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

SAMES  **KREMLIN**



User manual

Inobell Powder Projector



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Throughout the year, our company offers training courses in the operation and maintenance of your equipment.

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

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

Training department:

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SAS Sames Technologies operating manuals are written in French and translated into English, German, Spanish, Italian and Portuguese.

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

Inobell Powder Projector

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1. Health and Safety Instructions



WARNING : This document includes links to the following operating manuals:

- [see RT Nr 7060](#) for high voltage unit UHT 165.
- [see RT Nr 7062](#) for TCR control module.

1.1. Configuration of certified equipment

These user manuals define the configuration of certified equipment.

1.2. Marking on projector

SAMES Meylan France

CE 0080

INOPELL

P/N: *

ISSeP09ATEX027X**



II 2 D

EEx < 350mJ

(Serial no.)

Inobell ATEX configurations

Inobell Projector - P/N 910007600	High Voltage Unit UHT 165 - P/N 910007590	TCR Module P/N 900005533
X	X	1

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

1.3. Precautions for Use

This document contains information that every operator must be familiar with and understand before using the **Inobell** powder projector. Its aim is to highlight situations that could result in serious damage and show precautions that should be taken to avoid them.



WARNING : Before using Inobell equipment, please ensure that all operators:

- have first received training from Sames Technologies or by its training-certified distributors.
- have read and understood the instruction manual and all rules for installation and operation, as laid out below.

It is the Workshop Manager's responsibility to ensure that this has been completed and that all operators have read and understood the operating manuals for peripheral electrical equipment present in the projection area.

1.4. Warnings



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



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



WARNING :

This equipment must only be used in projection areas in accordance with standards EN 50176, EN 50177, EN 50223, or under equivalent ventilation conditions. It must be used only in well-ventilated areas, in order to reduce health, fire and explosion hazards. Daily checks that the ventilation system is working properly must be carried out.

Only appropriate explosion-proof electrical equipment may be used in the potentially explosive atmospheres generated by the projection process.

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

Never point coating product or compressed air towards persons or animals.

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

The use of personal protective equipment can limit the risks caused by contact with and/or inhalation of toxic products, gases, vapours, mist and dust likely to be generated by the equipment in use. The operator must follow the manufacturer's instructions for the coating product.

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

Equipment must only be used by personnel trained by SAMES Technologies.

Powder projection must be carried out in a booth designed for the purpose. The ventilation system and powder-coating equipment must be interlocked such that powder cannot be projected if the ventilation is not working.

No naked flame, incandescent objects, devices or items likely to produce sparks should be used inside the paint booth.

No storage of inflammable products or their containers close to the booth or near the doors.



WARNING : The surrounding area must be kept clear and clean.

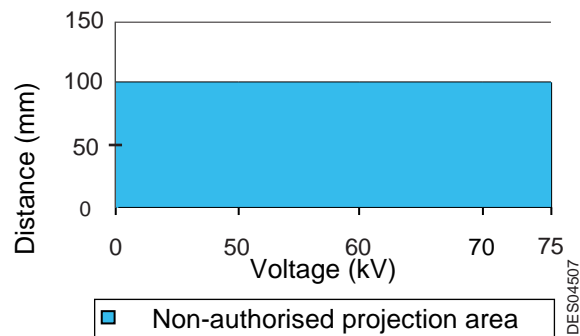
The use of very high voltage increases the risk of sparks. The mechanical and electrical characteristics of SAMES Technologies projectors and high voltage electrostatic generators are designed to minimize this risk. Although the HV electrode is the only accessible part, the HV part of the projector head must be isolated from any grounded parts by at least X mm (cf. table below).

Inobell High Voltage Unit HVU 165:

Authorised projection distance

Voltage (kV)	Distance (mm)
0	100
50	
60	
70	
75	

Safety distance 'X' as a function of voltage



A careful check must be performed to ensure that any conductive or semi-conducting part closer than 2.5 m to the projector is correctly grounded.

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

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

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

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

All projector equipment must be located outside hazardous areas, and its operation must be interlocked with that of the booth extraction fan. Correct operation of the control system must be checked once a week.

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

1.5. Important recommendations

1.5.1. Compressed air quality

The air must be filtered so as to provide long service life and prevent contamination during painting. The warranty does not cover faults caused by unclean, unfiltered bearing air resulting from non-compliance with the technical recommendations ([see § 3.2.3 page 13](#)).



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

1.5.2. Locking

The TCR module does not allow powder projection if the bell cup rotation speed is less than 3000 rpm.

1.5.3. High Voltage

Disable the high voltage if the **Inobell** projector is not operated for a prolonged period (in the event of conveyor shutdown, no objects to be painted, missing parts, etc.) to prevent excessive air ionisation.

1.5.4. Maximum speed

The TCR module permits a maximum setpoint of 8500 rpm. If the speed reaches 12,000 rpm, the module stops projection.

1.5.5. Powder



WARNING : The use of sifted powder is preferable.

1.5.6. Sound level

The weighted equivalent continuous sound pressure level is 67 ± 1.5 dB(A).

Measurement conditions:

The apparatus was operated to maximum capacity and the measurements were taken in the 'API' paint test booth (sealed booth with glass panels) in the Sames R&D laboratory in Meylan, France.

Measurement method:

The weighted equivalent sound pressure level (67 ± 1.5 dB(A)) is a LEQ value measured during observation periods of at least 30 seconds.

1.6. Warranty

Under the warranty, which applies only to the buyer, **SAMES Technologies** undertakes to repair malfunctions resulting from design, materials or manufacturing faults, within the limits of the provisions set out below.

The warranty claim must define the exact nature of the fault concerned, in writing. The **SAMES Technologies** warranty only covers equipment that has been serviced and cleaned according to standard procedures and our own instructions, that has been fitted with parts approved by SAMES or that has not been modified by the customer.

More specifically, the warranty does not cover damage resulting from:

- customer negligence or inattention,
- incorrect use,
- failure to follow procedures,
- use of a control system not designed by SAMES Technologies or a SAMES Technologies control system modified by a third party without written permission from an authorised SAMES Technologies technical agent,
- accidents such as: collision with external objects, or similar events,
- flooding, earthquake, fire or similar events,
- use of seals not complying with SAMES Technologies recommendations,
- starting up rotating parts that are unbalanced (excess powder on bell cup, damaged bell cups),
- contamination of air circuits by fluids or substances other than air.

The SAMES Technologies **Inobell** projector is covered by a one-year warranty for use in two 8-hour shifts under normal operating conditions.

The warranty does not apply to wearing parts such as atomising bell cups, seals, etc.

The warranty start date shall be deemed to be the date of first operation or of the provisional acceptance report.

Under no circumstances, either in the context of this warranty or in other contexts, shall **SAMES Technologies** be liable for physical injury, property damage, damage to brand image or loss of production resulting directly from its products.

