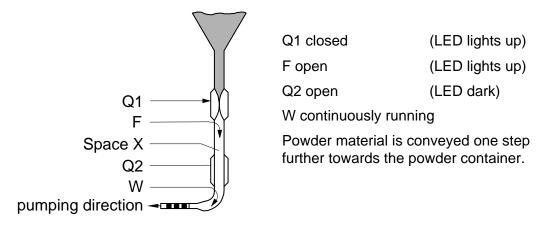
Q1 open	(LED dark)
F off	(LED dark)
Q2 closed	(LED lights up)
W continuously runnir	ng
Powder falls through	the funnel into space X

Cycle 2 : 0,3 sec

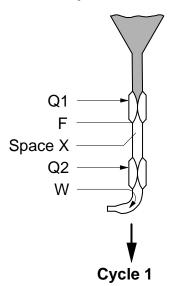


Q1 closed	(LED lights up)	
F off	(LED dark)	
Q2 closed	(LED lights up)	
W continuously running		

Cycle 3 : 2,5 sec



Cycle 4 : 0,3 sec



Q1 closed	(LED lights up)	
F off	(LED dark)	
Q2 closed	(LED lights up)	
W continuously running		



2. Safety regulations

2.1 Safety advice

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STOP

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!



Warning

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

- The user has to observe particularly the safety guidelines of the VdS, the local professional and security institutions.
- The electrostatic coating equipment may only be operated by trained and qualified personnel.
- The spray gun may only be operated in powder coating booths or on powder coating stands that are equipped with a ventilation system.
- 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/m³.
- Over sprayed powder must be reliably collected.
- Adhere to the instructions given by the manufacturers and to the prevalent local laws on the environment when disposing of waste coating powder.
- The powder enabling **must** be electrically interlocked with the exhaust system of the powder coating booth.
- All individual system 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.

- The user must conduct periodic checks of the powder spray equipment (at least every year) with regard to explosion-protection.
- Repairs may only be carried out by trained technicians and may never be carried out in an explosion hazardous area. Protective measures against explosions must still be installed.
- 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.
- Spray guns should be operated with bare hands! 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).
- Suitable fire extinguishing equipment should be provided and maintained in perfect working order in rooms or areas where there is a risk of fire.
- **Guideline 94/9/EG:** The device is suited for the applications it was designed for, even in explosion-hazard areas.

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· Wear suitable work clothing

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- Use breathing protection or a vizard for developing solvent steams:
- · Avoid health dangers by inhalation and skin contacts of solvent steams and lacquer aerosols; Cornea injuries by splashes in the eye.
- · Check the equipment for damage
- · Before operating the system, check if slightly damaged parts still function correctly. 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.

- · Risk of injury in crushing and shearing points in the work area:
- work which produces powder and when Avoid risk of injury from cuts and stabs from components or modules with sharp or pointed edges.
 - Risk of explosion:
 - No plug connections may be undone during operations!
 - Mechanical interlocks for plug connections must • be reinstalled prior to start up!
 - Doors of control cabinets, clamp sockets, plugs, • lamps and other electrical components must remain closed during operation.



Warning

For your own safety, use only accessories and equipment listed in the use of operating manual. The 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!

2.2 EC Declaration of conformity

Wagner hereby declares that the unit described in these operating instructions has been designed and manufactured according to the relevant regulations:

- 98/37/EC (Machine)
- 94/9/EC (Devices and protective systems for use in explosion-hazard areas)
- 73/23/ EEC (Electrical equipment; low tension guideline)
- 89/336 EEC (Electro-magnetic compatibility)

The following **European** standards have been applied:

EN 12100-1/-2	EN 50281-1-1/-1-2	EN 61000-6-2
EN 60204-1	EN 1127-1	EN 13463-1

The following German standard or guideline has been applied:

BGI 764

An **EC declaration of conformity certificate** exists for this product. This can be ordered again if necessary from your WAGNER dealer by giving details of the product and serial number involved.

The EC declaration of conformity has the number **0330873**.

3. Start up

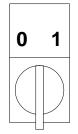


Read appropriate operating manuals before setting up and start-up the system!

3.1 Switching the system on

Peristaltic Powder Pump

- 0 (OFF) = System turned off, Peristaltic pump open
- 1 (ON) = System in operation



3.2 Preparation

Before starting up the system, the pneumatic factory settings must be checked (see chapter 3.3). The checking is started by switching the main switch at the control cabinet of the Peristal-tic Powder Pump to position "1" (see chapter 3.1).

