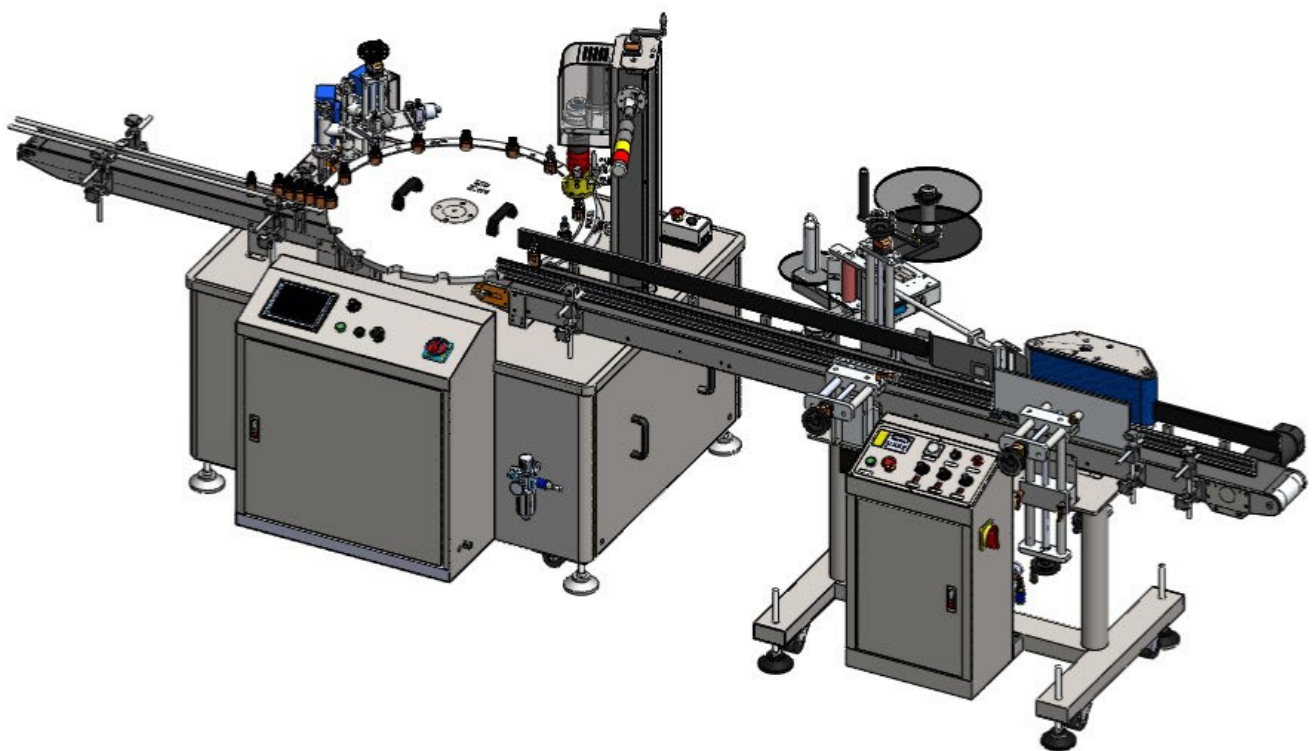


USER MANUAL

Automatic Filling Line



FC4100+LR3000

Edition 07/2020

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1 SAFETY INSTRUCTION

1.1 Safety Regulation

- **KNOW YOUR MACHINE.**

For your own safety, read the owner's manual carefully. Learn its application and limitations as well as specific potential hazards pertinent to this machine.

- **KEEP GUARDS IN PLACE AND IN WORKING ORDER.**

- **REMOVE ADJUSTING KEYS AND WRENCHES.**

For habit of checking to see that keys and adjusting wrenches are remove from the machine before turning it on.

- **KEEP WORK AREA CLEAN.**

Cluttered areas and benches invite accidents.

- **DO NOT USE IN DANGEROUS ENVIRONMENTS.**

Do not use power tools in damp or we locations, or expose them to rain. Keeps work area well illuminated.

- **KEEP CHILDREN AWAY.**

All visitors should be kept at a safe distance from work area.

- **MAKE WORKSHOP CHILDPROOF.**

With padlocks, master switches, or by removing starter keys.

- **DO NOT FORCE THE MACHINE.**

It will do the job better and be safer at the rate for which it was designed.

- **USE THE RIGHT TOOLS.**

Do not force the machine or attachments to do a job for which they were not designed.

- **WEAR PROPER APPAREL.**

Avoid loose clothing, gloves, neckties, rings, bracelets, or jewelry, which could be caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.

- **SECURE WORK.**

Use clamps or a vice to hold work when practical. It is safer than using your hand and frees both hands to operate the machine.

- **DO NOT OVERREACH.**

- **MAINTAIN MACHINE IN TOP CONDITION.**

Keep machine clean for best and safest performance. Follow instructions for lubricating and changing accessories.

- **DISCONNECT MACHINE FROM POWER SOURCE.**

Before servicing and when changing accessories, or when mounting and remounting motor.

- **USE RECOMMENDED ACCESSORIES.**

Consult the owner's manual for recommended accessories.

- **NEVER LEAVE MACHINE RUNNING UNATTENDED. TURN POWER OFF.**

Protective guards and shields must always be in place unless that specific part requires servicing. Never clean or remove chips while the machine is running. Do not remove or alter warning labels and replace any that become obscured.

1.2 Warning Plate (Pictures/Photos)

General

This machine has warning symbols attached on it as shown below to ensure proper and safe operation. These symbols are used on the machine to indicate points or instances of specific danger to operating personnel.



Make sure to memorize these symbols and bring them to the attention of others as and when necessary. Do not remove safety symbols from the machine.

Incorrect use of the equipment will put your life in danger!

Neostarpack will take no responsibility for any fatal accidents, injuries to personnel or damage to the machine if the machine or associated equipment is installed, operated, and serviced without following the instructions in this manual.

Risk of immediate danger to life!

Never inch or run the machine if any safety components included in the safety system is non-operational. Non-operational safety components must be changed immediately.

	<p>Risk of electrical shock! Failure to observe will put your life in danger.</p> <p>Enclosures which do not clearly show that they contain electrical devices are marked with the warning sign below.</p>
	<p>Do not touch! Failure to observe could result in loss of fingers or other body parts.</p> <p>The prohibition sign below indicates a risk of personal injury in the area where the prohibition sign is placed.</p>
	<p>Be Careful the machine is stopped! Failure to observe could result in damage of fingers or other body parts.</p> <p>The prohibition sign below indicates a risk of personal injury in the area where the prohibition sign is placed.</p>
	<p>Emergency stop Failure to observe could result in further damage and injury.</p> <p>The emergency stop button is to stop the machine whenever there is a dangerous accident.</p>

2 INTRODUCTIONS

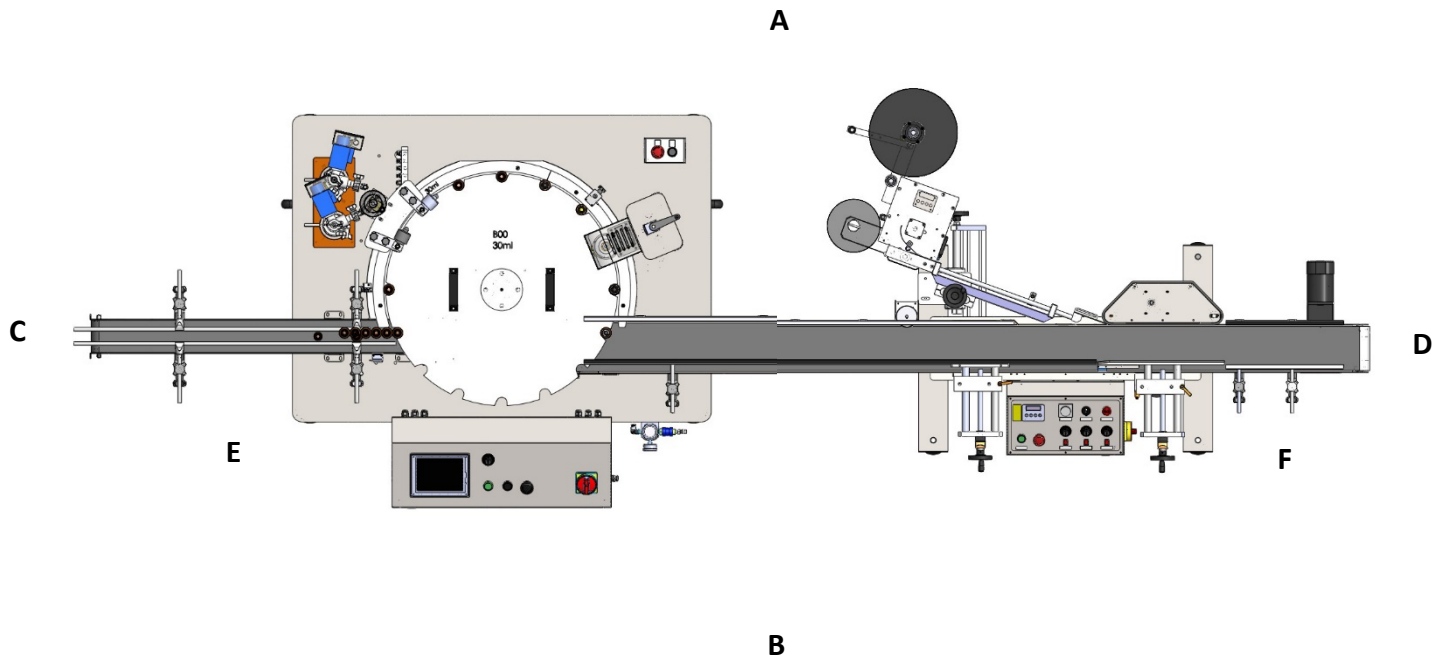
2.1 Machine Introduction

BW5300 is designed to meet high sanitation requirements. Its bottle inversion design helps to effectively remove dusts from bottles. It can work with bottles of various materials. More importantly, it is designed for easy integration to other equipment of production like liquid filler, heat tunnel, etc.

Features:

- Works with bottles of various materials like glass bottle, PET, and aluminum bottles.
- Customizable pieces of nozzle heads.
- Water rinsing.
- Bottle inversion design meets higher sanitary requirement.
- User friendly PLC control system.
- Cover case helps to keep out dusts and particles in the air.
- Rugged anodized aluminum and Stainless-Steel construction.

2.2 Machine Orientation



Definition of direction

The below illustrations show the machine from above.

A indicates the **Rear** of the machine.

B indicates the **Front** of the machine.

C indicates the **Left** of the machine.

