

# **GRAFMAC**



## **Maintenance Manual**

Thermal Processor

***W-PTP-32CDN / W-PTP-45CDN / W-PTP-53CDN***

PS Plate Processor

***W-PTP-32SN / W-PTP-45SN / W-PTP-53SN***

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## **1 Basic Maintenance Guidelines :**

- 1.1 Do not use sandpaper or grinders to remove stains or foreign objects from the Plate Processor.
- 1.2 During periodic replacement of the developer solution, use fresh water to wash away the residual solutions to prevent affecting the quality of the plates.
- 1.3 Use the Manual Mode to activate following functions to check if they are functioning normally.
  - Roller motor
  - Brush motor
  - Water washing system
  - Gum Switch
  - Dry fan and Heater
  - Developer circulating
- 1.4 Do not wear gloves during maintenance work to prevent from being caught in the Plate Processor.

## **2 Daily Maintenance :**

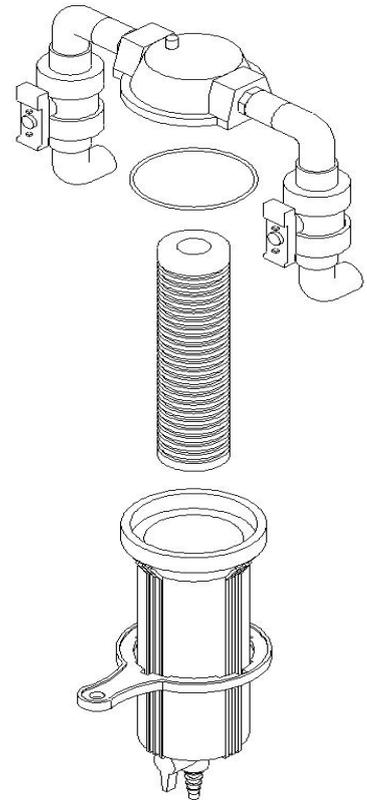
- 2.1 Wipe the plate feeder, upper cover, and the Plate Processor.
- 2.2 Use a clean, damp cloth to clean the rollers.
- 2.3 Check whether the quality of the developer solution has deteriorated.
- 2.4 Check whether the developer solution in the developer tank is sufficient.
- 2.5 Check whether the gum solution is sufficient.
- 2.6 Check whether the quality of the gum solution has deteriorated.
- 2.7 Check whether the concentration of developer solution in developer tank is acceptable.

**Note: When the upper cover is opened while the Plate Processor is operational, beware of the machine's standby operation. Keep fingers or sleeves away from the rollers to prevent accidents.**

### 3 Weekly Maintenance :

#### 3.1 Filter Replacement :

- 3.1.1 Turn off the power supply.
- 3.1.2 Close the valves at both sides of the filter enclosure to prevent the developer solution from flowing through the filter.
- 3.1.3 Place a container (capacity about 2 liters) under the filter drainage valve.
- 3.1.4 Open the drainage valve to drain the developer in the filter enclosure.
- 3.1.5 Remove the filter enclosure with the special filter wrench by turning it counterclockwise. Take care not to lose the O-ring when removing the filter.
- 3.1.6 Remove the used filter and insert a new one. Replace the filter enclosure to its original position. Before closing the enclosure, make sure that the O-ring is placed properly on the O-shaped receptacle, and the enclosure is sealed evenly to prevent leakage.
- 3.1.7 Open the valves on both sides of the filter enclosure to allow the developer solution to flow into the filter.  
**Note: The valves have to be completely opened; otherwise, the solution in the developer tank will not be able to circulate**
- 3.1.8 Turn on the power supply and start the Plate Processor. Check whether the developer solution has entered the filter enclosure. If necessary, press the red button on top of the filter to let air out and hasten the flow of the developer solution into the filter.
- 3.1.9 Check whether the developer solution in the developer tank is circulating. Observe for slight wave motions on the surface of developer solution to confirm circulation.
- 3.1.10 Filter replacement is now complete.



### 3.2 Developer Solution Replacement and Tank Cleaning:

3.2.1 Apart from inspecting its concentration daily, the developer solution should be replaced whenever necessary. (Referring to the chemical supplier)

3.2.2 Turn off the power supply.

3.2.3 Open the drainage valve at the bottom of the Plate Processor to drain the developer solution.



Chemical drainage valve

**Note: The developer solution should be drained in accordance with the safety information provided by the supplier and the safety standards guidelines prevailing in different countries.**

3.2.4 Wash the developer tank with fresh water and drain the water completely.

3.2.5 Remove the crystallized particles in all flexible pipes to prevent blockage of the drainage system.

3.2.6 Use the outlet valve at the lower part of the Plate Processor to completely drain the residual solution and the wastewater after cleaning.



Lowest chemical drainage valve

3.2.7 Use a clean towel to wipe the residual water inside the tank .

3.2.8 Remove the filter enclosure and the residual solution inside. (Replacement, for the steps to remove the filter enclosure.)

3.2.9 Close the drainage valve after cleaning to prevent leakage of developer solution.

3.2.10 Open the low level drainage valve to drain out the remnants of developer in the pipe. Close the valves after finished drainage.

3.2.11 Open the valves on both sides of the filter enclosure; otherwise, the solution in the developer tank will not be able to circulate.

3.2.12 Pour the newly mixed solution into the developer tank.

3.2.13 The capacity of the developer tank is 50 L.

3.2.14 After filling the developer tank, turn on the power supply and start the Plate Processor. Check for slight wave motions on the surface of the developer solution. Check for developer solution inside the filter enclosure to verify whether the developer solution is circulating normally.

3.2.15 Wait for the developer temperature to heat up or cool down to the operational temperature. The replacement of the developer solution is now complete.

## 4 Other Maintenance

### 4.1 Cleaning the Rollers

Roller cleaning can be executed following the period of developer changing. If there are crystallize or contaminate status occurred and affect the processing result, adjust the cleaning period as needed.

4.1.1 Turn off the power supply

4.1.2 Loosen the screws on the roller base. (see picture 1 , picture 2)

Picture 1 :



Picture 2:



Picture 3



4.1.3 Take out the upper-roller in chemical tank, then, take out the underside-roller. Put them smoothly. (see picture 3)

4.1.4 Hold the roller by one hand, and take out the base by the other hand. (picture 4, picture 5)

Picture 4 :



Picture 5:

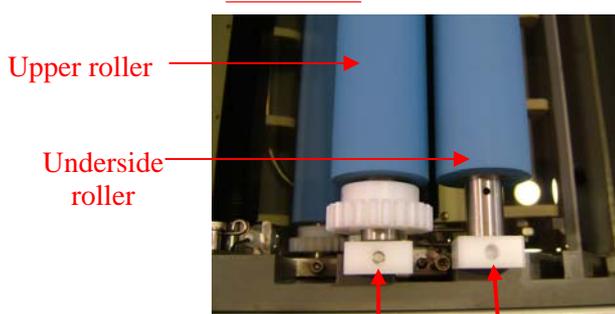


4.1.5 Take apart each roller sets according to the above mentioned instruction, use a mild liquid detergent to clean each roller assembly; rinse the roller assemblies with fresh water. After cleaning, reassemble each set of rollers to its original form.

