

User manual

PPH 707 EXT ST

SAMES KREMLIN SAS - 13, Chemin de Malacher - 38240 MEYLAN - FRANCE
Tel. 33 (0)4 76 41 60 60 - www.sames-kremlin.com

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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 707 EXT ST

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1. Health and Safety Instructions

This manual contains links to the following user manuals:

- [see RT Nr 7077](#) for magnetic bell cups and shaping air assemblies, external charge, Hi-TE Technologies
- [see RT Nr 6354](#) for the high-speed turbine
- [see RT Nr 6258](#) for the nanovalve
- [see RT Nr 6021](#) for the microvalve
- [see RT Nr 6190](#) for the microphone
- [see RT Nr 7057](#) for the high-voltage unit UHT 330
- [see RT Nr 7059](#) for the Reverse Flush block
- [see RT Nr 7122](#) for the control module GNM 300
- [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

The specific EXAT marking for each sprayer is indicated in this section. The equipment is C-L type according to standard EN 50176 (§ 5.1).



The X symbol placed behind the EU type examination certification indicates that when a "dl/dt safety" fault appears any movement likely to reduce the safe distance must be stopped (stop moving the sprayer and stop the conveyor transporting the parts to be sprayed) before the fault reset is authorised.

* ATEX "PPH 707 EXT ST" configurations

Atomizer - P/N 910023988 Body - P/N 910008734 High-speed turbine - P/N 1525849 Charge ring - P/N 910023924	Atomizer - P/N 910023988FO Body - P/N 910008734FO High-speed turbine - P/N 1525849 Charge ring - P/N 910023924	Atomizer - P/N 910018953 Body - P/N 910008734 High-speed turbine - P/N 1525849 Charge ring - P/N 910017952	Atomizer - P/N 910018953FO Body - P/N 910008734FO High-speed turbine - P/N 1525849 Charge ring - P/N 910017952	P/N PPH 707 (*)	High voltage unit - P/N 910007139	GNM 300 P/N: 910024028
X				910023988	X	X
	X			910023988FO	X	X
		X		910018953	X	X
			X	910018953FO	X	X

1.3. Precautions for use

This document contains information that all operators should be aware of before using atomizer PPH 707 EXT ST. 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 707 EXT ST equipment, check that all operators:

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

1.4. Warnings



CAUTION:

It is imperative that anyone wearing a pacemaker does not use the equipment and does not enter the projection area.

High voltage can cause the pacemaker to malfunction.



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 KREMLIN** are used.



WARNING : To guarantee an optimal assembly, spare parts must be stored in a temperature close to their temperature of use. Should the opposite occur, a sufficient waiting time must be observed before the installation, so that all the elements are assembled in the same temperature.



WARNING :

This equipment must only be used in spraying locations according to standard EN 50176 (§ 5.4 and 5.7). 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 operator must wear shoes according to standard EN ISO 20344 and the insulation resistance measured must not exceed 100 MΩ.

The protective clothes, including gloves, must conform to standard EN 1149-5 and the insulation resistance measured must not exceed 100 MΩ.

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.

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 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 KREMLIN** atomizers and high-voltage electrostatic generators are designed to minimise this risk. Although the HV electrode is the only accessible part, a safety distance ([see § 4.3 page 28](#)) must be observed between the HV parts of the atomizer and all grounded parts.

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 M Ω (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.

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 maximum operating speed specified in this manual must not be exceeded ([see § 4.2 page 27](#)).

1.4.1. Regulatory tests to be carried out on the equipment according to standard EN 50176
The tests must be carried out on the spraying equipment. The tests must be carried out by competent personnel and include the tests described below (see § 6.3 table 3 in standard EN 50176).

Type of test	Requirements
The fixed inflammable coating liquid material electrostatic coating must be tested to ensure it is safe for workers.	In this context, and particularly for the disconnection threshold, the overload current $I_{\dot{U}}$ and the minimum voltage U_{min} must be defined and documented in relation to the operational and local conditions (see also § 5.2.2 in standard EN50176).
Forced ventilation effectiveness (air extraction systems)	See §5.4.4 in standard EN50176
The safe high voltage disconnection must be tested for operation under controlled voltage and under constant voltage.	See 5.2.2 and 5.2.2.1 in standard EN50176. The disconnection threshold $I_{\dot{U}}$ must be defined and documented in relation to the operational and local conditions. It must be tested if the high voltage is disconnected and if there is an unacceptable increase in the operating current I_b and if the disconnection threshold $I_{\dot{U}}$ is reached. In this context, the disconnection threshold $I_{\dot{U}}$ defined during the initial test must be checked. A disconnection threshold $I_{\dot{U}}$ that may increase the possibility of dangerous discharges or electrical flashovers between the parts under high voltage and the grounded parts if the safe distance falls below its permitted value is not permitted.
3G category devices	See 5.2.2 and 5.2.2.1 in standard EN50176
2G category devices	See 5.2.2, 5.2.2.1 and 6.4 in standard EN50176
For the operation at constant current, the safe disconnection of the high voltage electricity supply must be tested.	See 5.2.2 and 5.2.2.2 in standard EN50176. The disconnection threshold U_{min} must be defined and documented in relation to the operational and local conditions. Checks must be carried out to ensure that the high voltage is disconnected if the high voltage falls unacceptably below the disconnection threshold U_{min} . In this context, the disconnection threshold U_{min} defined during the initial test must be checked. A disconnection threshold U_{min} that may increase the possibility of dangerous discharges or electrical flashovers between the parts under high voltage and the grounded parts if the safe distance falls below its permitted value is not permitted.
3G category devices	See 5.2.2 and 5.2.2.2 in standard EN50176

Type of test	Requirements
2G category devices	See 5.2.2, 5.2.2.2 and 6.4 in standard EN50176
Protection against discharge energy which is too high	See 5.2.3, 5.8.2 and 5.8.3 in standard EN50176
Protection against cleaning product inflammation	See 5.2.4.in standard EN50176
Effectiveness of the protection measures against direct contact	See 5.5.2, 5.5.6 and 5.8.5 in standard EN50176
Effectiveness of the earthing measures	See 5.7 in standard EN50176
Slaving / protection against inputs	See 5.5.2 in standard EN50176
Effectiveness of the local fire extinguishing system	See 5.2.5 in standard EN50176 In addition to the location's protection system, local fire extinguishing systems (fixed and dedicated to the object) must provide effective protection for the dangerous zone located between the output from the coating material and the part to be processed. It must be proven for each individual case that the roles of the local fire extinguishing systems and the location's protection systems may be satisfied by a single extinguishing system.
conducting parts of the coating material's supply system	See 5.8.1 in standard EN50176
Minimum distance in the air	See 5.5.7 and 5.8.5 in standard EN50176
Other tests	According to standard EN 12215:2004.

These tests must be carried out periodically The following maximum intervals between tests are recommended (see § 7.2.3 table 4 in standard EN 50176).

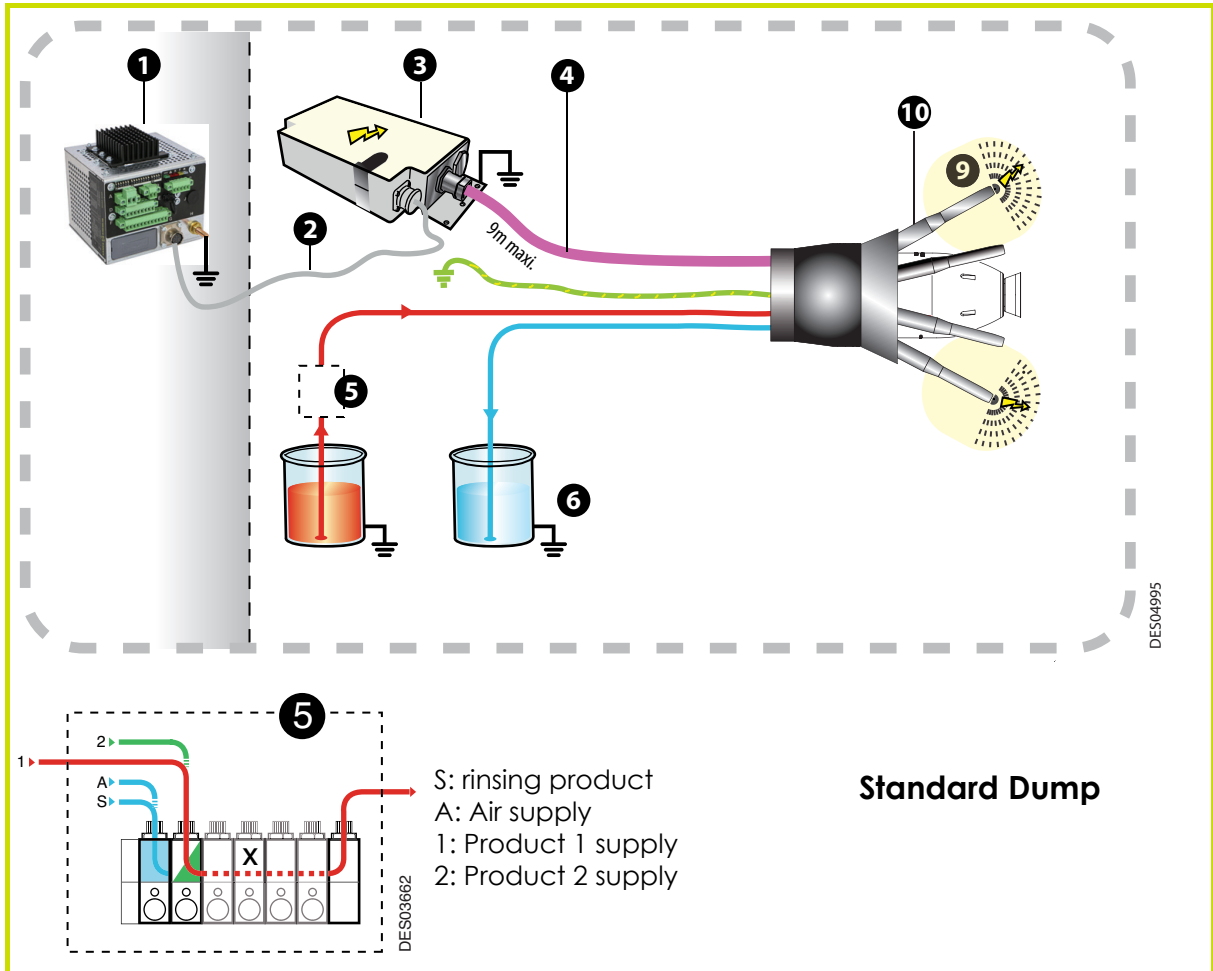
Reference	Test frequency
Complete installation safety test in relation to workers	12 months
Forced ventilation effectiveness	in continuous
Disconnection in the event of an overload current	after each start-up
Low voltage disconnection	after each start-up
Discharge energy	weekly
Protection against cleaning product inflammation	before each cleaning
Protection against direct contact	weekly
Earthing measures	weekly
Protection against inputs	weekly
Site's fire extinguishing system	before each cleaning
Conducting parts of the coating material's supply system	weekly
Minimum distance in the air	weekly
Other tests	in accordance with standard EN 12215:2004

1.4.2. Installation Rules

- **This high voltage unit supplies only one atomizer:** the high voltage cable must be no longer than 9 m.
- **This high voltage unit supplies two atomizers:** the sum of HV cable lengths must be no more than 8.5 m.
e.g: if both atomizers are at the same distance from HVU, the allowable length of each HV cable is no more than 4.25 m ($8.5/2 = 4.25$ m).
If two atomizers are used, please note that as a part to be painted is brought close to one atomizer, the voltage to the second atomizer will simultaneously drop.

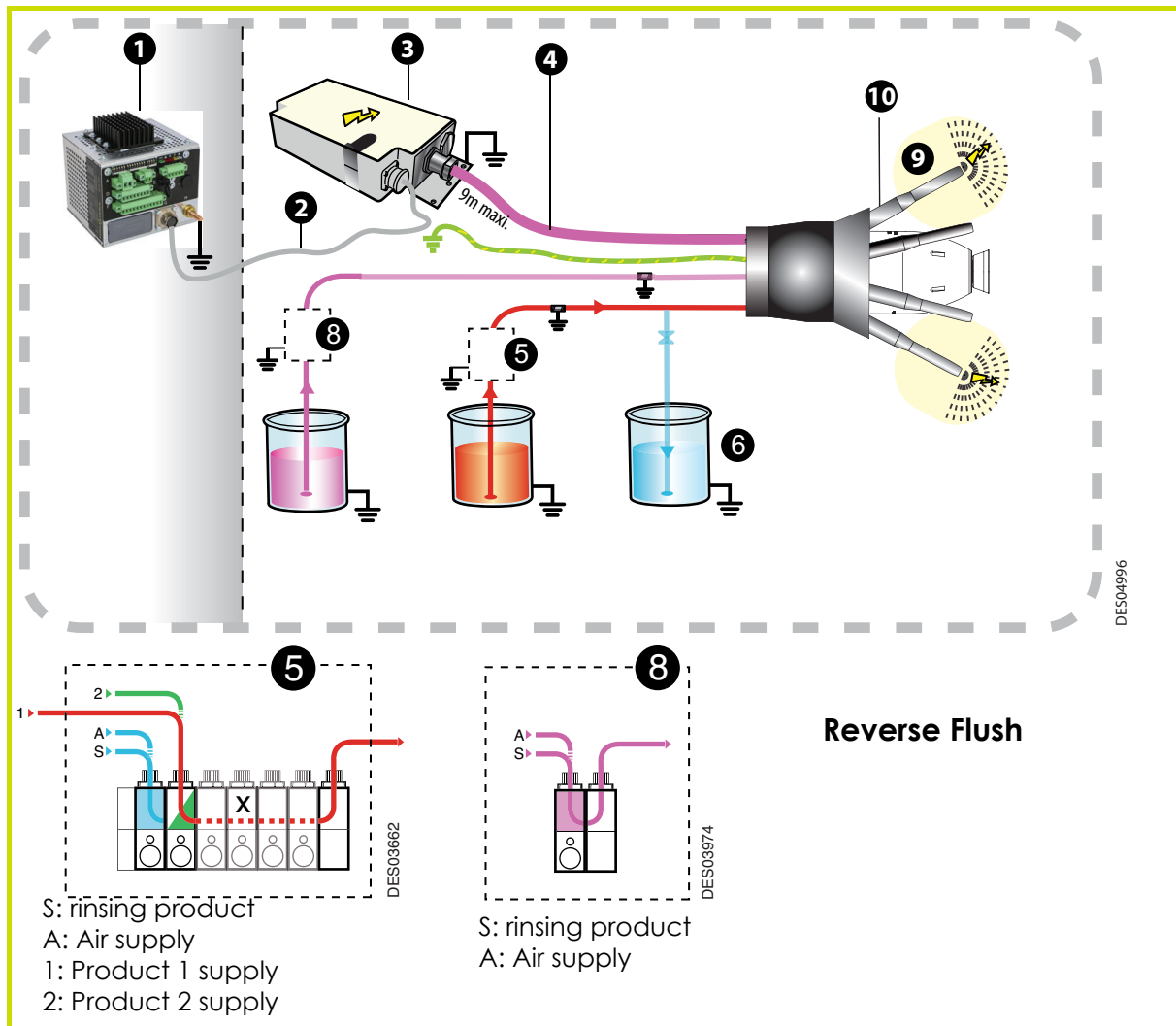


WARNING : The installation of any system that does not comply with the rules specified above and below is strictly prohibited.



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

Waterborne paints non flammable and not easily flammable	
1	Control module GNM 300 (out of the ATEX area)
2	Low voltage connection
3	High voltage unit UHT 330
4	High voltage cable (Length: see § 1.4.2 page 12)
5	Supplies of paints and rinsing products connected to the ground potential
6	Dump return line connected to the ground potential
7	-
8	-
9	Safety distance (area around each finger of the charge ring connected to the high voltage)
10	Charge ring



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

Waterborne paints non flammable and not easily flammable	
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3	High voltage unit UHT 330
4	High voltage cable (Length: see § 1.4.2 page 12)
5	Supplies of paints and rinsing products connected to the ground potential
6	Dump return line connected to the ground potential
7	-
8	Supplies of air and rinsing products connected to the ground potential
9	Safety distance (area around each finger of the charge ring connected to the high voltage)
10	Charge ring

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.

Teflon tape or glue should not be used between the filter and the bearing as glue residue or pieces of Teflon 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 non-compliance with 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 0.1 µm in diameter from reaching the bearing.



WARNING : The guarantee does not cover damage caused by foreign matter (paint, solvent or other foreign matter) entering the air circuits of atomizer PPH 707 external charge.

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. Bearing safety

The compressed air connection to the air bearing must be made directly via the supply circuit (without using an isolating valve). A sudden cutoff of the air supply may cause partial damage to the turbine air bearing, possibly resulting in system shutdown.

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.

1.5.4. Locking

Do not atomise the product if the bell cup is not rotating at a speed of at least 15,000 rpm. At lower speeds, paint or solvent may enter the turbine, bearing and control circuits. Opening the head valve, the injector rinsing valve and the bell cup exterior rinsing valve must therefore be prohibited when the bell cup is not rotating. Only qualified personnel are authorised 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 bell cup reaches at least 15,000 rpm before opening the head valve. The recommended minimum waiting time is 2 seconds.

1.5.5. Shaping air

Do not atomize the product until the guiding air rate is at least 200 NI/min. If it is less, a feedback of atomized product may occur, possibly fouling the outer shaping air shroud (and the inside surface of the inner shaping air shroud) and resulting in faulty application.

1.5.6. 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.

1.5.7. 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 85,000 rpm.



WARNING : The guarantee does not cover damage resulting from a rotation speed greater than 85,000 rpm.

1.5.8. Vibrations

If the atomizer vibrates abnormally, the cause is generally unbalanced rotating parts. If this is the case, the rotation speed will rapidly decrease, inevitably causing damage to the turbine. Paint deposits, damage or dry paint residues on the bell cup or fastening cone are the possible causes of a balancing defect. If significant vibration is observed, the problem must be immediately corrected. A significant imbalance of more than G 0.4 (1/1000 gr x 1cm radius) will inevitably deteriorate the turbine.



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

1.5.9. Ventilation

Do not begin applying paint with atomizer PPH 707 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.

1.5.10. 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 707 is only guaranteed if used with seals of sizes and materials in compliance with those specified in this manual.

1.5.11. 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.

1.5.12. Safety devices

When implementing atomizer PPH 707, 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 KREMLIN** 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.



WARNING : The electrostatic projection systems must be equipped with an automatic fire extinguishing system (according to § 5.2.5 in standard EN 50176).

1.5.13. Restriction on robot wrist movements

In order to optimize the life time of the cable as well as the supply hoses, it is recommended to limit the movement of axis 6 to $\pm 1,5$ turns compared with the axis 3.

1.5.14. Mechanical collision

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

1.5.15. 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.

The storage temperature must never exceed +60°C.

1.5.16. Sound level

The weighted equivalent continuous sound pressure level is equal to 62.7 dBA.

Measurement conditions:

The equipment has been operated under maximum conditions. Measurements were taken in the paint test booth (sealed booth with glass panels) at the **SAMES KREMLIN** I&D laboratory in Meylan, France.

Measurement method:

The weighted equivalent sound pressure level (62.7 dBA) is an LEQ value measured during observation periods over at least 30 seconds.

1.5.17. Special maintenance measures

All access to the booth near the atomizer must be controlled during atomizer operation by active devices ([see § 1.5.12 page 17](#)) 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 KREMLIN.

In all cases, turbine rotation with a bell cup will be prohibited when personnel are present nearby.

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 the exact nature of the fault concerned, in writing.

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 inattention,
- incorrect use,
- failure to follow procedures,
- 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 0.1 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 (5 bar),
- exceeding the maximum speed of 85,000 rpm under load,
- starting up rotating parts that are unbalanced (dry paint on bell cup / rotor or damaged bell cups),
- pollution of air circuits by fluids or substances other than air.

