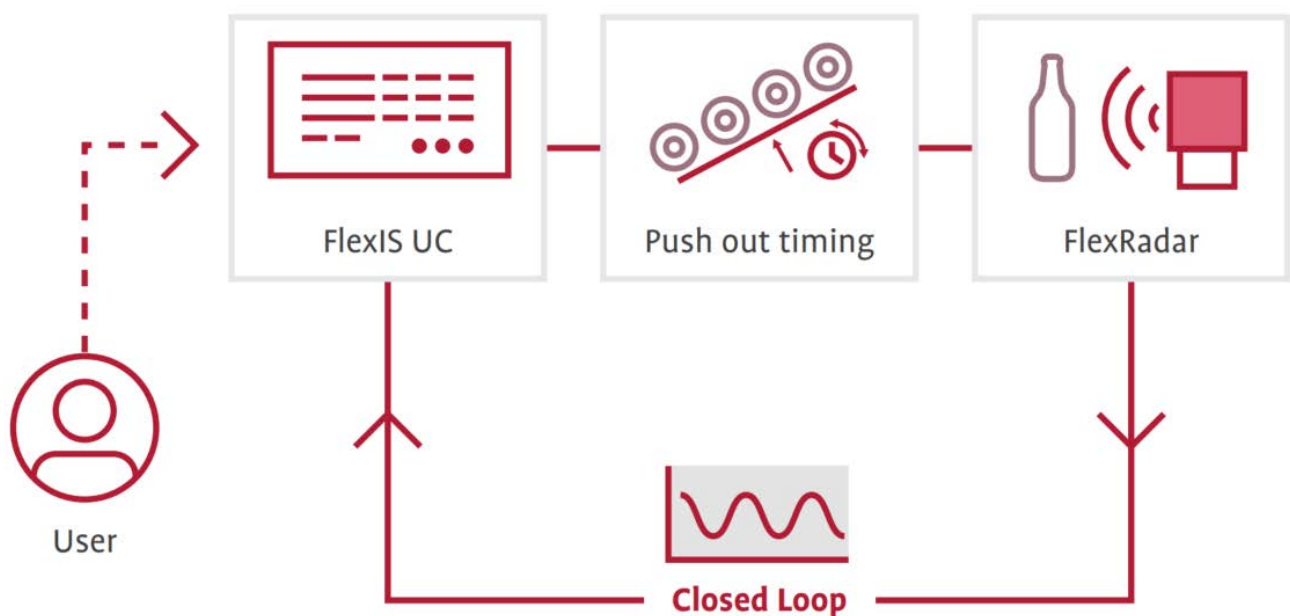


# Technical News Bulletin

Steinhausen, April 2020

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## FlexIS Bottle Spacing Control

- Automatically adjusts the ware spacing on the conveyor
- FlexIS Bottle Spacing Control is fully integrated into FlexIS controls
- Optimal addition to FlexIS remote service

## Introduction

FlexIS Bottle Spacing Control is a closed loop available in the FlexIS Timing using information from the FlexRadar forming process monitor system. For each bottle, a deviation value to the ideal position on the conveyor axis is transmitted and used to adjust the Pushout timings.

The closed loop averages the position deviations for each section and calculates a correction for the Pushout and related events, so that the bottles maintain equally distributed on the conveyor axis.

## Setting Description

FlexIS Bottle Spacing Control is fully integrated into the FlexIS controls (FlexIS 1, 2 and 3). The user can see the actual average deviation value for each section on the Pusher user interface. The user can also switch the closed loop on or off with a button on the same page.

