Compacta L30

Plating line

Instructions for use

Contents

Safety instructions

1. General

Do not use the appliance for any other application than through hole plating of PCB material. Read all safety instructions and all operating instructions thoroughly before using the unit for the first time.

Keep these safety instructions and operating instructions somewhere safe in case you need to refer to them again in the future.

2. Safety warnings

In your own interest pay attention to all safety warnings on the unit and in the operating instructions. Follow the instructions on operation and use of the unit in every respect.

3. Ventilation

Wherever you put the unit, always ensure there is sufficient ventilation. An exhaust system may be necessary depending on your local requirements.

4. Heat and moisture

To prevent fire or the risk of electric shock, keep this unit out of the rain and away from moisture. Do not place the unit close to sources of heat like radiators or hot air shafts.

5. Electric power

To avoid the risk of electric shock, do not remove the housing and do not open the back. There are no user serviceable parts inside.

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Connect the device only to the power source indicated in the operating instructions or on the unit.

Run the power supply cable so that no one can step on it and nothing can rest on or against it. The cable is particularly at risk in the area of the plug, the socket and where it comes out of the unit.

If you are not going to use the unit for some time, remove the plug from the socket.

6. Object intrusion

Take special care that no liquids or objects get inside the unit through the openings in the housing.

7. Repair in the event of damage

The machine must be repaired by qualified persons. Never apply other maintenance than given in the operating instructions.

8. Set up

Set up the appliance in a suitable room. A unit filled with chemicals must be placed on chemical resistant floor or in a safety tray. In case of overflow or leakage look up the information in the appropriate safety data sheets.

Do not allow chemicals to go into the drain. The unit must not be used in the residential area; keep away from children.

9. Appliance check

Close the drain valves before filling the tanks. Use the machine only when all tanks are filled with liquid. Otherwise damage of the heating elements and tanks will happen immediately. Control the liquid level daily.

The temperature of the solution can differ to the adjusted temperature. Control the function of the thermostats weekly by an external (glass) thermometer.

10. Chemistry handling

Wear goggles and protective gloves for all work. Pay attention on good room ventilation. Avoid contact with skin, eyes and mucous membranes.

Take off clothing soaked in caustic substances immediately. Rinse splashes on skin immediately with copious amounts of water.

In the event of accidents or feeling unwell always consult a doctor.

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Equipment

System for through hole plating of PCB. The conveyor arms are removable and adjustable.

1. Front Rinsing unit

Spraying system with spraying nozzles, actuated by electromagnetic foot switch valve, regulated by manual valve (front-side right). Cascade system with overflow for clean water surface, actuated by the left manual valve. Water dipping tank

Connect the unit with main fresh water supply and drainage system before use.

In spite of the multiple rinsing technique the rinsing water contains metals like copper, observe the local regulations.

2. Treatment tanks

Five treatment tanks, approx. internal dimensions 300 x 100 x 400 mm (D x W x H). Content approx. 10l. Draining by means of a tap in the bottom. Two tanks are equipped with PTFE coated heating elements, 220 V 400 W, controlled by thermostat. The first tank has an insert of Polypropylen and can be heated up to 70°C. The second heater can be used up to 50°C.

3. Electroplating tank

Approx. internal dimensions: 400 x 275 x 400 mm (D x W x H), capacity approx. 30l. Draining by means of an attached tap in the bottom. The tank is equipped with an air bubble pipe for liquid agitation.

4. Control section

Two thermostates with switch, one air pump 400 l/h with switch, main switch, 5 el. Timer, Conveyor potentiometer and switch, rectifier adjustable up to 6 V 40 A and switch, internal fuses.

Cleaning

The unit is made of PVC. Do not use organic solvents to clean the machine. A cloth is under normal conditions sufficient for cleaning. For very resistant dirt (for example baked on residues) use sulphuric acid for tanks 1,4 and 6 or diluted hydrochloric acid for tanks 2 and 3. After cleaning the inner of tank 3 remove all cloth fuzzles and rinse the tank walls and ground with demineralized water.

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Available spare parts

Thermostate, Heater 400W, drain valve, board holder, set of anodes with holder and bag, air pump, conveyor motor, conveyor arm.

