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**OPERATING INSTRUCTIONS  
FOR THE  
MICRO- AND  
ULTRA FILTRATION UNITS  
MF 15, MF 20,  
MF 30, UF 20**



**Englisch  
Version 4.0**

**Kom.: 8127**

**Serial number: .....**

**Delivery date: .....**

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# Foreword

## Remarks for the operator

As operators you are responsible for the adherence to all safety notes and for the intended use of this unit.

1. In order to make sure that you operate the unit correctly and you achieve a good result of your work pieces, please read the manual attentively.
2. Be sure that the operating instructions is always legible and available in full at the unit's location.
3. In particular the operator must ensure that the personnel are regularly instructed in all matters relating to occupational safety and environmental protection and are familiar with the operating manual and in particular the safety instructions in it.
4. The operator must make the manual accessible for the unit operator and make sure that he read and understood these.
5. Ensure that the unit is maintained and repaired only by sufficiently qualified and authorized personnel.
6. Use only perfectly functioning units.
7. The manufacturer Otec Präzisionsfinish GmbH does not take over adhesion for damage to the unit or to work pieces, which lead through not paying attention of the following manual.
8. Storage temperature for granulates with the designation H../... amounts to maximally 30°C, the maximum storage time 6 months. If the storage time is too long and/or storage temperature over 30°C, the granulates can get too dry and cause thus problems in the unit.
9. This manual is constituent of the scope of supply.
10. All safety signs and control signs at the unit are to be always held visible and in a well readable status and are not to be removed.
11. Any changing or removing from protection device e.g. limit switches, linings or metal sheets is inadmissibly and the unit may then not be operated. Any modification requires the in any case written agreement of the manufacturer.
12. For the operation of the unit you may only use compounds released and recommended by OTEC.
13. Modifications by technical advancement opposite the data and figures specified in this manual we reserve ourselves.
14. Reproduction, translations and duplications in any form, also in part, require the written agreement of the publisher OTEC Präzisionsfinish GmbH.
15. With the installation of this MF unit it is to be made certain that the editions of the local water conservation law (FRG: WHG § 1a and § 19g-191) to be fulfilled. It is to be made sure, that also in case of a failure of the unit, no water-endangering materials arrive into the soil or into the sewers.
16. The operator's manual was prepared by Martin Moser, OTEC.

This manual is not subject to a modification service.  
You can receive the respective current status:

Otec Präzisionsfinish GmbH  
Dieselstr. 12  
75334 Straubenhardt-Feldrennach  
Germany  
Fax: +49 (0) 7082-491129  
E-Mail: [info@otec.de](mailto:info@otec.de)  
Web: <http://www.otec.de>

## **Residuals in the Machine**

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To ensure perfect functioning of the machine, it is tested at Otec with media. This can lead to residual amounts of media in the process-container.

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## **Guidelines, regulations, standards**

With the conception and with the building of this machine contents and notes from following guidelines and sets of rules were considered:

- RL 73/23 EWG
- RL 89/336 EWG EMV
- DIN EN 292
- BGV A2

## Warranty regulations

The valid warranty regulation is determined in the terms of delivery.

You will have no warranty, if:

- Damage occurs after the machine was used against instructions mentioned in this operator's manual and this resulted in inappropriate operation
- Manipulations have been made at parts of the machine or their adjusting screws which haven't been advised by OTEC in written form.
- Repairs or manipulations have been made by persons, who are neither authorized nor trained for this.
- Media, accessories or spare parts were used, which caused the damage and were neither recommended nor released by Otec Präzisionsfinish GmbH.

There is no warranty for damages due to wrong power supply. Double check the actual data from the machine identification plate.

The warranty extends to the original purchaser for the first 12 months or two thousand (2,000) hours, whichever comes first, against defects in materials or workmanship. This warranty excludes normal wear and extends to parts only commencing from delivery date of the machine.

A prerequisite for the claim of warranty is the submittal of the purchase voucher (the invoice) with date and serial number.

There will be no warranty, if:

- Other compound or bacteria inhibiting products beside or instead of the products recommended by Otec Präzisionsfinish GmbH was used.
- No or too little compound or bacteria inhibiting products was used.
- Oil e.g. from not enough cleaned work pieces reached into the MF or UF unit.
- The machine was not operated in accordance with the manual.
- The machine is damaged through voltage fluctuation or similar influences.

There is no warranty for wear parts.

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# General safety instructions

## Remarks about danger

There is no danger for the operator if the machine is used according to the operation manual.

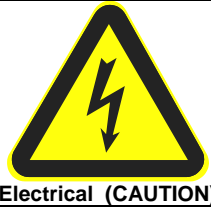
## Safety notes in this Operating instructions

The present operating instructions contains the following safety symbols.



This symbol indicates above all danger to the machine, property and the environment, but not to persons. Failure to observe these warnings could result in malfunctions of and damage to the machine and/or damage to property and the environment.

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This symbol indicates particular danger to the life and health of persons due to high voltage.

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This symbol marks some information which will lead to a better understanding of the machine/process. The information will help you to use the machine in the best possible way.

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This sign defines user tips and other particularly useful information.

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## Safety Instructions

- Always disconnect the electrical lead from the machine when not in use or while servicing.
- Acid media might damage the machine and harm the safety.
- The machine has to be set up on an even surface.
- Use only the media by Otec recommended.
- Never let the filter get dry
- Use the machine only with an earth leakage circuit breaker (ELCB, FI).

## Qualification of the operator

Users of this machine must be instructed over the user special features and into the operation of the system.

The operator of this unit must make the operating instruction accessible for the users and make sure that each user read and understood the operation instructions.

## Safety at the place where the machine will be set up

The machine must be set up in such a way that:

- the waste water can get into drains in no case.
- the length of the main power cord is sufficient.
- the main power cord does not obstruct the work routine.
- The unit may not be set up in a surrounding of acid fumes (e.g. galvanic)



CAUTION

The waste water may not arrive into drains.