The **SAMES KREMLIN** atomizer **PPH 707 EXT ST** 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 atomizer **PPH 707 EXT ST**. The guarantee does not apply to wearing parts such as atomizing bell cups, diaphragms, 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 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

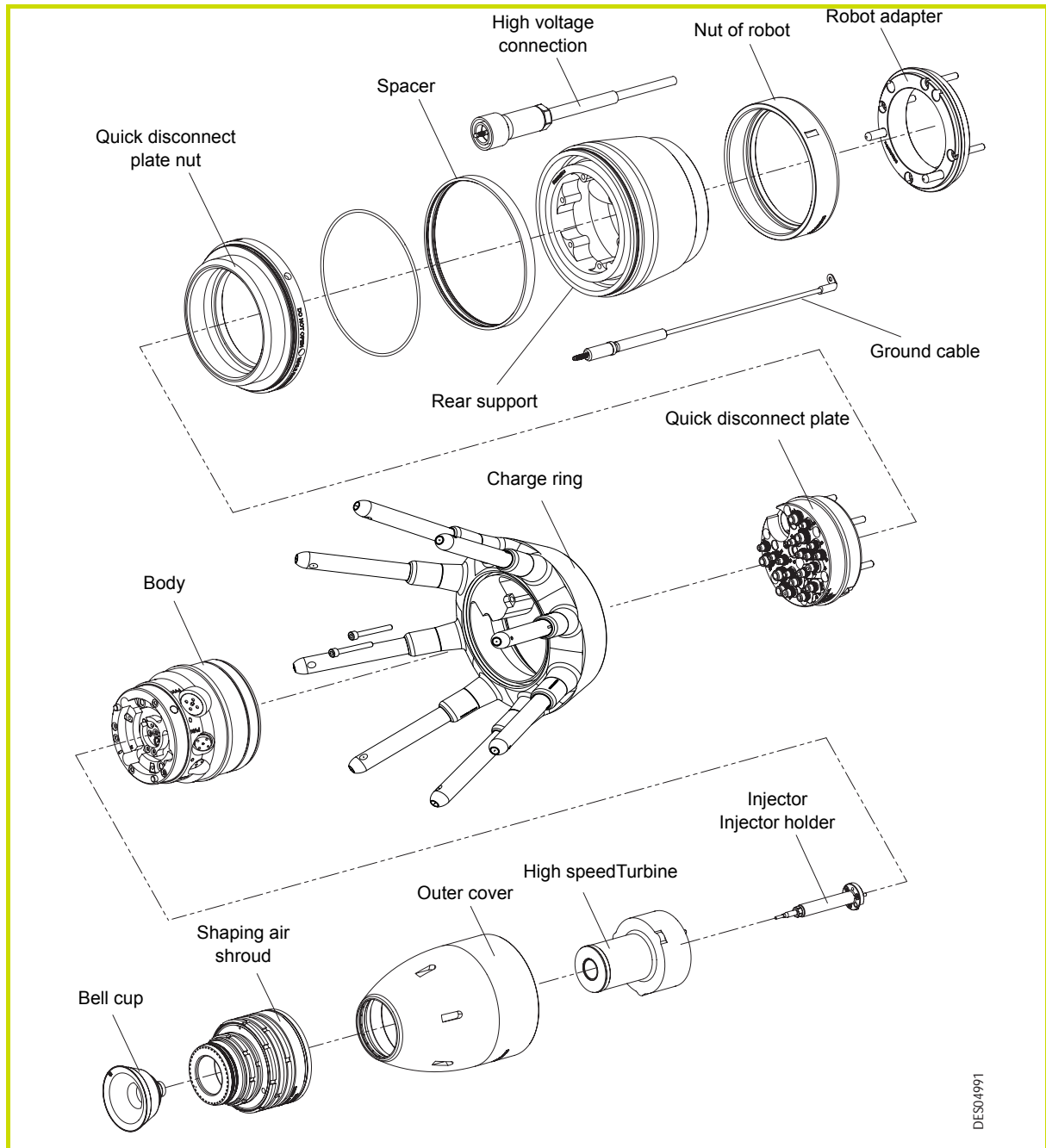
2.1. General

PPH 707 EXT ST atomizer is a high-performance robotic atomizer with rotating bell cup. It incorporates the advantages of previous generations, with added power. It is designed for high spray rates.

Equipped with an air bearing turbine for a magnetic-resistant bell cup, atomizer PPH 707 is used to atomize and apply various types of waterborne paints non flammable and not easily flammable at a maximum rotation speed of 80,000 rpm.

Its modular design allows rapid installation and easy maintenance.

Main components:

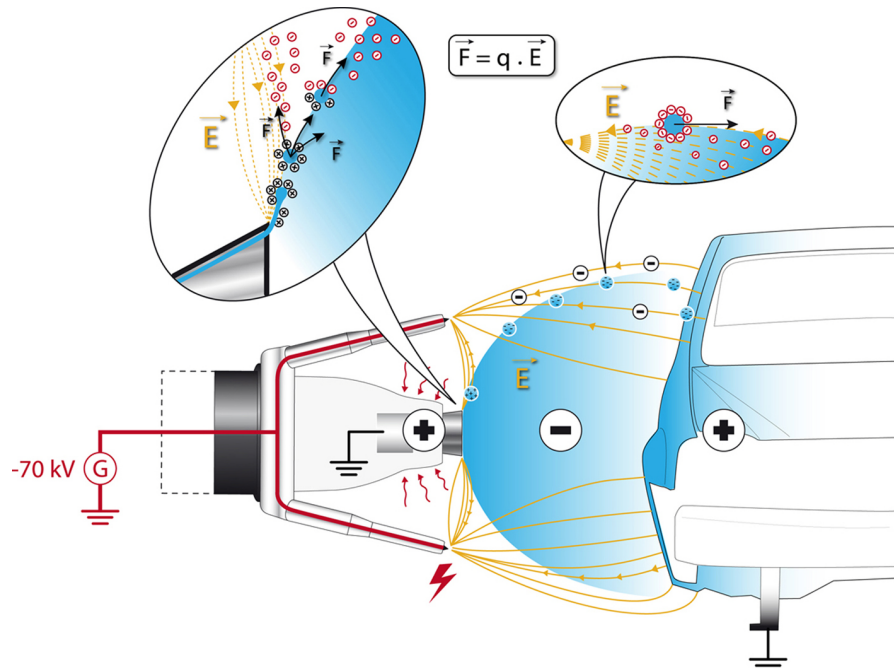


2.2. Function of the parts

Part	Function
Bell cup	The bell cup atomizes all types of paint.
Shaping air assembly (Outer cover / Shaping air shroud)	These parts control the size and pattern diameter and transfer the particles to the parts to be painted. They protect internal components and allow easy cleaning.
Turbine	The rotation of the bell cup is produced by a pneumatic motor. Atomization results from the centrifugal forces generated by rotation of the bell cup.
Injector / Injector holder	The injector transfers products to the bell cup. The holder retains the injector and allows it to be rinsed.
Body assembly	This part houses all fluid circuits and air/solvent microvalves and nanovalves. It supports the turbine, the shaping air assembly and the charge ring.
Nanovalve and microvalve	Air-controlled, 2-way, normally closed valves used for various operations: paint supply, paint rinsing, bell cup exterior rinsing, injector rinsing.
Charge ring	The charge ring is connected to the high voltage. An electric field of ionization is created between the bell cup and the charge ring, the paint particles are charged in the air, subjected to the electric field, they are attracted by the surface to be paint which is connected to the ground.
Quick-disconnect plate	Provides a sealed interface for intake of fluids and air preventing any contamination. Allows quick installation and removal of the atomizer during production.
Rear support	Houses the quick disconnect plate, the high voltage connection. Retains the body assembly.
Nut	Retains the rear support on the robot wrist.
Robot adapter	Used to secure the atomizer to the robot wrist.

3. Precautions for use

The bellcup, turbine and paint and solvent supply system are at earth potential (0kV). The charge electrodes (ionising needles) are brought to a high voltage and emit negative ions.



Droplets of paint leaving the edge of the bellcup are first positively charged by influence. Then during their journey to the target, they fix negative ions emitted by the needles and become negatively charged.

The spray is made up of droplets more or less negatively charged, depending on their size and their journey to the target linked to earth potential. Each droplet of spray is subject to an $F=qE$ force which attracts it towards the target.

Similarly, negatively charged overspray droplets that have deviated on their journey to the target are attracted by the sprayer which is connected to earth. Depending on the density of the overspray, the body of the sprayer will become dirty to a greater or lesser extent with the number of production cycles.

On the other hand, any positively charged particle (not charged) is attracted by the needles brought to a high negative voltage. This can occur, for example, when a needle ceases to emit ions for even a very short moment of time. The part of the spray not correctly charged is then permanently attracted by the defective needle which is instantly covered with paint. The needle, covered with paint, can no longer perform its function and must be cleaned.

We can identify two types of dirt:

- dirt from the ends of the fingers (which hold the needles).
- dirt from the outer cover which surrounds the turbine at earth potential.



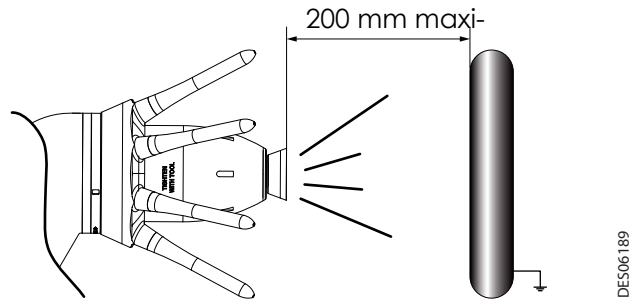
WARNING : To avoid this dirt, it is recommended that you follow the rules below.

3.1. Rules to follow

3.1.1. Spraying



WARNING : Spray only when the target is connected to earth, a maximum of 20 cm away from the edge of the bellcup.



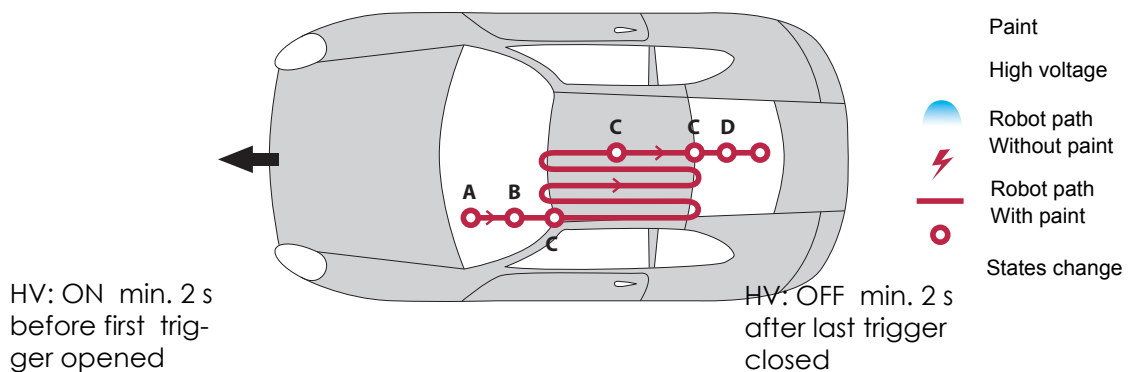
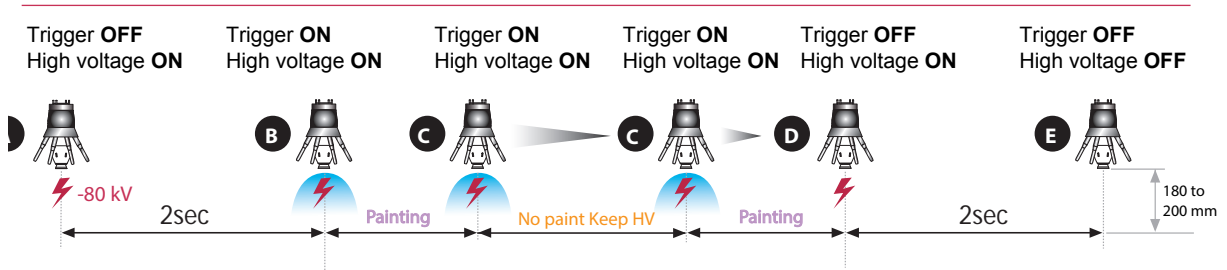
If there is no target, charged droplets will have a tendency to be directed to the single nearby earth, i.e. the sprayer itself.

This rule also applies when changing color, when rinsing the injector and when priming the bellcup. For example, it is recommended that you do not carry out a simulation prior to starting production when there is no body present. This procedure, commonly used when there is an internal charge, is a cause of contamination when there is an external charge.

If a rinsing box is used, the high voltage must be switched off while changing colors

3.1.2. High voltage locking

High voltage must be on before the trigger is opened and must be kept ON for a few seconds after the trigger is closed.



DES06240

It is essential that you follow this rule or the sprayer and electrode will become heavily clogged within a few milliseconds.

Cause : during spraying, negative charges accumulate on the surface of the insulating cap. When the high voltage is switched off, these charges, which cannot flow to earth, due to the insulating cover, remain on the cover and attract all non-charged droplets which pass close by. That is why the high voltage must remain switched "ON" while the overspray emitted by the bellcup is evacuated by the ventilation air.

Unlike when opening the trigger, sprayed droplets which were not charged during the rise to HV will be attracted by the cover which remains negatively charged. That is why the HV must be activated before the nozzle is opened.

Another frequent cause of the appearance of dirt is changing colors.

3.1.3. Shaping air nose

The shaping air nose must be perfectly clean at the end of the rinsing cycle.

There should be no puff of paint when the trigger is first opened, no excess flow during the transitional phase when establishing the flow.

If there is no rinsing box, the voltage must be maintained during the colour change.

Typically, the value of the high voltage during this cycle is 60kV, the shaping air flow rate 300 to 400 NI/mn

On the other hand, special precautions should be taken when periodically manually rinsing sprayers at break times. The following precautions should be taken.

3.1.4. Cleaning



WARNING : Do not clean the exterior of the sprayers with water but with a suitable solvent.

A rag dampened with water should be used initially to discharge the surface of the cap before you use solvent ([see § 7.2.1 page 42](#)).

Dry the sprayer and the needles with air compressed after cleaning and before starting production again.

A damp cover loses its insulating capability and no longer fixes charges to its surface; it also encourages a surface creeping phenomenon even holes through to the core in cases of prolonged use.

Dampness on the needles contributes to a reduction in the electrical field at the tip of the needle. The result is a lower emission of ions and a less effective electrical charge.

Non-charged drops are attracted by the fingers, which are at negative potential. If the field at the needle is weak, the emission of ions can be insufficient to invert the charge on the droplets. These droplets, which remain positive, are then attracted by the fingers which have the opposite potential.

3.1.5. Application

During the production phase, when the installation is properly adjusted with regard to the above few rules, dirt mainly occurs during application. Application adjustments should be made according to site parameters. The following are typical values given as an illustration.

- Mid thickness impact width between 300 and 450mm.
- The speed of rotation of the turbine depends on the products; it should therefore be adjusted to obtain a good appearance. The turbine should turn quickly enough, not to produce large drops.
- Maximum paint flows recommended : 600 cc per min max for primer and BC1
350 cc per min max for BC2 for colour measurement reasons.
- 180 mm < spraying distance < 200mm.
- To ensure an effective ionic charge, the recommended voltage set point depends on the bowl and varies between 60 and 80 kV depending on the type of bellcup.

No-load current consumption can approach or even slightly exceed 500 μ A .

When spraying, a current of between 350 and 500 μ A is required to generate a sufficient number of ions and charge the paint. A current below 300 μ A is the sign of a weak electrostatic charge and a high dirt level.

Optimising the above application parameters is essential but the result (transfer rate-dirt) remains linked to the programming of trajectories. Here again, it is not possible to establish strict rules, since the final appearance depends on the products, the shape of the parts and production rates.

However, it is recommended that the following points are noted:

- The robot should not plunge the sprayer into its own overspray. Do not advance during priming or while opening the trigger.
Wherever possible, it is preferable to paint from the bottom upwards, so that the sprayer stays out of its own spray.
- Limit the number of trigger on/off.
- Trigger off in openings (windows).
- Recommended robot speed less than 700 mm per sec.
- Do not direct the spray towards neighbouring sprayers / robots. Do not direct the spray towards the carrying robot.

3.1.6. Booth conditioning parameters.

Factors determining the level of dirt are the balancing of the booth and the air speed. This is often measured with the booth empty (no parts or body) and at a height of 1 metre. Ventilation is often adjusted to a minimum level for economic reasons. However, the following typical values must be complied with:

- 0,4 m per sec. +/- 0,05 for interior stations
- 0,3 m per sec. +/- 0,05 for exterior stations

On the edges of the booth, there should be no speed component directed from the inside towards the outer walls of the booth.

Standard booth conditions: Temperature 23°C +/-2°.

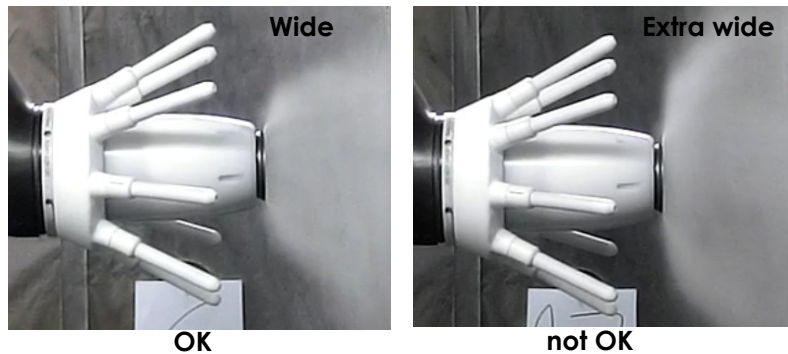
Humidity 65% HR +/-5%



50 EC Bellcup : Universal. Good rate of transfer



WARNING : Sprays which are too wide or too slow should be avoided, particularly in cases of high speed and rapid inversion.



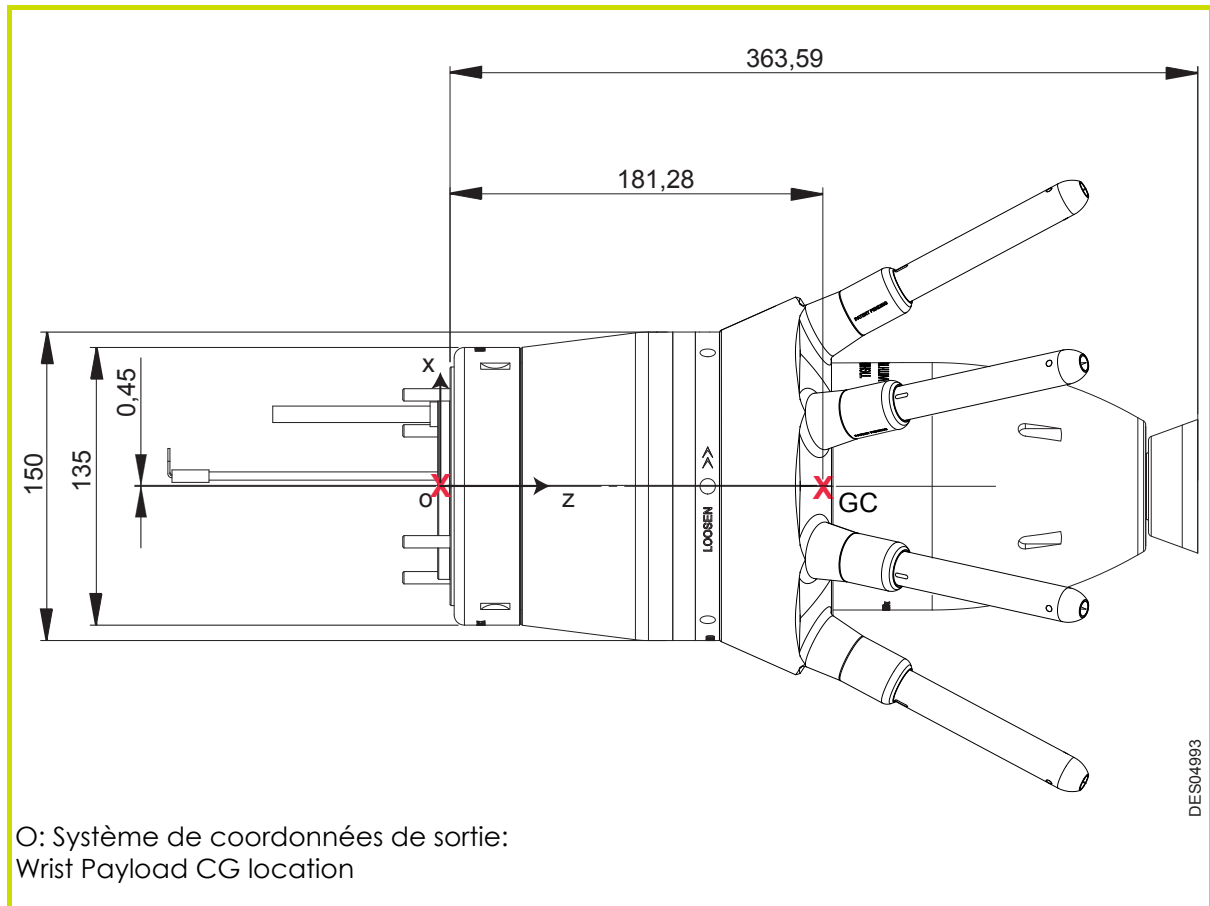
EX 80 bellcup: High spraying power

Note: It is intended for products which are difficult to spray and/or re-coating with a second layer when applying metallic vehicle paint.

High levels of shaping air maintain the spray and allow rapid movements.

