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A partir du 1/02/17, SAMES Technologies SAS devient SAMES KREMLIN SAS

SAMES  **KREMLIN**



User manual

PPH 405 for solventborne paints

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A catalogue is available on request. Choose from a wide range of courses to acquire the skills or knowledge that is required to match your production requirements and objectives.

Our training courses can be delivered at your site or in the training centre at our Meylan head office.

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The French version is deemed the official text and Sames will not be liable for the translations into other languages.

PPH 405
for solventborne paints

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1. Health and Safety Instructions

This manual contains links to the following user manuals:

- [see RT Nr 7010](#) for the high-voltage unit UHT 188 EEx e.
- [see RT Nr 6213](#) for the control module GNM 200.
- [see RT Nr 6190](#) for the microphone.
- [see RT Nr 6364](#) for electrical systems.

1.1. Configuration of certified equipment

These user manuals define the configuration of certified equipment.

1.2. Marking on atomizer

SAMES Meylan France

CE 0080

PPH

P/N : *

ISSeP06ATEX032X**



II 2 G

EEx > 350mJ

(Serial no)

* ATEX PPH Configurations

Atomizer - P/N 910005185	UHT 188 EEx e - P/N 910001759	P/N PPH 405 (*)	GNM 200A P/N 1517071
X	X	910005185	X

** 'X' indicates that the safety distance specified in this manual (between the HV components of the atomizer and all grounded parts) must be observed to ensure safe operation of the equipment.

1.3. Precautions for use

This document contains information that all operators should be aware of before using atomizer PPH 405. This information includes indications of situations potentially resulting in severe damage and of the preventive precautions to be taken.



WARNING : Before any use of the PPH 405 equipment, check that all operators:

- have previously be trained by the compagny Sames Technologies, or by their distributors registered by them for this purpose.
- have read and understood the user manual and all rules for installation and operation, as laid out below.

It is the responsibility of the operators' workshop manager to ensure these two points and it is also his responsibility to make sure that all operators have read and understood the user manuals for any peripheral electrical equipment present in the atomizing area.

1.4. Warnings



WARNING : This equipment may be dangerous if it is not used, disassembled and reassembled in compliance with the regulations specified in this manual and in all applicable European standards or national safety regulations.



WARNING : Equipment performance is only guaranteed if original spare parts distributed by SAMES Technologies are used.



WARNING :

This equipment must only be used in spraying areas in compliance with standards EN 50176, EN 50177, EN 50223, or under equivalent ventilation conditions. To reduce health, fire and explosion risks, this equipment must only be used in well ventilated areas. The efficiency of the ventilation system must be verified on a daily basis.

Only appropriate explosion-proof electrical equipment must be used in the explosive atmospheres generated by the spraying process.

Before carrying out any cleaning or general work on atomizers in the spraying area, the high-voltage generator must be switched off and the HV atomizer circuit must be discharged to ground. Never point the pressurized coating product or the compressed air towards persons or animals.

Suitable measures must be taken to prevent the presence of energy potential (liquid, air pressure or electrical) in the equipment during downtimes and/or periods when the equipment is not being used.

The use of individual protective means can limit the risks caused by contact and/or inhaling of toxic products, gases, vapors, mist and dust likely to be generated by the equipment when it is in use. The operator must follow the manufacturer's instructions for the coating product.

It is imperative to wear safety goggles during the cleaning of the atomizer (disc, cover...). Anti-cut gloves must be used for the manipulation of the disc.

Electrostatic spraying equipment must be serviced regularly in accordance with the information and instructions given by SAMES Technologies.

Cleaning operations must be carried out either in authorized areas equipped with a mechanical ventilation system, or using cleaning liquids with a flash point at least 5°K higher than the ambient temperature.

Only metal containers may be used for cleaning liquids, and they must be safely grounded.

Inside the booth it is forbidden to use naked flames, glowing objects or devices likely to produce sparks. It is also forbidden to store flammable products, or recipients that have contained them, in the vicinity of the booth.

The surrounding area must be kept clear and clean.



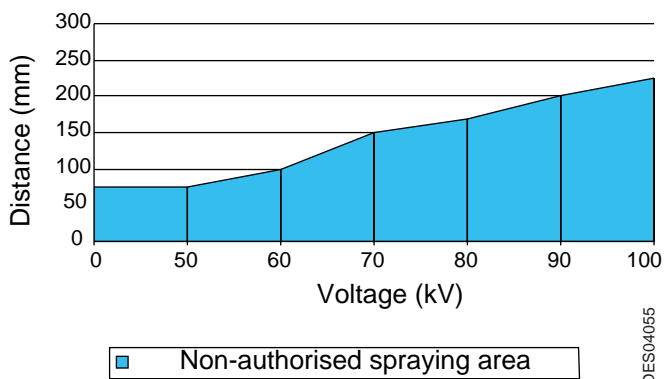
WARNING : The use of very high voltage increases the risk of sparks. SAMES Technologies atomizers and high-voltage electrostatic generators are designed to minimise this risk. Although the HV electrode is the only accessible part, a safety distance must be observed between the HV parts of the atomizer and all grounded parts.

PPH 405 with high voltage unit UHT 188 EEx e and high voltage cable with a 4.25 m length:

"X" Safety Distance as a function of voltage

Authorised spraying distance

Voltage (kV)	Distance (mm)
0	75
50	
60	100
70	150
80	170
90	200
100	225



In addition, a careful check must be made to ensure that any conducting or semi-conducting part closer than 2.5 m to the atomizer is correctly grounded.

If it is not, electrical charges capable of causing sparks could build up on it. Operating personnel must wear anti-static shoes and gloves to avoid this risk.

Each substrate must have a ground resistance of less than or equal to 1 MΩ (measurement voltage of at least 500V). This must be checked regularly.

All conducting enclosures of electrical equipment and conducting components in explosive atmospheres must be grounded by connecting them to the grounding terminal.

Finally, for the same reasons, the spraying area must have an anti-static floor, such as concrete, metal duckboard, etc.

It is essential to provide sufficient ventilation in the spraying booths to avoid the build up of inflammable vapors.

The correct operation of the overcurrent protection (di/dt) must be verified daily. This verification must be carried out **in a non-explosive atmosphere**, by placing a ground wire near the atomizer electrode with the atomizer switched on (the operator must be grounded): the control module must switch to the fault state.

