



User manual

PPH 308 atomizer, single circuit without regulator with coil for solvented paints

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

PPH 308 atomizer, single circuit without regulator with coil for solvented paints

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1. Health and Safety Instructions

This manual contains links to the following user manuals:

- [see RT Nr 6285](#) for the magnetic bellcups
- [see RT Nr 6350](#) for the magnetic air bearing turbine type "BTM".
- [see RT Nr 6021](#) for the microvalve or [see RT Nr 6422](#) for the microvalve with bellow.
- [see RT Nr 6190](#) for the microphone,
- [see RT Nr 6218](#) for the high voltage unit UHT 155 EEx em.
- [see RT Nr 6213](#) for the control module GNM 200,
- [see RT Nr 6364](#) for the user manual of the electric systems,

1.1. Configuration of the certified equipment

The whole of these user manuals defines the configuration of the certified equipment.

1.2. Marking on the atomizer

SAMES KREMLIN Meylan France

CE 0080

PPH 308

P/N : *

ISSeP05ATEX032X**



II 2 G

EEx > 350mJ

(Serial number)

* ATEX PPH 308 Configurations

Atomizer - P/N 910001669 Microvalves - P/N 1507375 Turbine - P/N 910000295 UHT 155 EEx em - P/N 1520282	P/N PPH 308 (*)	GNM 200A P/N 1517071
X	910001669	X

** The sign "X" signifies that respecting the safety distance (between the parts of the atomizer that are under high voltage and the grounded parts) mentioned in this user's manual, ensures a safe use of the equipment.

1.3. Precautions for Use

This document contains information that all operators should be aware of and understand before using the PPH 308. This information highlights situations that could result in serious damage and indicates the precautions that should be taken to avoid them.



WARNING : Before any use of the PPH 308 equipment, check that all operators:

- have previously be trained by the compagny SAMES KREMLIN, or by its 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 spraying area.

1.4. Warnings



WARNING : Safety may be jeopardized if this equipment is not operated, disassembled and reassembled in compliance with the instructions given in this manual and in any European Standard or national safety regulations in force.



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



WARNING :

This equipment has to be used only within areas designed for spraying with respect to EN 50176, EN 50177, EN 50223, or with similar ventilation conditions. The equipment has to be used only within ventilated in order to reduce risks for the health of the operators, fire or explosion. The efficiency of the extraction ventilation system has to be daily checked.

Within explosive atmospheres produced by the spraying process, only appropriate explosion-proof electrical equipment has to be used.

Before carrying out any cleaning or general work on atomizers in the spraying area, the high voltage generator must be switched off and the atomizer HV circuit discharged to the ground.

The pressurised coating product or the pressurised air must not be directed towards people or animals.

Appropriate measures have to be taken to avoid, during periods when the equipment is not used and/or when the equipment is broken, the presence of potential energy (liquid or air pressure or electric) inside the equipment.

Using individual protection equipment will limit the risks of contact and/or inhalation of toxic product, gas, vapours, fog or dusts that can be produced while using the equipment. The user has to follow the coating product manufacturer's recommendations.

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

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

Only metal containers can be used for cleaning liquids and they must have a reliable ground connection

Inside the booth it is forbidden to use a naked flame, glowing object or a device likely to produce sparks.

It is also forbidden to store inflammable products, or vessels that have contained them, close to the booth.

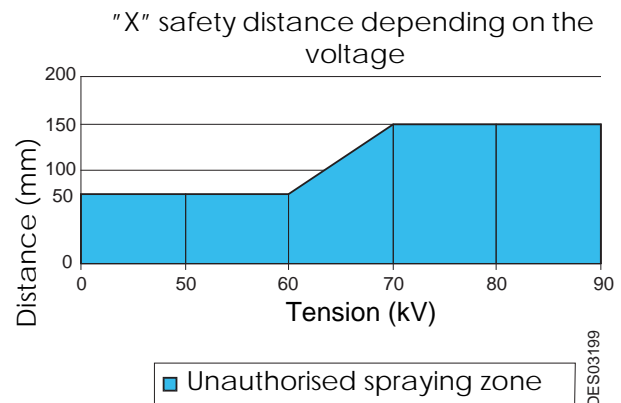
The surrounding area must be kept clear and clean.



WARNING : The use of very high voltage increases the risk of sparks. SAMES KREMLIN atomizers and high-voltage electrostatic generators are designed to minimize this risk. Although the HV electrode is the only accessible part, a safety distance of X mm (refer to: Board) has to be maintained between the parts of the sprayer that are under high voltage and all the parts that are grounded.

Authorised spraying distance

Tension (kV)	Distance (mm)
0	75
50	
60	
70	150
80	
90	



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.

All metal parts of the booth and parts to be painted must be correctly grounded. Ground resistance must be less than or equal to 1 M Ω (minimum measurement voltage 500 V). This must be checked regularly.

Grounding is mandatory for all the conductive envelops of the electrical equipments and for all the conductive components within explosive atmospheres by conductive connection with the ground 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 effectiveness of the overcurrent protection (di/dt) must be checked every day. This check must be carried out in an area with **no explosive atmosphere** by placing a ground device near the electrode of the atomizer when the atomizer is switched on (the operator must be connected to ground): the control module must switch to the fault state.

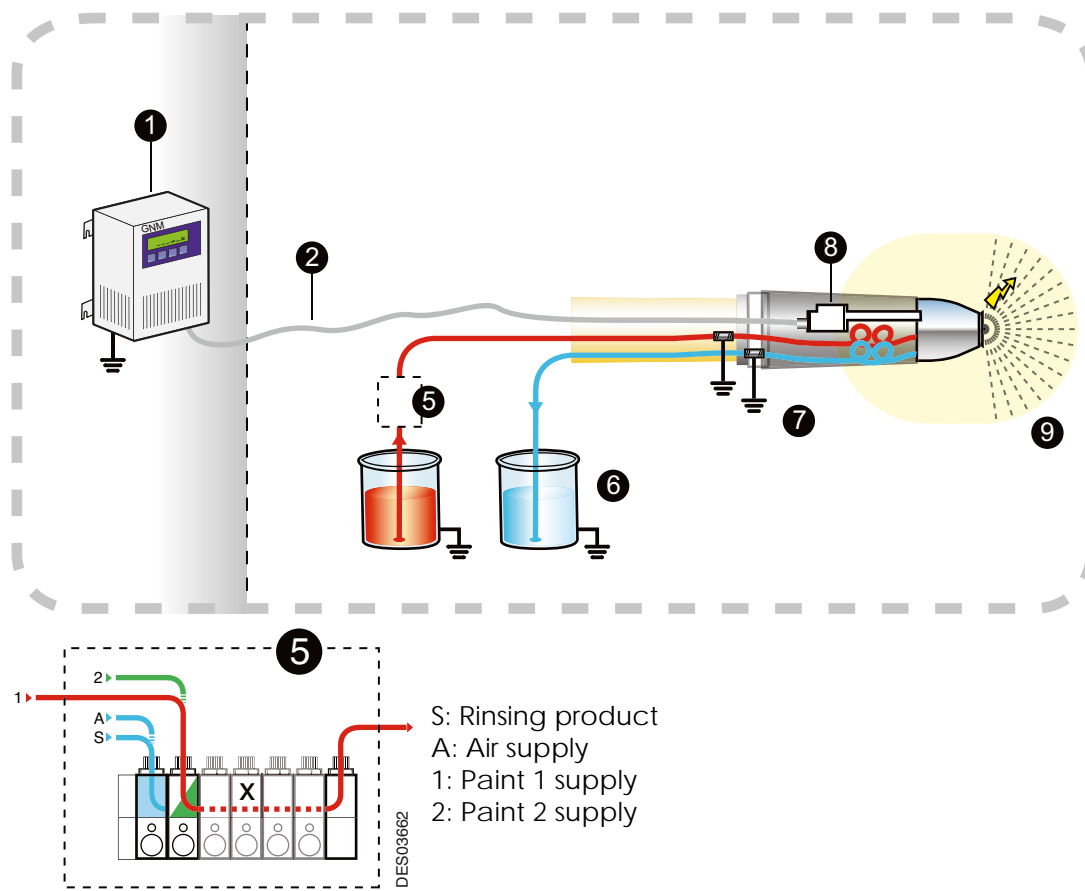
Additional equipment has to be placed outside the dangerous area and its starting device has to be servo-controlled to the running mode of the booth aspiration fan. The correct working of the servo-control has to be checked once a week.

A warning board has to be placed in full view close to the spraying area.

