DENIOS.

Parts Cleaner

bio.X T700

DENIOS AG
Dehmer Straße 58-66
D-32549 Bad Oeynhausen
Phone: +49 (0)5731 7 53 - 122
Fax: +49 (0)5731 7 53 - 95 951
Email: customerservice@denios.de

You can find your local contact person on our Internet site www.denios.com

Table of Contents

1. Safety instructions

This user manual has been created for the parts cleaning unit bio.x T700. It contains all details needed regarding correct commissioning, proper operation and maintenance. The instructions in this user manual must be carefully followed and adhered to.

If the instructions are strictly followed in accordance with the user manual, we accept liability within the scope of our conditions for guarantees.

National regulations and safety regulations must be observed.

No changes, extensions or modifications may be made to the product without the manufacturer's authorisation. No liability is accepted for changes made without the manufacturer's authorisation with the warranty ceasing to be valid in such a case.

If you have any further questions, please contact us on our service hotline on 0800 - 753-000-2.

This unit can only be used safely if you read this user manual carefully and strictly follow the instructions it contains. This user manual is an integral part of this unit and must be available to the personnel who operate the unit at all times.
Such staff must be familiarised with the user manual with particular attention being paid to prohibitions and hazard warnings.

The mains supply connection has to be in accordance with the corresponding regulations (VDE 01000 - Association of German Electricians). For safety reasons, the device may only be operated when if a Residual Current protective Device (RCD) with a release current of 30 mA is connected in series. **Please get it checked by a qualified electrician.**

In accordance with the German BGV A3, electrical equipment has to be examined in regular intervals.

The device must be placed horizontally on a stable surface.
Detergents which contain highly flammable substances must not be used. Use only detergents approved by DENIOS for this unit.

2. Technical Data

Dimensions (W x D x H)	1100mm x 910mm x 1725mm
Total height with open hood	2400 mm
Net weight	approx. 80 kg
Power consumption	1.1 kW (when heating turned on)
Electrical connection	1/N/PE 230V~
Back-up fuse on site	min 10 A
Working height	950 mm
Load capacity	200 kg
Tank	material PE LD
Maximum fill capacity	120l
Minimum fill capacity	60l
Usable work surface	750-900 mm x 550 mm
Heating system	Stainless steel (1.4541) tubular heating element output 1 kW
Level switch	Minimum fill level (approx. 55l)
Temperature sensor	default setting is 41°C
Pump	approx. 240l/h
	approx. 6 bar
Sound pressure level	< 70 dB (A)

The function of the demister requires a compressed air connection.

- Input pressure, 6 -8.5 bar
- Pumping capacity 350 l/min

3. Product description

3.1 Intended use

The bio.x parts cleaning unit is used to clean oil and grease from work pieces in an efficient, environmentally sustainable way using exclusively cleaning fluids authorised by DENIOS.

Other detergents such as degreasers or alkali cleaning agents must not be used!

Solvents, disinfectants, alkali or acidic fluids, carburettor and diesel fuels or turpentine must not be poured into the appliance.

3.2 Configuration

Base part

- Material PE
- Maximum fill capacity 120l
- Minimum fill capacity 60l

Item	Designation	Function or description	Mat.-No.
1	Electrical compact control	With on/off switch and 2-digit 7-segment display	190379
2	Tubular heating element, output 1kW	Version with central connection and firmly sealed cable 3x1.5mm²	178986
3	PT 100 temperature sensor	Temperature control (41°C)	135266
4	Level switch	Recording the minimum fill level, plastic version with firmly sealed PVC cable 3x0.34mm²	135274
5	Electrical aerator (5W)	Oxygen supply for the bacteria in the cleaning device	138281
6	Suction filter (350µm)	Protection against contamination in the feed pump inlet	168159
7	Feed pump, temperature monitored *	Three-compartment membrane pump with dry operation protection, operating pressure approx. 6 bar, flow rate 4 l/min	160253
8	Foot switch/button (optional)	For turning the cleaning function and the demister On and Off	150097
9	On/Off switch - lighting	For turning the internal light on/off (optional)	162245
10	Feed cable with plug		160517
11	Drain tap	To drain the used cleaning fluid	162221
30	On/Off switch - demister	for switching the demister unit	162245