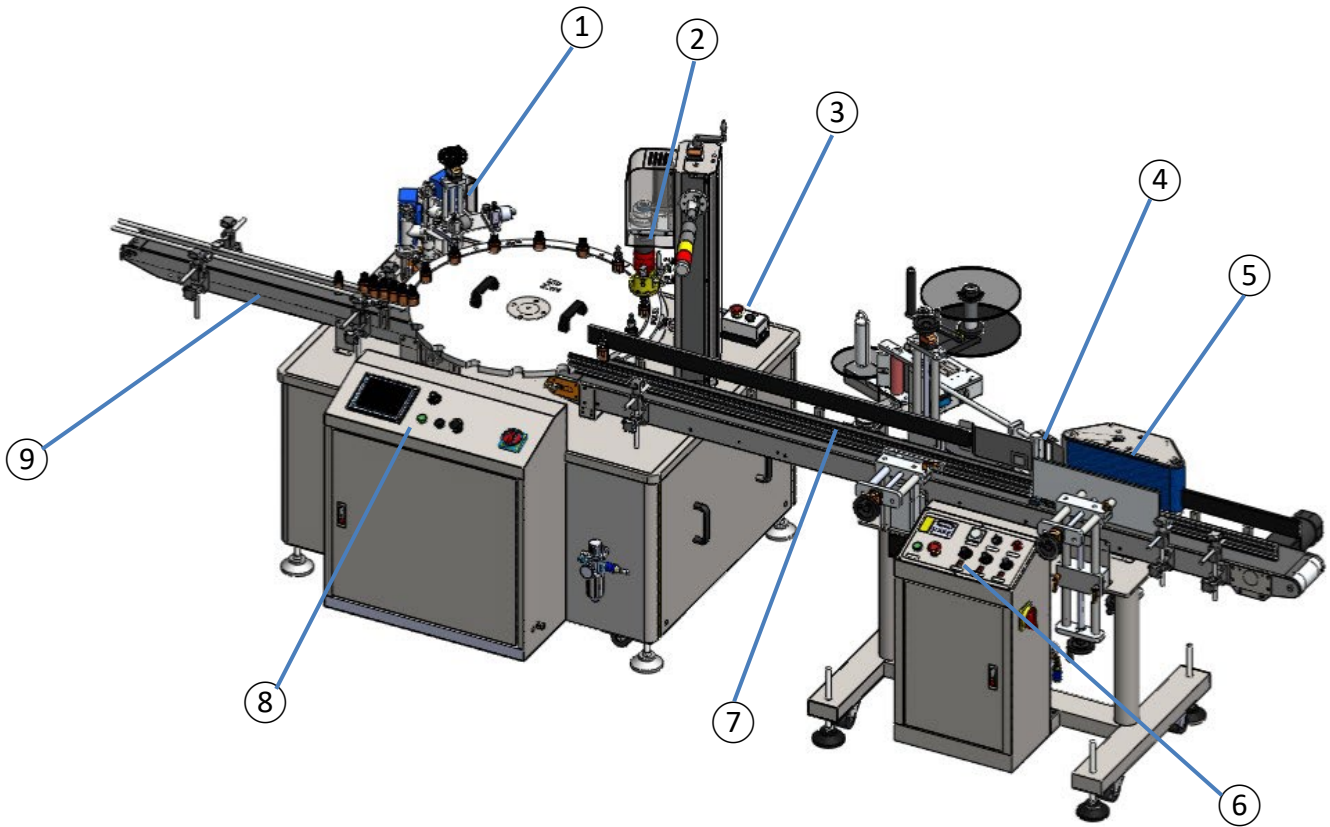
D indicates the **Right** of the machine.

E indicates the **Infeed** of the machine.

F indicates the **Outfeed** of the machine.

3 PRODUCT DESCRIPTION

3.1 Components



① Filling Station

② Capping Station

③ Rear Control Panel

④ Label Dispenser

⑤ Wrap Belt

⑥ Labeling Control Panel

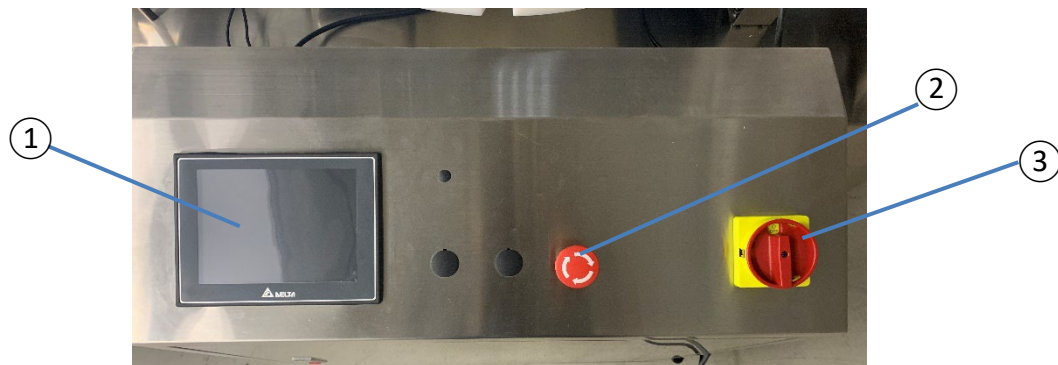
⑦ Guide Rail

⑧ Filling Capping Control Panel

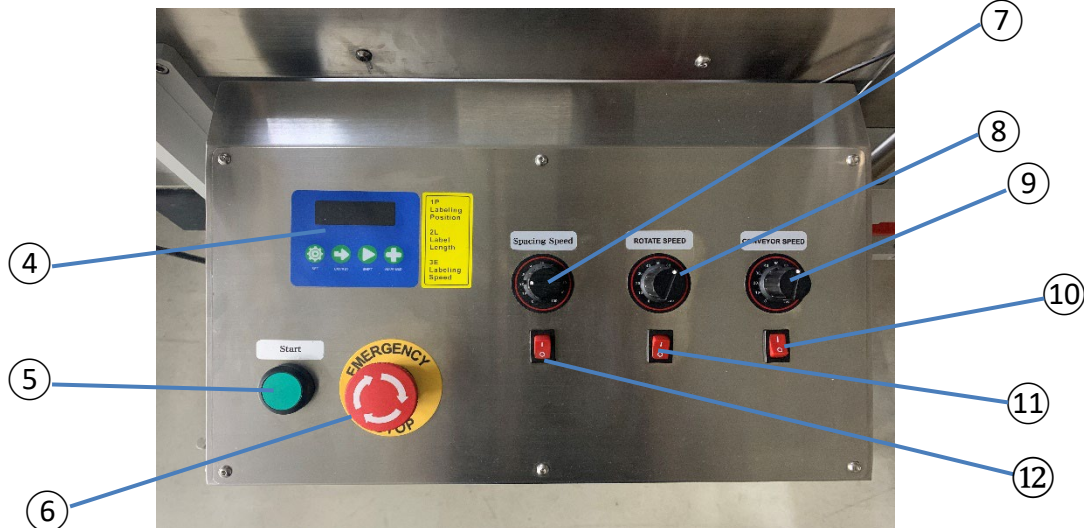
⑨ Conveyor

3.2 Control Panels

Filling Capping Control Panel



Labeling Control Panel



① HMI

② Emergency Stop

③ Power

④ LCD Control Panel

⑤ Start

⑥ Emergency Stop

⑦ Spacing Speed

⑧ Rotate Speed

⑨ Conveyor Speed

⑩ Conveyor Switch

⑪ Wrap Belt Switch

⑫ Bottle Spacer Switch

4 MACHINE POSITIONING

4.1 Lifting the Machine / Drawing

1. Moving machine: ① Forklift(5tons & 8~10 tons each)② one crane

SETTING THE MACHINE IN PLACE

The haulage of the machine to the installation place is done with the crane or forklift.

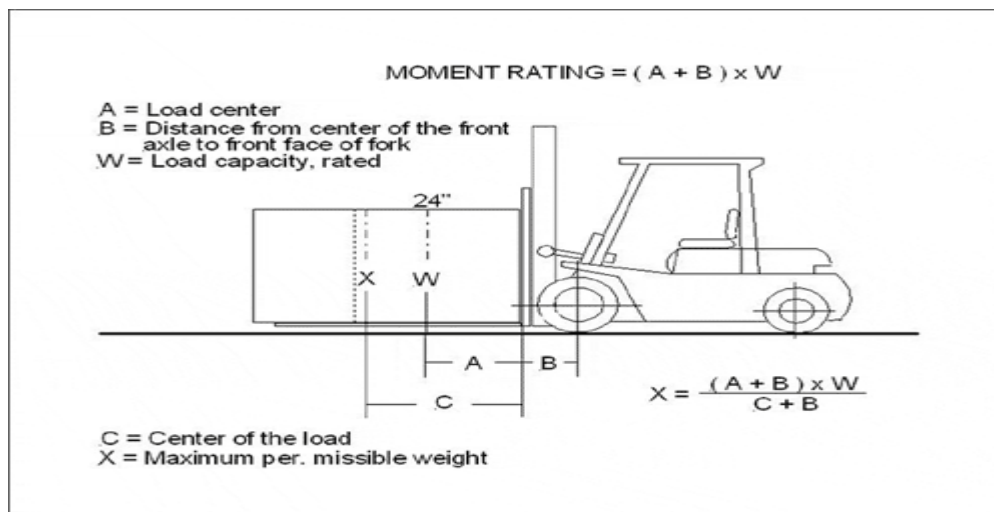
Before unloading the machine, conduct a complete inspection of any damage which might have been caused during transportation.

- Before placing the machine on the production floor, make sure that the floor base is thick and strong enough to endure mechanical vibration and to support the weight of the machine for a long time.
- Allow enough room around the machine for auxiliary production equipment for the maintenance of the machine.
- Use haulage equipment with sufficient strength for the machine weight. (Such as a crane, forklift, wire ropes, and hooks)As for machine size, make sure the specifications table.
- When looping the wire ropes, put pads between the wire ropes and the machine body at the places where the wire ropes contacts the machine body so that the machine will not get damage.

