INSTRUCTION MANUAL

for

Colenta® INDX 43 I

Filmprocessor

EN ISO 9001
DNV
Certified Company

Colenta

MP800 V2.8 r07 und up

02/2005 AN

Colenta INDX 43 I FILMPROCESSOR

Technical Specifications

Processing applications:		Rolls/Cut sheets of all commonly used ind.-x-ray films
Film thickness:		min. 0,10 mm
Material width:		min. 7,5 cm max. 43 cm
Material length:		min. 10 cm
Time in Developer:		min. 31 sec - max. 170 sec (see the table on one of the next page)
		INDX 43 I
Tank capacity -	Developer(+filter):	11,5l
	Fixer:	10,5l
	Wash water:	10 l
Solution heating(Fix and DEV):		variable in a range of 18°C - 43°C (separate inline 350W heaters)
Dryer:		warm air variable in a range of 18°C - 60°C
Replenishment:		fully automatic. replenishment is microprocessor controlled and calculated from information received from sensors measuring the width and length of material entering the processor. Replenishment cycles are variable.
power supply:		1 / N / PE~ 230V (+6% / -10%), 50Hz, 16A, 3.7KW
water supply:		2-way magnetic valve, with 3/4" hose connection by using a DVGW-approved system-separating device or pipe-separating device.
Wash water flow rate:		2,5 ltr/min when film is in process
Wash water supply pressure:		3 - 10 bar
Wash water supply:		filtered at a temperature of 10°C - 15°C
		INDX 43 I
Weight:	Empty	185 kg
	With solution	217 kg

Technical specification subject to change without notice.

INPUT SPEED / DEV-TIME / CYCLE-TIME:

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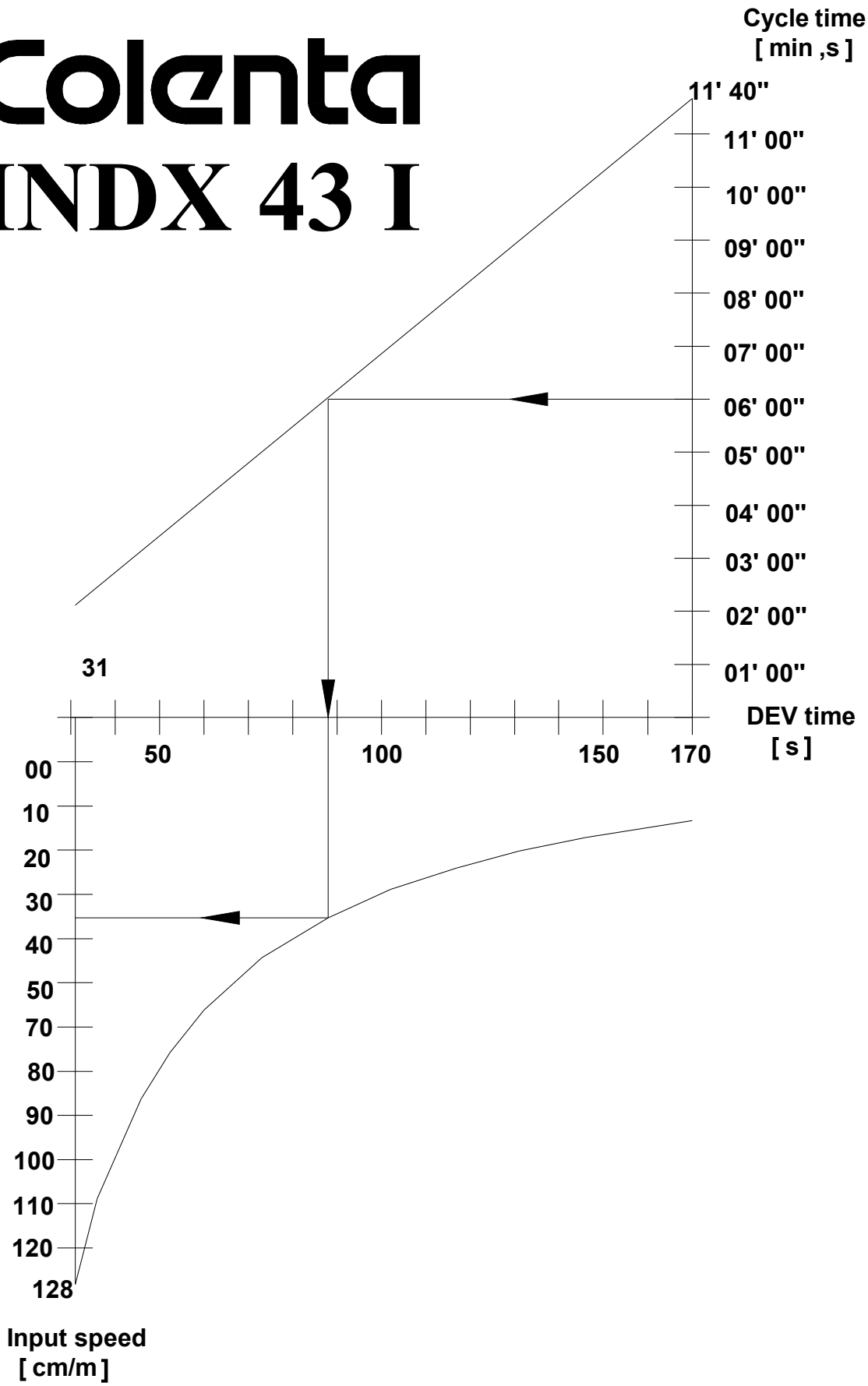
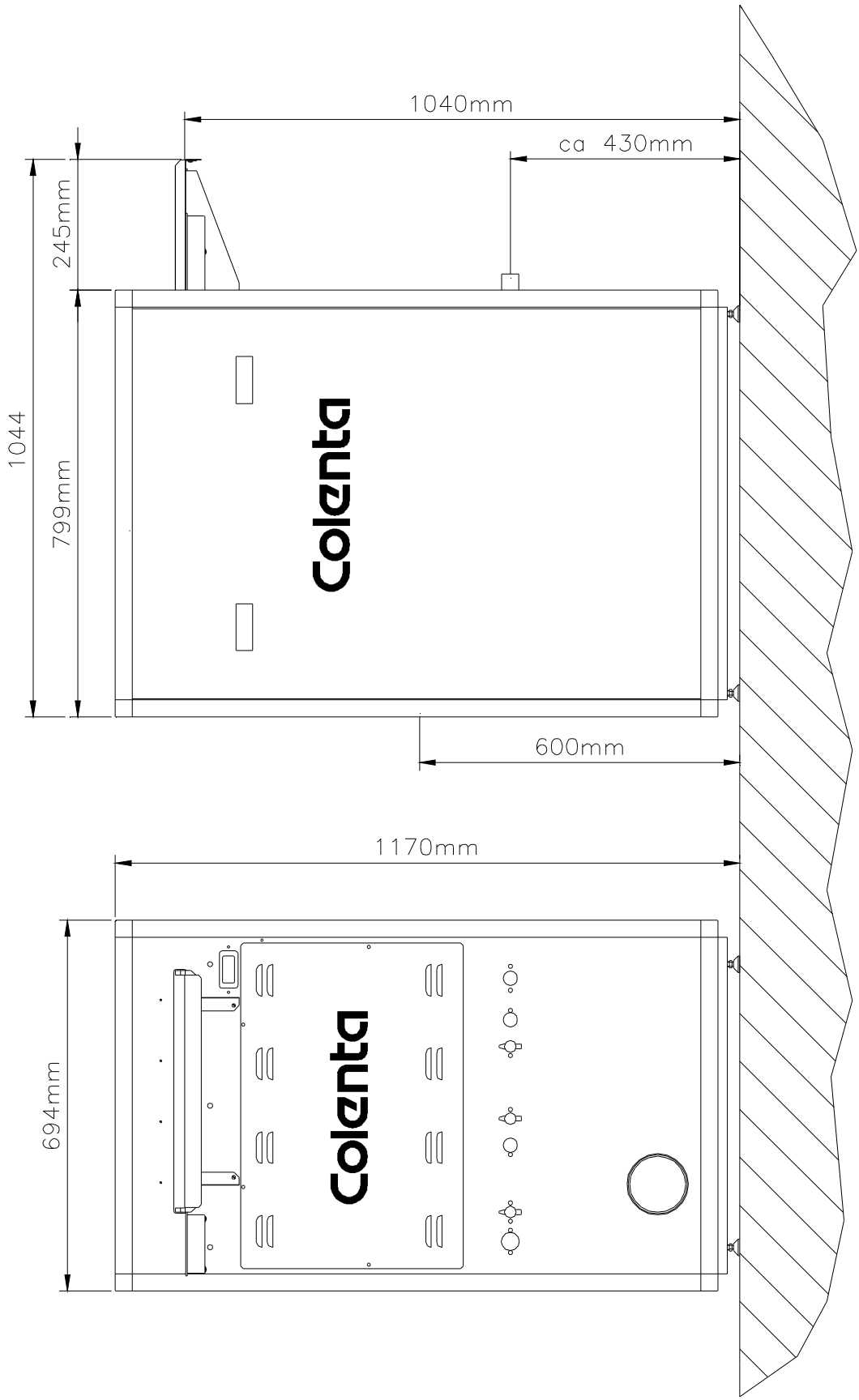
INDX 43 I



Dimensions of COLENTA INDX 43 I:



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1. INTRODUCTION

Congratulations upon your decision to buy a

COLENTA INDX FILMPROCESSOR.

Your purchase has been designed to meet the highest technical standards.

Some outstanding design features are:

*) compact, space-saving design
*) full automatic processing cycle
*) smooth roller transport system
*) low tank volumes
*) electronically controlled temperature system
*) automatic replenishment
*) low energy consumption

This manual is an instruction for routine use of your:

COLENTA INDX FILMPROCESSOR.

Colenta

INDX 43 I

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

1.1 GENERAL SAFETY INSTRUCTIONS

*) Staff in charge of maintenance of the processor (see chapter 11and 12) need to be thoroughly familiar with the equipment.

*) Only the Top Cover of the Filmprocessor may be removed by the operator (see picture below)

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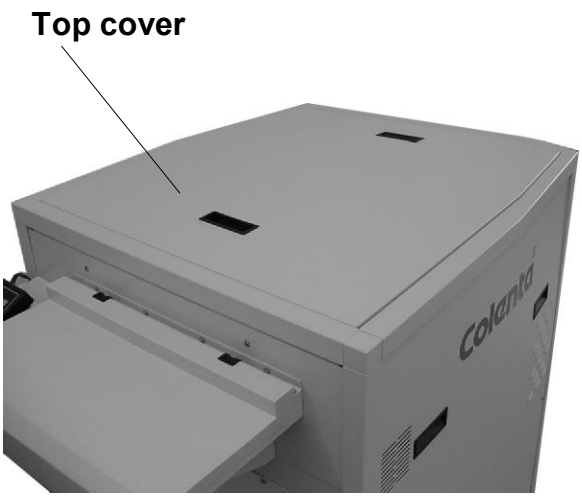
*) The film processor must be separated from mains prior to carrying out any maintenance. To do so, switch the mains switch of the machine to „0“ position. Always wear safety goggles and protective clothing when handling chemicals.



*) The filmprocesor may not be in operation without supervision.

*) Make sure that clothing or other objects cannot get entrapped in gear drives or similar of the film processor.

*) The installation, service, repair as well as the initial operation of the machine may be carried out by qualified and trained service personnel only.

*) Built-in safety devices may not be eluded or made inoperative. Use only original COLENTA spare parts when exchanging failed electrical components.

*) Do not wear any loose necklaces or bracelets!

1.2 CHEMICAL HANDLING

*) Observe all safety technical regulations of the chemical manufacturer.

*) Wear safety goggles and protective clothing when handling chemicals.

*) Ensure proper ventilation of the room in which the chemicals are prepared.

*) Spillage or overflow of chemicals has to be removed instantly.

*) In case of contact with the eyes flush with plenty of cold water for approximately fifteen minutes and consult an physician.

*) Chemical disposal has to be in accordance with the local environmental codes. Contact your local water treatment and sewer district authorities for more information.

1.3 IMPORTANT WARNING AND SAFETY INSTRUCTIONS (Please read these instructions carefully.)

Processor Operation
Make sure that no long hair, loose clothing or jewellry can get entrapped in the gear drives or in the media transport area.

The **„Service Manual for Colenta INDX 43 I Film Processor"** is for the use of qualified service personnel only.

The racks must be cleaned with running water outside the Film Processor.

Do not clean the processor with running water.

Electrical and Mechanical Hazards
Observe all safety warnings to minimize the risk of electrical shock,burns or equipment damage. Photographic Film Processors are complex machines with many electrical and mechanical parts as well
as with a considerable amount of chemicals.

Fire Prevention
The area around the processor must be kept clean at all times. Keep dust ,wood shavings, scrap paper or other inflamable materials out of the dryer compartment.

Fire extinguishers must be available in the room where the processor is installed.

Chemical Handling and Accident Prevention
Misuse of almost any chemical may create a hazard of some type.Generally photo chemicals are not any more dangerous as most of the regular cleaning agents. However, there is always a residual risk. When handling chemicals observe the procedures below.

1).Never sniff a container or open bottle to determine its contents. A cautious sniff of the cap or lid is safer.

2).When handling chemicals wear protective clothing, safety goggles and rubber gloves .

3).Label storage containers properly.Avoid storing hazardous chemicals on high shelves or in unprotected glass containers. Keep chemicals away from children.Do not store chemicals in a refrigerator used for food because they may contaminate food or be mistaken for edibles.

4).Ensure proper ventilation in the area where chemicals are used or stored.

5).Observe the manufacturer's recommendations for using and mixing chemicals.

Overexposure to photographic chemistry may cause skin irritation to certain individuals.

PHOTOGRAPHIC CHEMICAL EMERGENCIES AND FIRST AID PROCEDURES:

• **SKIN** - Rinse thoroughly with water.

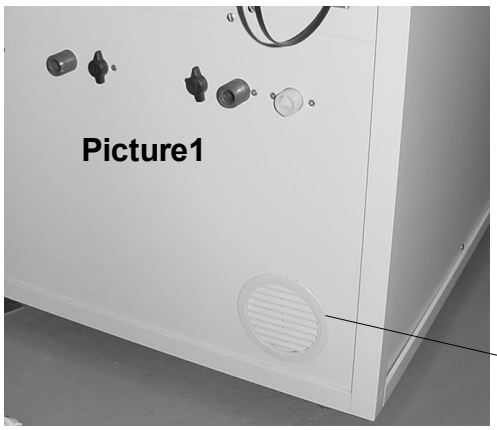
• **EYES** -Rinse thoroughly with water and consult a physician.

• **INGESTION** -Consult a physician immediately.

Chemical Disposal
Waste from photographic processing normally contains diluted chemicals. These chemicals should be collected and disposed in accordance with local environmental codes.Dumping chemicals into a drain system could lead to a pollution problem.Contact your local water treatment and sewer district authorities before disposing chemicals.
All plumbing must comply with local and national codes.The DRAIN must be made of chemical resistant and non-corrosive material. Use PVC or equivalent

Exhaust,Temperature and Humidity
It is necessary to ensure proper ventilation in order to receive good processing results. Make sure that the exhaust hose of the built-in exhaust fan is properly connected to the exhaust air socket (Picture 1).
The built-in exhaust fan exhausts the fumes from the filmprocessor.
These chemical fumes are corrosive. The top cover of the filmprocessor should be removed over night.

Room temperatures between 18-26 °C (65-80 °F)with a relative humidity between 35% and 75%are ideal for photographic processing and working.



The filmprocessor is a complex machine with moving parts such as the gear train and media transfer components.It uses photo processing chemicals which are irritating to eyes,lungs and skin.High voltage is used to power the filmprocessor.

The dryer compartment produces heat.

· High voltage may cause electric shocks, burns or even death.

· Hands or fingers may be pinched or injured by moving parts or when handling heavy parts.

· Dryer compartment heat may ignite combustible materials and cause fires.

· Eyes,skin and lungs may be irritated by photo chemicals.Before using photo processing chemicals always read the Material Safety Data Sheets (MSDSs) for information about the hazards of the particular chemicals and how to use them safely.

· Do not operate the film processor after consuming alcohol or taking strong medication.

· Do not wear jewellery or loose clothing when operating the processor.

Electronical and Electrical Hazards

HAZARDOUS VOLTAGE CAN CAUSE ELECTRIC SHOCK,BURNS OR EVEN DEATH ·

Qualified service personnel must verify during installation that the processor is permanently and reliable grounded according to standards in the National Electrical Code.

Carry out the following steps prior removal of the top cover:

1.Train operators of the filmprocessor.

2.Switch off the main power switch („0"-position) and secure against restart by locking with a padlock (see picture below).

Main power switch

Fire Hazards

DRYER COMPARTMENT PRODUCES HEAT -PAPER OR OTHER COMBUSTIBLES CAN BE IGNITED

· Keep the area within 10 feet of the processor clean.Do not store combustible materials, including paper, close to the filmprocessor.

· Verify that a functional 10 lb.ABC fire extinguisher is located closed to the processor.

Burn Hazard

DRYER COMPARTMENT PRODUCES HEAT -DRYER PANELS AND GUARDS GET HOT
· Therefore do not touch dryer panels or guards when dryer in operation

Corrosive Liquids

CHEMICALS MAY IRRITATE EYES, LUNGS, SKIN AND DIGESTIVE TRACT

Wear safety goggles,protective gloves and chemical aprons as indicated on Material Safety Data Sheets (MSDSs)when handling chemistry.

Drain tanks carefully,avoid splashing. Always drain the system thoroughly before working on any of the external hose systems.

Read the MSDSs for more information regarding the proper safety procedures for working with photo processing chemicals.

Do not allow untrained personnel to handle photo processing chemicals or to operate the filmprocessor.

To avoid hazardous situations,keep floors and floor coverings around the processor and associated drains clean and dry at all times. Any accumulation of fluids outside the film processor, should be cleaned up immediately

In the event of an accumulation of liquid due to backup,overflow or other malfunctions of the drain associated with the filmprocessor call a plumber or other contractor to correct the problem with the drain. Colenta assume any responsibility or liability whatsoever for the service ability of any drain connected to the filmprocessor. Such drains are the sole responsibility of the customer.

DRAINS must be made of chemically resistant and non-corrosive material.

Chemical Hazards
Chemicals can be the source for errors, contaminate the waste water, irritate skin or eyes.
Spills must be cleaned up immediately as follows:

1.Prevent the spilled chemicals from entering a waste water drain.

2.Clean up the spill with a moist mop or rag.

CAUTION!

When handling chemicals, especially fixer, wear protctive clothing, safety goggles and rubber gloves.

If filmprocessor chemicals make contact with the eyes,rinse them thoroughly with lots of water.If irritation persists,consult a physician.

3.Dispose cleaning materials and collected waste water from the clean up according to environmental regulations and locals codes.

4.Avoid any inhalation of chemicals as this is dangerous to health.

5.Observe all environmental regulations for storage and disposal of waste chemicals.

6.Use this manual together with the instructions for chemicals.
When handling chemicals wear protective clothing, safety goggles and rubber gloves,

Corrosive Vapours

CHEMICAL VAPOURS MAY IRRITATE EYES,LUNGS AND SKIN IF ALLOWED TO ACCUMULATE IN WORK AREA

Assure an adequate supply of fresh outdoor air through natural or mechanical ventilation.

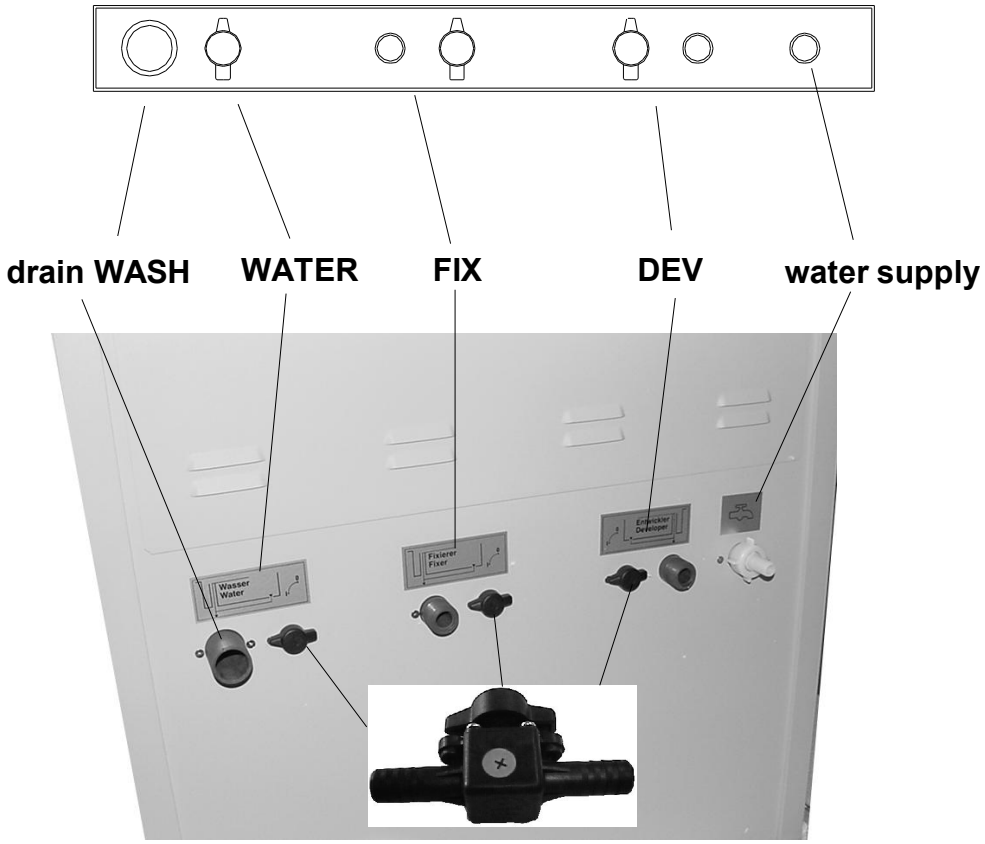
· Make sure that qualified service personnel is checking the external exhaust system at regular intervals.

· Read the Material Safety Data Sheets (MSDSs)for more information regarding the proper safety procedures for working with photo processing chemicals.

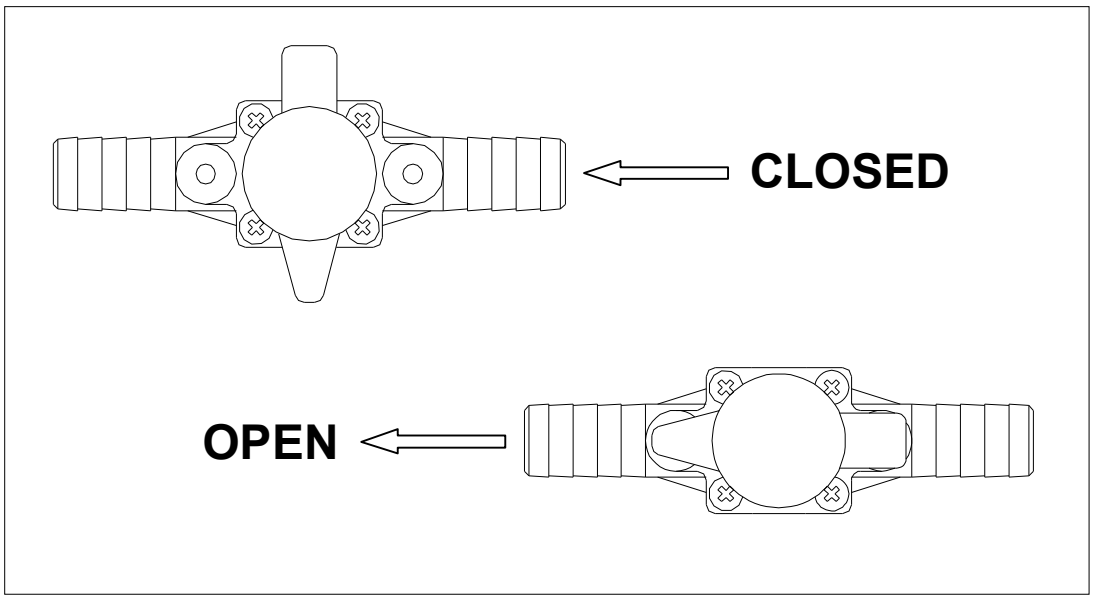
2. CHEMISTRY DRAINS / WATER DRAINS

To drain the filmprocessor (Developer, Fixer and the Wash) just open the drain taps according the illustrations below. Take care that all the mentioned drain taps are close during re-fill up.

IMPORTANT: Used Developer and used Fixer has to be collected in suitable containers seperately.



Drain taps:



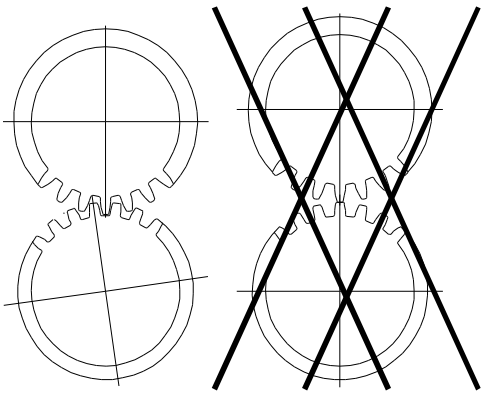
2.1. INSERT OF THE TRANSPORT RACKS

WARNNG: Separate the Film Processor from mains. To do so, switch the main power switch of the Filmprocessor to „0“ position. Wear safety goggles, protection gloves and clothing.

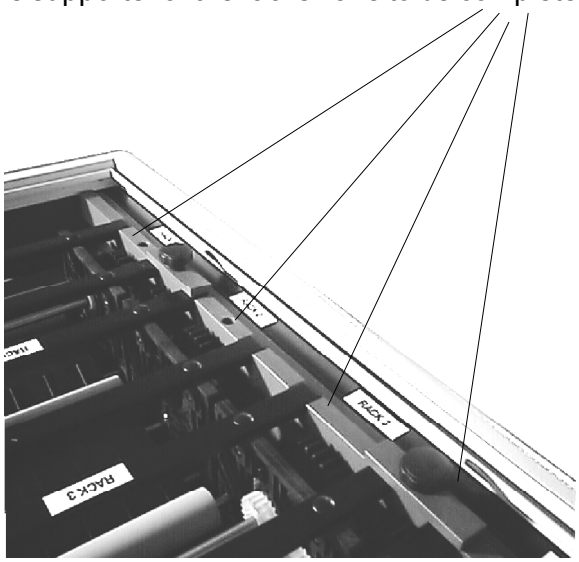
*) Rinse the tanks with water and then fill it to the red marker on the tank wall.
*) Insert the racks according the reference number or label

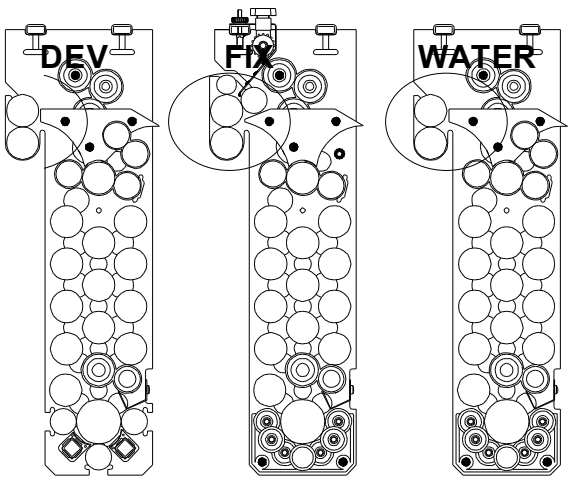
RACK 1 in the developer tank
RACK 2 in the fixer tank
RACK 3 in the water tank

note:
check that the gears of the squeeze rollers are in the correct position.



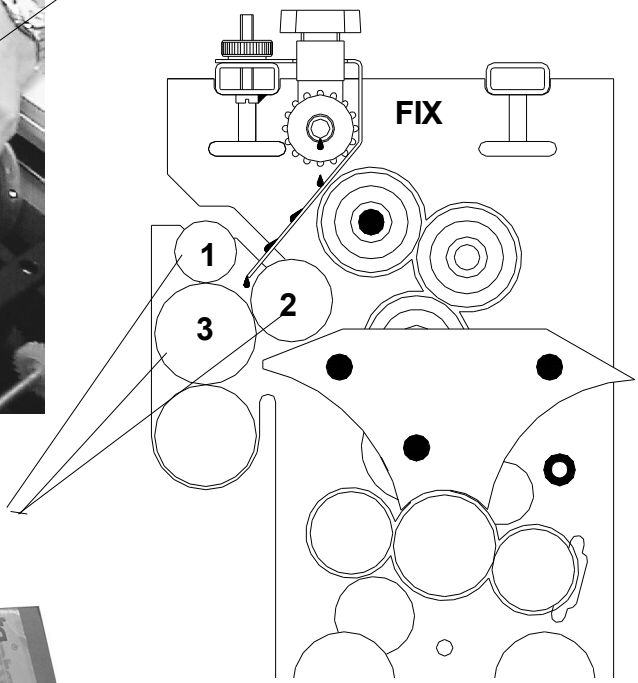
The supporter of the racks have to be completely set into the grooves of the tank.





ADDITIONAL CONNECTION FOR FIX RACK

open/close the hose connector by pressing the marked botton.



NOTE: Pay special attention to roller configuration about the FIX rack.

Separate package for rollers

3. THE FIRST STEPS

WARNING: Separate the Film Processor from mains. To do so, switch the main power switch of the Filmprocessor to „0“ position. Wear safety goggles, protection gloves and clothing.

3.1 USING THE CHEMISTRIES

*) Only use chemistry suitable for roller transport systems.
*) Follow instructions of chemistry manufacturers.

FIXER BATH:

*) Empty fixer tank by opening the fix drain tap.
*) Remove the Fi**xer-**rack.
*) Check fixer tank is free of alien material.
*) Close fix drain tap.
*) Fill fixer tank with ready-to-use-fixer solution to the red marker on the tank wall. Insert the Fixer-rack very carefully and slowly, add hardener solution if advised by the chemistry manufacturer.

DEVELOPER BATH:

*) Empty developer tank by opening dev drain tap.
*) Remove the Developer-rack.
*) Check developer tank is free of alien material.
*) Close dev drain tap.
*) Fill developer tank with ready-to-use-developer solution to the red marker on the tank wall. Insert the developer-rack very carefully and slowly. Replenishment tanks may be used to mix the chemistry.Any remaining can be used for replenishment.

CAUTION:	Even the smallest quantity of fixer could contaminate the developer solution. Therefore, always fill with fixer first. When removing the fixer rack, always cover the developer tank. For removing the fixer rack use rack carrier tray (optional accessory)

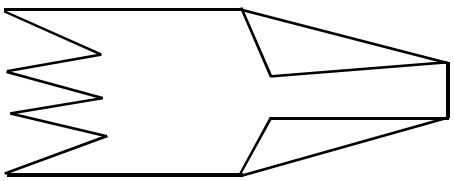
4. WORKING WITH THE FILMPROCESSOR

IN THE MORNING

*) Turn on water supply.
*) Check replenishment tank levels.
*) Check whether that the water drain tap is closed
*) Switch on the Filmprocessor with the Filmprocessor main switch (position „1“).
*) Wait for the "READY" of the processor

STARTING WORK

*) Check level of the replenishment containers (DEV&FIX)
*) Check level of the waste containers (DEV&FIX)
*) Select programme
*) Feed through one or two of cleaning films (optional item).
*) During feeding films, always check the free-signal, given form the display.
*) Ensure first rollers pull material.
*) Feed large format films in straight.
*) Put a leader on roll films
*) Fold the leading edge on roll paper.



IN THE EVENING

*) Turn off water supply.
*) Switch off the main power switch of the Filmprocessor. (Main switch in position „0“)
*) Open water drain tap to prevent algae growths in water tank.

***) Lift the top cover to prevent condensation** !!

4.1 PROCESSOR FUNCTIONS

PROGRAMMING:	Automatic processing parameters, e.g., temperature, speed and replenishment rates, can be stored in 9 different programmes.
WARMING-UP:	Once programmed, temperature settings are accurately controlled. Heating commences with switching on at the mains. Constant solution temperatures are maintained in the processing tanks. Temperatures tolerances +/- 0,2 °C are achieved by the microprocessor control unit while the solutions are circulated by circulation pumps. When temperature has reached PRE-SET levels, the filmprocessor enters STANDBY mode and is ready for use.
STANDBY:	In case no material is processed - after a programmable periode of time, since the last media has exited the filmprocessor transport, dryer and water supply is switched off automatically. The filmprocessor goes in standby mode and is ready for work.
ANTI CRYSTALLI-ZATION CYCLE	During STANDBY mode - within a programmable cycle periode - transport and intermediate rinse bath water supply is activated - this prevent cristallization build up on crossover rollers.
ANTI-OXIDATION CYCLE	During STANDBY mode - and no material is processed during set time - an preprogrammable ANTI OXIDATION cycle (replenishment cycle) is available. The additional replenishment compensates the impact of airoxidation of the chemistry during standby mode und tops up the chemistry levels in the tanks, compensating evaporation of the water in the solutions during standby.
AUTO REPLENISHMENT:	The filmprocessor comes equipped with a film area measuring facility. Infrared sensors scan the film area touchless and when the preprogrammed amount of film (area) entered the filmprocessor, a replenish-cycle is activated.
AUTOMATIC START-STOP:	Infrared sensors also automatically control the startcycle of the filmprosessor. The filmprocessor changes from STANDBY to RUN once a film has interrupted the light barrier. As the rollers turn, water is supplied to the wash tank and to the intermediate rinse bath system. Once the last film has passed through, the filmprocessor reverts to STANDBY. The film can be taken out of the receiving basket or top cover lid.

5. THE DISPLAY

Number of programs	9
Temperature range, developer and fixer	18.0 ÷ 43.0°C
Temperature range, dryer	18.0 ÷ 50.0°C
Temperature control tolerances	±0.2°C
Temperature measurement resolution	0.03°C
Developing time tolerances at max. speed	±2%

· Motor speed is quartz-stabilized and controlled by a separate microprocessor

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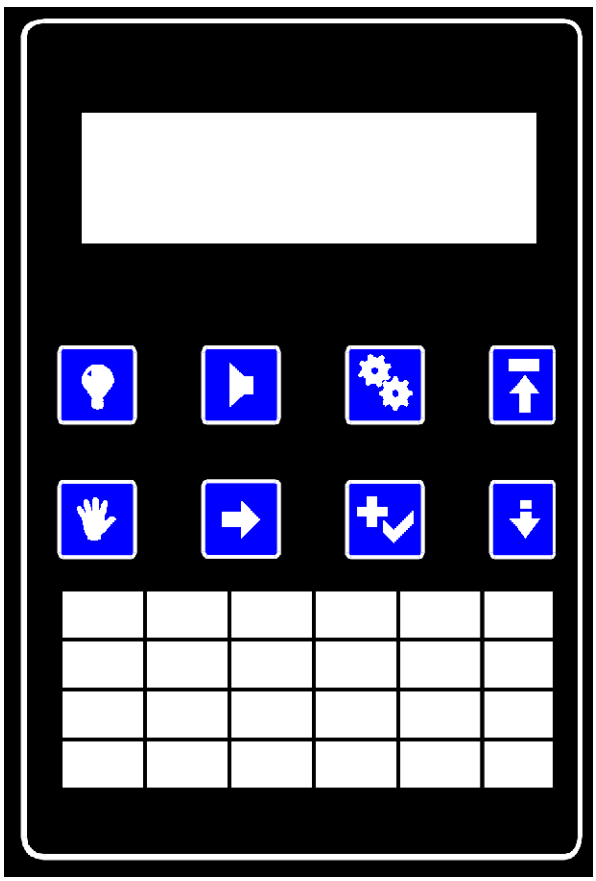
The display



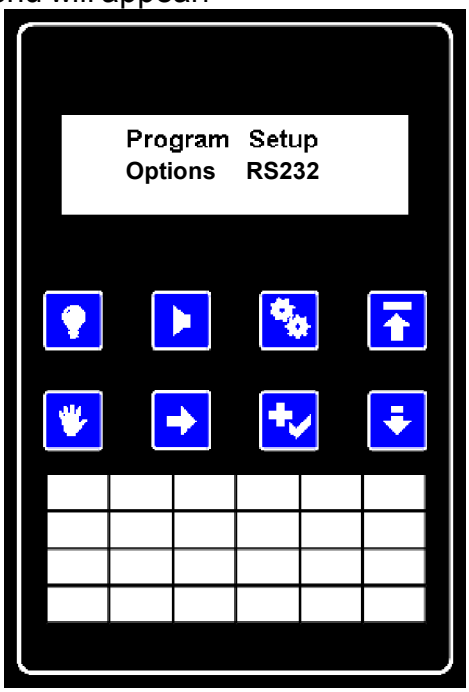
- **back light ON/OFF**
- **check errors /alarm shutdown**
- **setup mode**
- **back to top menu**
- **manual operation**
- **move cursor**
- **select menu item/change value**
- **scroll page down**

5.1 Programming Procedures

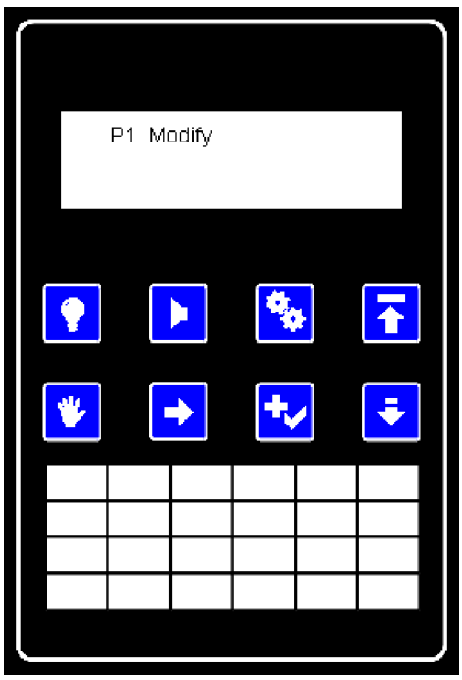
Switch on the Filmprocessor with the Filmprocessor main switch (position „1“).
By default it starts in work mode. Make sure that no media is being processed, since re-programming is enabled only during standby.

Press . The programming menu will appear:

NOTE for RS232: only in use when a COLENTA Auto loader is in use.



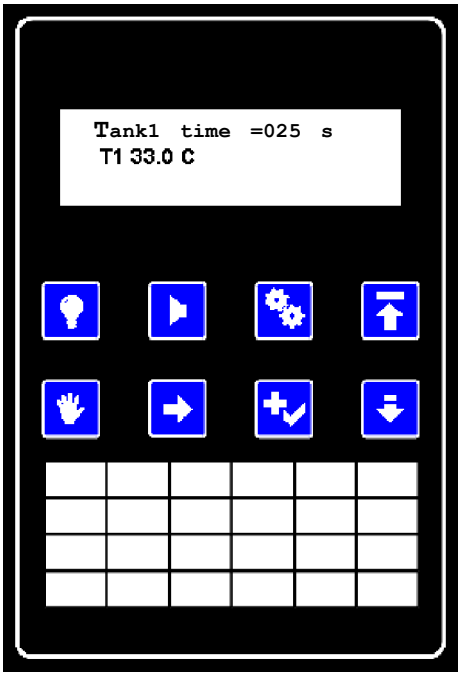
With , move the cursor under Program and select it with .
You will see

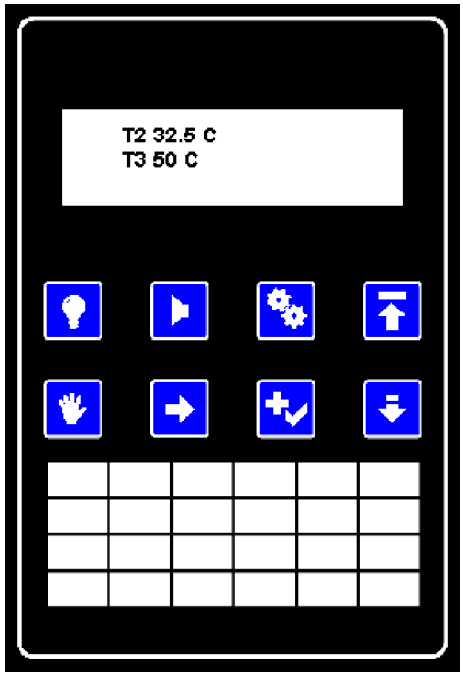


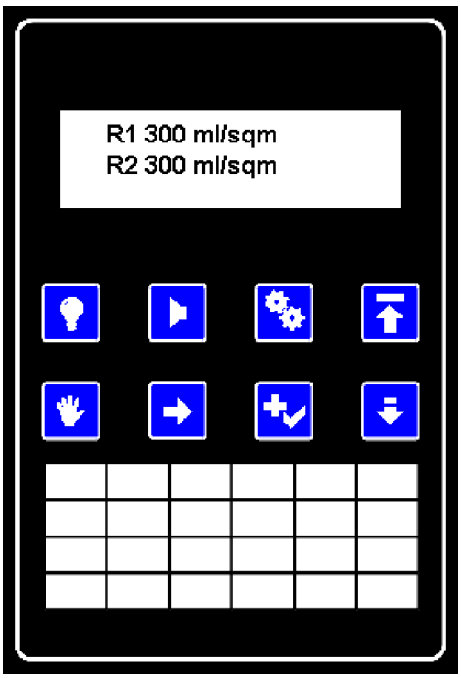
Press ✚✓ to change the number of the program you wish to modify.

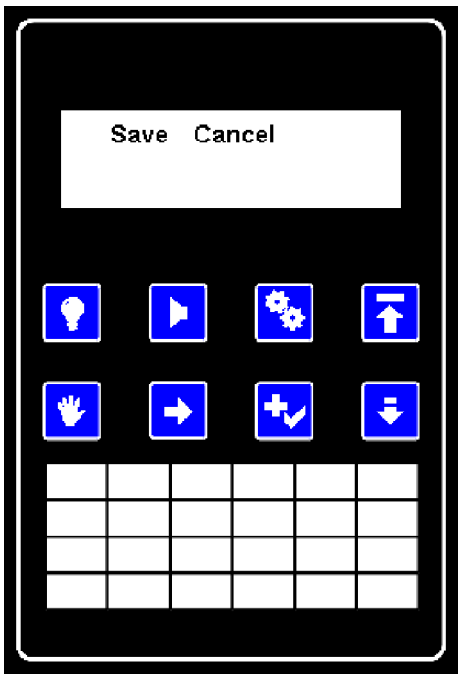
With ➡, move the cursor under Modify and select it with ✚✓.

The programme consists of four pages:







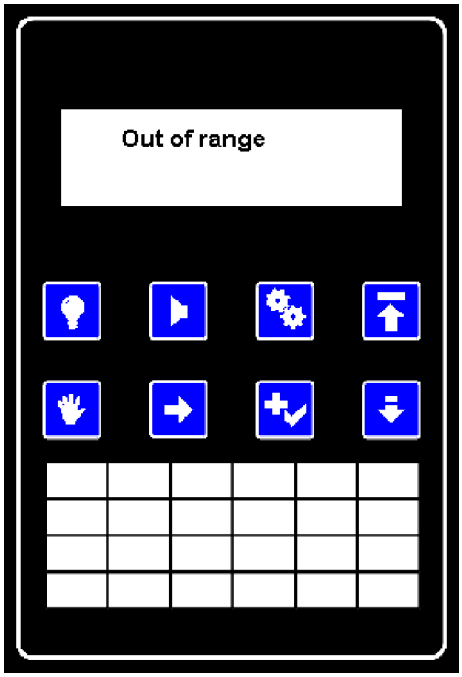


Use ▬▼ to scroll through the pages.

To set the parameters, move the cursor with ➡, then change the value with ✚✔.
Once all digits have been set to the desired value, position the cursor under

Save and press ✚✔ to store the values, or select Cancel to discard the changes.

If any of the values is set too high or too low, when trying to save the programme you will get.



After 2 seconds the message will disappear and you will be taken back to re-programme the values. A parameter that was too high will be automatically reset to the maximum possible value. A parameter that was too low will be reset to the minimum possible value.

This can be used if you want to program extreme values - for instance you want to use the shortest developing time possible, but you don't remember the value. In this case just programme 000. After the "Out of range" message, the developing time will be reset to the minimum. Just select Save once again.

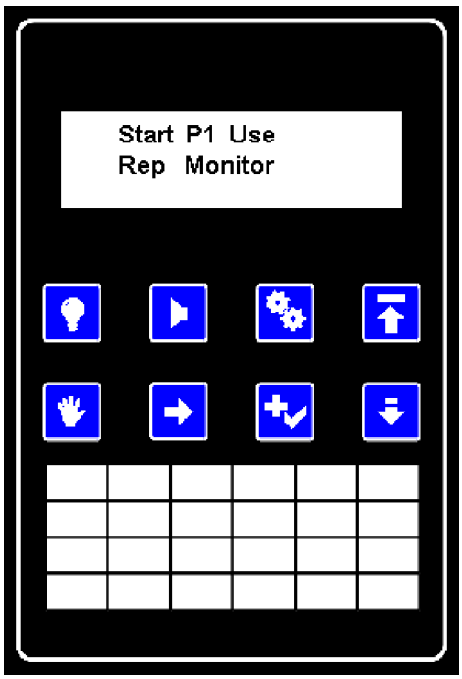
To go back to work mode, press ⬆.

.***Note: The Setup menu is just for service and factory setting purposes only.***
The Setup-menu set filmprocessor-specific values. This values should not be changed by the costumer. Although you can select these menus, scroll through the data and even change it, saving the changed data is disabled. Only authorized service technician can re-programme these values.

5.2 Changing the programme

To use another programme:

Press  .
You will see:



If media is being processed, only the Rep and Monitor items are selectable. Therefore, to switch to another programme you must wait until the processor is empty.

With  , move the cursor under P1.

Press  to change the programme number.

With  , move the cursor to Use and select it with  .

Press  to jump back to main page.