* When replacing the connections of the hose line, seal with a Teflon tape

Upper part

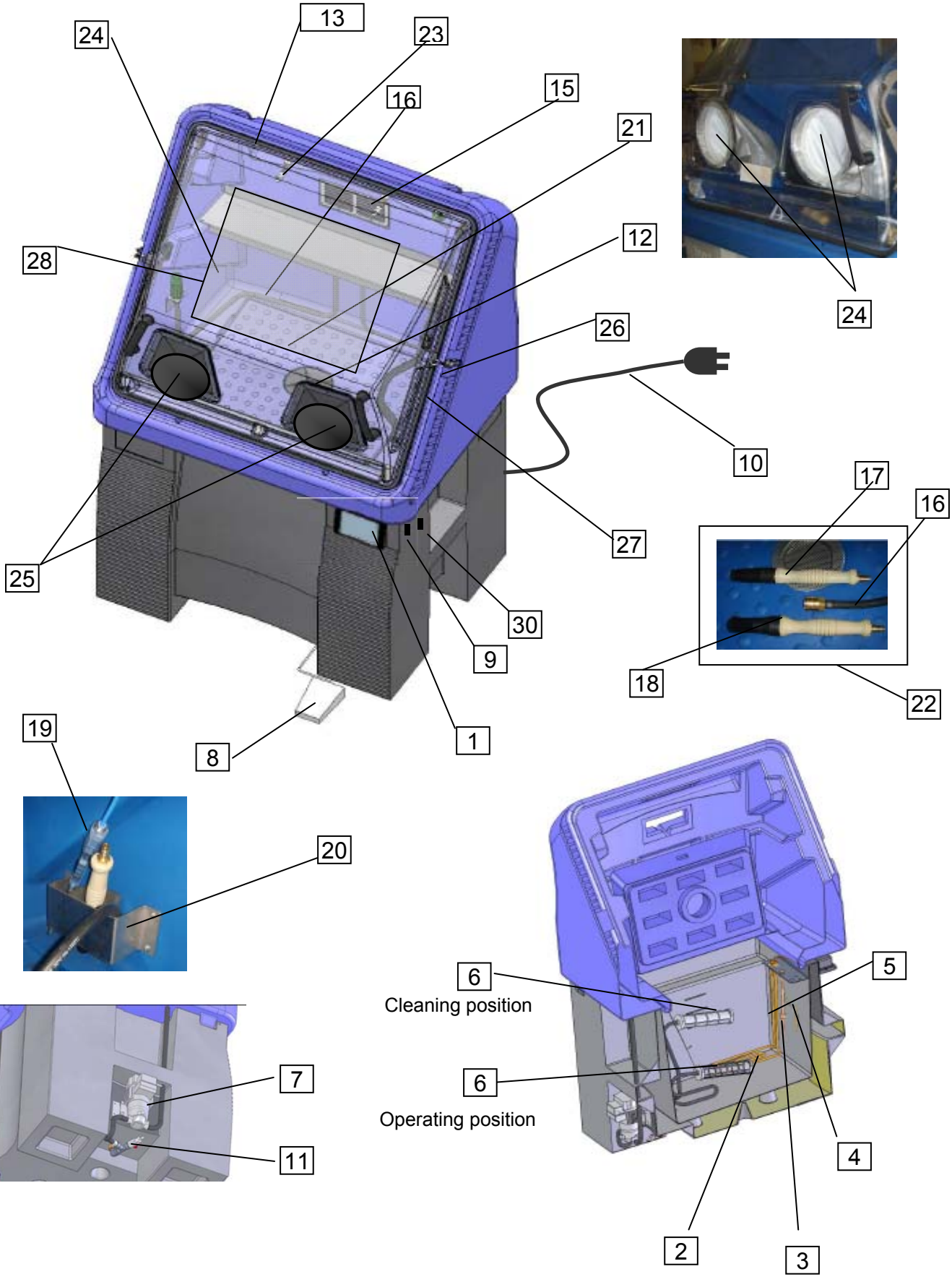
- Material PE
- to be placed on the lower part of the appliance
- with back and side walls and a removable work surface
- Load capacity: 200 kg
- Usable work surface: 750x900x550 mm