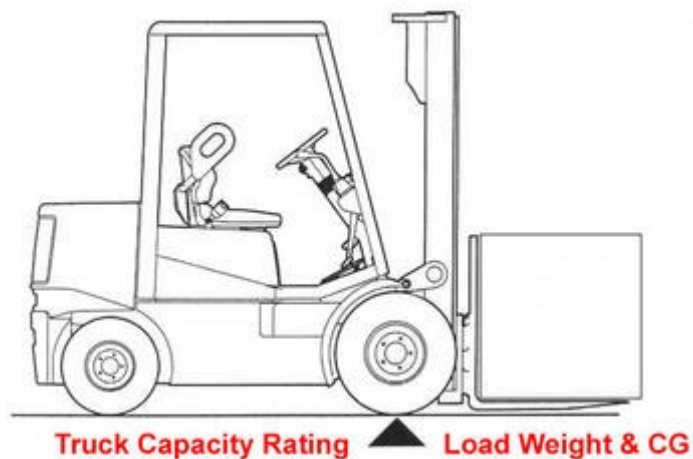
specifications table about haulage:

Variant NO.		Basic
Variant Identification	Unit	SM-90T
Environment temperature	°C	+0°C~+40°C
Environment humidity	%	85%
Machine size (L×W×H)	m	4.3×2.2×2.4
Machine weight	kg	900

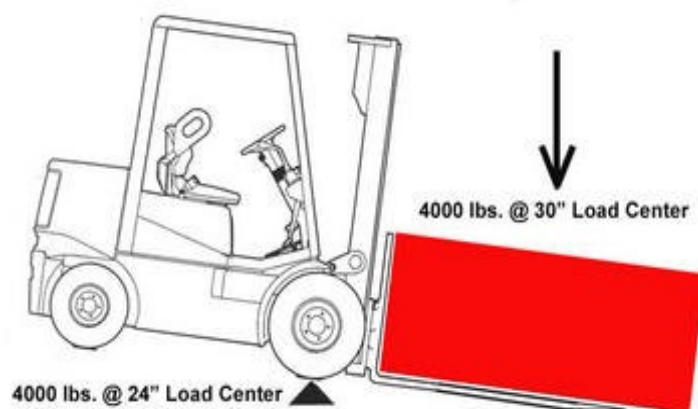
1. Pay special attention to the balance of the machine while lifting.



The Truck Capacity Rating defines the Maximum Load

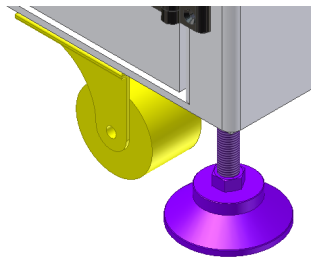


Don't Extended Load Center Tips Truck Over



4.2 Installation and Level calibrations

- The machine may be positioned simply with its wheel fixer
- The floor must be absolutely flat and level.
- Connect the conveyor with the other machine.
- The conveyor should be a bit lower than the last stop, and a bit higher than the next stop.



- Tools: Level gauges to thousandth and hundredth precisions.
- The main machine is calibrated by level gauge to thousandth precision, and the rest ones are calibrated by level gauge to hundredth precision.

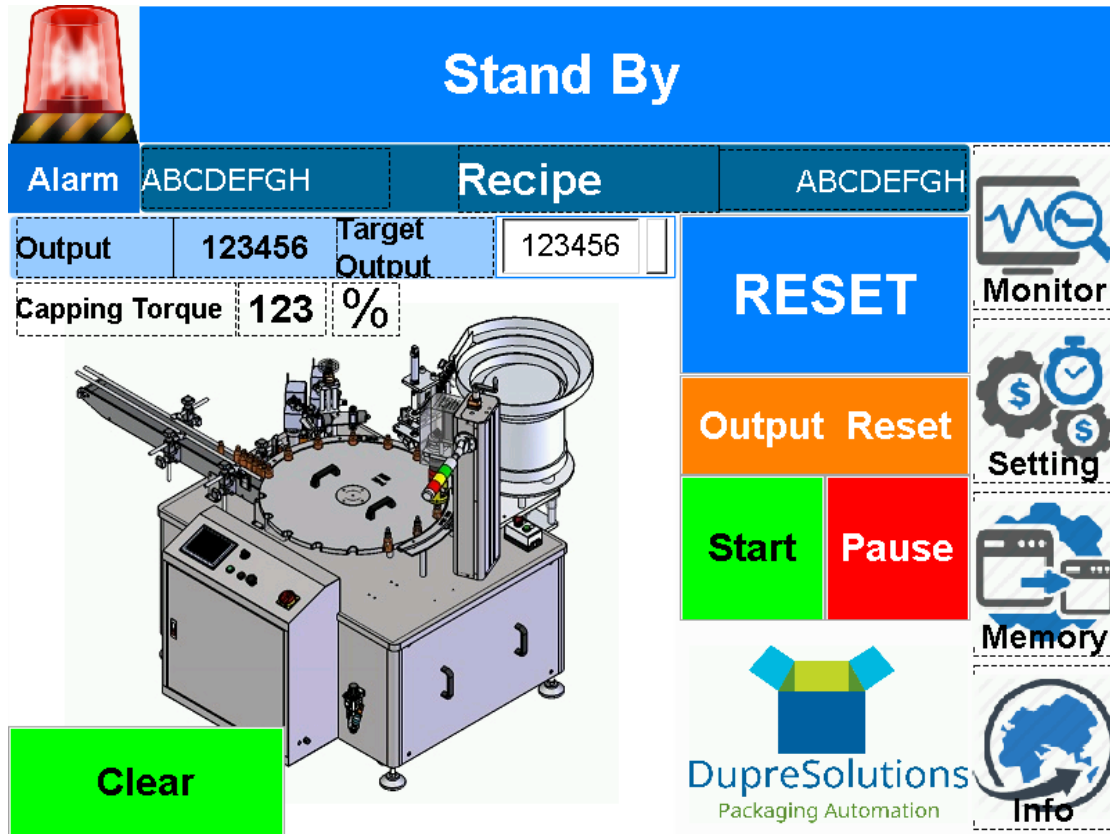
4.3 External Power Connection

1. Before connecting the power wires, make sure the voltage between the machine and your factory power source is the same. The machine must be properly grounded to prevent possible injury from electrical shock.
2. Connect the power wires from machine bed to the electrical control box according connector type.
3. Qualified electrical personnel should perform all electrical connections.
4. Check Connection of Power Wires
5. After the power wires have been connected, it is necessary to check if the power wires are connected to the correct connection points, and tight the screws. Please also check if the voltage in three phase sources is all the same, and should be no shortage of any phase.

5 MACHINE SET UP

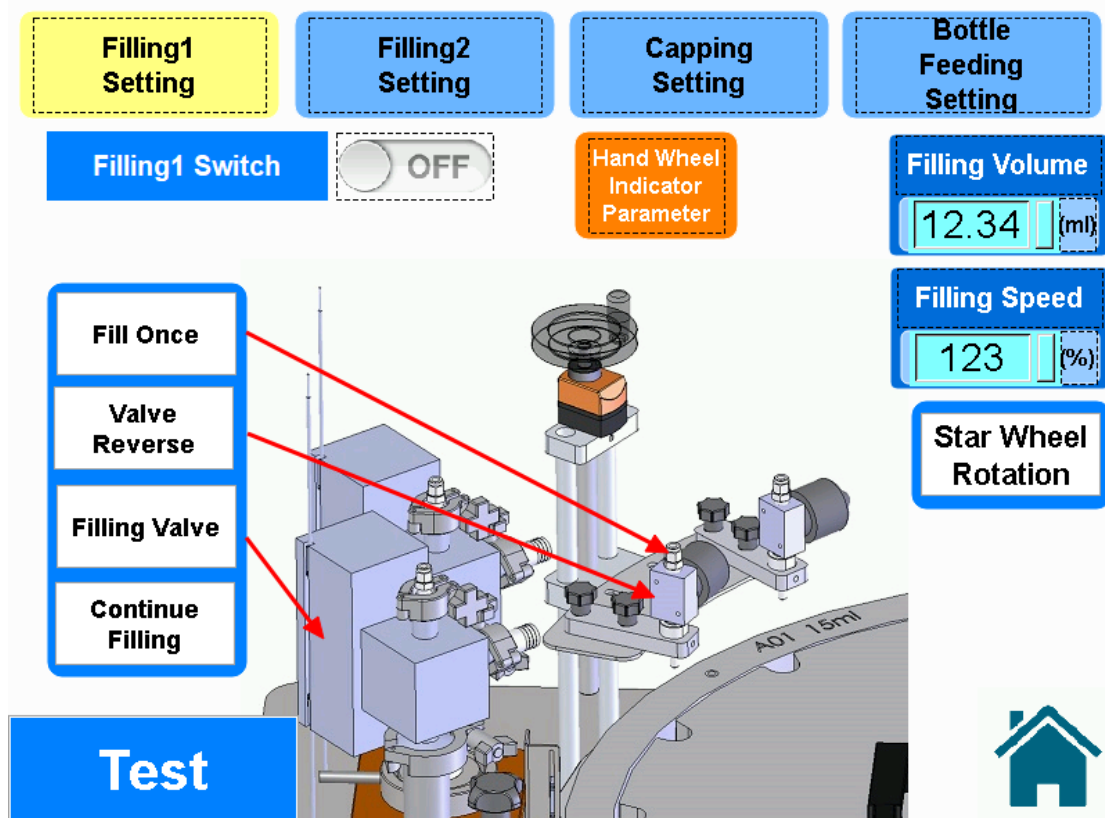
5.1 HMI

Home page



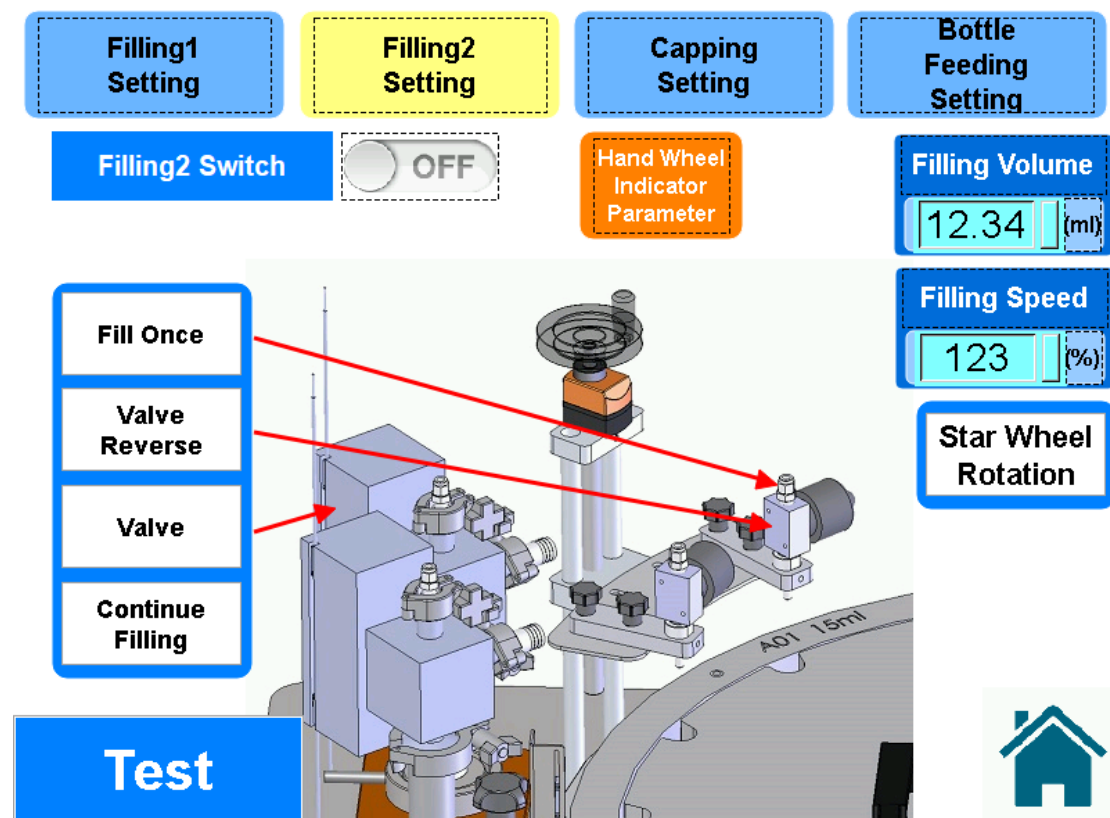
Status	Shows the current status of machine
Output	Counts of outfeed bottles
Target Output	Pre-set counts to stop production
Capping Torque	Shows the current torque value
RESET	Reset the machine to stand by status
Output Reset	Reset output as 0
Start	Start production
Pause	Pause production
Clear	Clear bottles in star-wheel

