MULTI SYSTEM TYP 1

Instructions for use

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eIFU



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Translations

Translation of the original instructions for use



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Images

The images contained in these instructions for use are for reference and may differ from the actual appearance of the product.

1. **Notes**

1.1. **General instructions**

METASYS can only guarantee the safety, reliability and performance of the dental device if the following instructions are adhered to:

- The product is only to be used in accordance with the instructions for use.
- During maintenance and service work (inspection, service, repair, replacement), only use original replacement parts.
- All manufacturer specifications for the treatment units to which the device is connected must be observed.
- After commissioning, complete the proof of installation and send this to METASYS in order to define the warranty period.
- All maintenance and service work must be entered into the device logbook.
- On request by an authorised technician, METASYS will provide all documentation that may be of use to technically qualified personnel during maintenance and service works
- METASYS accepts no responsibility for damage that may arise due to external influences (defective installation), using incorrect information, improper use of the dental device, or maintenance and service works being carried out improperly.
- The user must familiarise himself/herself with how to operate the dental device and ensure that the dental device is in good condition each time before

Important: Read the accompanying documents of the device carefully before installation, commissioning and use and keep them for the entire service life of the product!

1.2. **Explanation of the symbols**

CE	CE mark	U	Mark of conformity per para. 22 section 4 Lower Saxony Building Regs
MD	Medical device	A 文	Responsible for the translation
UDI	Unique identifier of a medical device		Observe instructions for use
HIBC	UDI marking with standard compliant HIBC data content		Use hand protection
REF	Item number		Use eye protection
SN	Serial number		Use mouth and nose protection
	Manufacturer		Unplug from mains
\sim	Date of manufacture	<u>^</u>	General warning sign
CH REP	Name and address of the authorized representative's registered office in Switzerland	淤	Protect from heat / Protect from sunlight
i	Follow instructions for use	*	Protect from moisture / Store in a dry place
eIFU: https://www.metasys.com/ download-area/?lang=en	Follow instructions for use with reference to eIFU	Ţ	Fragile

	Temperature limit		<u>††</u>	Package orientation at the top
Ţ	Caution / attention		Z	Separate collection of electrical/electronic equipment (WEEE)
<u></u>	Humidity limit			Protection class II
- 🗸	Tank filled		†	Applied part type BF
4	Fault on end device		X •	Stacking limit n = (quantity)
	On Off		i	Information
	Loudspeaker		1	Download
))	Sound	_	*	Do not cut
	Inclination / slope		, and	Maintenance / service
	Maximum installation altitude		STOP	Stop operation

1.3. Copyright notice

All names and contents are protected by copyright. Distribution, duplication or alternative use of this document is only permitted with the written consent of METASYS Medizintechnik.

Intended purpose 2.

The MULTI SYSTEM TYP 1 is a two-stage, single unit amalgam separator with integrated air/water separation and place selection valve for separating amalgam from waste water from dental treatment units.

2.1. Indication

Not applicable.

Contraindication 2.2.

Not applicable.

2.3. **Target group**

The device must only be used by professionally trained healthcare professionals. Installation, service and maintenance work may only be carried out by METASYS trained technicians.

Safety-related information 3.

3.1. **General safety-related information**

All serious incidents related to the device must be reported to the manufacturer and the competent authority of the Member State where the user and/or the patient is resident.

3.2. Safety instructions

Assembly, modifications or repairs may only be carried out by authorised qualified personnel who guarantee compliance with the EN 60601-1 standard (international standard on Medical Electrical Equipment and Systems, in particular part 1: General requirements for basic safety).

The electrical installation must comply with the regulations of the IEC (International Electrotechnical Commission).

Medical devices should be handled with care with regard to electromagnetic compatibility. Special safety measures must therefore be taken.

The device is not suitable for operation in explosive areas or in flammable atmospheres.

3.3. Warnings

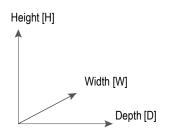
Danger Warning of a danger that will directly result in serious injury or death	
Warning Warning of a danger that can result in serious injury or death	
Caution Warning of a danger that can result in minor injury	
Attention	Warning of a danger that can result in extensive damage to property

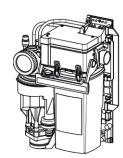
Product description

4.1. **Product description**

MULTI SYSTEM TYP 1 is a two-stage, single unit amalgam separator with integrated, static air/water separation and place selection valve.

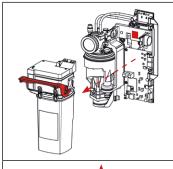
4.2. Technical data / performance data

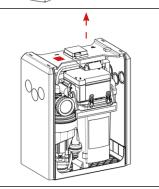




	MULTI SYSTEM TYP 1
Power supply	24 V AC
Frequency	50 / 60 Hz
Max. current consumption	2 A
Max. power consumption	46 VA
Max. ambient temperature	40 °C
Max. liquid flow rate	3.0 l/min via the spittoon; 1.5 l/min via the suction side
Negative pressure range	80 mbar - 250 mbar
Separation rate	98.60 %
Collection container volume	300 cm3
Dimensions (H x W x D)	305 x 210 x 104 mm
Dimensions with cover (H x W x D)	340 x 280 x 185 mm
Class	MD class 1
DIBT approval number	Z-64.1-4
Possible suction systems	Wet or dry suction systems

4.3. Type plate



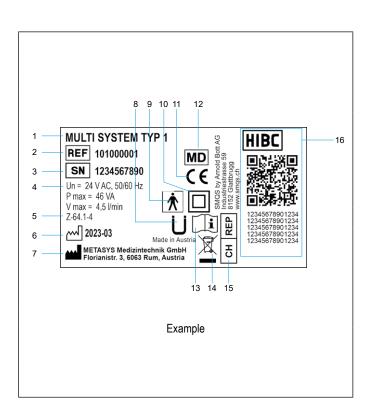


MULTI SYSTEM TYP 1 Built-in version:

The type plate is located on module 1 and is visible when module 2 is removed (to do this, tilt the locking bracket on module 2 upwards and remove module 2).

MULTI SYSTEM TYP 1 with cover:

The type plate is located on the cover next to the external display (push the lid of the cover upwards) as well as on module 1 and is visible when module 2 is removed (see built-in version).

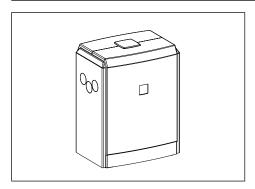


1	Device description
2	Item number
3	Serial number
4	Connection data
5	Registration number Deutsches Institut für Bautechnik (DIBT) (German Institute of Construction Technology)
6	Date of manufacture
7	Manufacturer
8	Mark of conformity per para. 22 section 4 Lower Saxony Building Regs
9	Applied part type BF
10	Protection class II
11	CE mark
12	Medical device
13	Follow instructions for use
14	Separate collection of electrical/electronic equipment (WEEE)
15	Name and address of the authorized representative's registered office in Switzerland
16	Unique identifier of a medical device,

UDI marking with standard compliant HIBC data content

4.4. Construction

Module 1	Module 2	Module 3
Central fastening element:	Air/water separation:	Centrifuge:
Air, water and electrical connections	Collection container	Dynamic amalgam separation
Wall mount	Separation unit	
Main board	Place selection valve	
Diagnostic board		
Filter unit		



Cover Cover (optional)

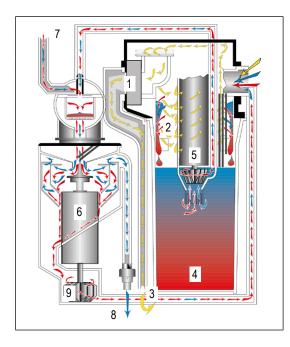
4.5. Functional description

Lifting a suction hose opens the place selection valve. The suction current is fed into module 2, where the air/water separation takes place by means of the cyclone principle.