Technical data

Depth	930 mm
Width	880 mm
Height	1370 mm
Working height	950 mm
Weight approx	100 kg
Power	230 V 50 Hz 2000VA

Technical details subject to change without notice

First test

To check that your plating line was not damaged during transport we propose to have an initial test run:

0. Close all outlet valves.

1. Fill all treatment tanks with 10 l and the galvanic bath with 30 liters of water.

2. If nothing is leeking switch the unit on by means of the red main switch.

3. Check heating function:

3.1 The heater switch button is lighted. Press heater button and adjust temperature:

3.2 Turn the thermostate knob to preset the following temperatures from the left to the right of the m/c

Bath #1: Cleaner Conditioner, 65 °C

Bath #2: Pre-dip, RT (=Room temp)

Bath #3: Activator (=Catalyst), RT

Bath #4: Salt remover, 45 °C

Bath #5: Spare bath,

Bath #6: Electroplate, RT

3.3 Check if the heater switch lamp turns off automatically at preset temperature.

4. Check again after 4-5 hours if nothing is leeking

5. Start air agitation for plating bath

6. Start mechanical agitation and vary agitation speed

7. If all steps of this test are passed without problems switch off all heaters and the main switch. Empty all tanks, clean with fuzzel free clothes and allow to dry overnight.

Chemicals Set-up

We supply Plating System chemicals pre-mixed and ready for use. All bathes should be filled up to about 20 mm under upper tank level. If that level should not be reached at any time (e.g. due to evaporation) you can top the Activator bath with ready made catalyst solution - never with water - but all other bathes with deionised water. Refer to the Plating System Step documentation in the appendix for details.

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The sequence of bathes is:

Bath 1: Cleaner Conditioner

Bath 2: Pre-Dip

Advice: First use the pre-dip solution for cleaning of tank 3. Fill in the pre-dip solution into tank 3 overnight and after that re-use it to fill tank 2:

Bath 3: Catalyst

To stir the bath, always use a very clean glass or plastic rod that you rinse in bath 2 - never in water.

Bath 4: Intensifier

Bath 5: spare bath

This spare bath can be used e.g. for our electroless tin plating (SUR-Tin) at room temperature. If not in use, please fill the tank with plain water to avoid deformation of the PVC walls.

Bath 6: Copper plating

Fix both anodes to the anode holders, use anode bags to cover anodes and use the strings to form a knod so that the bags are kept in place. Make up the copper bath as per the appending Bath Setup instructions.

Anode preparation:

For proper copper plating results it is necessary to run the anodes under working conditions but with reduced current of 1 A/dm². For that reason fix a clean and well brushed PCB of 200 x 300 mm in a board holder. Then mount the holder onto the agitation rod and screw it carefully. Start air agitation. Start mechanical bath agitation. Adjust agitation speed to about value 4 on the scale. Activate rectifier and adjust a current of 1 A / dm² : 2 sides x 6 dm² x 1 A / dm² = 12 A. Run the bath according to items 8 to 12 of the Plating System Step 5 instructions.Anodes + copper bath solution are then ready for use.

Rinse section:

The Compacta ABC unit is equipped with a water saving triple cascade rinse section: two cascading rinsing tanks with overflowf ollowed by one fresh water spray rinse tank .

Pre-rinse always in the bath with the highest water level followed by the one with the lower level. Last rinsing step is fresh water spray rinse (activated by foot switch). It is highly important to clean not only the PCB but also the board holder with every rinsing step in order to avoid contamination of the following treatment bathes.

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ATTENTION: rinsing water has to be treated with an antipollution unit such as our IONEX system. You must follow your local waste water standards.

Rectifier:

The rectifier has a separate on / off switch. Current and voltage are preset manually by potentiometer and read out by analog current and voltage displays.

The rectifier offers constant current and constant voltage supply. For use with ABC chemnistry we only need constant current supply. For that reason adjust the voltage (unloaded) to approx. 2 V.

Then adjust current according to PCB surface in use. Standard working current setting is 3 A/dm². Example: Board size 200 x 300mm = 6 dm², 3 A / dm² x 2 sides at 6 dm² = 3 x 2 x 6= 36 A.

Through Hole Plating process sequence

1. Cut your PCB to size with our board cutter NE-CUT ensuring that the blank size is about 20 mm larger than the required PCB size.

2. Drill your blank board to the required hole pattern by using our BUNGARD CCD or similar. Note: allow + 0,05 to + 0,1mm extra diameter for the drill bits because copper plating in the holes will reduce the effective diameter.

After that use one of our brushing machines (RBM series) for scrub cleaning, washing and drying (if no brushing machine available, brush and clean manually).

3. Fix the cleaned and deburred board in the COMPACTA 3-finger boardholder and fix it on the leftmost conveyour arm (bath1). Turn on the switch for the conveyor. Process the board in the bathes 1 to 4 and 6 from the left to the right, in the sequence and with the timings from the enclosed Process Flow Table.

A step indication of "R" in this Flow Table means a rinse step, consisting of a static rinse in each of the two cascade rinse tanks and a subsequent spray rinse.

The aim of bath 2, the Pre-Dip, is to protect the expensive catalyst in bath 3 from intrusion of both other chemicals and rinse water. That is why you must not rinse after Pre-Dip but you have to go directly to the following bath 3!