Filling Nozzle 1 Setting



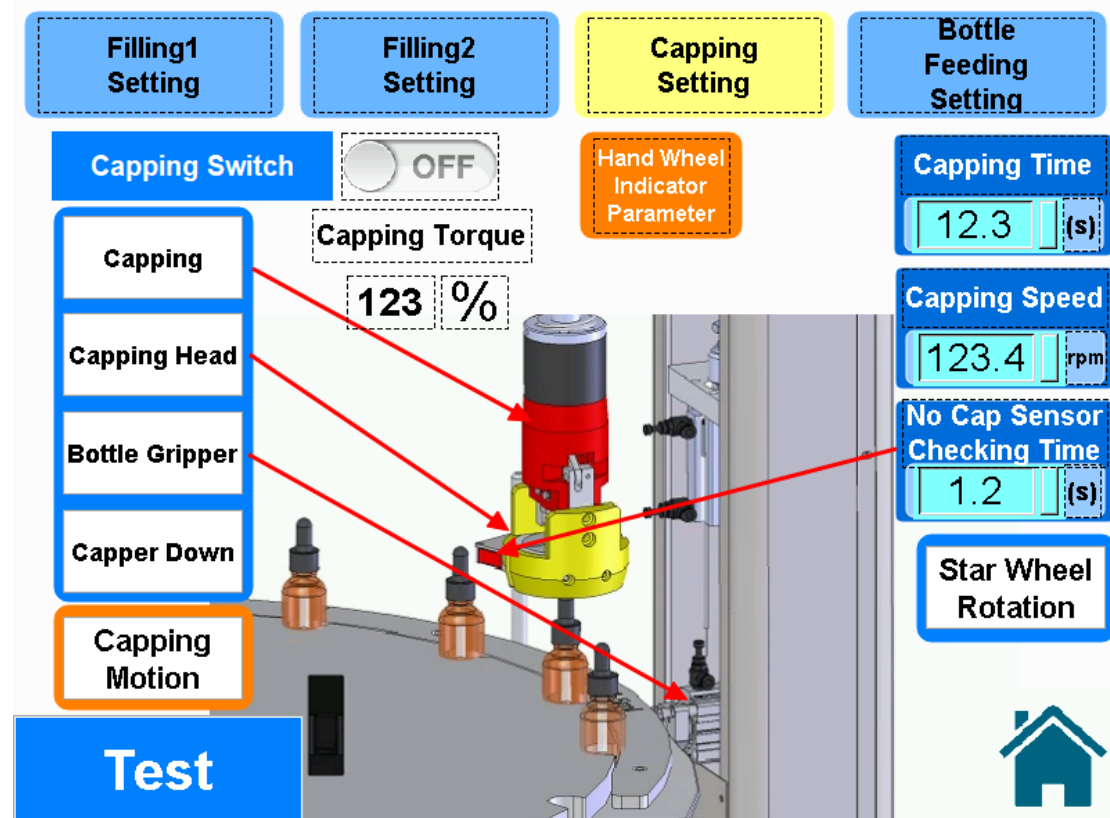
Filling 1 Switch	Turn ON/ OFF filling nozzle 1
Fill Once	Test fill one time
Valve Reverse	Test if valve reverse function well
Filling Valve	Test if filling 1 valve function well
Continue Filling	Press to continue filling until no air in the infeed hose
Hand Wheel Indicator Parameter	Access to view hand-wheel parameters
Filling Volume	Shows current filling volume
Filling Speed	Shows current filling speed
Star Wheel Rotation	Rotate one step of the star-wheel
Test	Press “Test” button before testing any function

Filling Nozzle 2 Setting



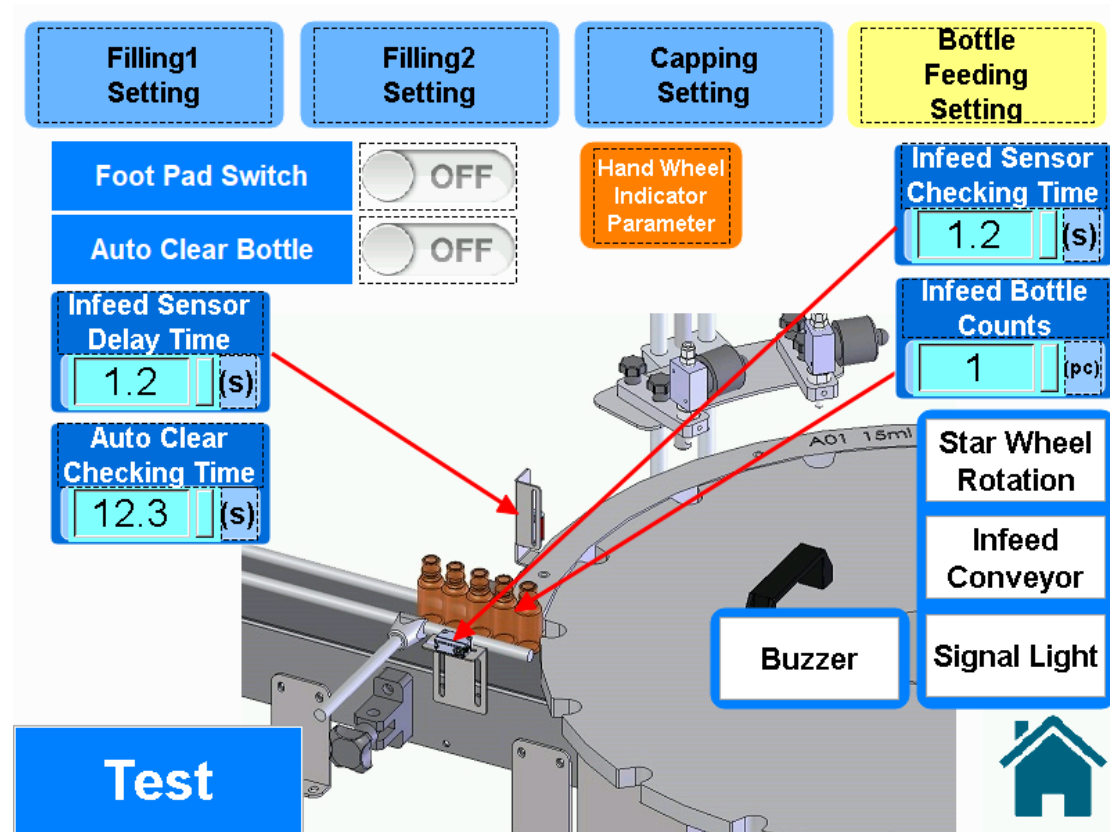
Filling 2 Switch	Turn ON/ OFF filling nozzle 2
Fill Once	Test fill one time
Valve Reverse	Test if valve reverse function well
Filling Valve	Test if filling 2 valve function well
Continue Filling	Press to continue filling until no air in the infeed hose
Hand Wheel Indicator Parameter	Access to view hand-wheel parameters
Filling Volume	Shows current filling volume
Filling Speed	Shows current filling speed
Star Wheel Rotation	Rotate one step of the star-wheel
Test	Press “Test” button before testing any function

Capping Setting



Capping Switch	Turn ON/ OFF capping function
Capping Torque	Shows current capping torque value
Hand Wheel Indicator Parameter	Access to view hand-wheel parameters
Capping	Test the spin function of capping head
Capping Head	Test cap gripper of capping head
Bottle Gripper	Test bottle gripper
Capper Down	Test elevate function of capping head
Capping Motion	Test whole set of function of capping
Capping Time	Shows the current capping time
Capping Speed	Shows the current capping speed
No Cap Sensor Checking Time	Shows the current checking time for no cap sensor
Star Wheel Rotation	Rotate one step of the star-wheel
Test	Press "Test" button before testing any function

Bottle Feeding Setting



Foot Pad Switch	Switch between foot pad and automatic mode
Auto Switch	Turn ON/ OFF auto clear bottle function
Hand Wheel Indicator Parameter	Access to view hand-wheel parameters
Infeed Sensor Delay Time	Shows the delay time for bottle infeed sensor
Auto Clear Checking Time	Shows the checking time to activate auto clear function
Infeed Sensor Checking Time	Shows the checking time for bottle infeed sensor
Infeed Bottle Counts	Counts for total infeed bottles
Star Wheel Rotation	Rotate one step of the star-wheel
Infeed Conveyor	Turn ON/ OFF the infeed conveyor
Signal Light	Turn ON/ OFF the signal light
Buzzer	Turn ON/ OFF the alarm buzzer
Test	Press "Test" button before testing any function

Alarm Setting

Alarm Setting

Alarm	<input type="checkbox"/> OFF
Buzzer	<input type="checkbox"/> OFF
Output Achieved Alarm	<input type="checkbox"/> OFF
Labeling Station Connection Alarm	<input type="checkbox"/> OFF



Alarm	Turn ON/OFF alarm pop out windows
Buzzer	Turn ON/ OFF the buzzer
Output Achieved Alarm	Turn ON/ OFF alarm when target output reached
Labeling Station Connection Alarm	Turn ON/ OFF alarm of labeling station connecting status