The dry air leaves the system via the place selection valve to the suction motor. The liquid and solid components of the suction current enter the collection container below the separation, which is also the first stage of amalgam separation.

While the coarser particles sediment in the collection container, the liquid level rises depending on the suction volume. As soon as a certain level is reached, the pump motor is started for a certain period of time via a conductivity probe. The pump conveys the pre-cleaned liquid into the centrifuge, the second stage of amalgam separation, which is also started via a probe. Waste water coming from the spittoon is fed directly into the centrifuge. The heavy parts are held in the run against the walls of the double-chamber centrifuge, while the clean water exits via the upper edge of the outer centrifuge into the drain. As soon as the probe no longer makes contact, the centrifuge stops abruptly after a short run-on time.

The continuing rotation of the water column flushes the heavy particles into the pump located below the centrifuge. The motor starts again after a short waiting time and thus pumps the heavy parts with the residual water quantity into the collection container.

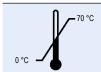


1	Place selection valve
2	Module 2 (air/water separation)
3	Exhaust air to suction motor
4	Collection container
5	Pump motor
6	Centrifuge
7	Spittoon waste water input
8	Waste water output
9	Pump

5. Preparation for use

5.1. Transport and storage

The device is shipped in two polystyrene shells fixed together. This original packaging must be used for any onward and return transport. The device must always be transported and stored in an upright position. The device must be transported to the installation site in a completely packed state. After unpacking the device, check for completeness and possible transport damage.



Transport and storage temperature



Transport and storage humidity limitation

5.2. Installation requirements



Operating temperature: 10°C to 40 °C



Humidity limit max. 70 %



Max. 3,000 m above sea level

- The following space requirement must be provided for the installation: H x W x D = 350 mm x 215 mm x 120 mm
- To avoid vibrations, use only the three holes on module 1 to attach to load-bearing parts of the treatment unit! (Do not remove vibration inserts!)
- The device must be able to swing freely and must not have any contact with other parts of the treatment unit (cables, hoses, covers, etc.).



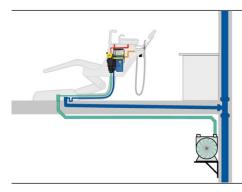
Caution:

A contact protection plate must be fitted behind module 1 if the subsurface is electrically conductive!





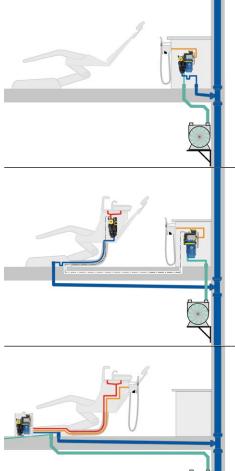
5.2.1. **Assembly variants**



Installation in the spittoon

Direct integration of the device into the spittoon should be used as the preferred solution, as the tubing routes to the device can be kept as short as possible.

In the spittoon, ensure vibration-free suspension of the device from supporting parts of the treatment unit.



Installation in the behind the patient's head

If there is no spittoon at the treatment chair and the suction system is located behind the head of the patient, the device can be installed inside a cabinet.

In this case, the connection opening for the spittoon drain must be closed with a blind plug.

Split version

For work places which have suction behind the patients' head as well as a spittoon, the amalgam separator can be split into two parts.

Module 1 and module 2 are mounted in the rear head cabinet near the hose storage.

Module 3, the centrifuge, is fitted into the spittoon or next to the dental unit's connection box with a special bracket.

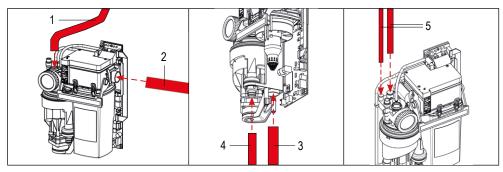
Both parts of the unit are connected to each other via cables in the ground. For this purpose, there must be an empty conduit of at least ø 20 mm between the connection box and the back-of-the-head cabinet. The cable length must not exceed 3.5 m!

Set-up with cover

If it is not possible to install the device directly in the treatment unit, the set-up can also be carried out in the optionally available cover.

The cover should be mounted on the connection box of the treatment unit. The external display and a transformer are already integrated in the cover.

5.2.2. Pipe and hose connections



- 1 Connection for spittoon drain hose
- 2 Connection for suction hose (for hose storage)
- 3 Connection for suction hose (to suction machine)
- 4 Connection for drain hose (clean water outlet)
- 5 Connection for overflow hoses (e.g. tumbler filler)

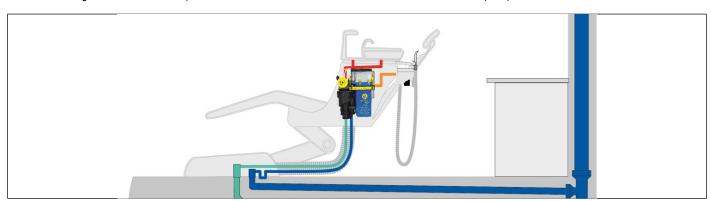


Attention:

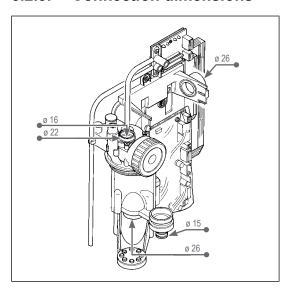
Unused connections must be sealed with blind plugs!

- > The hose routes leading to the device must be kept as short as possible to prevent pre-sedimentation.
- > Dirty dental hoses must be replaced during installation and disposed of by an approved disposal company.
- > The device must be connected to the sewage pipe via an odour trap.
- > The waste water must be able to flow freely, as the separation efficiency is not guaranteed in the event of a backwater.

- Water jet operated saliva ejectors must be shut down due to high water consumption.
- The flushing of the spittoon must be limited by means of a timer or button to max. 30 seconds at a max. water flow of 3 l/min to enable the centrifuge to stop.
- For matching hose nozzles and adapters see 9.1.1. Accessories, service kits, collection containers and spare parts.



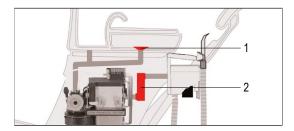
5.2.3. **Connection dimensions**



5.2.4. **Filter**

If not present in the hose storage, a pre-filter with a mesh size of max. 1 mm must be installed on the suction side of the amalgam separator. The pre-filter must be easily accessible for the practice staff.

There must be a coarse sieve in the drain of the spittoon. This must have a mesh size of max. 3 mm and must not be removed while the amalgam separator is in operation.