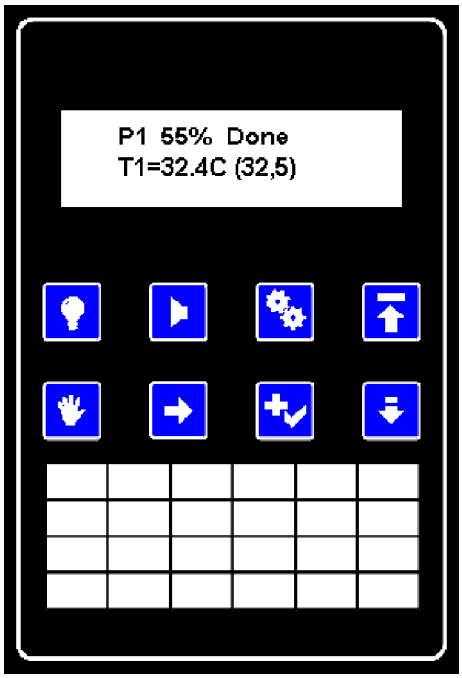
Note: a cyclic redundancy check is used to verify the data being read from the non-volatile memory. If some damage occurred to the program data, or the programme was never set up properly, you will get an error message *Program invalid*. ***The solution is to go to programming mode and re-program the data. This error will occur also if the EEPROM chip has been replaced in which case it contains random data.***

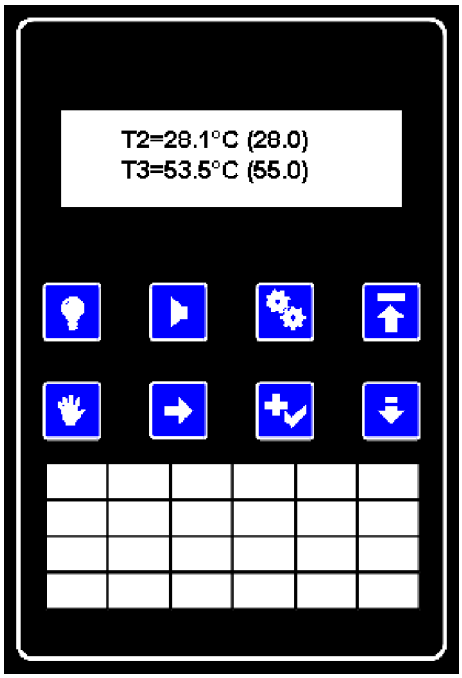
5.3 Automatic mode

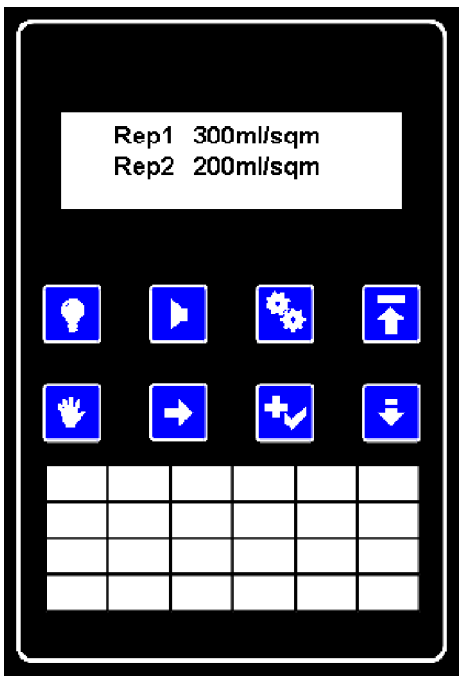
The filmprocessor is designed to work without operator assistance. Under normal circumstances the operator will use the front panel only to check the process parameters and progress.

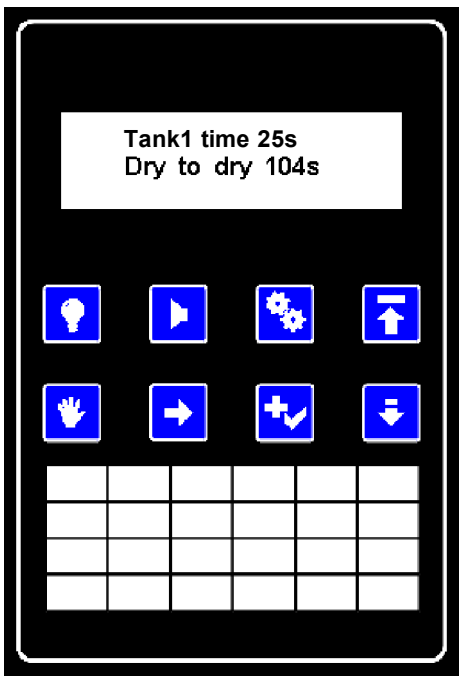
To scroll through the pages, press ↓.

Press ⤒ to jump back to main page.



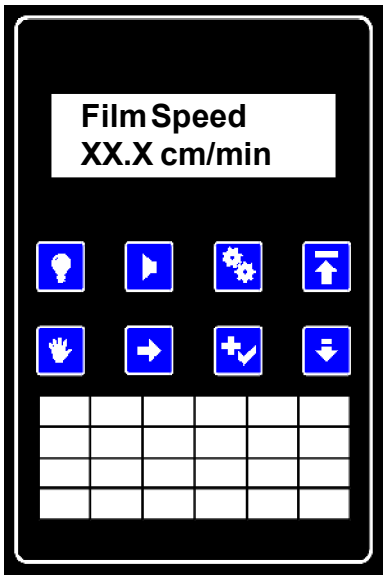


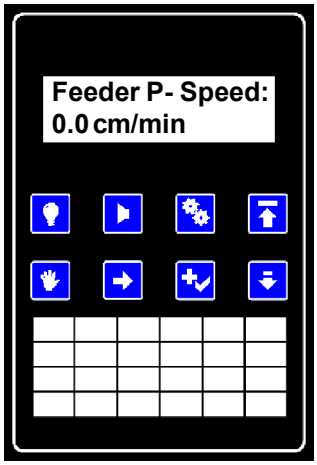




P1 tells you that you are using programme 1. If the filmprocessor was started manually, the indication will be **M1**.

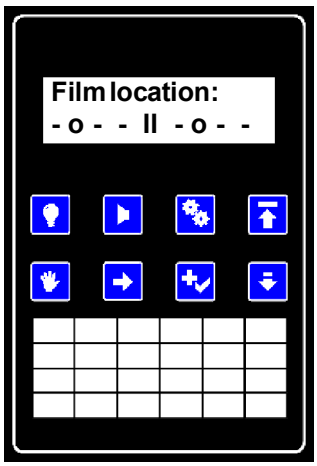
55% Done is the progress indicator. It means **55%** of the developing process is complete. When it reaches **100%**, the machine will go to standby.
T1=32.4ºC gives you the actually measured temperature in the tank. The value in the brackets is the programmed temperature. The same indication is available for tank **2 (T2)** and for the dryer **(T3).**
Rep1 and **Rep2** are the replenishment rates for the current program.
Tank1 time is the time the media stays in **tank 1**.
Dry to dry is the length of the complete processing cycle (leading edge to heading edge).
Film Speed linear speed of the media inside the filmprocessor.





Feeder Speed: speed of the feeder

only when a Colenta AUTO Feeder is in use

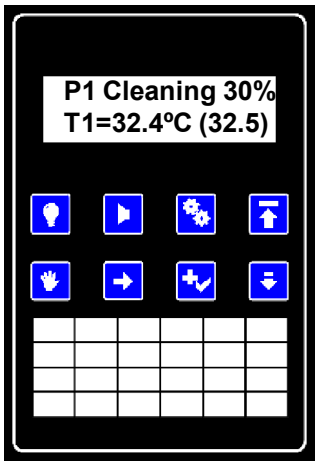


Film location: used to monitor the films from the feeder to the filmprocessor.
left side: loader
right side: filmprocessor
-..... no film
o..... film

5.4 Standby Options

The filmprocessor is equipped with an anti-oxidation and a anti-crystallization cycle. That means, when in standby, the processor will start the transport of the rollers and the wash on regular intervals in order to prevent crystallization on the rollers (Anti-crystallization). The anti-oxidation cycle activat, in free programmable time intervals, replenishment cycles. This will prevent oxidation of the the chemistry.

During such a cleaning cycle, the display will look like this.



During such a cycle the filmprocessor will accept media. It's not necessary to wait to the end of the cycle.

Press , use ➡ to move the courser to **"Options"** and press , use again to confirm **"Standby"**, by using you can scroll through the pages:

SB dryer drop 05	The dryer temp. is 5°C lower than the programed value.
SB replenishment 200 ml each 6 h	The filmprocessor will activat a 200ml replenishment cycle each 6 hours.(Anti-oxidation-cycle)
SB self-cleaning 20cm each 03min	The filmprocessor will activat 2 roller turns (1 roller turn ≅ 10 cm) each 3 min.(Anti-crystallization-cycle)

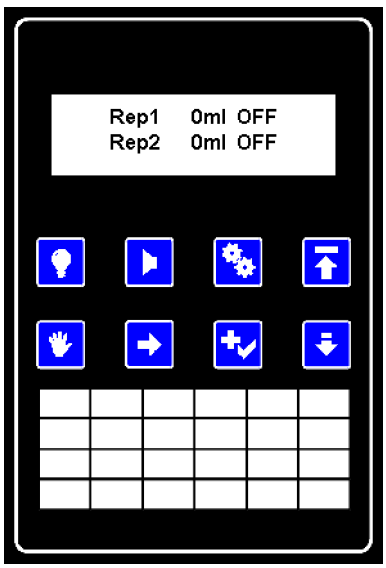
Save Cancel

5.5 Manual replenishment cycle

You may need to run the replenishment manually, for instance during cleaning. To do this:

Press

With ➡, move the cursor under Rep and select it with .



You will see:

To replenish tank 1

With ➡, move the cursor under Rep1 and press .
This will add **100ml**. The **OFF** indication will change to **ON**, meaning that the replenishment pump is working. If you need more replenishment,

press again to add more replenishment in steps of 100ml. There is no need to wait for the replenishment pump to finish.
For tank 2, move the cursor under Rep2 and repeat the procedure.

Note: Up to 2000 ml of manual replenishment or a maximum of 25min pump working time is allowed (whichever is greater).

Press to jump back to main page.

If an error occurs, the indication P1 (or M1) will alternate with Er. If this happens

Press the ▶ button. This will stop the beeper and bring you to the error menu, so you can check what kind of error is indicated. If more than one error occurred, press ▼ to scan the rest of them.

Press ▲ to jump back to main page.

When the filmprocessor switched on at the beginning of the working hours ,it is expected to have low temperatures in the tanks.For this reason, the **Er** indication will be present, but without alarm. If, however, the temperature drops during normal work, the alarm will be activated.

Error Messages:

Display	Reason
Tank1 too cold	A:Normal condition during heat-up period. The developer will be heated until the preprogrammed-temperature is reached. B:If an error message is displayed. Call for qualified Service personnel
Tank1 too warm	Developer temperature has gone up more than 1°C above SET-temperature.Call for qualified Service personnel
Tank2 too cold	A:Normal condition during heat-up period. The fixer will be heated until the preprogrammed-temperature is reached. B:If an error message is displayed: Call for qualified Service personnel
Tank2 too warm	Fixer temperature has gone up more than 5°C above SET-temperature.Call for qualified Service personnel
Dryer too warm	Actual temperature in the dryer is more than 5°C above SET-temperature.Call for qualified Service personnel
Motor overload	Hardly running drive/transportsystem. The drive motor did not reach it´s SET-speed Call for qualified Service personnel
Tank1 low level	Level Tank1 too low
Tank2 low level	Level Tank2 too low
Water overflow	Drain of watertank is blocked Call for qualified Service personnel
Cover openend	Top cover of the filmprocessor is open.
T1: no probe	Temperature probe in Tank1 is defect or lacks Call for qualified Service personnel
T2: no probe	Temperature probe in Tank2 is defect or lacks Call for qualified Service personnel
T3: no probe	Temperature probe in Dryer is defect or lacks Call for qualified Service personnel
Water low level	Level Watertank is too low.
Can't fill water	After *30 minutes*, the watertank should be filled up with water, if the sensor is not reached during this time, the meassage appears. Call for qualified Service personnel
Wrong location	Only possible, if a FEEDER is installed - refer to the „Instruction Manual for Colenta INDX Auto Film Feeder“.
Change filter	The filter medium has to replaced. Call for qualified Service personnel

5.7 Manual start/stop

The manual start/stop is possible only when no media is being processed. During the processing the corresponding menu items are not selectable - you can't move the cursor there.
To run the motor manually:

Press 

With  , move the cursor under **Start** and select it with  .
This will run the motor. The menu item Start changes to **Stop.**
You can stop the motor by selecting **Stop.**

When you start the motor manually, this will be indicated on the main page as **M1 instead of P1.**

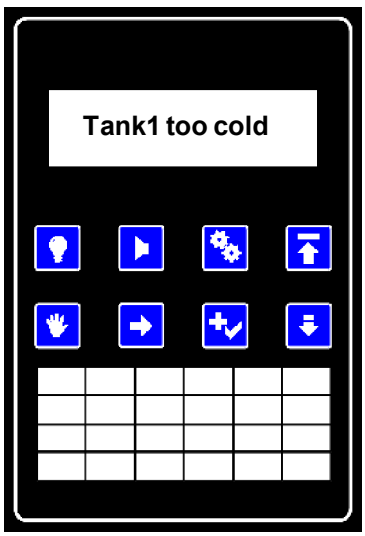
5.8 Display illumination ON/OFF

In a dark room, it might be necessary to switch off the display backlight to prevent exposure. The  button toggles the backlight on/off.

When the backlight is off, all the buttons except  are disabled.
This is done to prevent pressing buttons by accident in a dark room. Switching the display off is a good idea if the filmprocessor is left unattended. This will reduce the chances for unauthorized people to operate the filmprocessor.

5.9 Automatic start

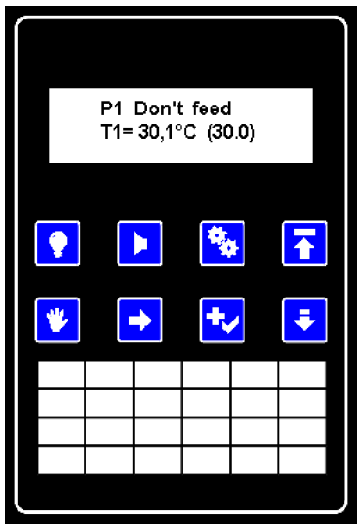
The processor will start automatically when media is fed, except in case the developer is too cold - more than 1ºC below the programmed. In this case, feeding the media will not start the processor. Instead you'll get the message,



which will disappear after 2 seconds.
If you need to feed a film regardless of the low developer temperature, run the film processor in manual mode.

5.10 Distance between films

To prevent film jams, some minimum distance between the films is needed.
After the end of the film, the display will show:



As long as “Don’t feed” is present , it`s not alowed to feed films. After a while “Don’t feed” will disappear and a beep will indicate that the input is free again.

5.11 Monitor Mode:

The "Monitor Program" is used to check some differents parameters of the filmprocessor.

Press the bottum , you will see: **Start P1 Use Rep Monitor**, move the courser by using under **Monitor** and confirm with

the first page looks like this:

```
DDDDFFFFWWWWDDDD
---      --
```

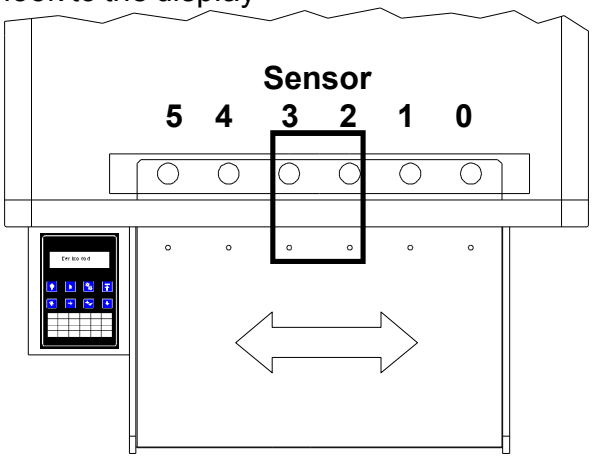
This represents the filmprocessor,: the first four DDDD are the developer tank, FFFF - fixer tank, WWWW - water and the last DDDD is the dryer.

The dashes on the second row indicate where in the filmprocessor there are pieces of material.

The water is turned on only if there is a film in the specified portion of the filmprocessor, that saves water and protect the environment.

Each film is tracked inside the machine . The software can track up to 70 films.
Note that two films running in parallel are considered as one. For the filmprocessor, different films are pieces of material separated by completely free sensorbar.

Motor Off / On **Speed 19 001**	Motor is **On** or **Off** **19** speed **001** re-impulses from the motor
Normal s-bar **Area=0.0000 sqm.**	A normal 6-sensor sensorbar is recognized Value of the given filmaera until to the next replenishment cycle
S-bar: --------- **----------**	This feature is used to check each sensor of the sensor-bar. In the COLENTA INDUX 43 there are 6 sensors integrated. To check the sensors, follow the instructionen underneath: -put a small film under the sensorbar (don't feed into the filmprocessor) -move the film as shown underneth -at the same time take a look to the display
S-bar: --------- **---------10**	That means sensor 1 and 0 are occupied
S-bar: --------- **-------32--**	That means sensor 3 and 2 are occupied

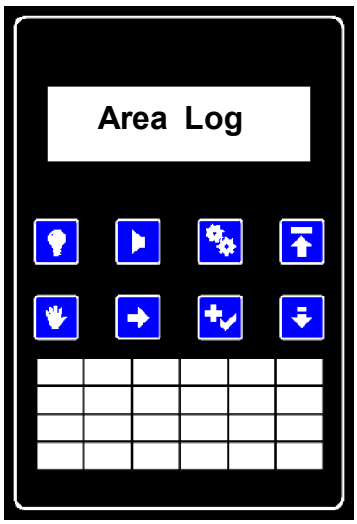


H1=0 H2=0 H3=1 **Fan=1 Wash=0**	H1=1 or 0 heater tank1 **On** or **OFF** H2=2 or 0 heater tank2 **On** or **OFF** H3=3 or 0 heater dry **On** or **OFF**
Refill1 0000 **Refill2 0000**	see "Automatic Developer and Fixer tank fill" on page 27

5.12 Filter control:

Version 2.7 is equipped with a sub-program to control the filter unit of the developer:

Press the bottum , use to move the courser under "Options", press , you will see "Standby Refill Filter" use again to move the courser under "Filter", press you will see:



The Area menu sets the amount of square meters before filter alert.
The value is 0000-9999 . A value of 0000 turns off the filter alert.

Filter alert after xxxx sqm

Save Cancel

The Log menu shows the total area processed so far. This value is stored in the NVRAM. The value is updated each time a replenishment is initiated. It depends on the „Replenish after“ variable from the setup.

0000.00 Exit Clear

For example if Replenish after = 0.125sqm , the total processed area will be increased by 0.125 sq.m. at each replenishment.

At each replenishment the total processed area is checked for exceeding the alert value. When the value has been exceeded, an error message appears „Change filter“.

WARNING: Call for qualified service personnel. The filter may be exchanged by qualified service personnel only.

After changing the filter, the user must go to programming mode menu Options/Filter/ Log and clear the processed area, so the area will be counted from 0 for the new filter.

5.13 Additional features - refill water / chemistry

Program MF800 Ver. 2.7 includes the following features:

1 - Automatic wash tank fill / automatic wash tank draining
2 - Automatic Developer and Fixer tank fill (see next page)

1 - Automatic wash tank fill / automatic wash tank draining

This feature ensures that the water level in the wash tank is at the normal level on „start-up“ and then to drain automatically on shut down. This is accomplished by the use of an additional level sensor in the wash tank to inform the filmprocessor controller on the level of water in the tank and the use of an electrically controlled drain valve that will remain „closed“ when the filmprocessor is in use and „open“ when the filmprocessor is shut down. On morning „start-up“ the drain valve will be closed and the water „fill“ solenoid will open to allow water to pass into the wash tank until reaching normal operating level. If the wash tank does not reach normal level within 20 minutes (level switch not activated) the electronics will assume that
there is a water supply problem and the error message „ can’t fill water“ will be displayed. (see page 21 for further information).

The following instructions will activate or de-activate this feature:

Press the bottum , use to move the courser under "Options", press , you will see "Standby Refill" use again to move the courser under "Refill", press you will see:

Wash auto refill
1 (1-yes,0-no)

use to set 1 or 0. After that procedure, use (3x) to leave the menu, the controller will ask you : | Save Cancel | choose save by using .

2) Automatic Developer and Fixer tank fill.

This feature automatically corrects for low level conditions in the Developer and Fixer chemical tanks by way of additional level switch monitoring circuits.
If either tank „low level" tank sensor is activated a replenishment cycle will inject solution (**XXml**) into the chemical tanks until the correct tank level is reached.
** XXml** this amount is programmable and relates to the size of filmprocessor.
(see the table : factory settings)
In the case of a leak from the tank or the associated circulation system and to avoid the replenishment pumps operating continuously thereby draining and wasting replenishment chemistry there is an inbuilt fail safe system that will disable the replenishment pump if the level in the tank is not reached after 2000ml of replenishment. The pump will stop and the message „ Tank - Low Level"

Use the following procedure to activate or de-activate the feature:

Press the bottum , use to move the courser under "Options", press , you will see "Standby Refill" use again to move the courser under "Refill" you will see:

Wash auto refill 1 (1-yes,0-no)	**(page before)**

Use (1x) you will see:

no refill **300ml refill**

T1 auto refill add 0000 ml	T1 auto refill add 0300 ml

In this case, the automatic chemistry tank fill is deactivated, to activat, you have to set a value instead of 0000. To do this, use the following procedure:

Move the courser under the "zeros" by using ,to set a value, use .

To leave, use (1x) you will see:

T2 auto refill add 0000 ml

Use the same procedure for Tank2 as described before for Tank1.

After you set that all, use (1x) to leave the menu, the

controller will ask you : Save Cancel choose save by using .

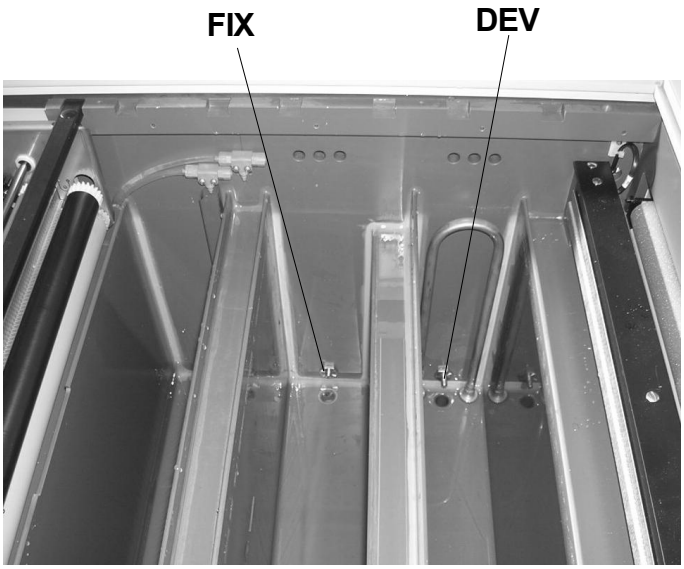
6. TEMPERING SYSTEM

The filmprocessor employs a indirect tempering system to maintain processing solution temperatures accurately and efficiently. This tempering system is integrated into the recirculation. This system offers more efficiency and energy-saving.

The control panel in turn activates the circulation pumps and the tempering unit. The circulation pumps mix the chemistry to ensure even temperature throughout the entire tank.The drive motor also comes on during this period, to prevent build-up of chemical by-products on the processing rack parts during period of low usage. As protection against overheating most of the filmprocessors are equipped with a „cold water“ cooling system.

7.TEMPERATURE SENSING

The temperature probe in the tank senses the temperature change and activates the relevant heater control circuits within the main processor control system so as to maintain accurate solution temperatures.



DRYER....RED

DEV.....YELLOW

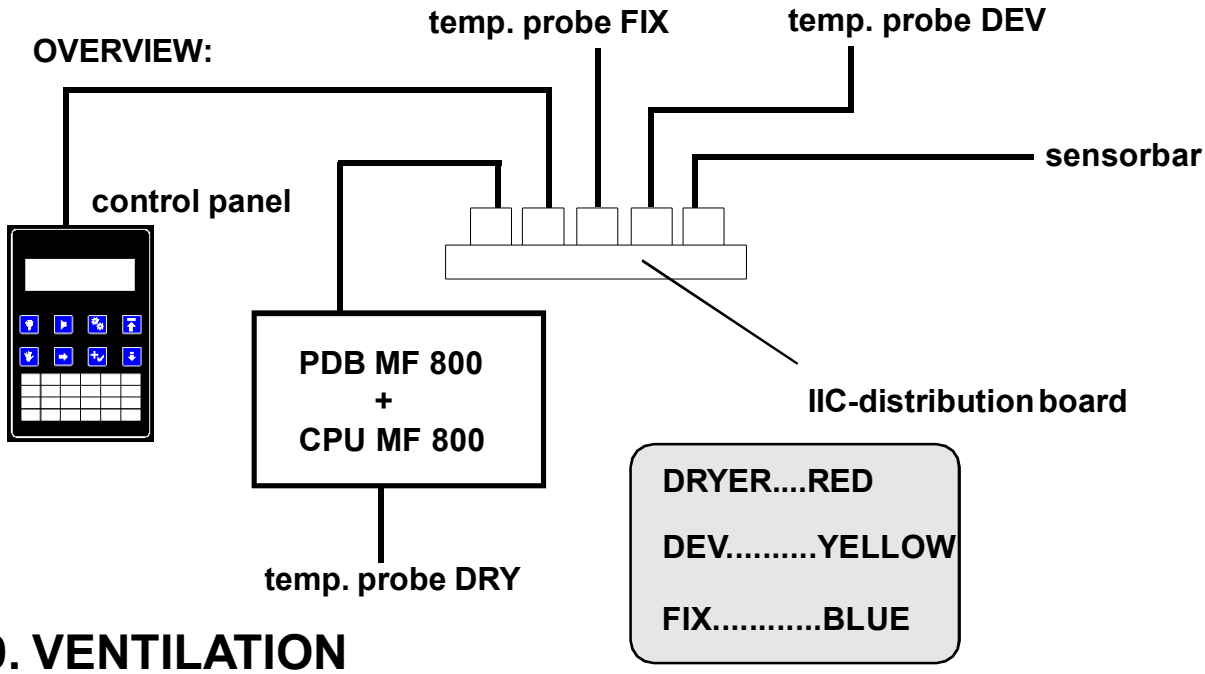
FIX.....BLUE

8. I²C-BUS SYSTEM

Probes positioned under solution levels precisely monitor all solution tank temperatures. These temperature probes are continuously supplying information to the microprocessor on actual solution temperatures within the tanks. The microprocessor then compares these actual temperatures to the required programmed ”set” temperatures and controls the relevant heaters/cooling systems accordingly.

Bus-System	Measurement	Action
Temp.-probe	Developer Temp.	Heating/Cooling
	Fix Temp.	Heating/Cooling
	Dry	Heating
Sensorbar	Incomming plate-area	Replenishment

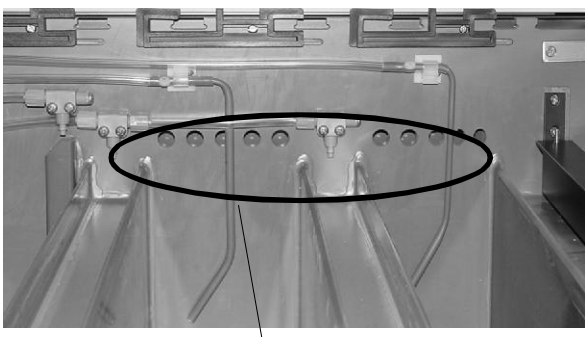
NOTE:To transfer this information, a BUS-SYTEM is installed.



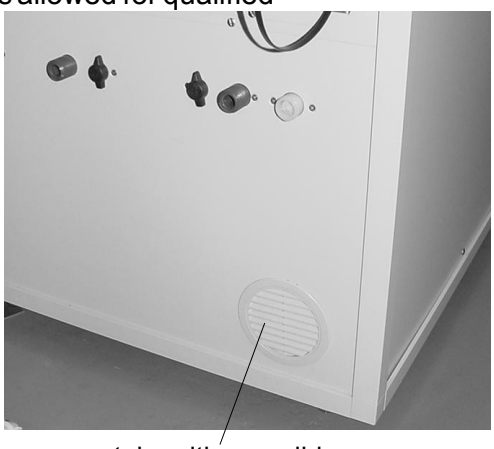
9. VENTILATION

To prevent cristalization and humidity inside the filmprocessor a ventilation divice is fitted to processor. It is recommended to connect the below mentioned tube to an external exhaust device to prevent any possible problems.

WARNING: To install such a external exhaust device, is allowed for qualified Service personnel only.



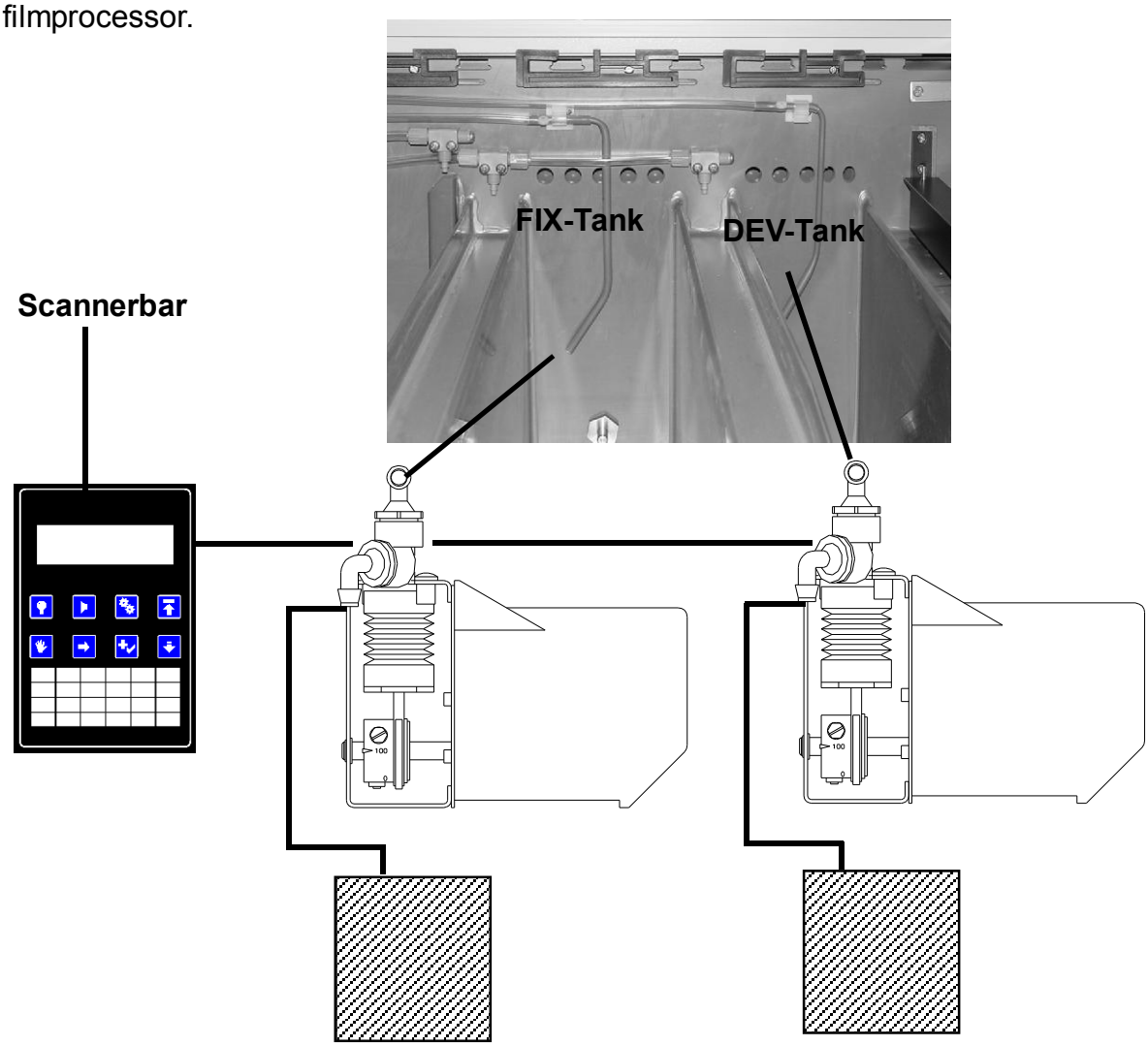
ventilations holes



tube with cover lid

10. CHEMICAL REPLENISHMENT SYSTEM

Whenever photographic material is processed, chemical components of the processing solutionsd are used and by-products are left behind in the processing solutions. Replenisher solutions are formulated to restore the chemistry to its original activity and to dilute the by-products to a correct level. It is therefore necessary to add the proper amount of replenisher for the amount of material that has been processed. Performed automatically by the filmprocessor by way of infrared sensors installed across the complete feed width of the filmprocessor.



These sensors emit pulses of infrared light which has no effect on photographic emulsions.
When media is beneath the sensorbar, the pulses are reflected and detected by the sensor.
The pulses are transmitted to the control panel where they are „counted“ by the microprocessor.
When the number of pulses reaches the amount that has been programmed on the microprocessor, the replenishment timer function starts.

The replenishment timer runs the replenishment pump(s) for the number of seconds that have been set on the microprocessor. When the replenishment pumps are activated, the replenisher solutions are pumped through filters located at the bottom of the external replenisher tanks to the chemistry tank. The replenisher tanks are outside of the film processor.
The filters should be checked monthly and be cleaned or replaced if necessary.

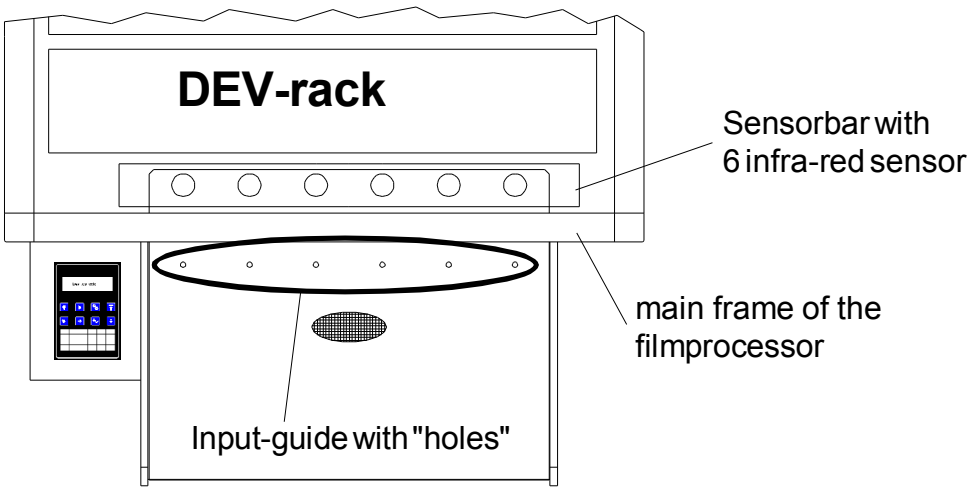
WARNING: Separate the Film Processor from mains. To do so, switch the main power switch of the processor to „0“ position. Wear safety goggles, protection gloves and clothing.

10.1 INFRARED REPLENISHMENT SENSORBAR

The automatic replenishment system is using an infrared-sensor-bar to detect the incoming film area. With that information the CPU of the filmprocessor will calculate the replenishment rate which will be need.

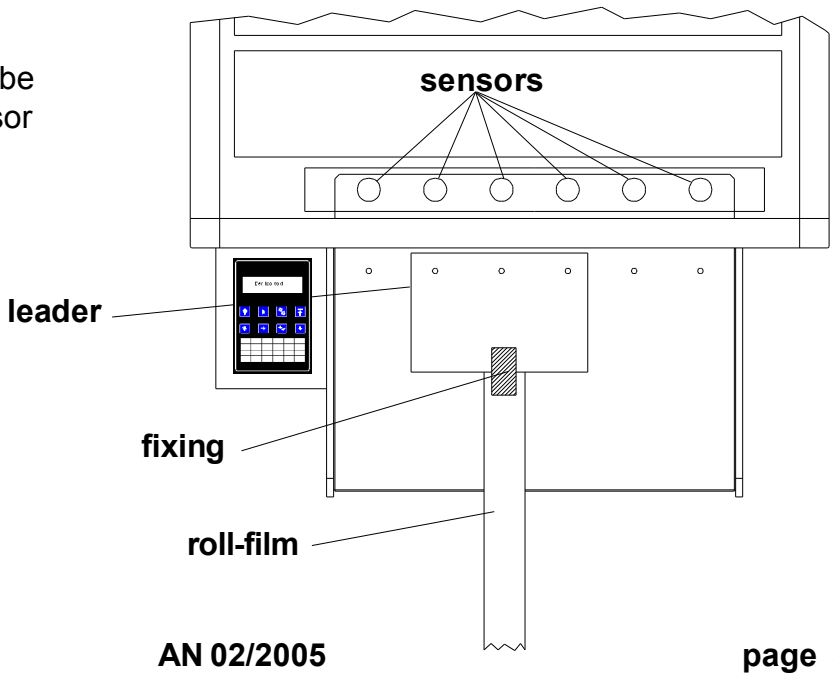
IMPORTANT: Special care must be taken to ensure that the processor entrance rollers are always clean and dry – any spillage of chemical or water onto the feed tray / feed rollers or sensor bar must be avoided. Any spillage must be cleaned immediately.

The "holes" in the film input guide show you the position of the sensors.



<u>To process rollfims, take care to the following points:</u>

- use a leader
- take care that the film will be detect by minimum 1 sensor



11. MAINTENANCE

The filmprocessor is designed to produce consistent high quality production with the minimum of maintenance.
Regular maintenance minimizes the chances for equipment failure and loss of processing quality. A a well trained person has to be responsible for performing the maintenance of the filmprocessor and must be familiar with the operation and function of the processor as well.

1. Daily maintenance

*) Check levels of the external replenishmener tanks - If necessary mix fresh solution.
*) Cleaning feed tray.
*) Cleaning spray-bar-guide for the fixer
*) Before starting production we advise to feed some cleaning films to remove any overnight residue.
*) Use the supplied "spray-bottle" to remove any deposits from the drive gears - as shown below:

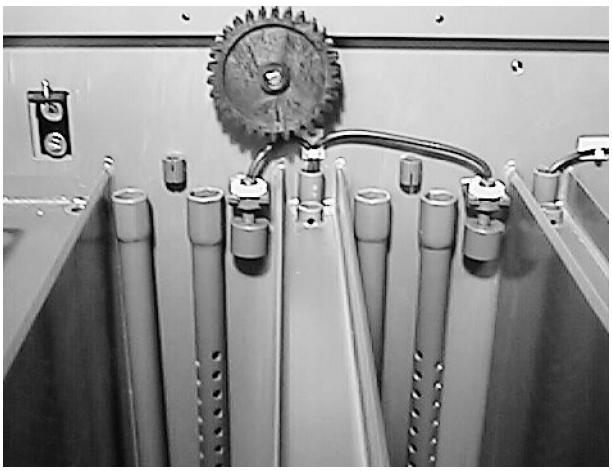
Spray-bottle

2. Weekly maintenance

*) Wipe**external surfaces of film processor / enclosures / panels** with a wet cloth to remove any chemical / dirt deposits.

*) Inspect and clean the wash tank and intermediate water rins drains. If algaes present then the should be removed, in such a case we suggest to use a proven algae control system

*) Check the shown drain pipes and overflow tubes - remove any deposits to prevent blockad of the drain.



12. RECOMMENDED MAINTENANCE EVERY 3-6 MONTHS.

(Period is subject to filmprocessor useage.)

Good processing quality and the reliable operation of a filmprocessor is dependent upon regular and careful cleaning. Every 3-6 months, the chemicals in the tanks should be drained.
A chemical cleaning of the processing tanks and wash tank is recommended. Always follow safety warnings as described in section 1 when cleaning the filmprocessor.

> Prior to **carrying out any maintenance**, switch off the power at the main power switch (position "0") ensuring it cannot be accidently switched back on.

*) Switch off the main power switch of the film processor first (position „0“).
*) Remove the top cover of the filmprocessor.
*) Drain individual tanks by open the draintaps in front of the filmprocessor.
*) Remove rack assemblies (water / DEV / FIX, see item 2.1) and put them aside.
*) Close taps and fill all tanks with water or better with suitable cleaning solution until the red mark inside the tanks are reached.
*) Put the racks back into the tanks of the filmprocessor and close the top cover.
*) Switch on the filmprocessor and start some replenishment cycles. The hoses will be cleaned with water as well. Also start the transport of the filmprocessor, the racks has to be in. Let the filmprocessor run for 10 to 15 minutes.
*) Switch off („0“ position)the main power switch of the filmprocessor and drain the filmprocessor tanks again.
*) NOTE: Use cleaning solution according to the manufacturer´s instructions.
*) After tank cleaning, the developer- and wash-tank should be filled twice with fresh water (eventually use neutralizer recommended by manufacturer). Let the filmprocessor run for approximately 10 minutes again. Check all external (outside of the filmprocessor) hose connectors (outside of filmprocessor) and fittings for leaks.
*) Drain all tanks.
*) Remove the water / DEV / FIX Racks and check for:
    -worn gears
    -damaged or worn bearings
    -loose screws
    -scratched or bent film guides
    -plastic flat springs in developer bottom underturn.

*) All repairs must be carried out by qualified service personnel.
*) Check the inside of the tank for contamination and alien substances.
*) Clean the rollers well.
*) Close the drain taps of all 3 tanks.
*) Fill developer and fixer tanks with fresh chemicals to the required level (1st fixer, 2nd developer)
*) Fill wash tank.
*) Re-install the racks carefully. Take care of correct sequence of the racks is followed and make sure the gears are in the right position. Secure the racks.
*) Insert the respective suction pipe to the correct external replenisher tank. Re-install the top cover and switch on the filmprocessor.
*) Process test films.

13. TROUBLE SHOOTING

Problem	Possible cause	Correction
1. Error message Tank1 too cold: Developer temperature more than 1 C below set temperature	a) Developer bath temperature too low	a) Check Heat up time- Check Dev -Temp in 2-3min 1°C temperature increase
	b.)Heater problem	b) **Call qualified service personnel**
	c.) No circulation in the bath	c.)**Call qualified service personnel**
2. ERROR message : Tank1 too warm Developer temperature more than 1 C above Set-temperature	a) Cooling valve doesn´t work	a) **Call qualified service personnel**
	b) Water tap closed	b) Open water tap
3. ERROR message : Tank2 too cold Fixertemperature more than 1 C below Set-temperatur	see point 1	**Call qualified service personnel**
4. ERROR message : Tank2 too warm Fixertemperature more than 1 C above Set-temperatur	see point 2	**Call qualified service personnel**
5. ERROR message : Dryer to warm Dryer temperature more than 5 C above Set-temperature	a) Set temperature too low (lower than room temperature)	a) Change set temperature
	b) no power	b) **Call qualified service personnel**
	c) Solid State	c.) **Call qualified service personnel**
6. ERROR message: Motor overload the drive motor did not reach it s Set-speed	a.) Main Drive assembly blocked	a.) **Call qualified service personnel**
	b.) Main drive chain to much tension	b.) **Call qualified service personnel**
	c.) Film jam in the racks	c.) Check the racks for any jamed films

Problem	Possible cause	Correction
7. Main drive and dryer run continuously	a.)Main drive was started in "manual mode"	a.) Check in the manual programm if "STOP" is shown stop the transport with button. Attention: if also an automatic cycle is started by the sensor bar this cycle will end first.
	b.)Material always under sensorbar.Material not transported/pulled into the processor	b.) Check the Input rubber roller.Check the film casette.
	c.)Sensor/s at the sensorbar wet or dirty	c.) Clean the sensor/s
	d.)Main board defective	d.) **Call qualified service personnel**
8. Material wet when exiting processor	a) Dryer temperature too low	a) increase the dryer temperature (max. 60°C)
	b) Transport speed to high	b) Lower the transport speed
	c) Unusable or wrong Developer or Fixer	c) Increase the Repl.rate or change the chemicals
	d) Dryer blows only cold air	d) **Call qualified service personnel**
9. Temperature problems Temperature is shown incorrect.	The temperature probes has to be positioned according their code.	**Call qualified service personnel**

Problem	Possible cause	Correction
10. No fresh water supply	a) Water tap is closed	a) Open water tap
	b) Watervalve is blocked or faulty	b) **Call qualified service personnel**
	c) main board defective	c) **Call qualified service personnel**
	d) no power on the valve	d) **Call qualified service personnel**
11. Circulation pump don t work	a) Pump wheel is blocked by dirt	a)**Call qualified service personnel**
	b.) no power	b.) **Call qualified service personnel**
12.Level in water tank to high, watertank overflows	a.)Water drain/overflow blocked	a.) **Call qualified service personnel**
	b.) Worse water drain installation	b.) **Call qualified service personnel**
13. Level in Developer- or Fixertank to low.	a.)Tank leaks	a.)**Call qualified service personnel**
	b.)Too low replenishment rate or too long anti ox. cycle	b.)Increase the replenishment rate or decrease the Anti ox cycle time
	c.)Replenishment container empty	c.) Fill up the replenishment containers
	d.)no power on the replenishment pumps	d.)**Call qualified service personnel**

Problem		Possible cause		Correction	
14.	**CHEMICAL TEMPERATURE CANNOT BE REACHED**	A)	Incorrect temperature	A)	Program the temperature correctly.
		B)	Temperature sensor is faulty.	B)	**Call qualified service personnel**
		C)	The processor was started without liquid in tanks. The safety fuses at the heating element have interrupted the current supply.	C)	**Call qualified service personnel**
		D)	PDB is faulty.	D)	**Call qualified service personnel**
15.	**SCRATCHES OR PRESSURE MARKS**	A)	Unsuitable handling of the processing materials.	A)	Handle material carefully.
		B)	Cross over rollers are dirty.	B)	Clean all rollers above fluid level.
		C)	Bent guide bars	C)	**Call qualified service personnel**
16.	**MATERIAL REMAINS IN THE PROCESSOR**	A)	Material fed incorrectly.	A)	The material must be fed in straight.
		B)	Material has excessive curl.	B)	Fold leading edges and feed in the processor.
		C)	Material is too thin.	C)	Use a leader to process
		D)	Rollers aren´t rotating.	D)	**Call qualified service personnel**
17.	**PROCESSOR COULD NOT BE SWITCHED ON**	A)	Main cable isn´t plugged.	A)	**Call qualified service personnel**
		B)	Main fuse is faulty.	B)	**Call qualified service personnel**

problem		possible cause		correction
18.	**PAPER OR FILM TOO LIGHT**	A)	Bath temp is too low	A) Adapt the bath temperature to the recommended process or change chemistry.
		B)	Transport speed is too high.	B) Decrease transport speed.
		C)	Exposure time is too short.	C) Increase exposure time.
		D)	Bath level ist too deep (no heating and circulation)	D) Fill bath to the right level. Check Replenish-tanks.
		E)	Developer exhausted	E) Replenish or change chemistry.
		F)	Fixer getting into developer (Dev becomes cloudy)	F) Carefully clean the tank without running water and replace chemistry.
		G)	Exposure settings are incorrect or machine is faulty.	G) **Call qualified service personnel**
19.	**PAPER OR FILM TOO DARK**	A)	Developer termperature is too high.	A) Decrease developer temperature.
		B)	Processing time is too slow.	B) Increase processing time.
		C)	Exposure time is too long.	C) Reduce exposure time.
		D)	After new chemistry: starter is missing.	D) Add starter according to instructions.
20.	**PAPER OR FILM IS FOGGED**	A)	Light leak in darkroom or cassette	A) **Call qualified service personnel**
		B)	Incorrect darkroom light	B) **Call qualified service personnel**
		C)	Material is outdated.	C) Check date of maturity.
21.	**PAPER OR FILM HAS YELLOW-GREEN SURFACE**	A)	Unsuitable hand processing material is used.	A) Only use material suitable for roller processing.
		B)	Fixer is exhausted.	B) Replenish or change chemistry.
		C)	Level of fixer bath has dropped (Temperature safety fuse has been activated).	C) Check level of the replenishment containers. Fill up the bath to the required level.
		D)	Circulation pumps have failed.	D) **Call qualified service personnel**

NOTES

NOTES

NOTES

SERVICE MANUAL

for

Colenta® INDX 43 I

Filmprocessor

Warnung: Diese Anleitung ist nur f r qualifizierte Service Techniker bestimmt.
Warning: For the use of qualified service personnel only.
Avertissement: R serv au personnel de service qualifi .