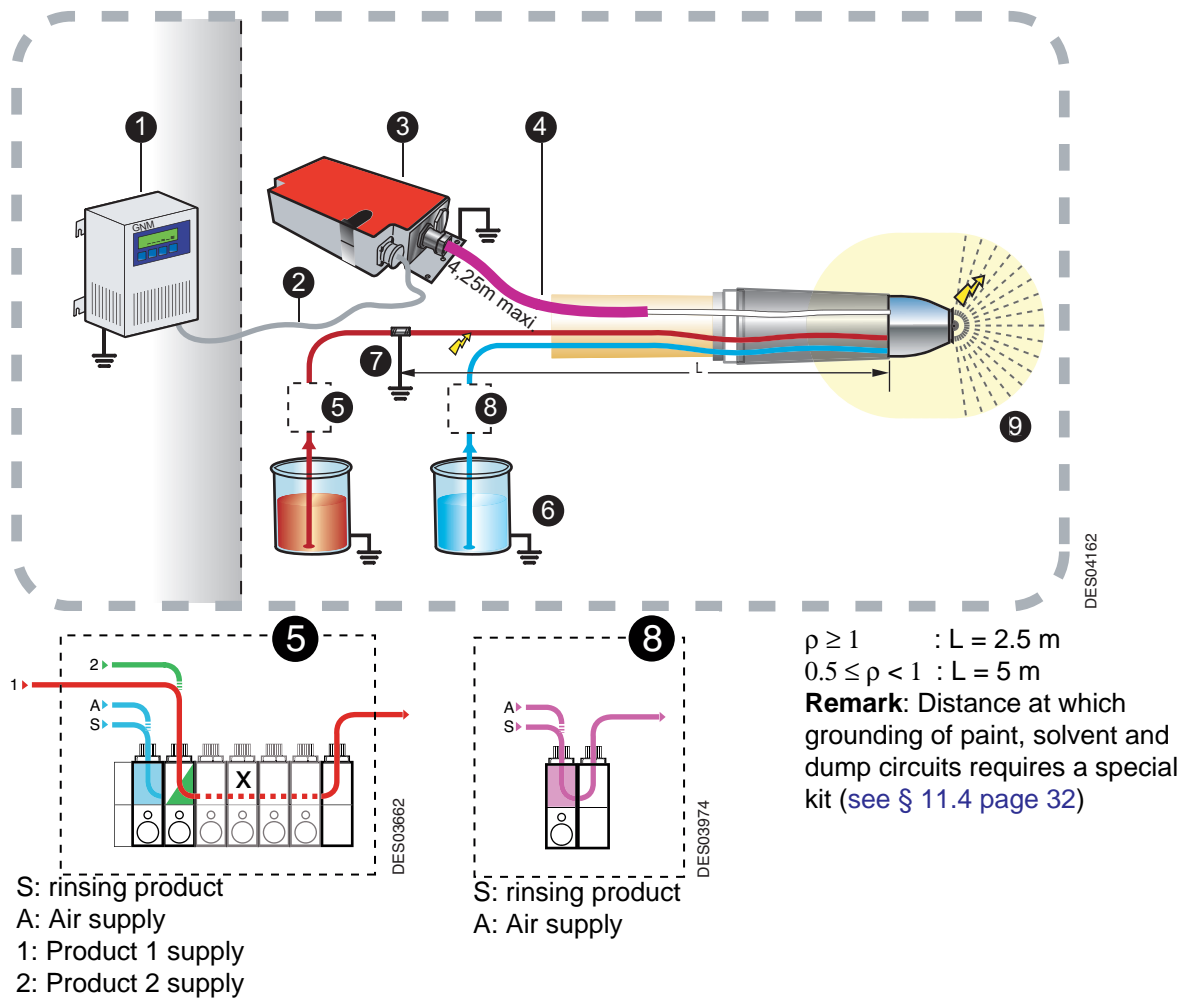
The associated equipment must be located outside hazardous areas, and its operation must be interlocked with that of the booth extraction fan. The correct operation of the servocontrol system must be verified once a week.

A warning sign must be placed in full view near the spraying area.

1.4.1. Installation Rules

PPH 405 using solvent borne paints

(Representation of the atomizer non contractual)



WARNING : All the conductive parts must be connected to the ground potential (metallic fittings of the Moduclean, gear pump, etc...).

Item	Description
1	Control module GNM 200 (out of the ATEX area)
2	Low voltage connection
3	High voltage unit UHT 188 EEx e
4	High voltage cable
5	Supplies of paints and rinsing products connected to the ground potential
6	Dump line connected to the ground potential
7	Paint and dump fittings connected to the ground potential
8	Solvent supply connected to the ground potential
9	Safety distance (area around the atomizer head from the parts with high voltage, disc, etc...)

1.5. Important Recommendations

1.5.1. Compressed air quality

The air must be filtered to a level that will guarantee a long life time and prevent any pollution during painting.

The filter must be installed as close to the installation as possible. The filter cartridges must be changed regularly to ensure that the air is clean.



WARNING : If the air is not correctly filtered, the bearing may become fouled resulting in a turbine operating fault.



WARNING : The guarantee does not cover damage caused by foreign matter (paint, solvent or other foreign matter) entering the air circuits of atomizer PPH 405.

1.5.2. Product quality

The paint must be filtered to prevent any damage to the atomizer.

The maximum permissible particle size in the atomizer is 200 µm.

1.5.3. High voltage

If atomizer PPH 707 is not operating for a prolonged period (conveyor shutdown, unpainted objects, slack periods, etc.), switch off the high-voltage supply to prevent air ionisation.

1.5.4. O-ring seals

Use the seals recommended in this manual. For solvent-based products, seals in contact with the product must be chemically inert seals resistant to swelling or chemical attack. The correct operation of atomizer PPH 405 is only guaranteed if used with seals of sizes and materials in compliance with those specified in this manual.

1.5.5. Vibrations

If PPH 405 atomizer vibrates more than usual, the cause is generally unbalanced rotating parts. There may be dry paint deposits on the disc or the disc may be damaged with dry paint. If any of these situations arise, it is essential to correct them. A significant unbalance will inevitably damage the turbine and cause a failure of the turbine.



WARNING : The guarantee does not cover damage caused by unbalance of rotating parts

1.5.6. Mechanical collision

The guarantee does not cover damage resulting from the operating environment (for example: movement of the robot causing a shock between the atomizer and the part).

1.5.7. Ventilation

Do not begin applying paint with atomizer PPH 405 before starting up the ventilation system in the spraying booth. If the ventilation is cut, toxic substances such as organic solvents or ozone may remain in the spraying booth, resulting in a risk of fire, poisoning or irritation.

1.5.8. Residual pressure

Before all maintenance or repair operations, remove paint and solvent from the atomizer, switch off the high voltage power supply and cut the paint, solvent and air supplies, then release residual pressure in each supply system. Residual pressure may lead to component damage and expose personnel to serious injuries. Paint or solvent dispersion may also lead to poisoning or irritation.

1.5.9. Safety devices

When implementing atomizer PPH 405, it is important to provide for safety devices allowing immediate cutoff of paint, solvent, air and HV power supplies in the event of a problem.

- Detection of control system faults.
- Detection of high voltage surges associated with the SAMES HV generator.
- Detection of air pressure drops.
- Detection of ventilation failure.
- Detection of fire.
- Detection of human presence.
- Detection of turbine rotation speed faults.

Failure to install safety devices could result in a risk of fire, expose the personnel to serious injury and damage the equipment.

1.5.10. Ambient temperature

The atomizer is designed to normally operate at an ambient temperature comprised between 0°C and + 40°C.

For optimal application quality, operation at an ambient temperature of between +15°C and + 28°C is recommended.

1.5.11. Sound level

The weighted equivalent continuous sound pressure level is equal to 84,7 dBA.

Measurement conditions:

The equipment has been operated under maximum conditions, measurements were taken in the "API" paint test booth (doors remain opened to feign the functioning of the PPH 405 in a booth type "Omega") at the Sames R&D laboratory in Meylan, France.

Measurement method:

The weighted equivalent sound pressure level (84,7 dBA) is an LEQ value measured during observation periods over at least 30 seconds.

1.5.12. Special maintenance measures

All access to the booth near the atomizer must be controlled during atomizer operation by active devices ([see § 1.5.9 page 11](#)) designed to interrupt operation in case of personnel intrusion.

However, for maintenance purposes, these devices can be implemented with a view to allowing certain operations and inspections (by personnel trained and certified by Sames Technologies).

1.6. Guarantee

Under the guarantee, which applies only to the buyer, **SAMES Technologies** agrees to repair operating faults resulting from a design fault, materials or manufacture, under the conditions set out below.

The guarantee claim must define the exact nature of the fault concerned, in writing.

The **SAMES Technologies** guarantee only covers equipment that has been serviced and cleaned according to standard procedures and our own instructions, that has been fitted with parts approved by **SAMES** or that has not been modified by the customer.

More precisely, the guarantee does not cover damage resulting from:

- the customer's negligence or inattention,
- incorrect use,
- failure to follow procedures
- use of a control system not designed by **SAMES Technologies** or a **SAMES Technologies** control system modified by a third party without written permission from an authorized **SAMES Technologies** technical agent,
- accidents such as: collision with external objects, or similar events,
- flooding, earthquake, fire or similar events,
- inadequately filtered bearing air (solid particles more than 5 µm in diameter),
- inadequately filtered paint and solvent,
- use of seals not complying with **SAMES Technologies** recommendations,
- starting up rotating parts that are unbalanced (dry paint on disc),
- pollution of air circuits by fluids or substances other than air.