The air quantity (basic setting see chapter 3.3.5) of the feed air can be controlled by means of the corresponding throttle valve. The compressed air can be adjusted between 36.3 - 50.8 psi (2.5 - 3.5 bar) at the central pressure regulator of feed and swirl air.



Caution

The above described adjustments **must** always be made in no-load-operation (without powder)!

After completion of the basic adjustments the funnel with the Peristaltic Powder Pump can be docked under the cyclone.

The Peristaltic Powder Pump is ready to operate.



Caution

- Before turning on the vibrator motor at the funnel, the cycle control of the Peristaltic Powder Pump must be operational.
- To switch off: proceed in reversed order.

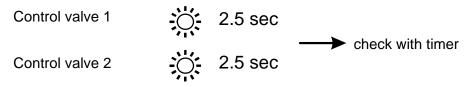


3.3 Basic adjustments

The basic adjustments are factory set. Changes may only be carried out by Wagner service personnel or by specially trained personnel.

3.3.1 Electrical control

• The opening times of the peristaltic valves can be adjusted at the logo control



• The overlapping time (cycle 2 and 4) must be adjusted at the logo control: approx. 0.3 sec.

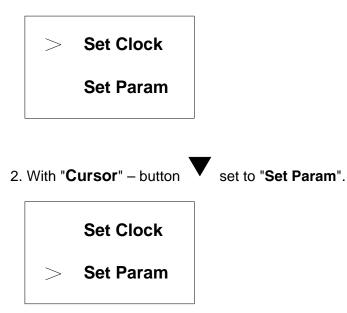
3.3.2 Operating elements of the logo control



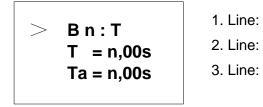
1	ESC	for changing to another menu or canceling an entry
2	OK	for confirming the input
3	Display	Menu indication
4		for increasing the value
5		for changing to another parameter
6		for changing to another parameter
7	▼	for reducing the value

3.3.3 Parameterizing of the logo control

- 1. Simultaneously press the "**ESC**" button and "**OK**" –button:
- The display switches to operating mode "Parameterizing".
- The following display appears:



- 3. OK Taste betätigen:
- The following display appears (example):



- ne: Block number
- e: Set parameter value parameters
- e: Current parameter value (wandert von 0 ... t = n, 00s
- 4. With "Cursor" button

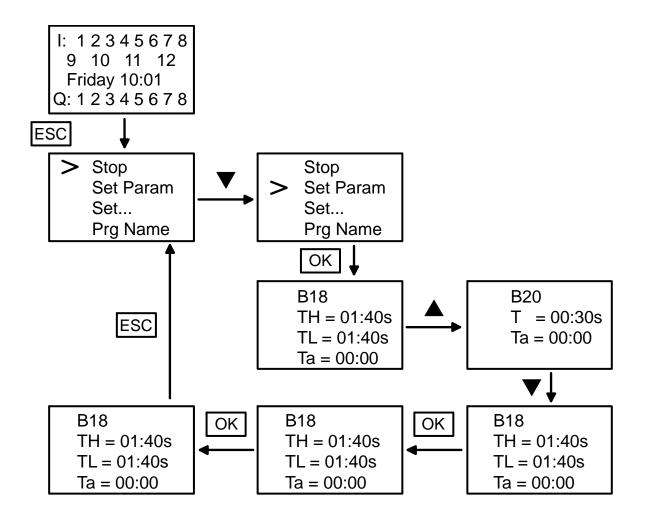
or select the desired "Block number".

- 5. Confirm with "**OK**" button:
- The "Cursor" jumps to the second line.

• The selected parameter can be changed (see the following block switching pictures).

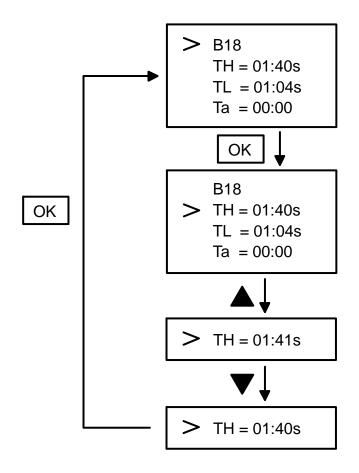


1. Select block number:



2. Selecting and changing parameters:

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3.3.4 Adjustments of the logo control

🆵 Hint

The values in blocks 18, 20 and 21 are set during manufacture and must not be altered, except when required by special circumstances such as:

- abnormal length of the powder conveying line
- special characteristics of the coating powder

1. Correct time interval plus overlap time for pulse 1 and pulse 2

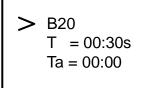
- With "Cursor" button V or A select the "Block number B18".
- Time T = 01:40 sec (factory setting):

B18
TH = 01:40s
TL = 01:40s
Ta = 00:00

• Proceed according to chapter <u>3.3.3</u> "Parameterizing of the logo control".