- the waste water has to be cleaned either by a suitable waste water clarification system
- or
- a qualified company must be assigned for disposal.
-



## Description of the product

### Intended use

The micro filtration unit serves as filter unit for waste water coming from wet grinding (disc finishing) machines. The MF unit will supply the CF machine with cleaned water.

### Description of the Function

In a container there are some filters which filter the waste water coming from wet grinding machines. The machine also stores the waste water and the cleaned water.

### Technical Data

	Filter capacity [l/h]	Capacity of the sludge [l/h]	Diameter [mm]	Height [mm]	Weight [kg]	Power consumption [KVA / V]
MF 15	15	0,1	520	1100	16	0,05 / 230
MF 20 UF 20	20	0,2	520	1100	16	0,05 / 230
MF 30	30	0,2	520	1100	16	0,05 / 230

The machine can be operated with 50 Hz.

### Series Fuse

Max. 16 Amperes.

## Fillings

### Filling of freshwater:

	Clean water tank [l]	Filter tank [l]
MF 15	30	20
MF 20 / MF 30 / UF 20	50	40

### Filling of Compound (example chart for different concentrations)

	Clean water tank [l]		Filter tank [l]	
	MF 15	MF 20 / MF 30 / UF 20	MF 15	MF 20 / MF 30 / UF 20
1%	0,3	0,5	0,2	0,4
2%	0,6	1,0	0,4	0,8
3%	0,9	1,5	0,6	1,2
4%	1,2	2,0	0,8	1,6

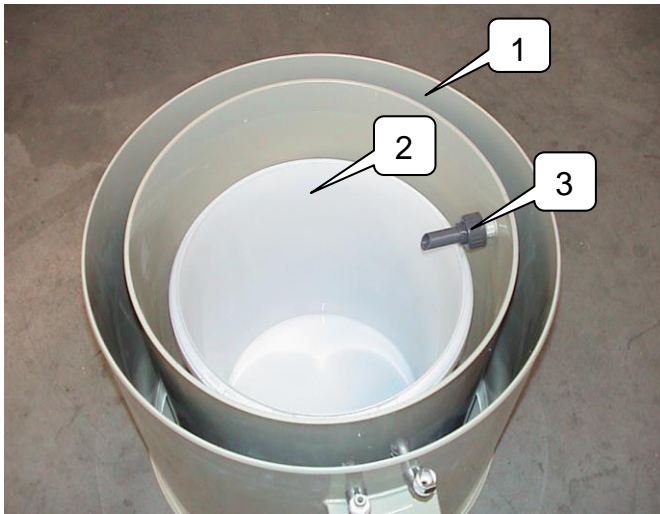
## Recommended Media

OTEC Präzisionsfinish GmbH recommends following media:

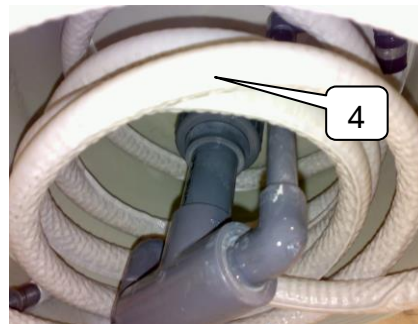
- OTEC compound with the designation SC 6
- OTEC compound with the designation SC 21
- OTEC compound with the designation SC 23

IN case of using other compounds the FILTRATION UNIT can get damaged. IN this case there will be no warranty.

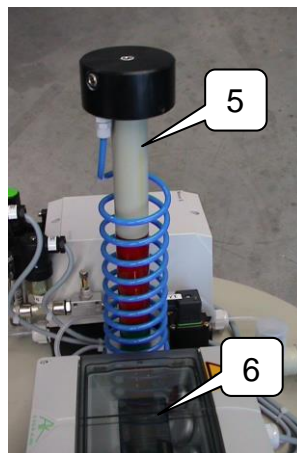
## Structure and Components



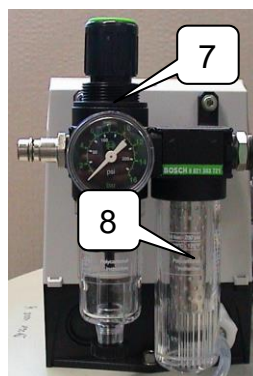
1. Clean water tank
2. Filter tank
3. Spillway from clean water tank into the filter tank – push the o-ring to the end of the pipe.



4. Filter



5. Visual float switch which indicates the level of the filling of the filter tank
6. Display with electrical buttons.



7. pneumatic maintenance unit
8. Activated charcoal filter

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## Position and Contents of the Machine Identification Plate

The machine identification plate is located on the switch cabinet.

## EC - Declaration of Conformity

### Manufacturer:

*dbTechnik  
Dieselstr. 20  
D-75210 Keltern  
Germany*

### Product:

MICRO and ULTRA FILTRATION UNITS

### Type of machine:

**MF... and UF...**

The products of the above mentioned type of machines were developed, designed and manufactured in accordance with

**2006/42 CE  
2004/108 CE  
2006/95 CE  
2001/95 EWG  
DIN EN ISO 12100**

The manual belonging to the machine is present. The CE indication was attached.  
The safety notes of the provided manual must be considered!  
This assertion certifies the agreement with the standards and guidelines mentioned, contained however no warranty of characteristics.

75210 Keltern, January 2014



Mr. Brecht

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## Transport

The micro filtration units are sent usually (if not other requested) in a wooden box to avoid damage.

Contents of the packing are checked and documented with the Otec Präzisionsfinish GmbH for quality and completeness of the sections. Please check the delivery for completeness to avoid any inconveniences later.

## Set up of the machine



CAUTION

To guarantee a trouble-free operation the machine must stand on an even surface.



DANGER

In order to exclude the danger of stumble: Shift all machine connections (cables, hoses and pipings) in such a way that they can cause no danger!

### Space required:

Please reserve a space of minimum 1,5 meter around the unit.

