

# DuPont - Cyrel<sup>®</sup>

## Cyrel<sup>®</sup> smart Processor



# Operation MANUAL

I

customer *Kunde Client* : **Intergraf, Hungary**

Order Nr. **DDE 07430** com.-No.: **SP 3011**  
**A 6044** *Kom.-Nr. / No. de com :*

year of manufacture: **09/2001** operating of voltage: **400V/50Hz**  
*Baujahr:* *Betriebsspannung:*  
*Année de fabrication:* *Tension de fonctionnement:*



Kieselstraße 9  
 56357 Miehlen  
 Tel.: +49-6772/3393  
 Fax.: +49-6772/2053



Typ	Smart XXL Processor		
KOM-Nr.	SP 3011	Baujahr	09/01
Volt	3 N ~ 400 V	Hz	50
kW	7	Nennstrom	16 A

## Contents

	<b>Page</b>
<b>1. About the machine</b>	
1.1 Address of manufacturer	Service Manual 4
1.2 Type of equipment	Service Manual 4
1.3 Description of operation	4
1.4 Description of the process	5
1.5 Designation of jobs	Service Manual 6
1.6 Data on noise emissions	Service Manual 6
1.7 Information on ventilation and fumes	Service Manual 7
1.8 Electrical supply	Service Manual 7
1.9 Information specific to machinery materials	Service Manual 7
<b>2. Transporting and setting up the machine</b>	
2.1 Unloading	Service Manual 8
2.2 Transporting	Service Manual 8
2.3 Setting up and aligning	Service Manual 8
2.4 Foundations	Service Manual 8
<b>3. Bringing the machine into service</b>	
3.1 Requirements for fixing and anchoring	Service Manual 9
3.2 Conditions for installation	Service Manual 9
3.3 Space requirement for operation, servicing and maintenance	Service Manual 9
3.4 Permissible ambient conditions	Service Manual 9
...3.5 Connecting to the power supply, preparation for putting into operation, first filling	Service Manual 10
3.6 Principles for putting into service	Service Manual 11
3.7 Checking for correct operation	Service Manual 11/12
3.8 Requirements for use in a potentially explosive atmosphere	Service Manual 12
<b>4. Safety</b>	
4.1 Safety measures when working at the machine	6
4.2 Notes on the use of personal protective equipment	6
4.3 Information on residue risks, avoiding hazards	6
4.4 Environmental protection	6

## 5. Information on the operation on the machine

5.1	Description of the functions of all individual components	Service Manual	14-16
5.2	Measuring solid matter content and solvent heating	Service Manual	17
5.3	Description of adjustment and replacement work	Adjustments	3
5.4	Basic information about the washing brushes	Adjustments	4-7
5.5	Improper usage		7
5.6	Instructions for recognizing and eliminating errors		7

## 6. Operation

6.1	Starting the machine		8
6.2	The operations field		8-16
6.3	Manually filling the internal tank		17
6.4	Plate production		18
6.5	“Drum-to-drum” operation		19
6.6	“Tank-to-tank” operation (with distillation)		19

## 7. Instructions for equipment maintenance

7.1	Type and frequency of inspections (operator)		20
7.2	Instructions for maintenance work		20
7.3	Type and frequency of maintenance work (service)	Service Manual	32
7.4	Address of DuPont	Service Manual	33

## 8. Safety-related information for removing the machine from service and dismantling

		Service Manual	33
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## 9. Information for emergency situations

9.1	Type of fire extinguishing equipment to be used		21
9.2	Notes for rescue		21

## 10. Technical data and plans

	Delivery list	Service Manual	35
	Loading plan / Pre-loading plan	Service Manual	36/37
	Set-up plan, space requirements – transport plan	Service Manual	38
	Specifications, technical data	Service Manual	39
	Flow plan / Liquid conduits and switching points for the level gauges	Service Manual	40
	Pneumatics plan	Service Manual	41
	Electrical wiring plan	Service Manual	42-55

## 1. About the machine

### 1.3 Description of operation

The washing system serves to automatically wash flexographic printing plates of all types in conjunction with:

- one - exposure unit,
- one - dryer
- one - light finisher

The plates are illuminated in a UV light source, polymerizing the image parts that will print later.

The plates run horizontally through the processing section of the machine, where they are washed out with help of oscillating flat brushes and round brushes. The washing agent, a tempered solvent, is used that is fed continuously to the brushes. After washing, the plates go through a flushing zone, where they are cleaned with fresh solvent.

Before the plates leave the washing area of the machine, the cleaning agent is removed from both sides with the aid of round brushes and fresh solvent and the plate is thus cleaned. After leaving the washing area, the plates go through the pre-drying section where they are ventilated on the upper side and pre-dried on the under side by means of a plush coating on a rotating shaft.

The plates leave the machine dry to the touch.

## 1.4 Description of the Process

The speed at which the plates go through can be preset and can be adapted to the individual plate types.

After the plate is exposed, it is first perforated with the pneumatic perforating punch. The plate is fastened to the transport bar with the polymer side facing up and is fed into the input, where it enters the transport system and passes through the following sections.

### **Wash out section:**

Six flat brushes transverse to each other, and contra-rotating round brushes wash out the non-polymerized (non-exposed) parts of the plate.

The solvent reaches the brushes directly via brush holders and boreholes

### **Cleaning section:**

Cleaning takes place through contra-rotating round brushes moistened with fresh solvent, clearing the plate of washout solution.

### **Plate exit section:**

At the exit section, the plate is pulled over a rotating plush surface and pre-dried. At the same time the relief side can air dry.

The plates must be:

dried

post exposed

light finished

before being used in the printing machine.

## 4. Safety

### 4.1 Safety measures when working at the machine

Avoid skin contact with the solvent. In all work carried out at the machine when opened, protective glasses and gloves are to be worn (possibly use skin protective cream).

