

THERMA® PHOT

How do we think?

Our distribution politics has a term as principle: quality. It is our main goal:

- quality when choosing the materialthe suppliers
- the machines, which manufacture our machines
- the production
- the technical personnel of the employees
- the distribution
- the service

Only with this integrated term of quality we can guarantee to you the corresponding quality for processing your prints.

Our products

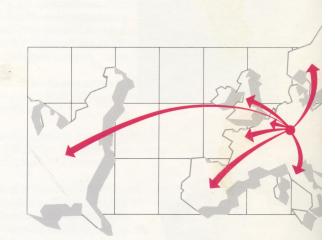
- plastic manufacture, vacuum deep-draw parts, injection moulding technique
- X-ray processing machines and -units
 automatic film- and photopaper processing machines
- processing machines for future exposure systems (computer image)

Our customers

You are our customer! You certainly have recognized our dedication, our

experience and our mentality after studying this brochure.

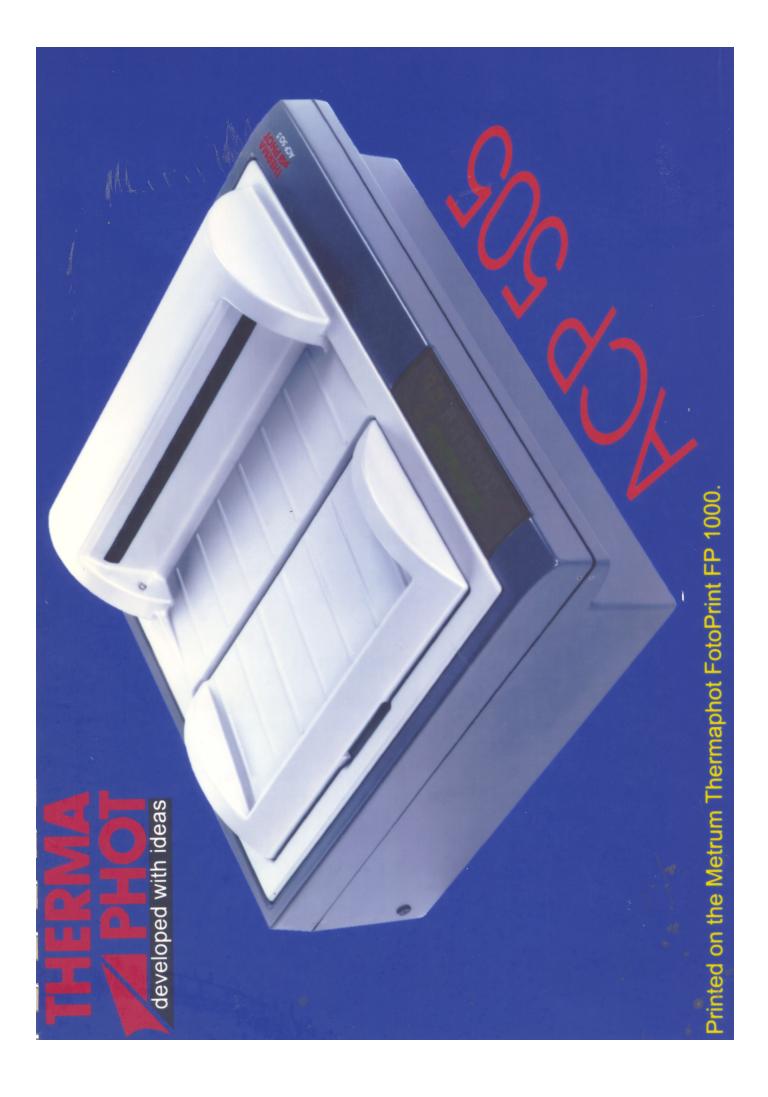
At the moment we produce processing machines for all application areas up to 55 cm (21.6 inch) roller width.
We are also prepared for future systems which work with computer image, and link between digital imaging and the photo process.





Kohlenhofstraße 60 D-8500 Nürnberg 70 Tel. (0911) 26 97 94 Fax (0911) 26 22 77 Tx 623189







ACP 505
Processing machine

The big processor of the new generation



Our latest creation:

THERMAPHOT TABLE-TOP-PROCESSING MACHINE ACP 505

- An outstanding performance in technique and design -



Real genius must be simple

This basic idea, matured and confirmed again and again in 4 decades of production and processing machines, was our motive for the construction of the new Thermaphot ACP 505 processor. Experience of 45,000 RCP processors and thousands of CAP 40 machines, of which we are the manufacturer, is the basis for the new ACP 505. Specially conceived for RA 4 and other high-speed-processes, this machine offers everything you can expect from a modern

table-top-processor in compact construction with optimal price/performance relation.

The applications of the ACP 505 processing machine are so many, that we list only a few of its uses:

portrait studios, schools, industrial firms, institutes, magazines, press and wedding photographers, processing of X-ray and graphic films, and many others.



The Thermaphot ACP 505 is a newly designed, ultra-modern processing machine, suitable for the processing of print and display material, as well as for RA 4 and B/W processes.

We offer 2 different types of electrical machine control:

Machine type 1: modern micro-computer technology controls all necessary process parameters, making operation of the machine possible without specialized previous knowledge. All functions related to the respective process are pre-programmed and do not need any further controls.