The **SAMES Technologies** atomizer **PPH 405** is covered by a one-year guarantee for use in two 8-hour shifts under normal operating conditions.

By concession, the guarantee is extended to 2500 hours on the air turbine of atomizer **PPH 405**. The guarantee does not apply to wearing parts such as spraying discs, seals...etc.

The guarantee will take effect from the date of the first start-up or of the provisional acceptance report.

Under no circumstances, either in the context of this guarantee or in other contexts, will **SAMES Technologies** be held responsible for physical injury or intangible damage, damage to brand image and loss of production resulting directly from its products.

2. Description

PPH 405 is a device for automatic electrostatic device painting installations in which:

- atomizing is both centrifugal and electrostatic,
- transfer is electrostatic.

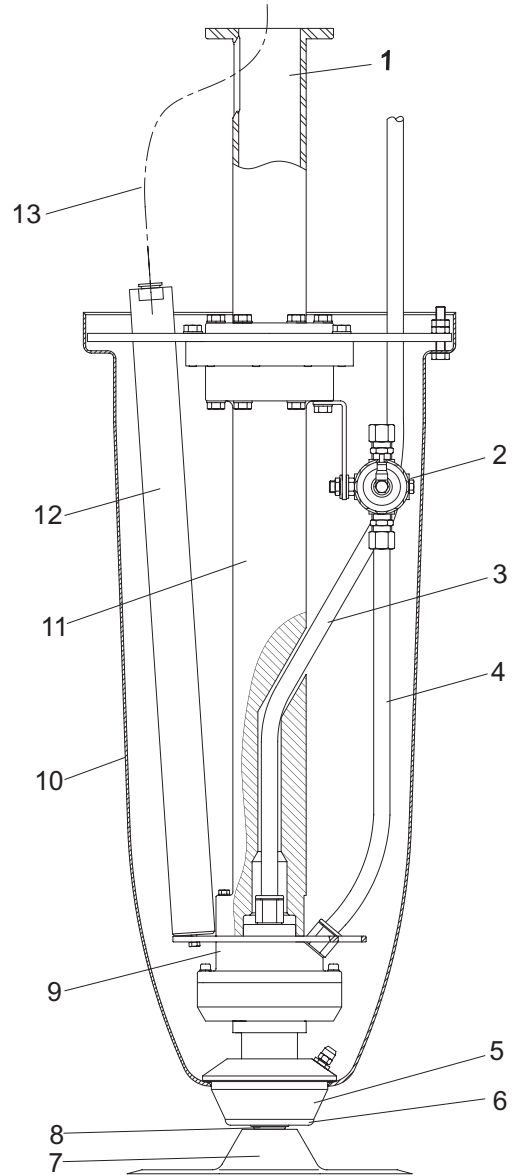
PPH 405 is always installed upright. The part-support conveyor turns in a concentric circle around the central axis of the disc.

Mains components:

1	Metal sleeve fixing the PPH 405 atomizer to its support
2	Air regulator
3	Air supply to brake the turbine
4	Air supply to drive the turbine
5	Paint injection flange
6	Shaping air shroud
7	Atomizing disc
8	Pneumatic seal protecting the ball bearings
9	Air turbine
10	Protective insulating cover
11	Insulating support
12	High voltage rod
13	Cable connecting electrostatic generator to the atomizing disc

As an option, PPH 405 is equipped with interruption pneumovalves for the atomized product.

-	Diameter 325 mm
-	6 holes dia 7 mm on a pitch circle diameter of 83 mm



DES01754

3. Characteristics

3.1. Mechanic characteristics

Height of the atomizer	985 mm
Diameter of the atomizer	325 mm
Weight with cover and disc (dia.: 250 mm) without pneumovalve	10 kg
Turbine alone	2.150 kg

Atomizer is fixed to the support by 6 holes dia 7 mm on a pitch circle diameter of 83 mm.

Maximum rotation speed

Discs	Without paint	With paint - Flow maxi. 500 cc/ mn
150 mm	28 000 rpm	21 000 rpm
250 mm	15 000 trpm	7 000 rpm

3.2. Electric characteristics

Maximum operating voltage	100 kV
Maximum operating current	200 μ A

3.3. Pneumatics characteristics

The driving air-pressure of the turbine must not exceed 6 bar. It is appropriate to add to this the consumption of the shaping air shroud :

Pressure (bar)	Air-flow rate (Nm ³ /h)
0,5	7
1	13
1,5	19
2	25

3.3.1. Compressed air quality

- Dew point at 7 bar (relative pressure) 2°C (- 10 °C at atmospheric pressure).
- The air must not contain more than 0.01 mg/Nm³ of oil.
- The maximum diameter of impurities accepted is 5 μ m and their concentration must not exceed 5 mg/Nm³.

* : values are given for a temperature of 20°C (68°F) at 1013 mbar atmospheric pressure.

In plants that do not have this facility, an air dryer followed by an oil filter must be installed.

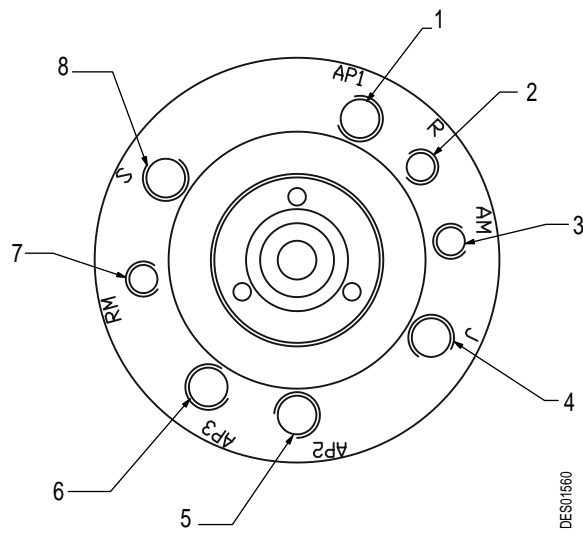
3.3.2. Paint quality

Preferably, the resistivity of the paint must be lower than 500 M Ω .cm, its viscosity must not exceed 90 to 120 seconds AFNOR cup 4. The transfer efficiency is so much better than the resistivity is low. Resistivity values are measured with the AP 1000 resistivohmeter (P/N 910005790). For values lower than 0.5 M Ω .cm: contact Sames Technologies.

3.3.3. Working distances

Working distances of less than 20 cm are to be avoided. For spraying distances [see § 1.4 page 6](#).

The following diagram shows the connection of the injection flange.



Item		Description
1	AP1	Product supply 1
2	R	Pneumatic seal - 1/8" - 4 x 6
3	AM	Microphone air - 1/8" - 4 x 6
4	J	Shaping air - 1/4" - 8 x 10
5	AP2	Product supply 2 - plug, option straight fitting
6	AP3	Product supply 3 -plug, option straight fitting
7	RM	Microphone air return - 1/8" - 4 x 6
8	S	Solvent - 1/4" - 6 x 8

Nota: * this plug can be replaced by a fitting if a second or a third color is used.

5. Operation

5.1. Operating principle

When the turbine is supplied with compressed air by the circuit (C), it sends a rotation speed to the atomizing disc that corresponds to the air supply pressure. The air supply pressure is adjusted with a pressure release valve or a pneumatic amplifier. Rotation of the disc produces atomizing of the paint in particles of which the fineness is directly proportional to the rotation speed, the higher the speed the finer the particles.

Circuit (D) supplies with air the turbine brake.