An excessive turbine speed can engender major damages on the turbine as well as a loss of connection bell/turbine; this represents a risk for persons and equipment. The maximum speed indicated in this user manual must not be exceeded.

1.4.1. Installation rules

PPH 308 using solvented paints with a resistivity $\rho \geq 6\text{M}\Omega\cdot\text{cm}$:



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

Paint resistivity $\rho \geq 6\text{ M}\Omega\cdot\text{cm}$	
1	GNM 200- control module (out of the ATEX area)
2	Low voltage connection
3	-
4	-
5	Supplies of paint and rinsing products peinture connected to the ground potential.
6	Dump return line connected to the ground potential
7	Fittings paint/ rinsing and dump return connected to the ground potential into the atomizer
8	High voltage unit UHT 155 EEx em
9	Safety distance (area around the atomizer head from the parts with high voltage, outer cover, bellcup, etc...)



WARNING : The installation of any system that does not comply with the rules specified above and below is strictly prohibited.

1.5. Important Recommendations

1.5.1. Paint Resistivity

Atomizer PPH 308 is used to spray liquid solventborn paints with a resistivity $> 6 \text{ M}\Omega\cdot\text{cm}$.



WARNING : It is essential to ground the bulkhead union of the paint circuit inside the PPH 308 body.



WARNING : Product supply must be imperatively connected to the ground.



WARNING : The dump line must be imperatively connected to the ground with a sufficient distance of the atomizer in order to keep the potential (to limit the leakage current).

1.5.2. 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 as possible to the facility. The filter cartridges must be changed regularly to ensure that the air is clean.

PTFE tape or glue should not be used between the filter and the bearing as glue residue or pieces of PTFE may block the small holes of the air bearing and cause turbine failure.

The inside of hoses supplying air to the atomizer and the ports of the quick-disconnect plate must be clean and free of any traces of paint, solvent or other foreign matter.

The guarantee does not cover faults caused by unclean, unfiltered bearing air resulting from disregard of the previous recommendations.



WARNING : If the air is not correctly filtered, the bearing may become fouled resulting in a turbine operating fault. The filtering system used must prevent particles greater than $5 \mu\text{m}$ in diameter from reaching the bearing.



WARNING : The guarantee does not cover damage caused by foreign matter such as paint, solvent or other substances entering the air circuits of the PPH 308.

1.5.3. 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.

1.5.4. Bearing Safety

The compressed air connection to the air bearing must be made directly to the supply circuit without the use of an isolating valve.

During operation, the air bearing must be continuously under pressure, otherwise considerable damage may be caused. A sudden cut in the air supply could destroy the air bearing of the turbine. Wait until the turbine has stopped completely before cutting off the bearing air.

Procedure for cutting off air to the air bearing:

- Switch off the turbine rotation air supply
- Wait until the turbine has stopped completely (at least 150 s).
- Switch off the bearing air supply.

Running the turbine with bearing air pressure of less than 6 bar at the atomizer inlet can damage the bearing. The standard bearing air pressure is 6 bar at the air control cabinet.

All these pressure values are measured at the atomizer inlet. If the bearing pressure drops below 6 bar at the turbine or atomizer inlet, cut off the air supply to the turbine.

In addition, a 25-liter air reserve should be available so that the turbine brakes gradually if the main air supply is cut off suddenly.



WARNING : The guarantee does not cover faults that occur if the turbine is operated with insufficient bearing air pressure.

1.5.5. Locking

Do not atomize the product if the bellcup is not turning at a speed of at least 15000 rpm. At lower speeds, paint or solvent may enter the turbine, bearing and control circuits. Opening the head valve, injector rinsing valve and bellcup exterior rinsing valve must be prohibited when the bellcup is not turning. Only qualified personnel are authorized to by-pass this locking system for flow rate checks



WARNING : If the turbine is not already operating, wait, after starting it up, until the bellcup reaches at least 15000 rpm before opening the head valve. The recommended minimum waiting time is 2 seconds.

1.5.6. Shaping Air

Do not atomize the product until the shaping air rate is at least 80 NI/mn (i.e. 0.3 bar at the atomizer inlet). If it is less, there may be a feedback of atomized product which fouls the outer cover and the inside surface of the air shroud resulting in application faults.

1.5.7. High Voltage

Disable the high voltage if the PPH 308 is not operated for a prolonged period (conveyor shut-down, no objects to be painted, slack periods, etc.) to prevent ionization of the air.



WARNING : The high voltage supply must be turned OFF before rinsing cycles, bell cup and injector are engaged.

1.5.8. Maximum Speed

Excessive turbine speed can result in serious damage to the turbine and loss of connection between the bell cup and turbine, presenting a risk to persons and equipment. The speed must not exceed 45,000 rpm.



WARNING : The guarantee does not cover damage resulting from a rotation speed greater than 45 000 tr/min.

1.5.9. Vibrations

If the atomizer vibrates more than usual, the cause is generally unbalanced rotating parts. There may be dry paint deposits on the bell cup or rotor. If any of these situations arise, it is essential to correct them. Excessive unbalance may damage the turbine resulting in failure to operate or even loss of the bell cup / turbine connection, presenting a risk for persons and equipment.



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

1.5.10. Bell Cup / Turbine Fitting

The bell cup must be correctly fitted on the turbine, a snap must be heard; the two cylinders must fit on top of each other without any foreign matter between them. If fitting is incorrect, the connection may be lost and the bell cup thrown out still spinning, presenting a risk for persons and equipment.

1.5.11. 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 PPH 308 is only guaranteed to operate correctly if it is used with seals whose size and material conform to this manual.

1.5.12. Ventilation

Do not begin applying paint with the PPH 308 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.

1.5.13. 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.

1.5.14. Safety devices

During installation of the PPH 308, it is important to set up safety devices enabling high voltage power, paint, solvent and air supplies to be cut immediately if there is a problem.

- Detection of control system faults
- Detection of high voltage surges linked with the SAMES KREMLIN high voltage module.
- 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.

1.5.15. Mechanical Collision

The guarantee does not cover damage resulting from the operating environment (for example collision with the robot).

1.5.16. Ambient Temperature

The sprayer is designed to work normally under room temperature between 0°C and + 40°C. In order to optimise application quality, it is advised to work under room temperature between + 15°C and + 28°C.

The storage temperature will never exceed +60°C.

1.5.17. Sound level

The acoustic pressure level, continuous, equivalent, weighted, equals to 59,7 dBA.

Conditions of measurement:

The equipment has been run at its maximum values, the measures have been made from the operator desk of the paint test booth "API" (closed booth with glass walls) of the Research & Innovation laboratory at SAMES KREMLIN Meylan France.

Method of measurement:

The acoustic pressure level, continuous, equivalent, weighted (59,7 dBA) is given in LEQ value, measured for observation periods of at least 30 seconds.

1.5.18. Specific maintenance provisions

The access of the booth, near the atomizer in operation, will have to be proscribed and controlled by safety devices ([see § 1.5.14 page 13](#)) which will have to stop the equipment in case of intrusion of people in the area.

Nevertheless, for maintenance operation, these safety devices will have to be arranged in order to allow certain operations and checks (only for persons trained by SAMES KREMLIN).

The turbine rotation with a bellcup, in all the cases, will be prohibited with personnel in the area

1.6. Guarantee

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

The guarantee claim must define, in writing, the exact nature of the fault concerned. The SAMES KREMLIN 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 KREMLIN or that has not been modified by the customer.

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

- the customer's negligence or inattentiveness,
- incorrect use,
- failure to follow the procedure
- use of a control system not designed by SAMES KREMLIN or a SAMES KREMLIN control system modified by a third party without written permission from an authorized SAMES KREMLIN 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 KREMLIN recommendations,
- starting up turbine rotation without minimum bearing air pressure (6 bar),
- exceeding the maximum speed of 45000 rpm under load,
- starting up rotating parts that are unbalanced (dry paint on bellcup, rotor or damaged bellcups),
- pollution of air circuits by fluids or substances other than air.

SAMES KREMLIN atomizer **PPH 308** 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 10000 hours on the air turbine of the **PPH 308**. The guarantee does not apply to wearing parts such as atomizing bellcups, diaphragms, clips, seals, etc.

The guarantee will take effect from the date of the first startup or of the provisional acceptance report.