Machine type 2: long-time tested conventional electronics, e. g. as proven in the ACP 300, reliably control the ACP 505.

Once set, all values stay constant, however, they are easily altered by the user.



Performance features:

- Strong circulation pumps with high performance
- Special spray bar in developer
- Heat exchanger (saves chemicals)
- Rack cover (prevents oxidation high chemical efficiency)
- Optimal roller squeegee (reduces chemical carry-over)
- Extremely short air gap between developer and bleach fix bath
- Chemical filters can be cleaned easily, optimal cleaning and service friendly (all service elements are accessible from the top
- Compact construction, dimensions only 93 cm x 78 cm
- Dry to dry infrared dryer
- Prepared for processing of roll paper

Machine type 1

- Thanks to micro-computer technology 16 programs are possible, of which 10 are pre-set by selecting button for current standard processes, 6 available for user to program own requirements
- 7-day-timer

Machine type 2

 Analogue service elements, easy to be set.

Detailed prospectus is being prepared. Thermaphot products are being constantly developed to the latest state of the art. They are therefore subject to modifications without notice.



Laborgeräte GmbH Kohlenhofstraße 60 90443 Nürnberg Tel. (0911) 269794 Fax (0911) 262277 Tx 623189



Technical data:

Dimensions:

Length: 93 cm Width: 84 cm Height: 45 cm

Tank volume: appr. 5.5 l/tank
Entrance speed: 46 cm/min with RA 4

variable from 10 cm/min

to 90 cm/min

Mains supply: 230 V/240 V, 50 Hz

110 V, 60 Hz

Max. power: 2.7 KW
Drying: Infrared
Weight (empty): appr. 60 kgs

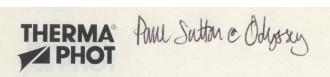
Available in two versions: wash and washless.

Capacity with RA 4:

Formats	Prints/hour
9/13 cm	760
13/18 cm	410
20/25 cm	250
30/40 cm	85
40/50 cm	64
50/60 cm	42



ACP 505 with racks taken out



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46 cm × 4.5 mm =



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1 For your own safety

Your processing machine is powered by mains electricity and is designed to comply with international safety standards. However, some basic safety precautions must always be followed when operating electrical equipment.

With the following symbols in the operating manual, we would like to draw your attention to possible sources of danger. For your protection please ensure you read the manual thoroughly and understand it.



Danger of electrical shock! Be sure to follow this advice!



Danger of injury! Be sure to follow this advice!



Danger of mechanical damage of the machine! Follow this advice!



Important message! Follow this advice!



Carefully read the complete instruction manual.







If the machine is unknown to you, it is important that you read the instructions thoroughly.



The mains supply of your processing machine must correspond to the mains voltage of the installation place. The necessary details are to be found at the capacity label next to the main machine switch.

Danger of electrical shock!



Do not work with a damaged machine and do not use defective electrical cables. Get your machine, if necessary, checked by a specialist.

Danger of electrical shock!



Always turn off the machine with the main switch, before you establish or loosen any electrical connections. Always disconnect the power plug.

Danger of electrical shock!



Pay attention that the electrical cables do not touch any hot surfaces and any loose hanging cables do not show signs of wear.

Danger of electrical shock!







Store your photo chemicals safely, without possibility of accidental consumption!

Danger of poisoning!



Some parts of the machine may get hot after prolonged use. Pay attention to this!

Danger of burning!



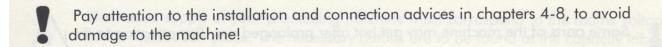
Wear rubber gloves and safety goggles when handling chemicals. Should by mistake chemicals get on the skin or into the eyes, immediately rinse the area under running water!

Danger of eye and skin irritation through chemicals!





2 How to avoid damage to the machine



Never turn on the machine without water or chemicals in the tanks. The circulation pump system can get damaged when running dry!

Danger of machine damage!

Never operate the machine without transport rollers (racks) being in place. The circulation pumps could get damaged!

Danger of machine damage!

Pay attention that ventilation of the machine is always provided and the ventilation slots are free. Otherwise, drying could be affected or the dryer could get damaged.

Danger of machine damage!



3 About your processing machine

Your professional ACP 505 provides fully automated development of plastic impregnated colour and B/W photo papers (PE, RC) of the formats 9 x 13 cm up to 50 x 70 cm and Duratrans overhead foils.

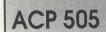
It is a five tank system (developer, bleach fix bath and 3x wash or 3x super stabilizer). Subsequently the photo paper gets transported through an integral dryer.

Through a roller transport system, manufactured with high precision, the paper is moved timely and gently through the chemicals. All solutions are automatically temperature regulated, effectively circulated and steadily filtered. Freshening up (replenishment) of the chemicals is accomplished automatically. Overflow systems for separate collection of the used solutions are provided.

In the critical first phase of development, a high-grade steel spray bar provides optimal processing kinetics, which also satisfies the highest professional demands for consistency of development.

Thanks to an extremely efficient tripple squeegee in the cross over rack in front of the dryer module, appr. 95% of any liquid is gently squeezed from the photo emulsion and you receive prints of inimitable brilliance from the infrared dryer.