EN ISO 9001
DNV
Certified Company

Colenta

MP800 V2.8 r07 und up

02/2005 AN

Colenta

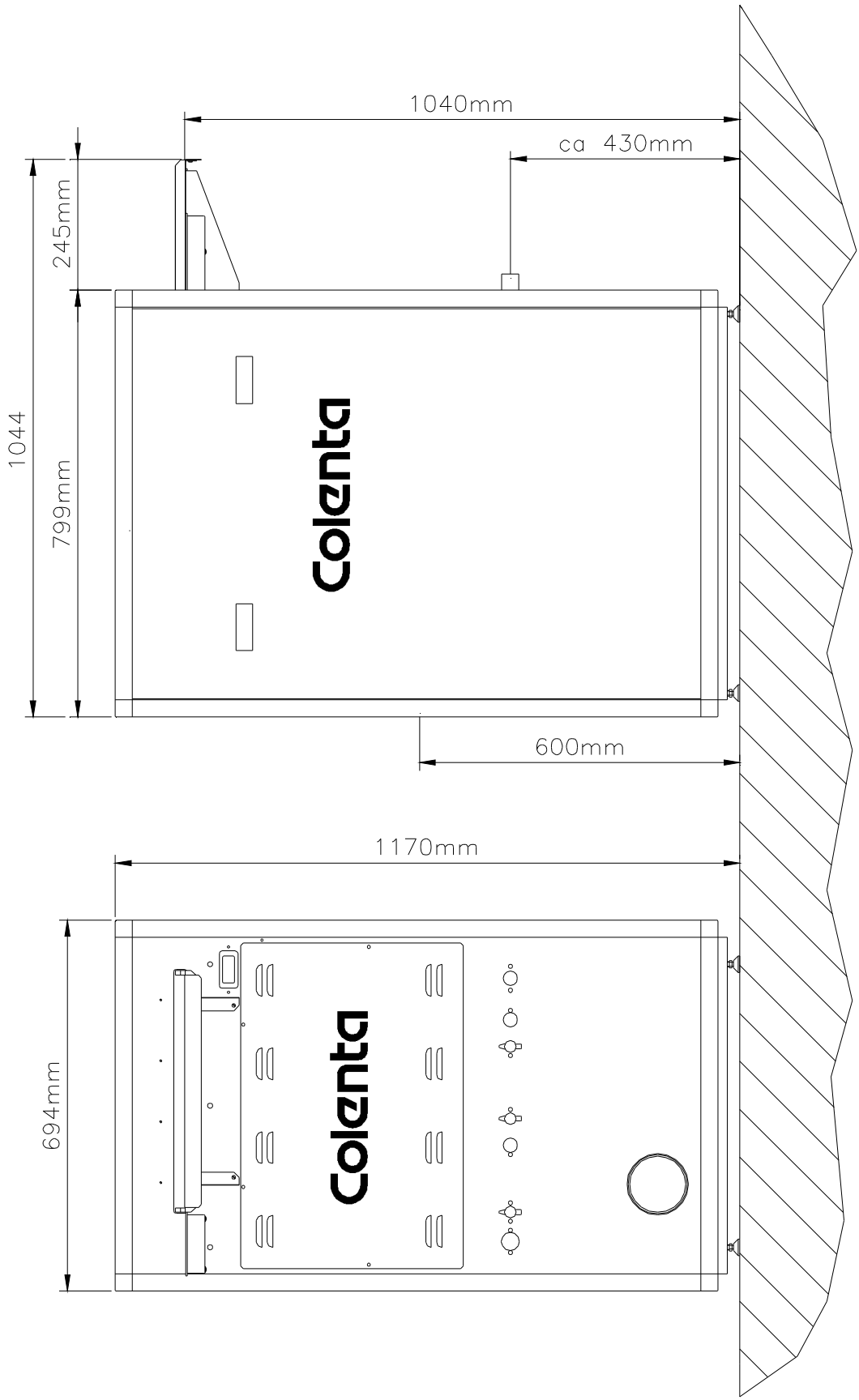
INDX 43 I

Technical Specifications

Processing applications:		Rolls/Cut sheets of all commonly used ind.-x-ray films
Film thickness:		min. 0,10 mm
Material width:		min. 7,5 cm max. 43 cm
Material length:		min. 10 cm
Time in Developer:		min. 31 sec - max. 170 sec (see the table on one of the next page)
		INDX 43 I
Tank capacity -	Developer(+filter):	11,5l
	Fixer:	10,5l
	Wash water:	10 l
Solution heating(Fix and DEV):		variable in a range of 18°C - 43°C (separate inline 350W heaters)
Dryer:		warm air variable in a range of 18°C - 60°C
Replenishment:		fully automatic. replenishment is microprocessor controlled and calculated from information received from sensors measuring the width and length of material entering the processor. Replenishment cycles are variable.
power supply:		1 / N / PE~ 230V (+6% / -10%), 50Hz, 16A, 3.7KW
water supply:		2-way magnetic valve, with 3/4" hose connection by using a DVGW-approved system-separating device or pipe-separating device.
Wash water flow rate:		2,5 ltr/min when film is in process
Wash water supply pressure:		3 - 10 bar
Wash water supply:		filtered at a temperature of 10°C - 15°C
		INDX 43 I
Weight:	Empty	185 kg
	With solution	217 kg

Technical specification subject to change without notice.

Dimensions of COLENTA INDX 43 I:



Electrical supply: 1/N/PE 230V 50Hz

	single phase 230 V 50Hz
INDX 43 I	**3,7 kW** **16 A**

Power cord with plug
CEE 3+P+N+PE 16-6
415V 16A

(Connected to the processor)

FACTORY SETTINGS :

				R N E
Program	**P1**	**P2**	**P3**	
Program	**P4**	**P**	**P**	
Program	**P**	**P**	**P**	
P5 – P9 not programmed				

Se p		

See more on page 42a und 42b

FACTORY SETTINGS :

Options		
Standby		
Refill		
Filter		
Area		
Log		

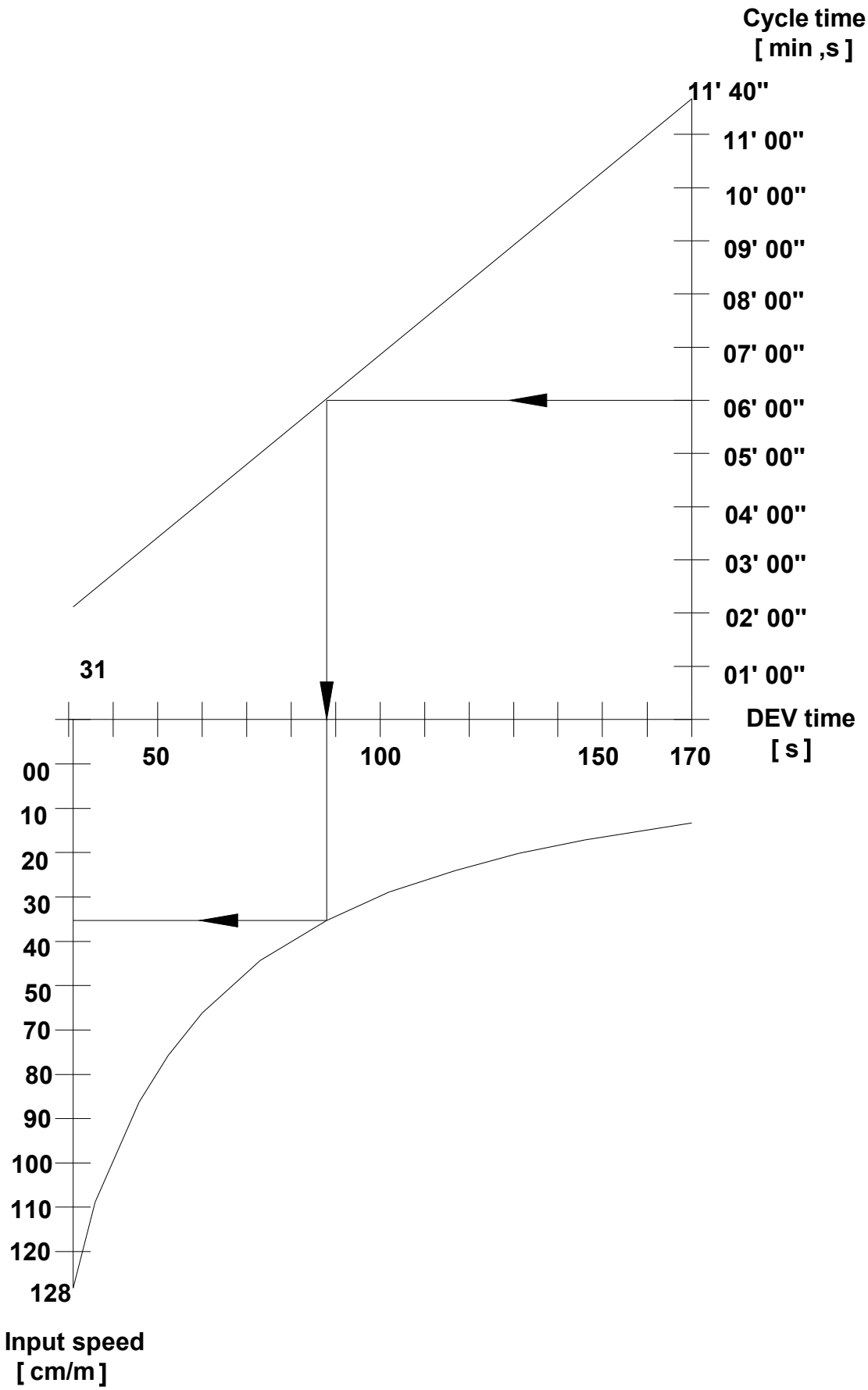
Only in use when a FEEDER is installed:

RS 3		

as o e if a a o fee er is co ec e

See more on page 42a und 42b

INPUT SPEED / DEV-TIME / CYCLE-TIME:



INDEX

1. INTRODUCTION

Congratulations upon your decision to buy a

COLENTA INDX FILMPROCESSOR.

Your purchase has been designed to meet the highest technical standards.

Some outstanding design features are:

*) compact, space-saving design
*) full automatic processing cycle
*) smooth roller transport system
*) low tank volumes
*) electronically controlled temperature system
*) automatic replenishment
*) low energy consumption

This manual is an instruction for routine use of your:

COLENTA INDX FILMPROCESSOR.

Colenta

INDX 43 I

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

1.1 GENERAL SAFETY INSTRUCTIONS

*) Service personnel responsible for installation, repair, service and maintenance of the processor must familiarize themselves with with this safety instuctions.

*) Whilst carrying out service, maintenance or repair work on the processor safety glasses must be worn.

*) Never let the processor unattended / uncontrolled.

*) Take care not to let any unsuitable material enter the processor.

1.1.1 ELECTRICAL

*) Prior to servicing, maintenance or repair switch off the power at the main switch of the processor ensuring it cannot be accidently switched back on (lock the main switch with a padlock). Observe safety rules if machine has to be switched on during servicing (e.g. fault finding).

*) Installation, service, training and first setup of/for the processor has to be done by a well trained and qualified service personnel.

*) Built in safety devices are not allowed to be bypassed or to be put out of function, failed electrical components must be replaced by original COLENTA spare parts.

*) Repairs to electrical components must meet "safety and test rules for repairs" (VDE 106, part two, VDE 0701, VBG 4, VBG 103).

*) Remove any jewellery that may come into contact with electrical components.

*) All connections must be grounded according to safety instructions.

*) All dampness in the base tray must be eliminated to prevent short circuits.

*) After installation, service and repairs, the processor has to be tested again according to the Test Instruction after Installation, Repair and Service work on the end of this manual.

1.1.2 CHEMICAL

*) Follow manufacturer´s instructions for chemistry.

*) Wear safety glasses and protective gloves whilst working with chemicals.

*) Ensure room is adequately ventilated.

*) In case of contact with the eyes flush with plenty of cold water for approximately fifteen minutes and seek medical advice.

*) Follow environmental instructions when disposing of used chemistry.

2. SAFETY INSTRUCTIONS IN DETAIL

Processor Operation
Never allow loose clothing or jewellery to come close to the gear train,media transport area.Service,maintenance and repairs must be performed by qualified service personnel only .

This Service Manual is for the use of qualified service personnel only.

The racks must always be cleaned outside the processor with running water.

Do not clean the processor with running water.

Electrical and Mechanical Hazards
Follow safety warnings to minimize the risk of electrical shock,burns and equipment damage when operating any equipment.Photographic processing machines are mechanically and electrically complex and contain volumes of chemicals for which reason extreme caution is required.

Always turn off and lock the power switch by padlock before opening the top cover.

Fire Prevention
The area around the processor must be kept clean. Keep dust ,wood shavings, paper cuttings and waste materials out of the dryer compartment.

Fire extinguishers must be available in the room where the processor is operating and where paper and chemicals are stored.

Chemical Hazards and Handling
Misuse of almost any chemical may create a hazard of some type.Generally,photo chemicals are no more hazardous than many common cleaning products,however,there is still a risk of danger.When handling and storing chemicals follow the precautions and procedures below.

1).Never sniff a container or open bottle to determine its contents. A cautious sniff of the cap or lid is safer.

2).When handling chemicals wear protective clothing, safety goggles and rubber gloves .

3).Label storage containers properly.Avoid storing hazardous chemicals on high shelves or in unprotected glass containers. Keep chemicals away from children.Do not store chemicals in a refrigerator used for food because they may contaminate food or be mistaken for edibles.

4).Ensure proper ventilation in the area where chemicals are used or stored.

5).Observe the manufacturer's recommendations for using and mixing chemicals.

Overexposure to photographic chemistry may cause skin irritation to certain individuals.

PHOTOGRAPHIC CHEMISTRY EMERGENCY AND FIRST AID PROCEDURES:

• **SKIN** -Flush thoroughly with water.

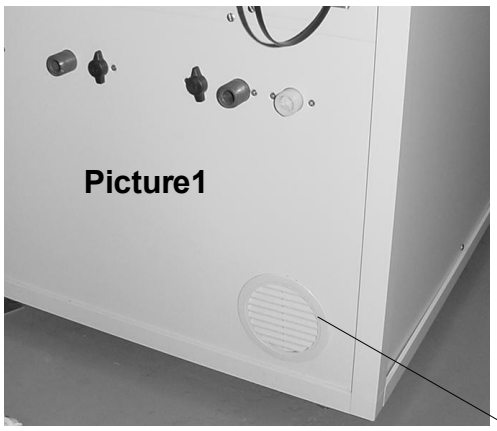
• **EYES** -Flush thoroughly with water and consult a physician.

• **INGESTION** -Consult a physician immediately.

Chemical Disposal
Photographic processing wastes normally contain diluted chemicals.These chemicals should be collected and disposed in accordance with local environmental codes.Dumping chemicals into a drain system could lead to a pollution problem.Contact your local water treatment and sewer district authorities before disposing chemicals.
All plumbing must comply with local and national codes.The DRAIN must be made of chemical resistant and non-corrosive material. Use PVC or equivalent

Exhaust,Temperature and Humidity
It is important to establish correct exhaust to obtain trouble free processing.Make sure that the exhaust hose from the built-in exhaust is properly connected to the processor by qualified Service Personnel.
The built-in exhaust removes chemi cal f umes f r om t he pr ocessor and installation site.Chemical fumes are corrosive and if the processor is switched 100%off at night the wet section should be drained for chemistry.

Room temperatures between 18-26 °C (65-80 °F)with a relative humidity between 35% and 75%are ideal for photographic processing and comfortable working conditions.



The processor is a complex machine with moving parts such as the gear train and media transfer components.It uses photo processing chemicals which are irritating to eyes,lungs and skin.High voltage is used to power the processor.

The dryer compartment produces heat.

· High voltage may cause electric shocks, burns or even death.

· Hands or fingers may be pinched or injured by moving parts or while handling heavy parts.

· Dryer compartment heat may ignite combustible materials and cause fires.

· Eyes,skin and lungs may be irritated by photo chemicals.Before using photo processing chemicals always read the Material Safety Data Sheets (MSDSs) for information about the hazards of the particular chemicals and how to use them safely.

· Never operate the processor after using mind-altering drugs or alcohol.

· Do not wear jewellery or loose clothing while operating the processor.

This alert symbol indicates specific safety hazards and ways to avoid accidents. Ignoring safety information may lead to serious injury or property damage.

Electronical/Electrical Hazard

HAZARDOUS VOLTAGE CAN CAUSE ELECTRIC SHOCK,BURNS OR EVEN DEATH ·

Qualified service personnel must verify that the processor is permanently and continuously grounded according to standards in the National Electrical Code and manufacturer requirements.

Do not remove the top cover before the following steps are carried out :

1.Training of the personnel that operate the processor.
2.Turn off (0-position)the processor using the main switch and lock by a padlock (see fig.1)

Fire Hazard

DRYER COMPARTMENT PRODUCES HEAT -PAPER OR OTHER COMBUSTIBLES CAN BE IGNITED

· Keep the area within 10 feet of the processor clean.Do not store combustible materials, including paper,within 10 feet of the processor.

· Verify that a functional 10 lb.ABC fire extinguisher is located within 10 feet of the processor.

Burn Hazard

DRYER COMPARTMENT PRODUCES HEAT -DRYER PANELS AND GUARDS GET HOT
· Do not touch dryer panels or guards when dryer is operating.

Corrosive Liquids

CHEMICALS MAY IRRITATE EYES, LUNGS, SKIN AND DIGESTIVE TRACT

Wear safety goggles,protective glove and chemical aprons as indicated on Material Safety Data Sheets (MSDSs)when handling chemistry.

Drain tanks carefully,avoid splashing. Always drain the system thoroughly before working on any of the external hose systems.

Read the MSDSs for more information regarding the proper safety procedures for working with photo processing chemicals.

Do not allow untrained personnel to handle photo processing chemicals or to operate the processor.

To avoid hazardous conditions,keep floors and floor coverings around the processor and associated drains clean and dry at all times. Any accumulation of fluids from external lines, e.g.drain lines,should be cleaned up immediately

In the event of an accumulation of liquid due to backup,overflow or other malfunctions of the drain associated with the processor call a plumber or other contractor to correct the problem with the drain. Colenta accepts no responsibility or liability whatsoever for the service ability of any drain connected to or associated with a processor.Such drains are the sole responsibility of the customer.

DRAINS must be made of chemically resistant and non-corrosive material.Use PVC or equivalent.

DRAIN service must comply with local codes.

Chemical Hazard
Besides being a potentially source of errors, the chemistry can contaminate waste water and irritate the skin,especially the eyes.Chemistry spills must be cleaned up immediately as follows:

1.Prevent the spilled chemistry from entering a waste water drain.

2.Clean up the spill with a moist mop or rag.

CAUTION!

When handling chemicals wear protective clothing, safety goggles and rubber gloves.

If processor chemicals make contact with the eyes,flush them thoroughly with large volumes of water.If irritation persists,visit a physician.

3.Dispose cleaning materials and waste water collected during the clean up according to environmental regulations.

4.Inhalation of chemicals is dangerous to one 's health and should be avoided.

5.Observe all environmental regulations for storage and disposal of waste chemicals.

6.Use these instructions in conjunction with the chemical instructions.
When handling chemicals wear protective clothing, safety goggles and rubber gloves,

Corrosive Vapours

CHEMICAL VAPOURS MAY IRRITATE EYES,LUNGS AND SKIN IF ALLOWED TO ACCUMULATE IN WORK AREA

· The most effective engineering control for prevention of indoor air quality problems is assuring an adequate supply of fresh outdoor air through natural or mechanical vent i l at i on.The Amer i can Soci et y of Heating,Refrigeration and Airconditioning Engineers (ASHRAE) recommends 50 cubic feet per minute (CFM)of outdoor air per occupant for dark rooms or 0.5 cfm/square foot, which ever is higher.

· At each shift qualified service personnel should verify that the exhaust hose for the built-in exhaust blower is operating and connected to the processor.

· Read the Material Safety Data Sheets (MSDSs)for more information regarding the proper safety procedures for working with photo processing chemicals.

3. PRE- INSTALLATION

*) Site preparation, e.g., water supply, drainage electrical supply must be completed prior installation.

3.1. LOCATION

*) Processor can be installed "through-the-wall" or completely in the darkroom. Required measurements can be taken from the processor specification sheet. For "through-the-wall", a purpose built panel is required (optional accessory).

3.2 ELECTRICAL SUPPLY

*) All electrical connections must meet national safety requirements. Correct fuses and electrical requirement can be taken from the processor specification sheet.

Power cord with plug CEE 3+P+N+PE 16-6 415V 16A

Main switch

3.3 WATER SUPPLY

*) The processor must be connected to the local water supply by using a DVGW-approved system separating device or pipe separating device.

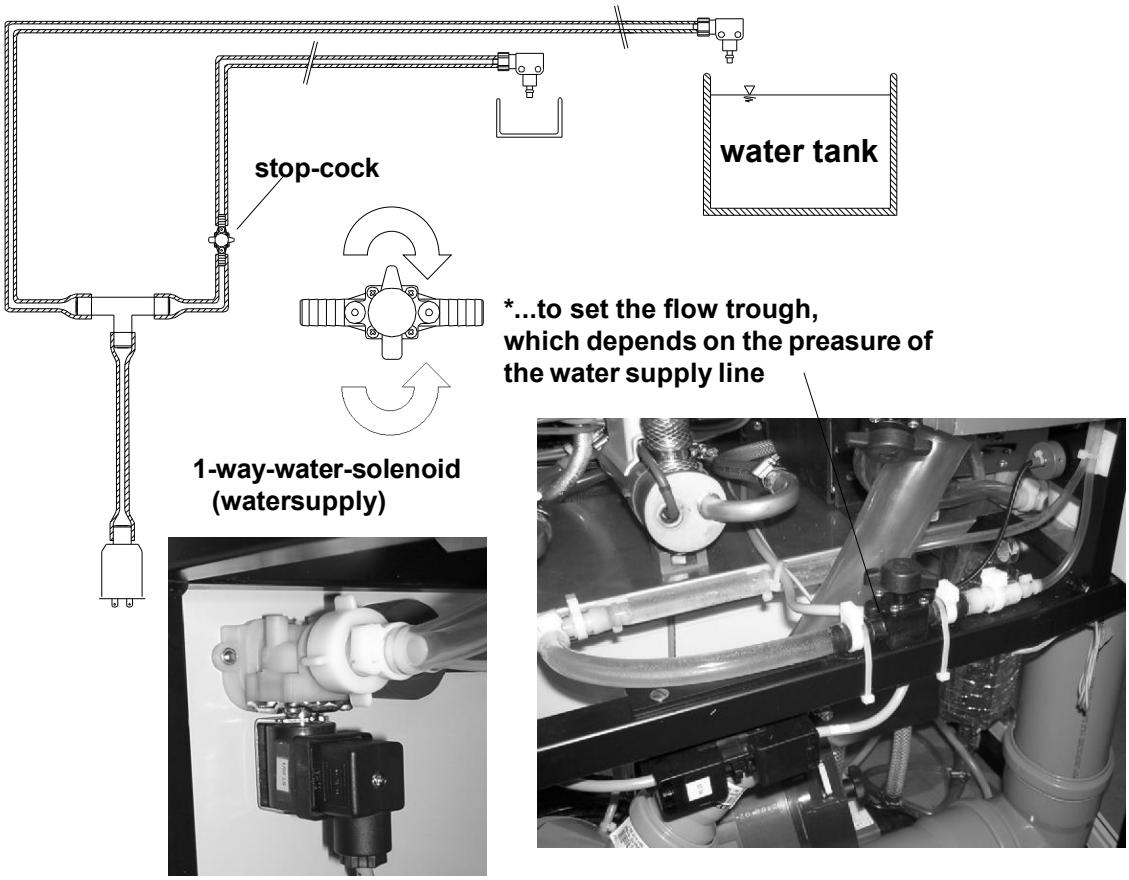
*) The cold water supply pipe must have a stopcock fitted connection to the processor and should be done by using the 3/4" hose connector, supplied. Easy access to the stopcock should be provided as it has to be opened and closed daily.

*) A built in magnetic valve reduces water consumption to a maximum of 2,5 ltr./minute using pressure and quantity control.

*) It is recommended to run a second cold water supply with 2.5 meters of hosing to facilitate easy cleaning of the racks and tanks (water supply kit - optional accessory).

water connection und drains in front of the processor (see page 9)

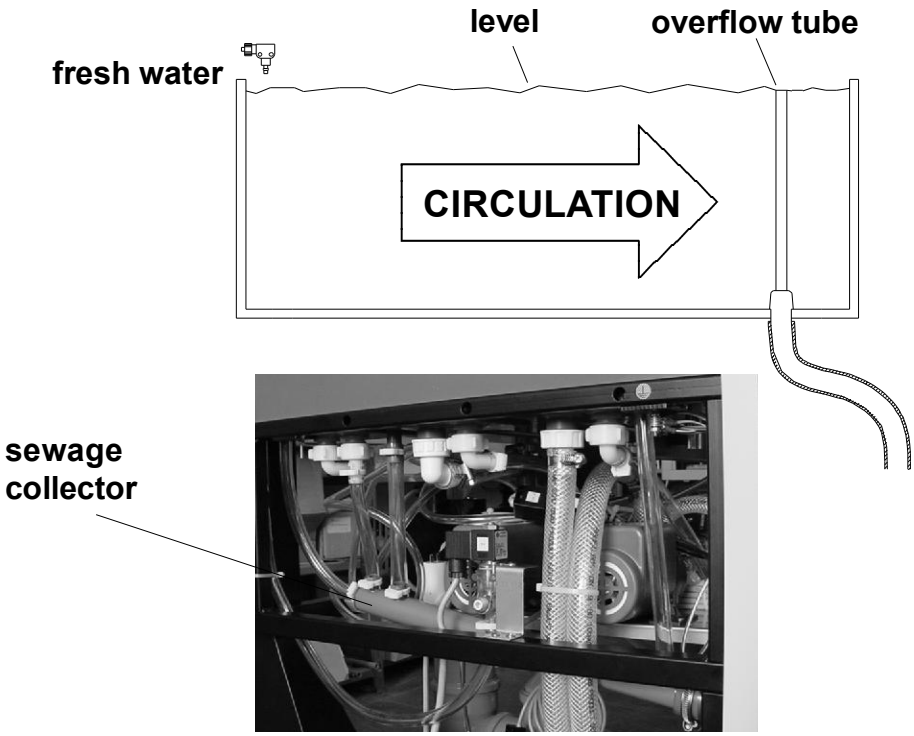
3.4. INTERNAL WATER CIRCUT



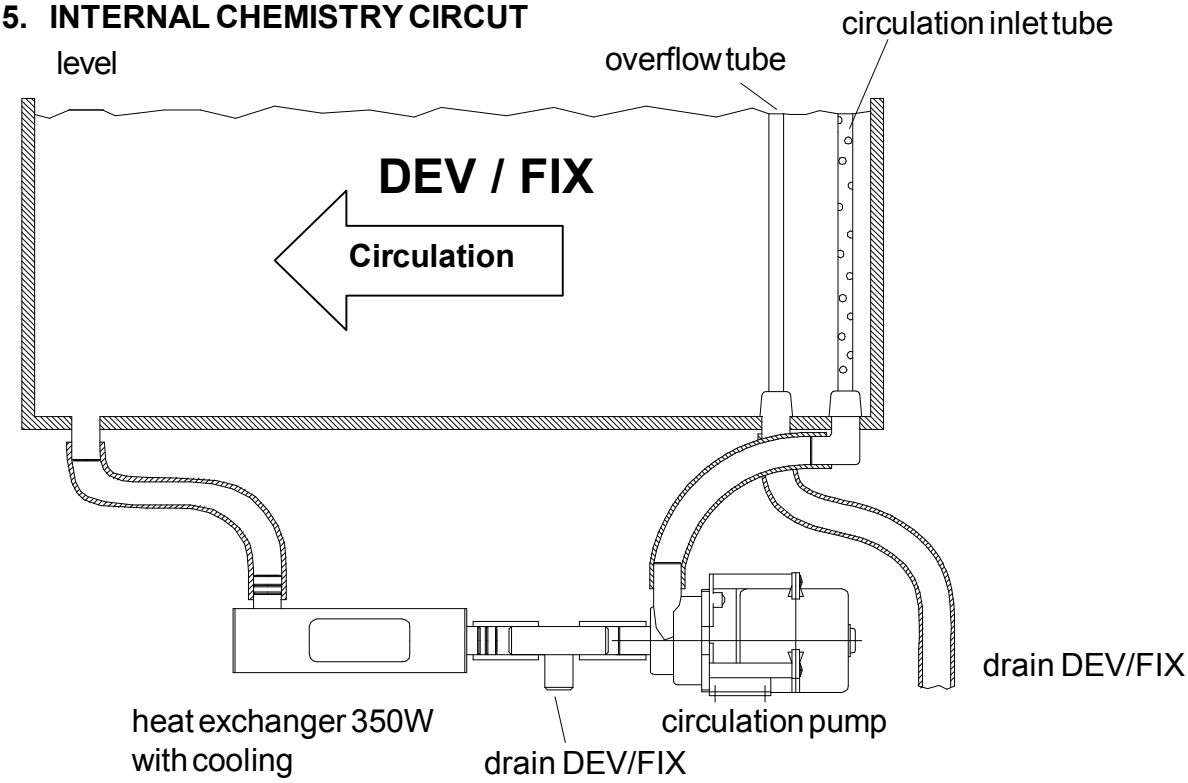
3.4.1 WATER DRAIN

*) The wash water should be drained separately according to local environmental regulations. The processor comes with the suitable hose connections.

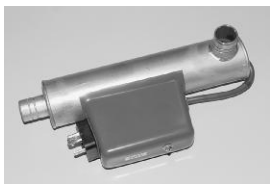
*) The level of the water drain should be as low as possible with a minimum drainpipe diameter of 40 mm.



3.5. INTERNAL CHEMISTRY CIRCUT



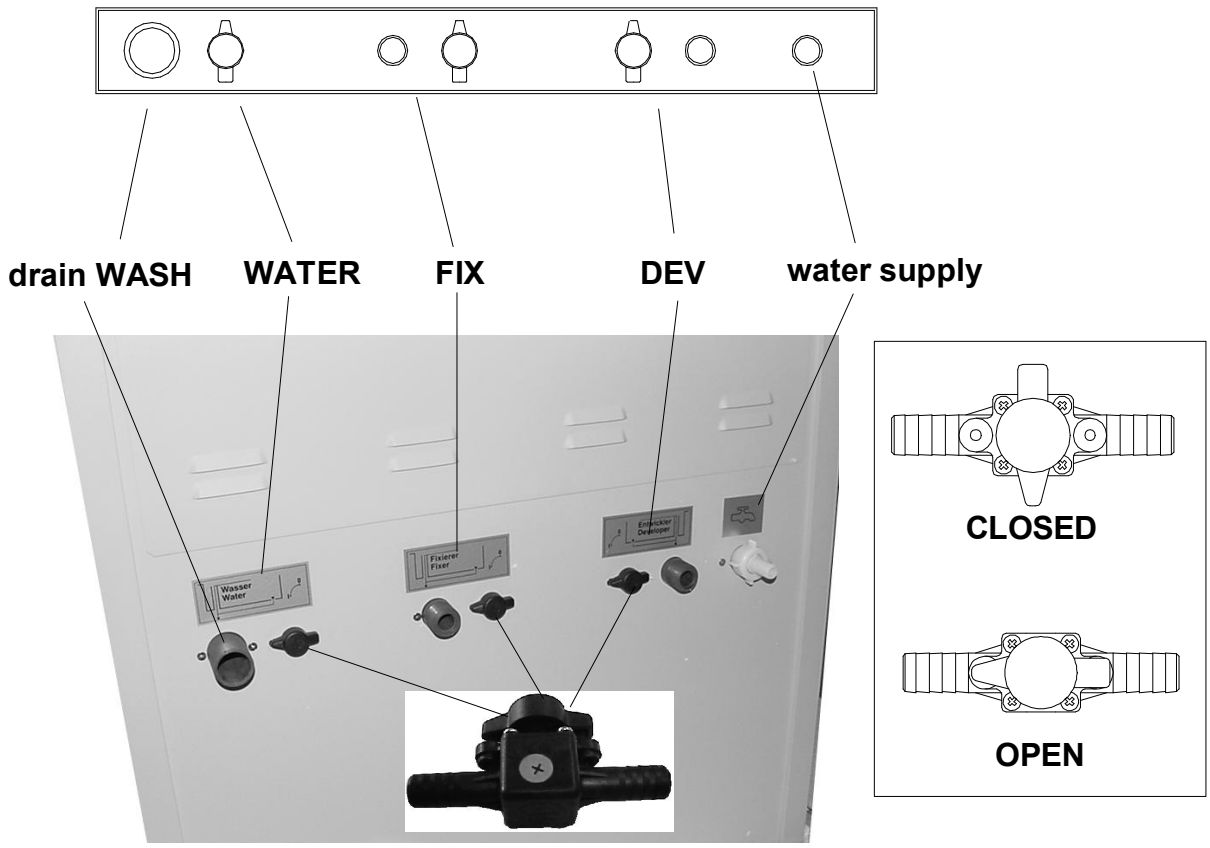
NOTE: for the DEV there is additional a filter installed.
See more on page 35...



heat exchanger

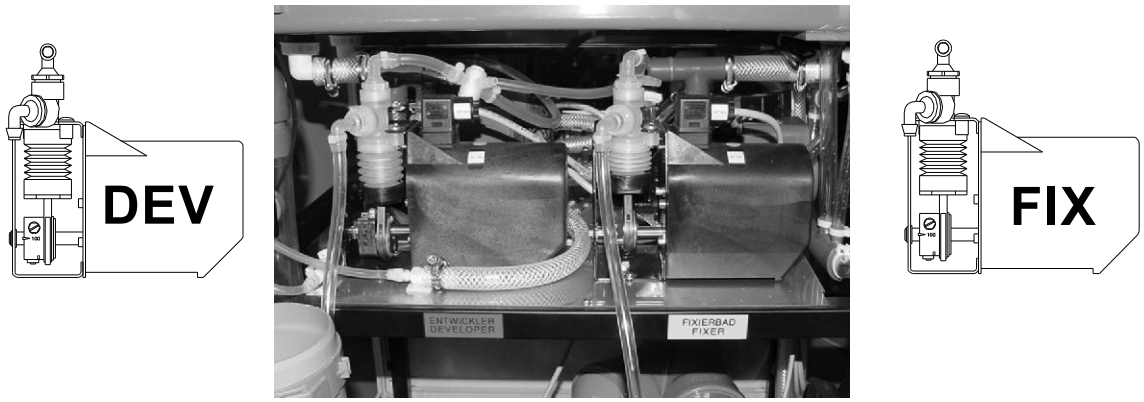
circulation pump

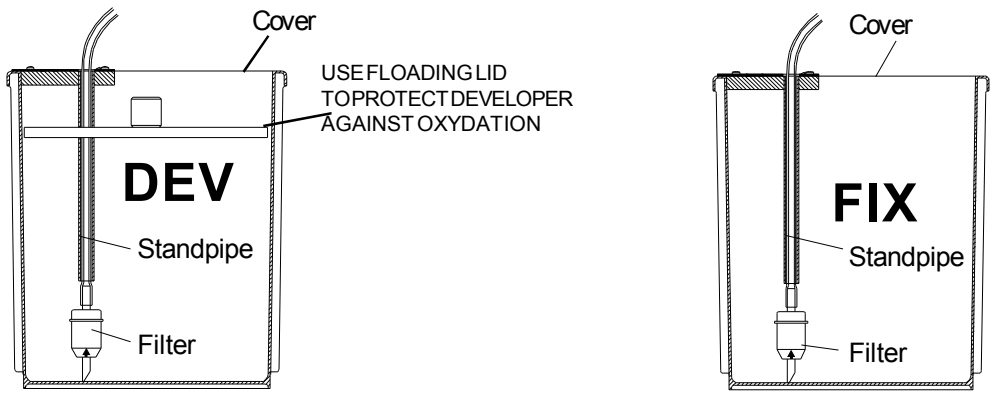
3.5.1 CHEMISTRY DRAINS



3.6. REPLENISHMENT

When operating a processor which uses chemicals for the continuous production of plate/film it is very important that the chemicals within the machine are keep in good working order so as to provide consistent processing quality. To achieve this consistency we use replenishment solutions, which are formulated by the chemical manufacturer and injected into the processor precisely for the area of material being produced. Replenishment of the chemical tanks is done automatically using infra red sensors located at the entrance to the processor. These sensors accurately monitor the width of material entering the processor, this information is in then used by the microprocessor (CPU) control software to calculate the surface area for each plate loaded into the processor. Each sensor, when covered, will generate a pulse, which is then recorded on a decoder and counted the more sensors that are covered then the faster the count. When the count reaches the programmed value of pulse counts it triggers the start of a replenishment cycle. During each replenishment cycle the replenishment pumps inject fresh solution from small storage bottles/ tank and into the corresponding ”working” tank solutions for a pre-set time.





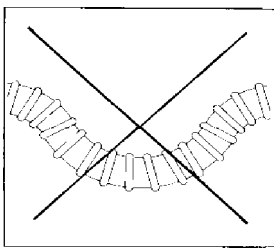
Note: A Level control device for replenisher tank is optional available on request.

WARNING

*) Do not use brass or copper in the drainage system.

*) Chemistry disposal must be in accordance with local environmental regulations.

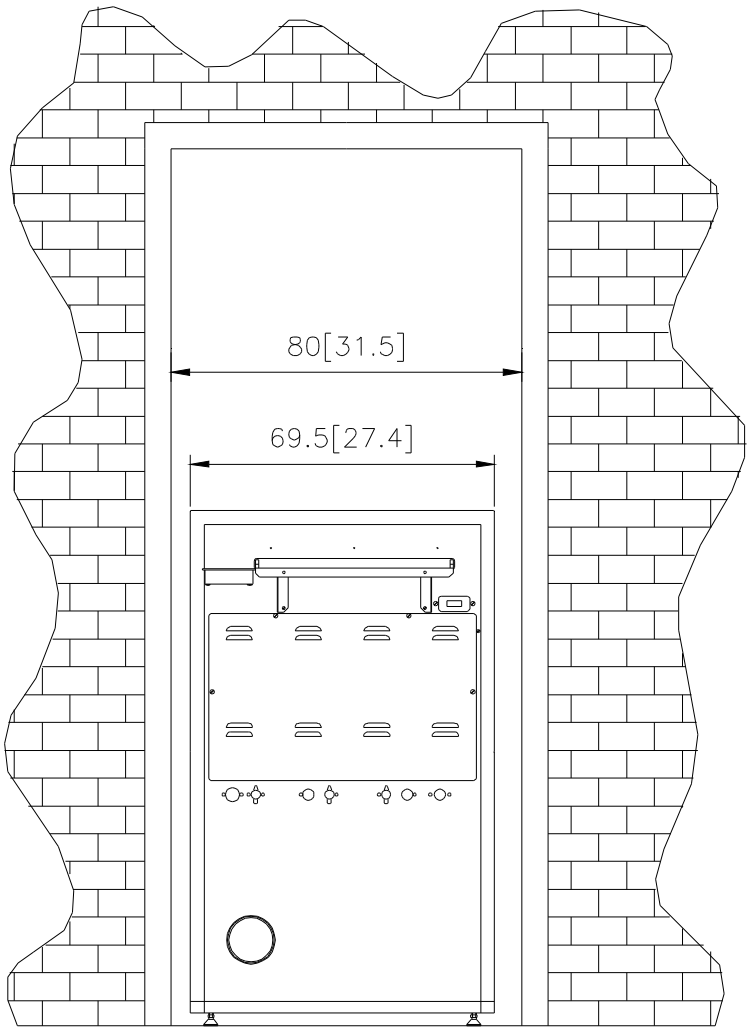
*) To avoid back pressure in the drain, the hoses should be free of bends and with a constant downward gradient.



3.8. TRANSPORTATION ON SITE AND ASSEMBLING

The transport to the installation area can be done easily by two men.

EN ION:



IMPORTANT: The Processor must be installed leveled for optimum performance.

3.9. INSTALLATION OF THE RACKS

*) The processor is delivered complete assembled, except the transport racks, dryer and film catch tray.

*) Transport fixings must be removed before use.

*) Insert each rack at the location indicated by reference number or label.

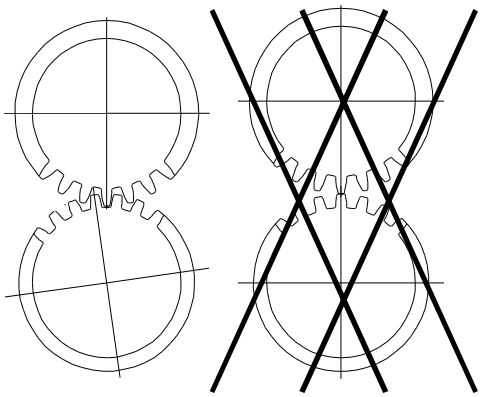
-Rinse the tanks with water and then fill it to the red marker on the tank wall.
- Insert the racks according the reference number or label
- Turn on the transport motor and check rotation

*) Insert racks carefully and slowly, avoiding chemistry splashes.

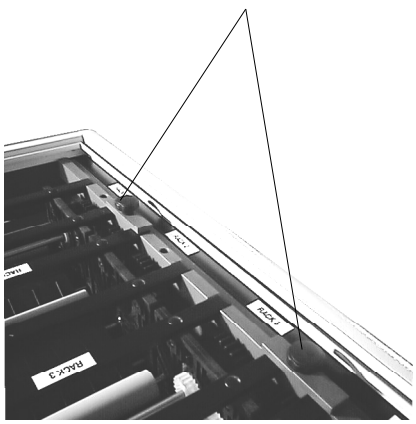
RACK 1 in the developer tank
RACK 2 in the fixer tank **(see additional information on the next page!!!!)**
RACK 3 in the water tank
RACK 4 in the dryer section

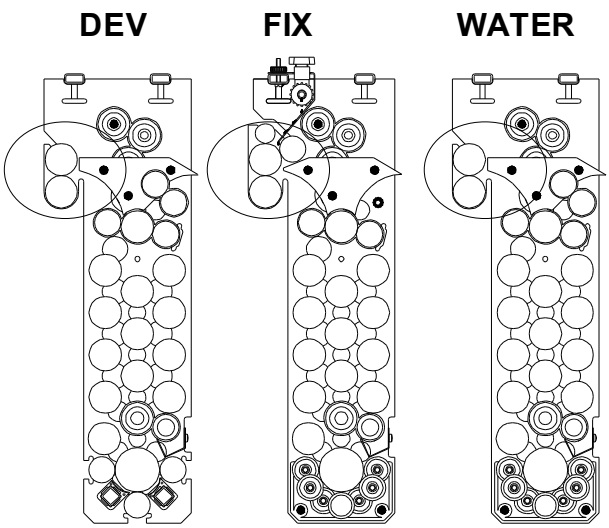
The supporter of the racks have to be completely set into the grooves of the tank.

note:
check that the gears of the squeeze rollers are in the correct position.



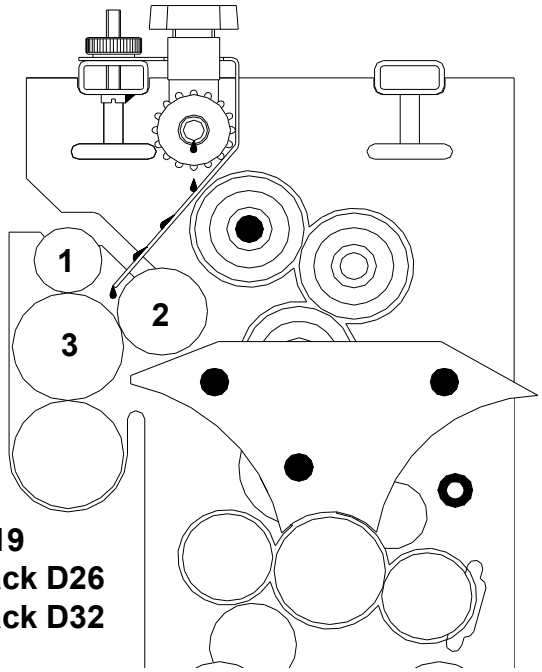
don t forget to fix the racks





3.9.1 Additional connection for FIX rack

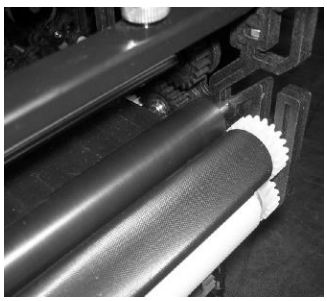
open/close the hose connector by pressing the marked botton.



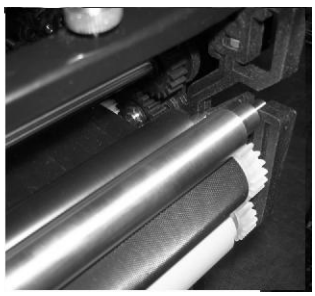
NOTE: Pay special attention to roller configuration about the FIX rack.

1..Steel D19
2..PE - Black D26
3..PE - Black D32

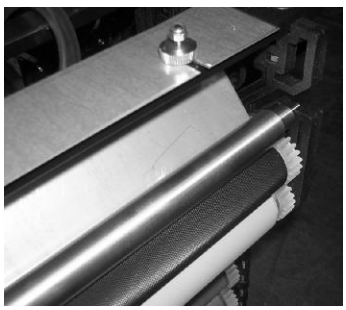
1)



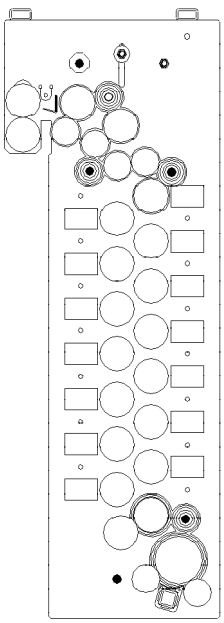
2)



3)



3.10 INSERTION OF DRYER-RACK



4. TEST RUN WITH WATER

We recommend that the machine is fully water tested on installation before filling with chemistry – this is just a safety procedure in case of transport damage.

*) Thoroughly clean processor ensuring no packing materials restricts the free running of the processor. Pay special attention to the racks and inside of the tanks.
*) Close the drain taps for the developer, fixer and wash.
*) Fill the tanks (Dev, Fix and Wash) with water to the markers on the tank wall.
*) Switch on the processor
*) Check for signs of leakage.

1.4 MIXING OF CHEMISTRY / FILLING WITH CHEMISTRY

*) Only use chemistry suitable for roller transport systems.
*) Follow instructions of chemistry manufacturers.

