

Technical News Bulletin

Sundsvall, October 2024



FLEXRobot
BLOWSIDE

- No need for manual swabbing
- Independent double spraying of blow molds and bottom plate
- Precise control of the spraying to lube only required portions of the blow molds
- Seamlessly integrated with the FlexRobot Blankside
- Increased container production output
- Reduced risk of potential accident

Introduction

The FlexRobot Blowside is the Bucher Emhart Glass solution to eliminate manual swabbing of blow molds and bottom plates. Fully integrated into the Bucher Emhart Glass IS, AIS, and NIS machines, the FlexRobot BW is mounted on a dedicated guide rail above the conveyor and incorporated into the FlexIS control. All control hardware fit into one single control cabinet for easy installation. The user interface is shared with the FlexRobot Blankside.

Only one FlexRobot Blowside is required for a tandem machine.

The integrated FlexRobot systems for blank and blow side are part of Bucher Emhart Glass strategy to provide automation solutions for increased safety and profitability.

Main advantages

- **Consistent swabbing**
A robot is perfect for repetitive tasks like swabbing molds. It is precise, consistent, repetitive and fast, enhancing the container forming process control.
- **Smart spraying**
The FlexRobot Blowside spraying tool patented technology sprays the blow molds and the bottom plate independently. The spraying can be controlled to lube only the required portions of the molds.
- **Less swabbing compound consumption**
Smart spraying reduces the usage of lubricant by up to 75%.
- **Increase the container production output**
The FlexRobot Blowside swabs the blow molds and bottom plates in coactivity with the FlexRobot Blankside alternate cycle. With no extra rejects, the output from the machine is increased.
- **Increase mold lifetime**
The lubricant is sprayed inside closed molds without contact between the spray nozzles and the mold surface, reducing wear on the molds.
- **Gain time for production fine tuning**
The FlexRobot Blowside frees up time for the operator that can be allocated for the process sensor systems to fine tune the container production, to achieve a higher output from the machine.
- **Reduced potential risk of accidents**
The FlexRobot Blowside reduces the operator interaction with the machine.

- Eliminate strain injuries
Using a FlexRobot Blowside eliminates strain injuries caused by repetitive manual swabbing.
- Cleaner machine
The small amount of lubricant applied into closed molds drastically reduces the contamination of the machine.
- Less environmental impact
The small amount of lubricant reduces the amount of smoke during swabbing.
- Connection to the Bucher Emhart Glass Advanced Data Interface
Single point of access for all your data and increased IT security.
- Automatic signal exchange between FlexIS control and FlexRobot Control
The signal exchange, facilitated by an interface controller, eliminates the need to enter settings manually, reducing the risk of collisions due to incorrect settings. (The interface controller is compatible only with FlexIS 3 and will be available first quarter of 2025).



Human Machine Interface (HMI)

Two high-resolution displays combined with smart design of the menus shows more information for a better overview of the system status. Both displays are shared with the FlexRobot Blankside.

The screenshot displays the FLEXRobot HMI interface. On the left is a sidebar with 'System Language' set to English, 'User authentication' (Name: User, Password: [redacted], Type: Advanced), and a 'Navigation' menu with options like 'Automatic sequence', 'Robot alarms', 'Data collection', 'Swabbing settings', 'Section settings', 'IS communication', and 'System settings'. The main area is divided into three sections: 'Plant', 'Line', and 'Manual'. The 'Plant' and 'Line' sections show 'Blank side' status (FAULT, SAFETY, RUNNING) and 'Robot positions' (23). The 'Manual' section shows 'Manual 10 b/c/m'. Below these are 'Control' buttons (Resume, Reset, Cycle stop, Extract) and 'Robot ID' (23). The bottom section contains 'Modes' (Semi-automatic), 'Robot selection' (Blank Side), 'Blank Side' status, 'Cycle functions' (Swabbing repeat, Coactivity), 'Maintenance functions' (Initial position, Out of heating box, Front of section), 'Spray test' (Pressure: 0.0, Time: 2.0), 'Oil tank stirrer' (Enable), 'Blow mold' (Enable), 'Cycle type selection' (Only swabbing), and 'Sections and types selection' (Ascending, Descending, Unselect all, All sections, A machine, B machine). A table at the bottom lists sections 1 through 20, each with a dropdown menu set to 'Blank+NR'. At the bottom right are 'Left', 'Center', and 'Right' buttons.