As a matter of course the ACP 505 is provided with an automatic economy control. This means that wash water flow and infrared dryer function only when paper is running through the machine. The dryer fan, however, runs constantly.





You also can develop roll paper with the roll paper kit. This part is available as an accessory.

The machine is offered in two different versions of electronic control system. It is up to you which control you decide to use.

At present, the ACP 505 of THERMAPHOT is the smallest and most compact processing machine in the world in its catagory.

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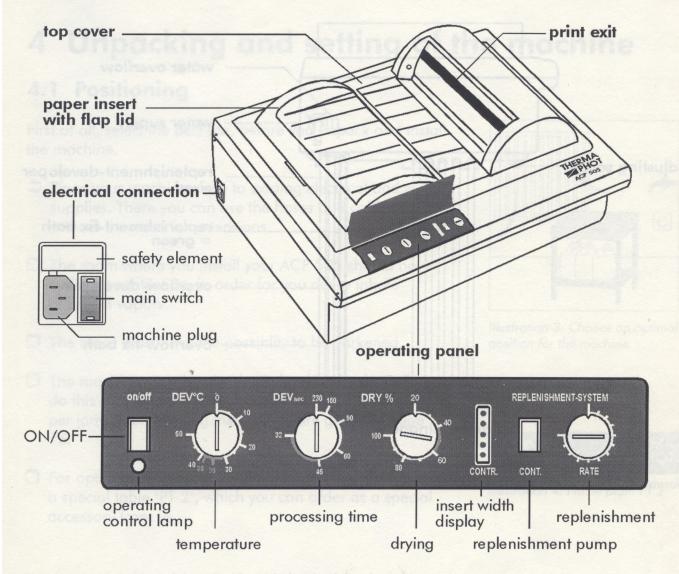


Illustration 1: front view of the ACP 505 with details of the electrical connection and operating panel



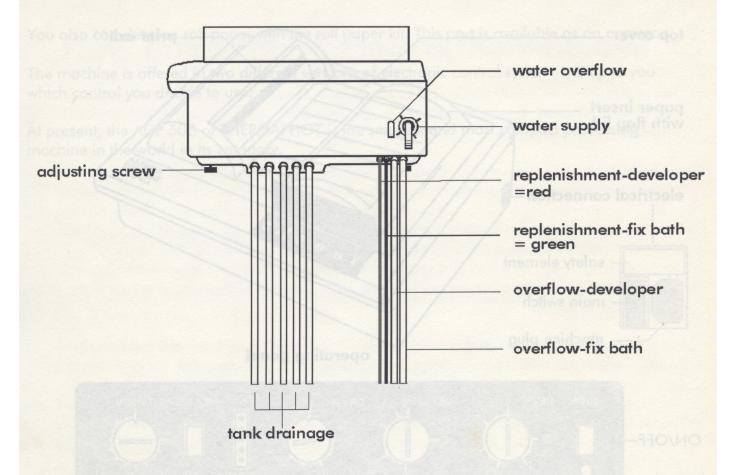


Illustration 2: rear view of the ACP 505





4 Unpacking and setting of the machine

4.1 Positioning

First of all, select the best site, before you unpack and install the machine.

- Place your machine close to existing electrical and water supplies. There you can use the hoses and cables, without the need for extensions.
- ☐ The room where you install your ACP 505 should have sufficient ventilation, in order for you not to inhale chemical vapors.
- ☐ The room must have the possiblity to be darkened.
- The machine must be absolutely level and safe. Failure to do this may cause interferences in the drive system, paper jams, etc. Levelling instructions are given on page 16.
- For optimal standing of the machine, we have developed a special table "PT 2", which you can order as a special accessory from us.

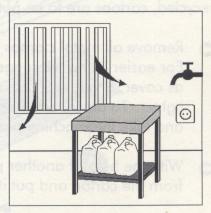


Illustration 3: Choose an optimal position for the machine.



Illustration 4: Name plate PT 2





4.2 Unpacking the machine

Carefully unpack your machine. The packing material should be disposed of ecologically. Foils and foams can be recycled, cartons are to be put into waste paper containers.

- Remove all metal clamps from the package and open it. For easier lifting we suggest you remove all parts, such as cover, dryer, etc. That way the unit is considerably lighter. To do so, carefully slit open the protection foil and take the machine parts out of the machine.
- → With the help of another person, lift out the machine from the carton and put it on the level table.
- Check your machine for completeness and possible damage. The individual components of the machine are to be found on the check list to the right and on the illustration 5. Replenishment hoses, overflow and drain hoses are already in place in the basic body.
- Should, contary to expectations, something be damaged, you must report this within 24 hours to the forwarder who delivered the machine!

check list:	
1 machine	0
1 developer rack	2
1 bleach fix rack	3
3 wash racks	4
1 cross over rack	5
1 infrared dryer	6
1 cleaning try	nuz-
1 top cover	7
1 flap lid	8
2 chemical filters	9
1 rack comb	180
1 accessory pack	10
of to emboniz lemitac	