FIXER BATH:

*) Switch processor off.
*) Empty fixer tank by opening the fix drain tap.
*) Remove the racks.
*) Check fixer tank is free of alien material.
*) Close fix drain tap.
*) Fill fixer tank with ready-to-use-fixer solution to the red marker on the tank wall. Insert rack very carefully and slowly, add hardener solution if advised by the chemistry manufacturer.

DEVELOPER BATH:

*) Empty developer tank by opening dev drain tap.
*) Remove the rack.
*) Check developer tank is free of alien material.
*) Close dev drain tap.
*) Fill developer tank with ready-to-use-developer solution to the red marker on the tank wall. Insert rack very carefully and slowly. Replenishment tanks may be used to mix the chemistry.Any remaining can be used for replenishment.

CAUTION -	Even the smallest quantity of fixer could contaminate the developer solution. Therefore, always fill with fixer first. When removing the fixer rack, always cover the developer tank. For removing the fixer rack use rack carrier tray (optional accessory)

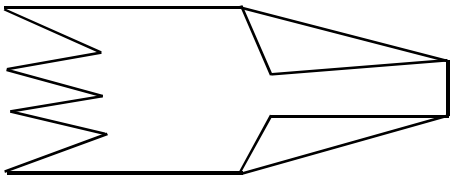
4.1 WORKING WITH THE PROCESSOR

IN THE MORNING

*) Turn on water supply.
*) Check replenishment tank levels.
*) Switch on main switch.
*) Wait for the "READY" of the processor
*) Check whether the water drain tap is closed

STARTING WORK

*) Check level of the replenishment containers (DEV&FIX)
*) Check level of the waste containers (DEV&FIX)
*) Select programme
*) Feed through one or two of cleaning films (optional item).
*) During feeding films, always check the free-signal, given form the display.
*) Ensure first rollers pull material.
*) Feed large format films in straight.
*) Put a leader on roll films
*) Fold the leading edge on roll paper.



IN THE EVENING

*) Turn off water supply.
*) Switch off main switch.
*) Open water drain tap to prevent algae growths in water tank.

***) Lift the top cover** !!

4.2 PROCESSOR FUNCTIONS

PROGRAMMING: Automatic processing parameters, e.g., temperature, speed and replenishment rates, can be stored in 9 different programmes.

WARMING-UP: Once programmed, temperature settings are accurately controlled. Heating commences with switching on at the mains. Constant solution temperatures are maintained in the processing tanks. Temperatures tolerances +/- 0,2 °C are achieved by the microprocessor control unit while the solutions are circulated by circulation pumps. When temperature has reached PRE-SET levels, the processor enters STANDBY mode and is ready for use.

STANDBY: In case no material is processed - after a programmable periode of time, since the last media has exited the processor transport, dryer and water supply is switched off automatically. The processor goes in standby mode and is ready for work.

ANTI CRYSTALLI-ZATION CYCLE: During STANDBY mode - within a programmable cycle periode - transport and intermediate rinse bath water supply is activated - this prevent cristallization build up on crossover rollers.

ANTI-OXIDATION CYCLE: During STANDBY mode - and no material is processed during set time - an preprogrammable ANTI OXIDATION cycle (replenishment cycle) is available.
The additional replenishment compensates the impact of airoxidation of the chemistry during standby mode und tops up the chemistry levels in the tanks, compensating evaporation of the water in the solutions during standby.

AUTO REPLENISHMENT: The processor comes equipped with a film area measuring facility. Infrared sensors scan the film area touchless and when the preprogrammed amount of film (area) entered the processor, a replenish-cycle is activated.

AUTOMATIC START-STOP: Infrared sensors also automatically control the startcycle of the prosessor. The processor changes from STANDBY to RUN once a film has interrupted the light barrier. As the rollers turn, water is supplied to the wash tank and to the intermediate rinse bath system. Once the last film has passed through, the processor reverts to STANDBY. The film can be taken out of the receiving basket or top cover lid.

4.2.1 SAFETY DEVICES

*) Thermostatically controlled solution heater with overheating CUT-OUT and AUTO-RESET.

*) Thermostatically controlled dryer heater with overheating CUT-OUT and MANUAL-RESET.

*) All electric motors are equipped with thermal CUT-OUT and AUTO-RESET.

*) Each electrical component is protected by a fuse on the power distribution board (PDB).

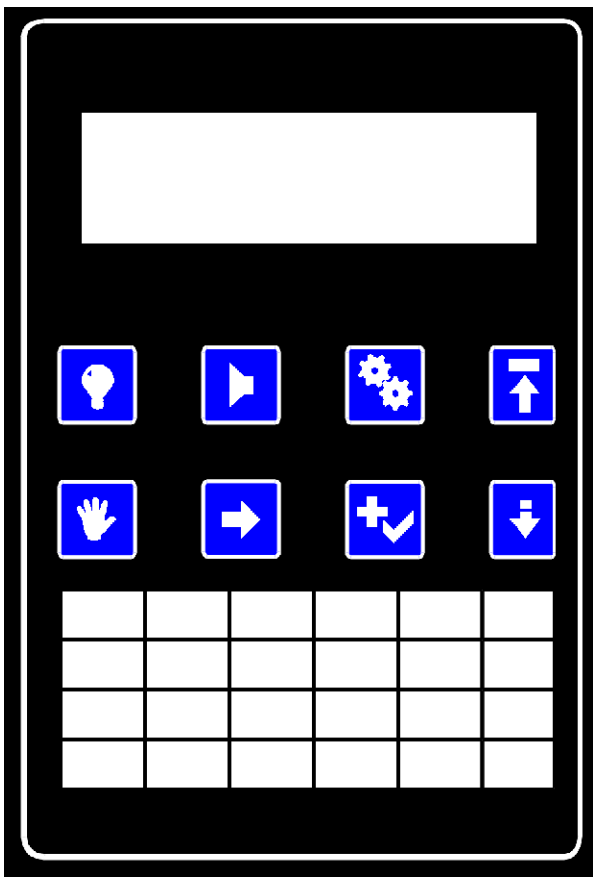
5. THE DISPLAY

Number of programs	9
Temperature range, developer and fixer	18.0 ÷ 43.0°C
Temperature range, dryer	18.0 ÷ 50.0°C
Temperature control tolerances	±0.2°C
Temperature measurement resolution	0.03°C
Developing time tolerances at max. speed	±2%

· Motor speed is quartz-stabilized and controlled by a separate microprocessor

---

The display



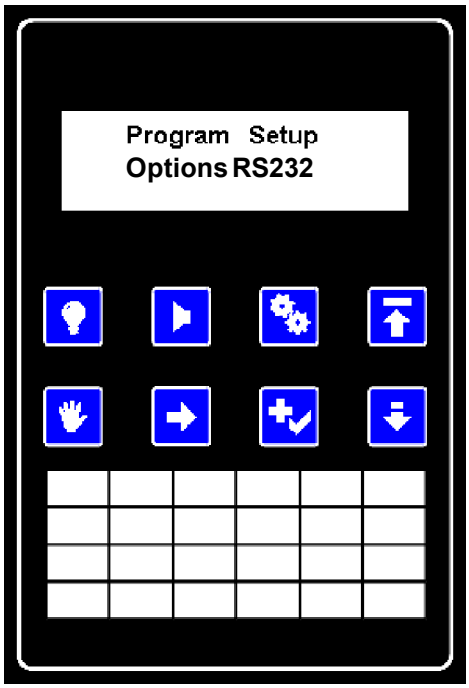
- **back light ON/OFF**
- **check errors /alarm shutdown**
- **setup mode**
- **back to top menu**
- **manual operation**
- **move cursor**
- **select menu item/change value**
- **scroll page down**

5.1 Programming Procedures

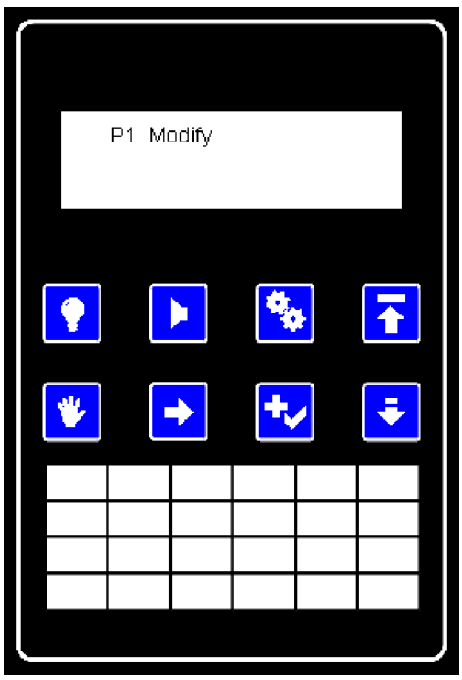
Switch on the processor. By default it starts in work mode. Make sure that no media is being processed, since re-programming is enabled only during standby.

Press . The programming menu will appear:

NOTE for RS232: only in use when a COLENTA Auto loader is in use.



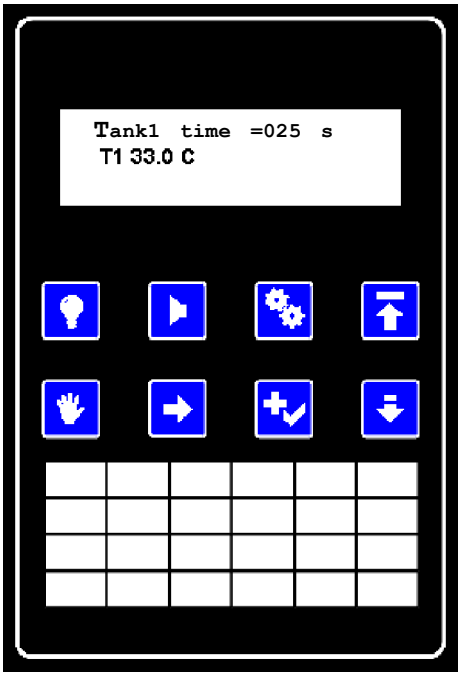
With , move the cursor under Program and select it with .
You will see

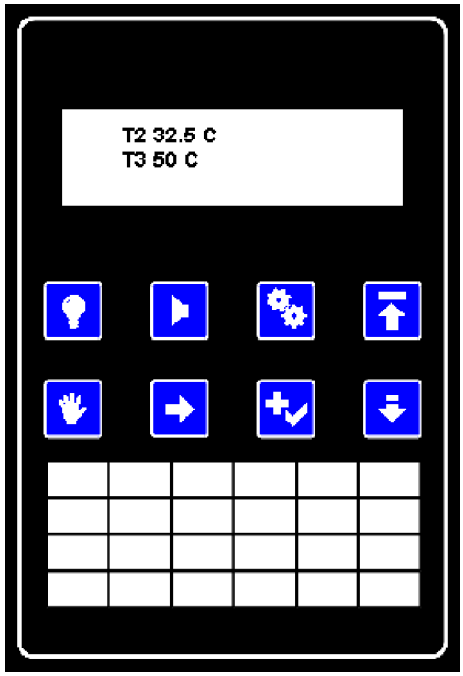


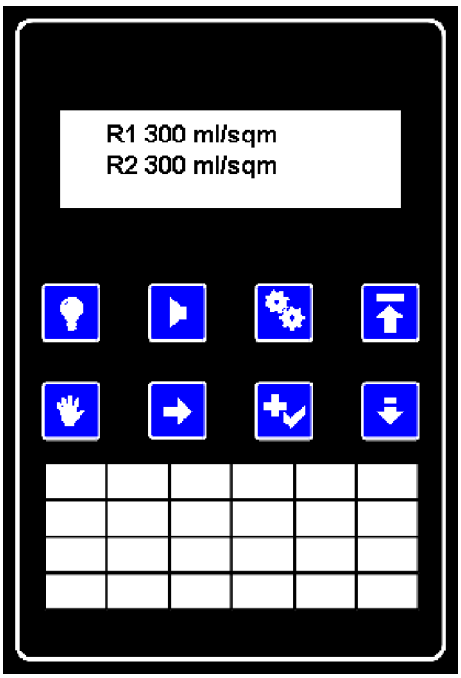
Press ✚✓ to change the number of the program you wish to modify.

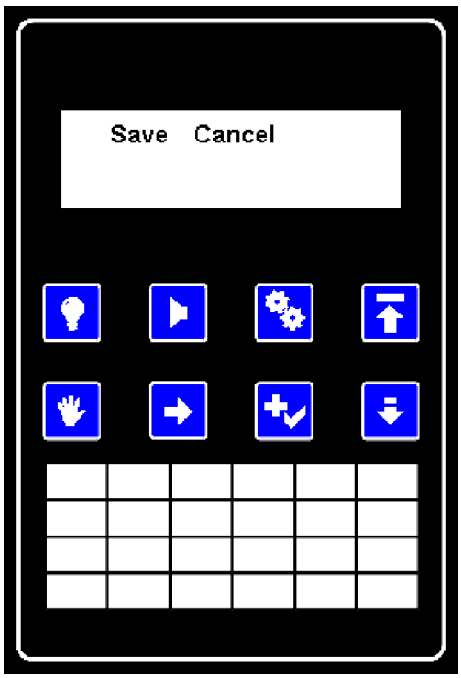
With ➡, move the cursor under Modify and select it with ✚✓.

The programme consists of four pages:







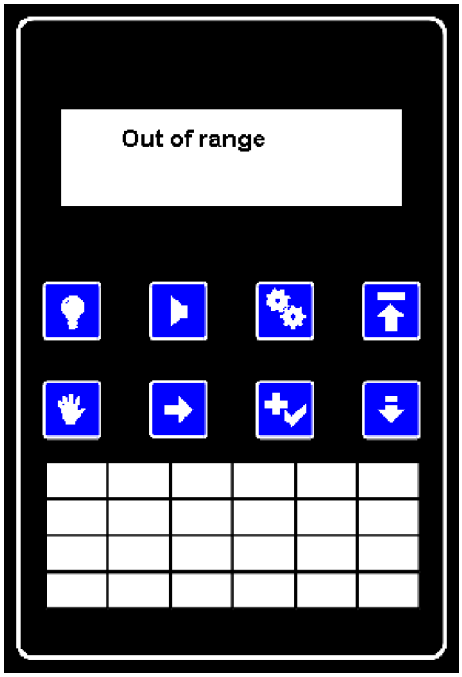


Use ▼ to scroll through the pages.

To set the parameters, move the cursor with ➡, then change the value with ✚✓.
Once all digits have been set to the desired value, position the cursor under

Save and press ✚✓ to store the values, or select Cancel to discard the changes.

If any of the values is set too high or too low, when trying to save the programme you will get.



After 2 seconds the message will disappear and you will be taken back to re-programme the values. A parameter that was too high will be automatically reset to the maximum possible value. A parameter that was too low will be reset to the minimum possible value.

This can be used if you want to program extreme values - for instance you want to use the shortest developing time possible, but you don't remember the value. In this case just programme 000. After the "Out of range" message, the developing time will be reset to the minimum. Just select Save once again.

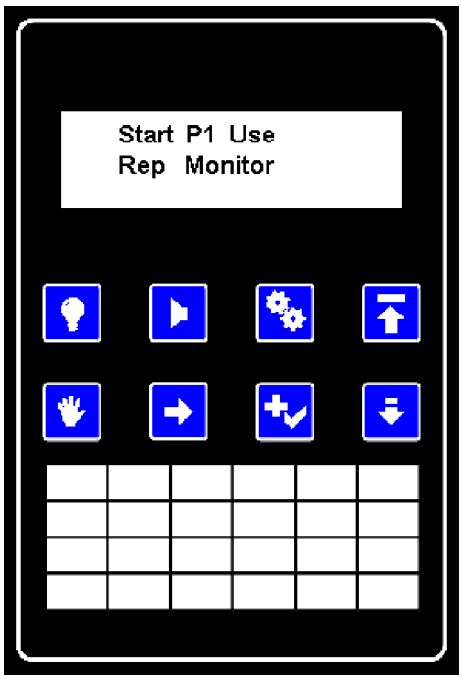
To go back to work mode, press ⬆.

.***Note: The Setup menu is just for service and factory setting purposes only.***
The Setup-menu set processor-specific values. This values should not be changed by the costumer. Although you can select these menus, scroll through the data and even change it, saving the changed data is disabled. Only authorized service technician can re-programme these values.

5.2 Changing the programme

To use another programme:

Press  .
You will see:



If media is being processed, only the Rep and Monitor items are selectable. Therefore, to switch to another programme you must wait until the processor is empty.

With  , move the cursor under P1.

Press  to change the programme number.

With  , move the cursor to Use and select it with  .

Press  to jump back to main page.

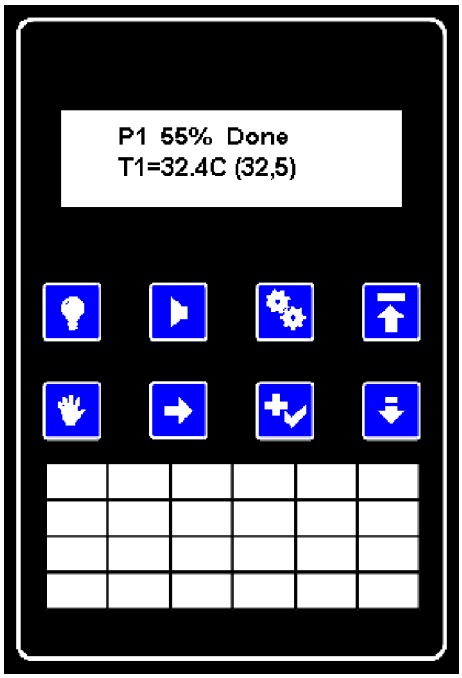
Note: a cyclic redundancy check is used to verify the data being read from the non-volatile memory. If some damage occurred to the program data, or the programme was never set up properly, you will get an error message *Program invalid*. ***The solution is to go to programming mode and re-program the data. This error will occur also if the EEPROM chip has been replaced in which case it contains random data.***

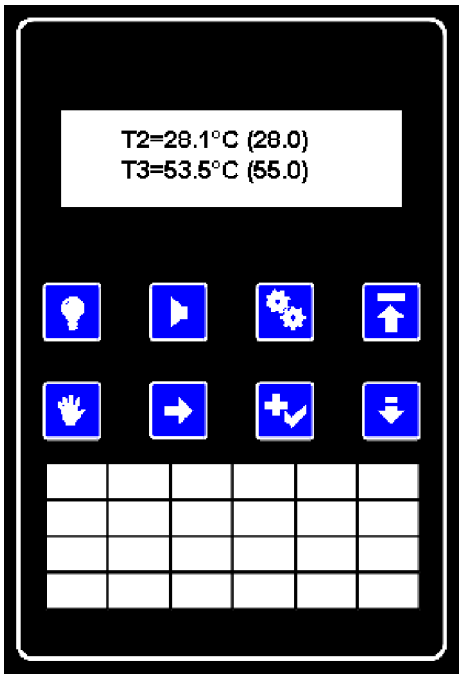
5.3 Automatic mode

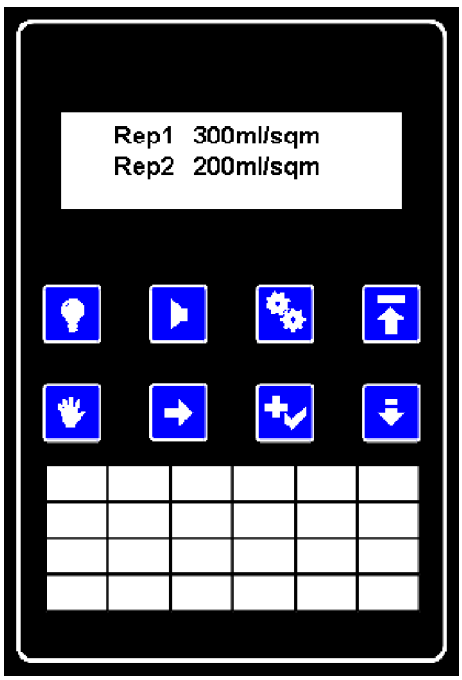
The processor is designed to work without operator assistance. Under normal circumstances
the operator will use the front panel only to check the process parameters and progress.

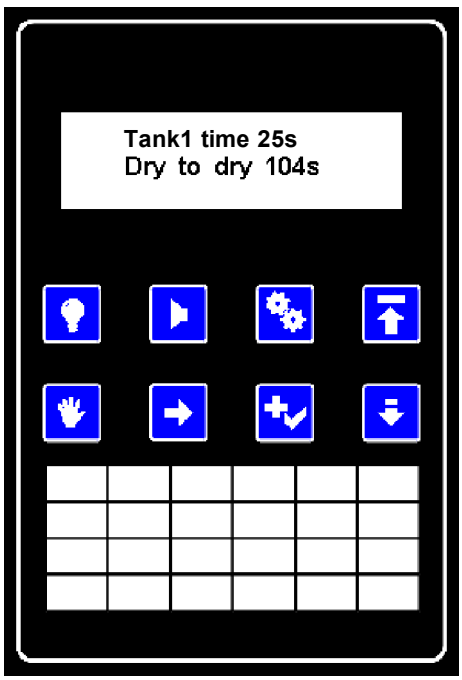
To scroll through the pages, press ↓.

Press ⤒ to jump back to main page.



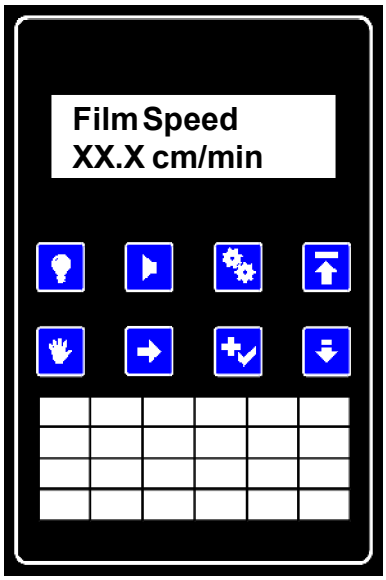


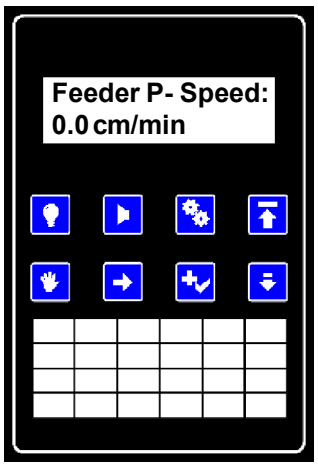




P1 tells you that you are using programme 1. If the processor was started manually, the indication will be **M1**.

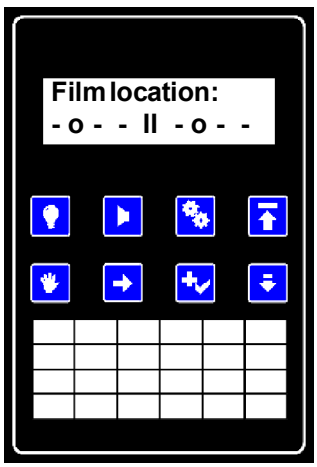
55% Done is the progress indicator. It means **55%** of the developing process is complete. When it reaches **100%**, the machine will go to standby.
T1=32.4ºC gives you the actually measured temperature in the tank. The value in the brackets is the programmed temperature. The same indication is available for tank **2 (T2)** and for the dryer **(T3).**
Rep1 and **Rep2** are the replenishment rates for the current program.
Tank1 time is the time the media stays in **tank 1**.
Dry to dry is the length of the complete processing cycle (leading edge to heading edge).
Film Speed linear speed of the media inside the processor.





Feeder Speed: speed of the loader

only when a Colenta AUTO Feeder is in use

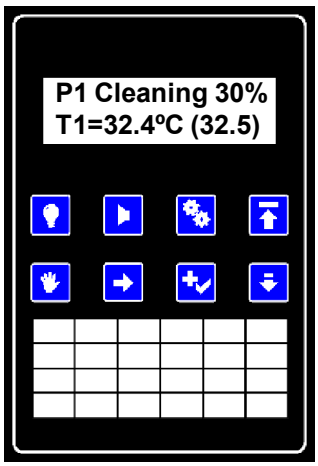


Film location: used to monitor the films from the loader to the processor.
left side: loader
right side: processor
-..... no film
o..... film

5.4 Standby Options

The Program MF800 Ver. 2.7 is alredy equipped with an anti-oxidation and a anti-crystallization cycle.
That means, when in standby, the processor will start the transport of the rollers and the wash on regular intervals in order to prevent crystallization on the rollers (Anti-crystallization). The anti-oxidation cycle activat, in free programmable time intervals, replenishment cycles. This will prevent oxidation of the the chemistry.

During such a cleaning cycle, the display will look like this.



During such a cycle the processor will accept media. It's not necessary to wait to the end of the cycle.

Press , use ➡ to move the courser to **"Options"** and press , use again to confirm **"Standby"**, by using you can scroll through the pages:

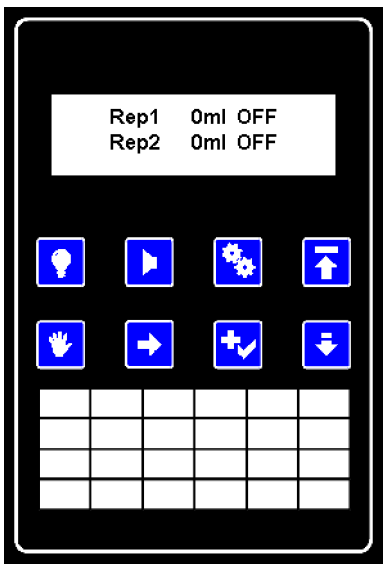
SB dryer drop 05	The dryer temp. is 5°C lower than the programed value.
SB replenishment 200 ml each 6 h	The processor will activat a 200ml replenishment cycle each 6 hours.(Anti-oxidation-cycle)
SB self-cleaning 20cm each 03min	The processor will activat 2 roller turns (1 roller turn ≅ 10 cm) each 3 min.(Anti-crystallization-cycle)
Save Cancel	

5.5 Manual replenishment cycle

You may need to run the replenishment manually, for instance during cleaning. To do this:

Press

With ➡, move the cursor under Rep and select it with .



<u>You will see</u>:

To replenish tank 1

With ➡, move the cursor under Rep1 and press .
This will add **100ml**. The **OFF** indication will change to **ON**, meaning that the replenishment pump is working. If you need more replenishment,

press again to add more replenishment in steps of 100ml. There is no need to wait for the replenishment pump to finish.
For tank 2, move the cursor under Rep2 and repeat the procedure.

Note: Up to 2000 ml of manual replenishment or a maximum of 25min pump working time is allowed (whichever is greater).

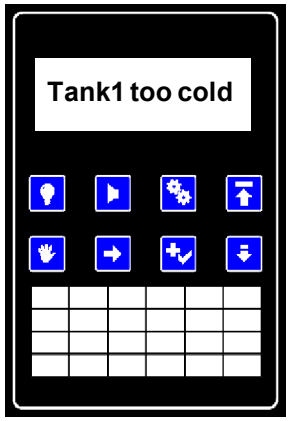
Press to jump back to main page.

If an error occurs, the indication P1 (or M1) will alternate with Er. If this happens

Press the ▶ button.

This will stop the beeper and bring you to the error menu, so you can check what's wrong.

If more than one error occurred, press ▼ to scan the rest of them. Press ▲ to jump back to main page.



When the processor switched on at the beginning of the working hours ,it is expected to have low temperatures in the tanks.For this reason, the **Er** indication will be present, but without alarm.
If, however, the temperature drops during normal work, the alarm will be activated.

Error Messages:

Display	Reason
Tank1 too cold	A:Normal condition during heat-up period. The developer will be heated until the preprogrammed-temperature is reached. B:During work, problems with the heating elements
Tank1 too warm	Developer temperature has gone up more than 1°C above SET-temperature.
Tank2 too cold	A:Normal condition during heat-up period. The fixer will be heated until the preprogrammed-temperature is reached. B:During work, problems with the heating elements
Tank2 too warm	Fixer temperature has gone up more than 5°C above SET-temperature.
Dryer too warm	Actual temperature in the dryer is more than 5°C above SET-temperature.
Motor overload	Hardly running drive/transportsystem. The drive motor did not reach it´s SET-speed
Tank1 low level	Level Tank1 too low
Tank2 low level	Level Tank2 too low
Water overflow	Drain of watertank is blocked
Cover openend	Main cover of the processor is open.
T1: no probe	Temperature probe in Tank1 is defect or lacks
T2: no probe	Temperature probe in Tank2 is defect or lacks
T3: no probe	Temperature probe in Dryer is defect or lacks
Water low level	Level Watertank is too low.
Can't fill water	After *30 minutes*, the watertank should be filled up with water, if the sensor is not reached during this time, the meassage appears.
Wrong location	Only possible, if a FEEDER is installed - refer to the Feeder booklet for further actions.
Change filter	Replace the filter medium accoding page 35 to 37

5.7 Manual start/stop

The manual start/stop is possible only when no media is being processed. During the processing the corresponding menu items are not selectable - you can't move the cursor there.
To run the motor manually:

Press 

With  , move the cursor under **Start** and select it with  .
This will run the motor. The menu item Start changes to **Stop.**
You can stop the motor by selecting **Stop.**

When you start the motor manually, this will be indicated on the main page as **M1 instead of P1.**

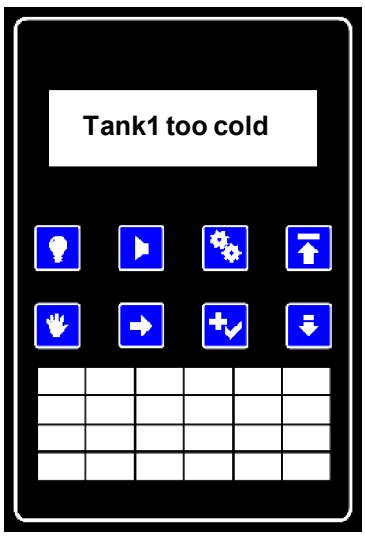
5.8 Display illumination ON/OFF

In a dark room, it might be necessary to switch off the display backlight to prevent exposure. The  button toggles the backlight on/off.

When the backlight is off, all the buttons except  are disabled.
This is done to prevent pressing buttons by accident in a dark room. Switching the display off is a good idea if the processor is left unattended. This will reduce the chances for unauthorized people to operate the machine.

5.9 Automatic start

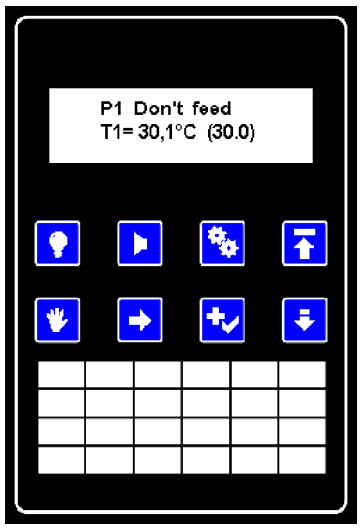
The processor will start automatically when media is fed, except in case the developer is too cold - more than 1ºC below the programmed. In this case, feeding the media will not start the processor. Instead you'll get the message,



which will disappear after 2 seconds.
If you need to feed a film regardless of the low developer temperature, run the film-processor in manual mode.

5.10 Distance between films

To prevent film jams, some minimum distance between the films is needed.
After the end of the film, the display will show:



As long as “Don’t feed” is present , it`s not alowed to feed films. After a while “Don’t feed” will disappear and a beep will indicate that the input is free again.

5.11 Monitor Program:

The "Monitor Program" is used to check some differents parameters of the processor.

Press the bottum , you will see: **Start P1 Use**
Rep Monitor , move the courser by using under

Monitor and confirm with

the first page looks like this:

```
DDDDFFFFWWWWDDDD
---      --
```

This represents the processor,: the first four DDDD are the developer tank, FFFF - fixer tank, WWWW - water and the last DDDD is the dryer.

The dashes on the second row indicate where in the processor there are pieces of material.

The water is turned on only if there is a film in the specified portion of the machine, that saves water and protect the environment.

Each film is tracked inside the machine . The software can track up to 70 films.
Note that two films running in parallel are considered as one. For the processor, different films are pieces of material separated by completely free sensorbar.

Motor Off / On Motor is **On** or **Off**

Speed 19 001
19 speed
001 re-impulses from the motor

Normal s-bar
Area=0.0000 sqm.
A normal 6-sensor sensorbar is recognized
Value of the given filmaera until to the next replenishment cycle

S-bar: ---------

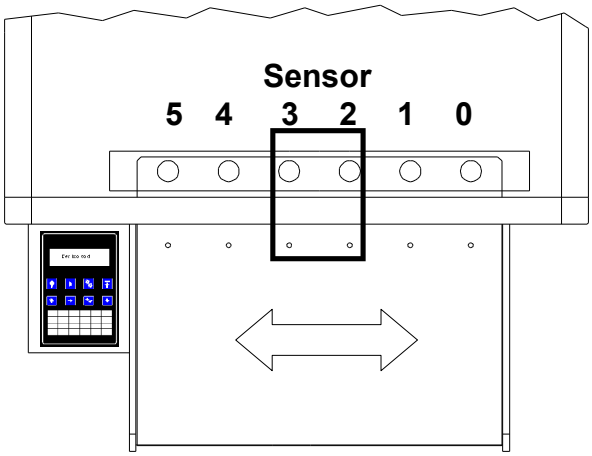
This feature is used to check each sensor of the sensor-bar. In the COLENTA INDUX 43 there are 6 sensors integrated. To check the sensors, follow the instructionen underneath:
-put a small film under the sensorbar (don't feed into the processor)
-move the film as shown underneth
-at the same time take a look to the display

S-bar: ---------
---------10

That means sensor 1 and 0 are occupied

S-bar: ---------
-------32--

That means sensor 3 and 2 are occupied



H1=0 H2=0 H3=1
Fan=1 Wash=0

H1=1 or 0 heater tank1 **On** or **OFF**
H2=2 or 0 heater tank2 **On** or **OFF**
H3=3 or 0 heater dry **On** or **OFF**

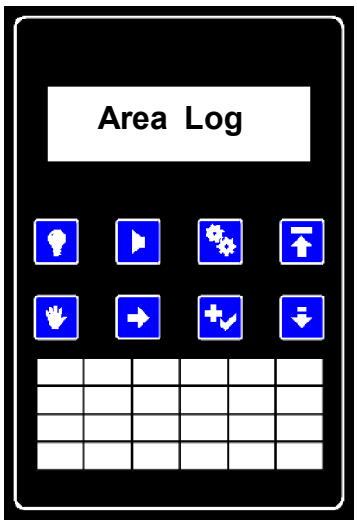
Refill1 0000
Refill2 0000

see "Automatic Developer and Fixer tank fill" on page 31

5.12 Filter control:

Version 2.7 is equipped with a sub-program to control the filter unit of the developer:

Press the bottum , use to move the courser under "Options", press , you will see "Standby Refill Filter" use again to move the courser under "Filter", press you will see:



The Area menu sets the amount of square meters before filter alert.
The value is 0000-9999 . A value of 0000 turns off the filter alert.

Filter alert after xxxx sqm

Save Cancel

The Log menu shows the total area processed so far. This value is stored in the NVRAM. The value is updated each time a replenishment is initiated. It depends on the „Replenish after“ variable from the setup.

0000.00 Exit Clear

For example if Replenish after = 0.125sqm , the total processed area will be increased by 0.125 sq.m. at each replenishment.

At each replenishment the total processed area is checked for exceeding the alert value. When the value has been exceeded, an error message appears „Change filter“.

After changing the filter, the user must go to programming mode menu Options/Filter/Log and clear the processed area, so the area will be counted from 0 for the new filter.

5.13 Additional features - refill water / chemistry

Program MF800 Ver. 2.7 includes the following features:

1 - Automatic wash tank fill / automatic wash tank draining
2 - Automatic Developer and Fixer tank fill (see next page)

1 - Automatic wash tank fill / automatic wash tank draining

This feature ensures that the water level in the wash tank is at the normal level on „start-up“and then to drain automatically on shut down. This is accomplished by the use of an additional level sensor in the wash tank to inform the processor controller on the level of water in the tank and the use of an electrically controlled drain valve that will remain „closed“ when the machine is in use and „open“ when the processor is shut down. On morning „start-up“ the drain valve will be closed and the water „fill“ solenoid will open to allow water to pass into the wash tank until reaching normal operating level. If the wash tank does not reach normal level within 20 minutes (level switch not activated) the electronics will assume that
there is a water supply problem and the error message „ can't fill water“ will be displayed. (see page 21 for further information).

The following instructions will activate or de-activate this feature:

Press the bottum ⚙, use ➡ to move the courser under "Options", press ✚✓ , you will see "Standby Refill" use again ➡ to move the courser under "Refill", press ✚✓ you will see:

Wash auto refill 1 (1-yes,0-no)

use ✚✓ to set 1 or 0. After that procedure, use (3x) ➡ to leave the menu, the controller will ask you : | Save Cancel | choose save by using ✚✓ .

2) Automatic Developer and Fixer tank fill.

This feature automatically corrects for low level conditions in the Developer and Fixer chemical tanks by way of additional level switch monitoring circuits.
If either tank „low level" tank sensor is activated a replenishment cycle will inject solution (**XXml**) into the chemical tanks until the correct tank level is reached.
** XXml** this amount is programmable and relates to the size of processor.
(see the table : factory settings)
Safety: In the case of a leak from the tank or the associated circulation system and to avoid the replenishment pumps operating continuously thereby draining and wasting replenishment chemistry there is an inbuilt fail safe system that will disable the replenishment pump if the level in the tank is not reached after 2000ml of replenishment. The pump will stop and the message „ Tank - Low Level"

Use the following procedure to activate or de-activate the feature:

Press the bottum , use to move the courser under "Options", press , you will see "Standby Refill" use again to move the courser under "Refill" you will see:

Wash auto refill 1 (1-yes,0-no)	**(page before)**

Use (1x) you will see:

no refill **300ml refill**

T1 auto refill add 0000 ml	T1 auto refill add 0300 ml

In this case, the automatic chemistry tank fill is deactivated, to activat, you have to set a value instead of 0000. To do this, use the following procedure:

Move the courser under the "zeros" by using ,to set a value, use .

To leave, use (1x) you will see:

T2 auto refill add 0000 ml

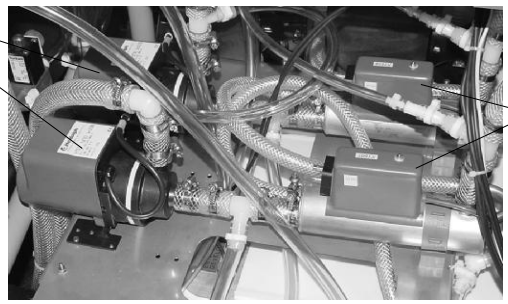
Use the same procedure for Tank2 as described before for Tank1.

After you set that all, use (1x) to leave the menu, the

controller will ask you : Save Cancel choose save by using .

6. TEMPERING SYSTEM

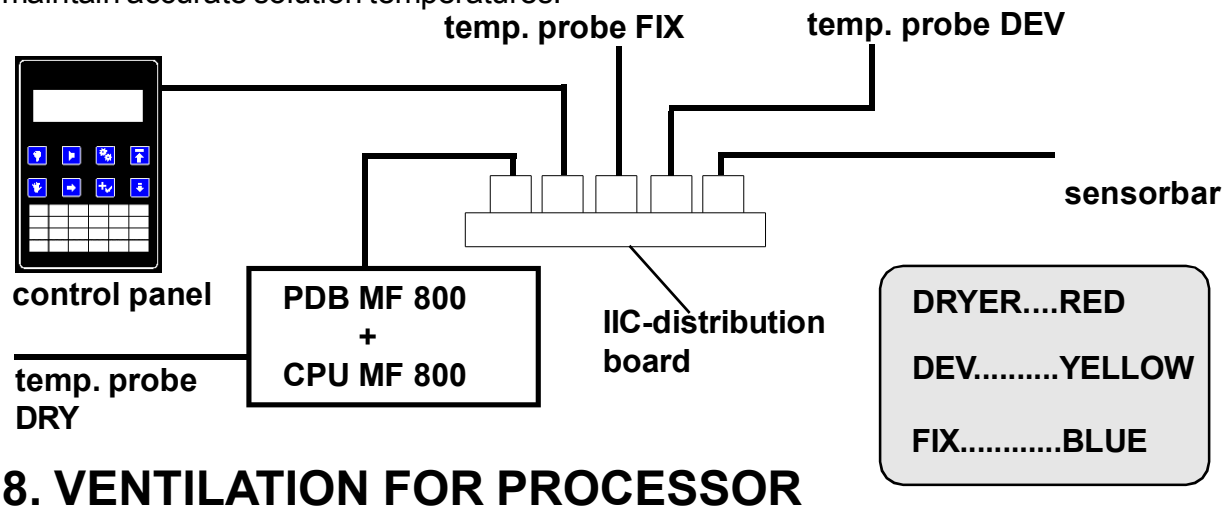
The processor employs a indirect tempering system to maintain processing solution temperatures accurately and efficiently. This tempering system is integrated into the recirculation. This system offers more efficiency and energy-saving.



The control panel in turn activates the circulation pumps and the tempering unit. The circulation pumps mix the chemistry to ensure even temperature throughout the entire tank.The drive motor also comes on during this period, to prevent build-up of chemical by-products on the processing rack parts during period of low usage. As protection against overheating most of the processors are equipped with a „cold water“ cooling system.

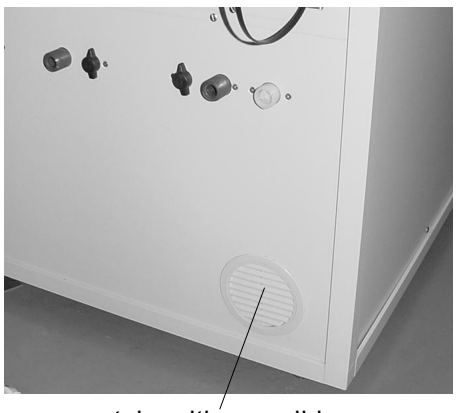
7.TEMPERATURE SENSING

The temperature probe in the tank senses the temperature change and activates the relevant heater control circuits within the main processor control system so as to maintain accurate solution temperatures.



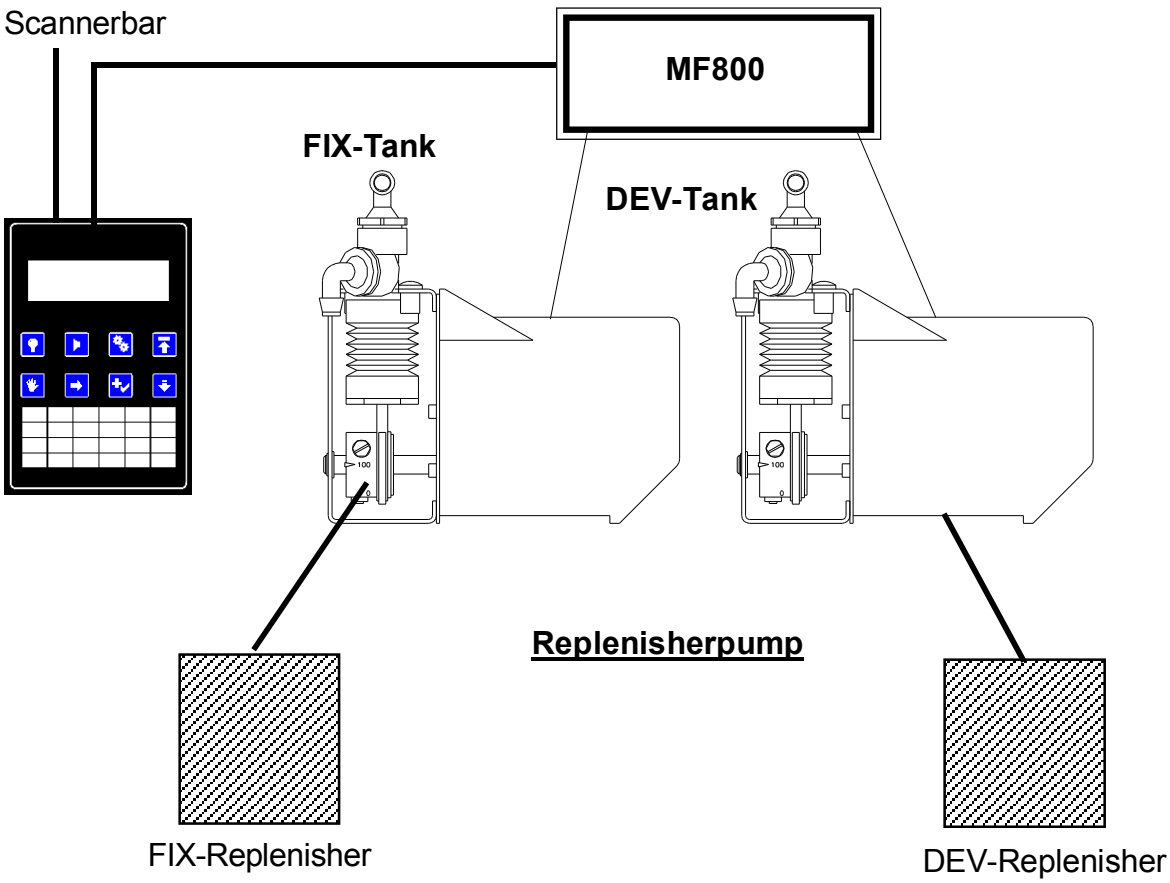
8. VENTILATION FOR PROCESSOR

To prevent cristalization and humidity inside the processor a ventilation divice is fitted to processor. It is recommended to connect the below mentioned tube to an external exhaustinon device to prevent any possible problems.Caution: If the cover lid is removed the external tube must be reliable mounted into the processor.



9. CHEMICAL REPLENISHMENT SYSTEM

Whenever photographic material is processed, chemical components of the processing solutionsd are nused and by-products are left behind in the processing solutions. Replenisher solutions are formulated to restore the chemistry to its original activity and to dilute the by-products to a correct level. It is therefore necessary to add the proper amount of replenisher for the amount of material that has been processed. Performed automatically by the processor by way of infrared sensors installed across the complete feed width of the processor.



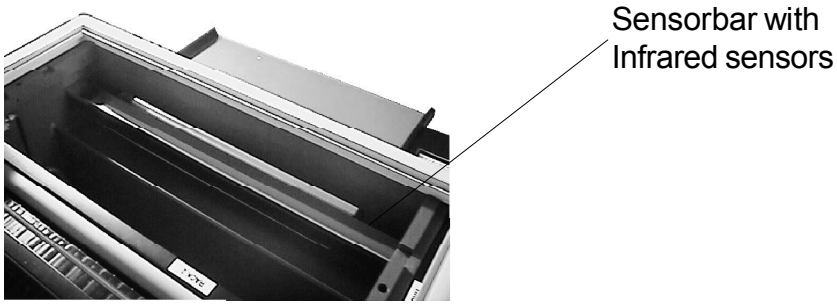
These sensors emit pulses of infrared light which has no effect on photographic emulsions. When media is beneath the sensorbar, the pulses are reflected and detected by the sensor. The pulses are transmitted to the control panel where they are „counted“ by the microprocessor. When the number of pulses reaches the amount that has been programmed on the microprocessor, the replenishment timer function starts.