Note: (1). After assemble the rollers and roller bases, the holes in roller base should be in the right direction. (see picture 7)

(2). The roller set which with a red ring (see picture 8) should be put in the last position (dry section) and the one should be in the under.

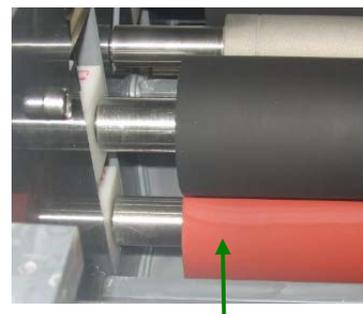
Picture 7 :



Upper roller base,  
Small hole upward , big  
hole downward.

Underside roller,  
Small hole downward , big  
hole upward.

Picture 8

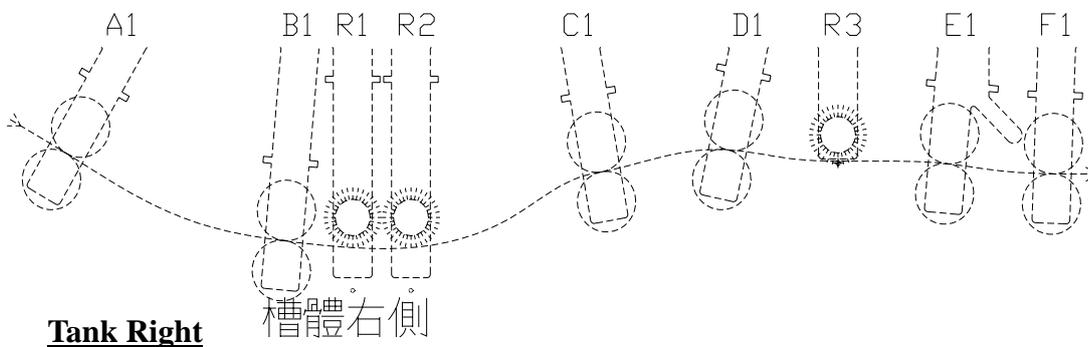
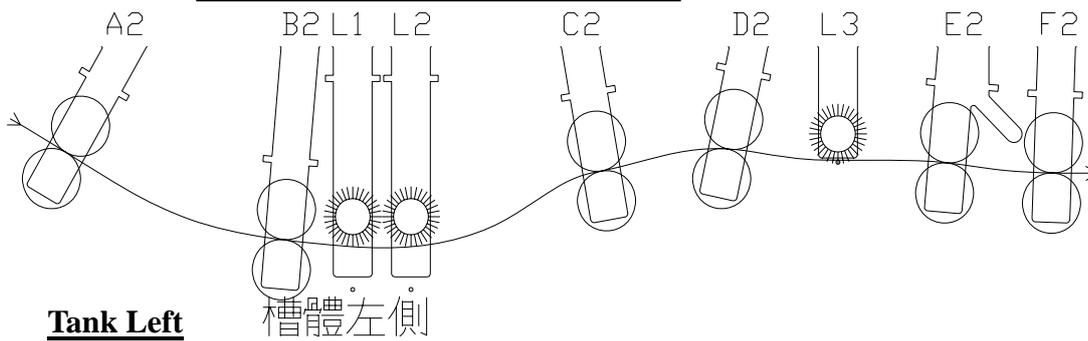


Red roller should be put in the last  
situation and in underside.

Picture 6 :



Each roller set roller and connector has its own corresponding number

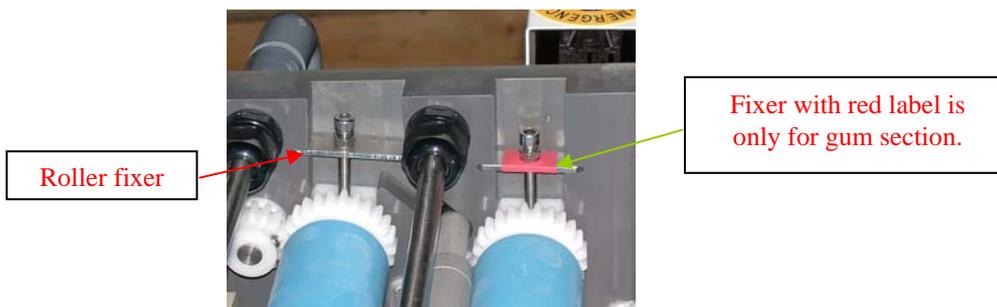


Roller sets are put in order; please check it by the above list before operation. (see picture 6)

**The first brush in develop tank (R1 & L1) is for CTP only.**

NO.	Description	NO.	Description
A1, A2	First roller set	D1, D2	4 <sup>th</sup> roller set (wash-section)
B1, B2	2 <sup>nd</sup> roller set	R3, L3	Wash brush
R1, L1	Dev. Brush 1	E1, E2	5 <sup>th</sup> roller set (wash section)
R2, L2	Dev. Brush 2	F1, F2	6 <sup>th</sup> roller set (gun section)
C1, C2	3 <sup>rd</sup> roller set (dev. tank)		

- 4.1.6 Turn the adjustment screw on top of the roller base to tighten until the tip of the screw just touches the lock; turn the screw halfway round to tighten.
- 4.1.7 Let two persons catch the upper galvanized iron axel of the assembled roller simultaneously using the J-shaped wrench, lift the rollers up with synchronized motion and replace them to their original positions tank. Make sure that the gears connect to each other perfectly.
- 4.1.8 Turn on the power supply and start the Plate Processor. Check whether the Plate Processor is running normally.
- 4.1.9 The adjustment screw on the roller base can be used to adjust the proximity of the upper and lower rollers. If the rollers are unable to squeeze water properly, there are two possibilities:
1. The screw adjustment might be too tight, and the pressure on both sides of the rollers is significantly larger than that on the middle section. If there are unequal pressures on the rollers, the water squeezing function will not be good. Loosen the adjustment screw and screw it until the tip touches the lock; turn the screw halfway round to tighten.
  2. The screw adjustment might be too loose, and there is gap between the rollers. Tighten the screw by small increments. Check whether the result of water squeezing has improved, and decide whether to tighten or loosen the screw.
- 4.1.10 Finished roller set cleaning. ◦



#### 4.2 Cleaning the Brush Rollers set:

- 4.2.1 Use Hex Wrench to loosen the screws on the fixer and take out them. (picture 1) ◦
- 4.2.2 Take out the brush from the slot and put them in a flat surface carefully. [Picture 1](#) :
- 4.2.3 Each roller set takes off according to the above mentioned step, washed by detergent and washing by clean water. After finishing the all steps, put the all brush sets back to the



original sites.

