

# BMIKOREA

Catalogue





## About BMI KOREA

Since our founding in 2002 with a philosophy of the respect for human dignity, BMI Korea has contributed to developing advanced washing machine for mineral water PC bottle.

As the result of efforts, we have designed new concept of washing machine for mineral water PC bottle by spraying rinsing water in a high pressure through specially designed nozzle. **HIGH PRESSURE WASHER** is designed to remove the contamination in the bottle at 99.9% and has been officially proven through the test with standard of global manufacturers of mineral water. In addition, we have developed **ODOR DETECTOR(SMELL SENSOR)** to judge the disuse the bottle any more. We expect **ODOR DETECTOR** substitutes the existing method that a human takes the smell with his nose.

To realize this philosophy, we have been made efforts for R&D and will make more efforts to supply the best quality of bottle washing machine in the world.



CEO LEE SANG KOO



MODEL	HPW-9	HPW-10	HPW-11	HPW-12	HPW-13	HPW-14	HPW-15
BPH	1800	2000	2200	2400	2600	2800	3000

## high pressure Washer

### Definition

High pressure washer is a device which washes pre-washing bottles inside using high-pressure perfectly. Outside washer is optional.

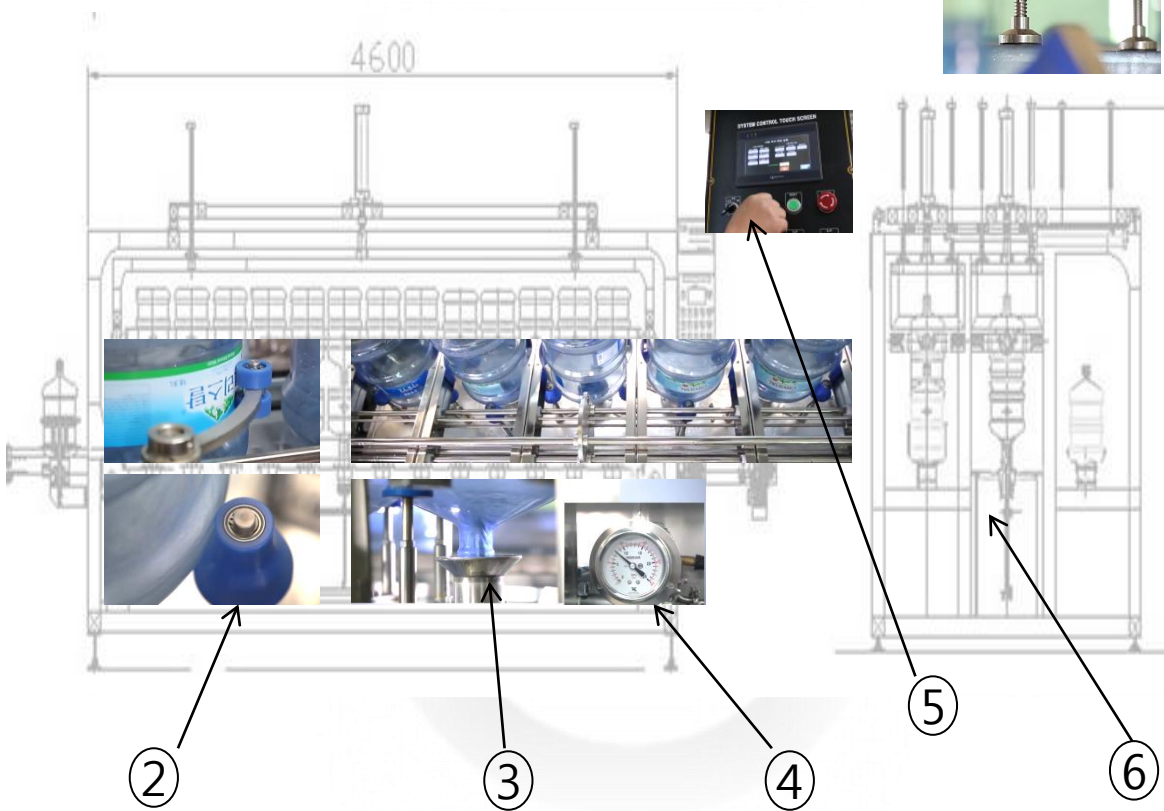
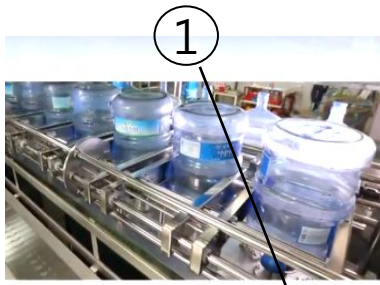
### Configuration