The replenishment timer runs the replenishment pump(s) for the number of seconds that have been set on the microprocessor. When the replenishment pumps are activated, the replenisher solutions are pumped through filters located at the bottom of the replenisher tanks to the chemistry tank.

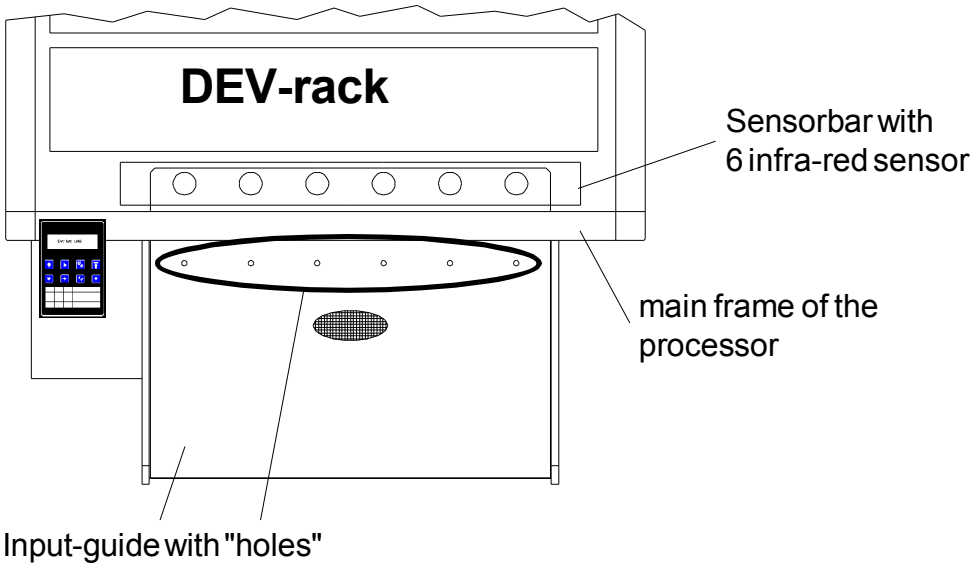
The filters should be checked monthly and be cleaned or replaced if necessary.

9.1 INFRARED REPLENISHMENT SENSORBAR

The automatic replenishment system is using an infrared-sensor-bar to detect the incoming film area. With that information the CPU of the processor will calculate the replenishment rate which will be need.

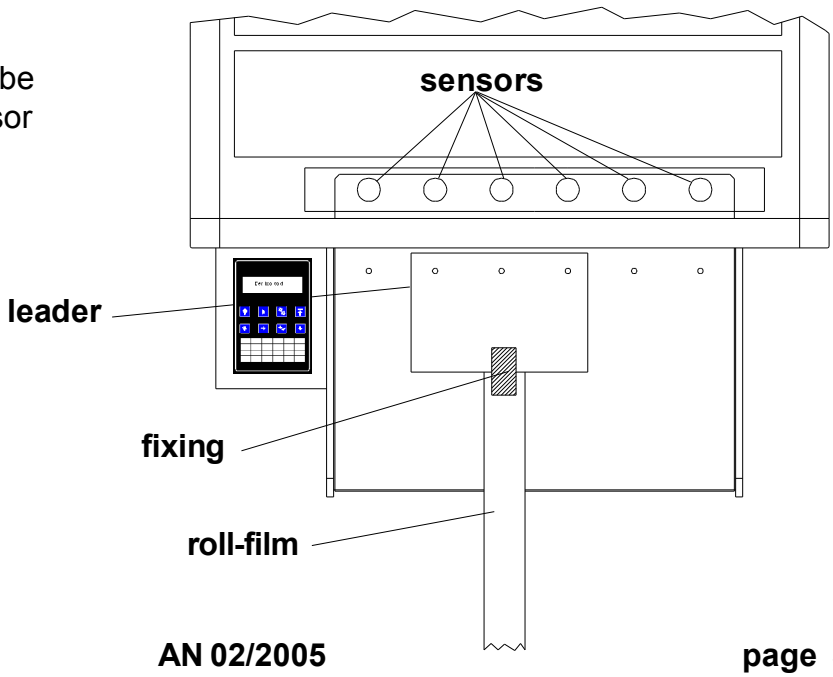


The "holes" in the film input guide show you the position of the sensors.



<u>To process rollfims, take care to the following points:</u>

- use a leader
- take care that the film will be detect by minimum 1 sensor



10. FILTERSYSTEM FOR DEVELOPER

During working, the filter has to be installed inside the processor.

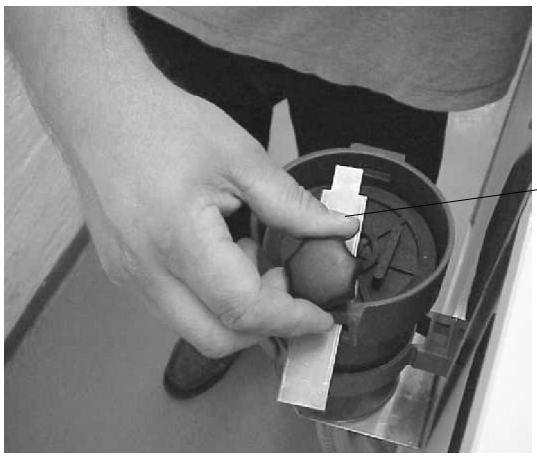
To replace the filter insert, place the filter on the frame as shown. After the insert has been replaced, place the filter again inside the processor as shown above.

Warning: Mount the side panel to the processor and fix it with the mounting screws.

10.2 HOW TO REPLACE THE FILTER INSERT

NOTE: to change the filter cartridge it is necessary that the filter-system is fixed on the main frame.

1.switch off the processor



2.open the closing sheet

3.remove the filter cover

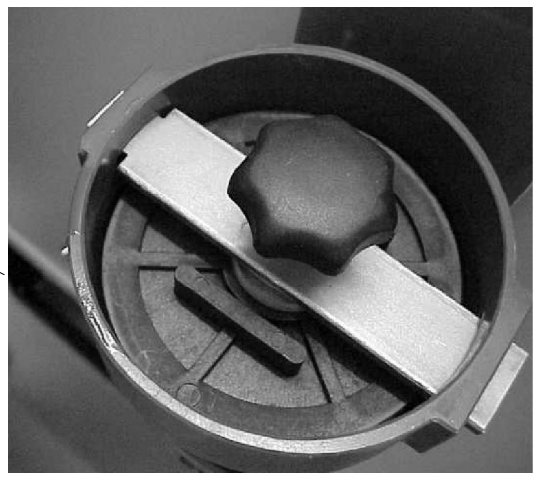
10.2 HOW TO REPLACE THE FILTER INSERT

4.take out the used filte cartridge

5.check position of the O-ring inside filterhousing

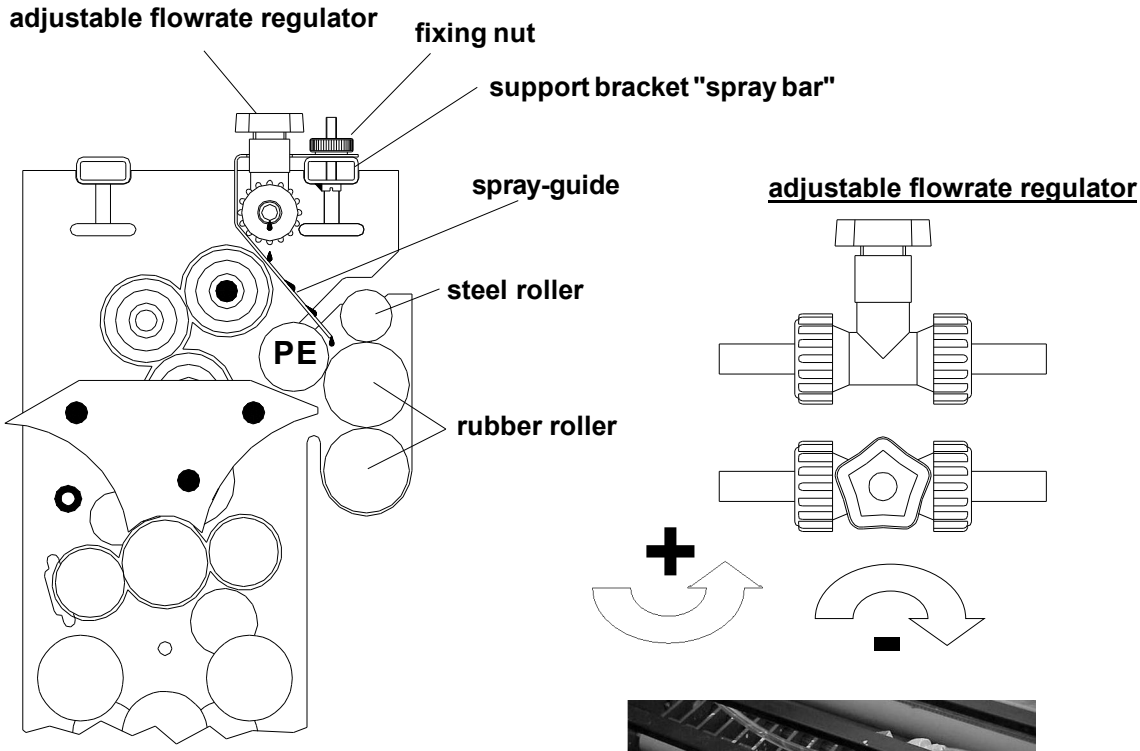
6.put in the new filter cartridge slowly and carefully

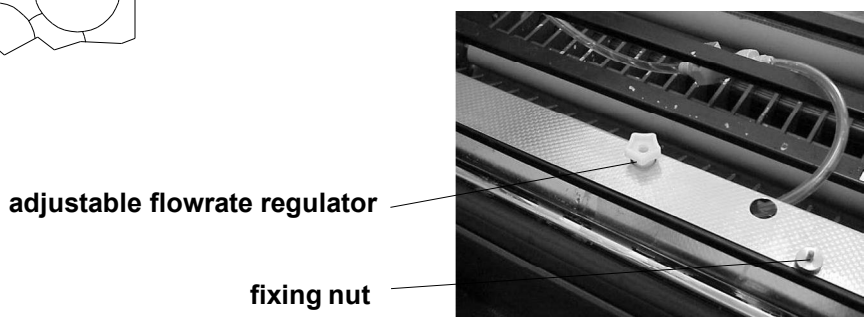
7.close the filter system in the reversed squence as described before (step 2)

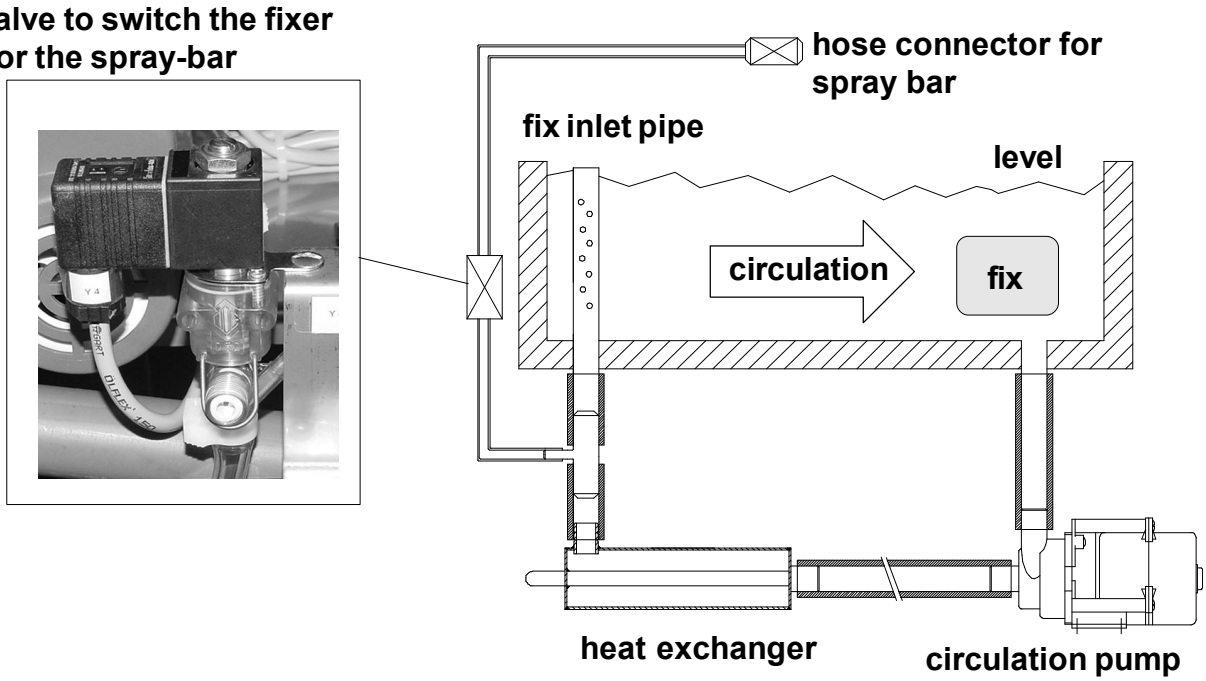


11. SPRAY-BAR ASSEMBLE FOR FIXER-TANK

11.1 AD USTMENT OF THE SPRAY-GUIDE

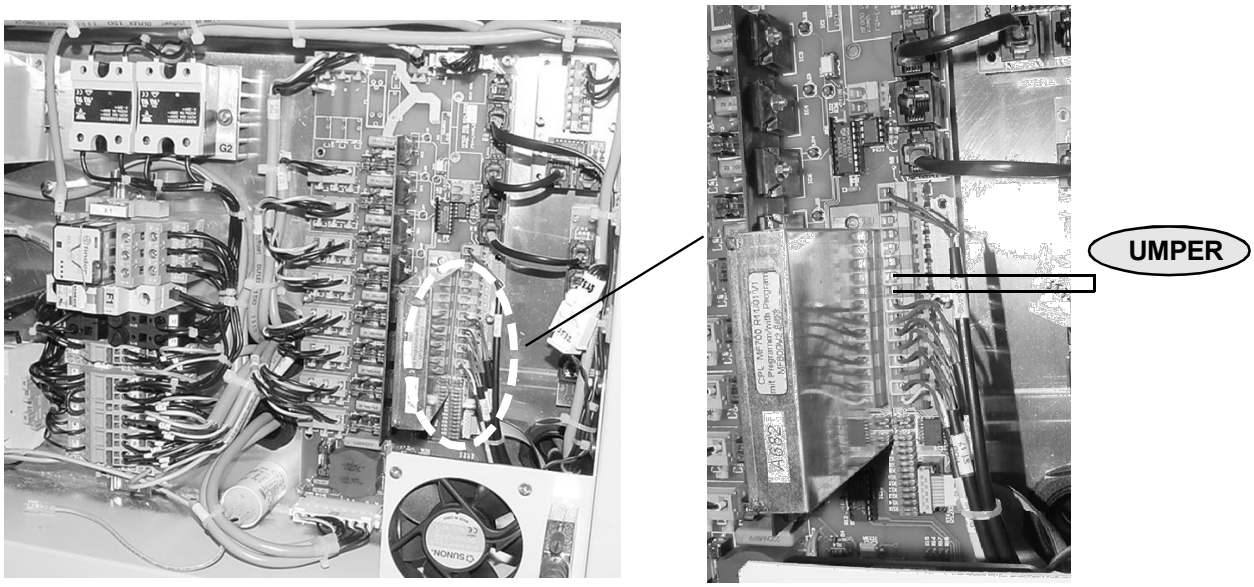


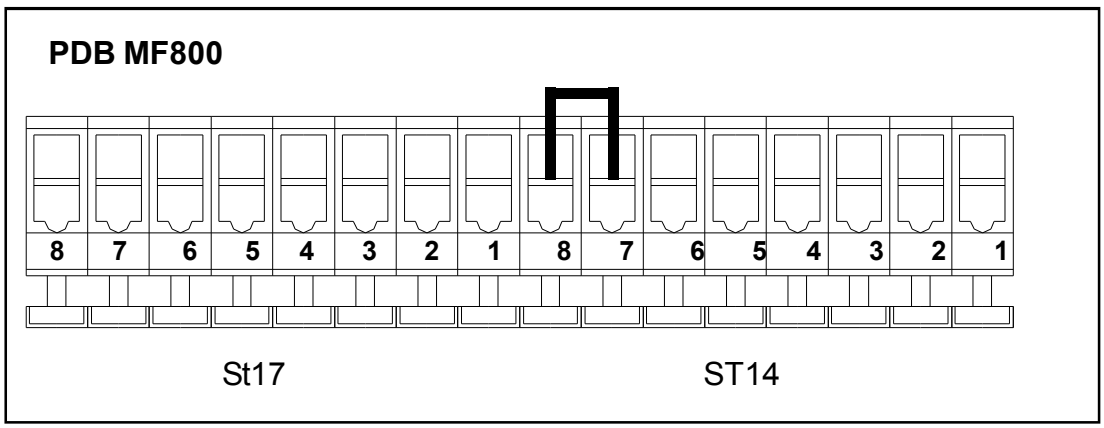




12. SETUP OF THE PROCESSOR

It is possible to see data and to change working data in the SETUP menu but to save any new data entered into the SETUP menu then it will be necessary to insert a jumper on the main board of the processor:





When selecting Save in the setup menu, the program will refuse to save the data unless this wire jumper is present.

!!! Don t forget to remove the jumper after you finished!

Switch on the processor, use ⚙ 1 time: you will see

Program	Setup
Options	RS232

Use ➡ to move to SETUP and confirm with +✓.

There are 10 pages, which depend on the mechanical construction and must be entered during the factory setup. See next page:

The setup screen consists of 10 pages. Use ▼ to scroll through the pages.

```
   ea  1 0   s m
    m  0  0 m  s
```

Gear is the number of motor pulses corresponding to 1m advance of the material. It is needed to calculate the processed film area (for the replenishment) and the processing speed in cm/min.

Pump is the number of milliliters per second of the replenishment pump. Needed to allow programming the replenishment in milliliters.

```
  ens    istan e
 050 mm
```

Sensor distance is the distance between two sensors of the sensorbar. It is needed for the film area calculation.

```
    e  sa e 1
  1  es 0 n
```

Power save. If set to 1 (yes) the tank2 heater will be switched off whenever the tank1 and the dryer heaters are both on, regardless of the tank2 temperature. This to keep the total power consumption in legal limits.

```
  e  enis  a te
 ea   0 125 s  m
```

Replenish after. This is that area, after one replenishment cycle has to be activated.

```
  a se  et een s
  eate s 1000 ms
```

Pause between. Is used to prevent any possible distrurbances back to the power line / power supply.

```
T1  t   0000   s
T1  n   0000   s
```

T1 Str - startpoint of the DEV-rack
T1 End - endpoint of the DEV-rack

```
T2  t   0000   s
T   n   0000   s
```

T2 Str - startpoint of the Fix-rack
T3 End - endpoint of the WASH-rack

```
   n   0000   s
 at  e  t   t 00
```

DR End- endpoint after the dryer
T3 End - endpoint of the WASH-rack

```
 at  t  00 0   s
 at  n  00 0   s
```

Wat Str - startpoint when the wash valve is on
Wat End - endpoint when the wash valve is off

```
  i m   e kin  0
  1  es 0 n
```

1 = Normal speed loading. Film is checked from input to feeder until input to processor before the next film is loaded into the feeder.
0 = Fast load mode, When selected will turn off the Film check feature so that the loading sequence commences once film clears the gauge switch position.

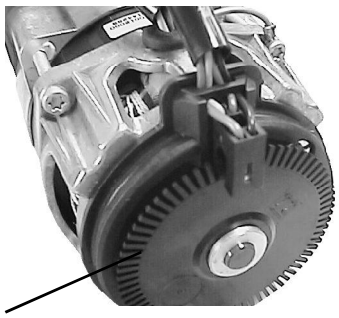
```
  an  a e 0
 0     1
```

Used to change the language of the user part of the display.

```
  a e   an e
```

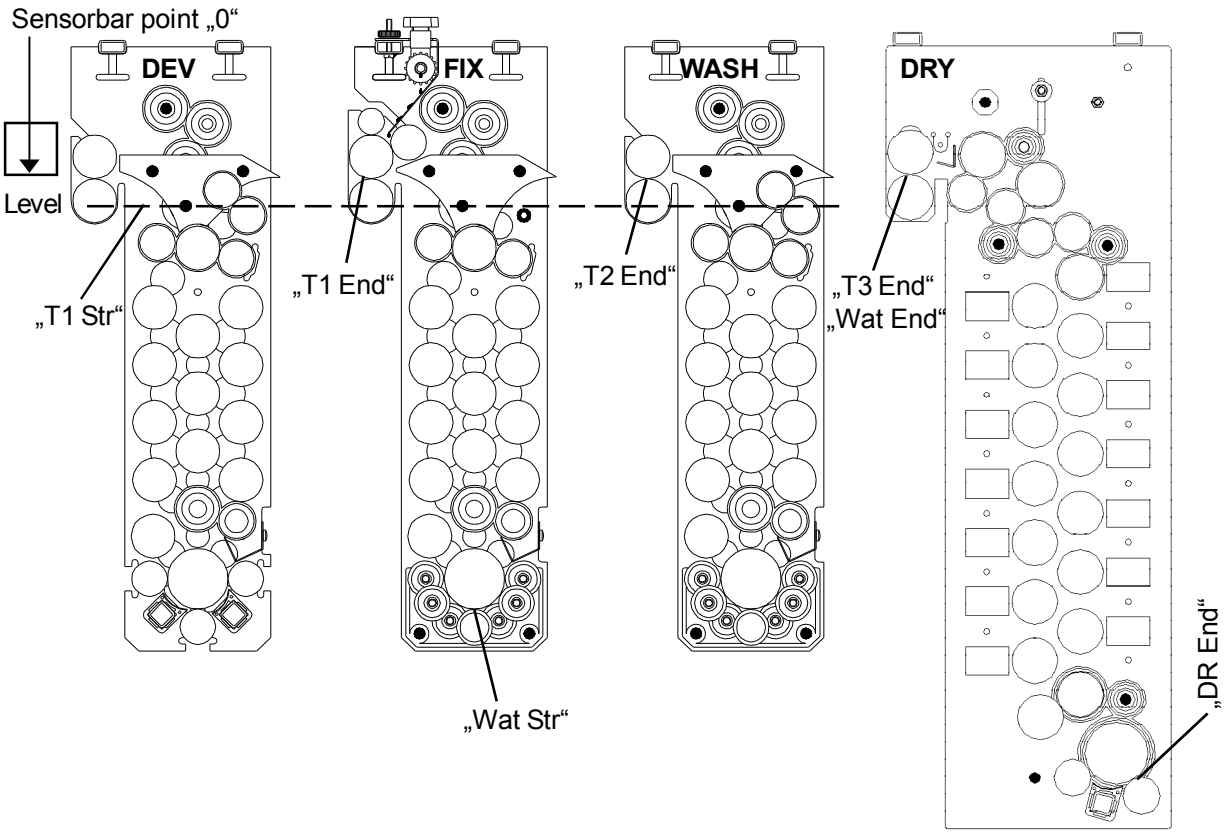
Use **Save** to store your adjustments (the jumper desribed before has to be installed) or use **Cancel** to leaf.

***NOTE1:** The shaft of the main drive motor has a tachometer installed . When the drive motor starts the tacho will rotate to generate a speed counter which sends pulses to the Processor CPU. By using these pulses the CPU is able to accurately control the transport speed/timing sequences



Main drive motor with tachometer

The before mentioned values are defined as following:



EEPROM CRC check

The setup, standby options, and the three programs are stored in EEPROM residing on the PDB. To ensure the data validity in this EEPROM, a CRC is used.It is almost impossible that the software recognizes a new EEPROM containing random data, as a valid one.

The program startup follows this sequence:
Checks the setup data CRC. If not valid, an error message “Setup Invalid” appears and you are taken to the programming menu. If the CRC is OK, program continues further.
Next, the Standby options CRC is checked. If invalid you get “Options invalid” and proceed to programming mode.
Next, Program 1 CRC is checked. If invalid you get “Program1” and proceed to programming mode.

Only if all of the above is OK, the processor will run in work mode. Note that P2 and P3.. are not required to be valid, just P1. However, if P2 or P3.. has invalid CRC, when attempting to switch to that program, you’ll get an error message “Program invalid”.

FACTORY SETTINGS :

				R N E
Program	**P1**	**P2**	**P3**	
Program	**P4**	**P**	**P**	
Program	**P**	**P**	**P**	
P5 – P9 not programmed				

Se p		

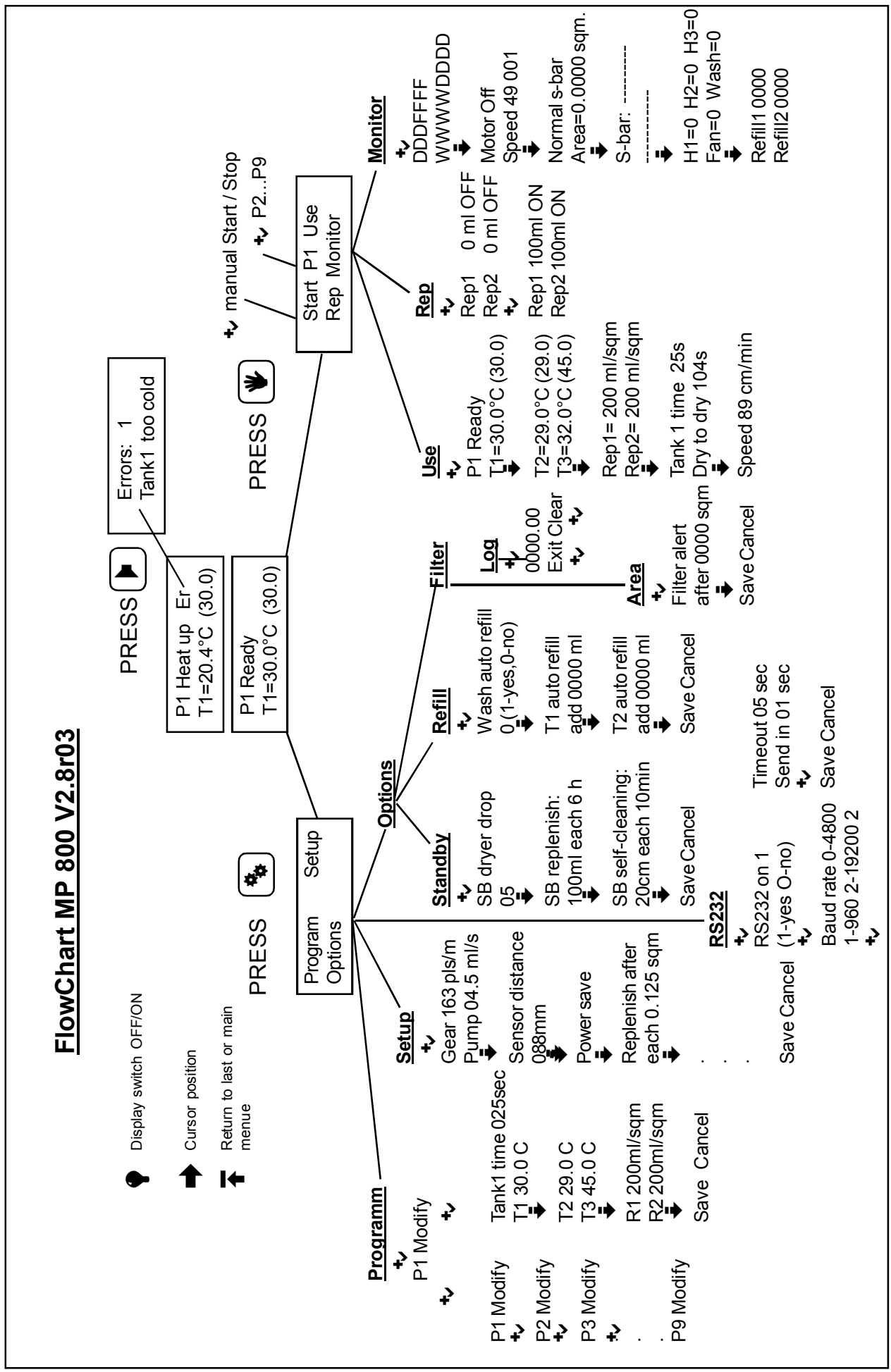
FACTORY SETTINGS :

Options		
Standby		
Refill		
Filter		
Area		
Log		

Only in use when a FEEDER is installed:

RS 3		

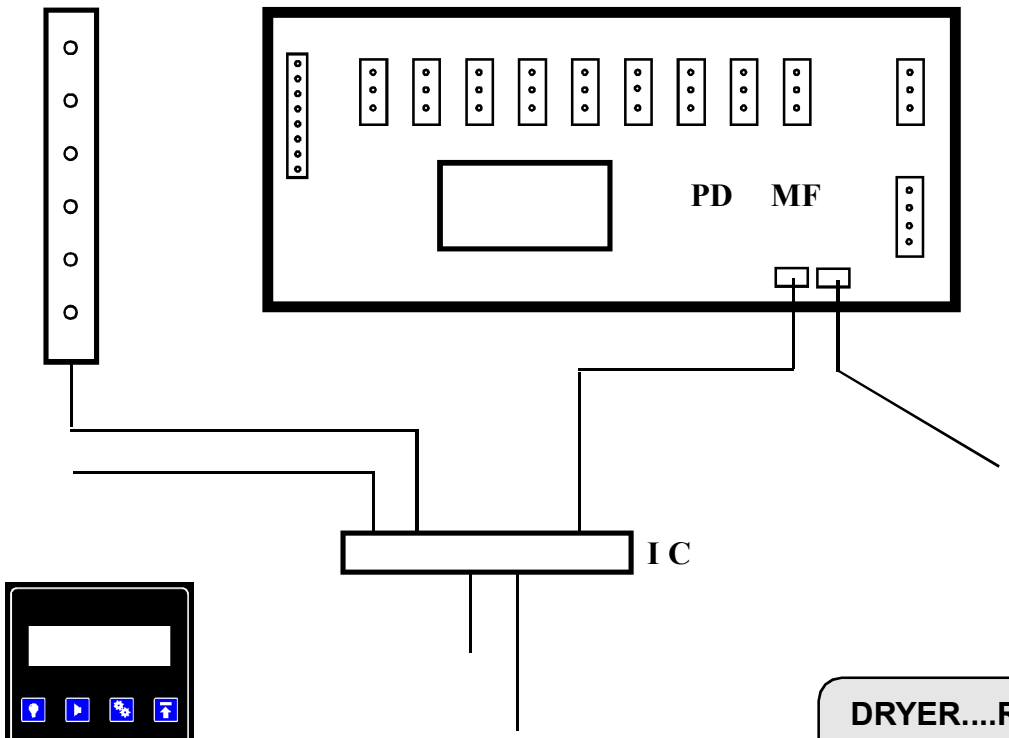
as o e if a a o fee er is co ec e


FlowChart MP 800 V2.8r03
Display switch OFF/ON
Cursor position
Return to last or main menue
PRESS
PRESS
PRESS
Errors: 1
Tank1 too cold
P1 Heat up Er
T1=20.4°C (30.0)
P1 Ready
T1=30.0°C (30.0)
manual Start / Stop
P2...P9
Start P1 Use
Rep Monitor
Program Setup
Options
Programm
P1 Modify
P1 Modify
P2 Modify
P3 Modify
P9 Modify
Tank1 time 025sec
T1 30.0 C
T2 29.0 C
T3 45.0 C
R1 200ml/sqm
R2 200ml/sqm
Save Cancel
Setup
Gear 163 pls/m
Pump 04.5 ml/s
Sensor distance
088mm
Power save
Replenish after
each 0.125 sqm
Options
Standby
SB dryer drop
05
SB replenish:
100ml each 6 h
SB self-cleaning:
20cm each 10min
Save Cancel
Refill
Wash auto refill
0 (1-yes,0-no)
T1 auto refill
add 0000 ml
T2 auto refill
add 0000 ml
Save Cancel
Filter
Log
0000.00
Exit Clear
Area
Filter alert
after 0000 sqm
Save Cancel
RS232
RS232 on 1
Save Cancel (1-yes O-no)
Baud rate 0-4800
1-960 2-19200 2
Timeout 05 sec
Send in 01 sec
Save Cancel
Use
P1 Ready
T1=30.0°C (30.0)
T2=29.0°C (29.0)
T3=32.0°C (45.0)
Rep1= 200 ml/sqm
Rep2= 200 ml/sqm
Tank 1 time 25s
Dry to dry 104s
Speed 89 cm/min
Rep
Rep1 0 ml OFF
Rep2 0 ml OFF
Rep1 100ml ON
Rep2 100ml ON
Monitor
DDDFFFF
WWWWDDDD
Motor Off
Speed 49 001
Normal s-bar
Area=0.0000 sqm.
S-bar: --------

H1=0 H2=0 H3=0
Fan=0 Wash=0
Refill1 0000
Refill2 0000

13.TOTAL VIEW OF THE I²C-BUS SYSTEM

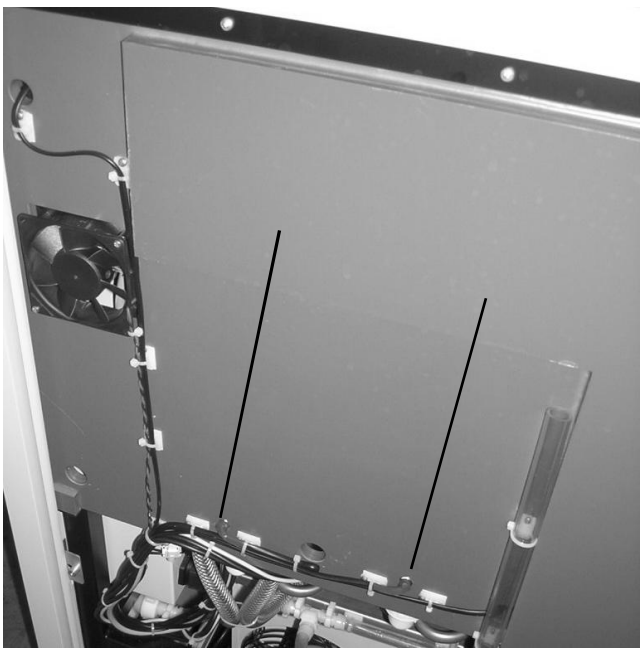
Probes positioned under solution levels precisely monitor all solution tank temperatures. These temperature probes are continuously supplying information to the microprocessor on actual solution temperatures within the tanks. The microprocessor then compares these actual temperatures to the required programmed ”set” temperatures and controls the relevant heaters/cooling systems accordingly.
To transfer this information, a BUS-SYTEM is installed.

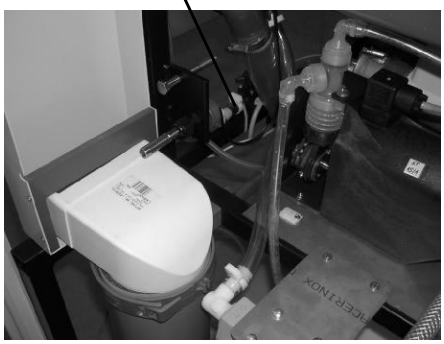


DRYER....RED

DEV.....YELLOW

FIX.....BLUE





TEST INSTRUCTIONS FOR THE I²C-BUS SYSTEM

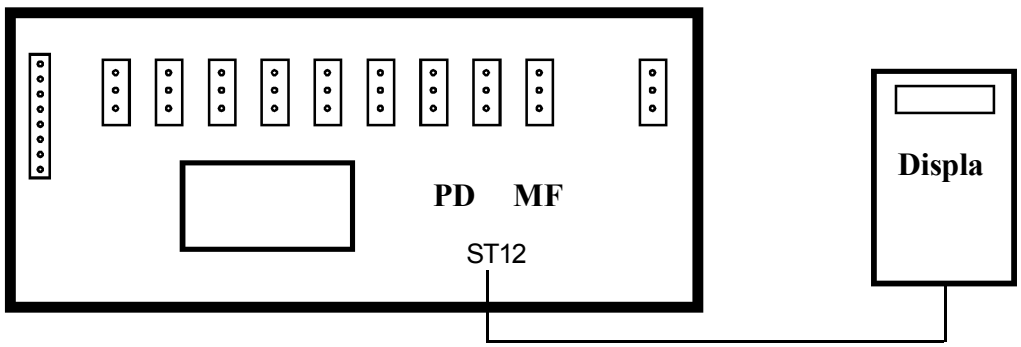
The used I C-Bus is easy to test. The following steps are necessary:

Disconnect all elements of the bus

Display (distribution board)
Sensorbar (distribution board)
Temperature sensor FIX & DEV (distribution board)
cable between PDB(ST12) and distribution borad
Temperature sensor DRYER (PDB) ST10

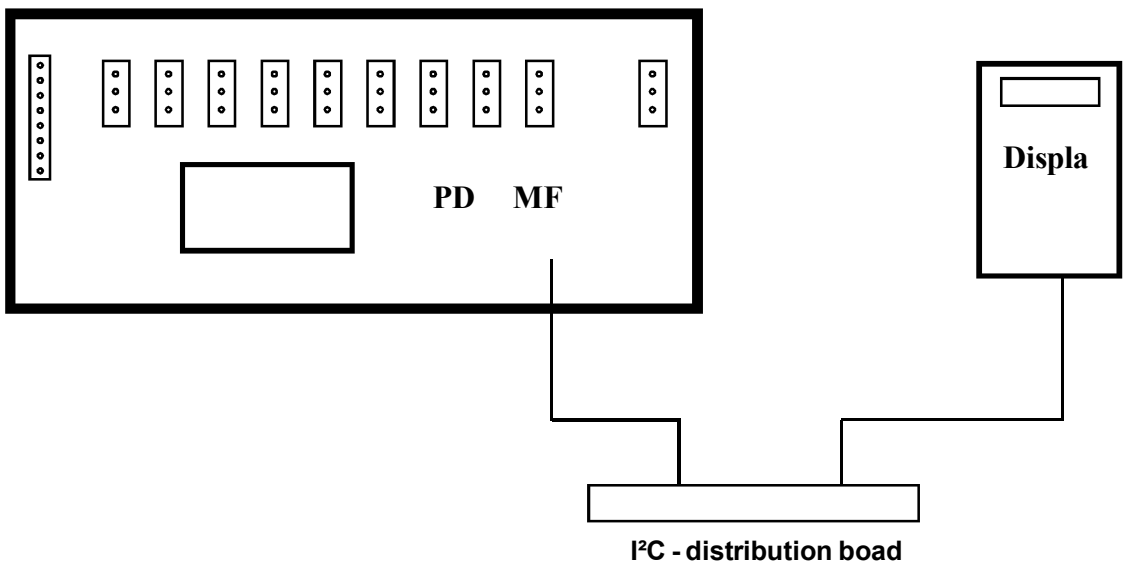
---

1. plug the Display direct into ST 12 on the main board



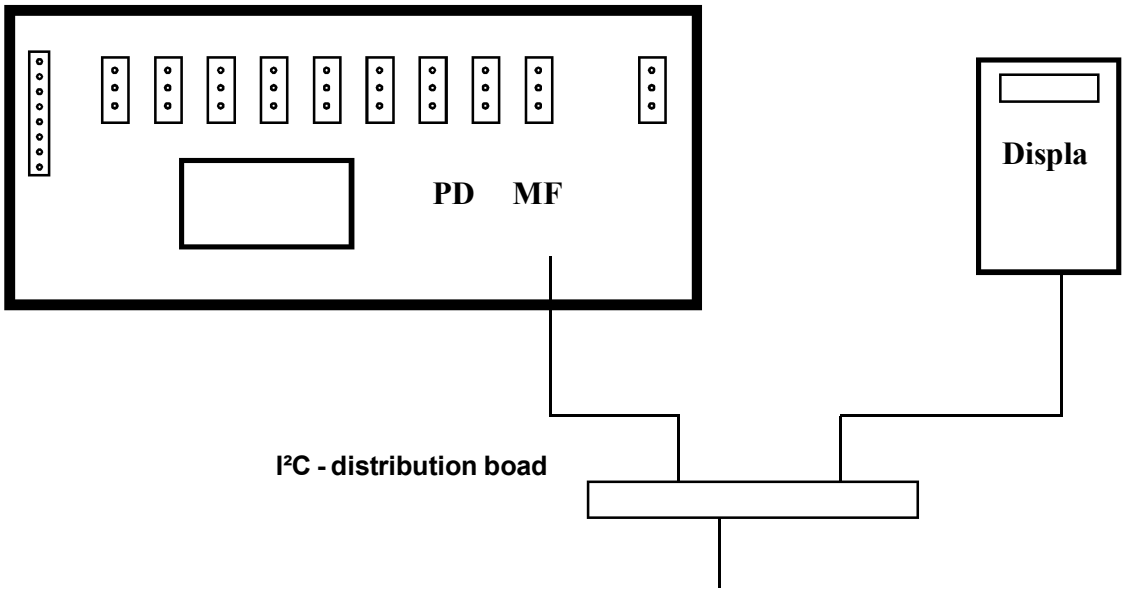
If its o.k. it will show the Software identification and the electronic will go in operation mode.

2. make the following connections: from the distribution board to the mainboard(PDB) and the display.



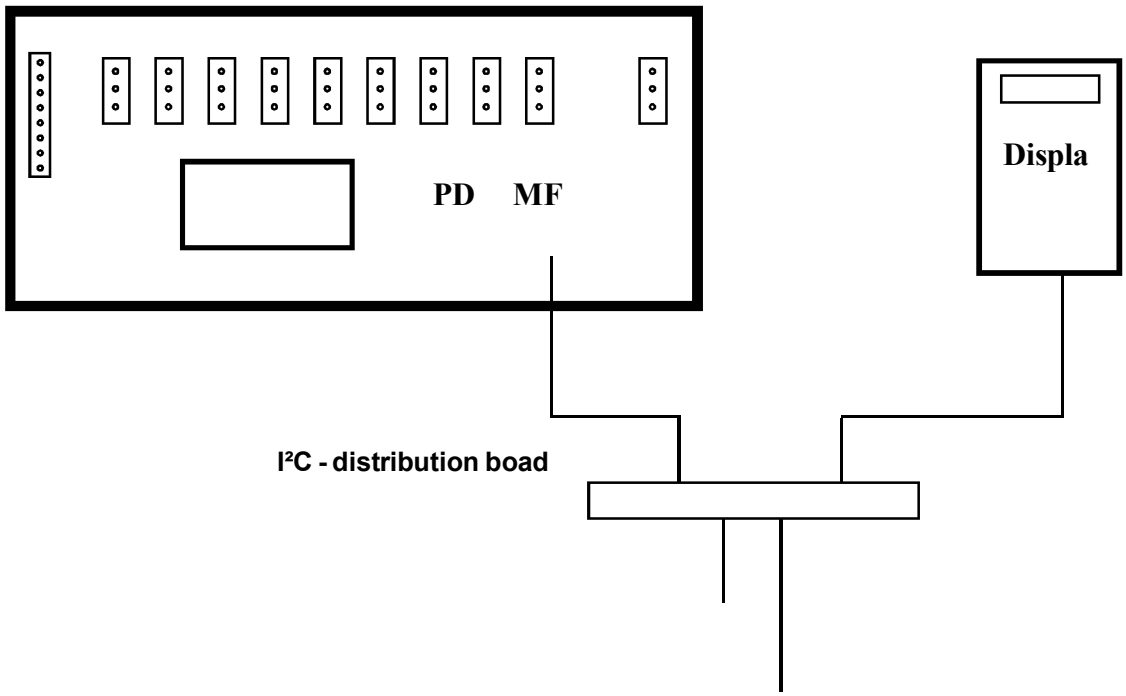
If no trouble is shown the connection cable + the distribution board will be o.k.

3. Plug in the Developer sensor.



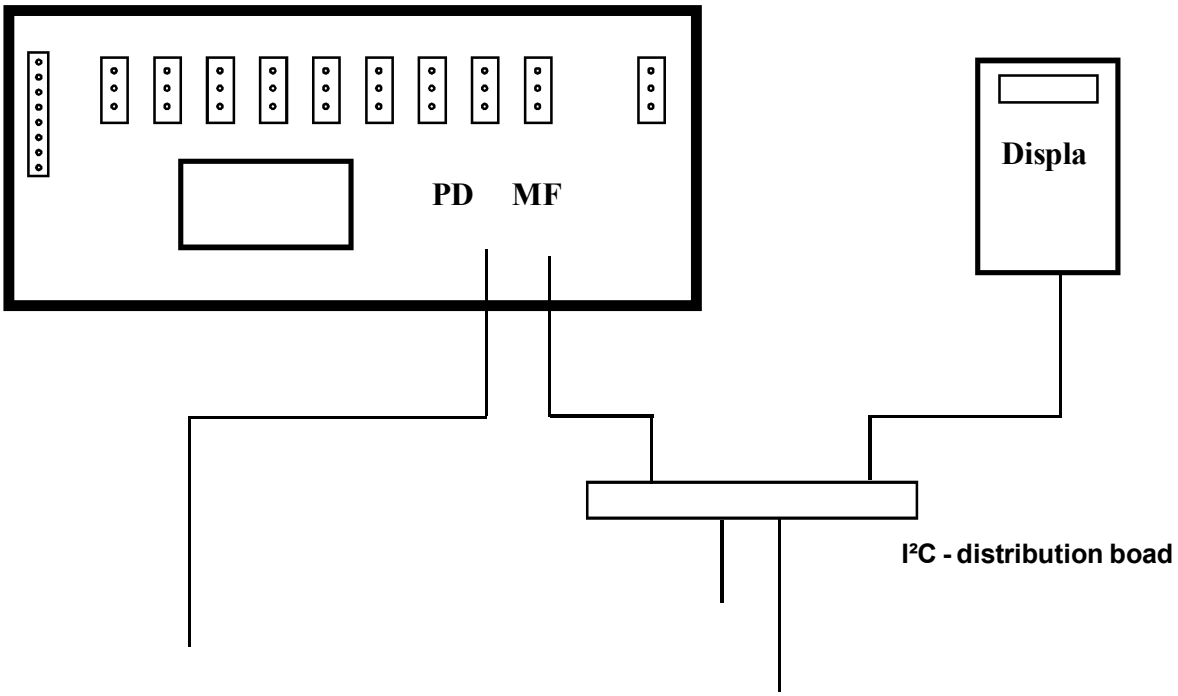
If no trouble is shown, then the sensor will be o.k. and in the Display will be shown the actual measured temperature +/- 1°C. If or some other indefinable signs are shown the temperature sensor is defective.