### Electric installation:



CAUTION

The machine may only be installed by trained and authorized electrical specialists! For the connection one phase 230 V and earth wire is necessary!

### Compressed air connection:

The micro filtration unit requires an oil-free compressed air connection.

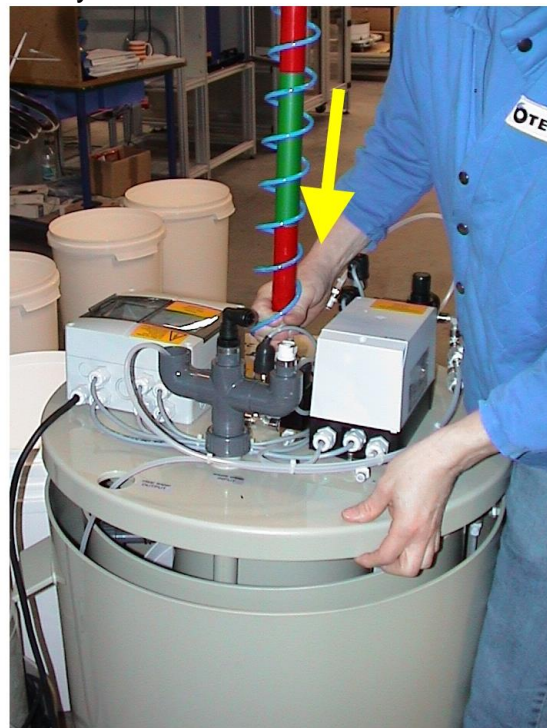
**Tighten all screws of the water carrying system. During transport they could have slightly got loose.**

## Start-up procedure

### Filling of the unit with fresh water and compound

Remove the cover of the machine.

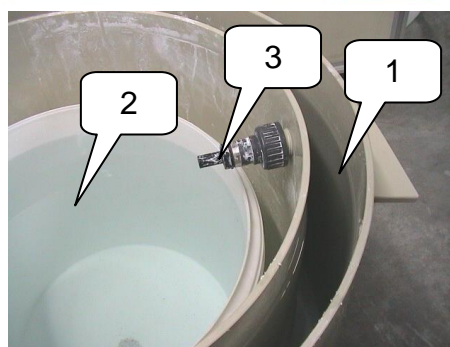
To do so, pull the visual float switch all the way up. Hold it at the lowest possible point and with the other hand at the cover; you can easily remove the cover.



Fill the clean water tank (1) until it flows through the overflow pipe (3) into the filter tank (2) and fills this tank, too.

#### Liquid level of the filter tank:

- MF 15 until about 8 cm underneath the upper rim of the bucket
- MF / UF 20 until about 15 cm underneath the upper rim of the bucket



In case at the MF / UF 20 the pump station is empty as well, the filter tank needs to be filled until about 8 cm underneath the upper rim of the bucket.

#### The pump station can only be used at the MF / UF 20

Place the lid with the filter unit onto the MF unit.

Now the green area of the level indicator should be visible. If the MF unit was not filled properly, an error will be displayed.

Once the unit is filled, add depending on the application between 2% to 4% compound manually. (3% is standard)

#### Liquid level for fresh water and compound:

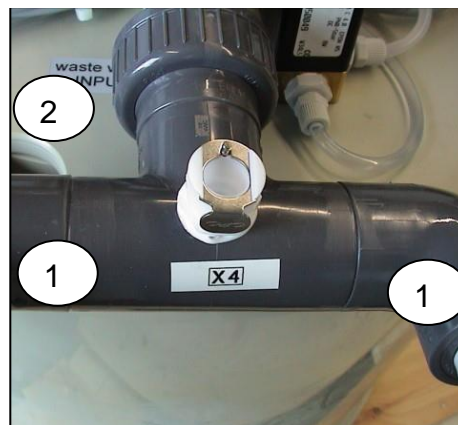
See chapter: >Fillings<



## How to connect the MF / UF to the CF machine

The connection between the MF / UF and the CF-machines is composed of two different hoses:

- Waste water feeding hose from the CF to the MF / UF.
  - ↳ without pump station (waste water pump): Connect the waste water hose(s) of the CF-machine at the connection of the MF / UF (1).
  - ↳ with pump station: Connect the waste water hose(s) of the CF-machine at the connection (3) of the pump station. Then connect a hose from the pump station (5) to the MF / UF (1). Please do not forget the O-ring (6).



The connection X4 will be used during cleaning. Please check the according chapter.

### The pump station can only be used at the MF / UF 20

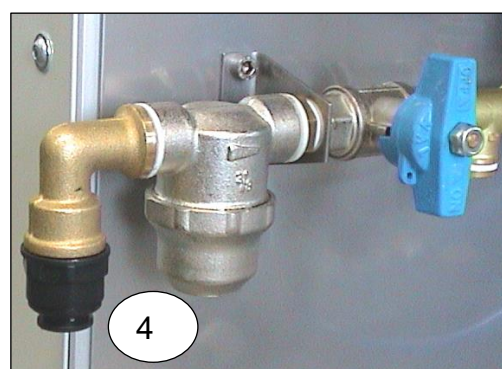
- Clean water feeding hose from the MF / UF to the CF
  - ↳ CF without water compound mixing unit: please hang the float switch of the CF machine into the MF / UF unit (2).

#### Attention:

At the MF 15 the float switch hang about 10 cm underneath the water level in the clean water tank (outer ring)

At the MF / UF 20 the float switch hang about 20 cm underneath the water level in the clean water tank (outer ring)

- ↳ CF with water compound mixing unit: Connect the hose of the MF / UF (labelled as X3) with the connector at the CF (4).