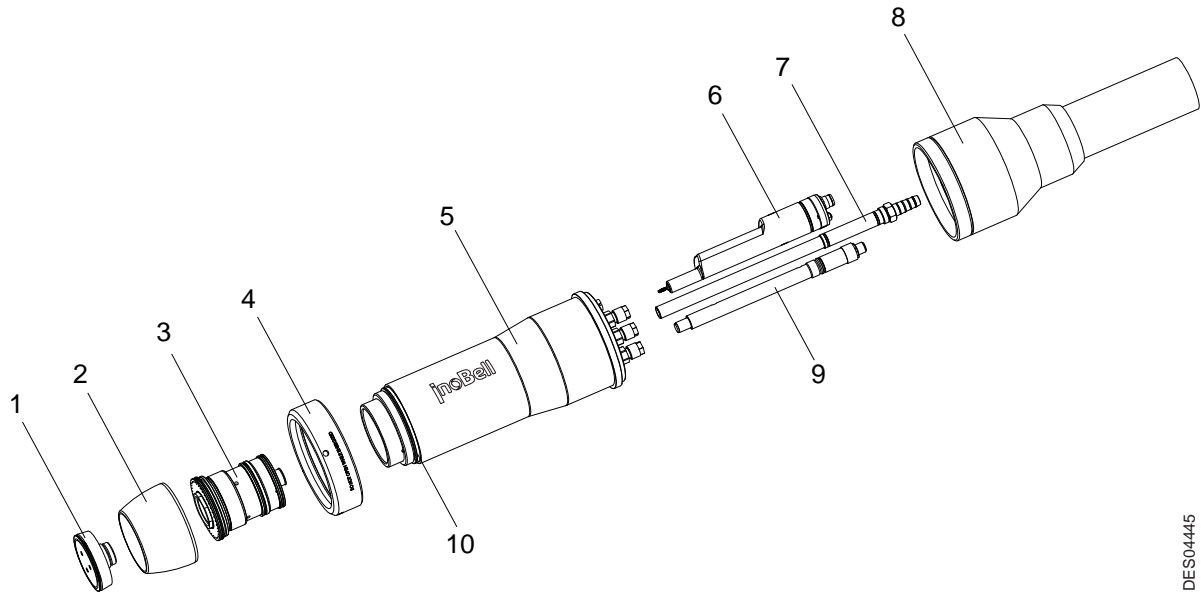
2. Description

2.1. General

The **Inobell** projector is an automatic, electrostatic powder-coating projector equipped with a rotating bell cup specially designed for application of powder to all surface types and particularly for flat surfaces. It can apply different powders with excellent thickness consistency and high transfer efficiency, with high powder flow rates.

The **Inobell** projector has been designed for easy maintenance (easily removable powder turbine and bell cup, integrated HVU and simplified wiring, etc). The whole assembly is easy to clean.

Main components:



DES04445

Item	Description
1	Bell cup
2	Cover
3	Powder turbine
4	Turbine nut
5	Body
6	High Voltage Unit "UHT165"
7	Powder pipe
8	Support tube
9	Speed detector
10	Counter-electrode

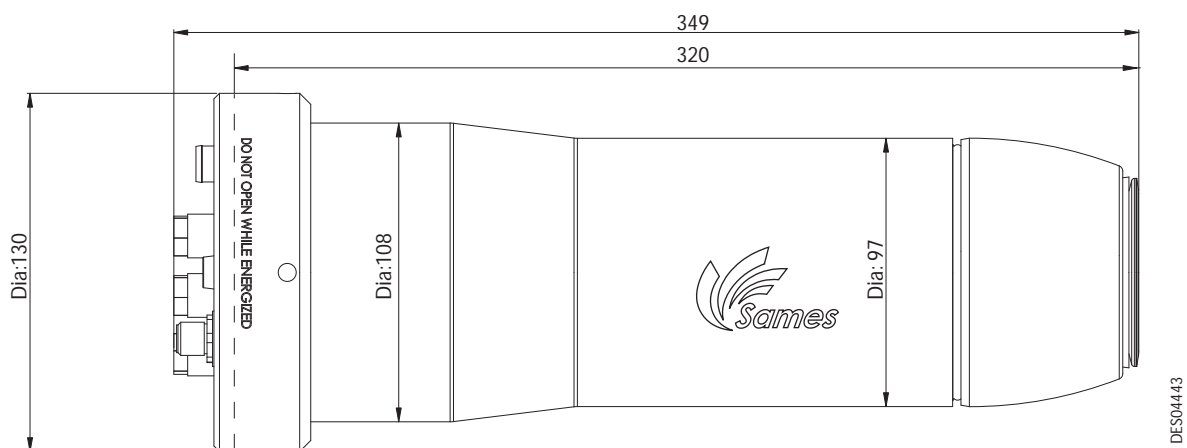
2.2. Component functions

Part	Function
Bell cup	Projects different types of powder. The bell cup has two main functions: - Forms a homogeneous cloud with the powder spray. - Charges powder cloud efficiently, regardless of powder flow rate. This provides excellent application quality and high application transfer efficiency for high flow rates
Cover	Directs shaping air from the distributor, shapes the powder cloud and promotes powder transfer to the part to be painted. Prevents return of powder to the projector. Secures the turbine in place.
Turbine	Bell cup rotation is driven by a pneumatic motor fitted with a speed measuring device.
Body assembly	This unit houses the air, powder and HV circuits.
High Voltage Unit UHT 165	High voltage power is supplied to the projector via the High Voltage Unit. Projected particles are electrically charged and thus attracted to the surface to be painted, which is grounded.
Powder pipe	Powder travels through the powder pipe to reach the bell cup.
Support tube	Secures the projector to a fixed or mobile arm.
Speed detector	Measures turbine rotation speed.
Counter-electrode	It is grounded with a high resistance and collects excess ions which are not required for powder charging.

3. Technical characteristics

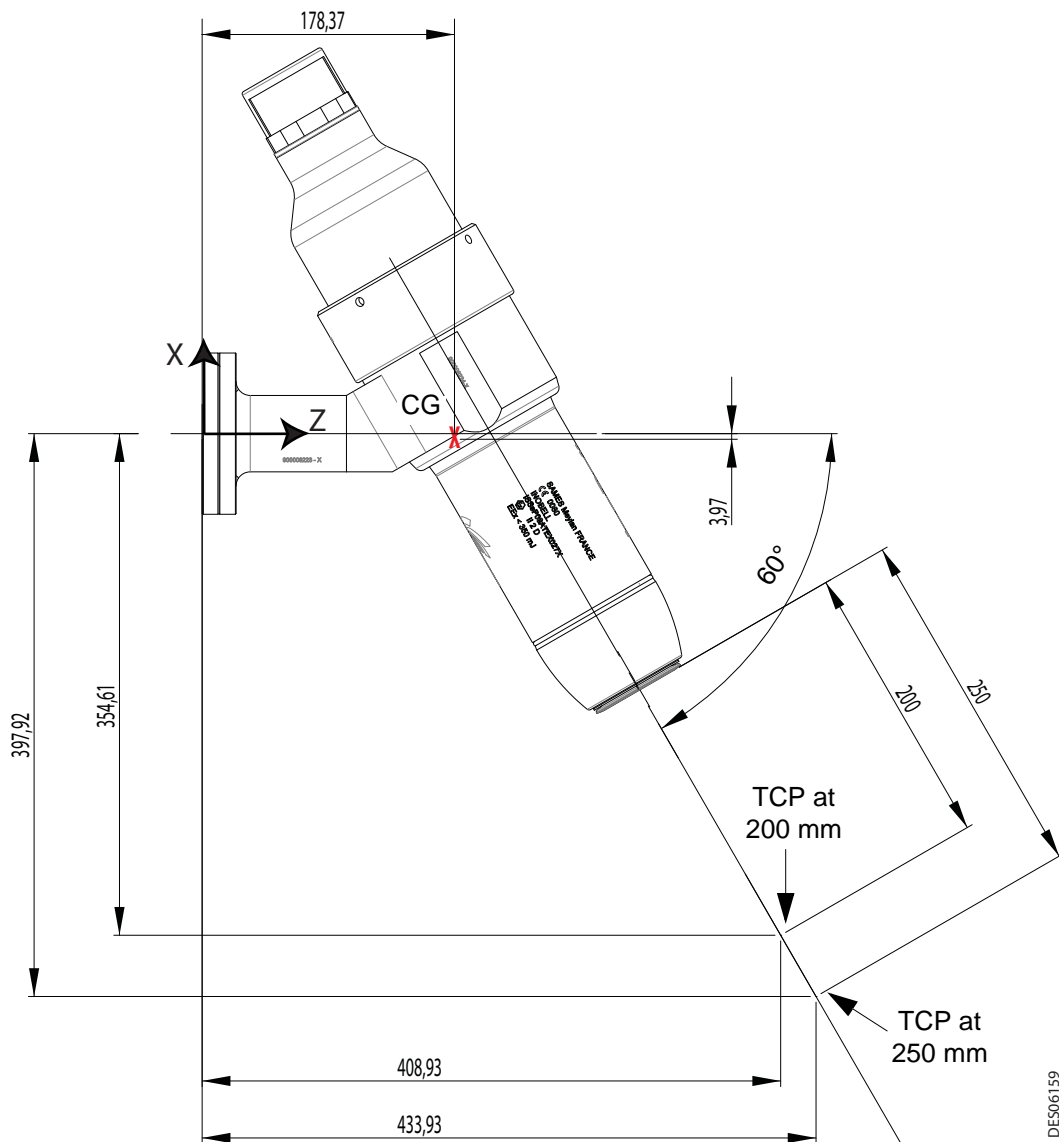
3.1. Dimensions

3.1.1. Straight version



Weight: 3.6 Kg

3.1.2. Robotic version



DES06159

Output CS: Wrist Payload CG location

TCP : Tool Center Point

Weight: 5.2 kg

Gravity center (CG) in millimeters

X = -3.97

Y = 0.61

Z = 178.37

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

lx = (-0.73 , -0.00 , 0.69)	Px = 20378.65
ly = (0.69 , 0.02 , 0.73)	Py = 61039.55
lz = (0.01 , 1.00 , -0,01)	Pz = 73499.91