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4. With the oscillating frame still moving and the recifier switched on and preset and the air agitation switched on you now fix the board over the galvanic plating bath.

Adjust correct current immediately (without current you risk to etch off all catalyst applied). Standard working current setting is 3 A / dm². Example: Board size 200 x 300mm = 6 dm², 3 A / dm² x 2 sides at 6 dm² = 3 x 2 x 6 = 36 A.

Every minute in the copper plating bath will apply 0,7µm copper. Example: 18µm copper will be applied in 26 minutes of copper plating.

Adjust timer accordingly and leave board in the plating bath as long as necessary.

After that rinse carefully and dry the board immediately to avoid oxidisation.

Replenishment

Once your baths have been initially made up, they can be easily replenished by simply adding the appropriate product. See the instructions on the following Plating System Step descriptions. Missing replenishment will spoil

Bath maintenance

The Analysis procedures in the Plating System Step descriptions are for expert use only. This is to say the bathes maintain stable and working also without analyses, only by replenishment. The Analysis procedures are given for reference of expert users - who have access to the appropriate measuring devices.

For further information or help please give us your fax or e-mail message including your machine serial number and detailed problem description. We will help immediatly. Spare parts are supplied with the understanding that only qualified person will repair the unit.

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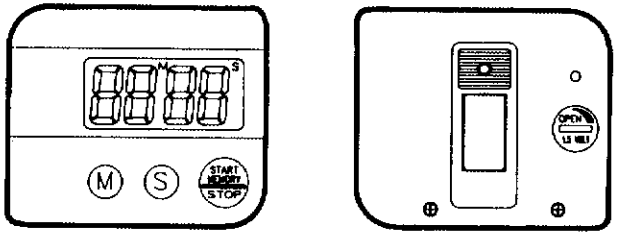
OPERATION MANUAL



(Fig. 1)

TIME FEATURE :

1. L.C.D. count-down timer.
2. 4 digits display showing minute time ("M" mark) and second time ("S" mark)
3. Timer can be programmed maximum up to 99 minute, 59 seconds and counts down at 1 second resolution.
4. Buzzer alarm output when timer counts down to zero.
5. Timer memory recall function.
6. Individual buttons for minute and second setting.

TIMER TIME SETTING (SEE FIG. 1)

1. Press "M" and "S" button at the same time to reset timer to zero.
2. Press "M" button to advance minute digits (beep sound can be heard). Press and hold "M" button for speed setting.
3. Press "S" button to advance second digits (beep sound can be heard). Press and hold "S" button for speed setting.

TIMER START/STOP

1. After time setting is ready, press START/STOP button once and timer will start to count down. "M" and "S" marks will flash when timer is running.
2. When timer is counting, press START/STOP button once and timer will stop. "M" and "S" marks will stop flashing and remain on display.
3. Press START/STOP button once and timer will resume counting again.

TIMER BUZZER ALARM

1. When timer counts down to 00M and 00S, timer buzzer alarm will sound for 30 seconds.
2. Timer buzzer alarm can be stopped by either pressing MIN, SEC or START/STOP buttons.

TIMER MEMORY RECALL

1. After timer buzzer alarm stops, press START/STOP button once to recall pre-set timer time.
2. Press START/STOP button second time can start timer and timer will count down for another lap.

BATTERY REPLACEMENT

Using a coin, follow the arrow direction to open the battery cover at back side of timer.

Remove old battery, insert a new 1.5V G-13 size button cell battery (mark sure POSITIVE '+' is facing up) and close battery cover.

CLIP ATTACHMENT

The timer can clip on thin board or shirt pocket, using the plastic clip at rear of timer.

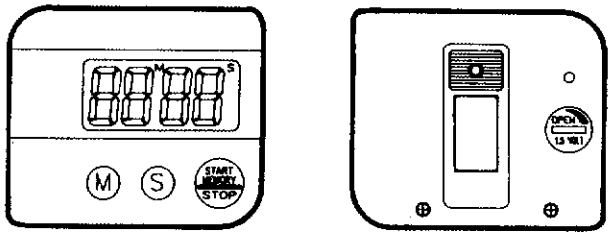
MAGNETIC ATTACHMENT

The timer can attach to iron or steel surface, using the magnet at rear of timer.

TABLE TOP USE

The timer can stand on table surface, flip out the metal stand bar at rear of timer.