Item	Designation	Function or description	Mat.-No.
12	Filter screen (600µm)	For filtering out coarse particles	135256
13	Interior lighting (optional)	Protective tube light IP67, 1x24W	172777
15	Louvre cover plate	Stainless steel, to cover the ventilation opening	162335
16	Pressure hose	Feed to the Vario nozzle, cut 1100 mm	162495
17	Vario nozzle	Can be adjusted from point to surface jet and unpressurized	168143
18	Wash brush	For manual cleaning	168024
19	Compressed-air nozzle (optional)	For fast drying of the cleaned workpieces	168250
20	Holder	To hold the nozzles and the brush	168767
21	Work surface (fold-away shelf)	In blue	161846
22	SET: Vario nozzle and wash brush with hose system		162496
23	Nozzle for demister	To blow clean the hood	163366

Hood

- Material: PE-HD
- Transparent pane: Polycarbonate, scratch-proof coated
- Surround seal, lock and reach-through gauntlet gloves

Item	Designation	Mat.-No.
24	Hood with transparent pane, sealing, hook rails	189654
25	Reach-through gauntlet gloves	168036
26	Lock	160262
27	Gasket	162482
28	Transparent pane with sealing	186914


13
24
23
16
15
21
12
28
26
10
27
25
30
9
1
8
24
17
16
18
22
19
20
6
Cleaning position
5
6
Operating position
4
2
3
7
11

4. Commissioning

After removing the packaging, check the unit casing and operating components for any possible damage caused in transit. If such damage is found, do not connect the unit to the mains. Report damage immediately to the carrier who delivered the unit and to DENIOS AG at the service number indicated above. The original packaging should be kept.
Place the unit in a dry, stable location as required. The floor must be level. If necessary, level out any uneven surfaces with suitable shimming material.

4.1 Filling with the cleaning fluid

Open the hood (24) and take out the shelf (21) from the unit.

The bio.x cleaning fluid is available as a ready-mix or in concentrated form.

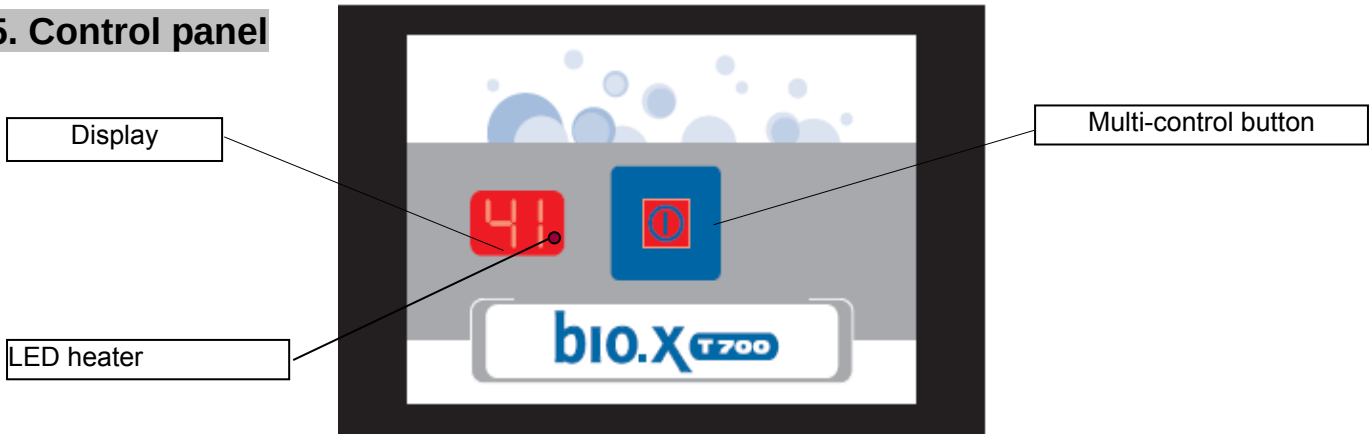
Fill the tank with the ready-to-use liquid of 100 l, i.e. 5 canisters each of 20 l, or 4 canisters of concentrate, each with 5l and add 80 l water.
Connect the unit to the mains. "On" will be shown on the display for 3 seconds. The heating system switches on automatically. The warming-up process can take up to 2.5 hours, depending on the initial temperature. The operating temperature is set at 41° C in the factory and cannot be changed. When the operating temperature is reached, "41" will appear on the display.
The aerator will work continuously after the unit is switched on.
Place the shelf (21) back into the unit. The parts cleaning unit is then ready for operation.
The aerator will work continuously after the unit is switched on.