4. Technical characteristics

4.1. Dimensions (mm)



Note:

TCP = Tool Center Point

Weight : 6.59 kg

Gravity center (GC) in millimeters

X = 0.45

Y = - 0.08

Z = 181.28

Main inertia axis and moments (kg x mm²) measured to the gravity center:

$I_x = (-0.00, 0.00, 1.00)$	$P_x = 26463.22$
$I_y = (1.00, -0.04, 0.00)$	$P_y = 59037.07$
$I_z = (0.04, 1.00, -0.00)$	$P_z = 59184.28$

Inertia moments (kg x mm²), measured to the output C.S:

$I_{xx} = 275474.19$	$I_{xy} = -6.50$	$I_{xz} = 396.47$
$I_{yx} = -6.50$	$I_{yy} = 275622.80$	$I_{yz} = -48.47$
$I_{zx} = 396.47$	$I_{zy} = -48.47$	$I_{zz} = 26465.33$

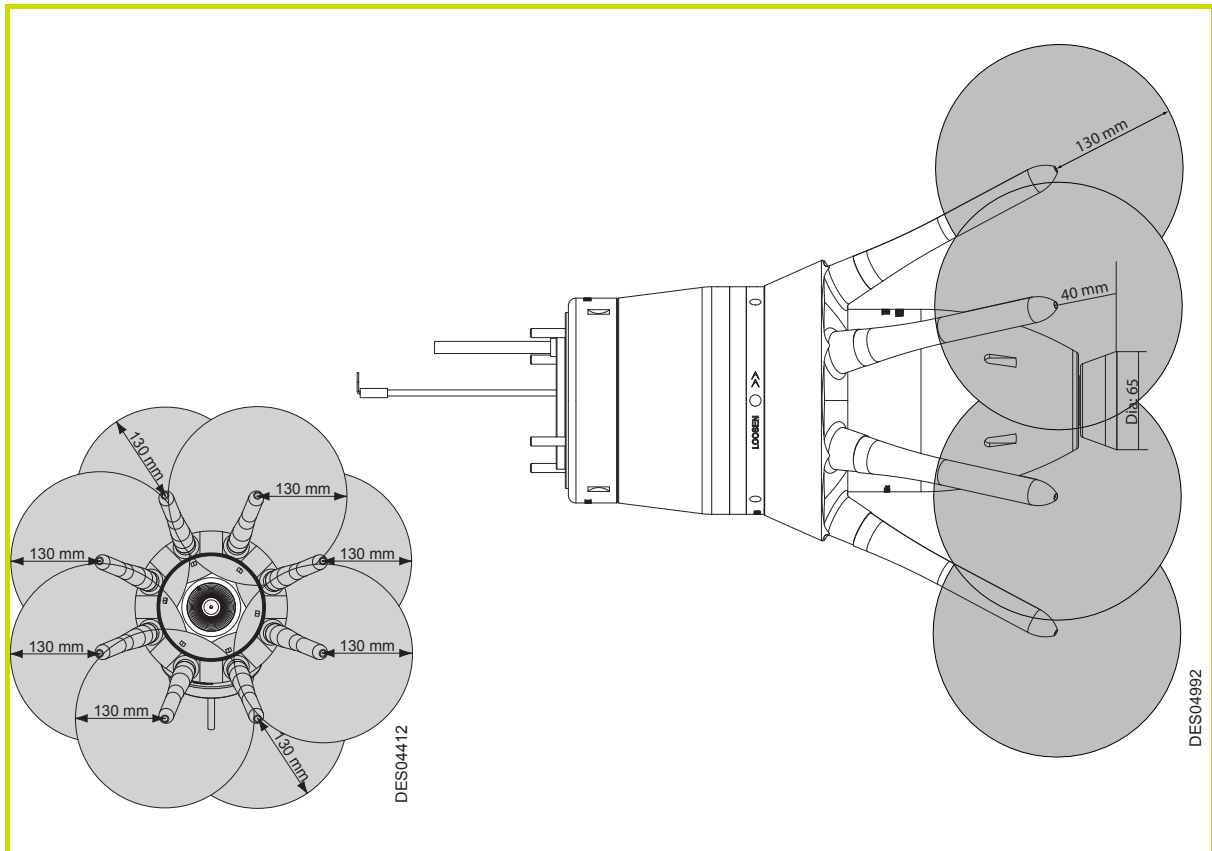
4.2. Operating characteristics

Weight		
	Atomizer without cable or hose	6.59 kg
Voltage		
	Maximum operating voltage	85 kV
	Maximum operating current	500 μ A
Speed		
	Recommended rotation speed	15 to 80 Krpm.
Paint		
	Flow rate	up to 700 cm ³ /mn max.
	Normal supply pressure	6 to 8 bar
	Maximum pressure	10 bar
	Viscosity	20 to 40 seconds - FORD cup n° 4
	Viscosity	20 to 45 seconds - AFNOR cup n° 4
Air pressure		
	Nanovalue pilot	8 bar (min.) - 10 bar (max.)
	Microvalve pilot	6 bar (min.) - 10 bar (max.)
	Bearing air	5 bar (min.) -7 bar (max. at 130 l/min)
	Shaping air	6 bar maximum
	Microphone air	0.5 to 1 bar constant
Compressed Air quality		
	Filtered air (bearing air) must be dry and free of oil and dust as per DIN ISO 8573-1	
	Maximum dewpoint at 5.5 bar (80 psi)	Class 2 i.e - 40°C (-40°F)
	Maximum particle size of solid contaminant (Bearing air)	Class 0 i.e \varnothing 0,1 μ m
	Maximum particle size of solid contaminant (Turbine rotation)	Class 1 i.e \varnothing 1 μ m
	Maximum particle of solid contaminants (Others)	Class 3 i.e \varnothing 5 μ m
	Maximum concentration of oil	Class 1 i.e 0,01 mg / m ₀ ³ *
	Maximum concentration of solid contaminants	1 mg / m ₀ ³ *
Air consumption		
	Pilot	10 NI/min
	Bearing air	125 NI/min
	Shaping air	200 to 850 NI/min
	Turbine	see RT Nr 6354
Booth conditions		
	Relative humidity	60-65%.
	Ambiente temperature	23° C \pm 2°C.
Robot speed		
		up to 900mm/s

* m₀³ values given for a temperature of 20°C (68°F) and an atmospheric pressure of 1,013 mbar.

4.3. Safety characteristics

PPH 707 EXT ST with high voltage unit UHT 330 and high voltage cable, safety distance on each electrode finger.



Protection against high energy discharges (§ 5.2.3 Standard EN 50176)

After the high voltage is disconnected, the discharge time for all the parts under voltage up to a discharge energy lower than 350 mJ is de **0,8 s** for a PPH 707 EXT ST.

Protection against l'inflammation of cleaning products (§ 5.2.4 Standard EN 50176)

If inflammable cleaning products are used, the discharge time for all the parts under voltage up to a discharge energy lower than 0,24 mJ is **5,8 s** for a PPH 707 EXT ST.

4.4. Operating principle

4.4.1. Turbine

[see RT Nr 6354](#)

The turbine is equipped with an air bearing that separates the transmission shaft and drive vane from the main body of the turbine. This eliminates friction between the various components, ensuring long component life and allowing high rotation speeds.

The air directed onto the turbine blades controls the rotation or braking of the turbine.

Atomisation of the product takes place thanks to the centrifugal forces created by the rotation of the bell cup. The size of the atomised particles decreases as the rotation speed increases.

4.4.2. Rotation speed measurement

4.4.2.1. With microphone

The rotation speed is measured acoustically. Air is supplied between the rear flange and the shaft. Each bell cup rotation, air passes through a groove machined on the shaft. This variation in pressure generates a signal whose frequency is proportional to the rotation speed and which is returned to the microphone through the turbine (via the atomizer body). The microphone ([see RT Nr 6190](#)) converts this signal into electrical pulses that are in turn transmitted to a control board or a frequency/Voltage converter.

The microphone assembly and the BSC 300 turbine speed regulation module constitute the MIC31 certified electrical system ([see RT Nr 6364](#)).

If used with a Frequency/Voltage converter, the MIC01 certified electrical system (Microphone + zener barrier) must be used ([see RT Nr 6364](#)).



WARNING : The 'microphone return' hose must be less than 4.5 m long to avoid loss of acoustic signal at the microphone.

Due to the high speed of the turbine, a resonance frequency may be generated in a hose longer than 4.5 m. The resonance frequency causes a stationary wave that inhibits the acoustic signal at the microphone.

4.4.2.2. With optical fibre

The turbine rotation speed is measured optically.

The optical fibre assembly (P/N: 910005173) includes two fibres and two end pieces with display ports

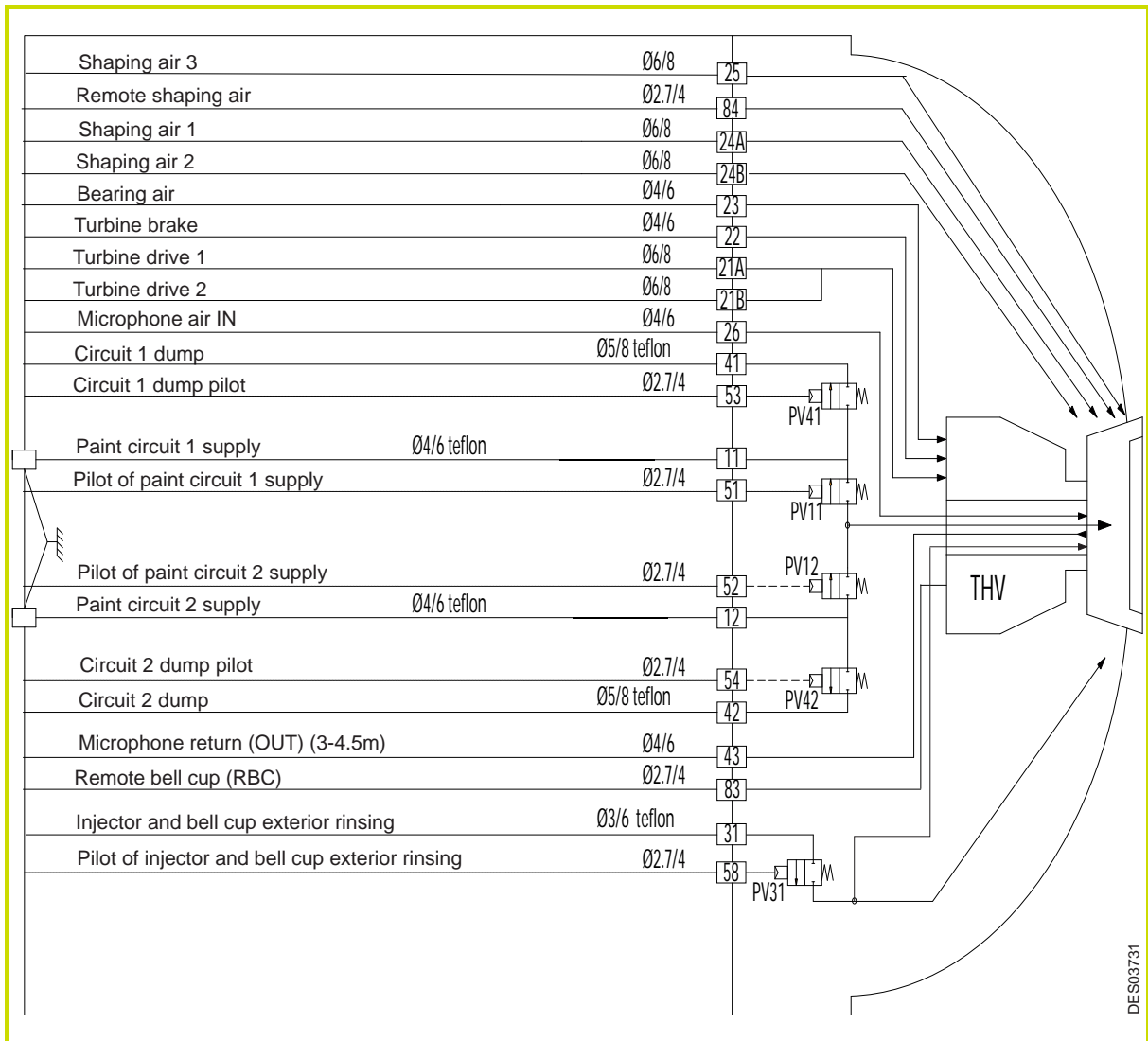
One of the two fibres conducts a continuous light signal, which in turn reflects a discontinuous signal onto the turbine shaft (target: see illustration below). The frequency of this discontinuous signal is used to determine the rotation speed of the shaft (2 light pulses/turbine revolution).



The discontinuous signal is transmitted by the second fibre, leading to an electro-optical converter (Ref.: 110000846AT) via the 8 m-fibre optic kit (P/N: 910005172), installed in the quick-disconnect plate. The output signal from this electronic pulse sensor is recovered and analysed using a suitable counting system such as Frequency/Voltage (P/N: 1525628).

At a rotation speed of 70,000 rev/min, the frequency would be 2.33kHz (2 pulses/revolution).

5. Fluid diagram



Marking no.	Function	Hose characteristics
11	Paint circuit 1 supply	4 /6 Teflon
12	Paint circuit 2 supply	4 /6 Teflon
21A	Turbine rotation 1	6/8 Rilsan
21B	Turbine rotation 2	6/8 Rilsan
22	Turbine braking	4/6 Rilsan
23	Bearing air	4/6 Rilsan
24A	Shaping air 1	6/8 Rilsan
24B	Shaping air 2	6/8 Rilsan
25	Shaping air 3	6/8 Rilsan
26	Microphone air IN	4/6 Rilsan
31	Injector and bell cup exterior rinsing air/solvent	3 /6 Teflon
41	Circuit 1 dump	5 /8 Teflon
42	Circuit 2 dump	5 /8 Teflon
43	Microphone return (OUT)	4/6 Rilsan
51	Pilot of paint circuit 1 supply	2.7/4 Rilsan
52	Pilot of paint circuit 2 supply	2.7/4 Rilsan
53	Circuit 1 dump pilot	2.7/4 Rilsan
54	Circuit 2 dump pilot	2.7/4 Rilsan
58	Pilot of injector and bell cup exterior rinsing air/solvent	2.7/4 Rilsan
83	Remote bell cup (RBC)	2.7/4 Rilsan
84	Remote shaping air (RSA)	2.7/4 Rilsan



WARNING : Teflon hoses must never be replaced with Rilsan hoses. Only polyamide hoses can be used for air connections. Polyurethane hoses are prohibited.

Note:

Blue colored hoses are used for the various types of air supply.
Non-colored hoses are used for products.

RSA (Remote Shaping Air) function: Inlet 84 is a shaping air pressure tap used to check flow rate/pressure conformity during operation.

For a given flow rate D1, there must be a corresponding pressure P1 (identification / mapping of shaping air flow rate as a function of RSA pressure).

During production, the RSA pressure can be monitored as a function of the shaping air flow rate:

- RSA pressure < P1: air leak (shroud incorrectly fastened, punctured hose, etc.)
- RSA pressure > P1: clogged shaping air holes or bent hose

RBC (Remote Bell Cup) function: Inlet 83 is a pressure tap used to measure a pressure proportional to the bell cup resistance force (magnetic clip).

This pressure must exceed 1.5 bar.

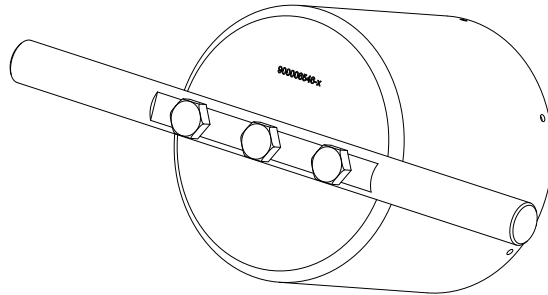
- RBC pressure \leq 0.6 bar: bell cup not present
- 0.6 bar < RBC pressure < 1.5 bar: insufficient resistance force (dirty turbine fastening cone, damaged bell cup cone)

- When the RBC pressure is less than 1.5 bar, the 'bell cup retaining/presence' fault is activated, inhibiting the rotation and activation of the paint supply valve (except in maintenance mode, to perform paint flow rate measurements).

- **QD check:** Function associated with the RBC function. When the RBC pressure is less than 1.5 bar, a 'QD check problem' fault is also activated. The problem may be due to an incorrectly fastened quick-disconnect (QD) plate and/or to a bell cup retaining/presence problem. The operator is prompted to check these components and production is interrupted (the atomizer cannot be used with this fault).

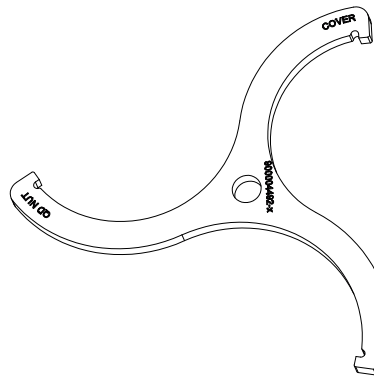
6. Startup

6.1. Tools



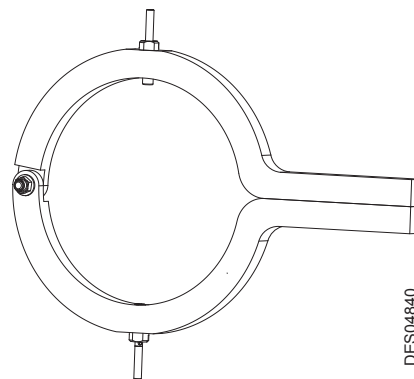
DES04782

P/N	Description	Qty	Unit of sale
900006546	Installation/removal tool for outer cover	1	1



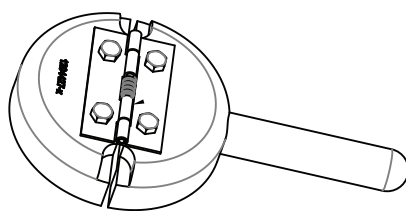
DES03480

P/N	Description	Qty	Unit of sale
900006424	Installation/removal tool for rear nut and quick disconnect plate nut	1	1



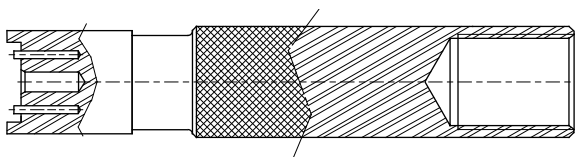
DES04840

P/N	Description	Qty	Unit of sale
910009127	Installation/removal tool for quick disconnect plate nut	1	1

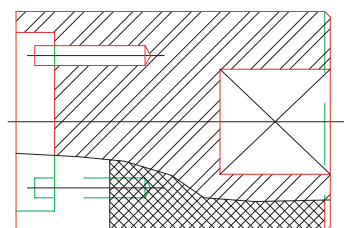


DES02870

P/N	Description	Qty	Unit of sale
90000803	Removal tool for magnetic EC 50 bell cup	1	1
900005087	Removal tool for magnetic EX 65 bell cup	1	1
900008708	Removal tool for magnetic EX 80 bell cup	1	1

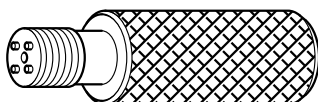


DES01025

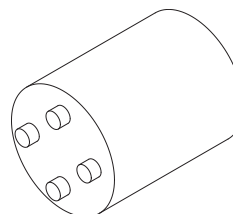


DES01641

P/N	Description	Qty	Unit of sale
1301832	Removal tool for nanovalve	1	1
1403498	Automatic tightening tool for nanovalve	1	1

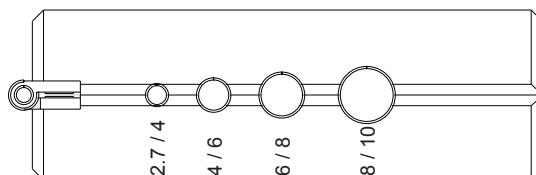


DES00039



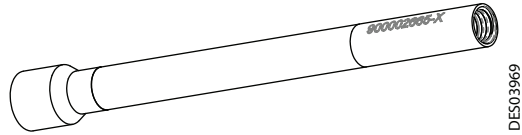
DES01673

P/N	Description	Qty	Unit of sale
1303689	Removal tool for microvalve	1	1
1403478	Automatic tightening tool for microvalve	1	1

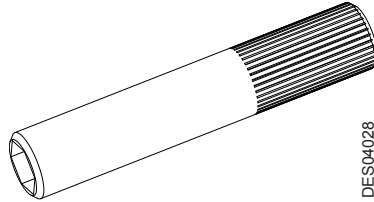


DES03489

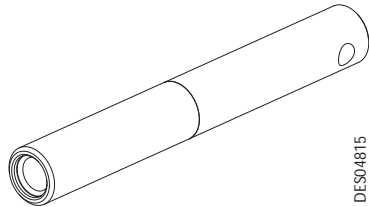
P/N	Description	Qty	Unit of sale
1313955	Installation tool for fittings	1	1



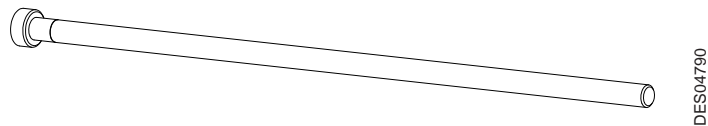
P/N	Description	Qty	Unit of sale
900002665	Trapezoidal tool for clipped fittings	1	1



P/N	Description	Qty	Unit of sale
910000700	Removal tool for injector	1	1



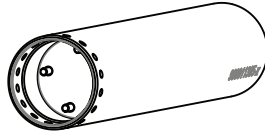
P/N	Description	Qty	Unit of sale
900006354	Removal tool for high voltage connection and ground cable	1	1



P/N	Description	Qty	Unit of sale
910009029	Removal tool for 1-needle charge ring	1	1

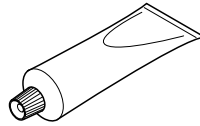


P/N	Description	Qty	Unit of sale
910024186	Assembling tool for short 1-needle charge ring	1	1



DES06125

P/N	Description	Qty	Unit of sale
900011385	Indexing tool for the orientation ring of the finger (2- needle fingers)	1	1



DES00685

P/N	Description	Qty	Unit of sale
H1GMIN017	Vaseline white (100 ml)	1	1
H1GSYN037	Dielectric grease (100 ml)	1	1

Additional tools and accessories required:

The tools listed below should be available for product installation and maintenance operations.