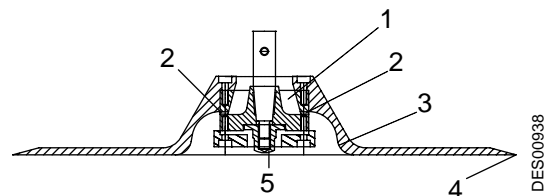
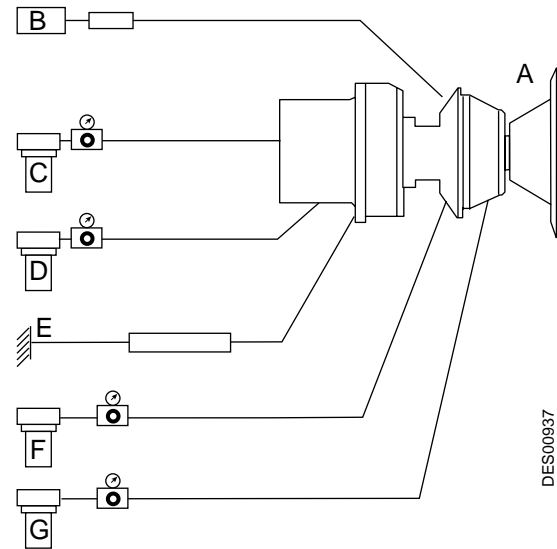
Circuit (B) supplies with product the atomizing disc (A), in outlet of a pneumatic amplifier supplied by a proportional valve or a volumetrical pump.

Electrical circuit (E) supplies the atomizer with high voltage direct current which aids atomisation of the product to be transferred electrically charges the atomized particles and creates the electrical forces necessary for the electrostatic transfer of the product.

It is possible to adjust the stability of the paint spray via the air-supply circuit (G) of the shaping air shroud.

Circuit (F) supplies the pneumatic tightness seal, preventing any sweating of paint into the ball-bearings. The disc operates as follows:

Product is injected into the cavity (1). The centrifugal force to which it is subjected drives it through the holes (2) on the surface (3) of the disc. It then reaches the rim (4) from where it is atomised. The nut (5) is used to attach the disc to the conical end-piece of the turbine shaft and to remove it from the end-piece.



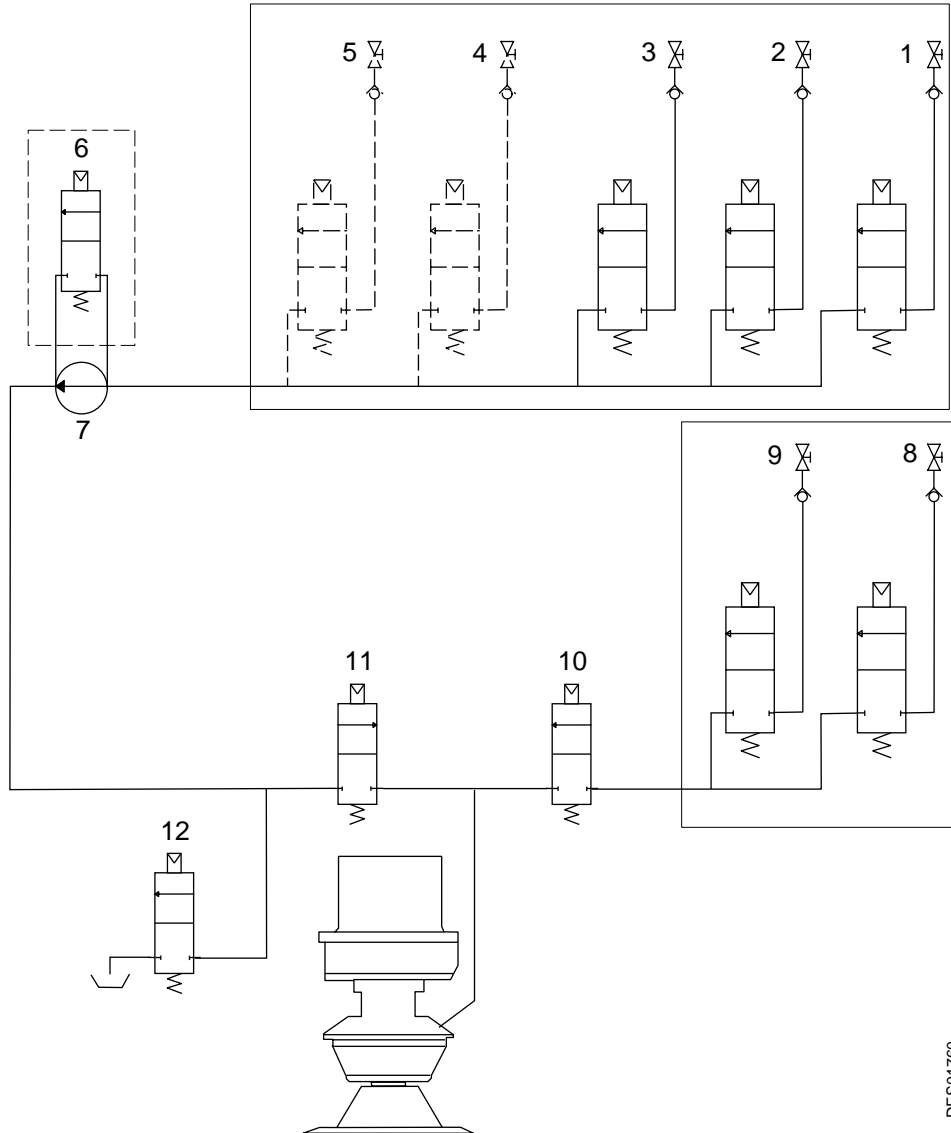
WARNING : The disc is balanced in the factory and must on no account be disassembled for any reason whatsoever.

5.2. Principle diagrams

5.2.1. For a pump without paint re-circulation



WARNING : The equipment described in this chapter is delivered to order.



DES01760

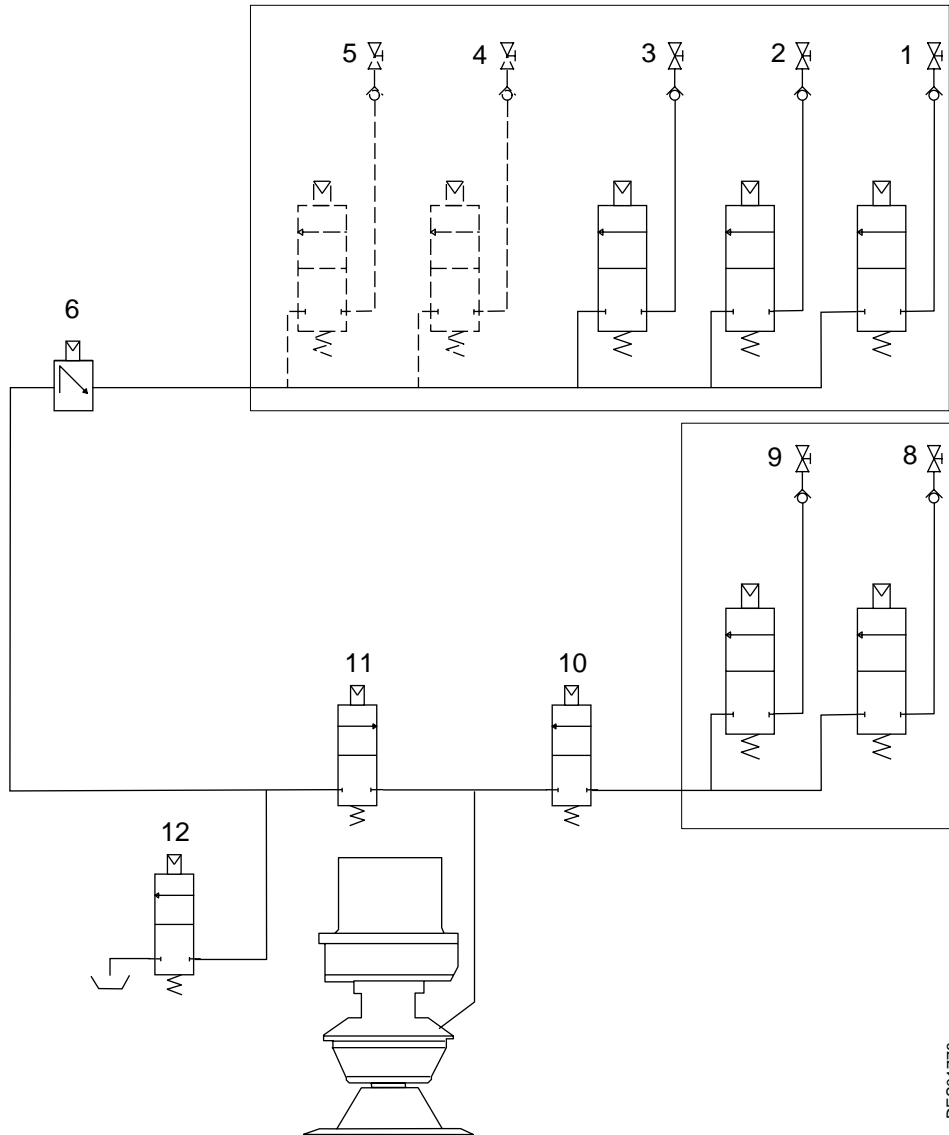
1	Rinsing air	7	Pump
2	Rinsing solvent	8	Air
3	Paint 1	9	Solvent
4	Paint 2 (option)	10	Rinsing valve
5	Paint 3 (option)	11	Atomizing valve
6	Shunt valve for pump	12	Dump valve

To stop atomizing, stop the pump then close the atomizing valve.