Memory

	Present Value	Recipe
Product Name	ABCDEFGH	ABCDEFGH
Filling1 Parameter	12.34	12.34
Filling1 Speed	123	123
Filling2 Parameter	12.34	12.34
Filling2 Speed	123	123
Cappin Time	12.3	12.3
No Cap Sensor Checking Time	1.2	1.2
Infeed Sensor Checking Time	1.2	1.2
Infeed Bottle Counts	1	1
Infeed Sensor Delay Time	1.2	1.2
Clear Bottle Checking Time	12.3	12.3

Memory List 1/2

Memory List 2/2

Original Memory

Next

▲ ▼

Save Load

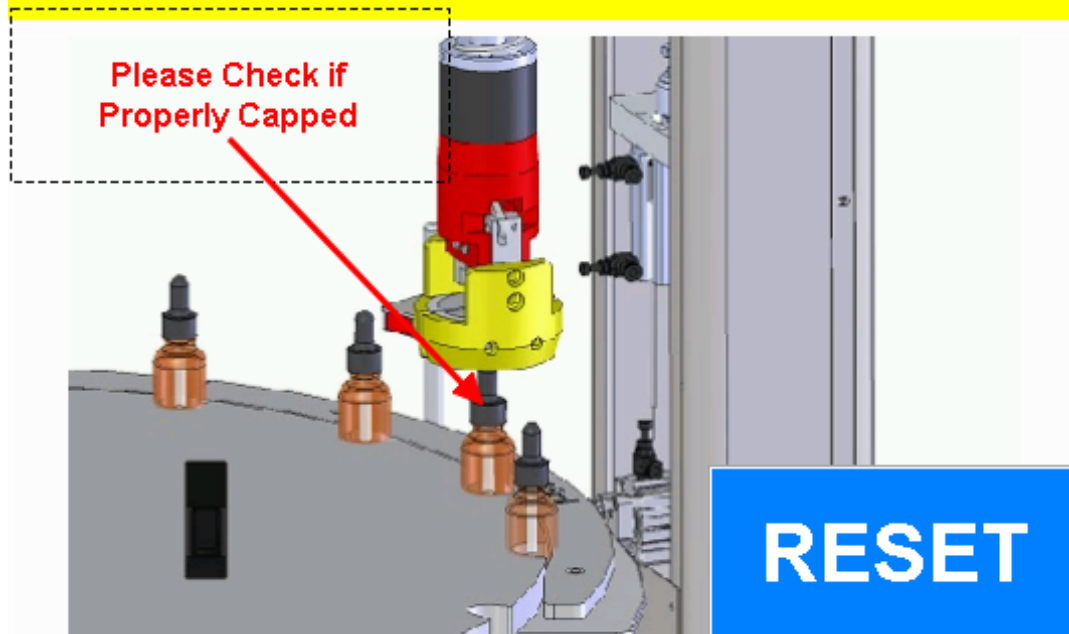
Memory 12

🏠

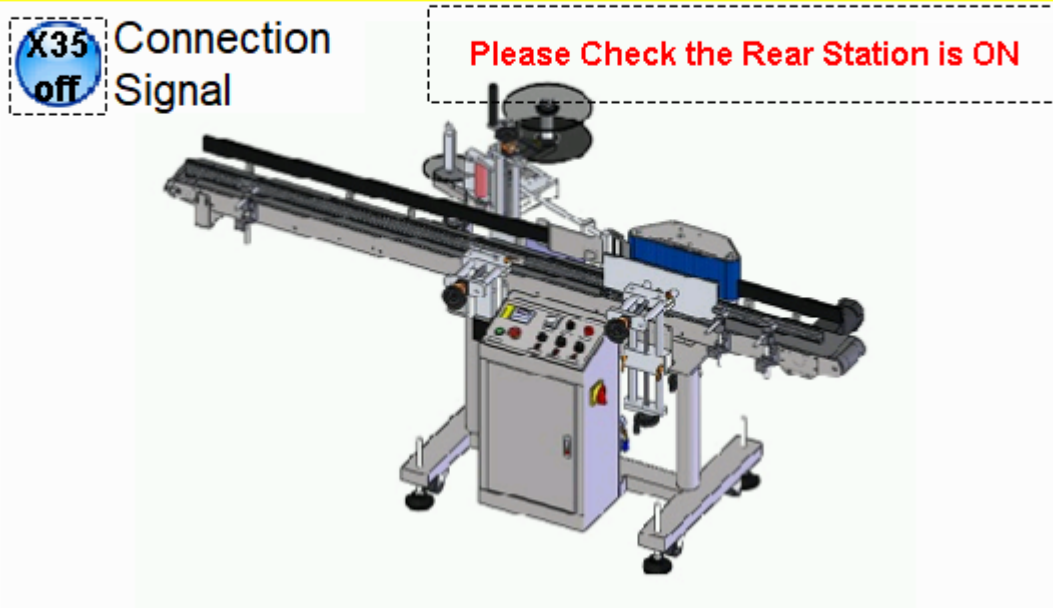
Present Value	The recipe currently running
Recipe	The chosen recipe stored in memory
Original Memory	The original recipe
Next	Next page of memory list
▲	Previous stored recipe
▼	Next stored memory
Save	To save the current parameter of recipe.
Load	To load the parameter of recipe to current parameter.