The two detergents should not be mixed together as far as this is possible.
Other detergents such as degreasers or alkali cleaning agents must not be used.

4.2 Electrical connection

The unit is connected to the customer's mains supply via the power cable and plug.
Pay attention to correct mains voltage: The voltage of the power source has to comply with the details on the identification place of the appliance
Caution: The mains supply must be fitted with a residual-current protective device (RCD) in compliance with to DIN VDE 0100! (See section 2)

5. Control panel



5.1 Function indicators on the display.

Function	Indicator
Warming-up process	Display '41' flashing, LED heater on Rising horizontal bars
Operating temperature reached, Heater off	Display '41', LED heater off
Operating temperature reached, heater on	Display '41', LED heater on
Excess temperature	Temperature indicator flashing when T>41°C
Energy saving mode	Display '30'
Controllable pump run time	Display ‘xx’, remaining run time is displayed with 5, 10, 15 minutes run time
Error messages, see section 6.2 (Error messages)	Display ‘LO’; F1 to F8

6. Operation

- **During the cleaning process with the Vario nozzle (17), the hood should be closed, otherwise you must wear the appropriate protective clothing (protective goggles)!**
- If you are working with a brush, you may also clean with the hood open.
- Place the parts to be cleaned in the Parts Cleaning Unit.
- The maximum admissible load may not be exceeded.
- Connect the Vario nozzle or the cleaning brush with the high-speed coupling to the cleaning hose.
- Close the cover.
- If necessary turn on the light with the on/off switch (9).
- You can also switch on/off (30) the demister unit of the transparent hood.
- Reach for the cleaning equipment through the gauntlets. Depending on the type of dirt the vario nozzle can be adjusted from point to surface jet and by moving forward or back to low density.
- By pressing the foot switch you turn on the feed pump and you can start cleaning.
- After you have finished cleaning press the foot switch again to turn off the feed pump. The water pump automatically switches off after about 60 minutes.
- The Parts Cleaning Unit can also be switched on and off by pressing the multi-control button on the control panel.
- Take out the cleaned parts.

Note:
When interrupting work, switch off the water pump only and do not disconnect the unit from the mains, so the detergent remains warm. The micro-organisms in the detergent require heat and oxygen to degrade the oil and grease. For this reason, the heating system maintains the temperature of the detergent at 41° C and an aerator ensures oxygen is permanently fed to the micro-organisms. If the unit is switched off, or it breaks down for a long period of time, the micro-organisms become inactive.

6.1 Energy-saving mode

The unit can be switched to energy-saving mode during downtimes such as night-time, weekends, or company holidays as long as you like.
The temperature is maintained at 30º C in energy-saving mode. The micro-organisms remain active at this temperature and optimum oil and grease degradation is guaranteed.

Settings:

1)	Press the multi-function button for > 3 s	➔	A 2-digit number appears in the display (time period for the energy-saving mode, last set value), the first digit is flashing.
2)	Press the multi-function button for a short time	➔	The flashing digit will count up (0 will follow after 9)
3)	Press the multi-function button for > 2 s	➔	The 2nd digit flashes
4)	Press the multi-function button for a short time	➔	The flashing digit will count up (0 will follow after 9)
5)	Press the multi-function button for > 2 s	➔	The set time is displayed alternately with the „30“ for the energy saving mode. The display of the hours refers to the remaining time until the unit is switched on again (hour or part thereof)

If the operator does not set any time, the displayed value will be taken over automatically after 10 s. If the value"00" is set, the time control function is not used and the energy-saving mode must be terminated by pressing the multi-function button for a short time.

After the energy-saving mode has been terminated, the unit heats the cleaning fluid up to 41 °C. The warm-up stage takes about an hour, depending on the ambient temperature. Once this temperature is reached and "41" is shown continuously on the display, the unit is ready for operation with optimum cleaning assured.

6.2 Controllable pump run time

(Control unit # 190379 with software version V1.12 and later)

The pump run time can be preselected with fixed values. This is reasonable for automatic cleaning, e.g. when the optional immersion basket set or the spray unit is used.