Attention: if the pressure of the brushes need to adjust, please use Hex Wrench and 10mm thickness Open-End Wrench to loosen the upper and the lower adjustment screw nut. (Please refer to picture 2 and picture 3)

Picture 2 :



Picture 3 :



#### 4.3 Cleaning and Maintaining the Gum Solution Tank:

- 4.3.1 Clean the gum solution tank with fresh water, and drain the water out of the Plate Processor.
- 4.3.2 Remove the metallic mesh of gum solution tank. Clean it with fresh water and check whether there is any obstruction in the mesh holes. After cleaning, replace the mesh to its original location.
- 4.3.3 Turn on power supply and start the Plate Processor. Use Manual Mode to start the gum circulating pump and check whether the gum solution is being sprayed normally.

#### 4.4 Maintenance of Transmission Parts:

- 4.4.1 Remove the covers on both sides of the Plate Processor. Check whether the transmission chains of the rollers and brush are loose. If they are loose, use the idle pulley to adjust them for proper tightness.
- 4.4.2 Apply a small amount of lubricant on the chains of the rollers and brush

#### 4.5 Clean the water pipe and hose with clean agent.

- ※ **Use fine sand paper processing on the guide plate** : use 400# sand paper for first processing step. Than use 1200# for second processing step. **It's important to prevent the guide plate occurred with scratch on plate back.**

# 5 Maintenance check list:

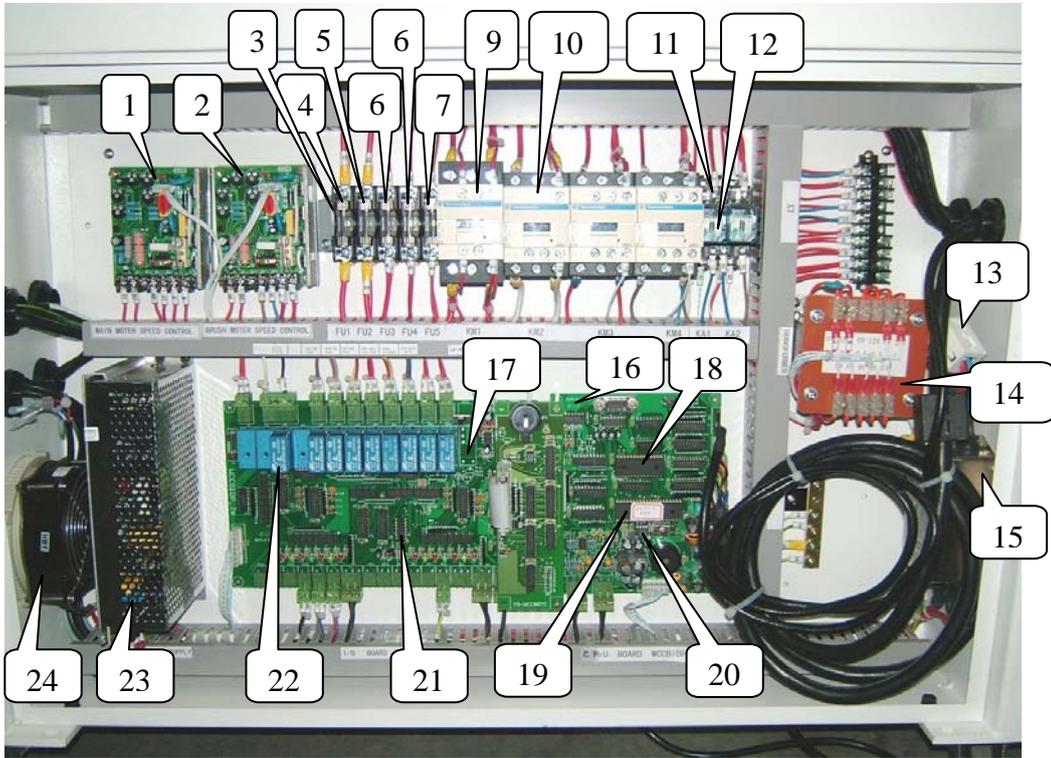
Maintenance check list

Check frequency	subject	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Remark		
Daily	Check developer replenish tank quantity																																		
Daily	Check gum tank quantity																																		
Daily	Check water inlet valve and pressure motor																																		
Daily	Check power supply for conveyor and stacker																																		
Daily	check chiller switch																																		
Daily	Power on replenishment function executing exactly?																																		
Daily	Accumulation of processed plate number? (power on)																																		Record the number
Daily	Check set value of developing temperature & pre-heat temperature?																																		
Daily	Result of first processed plate?																																		
Daily	Check processing result every two hours																																		Record the number
Daily	Developer PH value parameter?																																		
Daily	Clean gum roller																																		
Weekly	Clean roller																																		
Weekly	Chain & gear & bearing lubrication																																		
Weekly	Replace new filter																																		Replace after 800m processing
Monthly	Machine cleaning																																		
Monthly	Replace new gum																																		
Monthly	Replace new developer (according to supplier)																																		
Monthly	Chilling water replacement (3.5L)																																		
Nonscheduled	Plate jam occurred?																																		Record the number
Nonscheduled	Abnormal processing result?																																		Record the number
	Authorized																																		