2. Correct overlap time for pulse 2 / 4

With "**Cursor**" – button \checkmark or \blacktriangle select the "**Block number B20**". Time T = 00:30 sec (factory setting):



Overlap times for pulses 2 / 4 and pulses 4 / 2 must always agree. If not, malfunctions can occur!

• Proceed according to chapter 3.3.3 "Parameterizing of the logo control".

3. Correct overlap time for pulse 4 / 2

With "**Cursor**" – button \checkmark or \blacktriangle select the "**Block number B21**". Time T = 00:30 sec (factory setting):

Overlap times for pulses 4 / 2 and pulses 2 / 4 must always agree. If not, malfunctions can occur!

• Proceed according to chapter 3.3.3 "Parameterizing of the logo control".

3.3.5 Pneumatic control

Preconditions:

- Peristaltic Powder Pump connected
- Peristaltic Powder Pump running without powder

Course order:

Pressure regulator for control air		max. 36.2 psi (2.5 bar) dyn.*
 Pressure regulator for feed and swirl air 		36.2 - 50.7 psi (2.5 - 3.5 bar)
Throttle valve (feed air)	4 210	Set value 2/4 on the scale
Throttle valve (swirl air)	6 10	Set value 1/6 on the scale

* Important adjustment, to guarantee the working life of the Peristaltic Powder Pump

The following parameters must be kept when doing the basic adjustments:

•	Powder feed hose	max. 12 m (as short as possible)
•	Feed height	max. 1.5 m
•	Pneumatic supplies between control cabinet and screening trolley	max. 5 m

4. Maintenance and cleaning

4.1 Collecting funnel with Peristaltic Powder Pump



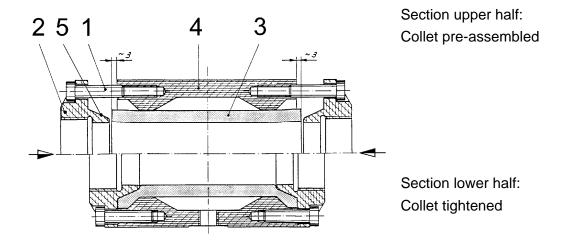
The Peristaltic Powder Pump should only be cleaned during the cleaning cycle of the complete system.

Cleaning procedure of the collecting funnel with Peristaltic Powder Pump:

- 1. After undoing the lateral spring clips swivel the collecting funnel halfway out from underneath the cyclone, with turned on ventilator exhaust system and Peristaltic Powder Pump.
- 2. Wipe off the residual powder from the walls of the funnel to the bottom outlet.
- 3. Wait until all powder has been transported into the powder container by the Peristaltic Powder Pump.
- 4. Swivel collecting funnel underneath the cyclone, but don't clamp it (swivel without screen).
- 5. Set switch at the main control cabinet to position "0".
- 6. Uncouple the powder hose from the powder feed center and connect it at the blow-out device of the powder feed center.
- 7. Turn on blow-out device for the hose cleaning.
- 8. Blow-out the funnel underneath the cyclone.

4.2 Peristaltic valve

Changing the hose collar



Removing the defective collar:

- 1. Remove the fixed line connections from the peristaltic valve.
- 2. Remove screws (1) and take off lid (2).
- 3. Pull out the collar (3) with a pair of pliers.
- 4. Thoroughly clean the parts of the housing (4).

Fitting a new collar:

- 1. Press the collar (3) into the housing and center it. Overlap on both sides about 3 mm.
- 2. Moisten the collet (5) and the inside of the collar in the clamping area with a little soapy water or rubber preservative (do **not** use grease or oil).
- 3. Tighten both lids (2) each with four screws (1) so far that the collet (5) moves into the end of the collar.
- 4. Tighten the collet (5).

Variation 1

- Variation 2
- Press together the pre-assembled valve assembly in a press or vice.
- Tighten up all screws in this position.
- Tighten both lids to the housing with screws, turning evenly and alternately.



5. Rectification of malfunctions



Caution

Any repair operations may only be carried out by Wagner personnel.

The user must always ensure that the equipment has a good electrical grounding.