4. plug in the Fixer temperature sensor



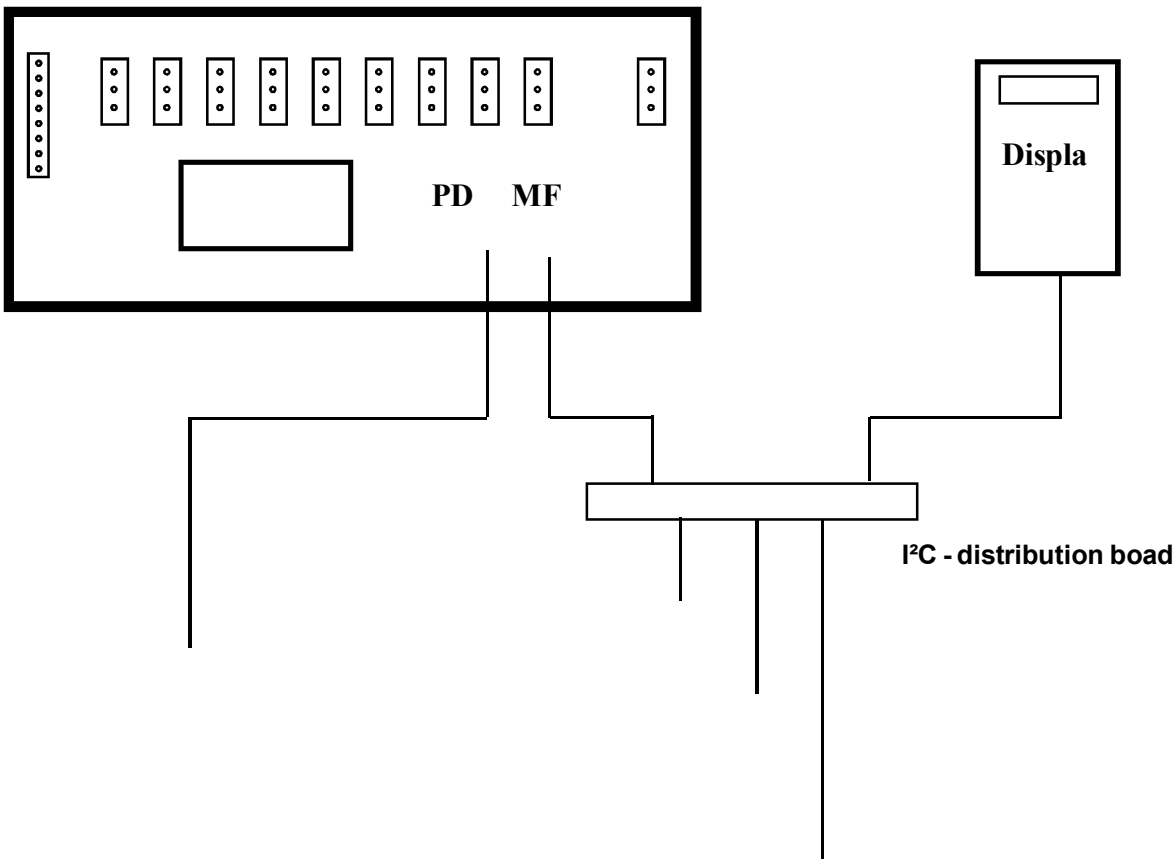
Press ⬇ to see T2 (FIX) and T3 (DRYER)
If no trouble is shown, then the sensor will be o.k. and in the Display will be shown the actual measured temperature +/- 1°C. If or some other indefinable signs are shown the temperature sensor is defective.

5. Plug in the dryer temperature

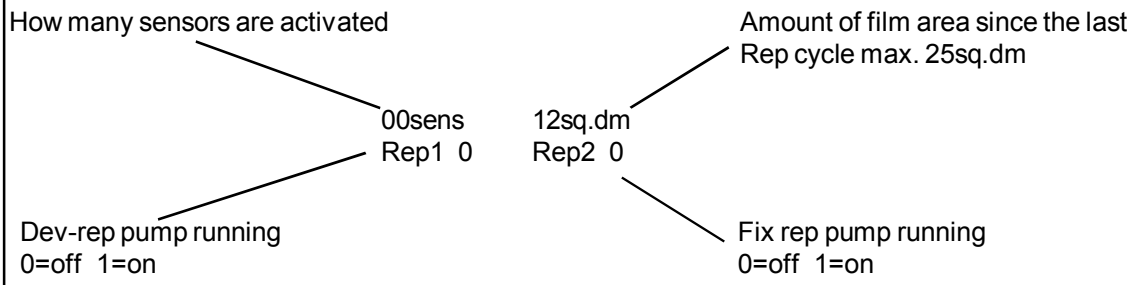


Press ⬇ to see T2 (FIX) and T3 (DRYER)
If no trouble is shown, then the sensor will be o.k. and in the Display will be shown the actual measured temperature +/- 1°C. If or some other indefinable signs are shown the temperature sensor is defective.

6. Plug in the sensor bar



If in the display is no trouble shown the sensor bar will be o.k.
If all sensor are o.k. could be shown in the monitor program. The steps to get into this programm is shown in the menue overview.



The sensor information shows how many sensors are activated.Please insert a material below some of the sensors,it will show the amount of sensors which are activated.If the display will be 00 the sensor bar will be defective or the sensitivity should be adjusted.

Attention: The sensitivity of the sensor bar can be adjusted at sensor 1 (multiplexer board) by potentiomener TP1

11. MAINTENANCE

The filmprocessor is designed to produce consistent high quality production with the minimum of maintenance.
Regular maintenance minimizes the chances for equipment failure and loss of processing quality. A a well trained person has to be responsible for performing the maintenance of the filmprocessor and must be familiar with the operation and function of the processor as well.

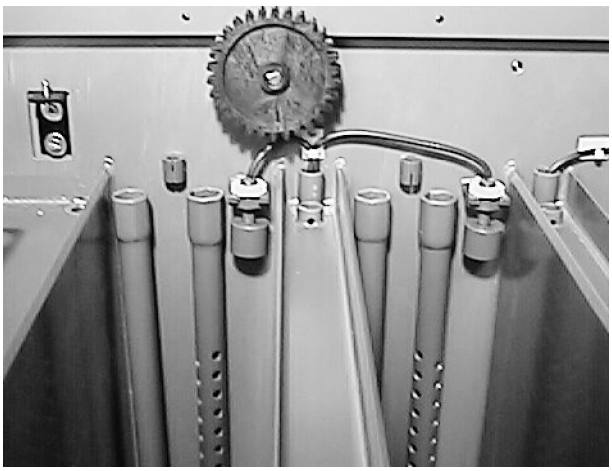
1. Daily maintenance

*) Check levels of the external replenishmener tanks - If necessary mix fresh solution.
*) Cleaning feed tray.
*) Cleaning spray-bar-guide for the fixer
*) Before starting production we advise to feed some cleaning films to remove any overnight residue.
*) Use the supplied "spray-bottle" to remove any deposits from the drive gears - as shown below:

2. Weekly maintenance

*) Wipe**external surfaces of film processor / enclosures / panels** with a wet cloth to remove any chemical / dirt deposits.

*) Inspect and clean the wash tank and intermediate water rins drains. If algaes present then the should be removed, in such a case we suggest to use a proven algae control system



*) Check the shown drain pipes and overflow tubes - remove any deposits to prevent blockad of the drain.

15. RECOMMENDED MAINTENANCE EVERY 3-6 MONTHS.

(Period is subject to processor usage.)

Good processing quality and the reliable operation of a processor is dependent upon regular and careful cleaning. Every 3-6 months, the chemicals in the tanks should be drained.
A chemical cleaning of the processing tanks and wash tank is recommended. Always follow safety code as described in section 1 during cleaning the processor.

Prior to servicing or repairs, switch off the power at the main switch of the processor ensuring it cannot be accidently switched back on. Observe safety rules if machine has to be switched on during servicing (e.g. fault finding).

*) Remove cover of the processor.
*) Drain individual tanks by open the draintaps in front of the processor.
*) Take out the rack assemblies an place them by side.
*) Close taps and fill all tanks with water or better with suitable cleaning solution until the red mark inside the tanks are reached.
*) Put the replenishment suction pipes into a container filled with water, in order to eliminate all chemicals from the pipes as well.
*) Put the racks back into the tanks of the processor and close all covers.
*) Switch on the processor and start some replenishment circles. The hoses will be cleaned with water as well. Also start the transport of the processor, the racks has to be in. Let the processor run for 10-15 minutes.
*) Switch off the main power switch and train the processor tanks again.
*) NOTE: Use cleaning solution according to the manufacturer´s instructions.
*) After tank cleaning, the developer- and wash-tank should be filled twice with fresh water (eventually use neutralizer recommended by manutacturer). Let the processor run for approximately 10 minutes again. Check all hose connectors and fittings for leaks.
*) Drain all tanks.
*) Remove all racks and check for:
    -worn gears
    -damaged or worn bearings
    -loose screws
    -scratched or bent film guides
    -plastic flat springs in developer bottom underturn.

*) Repair any damaged parts.
*) Check the inside of the tank for contamination and alien substances.
*) Clean the rollers well.
*) Close the drain taps of all 3 tanks.
*) Fill developer and fixer tanks with fresh chemistry to the required level (**1st fixer, 2nd developer)**
*) Fill wash tank.
*) Re-install the racks carefully. Take care of correct sequense of the racks is followed and make sure the gears are in the right position. Secure the racks.
*) Place the suction pipes of the replenishment system in the correct containers.
Warning: Mount all covers / panels to the processor and fix the correspond cover / panel with the mounting screws.
*) Process test films.

16. TROUBLE SHOOTING

Problem	Possible cause	Correction
1. Error message Tank1 too cold: Developer temperature more than 1 C below set temperature	a) Developer bath temperature too low	a) Check Heat up time- Check Dev -Temp in 2-3min 1°C temperature increase
	b.)Heater problem	b) Check in the Monitor mode H1,check the LD3 on main board and check Fuse F3
	c.) No circulation in the bath	c.)Check circulation pump, check the LD7 on main board check fuse F7
2. ERROR message : Tank1 too warm Developer temperature more than 1 C above Set-temperature	a) Cooling valve doesn´t work	a) Check the cooling assembly, check: FuseF9 / LD9
	b) Water tap closed	b) Open water tap
3. ERROR message : Tank2 too cold Fixertemperature more than 1 C below Set-temperatur	see point 1	see point1 F4 / LD4 F7 / LD7
4. ERROR message : Tank2 too warm Fixertemperature more than 1 C above Set-temperatur	see point 2	see point 2 check: FuseF9 / LD9
5. ERROR message : Dryer to warm Dryer temperature more than 5 C above Set-temperature	a) Set temperature too low (lower than room temperature)	a) Change set temperature
	b) no power	b) LD1 / circut breaker F1
	c) Solid State	c.) Solid State Relais down
6. ERROR message: Motor overload the drive motor did not reach it s Set-speed	a.) Main Drive assembly blocked	a.) Check the main drive for easy running
	b.) Main drive chain to much tension	b.) Check the chain
	c.) Film jam in the racks	c.) Check the racks

Problem	Possible cause	Correction
7. Main drive and dryer run continuously	a.)Main drive was started in "manual mode"	a.) Check in the manual programm if "STOP" is shown stop the transport with button. Attention: if also an automatic cycle is started by the sensor bar this cycle will end first.
	b.)Material always under sensorbar.Material not transported/pulled into the processor	b.) Check the Input rubber roller.Check the film casette.
	c.)Sensor/s at the sensorbar wet or dirty	c.) Clean the sensor/s
	d.)Main board defective	d.) change main board
8. Material wet when exiting processor	a) Dryer temperature too low b) Transport speed to high c) Unusable or wrong Developer or Fixer d) Dryer blows only cold air	a) increase the dryer temperature (max. 60°C) b) Lower the transport speed c) Increase the Repl.rate or change the chemicals d) Fuse F1 of the dryer heater defective or solid state relais
9. Temperature problems Temperature is shown incorrect.	The temperature probes has to be positioned according their code.	1. The temperature probes are colour coded Developer Yellow Fixer Blue Dryer Red

Problem	Possible cause	Correction
10. No fresh water supply	a) Water tap is closed b) Watervalve is blocked or faulty c) main board defective d) no power on the valve	a) Open water tap b) Clean the small filter in the walve,or exchange it c) Check fuse F8 / LD8
11. Circulation pump don t work	a) Pump wheel is blocked by dirt b.) no power	a) Clean the pump wheel and make shure easy running b.) check Fuse F7 / LD7
12.Level in water tank to high, watertank overflows	a.)Water drain/overflow blocked b.) Worse water drain installation	a.) Clean the water tank and clean the overflow and the water drain. b.) modify the water drain installation
13. Level in Developer- or Fixertank to low.	a.)Tank leaks b.)Too low replenishment rate or too long anti ox. cycle c.)Replenishment container empty d.)no power on the replenishment pumps	a.)Seal the tank leak b.)Increase the replenishment rate or decrease the Anti ox cycle time c.) Fill up the replenishment containers d.)Check Fuse F5 / F6 check LD5 / LD6 Clean the replenishment pump or exchange it

Problem		Possible cause		Correction
14.	**CHEMICAL TEMPERATURE CANNOT BE REACHED**	A) Incorrect temperature	A)	Program the temperature correctly.
		B) Temperature sensor is faulty.	B)	Replace the temperature sensor.
		C) The processor was started without liquid in tanks. The safety fuses at the heating element have interrupted the current supply.	C)	Reset the safety fuse.
		D) PDB is faulty.	D)	Replace PDB.
15.	**SCRATCHES OR PRESSURE MARKS**	A) Unsuitable handling of the processing materials.	A)	Handle material carefully.
		B) Cross over rollers are dirty.	B)	Clean all rollers above fluid level.
		C) Bent guide bars	C)	Clean and check guide bars. If nesassary, replace.
16.	**MATERIAL REMAINS IN THE PROCESSOR**	A) Material fed incorrectly.	A)	The material must be fed in straight.
		B) Material has excessive curl.	B)	Fold leading edges and feed in the processor.
		C) Material is too thin.	C)	Use a leader to process
		D) Rollers aren´t rotating.	D)	Check gears and the position of the loose rollers.
17.	**PROCESSOR COULD NOT BE SWITCHED ON**	A) Main cable isn´t plugged.	A)	Plug in main cable correctly.
		B) Main fuse is faulty.	B)	Check main fuse.

problem	possible cause	correction
18. PAPER OR FILM TOO LIGHT	A) Bath temp is too low	A) Adapt the bath temperature to the recommended process or change chemistry.
	B) Transport speed is too high.	B) Decrease transport speed.
	C) Exposure time is too short.	C) Increase exposure time.
	D) Bath level ist too deep (no heating and circulation)	D) Fill bath to the right level. Check Replenish-tanks.
	E) Developer exhausted	E) Replenish or change chemistry.
	F) Fixer getting into developer (Dev becomes cloudy)	F) Carefully clean the tank and replace chemistry.
	G) Exposure settings are incorrect or machine is faulty.	G) Adjust setting or repair faults.
19. PAPER OR FILM TOO DARK	A) Developer termperature is too high.	A) Decrease developer temperature.
	B) Processing time is too slow.	B) Increase processing time.
	C) Exposure time is too long.	C) Reduce exposure time.
	D) After new chemistry: starter is missing.	D) Add starter according to instructions.
20. PAPER OR FILM IS FOGGED	A) Light leak in darkroom or cassette	A) Seal off light leak.
	B) Incorrect darkroom light	B) Check filter, wattage and distance from the darkroom lamp to the processor.
	C) Material is outdated.	C) Check date of maturity.
21. PAPER OR FILM HAS YELLOW-GREEN SURFACE	A) Unsuitable hand processing material is used.	A) Only use material suitable for roller processing.
	B) Fixer is exhausted.	B) Replenish or change chemistry.
	C) Level of fixer bath has dropped (Temperature safety fuse has been activated).	C) Check level of the replenishment containers. Fill up the bath to the required level.
	D) Circulation pumps have failed.	D) Check the pump motor. Eventually replace it.

Processor: Colenta INDX 43i (RDM0-9/0- 950)

PR FANWEISUNG NACH INSTALLATION, REPARATUR - UND SERVICEARBEITEN

S N:

DIESE PR F N EIS N IS N R F R LIFI IER E SER ICE EC NI ER ES IMM

C ec lis e r D rc f r g es es es:

RN N :

Fes a sc l :

S ec era sc l :

Sc lei erpr f g:

arf e er o 3 mO m ic ersc rei e

Pr f ermer e:

Feeder: - Erdungsschraube Netzteil-Seitenteil ..... - Ventilator ..... - Netzteil-Montagewinkel ..... - Feeder-Konstruktion ..... - Feeder-Abdeckung..... - Film-Eingabeblech.....	 ..... mOhm ..... mOhm ..... mOhm ..... mOhm ..... mOhm ..... mOhm
	# o.k. nicht o.k.

2. <u>Isolationswiderstand:</u> Der Widerstand zwischen allen elektrischen Teilen (L/N) und dem Schutzleiter **<u>darf den Wert von 2 MOhm nicht unterschreiten.</u>** **<u>Pr fvoraussetzungen:</u>** # Hauptschalter in Stellung "1"	Safety Tester: ..... ID Nr.: ..... Kalibrierdatum : ..... gemessen: ..... MOhm **# o.k. # nicht o.k.**

3. <u>Ableitstrom (Ersatzableitstrom):</u> Mit dem Safety Tester ist nur die Messung des Ersatzableitstroms m glich. Der Ersatzableitstrom **<u>darf den Wert von 4 mA nicht berschreiten.</u>** **<u>Pr fvoraussetzungen:</u>** # Hauptschalter in Stellung "1"	Safety Tester: ..... ID Nr.: ..... Kalibrierdatum : ..... gemessen: ..... mA **# o.k. nicht o.k.**

e) Ist das Typenschild / Leistungsschild am Processor vorhanden?.....	# **o.k.** # **nicht o.k.**
f) Sind alle internen Abdeckungen richtig montiert ?.....	# **o.k.** # **nicht o.k.**
g) Sind alle steckbaren Schutzleiterverbindungen zuverlässig angesteckt ?.....	# **o.k.** # **nicht o.k.**
h) Sind alle äußeren Processor-Abbdeckungen zuverlässog verschraubt ?.....	# **o.k.** # **nicht o.k.**
i) Sind alle äußeren Feeder-Abdeckungen und die obere Feeder-Abdeckung zuverlässig verschraubt.....	# **o.k.** # **nicht o.k.**
j) Ist das Processor-Trockner-Rack , mit der Halteplatte auf der linken Seite, mechanisch gegen Herausziehen zuverlässig gesichert	# **o.k.** # **nicht o.k.**

5. <u>Interlock Switches des Processors auf Funktion pr fen:</u>	
# Obere Maschinenabdeckung - Interlock Switch	# **o.k.** # **nicht o.k.**

6. <u>Funktionspr fung nach Bedienungsanleitung:</u>	
Es mu mindestens eine Aufheizphase der Heizungen abgepr ft werden. Weiters mu ein Testlauf durchgef hrt werden, um sicherzustellen, da die Funktion des Processors gew hrleistet ist.	# **o.k.** # **nicht o.k.**

7. <u>Processor auf Dichtheit pr fen</u>	
# Interne und externe Verschlauchung.....	# **o.k.** # **nicht o.k.**

8. <u>Bemerkung:</u>

Alle hier aufgelisteten Pr fpunkte m ssen der Reihe nach durchgef hrt und bestanden werden.
Werden M ngel festgestellt, dann m ssen diese behoben werden.
Nach Behebung der M ngel sind alle Pr fungen (Schutzleiterwiderstand, Ableitstrom, Isolations=
widerstand) erneut durchzuf hren.

NOTES

NOTES

NOTES

Spare parts list
Ersatzteilliste
for
Colenta® INDX 43 I
Filmprocessor

EN ISO 9001
DNV
Certified Company

Colenta

MP800 V2.8 r07 und up

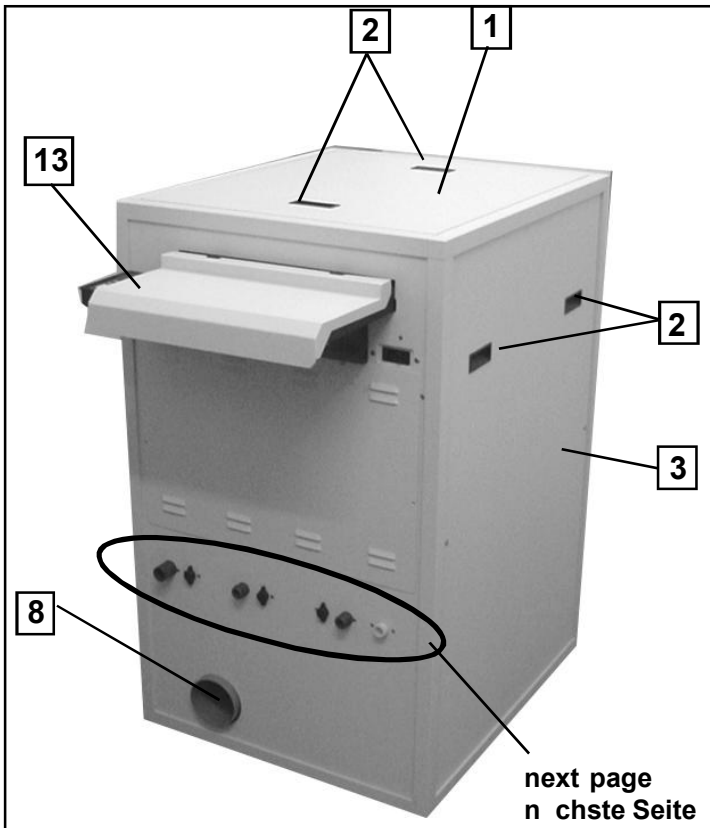
02/2005 AN

Colenta

INDX 43 I

Abk rzungen und Erkl rungen Abbreviations and Definitions

Abk rzungen / abbreviations	Erkl rungen	Definitions
W	Wasser	Wash
E / Dev	Entwickler	Developer
F / Fix	Fixierer	Fixer
MW	Mittelwalzen	Centre rollers
M 5x20	Dimension laut DIN M = metrisch 5 = Au en- 20= L nge	Dimension according to DIN M = metric 5 = outside- 20= length
A 4	Material von Schrauben, Muttern, ...	Material of screws, nuts, ...
PT	Spezialschraube f r Kunststoff	Special screw for plastic
PDB	Lastverteilung	Power distribution board
CPU	Rechnereinheit	Central processor unit
PCB	Electronik-Platine	Electronic board
= / T	Z hne	Teeth
m 1.5	Modul von Zahnr dern	Tooth pitch
T5 B6	Teilung 5mm Breite 6mm	Spacing 5mm Width 6mm
KS PA PE POM PP PVC	Materialien	Materials
EH	Eingabeh he	Feed-level
TR	Trockner	Dryer



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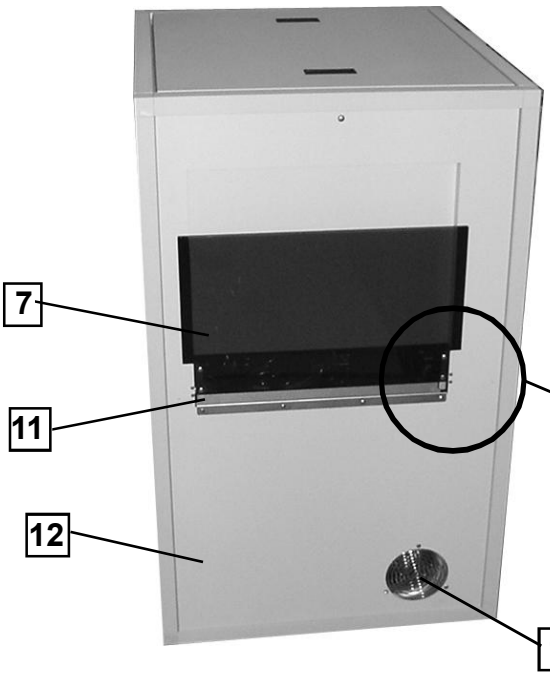
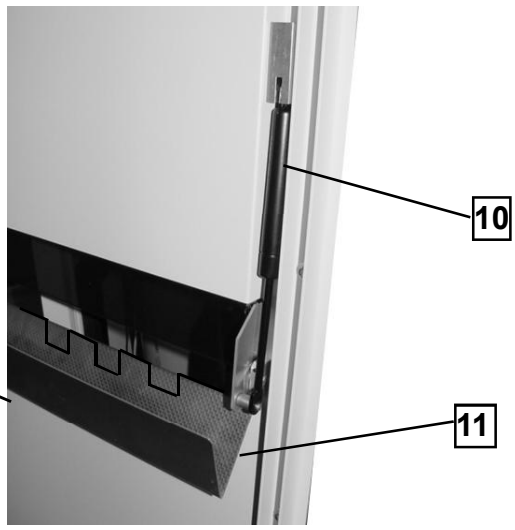
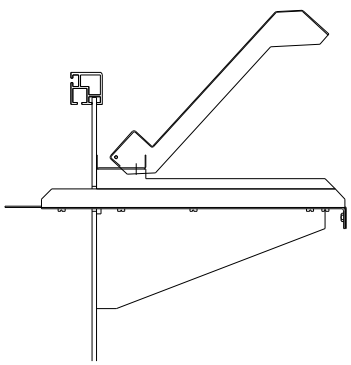
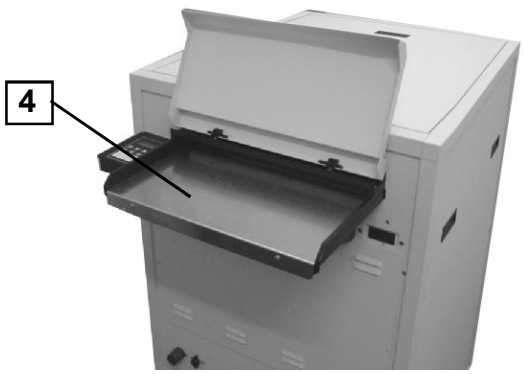
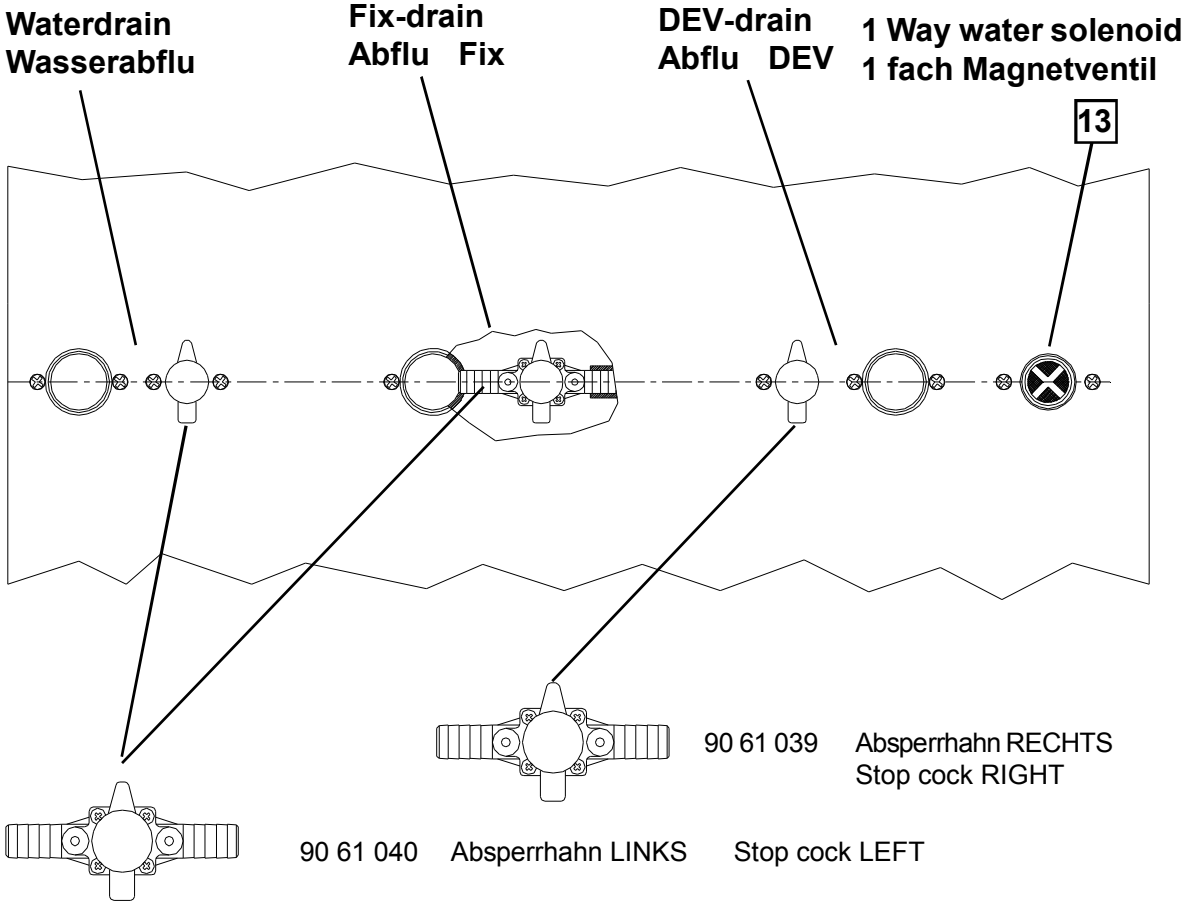


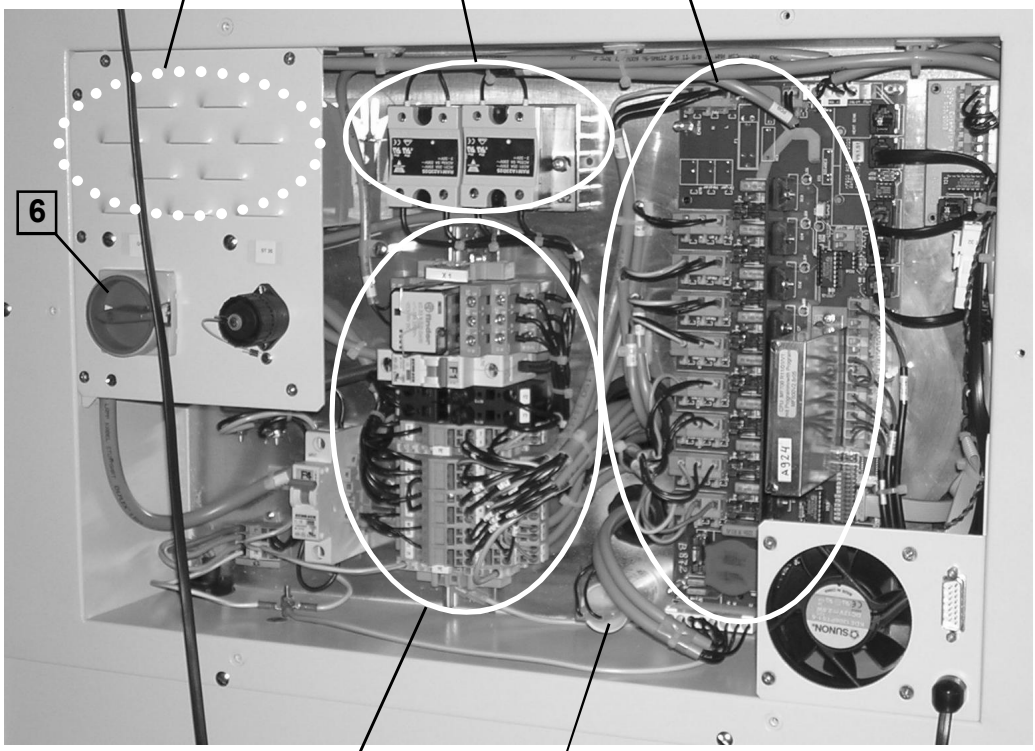






pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 14 403	Deckel OBEN	Cover TOP
2	89 01 402	Griffschalen schwarz	grip black
3	90 14 386	Verkleidung LINKS+RECHTS **INDX**	Panel LEFT+RIGHT **INDX**
4	90 14 811	Eingabeblech **INDX** MF800	Film input guide **INDX** MF800
5	90 32 035	Bedienteil kompl.	User Panel assy
6	90 20 749	Hauptschalter	Main switch
7	90 16 604	Filmklappe	Film lid
8	90 20 589	Schutzgitter Abluft	Safety barriers - air
9	90 00 039	Schutzgitter	Radiator
10	89 07 699	Gasdruckfeder	Gas spring
11	90 16 596	Filmauffangblech **INDX 43**	Filmguide **INDX 43**
12	90 16 593	Verkleidung hinten **INDX 43**	Exit-cover **INDX 43**
13	88 00 335	1-Weg Ventil	1-way water valve





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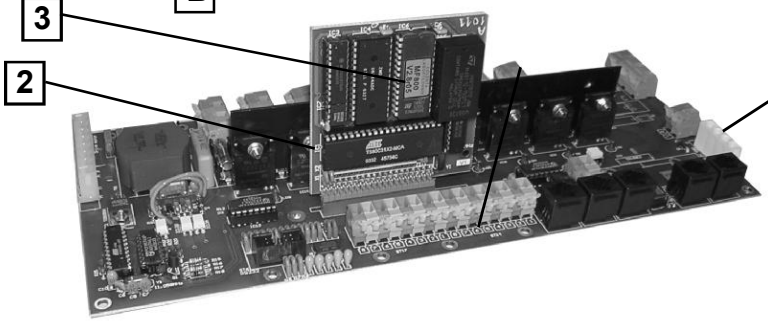

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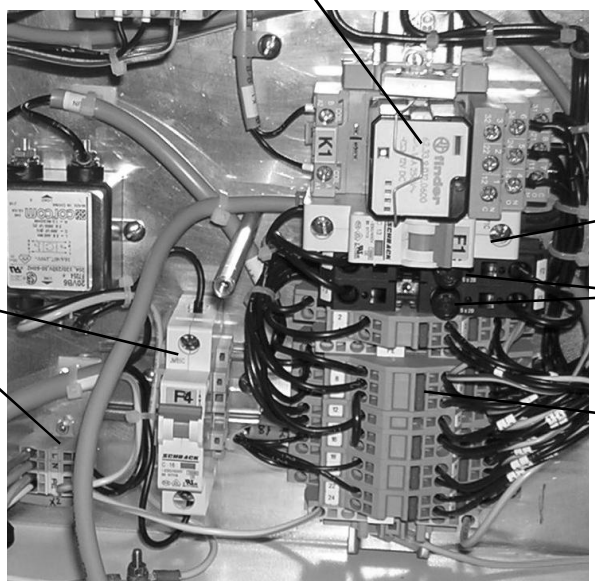

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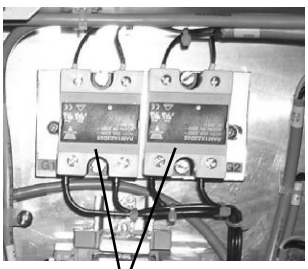
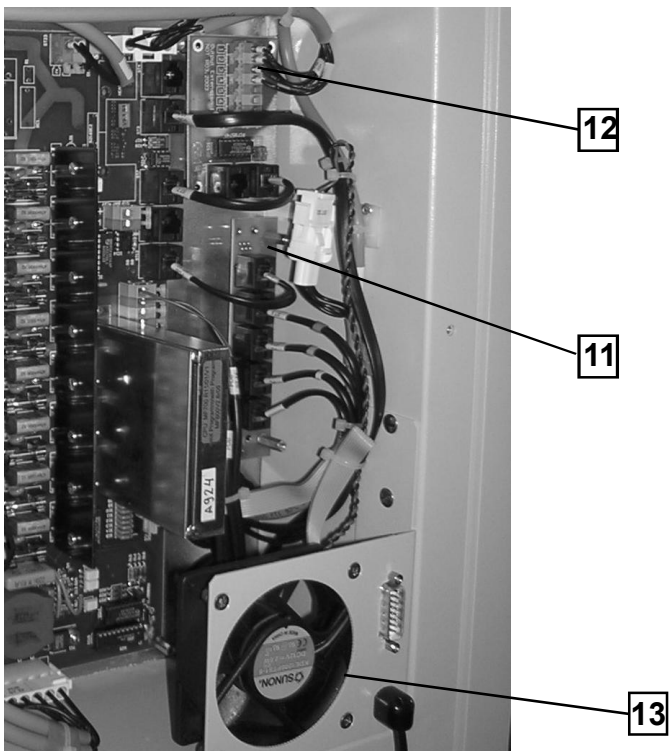
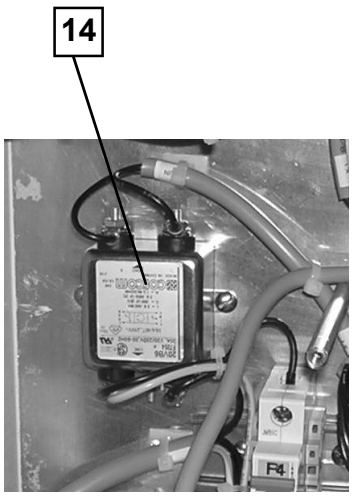
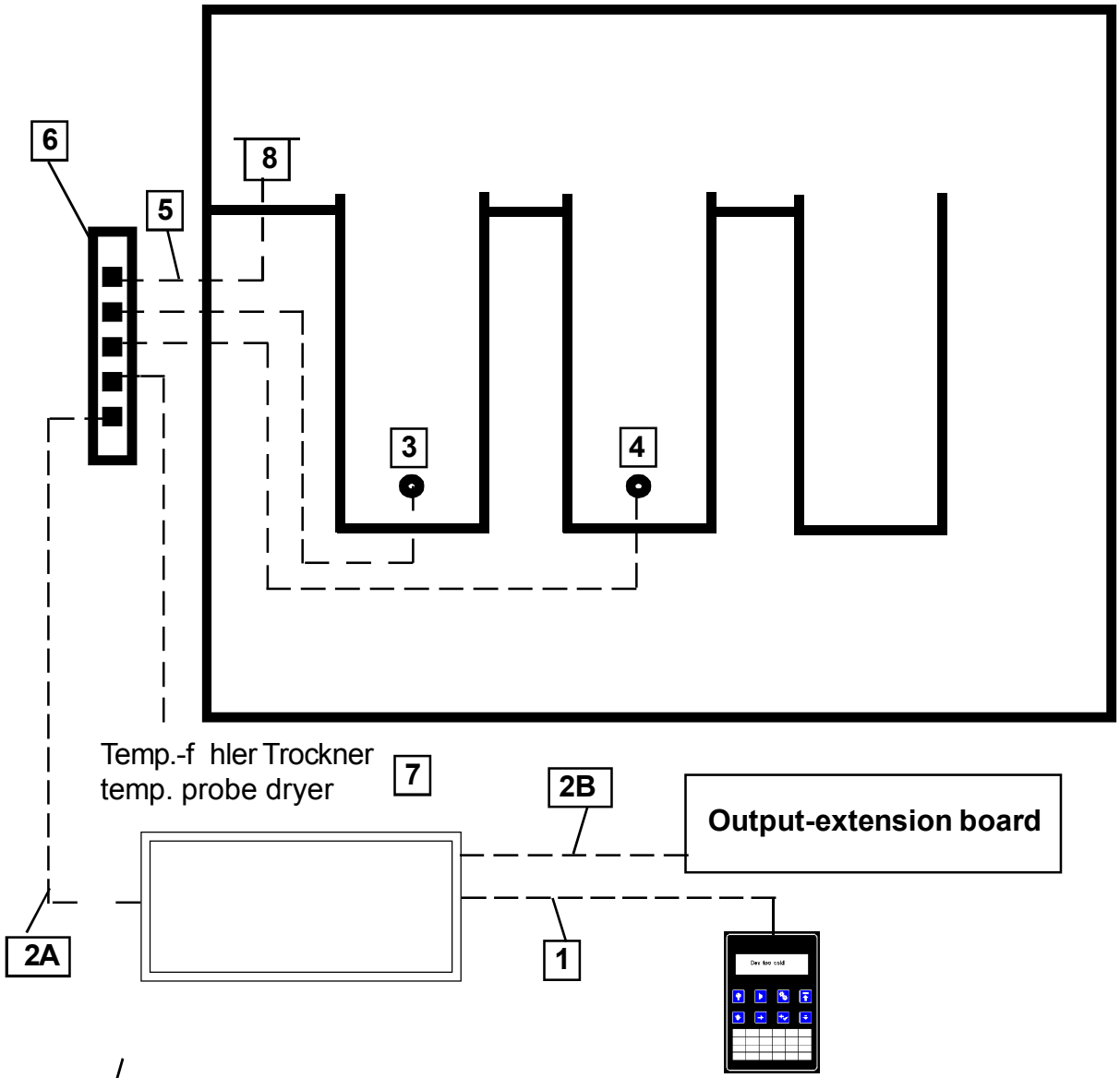


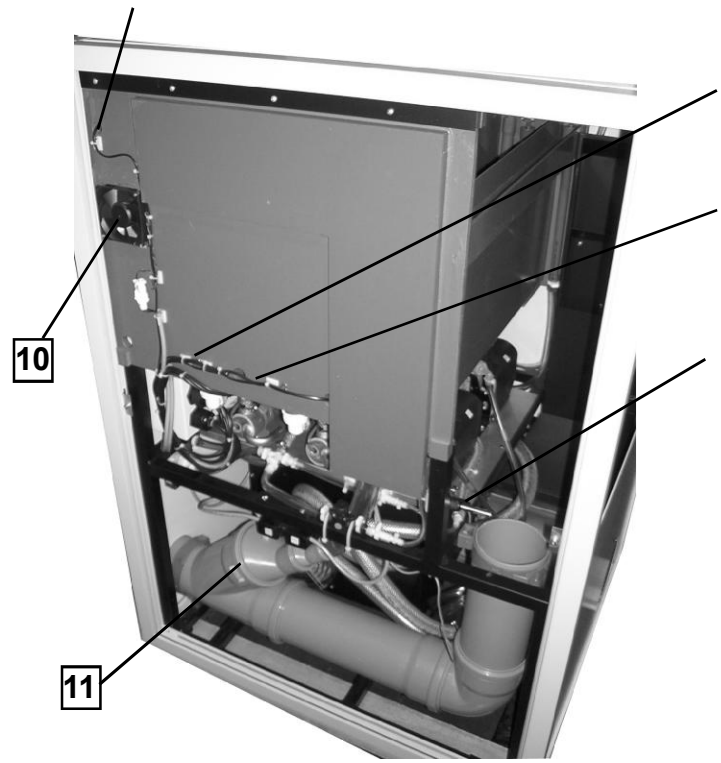
D

pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 32 176	**MF800** Hauptplatine V13.1 S1	**MF800** main board V13.1S1
2	90 32 331	CPU MF700 R11/01/V1	CPU MF700 R11/01/V1
3	90 32 205	EPROM Ver.:**MF800V2.8r07**	EPROM ver.: **MF800V2.8r07**
4A	90 90 188	Netzteil 5V	Power supply 5V
4B	90 90 189	Netzteil 12V	Power supply 12V
5	90 30 083	Motor-Kondensator	Main drive motor capacitor
6	90 20 749	Netzschalter	Main switch
7	90 20 605	Klemmleiste X1	Terminal block X1
8A	90 20 061	Leitungsschutzschalter 16A	Circut breaker 16A
8B	90 20 060	Leitungsschutzschalter 13A	Circut breaker 13A
9	90 30 384	Solid State Relais kompl. DC	Solid state relais assy DC
10	90 20 052	Sicherung T 6,3A	Fuse T 6,3 A
11	90 32 532	Verteilerplatine kompl.	Distribution board
12	90 32 138	Erweiterungsboard 8pin	Output extansionboard 8pin
13	90 61 515	L fter komp.	Ventilator assy
14	90 20 743	Netzfilter	Linefilter
15	90 20 752	Netzanschlu klemme X2	Powerterminal X2
16	90 30 885	Relais	Relay







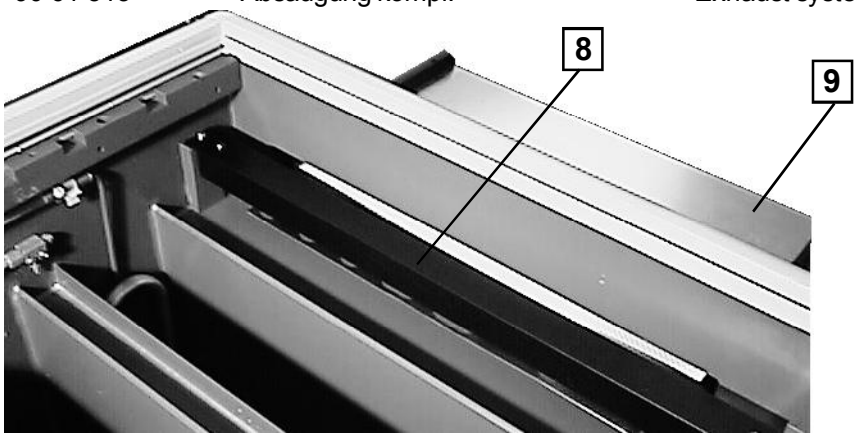


DRYER....RED

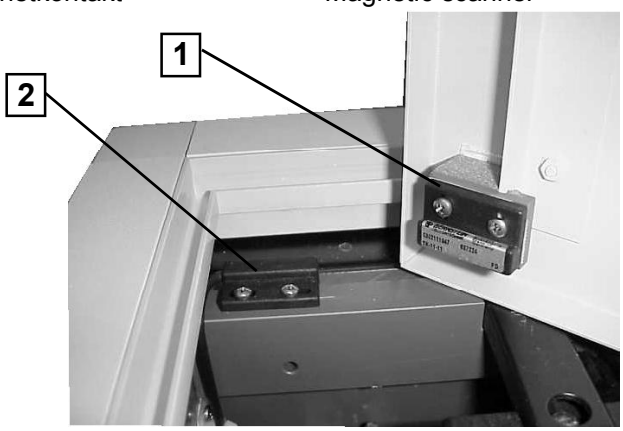
DEV.....YELLOW

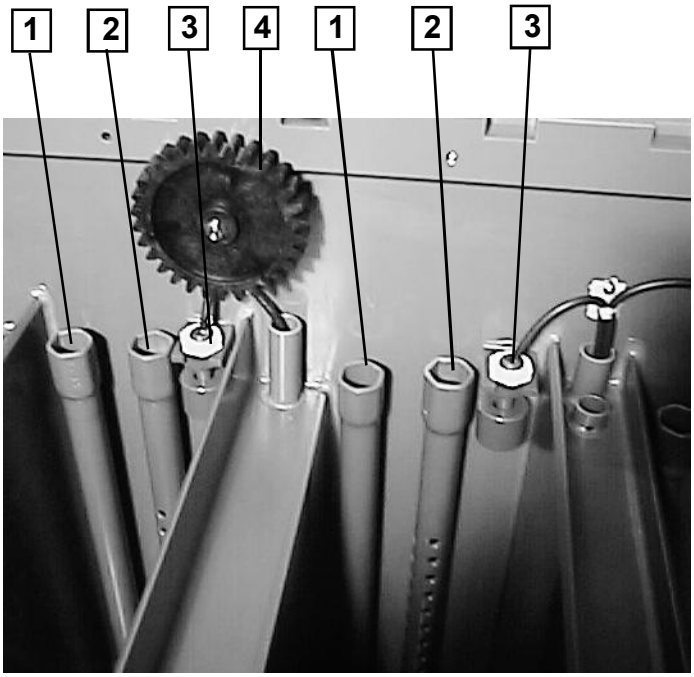
FIX.....BLUE

pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 32 143	Kabel **Bedienteil** 6pol.	Cable **control panel** 6pin.
2A	90 32 298	Kabel **PDB**	Cable **PDB**
2B	90 32 298	Kabel **OEB**	Cable **OEB**
3	90 32 300	**Temp. F hler DEV**	**Temp. probe DEV**
4	90 32 301	**Temp. F hler FIX**	**Temp. probe FIX**
5	90 32 051	Kabel **Sensorbar**	Cable **sensorbar**
6	90 32 532	Verteilerplatine kompl.	Distribution board
7	90 32 049	**Trocknersensor**	**Temp. probe dryer**
8	90 32 190	Sensorbar kompl.	Sensorbar assy
9	90 13 260	Filmleitblech	Upper filmguide
10	90 61 514	Ventilator	Ventilator
11	90 61 513	Absaugung kompl.	Exhaust system assy



pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 20 238	Dauermagnet	Magnet
2	90 20 237	Magnetkontakt	Magnetic scanner

