

# SMART SYSTEMS

MICRO SMART . TURBO SMART . TURBO SMART 2V . TURBO SMART HP

## DAILY MAINTENANCE



- Always refer to the operator's handbook before carrying out any work
- Manuals are available on the website [www.cattani.it](http://www.cattani.it)
- Prior to carrying out any servicing operation make sure to wear disposable gloves, goggles, a mask and overalls
- Disconnect the appliance from the power
- Keep the plant room free from flammable and corrosive mixtures



### DAILY CHECKS

#### CHECK FOR ALARMS

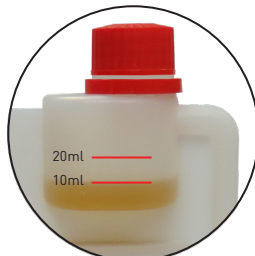
Check the display for alarms, should an alarm appear contact your technician.

#### USE PULI-JET PLUS CLEANER

At the end of the day, aspirate a solution of Puli-Jet Plus disinfectant using the Pulse Cleaner bucket.

**General Cleaning (daily):** mix 10ml of Puli-Jet Plus with 2.5 litres of warm water (approx temp 50°C).

**Disinfecting (once per week):** mix 20ml of Puli-Jet with 2.5 litres of warm water (approx temp 50°C).



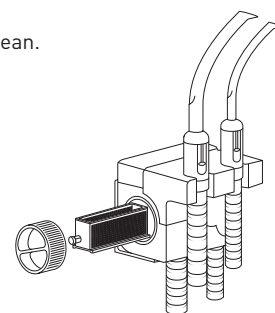
#### REPLACE ANTIFOAMING TABLETS

Replace the Antifoaming Tablets in your tip support filter.



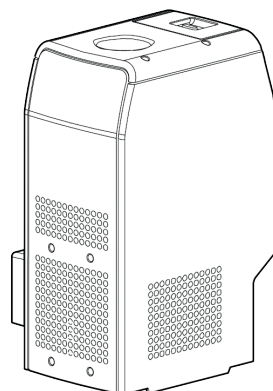
#### CLEAN FILTERS

Periodically keep the aspirator filters clean.



#### CHECK THE ASPIRATOR VENTILATION

Make sure that the aspirator ventilation is not obstructed. Keep the plant room free from anything not related to the machines, in particular flammable material; ensure that there is no possibility of formation of corrosive, flammable or explosive mixtures.



**Daily maintenance must be carried out by specially instructed surgery staff**

View on your phone or tablet



### HOW IS IT WE LEAD IN OUR FIELD, WHEN WE COST LESS THAN THE ALTERNATIVES? THIS IS HOW:

**Constant research:** this enables us to apply the latest technology to all of our products and solutions.

**We enhance performance:** electronic and information technology enable us to enhance the performance and reliability of our products.

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## ALARM CODES



### ALARM DESCRIPTION

CODE	DESCRIPTION	SOLUTION
00	Microcontroller memory alarm	Contact the technician
I00	Microcontroller memory alarm	Contact the technician
I01	Short circuit due to one of two motors	Find out where the short circuit is located and eliminate it
I02	Short circuit before motor control	Contact the technician (board probably damaged)
I03	Condensers not charged	Contact the technician (replace board)
I04	Overtemperature (temperature has exceeded max. allowed limit)	Ventilate the plant room (check cooling fan is operating)
I05	Blower has exceeded current limit	Check blower efficiency (seized or excessive friction)
I07	Blower has exceeded current limit. Condensers overvoltage (the condensers have exceeded the max. voltage limit)	Check the mains voltage (max. 260V) switching off unit whilst it is working will give this alarm, please allow approx 40 seconds for display to switch off fully before turning back on
S08	Short-circuit in centrifuge	Eliminate the short-circuit
S09	Board short-circuit in centrifuge output	Replace board
S10	Instantaneous centrifuge has exceeded current limit	Eliminate siphons in piping or check efficiency of centrifuge (seized or excessive friction)
S11	Time-delayed centrifuge has exceeded current limit	Eliminate siphons in piping or check efficiency of centrifuge (seized or excessive friction)
I13	Amalgam reader disconnected	Connect the amalgam sensor
I14	Amalgam level > 95%	Replace the amalgam container as soon as possible
I15	Amalgam level > 100%	Replace the amalgam container
I16	Vacuum sensor tube disconnected	Connect the vacuum tube to the centrifuge
I17	Thermal protector tripped	Reset plant room temperature
I20	Control panel - Flash memory fault	Contact the technician
I26	Control panel - Flash memory fault	Contact the technician