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

lxx = 39511.13	lxy = 232.69	lxz = -20296.28
lyx = 232.69	lyy = 73496.64	lyz = 41.40
lzx = -20296.28	lzy = 41.40	lzz = 41910.34

3.2. Operating and Setting Characteristics

3.2.1. General

Maximum operating voltage	75 kV
Recommended effective rotation speed	V (7500 rpm)
Max. rotation speed under normal conditions	V+ (8500 rpm)
Min. rotation speed under normal conditions	V- (6500 rpm)

Paint:

Recommended max. powder flow rate	30 kg/h max.
-----------------------------------	--------------

3.2.2. Air consumption

Air flow required for bell cup rotation	About 40 NI/min under stable conditions (regardless of speed setpoint)
	110 NI/min max. under transient acceleration conditions
Shaping air flow	0 to 80 NI/min (proportion of 0% to 100% at setpoint)
Bearing protection air flow	60 NI/min

3.2.3. Pneumatic characteristics

Required characteristics for compressed-air supply according to standard **NF ISO 8573-1**:

Dew point at 6 bar (87 psi)	Class 4, i.e. 3°C (37°F)
Maximum oil concentration	Class 1, i.e. 0.01 mg/m ₀ ³ :
Maximum particle size of solid contaminants	Class 3 i.e. 5 μm
Maximum concentration of solid contaminants	5 mg/m ₀ ³

Note: m₀³: values given for a temperature of 20°C (68°F), at an atmospheric pressure of 1013 mbar.

3.3. Operating principle for powder projector

The Inobell projector is an electrostatic powder projector equipped with a rotating bell cup designed for automatic powder-coating installations. It is equipped with an air-driven turbine mounted on bearings. There is an ionising electrode on the front of the bell cup that is maintained at a high negative electrical potential.

This electrode serves to electrically charge the powder while it flows from the end of the Inobell projector to the part to be painted.

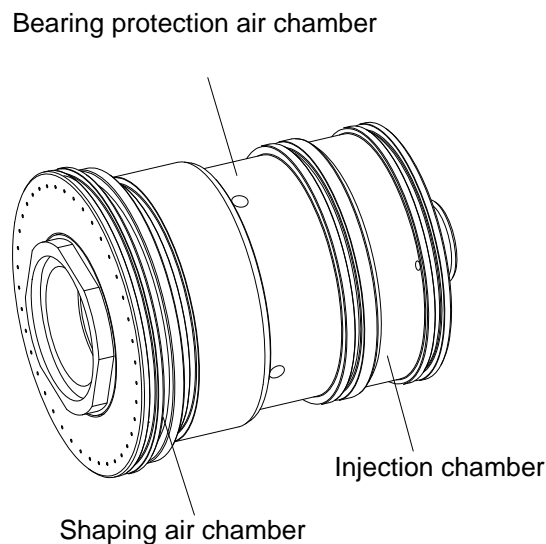
In addition, a counter-electrode efficiently charges the powder, regardless of the distance between the Inobell projector and the part to be painted and also serves to avoid certain undesirable effects caused by excessive accumulation of electrical charge on the part to be painted.

To ensure that the electrically charged powder paint adheres to the part to be painted, the part must be conductive (or semi-conducting) and correctly grounded (electrical resistance of the part to be painted must have a ground resistance that is less than 1 M Ω).

The TCR module controls all pneumatic and electrical functions necessary for operating the projector (HV, shaping air, turbine rotation, powder pump) ([see RT Nr 7062](#)).

3.3.1. Turbine

The turbine has 3 round supply chambers: rotation injection air, bearing protection air and shaping air.



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3.3.2. Turbine Rotation Speed

The turbine rotation speed is measured using the speed detector housed in the body of the projector. It detects markers on the turbine's moving parts. This new technology provides extremely precise and reliable speed measurement, and needs no maintenance.

4. Installation

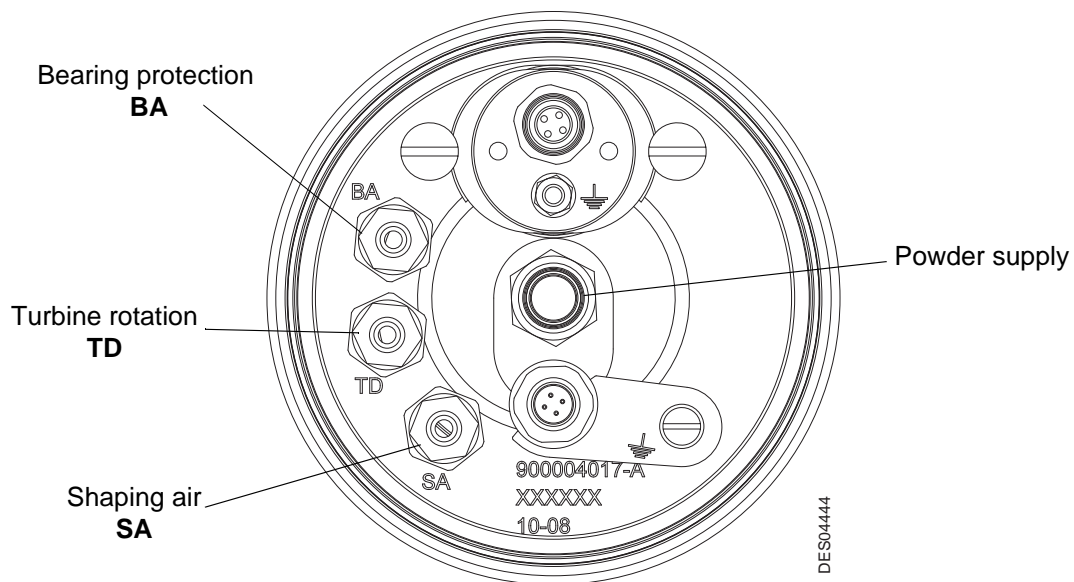


WARNING : Before operation, ensure that installed equipment complies with safety regulations ([see § 1.4 page 6](#)).

4.1. Installation of Inobell projector

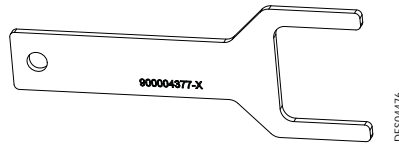
- Screw the nut onto the support stem, put the projector support arm in place and screw on the four nut bolts.
- Insert air hoses, wires and the powder supply hose into the support arm.
- Connect air and paint feed hoses to the projector.
- Connect the High Voltage Unit UHT 165 and the speed detector. **Fully tighten both bolts manually.**
- Screw the projector nut onto the support arm then secure it using the tool (P/N: W6CERG036) by inserting the tool pin into a hole in the nut.