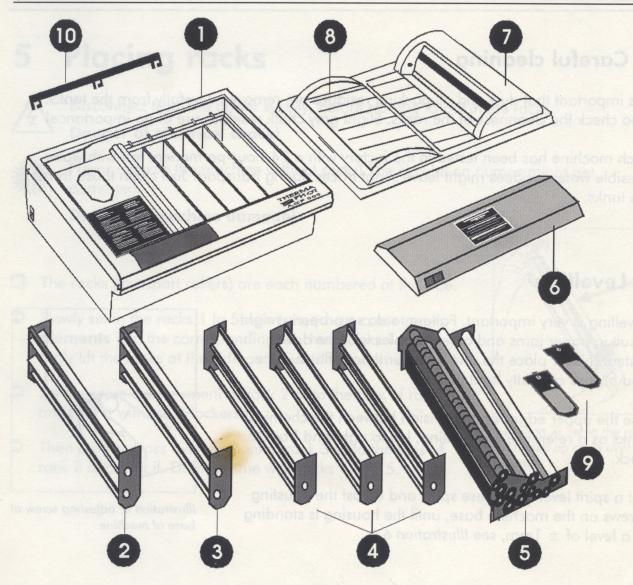


Illustration 5: individual components of the ACP 505





4.3 Careful cleaning

- It is important that dust and all packing residues are removed carefully from the tanks. Also check the cleanness of the racks. Slight grey chalk residues are of no importance!
- Each machine has been tested in the factory with a 24-hour-permanent test with water. Possible water residues might leave slight traces during transport. Just clean those from the tanks.

4.4 Levelling

- Levelling is very important. Failure to do so properly might result in paper jams and other troubles with the drive system. Never place the unit on other than a flat surface and always carefully level it.
- Use the upper edges of the division between the chemical tanks as a reference for lévelling, left to right and front to back.
- Set a spirit level onto these spots and adjust the adusting screws on the machine base, until the housing is standing at a level of ± 1mm, see Illustration 6.

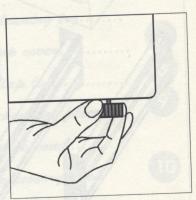


Illustration 6: adjusting screw at base of machine





5 Placing racks



Disconnect from the power supply, before starting to put in the racks.

Danger of electrical shock!



Never operate the machine without racks! The circulation pumps might get damaged.

Danger of machine damage!

- The racks (transport rollers) are each numbered at the side.
- Slowly set in the racks 1 to 5 with **turned up cross over elements** into the corresponding machine tanks 1 to 5.
 Only lift the racks at the side parts, see *illustration* 7.
- Set the cross over element of rack 2 onto the pins of rack 1 and lock it with the 2 lockers.
- Then put the cross over element of rack 3 onto the pins of rack 2 and lock it. Do the same with racks 4 and 5.

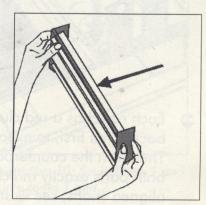


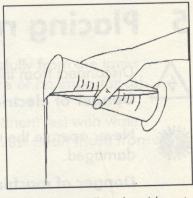
Illustration 7: Set in the racks with turned up cross over elements.





Close the drain hoses. Now slowly fill the individual tanks for the first time with a measuring cup with warm water (appr. 30 - 35 °C). Tank volumes are:

tank 1 (developer)	appr. 5,2 l
tank 2 (bleach fix bath)	appr. 5,2 l
tank 3 (1. wash)	appr. 5,0 l
tank 4 (2. wash)	appr. 5,6 l
tank 5 (3. wash)	appr. 5,6 l



Illustation 8: Fill tanks with water from a measuring cup.

- Each rack has a red clutch which must be pulled backwards first, to expose the flatened rack drive shaft. Then turn the counterpart at the machine housing until both parts exactly match each other. Push clutch over the aligned shafts, see illustration 9. Do so with all 5 racks.
- Secure the clutches of the 5 racks with the **comb** against shifting. Set the comb onto the clutches so that the arrow on the comb is in the direction of the paper transport and tightly press it onto the clutches.

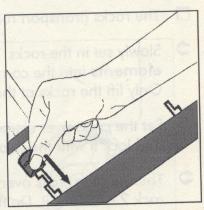


Illustration 9: Push clutches over the shafts.





6 Fit in chemical filters

We suggest you put in the filters during the trial run with water. Then you do not have to remove them before filling the tanks with chemicals since they have already been cleaned with water during the test run.

- ☐ The filters are marked with labels 1 and 2.
- Set the filters 1 and 2 into the corresponding tanks with the numbers 1 and 2. Slide in the filters between rack side part and tank wall, see illustration 10. The number plates at the filters must face you, otherwise rack gear wheels might damage the filter fabric.

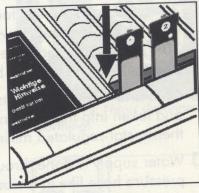


Illustration 10: Set in filters 1 and 2 into tanks 1 and 2.