5.2.2. With regulator without paint re-circulation



WARNING : The equipment described in this chapter is delivered to order.



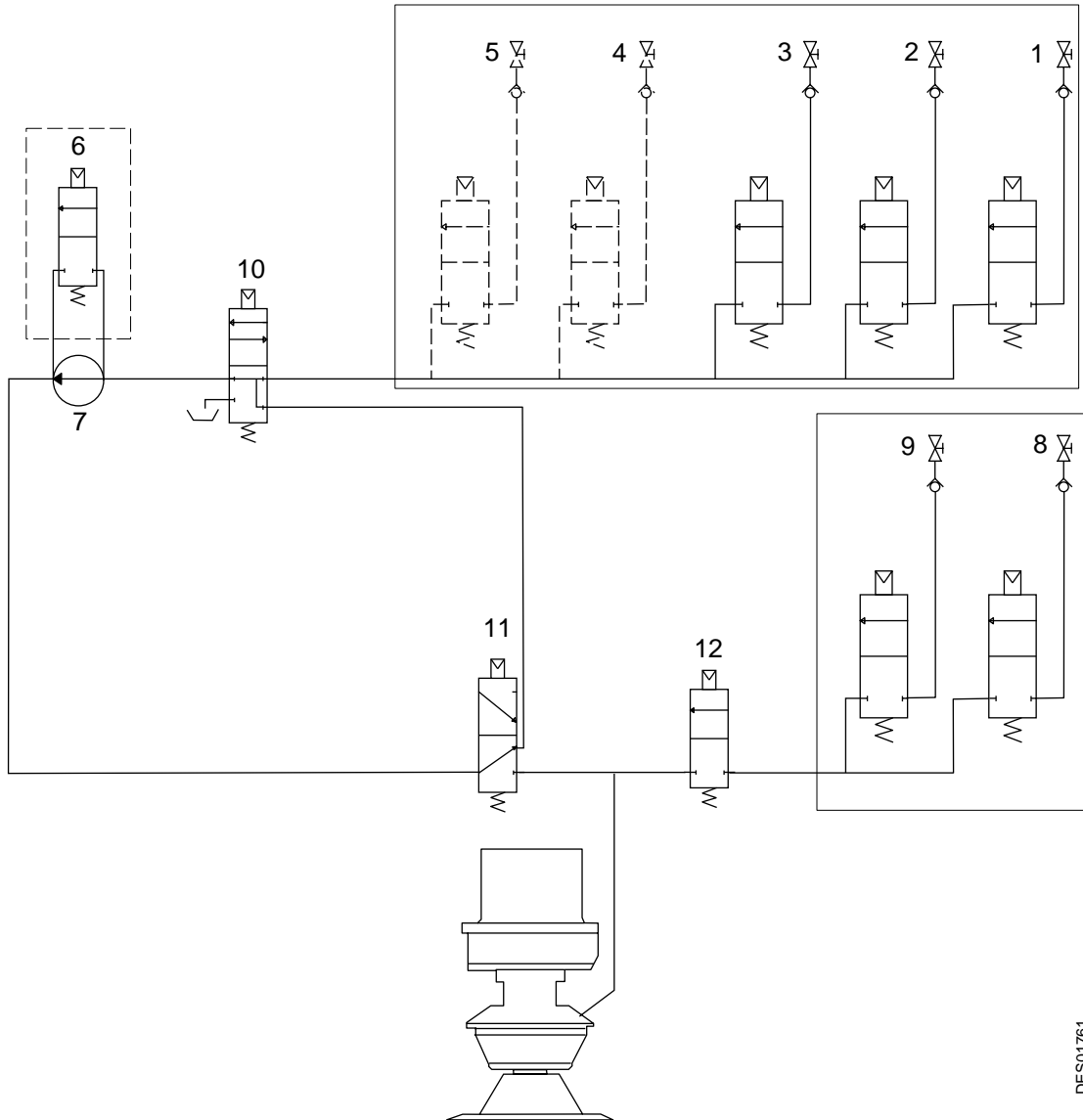
1	Rinsing air	8	Air
2	Rinsing solvent	9	Solvent
3	Paint 1	10	Rinsing valve
4	Paint 2 (option)	11	Atomizing valve
5	Paint 3 (option)	12	Dump valve
6	Regulator		

To stop atomizing, close the regulator then close the atomizing valve.

5.2.3. With pump and paint re-circulation



WARNING : The equipment described in this chapter is delivered to order.



DES01761

1	Rinsing solvent	7	Pump
2	Rinsing air	8	Air
3	Paint 1	9	Solvent
4	Paint 2 (option)	10	Recirculation / dump
5	Paint 3 (option)	11	Atomizing valve
6	Shunt valve for pump	12	Rinsing valve

6. Specific tools

Part number	Description	Qty	Sale unit
W6CVTC030	Hollow tubular socket wrench 1.5	1	1
W6CVTC006	Hollow tubular socket wrench 2	1	1
W6TRND029	Screwdriver Dia: 3mm	1	1
H1GMIN017	Dielectric grease (vaseline)	1	1

7. Installation

7.1. Unpacking

Great care must be taken when unpacking the equipment. Any impact to the turbine shaft or to the atomizing disc results in permanent damage to the PPH 405 atomizer.

7.2. Operating mode

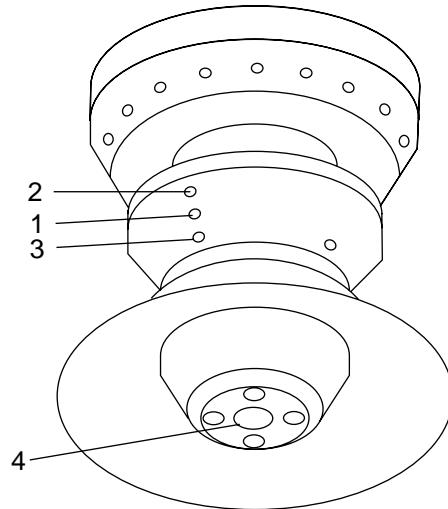
PPH 405 atomizer must always operate upright with its atomizing disc turned either downwards or upwards.

PPH 405 is delivered with two hexagonal socket screws fitted on the paint injection flange. Before starting up the installation for the first time, remove:

- Screw (1) nearest to the atomizer disc for operation with the disc facing downwards.
- Screw (2) farthest from the atomizer disc for operation with the disc facing upwards.

7.3. Start-up

Check that the atomizer disc is clean and correctly installed on the turbine. Tighten the nut (4) with a torque of $8 \text{ N.m} \pm 0,5$ locking the axis (3) with the screwdriver nr 3. Nobody is in its immediate vicinity.