Malfunction	Cause	Rectification
Feed insufficient or interrupted	Feed air badly adjustedObstruction of the feed system	 New adjustment see chapter <u>3.3</u> "Basic adjustments"
		 Cleaning respectively changing of the piping
	Lumping	 Increase feed air pressure with throttle valve
	 Rupture respectively wear of the valve- membrane Low compressed air 	 Changing of the peristal- tic valve through Wagner customer service personnel
		Check the air system
Bad switching of solenoid valves	 Logo control wrongly adjusted 	 New adjusting see chapter <u>3.3</u> "<u>Basic adjustments</u>"
Breakdown of the electrical control	Fatal fault in the electrical control cabinet	Contact Wagner Service

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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.



7. Spare Parts Catalogue

7.1 How to order spare parts

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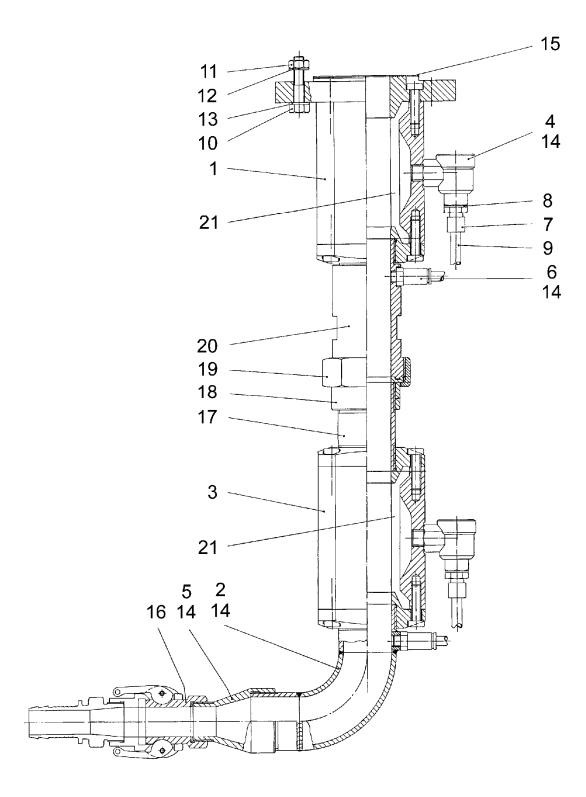
Faulty and unserviceable parts are replaced in accordance with our General Terms and Conditions of Delivery.

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

Wearing parts are marked with *.

7.2 Peristaltic Powder Pump straight Article No. 3145 310



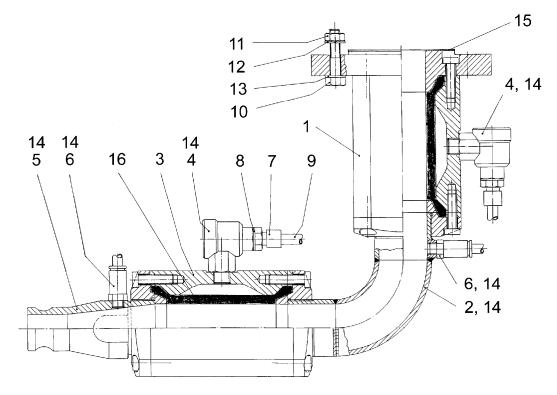
Spare parts lists



Item	Description	Quantity	Article No.
1	Peristaltic valve	1	3145 238 *
2	Tube bend	1	3133 554
3	Peristaltic valve R 11/2"	1	3144 056 *
4	Quick-action ventilating valve	2	3102 576 *
5	Flowing out connection	1	3133 827
6	Check valve	2	3136 837 *
7	Straight fitting	2	3050 048
8	Sealing ring	2	3050 149
9	Pneumatic hose, black	10 m	3055 759
10	Hex bolt	4	9900 241
11	Hex nut	4	9910 107
12	Wavy washer	4	9921 501
13	Washer	4	9920 102
14	Sealing tape PTFE	1	3051 530
15	Sealing ring	1	3109 976
16	Adapter with inner ring	1	2335 588
17	Threaded tube	1	3145 383
18	Connection sleeve (below)	1	3133 553
19	Outer nut	1	3133 552
20	Connection sleeve (above)	1	3133 551
21	Replacement collar	2	3144 058 *