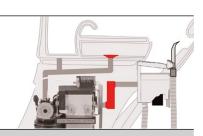


- Coarse sieve (spittoon)
- 2 Pre-filter

5.3. Installation, assembly and commissioning

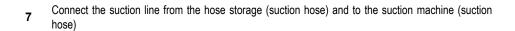
Read the instructions carefully before installation and commissioning! 1 Meet spatial requirements see 5.2. Installation requirements

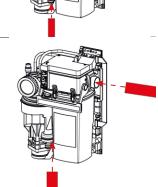
- Check the coarse sieve in the spittoon
- Install the pre-filter (if not present in the hose storage)



MULTI SYSTEM TYP 1 Built-in version

- Fit a contact protection plate behind module 1 (if the subsurface is electrically conductive)
- Connect the spittoon drain hose
- Connect the drain hose





MULTI SYSTEM TYP 1 with cover

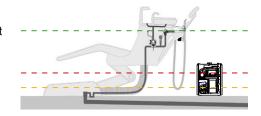
Placement of the MULTI SYSTEM TYP 1 with cover:

Spittoon drain above I (red), amalgam separator drain below O (yellow), min. 700 mm free height (green) for hose storage

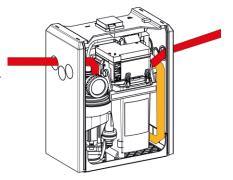
8

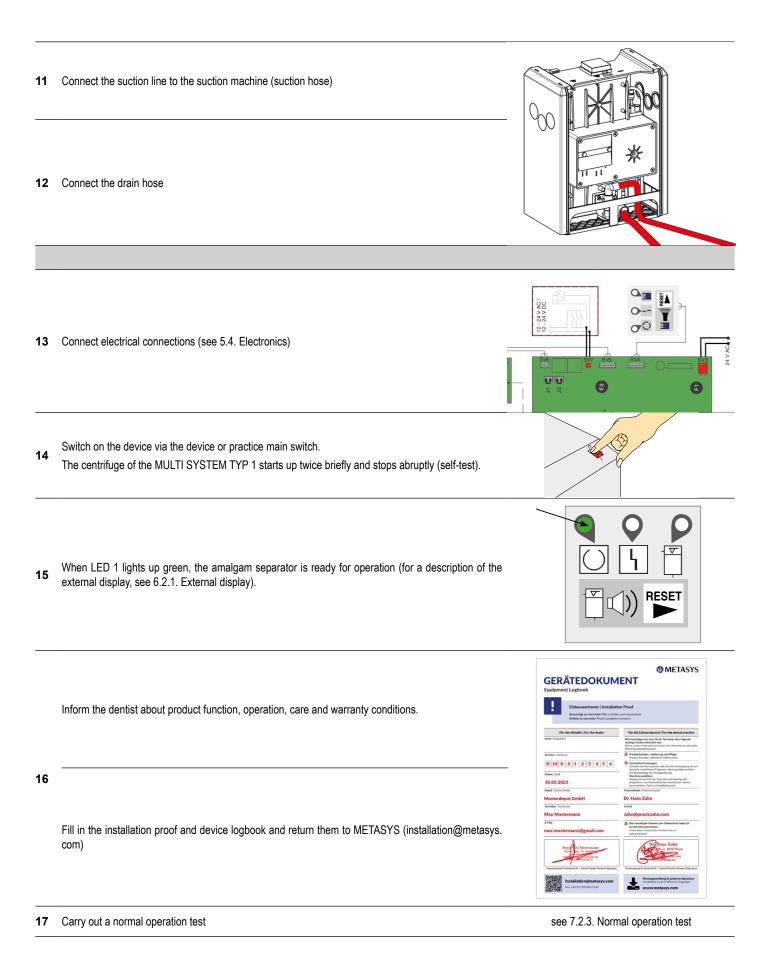
0

Free height



- Connect the spittoon drain hose 9
- Connect the suction line from the hose storage (suction hose)





5.3.1. Installation and assembly of optional accessories, retrofit parts and spare parts



Assembly, modifications and repairs may only be carried out exclusively by authorised specialist personnel (see 3.2. Safety instructions)! The METASYS technical customer service is also available for further information and assistance in carrying out repairs, retrofitting, fault analyses, etc.

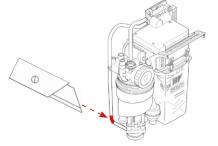
5.3.1.1. Retrofitting the non-return valve for centrifuge pump

Suction noises at the spittoon can be caused by excessive negative pressure in the suction machine, or by straight and short connecting lines between the spittoon and the amalgam separator.

If suction noises occur in connection with the MULTI SYSTEM TYP 1, the negative pressure (max. 250 mbar) and the air intake valve should be checked first. If the noises persist despite correct negative pressure, they can be avoided by means of the external non-return valve.

Preparation:

Cut the connecting line from the centrifuge pump to module 2 approx. 5 cm from the centrifuge.



Assembly:

2 Connect the central connection of the non-return valve to the elbow - module 2.
Connect the second connection to the centrifuge pump.



Function test:



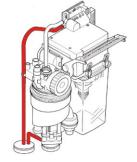
The following points must be checked as part of a correct function test. If errors occur at any of these points, follow the instructions in step 4.

No water may be drawn from the centrifuge pump into module 2 during suction operation.

3

There must be no noise at the external non-return valve during suction.

When the centrifuge is pumping back, there must be a normal water flow.



When the centrifuge is pumping back, no water must escape from the non-return valve.

Adjustment:

The lower part must not be connected too tightly! This can be corrected by rotating the lower part slightly (maximum 1/4 turn to the left or right). Then carry out the function test (step 3) again.



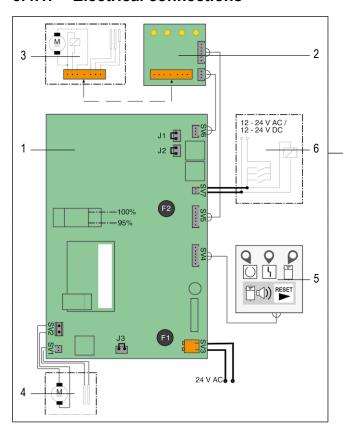
5.3.2. Connecting to other devices

When connecting the METASYS device to other devices or systems, hazards can arise. It must therefore be ensured that no hazards arise for the user or the patient and that the environment is not affected. The specifications of the manufacturer of the device or system to be connected must be observed.

5.4. **Electronics**

The mains connection may only be carried out by a qualified electrician. The electrical installation must be carried out in accordance with the applicable local regulations. Before connecting to the mains, compare the rated voltage on the device type plate with the mains voltage.

5.4.1. **Electrical connections**



- 1 Main board
- 2 Diagnostic board
- 3 Module 2
- 4 Module 3
- 5 External display
- 6 Hose storage switch and suction system isolating relay

SV1	Connector for centrifuge inlet probe
SV2	Connector for centrifuge motor
SV3	Connector for power supply (24 V AC)
SV4	Connector for external display
SV5	Connection to the diagnostic board (power supply for motor and magnetic valve in module 2)
SV6	Connection to the diagnostic board (probes in module 2)
SV7	Connector for suction signal (12 - 24 V AC or DC)
F1	Main fuse MULTI SYSTEM TYP250/T 3, 15 A/UN 250 V/ ICN 35 A
F2	Fuse MST250/T 1.6 A/UN 250 V/ ICN 35 A for pump motor in module 2



Removing the jumpers on J1, J2 and J3 causes a better response of the probes at low water conductivity.



Danger:

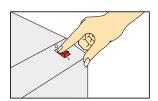
The supply voltage must be taken from a safety transformer that complies with the requirements of IEC 601-1 / VDE 0750 Part 1 / DIN EN 60601-1 and IEC 60742 + A1 / DIN EN 60742.