Warning System

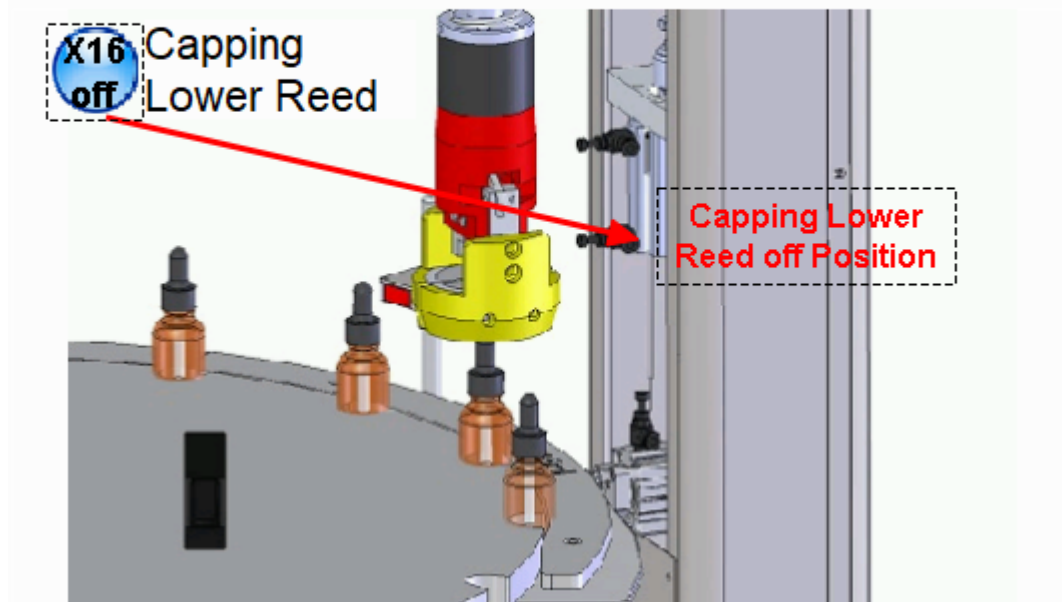
Capping Torque Error



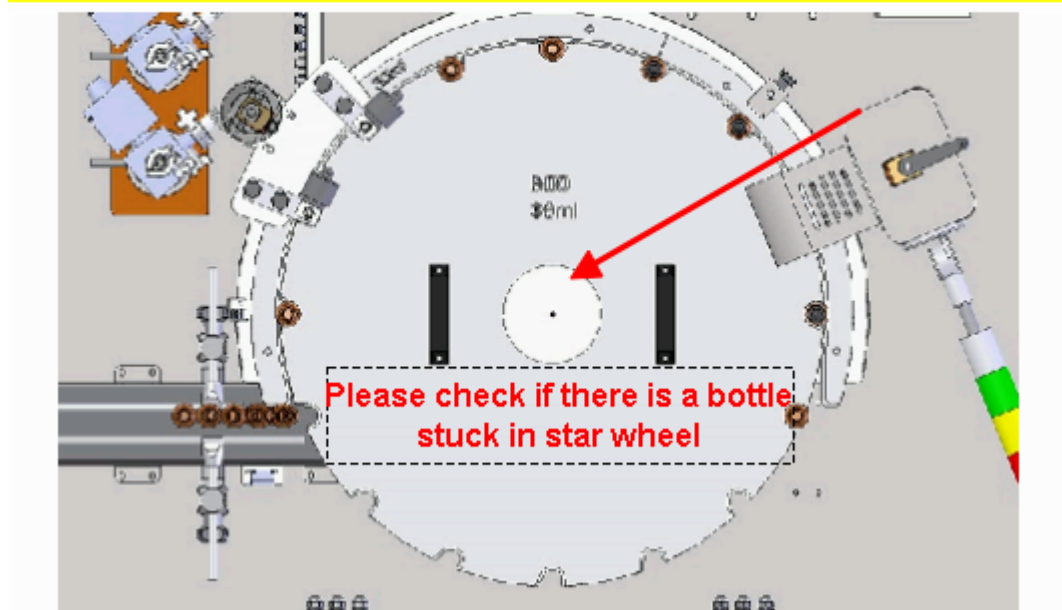
Rear Station is inactivate



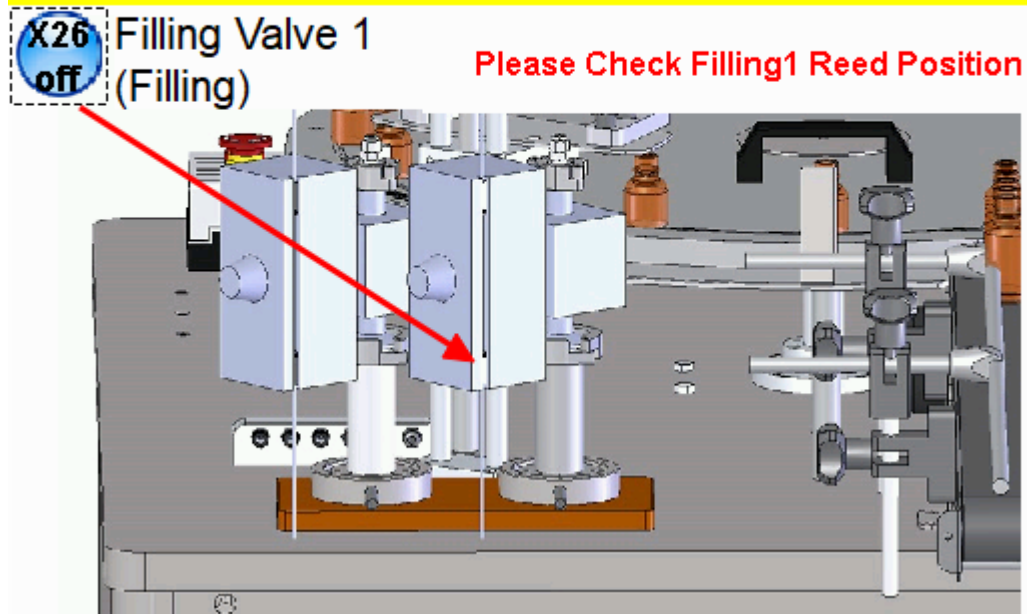
Capping Lower Reed Positioning Error



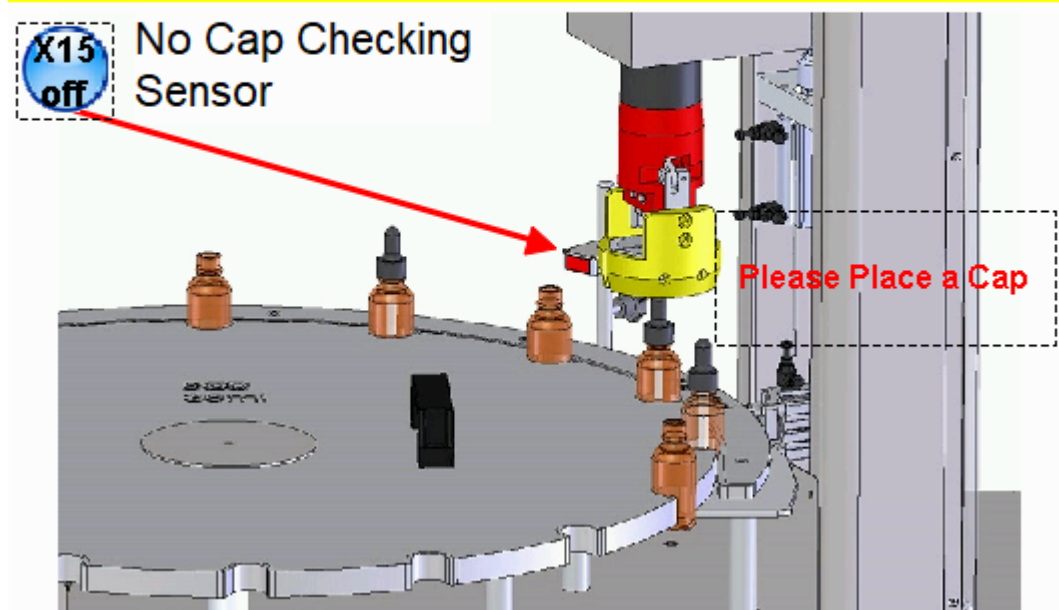
Star Wheel Positioning Error



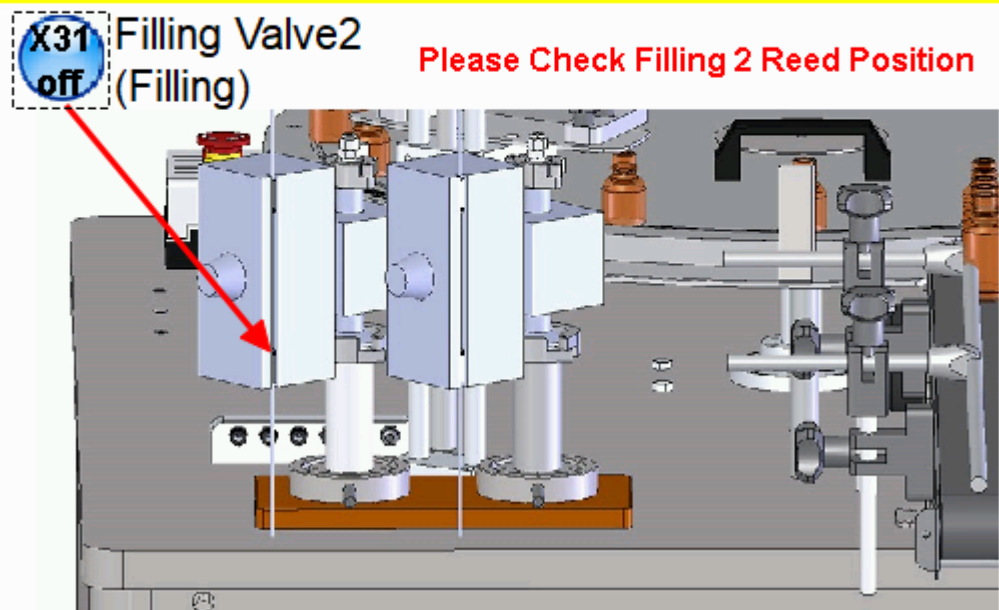
Filling1 Valve Reed off Position



No Cap

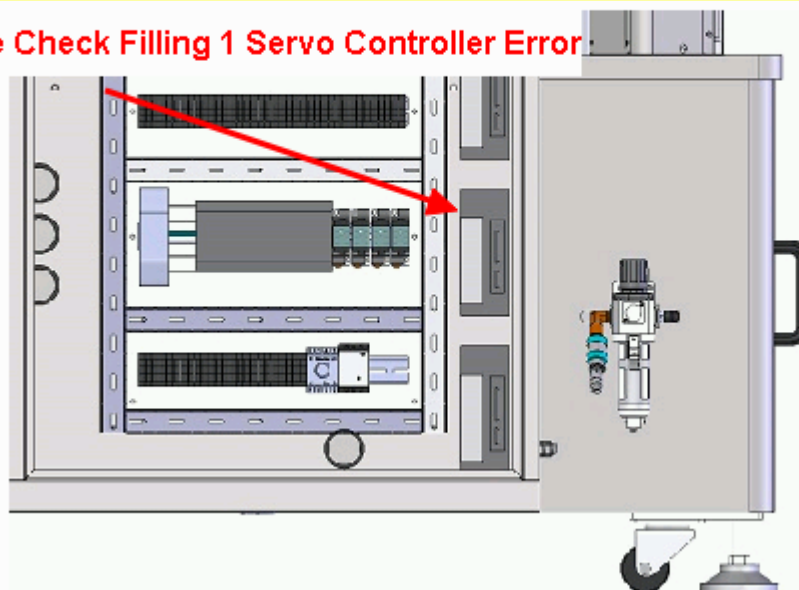


Filling2 Valve Reed off Position



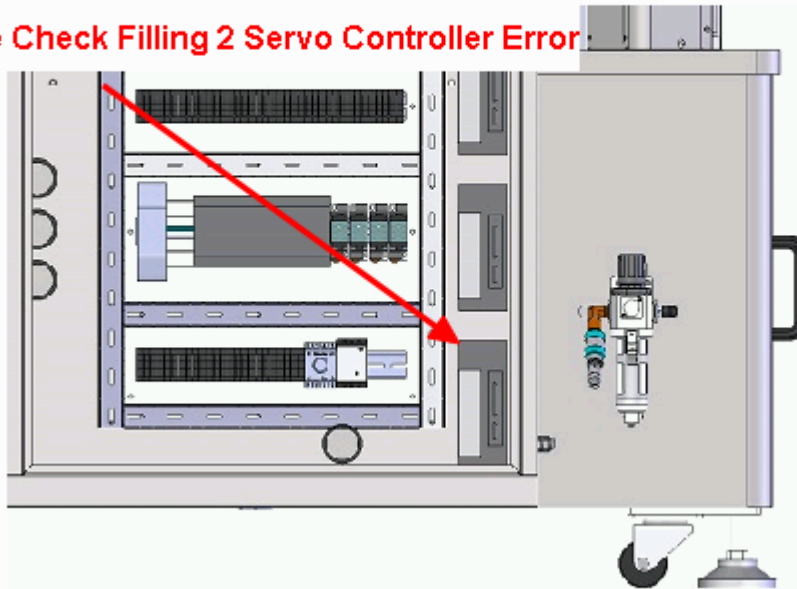
Filling 1 Servo Motor Error

Please Check Filling 1 Servo Controller Error



Filling 2 Servo Motor Error

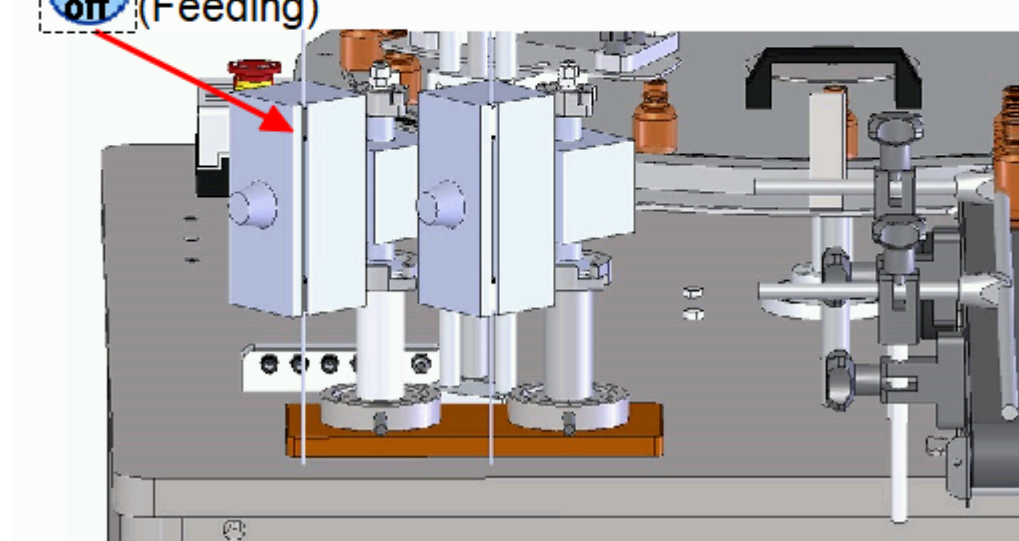
Please Check Filling 2 Servo Controller Error



