

AUTOMATIC LIQUID PACKAGING LINE :**1) Turntable (Unscramble) :-**

Turntable (Unscramble) is the most convenient and versatile unit for accumulating or transferring the bottles from one machine to another machine; at the continuous flow of bottles for feeding.

The Turntable works on rotary principle and is available with 30" dia., 36" dia. And 48" dia. Size.

The Turntable consists of a rotary stainless steel (S.S.) Plate, S.S. Structure, bottle guide rail with spring strip reduction gear with motor and variable speed pulley drive / variable frequency drive arrangement.

2) Automatic Rotary Bottle Washing Machine Index type, Model : RBW-120 :-

The Automatic Rotary Bottle washing machine works on the indexing mechanism. The machine is designed to clean glass / plastic bottles of different shapes and sizes. Each bottle is subjected to a series of cleaning operations of varying duration by means of powerful jets in the three washing stations.

The machine consists of Bottle feeding and discharging stainless steel (S.S.) Slat conveyor, 12 Nos. of Bottle holding cassettes, 12 nos. of Bottle holding cassettes, pneumatically operated bottle discharging pusher, Bottle inverting and de-inverting rack and pinion assembly. S.S. hood with Polycarbonate sheet. Two built-in-stainless steel tanks with a capacity of 80 liters each along with two monoblock centrifugal pumps are supplied with the machine. One tank is fitted with thermostatically controlled 6 KW heaters to regulate the temperature of hot water.

There are 4 washing stations in the Rotary Bottle Washing Machine. The washing cycle can be modified as per user requirement. The fourth station can be used for Water / Filtered Air wash / Compressed Nitrogen Purging or kept idle as per user requirement.

The fourth station can also be supplied with filtered air, with vacuum suction for pet / glass bottles for cleaning. Online Ionizer can be provided as an option.

After the washing operation, the inverted bottles are automatically reset to the normal position and discharged by the conveyor on to the next filling and sealing station.

The machine is supplied with a control panel and Variable Frequency Drive for speed variation.

Solenoid valves are provided at each washing sequence for rinsing the water only when the bottles are fully positioned in a respective washing zone.

A gate valve with pressure Indicator is provided to adjust the flow of water for different types and size of bottles.



- 2 -

Salient Features : -

- Compact, sturdy, covered with stainless steel panels, hood covered with Polycarbonate guard.
- Less water consumption.
- Optimal recycling of water.
- No cross contaminations at different washing zones.
- Machine is simple to operate and easy to maintain.

3) Empty Bottle Inspection Unit :-

The Unit consists of a slat conveyor and is provided with a magnifying glass and lighting arrangement.

The bottles are inspected for cracks or foreign particles while they are conveyed from the washing machine to the filling machine .

4) Automatic Liquid Filling, Capping and Sealing Machine :-

Automatic Liquid Filling, Capping & Sealing Machine works on the volumetric positive displacement principle. The Machine is a combination of Rotary Type Volumetric filling Ropp Cap Sealing. To meet the demands of high-speed production and based upon the customer's requirement.

Automatic Liquid Filling, Capping & Sealing Machine is manufactured in different capacities of 2-head, 4-head, 6-head, 8-head, 12-head, 16-head and 20-head configurations.

Automatic Liquid Filling, Capping & Sealing Machine conforms to G.M.P. requirements – it is compact and the process ensures contamination- free filling, since the capping is immediate and does not permit exposure of the liquid.

Automatic Liquid Filling, Capping & Sealing Machine is suitable for filling and sealing products like Pharmaceuticals, Pesticides, Cosmetics, Beverages, etc., The liquid can be filled in glass bottles, plastic bottles, can etc.

The design of Automatic Liquid Filling, Capping & Sealing Machine is such that it enables easy changeover of parts and easy cleaning.

Operation :-

Automatic Liquid Filling, Capping & Sealing Machine works on the basis of a continuous process of filling and sealing.

Washed and dried empty bottles are conveyed to the machine through stainless steel (S.S.) slat conveyor. The infed worm moves the bottles and feeds them into the starwheel which in turn, leads the bottles to the lifting platform of the filling section. The bottles are lifted and centered below the filling nozzles by a guide which orients the bottles below the nozzles.

The sensor provided detects the presence of the bottle and actuates the pneumatic cylinder to rotate the valve in the discharge position to dispense the pre-determined volume of the liquid into the bottles. The stainless steel container is fitted in the centre of Automatic Liquid Filling, Capping & Sealing Machine to transfer the liquid into syringes mounted on rotor blocks. The liquid is transferred from the storage tank through a stainless steel pipeline connected to a solenoid valve. This enables immediate filling of the liquid tank as soon as the level decreases. Pistons of the syringes move up and down on a cam track while they suck the liquid from the filler tank into the syringes through rotary valves. After the liquid fills into the bottles, the bottle-holding platform lowers the bottle and transfers them to the sealing head via the intermediate star wheel. The bottle picks up the cap from the shoe of the chute which is connected to the hopper of the capping section.



- 3 -

Caps can be loaded to the hopper either manually or through a cap loading unit.

The bottles move below the sealing head. The sealing head seals the bottles and later conveys them to the slat conveyor for onward transfer to the inspection machine

Salient Features : -

- Automatic Liquid Filling, Capping & Sealing Machine can be operated by a single operator.
- All contact parts are made of Stainless Steel 316 AISI or 316L as per customer's requirement.
- Non-contact parts are covered with stainless steel 304 quality sheet duly polished with safety hoods to prevent flying of glass particles in case breakage of bottles occurs.
- The rotary valve design offers better accuracy of $\pm 1\%$.
- The machine is designed to seal ROPP / Screw cap / Poly top cap by changing the sealing head.
- No-bottle-no-fill arrangement avoids spillage of liquid. Likewise, the no-bottle-no-cap system ensures minimum wastage of liquid.
- The solenoid valve controls the level of the liquid in the filler tank.
- The control panel guides the operator to identify faults, breakdown, breakage of bottles or any other failure in the Automatic Liquid Filling, Capping & Sealing Machine.
- The production counter facilitates estimation of the exact production at the end of the shift / day.
- The control Panel of the machine is supplied with Programmable Logic Control (PLC) system and HMI with display and hotter system to identify any fault or malfunctioning of the machine.

5) Filled Bottle Inspection Table :-

The filled bottles are conveyed to the slat conveyor of the inspection unit. The bottles pass through the inspection unit a tilted position and rotate through a specially designed conveyor track. The inspection unit is provided with magnifying glass and a lighting arrangement. Since the bottles are rotating in a tiled position, the operator inspecting the bottles can identify any foreign particles, cap rejection and cracking of bottles. The rejected bottles are picked up and kept in separate rejection tray provided at the side of the inspection table.

6) Automatic Dosage Cup Placing and Pressing Machine : -

The Dosage Cup Placing machine consists of stainless steel (S.S.) slat conveyor, rotary hopper with chute and shoe and cup pressing rollers and variable speed arrangement. After inspection, the sealed bottles are conveyed to the Dosage Cup Placing and Pressing machine where dosage cups are placed on the sealed bottles and pressed by pressing rollers. The bottles are then conveyed to onward packing line.

Note : Images Shown here are illustrative. As the design & manufacturing of Machines are subject to improvement, the product supplied will be as per our Techno-Commercial offer.