To start up, proceed as follows:

- Supplies the pneumatic seal,
- Start up turbine rotation,
- Switch on the shaping air supply,
- Switch on the high voltage supply
- Supplies with paint

For short stops (less than 10 minutes) and for paints with relatively long curing-oven times:

- Stop atomizing,
- Switch off high voltage,
- Switch off the shaping air supply,
- Stop the turbine rotation.

After a short stop, start-up is achieved by repeating the operations in reverse order, as follows:

- Drive the turbine,
- Switch on the shaping air supply,
- Switch on the high voltage supply,
- Supplies with paint.

For long stops (end of shift, for example) or for fast-drying products:

- Stop atomizing,
- Switch off high voltage,
- Rinsing the atomizing disc using the rinsing circuit or the product-supply circuit,
- Stop turbine rotation,
- Switch off the shaping air supply,
- Clean the atomizer thoroughly with a fine brush and solvent,
- Switch off the air-supply to the pneumatic seal.

8. Settings

Since the atomizer is operating, the rotation speed of the turbine is adjusted by modifying the air-supply pressure (the rotation speed increases with the pressure) to obtain the required result.

Note that:

- Fineness of atomization increases with the speed of rotation,
- If the paint has a tendency to arrive dry on the object, the rotation speed must be reduced.

According to the parts to be painted, high voltage values are included between 80 and 100 kV.

The pressure of the gas space must only exceptionally be higher than 1.5 bar to avoid unnecessary loss of product.

An air pressure of 1bar is used for the tightness seal.

8.1. Choice of the diameter of the disc

Disc	Product	Remarks
Dia. 250 mm with holes	All types	- Standard disc - It allows to have a good effect of penetration on parts with a variable geometry.
Dia. 150 mm with holes	All types	- Standard disc
Dia. 150 mm with slots	All types	- For high viscosities

8.2. Paint flow rate - Injection screw

A set of injection screws of different diameters is available. An injection screw dia: 1,5 mm is delivered with the atomizer. According to the paint flow rate required and the viscosity of the product, fitting one of these injection screws to the paint inlet in the bell cup enables adjustment of the pressure drop in the circuit and the operating range of the paint regulator (if possible, work in mid-range) or of the volumetrical pump.

9. Maintenance



WARNING : Before any operations on the atomizer, please refer to the health and safety instructions [see § 1.4 page 6](#). All the fluid and pneumatic supplies must be depressurized and isolated from all new pressurization.



WARNING : Beware not to release the atomizer during its assembly/disassembling. Take the suitable measures (anti-cut gloves, help of another operator...).

9.1. Cleaning

At each end of every shift :

- The atomizer disk, using a rinsing product and fine brush,
- The cover (if necessary), using a cloth soaked in a rinsing product and then wrung out slightly,
- The shaping air shroud using a rinsing product and fine brush.

At the start of the shift, it is recommended to place a throwaway transparent polythene cover (flexible), 2 or 3 tenths of millimeter thick, around the support, to be thrown away at the end of the shift.



WARNING : As far as possible, avoid disassembling the disc/turbine assembly.

9.2. Disassembly of the atomizer disc/turbine



WARNING : Before any operation on the PPH 405 atomizer, check that the turbine has completely stopped. Never stop the disc manually or with any object.

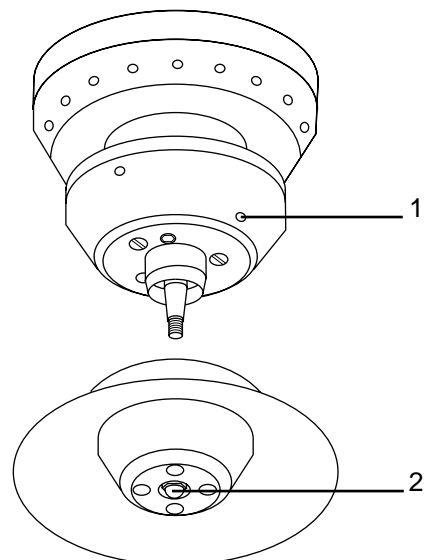
Ensure that nobody can drive the turbine during the intervention.

- 1 After the turbine has stopped completely, the operator blocks the disc by inserting the 3mm-diameter, delivered with the atomizer, into the hole of the paint injection flange (1) in such a way as to introduce it into the hole drilled through the drive shaft of the disc.
- 2 Then, using a 10 mm-tubular wrench, unscrew the nut holding the disk (2) in place.
- 3 Uncouple the disc.

When re-coupling the disk and turbine, proceed in reverse order, making sure that the two tapered shafts (shaft and disk) are perfectly clean and by applying a tightening torque of $8 \text{ N.m} \pm 0,5$.



WARNING : BEWARE of the presence of paint on these tapered shafts ([see § 5.1 page 17](#)).



DES01757

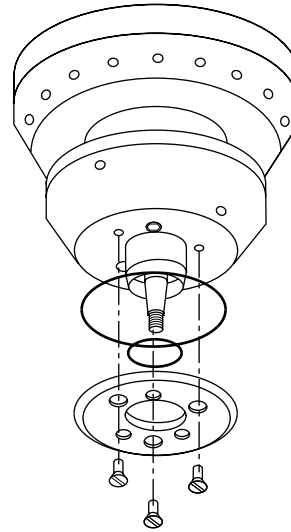
9.3. Removal of the shaping air shroud

- 1 Uncouple the disc.
- 2 Unscrew the three screws.
- 3 Remove the shaping air shroud and the seals.



WARNING : Don't unscrew hexagonal socket screws

When reassembling, do not forget the seals. Replace them if necessary. For reassembling of the disc [see § 9.2 page 24](#).



DEF01758

9.4. Disassembly of the paint injection flange

- 1 Uncouple the disc.
- 2 Unscrew the screws fixing the protective cover.
- 3 Remove the cover.
- 4 Remove the shaping air shroud and the seals.
- 5 Disconnect all the hoses from the paint injection flange.
- 6 Unscrew the three hexagonal socket screws.
- 7 Remove the flange

When reassembling, do not forget the seals. Replace them if necessary. For reassembling of the disc [see § 9.2 page 24](#).

9.5. Turbine uncoupling

The following procedure takes into account the removal of the paint injection flange and the shaping air shroud:

- 1 Uncouple the disc.
- 2 Unscrew the screws fixing the protective cover.
- 3 Remove the cover.
- 4 Remove the shaping air shroud and the seals.
- 5 Disconnect all the hoses from the paint injection flange.
- 6 Remove the paint injection flange.
- 7 Unscrew the six screws fixing the flange to the support.
- 8 Separate the turbine from the support to reach the fittings of the turbine brake circuit.

Envisage a sufficient length of hoses to release the turbine.

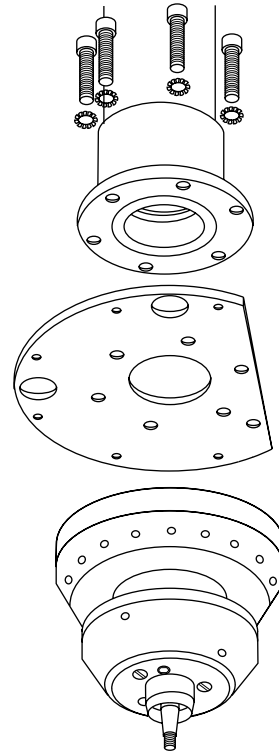
- 9 Disconnect the fittings of the turbine drive and brake circuits.

Turbine can be removed without disassembling the paint injection flange and the shaping air shroud.

When reassembling, do not forget the seals. Replace them if necessary. For reassembling of the disc [see § 9.2 page 24](#).