7 Water supply

- ☐ 'Water installation needs to be prepared locally by an experienced person.
- Your ACP 505 in its basic version with water supply requires warm filtered tap-water with a temperature of appr. 25-30 °C (Kodak specifies for operating processing machines with the RA-4 process a warm water temperature of appr. 30 35 °C). The machine requires appr. 1.5 | water/min at a water pressure of 1-10 bar.
- Cold and warm water gets filtered, mixed with a thermostat and taken into the machine. This is done best by a thermostat-regulated mixing-valve with 2 water filters.
- ☐ Water supply is done through a pressure line (1/2" fabric pressure hose like in a washing machine) to the angle connection supplied. Screw the angle connection to the 3/4" external thread at the rear machine, see illustration 12.
- ☐ The water inflow gets controlled through a volume controller in the magnet valve of the machine. There is 1.4 l water/min flowing into the machine at paper transport.
- ☐ The water overflow, a 20 mm thick pvc-tube, see *illustration* 12, should be connected to the local drains.

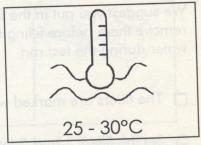


Illustration 11: The machine requires warm tap water.

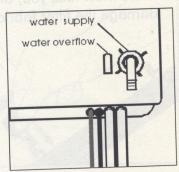


Illustration 12: Waterconnection at the rear of the machine





8 Electrical connection



Never try to disconnect the earth! Never use an extension cord without earthing!

Danger of electrical shock!



We suggest the use of a fault detector accessory (available at hardware stores) between power outlet and the ACP 505, to detect any fault in the supply grounding.



Illustration 13: Never disconnect the earthing!

- ☐ The ACP 505 has a grounded 3-pole **mains socket** with On/Off-switch and **safety elements**, see *illustration 14*. Use a **grounded mains connection cable** for connecting to the power supply!
- Detailed information is to be found at the name plate. You will find this next to the mains socket at the front side fo the machine, see illustration 14.

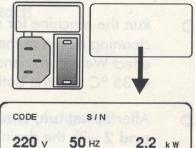




Illustration 14: Electrical connection fo the ACP 505 with power label.



9 Test run

After setting in the racks and chemical filters and the machine tanks are filled with water, you can start a test run without chemicals.



Never let the machine run without racks or "dry". The circulation pumps could get damaged.

Danger of machine damage!

- Connect the mains cable with the plug to the mains supply. Turn on the main switch and push the On/Off key on the panel of the machine. The circulation pumps of the baths run and the drive motor turns the racks.
- Run the machine for several hours, so that the self cleaning action in the racks and the pump system takes effect We recommend to set the temperature of the bath at 35 °C and the bath holding time on 45 sec.
- After its test run, turn the machine off. Drain tanks 1 and 2 with the drain hoses and close these hoses back up. The unused water in tanks 3-5 can be left in there.

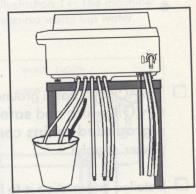


Illustration 15: Drain tanks 1 and 2 after test run





10 Chemicals

After you have pre-tested your ACP 505 with water, now you can start the practical work with chemicals.



Photo chemicals must always be stored safely so that they are protected from being consumed!

Danger of poisoning!



Wear rubber gloves and protection goggles when working with chemicals. Should, by accident, chemicals get in touch with skin or eyes, you should immediately rinse the affected spot under running water!

Danger of eye and skin irritation through chemical contact!

10.1 Mixing of photo chemicals

- Mix developer DEV and (bleach) fix according to the regulations of chemical manufacturer.
 - Regular overage to heavy usaage with mean that chemicals are being replenished sufficiently to ensure minimum consumption and best cost saving.
 - ☐ It is necessary to ensure that 30% to 50% of the tank volumeis replenished each week at standard rates (approx. 180 ml/m2).





10.2 Filling chemicals into the machine

Pay attention not to drop or spill anything of the bleach fix bath into the developer!

Even a small amount of contamination makes the devoloper useless!

Close the drain hoses before pouring chemicals into the machine tanks!

Put the overflows hoses for developer and bleach fix bath in two separate containers.

Bleach fix bath BX

First fill in the bleach fix bath into **tank 2** as follows: set the funnel between rack 2 and the tank wall and carefully pour in the bleach fix, until it starts running from the overflow hose.

Bleach fix tank volume: = approx. 5,2 l

Developer DEV

Fill in the developer into tank 1 just the same.

Developer tank volume: = approx. 5,2 l



Illustration 16: Filling chemicals into machine





10.3 Fresh solutions for replenishment

- Fill the fresh solutions for replenishment into rinsed plastic containers.
- Put the suction hoses of the replenishment system into respective containers. Pay attention to the right colours!

red = developer green = Bleach fix

- → Mark the containers with labels DEV and BX to avoid later confusion.
- Place the containers underneath or next to the table of your ACP 505.





11 Connect dryer

At the preliminary test you have only tested the racks alone without the dryer. For practical operation the machine needs the cross over rack and the infrared dryer.



Disconnect the mains supply cable before starting to put in the dryer.

Danger of electrical shock!

- First set in the cross over rack and the infrared dryer over the racks 4 and 5. Then connect the electrical power supply with the plugs.
- Close the machine with its cover and flap lid.
- Now all mechanical and chemical requirements for processing of prints are acomplished and you can start to process your pictures.

