



# PHARMA DEVILS

PRODUCTION DEPARTMENT

## STANDARD OPERATING PROCEDURE

**Title:** Procedure for Operation and Cleaning of Rotary Bottle Washing Machine

<b>SOP No.:</b>		<b>Department:</b>	Production	
		<b>Effective Date:</b>		
<b>Revision No.:</b>	00	<b>Revision Date:</b>		
<b>Supersede Revision No.:</b>	Nil	<b>Page No.:</b>	1 of 5	

### 1.0 OBJECTIVE:

To lay down a procedure for operation and cleaning of Rotary Bottle Washing Machine.

### 2.0 SCOPE:

This SOP is applicable for operation and cleaning of Rotary Bottle washing machine.

### 3.0 RESPONSIBILITY:

Officer / Executive- Production

### 4.0 ACCOUNTABILITY:

Head Production

### 5.0 ABBREVIATIONS:

PL            Production Liquid  
SOP         Standard Operating Procedure

### 6.0 PROCEDURE:

#### 6.1 OPERATION:

- 6.1.1 Before starting the operation activity, ensure that the bottle washing machine and surrounding area is clean and get the line clearance from QA.
- 6.1.2 Set the height of the machine as per bottle size, set the nozzles in the machine.
- 6.1.3 Open the valves of Purified water & airline and fill the both tank with purified water.
- 6.1.4 Check the LLC (Liquid Level Controller) is working properly.
- 6.1.5 Switch ON the MCB of main power supply and then switch on the main switch of the machine and Start the machine by pressing 'ON' switch (Green), adjust the machine speed by MACHINE SPEED rotating knob.
- 6.1.6 Start the heater ON/OFF switch and set the required temperature of hot water and wait for achieving the set temperature shown in display.
- 6.1.7 'ON' the purified water pump by pressing 'ON' switch (Green), Start the pumps one by one with the help of PUMP-I and PUMP-II selector switch and set the purified water pressure as per required pack size.
- 6.1.8 Start the air and adjust the air pressure as per pack size by rotating solenoid valve.



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**6.1.9** Dry run the machine for and check the pressure of purified water and compressed air as per required pack size and ensure the alignment of water /Air nozzles in washing machine with respect to bottle shape and size to make sure the proper supply of purified water /Air from each nozzle at the start of the operation of batch and the activity shall be recorded in respective batch record

**6.1.10** Keep the bottle on the rotating indexing platform placed it an inverted position in the Bottle neck holder.

**6.1.11** Then, these bottles undergo washing treatment according to washing cycle with desired jet pressure (Water & Last air) respectively as per size of GLASS, PET & HDPE bottles:

**6.1.12** Then, these bottles undergo washing treatment according to washing sequence:

**First Wash Cycle:** Inner and Outer wash with re-circulated Purified water from Tank 2<sup>nd</sup>, washed water to be drained.

**Second Wash Cycle:** Inner wash with fresh hot Purified water from Tank-1<sup>st</sup>, washed water to be recycled in 2<sup>nd</sup> thank through 5 micron.

**Third Wash Cycle:** Inner wash with compressed Air.

### ❖ Bottle Washing Machine Standard Purified Water And Air Pressure Limit Table:-

S.No.	Bottle Volume (in ml)	Type of Bottle	Water Pressure (Kg/cm <sup>2</sup> )	Air Pressure (Kg/cm <sup>2</sup> )
1.	200	Pet	2.0 to 2.2	1.0 to 1.5
2.	100		1.6 to 1.8	1.0 to 1.5
3.	60		1.0 to 1.2	1.0 to 1.5
4.	30		0.6 to 1.0	1.0 to 1.5
5.	15		0.6 to 0.8	0.5 to 1.0
6.	100	Glass	1.6 to 2.6	1.5 to 2.5
7.	60		1.4 to 1.6	1.5 to 2.5
8.	30		1.4 to 1.6	1.0 to 2.0
9.	15		0.8 to 1.4	1.0 to 1.5
10.	5		0.6 to 1.2	0.5 to 1.0

**6.1.13** After completion of washing cycle remove the bottle from bottle holder and pass out to turntable, connected to conveyer belt of washing area.

**6.1.14** Inspect the washed bottles for Dent, de-shaped, molding defects and foreign particles in case of Pet bottles and in case of glass bottles crack's, broken pieces air bubbles, de-shaped , any foreign particles and collect the defected bottles in rejected crates lined with polybag with proper status labeling.



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<b>Supersede Revision No.:</b>	Nil	<b>Page No.:</b>	3 of 5	

**6.1.15** After final completion of the washing operation reconciled the defected bottles quantity by production and QA personnel and send it to scrap yard with proper status labeling and record the details in respective BPCR.

**6.1.16** Check the cleaning of all bottles (PET / Glass) visually passes through magnifying glass.

**6.1.17** After completion of work, 'OFF' the purified water pump by pressing Red switch and finally stop the machine by pressing Red stop switch 'OFF' machine.

**6.1.18** Maintain the machine operation record in Equipment log book as per current version of format.

### 6.2 CLEANING:

**6.2.1** Ensure that all electrical connection of machine shall be switch off.

**6.2.2** Open the outer covering of bottle washing machine.

**6.2.3** Collect the bottles of previous batch, Machine should be properly cleaned and free from previous batch bottles.

**6.2.4** Drain out of purified water from water tank.

**6.2.5** Dismantle the cartridge filter and clean it with running purified water by back flushing, Replacement frequency of the cartridge filter is half yearly, or as required.

**6.2.6** Scrub the washing tank, then push ON switch, of pump and fill the tank, again push OFF the switch of pump.

**6.2.7** Again drain out this purified water from tank with continues flushing of purified water till assuring the tank shall be properly cleaned.

**6.2.8** Again push ON switch of the tank to fill with purified water and push ON switch of the bottle washing machine to run washing jet, which will clean all inside surface of machine.

**6.2.9** Ensure that the bottle washing machine and its surrounding area is clean and dry after operation.

**6.2.10** Maintain the machine cleaning record in Equipment log book as per current version of format.

### 7.0 ANNEXURES:

ANNEXURE No.	TITLE OF ANNEXURE	FORMAT No.
Annexure-I	Flow Diagram of Washing Sequence	

**ENCLOSURES:** SOP Training Record



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<b>Supersede Revision No.:</b>	Nil	<b>Page No.:</b>	4 of 5	

### 8.0 DISTRIBUTION:

- Controlled Copy No. 01                      Quality Assurance
- Controlled Copy No. 02                      Production
- Master Copy                                      Quality Assurance

### 9.0 REFERENCES:

Manual

### 10.0 REVISION HISTORY:

#### CHANGE HISTORY LOG

Revision No.	Change Control No.	Details of Changes	Reason for Change	Effective Date	Updated By



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<b>Supersede Revision No.:</b>	Nil	<b>Page No.:</b>	5 of 5

### ANNEXURE-I FLOW DIAGRAM OF WASHING SEQUENCE