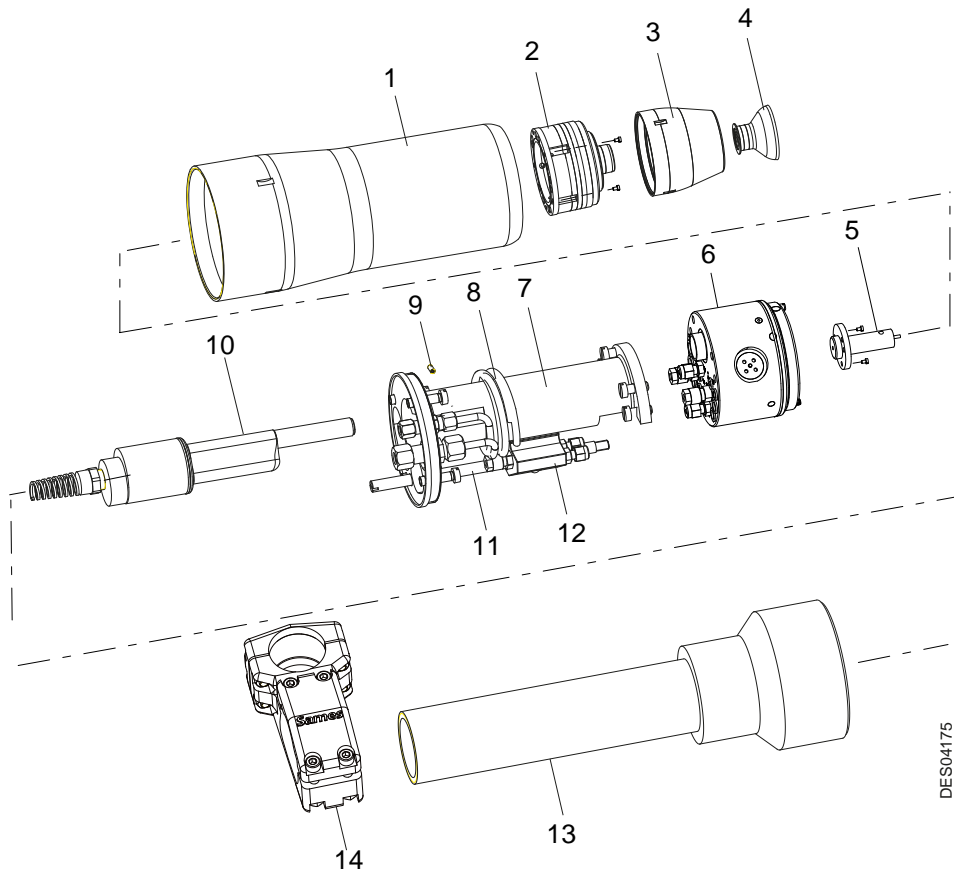
Under no circumstances, either in the context of this guarantee or in other contexts, will SAMES KREMLIN be held responsible for physical injury or intangible damage, damage to brand image and loss of production resulting directly from its products.

2. Description

Atomizer PPH 308 is used in automatic mode for electrostatic atomization of solvent-based liquid paints.

The PPH 308 is a complete atomizer with built-in painting and rinsing assemblies for single or dual circuits. It is fitted with a magnetic air bearing turbine, operating under an air cushion, capable of reaching a rotation speed of 45000 rpm.

Its carefully studied design and tools make maintenance easy and fast.



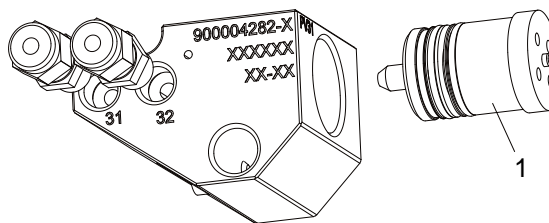
DES04175

1	Protective cover
2	Magnetic air bearing turbine type "BTM" (see RT Nr 6350)
3	Vortex shaping air assembly (see RT Nr 6285)
4	Bellcup (see RT Nr 6285)
5	Injector / Injector holder assembly
6	MANIFOLD block with product and dump 2-way micro-valves
7	Support for the high voltage unit
8	Coil for paint and dump
9	Screw for securing the UHT 155 EEx em in its support
10	High voltage unit UHT 155 EEx em (see RT Nr 6218)
11	Brace for 1 PV block
12	2-way air / solvent micro-valve block (1 PV block)
13	PPH support tube
14	Securing nut

2.1. 2-Way Air / Solvent MicroValve Block (1-Pneumovalve Block)

This block contains 1 air / solvent microvalve:

1	Air / solvent microvalve (PV 31) for bellcup external rinsing
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DES04177

2.2. High Voltage Unit UHT 155 EEx em

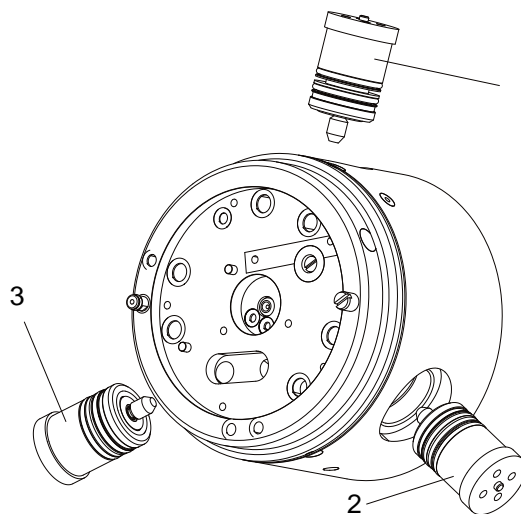
The high voltage power supply for the PPH 308 atomized is delivered by the high voltage unit UHT 155 EEx em ([see RT Nr 6218](#)).

Atomized particles are electrically charged and attracted to the surface to be painted, which is connected to the ground.

2.3. MANIFOLD block

The manifold contains 3 microvalves:

1	Dump microvalve (PV 41)
2	Injector rinsing microvalve (PV 32)
3	Product microvalve (PV 11)



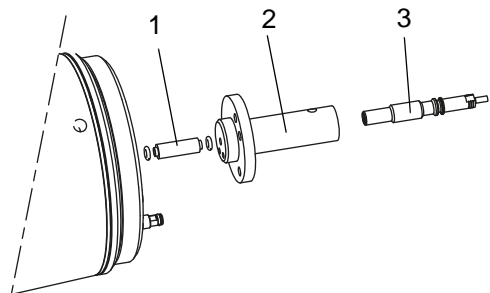
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2.4. Injector, injector holder, restrictor

1	Restrictor (Diameter 1.2 mm)
2	Injector holder
3	Injector (Diameter 1.8 mm)

The restrictor provides a suitable pressure drop for the required flow rate.

The injector holder is permanently secured to the PPH 308. It is fitted with an injector whose restrictor can be changed according to the paint and product range used. It has two openings through which the microphone air passes for the rpm count.



DES01307

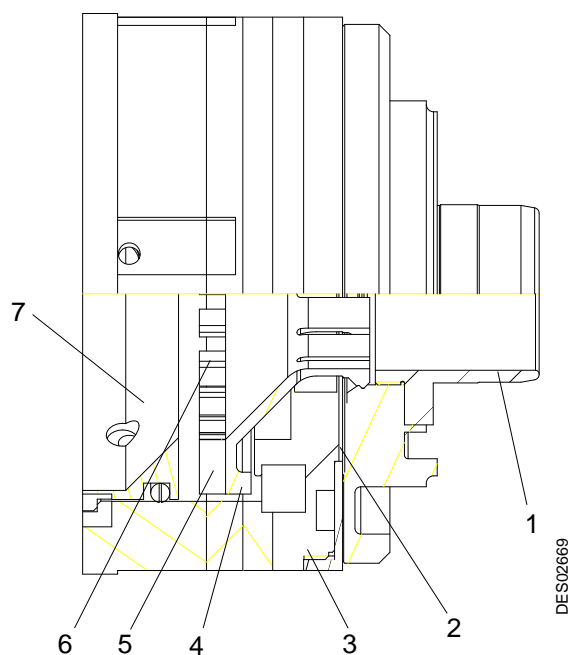
2.5. Magnetic air bearing turbine type "BTM"

see [RT Nr 6350](#)

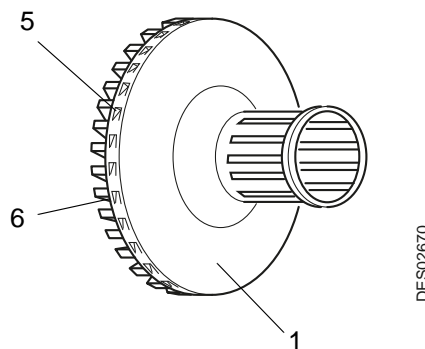
This turbine has no mechanical shaft; it is centered by the polarity difference between the bearing magnets making it totally frictionless.