- Hose cutter (P/N W3SCTU002)
- Screwdriver (small and medium)
- Allen wrench (3.4 mm)
- Torque wrench
- Fine brush
- Flat wrenches (9 and 12 mm)
- Cylindrical brush
- Small cutting pliers.

6.2. Installation

- **Step 1:** Separate the robot nut from the rear support, place the nut (P/N 900006344) on the robot adapter.



Step 1

- **Step 2:** Set the robot in position 0 (wrist axis). Position the equipped robot adapter on the robot wrist by aligning the locating pins, then tighten the six robot adapter screws.

Step 2



- **Step 3:** Take the rear support and screw the lug of the ground cable on the robot adapter. Pass the high voltage cable through the quick disconnect plate fitted on the rear support then through the robot wrist. Install the equipped rear support on the robot wrist and tighten the nut (P/N # 900006344) using tool (P/N # 900006424) while maintaining the robot wrist.

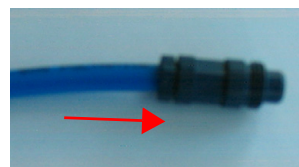


Steps 3 and 4

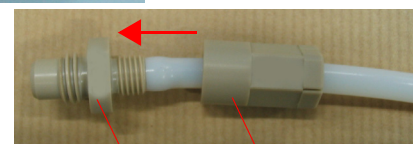
- **Step 4:** Separate the quick disconnect plate from the rear support, pass the hose/cable bundle (air and product hoses) through the robot wrist then through the rear support.

- **Step 5:** Pass one by one the hoses through the quick disconnect plate by respecting their location.

- **Step 6:** Install the fittings on the hoses.
Air fitting: Push the hose into the fitting and tighten securely (for fittings P/N 910002946, 910002947, 910002948 and 910004923).
Product fitting: For screwed fittings (P/N 910003344 and 910003345), fit the nut on the hose, push the hose onto the fitting body until the shoulder, and tighten the nut.
For the fitting (P/N 910003413), proceed as the air fittings



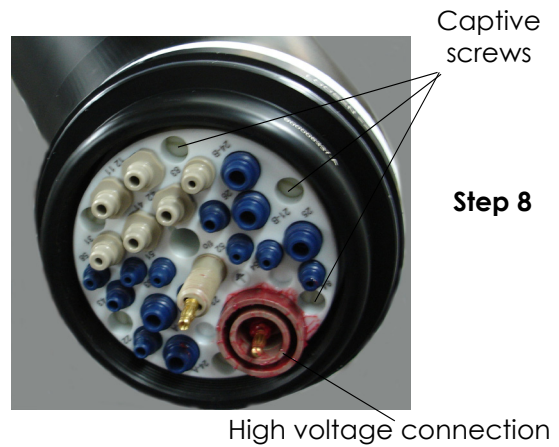
Step 6



Fitting body Nut

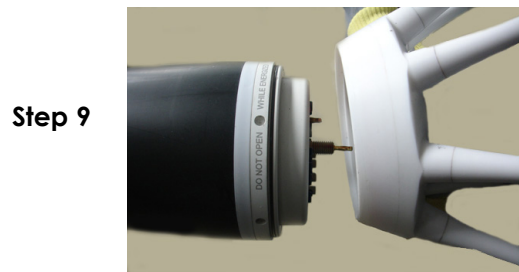
- **Step 7:** Clip each fitting on the quick disconnect plate.

- **Step 8:** Screw the quick disconnect plate on the rear support (six captives screws, tightening torque: 0.15 N.m). Coat the high voltage connection with dielectric grease and screw it on the quick disconnect plate.



- **Option:** Install the protective sleeve on the atomizer in case of immediate use for production.

- **Step 9:** Coat the baffles of the charge ring with dielectric grease. Put in place the charge ring on the rear support and tighten it on the quick disconnect plate with the two screws (M5x 40). Align the marks located on the charge ring with those engraved on the rear support and on the nut of the quick disconnect plate.



- **Step 10:** Install the equipped body on the rear support and tighten the quick disconnect plate nut using tool (P/N 900006424 or 910009127).



- **Step 11:** Install the shaping air shroud equipped with o-rings on the body, then tighten manually the outer cover, secure it using tool (P/N 900006546) and clip the bell cup. Check the electrical continuity (read value 100 MOhms \pm 10%) between each needle of the charge ring and bell cup.

6.3. Shutdown and startup procedures

Important recommendations:

Comply with the air settings given in Section 3.2.

The bearing air pressure must be at least 5 bar at the quick-disconnect plate.

Check that the speed regulating module transmits a signal.

6.3.1. Shutdown procedure

Important steps be observed:

		Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Stop atomising	Sequence chart						
Switch off the high-voltage power supply							
Run a rinsing cycle							
Run a blowing cycle of paint and solvent hoses							
Cut off the shaping air							
Cut off the turbine rotation air (*)							
Cut off the bearing air							



WARNING : * Wait until the turbine has stopped completely stop: 0 tr/mn.

6.3.2. Start-up Procedure

Important steps to be observed:

		Step 1	Step 2	Step 3	Step 4
Switch on the bearing air supply	Sequence chart				
Start up turbine rotation					
Switch on the shaping air supply					
Switch on the high voltage supply					
Start up atomisation					

7. Maintenance

7.1. Summary table of maintenance operations

Procedure	Description	Preventive	Corrective	Duration	Frequency	
A	Cleaning of atomizer exterior, outer cover, bell cup exterior and charge ring	X		5 min.	8 hours	
B	B1	Cleaning of bell cup	X	2 min.	40 hours	
	B2	Cleaning of outer cover	X	8 min.	40 hours	
	B3	Cleaning of injector exterior	X	4 min.	40 hours	
C	C1	Cleaning of turbine	X	2 min.	520 hours	
	C2	Cleaning of injector and injector holder	X	2 min.	520 hours	
	C3	Cleaning of display ports (fiber optic system)	X	2 min.	520 hours	
	Body maintenance					
D	D1	Body installation/removal		X	< 5 min.	
	D2	Replacement of o-rings		X	15 min.	>10000 hours
	D3	Replacement of solvent pipette		X	5 min.	>10000 hours
	D4	Replacement of nanovalves		X	5 min.	2.5 million cycles
	D5	Replacement of microvalves		X	5 min.	3 million cycles
	D6	Replacement of high-speed turbine		X	< 5 min.	
	D7	Replacement of fiber optic system		X	< 5 min.	>10000 hours
	Maintenance of quick-disconnect plate					
E	E1	Hose replacement		X	10 min.	12 to 24 months
	E2	Replacement of fitting		X	5 min.	>10000 hours
	E3	Replacement of quick-disconnect plate		X	30 min.	
	Maintenance of rear support					
F	F1	Replacement of high-voltage connection		X	10 min.	12 to 24 months
	Maintenance of charge ring					
G	G1	Replacement of resistors		X	30 mn	
	G2	Replacement of needles (only for 1-needle finger versions)		X	30 mn	12 months

7.2. Preventive maintenance

These maintenance operations can be performed online. Always refer to the health and safety instructions before carrying out any work ([see § 1.4 page 7](#)).

7.2.1. Procedure A: Atomizer exterior

At regular intervals during frequent use, and at the end of each cycle:

- Run a rinsing cycle, stop the atomizer and switch off the power supply.
- Switch off the turbine. The bearing air and shaping air remain under pressure to block the solvent flow between the bell cup and inner shaping air shroud.



WARNING : Always wear safety goggles.

Whenever solvent is handled, gloves made of an appropriate resistant material must be worn.

Work in a well-ventilated area whenever solvent is used.



WARNING : Prior to cleaning, it is essential to eliminate all electrostatic charges on the atomizer using a cloth soaked with water, a soft brush and an approved cleaning product. Do not use a manual solvent gun.



WARNING : 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** disadvises 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.

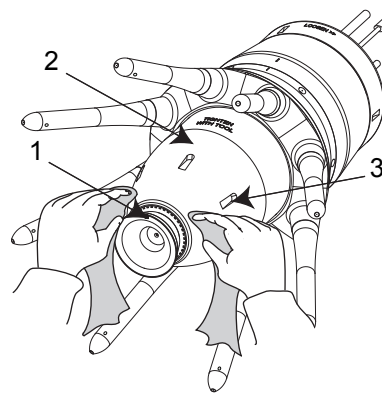
SAMES KREMLIN also forbids the use of absorbent textile cover to protect bodies and insulating covers of the atomizers. Textile covers retain the cleaning products and paint what can generate problems of high voltage (drilling, ionization, degradation of the material...).

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.

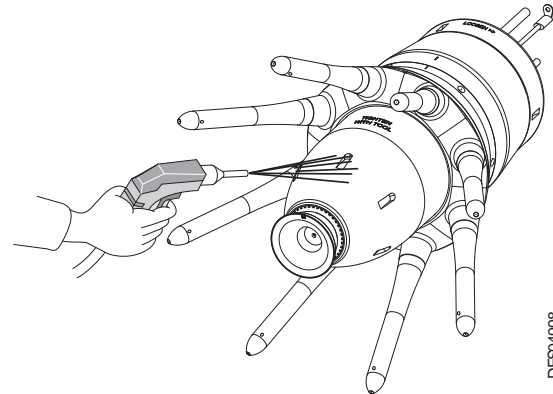
This is why, insulating protection means must be renewed on a regular basis.

1	Bell cup
2	Outer cover
3	Grooves on the outer cover



DES04987

- Clean the outer cover and the bell cup exterior with a clean cloth.
- Check that the grooves on the outer cover are clean.

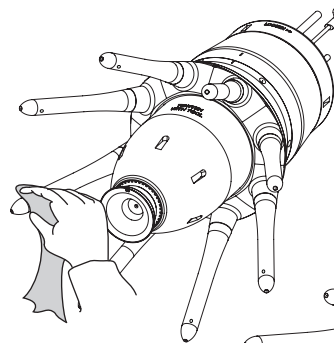


DES04988

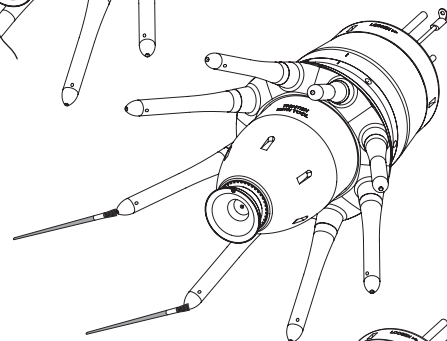
- Dry carefully.

7.2.1.1. Cleaning of charge ring

- Clean the fingers of the charge ring with an humidified solvent rag.

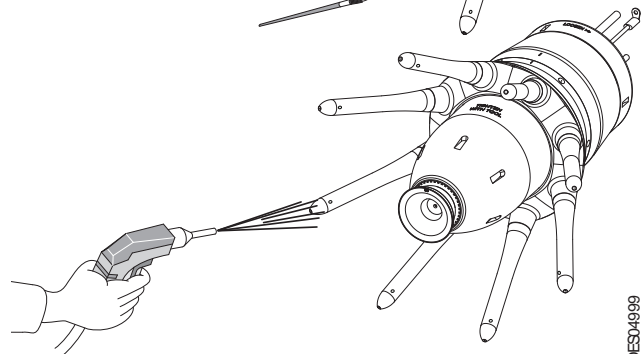


- Clean carefully the needles using a brush and solvent.



- Dry carefully with a clean, dry, non-fluffy cloth.

- Then, dry carefully fingers and needles with compressed air.



DES04989

7.2.2. Procedure B1: Magnetic bell cup



WARNING : All bell cup maintenance or handling operations must be performed with extreme care, since the bell cup is balanced.

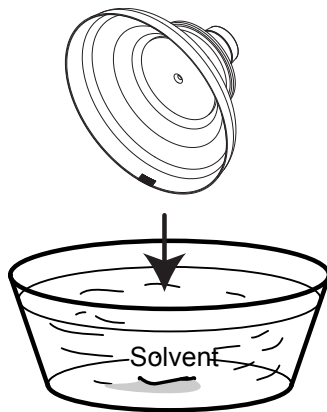


WARNING : Stop the turbine and cut off the shaping air. The bearing air remains pressurized.

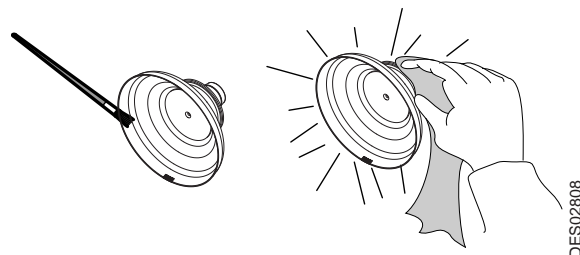
- Remove the magnetic bell cup using tool, ([see RT Nr 7077](#))
- Carry out a visual inspection.
- Let the bell cup soak for one hour in an appropriate solvent, then clean with a clean cloth and soft brush.



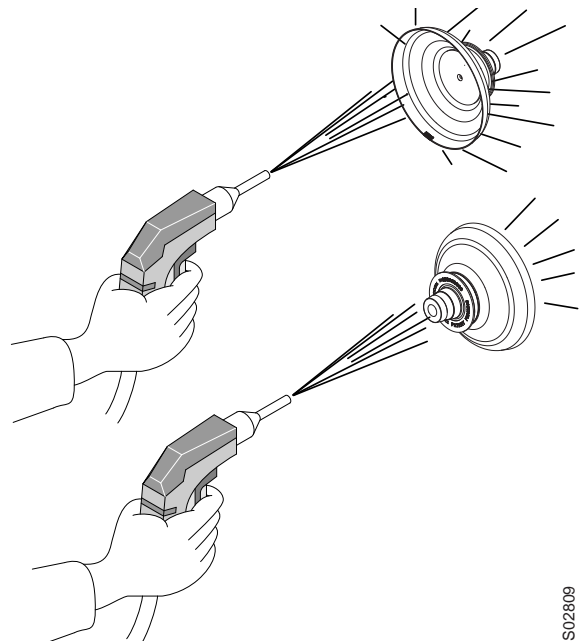
WARNING : Make sure that all surfaces are clean and completely free of impurities, particularly the inner and outer surfaces of the bell cup fastening cylinder.



DES02807



- Dry carefully with compressed air.

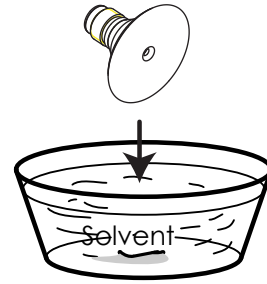


- Reinstall the bell cup on the atomizer.

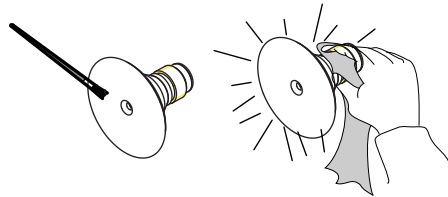
7.2.2.1. Deflector cleaning

- **Step 1:** Remove the deflector, [see RT Nr 7077](#).

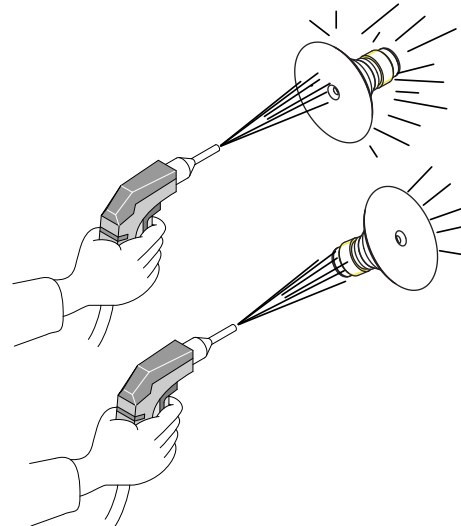
- **Step 2:** Leave to soak in solvent for one hour.



- **Step 3:** Then clean with a clean cloth and soft brush.



- **Step 4:** Dry carefully the two faces of the deflector with compressed air.

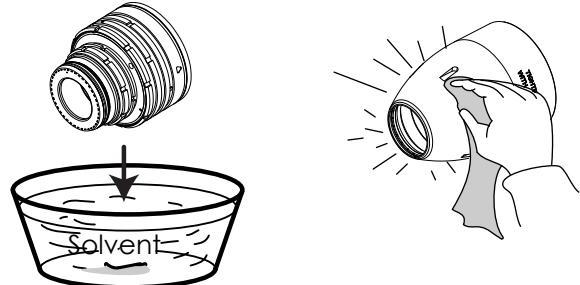


DES02825

7.2.3. Procedure B2: Shaping air assembly

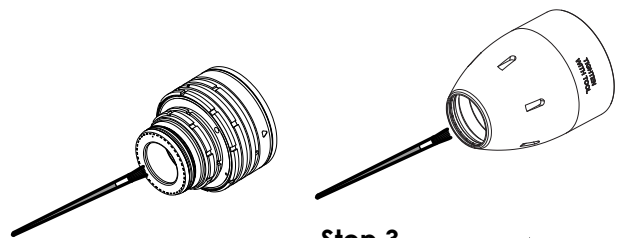
- The bell cup has been previously removed.
- **Step 1:** Begin to loosen the outer cover with tool P/N 900005088, then continue manually [see RT Nr 7077](#). Remove the outer cover, then remove the inner air shroud. Carry out a visual inspection of the components (outer cover, shaping air shroud and O-rings), replace if necessary, then clean the shaping air shroud:

- **Step 2:** Let the shaping air shroud soak in waterborne solvent for five minutes. Clean the outer cover using a rag soaked in solvent.



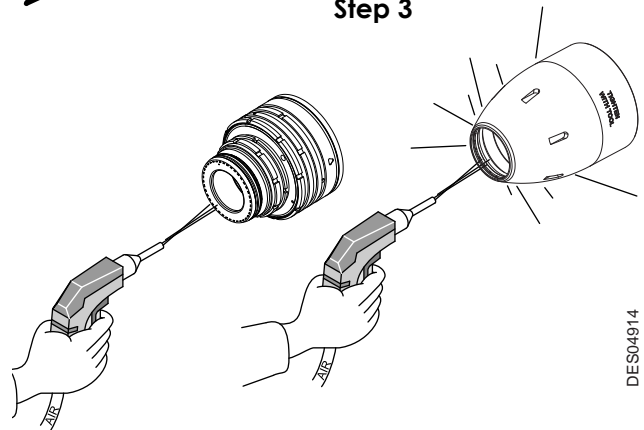
Step 2

- **Step 3:** Using a nylon brush, clean all the holes located on the front face of the shaping air shroud and the outer cover.



Step 3

- **Step 4:** Dry carefully the shaping air shroud and the outer cover with compressed air insisting on the holes to eliminate the paint residues, then wipe with a clean dry rag.



Step 4

- Reinstall the shaping air assembly ([see RT Nr 7077](#)).

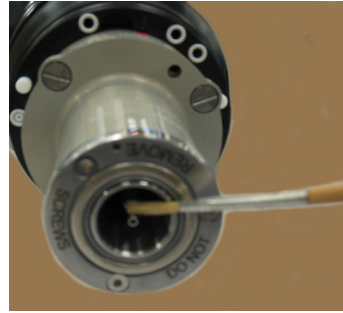


WARNING : Keep the threading between the outer cover and the body clean. Coat the threading with vaseline to facilitate the reinstallation of the outer cover.

7.2.4. Procedure B3: Injector exterior

Proceed with the bell cup and shaping air shroud assembly previously removed.

- Use a brush slightly soaked in solvent to clean the injector exterior.



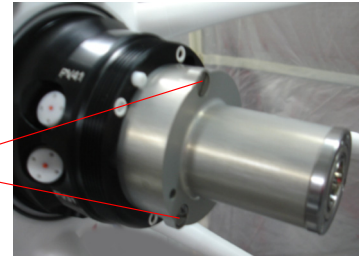
- Dry carefully with a clean, dry, non-fluffy cloth.