Fuses may only be replaced by the same type!

6. Use

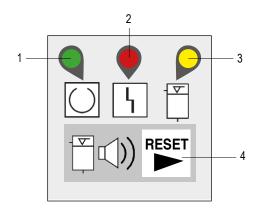
6.1. Normal operation

Ensure that the device is switched off at least 1 x per working day for level measurement. The 24 V AC power supply must be connected after the device's or practice's main switch.



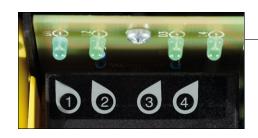
6.2. External and internal displays

6.2.1. External display



1	LED 1	Lights up green	Ready for operation	
2	LED 2	Flashing red	Centrifuge malfunction	
3	LED 3	Lights up yellow	Level indicator: Container 95% full	
		+ buzzer tone switchable via RESET		
		Lights up yellow	Level indicator: Container 100% full	
		+ buzzer tone that cannot be switched off via RESET		
4	RESET	No colour	RESET button	
			When the container is 95% full, the buzzer tone can be switched off by pressing the RESET button.	

6.2.2. Internal display





			Washington Capital	
1	Signal 1	Suction signal	Suction hose lifted off	
			(12-24 V AC or DC at connector SV7)	
2	Signal 2	Magnetic valve in module 2	The magnetic valve in module 2 is actuated	
			("Emergency stop" probe not activated)	
3	Signal 3	Pump module 2	The pump in module 2 is actuated	
4	Signal 4	Centrifuge inlet probe	The centrifuge inlet probe has contact	

6.3. Error messages



Assembly, modifications and repairs may only be carried out exclusively by authorised specialist personnel (see 3.2. Safety instructions)! The METASYS technical customer service is also available for further information and assistance in carrying out repairs, retrofitting, fault analyses, etc.

Error message	Possible cause	Countermeasures
LED 2 flashing red, centrifuge malfunction	Centrifuge defective	Switch the main switch off several times and switch it on again after a short pause. If the control lamp lights up again after a short time, notify your service technician.
		Collection container replacement recommended, continued operation up to 100% possible.
LED 3 lights up yellow + buzzer tone can be switched off via RESET	Collection container 95% full	The buzzer tone can be switched off by pressing the RESET button. LED 3 remains lit up as a reminder. The buzzer sounds again each time the main switch is switched on.
		(see 7.2.1. Replacement of the collection container and 7.2.2. Disposal of the collection container)
LED 3 lights up yellow + buzzer tone cannot be switched off via RESET	Collection container 100% full	Collection container must be replaced. Further work is not possible due to the blocking of the place selection valve.
SWILCHEO OII VIA RESET		(see 7.2.1. Replacement of the collection container and 7.2.2. Disposal of the collection container)
Centrifuge does not switch off automatically and is continuously in operation	Short circuit of the centrifuge inlet probe	Cleaning or replacement of the centrifuge inlet probe (see 7.1.2. Cleaning the centrifuge inlet
No visualisation on external display		probe)
Centrifuge does not start	Centrifuge probe dirty or defective	Clean centrifuge probe, check connections on circuit board and contacts
Suction current is not released	Magnetic valve (module 2) defective	Clean or replace the magnetic valve (see 7.2.8. Replacement of the magnetic valve)
Bubble formation in the container when pump (module 2) is in operation	Sieve for pump or water brake missing or detached	Refit or replace sieve or water brake
Pumping capacity not sufficient	Sieve for pump missing or detached	Reassemble or replace the sieve
Pump (module 2) does not start	Pump defective, probes dirty or defective	Replace module 2 completely (see 7.2.6. Replacement of module 2) or clean probes (see 7.1.2. Cleaning the centrifuge inlet probe, steps 3-6)

7. Care and maintenance

To ensure the expected service life of the device of 5 years, the specified cleaning and maintenance instructions as well as the specified installation requirements and operating conditions must be observed.

7.1. Regular cleaning measures

For trouble-free operation, briefly flush the spittoon after each treatment, and flush each suction hose with cold water to remove residues from the lines. The following cleaning measures must be carried out regularly:

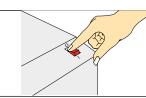
Measure	Interval	
Cleaning and disinfection of the suction system	2 x daily	see 7.1.1. Daily cleaning with GREEN&CLEAN M2
Empty and clean the filter drawer	At least 1 x per week, depending on workload, emptying may also be necessary daily	Remove, empty and clean the filter drawer. Collect the residues containing amalgam from the filter drawer in a suitable container.
Cleaning the centrifuge inlet probe	If required & in case of malfunction	see 7.1.2. Cleaning the centrifuge inlet probe
Container replacement	If required / at least 1 x per year	See 7.2.1. Replacement of the collection container and 7.2.2. Disposal of the collection container

7.1.1. Daily cleaning with GREEN&CLEAN M2

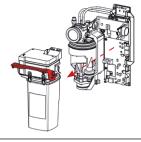
2 x daily (noon/evening) and after surgical interventions, disinfection must be carried out with the prescribed disinfectant and cleaning agent GREEN&CLEAN M2. Ideally, GREEN&CLEAN M2 should be used prior to the treatment unit remaining at a standstill for extended periods (lunchtime, end of the day or holidays). For information on use and safety instructions, see the GREEN&CLEAN M2 instructions for use.

Cleaning the centrifuge inlet probe 7.1.2.

Switch off the main switch.



2 Tilt the locking bracket on module 2 upwards and take out module 2.



Pull the probe out of the filter housing.



- Clean the probe and probe opening in the filter housing.
- Grease the sealing ring of the probe with multi-silicone grease.



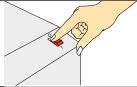
Insert the probe into the filter housing until you hear it click into place.



7 Carefully push module 2 back into the holder and close the locking bracket.



8 Switch on the main switch.



7.2. **Maintenance and service**



Assembly, modifications and repairs may only be carried out exclusively by authorised specialist personnel (see 3.2. Safety instructions)! For further information and assistance in carrying out repairs, retrofitting, fault analyses, etc., the METASYS technical customer service is also available!



Warning:

Switch off the main switch of the treatment unit!



Warning:

Avoid contact with the contents of the amalgam separator!







Warning:

Risk of contamination: To avoid infection, wear personal protective equipment (hand, eye, mouth-nose protection) and disinfect and clean the device!

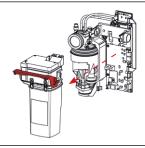
7.2.1. Replacement of the collection container

Provide a new collection container.

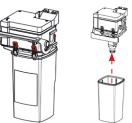


5

2 Tilt the locking bracket on module 2 upwards, remove it and place it on a flat, non-slip surface.



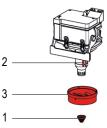
3 Open the 4 yellow clip fasteners on module 2, hold the collection container and lift off the upper part.



If the pump sieve (1) is dirty, pull it off, clean it over a collection receptacle and put it back on the suction housing of the pump.

Wipe the probes in module 2 (3) with a paper towel. For easier cleaning of module 2, the air brake (2) can also be removed.

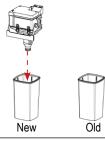
When assembling, pay attention to the position markings (arrow on the air brake, notch on module 2)!



Place the cleaned and properly assembled module 2 on the new collection container.

Pay attention to the FRONT marking on the collection container!