The bearing air evenly spread over the stator surface produces an air cushion that pushes the rotor away from the stator. The rotor can rotate freely, supported by the balance of pressure and magnetic forces. The air directed onto the turbine blades controls the rotation or braking of the rotor.

The product is atomized by the centrifugal forces created by the rotation of the bell cup. To some extent, the size of the atomized particles decreases as the rotation speed increases.



1	Rotor
2	Stator magnet
3	Turbine body (stator) with supply of: - Bearing air - Turbine rotation and braking air - Shaping air
4	Openings for turbine braking
5	Teeth for turbine rotation
6	Drive vane for braking and rotation
7	Deflector fitted with seal



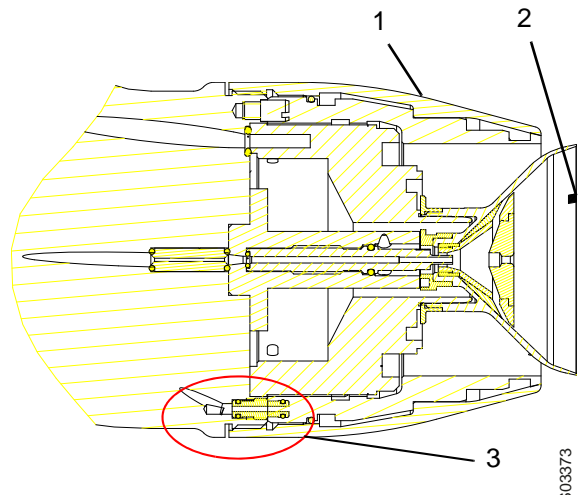
2.7. Outer Cover

The outer cover provides protection. It also makes the atomizer easier to clean.

2.7.1. Rinsing the external bellcup

1	Outer cover
2	Bellcup
3	Solvent pipette

Solvent passes through a pipette and uses one of the openings of the shaping air shroud to rinse the bellcup exterior.



2.8. Bell cups

[see RT Nr 6285.](#)

The bell cup atomises all particle-base paint types. Select the appropriate bell cup according to the type of product used.

3.2. Operating characteristics

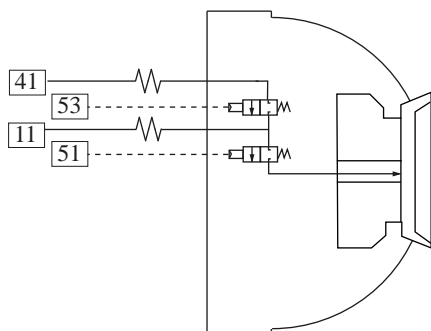
Weight		
	PPH 308 without hoses or cables	2.5 Kg.
Current		
	Maximum operating voltage	90 kV
	Maximum operating current	100 μ A
Speed		
	Recommended rotation speed	10,000 to 45,000 rpm
Paint		
	Paint flow rate	0 to 500 cc/min maxi (depending on paint)
	Normal supply pressure	7 to 8 bar
	Maximum pressure	10 bar max.
	Viscosity	12 to 40 seconds - FORD cup # 4
	Viscosity	12 to 45 seconds - AFNOR cup # 4
	Resistivity	> 6 M Ω .cm *
Air pressure		
	Microvalve pilot	6 to 10 bar max.
	Bearing air	6 to 7 bar max.
	Microphone air	1.9 to 3 bar constant
	Shaping air	6 bar maximum
Compressed Air quality		
	Filtered (bearing air), dry, oil and dust-free according to standard NF ISO 8573-1	
	Maximum dew point at 6 bar (87psi)	Class 4, i.e + 3° C (37° F)
	Maximum oil concentration	Class 4, i.e 2 mg / m ₀ ³ **
	Maximum particle size of solid contaminants	Class 3, i.e 5 mm
	Maximum concentration of solid contaminants	5 mg / m ₀ ³ **
Air consumption		
	Pilot	10 NI/min
	Bearing air	125 NI/min
	Shaping air	0 to 600 NI/min according to the shaping air assembly used
	Turbine	see RT Nr 6350

* Resistivity values measured with Resistivohmeter AP 1000 (SAMES KREMLIN P/N: 910005790). For lower values, contact SAMES KREMLIN.

** m₀³ values given for a temperature of 20 °C at 1013 mbar atmospheric pressure.

4. Diagram of the various fluid circuits

4.1. Paint diagram



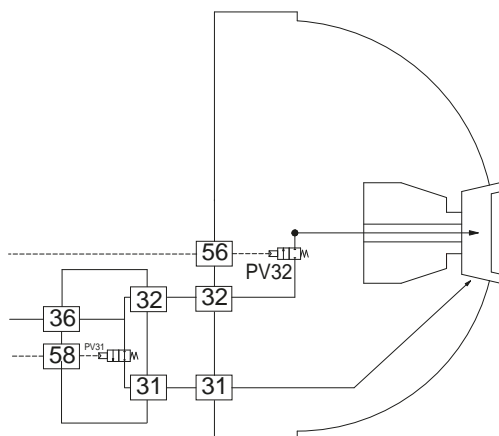
DES01309

11	Paint supply - Ø 4 x 6 PTFE
41	Dump - Ø 4 x 6 PTFE on 1,5 m then Ø 7 x 10
51	Paint supply pilot - Ø 2,7 x 4
53	Dump pilot - Ø 2,7 x 4

N.B. All hoses are made of polyamide, except: 11-41 which are in PTFE, dimensions in mm.

Note: The PTFE hoses should never be replaced by polyamide hoses.

4.2. Bellcup and injector rinsing diagrams



DES04173

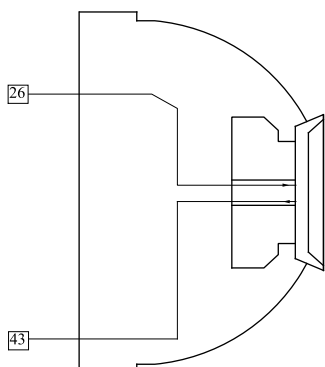
31	Bellcup rinsing solvent / air - Ø 2,7 x 4 PTFE
32	Injector rinsing solvent / air - Ø 2,7 x 4 PTFE
56	Injector rinsing solvent / air pilot - Ø 2,7 x 4
58	Commande solvant/ air rinçage extérieur bol - Ø 2,7 x 4

N.B. All hoses are made of polyamide, except: 31-32 which are in PTFE, dimensions in mm.



WARNING : The rinsing cycle must end with a compressed air sequence, circuits 31,32 and 36 must be purged and dried before restarting the high voltage.

4.3. Microphone air diagram

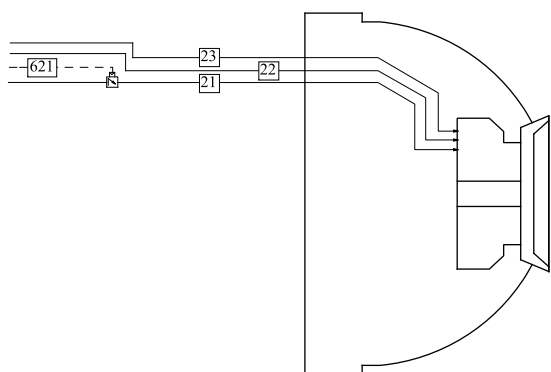


DES00004

26	Microphone air - Ø 4 x 6
43	Microphone return - Ø 4 x 6

N.B. All hoses are made of polyamide, dimensions in mm.

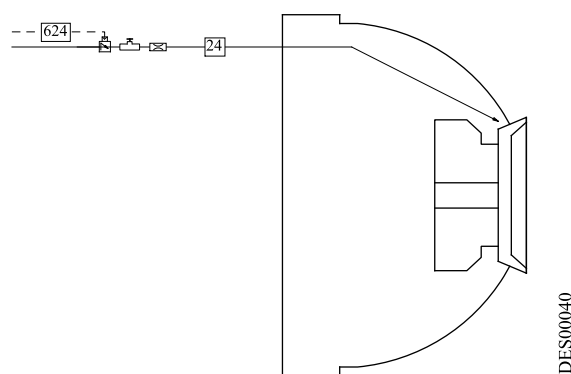
4.4. Turbine rotation diagram



21	Turbine drive - Ø 7 x 10 polyurethane
22	Turbine braking - Ø. 6 x 8
23	Bearing air - Ø. 4 x 6
621	Turbine rotation regulation control Ø 2,7 x 4

N.B. All hoses are made of polyamide, except: 21 which is in polyurethane, dimensions in mm.