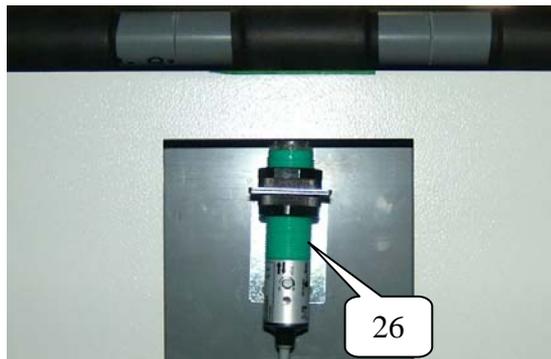
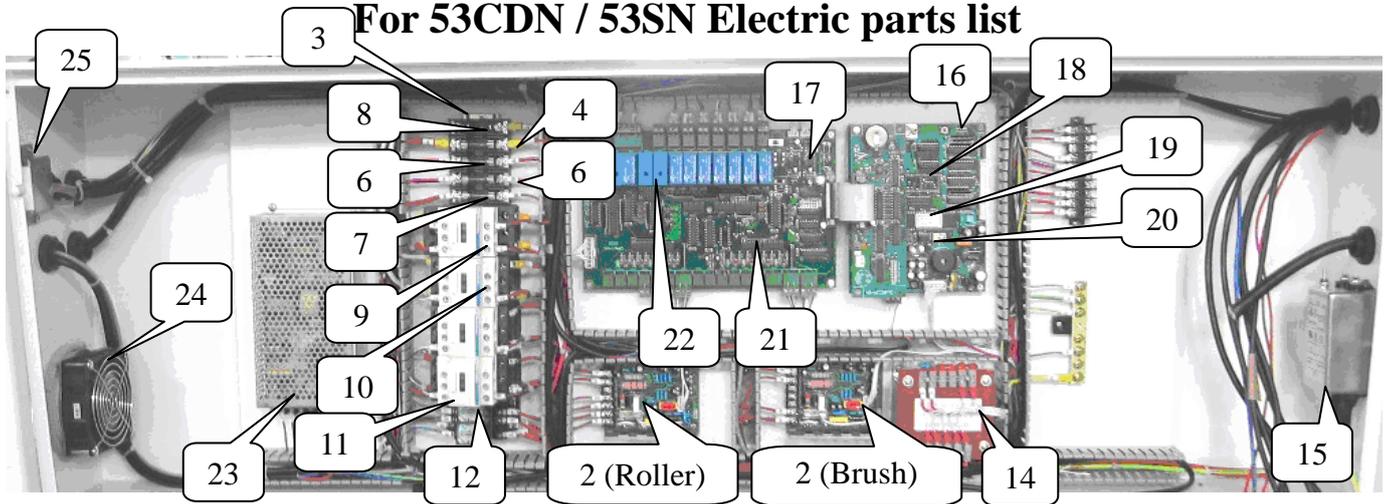
## 6 Assembly and Parts List :

### 6.1 Electric parts

#### For 32 / 45CDN, 32 / 45SN Electric parts list

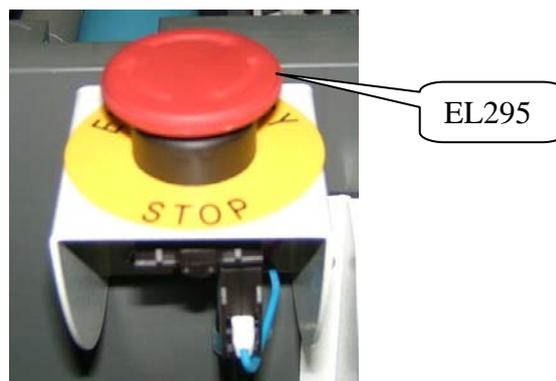
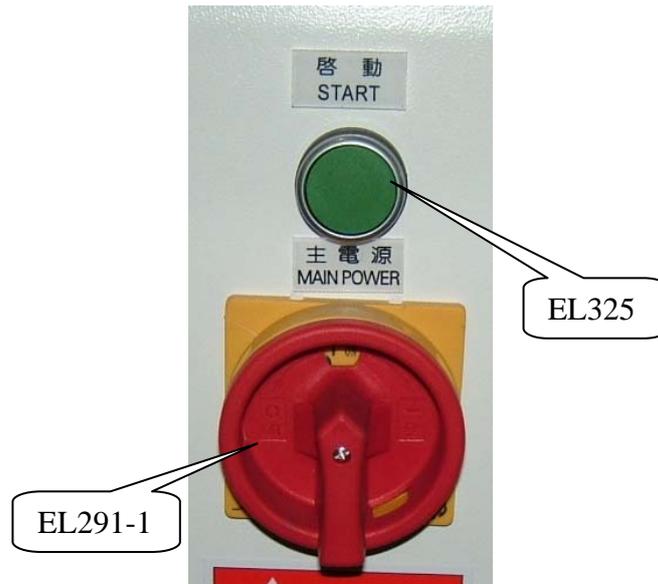


#### For 53CDN / 53SN Electric parts list



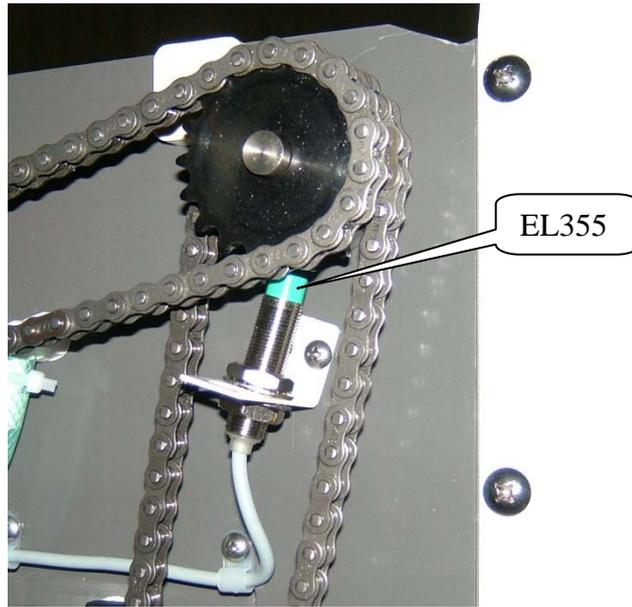
Item	Part number	Part name	Quantity	Remark
01	EL350	Drive board (GR-MIC9A-180C) 65W		
02	EL354	Drive board (GR-MIC9A-180D) 100W		
03	EL065-1	Fuse socket (rail type) 2P	3	
04	EL385	Fuse 25A 30mm	1	
05	EL064	Fuse 20A	1	
06	EL066	Fuse 10A	2	
07	EL386	Fuse 5A 30mm	2	
08	EL956	Fuse 30A 30mm	1	
09	EL294	Magnetic contactor 220V CN-25 (TAIAN)	1	
10	EL871	Magnetic switch DC24V (LC1YD096)	3	
11	EL370	Relay socket 8P (finder) 94.82	2	
12	EL369	Relay DC24V 8P (finder)	2	
13	PS0613	<b>Transient Voltage Surge Suppressors</b> (power core)	2	
14	EL367	Transformer 12V/20V/15V±9V	1	
15	EL689-1	Filter 250V/30A 30DBCS5B	1	
16	EL371	CPU board	1	
17	EL372	IO board	1	
18	EL388	IC (27C512)	1	CPU board,U3,28pin
19	EL732	IC (W77E58-40)	1	CPU board,U1,40pin
20	EL931	IC (93C66)	1	CPU board,U6,8pin
21	EL387	IC (PIC16C505)	1	I/O board,U9,14pin
22	EL403	Relay 24TBU-5 DC24V	9	
23	EL460-1	Power supplier 220V (input) DC24V (output)	1	
24	PS1095	Fan (AC220V)	1	
25	EL700	Interlock	1	
26	EL356	Sensor 18mm (DR2N2-10)	2	