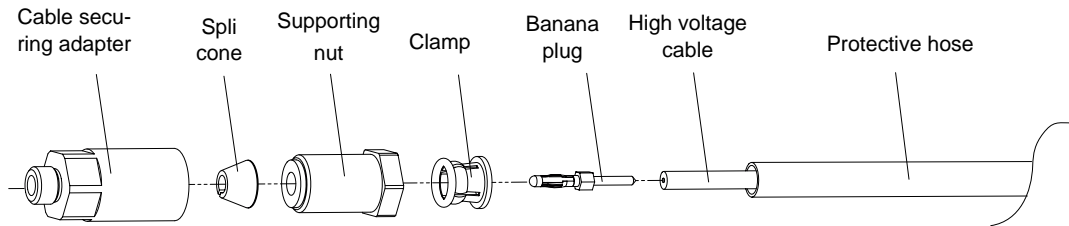
WARNING : It is forbidden to disassemble any component other than those mentioned above. The disassembly of any other component results in the withdrawal from service of the turbine, its return to the factory and possible loss of the guarantee.



DES01759

9.6. High voltage connection

9.6.1. Preparing the high voltage connection



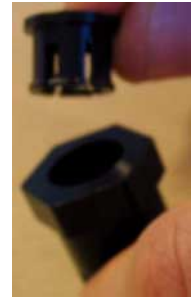
WARNING : Ensure that insulation is not damaged. Any scratch or start of a cut on the surface of the insulating material will result in breakdown of the high voltage cable.

- **Step 1:** Strip back approximately 32.5 of the purple insulation from high voltage cable with a wire stripper. A "Stanley knife" type cutting tool must not be used. Next strip back approximately 20 cm of the semi-conductive sheath (black sleeve) and cut it with cutting pliers.



Step 1

- **Step 2:** Insert seal and clamp into the nut.
- **Step 3:** Pass the high voltage cable through the clamp fitted on the supporting nut then the cone and the adapter to secure the cable.



Step 2

- **Step 4:** Place the polyamide hose, then screw the banana plug in the core of the cable.



Step 3

- **Step 5: Lubrication**
 - Coat a layer of dielectric grease on the banana plug.



Step 5

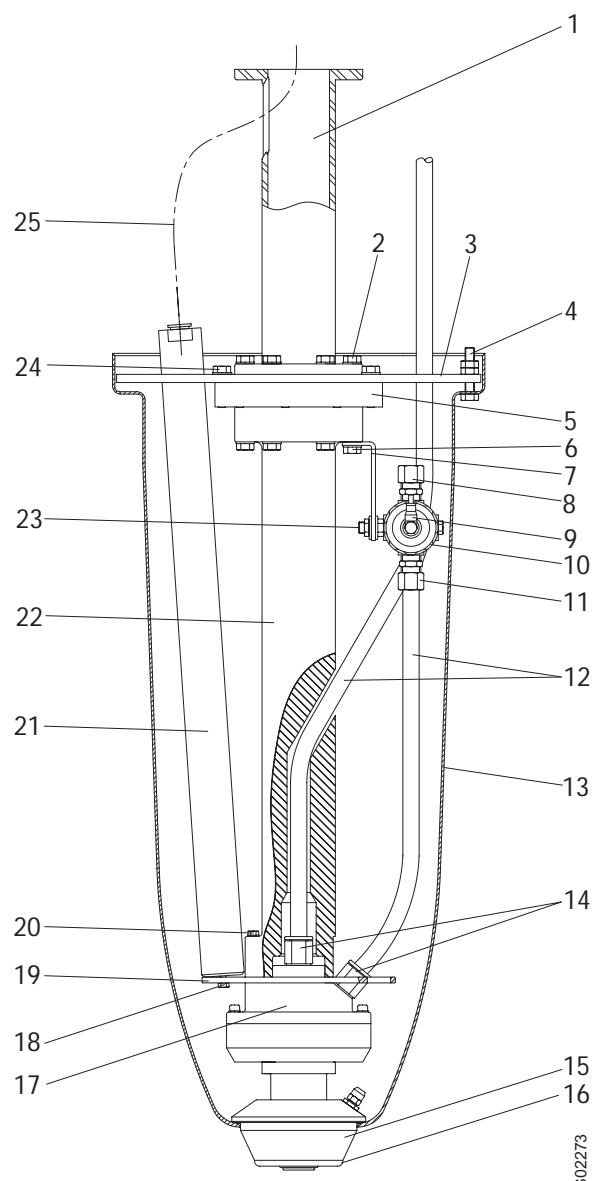
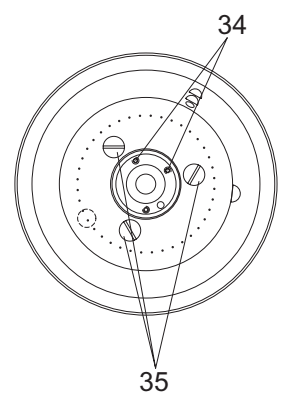
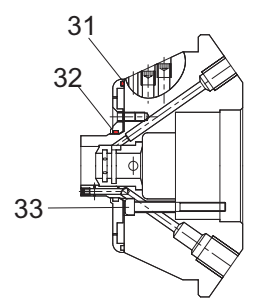
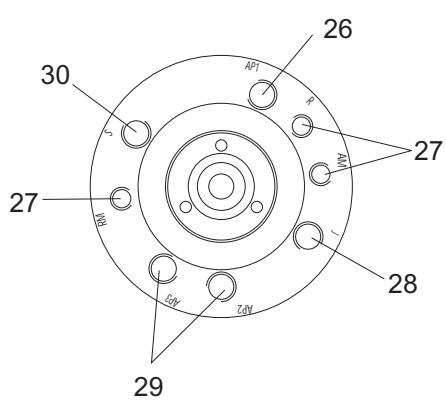
- **Step 6:** Place the assembly in the high voltage rod, screw the adapter to secure the cable, pull slightly the high voltage cable and tighten the support nut.
- **Step 7:** Clip the Dia:10 /12 rilsan hose.

10. Problems and troubleshootings

Symptoms	Probable causes	Remedies
Excessive vibration of the disc with a high level of noise.	Mechanical damage (e.g.: impacts) to the atomizing disc.	Replace the damaged disc immediately if not rapid deterioration of the turbine.
	Accidental disassembly of one of the components of the atomizing disc.	Replace the disc immediately if not rapid deterioration of the turbine.
	Faulty ball bearings.	Carry out a standard replacement of the turbine
	Accidental disassembly of components that should only be disassembled by the supplier.	
	Excessive soiling (inside or outside) of the atomizing disc	Remove the disc from the turbine, soak it in solvent and clean it carefully with a fine brush and an air blower.
The disc does not rotate.	Solid impurities between the turbine shaft and the part forming the pneumatic tightness seal	Remove the flange. Clean with an air blower.
Blow out of a atomizing product supply hose	Passage of the product blocked in the paint injection flange.	Remove the paint injection flange, soak it in solvent and unblock the holes using a length of piano-wire.
Electrical piercing of a atomizing product supply hose.	Atomizing product with a resistivity of less than 1 MΩ.cm and DISC equipped with a dia. 4 x 6 rilsan hose.	Replace the rilsan product hose with a dia. 4 x 16 polyethylene hose.
Paint arrives dry on the parts.	Distance atomizer / part too high.	Decrease, if possible, the distance atomizer / part.
	Solvent too weak. Paint is not suitable for atomizing by a high speed atomizer.	Contact the product manufacturer.
	Rotation speed of the disk too high.	Reduce the pressure of the turbine air supply
No wraparound effect and low transfer efficiency	Generator short-circuited by a atomizing product with a resistivity lower than 1 MΩ.cm used with product tank and pumps grounded.	Ask the product manufacturer to increase the resistivity of his product Ask SAMES to install an insulated pump and tank.
	Atomizing product with a resistivity greater than 500 MΩ.cm.	Ask the product manufacturer to reduce the resistivity of his product.
	Generator failure.	Return the generator to SAMES.
Insufficient paint flow rate	Paint viscosity too high.	Lower the viscosity with a suitable solvent.
	Diameter of the paint supply hose too small or hose too long.	Install a dia.: 8 x 20 hose and shorten the paint hose if possible.