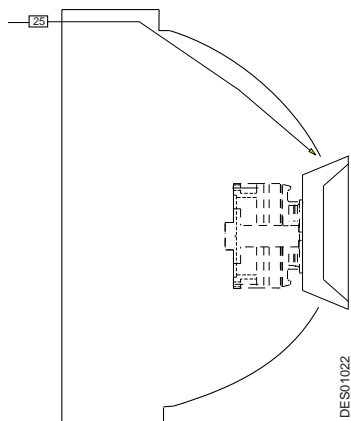
4.5. Shaping air diagram



24	Shaping air - Ø 6 x 8
624	Shaping air regulation pilot - Ø 2,7 x 4

N.B. All hoses are made of polyamide, dimensions in mm.

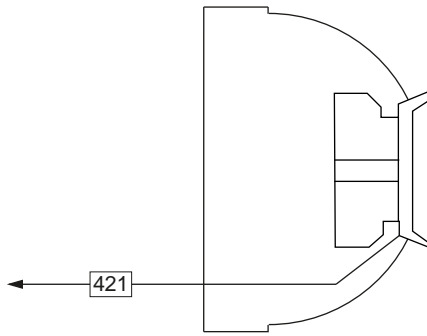
4.6. Compensation air diagram



25	Compensation air - Ø 6 x 8
----	----------------------------

25: The compensation air prevents any contamination of the shaping air shroud and is controlled via a remote regulator.

4.7. Turbine exhaust diagram



421	Turbine exhaust - Ø 8 x 10
-----	----------------------------

N.B. All hoses are made of polyamide, dimensions in mm.

DES03086

5. Maintenance

5.1. Shutdown and Startup Procedures

Important recommendations

Follow the air settings given in Section 3.2.

The rotor and stator will become unusable if the bearing air is cut.

The bearing air must be at least 6 bar at the quick-disconnect plate.

(*For hose lengths greater than 4.5 m, measure the air pressure at the quick-disconnect plate to determine the correct setting).

Check that the speed regulating module transmits a signal.

5.1.1. Shutdown procedure

Important steps to be observed:

- **Step 1:** Switch off atomization,
- **Step 2:** Switch off the high voltage power supply,
- **Step 3:** Run a rinsing cycle *,
- **Step 4:** Switch off the shaping air,
- **Step 5:** Switch off turbine rotation and wait until it has stopped completely (0 rpm),
- **Step 6:** Switch off the bearing air.



WARNING : * The rinsing cycle must end with a compressed air sequence, circuits 31,32 and 36 must be purged and dried before restarting the high voltage.

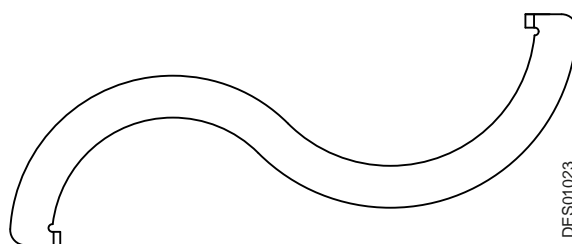


WARNING : The turbine must never be stopped by switching off the bearing air supply. Wait until the turbine has stopped completely before switching off the bearing air.

5.1.2. Startup Procedure

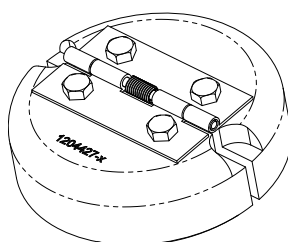
- **Step 1:** Switch on the bearing air supply (6 bar),
- **Step 2:** Start up turbine rotation,
- **Step 3:** Switch on the shaping air supply,
- **Step 4:** Switch on the high voltage supply,
- **Step 5:** Start up atomisation.

5.2. Tools



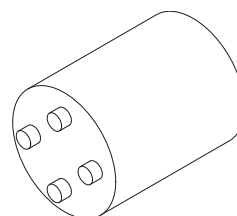
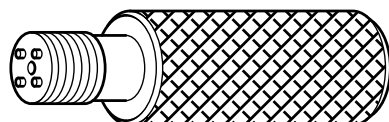
DES01023

Part number	Description	Qty	Unit of sale
1308689	Fitting and removal tool for outer cover and cover	1	1



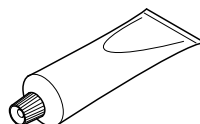
DES02870

Part number	Description	Qty	Unit of sale
1204427	Removal tool, 65 EC magnetic bellcup	1	1
900000803	Removal tool, 50 EC magnetic bellcup	-	1
900000804	Removal tool, 35 EC magnetic bellcup	-	1



DES01673

Part number	Description	Qty	Unit of sale
1303689	Removal tool for microvalve	1	1
1403478	Microvalve automatic tightening tool	1	1



DES00685

Part number	Description	Qty	Unit of sale
H1GMIN017	Vaseline (100 ml)	1	1
H1GSYN037	Dielectric grease (100 ml)	1	1

6. Atomizer maintenance



WARNING : These different operations are to be carried out by a trained person.

6.1. Disassembly and reassembly of the PPH 308

6.1.1. Disassembly

Carry out a rinse of the PPH 308 before disassembly.

- Switch off the UHT 155 power supply.
- Use the wrench (Ref.:1308689) to loosen the cover.
- Unscrew the cover by hand and remove it.
- Loosen the screw securing the UHT 155 to its sleeve ([see § 2 page 15](#)).
- Disconnect all the hoses to the manifold and 1-PV block (except the hoses between the 1-PV block and the manifold)
- Remove the 4 screws securing the PPH 308 to its support.
- Remove the UHT 155 from its sleeve.



WARNING : Leave the grips in place on the manifold to avoid losing them.

6.1.2. Reassembly

- Insert the UHT 155 in its sleeve and secure it with the screw(see § 6.8 page 29).
- Secure the PPH 308 with the 4 screws.
- Reconnect all the hoses to the manifold and 1-PV block.
- Refit the cover by hand and secure it with the wrench (Ref.:1308689).

6.2. Bellcups

For the assembly and disassembly of a bellcup [see RT Nr 6285](#)

6.3. Shaping air assembly

For the assembly and removal of a shaping air assembly [see RT Nr 6285](#)

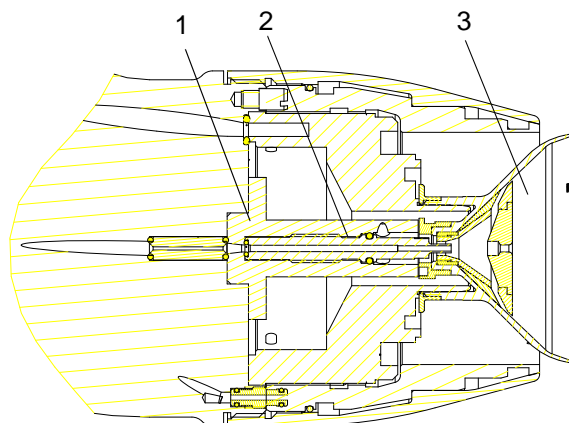
6.4. Turbine

[see RT Nr 6350](#) See manual enclosed.

6.5. Injector holder

The injector holder is secured to the body of the PPH 308 by three M3 x 10 screws. Its positioning pin ensures correct fitting.

1	Injector holder
2	Injector
3	Bellcup



DES03373

6.6. Injector

6.6.1. Disassembly

- Switch off the machine.
- Remove the bellcup ([see RT Nr 6285](#)).
- Remove the outer cover.
- Remove the shaping air shroud.
- Unscrew the injector (Caution: left thread), using a 5-mm flat wrench.
- Cleaning ([see § 7 page 30](#)).

6.6.2. Reassembly

- Place the injector in the injector holder and tighten in the clockwise direction to a tightening torque of 3,5N.m.
- Put in place the shaping air shroud.
- Install the bellcup.
- Put in place the outer cover.
- Switch on the power supply.

6.7. 1-PV block and Manifold block

6.7.1. Disassembly

- Remove the PPH 308.
- Remove the screw securing the 1-PV block to the brace.
- Disconnect the hoses between the 1-PV block and the manifold.
- Remove the brace ([see § 2 page 15](#)).
- Unscrew the brace from the manifold.
- Remove the brace from the 1-PV block.
- If necessary, remove the restrictor from the Manifold.

6.7.2. Reassembly

- Install or replace the restrictor according to the paint viscosity.
- Check the different components (o-rings, solvent pipette, fittings) of the Manifold block , replace them if necessary.