## 6.2 Switch and button



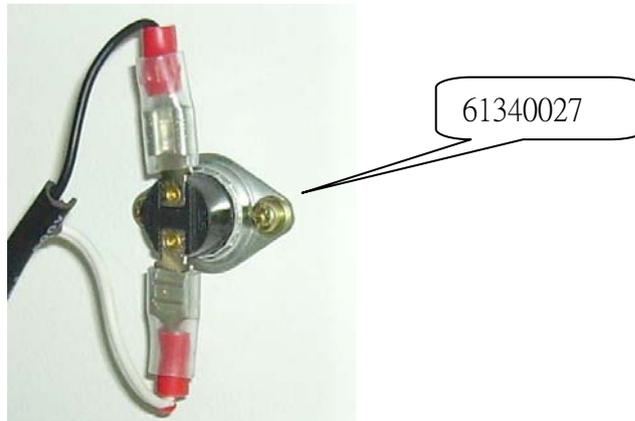
Item	Part number	Part name	Quantity	Remark
01	EL291-1	Main switch (CQ0120001KL6) 16A 690V (red-yellow color)	1	
02	EL295	Emergency stop (RPV/EK01×2)	2	
03	EL325	Button (22mmRD-X/KE01×1) (Green color)	1	
04	EL360	Switch RLWK1R-GN/EK10/GLI30	2	

### 6.3 Proximity sensor



Item	Part number	Part name	Quantity	Remark
01	EL355	Proximity sensor 12mm (TLX-12GN04E1)	1	

### 6.4 Overheat protection device



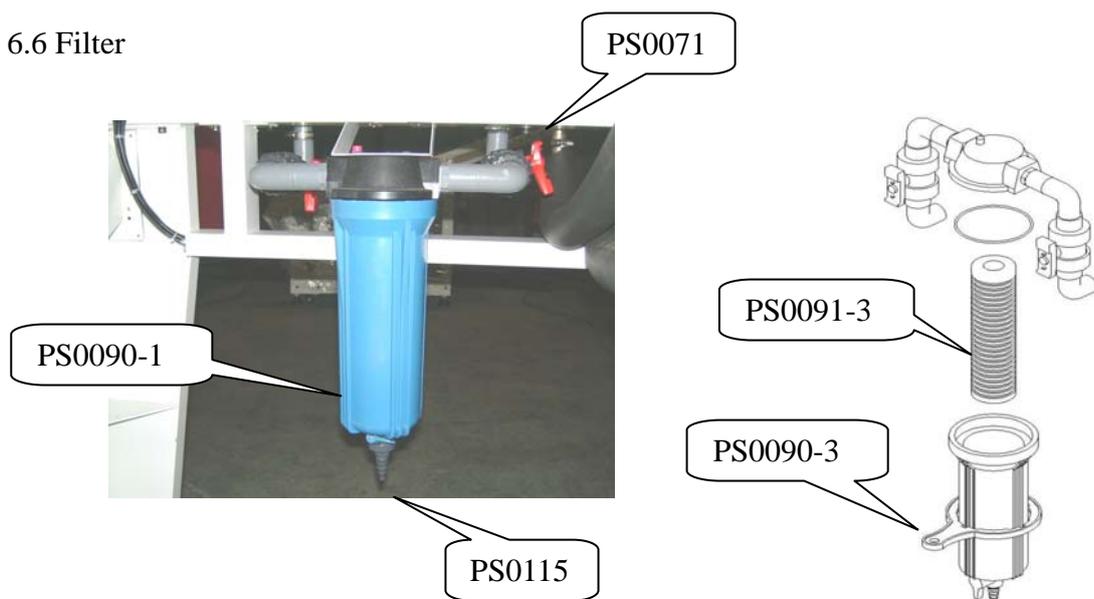
Item	Part number	Part name	Quantity	Remark
01	61340027	Overheat protect switch (95°C)	1	

## 6.5 Control panel



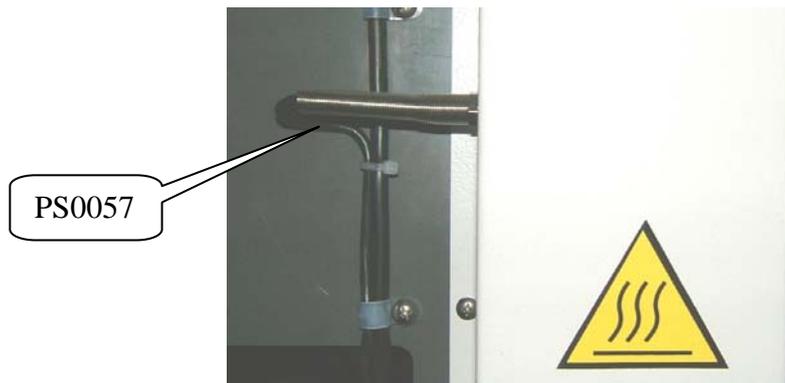
Item	Part number	Part name	Quantity	Remark
01	EL958	Keypad	1	
02	EL374	LCD monitor 128x64dots 93x70mm	1	

## 6.6 Filter



Item	Part number	Part name	Quantity	Remark
01	PS0090-3	Filter enclosure wrench	1	
02	PS0071	Valve		
03	PS0090-1	Filter enclosure	1	
04	PS0091-3	Filter		
05	PS0115	Drainage valve	1	

### 6.7 Temperature sensor (for dryer)



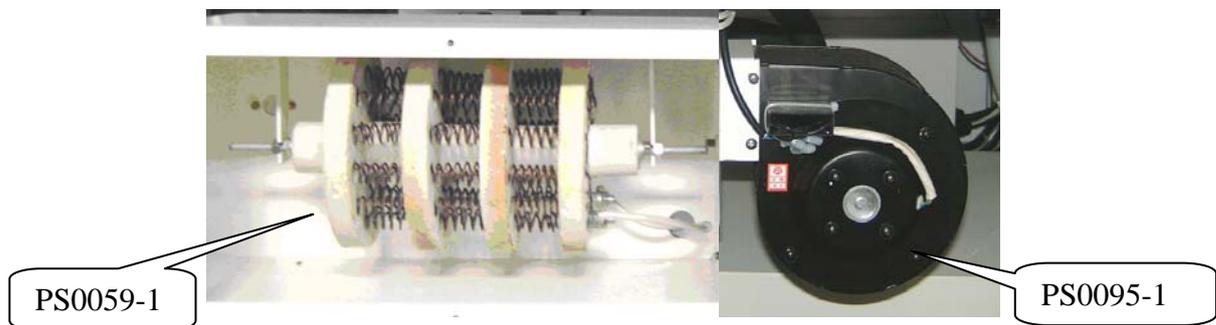
Item	Part number	Part name	Quantity	Remark
01	PS0057	Temperature sensor (for dryer)	1	