- Capacity : 400~3000BPH
- Motor Output : 10~40HP
- Voltage : 380V - 450V/220V, 50/60Hz
- Air: 5Kg/cm<sup>2</sup>
- Washing Time : 12 sec/Bottle(Adjustable)
- Washing water consumption: 2 liters per cycle bottle
- Sensor: Autonics, CARLO
- Pneumatic components: TPC, AIRTAC.
- Motor and gear box: SAMYANG, SITI
- Electronic components: LS Pump: INTERPUMP, UDOR

### Features

All stainless steel construction ( S.S. 304)by argon welding.  
Adjustable Nozzles up and down time and high pressure (70 bar above)  
Fully integrated control panel PLC control panel  
Automatic bottle loading and unloading  
Automatic washing/Low water consumption design

# Lay-Out



- 1. Bottle press guide
- 2. Bottle rolling guide
- 3. Bottle holder
- 4. High pressure gauge
- 5. PLC Controller
- 6. High pressure nozzle







MW-1



MW-2

Semi auto Washer

MODEL NAME	MW-1	MW-2
CAPACITY (BPH)	100	200

This Machine is designed to place the bottle by semi-auto in and out only. Automatically the bottles start rotating and nozzles up/down controls by PLC after PC bottle is placed to washing part. The nozzles are moved up and down in the bottle, and spray rinsing Water at a high pressure of 80bar. As you are aware of, PC bottle is easily contaminated with green algae and scale. Sometime it's contaminated with edible oil which is difficult to wash with the existing washing machine. Our High Pressure Washer can remove those of all contaminations up to 99.9%. Washing Capacity is 200bph for 2 side washer. The external washer is optional.

Specification

- 1. Air - 5Kg/cm2 2
- 2. Using 2 Ways High Pressure Jet Nozzles up and down
- 3. Washing Time: 12 sec/Bottle(Adjustable)
- 4. Washing Capacity: 200BPHcapacities
- 5. Tank Storage: 20L
- 6. Motor Output: 10HP
- 7. Pump Output: 80BAR ~
- 8. Voltage: 380V - 450V/220V, 50/60Hz
- 9. All stainless steel construction(S.S. 304 )
- 10. Semi-Automatic bottles loading and unloading

Advantages

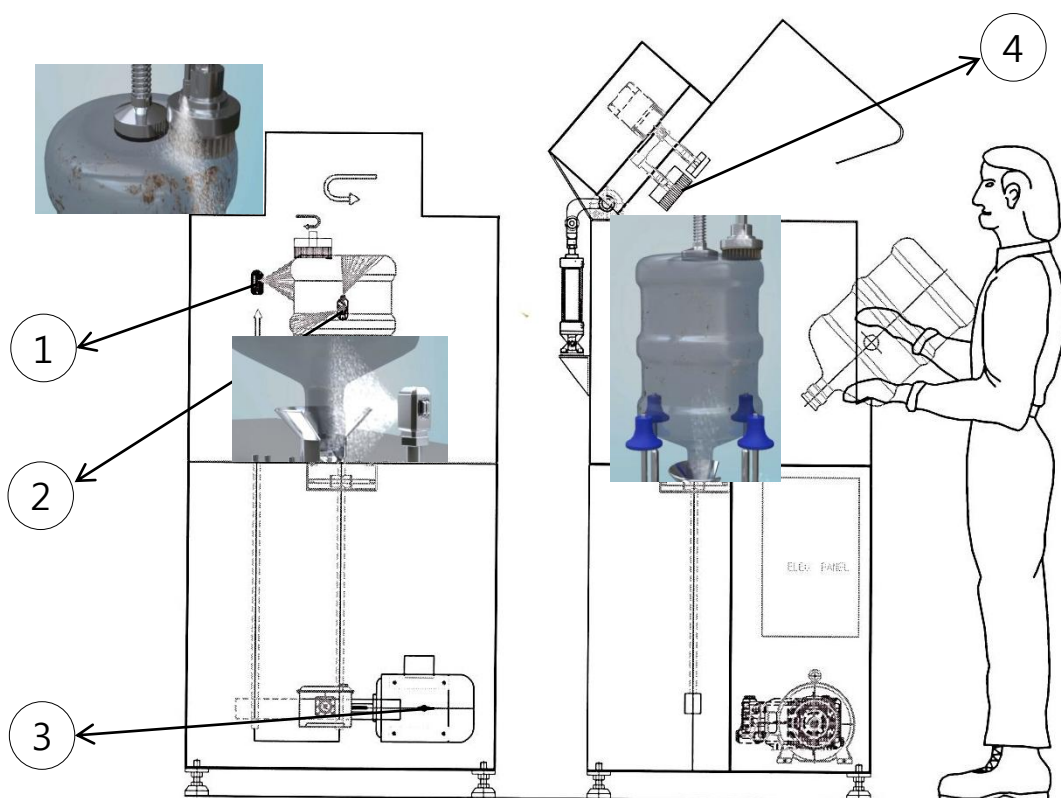
Controlled this machine by control panel  
Low water consumption washer design  
Easy maintaining and safety design



