

Technical News Bulletin

Sweden, June 2024



FLEXStacker 2

- Fully integrated in FlexIS 3 Forming Control System
- Same user interface as FlexIS 3
- Robust design
- No need for cooling

Introduction

To keep up with the continuous improvements of the hollow glass forming process and the increased production throughput, requiring the most efficient and reliable ware handling, Bucher Emhart Glass introduces the latest generation of glass container stacking system with the FlexStacker 2.

Description

The FlexStacker 2 system is a 3-axis stacker driven by servo drives, using airless pushbar. It is fully integrated into and controlled by the FlexIS 3 Forming Control System.

Integrated controls into FlexIS 3

The full integration of the FlexStacker 2 into the FlexIS 3 Forming Control System allows to control the motion of the drives directly from the FlexIS UC2 user console, with no need of an additional screen or control software. The well-known FlexStacker 1 software is integrated in the FlexIS 3 user interface for ease of use and comprehensive setup. All FlexStacker 2 parameters are automatically saved, together with other machine parameters, in the FlexIS job file.

Screenless design

The FlexStacker 2 is equipped with a user-friendly control panel, with no need for a local integrated display, since all parameters are set from the FlexIS UC2 or from the FlexPad for a close control of the FlexStacker 2 motion.

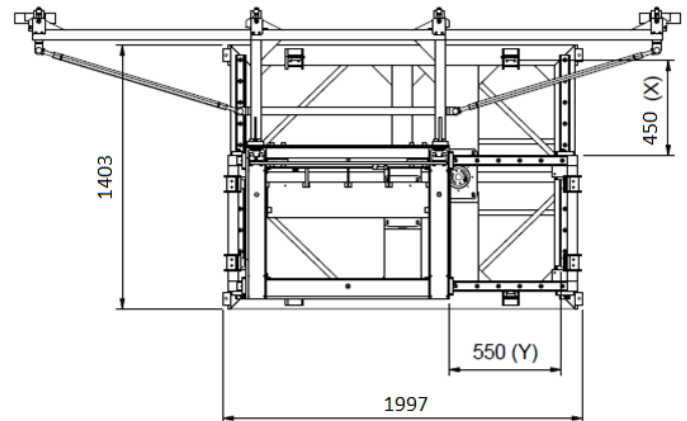
The screenshot displays the 'Ware Handling Controller' software interface. The main window is titled 'Parameters' and contains a table of settings. The 'Forward Dist For Lift [mm]' parameter is highlighted in red and set to 120.0. To the right of the table is a 'Number Pad' with a digital display showing '120,0 mm' and a range of '50.0 to 200.0'. Below the table are several buttons: 'Check Feasibility', 'Optimize', 'Apply Optimization Results', 'Show Expert Parameter', and 'Export'. At the bottom of the interface are status indicators for 'Alarms: 3' and various machine components like 'Machine Conveyor', 'Ware Transfer', 'Cross Conveyor', 'Stacker', 'MCU', and 'Stacker Pulse'.

Profile Parameter	Setting	Actual
Pushbar Length [mm]	2280	2280
Bottle Diameter [mm]	58.0	58.0
Articles Across	28	28
Article Spacing [mm]	81.43	81.43
Staggered Stacking	Off	Off
Forward Pullback Distance [mm]	3.0	3.0
Lift Height [mm]	150.0	150.0
Forward Dist For Lift [mm]	120.0	120.0
Push Height [mm]	1.0	1.0
Forward Distance Synchronous to Lehr	1.0	1.0
Gap In Lehr [mm]	0.0	0.0
Final Push Into Lehr [mm]	0.0	0.0
Pushbar Type	Default	Default
Forward Start Offset [mm]	0.0	0.0
Cross Conveyor Center Offset Forward	0.0	0.0
Sideshift Start Offset [mm]	0.0	0.0

Enhanced mechanical design

FlexStacker 2 is the natural evolution of FlexStacker 1 design, featuring enhanced mechanical components that ensure increased robustness and longevity within a similar layout.

The FlexStacker 2 system operates with rack-and-pinion drives instead of the traditional belt drives. This allows faster accelerations while maintaining the precision of the pushbar motion, resulting in a smooth and accurate stacking of the containers into the lehr.



Driven linear Z-axis

The integration of a motor-driven linear Z-axis ensures autonomous control of the pushbar vertical motion. Unlike gravity-dependent mechanism, this feature offers improved control and reliability when adjusting the up and down motion of the pushbar, ultimately resulting in more precise stacking.

4-point lifting frame

FlexStacker 2 is equipped with a 4-point lifting frame as a standard supply. This solid design allows the use of pushbars longer than 3500 mm at increased speeds while minimizing the flutter, with no need to use pushbar outriggers.

The height-adjustable lifting frame can accommodate lehr heights ranging from 750 mm to 1150 mm. This one-size-fits-all solution ensures an easier setup and specification process.

Pushbars

The FlexStacker 2 maintains design consistency with the FlexStacker 1, by utilizing the same airless pushbars (379-960-00). This allows customer to repurpose older airless pushbars and means air-cooled pushbars are not compatible with the FlexStacker 2. Airless pushbars longer than 3500mm are easily retrofitted for 4-point lifting frames by using the 379-1388 kit.



Increased speed and efficiency

Thanks to its optimized design and upgraded mechanics, the FlexStacker 2 can attain cross conveyor speeds of up to 55 m/min, leading to a significant boost in productivity and throughput.

Main data

FlexStacker 2, Master Drawing	379-101-00
Maximum push (forward motion, X-axis)	450 mm
Maximum lateral motion (sideshift motion, Y-axis)	550 mm
Maximum lift stroke (lift motion, Z-axis)	500 mm
Maximum operating speed (Y-axis direction)	55 m/min

Installation requirements & FlexIS 1 installations

The electrical installation requirements depend on the machine configuration since the FlexStacker 2 is integrated in the FlexIS 3 cabinet. This can be calculated using drawing 601-20010.

The Flexstacker 2 requires FlexIS 3. For installation on machines not equipped with FlexIS 3, the following upgrade is required:

- FlexIS 3 Machine Controller
- FlexIS 3 Ware handling Controller
- FlexIS 3 Operator stations
- UC2

This upgrade also opens the possibility of integrating additional systems like the SmartFeeder, Bottle ID, and Interface controller.

Product Structure

The FlexStacker 2 is available only with FlexIS 3 Forming Control System.

For installation on machines equipped with FlexIS 3, the following parts are required:

- 1x 379-40-1 FlexStacker 2
- 1x 379-48-1 (optional) Recommended spare parts
- 1x 601-709 FlexIS 3 stacker kit
- 1x 601-92-XX OS cable
- 3x 601-242-XX Motor power cables
- 3x 601-243-XX Resolver cables

Features

Integrated controls in FlexIS 3

Same user interface as FlexIS 3

Same operation as FlexStacker 1

Standard 4-point lifting frame

Enhanced mechanical design

Driven linear Z-axis

No cooling required

Benefits

Save space as no standalone cabinet needed

FlexStacker 2 settings are saved in the FlexIS job file

Quick learning curve

Increased motion stability for very long pushbars, up to 5500 mm

Improved robustness with rack and pinion drive.

Increased operating speed

Improved reliability and stacking precision

Reduced operational cost as no critical components to be cooled down