When filling and emptying with hoses and pails, protective gloves and face protection (possibly with separate air supply) are to be worn.

Ensure adequate ventilation of the room.

If solvent comes in contact with the eyes, rinse immediately with lots of water.

For other problems, it is advised to see a doctor.

### 4.2 Notes on the use of personal protective equipment

Avoid skin contact with the solvent. For all work, protective glasses and gloves are to be worn (possibly use skin protective cream)

### 4.3 Information on residue risks, avoiding hazards

When filling and emptying with hoses and pails, protective gloves and face protection (possibly with a separate air supply) are to be worn. Ensure adequate ventilation of the room.

### 4.4 Environmental protection

When operating the machinery, it must be kept in mind that the solvent poses a risk to the water supply. It is not allowed to reach the waste water system or the ground.

Under the machine are safety catch tanks, sent along as standard equipment. These are able take up the entire volume of solvent.

### Disposal

Dirty solvent can be recycled through distillation. Otherwise it is regarded as hazardous waste with the waste key no.: 55326

Solvent-soaked cleaning rags are to be disposed of as hazardous waste.

Residue from distillation equipment is to be disposed of as hazardous waste according to the waste key no.: 59703.

Information on hazardous waste disposal is given by the environmental ministry, the workplace oversight authority, district administrative office, among others. – Consult local agencies.

## 5. Information on the operation of the machine

### 5.5 Improper usage

The machine may only be operated with solvents approved by the manufacturer.

### 5.6 Instructions for recognizing and eliminating errors

Problem	Cause	Measure to take
Plate is not washed out cleanly	Wrong program selected	Select correct program
	Wash out speed too fast	Lower wash out speed
	Solvent not properly heated	
	Solvent too contaminated	Refresh solvent
	Too little solvent in system	Fill up solvent
	Brush distance too great	Correct brush distance
Solvent temperature is too high	Cooling failure	Test cooling
Plates are not pulled in	Compressed air is absent or is too low	Turn on compressed air or determine the cause
Plates torn from frame	Wrong program selected with too high brush pressure	Enter the correct program
	Plate not properly fastened	If plate is visible: Select program 20, manually press input sensors, press Start and remove plate from machine.
	Bar is crooked	Correct chain tension at output
<b>Error message on the display:</b>		
Motor disruption	Motor safety switch or fuse is out	
Safety thermostat	Solvent temperature is too high	Check cooling
Emergency cut-off	Emergency cut-off switch is activated	Release emergency cut-off
Check Sensor – the 3 sensors are shown as symbols green = OK – red = error	Sensor input dirty or defective	Clean or replace sensor
Check viscosity meter filter	Filter dirty	Clean filter
	Air pressure absent or is too low	Turn on compresses are or determine the cause
Check viscosity meter	Viscosity meter plunger is dirty	Clean viscosity meter
	Sensors are not being activated	Check sensor position, correct as needed



## 6. Operation

### 6.1 Starting the machine

The main switch of the machine must be turned on.

Press button "I" (start) (control is activated and the display becomes visible); the machine is now ready for operation, production can begin (after reaching the set solvent temperature).