MODE D'EMPLOI



(fig. 1)

INDICATION DU TEMPS :

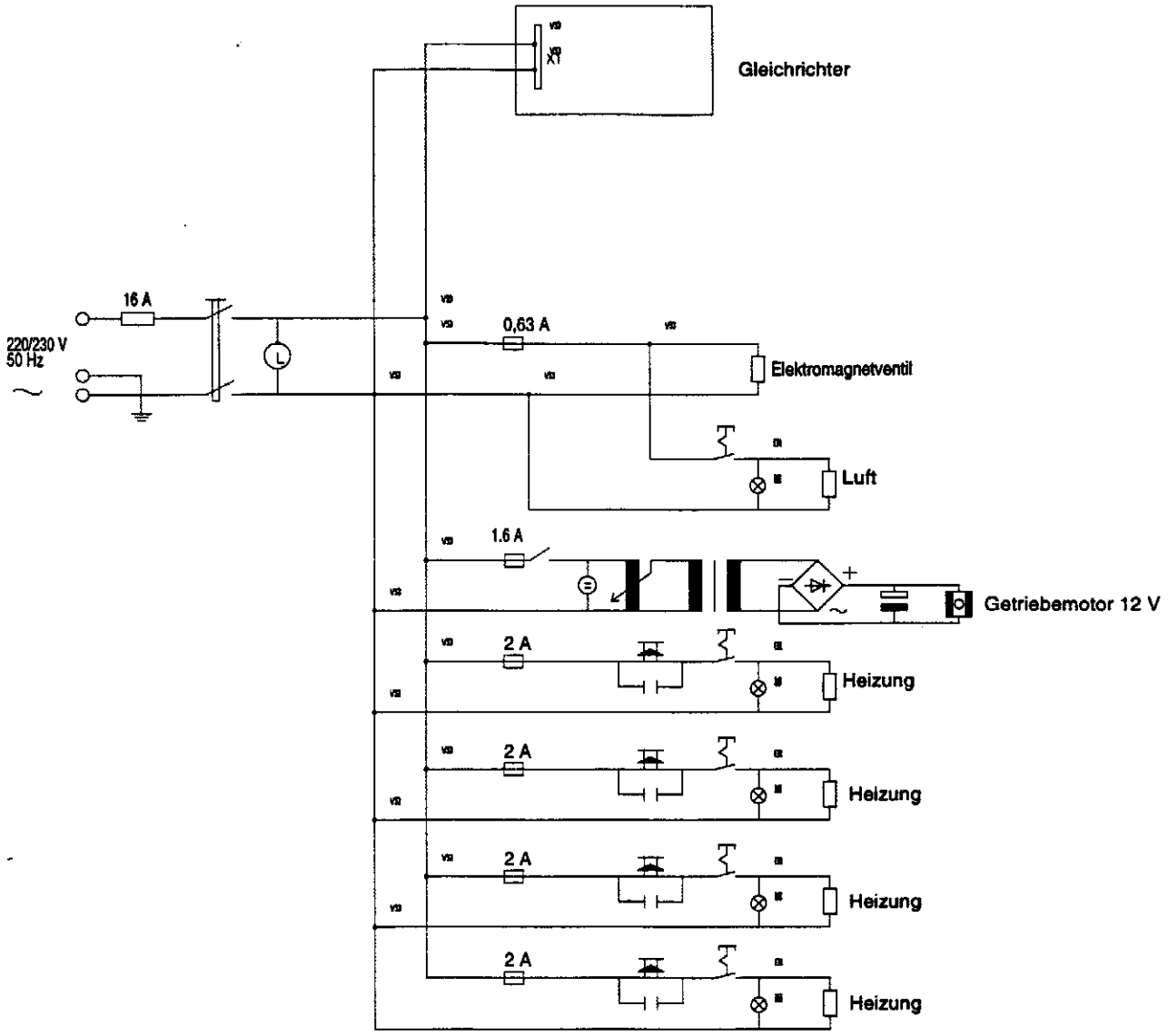
1. Minuteur à affichage cristal liquide.
2. Affichage à 4 chiffres indiquant les minutes (indicateur "M") et les secondes (indicateur "S").
3. Le minuteur peut être programmé jusqu'a 99 minutes, 59 secondes et compte à rebours avec une résolution de 1 seconde.
4. Le vibrateur d'alarme se déclenche quand le minuteur est arrivé à zéro.
5. Fonction rappel mêmoire.
6. Boutons individuels pour le réglage des minutes et des secondes.

REGLAGE DU TEMPS DU MINUTEUR (voir fig. 1)

1. Appuyez sur les boutons "M" et "S" en mêmo temps pour remettre le minuteur à zéro.
2. Appuyez sur le bouton "M" pour faire avancer les chiffres des minutes (un bip est activé). Maintenez votre pression pour un réglage accéléré.
3. Appuyez sur le bouton "S" pour faire avancer les chiffres des secondes (un bip est active). Maintenez votre pression pour un réglage accéléré.

MINUTEUR MARCHE/ARRET

1. Quand le réglage du temps est effectué, appuyez sur le bouton Marche/Arrêt pour déclencher le minuteur. Les indications "M" et "S" clignotent quand le minuteur est en marche.



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