**Linear Vial Filling And Closing Machine**

**Features:**
- Vials stoppering unit at the dosing station, composed of a sectional star wheel equipped with an electro-mechanical stoppering device.
- Vials moving unit composed of a conveyor belt and a feeding screw for spacing vials for bunging operation.
- Dosing unit, composed of a support where stainless steel rotary piston syringe are placed.
- Bungs feeding unit, composed of a vibrating feeding bowl, a vibrating feeding chute and a separating star-wheel.
- Easily replaceable change parts with minimum setting time to accept different sizes of vials.
- All controls through Programmable Logic.

**Operation:**
Vials coming from the infeed turntable are carried by the conveyor belt towards the dosing unit. A sensor, located at the machine inlet, stops the machine in case of low quantity of vials. Vials entering the dosing unit are stopped downstream by star-wheel which also aligns each vial with the relevant filling nozzle. Vials exiting the filling station are conveyed towards the capping unit. A sensor verifies the right position of each vial. In case of an eventual upset of the feeding screw due to or overturned vials the machine is stopped immediately. Bungs are charged into a feeding bowl, placed above the bunging unit and by means of vibrating bowl, they reach the feeding star-wheel which separates and place them near the capping disc. Each suction pin on the capping disc will pick up the bung by vacuum holding it during the rotation of the disc and until it is set vertically onto each vial. Each bunged vial will be transferred by the feeding screw to the pressing unit where a wheel will press the bung completely onto the vial in order to guarantee its perfect closure.

**Technical Data:**

**OUTPUT**
- Rated speed (8H) : 300 Vials/minute
- Rated speed (6H) : 200 Vials/minute
- Rated speed (4H) : 150 Vials/minute
- Speed Selection : Automatic

**Technical Data:**

**OUTPUT**
- Rated speed (8H) : 300 Vials/minute
- Rated speed (6H) : 200 Vials/minute
- Speed Selection : Automatic

**Electrical Energy:**
- Installed Power : 1.25 HP
- Line Voltage : 415V, 50Hz, 3 Phase
- Machine Dimension:
  - (8 Head) : 220 x 1000 x 2050 (L x W x H) in mm.
  - (6 Head) : 200 x 1000 x 2050 (L x W x H) in mm.
  - (4 Head) : 140 x 1000 x 2050 (L x W x H) in mm.
**Automatic Rotary Vial Filling And Closing Machine**

**CONFIGURATION**
- Monoblock structure.
- Riffle table.
- Synchronous product feeding system.
- Filling system:
  - Volumetric dosing system with 2 part seal-less rotary valve pumps.
  - Volumetric dosing system with pumps and pinch valves.
  - Dosing system with independent peristaltic pumps.
- Time pressure dosing system.
- Nitrogen flushing before and after filling.
- Filling needles running synchronous with the vials.
- Stopping with vibratory bowl and linear vibrator.

**VIALS FEEDING**
A bi-flow table receives the vials from the deglaring tunnel and unscrambles them in a single lane to feed to the infed of the filler (Nippable particle generation, no-dead-vials circulating).

Alternatively an infed transportable unscrambles the vials to feed to the infed starwheel.

**Salient Features:**
- Can be directly integrated to the outfeed of a sterilizing tunnel.
- Linear Unscrambler at the infed.
- Continuously moving vials thereby higher speeds.
- Dosing unit composed of synchronous filling needles and rotary piston syringes.
- Easily adaptable for half stoppering for freeze dried products.
- Easily replaceable change parts with minimum setting time to accept different sizes of vials.
- All controls through programmable logic controller.
- Rotary in design and thereby space saving.
- Flow meter and pressure monitor for nitrogen purging.

**Operation:**
Vials are unscrambled by an in-feed screw and are fed in line to an in-feed star wheel and from there on to a main star wheel where dosing needles travel in synchronism with the vials. Burrs are charged into a vibrating bowl. This bowl feeds the burrs on to a linear chute. A vacuum suction wheel picks up each burr and positions the burr above each filled vial; the burr is lowered on to the vial before it is drawn out on to an out-feed conveyor.

**Technical Specification:**
- Output: Rated Speed (Dose): 300 vials/min.
- Installed Power: 1.5 HP
- Line Voltage: 415V, 50 Hz, 3 Phase

**Optional Configuration:**
- Integrated cap sealer.
- Statistics: in process weight control (2% sampling).
- Vials rejection after closing with stoppers.
- Vials sampling after closing with stoppers.
- IMS with industrial PC with software for data collection.
- Interface with customer's SCADA system.
- Online assistance via modem.
- Compliance with FDA 21 CFR Part 11.
- Lyophilizer collector tray at the out feed.
- Clean room systems.
- Safety barriers with vertical unidirectional airflow.
- CIP/ AMS (Close/Restricted access). Barrier System.
- Isolator with VHP sterilization.

**IN PROCESS WEIGHT CONTROL**
The in-process weight control is used to initially calibrate the dosing group and control the filling operation in close loop during production. It is also used to detect out of range filled vials and to provide production statistics. At the production start-up and end of batch, 100% of the vials can be checked at low speed. During production the control is statistically performed. For bare and gross weight measurements, the vial is picked up and placed on the load cell. The load cells are supported in a way that prevents vibrations.

**CHECKING DEVICES**
- Low vial feed machine stop.
- No vial: No fill.
- No vial: No stopper feed.
- Low level stopper feed.
- Pressure monitor for nitrogen purging.
- Torque limiter for infed and outfeed turner.