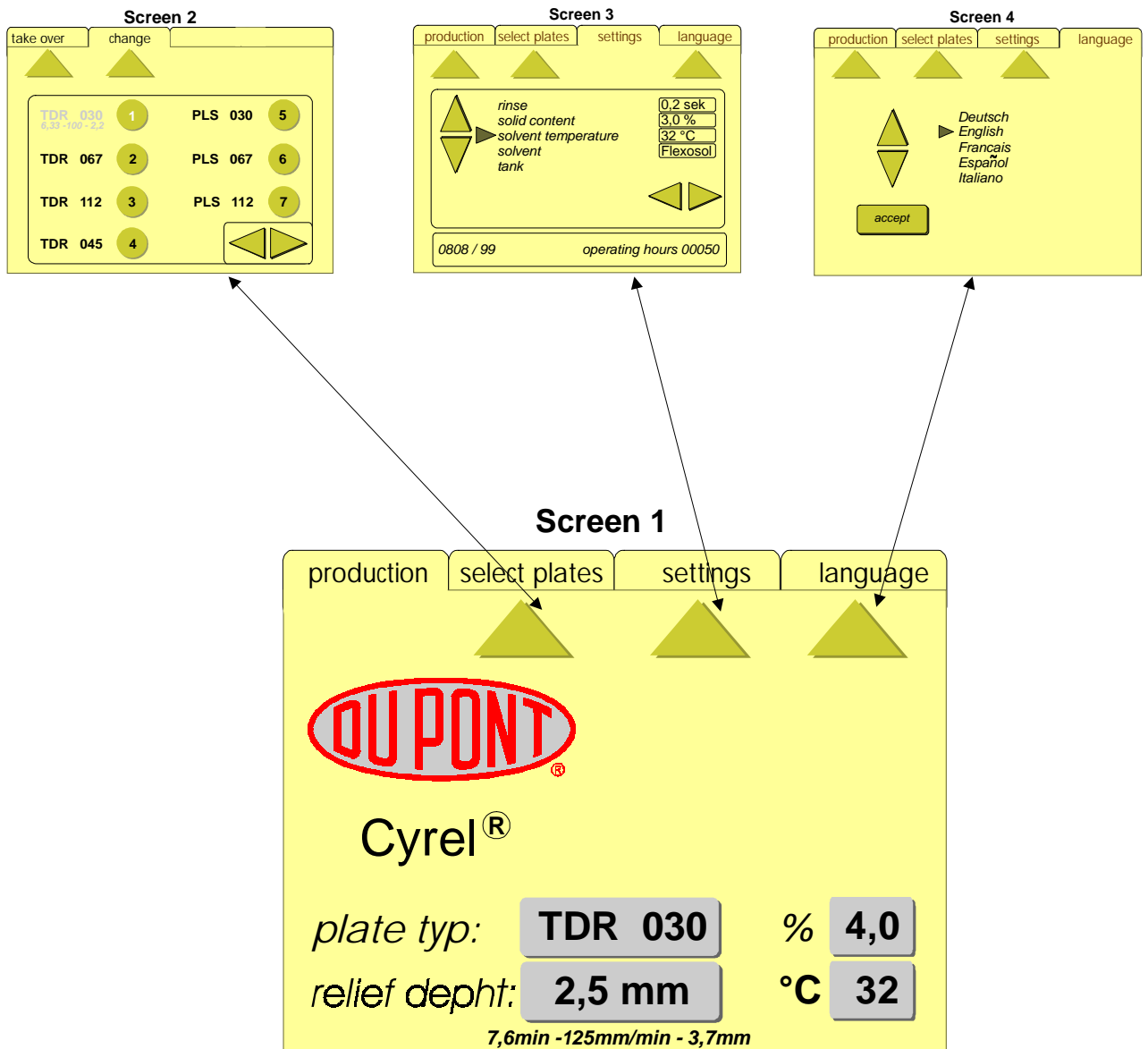
### 6.2 The operation field

(see Menu guide smart – pages 10 – 16, Screens 1 to 4)

- choose language Screen 4.0
- program plates Screen 2.2 / 2.3
- program flush time Screen 3.2
- pre-select solid material content Screen 3.2
- determine solvent temperature Screen 3.2
- determine solvent Screen 3.2

## The operation field (touch-screen) settings

<p><b>Base screen (production)</b></p> <ul style="list-style-type: none"> <li>select plate menu</li> <li>select service</li> <li>select language</li> <li>start plate production</li> <li>start plate production in "stand by" mode</li> <li>start after interruption</li> <li>error messages</li> </ul>	<p><b>Screen 1</b></p>
<p><b>Plate menu (selection of plate types)</b></p> <ul style="list-style-type: none"> <li>selection of plate types 1-21</li> <li>selection of plate types in "stand by" mode</li> <li>changing plate settings</li> <li>changing relief depth</li> <li>changing plate thickness</li> <li>changing wash out speed</li> <li>changing plate name</li> <li>entering changes in data</li> </ul>	<p><b>Screen 2</b></p> <p>Screen 2.2</p> <p>Screen 2.3</p> <p>Screen 2.4</p>
<p><b>Operation (machine settings)</b></p> <ul style="list-style-type: none"> <li>changing the cleaning time</li> <li>changing the concentration of solid materials</li> <li>changing the solvent temperature</li> <li>changing the solvent</li> <li>select production</li> <li>select plate menu</li> <li>select language</li> <li>taking on changes in data</li> <li>filling tank</li> <li>emptying tank</li> </ul>	<p><b>Screen 3</b></p> <p>Screen 3.1</p> <p>Screen 3.2</p>
<p><b>Language (language choice)</b></p> <ul style="list-style-type: none"> <li>German</li> <li>English</li> <li>French</li> <li>Spanish</li> <li>Italian</li> </ul>	<p><b>Screen 4</b></p>
<p>Select plate menu</p> <p>Select service</p>	<p><b>Select production</b></p>



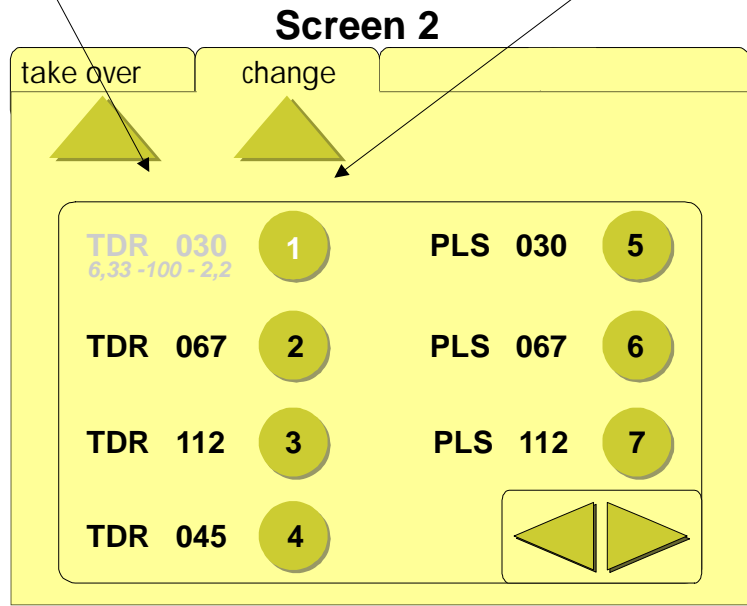
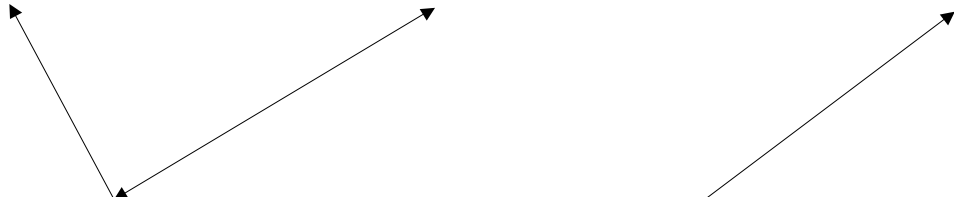
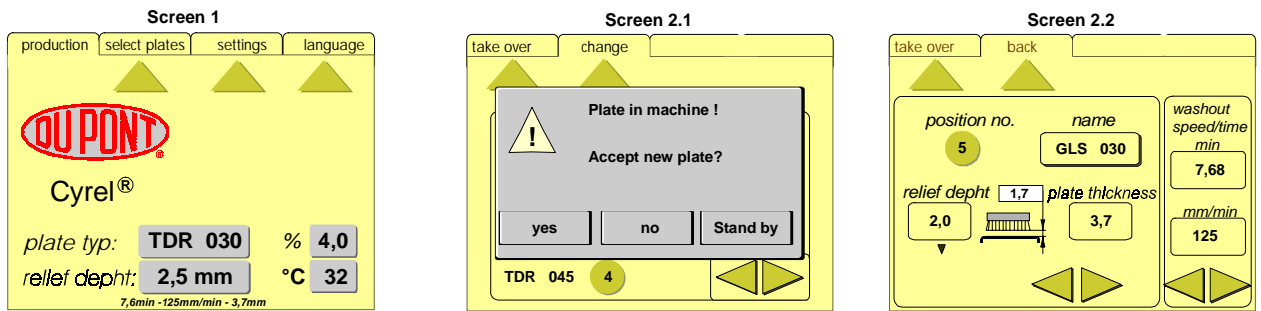
**Base screen Screen 1**

changing screens by pressing the menu fields:

- Plate menu
- Service
- Language

Information on the current plate and the machine data is show in the lower fields

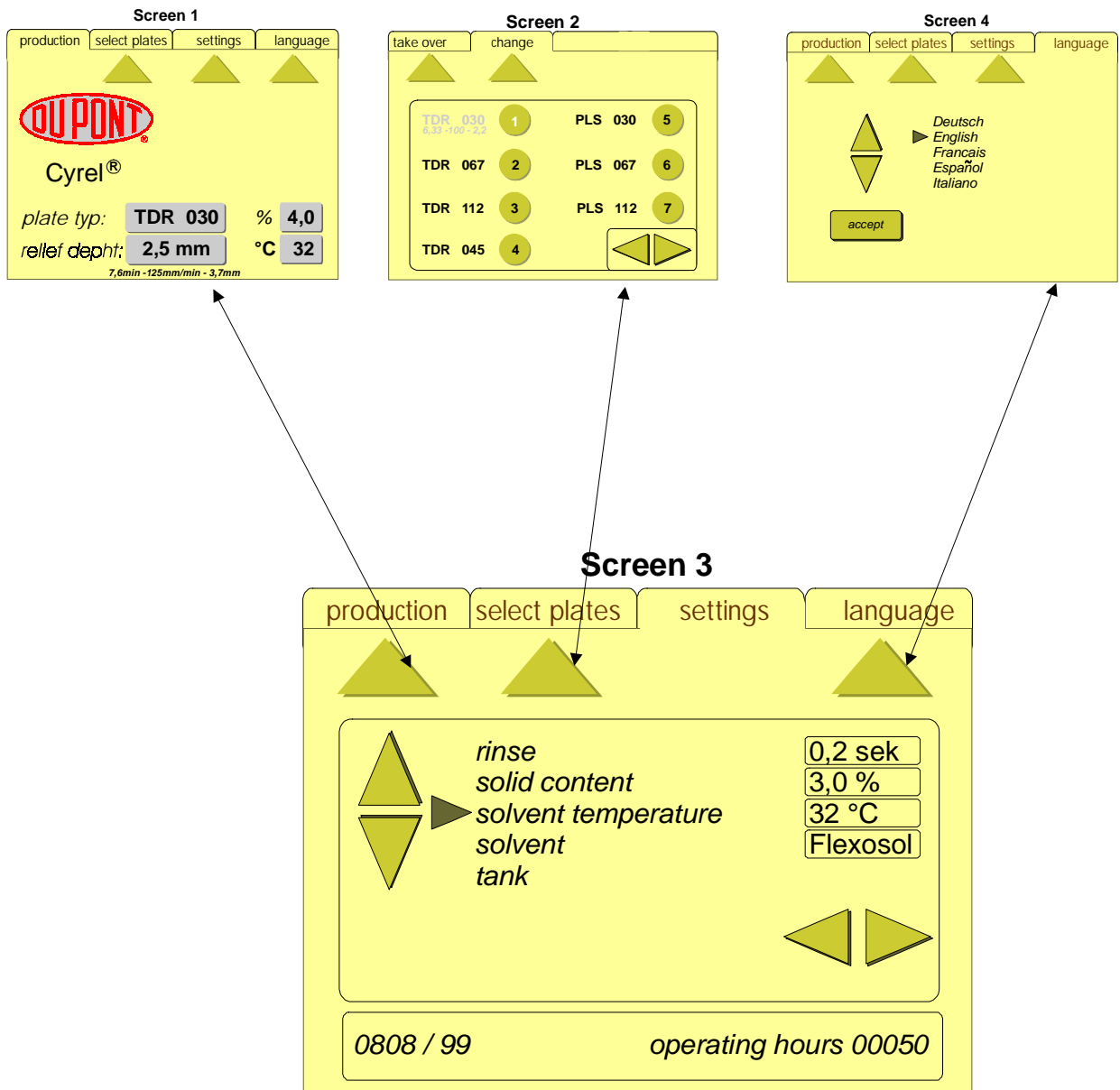
Plate type	<b>TDR 030</b>	Solid matter content	<b>4.0%</b>
Relief depth	<b>2.5mm</b>	Solvent temperature	<b>32°C</b>
Wash time	<b>7.6 min</b>		
Transport speed	<b>125 mm/min</b>		
Plate thickness	<b>3.7 mm</b>		



**Plate menu Screen 2**  
 Changing screens: by pressing the menu fields:  
 Change  
 Accept

Changing plates: by pressing the circular position fields 1-7  
 Use the arrow keys to change to other plates 8-21  
Select the plate: the selected plate will be highlighted  
Accepting the plate: by pressing the position field **Accept**.

Changing plate values: by pressing the position field **Change**.  
 Screen 2.2 appears automatically – (changing plate values)



**Service menu Screen 3.0**

Use the vertical arrow keys to move the cursor to the point on the menu  
Use the horizontal arrow keys to change the value

Settings:

Cleaning time: 0.1 to 0.5 seconds (ca. 0.2 seconds).