For this purpose, 5, 10, 15 or 60 (basic setting) minutes are available. During the reduced pump run time (5, 10, 15 minutes), the remaining run time is displayed in minutes.

Settings:

1)	Press the multi-function button for a long time > 10 s	➔	If the set pump run time is reached, number „05“ will be displayed. (After 3 s, ‘00’ is displayed while the first digit is flashing – continue to press and hold the multifunction button)
2)	Press the multi-function button for a short time	➔	Set the pump run time in the steps of 5, 10, 15 60 minutes
3)	Press the multi-function button for for > 2 s	➔	The setting will be accepted

The set pump run time is then used for the following cleaning processes. The pump is automatically switched off after the time period has passed.

After the unit has been switched off (pulling of the plug) or after power failure, the basic setting of 60 minutes will be active again.

7. Maintenance

Caution! Before starting work on the cleaning table fixtures, switch off the electrical system and unplug the unit! Make sure that the device is disconnected!

7.1 Filter

The washstand is equipped with two filters as standard. A stainless steel perforated filter on the washstand surface and a synthetic filter for impurities underneath. It is recommended to clean these filters on a **daily** basis. To do so, remove the filters from the unit and rinse with water.
For maintenance purposes, the work surface can be lifted inside the tank and lent against the back wall of the upper part.

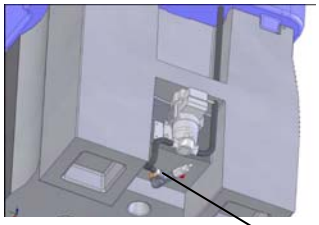
7.2 Filling level

Check the fill level against the markings on the tank wall regularly so you can refill to make up for any losses through evaporation and removal. If the fill level falls under a minimum of 60 litres (lowest marker line), the pump and the heating system switch off automatically for safety reasons. In such a case, "LO" is shown on the display. Re-fill the detergent until the top marker line is reached. The message will disappear once there is enough detergent in the tank.

7.3 Suction filter (6)

In order to prevent the pump from losing pressure, the suction filter inside the tank should be cleaned at regular intervals. For this purpose the suction filter can be moved to an elevated position and with the help of the cleaning nozzle (set to surface jet) freed from deposits.
If the suction filter is so dirty that it can no longer be cleaned in this way, it has to be replaced.

7.4 Cleaning fluid



The cleaning fluid has to be replaced if
- there is a significant fall in the cleaning performance
- when checking the fill level there are notable sediment deposits on the floor of the tank
- or the suction filter is frequently blocked

The drain tap can be used to drain the fluid.
When there is only a small amount of residual fluid left in the container, the suction filter hose on the container floor can be released (brass screw connection) and it is possible to practically empty it completely.
Please follow the same process when inserting the new fluid as for the initial operation.

7.5 Fine filter

The optional fine filter, which can be fitted on the left-hand side of the unit, should be checked **weekly** and cleaned if necessary. Release the filter cover by turning it anti-clockwisely. Remove the filter cartridge and rinse it thoroughly under running water, or replace it with a new cartridge. Reinsert the cartridge and screw the casing firmly back into place. Ensure the seal is in the correct position.

7.6 Cleaning of the transparent pane

- **Avoid scratching the transparent pane**
- **If the hood is dusty, never rub it dry.**

For cleaning use a mild washing-up liquid in lukewarm water, a soft cloth, sponge or wash leather - also for drying.
Never use: scouring agents, caustic cleaning agents, (degreasing) rinsing agents, spray cleaners for glass windows;

Never use: solvents such as acetone, paint thinner, alcohol compounds with more than 5% alcohol
Never use: scouring cleaning crags or brushes

7.7 Refill units

Accessories	Description	Item number
Concentrate bio.x (mixing proportion 1:4)	5-litre canister	183543
Set concentrate for initial filling and refills	4 x 5-litre canisters	187609
Cleaning fluid bio.x	20-litre canister	130032
Cleaning fluid bio.x	200-litre drum	161524
Set for initial filling and refills	5 x 20-litre canisters	130030

7.8 Replacement parts (see also product description page 4+5)

Accessories	Description	Part number
Transparent pane with sealing	Transparent pane of hood	186914
Filter housing	Fine filter (161718)	160703
Replaceable sieve insert	200µm	162522

