

Technical Specification For Vial Capping Machine FC0240

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1. Summary

1.1 Structural Composition and Application Features

The capping machine is suitable to seal AL-caps or Flip-off caps into glass or plastic containers by an automatic continuous motion. Class A is assured in all process areas above the openings of the containers.

The machine has been designed and manufactured conforming to cGMP standards.

1.2 Equipment Performance Summary

1.2.1 Machine Basic Details

Capping Machine	
Model	FC0240
Container Specification	Vials size: 100ml, 250ml Vials diameter: 50-68mm Vials height: 88-117 mm
Main Parameter	Capping heads quantity: 8

1.2.2 Output Details

The rated production capacity: 75 containers per minute based on 250 ml (Diameter: 68 mm, Height: 117 mm)

Note: The indicated performance data is the maximum machine performance. The output depends on:

- Format
- Product properties and behaviors
- Packing material
- Constant and proper product and utility supply

- Properly prepared packing material
- Proper maintenance according to maintenance manual
- As most of the containers are uncontrollable accurately, the production capacity of the line will be reconfirmed only after samples receipt and testing.

1.2.3 Container Details

SN	Size (ml)	Body Diameter (mm)	Height (mm)	Filling volume	Capacity (VPM)
1	100	50	88	Based on 100ml	100
2	250	68	117	Based on 250ml	75

Note: The main production container is 100 ml.
Customer should provide the technical drawings of all containers, stoppers, caps.

1.2.4 Cap Details

SN	Size (mm)	Type of Cap	For Container No
1	20	Flip-off cap	100 ml, 250ml

Note: The main production cap is 20mm Flip-off cap for main production container

1.2.5 Test Conditions for Whole Line

1.2.4.1 Samples for engineering

Each size vial for the whole line: 30

Each size stopper for the whole line: 3,000

Each size capper for the whole line: 3,000

Note: The packaging materials should be received by Tofflon within 10 days after the order to avoid delays to the FAT and/or equipment delivery.

1.2.4.2 Packaging materials for test in factory

Each size: for running 2 hours continuously

Note: The packaging materials should be received at the Tofflon factory according to the required quantities at least 8 weeks prior to the agreed factory acceptance test date.

1.2.4.3 Packaging materials for FAT (if requested)

Each size: for test 1 hour continuously

Note: The packaging materials should be received at the Tofflon factory according to the required quantities at least 8 weeks prior to the agreed factory acceptance test date.

1.2.4.4 Others

The Buyer is requested to provide dimensioned drawings and samples of the packaging material on time to avoid delay.

All the relevant costs towards packaging materials will be charged to the Buyer.

Packaging materials have to be identical in shape, dimension and weight as per those listed in the URS. (Unless modified prior to order placement and acceptance by Tofflon).

Equipment delivery will be delayed in case of any issues with the packaging materials (delivery, quality and so on).

2. Technical Specifications

The standard machine is supplied complete with:

2.1 Basic Structure

The frame is set on feet that can be adjusted in height for reaching a work surface at out-feed of 913 (+/- 20) mm. The height is subjected to the whole line design.

Machine integrated with ORABS according to customer requirement.

Substructure with easy access to the drive system and components is completely separated from the processing section.

Glass doors of barrier system are monitored with safety switches that automatically shut down the machine when a door is opened.

2.2 Infeed Station

The containers are transported by infeed star wheel.

There is one sensor for detecting stopper presence, the containers without stopper shall be rejected after the capping station.

Infeed starwheel are driven by servo motor together with main running starwheel.

2.3 Cap Pickup Station

Feeding of the caps is from a vibrating bowl to a feeding chute and placement of the cap onto the container.

There is one sensor for monitoring accumulation of caps in the chute with automatic machine stop and alarm on the control panel.

Cap pickup station can be adjusted up and down according to the container size.

Fast and simple installation and removal of the vibrating bowl and chute without tools is possible.

The vibrator bowl is made of stainless steel SS 316L.

The feeding chute is made of stainless steel SS 316L.

2.4 Capping Station

Sealing realized by means of the rotation of the container and by capping roller when capping rollers get close to container

The capping rollers are individually adjustable.

The capping station height is adjustable according to the container size.

Note: Tofflon will not be responsible to possible malfunctions of issues caused by containers and caps

2.5 Post Rejection Station

After capping station there is one sensor for detecting cap presence. The container without stopper and cap will be rejected by starwheel with vacuum suction nozzle accurately.