Check that there are no cracks on the 1PV block and especially around fitting 31.



WARNING : If the plastic fittings are replaced, it is necessary to place a PTFE ribbon on the threading of the new plastic fittings, (approximately 2 to 3 turns). Attention no to make overflow the ribbon on the surface of the fitting.

- Check that all o-rings are in place on the Manifold.
- Insert the brace in the 1-PV block and screw it on the manifold.
- Secure the brace firmly to the support by tightening the screw fully.
- Connect the hoses linking the 1-PV block to the manifold.
- Secure the 1-PV block to the brace by tightening the nylon screw M5 x 10.

6.8. High voltage unit UHT 155 EEx em

[see RT Nr 6218](#)

Monthly check:

- Check that the high-voltage cascade is correctly inserted into the high-voltage well, check that it has not retreated, and make sure that the UHT locking screw is tightened correctly.
- Check the HV well of the manifold for dielectric grease.
- **If the UHT 155 is removed:** using a lint-free cloth, remove all dielectric grease from the high-voltage well, the high voltage unit, the spacer (Rep. 12) and the seal (Rep. 13) without leaving any residue. If a cleaning agent is used, dry with compressed air.
- **When reassembling:** Fill the 2/3 high voltage well with new dielectric grease, reassemble the several components in reverse order of disassembly, taking care not to contaminate greases with foreign bodies or products.

6.9. Microvalves

[see RT Nr 6021](#)

7. Cleaning procedures

Before any operation, refer to the health and safety rules ([see § 1.4 page 6](#)).

According to the frequency of use and in all the cases at the end of each cycle

- Stop the atomizer and switch off the power supply.



WARNING : Always wear safety goggles.
Whenever solvent is handled, rubber gloves must be worn.
Work in a well ventilated area whenever solvent is used.



WARNING : It is imperative to pass a rag soaked with water on the atomizer before cleaning it using a rag and an approved cleaning product. Do not use a manual solvent gun.



WARNING : Do not soak the turbine in solvent.

Under no circumstances must the atomizer or any of its components be sprayed with solvent or water at high or low pressure.



WARNING : SAMES KREMLIN **disadvise**s the use of anti-static plastic films to protect bodies and insulating covers of the atomizers. These films are conductive and can short-circuit the high voltage.

SAMES KREMLIN **forbids** the use of adhesives on the insulating parts of the atomizers. The glue of the adhesives is conductive and thus can short-circuit the high voltage.

SAMES KREMLIN **also forbids** the use of absorbent textile cover to protect bodies and insulating covers of atomizers. Textile covers retain the cleaning products and paint what can generate problems of high voltage (drilling, ionization, degradation of the material...).

Thus, SAMES KREMLIN **recommends** the use of insulating grease for protection of the atomizers.

In any case, insulating protection means must be used to prevent the slightest risk of current overconsumption.

This is why, insulating protection means must be renewed on a regular basis.

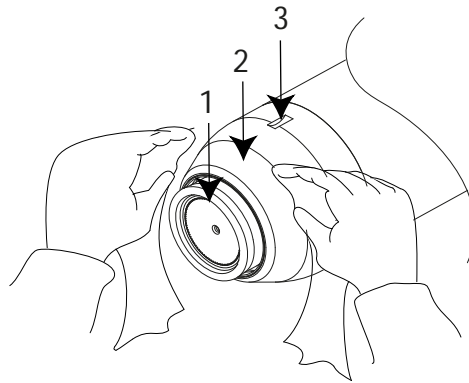
Procedure	Components	Frequency
A	Outer cover, bellcup exterior.	8 hours
B	Bellcup, shaping air assembly, injector	120 hours

7.1. Procedure A



WARNING : Switch off the turbine. The bearing air and shaping air remain under pressure to block the solvent flow between the bellcup and shaping air shroud and to prevent any blockage.

- Clean the outer cover and the exterior bellcup using a clean rag.
- Check that the outer cover grooves are clean.
- Dry carefully.



DES02097

1	Bellcup
2	Outer cover
3	Grooves in outer cover

7.2. Procedure B



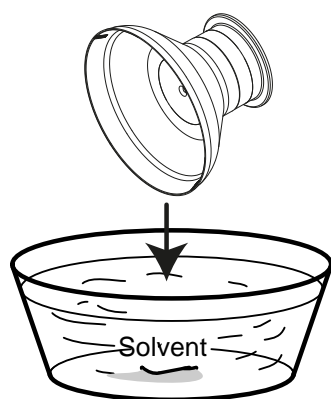
WARNING : Switch off the turbine and shaping air.

7.2.1. Bellcup

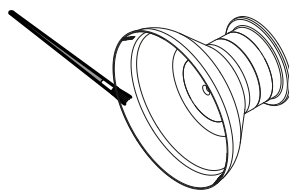
- Remove the bellcup using the appropriate tool.
- Leave to soak in solvent for one hour then clean with a clean cloth and soft brush.



WARNING : Make sure that all surfaces are clean and free from impurities. Take care particularly of the internal and external surfaces of the cylinder of the bellcup fixing.

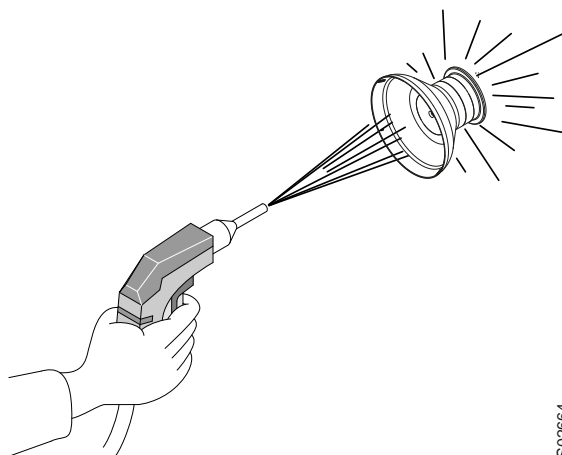


DES02662



DES02663

- Dry carefully the two faces of the bellcup with compressed air.

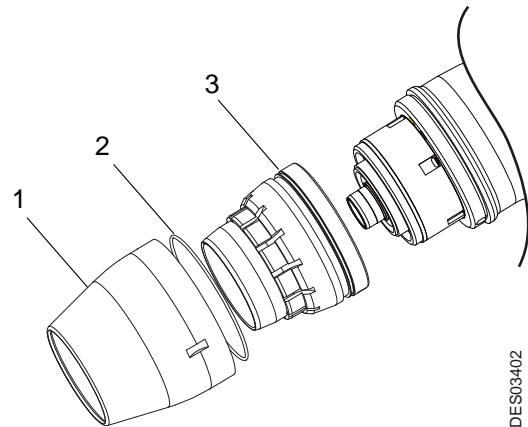


DES02664

7.2.2. Outer cover

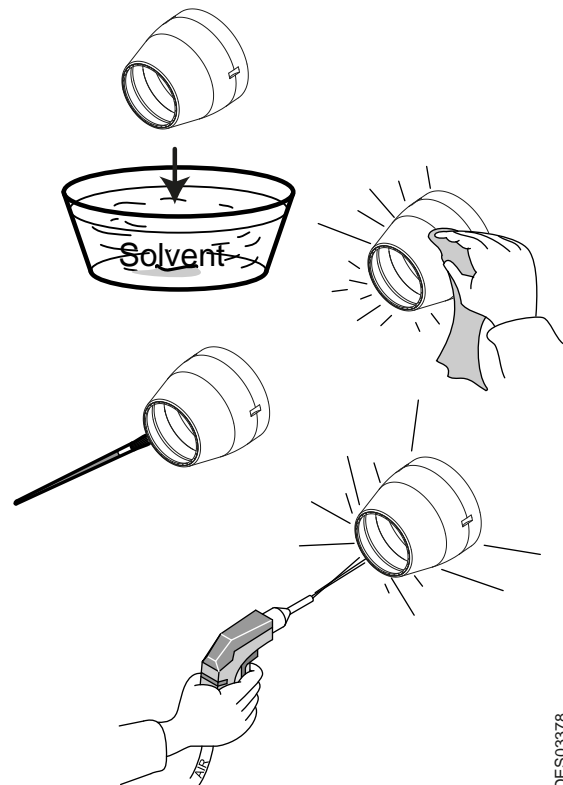
- **Step 1:** Remove the shaping air assembly

1	Outer cover
2	O-ring
3	Shaping air shroud



DES03402

- **Step 2:** Leave to soak in solvent the outer cover for one hour, then clean the outer and inner surfaces using a rag soaked in solvent.
- **Step 3:** Using a nylon brush, clean all the holes located on the front face of the outer cover.
- **Step 4:** Dry carefully with compressed air insisting on the holes to eliminate the paint residues, then wipe with a clean, dry rag.
- **Step 5:** Check the shaping air shroud, clean it if necessary using a rag soaked in solvent.