MWS-2

## LAYOUT (SEMI-AUTO)

1. Bottle outside washing nozzle
2. Bottle inside washing nozzle
3. High Pressure pump
4. Bottle outside washing brush





(작업사진)



MWT-1

### MANUAL(SEMI-OUTO) : Washing,Rinsing,Filling,Capping

세척(내,외부),행굼,충진,캡핑.겸용

This machine is semi-automatic with high pressure inside and outside  
In addition, after rinsing, rinsing, filling and capping,Designed.  
The production capacity of this unit is 60bph.

본 기계는 반 자동식으로 80bar의 고압으로 내,외부를 동시에 세척합니다.  
또한 세척후 행굼과,충진 그리고 캡핑까지 할수 있도록 설계되었습니다.  
본 장치의 생산 용량은 60bph입니다.

### Specification

1. Air - 5Kg/cm<sup>2</sup> 2
2. Using 2 Ways High Pressure Jet Nozzles up and down
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MODEL NAME

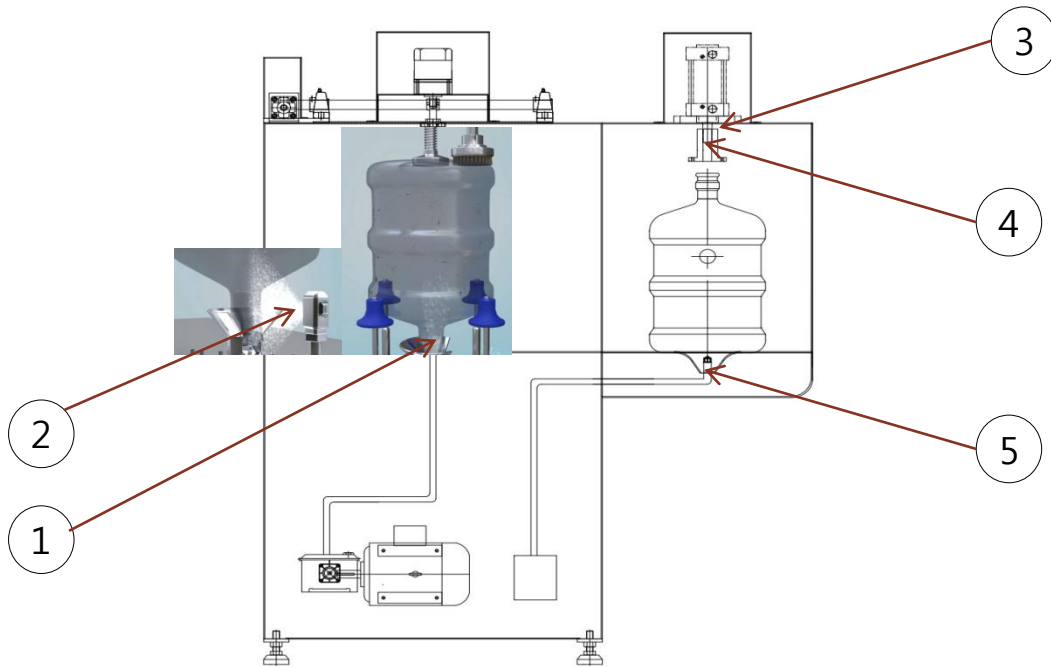
MWT-1

CAPACITY  
(BPH)