2.6 Outfeed Station

Sealed containers are leaving the machine on a discharge belt with adjustable speed. There is one sensor for monitoring accumulation of containers on discharge belt with automatic machine stop and alarm on the control panel.

2.7 Size Change Parts

A full set of change parts for main container and cap is provided. The set of change parts is comprised

of:

- Infeed starwheel and guides
- Capping position heads
- Rejection starwheel and guides
- Outfeed starwheel and guides
- Vibrator bowl and relevant parts

2.8 Control System

HMI: 12" color touch screen.

PLC: Siemens.

4 levels password: Administrator Group, Parameter Group, Operator Group, Visitor Group

Electric cabinet: integrated in machine.

Electric control panel: integrated with main machine, and connected with the electric cabinet standard wire. Equipped with color touch screen, emergency button and other buttons, it can display the alarm, all production and operation data. Control system can avoid to loss data due to voltage loss.

Interlock control: interlock is provided with other machine to show the causes of fault, position of fault and simple solution

2.9 Control Items Details

SN	Item/Name	Set	Display	Stop	Alarm	Manual reset	Auto reset
1	Capacity & Recipes	√	√				
2	Containers min. accumulation at infeed station		√	√	√		√
3	No stopper before cap pickup station		√				
4	Caps are not enough		√	√	√		√
5	Outfeed belt is blocked		√	√	√		√

2.10 Safety Device

Emergency stop button.

Safety guards with interlocked switches.

Colored light indicators to show the operating status of the machine with acoustic signal.

3. Specification of Main Standard Materials

SN	Name	MSM	Remark
1	Infeed starwheel	POM	Contact with the container
2	Bowl and chute	SS 316L	Contact with cap

SN	Name	MSM	Remark
3	Capping position head	SS 316L	Contact with cap
4	Capping roller	SS304	Contact with cap
5	Rejection starwheel	POM	Contact with the container
6	Discharge belt	POM	Contact with the container
7	Guide	POM /PE	Contact with the container

4. Specification of Components

4.1 Main Standard Components

SN	Name	MSM	Remark
1	Infeed belt motor	OTG	N/A
2	Infeed starwheel motor	ABB	integrated
3	Main motor		
4	Rejection starwheel motor		
5	Lifting motor for capping roller	Siemens	N/A
6	Rotary motor for capping station	Siemens	N/A
7	Discharging belt motor	OTG	N/A
8	Pneumatic system	SMC	N/A
9	Vibrator bowl	Good bowl	N/A
10	PLC	Siemens	N/A
11	HMI	Siemens	N/A
12	Sensor for detecting cap accumulation	Omron	N/A
13	Sensor for detecting cap presence	Omron	N/A
14	Emergency button	Schneider	N/A
15	Power switcher	Schneider	N/A
16	Breaker	Schneider	N/A
17	Contactora	Schneider	N/A

4.2 Other Charge Parts

1. One complete set change parts for one additional container: One set for 250ml vials		
SN	Name	Remark
1	Turn table guides	N/A
2	Infeed starwheel and guides	N/A
3	Rejection starwheel and guides.	N/A
4	Outfeed starwheel and guides	N/A
2. One complete set change parts for one additional cap :		

N/A (If available, it will be extra quotation.)		
SN	Name	Remark
1	Vibrator bowl and relevant parts for cap	N/A
2	Capping position heads	N/A

5. Utility Requirements (Approx.)

SN	Description	Requirements
1	Total power	4 Kw @ 380V, 50Hz, 3P, 5W
2	Vacuum for rejection	80L/min @ P<0.85bar
3	Vacuum for aluminum particle exhausting	140 m ³ /h
4	Compressed air	50L/min@ 6-7bar

6. Standard Documentation

SN	Name	QTY
1	Installation Manual (IM)	1
2	Maintenance Manual (MM)	1
3	Operation Manual (OM)	1
4	Piping and Instrumentation Diagram (P&ID)	1
5	Layout Drawing	1
6	Wiring Drawing	1
7	Main Components Instructions	1
8	Material of Certificate	1
9	Factory Acceptance Test (FAT)	1
10	Site Acceptance Test (SAT)	1
11	Installation Qualification (IQ)	1
12	Operation Qualification (OQ)	1

7. Options Request

SN	Name	QTY	Remark
1	Additional change parts for container	1 set	Based on final contract.
2	Additional vibrator bowl for cap	N/A	Based on final contract.
3	Aluminum particle exhausting function	1 set	Based on final contract.
4	Vacuum pump	1 set	Based on final contract.
5	Physical isolation system(Open RABS)	1 set	Based on final contract.