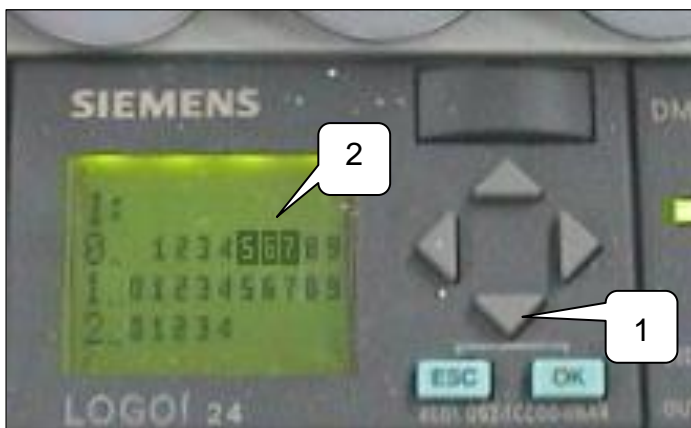
## How to connect the machine to the compressed air supply

Connect the compressed air to the pneumatic maintenance unit. The pressure has to be adjusted to 1 bar BEFORE the machine will be switched on.

Press the “arrow down” button (1) until you can see in the display: „123456789“

The numbers „5“, „6“ and „7“ have to be highlighted black (2).

Adjust if necessary the air pressure until the numbers „5“ and „6“ are highlighted black. (see picture).



See also chapter: > Technical Problems and Remedy<

- If 5 is not highlighted black, the pressure is too low
- if 6 is not highlighted black, the pressure is too high
- if 7 is not highlighted black, water level in the filter tank is either too high or too low.

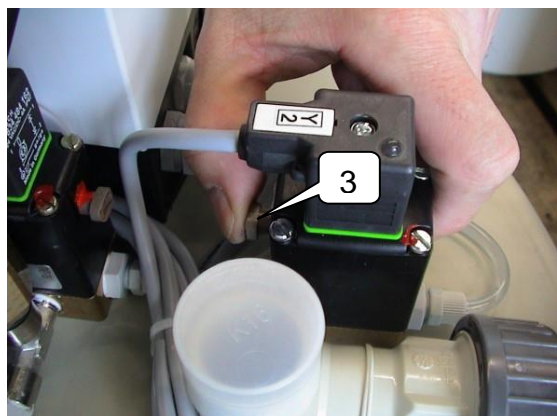
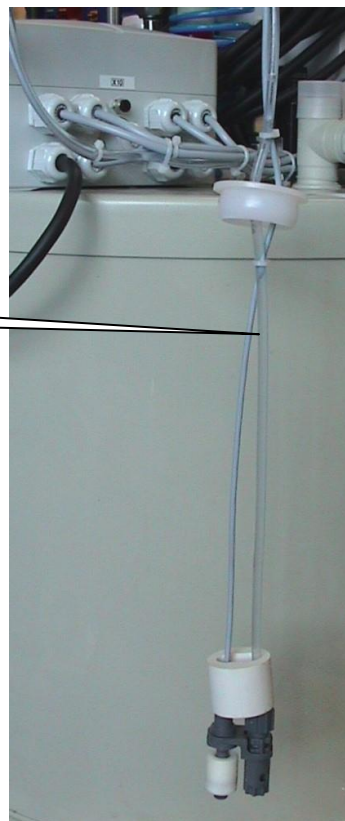
Check this unit once a day for abnormal accumulation of water and release it if necessary. Replace the filter in the unit and the activated charcoal every 6 months.



## How to de-aerate the hose of the compound / BKS dosing unit

Put the float switch with the hose into the compound / BKS-container.

To remove air from the hose (1), simply press the button (2) and at the same time the button (3) at the valve Y2 until the complete hose is filled with liquid.



# Machine Operation

## Explanation of the Electrical Switches

The operating unit of the MF micro filtration units comprises a stored program control [SPC] with a display and electrical switches.

Display:	The display mainly serves to indicate the present status and error displays.
Error Reset	With this button you can reset errors, after you fixed the error.
Filter on/off	Starts the unit and the filtering process.
Rinsing on/off	Switches the rinsing/pressure pump on/off. This optional equipment is not present at all machines (see your order confirmation).
Change Filter Tank	Indication and reset button to change the filter tank. The light at the button starts flashing after 40 hours. This means, that the filter tank needs to be cleaned. After you did so, you press this button to reset the error.
OK button	In case an error was displayed and it was eliminated already, you can go to the next error (if existing).
„Arrow“ button	Navigation button.

## Engaging the unit

As soon as the MF / UF unit is connected and filled, it can be switched on.

- As soon as the button “filter on/off” is pressed, the unit will start to filter the waste water.
- In case the unit is equipped with a rinsing (pressure) pump , clean water will be pumped automatically to the CF machine.

In case the machine will not start automatically, the error will be displays. Proceed in this case as written in the chapter >technical problems and remedy<.

## Filter Cleaning Process (automatically)

In certain time intervals or when the under pressure in the membrane is getting too high, the membranes are getting cleaned (regenerated) automatically. The waste which sits on the outside of the filter will be removed and the filter capacity remains stable.

During this process the CF machine will still be supplied with clear water.



**Under pressure switch**

## Refilling of water

Keep the level of the filter tank in the green area.

When the error >level filter tank< is displayed, add water and compound to the clean water tank and to the filter tank.

## Refilling of compound

The loss of compound which results through the wet grinding process has to be compensated.

Depending on the type of CF machines (with compound dosing unit) compound is added automatically (partially compensated) during the process already. Adjust the dosing at the CF to 3/10 of the present value, when you see that you can save about 7/10 of the compound. This value can differ due to several parameters (see below)

With CF-machines without this dosing unit, the losses are not compensated.