8. Optional Accessories

Accessories	**Description**	**Part number**
Residual current device adapter	Adapter for fuse protection for the appliance Trigger current:30 mA, Protective system: IP44	177335
Protective gloves (1 pair)	with extra long gauntlet, internally padded with cotton fabric Length: 640mm Size: 10 EN388: 4121 Resistance: good protection against detergents, alkali, oil and grease	163613
Gauntlet gloves (1 pair)	Chemical protection gloves in accordance with EN 420 (4 1 2, 1) and EN 374 Material: PVC Polyurethane colour: red-brown Length: approx. 70 cm Size: 9 / 10	176234
Filter	The additional fine filter can be installed between the pump and return flow.	161718
Filter screen type 454 Filter 80 µm	Can be used as an alternative for filter screen (12)	161047
Compressed-air pistol	With a hose and connector assembly installed in the upper part of the parts cleaning unit it speeds up the drying of the cleaned parts	160419
Stainless steel storage	An additional storage area on the back wall of the upper part, can be connected without tools	161640
Perforated metal insert	To protect the work surface of the cleaning table Makes it possible to work without tilting	169227
Interior lighting	Protective tube light IP67, 1x24W	160425
Rolling cart	For the portable use of the parts cleaning unit	154288
Offset brush	For cleaning nooks and corners, prevents signs of fatigue when working for a long time.	172560
Stainless steel brush	To remove heavily crusted dirt from insensitive parts	173926
Wet vacuum cleaner Type SV 6.16	To completely empty the tank, also suitable for sludge	123224
Spray unit	Spray unit for preliminary cleaning	187665
Immersion basket set	Allows soaking of heavily polluted parts	186506

9. Instructions for waste disposal

Cleaning fluid

The relevant waste code number for a contaminated substance depends on the type of dirt removed and not on the type of detergent. The applicable waste code number can be found in the European Waste Catalogue.
Contaminated substances can often be disposed off with other hydrous systems.
Unused fluids can be fed into waste water treatment plant while taking into account local regulations regarding waste water disposal.

Appliance

According to the electronic and electrical appliance regulations, owners of disused appliances are legally required to dispose of such items separately. Please help to protect the environment by not disposing of disused appliances with household waste.

10. Error messages

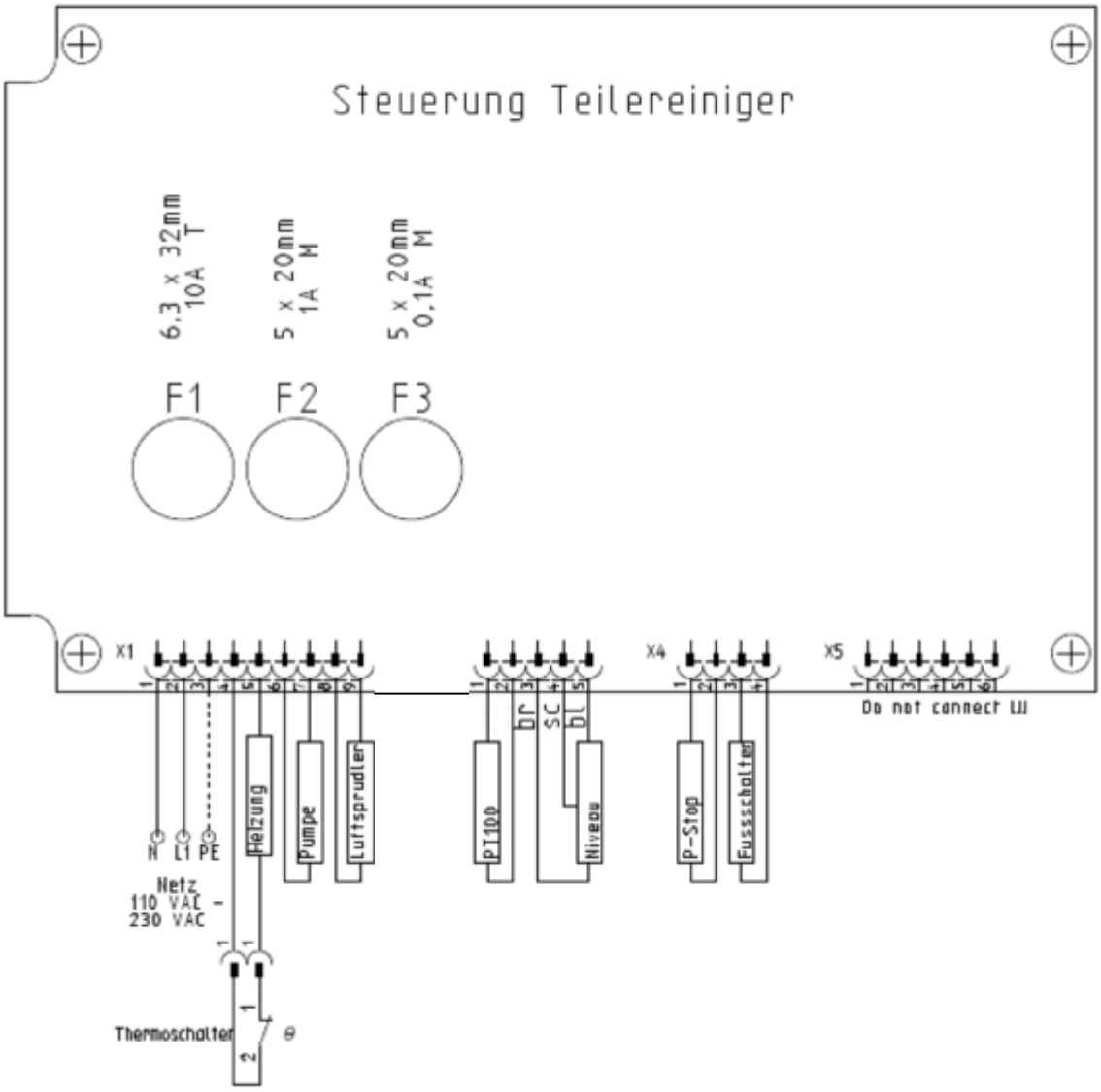
Caution! Before starting work on the fixtures of the table, switch the electrical system off and unplug the unit!