60

# MANUAL(SEMI-OUTO) : Washing,Rinsing,Filling,Capping 수동식(세척,행금,충진,캡핑겸용)장치

-Name and description of each part  
(각부명칭 및 설명)



1. Bottle inside high pressure Wsher(병 내부 고압세척)
2. Bottle Outside high pressure Wsher(병 외부 고압세척)
3. Filling(충진)
4. Capper(캡핑)
5. Rinsing(행금)





MODEL NAME	OD-3	OD-4	OD-5	OD-6	OM-7	OD-8
NO. of HEAD	3	4	5	6	7	8
CAPACITY (BPH)	1000	1400	1800	2200	2600	3000

## Odor Detector

### Definition

Bottles are reused after cleaning inside and outside of bottles. Sometimes, heavily contaminated bottles with gasoline, alcohol and etc return back to factory. Now most factories want to replace this task with a machine as soon as possible because they identify and classify the contaminated bottles as human's nose. In order to meet the request, this odor sensing machine is designed to identify the contaminated ones automatically .

### Configuration

- Automatic Processing
- Processing time : 2 Sec./Bottle
- Capacity: 300 ~ 3000 BPH
- Motor Output : 1HP
- Voltage: 380V - 450V/220V, 50/60Hz, Air-5Kg/cm2

### Advantages

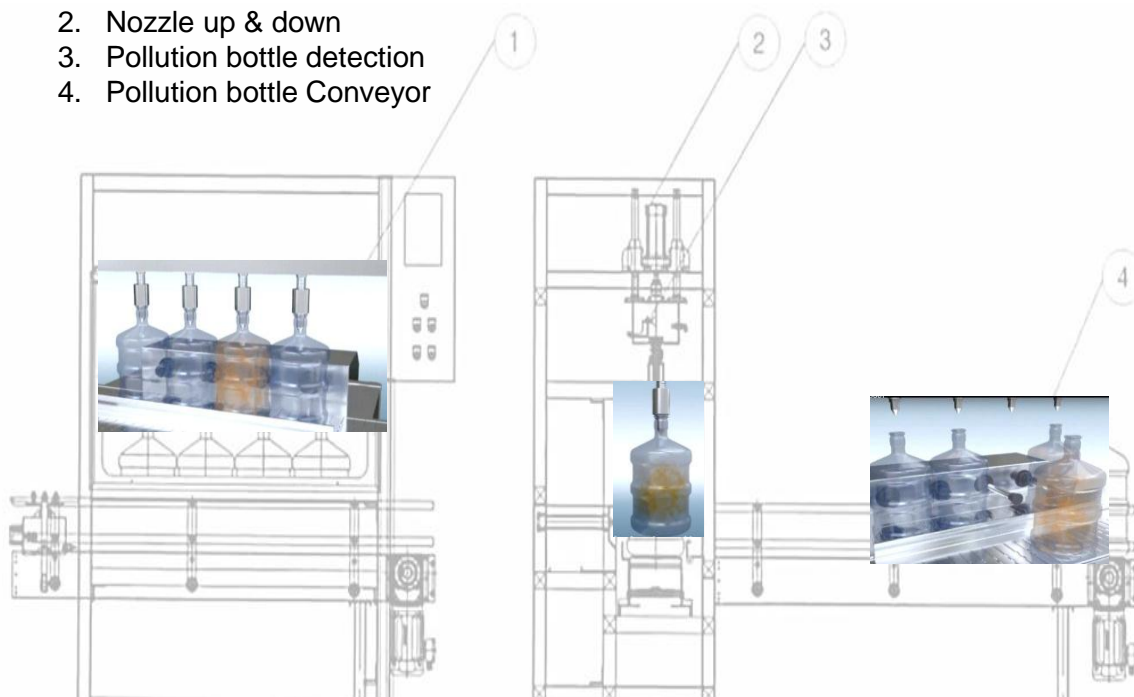
- Reasonable price
- Low cost maintenance, Only Sensors need to change every one year.
- Fully automatic control by PLC
- High efficiency