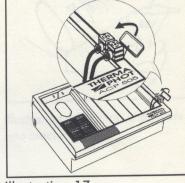


Illustration 17:





12 Processing with the ACP 505

12.1 Inserting photo paper

- Turn the machine on and wait for operating temperature to be reached, when the operating control lamp on the panel extinguishes.
- To prevent pre-exposure, you must insert the exposed paper in total darkness into the processor. It is best to practice that in daylight with waste prints, so you can find the inserting slot easier in the darkness.
- Turn off the light and open the flip lid in the dark. Insert the exposed paper with the emulsion side down until inflow rollers are catching it. Use the side wall of the inserting slot as paper guide to ensure that the paper is put in parallel.
- As soon as the paper has been fed into the the processor and is being caught, you can close the flap lid. Fot formats of more than 40 cm length, you can roll the end of the paper to close the lid earlier.
- As soon as you have closed the lid, you can turn on the light.



Illustration 17: Insert print into the machine in darkness





12.2 Processing of prints

- As soon as you insert the print into the inserting rack, the water valve turns on and the infrared tube starts working. Also the infrared sensor bar of the replenishment starts to register the current paper width and to report that to the electronics.
- The inserted photo papers run through the 5 racks, the cross over rack and the infrared dryer. After that they come out dry from the exit slot of the machine into the tray.
- We recommend that you remove paper formats of more than 40 x 50 cm from the tray, before you insert new prints into the machine.

12.3 Replenishment

The membrane pumps work proportionally to the paper area and respectively pump new chemicals. Please re-measure the replenishment rate appr. every **6 months**. The replenishment rates for RA-4 chemicals are:

160 - 170 ml/m2 for **developer** 210 - 220 ml/m2 for **bleach fix** bei 60 - 80% machine capacity

- If the replenishment rates are not correct any more, you can easily adjust the pumps by their knurled screws.
- Appr. every 1 1.5 years you should exchange the rubber valves (wearing parts) of the pumps, so that their original precision is restored.
- If the machine is not fully utilized (appr. 15 30 %) the bath level can sink due to evaporation. Simply top-up the baths with water, because only the water portion evaporates.

- 28 -

Blend fix: 215 ml = 11 ml fw 10"x8"

19 = 44 ml. (50)





The container with bleach fix will empty sooner than the one of the developer. Consid-	er
that or just use a bigger BX-container.	

Pay attention that the containers with the fresh replenishment solution are never totally empty, because then the pumps suck air. Should this be the case, just fill the containers with chemicals and after inserting a few prints, the replenishment will work as usual again.

12.4 Turn off the machine



Some parts of the machine get hot while operating. Please consider this!

Danger of burning!

- When your last exposed print has left the machine, remove the main cover and put it aside. Thus, you prevent **condensation** in the cooling phase of the baths after turning off the machine.
- Have the machine run appr. another 5 min. The infrared bar, as well as the water magnetic valve, will turn off (stand-by operation).
- Turn the water supply off.
- Switch off your ACP 505 with the On/Off switch on the panel. If you do not work with the machine for several days, drain the wash tanks.





13 Fine adjustment of the operating knobs

Each ACP processing machine has ben tested for bath temperature, bath holding time and replenishment rate and adjusted exactly. If, however, any minor deviations between the button (operating panel) and scale should occur while testing, you can correct the difference easily yourself. Proceed as follows:

- Lift out the turning knob with a little screw-driver or similar in the "coin slot" and take it out of the panel, see illustration 19.
- Pay attention that you do not twist the toothed ring underneath the controller. If this happens, immediately put the knob back on and turn the controller to its original position.

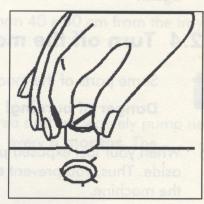


Illustration 19: Remove controller

- → Put the knob back onto the toothed ring. The tip must exactly point to the effectively measured value, see illustration 20. Thus, you have optimally adjusted the thermostat to scale.
- For the bath holding time, you can proceed in the same way.

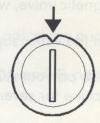


Illustration 20: Adjust controller





14 Maintenance and cleaning

Our ACP 505 is, due to its modern construction, practically maintenance-free and we are especially proud of that. However, chemicals and water cause soiling of rollers, cross over elements and tanks, and these should be removed regularly and cleaned.

We differentiate between daily, weekly and main cleaning. For all cleaning procedures you should proceed as follows:



Turn off the main switch of the machine, before you start cleaning.

Danger of electrical shock!



Some parts of the machine are hot after operation. Consider that!

Danger of burning!

14.1 Daily cleaning

- Remove the machine cover and put it aside.
- Take a spray bottle and spray the exposed rollers with a small amout of water. Clean the rollers with a sponge or a lint-free rag.
- If necessary, clean the chemical filters.





14.2 Weekly cleaning

Even though you continuously use your ACP 505, we suggest you clean the racks once a week. Proceed as follows:

h

- First take out the dryer (remove plug!) and the cross over rack.
- Remove the clutch safety comb and pull back all clutches. Drain the water tanks.
- Take the rack cleaning tray supplied and set it onto rack 2 (BX) and 3 (WI). Slowly lift out the **developer rack** from tank 1 and put it to the right side into the tray.
- Carefully take the tray with the rack out of the machine and put the whole into a laboratory sink.
- Lay the rack into the sink and carefully rinse it. Set it up for dripping off.
- Put the tray onto racks 3 and 4. Cover tank 1, so that no drop of bleach fix gets into developer!
- Carefully remove **BX-rack** from machine and set it into the tray to the right. Proceed the same as with developer rack.
- Then cover tank 2 and lift out of machine water racks 3-5 for cleaning. If necessary, also clean tank walls with two **separate sponges!**
- Thoroughly rinse racks 2-5 with lukewarm water, however, not higher than 50 °C!