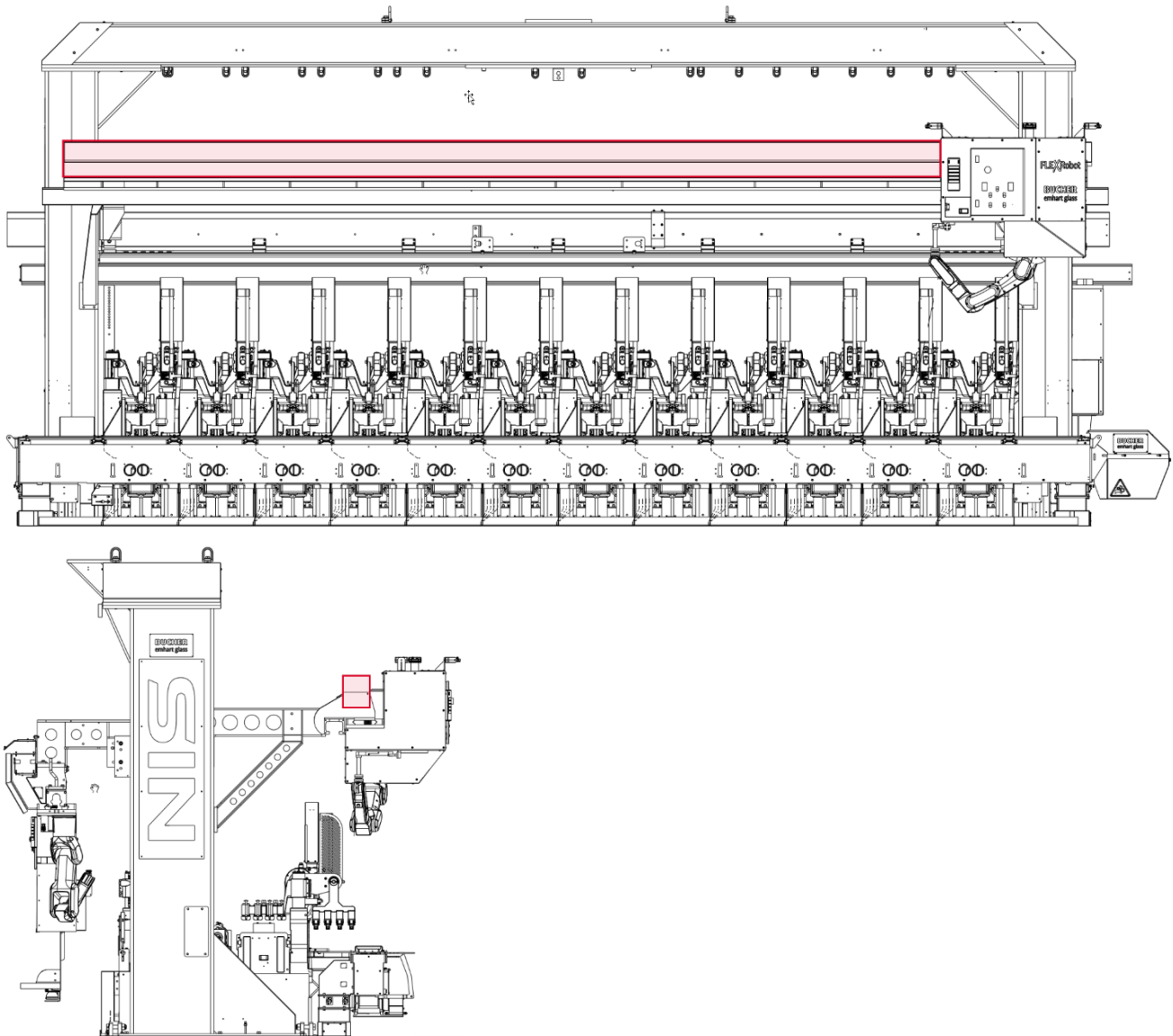
The main display is integrated in the FlexRobot Blankside cabinet.

The screenshot shows a remote display with five main sections. The top left section shows 'Robot status' (FAULT, SAFETY, RUNNING), 'Oil tank' (OIL LEVEL bar), and 'Robot positions' (INIT POS, 23). The top middle section shows 'Next automatic cycle' (14:34:07) and 'Waiting for startup'. The top right section is 'Critical data event'. The bottom left section shows 'Blow Side' status (FAULT, SAFETY, RUNNING), 'Oil tank' (OIL LEVEL bar), and 'Robot positions' (INIT POS, 23). The bottom middle section shows 'Current cycle' (Cycle Mod, Cycle Type, Coactivity ON/OFF). The bottom right section shows 'Machine speed' (Line, Manual, 10 b/c/m).