7.2.5. Procedure C1: Turbine

- Proceed with the bell cup and shaping air assembly previously removed.

- Loosen the three turbine fastening screws.

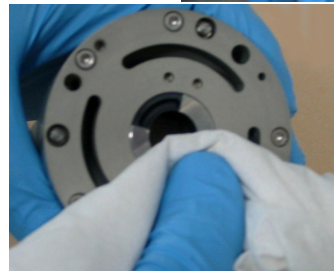
3 captive screws



- Clean the turbine interior with a cylindrical brush.

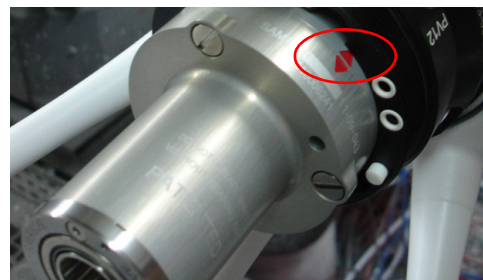


- Clean the turbine exterior with a soft, non-fluffy cloth.



WARNING : Do not soak the turbine in solvent.

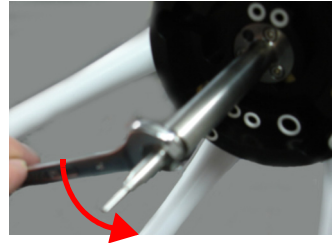
- Prior to reinstalling the turbine on the body, check the condition of the O-rings, replace them if necessary, and make sure that they are all presents.
- Position the turbine on the body by aligning the marking on the turbine (red arrow) with that on the body. Tighten the three fastening screws (tightening torque: 2.2 Nm).



7.2.6. Procedure C2: Injector / Injector holder

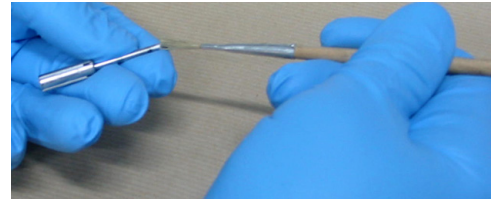
- Proceed with the bell cup, shaping air shroud assembly and turbine previously removed.

- Use a 9-mm flat wrench to loosen the injector/diffuser assembly. Withdraw the injector from the diffuser by pushing it carefully.



WARNING : All operations on the injector must be performed carefully.

- Clean the injector and diffuser with a soft brush previously soaked in solvent.
- In case of very significant soiling: Let the injector soak for one hour in an appropriate solvent and dry carefully with compressed air.
- Remove the injector holder, if necessary (three M3x8 screws).
- Check the condition of the injector O-rings. Replace if necessary.
- Position the injector holder (aligning it with the locating pin) and fasten it using the three M3x8 screws (tightening torque: 1.7 Nm).
- Insert the injector and o-ring into the diffuser, do not tighten securely, place the o-ring on the diffuser, place the assembly in the injector holder, then tighten manually.



- Screw the injector in the injector holder using installation tool P/N 910000700 and a torque wrench (tightening torque: 2.2 Nm).



Tool P/N 910000700



7.2.7. Procedure C3: ports from optical fibre system

The optical fibre may remain in position while ports are being cleaned.

Using a soft, lint-free cloth and an appropriate solvent, clean the ports and dry them carefully.

7.3. Corrective maintenance

The following operations are preferably performed in a workshop.

Before any operation on the atomizer, put the robot in 0-position.

Proceed with the bell cup and shaping air assembly previously removed.

7.3.1. Procedure D1: Body installation/removal

- **Remove the body:** Hold the body and loosen the quick disconnect plate nut using tool (P/N 900006424 or 910009127).

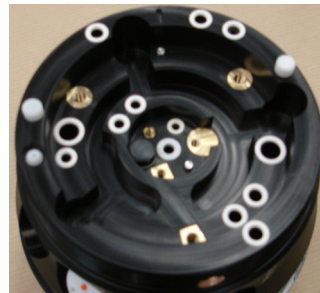
Removal tool,
P/N 900006424



- **Reinstall the body:** Secure the body on the rear support ([see § 6.2 page 38](#)).

7.3.2. Procedure D2: Replacement of body o-rings

- Check the condition of the o-rings on both faces of the body and replace if necessary.
O-ring kit (turbine side) P/N 910003415
O-ring kit (quick-disconnect plate side) P/N 910003416



Body turbine
side



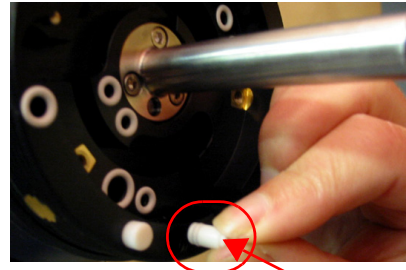
Body quick-
disconnect
plate side



WARNING : Prior to reinstalling the body on the rear support, make sure all the o-rings are presents.

7.3.3. Procedure D3: Replacement of solvent pipette

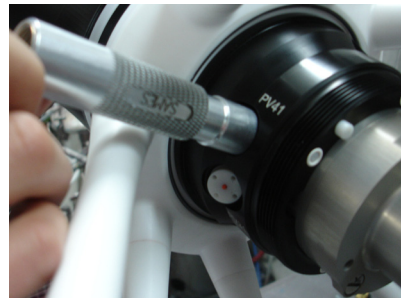
- **Remove the solvent pipette:**
This operation automatically destroys the solvent pipette.
If absolutely necessary, remove the solvent pipette using an M1.6x0.35 screw.
Replace the solvent pipette and install it in the body.



Solvent pipette

7.3.4. Procedure D4: Replacement of nanovalves

- **Remove the nanovalves:**
[see RT Nr 6258](#) for the operations listed below.
Remove the nanovalves using tool P/N 1301832.
Check their condition, clean them, and replace if necessary.



Nanovalves

7.3.5. Procedure D5: Replacement of microvalves

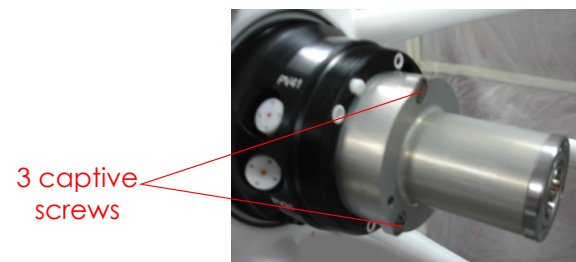
- **Remove the microvalves:**
[see RT Nr 6021](#) for the operations listed below.
Remove the microvalves using tool P/N 1303689.
Check the condition of the microvalves (paint supply microvalves PV11 and PV12), clean them, and replace if necessary.



Microvalves

7.3.6. Procedure D6: Replacement of high-speed turbine

- **Remove the turbine:**
Loosen the three captive screws. Pull the turbine along the axis.



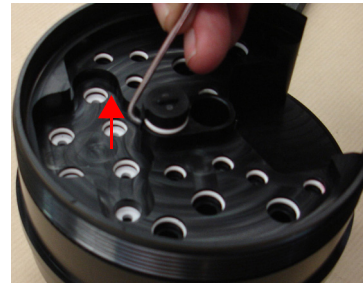
3 captive screws

- **Install the turbine:**
Position the turbine on the body by aligning the marking on the turbine (red arrow) with that on the body.
Tighten the three fastening screws (tightening torque: 2.2 Nm).



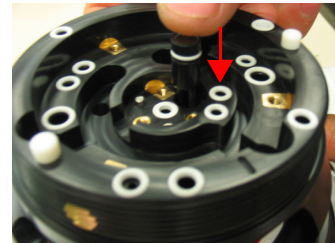
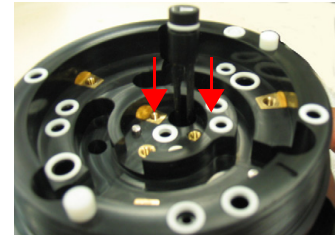
7.3.7. Procedure D7: Replacing optical fibre
The turbine has been disassembled in advance:

- Remove the end piece at the quick-disconnect plate end using a hook and by pulling under the dangular positioning flat.
- Push back the two visible fibres inside the elbow.
- Remove the end piece and its two fibres at the turbine end.



Reassembly:

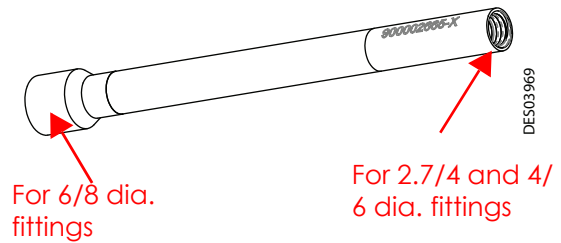
- Position the end-piece on the quick-disconnect plate in the elbow.
- Insert the two fibres in their housing at turbine end and push inside elbow.
- Push in two end pieces fully; they are secured by two o-rings.



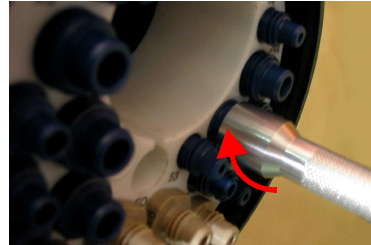
7.3.8. Procedure E1: Hose replacement

- **Hose replacement:**

It is not necessary to separate the quick-disconnect plate from the rear support in order to access the fittings or hoses.



- Position tool P/N 900002665 on the fitting. Screw.



- Withdraw the fitting by pulling it along the axis using the tool.



- **To replace the hose**, use the old hose as a needle and pull the assembly until the new hose protrudes from the quick-disconnect plate.



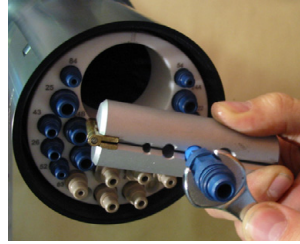
WARNING : When replacing a hose, ensure that there is sufficient length for disassembly at a later stage. The hoses must be secured so that they cannot be torn out.



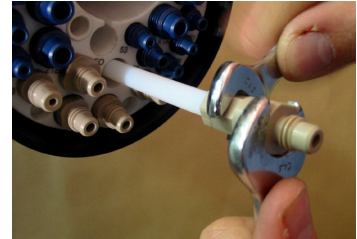
WARNING : Replace all hoses every 12 to 24 months, depending on the amount of use.

7.3.9. Procedure E2: Replacement of fittings

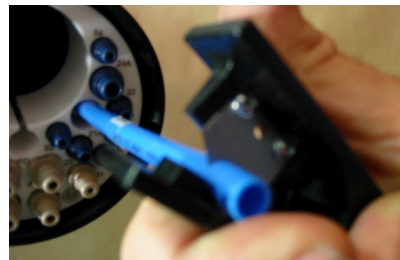
- **Remove the air fitting from the hose:** Hold the hose using tool P/N 1313955, insert the hose in the orifice corresponding to the hose diameter, and loosen using a flat wrench with diameter corresponding to the fitting diameter.



- **Remove the product fitting:** Loosen the nut while holding the fitting with two flat wrenches, then withdraw the fitting from the tube by pulling along the axis (slightly rotating the fitting).

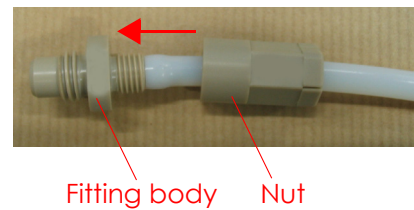
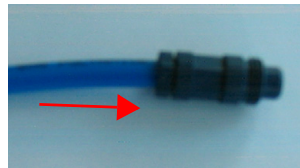


- To merely replace the fitting, cut the hose approximately 20 mm from its end using the tube cutter (P/N W3SCTU002). Caution: The cutting plane must be perfectly perpendicular to the hose.



Reinstallation of fittings:

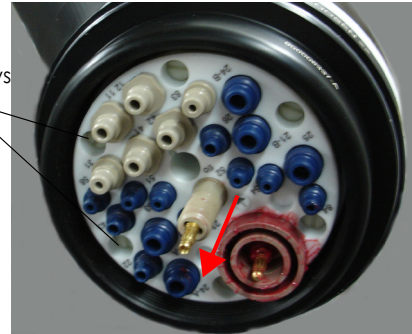
- **Air fitting:** Push the hose into the fitting and tighten securely (for fittings P/N 910002946, 910002947, 910002948 and 910004923).
- **Product fitting:** For screwed fittings (P/N 910003344 and 910003345), fit the nut on the hose, push the hose onto the fitting body until the shoulder, and tighten the nut.
For the fitting (P/N 910003413), proceed as the air fittings.



7.3.10. Procedure E3: Replacement of quick-disconnect plate

- Loosen the ground screw fitted on the robotic adapter and withdraw the ground cable by the front of the quick disconnect plate.
Extract the high voltage connection ([see § 7.3.11 page 55](#)).
- Loosen the six captive screws and withdraw the quick-disconnect plate.

Captive screws

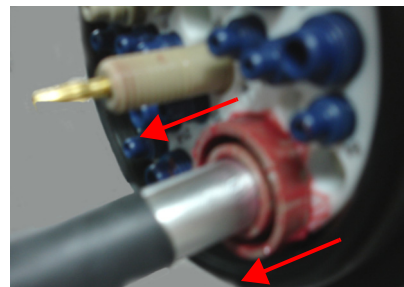


- Remove the fittings from each hose ([see § 7.3.9 page 54](#)).
- Position the new quick-disconnect plate and the hoses, then reinstall the fittings ([see § 7.3.9 page 54](#)).
Re-install the ground cable and the high voltage connection beforehand coated with dielectric grease by inserting them by the front of the quick disconnect plate.
Place the quick-disconnect plate on the rear support and tighten the six screws (tightening torque: 0,15 Nm).

7.3.11. Procedure F1: Replacement of high-voltage connection

The quick disconnect plate being accessible.

- Disconnect the high voltage cable.
Loosen the high voltage connection using tool (P/N # 900006354) and withdraw by the front of the quick disconnect plate.



WARNING : Replace the high-voltage connection every 12 to 24 months, depending on the amount of use.

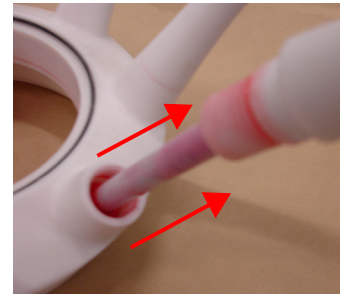
7.3.12. Procedure G1: Replacement of resistors

7.3.12.1. 1-needle versions

Removal

- **Step 1:** Unscrew the finger of charge ring.

Step 1



- **Step 2:** Remove the resistor from the tube guide resistor.

Step 2

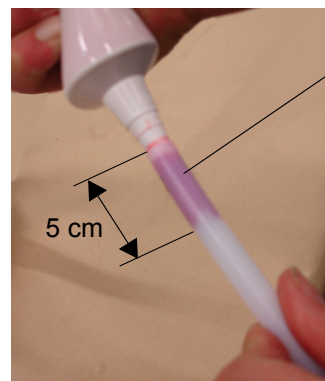


Installation:

- **Step 3:** Insert dielectric grease into a new tube guide resistor over a length about 5cm.

Dielectric grease

Step 3

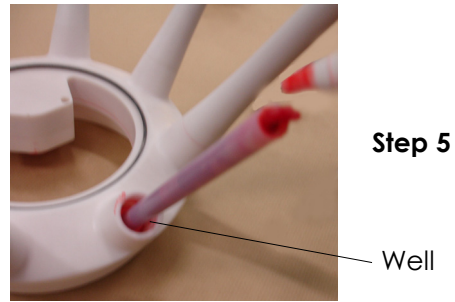


- **Step 4:** Insert resistor into the tube guide resistor, dielectric grease can overflow from the tube.

Step 4

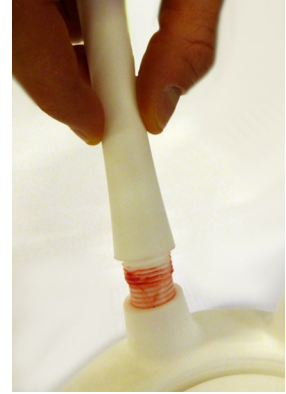


- **Step 5:** Coat with dielectric grease the resistor well, then place the tube guide resistor equipped with its resistor. If necessary, add dielectric grease at the end of resistor.

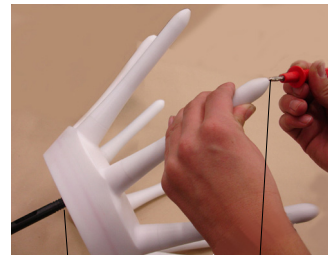


- **Step 6:** Put in place the finger in the body of the charge ring, then tighten it.

Step 6



- **Step 7:** Check using a megohmmeter continuity between each needle and baffle of the charge ring body. The read value has to be 100 Mohms \pm 10%.



Step 7

Baffle

Needle



WARNING : Before re-installation of charge ring on the body, check that body and charge ring are perfectly dry, if not dry with compressed air. Coat baffles with dielectric grease.

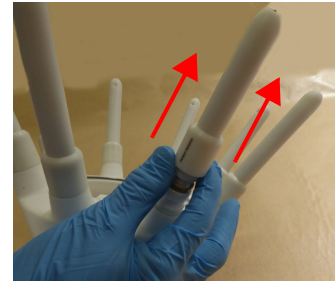


7.3.12.2. 2-needle version

Removal

- **Step 1:** Unscrew the nut of the finger of charge ring.

Step 1



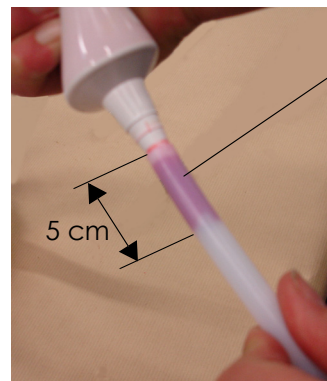
- **Step 2:** Remove the resistor from the tube guide resistor.

Step 2



Installation:

- **Step 3:** Insert dielectric grease into a new tube guide resistor over a length about 5cm.



Dielectric
grease

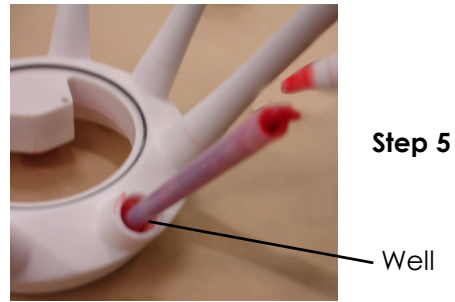
Step 3

- **Step 4:** Insert resistor into the tube guide resistor, dielectric grease can overflow from the tube.

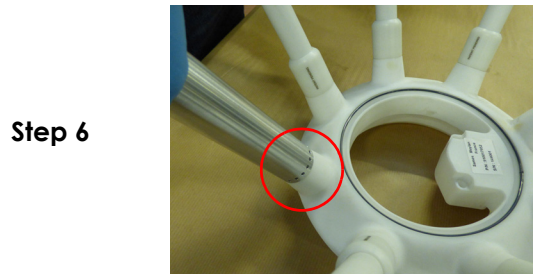
Step 4



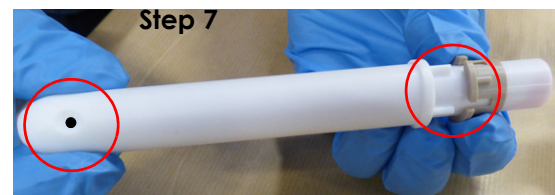
- **Step 5:** Coat with dielectric grease the resistor well, then place the tube guide resistor equipped with its resistor. If necessary, add dielectric grease at the end of resistor.



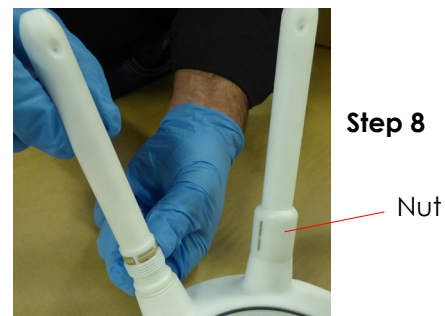
- **Step 6:** Using tool (P/N # 900011385), check the tightening of the well of the charge ring.



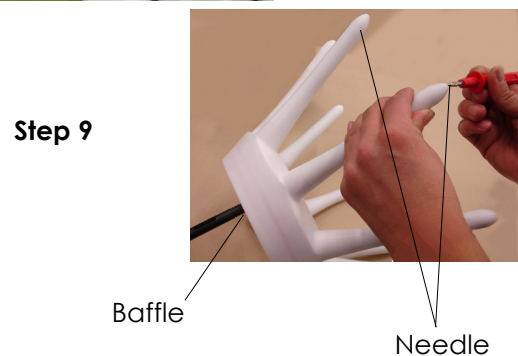
- **Step 7:** Place the swivel ring on the finger as illustrated. Align the pin on the needle.