4.2. Connections

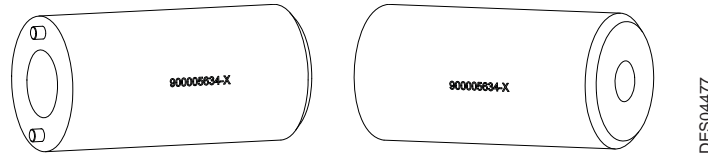


Marking.	Function	Hose characteristics
SA	Shaping air	5.5/8 Flexible polyurethane
TD	Turbine rotation air	5.5/8 Flexible Polyurethane
BA	Bearing protection air	5.5/8 flexible polyurethane
	Powder supply	(see § 8.6 page 36)

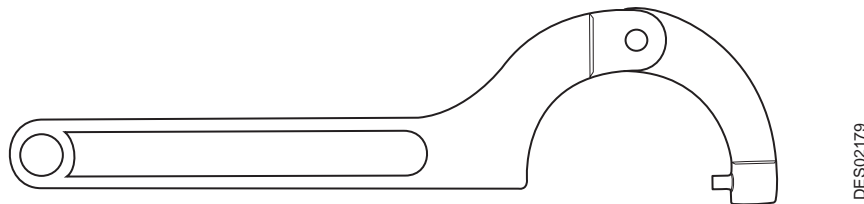
5. Tools



Part number	Description	Qty	Unit of Sale
900004377	Turbine shaft holding tool for bell cup removal	1	1



Part number	Description	Qty	Unit of Sale
900005634	Drive vane fitting/ removal tool and bearing nut and powder pipe	1	1



Part number	Description	Qty	Unit of Sale
W6CERG036	Projector nut fitting/removal tool	1	1



Part number	Description	Qty	Unit of Sale
240000138	Powder pipe removal tool	1	1

Other tools: hose cutter, set of Allen keys, flat wrenches, 17mm ring wrench and screwdriver.

6. Maintenance

6.1. Summary of maintenance operations

Fouling and wear of the Inobell projector caused by powder paint transfer may vary according to operating conditions and the type of powder used. The servicing intervals indicated in the table below are given as an indication only. After some experience of using Sames Technologies equipment, users will be able to draw up their own maintenance schedule.

Procedure	Description	Preventive	Corrective	Time required	Frequency
A	Clean projector, air shroud and bell cup exterior	X		5 min	8 hours
B	B1 Clean bell cup	X		5 min	40 hours
	B2 Clean powder pipe	X		10 min	40 hours
C	Turbine maintenance				
	C1 Replace bearings		X		6 months
D	Body maintenance				
	D1 Replace speed detector sleeve (exceptional)		X	15 min	-
	D2 Replace powder pipe		X	15 min	-
	D3 Replace counter-electrode components		X	15 min	-
	D4 Replace HV brush contact assembly		X	15 min	6 months
	D5 Replace High Voltage Unit UHT 165		X	15 min	-

6.2. Preventive maintenance

These preventive maintenance operations may be carried out in the paint booth. Always refer to the health and safety instructions before carrying out any work ([see § 1.4 page 6](#)).



WARNING : Before disconnecting the projector, switch off the TCR module power supply (to prevent malfunctions).

6.2.1. Procedure A: Projector exterior



WARNING : Water or solvents must never be used for cleaning the equipment. Cleaning operations must only be carried out using compressed air and clean, soft cloths.



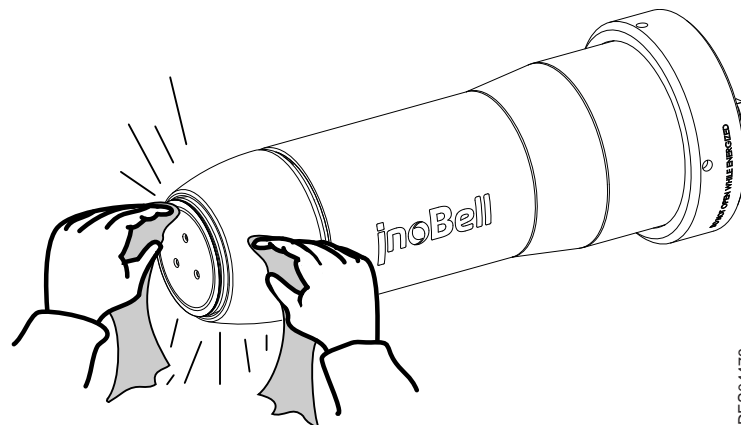
WARNING : Ensure that bearing protection air supply is maintained to protect the bearings when cleaning the outside cover of the projector.



WARNING : Never blow air in the direction of the bell cup if the bearing protection air is not on.



WARNING : Powder must not be allowed to penetrate the turbine. Ensure that the bearing protection air is not switched off when flushing the powder pump or powder hose.



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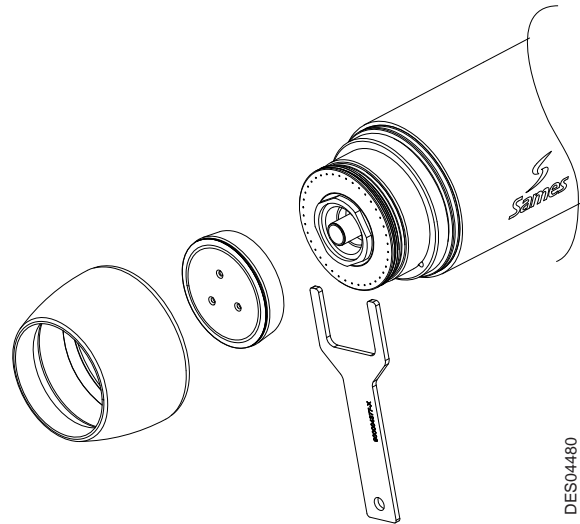
- Clean the cover, bell cup and projector with a clean cloth.
- Remove any powder residue using compressed air, being sure to follow the instructions set out above.

6.2.2. Procedure B1: Clean bell cup

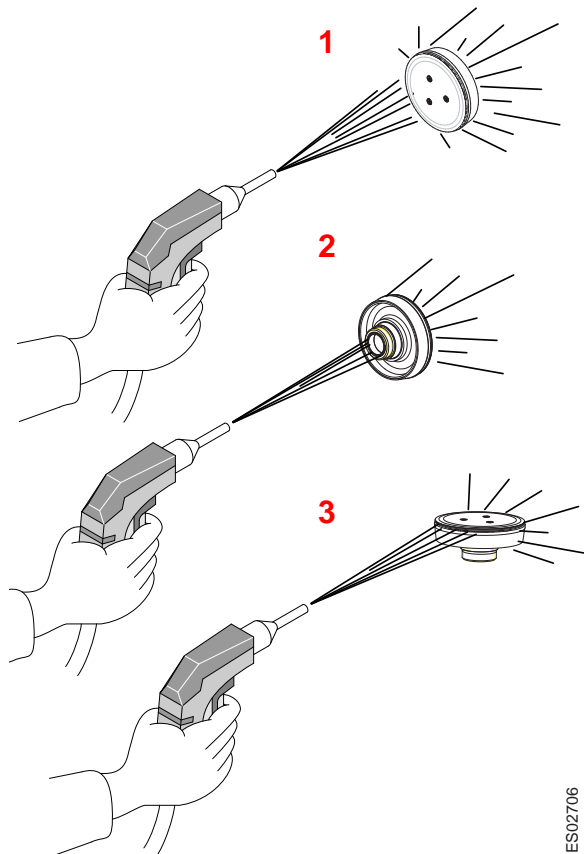


WARNING : The bell cup must never be cleaned with compressed air while it is mounted on the projector. The bell cup must be removed for cleaning.
Sharp or abrasive objects must never be used for cleaning the bell cup.

- Unscrew the air shroud
- Using tool (P/N: 900004377), hold the turbine shaft in place and unscrew the bell cup manually.
Check the condition of the bell cup. Clean it and replace if necessary.