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## ANNUAL MAINTENANCE



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### CHECKS EVERY 12 MONTHS

#### BEFORE YOU BEGIN

Before working on the appliance, carry out a few washes with Pul-Jet Plus and wait 15 minutes to give the disinfectant time to be effective. Disinfect the outside of the machine too. If the machine cannot aspirate, pour the disinfectant in manually and move the machine at different angles to allow the liquid to reach all the internal parts.

#### CHECK TEMPERATURES AND ALARMS

Check maximum recorded temperatures and all alarms. Intervene accordingly.

#### CHECK NOISE LEVEL

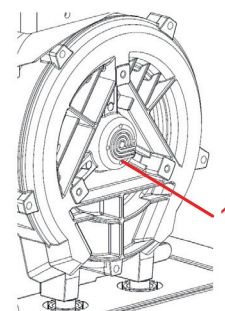
Check the aspirator noise level, max. 72 dB according to standard 3047 (E).

#### REMOVE ANY DUST

If necessary, use a blast of dry air with max. 2 bar pressure to remove dust from the electronic components of the circuit using a blast of dry air and a 6 bar blast of air to clean the small holes on the frontal cover of the aspirating assembly (1).

#### ANNUAL SERVICE KIT

Replace all parts according to service kit instructions, check for general wear and tear and intervene accordingly.



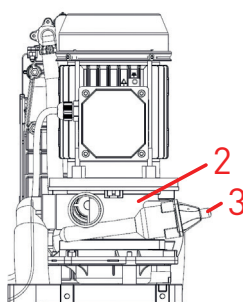
### CHECKS EVERY 18-24 MONTHS

#### CHECK THE CENTRIFUGAL SEPARATOR

Check the efficiency of the centrifugal separator (2) and the recirculation valve (3).

#### CHECK TUBING

Check the tubing between the air/water separator motor and vacuum motor, replace if porous.



### CHECKS EVERY 5 YRS / 10,000 HRS

#### CHECK ALL RUBBER PARTS

Rubber parts: O rings, gaskets or seals must be replaced every time they are removed.

#### REPLACE THE FOLLOWING:

Replace motor bearing and vibration dampers.  
Replace air/water separator internals.  
Replace air/water separator motor column and impellor.

**Annual maintenance must be carried out by a trained engineer in possession of original spare parts**



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## SERVICE KITS

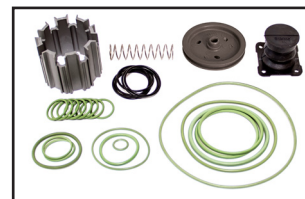


### MICRO SMART & CUBE

#### Micro Smart & Micro Smart Cube - Basic Kit

200206	ISO 6 Weight cage	210943	Amalgam sep pot O-Ring ISO (1 O-ring)
200947	Orifice plate for Micro Smart	210947	ISO 18 O-Ring (8 O-rings)
210816	Smart recirculator diaphragm	210949	A/Sep orifice plate large O-Ring (1 O-ring)
210904	A/Sep orifice plate small O-Ring	210950	O-Ring for separator discharge valve (1 O-ring)
210909	Mini-sep entry O-Ring (6 O-rings)	210969	ISO 18 O-Ring for amalgam separator (1 O-ring)
210932	O-Ring for low voltage pump body (1 O-ring)	210976	ISO 18 O-Ring for amalgam separator (1 O-ring)
210934	O-Ring for 16mm tip support union (2 O-rings)	250498	Smart recirculator spring
210941	Waste outlet O-Ring (1 O-ring)		