Solid matter content: 1.0 to 9.9% (ca. 4%)

Solvent temperature: 20°C – 40°C (depending on solvent)

Solvent: Flexosol, Optisol, Per, LM 1 – 3

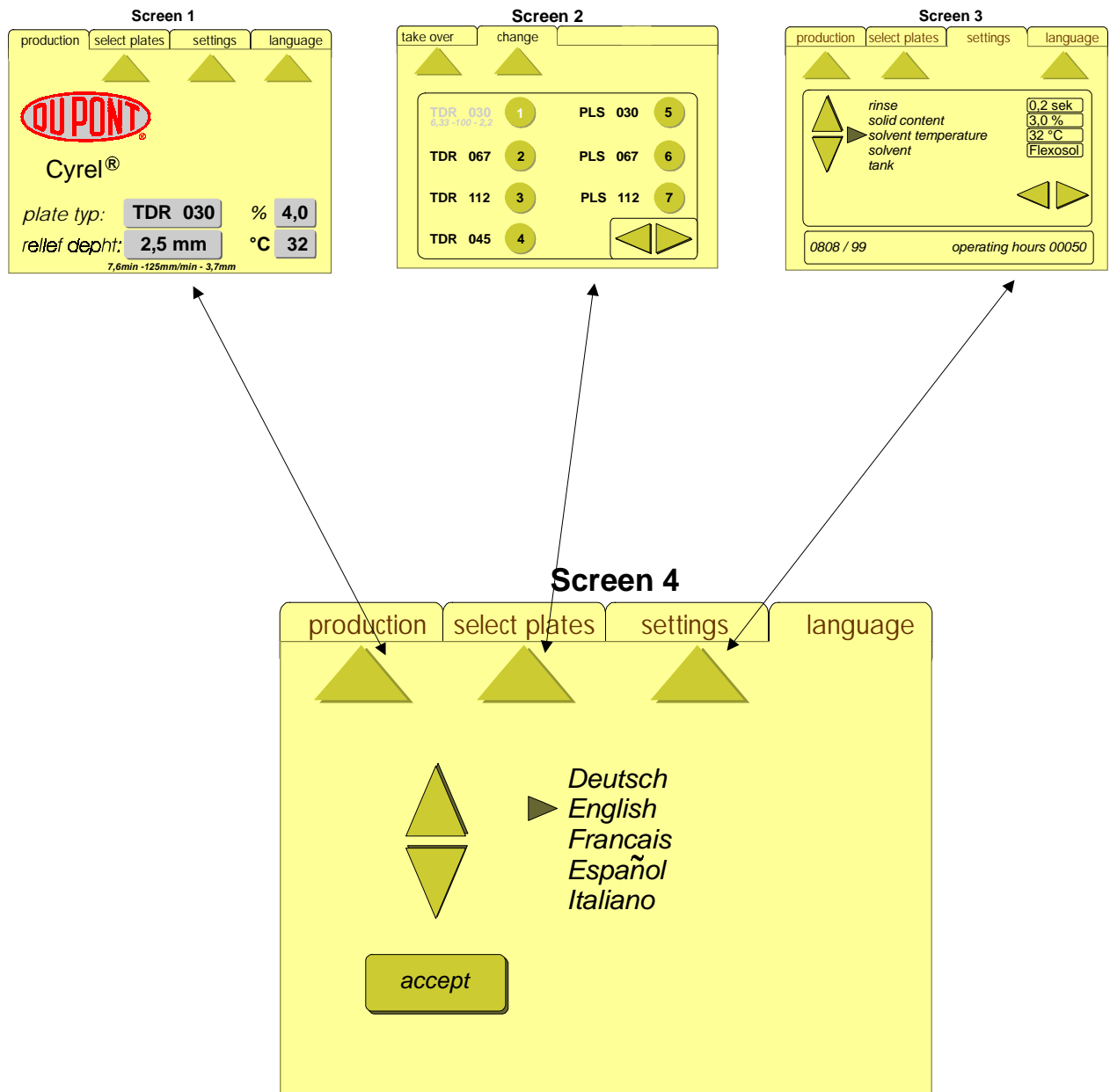
Tank: (see Screen 3.2)

If a value has been changed the question will automatically appear:

**Accept changed data?**

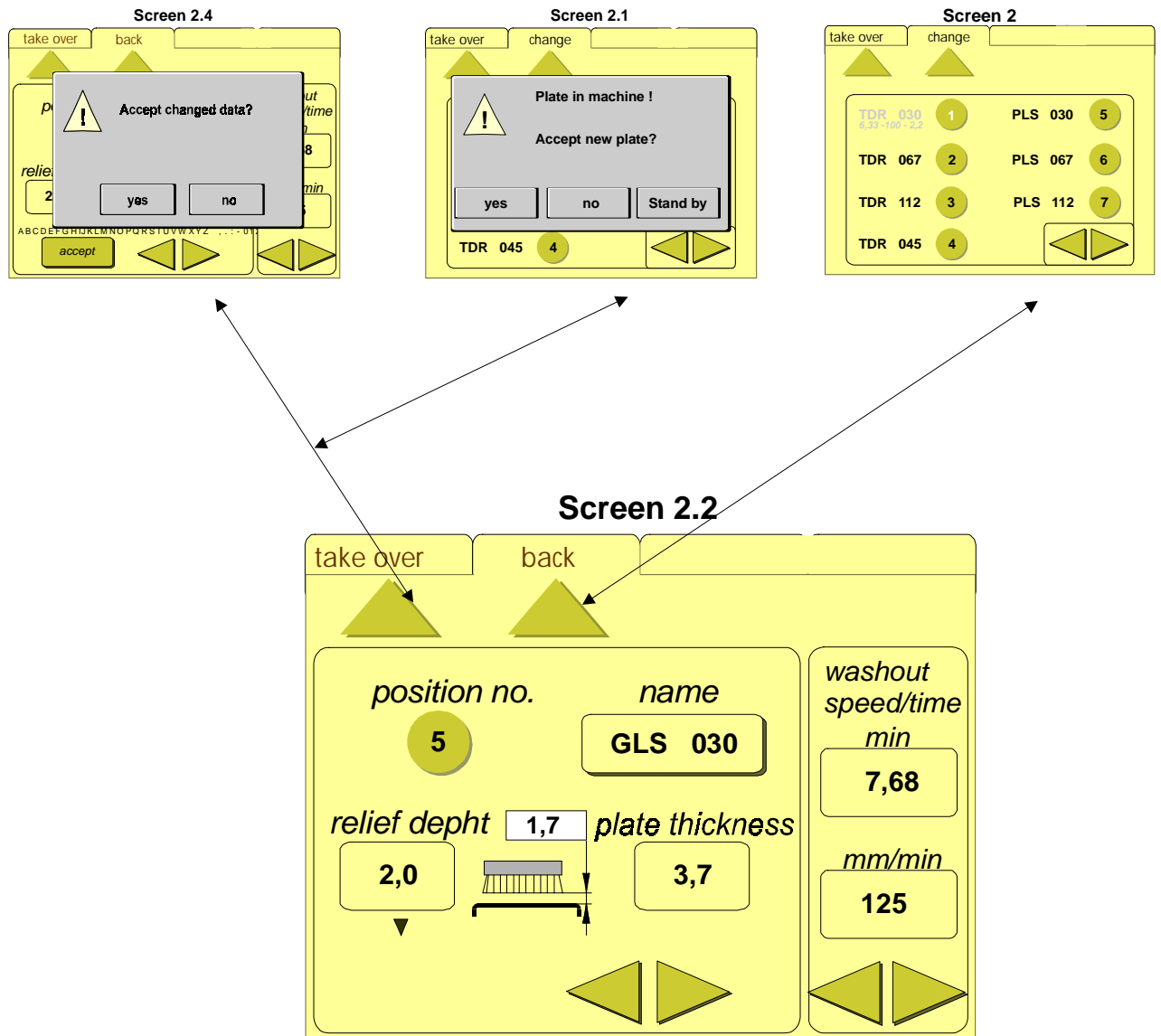
**Yes** – saves changed values

**No** – keeps the old value



**Language menu Screen 4.0**

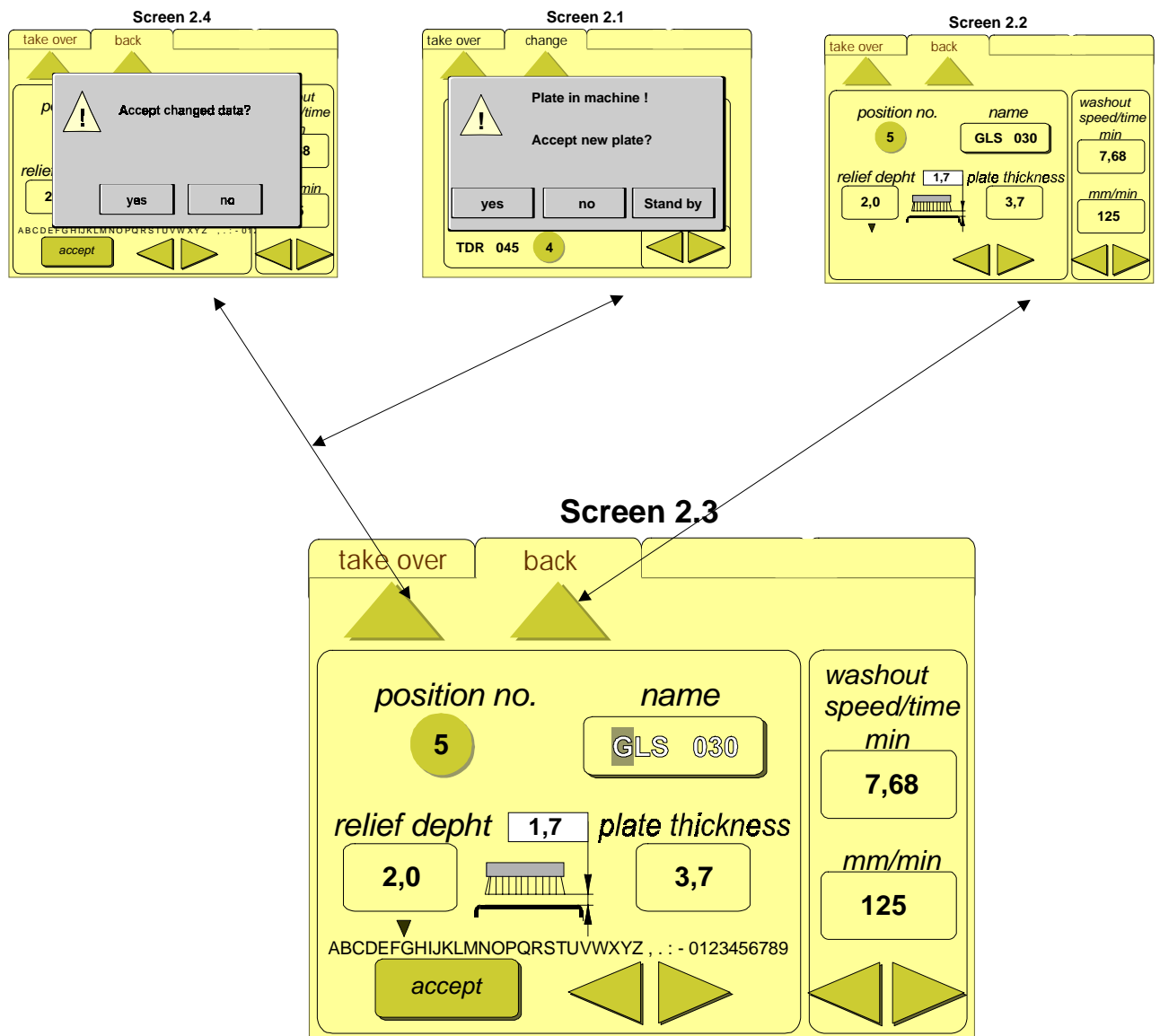
In this screen the language can be changed.  
 Select the language with the arrow keys and press the **Accept** button.  
 The user interface language will automatically change to the selected language