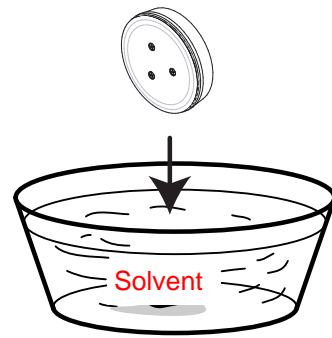
- Expel as many impurities as possible without disconnecting the bell cups by blowing compressed air into the bell cup using a high-pressure air gun (equipped with a hose end-piece, for example). Follow the three steps described:
 - **Step 1:** Blow compressed air onto the outside of the bell cup.
 - **Step 2:** Blow into the powder pipe and inside the bell cup.
 - **Step 3:** Blow into the bell cup lateral slot.



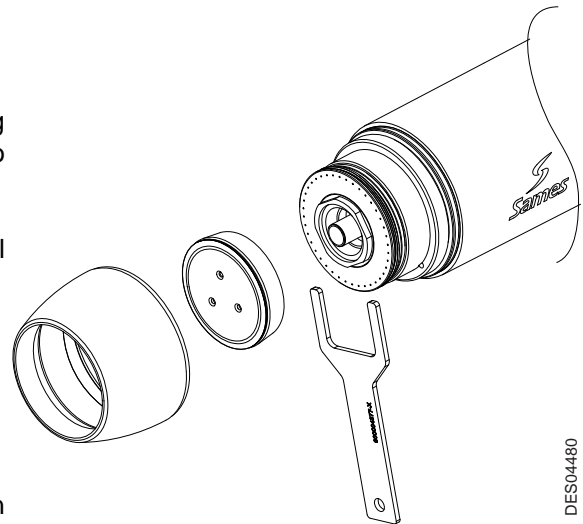
WARNING : Pay particular attention to the conical part and the threads on the metal hub.

If necessary:

- Soak the bell cups for one hour in a solvent compatible with the bell cup material.
- Clean each bell cup with compressed air (in the three places described above) to expel dissolved powder and remaining solvent.
- Leave bell cup to dry for 30 minutes.
- Re-assemble the bell cup assembly
 - Carefully clean the conical bell cup housing on the turbine shaft with a soft cloth to eliminate any traces of powder
 - Hold the turbine shaft with the tool (P/N: 900004377), then fully tighten the bell cup until it locks.
 - Screw on the cover.



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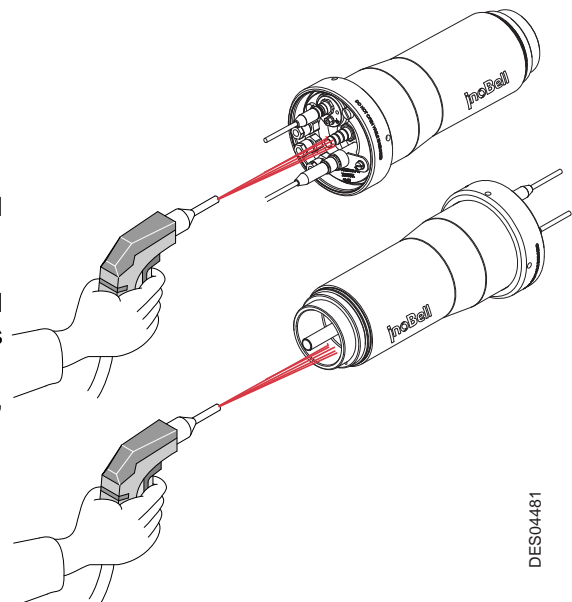


DES04480

- Switch on the empty bell cup before production in order to expel any solvent residue by inertia.

6.2.3. Procedure B2: Clean powder pipe

- **Step 1:** Unscrew the cover.
- **Step 2:** Remove the turbine fitted with the bell cup
- **Step 3:** Disconnect the powder supply hose and clean the powder pipe with compressed air as indicated.
NB: before refitting the turbine into the projector, clean the housing with compressed air.



DES04481

6.3. Corrective maintenance

6.3.1. Procedure C: Disassemble turbine

- **Step 1:** Switch off the projector
- **Step 2:** Unscrew the cover.
- **Step 3:** Remove the turbine cartridge assembly with bell cup.
- **Step 4:** Remove the bell cup from the turbine cartridge. Using tool (P/N: 900004377), hold the turbine shaft in place and unscrew the bell cup manually.



Step 3



Step 4



WARNING : When disassembling the turbine cartridge, check the condition of all four seals and replace them if necessary.

6.3.2. Procedure C1: Replace turbine bearings

- **Step 1:** Using tool (P/N: 900004377), hold the turbine shaft in place and position tool (P/N: 900005634) onto the drive vane in order to unscrew it.
- **Step 2:** Place the tool (P/N: 900005634) onto the bearing nut and unscrew.



Tool
(P/N: 900004377)

Tool
(P/N: 900005634)



Drive vane



Step 2

Bearing
nut

- **Step 3:** Remove the shaft from the distributor.



Step 3

- **Step 4:** Remove the rear bearing (P/N 180000142) from the distributor.

Step 4



- **Step 5:** Hold the spacer against the front bearing (P/N 900005630) and remove them together.

Step 5



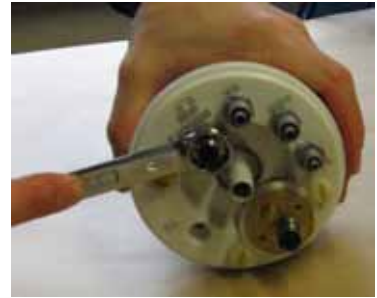
For reassembly proceed in reverse order:

- Position the rear bearing (P/N 180000142) in the distributor.
- Screw on the bearing nut and tighten with the tool.
- Fit the shaft with the front bearing (P/N 900005630) and spacer, push in the two components together so that the front bearing does not go skew.
- Slide the assembly into the distributor and tighten the drive vane.

6.3.3. Procedure D1: Replace speed detector sleeve

- **Step 1:** Unscrew the speed detector sleeve using a 17mm ring wrench.

Step 1



- **Step 2:** Remove the sleeve from the body.

Step 2



- **Step 3:** Insert the new speed detector sleeve into its housing, push in completely and then tighten the sleeve with a ring wrench.

6.3.4. Procedure D2: Replace powder pipe

- **Step 1:** Unscrew the powder pipe using the powder pipe removal tool (P/N: 240000138).

Step 1



- **Step 2:** Using the tool (P/N 900005634), push the powder pipe towards the outside.

Step 2



- **Step 3:** Remove the powder pipe from the body and replace it.

Step 3



- **Step 4:** Insert the new powder pipe into its housing, push it fully in using tool (P/N: 240000138) and tighten the powder pipe.

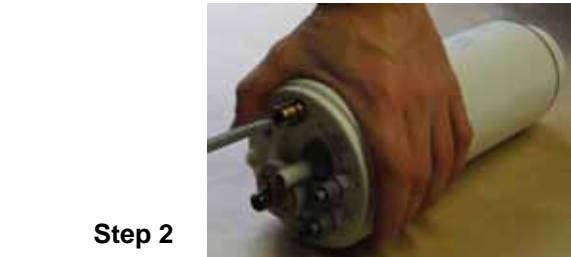
6.3.5. Procedure D3: Replace counter-electrode components

- **Step 1:** Having removed the speed detector sleeve, unscrew the retaining screw from the grounding plate ([see § 8.1 page 31](#) items 13 and 15).



Step 1

- **Step 2:** Using a large screwdriver, unscrew the counter-electrode contact ([see § 8.1 page 31](#), item 17), remove it from the body and take out the spring.



Step 2



- **Step 3:** Remove the counter-electrode seal ([see § 8.1 page 31](#) item 7).



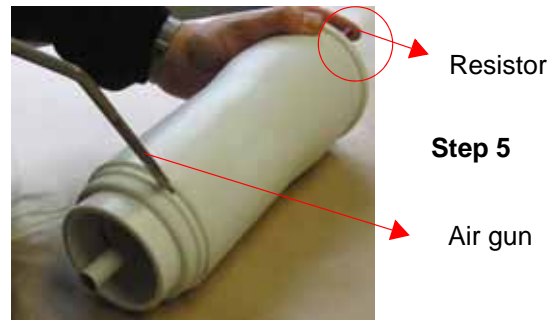
Step 3

- **Step 4:** Using a small screwdriver push back the end contact ([see § 8.1 page 31](#) item 21).