900051



#### Micro Smart & Micro Smart Cube - Complete Kit

200206	ISO 6 Weight cage	210947	ISO 18 O-Ring (8 O-rings)
210816	Smart recirculator diaphragm	210949	A/Sep orifice plate large O-Ring (1 O-ring)
210904	A/Sep orifice plate small O-Ring	210950	O-Ring for separator discharge valve (1 O-ring)
210909	Mini-sep entry O-Ring (6 O-rings)	210969	ISO 18 O-Ring for amalgam separator (1 O-ring)
210932	O-Ring for low voltage pump body (1 O-ring)	210976	ISO 18 O-Ring for amalgam separator (1 O-ring)
210934	O-Ring for 16mm tip support union (2 O-rings)	211600	T Jet 1&2 / Smart centrifugal sep discharge valve
210941	Waste outlet O-Ring (1 O-ring)	250498	Smart recirculator spring
210943	Amalgam sep pot O-Ring ISO (1 O-ring)		
043132	Amalgam container for Micro Smart	224187	Brass float ISO6
201547	Filter for Micro Smart inlet	224424	ISO 18 by-pass valve seat (brass and rod)

900050



This kit is identical to the 900051 above with these additional items as highlighted

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## SERVICE KITS



### TURBO SMART, 2V & CUBE

#### Turbo Smart & Turbo Smart Cube (Annual Kit)

041422	Tubing ISO 19 D.17.5mm special (1m)	210942	O-Ring ISO 18 lid seal (1 O-ring)
043135	Turbo Smart amalgam container and lid	210943	Amalgam sep pot O-Ring ISO (1 O-ring)
200207	ISO 18 Weight cage	210947	ISO 6/18 A/Sep elbow O-Ring (8 O-rings)
201544	Filter ISO 18 amalgam sep & Turbo Smart sep	210969	ISO 6/18 Waste outlet cover O-Ring (1 O-ring)
202551	Turbo Smart non-return valve retainer	210973	ISO 18 centrifugal sep base seal (1 O-ring)
202580	ISO 18 cone at bottom of A/Sep	210975	O-Ring ISO 18 air inlet seal (1 O-ring)
210816	Smart recirculator diaphragm	210976	Vacuum inlet point O-Ring (1 O-ring)
210824	Turbo Smart non-return valve	210980	Smart sep O-Ring sep to Uni 75 (2 O-rings)
210909	Mini sep entry O-Ring (2 O-rings)	224185	Brass float valve ISO 18
210915	O-Ring ISO 18 orifice plate seal (1 O-ring)	224424	ISO 18 by-pass valve seat (brass and rod)
210918	Turbo Smart waste O-Ring (1 O-ring)	250498	Smart recirculator spring
210932	O-Ring low voltage pump body (1 O-ring)	250552	ISO 18 float spring
210934	O-Ring 16mm tip support union (2 O-rings)	170.4474	Thermistor 4R 9.5A

900053



We also recommend purchasing  
**230206**  
Heat resistant tubing  
(between air/water separator  
and vacuum motor)  
pre-cut length with this service kit



#### Turbo Smart 2v (Annual Kit)

041422	Tubing ISO 19 D.17.5mm special (1m)	210943	Amalgam sep pot O-Ring ISO (1 O-ring)
043135	Turbo Smart amalgam container and lid	210947	ISO 6/18 A/Sep elbow O-Ring (8 O-rings)
200207	ISO 18 Weight cage	210969	ISO 6/18 Waste outlet cover O-Ring (1 O-ring)
201544	Filter ISO 18 amalgam sep & Turbo Smart sep	210973	ISO 18 centrifugal sep base seal (1 O-ring)
202551	Turbo Smart non-return valve retainer	210975	O-Ring ISO 18 air inlet seal (1 O-ring)
202580	ISO 18 cone at bottom of A/Sep	210976	Vacuum inlet point O-Ring (1 O-ring)
210816	Smart recirculator diaphragm	210980	Smart sep O-Ring sep to Uni 75 (2 O-rings)
210824	Turbo Smart non-return valve	224185	Brass float valve ISO 18
210909	Mini sep entry O-Ring (2 O-rings)	224424	ISO 18 by-pass valve seat (brass and rod)
210915	O-Ring ISO 18 orifice plate seal (1 O-ring)	230212	Heat resistant tubing (precut)
210918	Turbo Smart waste O-Ring (1 O-ring)	250498	Smart recirculator spring
210932	O-Ring low voltage pump body (1 O-ring)	250552	ISO 18 float spring
210934	O-Ring 16mm tip support union (2 O-rings)	170.4474	Thermistor 4R 9.5A
210942	O-Ring ISO 18 lid seal (1 O-ring)		