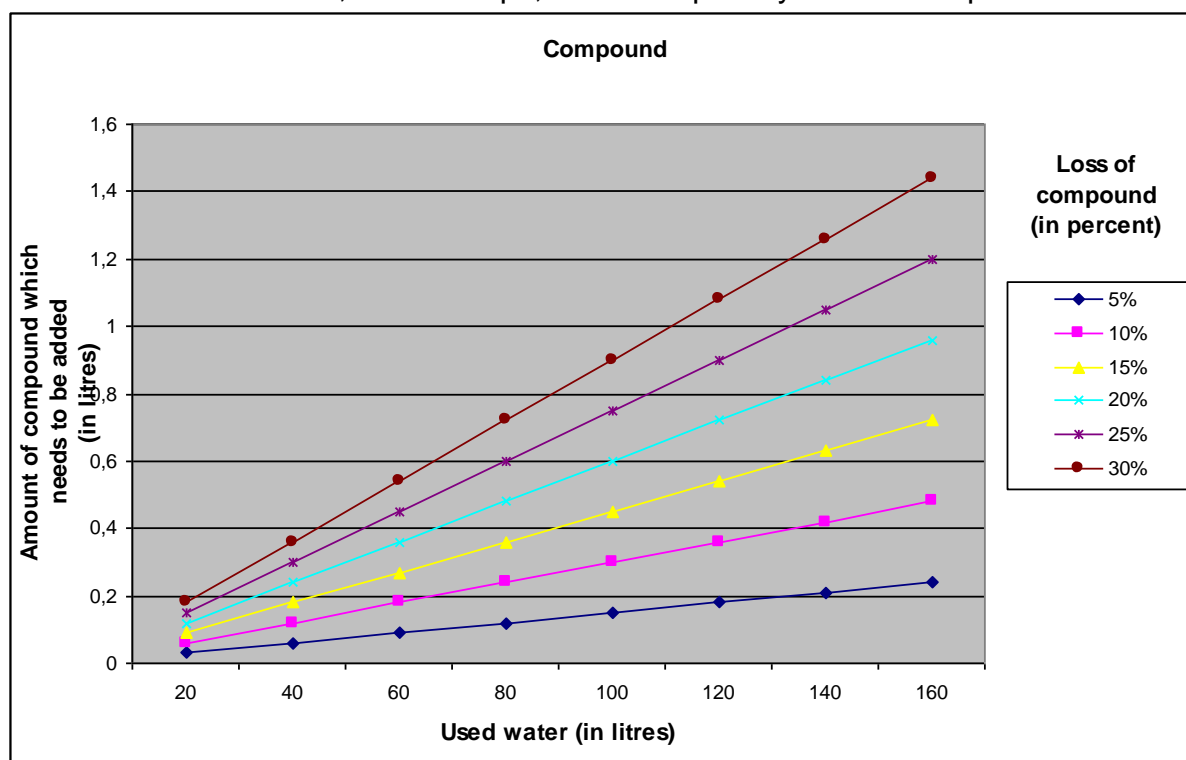
In both cases compound has to be added from time to time.

At the latest when you can monitor that a grey/black hard foam builds up which will not collapse (see picture to the right), you have to add compound into the clean water tank.



According to experience about 3% to 30% of the compound is actually used up during the wet grinding process.

These values depend on several factors such as water hardness, kind of chips, kind and quantity of the work pieces.



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## **Influence of bacteria growth on filter capacity**

In every water there are bacteria, which tend to grow depending on several circumstances.

Those circumstances are e.g. temperature, components in the water etc.

These bacteria form a slimy film on the filter and therefore prevents that enough water in the MF/UF can be filtered. Even washing of the filter will not remove this slimy film.

Your filter capacity will drop dramatically until the filter is completely blocked. This blocked filter now has to be cleaned chemically with alkaline solution.

In our recommended compound contain a certain ratio of bacteria prevention (BKS). It prevents in many cases the growth of bacteria.

However when the compound ratio is too small adjusted or your conditions of the water is unfavourable (bad), you might need to add extra BKS to eliminate or at least reduce them to an acceptable amount.

## **Dosing of additional compound or BKS**

The compound dosing unit is responsible for different tasks, depending on the type of CF-machine you are using:

1. This compound dosing unit can add in special intervals compound or BKS. These intervals can be changed. This adding of compound or BKS is very important to reduce the growth of bacteria during a time where the MF/UF is not in use. (Week-end or holiday.)

See also chapter: „Influence of Bacteria growth“

Preconditions: The MF/UF unit must be powered and supplied with compressed air.

2. At a CF-machine without automatic dosing unit it will compensate the used compound.

Preconditions: The MF/UF unit must be powered and supplied with compressed air.

Also the CF-machine needs to be prepared for this function.

You should see the following display:

The numbers „5“, „6“, „7“ and „9“ have to be highlighted black.

- If 9 is highlighted black, the level in the compound / BKS container is correct. If this level would be too low, an error would be displayed.

## Changing of parameters for the dosing of additional compound

Some parameters can be adapted to your working conditions.  
From OTEC the values are already set so that you can start working instantly.  
However some fine-tuning can be done by you.

### Dosing in case the machine stands still for a longer period of time

#### (Module B014)

Basic settings:

Every 8 hours (parameter **TL**) the unit will pump for 1,5 seconds (parameter **TH**) compound through hoses at the float switch into the MF/UF.

The parameter **Ta** will show the already expired time and can therefore not be changed.



To change parameters, please proceed as follows:  
You need to see the display as shown in the picture.

- Press >ESC<
- Press >▼< until you are at >Set Param<
- Press >OK<
- Press >▲ and ▼< until you are at the desired module.
- Press >OK< to change the parameter
- With >◀ und ▶< you can choose the parameter you want to change and with >▲ und ▼< you can change the value of the parameter.
- With >OK< you save the new values or with >ESC< you can leave the module without changes.
- Press >ESC< until you are back on the display you started (see picture).



## Time, how long the pump shall run after adding compound

### (Module B043)

#### Basic settings:

After compound was added to the MF/UF machine, the pump will run for 45 minutes (parameter **T**) to mix the compound with the water/compound mixture and stop then automatically.

The parameter **Ta** will show the already expired time and can therefore not be changed.



To change parameters, please proceed as follows:  
You need to see the display as shown in the picture.