Close and dispose of the full collection container according to instructions (see 7.2.2. Disposal of the full collection container)



Close the 4 yellow clip fasteners on module 2.

Clean the sealing rings on the left and right in the supporting element with a damp paper towel and grease them with multi-silicone grease (or Vaseline).

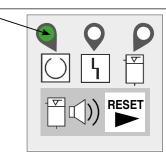


7 Carefully push module 2 back into the holder and close the locking bracket.



Switch on the main switch of the treatment unit.

The device starts up 2 x briefly and LED 1 on the external display lights up green ("Ready for operation").



7.2.2. Disposal of the collection container

The full collection container can be returned to the company's own disposal organisation, METASYS logistics & collection GmbH.

Retain the confirmation of disposal in accordance with state law.

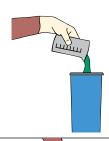
When the complete device is disassembled at the end of its service life, it can be returned to the manufacturer for correct disposal (see 8.2. Recycling and disposal).

Pour disinfectant for suction systems into the full collection container.

1







2 Close the full collection container with the green cover by applying firm pressure.



- **3** Make sure that the 8 safety lugs of the cover are engaged on the container.
- 4 Carry out a leak test by placing the closed collection container upside down over a collection receptacle.

 If necessary, close the cover tightly again.



5 Place the properly sealed collection container in the 2 polystyrene half cups and then place it in the transport box.



6 Close the transport box as per the enclosed instructions.



Dispose of the full collection container via an appropriate disposal company.

7 For disposal using METASYS logistics & collection GmbH:

Visit www.metasys.com/collection_centers for more information on disposal in your country!

Stopping residues, sieve residues or other waste containing amalgam must be collected in a suitable container and can be disposed of by a disposal company (e.g. METASYS logistics & collection GmbH).



7.2.3. Normal operation test

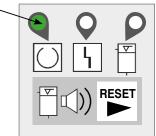
i

The normal operation test checks the operating functions of the device. This test should be carried out after installation as well as after every repair!

Switching on the main switch:

1 LED 1 on the external display lights up green.

Centrifuge starts up twice briefly and stops abruptly.



2

1

3

	Lifting off the suction hose:	1	2	3	4	
2	Signal 1 and signal 2 light up on the internal display, suction current is released.			0	0	
	Sucking in water quickly until the suction current is interrupted:					
3	More water enters the collection container than the pump can deliver (min. 1.5 l/min) and the emergency stop probe responds.					
	Signal 1, signal 3 and signal 4 light up on the internal display. Signal 2 does not light up because the	1	2	3	4	
4	magnetic valve has closed and thus interrupted the suction current. After 2-3 seconds, the suction current is released again.		0			
	All signals light up on the internal display (hose storage signal, magnetic valve triggered, pump in	1	2	3	4	
module 2 in operation, centrifuge in operation).After approx. 15 seconds, the centrifuge and pump switch off.						
	Only signals 1 and 2 light up on the internal display. After a short settling phase, the centrifuge starts	1	2	3	4	
6	again and pumps the separated material with a residual water quantity into the collection container for approx. 5 seconds.			0	0	
	Put back the suction hose:	1	2	3	4	
7	No signal lights up on the internal display.	0	0	0	0	
	Switch on the flushing of the spittoon:	1	2	3	4	

7.2.4. 1-year service kit

No signal lights up on the internal display.

i

8

According to the Deutsches Institut für Bautechnik (German Institute for Construction Technology), the display units of amalgam separators must be checked for function at least once a year by an expert!

METASYS makes it mandatory to carry out the 1-year inspection.

Only signal 4 lights up on the internal display. The centrifuge runs as long as the rinsing of the spittoon

is in operation, then stops abruptly and briefly starts the return pump cycle again.

The 1-year inspection must be entered in the device document!

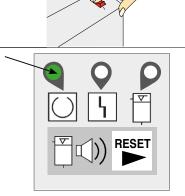
Check LED 1 ("Ready for operation")

Switch the main switch off and on again

1

LED 1 lights up green:

Centrifuge starts up twice briefly and stops abruptly.



Check LED 2 ("Centrifuge malfunction")

Switch off the main switch

Take out module 2

Unplug centrifuge connector SV2 on the main board (1)

On the main board, short-circuit slot SV2 (2)

With slot SV2 short-circuited, switch on main switch

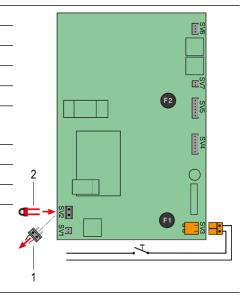
LED 2 flashes red:

With module 2 inserted, suction is now not possible 2

Switch off the main switch

Plug in centrifuge connector SV2 on the main board

Reinsert module 2



Check LED 3 ("Level indicator")

Switch off the main switch

Take out module 2

Unplug centrifuge connector SV2 on the main board (1)

On the main board, cover the lower diode of the light barrier (2)

Switch on the main switch (3)

LED 3 lights up yellow:

Buzzer sounds (switchable via RESET)

3 Switch off the main switch

On the main board, cover both diodes of the light barrier (2)

Switch on the main switch (3)

LED 3 lights up yellow:

Buzzer sounds (cannot be switched off)

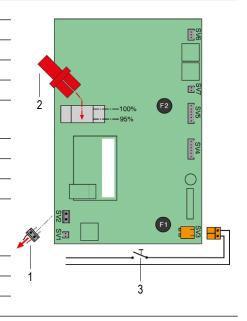
With module 2 inserted, suction is now not possible

Switch off the main switch

Reinsert centrifuge connector SV2

Reinsert module 2

Carry out a normal operation test



see 7.2.3. Normal operation test

7.2.5. 5-year service kit

i

According to the German Waste Water Ordinance, Annex 50, amalgam separators must be inspected for proper condition at intervals of no longer than 5 years in accordance with state law!

The 5-year inspection must be entered in the device document!

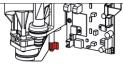
1	Carry out a 1-year inspection	see 7.2.4. 1-year service kit
2	Check the correct installation and connection of the amalgam separator in accordance with the installation requirements	see 5.2. Installation requirements
3	Carry out disinfection and cleaning of the suction hoses and spittoon	see 7.1.1. Daily cleaning with GREEN&CLEAN M2
4	Carry out a visual inspection of the centrifuge chamber	see 7.2.5.1. Visual check of the centrifuge
5	Carry out a normal operation test	see 7.2.3. Normal operation test

7.2.5.1. Visual check of the centrifuge

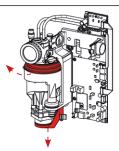
Tilt the locking bracket on module 2 upwards and take out module 2.



2 Remove locking clip on centrifuge support.



3 Pull down the centrifuge support and detach the centrifuge cover from the centrifuge (do not remove the centrifuge inlet seal!)



4 Swing out the centrifuge.



Pull off the centrifuge flange cap (1).

Loosen the 4 fastening screws on the centrifuge flange (2) and remove the flange.

Remove both centrifuge inner parts (3) upwards.

Separate the inner and outer centrifuge chambers.

5

Hold each centrifuge chamber individually against a light source and visually check for contamination; especially make sure that the transfer openings at the bottom of the chambers are free.

Centrifuge chambers that exhibit heavy soiling, deposits or accumulations of solids must be replaced!

If necessary, the complete centrifuge must be replaced.