### Protection Contaminants

Sensitivity better than Benzene: 0.5ppm, Naphthalene 4 ppm, Ammonia: 0.05%, Ethanol(Alcohol) 2.5 ppm(About one drop in a bottle) Gasoline, Diesel, Benzene, Motor Oil, White Spirit Solvents: Acetone, Toluene, Color solvents, Ammonia NH3, Cigarettes, Garlic, Vinegar Soft Drinks, Cola, Lemmon, fruit juice Alcohol like Wine, fermented fruit juice, Beer, Glass cleaner, Washing products etc.

# Odor Detector Lay-Out

1. Contamination detection nozzle
2. Nozzle up & down
3. Pollution bottle detection
4. Pollution bottle Conveyor



Test Substance			volume	Package Size	result
Pex & Solvents	Alcohol	(알코올)	0.01mL	5Gllon Bottle	O.K
	Vinegar	(식초)	0.01mL	5Gllon Bottle	O.K
	Burned Oil	(가연성기름)	0.01mL	5Gllon Bottle	O.K
	WD-40	(부식윤활제)	Sprayed	5Gllon Bottle	O.K
	Naphthalene	(나프타렌)	1ball	5Gllon Bottle	O.K
	Acetone	(아세톤)	0.01mL	5Gllon Bottle	O.K
	Gasoline	(휘발유)	0.01mL	5Gllon Bottle	O.K
	Kerosene	(등유)	0.01mL	5Gllon Bottle	O.K
	Diesel	(경유)	0.01mL	5Gllon Bottle	O.K
NOx	Ammonia	(암모니아)	0.01mL	5Gllon Bottle	O.K
Cleaner	Cleaner	(다목적세척제)	0.1mL	5Gllon Bottle	O.K
	Glass Cleaner	(유리세척제)	0.1mL	5Gllon Bottle	O.K
	WC Cleaner	(화장실세척제)	0.1mL	5Gllon Bottle	O.K
	Drain Cleaner	(배수구세척제)	0.1mL	5Gllon Bottle	O.K
Other	Dry cigars	(담배공초)	1peice	5Gllon Bottle	O.K
	Garlic	(마늘조각)	1peice	5Gllon Bottle	O.K
	fermentation	(발효&김치류)	1peice	5Gllon Bottle	O.K
	Fishy	(생선류)	1peice	5Gllon Bottle	O.K
Flavor Product	Coca-Cola		10ml	5Gllon Bottle	O.K
	Fanta Orange		10ml	5Gllon Bottle	O.K
	Sprite		10ml	5Gllon Bottle	O.K
	Beer		0.01mL	5Gllon Bottle	O.K
	Apple Wine		0.01mL	5Gllon Bottle	O.K
	Red Wine		0.01mL	5Gllon Bottle	O.K
	White Wine		0.01mL	5Gllon Bottle	O.K
Insecticides	Insecticide	(살충제류)	Sprayed	5Gllon Bottle	O.K
	Herbicide	(제초제류)	0.1ml	5Gllon Bottle	O.K

[This is a test report for Removal of bottle inside contaminants in Korea]



MODEL NAME	CAPACITY(BPH)	No. of Head	DIMENSION(L*W*Hmm)
BG-3	1500	3	1040*520*2150
BG-4	2000	4	1310*520*2150
BG-5	2500	5	1580*520*2150
BG-6	3000	6	1850*520*2150

## De-capper

### Definition

To remove the cap from the recycled bottles, the whole process is full-automatic. De-Sleeve is a device for removing compression film and can be chose as optional.