- Press >ESC<
- Press >▼< until you are at >Set Param<
- Press >OK<
- Press >▲and▼< until you are at the desired module.
- Press >OK< to change the parameter
- With >◀und▶< you can choose the parameter you want to change and with >▲und▼< you can change the value of the parameter.
- With >OK< you save the new values or with >ESC< you can leave the module without changes.
- Press >ESC< until you are back on the display you started (see picture).





## Compound dosing at CF machines who have no water/compound mixing unit (Module B060)

This is only necessary when you have a machine of the series CF-T or a machine without water/compound mixing unit.

After you connected the special wire (Instruction were delivered separately), the MF/UF counts, how many hours the process containers are actually working. According to this it is automatically compensating the used compound.



Dosing	Pump time in sec
0,5%	0,3
0,6%	0,36
0,7%	0,42
0,8%	0,48
0,9%	0,54
1,0%	0,6
1,1%	0,66
1,2%	0,72
1,3%	0,78
1,4%	0,84
1,5%	0,9
1,6%	0,96
1,7%	1,02
1,8%	1,08
1,9%	1,14
2,0%	1,2

Basic setting:

Pump time is 0,8 seconds (parameter **T**). This corresponds to a dosing of 1,3% compound. This value can be changed according to the chart. In case you have hard foam in the machine, increase the value.



To change parameters, please proceed as follows:  
You need to see the display as shown in the picture.

- Press >ESC<
- Press >▼< until you are at >Set Param<
- Press >OK<
- Press >▲ and ▼< until you are at the desired module.
- Press >OK< to change the parameter
- With >◀ und ▶< you can choose the parameter you want to change and with >▲ und ▼< you can change the value of the parameter.
- With >OK< you save the new values or with >ESC< you can leave the module without changes.
- Press >ESC< until you are back on the display you started (see picture).



## Removal of Waste

To remove the waste (sludge) from the MF / UF unit, please proceed as follows:

1. Switch the MF / UF unit off completely.
2. Place an empty waste water container beside the MF / UF
3. Remove the connection X1 (and X2, if present)
4. Remove the upper part of the MF / UF and put it onto an empty waste water container.
5. Remove the full waste water container from the MF / UF and replace it by an empty one.
6. Refill the unit with water and compound as it should be.
7. Put the upper part of the MF / UF back into place and connect it again in reverse order.

Now the MF / UF is ready again.

## How to replace the water/compound mixture of the unit

1. Empty and clean the filter tank as described in the chapter: >Removal of Waste<
2. Empty the clean water tank Säubern Sie die Filter.
3. Clean the filters.
4. Refill the MF / UF as described in the chapter: > Filling of the unit with fresh water and compound<

## Waste Water Pump Station (only for MF / UF 20)

This pump station will be positioned under, behind or at the side of a CF machine.

Connect it to a 230V power supply.

The waste water is entering the pump station (2) either via hoses (1) (see picture) or a funnel (CF 50).

The pump inside the container will be switched on/off through a float switch as soon as the water level is too high/low.

The hose (3) brings it to the MF / UF unit

The tank (4) has to be filled in case it ran full with water.

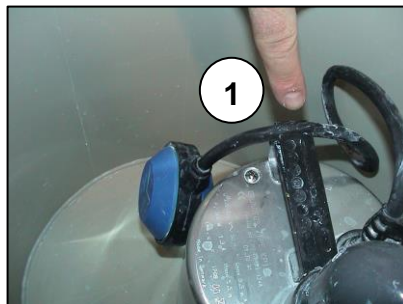
The foam tower (5) will eliminate foam which is too much.



Pump station  
with foam tower

The pump needs to be rinsed and cleaned once a week. In case the pump does not deliver liquid straight after it is activated, tilt it to the side so that air bubbles which are trapped can escape.

Look to the float switch that it is hooked in the clip at the pump (1) and can be moved freely (2)



Electrical (CAUTION)

When connecting the pump to the power supply, follow the instructions of the instruction manual of the pump.

# Maintenance, Servicing and Repairs

## Maintenance

Please keep your machine clean. Pollution at the micro filtration can cause damage to mobile sections or the paint of the machine. Keep the machine free by empty containers, bags or similar items.

To operate a clean machine also surely makes more fun.

In order to ensure the perfect function of the unit on long time, please absolutely adhere to the following intervals maintenance routine.

## Servicing the machine

Change (clean) the filter tank every 40 hours

Important remarks for the filter membrane

**Caution: do not use a high pressure hose, brushes, hot water or chemicals for cleaning the filter membranes! This would destroy the membrane!  
Never blow compressed air into the filters!**

Daily maintenance routine

- Check the machine for unusual noise or unbalance.
- Check all connections and fittings of the compressed air and water for leakage.

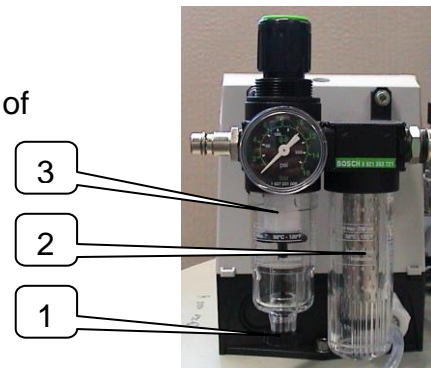
Weekly maintenance routine

- Clean the sieves of the pump stations.
- Clean the pumps of the pump stations and the one in the waste water tank.

## Servicing the air service unit

### Daily maintenance routine

Check this unit once a day for abnormal accumulation of water (1) and release it if necessary.



### Half-yearly maintenance routine

- Change the activated charcoal filter element (2) and the filter element of the air service unit (3).



CAUTION

Pressure: 6 bar.

The compressed air needs to be absolutely free of oil. In case you can not guarantee this, add a charcoal filter in. Otherwise the MF / UF unit will be damaged.

## Cleaning of the filters with chemicals

Sometimes when the filtering capacity drops too much, they might need a chemical cleaning as described below.

Please when you purchase these chemicals and the buckets for the chemicals in your country, also buy the SAFETY PROTECTION ITEMS like goggles, gloves, coat etc... You can re-use the chemicals, so store them in buckets with a lid.