### 6.8 Heater (developer tank)



Item	Part number	Part name	Quantity	Remark
	PS0404	Heater (dryer) 220V 1200W	1	For 32 / 45CDN
	KPS0172	Heater (dryer) 220V 2000W	1	For 53CDN

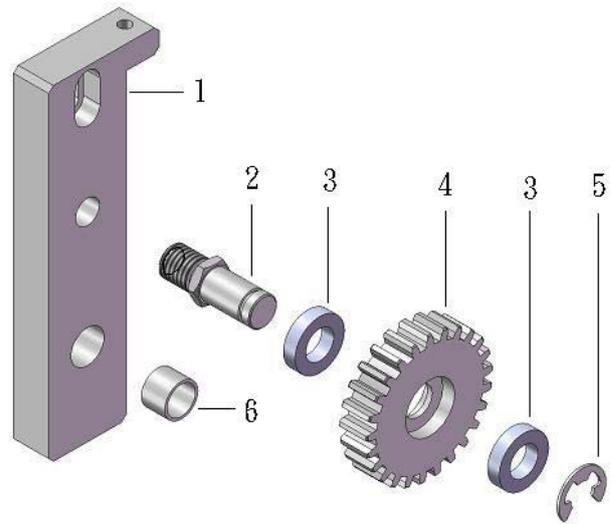
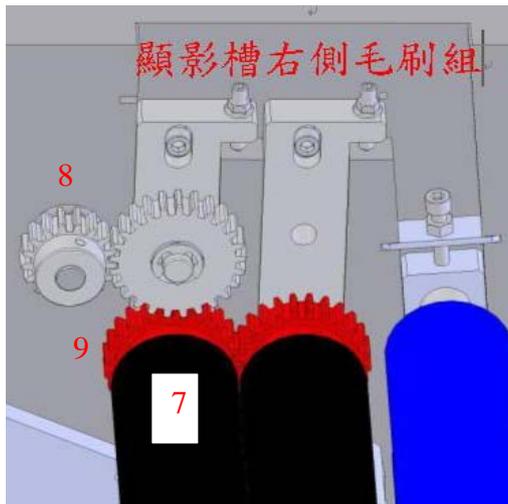
### 6.9 Dryer fan heater and Fan



Item	Part number	Part name	Quantity	Remark
01	PS0059-1	Dryer Fan heater, 220V, 4000W	1	
02	PS0095-1	Fan 220V	1	

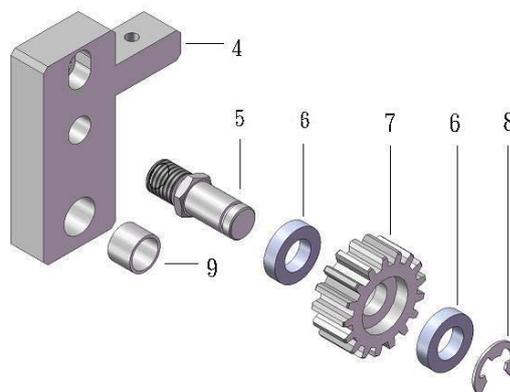
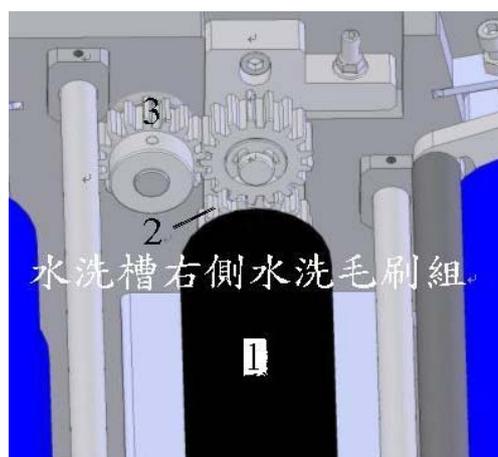
## 6.10 Brush set

### 6.10.1 Developer brush (Right side)



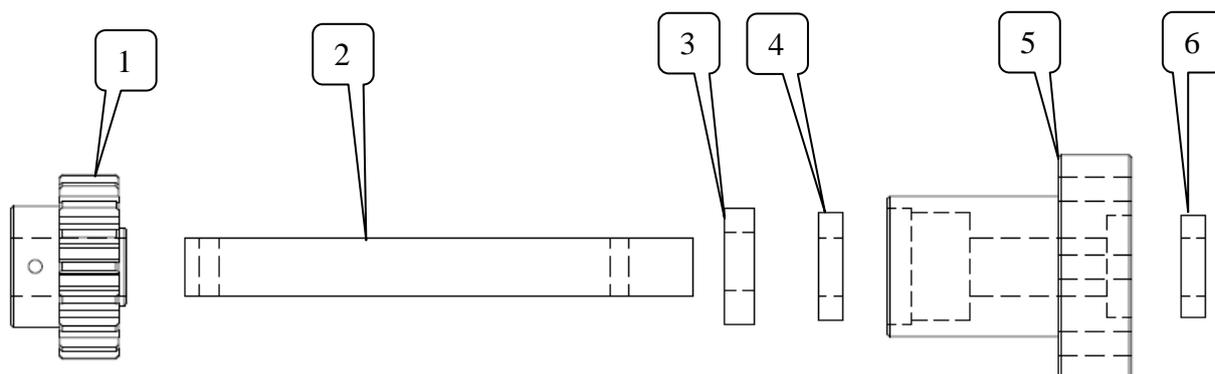
Item	Suit for (CTP)	Suit for (PS)	Part No.	Part Name	QTY	Remark
1	all	all	KPS0176	Brush connector (left)	2	
			KPS0177	Brush connector (right)		
2	32 / 45CDN	32 / 45SN	KPS0045	Idle wheel fix bolt	1	
	53CDN	53SN	KPS0164	Idle wheel fix bolt	1	
3	all	all	PS0301	Bearing # 6801 (12215)	2	
4	32 / 45CDN	32 / 45SN	KPS0048	Gear (M2 · 25T)	1	
	53CDN	53SN	KPS0167	Gear (M2 · 25T)	1	
5	all	all	PS0081	E10 (E shape pin)	1	
6	all	all	PS0368	Carbon bearing	1	
7	32CDN	32SN	PS0351	Brush (Ø50)	2	(1)
	45CDN	45SN	PS0334	Brush (Ø50)	2	(1)
	53CDN	53SN	PS1533	Brush (Ø50 soft)	2	
8	32 / 45CDN	32 / 45SN	PS0449	Gear (M2 17T)	1	
	53CDN	53SN	KPS0144	Gear (M2 20T)	1	
9	32 / 45CDN	32 / 45SN	PS0398	Gear (M2 25T)	1	
	53CDN	53SN	KPS0165	Gear (M2 25T)	1	