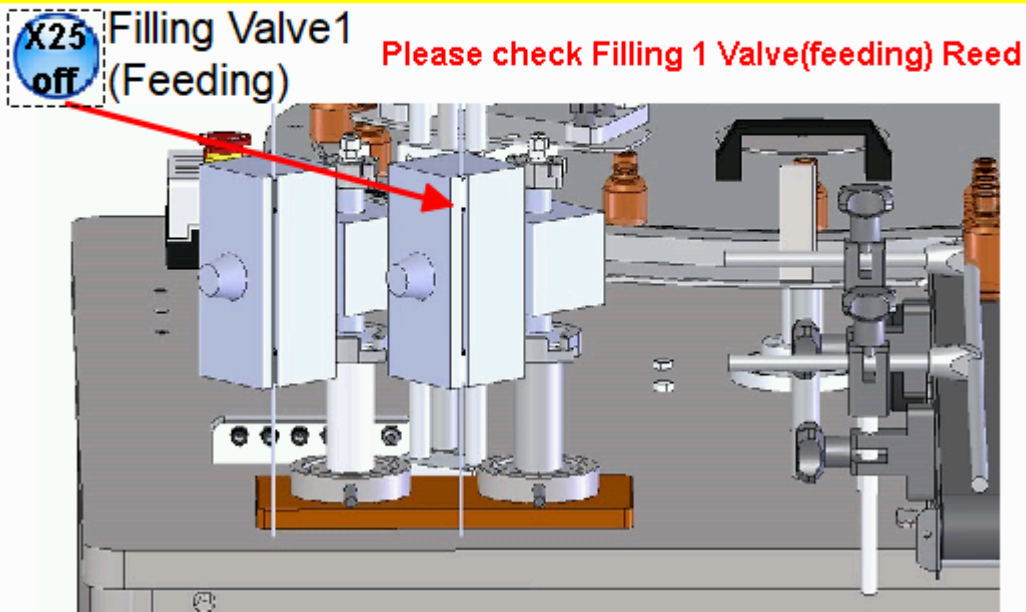
Filling2 Feeding Valve Reed Off Position

X30
off
Filling Valve2
(Feeding)

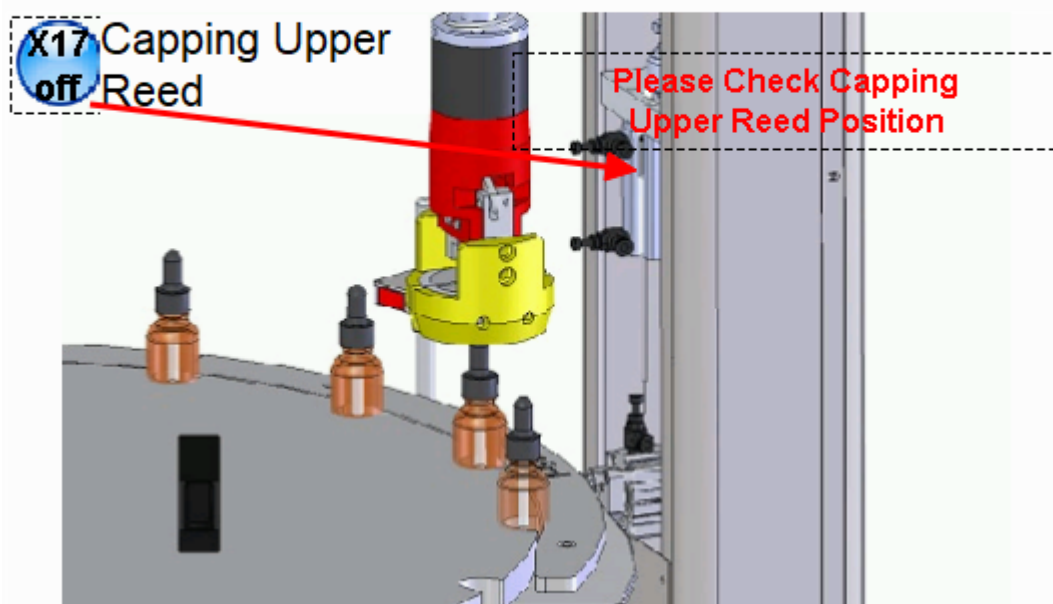
Please check Filling 2 Valve(feeding) Reed



Filling1 Feeding Valve Off Position

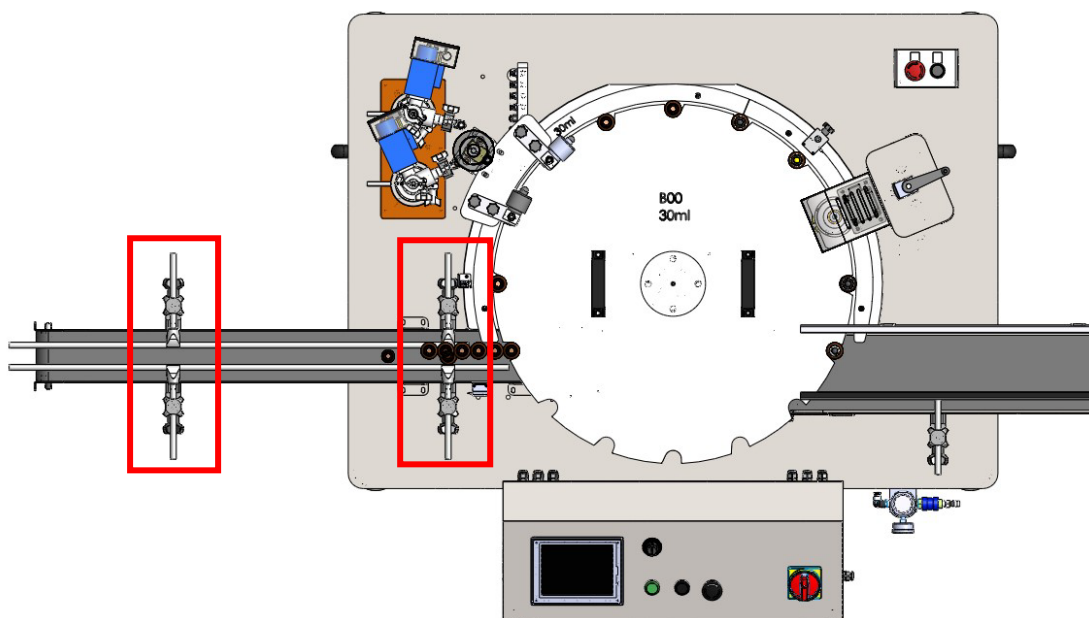


Capping Upper Reed Off Position



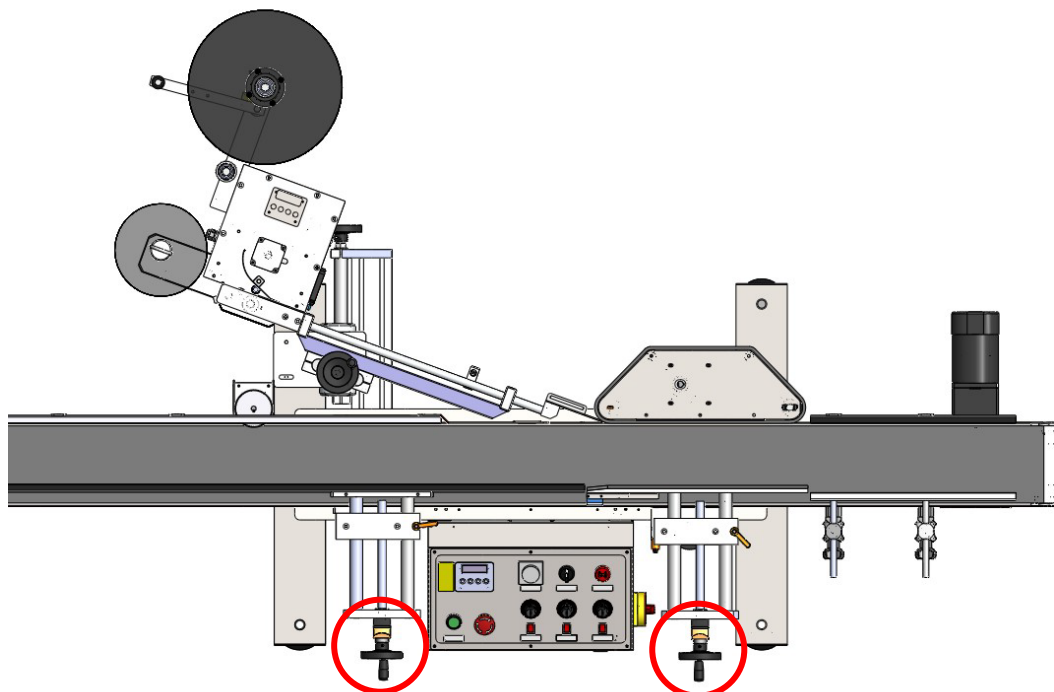
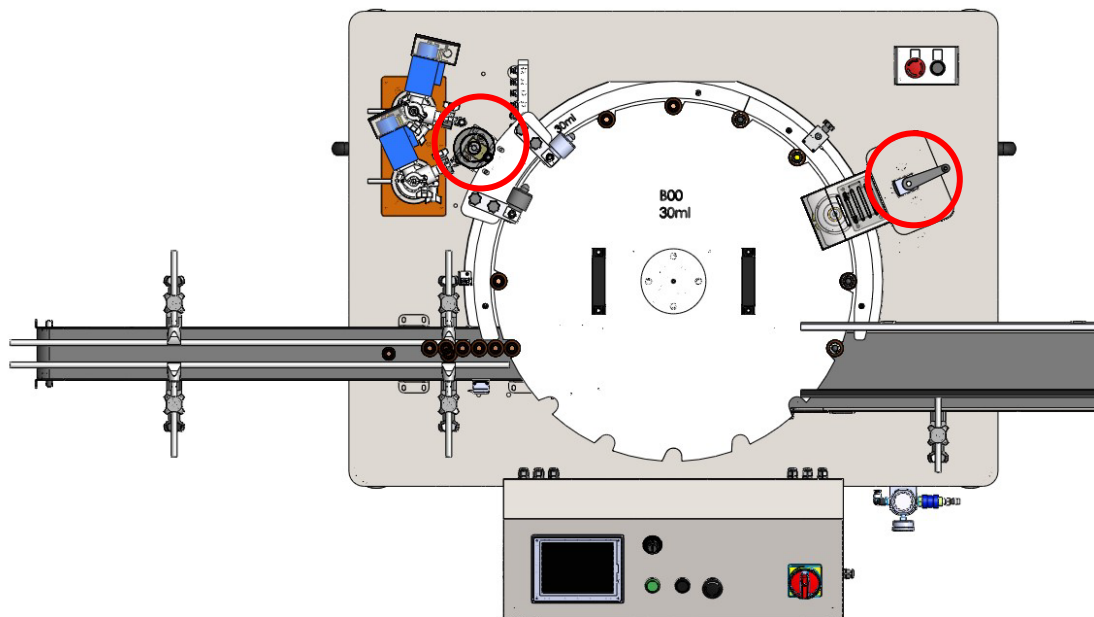
5.2 Mechanism Adjustment

Guide Rail Adjustment



Loosen the star knobs in the red rectangle. Adjust the guide rail to fit the bottle.