* Wearing parts

7.3 Peristaltic Powder Pump cranked Article No. 3144 979

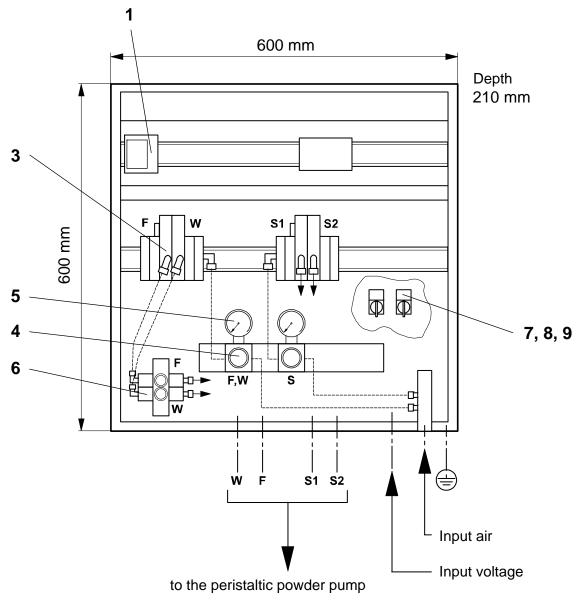


Item	Description	Quantity	Article No.
1	Peristaltic valve	1	3145 238 *
2	Tube bend	1	3133 554
3	Peristaltic valve R 1½"	1	3144 056 *
4	Quick-action ventilating valve	2	3102 576 *
5	Flowing out connection	1	3145 249
6	Check valve	2	3136 837 *
7	Straight fitting	2	3050 048
8	Sealing ring	2	3050 149
9	Pneumatic hose, black	10 m	3055 759
10	Hex bolt	4	9900 241
11	Hex nut	4	9910 107
12	Wavy washer	4	9921 501
13	Washer	4	9920 102
14	Sealing tape PTFE	1	3051 530
15	Sealing ring	1	3109 976
16	Replacement collar	2	3144 058 *

* Wearing parts



7.4 Control cabinet Article No. 3145 300



W = Swirl air

F = Feed air

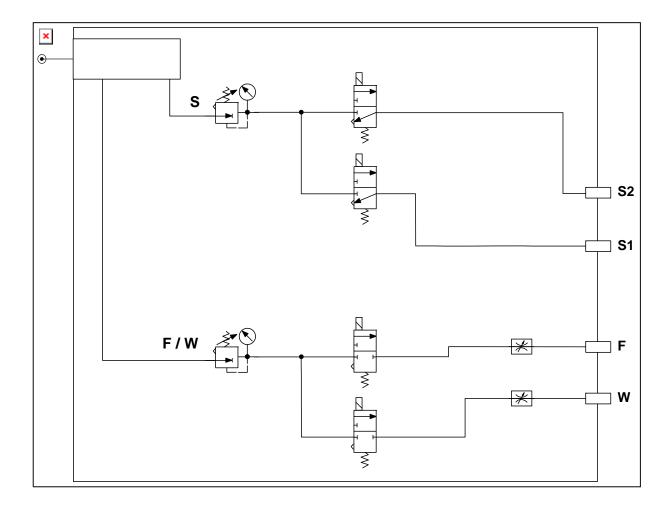
S = Control air

Item	Description	Quantity	Article No.
1	Logo control	1	3145 306
3	Module unit complete	2	2341 582
4	Micro controller 1/4" 0 - 58 psi (0 - 4 bar)	2	3060 189
5	Pressure gauge 0 - 58 psi (0 - 4 bar)	2	3107 715
6	Throttle valve	2	3107 737
7	Switching piece	1	3064 774
8	Position selector	2	3026 359
9	Switching piece	1	3064 775



7.5 Pneumatic diagram

Control Cabinet



all pneumatic hoses \varnothing 8/6

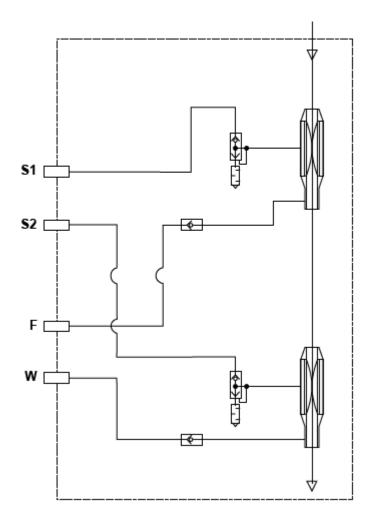
W = Swirl air

F = Feed air

S = Control air



Peristaltic Powder Pump



all pneumatic hoses \varnothing 8/6

W = Swirl air

S = Control air

F = Feed air

7.6 Circuit diagram Article No. 3145 305



Hint

The system specific delivered circuit diagrams are to be kept separately (e.g. in the electrical control cabinet).





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