### Configuration

- Capacity : 300 ~ 3000 bottles per hour(BPH)capacities
- Motor Output : 1HP
- Voltage : 380V - 450V / 220V, 50 / 60Hz
- Air – 5Kg / cm2
- Sensor: Autonics, CARLO
- Pneumatic component: TPC,
- Motor & Gear box: SAMYANG



(De-Caper)

### Features

- The position of de-capping cylinder can be adjustable to accommodate different height of bottle
- High accuracy, full-automation
- Optional no bottle, no de-capping; optional missing de-capping alarm.
- Mechanical arm puts the cap in container orderly
- The de-capping head is made by stainless steel SUS304, anti-corrosive
- Convenient for adjusting, maintenance and replacing



(De-Sleever)



MODEL NAME	CAPACITY(BPH)	WASHING COLUMN	LINE
NX-1200	1200	6	18
NX-1500	1500	8	18
NX-2000	2000	10	24
NX-2500	2500	12	24
NX-3000	3000	14	24

## Main Washer

### 1. Bottle feeder and un-loader

Bottle feeder is to load bottles into inner washer from conveyor, which is built with inner washer. Its main design principle is loading bottle accurately, preventing contamination and damage from bottles. Bottle un-loader is the device to take the bottles from the inner washer after bottles are washed and send to the filing position.

#### Configuration

- Main frame of the machine is made by 304 stainless steel
- Sensor: CARLO
- Pneumatic components: AIRTAC





### Features

- Side plate made of 2mm thickness 304 stainless steel
- Double axes bottle stopper cylinder. Guarantee accurate and stable actuation
- Doors are equipped with high quality organic glass. Easily monitoring running status
- Handle of door made of 8mm thickness stainless steel
- Water chute shaped on bottom plate. Water drained quickly
- Controlled by PLC. Working in the mode of cooperating with other equipments automatically. If inner washers stop running because of malfunction, or no bottle enter bottle feeder, it stops temporarily.
- High quality sensor, guarantee loading bottles of accurate amount each time. And stop bottle entering properly via bottle stopper cylinder, prevent bottle damaged by machine.
- Sufficient base space. Easy to tidy.

### Working flow

Bottles entering→ pushing bottles into hoppers→ hoppers rotary in 90 degree→ pushing bottle into inner washer→ hoppers return in place

5 steps loading guarantee loading bottles accurately, without bottle drop. It loads bottles with small strength, which prevents damage to bottle, and extends the lifetime of bottles.

## 2. Inner washer

Inner washer is to clean, sterilize the internal of 5 gallon bottles, which is a major equipment of 5 gallon filling line.