**Plate values Screen 2.2**  
 In this screen the plate values can be changed.  
 Click on menu field. (selected menu field will have a highlighted background)  
 Change the value with the arrow keys.  
 The following changes are possible:  
**Position no.:** sets the position number of the plate menu  
**Name:** see **Screen 2.3**  
**Plate thickness:**  
**Relief depth:**  
**Wash time** or transport speed: values are changed analogously.

The value shown in the highlighted field (above the brush symbol) is the distance: brushes to the level of the bottom plate.  
 this value is reached by:  
**Plate thickness minus Relief depth (max. 4 mm)**

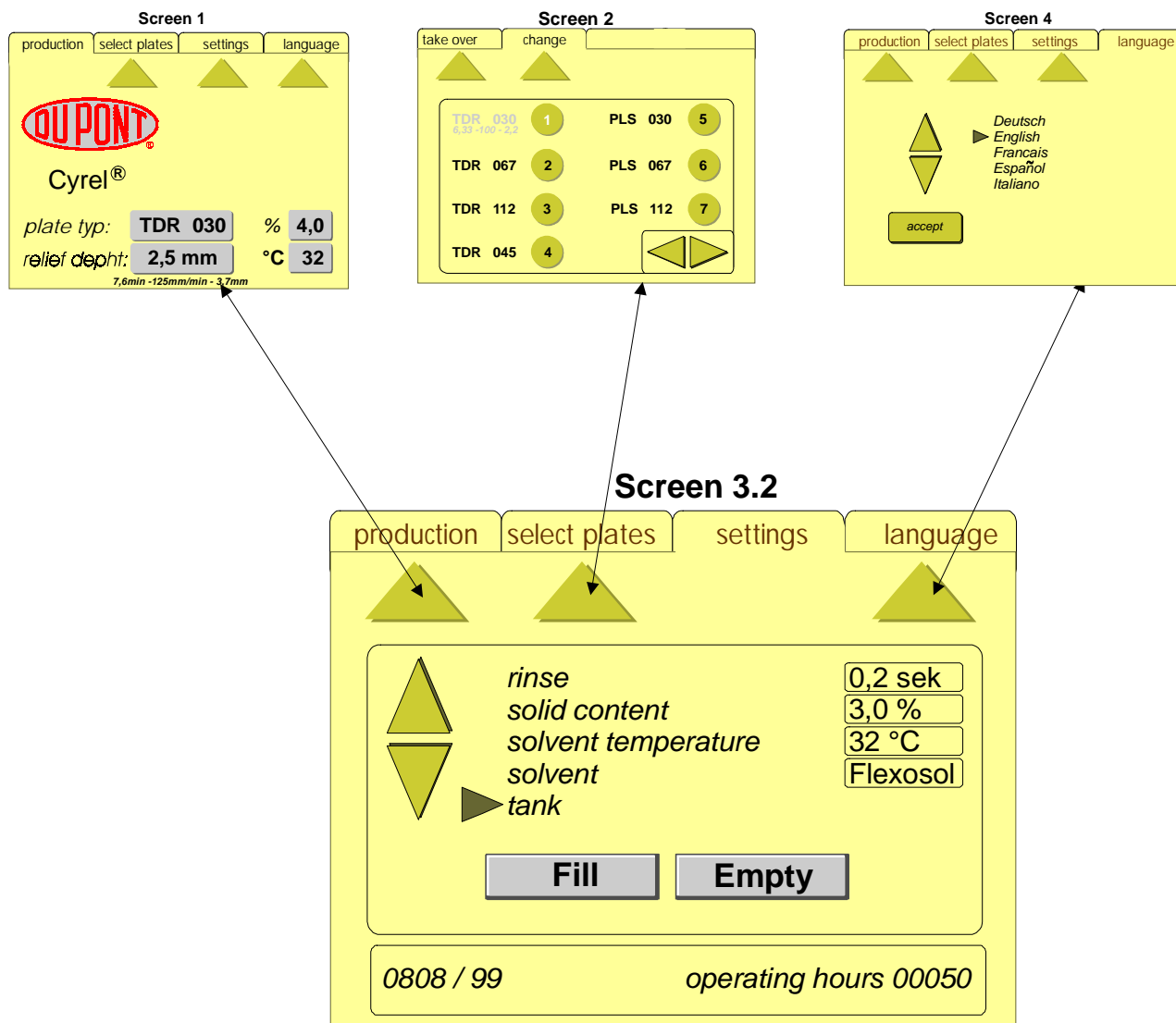
If a value has been changed the question comes up: **Accept changed data?**  
**Yes:** accepts the changed value  
**No:** keeps the other value



**Plate value Name Screen 2:3**  
 selecting the menu field **name** will give it a highlighted background.  
 At the same time an alphanumerical character map with a cursor will appear.  
 Use the arrow keys to change the position of the cursor.  
 By pressing **transfer**, the number or figure under the cursor will be transferred to the menu field **name**.

Pressing the menu field again (or another menu field) will make the character map disappear. (automatically **screen 2.2**)





### Service – emptying / filling the tank Screen 3.2

Use the vertical arrow keys to move the cursor to the menu point **Tank**. Both buttons **Fill** and **Empty** will appear automatically.

#### Filling

By pressing the **fill** button, fresh solvent is pumped into the re-flush tank until it spills over into the main tank (this process will run automatically until the main tank reaches the minimum wash level or the **fill** button is activated again). During the active phase, the word **fill** is light blue!