- **Step 8:** Put in place the finger in the body of the charge ring, then tighten the nut. The needle must be directed to the center of the circle formed by fingers.



- **Step 9:** Check using a megohmmeter continuity between each needle and baffle of the charge ring body. The read value has to be 100 Mohms \pm 10%.



WARNING : Before re-installation of charge ring on the body, check that body and charge ring are perfectly dry, if not dry with compressed air. Coat baffles with dielectric grease.



7.3.13. Procedure G2: Replacement of needles

7.3.13.1. 1-needle short version

Removal

- **Step 1:** Unscrew the finger of the charge ring.

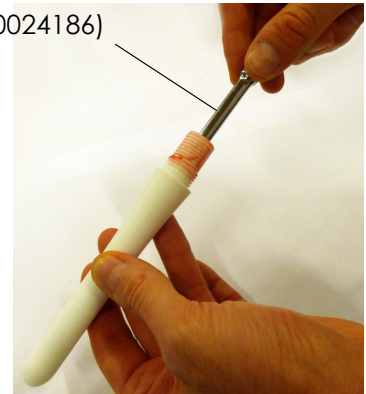


Step 1

- **Step 2:** If the needle is damaged, cut it flush with a small cutting pliers so as not to damage its housing.

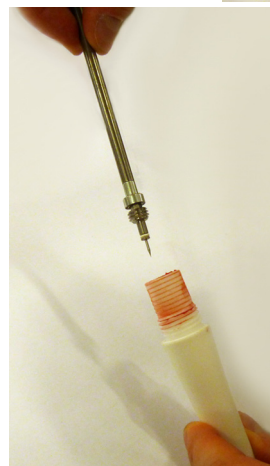
- **Step 3:** Using tool (P/N # 910024186) unscrew the needle.

Tool (P/N # 910024186)



Step 3

- **Step 4:** Using tool (P/N 910009029), withdraw the needle from the finger.

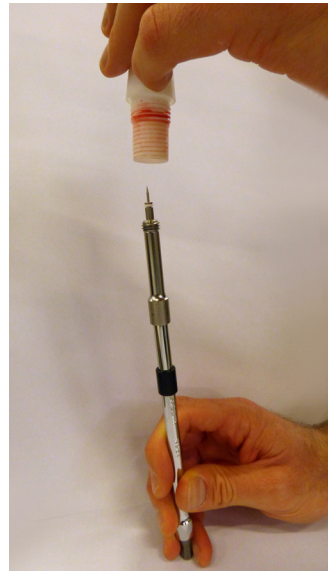


Step 4

Installation:

In order to install easily the needle, place the finger in a vertical position, point upwards.

- **Step 5:** Using tool (P/N # 910024186), place a new needle in the finger.



Step 5

- **Step 6:** In order to engage the thread correctly, first rotate the tool counterclockwise until feel one "picked up".

- **Step 7:** Then tighten clockwise to a torque of 0,5 N.m.



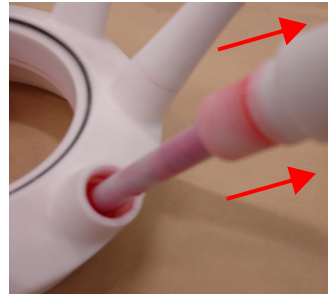
Step 7

- **Step 8:** Make sure the needle is in the original hole and check that the needle is flush with the end of the finger.

7.3.13.2. 1-needle long version

Removal

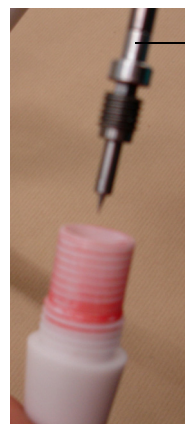
- **Step 1:** Unscrew the finger of the charge ring.



- **Step 2:** Using tool equipped with the 5mm-socket unscrew the needle.



- **Step 3:** Using tool (P/N 910009029), withdraw the needle from the finger.



Tool (P/N # 910009029)

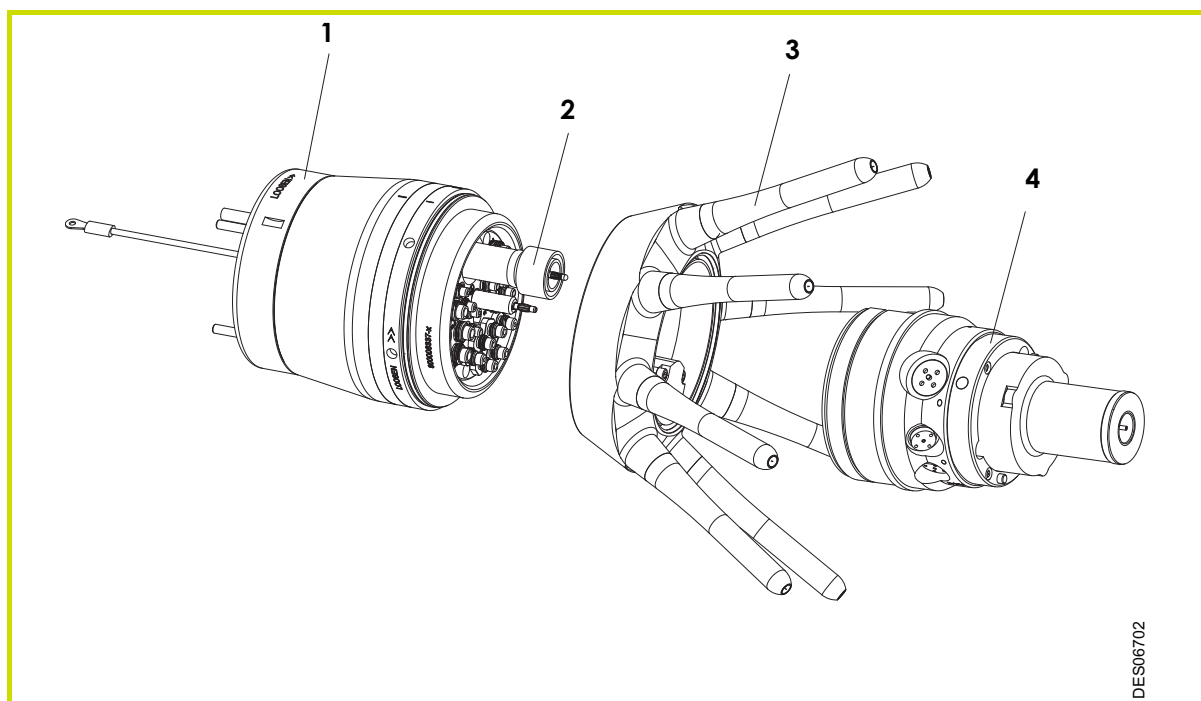
Installation:

- Place a new needle in the finger.
- Screw the needle in the finger (tightening torque: 1.1N.m).

8. Spare parts list

8.1. PPH 707 EXT ST atomizer

Note: The PPH 707 EXT ST has to be equipped with a EX 65 Hi-TE System



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910023988	Atomizer PPH 707 EXT ST	1	1	3
	910023988FO	Atomizer PPH 707 EXT ST with fiber optic	1	1	3
1	910008760	Rear support (see § 8.3 page 72)	1	1	3
2	910008742	High voltage connection	1	1	3
3	910023924	Charge ring, 1- needle fingers (see § 8.1.1 page 64)	1	1	3
4	910008734SAV	PPH 707 body assembly (see § 8.2 page 66)	1	1	3
	910008734FOSAV	PPH 707 body assembly with fiber optic (see § 8.2 page 66)	1	1	3

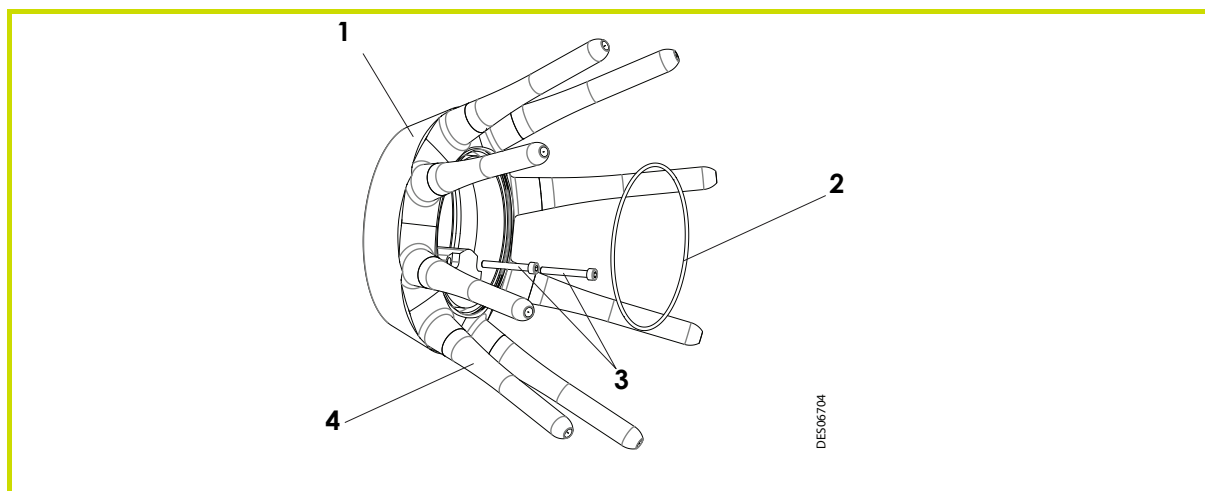
(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.1.1. Charge ring, 8 fingers with one needle



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910023924	Charge ring, 8 short fingers with one needle	1	1	3
1	900008535	Charge ring body	1	1	3
2	J2FENV694	O-ring - FEP viton	1	1	1
3	X9SVSY190	Screw Chc M5 x 40 fibre-glass nylon	2	1	1
4	910023774	1-needle short finger assembly (see § 8.1.1.1 page 65)	8	1	1

(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

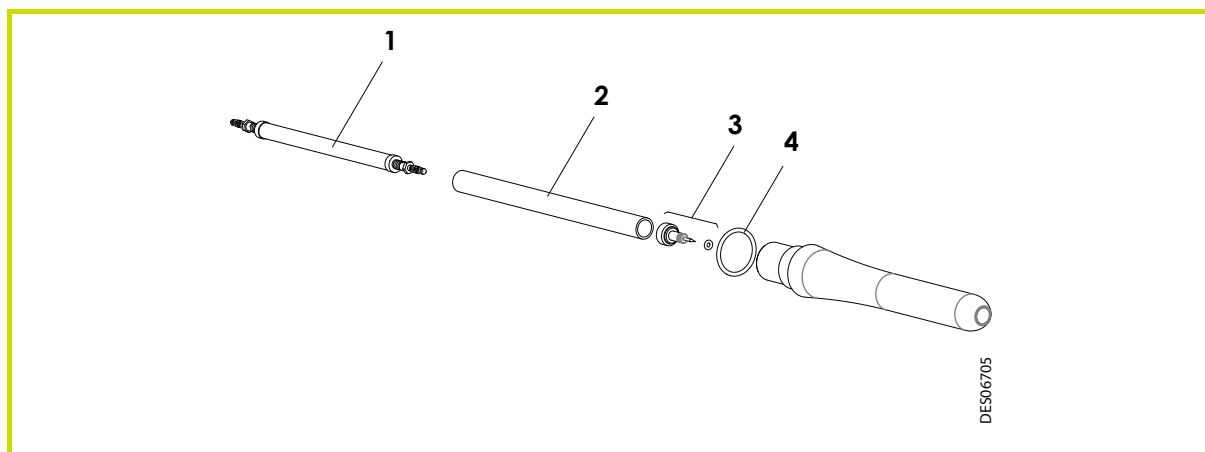
Level 2: Corrective maintenance

Level 3: Exceptional maintenance



WARNING : Do not disassemble the brass inserts from the charge ring body.

8.1.1.1. 1-needle short finger assembly



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910023774	1-needle short finger assembly	8	1	1
1	910016137	Short resistor	1	1	3
2	900010852	Tube guide resistor	1	1	3
3	910023856	High voltage contact needle + o-ring	1	1	1
4	J3STKL239	O-ring - chemically inert	1	1	1
-	H1GSYN037	Dielectric grease	1	1	1

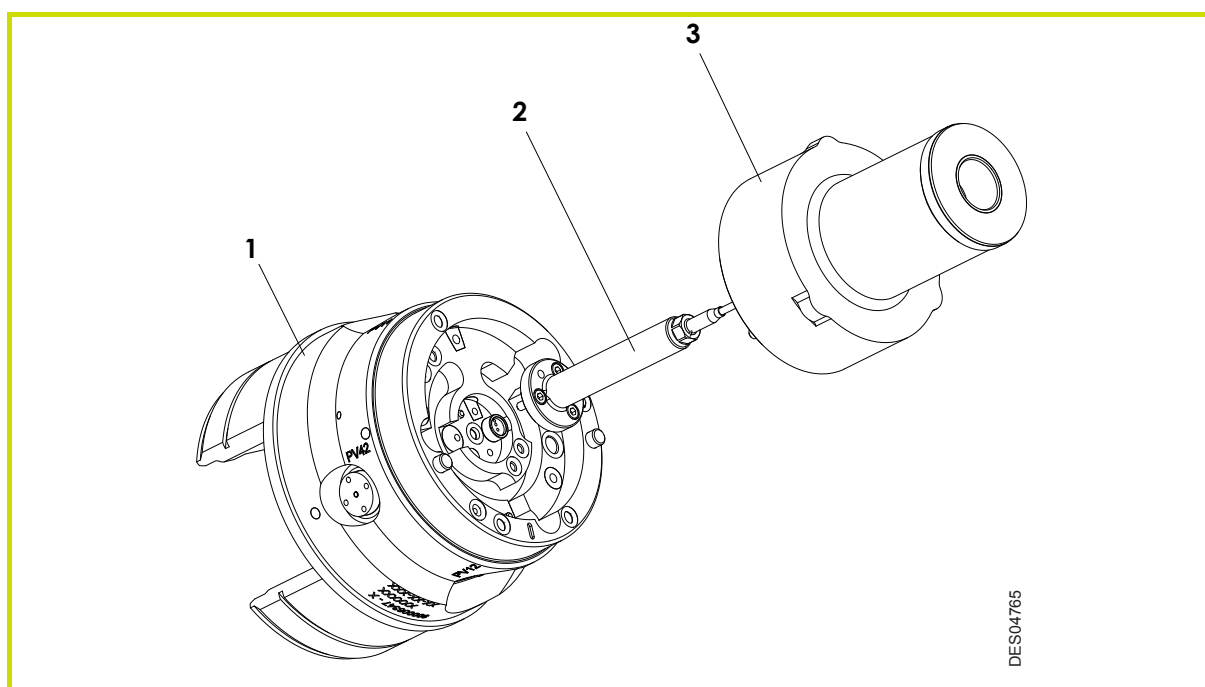
(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.2. PPH 707 body assembly



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910008734SAV	PPH 707 body assembly	1	1	3
	910008734FOSAV	PPH 707 body assembly with fiber optic	1	1	3
1	910008733SAV	PPH 707 body (see § 8.2.1 page 67)	1	1	3
	910008733FOSAV	PPH 707 body with fiber optic (see § 8.2.2 page 71)	1	1	3
2	910000618	Injector / injector holder assembly (see § 8.2.1.3 page 70)	1	1	3
3	910025098	Equipped high speed Turbine (*) (see RT Nr 6354)	1	1	3

(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

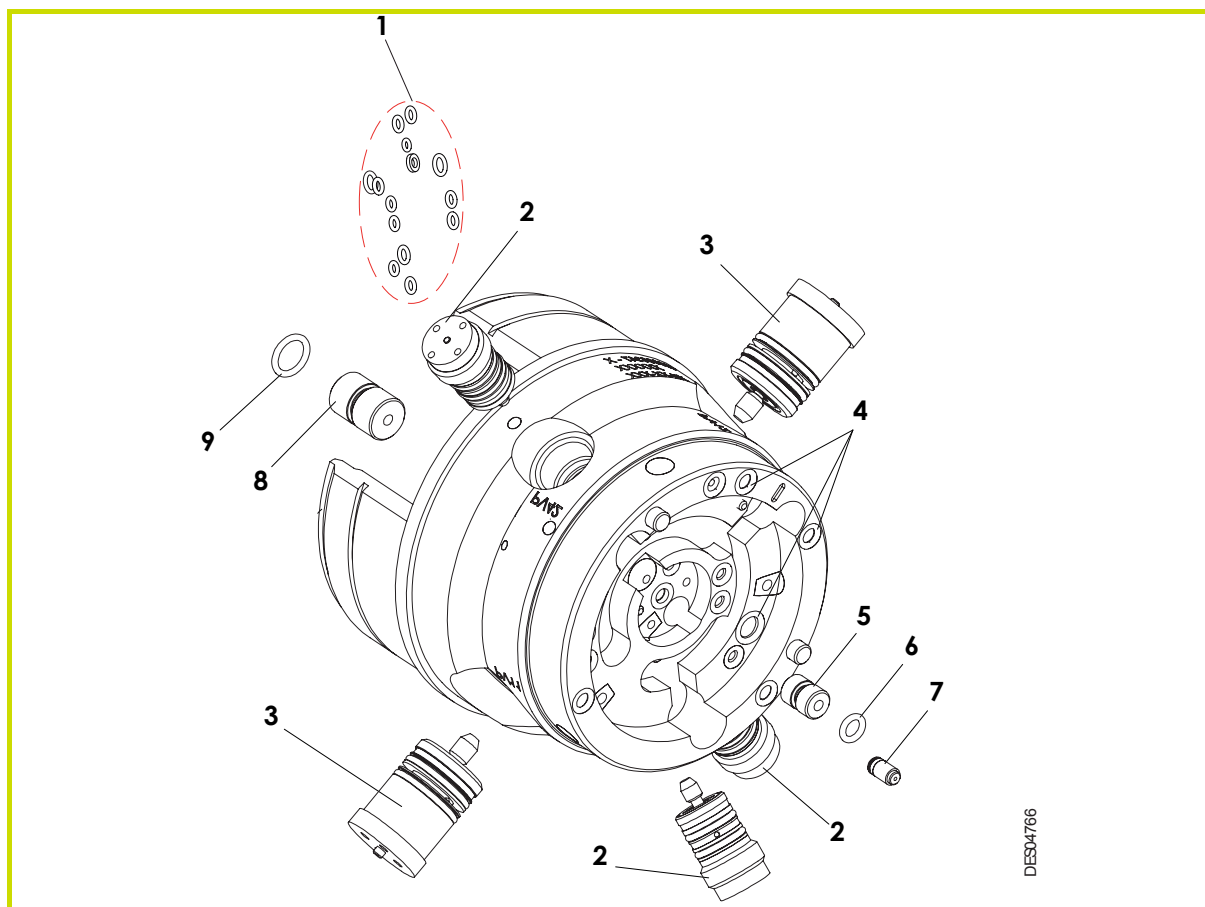
Level 2: Corrective maintenance

Level 3: Exceptional maintenance



WARNING : If problem appears on turbine (P/N # 910025098), contact **SAMES KREMLIN**.