Step 4

- **Step 5:** Insert an air gun into the end contact slot in order to push out the resistor and the contact.



For re-assembly

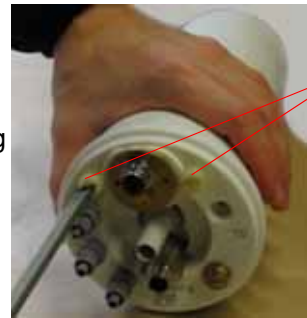
- Coat the resistor and the contact assembly (with seal) with a thin coat of dielectric grease.
- Fit the contact.
- Fit the resistor.
- Fit the spring.
- Screw the contact to the electrode.
- Fit the grounding plate and tighten.
- Fit the speed detector sleeve and tighten.
- Check the condition of the counter-electrode seal, replace it if necessary and reposition on the body.

6.3.6. Procedure D4: Replace high voltage brush contact

- Remove the cover.
- Remove the turbine cartridge assembly with bell cup.
- Unscrew the brush and replace it.

6.3.7. Procedure D5: Replace High Voltage Unit

- **Step 1:** Unscrew the two UHT 165 securing screws (M8 x 12).



Two M8 x 12 screws

Step 1

- **Step 2:** Insert a large screwdriver under the shoulder.

Step 2



- **Step 3:** Remove the UHT 165 from its housing.

Step 3



Replace the high voltage unit:

- **Step 4:** Coat the new UHT 165 with a thin coat of dielectric grease.



Step 4

- **Step 5:** Insert the UHT 165 into the body, push it in fully and tighten the two securing screws.

7. Troubleshooting

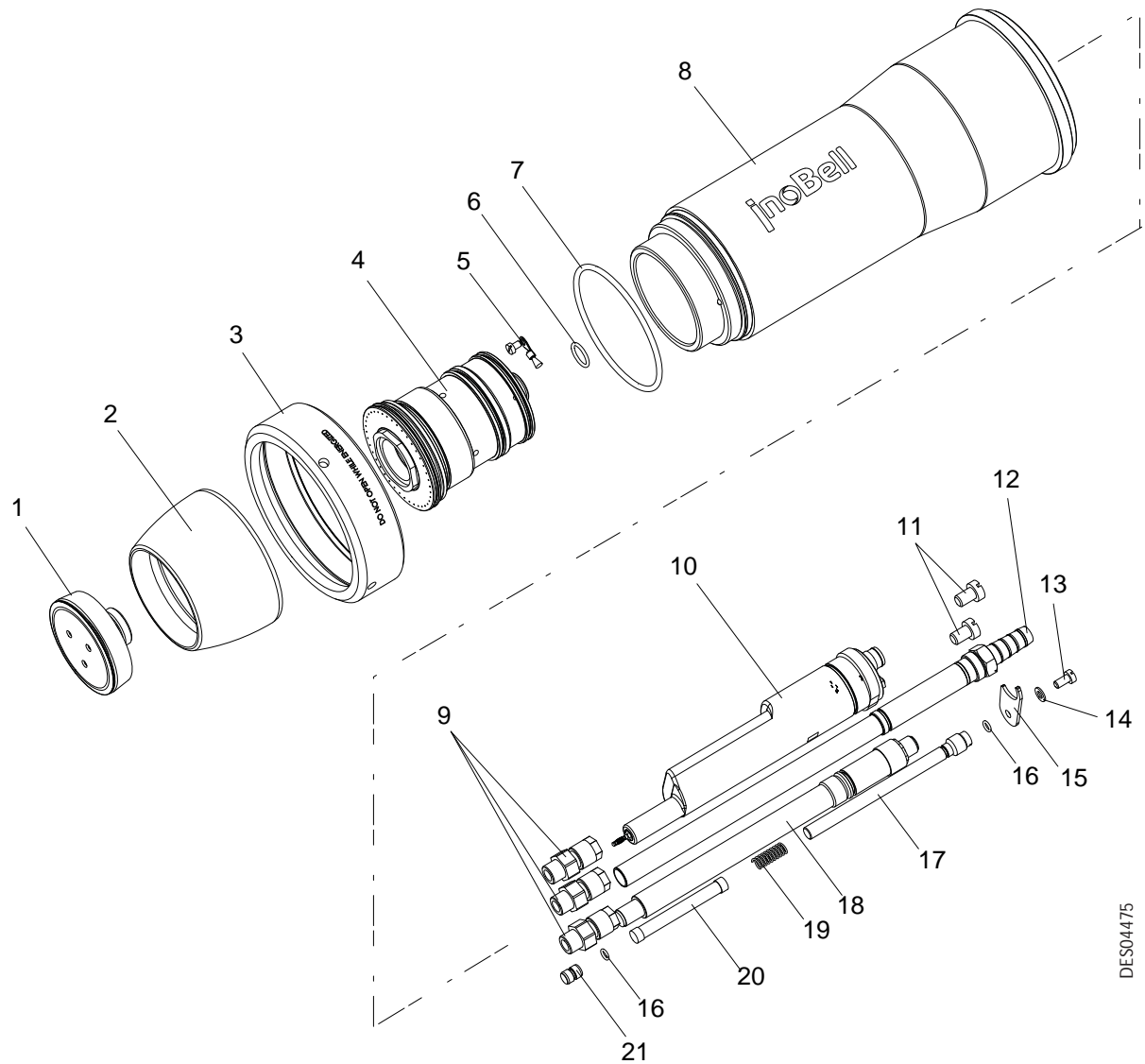
Symptoms	Probable causes	Solutions
Turbine does not rotate	No turbine injection air	Check injection air supply
		Check TCR module air supply
	Bearings are worn or faulty	Change bearings
	Air leak in distributor injection chamber	Check turbine cartridge is properly inserted into the projector and check condition of distributor seals
	Bell cup rubs against air shroud	Change air shroud. Check condition of bell cup and change if necessary.
	Incorrect assembly of distributor	Check distributor assembly
	A TCR module fault prevents rotation command	Check TCR module fault information on the 'Faults' screen
Turbine does not reach required speed or does not stabilise	Air leak in the distributor injection chamber	Replace seals
	One of the bearings is faulty	Change both bearings. Check bearing protection air supply and distributor seals
	Bearings are new, turbine has not been properly run in.	Run in the bearings by running the turbine without powder for 15 minutes, at speed V+ if possible
Turbine overspeed	One of the bearings is reaching the end of its life and is seizing	Change both bearings
	The speed detector loses its speed signal	Check turbine cartridge is fully inserted into body and that air shroud is fully tightened.
		Check detector sleeve is fully tightened at back of projector.
		Check detector supply wiring
		Speed detector is out of order, replace sleeve assembly
		TCR module is malfunctioning
		Check TCR module air supply

Symptoms	Probable causes	Solutions
Powder is not projected from projector, or is projected in insufficient quantities	Powder hose is not connected to the powder pipe	Reconnect hose correctly to rear of powder pipe
	Blocked powder pipe Blocked bell cup Pump hose between pump and projector is folded or blocked	Check full length of powder line from pump to bell cup. Clean with compressed air or replace blocked components.
	Pump is faulty	Check pump is working. Clean or replace pump. Check pump air supply (injection and dilution) from TCR module. Check TCR module air supply network
	Insufficient powder quantity	Check powder level at powder pump
	Insufficient powder fluidisation	Check powder fluidisation equipment and fluidisation airflow
	A TCR module fault prevents projection command	Check TCR module fault information on the 'Faults' screen
Powder does not adhere to part to be painted	Part is not correctly grounded	Ensure that electrical resistance of parts to be painted in relation to ground system is less than or equal to 1MΩ
	High Voltage is only partially transmitted because there is a contact missing in part of High Voltage circuit.	Check carbon brush in the projector for wear or fouling. Replace if necessary
	Voltage is not sufficiently high.	Measure voltage at bell cup and increase voltage
	High Voltage Unit is out of order	Replace High Voltage Unit
Abnormally high current consumption	Ground wire too close	Move ground wire further away
Abnormally low current consumption	Counter-electrode is not correctly connected.	Check counter-electrode seal for fouling and change if necessary
		Check counter-electrode resistance value (approx. 1GΩ). Check this value between rear grounding plate and counter-electrode contact (below seal)
		Check all counter-electrode components are in place
		Check speed detector connection to TCR module