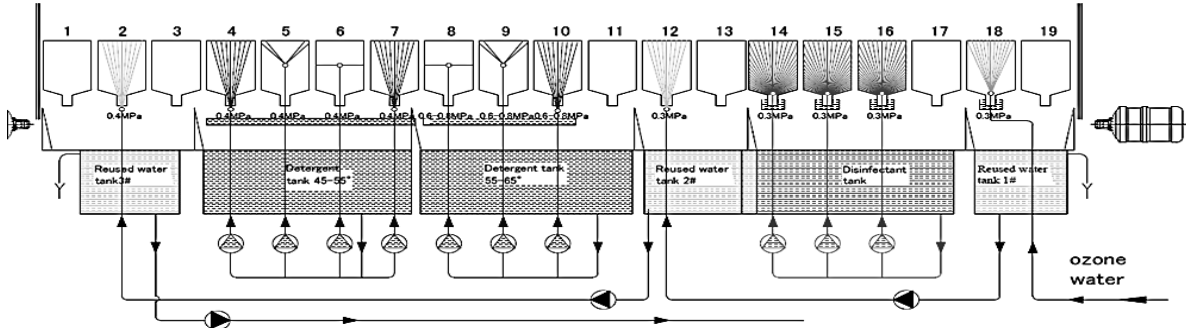
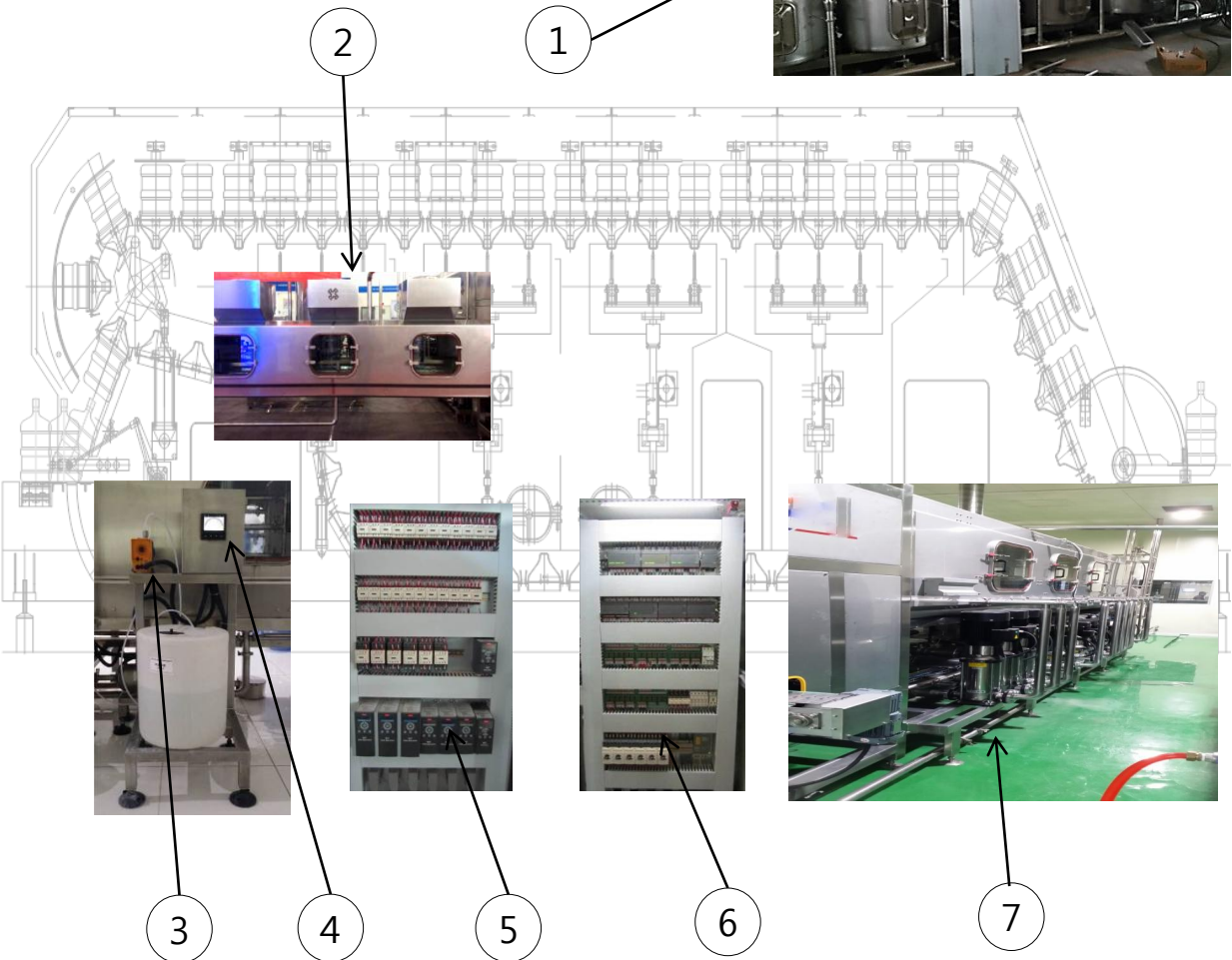
### Configuration

- Capacity : 300 ~ 3000 bottles per hour(BPH)capacities
- Motor Output : 5HP -20HP
- Voltage : 380V - 450V/220V, 50/60Hz
- Air – 5Kg/cm<sup>2</sup>
- Cylinder: AIRTAC
- Rinsing pump: CNP
- Motor and gear box: SITI
- Water tank: 316L stainless steel for inside layer of detergent tanks and disinfectant tank,
- 304 stainless steel reused water tank.
- The metal frame of the whole line is made of stainless steel S304
- PLC: Siemens, Inverter: Danfoss, Sensor: Carlo, Contactor: ABB/Schneider



# LAYOUT FOR MAIN WASHER

1. Automatic water replenishing system
2. Super clean chamber
3. Dosing pump
4. Sensor
5. Danfoss inverter
6. Siemens PLC
7. Side feature





MODEL NAME	CAPACITY(BPH)	DIMENSION(L*W*Hmm)	STRUCTURE
EW-1000	1000	3200*1200*1900	LINEAR
EW-2000	2000	4500*1200*1900	
EW-3000	3000	6000*1200*1900	

## External Washer

### Definition

Outer washer is a device which rinse bottle surface using high-pressure, and then reuse water to rinse and use detergent liquid to brush the bottle by bottle-shaped brushes, after that rinse again the bottle by reused water.