- Reassemble the centrifuge in reverse order (note the alignment pin and hole of the centrifuge 6 chambers!)
- 7 Carry out a normal operation test

see 7.2.3. Normal operation test

7.2.6. Replacement of module 2

- Prepare new module 2 (without collection container).
- 2 Tilt the locking bracket on module 2 upwards, remove it and place it on a flat, non-slip surface.
- 3 Open the 4 yellow clip fasteners on module 2.
- Hold the collection container and lift off the upper part.
- Place a new module 2 (without collection container) on the collection container. 5
 - Pay attention to the FRONT marking on the collection container!
- Close the 4 yellow clip fasteners on module 2. 6
 - Clean the sealing rings on the left and right in the supporting element with a damp paper towel and grease them with multi-silicone grease (or Vaseline).
- Carefully push module 2 back into the holder and close the locking bracket.

7.2.7. Replacement of module 3

See 7.2.5.1. Visual check of the centrifuge.

7.2.8. Replacement of the magnetic valve

- Tilt the locking bracket on module 2 upwards, remove it and place it on a flat, non-slip surface.
- 2 Loosen the screws (3 pieces) on the cover
- 3 Remove the cover
- 4 Loosen the hand nut on the magnetic valve
- 5 Pull out the magnetic valve
- 6 Remove the connection cable from the connector strip
- 7 Insert new magnetic valve and connect connection cable to connector strip
- 8 Fasten magnetic valve with hand nut
- 9 Put on cover and fasten with screws (3 pieces)
- 10 Carefully push module 2 back into the holder and close the locking bracket
- 11 Carry out a normal operation test - see 7.2.3. Normal operation test

7.2.9. Replacement of inlet main body

- 1 Loosen the screws (3 pieces) on the filter housing (module 1)
- Pull out the inlet main body 2
- 3 Remove the transparent hose and dispose of the inlet body properly
- 4 Connect transparent hose to new inlet body
- Install the inlet body for the pre-filter 5
- Fix the inlet base body to the filter housing (module 1) with screws (3 pcs.) 6

8. Decommissioning

8.1. Disassembly



Warning

Remove from power source before disassembly!







Warning:

Risk of contamination: To avoid infection, wear personal protective equipment (hand, eye, nose and mouth protection) and disinfect and clean the device!

If it is necessary to return the device to the depot or to METASYS, the original METASYS packaging must be used. Before packing the METASYS device to be transported, clean and disinfect it. Possible openings where residual fluids could escape must be closed.

8.2. Recycling and disposal



The device may be contaminated! Advise the disposal company of this so that appropriate precautions can be taken. Parts that are contaminated with amalgam, such as sieves, filters, hoses, etc., must also be disposed of in accordance with the national regulations.

Uncontaminated plastic parts of the device can be recycled as normal plastics. The integrated electronic components (including circuit board) are to be disposed of as electronic waste. Metal parts are to be disposed of as scrap metal.

Alternatively, the device can be returned to the manufacturer for proper disposal. Before packing the METASYS device to be transported, clean and disinfect it. Possible openings where residual fluids could escape must be closed. The original METASYS packaging must be used for shipping.

The proof of installation and the device logbook must be kept for 5 years after the device has been disposed of.

9. Annex

9.1. Order numbers and scope of delivery

Order number	Designation	Scope of delivery	REF
101000001	MULTI SYSTEM TYP 1 (MST 1)	Amalgam separator with standard accessories and instructions for use	101000001
101000002	MULTI SYSTEM TYP 1 (MST 1) KaVo	Amalgam separator with KaVo accessories and instructions for use	101000002
101000003	MULTI SYSTEM TYP 1 (MST 1) Ultradent	Amalgam separator with Ultradent accessories and instructions for use	101000003
101000004	MULTI SYSTEM TYP 1 (MST 1) Finndent	Amalgam separator with Finndent accessories and instructions for use	101000004
101000005	MULTI SYSTEM TYP 1 (MST 1) Planmeca	Amalgam separator with Planmeca accessories and instructions for use	101000005
101000006	MULTI SYSTEM TYP 1 (MST 1) Castellini	Amalgam separator with Castellini accessories and instructions for use	101000006
101000007	MULTI SYSTEM TYP 1 (MST 1) floor model, 230 V	Amalgam separator with cover, standard accessories and instructions for use	101000007
101000008	MULTI SYSTEM TYP 1 (MST 1) OMS	Amalgam separator with OMS accessories and instructions for use	101000008
101000009	MULTI SYSTEM TYP 1 (MST 1) Eur MED	Amalgam separator with Eur MED accessories and instructions for use	101000009
101000010	MULTI SYSTEM TYP 1 (MST 1) CEFLA	Amalgam separator with CEFLA accessories and instructions for use	101000010
101000011	MULTI SYSTEM TYP 1 (MST 1) module 1, 2, 3	Amalgam separator without accessories, with instructions for use	101000011
101000012	MULTI SYSTEM TYP 1 (MST 1) FR	Amalgam separator with standard accessories and instructions for use (only available in France)	101000012
101000013	MULTI SYSTEM TYP 1 (MST 1) floor model, FR, 230 V	Amalgam separator with cover, standard accessories and instructions for use (only available in France)	101000013

9.1.1. Accessories, service kits, collection containers and spare parts

Servicekits

Order number	Designation	Scope of delivery
120000235	ET MST 1, annual inspection kit (international)	1x 120000216 inlet frame / 1x 120000204 membrane, 5 pcs / 1x 120000169 sieve for container pump, 10 pcs / 1x 120000159 elbow, hose for module 2 / 1x filter drawer / 1x replacement container / 8x plastic screws
120000234	ET MST 1, annual inspection kit, DE (Germany)	1x 120000216 inlet frame / 1x 120000204 membrane, 5 pcs / 1x 120000169 sieve for container pump, 10 pcs / 1x 120000159 elbow, hose for module 2 / 1x filter drawer / 1x 113000043 replacement container / 8x plastic screws
120000229	ET MST 1, 5-year inspection kit (international)	1x 120000235 annual inspection kit / 1x 120000205 magnetic valve / 1x 120000155 centrifuge cap, 5 pcs / 1x 120000206 air deflector / 1x 120000160 water deflector / 1x 120000153 centrifuge chambers / 1x 120000154 centrifuge pump cover, 5 pcs / 2x hoses
120000228	ET MST 1, 5-year inspection kit, DE (Germany)	1x 120000234 annual inspection kit / 1x 120000205 magnetic valve / 1x 120000155 centrifuge cap, 5 pcs / 1x 120000206 air deflector / 1x 120000160 water deflector / 1x 120000153 centrifuge chambers / 1x 120000154 centrifuge pump cover, 5 pcs / 2x hoses
120000230	ET MST 1, special inspection kit (incl. magnetic valve)	1x 120000229 5-year inspection kit / 1x 120000152 centrifuge seal, spring washer / 1x 120000223 ventilation hose filter housing / 1x spring washer, water outlet / 1x seal, water outlet

Collection container / exchange container

Order number	Designation
113000054	EB MST 1, replacement container, INT (international)
113000043	EB MST 1, replacement container, AT
113000045	EB MST 1, replacement container, AU
113000046	EB MST 1, replacement container, CH
113000047	EB MST 1, replacement container, CZ
113000049	EB MST 1, replacement container, DE
113000051	EB MST 1, replacement container, FI
113000052	EB MST 1, replacement container, FR