11. Spare parts

11.1. Atomizer

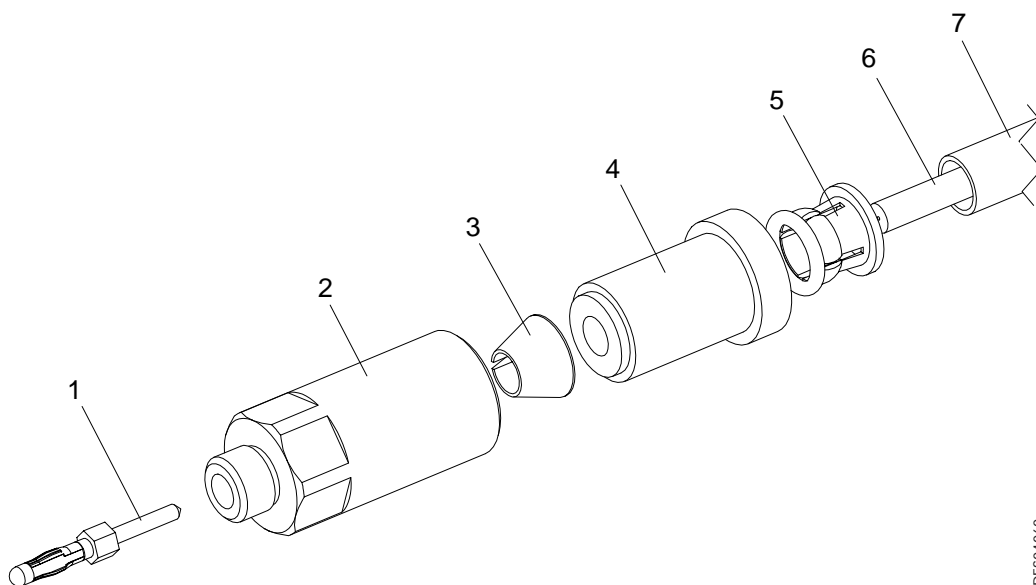


DES02273

Item	Part Number	Description	Qty	Sale unit	First Priority	Wear
	910005185	PPH 405 for solventborne paints	1	1	-	-
1	434435	Securing flange	1	1	-	-
2	X2BVHA295	H M8x80 zinc coated screw	6	1	-	-
	X2BDVX008	M8 fan washer	6	1	-	-
3	434441	Cover plate	1	1	-	-
4	X9NVHA289	H M 8 x 50 nylon screw	3	1	-	-
	X9NEHU008	Nut H M 8 U nylon	6	1	-	-
5	900003394	Fastening plate	1	1	-	-
6	X2BEHU008	H M 8 zinc coated nut	6	1	-	-
	X2BDVX008	AZ 8 steel fan washer	6	1	-	-
7	1410330	Fixing bracket	1	1	-	-
8	F6RLUQ366	Union mâle droite	1	1	-	-
9	F6RLCS265	Equerre de piquage mâle	1	1	-	-
10	R4DREG040	Regulator	1	1	-	-
11	F6RLUS201	Male union	1	1	-	-
12	U1CBBT006	Tuyau rilsan bleu D:11 / 14	1,5	m	-	-
13	900003906	Insulating support	1	1	-	-
14	F6RLUS204	Male union	2	1	-	-
15	419278	Injection flange	1	1		X
16	423915	PPH 405 shaping air shroud	1	1		X
17	1502280	PPH 405 Turbine	1	1	X	
18	X2BVHA223	H M 6 x 16 zinc coated screw	1	1	-	-
	X2BDVX006	M 6 fan washer	1	1	-	-
19	1300700	Accessories support	1	1	-	-
20	X2BVHA232	H M 4x 50 zinc coated screw	5	1	-	-
	X2BDVX006	M6 fan washer	5	1	-	-
21	910004675	High voltage rod	1	1	X	
22	1200583	Insulating support	1	1	-	-
23	R4DREX041	Adapter	1	1	-	-
24	X9NVHA285	H M 8 x 30 nylon Screw	3	1	-	-
	X9NDMM008	M 8 nylon washer	3	1	-	-
25	910004657	High voltage cable (Length: 4.25 m) (see § 11.2.1 page 31)	1	1	X	
26	F6RXUQ396	Straight fitting	1	1	-	-
27	F6RLUF223	Straight fitting	3	1	-	-
28	F6RLUF704	Straight fitting	1	1	-	-
29	F6RLBH004	Plug (option straight fitting)	2	1	-	-
30	F6RXUQ416	Stainless steel male union	1	1	-	-
31	J2FTCF440	O-ring	1	1	X	
32	J2FTCF054	O-ring	1	1	X	
33	X3AVSY127	CHC M 4 x 40 steel screw	3	1	-	-
34	448713	Injection screw on AP1 - Dia: 1.5	1	1		X
	448715	Injection screw on S solvent - Dia: 8	1	1		X
35	X2BVFP118	F/90 M 4 / 10 steel screw	3	1	-	-

11.2. High voltage connection

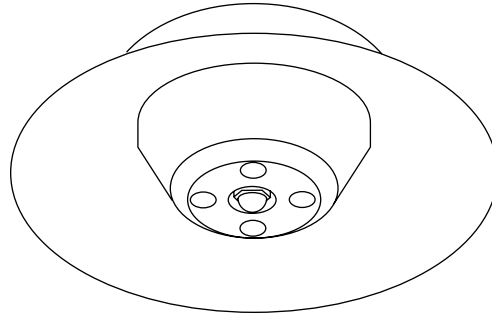
11.2.1. High voltage cable



DES04060

Item	Part Number	Description	Qty	Sale unit	First Priority	Wear
	910004657	High voltage cable	1	1	X	
1	E4CSHT181	Banana plug for HV cable	1	1	-	-
2	900002154	Cable securing adapter	1	1	-	-
3	1411689	Split cone	1	1	-	-
4	1315058	Clamp nut	1	1	-	-
5	F6RXZG085	Stainless steel clamp and seal	1	1	-	-
6	E2DAVD101	High voltage cable 100kV	4,25	m	-	-
7	U1CBBR057	Protective hose, HV cable - Dia.: 10/12 clear polyamide	3,7	m	-	-

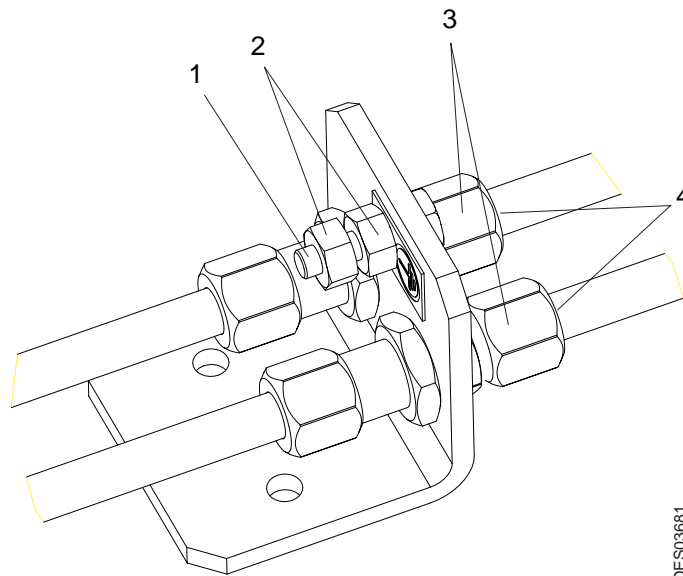
11.3. Discs



DES04057

Item	Part Number	Description	Qty	Sale unit	First Priority	Wear
	453475	Disc with holes dia.: 250 mm	1	1	X	
	453652	Disc with holes dia.: 150 mm	1	1	X	
	456174	Disc with slots dia.: 150 mm	1	1	X	

11.4. Grounding kit



DES03681

Item	Part Number	Description	Qty	Sale unit	First Priority	Wear
	910003399	Grounding kit	1	1	-	-
1	X7CVHA226	Screw H M6 x 20 brass	1	1	-	-
2	X7CEHU006	Nut H M 6 brass	2	1	-	-
3	F6RXGQ056	Bulkhead union	2	1	-	-
4	F6RXZX061	Stainless steel sheath	4	1	-	-