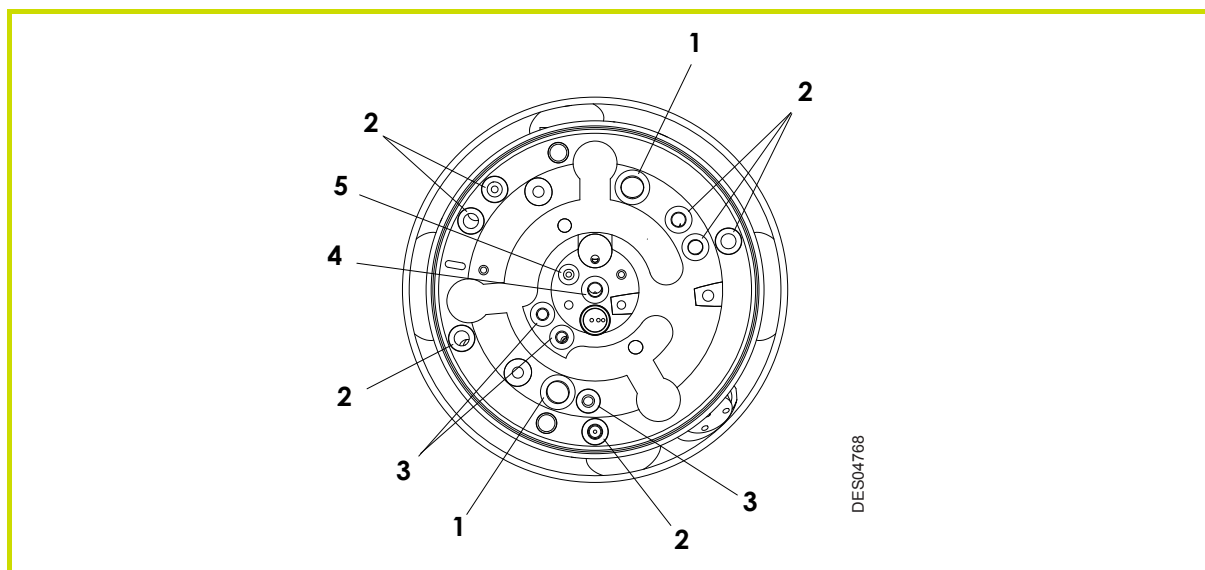
8.2.1. PPH 707 body



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910008733SAV	PPH 707 body	1	1	3
1	910003416	O-ring kit (quick disconnect plate side) (see § 8.2.1.2 page 69)	1	1	1
2	1510004	Nanovalue, orange indicator, chemically inert o-rings (see RT Nr 6258)	3	1	1
3	1507375	Microvalve, orange indicator, chemically inert o-rings (see RT Nr 6021)	2	1	1
4	910003415	O-ring kit (High speed turbine side) (see § 8.2.1.1 page 68)	1	1	1
5	900003305	Fiber optic plug (high speed turbine side)	1	1	1
6	J3STKL005	O-ring - chemically inert	1	1	1
7	910000369	Solvent pipette	1	1	1
8	900003304	Fiber optic plug (quick disconnect plate side)	1	1	1
9	J3STKL121	O-ring - chemically inert	1	1	1

(*) Level 1: Standard preventive maintenance or breakable part possible during an intervention
Level 2: Corrective maintenance
Level 3: Exceptional maintenance

8.2.1.1. O-ring kit (High speed turbine side)



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910003415	O-ring kit (High speed turbine side)	1	1	1
1	J3STKL082	O-ring - chemically inert	2	1	1
2	J3STKL046	O-ring - chemically inert	9	1	1
3	J3STKL035	O-ring - chemically inert	3	1	1
4	160000028	Flat seal	1	1	1
5	J3STKL002	O-ring - chemically inert	1	1	1

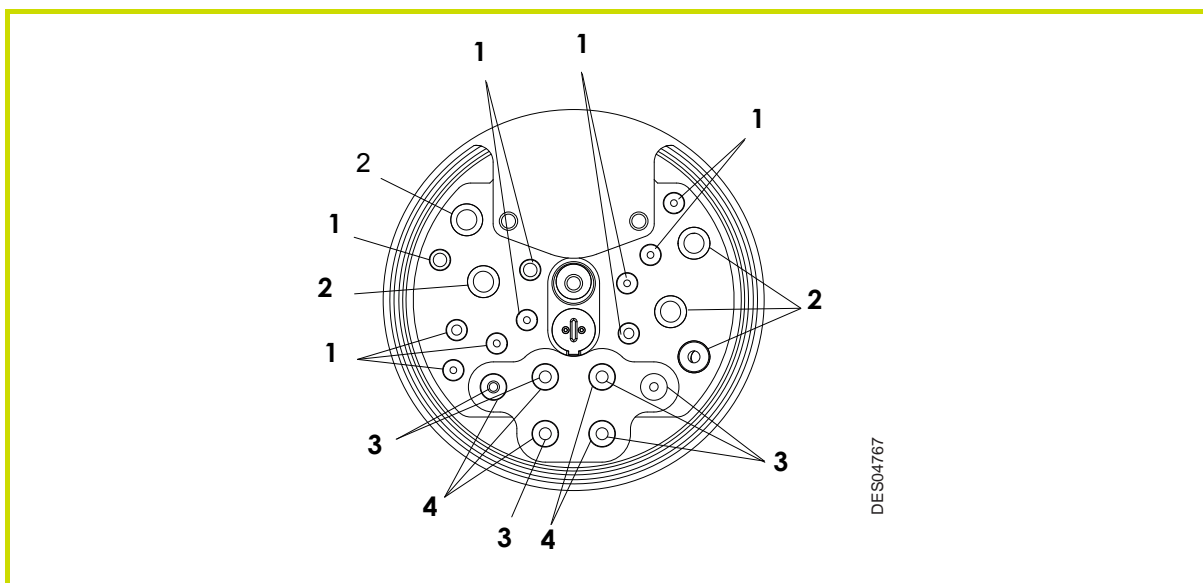
(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.2.1.2. O-ring kit (quick disconnect plate side)



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910003416	O-ring kit (quick disconnect plate side)	1	1	1
1	J3STKL078	O-ring - chemically inert	10	1	1
2	J3STKL121	O-ring - chemically inert	5	1	1
3	160000027	Flat seal	6	1	1
4	J3STKL094	O-ring - chemically inert	5	1	1

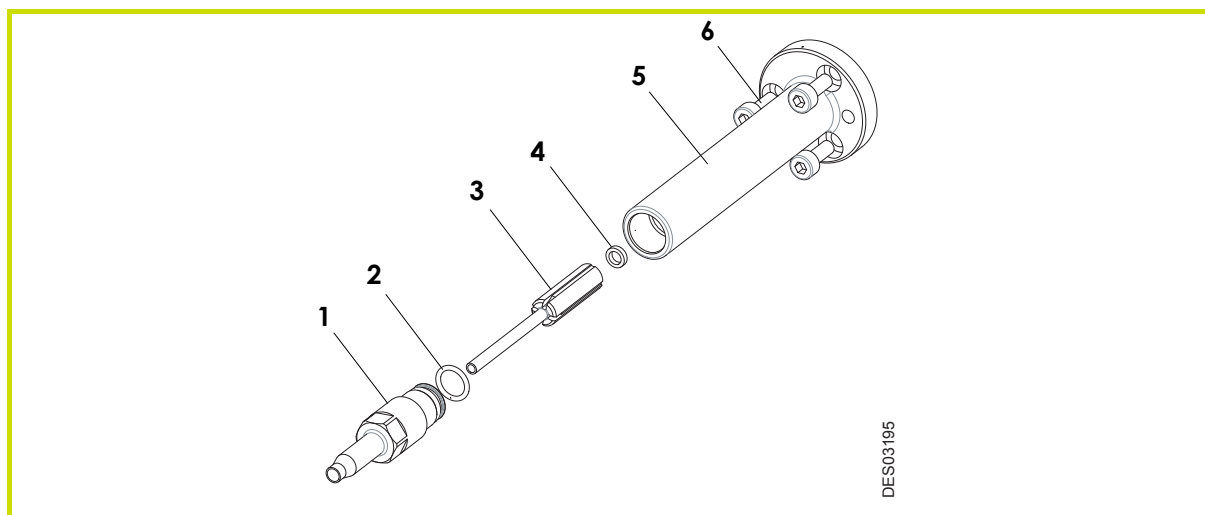
(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.2.1.3. High speed turbine injector / injector holder assembly



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910000618	Injector / injector holder assembly	1	1	3
1	900000159	Diffuser	1	1	1
2	J3STKL069	O-ring - chemically inert	1	1	1
3	900000158	Injector with slot (Dia: 1.8)	1	1	1
4	900010925	PEHD flat seal	1	1	1
5	900000157	Injector holder	1	1	3
6	X4FVSY066	C M 3 x 8 screw - stainless steel	3	1	1

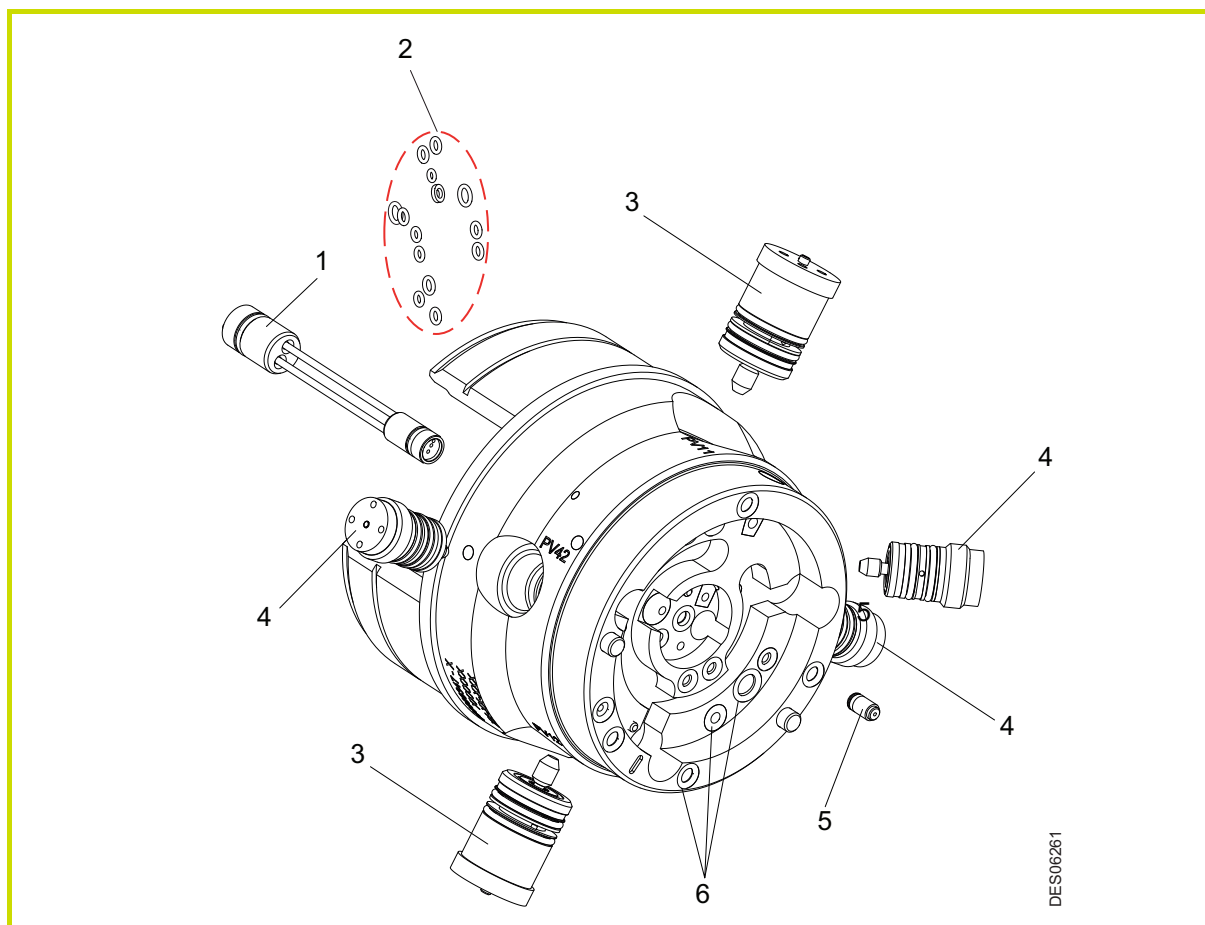
(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.2.2. PPH 707 body with fiber optic



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910008733FOSAV	PPH 707 body with fiber optic	1	1	3
1	910008751	Fiber optic set	1	1	1
2	910003416	O-ring kit (quick disconnect plate side) (see § 8.2.1.2 page 69)	1	1	1
3	1507375	Microvalve, orange indicator, chemically inert o-rings (see RT Nr 6021)	2	1	1
4	1510004	Nanovalve, orange indicator, chemically inert o-rings (see RT Nr 6258)	3	1	1
5	910000369	Solvent pipette	1	1	1
6	910003415	O-ring kit (High speed turbine side) (see § 8.2.1.1 page 68)	1	1	1

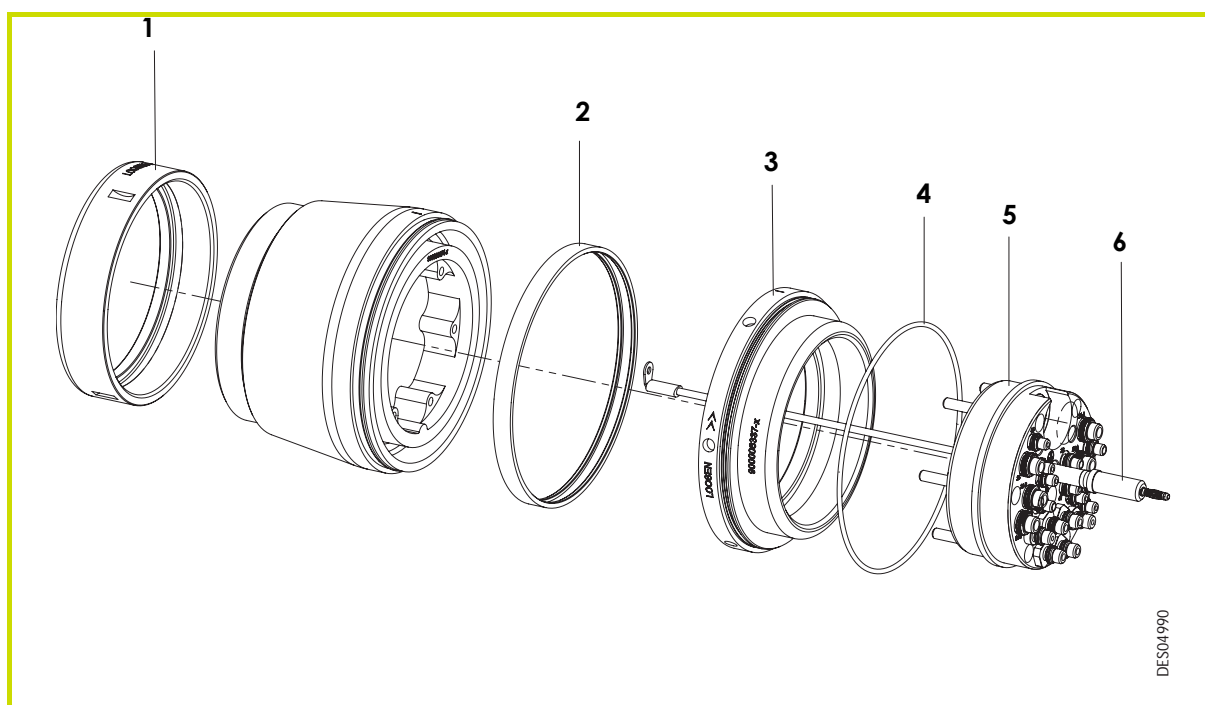
(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.3. Rear support



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910008760	Rear support	1	1	3
1	900006344	Robot nut	1	1	3
2	900006338	Nut / elbow spacer	1	1	3
3	900006337	Nut of quick disconnect plate	1	1	3
4	J2FENV319	O-ring - FEP viton	1	1	1
5	910008729	Quick disconnect plate assembly (see § 8.3.1 page 73)	1	1	3
6	910008753	Ground cable	1	1	3

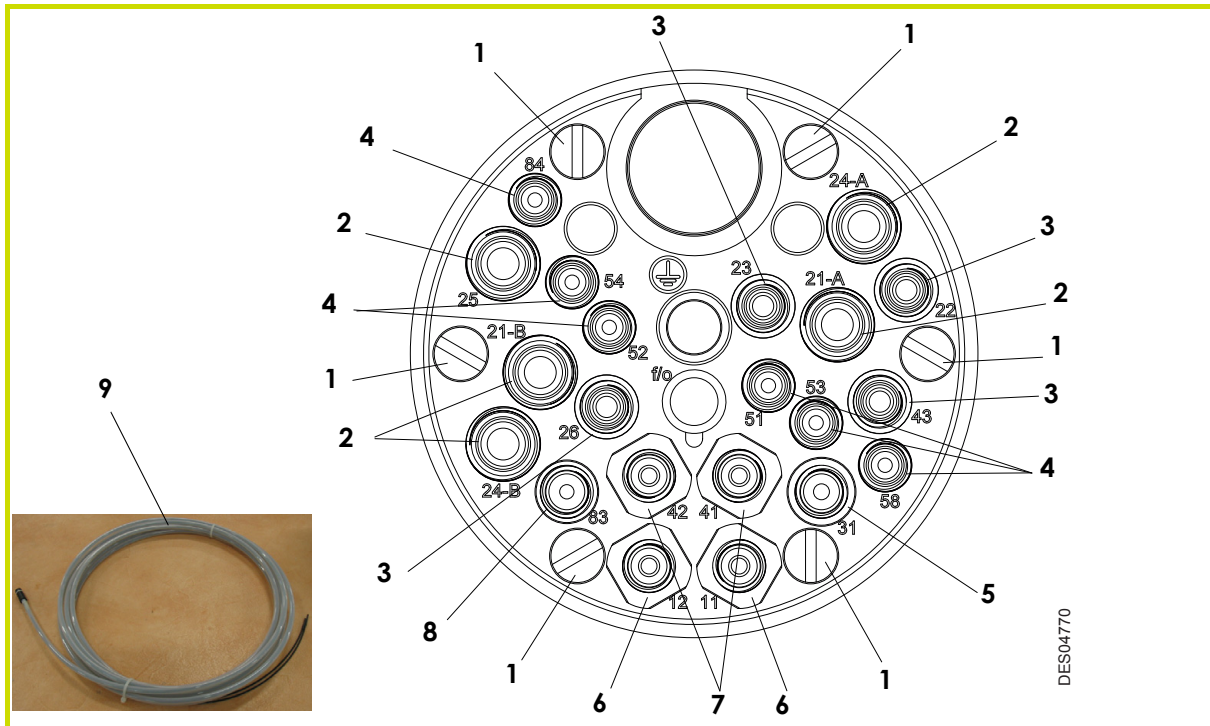
(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.3.1. Quick disconnect plate assembly



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910008729	Quick disconnect plate assembly	1	1	3
1	900006345	Captive screw	6	1	3
2	910002948	6/8 air fitting	5	1	1
3	910002947	4/6 air fitting	4	1	1
4	910002946	2.7/4 air fitting	6	1	1
5	910003413	3/6 product fitting	1	1	1
6	910003344	4/6-8 product fitting	2	1	1
	910003345	5/8 product fitting	Option	1	1
7	910003345	5/8 anti-rotation fitting	2	1	1
8	910004923	2.7/4 product fitting (screwed)	1	1	1
Option					
9	910005172	Fiber optic set, length 8m	1	1	1

(*) Level 1: Standard preventive maintenance or breakable part possible during an intervention

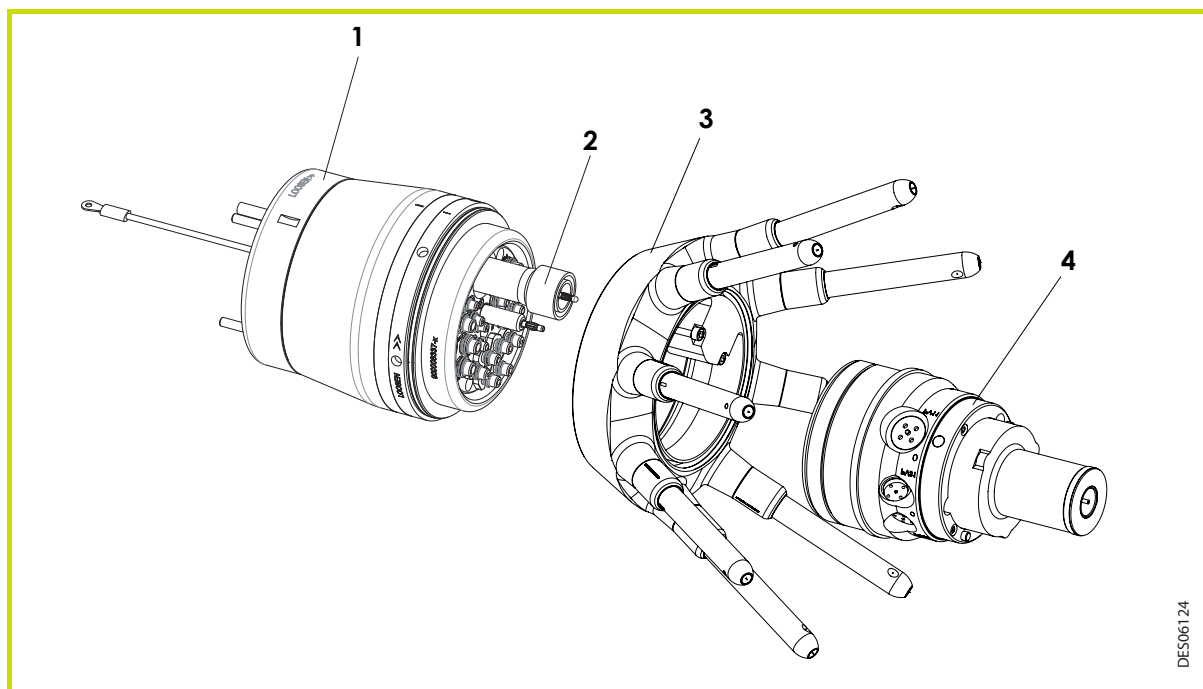
Level 2: Corrective maintenance

Level 3: Exceptional maintenance

Position of fittings:

Item	Location	
2	21A, 21B, 24A, 24B and 25	When the quick disconnect plate (P/N 910008729) is purchased, it is imperative to order two fittings (P/N 910003345) to replace the initial fittings (P/N 910003344) on the 11 and 12 product supplies
3	22, 23, 26 and 43	
4	51, 52, 53, 54, 58 and 84	
5	31	
6	11, 12, 41 and 42	
7	83	

8.4. PPH 707 EXT ST atomizer (only for Spare parts)



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910018953	Atomizer PPH 707 EXT ST	1	1	3
	910018953FO	Atomizer PPH 707 EXT ST with fiber optic	1	1	3
1	910008760	Rear support (see § 8.3 page 72)	1	1	3
2	910008742	High voltage connection	1	1	3
3	910017952	Charge ring, 8 fingers with 2 needles (see § 8.4.1.1 page 76)	1	1	3
4	910008734SAV	PPH 707 body assembly (see § 8.2 page 66)	1	1	3
	910008734FOSAV	PPH 707 body assembly with fiber optic (see § 8.2 page 66)	1	1	3

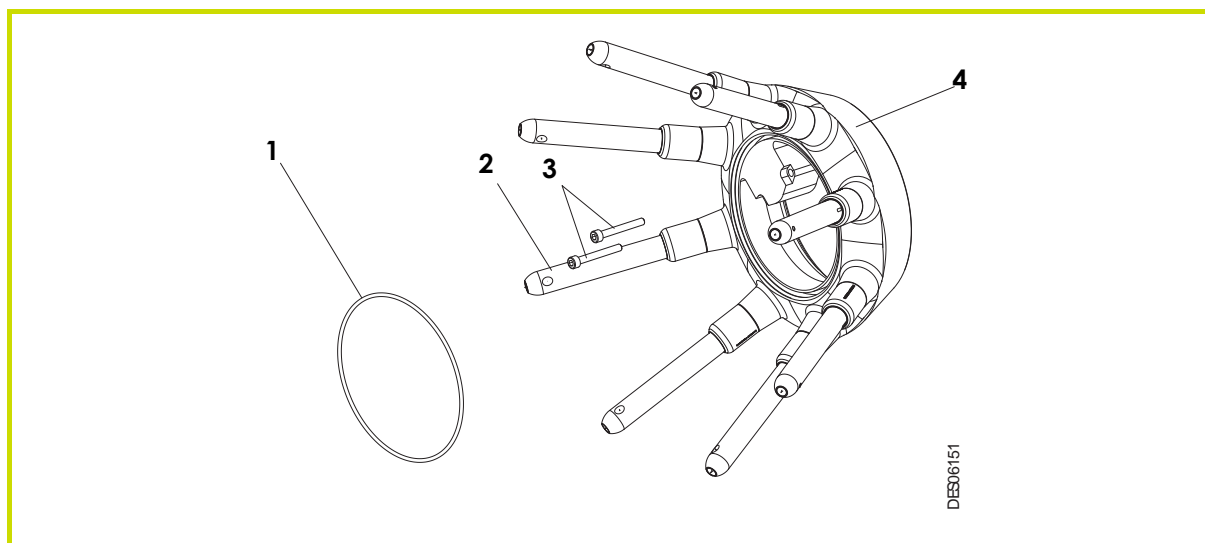
(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.4.1. Charge ring, 8 fingers with two needles



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910017952	Charge ring, 8 fingers with two needles	1	1	3
1	J2FENV694	O-ring - FEP viton	1	1	1
2	910017101	2-needle finger assembly (see § 8.4.1.1 page 76)	8	1	1
3	X9SVSY190	Screw Chc M5 x 40 fibre-glass nylon	2	1	1
4	900008535	Charge ring body	1	1	3

(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

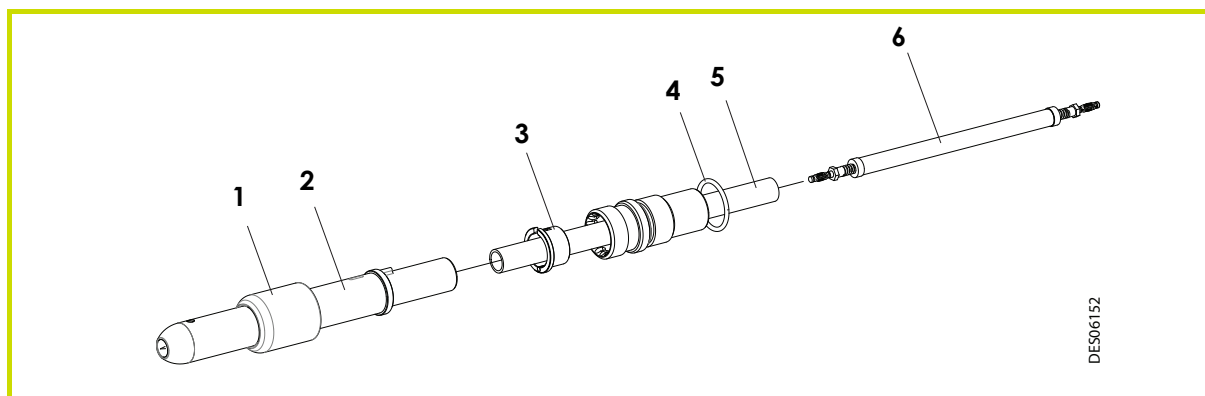
Level 2: Corrective maintenance

Level 3: Exceptional maintenance



WARNING : Do not disassemble the brass inserts from the charge ring body.

8.4.1.1. 2-needle finger assembly



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910017101	2-needle finger assembly	8	1	1
1	900011360	Nut of finger	1	1	3
2	910017077	2-needle finger	1	1	2
3	900011361	Swivel ring	1	1	3
4	J3STKL239	O-ring - chemically inert	1	1	1
5	900010852	Tube guide resistor	1	1	3
6	910016137	Short resistor	1	1	3
-	H1GSYN037	Dielectric grease	1	1	1

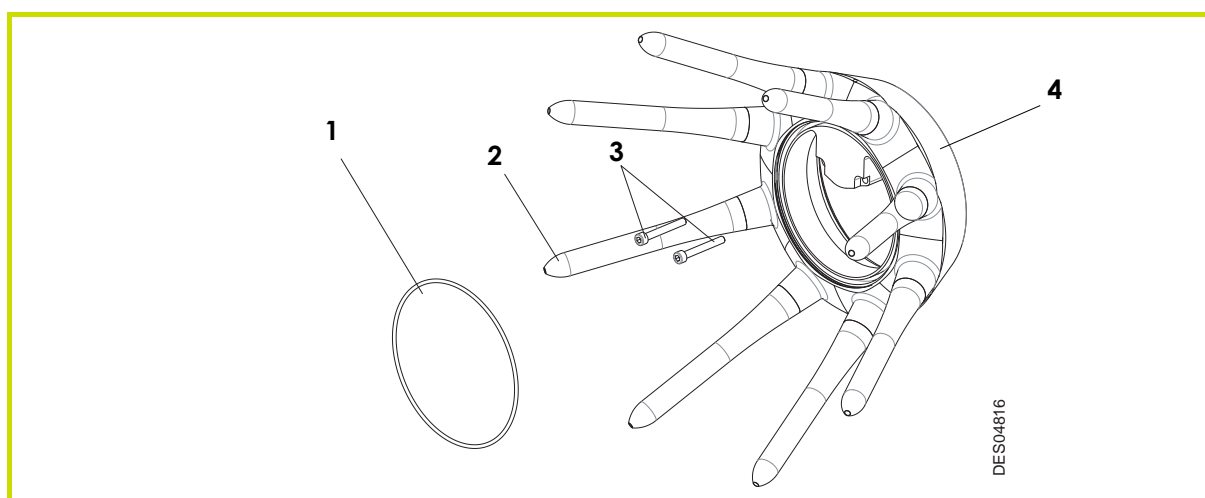
(*)

Level 1: Standard preventive maintenance or breakable part possible during an intervention

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.5. Charge ring, 8 fingers with one needle V1 (only for Spare parts)



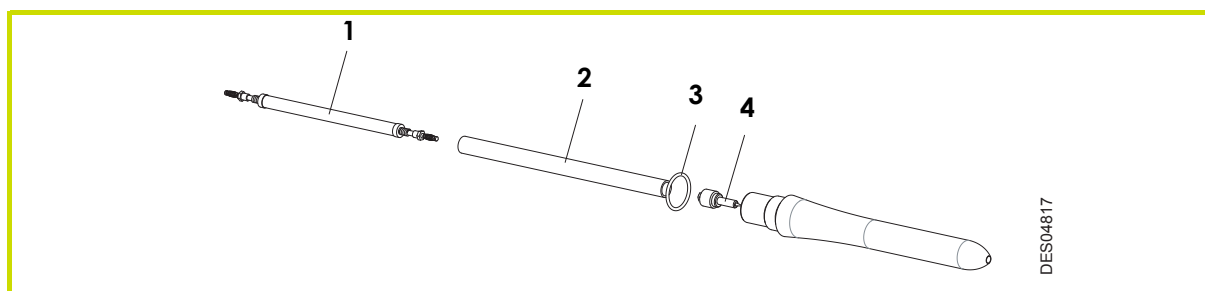
Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910008586	Charge ring, 1- needle fingers	1	1	3
1	J2FENV694	O-ring - FEP viton	1	1	1
2	910008663	1-needle finger assembly	8	1	1
3	X9SVSY190	Chc M5 x 40 screw fibre-glass nylon	2	1	1
4	900008535	Charge ring body	1	1	3

(*) Level 1: Standard preventive maintenance or breakable part possible during an intervention

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

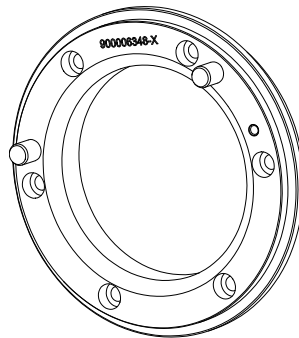
8.5.1. 1-needle finger assembly (Only for Spare parts)



Item	P/N	Description	Qty	Unit of sale	Maintenance level for spare part (*)
	910008663	1-needle finger assembly	8	1	1
1	910011182	Equipped Resistor	1	1	3
2	900005874	Tube guide resistor	1	1	3
3	J3STKL239	O-ring - chemically inert	1	1	1
4	900006312	High voltage contact needle	1	8	1
-	H1GSYN037	Dielectric grease	1	1	1

8.6. Robot adapters

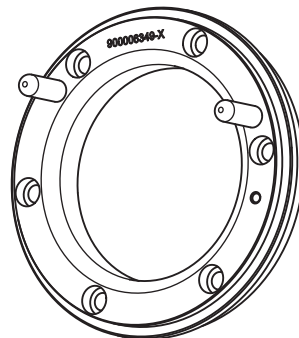
8.6.1. Adapter for Fanuc P200-E robot



DES04832

Item	P/N	Description	Qty	Unit of sale
-	910009162	Robot adapter	1	1

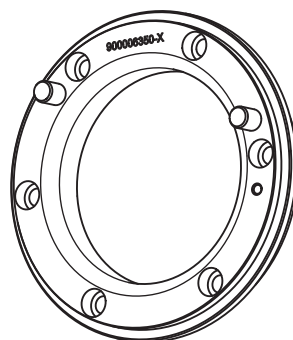
8.6.2. Adapter for Fanuc P145 and P155 robots



DES04835

Item	P/N	Description	Qty	Unit of sale
-	910009199	Robot adapter	1	1

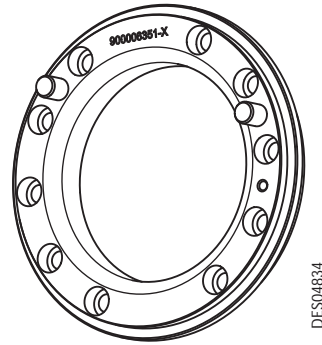
8.6.3. Adapter for Motorman PX 2900 robot



DES04833

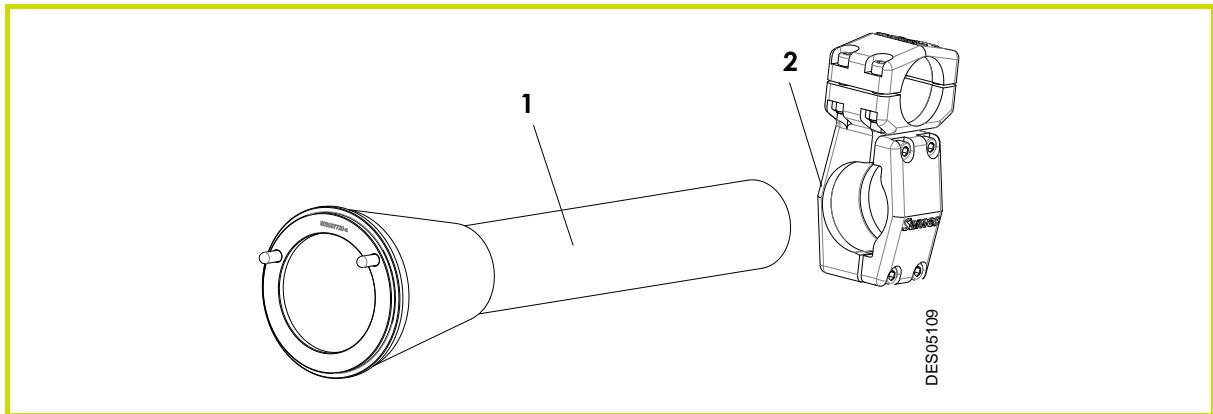
Item	P/N	Description	Qty	Unit of sale
-	910009163	Robot adapter	1	1

8.6.4. Adapter for ABB IRB-5400 robot



Item	P/N	Description	Qty	Unit of sale
-	910009164	Robot adapter	1	1

8.7. Adapter for Reciprocator robot



Item	P/N	Description	Qty	Unit of sale
1	900007720	Support tube	1	1
2	1204441	Fixing nut	1	1

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Le fabricant / The manufacturer / Der Hersteller / El fabricante / Il produttore / O fabricante / De fabrikant / Tillverkare / Valmistaja / Producent / Výrobce / Proizvajalec / Výrobca / Gyártó / Fabricantul:	SAMES KREMLIN SAS 13, chemin de Malacher 38 240 - MEYLAN - FRANCE Tél. : 33 (0)4 76 41 60 60
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Déclare que le matériel désigné ci-après / Herewith declares that the equipment / erklårt hiermit, dass die / Declara que el material designado a continuación / Dichiaro che il materiale sottoindicato / Declara que o material a seguir designado / verklaart dat de hieronder aangeduide apparatuur / Kungör att den utrustning som anges här nedan / ilmoittaa, että alla mainitut laitteistot / Oświadcza, że wymienione poniżej urządzenia / Prohlašuje, že nižšie uvedené vybavení / Izjavlja, da je opisana oprema spodaj / Vyhlasuje, že zariadenie uvedené nižšie / Kijelenti, hogy a megjelölt anyag a továbbiakban / Declară că echipamentul precizat mai jos:


EQUIPEMENT AUTOMATIQUE DE PULVERISATION DE PEINTURE / AUTOMATIC PAINT SPRAY SYSTEM

PPH707 EXT ST / UHT330 / GNM200

Est conforme à la législation d'harmonisation de l'Union applicable suivante / Is in conformity with the relevant Union harmonisation legislation / Erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union / es conforme con la legislación de armonización pertinente de la Unión / è conforme alla pertinente normativa di armonizzazione dell'Unione / in overeenstemming met de desbetreffende harmonisatiewetgeving van de Unie / med den relevanta harmoniserade unionslagstiftningen / on asiaa koskevan unionin yhdenmukaistamislaainsäädännön vaatimusten mukainen / jest zgodny z odnosnymi wymaganiami unijnego prawodawstwa harmonizacyjnego / Shoduje se s nasledující příslušnou evropskou harmonizační legislativou / V skladu s harmonizirano zakonodajo Unije / Je v súlade s uplatniteľnými harmonizačnými právnymi predpismi EÚ / Megfelel a következő alkalmazandó uniós harmonizációs szabályozásnak / Este conform cu legislația aplicabilă de armonizare de mai jos

Directive Compatibilité Electromagnétique / Electromagnetic Compatibility Directive / Richtlinie Für Elektromagnetische Verträglichkeit / Directiva de Compatibilitad Eletromagnética / Direttiva Compatibilita Elettromagnetica / Directiva relativa à Compatibilidade Eletromagnética / Richtlijn Elektromagnetische Compatibiliteit / Direktivet om Elektromagnetisk Kompatibilitet / EMC-direktivi / Dyrektywa Kompatybilności Elektromagnetycznej / Směrnice Pro Elektromagnetickou Kompatibilitu / Direktiva O Elektromagnetni Zdržljivost / Smernica O Elektromagnetickej Kompatibilite / Az Elektromágneses Összeférhetőségre vonatkozó Irányelv / Directiva Privind Compatibilitatea Electromagnetică	2014/30/UE
Directive ATEX / ATEX Directive / ATEX Richtlinie / Directiva ATEX / Direttiva ATEX / Directiva ATEX / ATEX-Richtlijn / ATEX-direktivet / ATEX-direktivi / Dyrektywa ATEX / Směrnice ATEX / Direktiva ATEX / Smernica ATEX / ATEX-irányelv  II 2 G EEx > 350 mJ EN 50176:1996 Le produit a fait l'objet d'un examen d'impact des modifications majeures introduites par la nouvelle norme harmonisée EN 50176:2009 et il est toujours conforme aux exigences essentielles de la directive ATEX. / The product has been subject of an examination of the major modifications introduced by the new harmonized standard EN 50176:2009 and it is always in conformity with the of ATEX Directive essential requirements. Matériel associé GNM200 doit être installé en zone sûre (zone non dangereuse) / Associated equipment GNM200 must be installed in safe zone (non explosive area) Attestation d'examen CE de type / EC-type examination certificate: ISSeP 06 ATEX 032X Notifiée par / Notified by : ISSeP - Transférée chez / Transferred to : APRAGAZ A.S.B.L. (NB 0029) - Chaussée de Vilvorde, 156, B-1120 Bruxelles/Brussel – Belgique/Belgium Le signe X placé derrière le numéro d'attestation d'examen CE de type, indique que le respect d'une distance de sécurité (entre les parties à la HT du pulvérisateur et toutes pièces reliées à la terre) précisée dans le manuel d'emploi permet l'utilisation sûre de cet équipement. / "X" placed behind the standard EC-type examination certificate number indicates that a safety distance (between the HV components of the air spray gun and all grounded parts) specified in the operating manual must be respected to ensure safe operation of this equipment. Notification Assurance Qualité de Production / Production Quality Assurance Notification : INERIS 07 ATEX Q401 Notifiée par / Notified by : INERIS (NB 0080) – Parc Technologique ALATA – BP 2 - 60550 Verneuil-en-Halatte - France	2014/34/UE

La présente déclaration de conformité est établie sous la seule responsabilité du fabricant / This declaration of conformity is issued under the sole responsibility of the manufacturer / Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller / La presente declaración de conformidad se expide bajo la exclusiva responsabilidad del fabricante / La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante / A presente declaração de conformidade é emitida sob a exclusiva responsabilidade do fabricante / Deze conformiteitsverklaring wordt verstrekt onder volledige verantwoordelijkheid van de fabrikant / Denna försäkran om överensstämmelse utfärdas på tillverkarens eget ansvar / Tämä vaatimustenmukaisuusvakuutus on annettu valmistajan yksinomaisella vastuulla / Niniejsza deklaracja zgodności wydana zostaje na wyłączną odpowiedzialność producenta / Toto prohlášení o shodě se vydává na výhradní odpovědnost výrobce / Za izdajo te izjave o skladnosti je odgovoren izključno proizvajalec / Toto vyhlášení o zhode sa vydáva / na vlastnú zodpovednosť výrobcu / Ezt a megfelelőségi nyilatkozatot a gyártó kizárólagos felelőssége mellett adják ti / Prezenta declarație de conformitate este emisă pe răspunderea exclusivă a producătorului.

Directeur Recherche & Développement / Research & Development Director / Direktor für Forschung & Entwicklung / Director de Investigación y Desarrollo / Direttore Ricerca e sviluppo / Diretor de Pesquisa e desenvolvimento/ Manager Onderzoek en Ontwikkeling / Direktör för Forskning och Utveckling / Johtaja tutkimus ja kehitys / Dyrektor ds. Badań i rozwoju / Ředitel výzkumu a vývoje / Direktor za raziskave in razvoj / Riaditeľ pre výskum a vývoj / Kutatási és Fejlesztési Igazgató / Director de cercetare și dezvoltare	Richard WLODARCZYK 
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Fait à Meylan, le / Established in Meylan, on / Geschehen zu Meylan, am / En Meylan, a / Redatto a Meylan, / Vastgesteld te Meylan, / Utoformat i Meylan, den / Meylan, Ranska, / Sporządzono w Meylan, dnia / Meylan, dnia / V Meylanu, / V Meylanu dňa / Kelt Meylanban, / Întocmită la Meylan, pe data de 27/08/2021 – 08/27/2021