The remote display, located near the forming machine, allows operators to easily monitor the status of the FlexRobots when working around the forming machine.

Integration

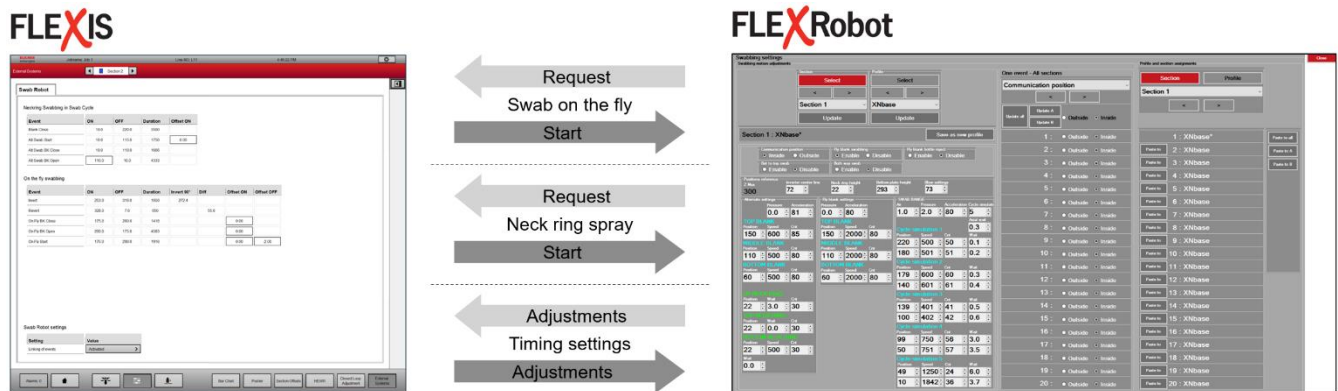
The FlexRobot Blowside is available for both new and existing forming machines. As a part of Bucher Emhart Glass complete machine system, it operates seamlessly with existing and future blow side equipment. The energy chain is integrated on top of the guide rail for easy installation. (Contact Bucher Emhart Glass for installation clearance requirements).



The red area shows the location of the energy chain above the FlexRobot Blowside guide rail.

Data Interface

The FlexRobot Blowside maintains constant communication with the FlexIS control system, allowing remote support, data collection, and signal exchange. The signal exchange, facilitated by an interface controller, eliminates the need to enter settings manually, reducing the risk of collisions due to incorrect settings. The interface controller is compatible only with FlexIS 3 and will be available first quarter of 2025.



System Components

The FlexRobot Blowside system consists of:

- 607-22-1
 - FlexRobot 607-207-00
 - Spraying tool 607-206-00
 - Energy chain 607-208-00
 - Interface kit 607-211-00
 - I/O module 607-210-00
 - Cable overview 607-226-00
 - Electrical diagram single machine 607-231-00
 - Electrical diagram tandem machine 607-233-00
 - IS/AIS layout 200-1973-00
 - NIS layout 400-5377-00
 - Spare parts 607-98-00

Installation Requirements

- Forming machine requirements
 - The FlexRobot Blowside is only available for Bucher Emhart Glass IS, AIS, or NIS forming machines equipped with a FlexRobot CONNECT or a FlexRobot Blankside.
- FlexIS control requirements:
 - The FlexRobot Blowside with interface controller is only available with FlexIS 3.
 - The FlexRobot Blowside without interface controller is also available for FlexIS 1 and 2.
- UPS system requirements:
 - The FlexRobot Blowside must be wired to the UPS system before the startup.
- Utilities:
 - Power supply
 - 200 to 230 VAC
 - 50 to 60 Hz
 - Power consumption maximum
 - 1,61 kVA.
 - Power consumption standby
 - 1,15 kVA
 - Compressed air
 - 5 bar
 - 1000 l/min.
- Operating temperature
 - 0 to 45°C

Features / Benefits

Features

Consistent swabbing

Smart spraying

Removes manual labor

Data extraction

Benefits

Tighter process control

Increased container production output

Independent double spraying of blow molds and bottom plate.

Precise control of the spraying to lube only required portions of the blow molds.

Up to 75% reduction in lubricant usage.

Reduced potential risk of accidents

Elimination of strain injuries

Free up operator time for production fine-tuning and maintenance.

Production data available for correlation and analysis

Bucher Emhart Glass supplies glass forming machines with integrated FlexRobot Blankside and FlexRobot Blowside.