Order number	Designation
113000065	EB MST 1, replacement container, GR
113000053	EB MST 1, replacement container, HU
113000055	EB MST 1, replacement container, IT
113000056	EB MST 1, replacement container, NO
113000058	EB MST 1, replacement container, PL
113000059	EB MST 1, replacement container, SI
113000060	EB MST 1, replacement container, SK

Spare parts

Order number	Designation
120000152	ET MST 1, centrifuge seal, spring washers
120000153	ET MST 1, centrifuge chambers
120000154	ET MST 1, centrifuge pump cover, 5 pcs
120000155	ET MST 1, centrifuge cap, 5 pcs
120000156	ET MST 1, centrifuge inlet sensor
120000157	ET MST 1, centrifuge cover
120000158	ET MST 1, centrifuge support, locking piece, 5 pcs
120000159	ET MST 1, elbow, hose for module 2
120000160	ET MST 1, water deflector
120000161	ET MST 1, wall bracket/module 1
120000162	ET MST 1, locking bracket
120000163	ET MST 1, transfer elbow, hoses
120000164	ET MST 1, plugs for filter housing, small and large, 5 each
120000165	ET MST 1, power supply plug (BL2 orange), 5 pcs
120000166	ET MST 1, splash guard, 10 pcs
120000167	ET MST 1, small locking bracket for for container mounting, 12 pcs
120000168	ET MST 1, siphon for floor model cover
120000169	ET MST 1, sieve for container pump, 10 pcs
120000170	ET MST 1, safety clip, 5 pcs
120000171	ET MST 1, fuse T 3.15 A, 5 pcs
120000172	ET MST 1, fuse T 1.6 A, 5 pcs
120000173	ET MST 1, separation pump
120000174	ET MST 1, vibration damper centrifuge
120000175	ET MST 1, screw cap
120000177	ET MST 1, non-return valve, centrifuge pump

Order number	Designation
120000201	ET MST 1, module 2, separation without container
120000202	ET MST 1, module 2, sensors
120000203	ET MST 1, module 2, membrane cover
120000204	ET MST 1, membrane, 5 pcs
120000205	ET MST 1, magnetic valve
120000206	ET MST 1, air deflector
120000207	ET MST 1, empty housing for module 2
120000208	ET MST 1, cable suction hose switch
120000209	ET MST 1, external display cable, 500 mm
120000210	ET MST 1, main board
120000211	ET MST 1, ribbon cable, 1x3-pole, 1x6-pole
120000212	ET MST 1, filter drawers, 10 pcs
120000213	ET MST 1, filter housing with filter
120000214	ET MST 1, filter housing
120000149	ET MST 1/WEK, transformer for floor model
120000604	ET MST 1/WEK, cover for floor model
120000227	ET MST 1, floor model without power supply
120000215	ET MST 1, external display
120000216	ET MST 1, inlet frame
120000217	ET MST 1, seal kit centrifuge inlet
120000218	ET MST 1, diagnostic board
120000219	ET MST 1, cover module 2
120000221	ET MST 1, socket strip BL7, orange, 5 pcs
120000223	ET MST 1, ventilation hose filter housing
120000225	ET MST 1, complete separator without power supply

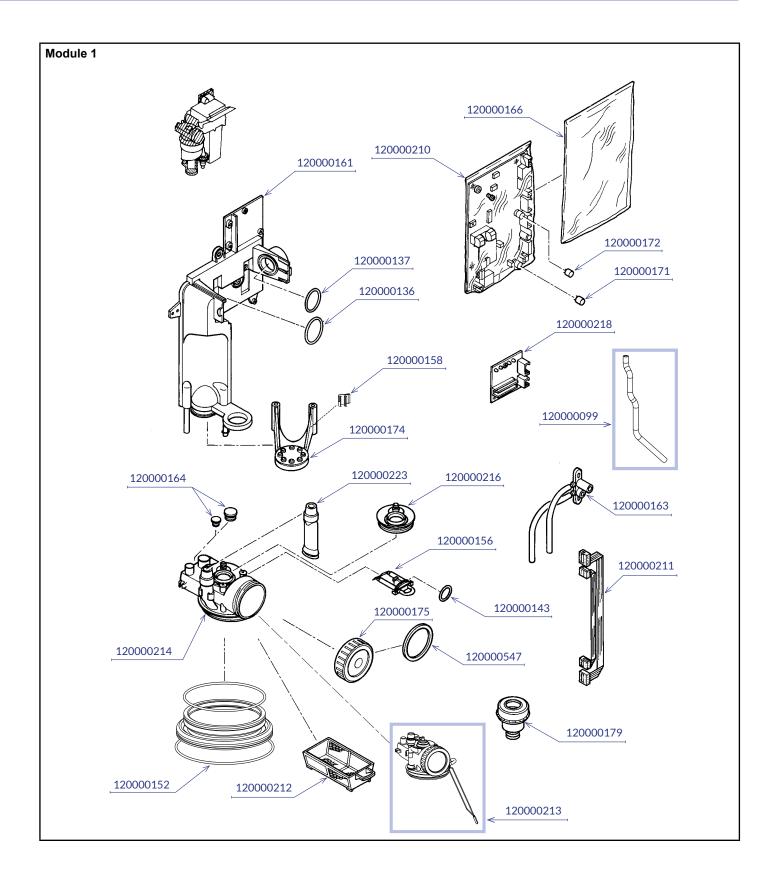
Order number	Designation
120000179	ET MST 1, clean water outlet, spring washer
120000180	ET MST 1, test set, control slider, test plug
120000199	ET MST 1, Novadent, adapter kit
120000200	ET MST 1, module 3, centrifuge

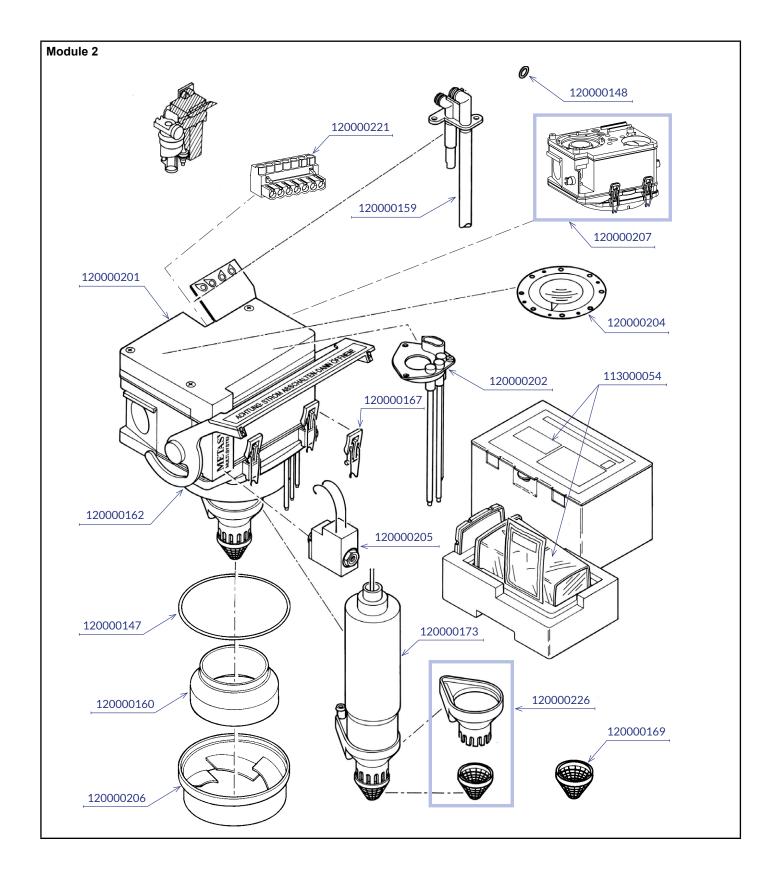
Order number	Designation
120000226	ET MST 1, suction housing separation pump, 5 pcs
120000617	ET MST 1, water outlet seal, spring ring
120000605	ET MST 1, lid