DES03378

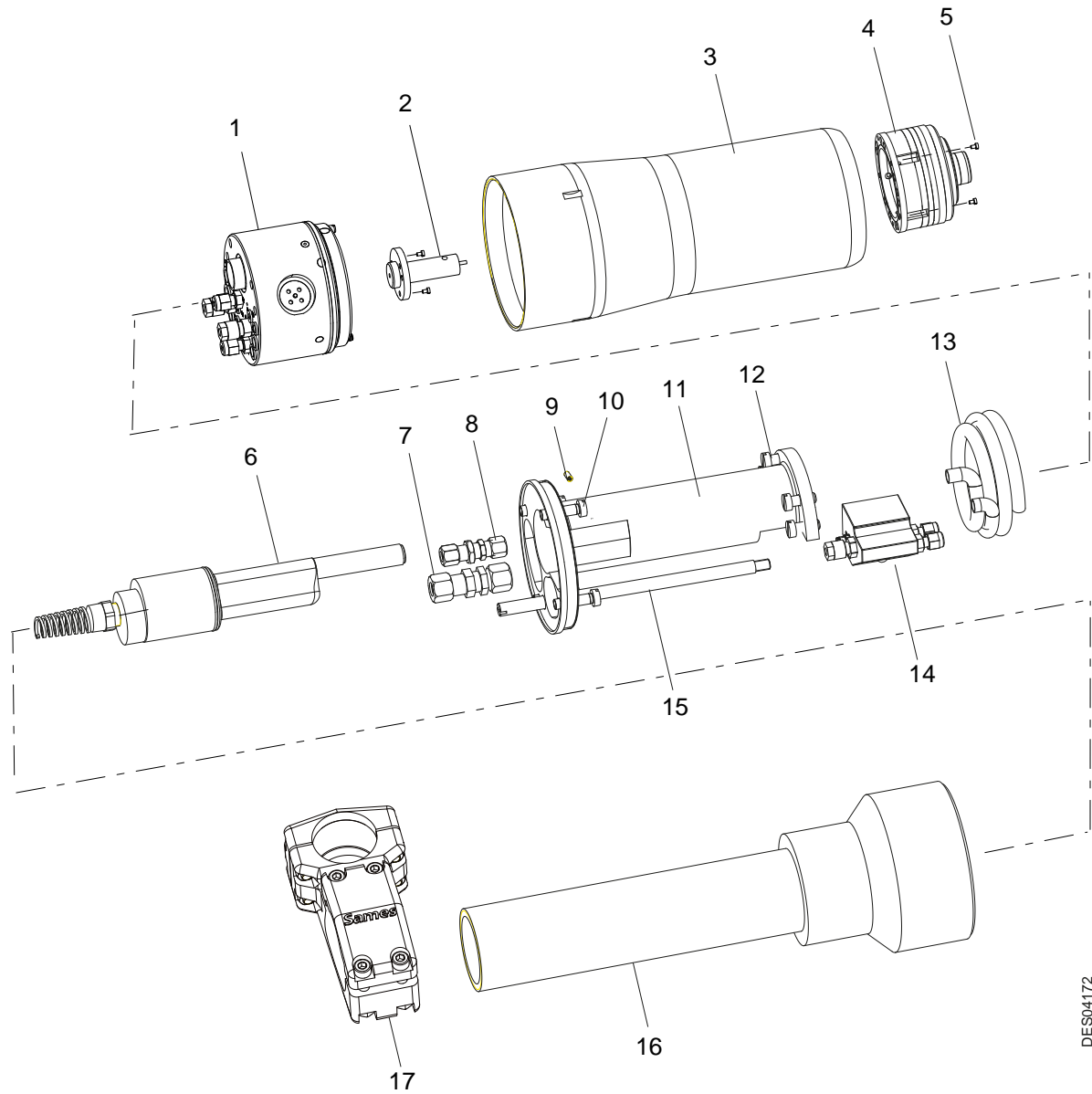
7.2.3. Injector and injector holder

- Remove the injector [see § 6.6 page 28](#)
- Leave to soak for one hour in MEK solvent (methyleneethylketone).
- Dry carefully with compressed air
- Proceed in reverse order to reassemble.

8. Spare Parts Lists

8.1. PPH 308 - Internal Charge, single circuit without regulator with coil

Bellcup and shaping air assembly are not included.



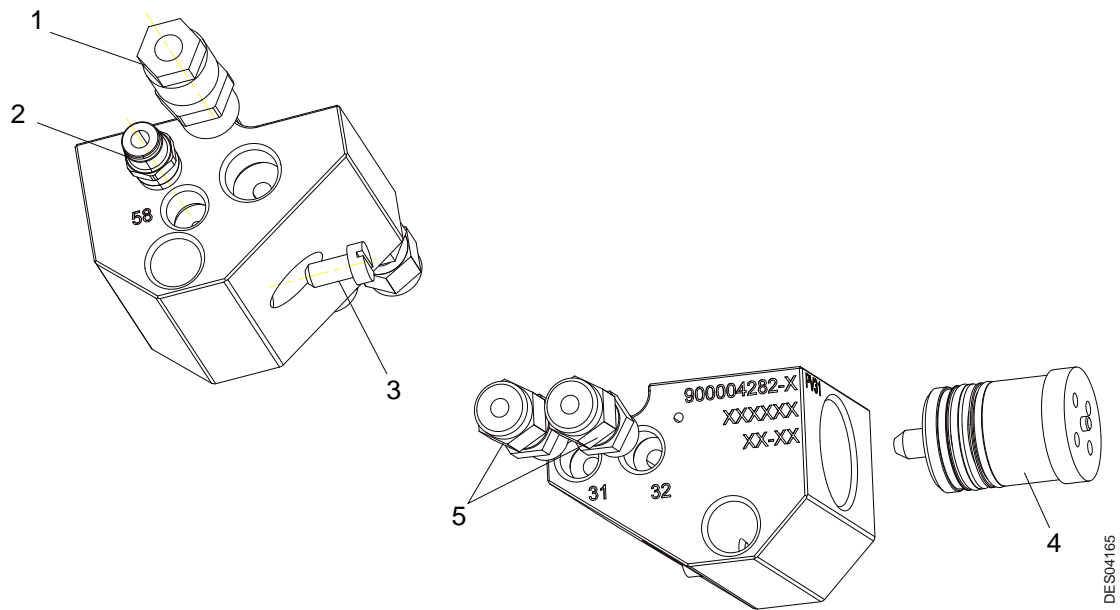
DES04172

Item	Part number	Description	Qty	Unit of sale	First Emergency	Consumable
	910001669	PPH 308 Single circuit without regulator with coil atomizer	1	1	-	-
1	910006006	MANIFOLD block (see § 8.3 page 37)	1	1	X	
2	910001130	Injector / injector holder assembly (see § 8.4 page 39)	1	1	X	
3	910001982	Protective cover	1	1	-	-
4	910000295	S6 Magnetic air bearing Turbine, type BTM (see RT Nr 6350)	1	1	X	
5	X4FVSY067	Screw Chc M3x10 stainless steel	5	1	-	-
6	1520282	High voltage unit UHT 155 EEx em (see RT Nr 6218)	1	1	X	
7	910002033	Bulkhead union D: 10	1	1	-	-
8	910022174	Bulkhead union D: 6	1	1	-	-
9	X9NSFA118	Headless screw C M4 nylon	1	1	-	-
10	X9SVCB285	Screw c M8 x 30 glass filled nylon	4	1	X	
11	1202048	Sleeve for UHT 155	1	1	-	-
12	X9SVCB283	Screw c M8 x 20 glass filled nylon	4	1	X	
13	See Note	Paint and dump coil D: 6	2	-		-
14	910005997	1-PV block (see § 8.2 page 36)	1	1	X	
15	1405874	Brace for 1-PV block	1	1	-	-
16	1203616	Tube support PPH 308 - D:63	1	1	-	-
17	1204441	Nut for tube	1	1	-	-