Symptoms	Probable causes	Solutions
Fault in finish after application (insufficient coverage, "orange peel") but thickness is sufficient	Counter-electrode not correctly connected.	(See above)
Powder shaping air shroud does not work	Incorrect location of turbine cartridge in the body	Check location of turbine cartridge and fully tighten air shroud
	Shaping air supply chamber in distributor leaks	Check condition of distributor seals and replace if necessary
	No shaping air supply	Check shaping air supply setpoint (0 to 100%)
		Check effective shaping air supply to rear of projector as well as at TCR module output

8. Spare Parts

8.1. Inobell Projector



DES04475

Item	Part number	Description	Qty	Unit of Sale	Spare Part Level (*)
	910007600	Inobell Projector	1	1	-
1	910007602	Powder bell cup (see § 8.2 page 33)	1	1	1
2	900004055	Cover	1	1	3
3	900004037	Inobell nut	1	1	3
4	910007593	Powder Turbine (see § 8.3 page 34)	1	1	3
5	910007750	HV brush contact assembly	1	1	1
6	J3ETOR030	O-ring	1	1	1
7	160000078	O-ring	1	1	1
8	910007944	Inobell body	1	1	3
9	F6RPUK320	Male union D: 8 1/4	3	1	2
10	910007590	High Voltage Unit UHT 165 (see RT Nr 7060)	1	1	3
11	X9SVCB168	Screw, C M 8 x 12 - nylon + glass fibre	1	1	1
12	910007751	Powder pipe assembly (see § 8.4 page 35)	1	1	1
13	X7CVCB181	Brass slotted screw, C M 5 x 10	1	1	1
14	X7DDZU005	Z5 U brass washer	1	1	1
15	900004042	Grounding plate	1	1	3
16	J2CTPC054	O-ring	2	1	1
17	900004075	Counter-electrode contact with rear plate	1	1	3
18	910007594	Speed detector sleeve assembly (see § 8.5 page 35)	1	1	3
19	746107	Spring	1	1	3
20	1404851	Resistor	1	1	3
21	900002601	Counter-electrode end contact	1	1	3

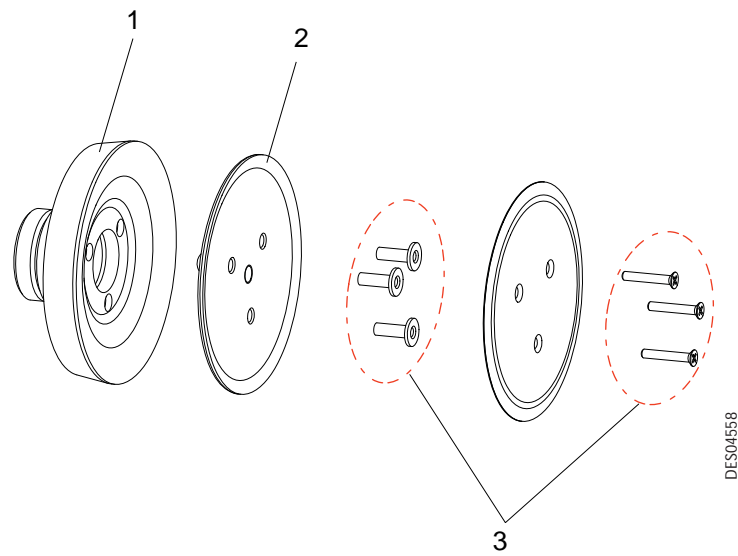
(*)

Level 1: Standard preventive maintenance

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.2. Powder Bell cup



Item	Part number	Description	Qty	Unit of Sale	Spare Part Level (*)
	910007602	Powder Bell cup	1	1	3
1	900005808	Rear deflector	1	1	1
2	910011143	Front deflector assembly	1	1	1
3	910008118	Fastening set for powder bell cup	1	1	1

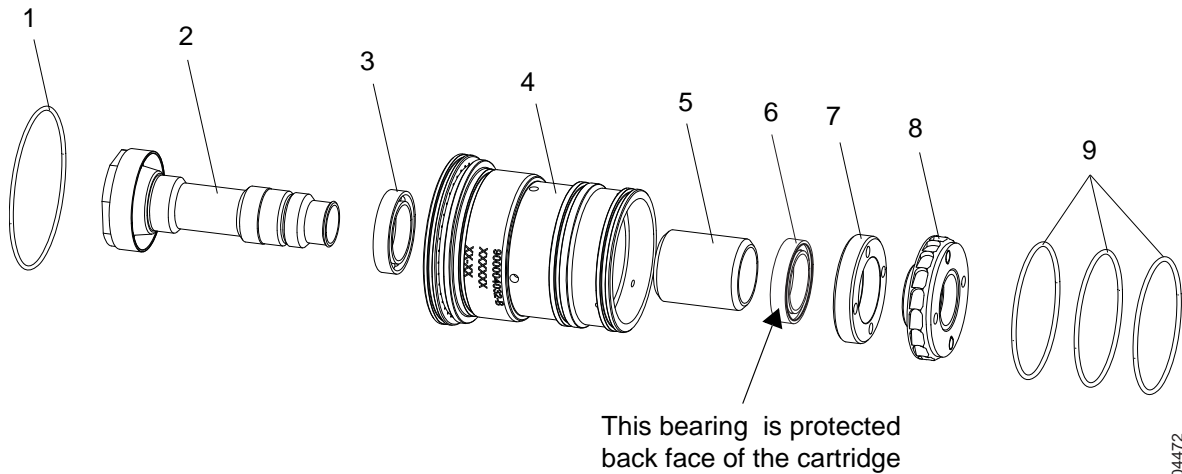
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Level 1: Standard preventive maintenance

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.3. Powder turbine



DES04472

Item	Part number	Description	Qty	Unit of Sale	Spare Part Level (*)
	910007593	Powder turbine	1	1	3
1	J2FTCF440	O-ring - Viton	1	1	1
2	900004056	Powder turbine shaft	1	1	
3	900005630	Front bearing	1	1	1
4	-	Distributor	1	not sold	-
5	900004053	Bearing spacer	1	1	1
6	180000142	Back shielded rolling bearing	1	1	1
7	900004051	Bearing nut	1	1	3
8	910007591	Drive vane	1	1	3
9	J2CTPB510	O-ring	3	1	1

(*)

Level 1: Standard preventive maintenance

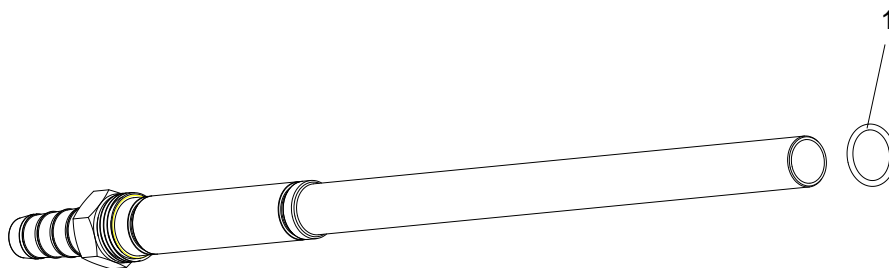
Level 2: Corrective maintenance

Level 3: Exceptional maintenance



WARNING : The two bearings (items 3 and 6) must be replaced at the same time.