14.3 Main cleaning with change of chemicals

Every 2 to 3 months, depending on the amount of paper processed, we recommend a change of chemicals, together with general machine cleaning. Also for an operational pause of several weeks we recommend to effect the following cleaning procedures.

- First turn off the main switch of the machine. Then drain the water tanks into the sewerage.
- Drain the chemicals into separate containers for recycling.
- Remove the racks from the machine and clean them, as usual weekly cleaning. The filters also must be cleaned.
- Fill the tanks with appr. 40 °C warm water, put the filters in and have the machine run for appr. 20 25 min.
- Then drain the water and clean the filters again. Clean the tanks and dry them with a lint-free cloth.
- Set the racks and filters back in and fill the machine with new chemicals as start-up procedure.





15 Faults and their causes

15.1 Colour papers

☐ Brownish discoloured picture (to some extent even black)	 During operation in laboratory, the still unexposed paper has been exposed by light. Inserting lid has not been properly closed Paper packing accidentally opened.
☐ White round stain	→ Finger print on paper
☐ Blue-greenish pictured	Chemicals baths too coldTemperature has not been properly adjusted
☐ Purple-coloured picture	 Chemicals baths too cold Temperature has not been properly adjusted
☐ Lots of little white spots	 Water stains are on photo paper before processing Check inserting rollers and clean them, if necessary
Picture too orange- coloured	 Prints has not been exposed properly Has colour filtering been adjusted?
☐ Picture too light	⇒ Exposure has been too short
☐ Picture too dark	⇒ Exposure has been too long





☐ Dark stripes and stains	 During enlargement pre-exposure might occur, if additional light falls onto the photo paper
☐ Light and dark stripes in parallel	 So-called telegraph wires - are already on the negative A sand grain has been running along during processing
☐ Side-inverted - light - poorly defined	 Paper has been inserted incorrectly (emulsion side must always point towards the front)
☐ Picture sporadically cyan-coloured	The paper has been too long under dark room light.
☐ Dark stains, unclean colours	⇒ Bleach fix bath is too diluted.
15.2 B/W-papers	A CONTRACTOR OF A CONTRACTOR O
☐ Picture too light	 Developing temperature too low Developer used up, improper replenishment Exposure time too short, paper has not been exposed long enough Developer too dilute.
☐ Picture too dark	 Developing temperature too warm Exposure time too long, paper has been exposed too long Developer too concentrated
Gradation off- flattening	 Developer used up or too diluted Dark room not light-proof Dark room light too strong. Fog test necessary.
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16 Technical data

Dimensions	Length: Width: Height:	93 cm 84 cm 45 cm
Weight	Empty: Filled:	appr. 80 kg appr. 110 kg
Electrical data	Power supply: Power consumption:	230 V / 50-60 Hz 2,2 / 2,7 kW
Water supply	Fresh water inflow: Water temperature: Water pressure: Outlet height:	1,4 l/min. (filtered) 25-30°C 1-10 bar max. 60 cm
Processor data	Maximum print width: Minimum print width: Minimum print format:	50,8 cm 13 cm 9 x 13 cm
	Minimum roll paper dimension: Maximum roll paper dimension:	8,9 cm x 80 m 50,8 cm x 80 m





	Capacity (RA4):	9 x 13 cm 13 x 18 cm 20 x 25 cm 30 x 40 cm 40 x 50 cm 50 x 60 cm	760 prints/h 410 prints/h 250 prints/h 85 prints/h 64 prints/h 42 prints/h
Cl Tachescor percenggi magnitudes assessed	Processor temperature: Dryer temperature:	28 - 45°C 40 - 80°C	Wall begannet
	Warming up: Dry to dry time: Transport sped:	ca. 30 min. ca. 4,3 min. (F variabel 10 - 9	2A4) 46 cm/min.
Tank volume:	Developer (DEV): Bleachfix (BX): Wash 1 (W1): Wash 2 (W2): Wash 3 (W3):	appr. 5,2 litres appr. 5,2 litres appr. 5 litres ca. 5,6 litres ca. 5,6 litres	
Chemicals: Materials:	RA4, B/W, EP2 and all comp All PE und RC papers, Duratr		





Machine capacities

Amount of paper processed per hour with colour negative/positive (RA4) and B/W standard process:

	format	colour pictures	B/W-pictures
	50 x 60	42	85
	40 x 50	64	95
in yes	30 x 40	85	120
	24 x 30	170	260
	20 x 25	270	420
	18 x 24	290	460
	13 x 18	410	600
	10 x 15	780	1050
	9 x 13	820	1200



17 ...At the end

The statutory guarantee period amounts to six months. During that time we repair all machine defects, as long as they are not due to improper operation or non-authorized interference with the machine.
Before considering any fault, please check to see if one of the faults described in Chapter 15 has caused the malfunction. Incorrectly inserted filters, side-reverted pictures or dirty rollers can cause malfunctions.
Technical personnel, authorized by us, will help you with minor defects. Should, against expectations, serious problems occur, then our technical support will be available. However, our great experience in producing laboratory machines has shown our machines operate for an above average period.
It is of course possible, that after a long and intensive use the replacement of a component might become necessary; for that we keep a wide stock of parts available for you.
In urgent cases contact our technical service directly!we are competent and helpful!
Modifications of machines regarding technical, progress are subject to change without notice. All advice in this manual and through our technical support is accurate to the best of our knowledge and conscientiousness, but ultimately non-obligatory.