### Cleaning instructions of the membrane (only when the flow is still too low after cleaning the membrane manually)

- Take out the membrane of the MF / UF and flush it with tap-water with max. 5-6 bar (no high pressure), to remove the dirt from the membrane.
- Contact the single membrane pipes only with gloves, in order to press no fat residue of the skin into the membrane.
- Submerge (dip) the membrane completely into the **acid cleaning** solution (see details below 1) and leave it there for 12 to 24 hours. (if you have a MF 15 / 20 please let the solution circulate through the membrane)
- After this procedure, flush (rinse) the membrane very well with **fresh water** FOR ONE HOUR and let the water drain very well after this rinsing. (if you have a MF 15 / 20 please let the fresh water circulate through the membrane) Submerge (dip) the membrane completely into the **alkaline cleaning** solution (see details below) and leave it there for 12 to 24 hours. (if you have a MF 15 / 20 please let the solution circulate through the membrane)
- After this procedure, flush (rinse) the membrane very well with **fresh water** (if you have a MF 15 / 20 please let the fresh water circulate through the membrane) and let the water drain very well after this rinsing. Now you can put the membrane back into the machine

After these procedures the filters have to be neutralized from the chemicals and then put back into the machine.

### NEVER USE COMPRESSED AIR OR HIGH WATER PRESSURE TO CLEAN THE MEMBRANES

#### 1) Acidic cleaning solution

This is a bath (30 litres) of a 5-10 % hydrochloric acid solution (HCL). You can also use a technical hydrochloric acid (approximately 31 %), which you can will dilute correspondingly with tap-water. Depending on the contamination you can use the hydrochloric acid for several times (Check the pH-value! It shall be larger 1). The acidic cleaning is normally used by deposition of metals in the membrane, as well as for dissolving (breaking up, penetration) of the solid dirt- / particle layer on the membrane surface.

- After this procedure, flush (rinse) the membrane very well with **fresh water** FOR ONE HOUR and let the water drain very well after this rinsing.

#### 2) Alkaline cleaning solution

This is a bath (30 litres) of a 2% to 3% alkaline caustic soda solution (NaOH). Add 50ml of a technical (approximately 96%) alcohol solution (ethanol or isopropanol). Depending on the contamination you can use the alkaline caustic soda solution for several times. (Check the pH-value! It shall be less than 11 not more!).

The alcoholic caustic solution is normally used by organic pollution like oil- / fat-like contaminations (machining oil, emulsifying agents, soaps, fats...), which plugged the pores on the membrane surface, or else which are diffused in the membrane.

- After this procedure, flush (rinse) the membrane very well with **fresh water** FOR ONE HOUR and let the water drain very well after this rinsing.



## How to prepare for the cleaning of MF 15/20 and UF 20

Remove the X1 and connect it to the fitting X4 of the waste water inlet.

In case you do not yet have a fitting there, put it into the waste water inlet directly. Make sure that the hose can not slip out.

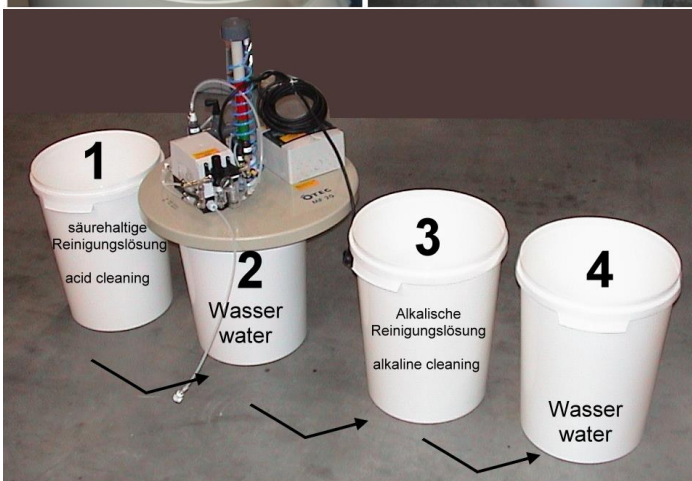


Remove the top part of the machine while holding it at the bottom of the long pipe. See right picture.



Put the top part of the machine onto the first bucket. Be sure that you do not bend the hoses.

This would be the way the cleaning shall take.



Then you can start the process. Caution: **DO NOT PRESS THE BUTTOM FOR THE RINSING PUMP!**



## Repairs

When servicing the machine you must observe the following safety instructions in order to avoid lethal injury, damage to the machine and other material or environmental damage.

- Switch off all voltage sources and secure them against being inadvertently switched on again.
- Depressurize all pressurized units.
- Read the chapter "General safety instructions"

### While maintaining:

- The maintenance schedule prescribed in the manual is to be executed within the prescribed period.

### Before executing the maintenance routine, please respect following:

- Exchange all defect machine parts immediately.
- After termination of the maintenance work and before starting the machine the following points are to be considered:
  - check again all screwed joints loosened before, if they are really tightened
  - check whether all safety devices removed before, covers, lids, filters, are again inserted correctly.



# Spare Parts

## Spare Parts List

MF all types	Order Number
Pump for waste water MF	E700-03-001
Replacement set for activated charcoal filter	E700-24-001

MF 15	Order Number
Filter membrane MF 15	E700-01-001
Filter stack MF 15	E700-01-002

MF 20	Order Number
Filter membrane MF 20	E700-01-003
Filter stack MF 20	E700-01-004

## How to order Spare Parts

Our machines are subject to constantly technical innovations. In order to give to you the correct spare part and the appropriate fitting instructions, we absolutely need the serial number (>Maschinennummer<) on the machine identification plate.



Please ask for toolkits and aids which help you exchanging spare parts in the machine.

## How to Install Spare Parts

A detailed fitting instruction for spare parts is attached to the spare parts delivery. If not, please give us a call and we will send it immediately by email.