8.4. Powder tube assembly



DES04473

Item	Part number	Description	Qty	Unit of Sale	Spare Part Level (*)
	910007751	Powder tube assembly	1	1	1
1	J2CTPB166	O-ring	1	1	1

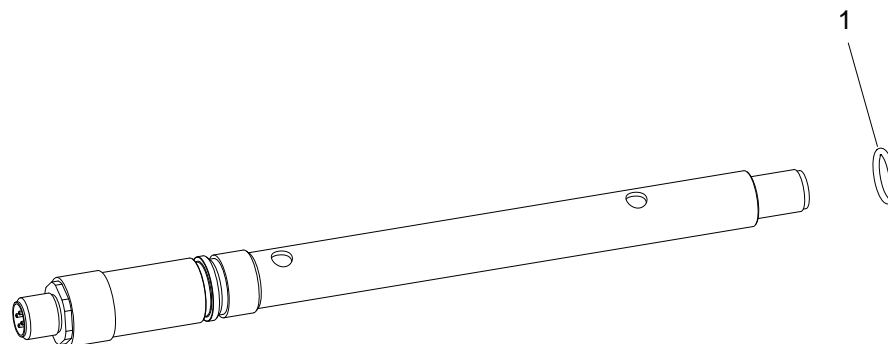
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Level 1: Standard preventive maintenance

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.5. Speed detector sleeve



Item	Part number	Description	Qty	Unit of Sale	Spare Part Level (*)
	910007594	Speed detector sleeve	1	1	3
1	J2FTDF160	O-ring	1	1	1

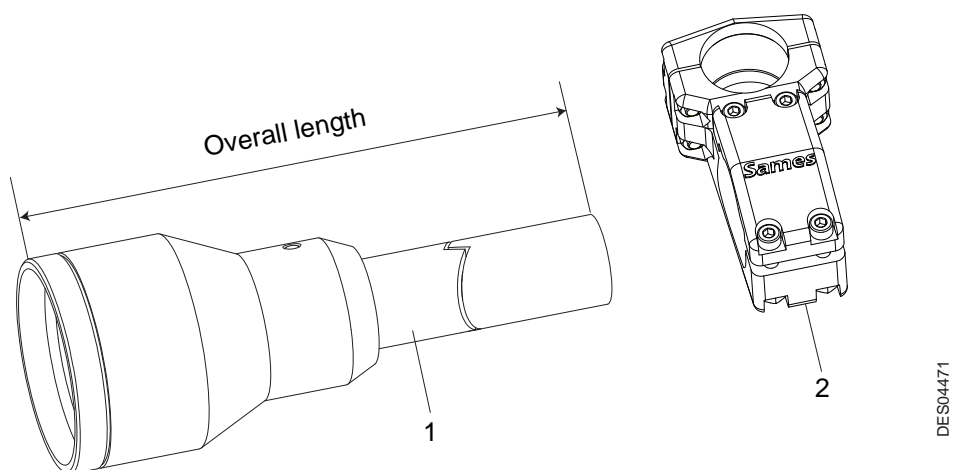
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Level 1: Standard preventive maintenance

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

8.6. Additional equipment



Item	Part number	Description	Qty	Unit of Sale	Spare Part Level (*)
1	910009357	Support arm, overall length: 515 mm	1	1	3
	910009358	Support arm, overall length: 1015 mm	1	1	3
	910009359	Support arm, overall length: 1615 mm	1	1	3
2	429104	Securing nut 50/50	1	1	3

(*)

Level 1: Standard preventive maintenance

Level 2: Corrective maintenance

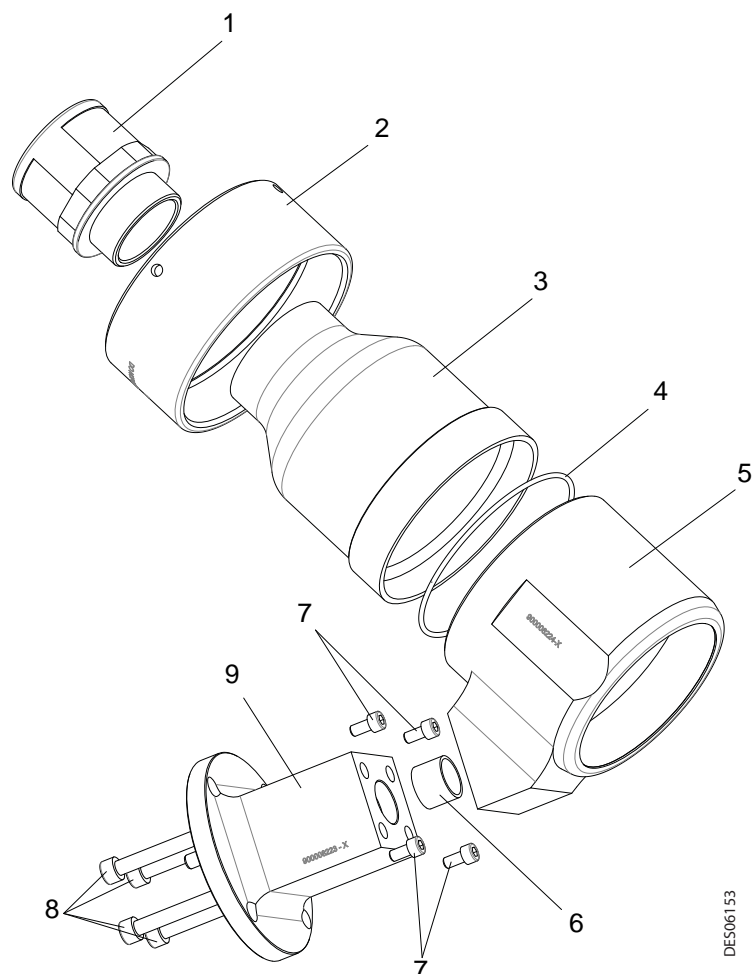
Level 3: Exceptional maintenance

Hoses

Item	Part number	Description	Qty	Unit of Sale	Spare Part Level (*)
	U1FGBA034	EAV 12 mm powder hose (grey)	15 m	50 m	2

8.7. Installing on robot

8.7.1. Robot support



DES06153

Item	Part number	Description	Qty	Unit of Sale	Spare Part Level (*)
	910018895	Robot support	1	1	3
1	110001042AT	Straight union	1	1	3
2	900008225	Inobell securing nut	1	1	3
3	900008226	Hose cover	1	1	3
4	J2FENV665	O-ring - FEP viton	1	1	1
5	900008224	Inobell support	1	1	3
6	449707	Insulating ring	1	1	3
7	X4FVSY222	Screw Chc M 6 / 12 stainless steel 316	4	1	3
8	X9SVSY289	Screw Chc M 8 / 50 glass fiber nylon	4	1	3
9	900008223	Robotic flange	1	1	3

(*)

Level 1: Standard preventive maintenance

Level 2: Corrective maintenance

Level 3: Exceptional maintenance

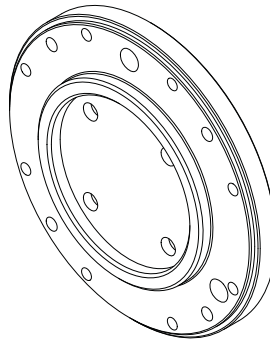
8.7.2. Robot extension lead

Part number	Description	Qty	Unit of Sale	Spare Part Level (*)
110001937	Robot extension lead, length: 7.5m	1	1	3

8.7.3. Robot adapters

For other robots, contact Sames Technologies

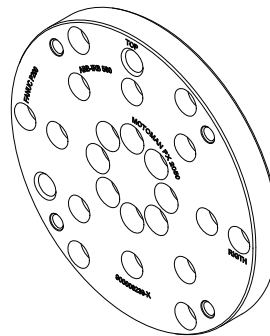
8.7.3.1. For robots Staubli RX 160 and TX 250



DES06155

Part number	Description	Qty	Unit of Sale	Spare Part Level (*)
910019977	Robot adapter	1	1	3

8.7.3.2. For robots Fanuc P 200, Motoman PX 2050 and ABB IRB 580



DES06154

Part number	Description	Qty	Unit of Sale	Spare Part Level (*)
910019978	Robot adapter	1	1	3

(*)

Level 1: Standard preventive maintenance

Level 2: Corrective maintenance

Level 3: Exceptional maintenance