### 6.10.2 Washing brush (Right side)



Item	Suit for (CTP)	Suit for (PS)	Part No.	Part Name	QTY	Remark
1	32CDN	32 / 45SN	PS0351	Brush (Ø50)	1	
	45CDN	32 / 45SN	PS0334	Brush (Ø50)	1	
	53CDN	53SN	PS1532	Brush (Ø50 hard)	1	
2	32 / 45CDN	32 / 45SN	PS0399	Gear (M2 17T)	1	
	53CDN	53SN	KPS0162	Gear (M2 17T)	1	
3	32 / 45CDN	32 / 45SN	PS0449	Gear (M2 17T)	1	
	53CDN	53SN	KPS0144	Gear (M2 20T)	1	
4	all	all	KPS0178	Brush connector (left)	2	
			KPS0179	Brush connector (right)		
5	32 / 45CDN	32 / 45SN	PS0300	Idle wheel fix bolt	1	
	53CDN	53SN	KPS0164	Idle wheel fix bolt	1	
6	all	all	PS0301	Bearing (6801SUS)	2	
7	32 / 45CDN	32 / 45SN	PS0302	Gear (M2 17T)	1	
	53CDN	53SN	KPS0163	Gear (M2 17T)	1	
8	all	all	PS0081	E10 (E shape pin)	1	
9	all	all	PS0368	Carbon bearing	1	

### 6.11 Roller transmission set



Item	Suit for (CTP)	Suit for (PS)	Part No.	Part Name	QTY	Remark
1	32 / 45CDN	32 / 45SN	KPS0127	Gear wheel (M2 15T)	1	
	53CDN	53SN	KPS0144	Gear wheel (M2 20T)	1	
2	32 / 45CDN	32 / 45SN	KPS0123	Axle	1	
	53CDN	53SN	KPS0143	Axle	1	
3	32 / 45CDN	32 / 45SN	PS0635	Bearing #SS6901	1	
	53CDN	53SN	42070004	Bearing #6903	1	
4	32 / 45CDN	32 / 45SN	PS0306	Seal #12227	1	
	53CDN	53SN	PS0751	Seal #17276	1	
5	32 / 45CDN	32 / 45SN	KPS0122	Axle fixing	1	
	53CDN	53SN	KPS0142	Axle fixing	1	
6	32 / 45CDN	32 / 45SN	PS0267	Bearing #SS6801 (12215)	1	
	53CDN	53SN	42070007	Bearing #6903	1	

### 6.12 Auto-filling pump



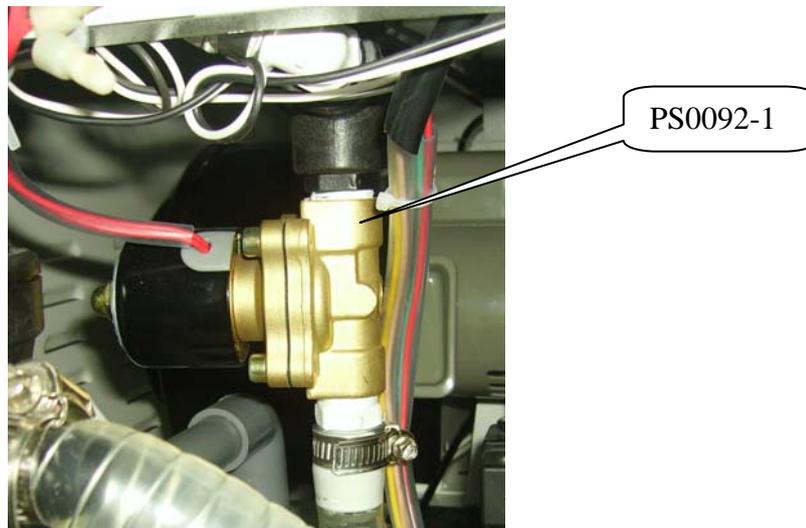
Item	Part number	Part name	Quantity	Remark
01	PS0443-1	Auto filling pump		

6.13 Solenoid valve (water inlet)



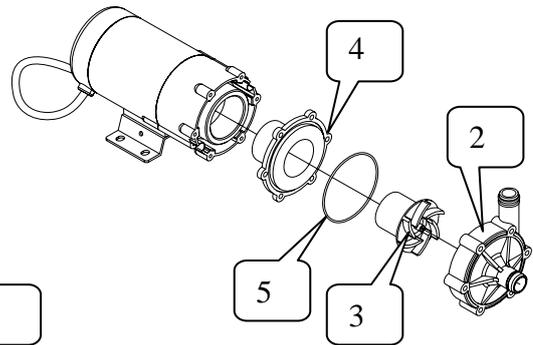
Item	Part number	Part name	Quantity	Remark
01	PS0092-A	Solenoid valve 220V 0.5-10BAR		

6.14 Solenoid valve (gum recycle)



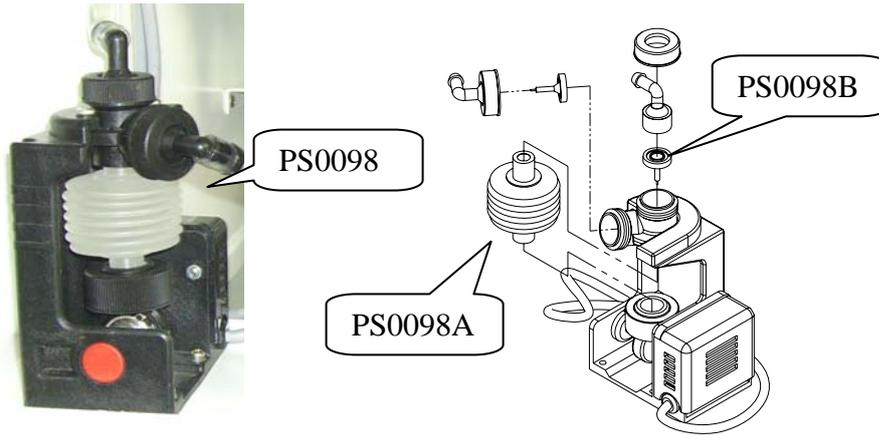
Item	Part number	Part name	Quantity	Remark
01	PS0092-1	Solenoid valve 220V 0-5BAR		