THERMAPHOT Laborgeräte GmbH, Kohlenhofstr. 60, 90443 Nürnberg Tel.: 0911 - 26 97 94, Fax: 0911 - 26 22 77

The name for big experience: Thermaphot-laboratory equipment

or decades the laboratory equipment of Messrs. Kümmerl, known for their practical construction and indestructible quality, have sailed "under foreign flag". That is past now, because the most modern Kümmerl-recent developments finally get to the world market under the manufacturer's own trade name "Thermaphot". For you, as the customer, that means: consultation, sale, service and warranty directly with the manufacturer and competitive price calculation.

t is exciting to read the "story of the economic miracle" of the Nürnberg manufacturer of photo laboratory equipment for film- and paper processing, it started after the Second World War in a small workshop in the old Imperial City, known for its ingenuity. Here, the engineer Hermann Kümmerl produced his first trays, heating and adjusting units as well as recirculation pumps for photographic baths. But already in the fifties he detected long sighted promising market openings and ventured the leap from the handicrafted to the industrial production: together with his son and present company owner graduate engineer Klaus Kümmerl he started serial production of X-ray processing machines.

With early success, the firm of Siemens medical technique in Erlangen soon inquired, if the could also develop and produce automatic roll processing machines in through-feed procedure for X-ray films. Kümmerl accepted the challenge. Already the first prototypes of the machines found the doctor's enthusiastic reception and Siemens placed an order for serial production. The foundation-stone for ascent to a middle-level enterprise was laid. In rapid succession went on: hundreds of machines found their way to West- and East Europe as well as North Africa.

he good reputation of Kümmerl's laboratory equipment moved the firm Durst in Bozen to a cooperative offer: the Nürnbergers, versed in production technique, should construct a lowpriced processing machine for the photo amateur. So, within only 4 months of construction-, test- and production time, the legendary RCP 20 was born. Thousands of photo fans had waited for such a machine. Indeed, the high print quality awakened photographer's desire for bigger models it followed the RCP 40, RCP 40 VS, RCP 40 VSN and RCP 50 as well as WDM 40 and WDM 50.

And the machine output rapidly increased.

hese successes again gave the impulse for the cooperation with the firm Ciba-Geigy in Fribourg (Switzerland). For it, Kümmerl produced the model CAP 40 and the machine series ICP and IWD. They are also our real bestsellers.

Delivery range of the past 15 years also included processing machines for daylight systems, e.g. for the Ciba-Geigy-diaprintcenter P12 or the Durst DML-system. Thereby they grew to experts in constructing machines for modern fast chemistry (mainly RA4-chemistry).

herefore, the enterprise is able to show a proud balance after almost 40 years of existence: about 80.000 processing units of various application areas have left the factory so far and have been installed all over the world. Their high quality speaks for itself, because even for 25 year old laboratory equipment, there are still sometimes orders and deliveries for spare parts.

> he recent development of the machine family **Thermaphot ACP** and HSD, which has been completed at the end of 1989, now unites the extensive experience of Kümmerl's engineers with most modern technology in connection with the new high speed processes. Over one hundred machines of these series successfully passed a half-year test in the USA in the meantime. Kümmerl introduces this new machine-generation to you. It is worth while comparing their high performance and quality standard with others!













Who is Thermaphot?

Kümmerl is a wellknown name as manufacturer among photo experts around

the world. Thermaphot[®] is our registered trade name and under this synonym, we distribute our products world-wide through @ our representatives.



What does Thermaphot do?

Thermaphot, the firm Kümmerl, is a specialist for more than 35 years in

producing X-Ray-, photo film and processing machines.

The research and production of these machines at the same time is our strength, most modern production methods are its basis.

How does Thermaphot work?

We are a company of appr. 50 employees. Our engineers, trained over decades, and our

well instructed technical personnel are always alert to perceive new developments

and to produce new machines according to those findings. Most modern techniques help us with these big tasks.



Our CAD-supported designing department solves most difficult tasks within shortest time.

In the construction office



With the most modern CNC-machine tools we self-produce even most complicated production tools for self fabrication.

In our tool department



With the latest operating equipment and partly with Kümmerl engineered and constructed production robots we produce with optimal productivity.





After 80.000 processing machines we know very well, which materials we must use for our products. These are tested in our company and at the suppliers with the latest methods, X-ray examination plus test methods in clean rooms are no exeption.

At the quality control



Thermaphotprocessing machines are subject to 100 % quality control by means of a strict proce

Before and during delivery

means of a strict procedure. Even when packing we do a last visual control.