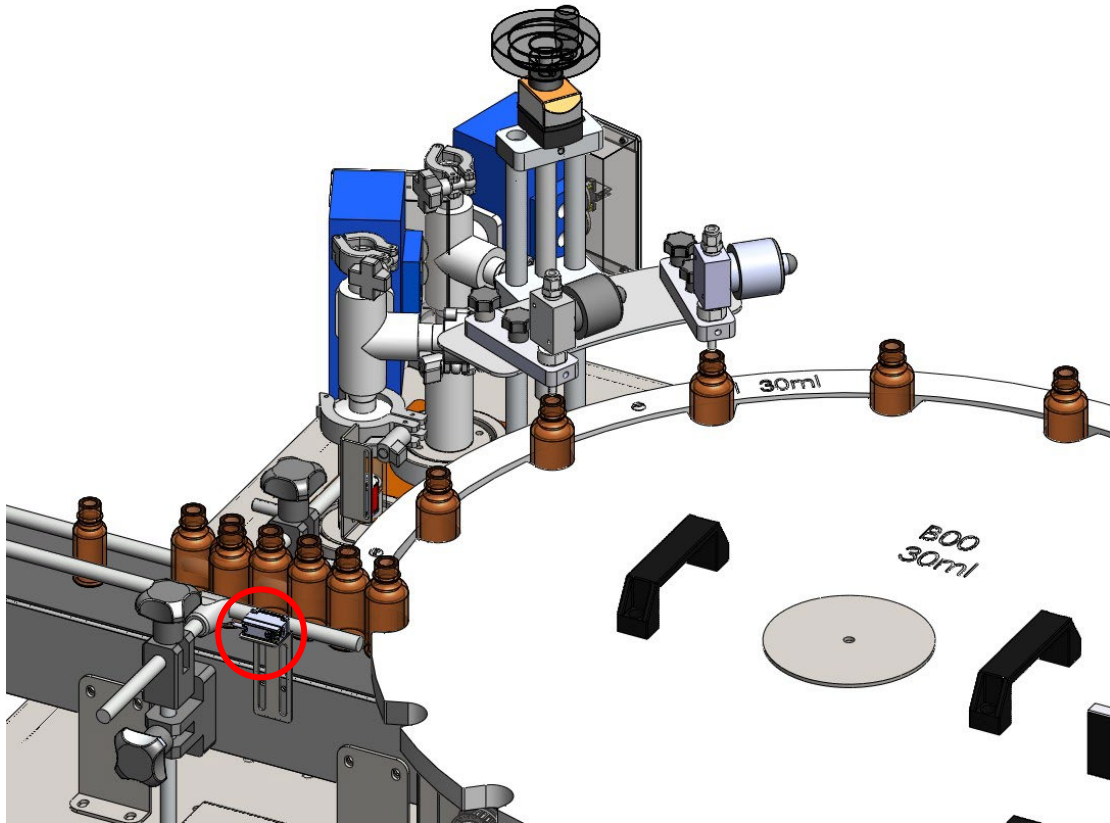
Hand-Wheels Adjustment



Adjust hand-wheels (circle in red) according to the parameter value provided in HMI(FC) & parameter table (LR).

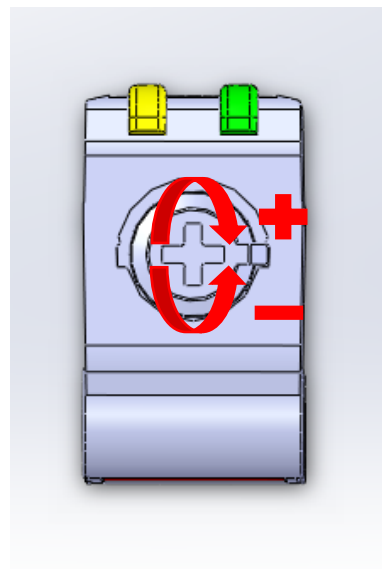
5.3 Sensor Adjustment

Infeed Sensor Adjustment

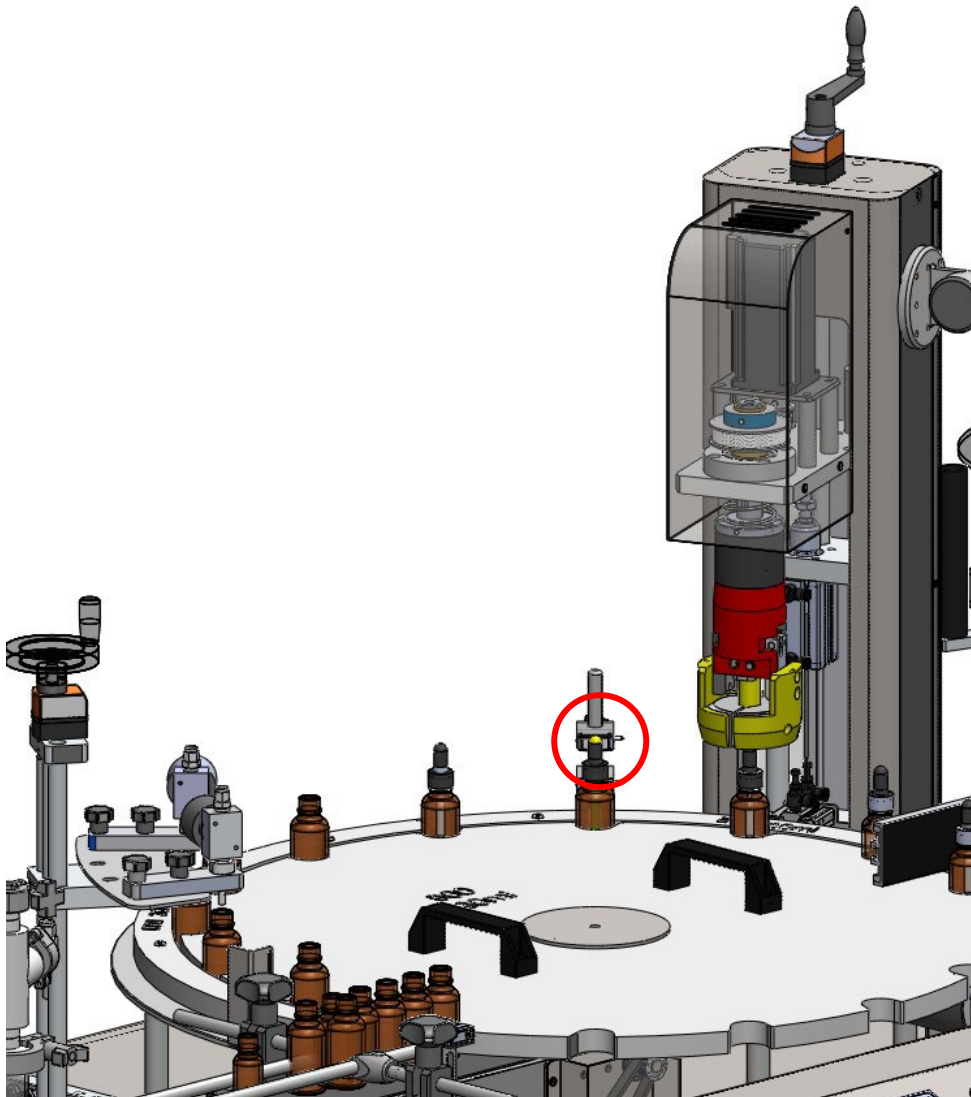


****The infeed bottle sensor should always aim on the THIRD bottle****

1. Check if the sensor illuminates only green light, when there is no bottle.
2. Check if the sensor illuminates orange and green light, when there is a bottle.
3. If the sensor is abnormal, please use a screwdriver to adjust its strength.
Turn right to increase its strength, and vice versa.

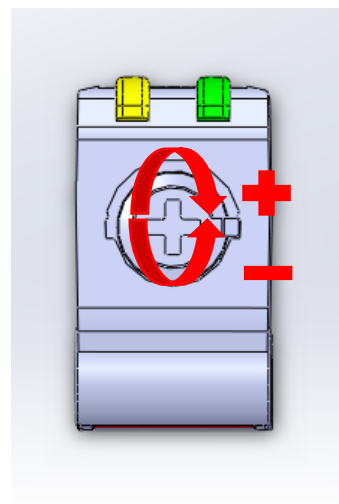


No Cap Sensor Adjustment



****The no cap sensor should always aim on the top part of the cap****

1. Check if the sensor illuminates only green light, when there is no cap.
2. Check if the sensor illuminates orange and green light, when there is a cap.
3. If the sensor is abnormal, please use a screwdriver to adjust its strength.
Turn right to increase its strength, and vice versa.



6 TROUBLE SHOOTING

6.1 Safety Rules For Electrical Control System

1. Only personnel who are properly trained and have adequate knowledge and skill should undertake all electrical/electronic troubleshooting and repair.
2. Do not alter or bypass protective interlocks.
3. Before starting, read and observe all warning labels.
4. When trouble shooting make sure the power source has been disconnected and main switch has been locked.
5. Take extra precautions in damp areas to protect you from accidental grounding.
6. Before applying power to any equipment, it must be established, without a doubt, that all persons are clear.
7. Do not open the electrical control panel unless it is necessary to check the electrical equipment.
8. Do not alter the electrical circuits unless authorized to do so by the manufacturer.
9. When replacing electrical components, make sure they conform to the manufacturer's specifications, including proper color coding.
10. Do not wear metal frame glasses, metallic necklaces or chains while working on any electrical equipment. Also, do not wear any ring, watch or bracelet while operating electrical equipment.

6.2 Possible Causes & Solutions

Trouble(s)	Possible Causes & Solutions
No Power	<ol style="list-style-type: none"> 1. Check if the power switch is “ON”. 2. Check if the plug is connecting or broken. 3. Check if the breaker is overloading.
Stop Running	<ol style="list-style-type: none"> 1. Check what status the HMI screen showed. 2. Repeat the steps of operation: push and twist emergency stop button, press reset button, and then push start button. 3. Switch to test mode to check individual module work or not. 4. Check if the PLC is in “RUN” Status.
Running, but nozzle won’t activate	<ol style="list-style-type: none"> 1. Check the sensor is in correct position. <p>Check if the PLC X dot is lightened when the sensor is On.</p>
Error Diagnosing Steps	<ol style="list-style-type: none"> 1. Motor: Enter test mode>Check if the PLC Y dot is lightened> Check if the relay is lightened>Check if the VFD is “Running”>Check if there is voltage in the motor. 2. Cylinder: Enter test mode>Check if the PLC Y dot is lightened> Check if solenoid valve is lightened> Remove the air tube of cylinder. Check if the air route is changing when solenoid valve is On. 3. Sensor: Check if the PLC X dot is lightened, when the sensor is On.

- In case there is any problem or malfunction that you cannot solve, please contact us immediately.

7 REFERENCE TABLE

Hand-wheel parameter table for LR3000 labeling machine

Hand-wheel/ product	15ml	30ml
Spacing guide rail	0	100
Wrap belt guide rail	0	71