## 6.15 Circulation pump



Item	Suit for (CTP)	Suit for (PS)	Part No.	Part Name	QTY	Remark
1	32CDN	32SN	PS0096	Circulation pump (MD-20R) 220V	1	
	45 / 53CDN	45 / 53SN	PS0171	Circulation pump (MD-30R) 220V	1	
2	32CDN	32SN	PS0096A	Front set (MD-20R)		
	45 / 53CDN	45 / 53SN	TEMP0842	Front set MD-30R )		
3	32CDN	32SN	PS0096B	Propeller (MD-20R)		
	45 / 53CDN	45 / 53SN	TEMP0844	Propeller MD-30R )		
4	32CDN	32SN	PS0096C	Cover (MD-20R)		
	45CDN	45 / 53SN	TEMP0843	Cover (MD-30R )		
5	32 / 45CDN	32SN	PS0096D	Packing (MD-20R)		
	53CDN	45 / 53SN	TEMP0845	Packing (MD-30R )		

### 6.16 Bellows pump



Item	Part number	Part name	Quantity	Remark
01	PS0098	Bellows pump (KBA-3XBU3) 220V	2	Gum & Developer replenish
02	PS0098A	bellows		
03	PS0098B	Piston		

- \* Both 32 / 45CDN , 32 / 45SN use PS0098 Bellows pump
- 53CDN / 53SN Developer replenish use PS0098 Bellows pump ,
- Gum section use 62900002 Bellows pump (DS-2PU2) .

### 6.17 Drive motor



For 32 / 45CDN, 32 / 45SN :

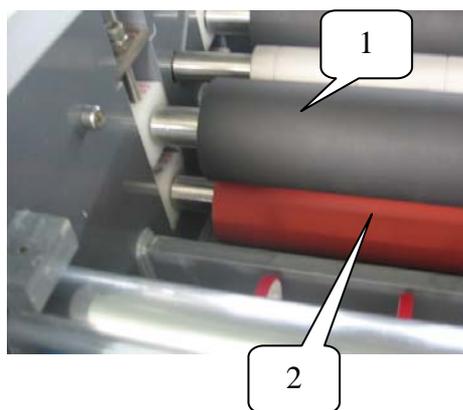
Item	Part number	Part name	Quantity	Remark
01	PS0100-1	DC motor GR-10SGN-11 180V 1800RPM 65W	1	
02	PS0101-5	Decelerate device 5GN 60K	1	
03	PS0172	DC motor GR -M29SGS 180V 1800RPM 100W	1	
04	PS0377	Decelerate device 5GS 10K	1	

For 53CDN / 53SN :

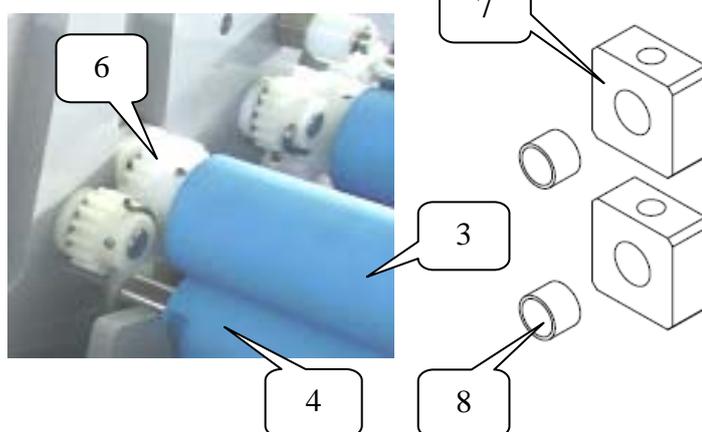
Item	Part number	Part name	Quantity	Remark
01	PS0172	DC motor GR-M29SGS 180V 1800RPM 100W	1	
02	PS0101-2	Decelerate device 5GS 120K	1	
03	PS0172	DC motor GR-M29SGS 180V 1800RPM 100W	1	
04	PS0377	Decelerate device 5GS 10K	1	

## 6.18 Transmission (gumming) roller set

### Gumming roller set



### Transmission roller set



Item	Suit for (CTP)	Suit for (PS)	Part No.	Part Name	QTY	Remark
1	32CDN	32SN	PS0402	Robber roller ( heavy )	1	
	45CDN	45SN	PS0515	Robber roller ( heavy )	1	
	53CDN	53SN	PS1530	Robber roller	1	
2	32CDN	32SN	PS0670	Robber roller ( heavy )	1	For gumming
	45CDN	45SN	PS0672	Robber roller ( heavy )	1	For gumming
	53CDN	53SN	PS1531	Robber roller ( heavy )	1	For gumming
3	32CDN	32SN	PS0402	Robber roller ( heavy )	1	
	45CDN	45SN	PS0515	Robber roller ( heavy )	1	
	53CDN	53SN	PS1530	Robber roller	1	
4	32CDN	32SN	PS0122	Robber roller ( light )	1	
	45CDN	45SN	PS0515	Robber roller ( heavy )	1	
	53CDN	53SN	PS1530	Robber roller	1	
5	32 / 45CDN	32 / 45SN	KPS0127	Gear wheel (M2 15T)	1	
	53CDN	53SN	KPS0144	Gear wheel (M2 20T)	1	
6	32 / 45CDN	32 / 45SN	PS0398	Gear wheel (M2 25T)	1	
	53CDN	53SN	KPS0146	Gear wheel (M2 29T)	1	
7	32 / 45CDN	32 / 45SN	KPS0139	Roller connector	1	
	53CDN	53SN	KPS0147	Roller connector	1	
8	all	all	PS0368	Carbon bearing	1	

6.19 Temperature sensor(developer tank)



Item	Part number	Part name	Quantity	Remark
01	PS0156	Temperature sensor-developer		

6.20 Level sensor (down)



Item	Part number	Part name	Quantity	Remark
01	PS0328	Level sensor (RF-OH31)	1	

6.21 Level sensor (up)



Item	Part number	Part name	Quantity	Remark
02	PS0350	Level sensor	1	

6.22 Chiller (optional for W-PTP-32SN / W-PTP-45SN / W-PTP53SN)



Item	Part number	Part name	Quantity	Remark
01	PS0683	Chiller		

## **7 Service Contact Information :**

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