#### Emptying

By pressing the **empty** button, the main tank is emptied (this process will run automatically until the minimal wash level is reached or the **empty** button is activated again). During the active phase, the word **empty** is light blue! Further activation only so long as the **empty** button is pressed!

! both functions operate independently of the float switch  
- fresh solvent tank empty / old solvent tank full - controlled

**ATTENTION** this menu point may not be called up during plate production, as the current process will be interrupted.  
Plate transport, pumps and brushes movements will be turned off.

### **6.3 Manually filling the machine-internal tank (cf. menu guide Screen 3.2)**

The fresh solvent drum is full, the dirty solvent drum is empty. Both drums and float switches are connected to the machine. The fresh solvent pump and the suction lines must first be bled and filled with fresh solvent. **!! Danger of dry operation !!**

For filling the tank, the main switch must be set to "on". The display is turned on. The input table and tank covering must be removed, so that visual contact with the level switches exists. Now select the lower point tank on the display service. Two buttons will appear automatically (fill and empty). Activate the fill button. (Now the tank will be filled automatically until the float switch reaches "wash level" (cf. menu guide Screen 3.2)

**In normal operation, the filling of solvent takes place automatically.**

## 6.4 Plate production (preparation, input, washing out, pre-drying and removal)

### Plate preparation

- The plate must be fastened to the transport bar with the polymer side up. For the machine to recognize the plate, the plate/plates must be positioned so that at least one of the 3 photo sensors B3, B7, B8 (middle, right, left) located at input level is covered by the plate/plates. The photo sensors will identify the length of the plate/plates and will control the other processes of the machine (cleaning, shut down, and release for entry of next plate).

### Input of plate (first, please select the appropriate plate type from the display)

- Lay the transport bar with the plate in the plate feed area, push forward parallel up to the stop. The transport bar will fall approx 10 mm and will rest in the input feeder. At the same time 2 sensors located over the input (B5, B6) will identify the correct input of the transport bar and will release the start menu on the display.

The plate can now no longer be corrected.

### Washing, pre-drying and removing the plate

- Activate the sensor field "Start" on the display. The transport bar will be pneumatically lowered. The transport bar will be fed to the transport chain and pulled in. (At the same time, a small red indicator (H2) will turn on) The plate transport through the machine and is automatically washed out, cleaned on both sides and pre-dried until the sensor B2 "plate outlet" is reached. It will give an acoustic signal. The message "plate at output" will appear on the display.
- The transport bar along with the plate can be taken out of the machine. The acoustic signal ceases as soon as the plate is removed

As soon as the indicator H2 goes out, the plate input is pneumatically raised again. Now a new bar and plate can be introduced. At this point there are 2 possibilities:

- **1) new plate same plate type.** Can be input directly (cf. plate input).
- **2) new plate different plate type.**
  - step 1 – select plate menu (cf. Menu guide Screen 1).
  - step 2 – select plate type (cf. Menu guide Screen 2).
  - step 3 – accept plate, now the message appears on the display "Plate in process!" – accept new plate anyway? (and the sensor fields) – Yes – No – Stand by." -
  - step 4 – press the sensor field "stand by" – the message will disappear. Now the transport bar with the new plate can be fed in (cf. Plate input).
  - step 5 – press the sensor field "Start" on the display. Now "Stand by" blinks over the input symbol up until preceding plate has left the washing area. The machine automatically makes the adjustments for the new plate and the plate is pulled in. (cf. Washing, pre-drying, and removing plate).

## 6.5 “Drum-to-drum” operation

Drum-to-drum operation is controlled by the drum level switches.

Gauge/ Switch contact	Description	Measures to take
FS – drum empty	Message in display and acoustic signal	Change fresh solvent drum; plate production can continue.
OS – drum full	Message in display and acoustic signal; pumping out is no longer possible	Do not introduce any new plates, plate production must stop! <i>Main switch to “OFF” position.</i> Change old solvent drum; continue plate production.

FS = Fresh solvent

OS = Old solvent

## 6.6 “Tank to tank” operation (with distillation)

If the machine is operated with the tank-to-tank version, the sensors have the same function as in the drum-to-drum version. If the message FS – drum empty or OS – drum full appears on the display, the levels in the tanks must be checked and acted on accordingly

**Important:** The sensors delivered as standard (float switches) must not be used in EX rooms. Please consult with DuPont beforehand.

## 7. Information for equipment maintenance

### 7.1 Type and frequency of inspections / operator - daily

Service plan Smart Processor	every day	every week	every month	every quarter	every year	every 2 years
brush holes dirty?	<b>P</b>					
filter sock	<b>T</b>					
tank strainer	<b>R</b>					
round wiper brushes soiled?						
deposits in tank?						
back cleaning pluses soiled?						
brush adjustment						
pump gaskets						
pump filter blocked?						
brush wipers						
sprockets						
brush bearings						
filter electrical box ventilator						
ventilation fan						

**P** = check and, if necessary, act,

**R** = clean,

**T** = replace.

### 7.2 Instructions for maintenance work

Turn off main switch!

Maintenance work that is not listed in the servicing plan may only be carried out by a service technician (or with prior consultation with the manufacturer)

Generally service work should take place if possible early Monday before the start of work. The machine is ventilated then and a minimal disturbance is taken into account.

Before and during the service work, the internal area of the machine is ventilated with the help of an additional fan. Good room ventilation must be ensured.

***For machines using per- and FLEXOSOL the following applies:***

***check per- and FLEXOSOL concentration with Drager tubes***

## **9. Information for emergencies**

### **9.1 Type of fire extinguishing equipment to use**

All conventional fire extinguishers can be used.

(see solvent safety data sheet)

### **9.2 Notes for rescue**

In case of solvent contact with the skin or eyes, proceed according to the safety requirements of the solvent manufacturer.