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2
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4
1
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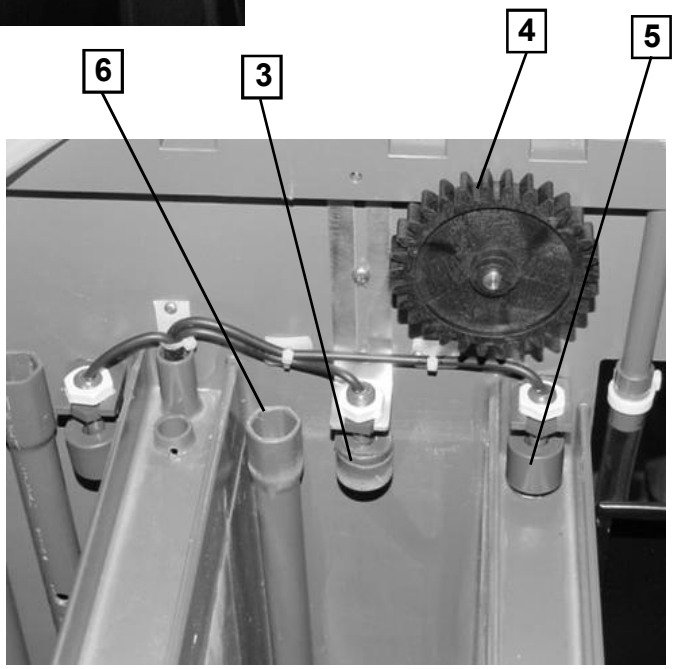
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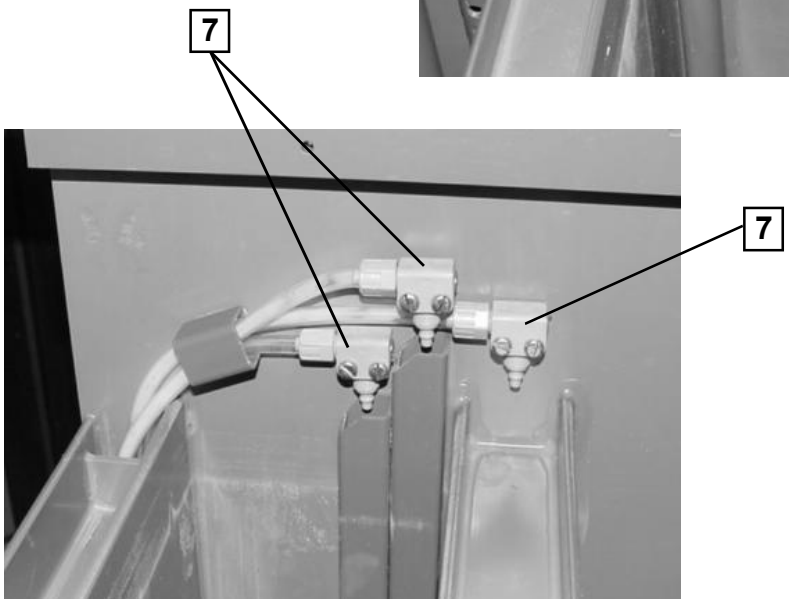
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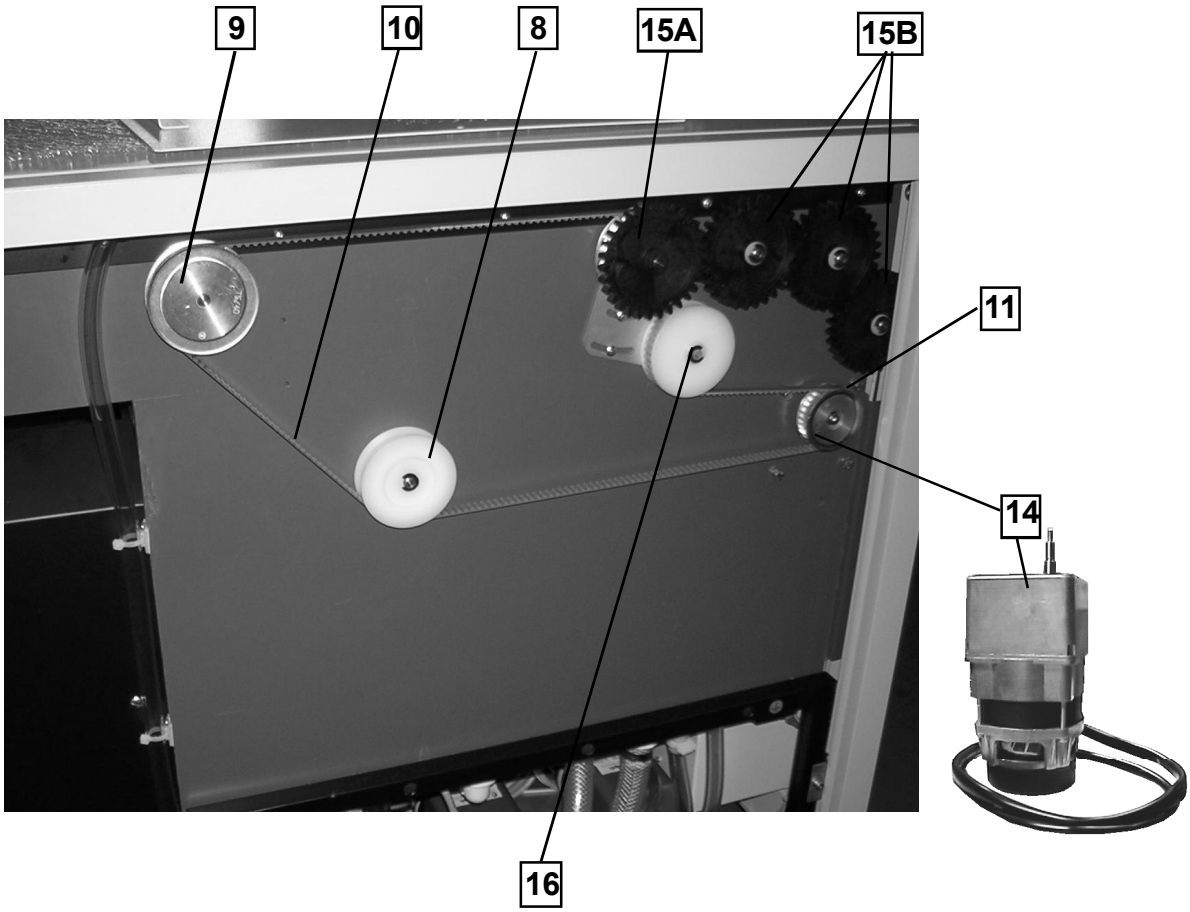
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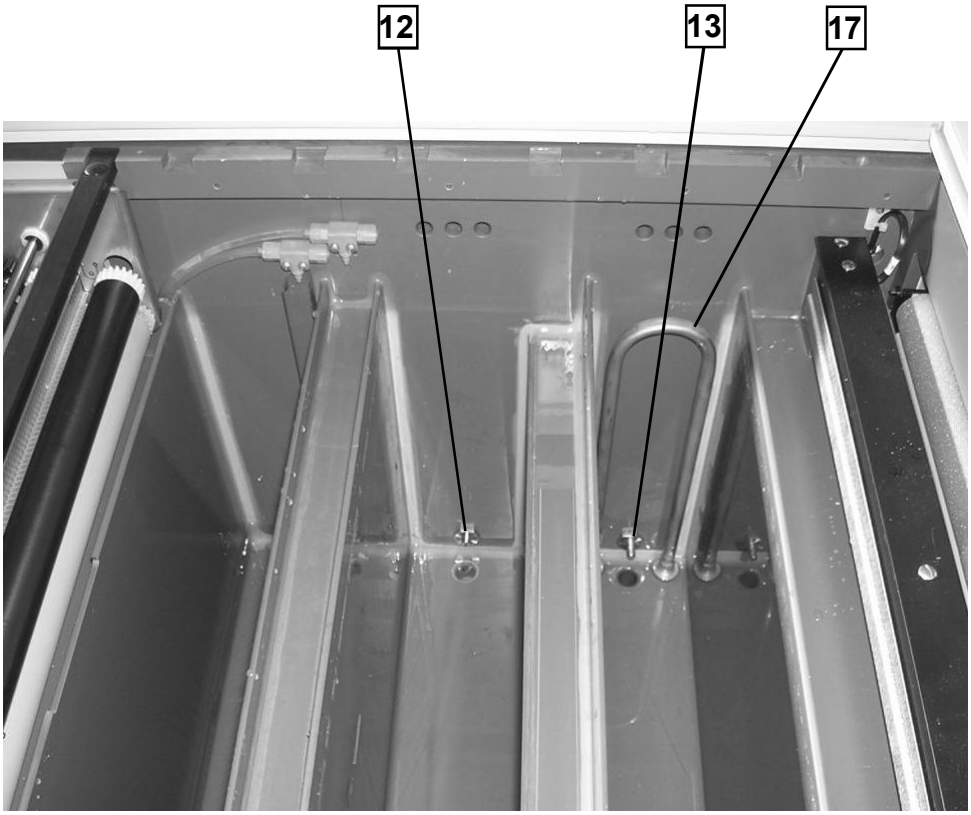
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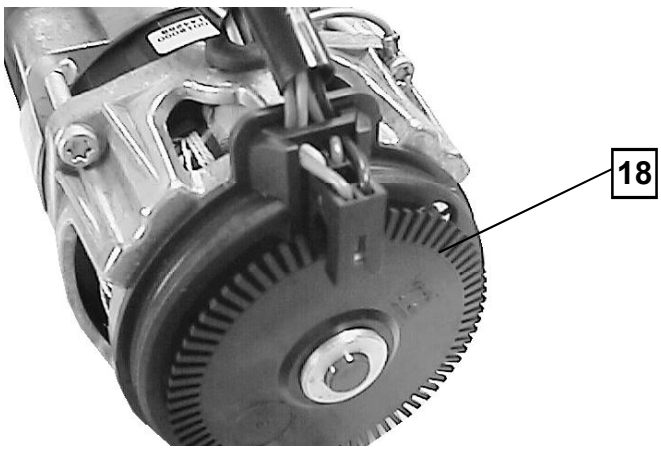
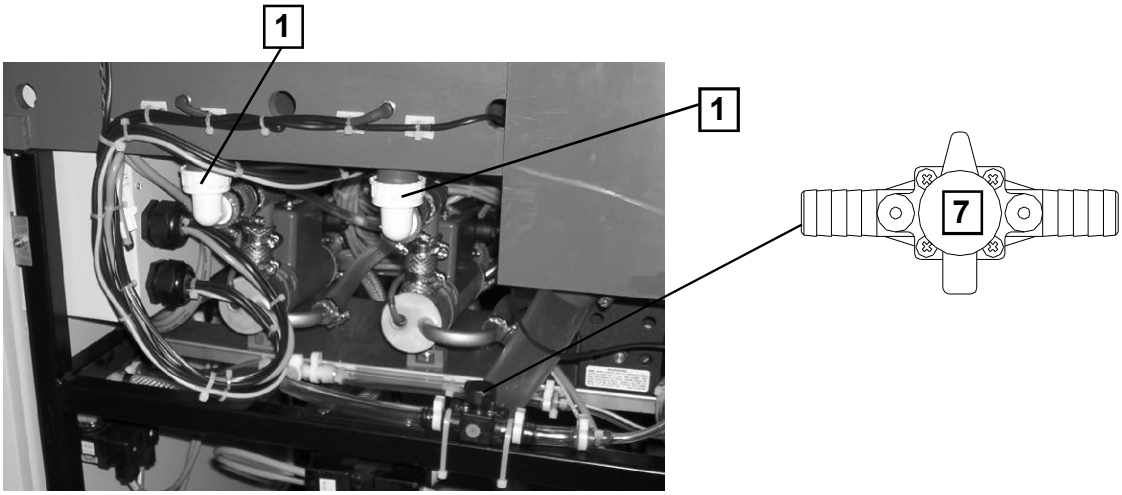
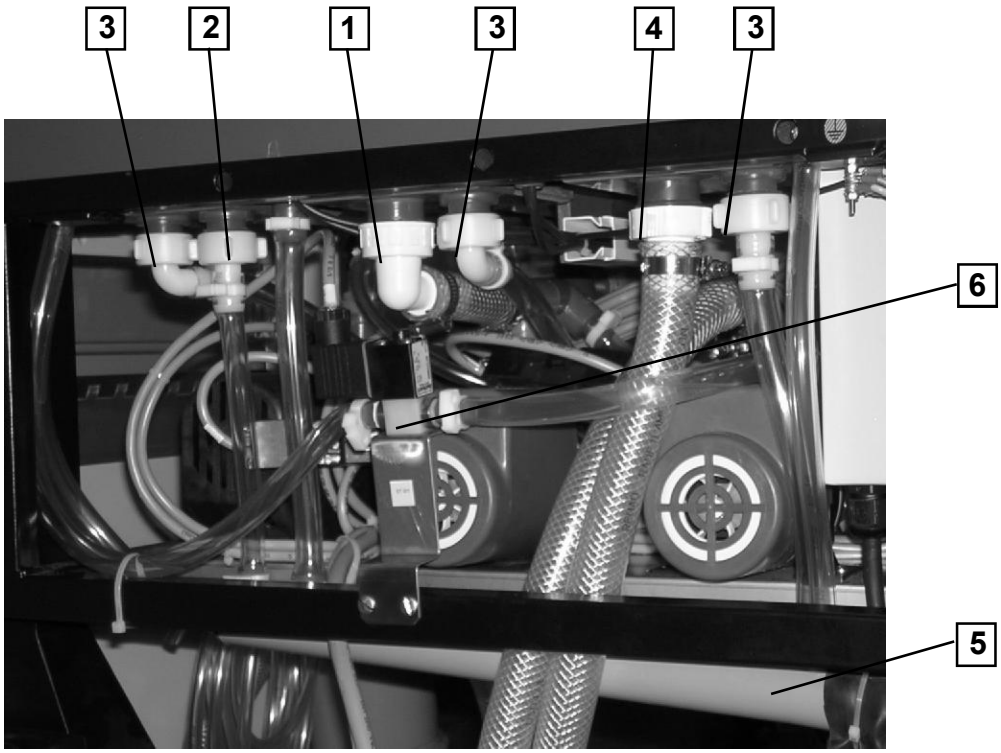
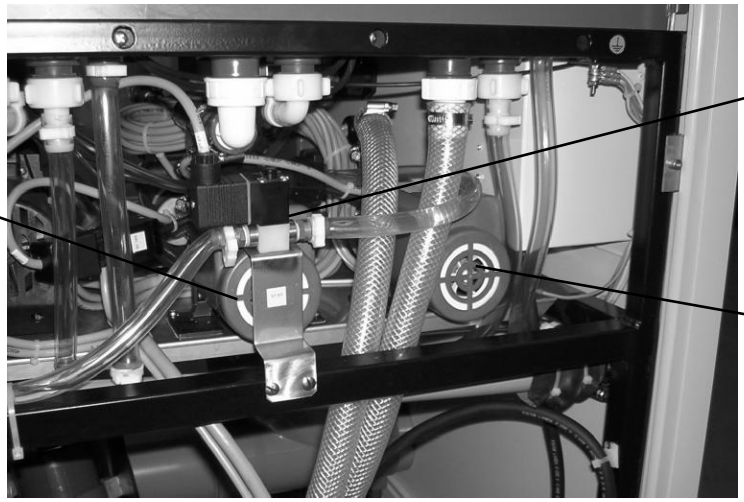
pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 14 292	berlaufrohr E+F **6MW**	Overflow stand pipe Dev+Fix **6MW**
2	90 14 291	Einstr mrohr E+F **6MW**	Circulation inlet pipe Dev+Fix **6MW**
3	90 20 200	Niveauschalter E+F	Level switch Dev+Fix
4	90 12 017	Zahnrad Z30 m2.5	Gear 30T m2.5
5	90 61 016	Niveauschalter W	Level switch Water
6	90 14 293	berlaufrohr Wasser **6MW**	Overflow stand pipe water **6MW**
7	90 14 184	Einstr md se **L**	Waterinlet **L**-fitting
8	90 16 651	PA-Umlenkrolle	PA-guide pully
9	90 16 650	ALU-Zahnscheibe	ALU-ratched wheel
10	90 14 276	Zahnriemen	Drive belt
11	90 16 603	Motorritzel	Ratched wheel for drive motor
12	90 16 268	Temp.-f hler Geh use FIX	Temp. probe-housing FIX
13	90 16 265	Temp.f hler Geh use DEV	Temp. probe-housing DEV
14	90 32 032	Antriebsmotor **MP800** kompl.	Main drive motor **MP800** assy
15A	90 16 786	Kombination Z30/ALU kompl.	Drive assy Z30/ALU assy
15B	90 16 652	Zahnrad Z30 m2.5 O	Gear 30t m2.5 O
16	90 14 285	Spannrolle kompl.	Idler pully assy
17	90 17 102	K hlschlange 6MW kompl.	Cooling coil assy
18	90 61 214	Z hlvorrichtung kompl.	Speed counter assy







pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 45 022	Schlaucht lle gewinkelt 1“	Tank fitting angular 1“
2	90 45 119	Schlaucht lle gerade 3/4“	Tank fitting straight 3/4“
3	90 45 120	Schlaucht lle gewinkelt 3/4“	Tank fitting angular 3/4“
4	90 45 023	Schlaucht lle gerade 1“	Tank fitting straight 1“
5	90 14 308	Abwassersammler **INDX**	Sewage collector **INDX**
6	90 20 719	Ventil: Fixier	Solenoid for FIX
7	90 45 061	Absperrhahn	Stop cock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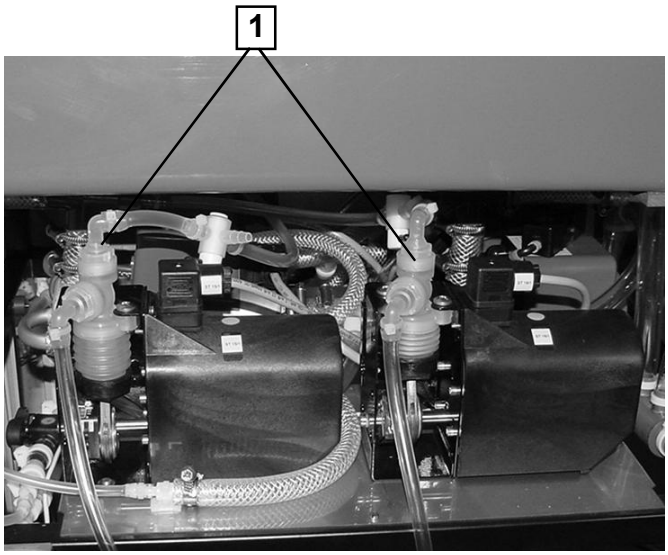
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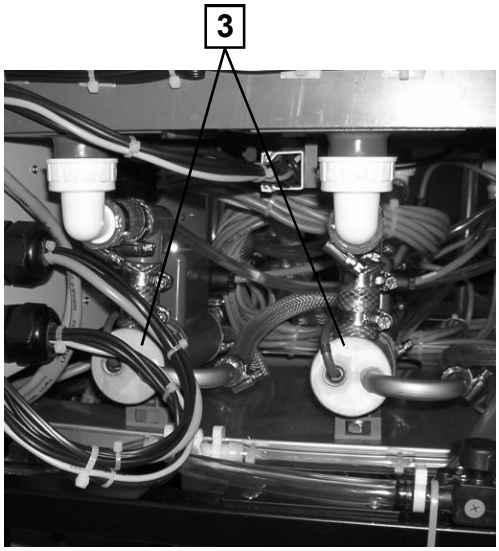
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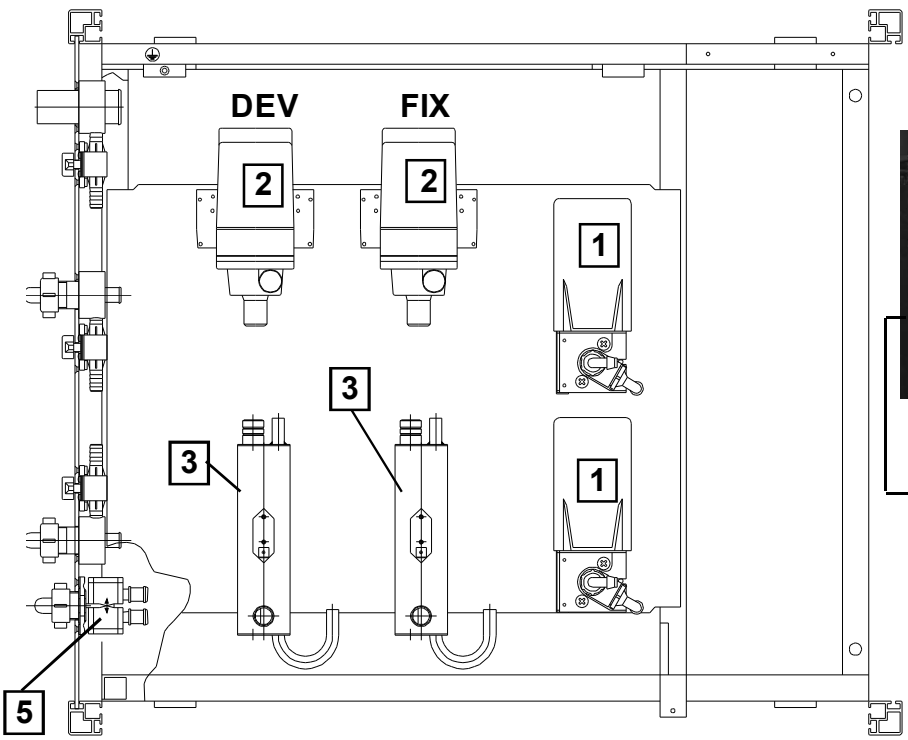
DEV
FIX
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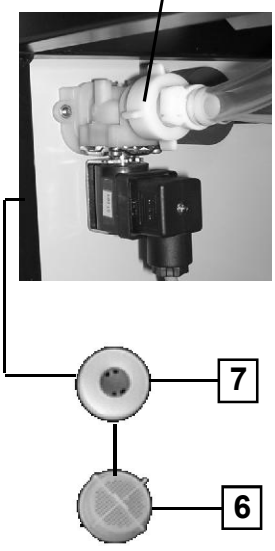
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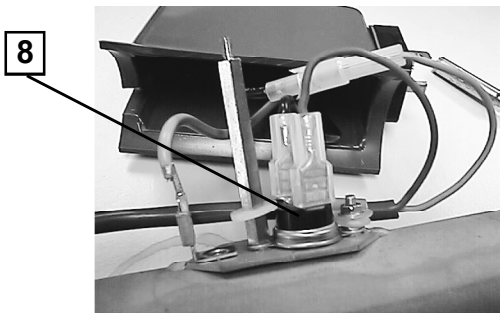
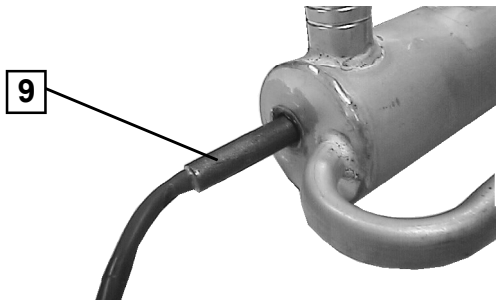
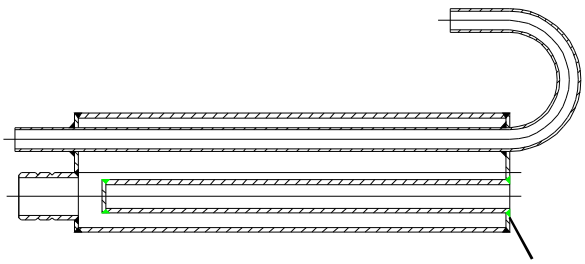
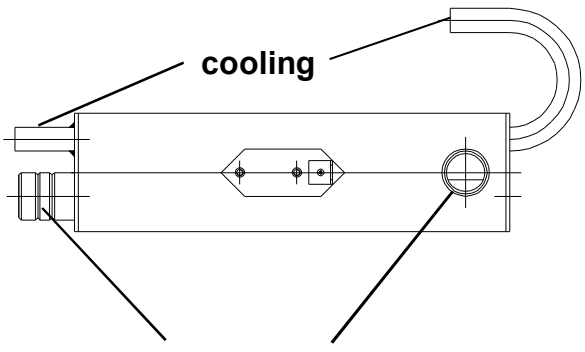
pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 61 174	Regenerierpumpe E+F	Replenishment pumps single head E+F
2	90 61 143	Umw lzpumpe **DEV FIX** 35L	Circulation pump **DEV FIX** 35L
3	90 61 169	W rmetauscher 350W E+F	Heat exchanger assy 350W E+F
4	90 20 719	Ventil: Fixier	Solenoid for FIX
5	88 00 335	1-Weg Ventil	1-way water valve
6	90 20 322	Durchflu mengenregler 3L	Waterflow regulator 3L
7	90 45 141	Filterereinsatz Magnetventil	Water solenoid filter
8	90 20 216	bertemperatursicherung	Overtemperature thermistor
9	90 61 059	Heizeinsatz 350 W **DEV FIX**	Heating element 350 W **DEV FIX**
10	90 61 779	K hler kompl. INDX43i	Chiller assy INDX43i

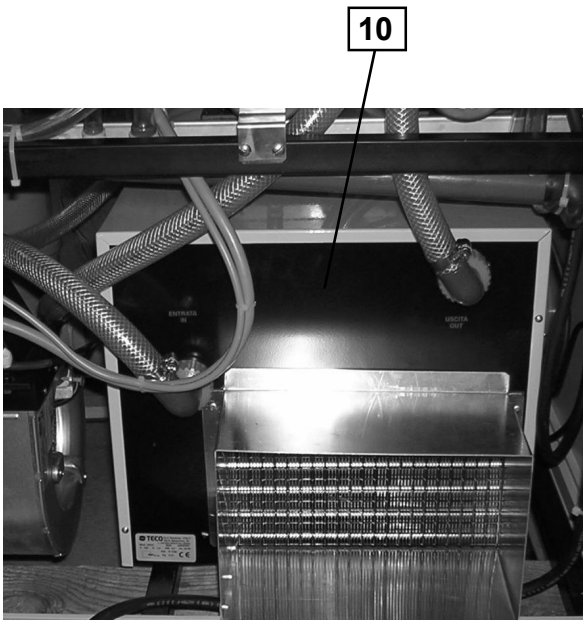


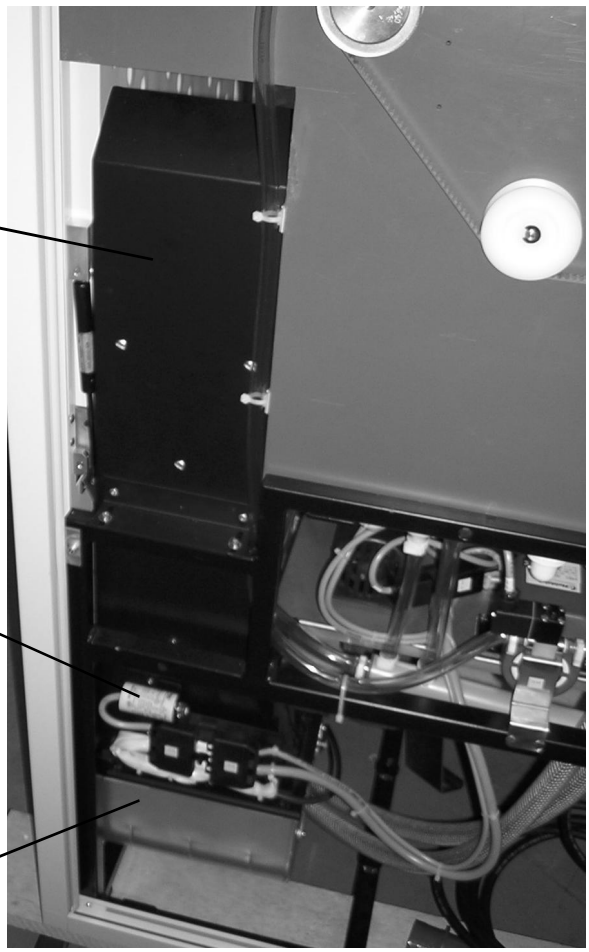


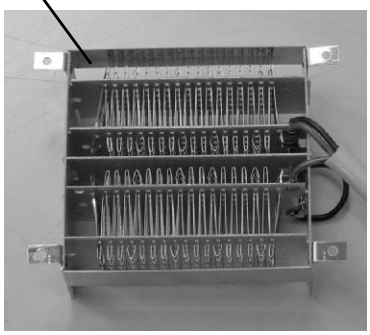


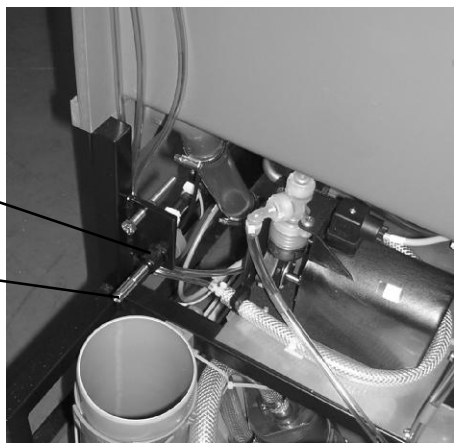
tube for heating element



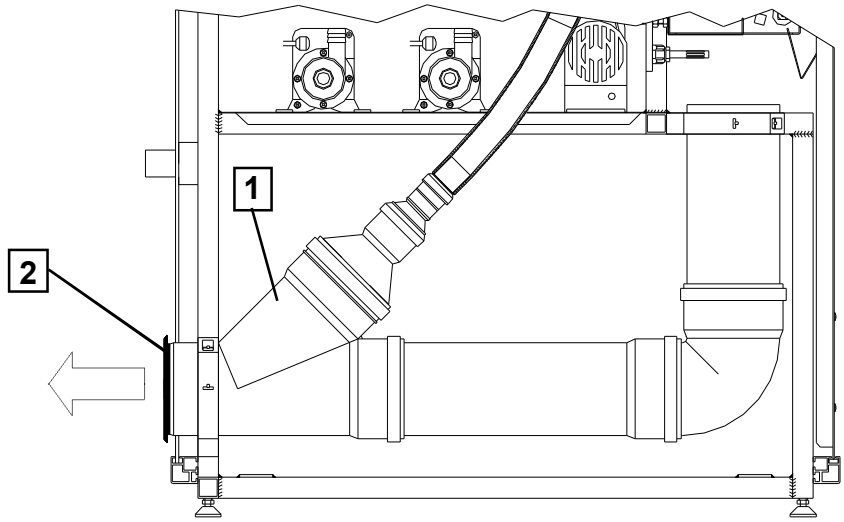


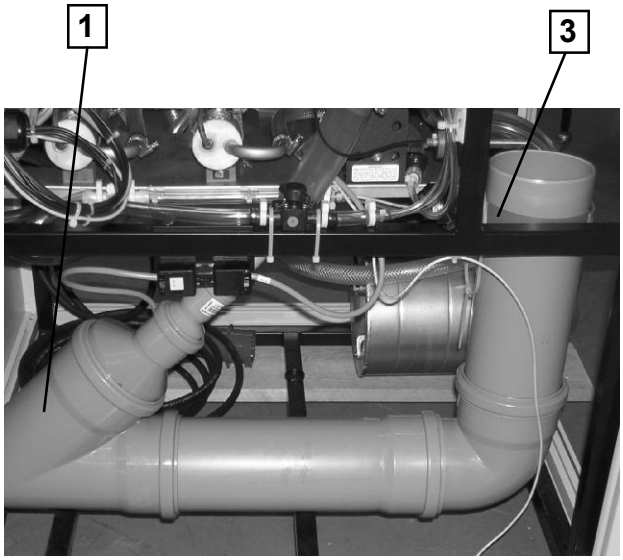




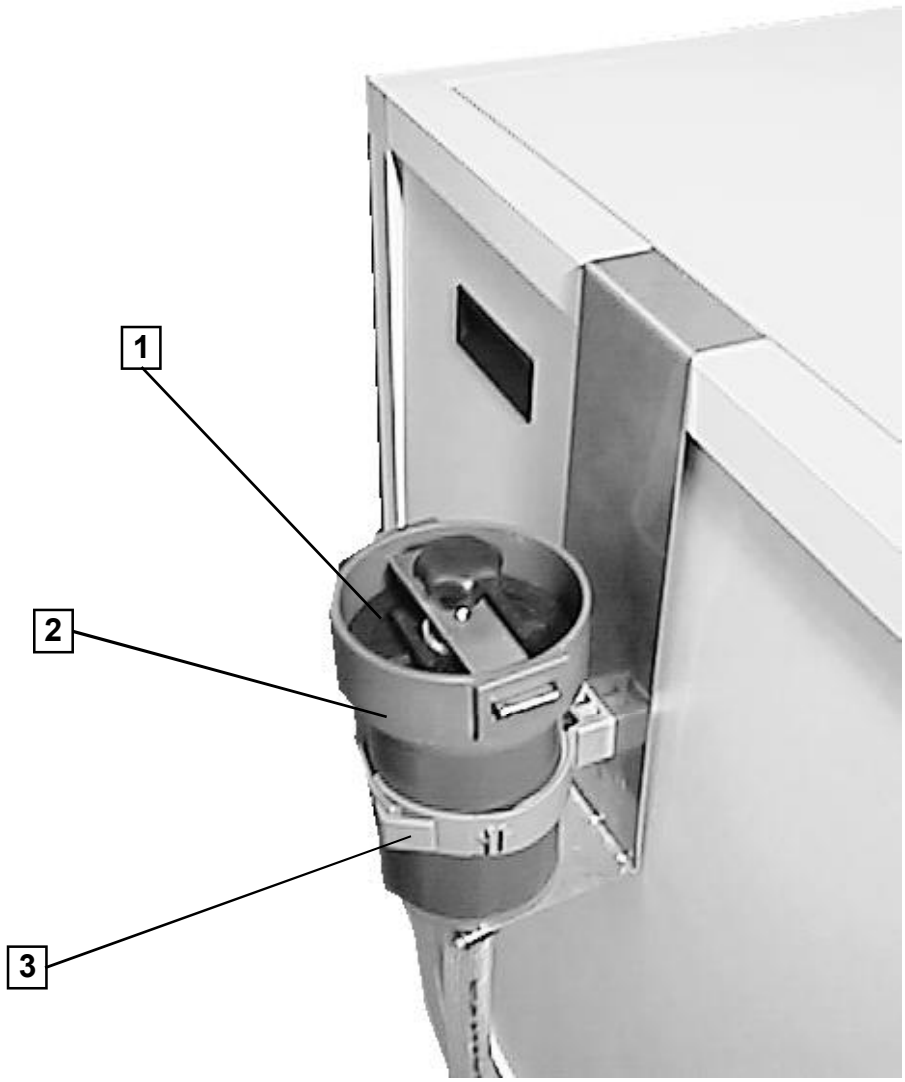


pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 61 510	L ftereinheit **INDX** kompl.	Dryer fan assy **INDX**
2	90 20 215	Ventilator	Fan
3	90 20 271	Heizeinsatz 1350W	Heatingelement 1350W
4	89 05 747	Anbauverschraubung M16	Screw joint M16
5	90 16 678	Metallgeh use f r Trockner-temp.-f hler	Housing for temp.- probe dryer
6	90 30 118	2 F Kondensator f. L fter	2 F capacitor for fan dry unit

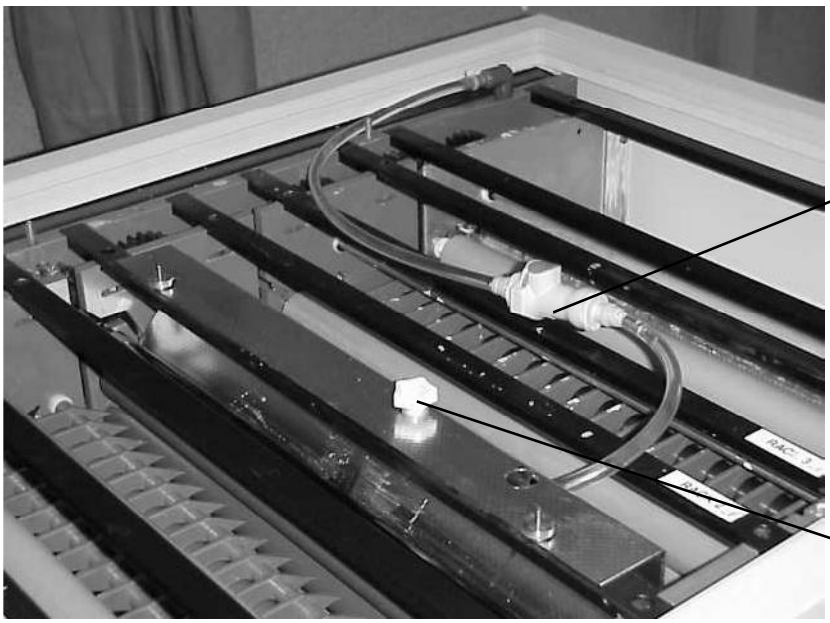


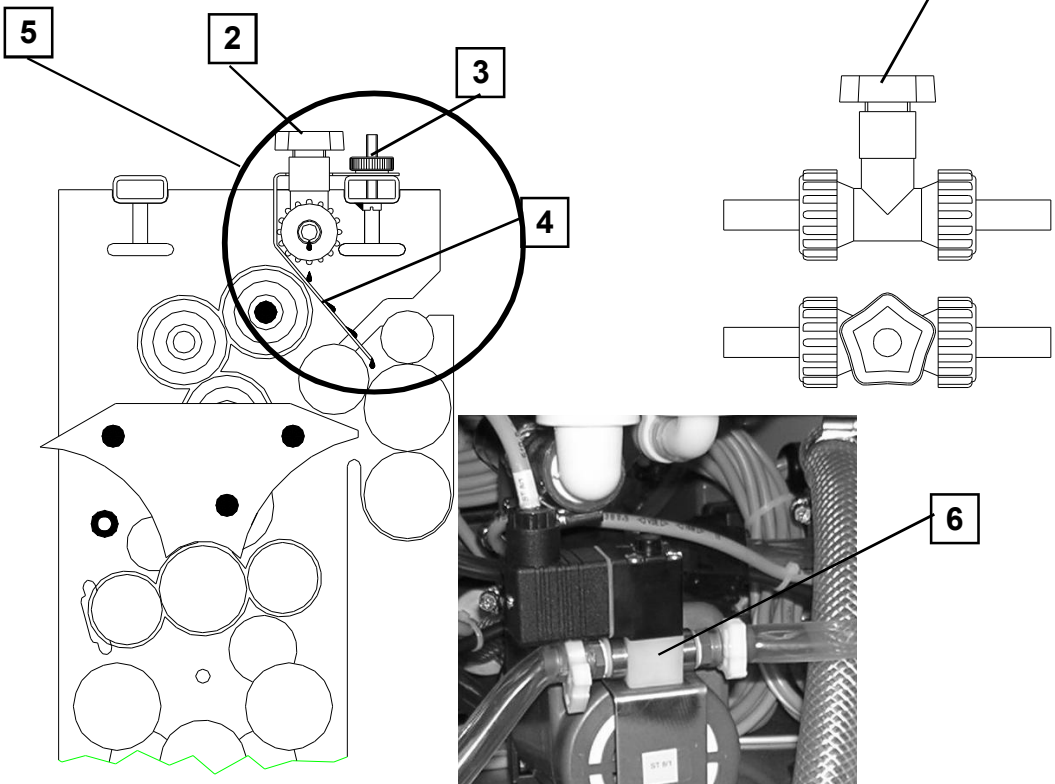


pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 20 588	Rohrl fter	Ventilator
2	90 20 589	L ftungsgitter	Ventilation grid
3	90 45 155	Schelle D=90mm	Clip D=90mm
4	90 17 144	Abluftschacht	Airchannel
5	90 17 145	Verbinder zu position 4 (kein bild)	connector to pos 4 (no image)

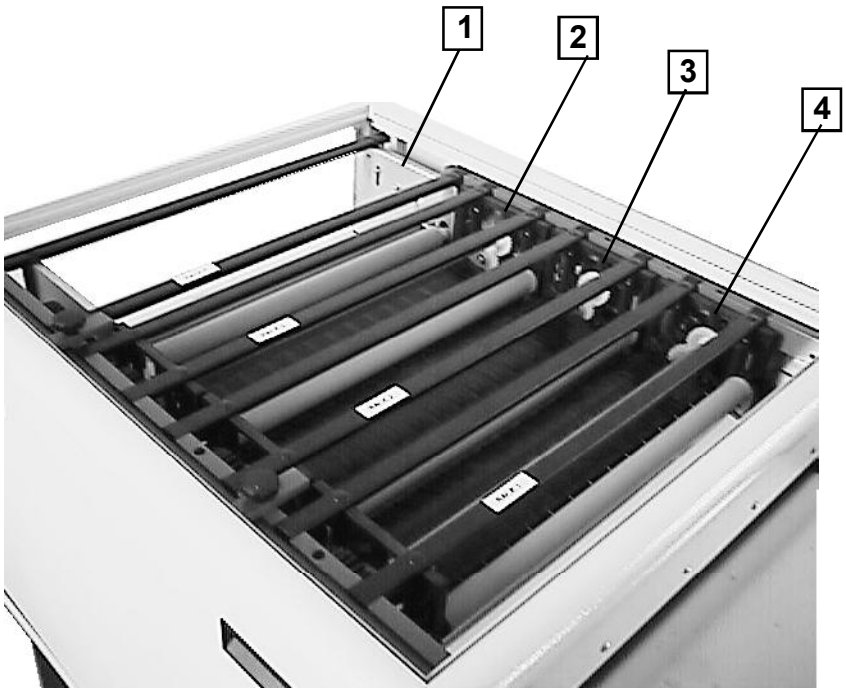


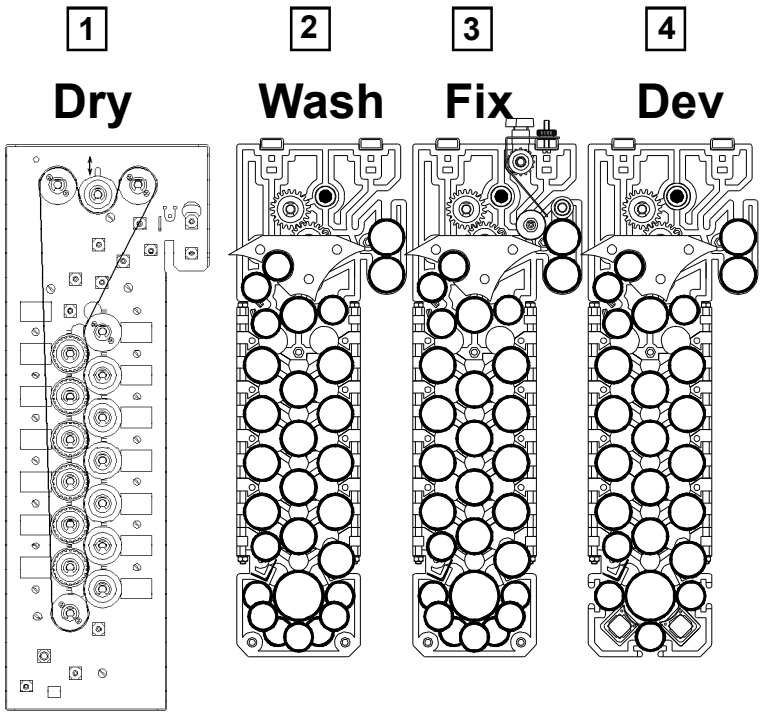
pos.	Teile Nr.:/part no.	Beschreibung	Description
1	89 07 426	Filterpatrone	Filter cartrige
2	89 07 493	PVC-Filtergeh use	PVC-filter casing
3	90 45 155	Schelle D=90mm	Clip D=90mm



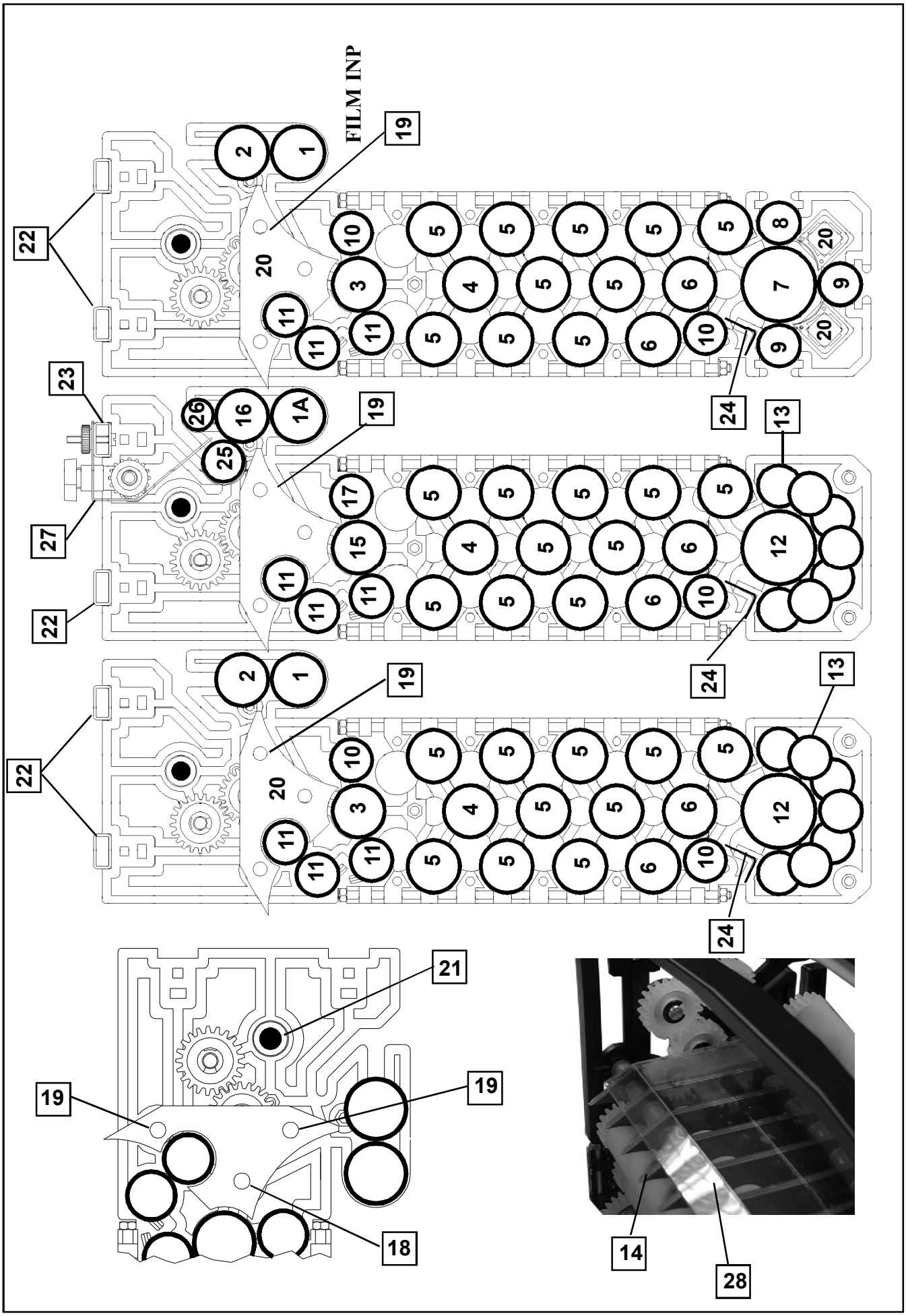


pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 45 156	Schlauchkupplung	Hose connector
2	90 45 167	Durchflussregler f r Fix	Flow regulator for FIX
3	90 80 580	Fl gelmutter M4	Wing nut
4	90 15 183	Blech f r Spraybar	Guide for spraybar
5	90 15 161	Spray-bar f r Fixiertank kompl.	spray-bar for Fixertank assy
6	90 20 719	Magnetventil FIXER	Solenoid for Fixer





pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 13 496	Entwickler-Rack kompl. INDX 43	Developer-rack assy INDX 43
2	90 13 497	Fixier-Rack komp. INDX 43	Fixier-rack assy INDX 43
3	90 13 498	Wasser-Rack kompl. INDX 43	Water-rack assy INDX 43
4	90 13 499	Trockner kompl. INDX 43	Dryer assy INDX 43