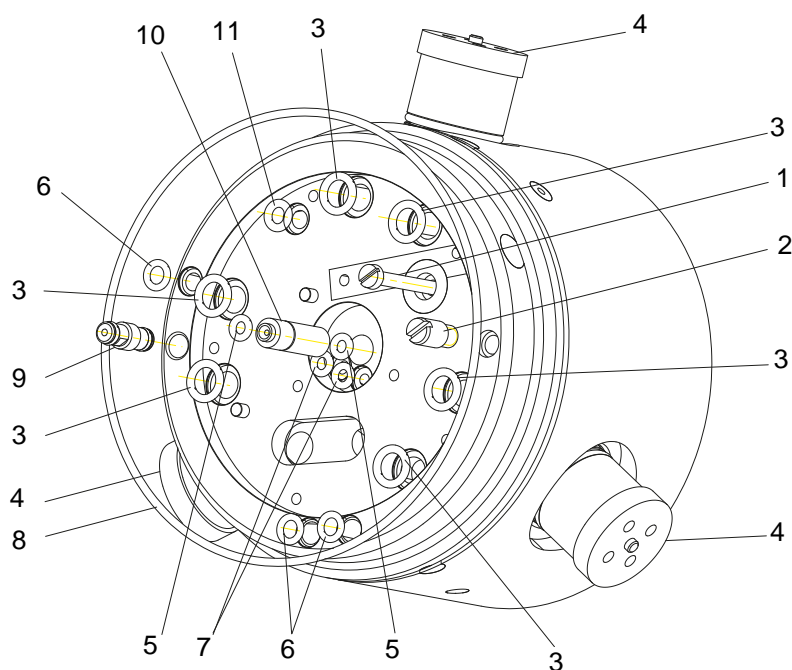
WARNING : To replace the coils, it is necessary to order the kit of equipped coils (P/N # 910007077) which includes the two coils.

8.2. 1-PV Block



Item	Part number	Description	Qty	Unit of sale	First Emergency	Consumable
	910005997	1-PV block	1	1	X	
1	F6RPUK317	Fitting 1/4 BSP for 4/6 hose	2	1		X
2	F6RLUS268	Male union	2	1		X
3	X9NVCB181	Nylon screw C M 5 x 10	1	1		X
4	1507375	Microvalve, chemically inert o-rings (see RT Nr 6021)	1	1		X
5	F6RPUQ062	Male union	2	1		X

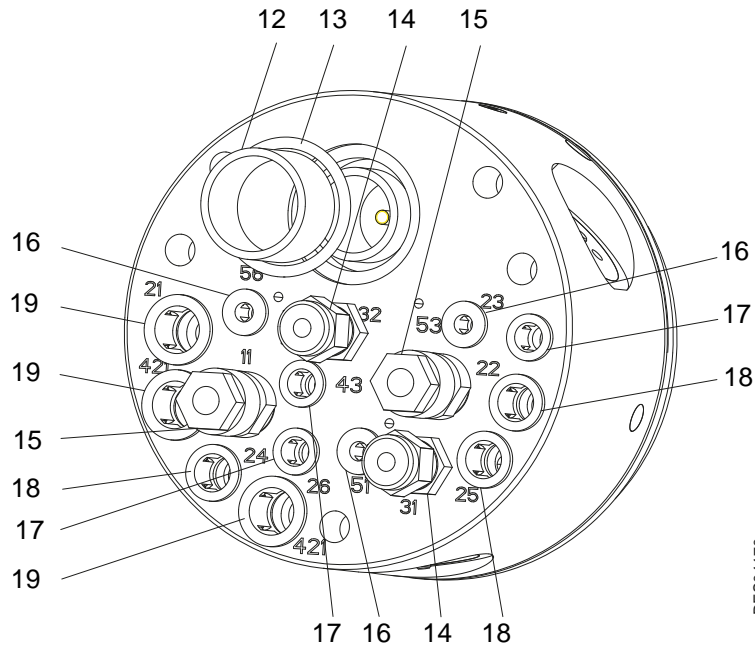
8.3. MANIFOLD block



DES04171

Item	Part number	Description	Qty	Unit of sale	First Emerg-ency	Con-suma-ble
	910006006	Manifold block	1	1	X	
1	X7CVCB078	Screw C M3x50 brass	1	1	-	-
2	1402691	Alignment pin, shaping air	1	1	-	-
3	J3STKL078	O-ring - chemically inert	6	1		X
4	1507375	Microvalve, chemically inert o-rings (see RT Nr 6021)	3	1		X
	910010850	Microvalve with bellow * (see RT Nr 6422)	3 option	1		X
5	J3STKL002	O-ring - chemically inert	2	1		X
6	J3STKL039	O-ring - chemically inert	3	1		X
7	J3STKL026	O-ring - chemically inert	2	1		X
8	J2FENV638	O-ring	1	1		X
9	1519555	Equipped solvent pipette	1	1	-	-
	J3STKL027	O-ring - chemically inert	2	1		X
10	640403	Restrictor \varnothing 1,2	1	1	X	
11	J3STKL035	O-ring - chemically inert	1	1		X

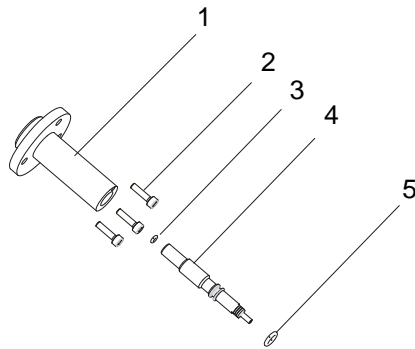
Remarks: () If the microvalves are regularly blocked , replace the microvalve (P/N # 1507375) by a microvalve with bellow (P/N # 910010850).**



DES04170

Item	Part number	Description	Qty	Unit of sale	First Emer-gency	Con-suma-ble
12	449707	Outer sleeve insulator	1	1	-	-
13	J2FTCF051	O-ring - viton	1	2		X
14	F6RPUQ062	Male union	2	1		X
15	F6RPUK317	Male union	2	1		X
16	F6RXZG081	Stainless steel grip and o-ring	3	1	-	-
17	F6RXZG082	Stainless steel grip and o-ring	3	1	-	-
18	F6RXZG083	Stainless steel grip and o-ring	3	1	-	-
19	F6RXZG084	Stainless steel grip and o-ring	3	1	-	-

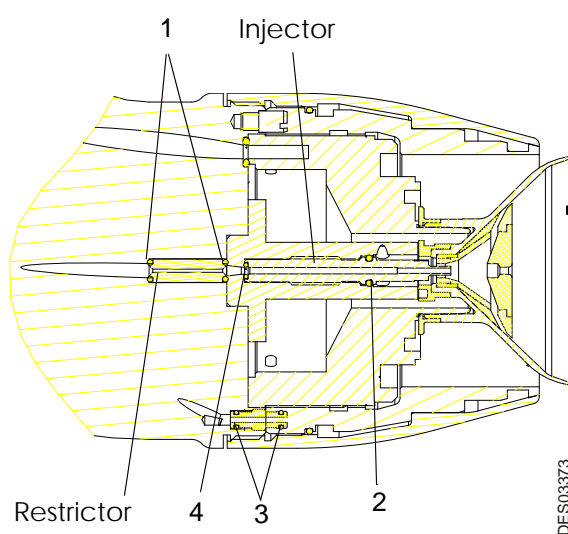
8.4. Injector / Injector holder Assembly



DES02117

Item	Part number	Description	Qty	Sale Unit	First Emergency	Consumable
	910001130	Injector / injector holder assembly	1	1	X	
1	738354	Injector holder	1	1	-	-
2	X4FVSY067	Screw C M 3 x 10 - stainless steel	3	1	-	-
3	J3STKL014	O-ring - chemically inert	1	1		X
4	738635	Injector Dia: 1.8	1	1	X	
5	J3STKL005	O-ring - chemically inert	1	1		X

8.5. Turbine o-rings, injectors and restrictors



Part number	Restrictor	Qty of grooves	Color
640400	D: 0.8 mm	-	Black
640401	D: 0.9 mm	1	Black
640402	D: 1.0 mm	2	Black
640403	D: 1.2 mm	-	White
640456	D: 1.5 mm	1	White
640464	D: 3.0 mm	2	White

Part number	Injector	Qty of grooves
738632	D: 0.9 mm	-
738353	D: 1.2 mm	2
738634	D: 1.5 mm	3
738635	D: 1.8 mm	4

Item	Part number	Description	Qty
1	J3STKL005	O-ring - chemically inert	1
2	J3STKL014	O-ring - chemically inert	1
3	J3STKL002	O-ring - chemically inert	2
4	J3STKL027	O-ring - chemically inert	2