900052



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## SERVICE KITS



### TURBO SMART, 2V, CUBE & HP

#### Turbo Smart, Turbo Smart 2V & Turbo Smart Cube (5 Year Kit)

041422	Tubing ISO 19 D.17.5mm special (1m)	210947	ISO 6/18 A/Sep elbow O-Ring (8 O-rings)
043135	Turbo Smart amalgam container and lid	210969	ISO 6/18 Waste outlet cover O-Ring (1 O-ring)
200207	ISO 18 Weight cage	210973	ISO 18 centrifugal sep base seal (1 O-ring)
201544	Filter ISO 18 amalgam sep & Turbo Smart sep	210975	O-Ring ISO 18 air inlet seal (1 O-ring)
202551	Turbo Smart non-return valve retainer	210976	Vacuum inlet point O-Ring (1 O-ring)
202580	ISO 18 cone at bottom of A/Sep	210980	Smart sep O-Ring sep to Uni 75 (2 O-rings)
210816	Smart recirculator diaphragm	224185	Brass float valve ISO 18
210824	Turbo Smart non-return valve	224424	ISO 18 by-pass valve seat (brass and rod)
210909	Mini sep entry O-Ring (2 O-rings)	250498	Smart recirculator spring
210915	O-Ring ISO 18 orifice plate seal (1 O-ring)	250552	ISO 18 float spring
210918	Turbo Smart waste O-Ring (1 O-ring)	170.4474	Thermistor 4R 9.5A
210932	O-Ring low voltage pump body (1 O-ring)	203910	Turbo Smart Impellor
210934	O-Ring 16mm tip support union (2 O-rings)	203909	Turbo Smart Pump Column
210942	O-Ring ISO 18 lid seal (1 O-ring)	230200	D.38 Wire Spiral Exhaust Tubing (0.22m)
210943	Amalgam sep pot O-Ring ISO (1 O-ring)		

900058



This kit is identical to the 900053 on the previous page with these additional items as highlighted

#### Turbo Smart HP (Annual Kit)

041422	Tubing ISO 19 D.17.5mm special (1m)	210943	Amalgam sep pot O-Ring ISO (1 O-ring)
043135	Turbo Smart amalgam container and lid	210947	ISO 6/18 A/Sep elbow O-Ring (8 O-rings)
200207	ISO 18 Weight cage	210969	ISO 6/18 Waste outlet cover O-Ring (1 O-ring)
201544	Filter ISO 18 amalgam sep & Turbo Smart sep	210973	ISO 18 centrifugal sep base seal (1 O-ring)
202551	Turbo Smart non-return valve retainer	210975	O-Ring ISO 18 air inlet seal (1 O-ring)
202580	ISO 18 cone at bottom of A/Sep	210976	Vacuum inlet point O-Ring (1 O-ring)
210816	Smart recirculator diaphragm	210980	Smart sep O-Ring sep to Uni 75 (2 O-rings)
210824	Turbo Smart non-return valve	224185	Brass float valve ISO 18
210909	Mini sep entry O-Ring (2 O-rings)	224424	ISO 18 by-pass valve seat (brass and rod)
210915	O-Ring ISO 18 orifice plate seal (1 O-ring)	230207	Heat resistant tubing (precut 300mm)
210918	Turbo Smart waste O-Ring (1 O-ring)	230209	Heat resistant tubing (precut 500mm)
210932	O-Ring low voltage pump body (1 O-ring)	250498	Smart recirculator spring
210934	O-Ring 16mm tip support union (2 O-rings)	250552	ISO 18 float spring
210942	O-Ring ISO 18 lid seal (1 O-ring)	170.4474	Thermistor 4R 9.5A

900059



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