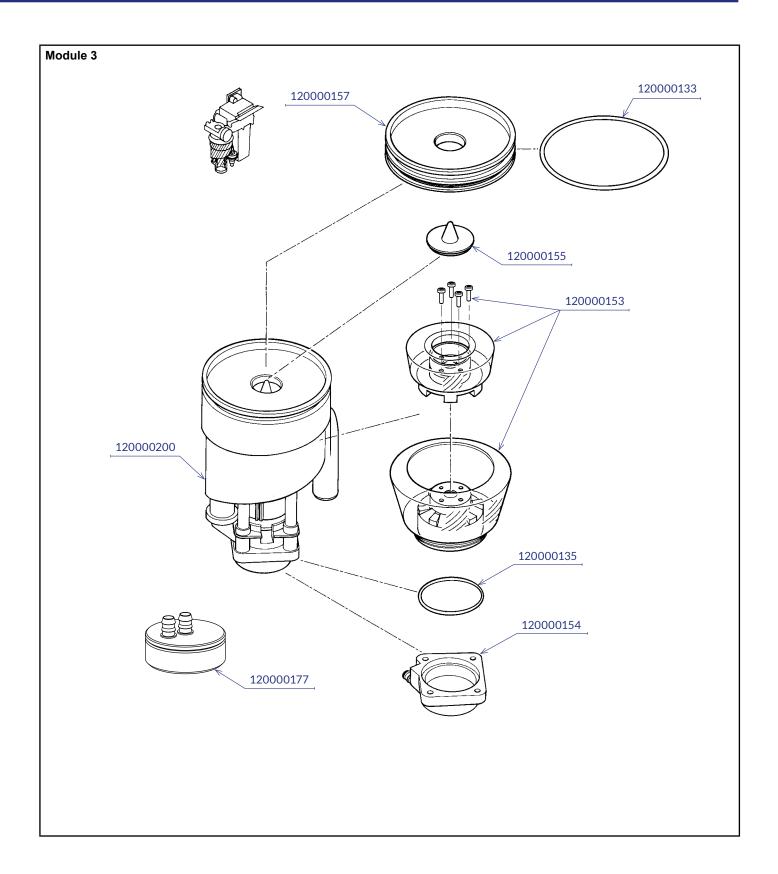
Disinfectant

Order number	Designation
122000026	GREEN&CLEAN M2 red/green 500 ml, 1 bottle each, dispenser
122000027	GREEN&CLEAN M2 red/green 500 ml, 2 bottles each
122000028	GREEN&CLEAN M2 red/green 500 ml, 1 bottle each

Order number	Designation
122000030	GREEN&CLEAN M2 green 500 ml, 25 bottles
122000031	GREEN&CLEAN M2 red 500 ml, 25 bottles
121000009	AH GREEN&CLEAN, M2, dispenser







9.2. Warranty conditions

METASYS grants a guarantee of 12-36 months for specific products (duration of guarantee depends on the product according to the information in the current price list).

The guarantee covers all material faults that more than negligibly affect the function of the device. The guarantee does not cover damages caused by incorrect or improper handling as well as normal wear. Furthermore, the guarantee does not apply to the replacement of the amalgam collection container or to fragile parts such as glass, plastic, hoses, filters, condensate filters or membranes. Any incurred working and travel times are excluded from the warranty.

In order to determine the validity of the guarantee, the installation proof accompanying the device must be returned to METASYS immediately after proper assembly has taken place. In this case the warranty period begins with commissioning. In the event of installation without returning the installation proof to METASYS, any warranty claim is forfeited. Installation and return of installation proof must be completed within 24 months from the date of sale from METASYS.

Furthermore, any warranty claims of the customer expire if only one of the following circumstances arises, regardless of whether the circumstances arise for the customer of METASYS or a later owner or operator:

- > Improper installation, operation, maintenance or transport of the device. If METASYS parts have to be returned, the original METASYS packaging must be used for shipping. Prior to packaging and shipping, the METASYS device must be cleaned and disinfected. Any openings where residual fluids could leak must be closed.
- > Installation and return of installation proof have not been completed in the aforementioned 24 months.
- > Failure to send the Installation Proof to METASYS.
- > Installation and use of non-original METASYS parts.
- > Installation of the device by personnel who are neither trained nor authorized by METASYS.
- Occurrence of damages through improper handling and operation or use of unapproved cleaning and/or disinfecting material, as well as non-compliance with the instructions for use.
- > Execution of repairs by unauthorised repair shops or unathorised personel.
- > Failure to comply with the prescribed maintenance intervals. Maintenance must be carried out 11-12 / 23-24 / 35-36 months after installation of the respective METASYS item.
- > Missing entries in the Equipment Logbook regarding the installation as well as prescribed servicing by technicians trained by METASYS.
- > Failure to take reasonable immediate measures to avoid further damages in the event of a malfunction.
- > Shipping of devices or components to METASYS without proper accompanying paperwork, in particular without error description or invoice for the purchase of the device.
- > Failure to provide visual images (photos, video clips ...) of the METASYS item complained about, as well as of its installation situation and ambient conditions.

METASYS reserves the right to demand the documentation supplied with the device to check the maintenance intervals for the assertion of warranty claims. The processing of warranty claims takes place exclusively according to the following method:

In the event of malfunctions, the device must be opened by an authorized technician, the relevant component taken out and sent to METASYS unopened and cleaned. The customer sends the device or component in question to METASYS at his own expense. METASYS checks whether there is a warranty claim. METASYS will repair the device or component if it is cost-effective. The customer is charged for the costs incurred for the repair, but not the replacement parts covered by the guarantee. The consignment of the device or component to METASYS always represents a repair order for METASYS. For cost estimates for the repair of returned devices, a processing fee* is charged if the warranty period has expired or no warranty case exists. For products inspections only without any cost estimates a processing fee* can be charged. When sending the device or component to METASYS, an error description with all importation information about the device must always be included. The customer of METASYS may only provide payment in advance after consultation with METASYS. Only the affected component is to be sent in (smallest possible unit). If contaminated, intact parts are sent to METASYS without technical necessity, METASYS is entitled to destroy them without separate payment. The new part corresponding to the part to be destroyed is only delivered after a separate order and invoice. In any case, METASYS has the right to handle the guarantee through credit note or the return of new parts without conducting repairs. Guarantee services do not result in an extension of the warranty period nor do they initiate a new warranty period. The warranty period for installed replacement parts ends with that for the originally delivered device. The METASYS customer is obligated to make his customer aware of the conditions regarding the warranty processing. The statutory warranty rights of the customer remain unaffected.

9.3. Change history

Revision	Date	Description
ZK-58.203/00	09.12.2020	Newly created.
200004296v01	24.02.2025	Drawings of module 2 replaced; order and item numbers updated.

^{*} The current warranty conditions and fees can be found in the current METASYS price list.