FILM INP
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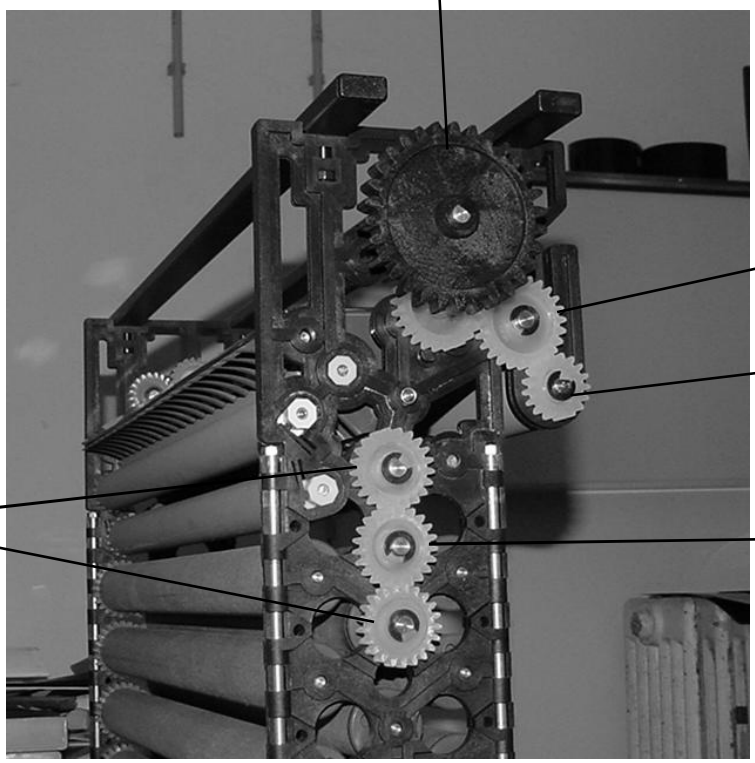
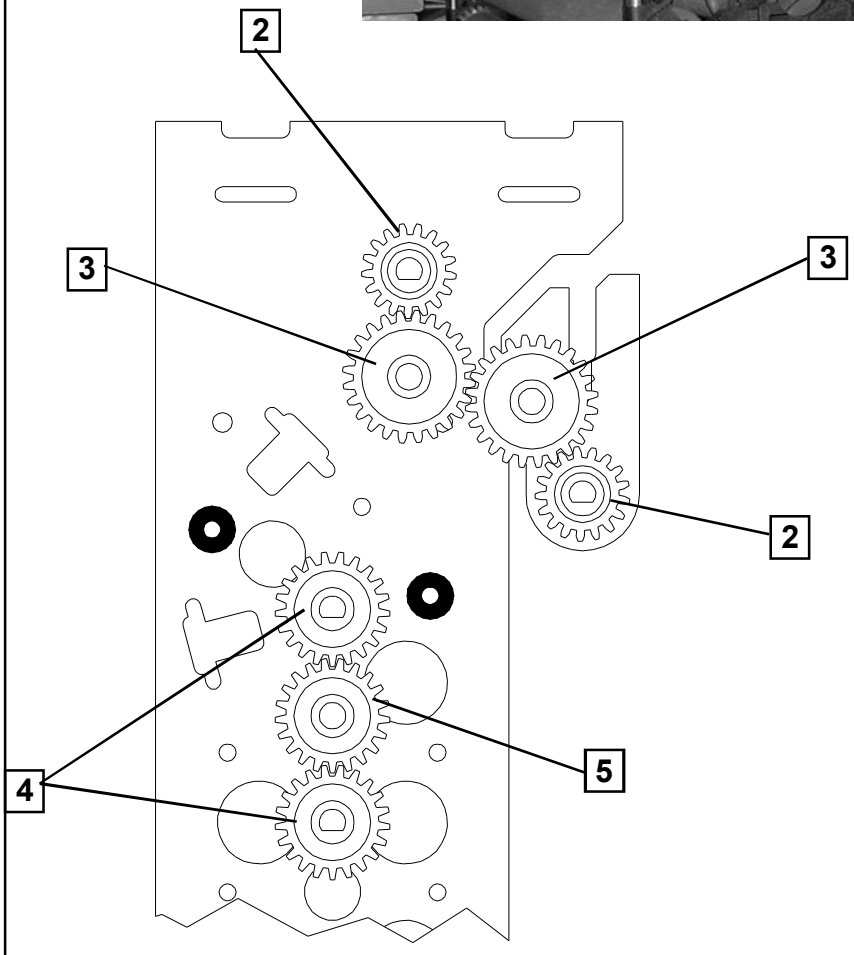
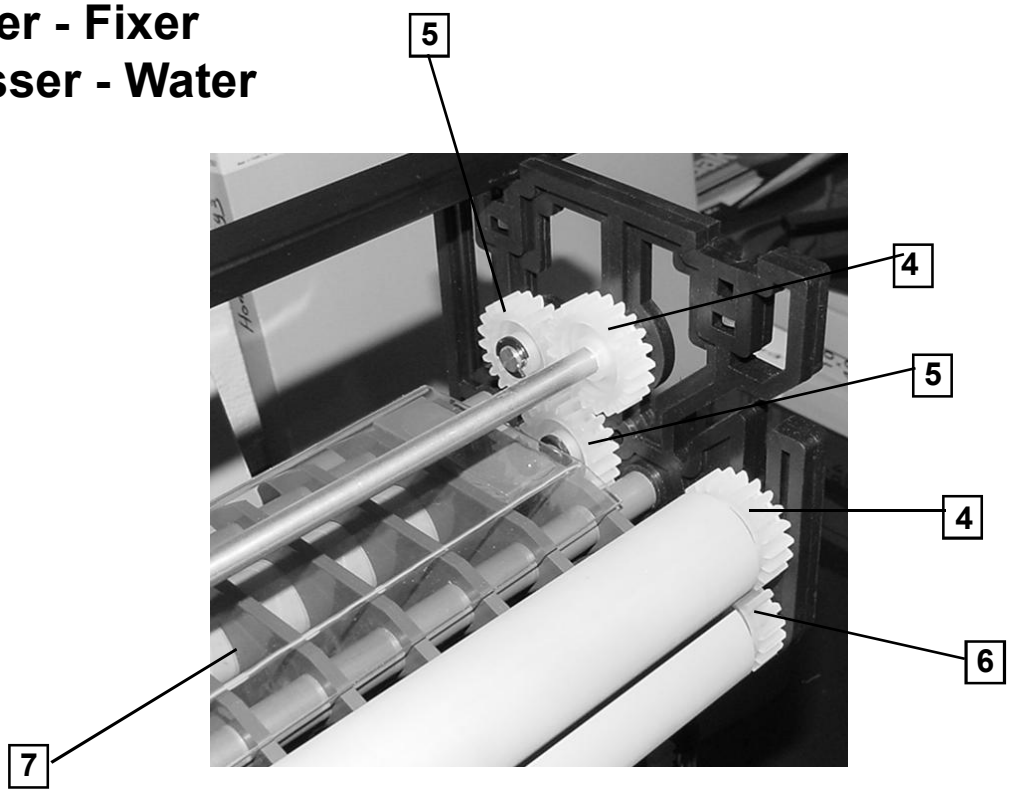
pos.	Teile Nr.:/ part no.	Beschreibung	Description
1	90 12 642	Abquetschwalze Gummi 32 unten	Squeeze roller, rubber 32 down
1A	90 15 197	Abquetschwalze INDX Gummi 32 unten	Squeeze roller INDX rubber 32 down
2	90 12 607	Abquetschwalze Gummi 32 oben	Squeezze roller, rubber 32 up
3	90 12 733	Abquetschwalze PE 32	Squeeze roller, PE 32
4	90 15 177	Mittelwalze INDX 32/43	Centre roller INDX 32/43
5	90 12 648	Rackwalze Standard 32 verst rkt	Rack roller, standard 32 reinforced
6	90 15 178	Rackwalze B4/B7 - INDX 32/43	Rack roller B4/B7 - INDX 32/43
7	90 15 121	Umlenkwalze Gummi 44	Turn around roller, rubber 44
8	90 15 115	Umlenkwalze Gummi 26	Turn around roller, rubber 26
9	90 15 149	Umlenkwalze PE 26	Turn around roller, PE 26
10	90 12 847	Abquetschwalze PE 25,9	Squeeze roller,PE 25,9
11	90 15 187	Abquetschwalze Gummi 25,9	Squeeze roller,rubber 25,9
12	90 16 369	Umlenkwalze PVC 44	Turn around roller,PVC 44
13	90 16 363	Rollenumlenkung 43 komp.	Roller turn around unit 43 assy
14	90 15 180	bergaberechen f r E/F/W	Cross over segment for DEV/FIX/Wash assy
15	90 16 605	PE-Walze 902-0410	PE-roller 902-0410
16	90 16 606	PE-Walze 902-0411	PE-roller 902-0411
17	90 12 847	Abquetschwalze PE 25,9	Squeeze roller,PE 25,9
18	90 12 588	Rackverschraubung 43	Spacer 43
19	90 12 570	Halter Typ B 43	Spacer Typ B 43
20	90 61 211	Umlenkung mit Abq. kompl.	Turn around segment with squeeze assy
21	90 13 747	Antriebswelle 43	Main drive shaft 43
22	90 13 750	Trageschiene Nassrack 902/3	Rack carrier support bracket 902/3
23	90 15 182	Trageschiene „Spraybar“	Rack carrier support bracket „Spraybar“
24	90 15 198	Leitblech Umlenkung 43	Guide 43
25	90 12 792	Umlenkwalze GU 25	Turn around roller rubber 25
26	90 15 179	Stahlwalze 19	Steelroller 19
27	90 15 183	Blech f r „Spraybar“	Guide for „Spraybar“
28	90 16 644	Abdeckung Rack Entw.-Wasser INDX	Cover Rack Dev/Wash INDX
28A	90 16 645	Abdeckung Rack Fixier INDX	Cover Rack Fix INDX

Entwickler - Developer
Fixier - Fixer
Wasser - Water

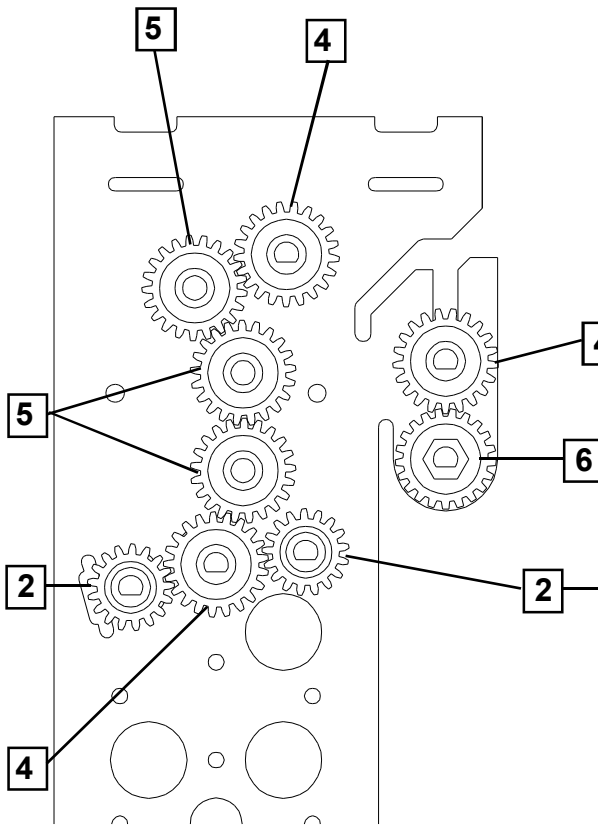




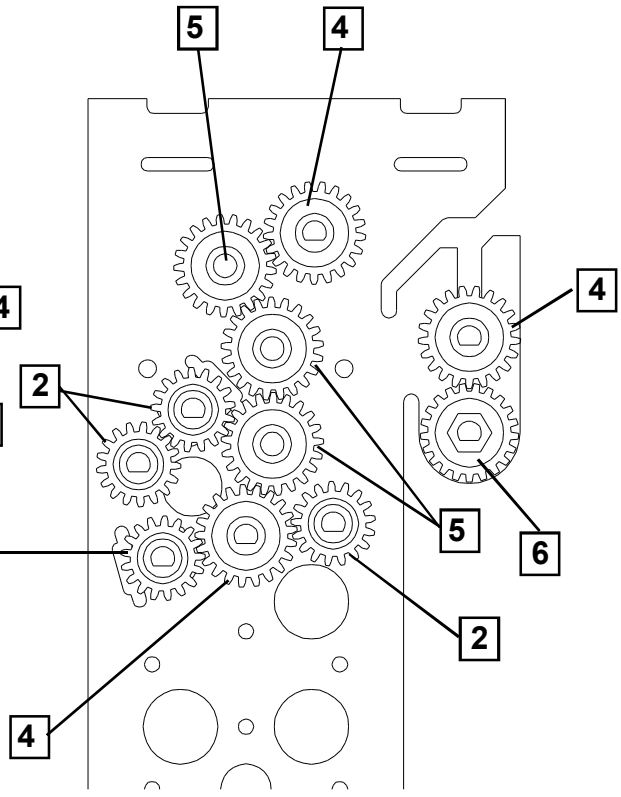
Entwickler - Developer
Fixier - Fixer
Wasser - Water



Fixier - Fixer



Entwickler - Developer
Wasser - Water

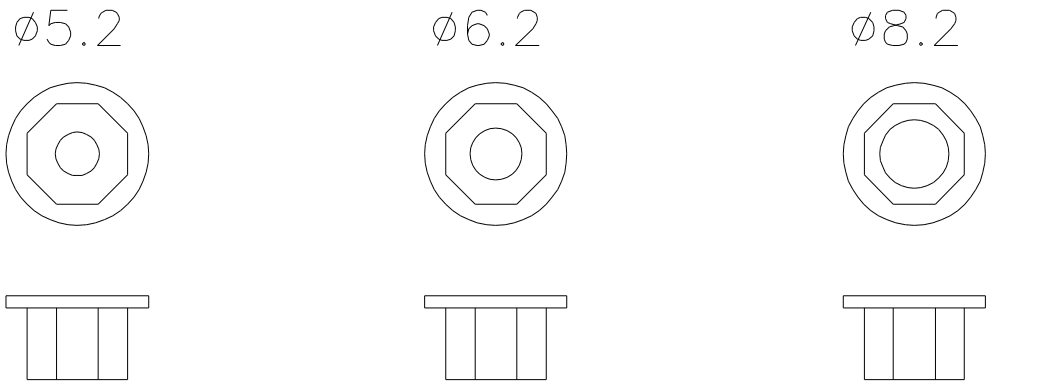


7

Entwickler - Developer
Fixier - Fixer
Wasser - Water

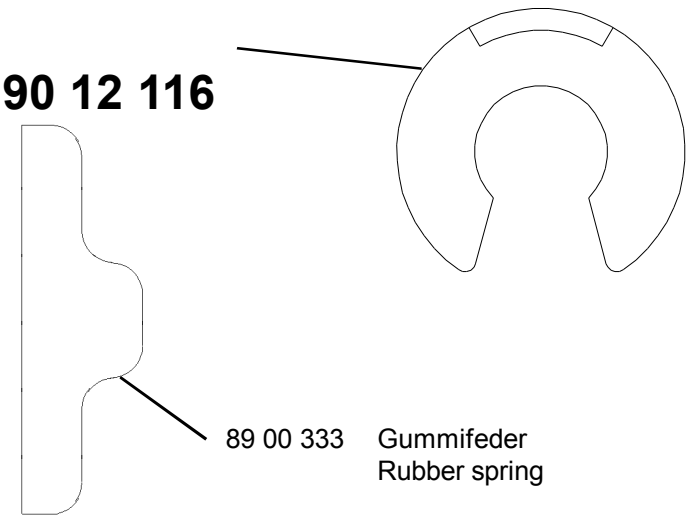
pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 12 017	Zahnrad Z30 m2.5	Gear 30T m2.5
2	90 14 104	Zahnrad Z17 D-Loch	Gear 17T D-hole
3	90 14 105	Zahnrad Z24 O-Loch	Gear 24T O-hole
4	90 14 108	Zahnrad Z21 D-Loch	Gear 21T D-hole
5	90 14 107	Zahnrad Z21 O-Loch	Gear 21T O-hole
6	90 14 116	Zahnrad Z24 D-Loch 33mm	Gear 24T D-hole 33mm
7	90 16 644 90 16 644	PVC-Abdeckung RACK E/W PVC-Abdeckung RACK F	PVC-cover rack E/W PVC-cover rack F

bearing octagonal/Lagerbuchsen

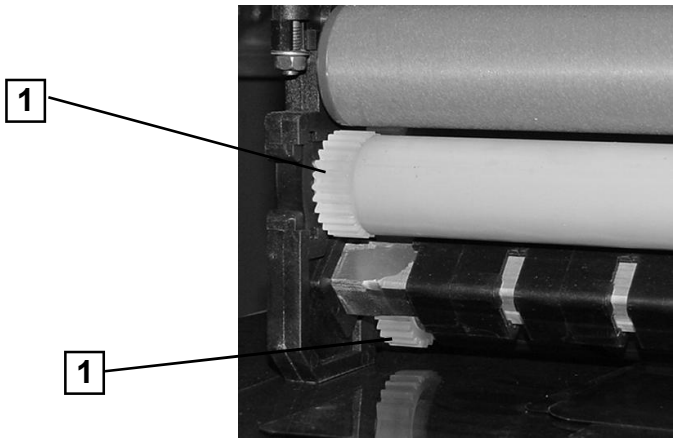


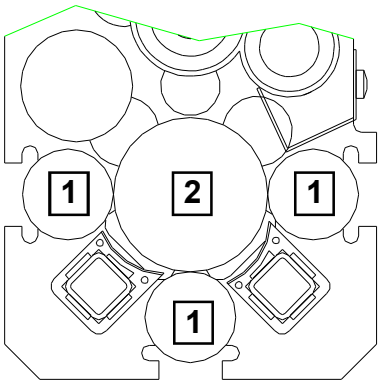
90 12 111 **90 12 112** **90 12 113**

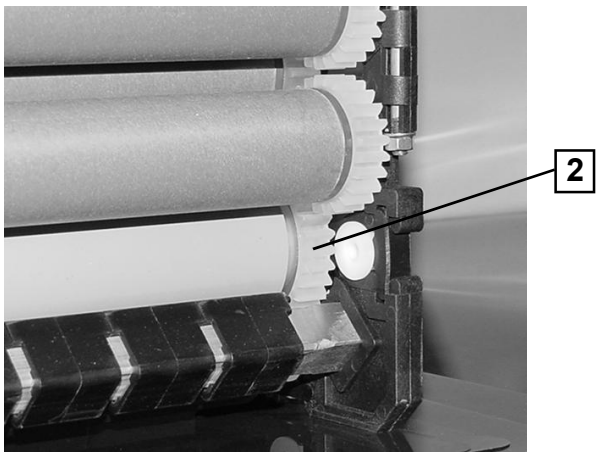
90 12 116



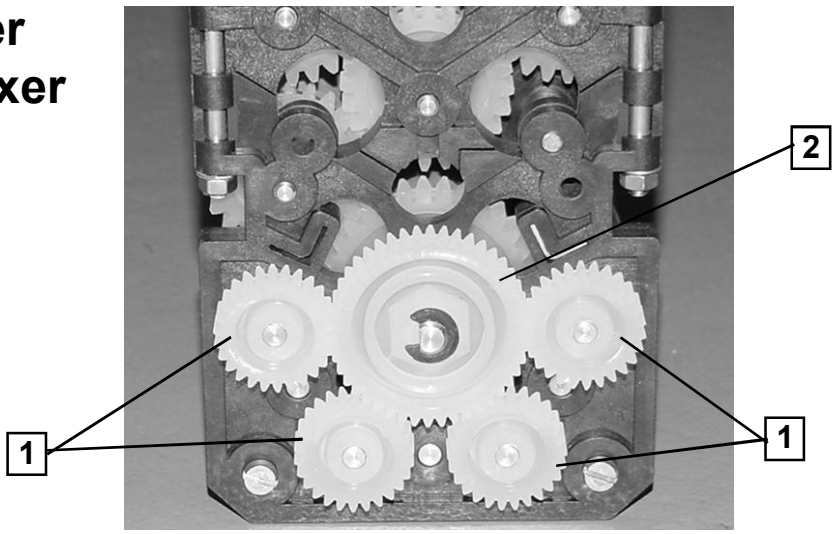
Entwickler - Developer



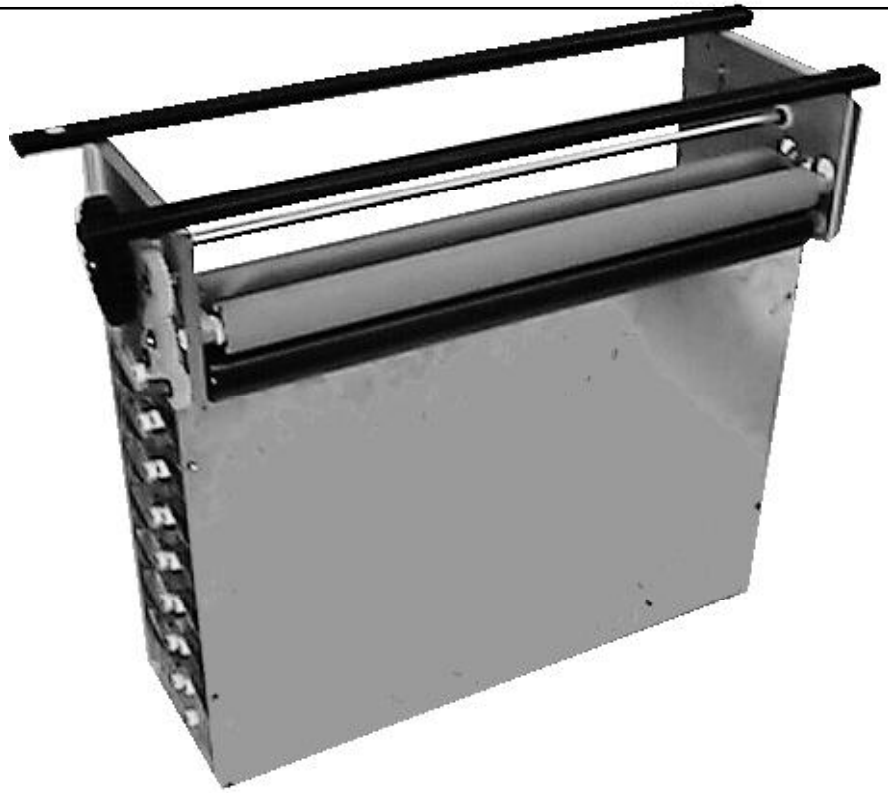


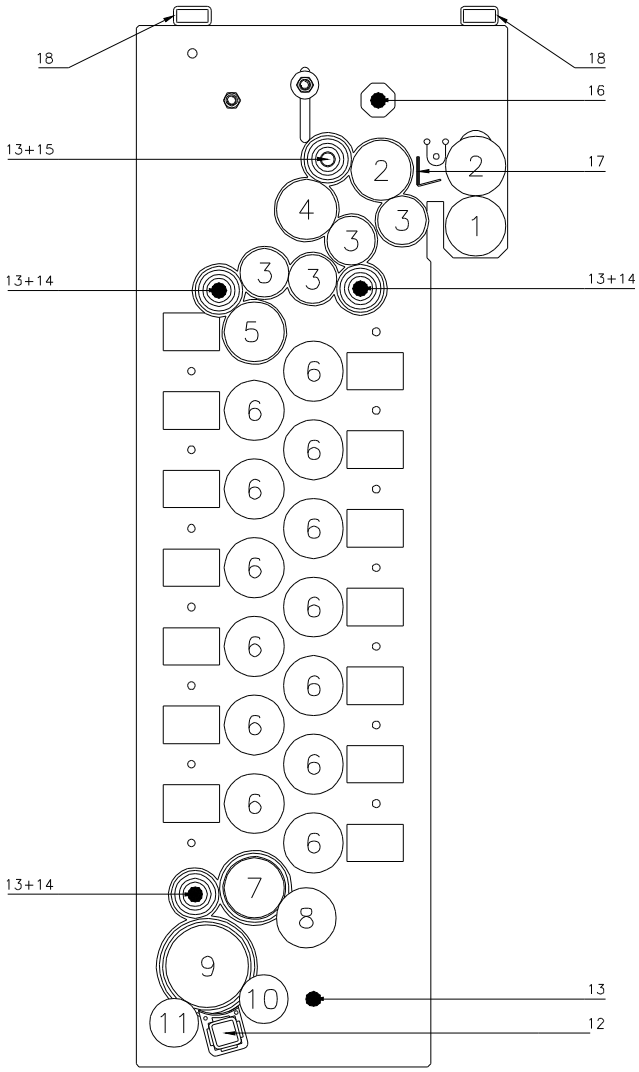


Fixier - Fixer
Wasser - Fixer



pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 14 241	Zahnrad Z26 m1	Gear 26T m1
2	90 14 244	Zahnrad Z44 m1	Gear 44T m1




18
18
16
13+15
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13+14
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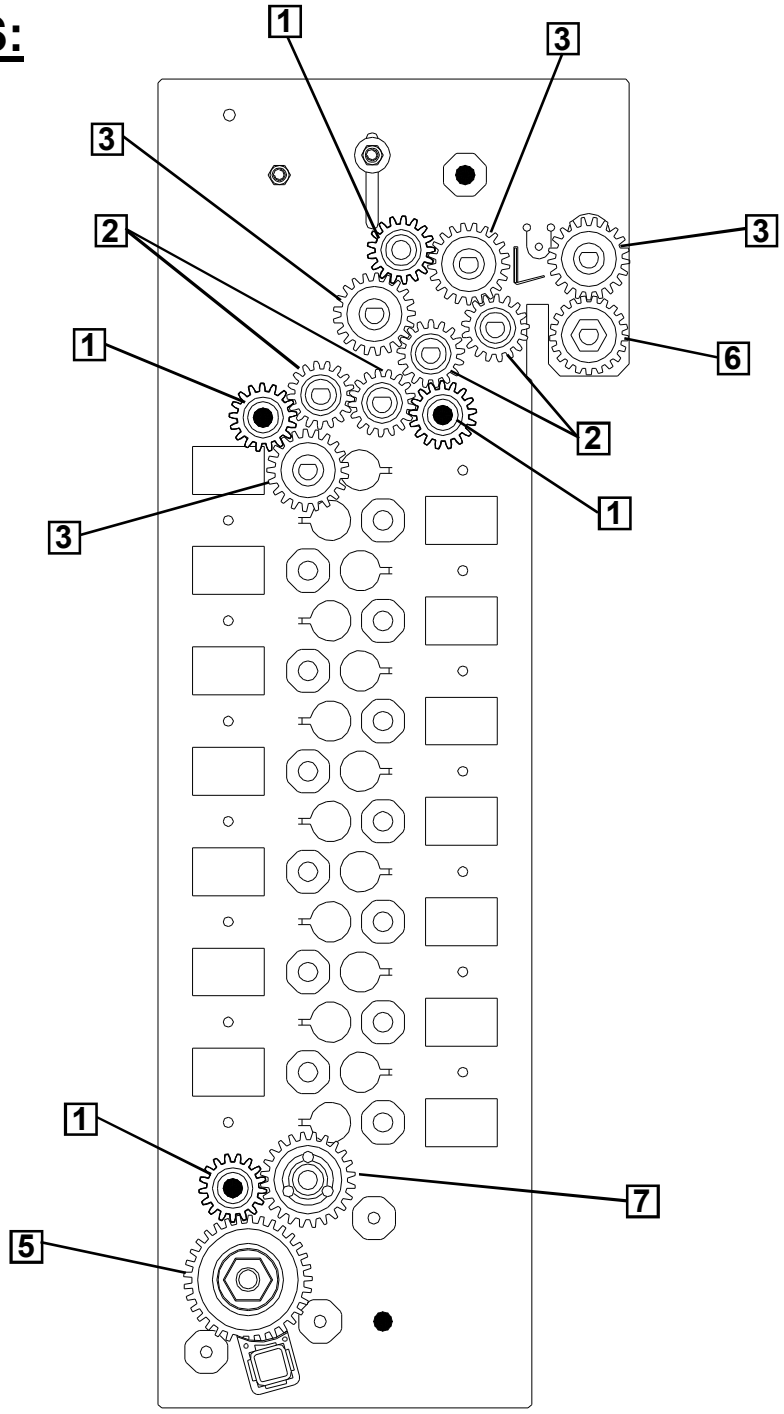
12

pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 12 642	Abquetschwalze Gummi	Squeeze roller, rubber 32
2	90 12 749	Abquetschwalze Gummi schwer	Squeeze roller, rubber 32 heavy
3	90 12 847	Abquetschwalze PE 25.9	Squeeze roller, PE 25.9
4	90 15 184	Phenolwalze 32 B3/B4 Z21	Phenolic roller 32 B3/B4 Z21
5	90 12 829	Einzugswalze PE 32	Input roller PE 32
6	90 12 804	Phenolwalze 32 B3/B6	Phenolic roller 32 B3/B6
7	90 15 154	Phenolwalze 32 B4/Z21 B9/Z24	Phenolic roller 32 B4/Z21 B9/Z24
8	90 15 155	Schaumstoffwalze 32 A4 - A4 / Z21	Foam roller 32 A4 - A4 / Z21
9	90 15 156	Umlenkwalze PVC poliert 44 / 3-Punkt	Turn around roller polished 44 / 3-point
10	90 15 115	Umlenkwalze Gummi 26	Turn around roller rubber 26
11	90 16 751	Umlenkwalze Gummi 26 geschliffen	Turn around roller rubber 26 grinded
12	90 15 186	Umlenksegment NDT 43	Turn around segment NDT 43
13	90 12 250	Distanz 43	Spacer 43
14	90 14 103	Zahnrad Z17 O-Loch m1.5	Gear 17T O-hole m1.5
15	90 12 257	Zwischenradachse Trockner	Intermediate axle dryer
16	90 13 749	Antriebswelle Trockner 902/3	Main drive shaft for dryer 902/3
17	90 13 207	Leitblech SU-Trockner 43	Guide fur SU-Dryer 43
18	90 13 751	Trageschiene 902/3	Rack carrier support bracket 902/3

GEARS:



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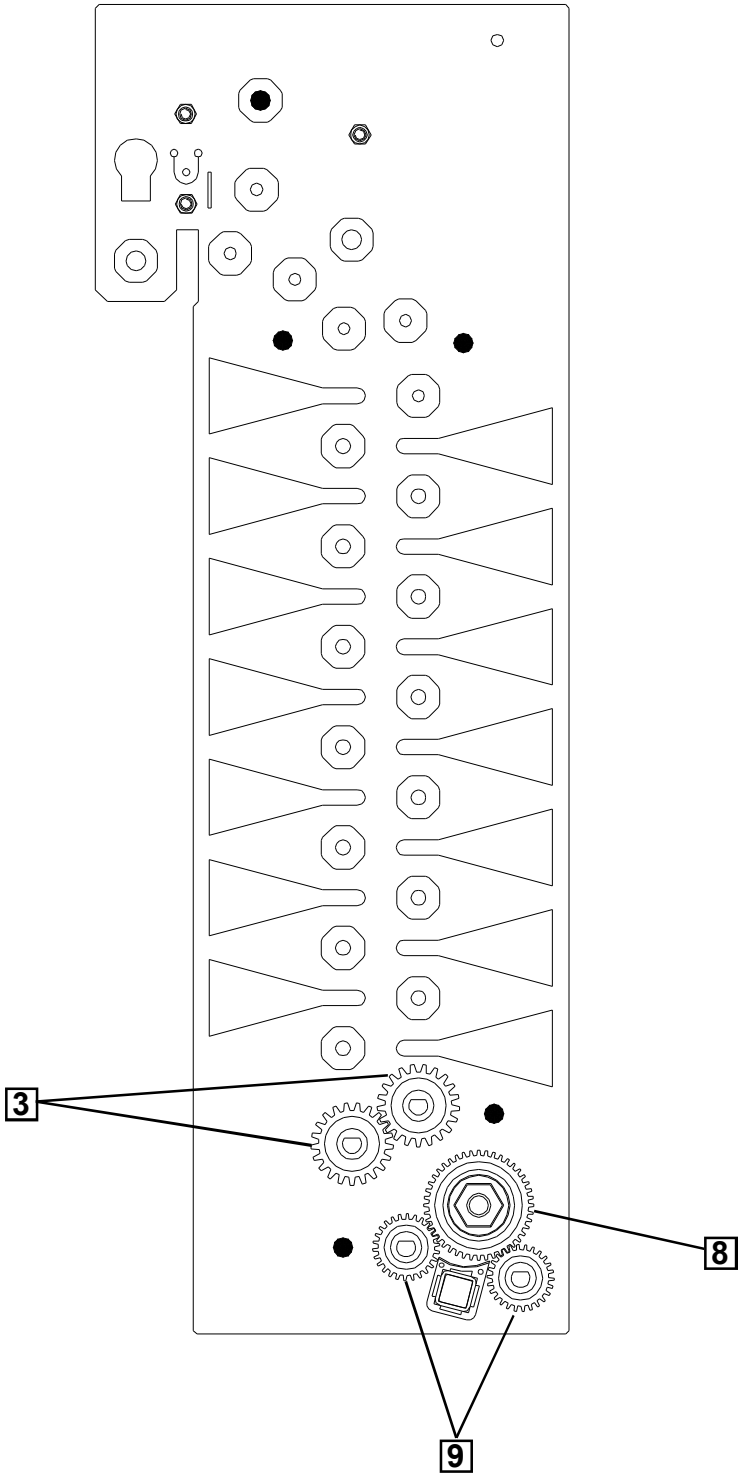

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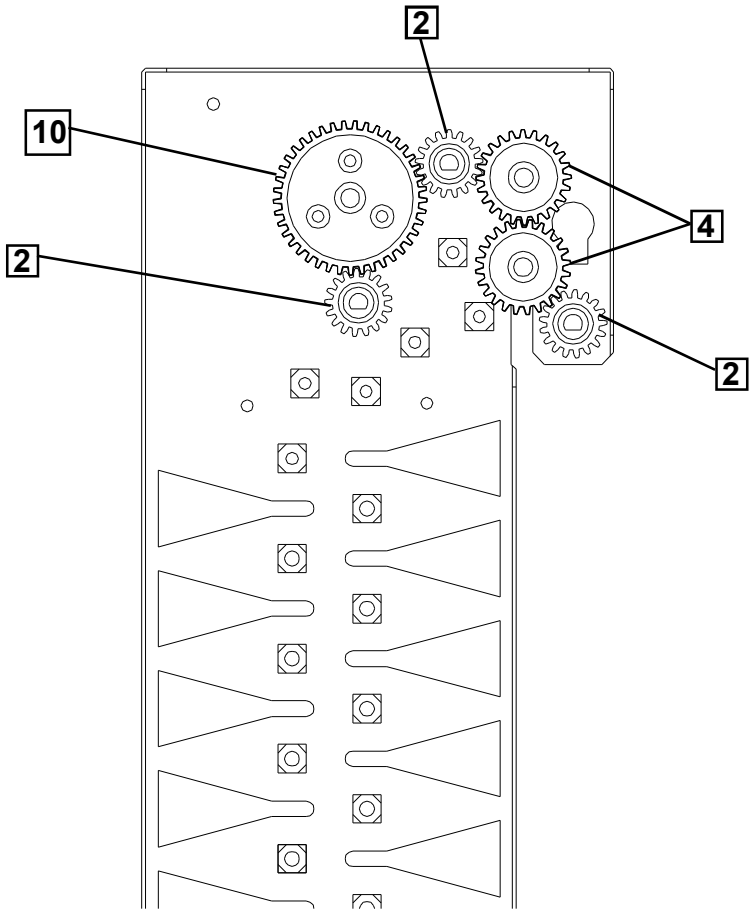
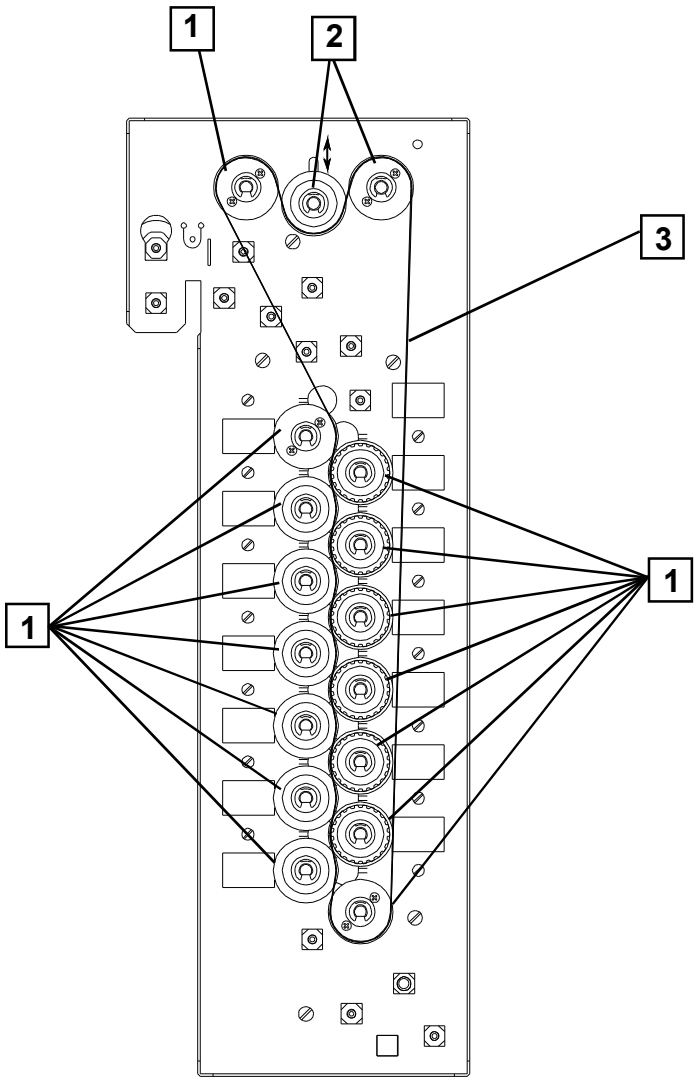
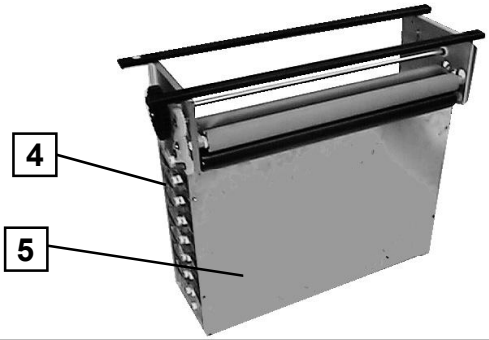
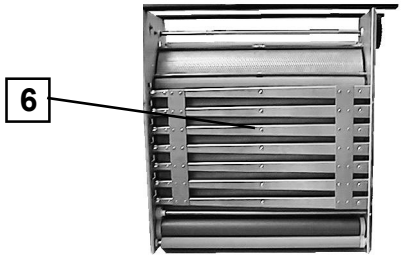


pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 14 103	Zahnrad Z17 O-Loch	Gear 17T O-hole
2	90 14 104	Zahnrad Z17 D-Loch	Gear 17T D-hole
3	90 14 108	Zahnrad Z21 D-Loch	Gear 21T D-hole
4	90 14 105	Zahnrad Z24 O-Loch	Gear 24T O-hole
5	90 14 245	Zahnrad Z33 m1.5	Gear 33T m1.5
6	90 14 116	Zahnrad Z21 D=33	Gear 21T D=33
7	90 12 060	Zahnrad Z24 O-Loch Noppen	Gear 24T O-hole Pin
8	90 14 243	Zahnrad Z44 O-Loch	Gear 44T O-hole
9	90 14 241	Zahnrad Z26 D-Loch m1	Gear 26T D-hole m1
10	90 12 062	Zahnrad Z41 O-Loch	Gear 41O-hole

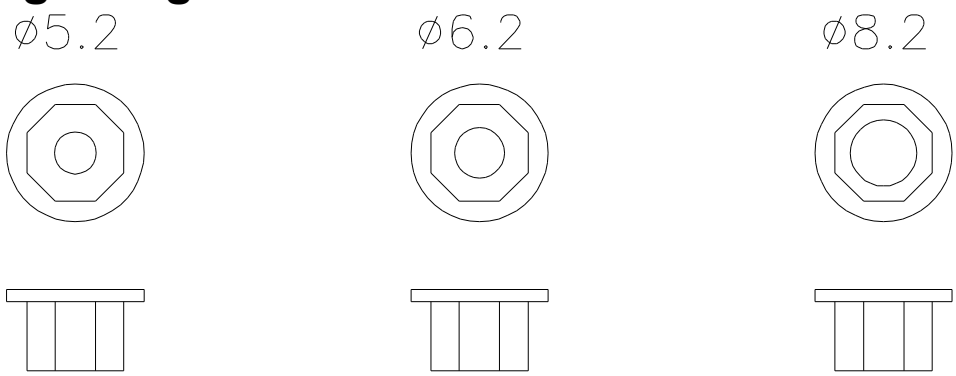


pos.	Teile Nr.:/part no.	Beschreibung	Description
1	90 12 090	Zahnscheibe D-Loch	Ratchet weel D-hole
2	90 12 089	Zahnscheibe O-Loch	Ratchet weel O-hole
3	90 12 130	Zahnriemen **INDX**	Drive belt **INDX**
4	90 13 152	Trocknerverkleidung HINTEN	Dryer panel REAR
5	90 13 153	Trocknerverkleidung VORNE	Dryer panel FRONT
6	90 15 157	Luftpfeifeneinheit kompl. 43	Air-pipe assy 43



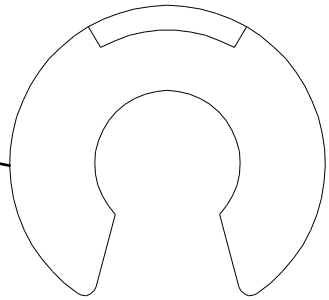


bearing octagon



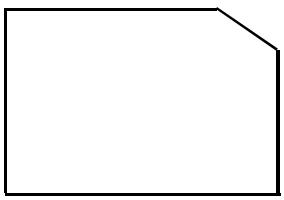
90 12 111 **90 12 112** **90 12 113**

90 12 116
locking washer plastic



90 60 005 replenisher-tank DEV/FIX incl. replenisher-tank-cover assy

90 60 006 antioxidation-cover for DEV-replenisher-tank

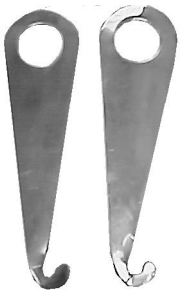


90 45 061 stop cock

90 60 009 Spray bottle

90 60 007 Filterpatrone f r Regeneriertank
filter cartrige

90 16 271 tool for squeeze roller



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Sicherungen / fuses:

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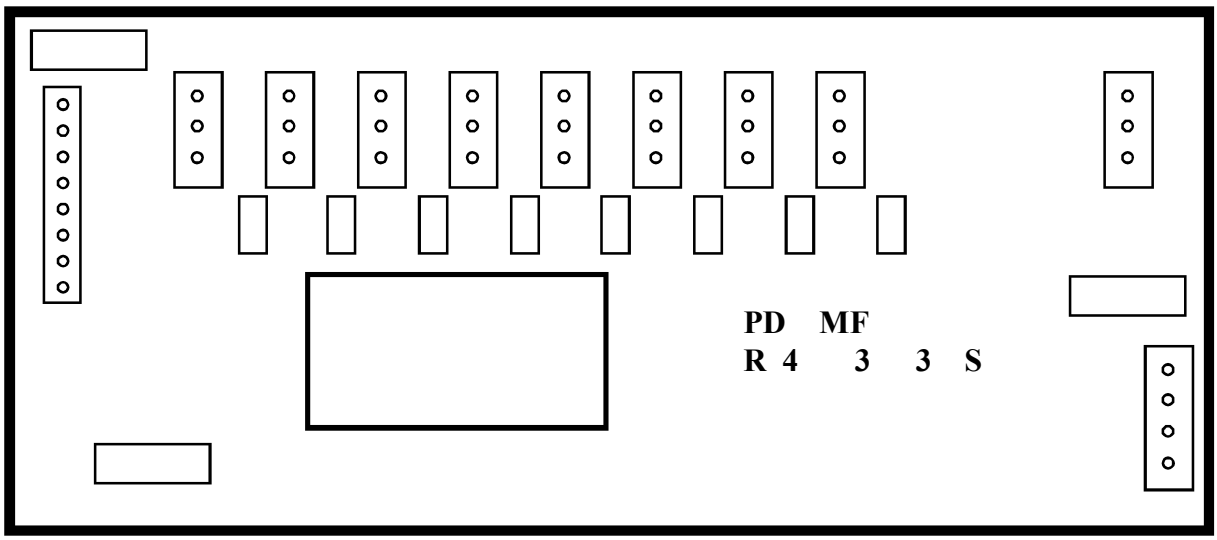

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