Display screen	Error	Cause	Action
	Detergent cold, heating system not working	Heating system plug contacts are loose	Check plug contacts to ensure connected properly.
F 1	Detergent cold, heating system not working	1. Heater is not connected, or is faulty; 2. Fuse faulty 3. Temperature limiter has been triggered	1. Connect heating system; replace if necessary 2. Replace fuse. 3. Have unit checked, temperature monitor must be activated
F 2	Wash pump not working	1. The pump is not connected or is faulty; 2. Fuse faulty	1. Connect wash pump; replace if necessary 2. Replace fuse.
F 3	Aerator not working	1. Aerator is not connected, or is faulty; 2. Fuse faulty	1. Connect aerator; replace if necessary 2. Replace fuse.
F 4	Level switch not working	Level switch not connected	Connect level switch
F 5	Short-circuit in level switch	Level switch faulty	Replace level switch
F 6	Detergent cold, temperature sensor not working	Temperature sensor not connected	Connect temperature sensor
F 7	Short circuit in temperature sensor	Temperature sensor faulty	Replace temperature sensor
LO	Heating system and wash pump not working	1. Fill level fallen below minimum level 2. Float switch dirty and in the wrong position	1. Refill with detergent 2. Clean the float-switch mechanism

Overheating

If the maximum permitted temperature (41°C) is exceeded, the current temperature will be shown as a flashing warning message on the display. If such a case arises, switch off the parts cleaner immediately. Then check the temperature sensor PT 100 is in the correct position (3).
The equipment is fitted with a temperature limiter to prevent damage from overheating. This switches the heating system off if the maximum temperature is exceeded.
If overheating is not caused by the temperature sensor being in the wrong position, a service technician must be called in to find the cause and make necessary repairs.

11. Circuit diagram of the electric control unit



12. EC Declaration of Conformity

EC Declaration of Conformity

We hereby declare that the product type Parts Cleaner bio.x T700 complies with the following directives:

EC Directives
2006/42/EC
2004/108/EC

Applied harmonized standards
EN 349
EN 12100, -1, -2
EN 60204-1
EN 12981-1;-2.

DENIOS AG, 04.01.10

.....Theodor Bruecker....

Person responsible for documentation
Dr. Ing. R. Adenstedt
Head of engineering

-Executive board-