Tel: +49 7082 4911-11

Email: [moser@otec.de](mailto:moser@otec.de)

# Trouble Shooting

## Technical Problems and Remedy

Error display	Possible causes	Remedy
“7” is not highlighted black any more. At the visual float switch you can see the upper red area. (float is down)	Water is missing in the filter tank.	Refill water
“7” is not highlighted black any more. At the visual float switch you can see the lower red area. (float is up) Important: Switch off the ECO or CF-machine!	Filter tank is full with waste.	Proceed as written in the chapter: >removal of waste<
	-the level of the float switch which is coming from the CF machine and is hanging in the MF is not correct. (This applies only for CF machines which pump water with their pump into the process container.	Adjust it.
	-MF does not deliver enough filtered water.	Is the dosing pump correctly adjusted? Is too much waste water coming into the MF?
	-Filters are blocked. Did you use a wrong compound?	Remove the upper part of the unit and clean the filters with water. <u>Caution: do not use a high pressure hose, brushes, hot water or chemicals! This would destroy the membrane!</u> <u>Never blow compressed air into the filters!</u> Maximum cleaning pressure: 3 bars.
„5“ is not highlighted black any more	The air pressure is too low.	Adjust the air pressure. (Turn the big black button at the pressure gauge clockwise)
„6“ is not highlighted black any more	The air pressure is too high.	Adjust the air pressure. (Turn the big black button at the pressure gauge counter clockwise)

Error display	Possible causes	Remedy
Error display: “Chemical dosing box empty”	There is too little liquid in the compound container.	Refill it.
Error display:“ Change filtration tank and Reset“ and the light at the button starts blinking after 40 hours	The filter tank needs to be cleaned every 40 hours	This means, that the filter tank needs to be cleaned. After you did so, you press this button to reset the error.

As soon as all the errors are solved, reset errors by pressing the RESET button.

Proceed as follows to get the machine re-started:

As soon as you can see an error displayed, press the “arrow down” button until you reach the display with the numbers, from which 5, 7 and 8 should be highlighted.

Now you adjust either the air pressure („5“ and „6“ have to be highlighted black) or adjust the water level until „7“ will be highlighted black.

Then you go back up with the “arrow up” button to the error display, press “OK”. After that you press the red button. After the light of the red button is extinguished, you can re-start the machine.

## Fuses in the Machine

Information about the size and kind of fuse you can find in the wiring diagram, which is located in the switch cabinet.



The rated amperage of the exchanged fuse must correspond to the rated amperage indicated in the wiring diagram. It may NEVER be larger!

## **Customer support via Telephone**

If you have any questions for the operation of the unit, do not hesitate to contact your local dealer or our technical department.

Otec Präzisionsfinish GmbH, Straubenhardt  
Germany

e-mail: [moser@otec.de](mailto:moser@otec.de)  
Tel.: +49 (0) 7082 4911-11  
Martin Moser

## **Withdrawal from Service**

### **Temporary Withdrawal from Service**

- Disconnect the machine from the power supply if you will not use it for a longer period of time, e.g. on the weekend or longer.
- Remove the sludge
- Clean the waste water tanks
- Clean the pumps which deliver waste water

### **Final Withdrawal from Service and disposal**

When its useful life has ended, the machine may be dismantled and eliminated. In this case, the operation must be carried out according to local legislation on the disposal of such machinery, in addition to the procedures foreseen by Community laws for environmental protection.





EEC Directive 75/442 relative to the disposal of general waste.

EEC Directive 78/319 relative to the disposal of toxic and harmful waste

### **SALE**

If the machine is sold, the purchaser has the right to be informed on all intervention performed on the machine, to be instructed on its use and maintenance and to receive all of the relevant documentation together with the declaration of conformity.

## Optional equipment

	Order number	
Waste water collector with lid, 30 litres for MF 15	A700-01-005	
Waste water collector with lid, 60 litres for MF 60	A700-01-007	
Filter sack to dry the sludge	A700-01-003	
Sludge catch tray	A700-01-004	
Plate for sludge catch tray	A700-01-002	

## Manufacturer

**db Technik**  
 Dieselstr. 20  
 D-75210 Keltern  
Germany

## Chart to convert from metric to...and reverse

Kilogram (Kg)	1 KG = 1000gr	35.27 ounces 2.205 pounds
Liter (l)	1 l	0.035 cubic foot 61.02 cubic inches 0.220 gallon (Imp.) 0.264 gallon (US) 1.76 pints (Imp.) 2.205 pounds
Millimeter (mm)	1 mm	0.03937 inch
µm (micron)	0,001 mm = 1 µm	0.00003937 inch
Inches	1 inch	25.4 mm
Foot	1 foot = 12 inches	304,8 mm
Cubic foot	1 cubic foot = 1728 cubic inches	28 l
Cubic yard	1 cubic yard = 27 cubic feet	765 l
Gill	1 gill	0,142 Liter
Pint	1 pint = 4 gills	0,57 l
Quart	1 quart = 2 pints	1,136 l
Gallon	1 gallon = 4 quarts	4,546 l
US liquid gill	1 US liquid gill	0,118 Liter
US liquid pint	1 US liquid pint = 4 gills	0,473 Liter
US liquid quarts	1 US liquid quarts = 2 pints	0,946 Liter
US gallon	1 US gallon = 4 quarts	3,785 Liter
Hundredweight	1 hundredweight (or short hundredweight) = 100 pounds	45,36 kg
Grain	1 grain	0,0648 g
Drachm or dram	1 drachm or dram = 27.34 grains	1,77 g
Ounce	1 ounce = 16 drachms	28,35 gr
Pound	1 pound = 16 ounces	435,6 gr
Stone	1 stone = 14 pounds	6,348 kg
Quarter	1 quarter = 28 pounds	12,7 kg
Hundredweight	1 hundredweight = 112 pounds	50,8 kg
Kilo Watt	1 KW	1,34 HP
Horse Power	1 HP	0,746 KW