### Configuration

- Capacity: 1000 ~ 3000 BPH
- Motor Output: 1HP
- Voltage: 380V - 450V/220V, 50/60Hz
- Air: 5Kg/cm<sup>2</sup>
- Sensor: Autonics, CARLO
- Rinsing pump: GRUNDFOS
- Pneumatic components: AIRTAC
- Motor and gear box: SIT
- Electronic components: SCHNEIDER

### Features

- Low maintenance cost, all reused water are from inner washer and tap water
- Full-automatic
- Manpower is not needed



TYPE	Linear/single row					Pushing bottle type				
No. of Filling head	2	3	4	6	8	8	10	12	16	
Capacity(BPH)	300	450	600	900	1200	1500	2000	2500	3000	

## Filler

### Definition

Two kinds of non-touch filler are used depends on capacity. The single row type is used to small capacity from 300BPH to 900BPH, while the multi-rows type is used to big capacity from 1200BPH to 3000BPH. The non-touch filler has such advantage as high flow, low pressure, no splash, high accuracy( $\pm 100\text{ml}$ ) and high speed. It can absolutely take the role of quantitative filling nozzle.

### Configuration

- Motor Output: 1HP
- Voltage: 380V - 450V/220V, 50/60Hz, Air – 5Kg/cm<sup>2</sup>
- The metal frame of the whole device is made by stainless steel SUS304
- Valve: APV (pharmaceutical grade single seat valve)
- Sensor: CARLO
- Filling pump: GRUNDFOS, material is 316L
- Pneumatic components: AIRTAC
- Motor and gear box: SITI
- Electronic components: SCHNEIDER
- Inverter: DANFOSS

### Features

- Non-contact filling: avoid the secondary contamination and the hurt to bottle
- High speed filling: Max. capacity 3000BPH
- High accurate filling:  $\pm 100\text{ml}$
- The annular water distributor is made by stainless steel 316L, no dead angle, the pressure and flow of each filling valve is balanced.
- APV pharmaceutical grade single seat valve avoids secondary contamination
- Filling pump is controlled by inverter, accurate and no over flow
- CIP connection is convenient for pipe and valve cleaning.





Type	Capacity(BPH)	Dimension(L*W*Hmm)	Power(KW)	Remark
SGF	3000	1000*700*1200	0.61KW	Air blowing
SGL	3000	2000*700*2800	0.5KW	Belt transferring

## Cap Feeder

### Definition

The cap feeder is the device which sends the caps from cap container to cap un-scrambler. The cap is put into cap container manually, then it is sent to cap un-scrambler automatically. Belt transferring or air blowing can be chosen. Air blowing type has flexible layout on the cap container, the belt transferring type has low noise but need close to cap un-scrambler.

### Configuration

- Motor Output : 1HP
- Voltage : 380V - 450V/220V, 50/60Hz
- Air: 5Kg/cm2
- Sensor: AUTONICS.CARLO
- Pneumatic components: TPC, AIRTAC
- Motor and gear box: SITI
- Electronic components: LS, SCHNEIDER

### Features

- Reduce the working intensity of labor
- With cap lack inspection and alarm device



MODEL NAME	CAPACITY(BPH)	POWER (KW)	No. of STACKING (KW)	Remark
ROBOT-350	3000	20	8	Palletize vertically only

## Robot Palletizer

### Definition

Robotic palletizer puts the bottle on pallet vertically or into shelf horizontally. The system is compatible with different shelves (with same space between bottles) by self-adaptive learning, full automatic, reliable, high speed and accurate. It is also equipped with control box and teaching program, which enhance s the universality and controllability.

### Features

- Adopting mature robot technology
- With high-performance teaching-program, high universal and controllable
- High speed, accurate and reliable
- The main controller is equipped with servo drive to assure the accurate positioning
- The program can be changed in place, easy for operation and usage
- Set 2 emergency stop button to assure the safety of operator and machine



## Patent registration in KOREA



## Patent registration in CHINA



## International



## Domestic





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