EMHART GLASS

JOBID: 1118\_477b

Speed: 214.3 BPM

USER ID: 3

LINE: 010

ONLINE

28.01.15 20:10:08

Gob Forming and Delivery

Section Adjustment

Section Setup

Machine Adjustment

Machine Setup

Ware Handling

Diagnostics 1

Diagnostics 2

Jobs

Lineserver

Pusher

| Section                    | 01     | 02      | 03      | 04     | 05     | 06     | 07     | 08     | 09      | 10     | 11      | 12      |
|----------------------------|--------|---------|---------|--------|--------|--------|--------|--------|---------|--------|---------|---------|
| Finger angle out [arc]     | 091.0  | 091.0   | 091.0   | 091.0  | 091.0  | 091.0  | 091.0  | 091.0  | 091.0   | 091.0  | 091.0   | 091.0   |
| Belt contact vel. [%]      | 40.10  | 40.10   | 40.10   | 40.10  | 40.10  | 40.10  | 40.10  | 40.10  | 40.10   | 40.10  | 40.10   | 40.10   |
| Belt approach dur. [* rel] | 080.0  | 080.0   | 080.0   | 080.0  | 080.0  | 080.0  | 080.0  | 080.0  | 080.0   | 080.0  | 080.0   | 080.0   |
| Retract dur. [* rel]       | 015.0  | 015.0   | 015.0   | 015.0  | 015.0  | 015.0  | 015.0  | 015.0  | 015.0   | 015.0  | 015.0   | 020.0   |
| Pushout On [*]             | 100.3  | 97.1    | 098.6   | 098.6  | 099.8  | 099.2  | 100.0  | 100.0  | 099.1   | 100.5  | 101.7   | 101.9   |
| Pocket air ON [* rel]      | -029.9 | -010.0  | -010.0  | -010.0 | -020.0 | -010.0 | -010.0 | -010.0 | -010.0  | -010.0 | -008.9  | -005.3  |
| Pocket air OFF [arc]       | 089.4  | 089.1   | 089.3   | 089.1  | 089.2  | 089.1  | 089.3  | 089.9  | 089.1   | 089.9  | 094.3   | 110.2   |
| actual deviation [*]       | 000.07 | -000.43 | -000.13 | 000.02 | 000.05 | 000.15 | 000.08 | 000.00 | -000.11 | 000.00 | -000.10 | -000.09 |

Fill Selected Parameter

Toggle

Auto Spacing On/Off

Conveyor

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FlexPusher user interface page with FlexIS Bottle Spacing Control (UC 1): Coloured status indication, measured deviation values for each section, corrected Pushout On angles and *Auto Spacing On/Off* button.

| <div> <div>BUCHER emhart glass</div> <div>Jobname: EGRC-Job</div> <div>Line-NO: 64</div> <div>User-ID: Supervisor</div> <div>ONLINE</div> <div>Speed: 120.0 bpm</div> <div>Jun 25, 2018</div> <div>10:29:31 AM</div> <div></div> </div> |       |        |       |       |        |        |        |        |        |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|-------|-------|--------|--------|--------|--------|--------|--------|
| Pusher Data                                                                                                                                                                                                                             |       |        |       |       |        |        |        |        |        |        |
| Section                                                                                                                                                                                                                                 | 1     | 2      | 3     | 4     | 5      | 6      | 7      | 8      | 9      | 10     |
| Pushout On [°]                                                                                                                                                                                                                          | 350.0 | 348.8  | 356.6 | 351.2 | 355.0  | 355.0  | 353.0  | 353.0  | 353.0  | 353.0  |
| Pocket Air On [° rel]                                                                                                                                                                                                                   | -75.0 | -75.0  | -75.0 | -75.0 | -75.1  | -75.1  | -75.1  | -75.1  | -75.1  | -75.1  |
| Pocket Air Off [arc]                                                                                                                                                                                                                    | 94.5  | 94.5   | 94.5  | 94.5  | 94.8   | 94.8   | 94.8   | 94.8   | 94.8   | 94.8   |
| Speed Ratio [%]                                                                                                                                                                                                                         | 80    | 75     | 90    | 80    | 90     | 90     | 90     | 90     | 90     | 90     |
| Gap [mm]                                                                                                                                                                                                                                | 0.0   | 0.0    | 0.0   | 0.0   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| Capture duration [° rel]                                                                                                                                                                                                                | 12.0  | 12.0   | 12.0  | 12.0  | 12.0   | 12.0   | 12.0   | 12.0   | 12.0   | 12.0   |
| Min. arm angle [arc]                                                                                                                                                                                                                    |       |        |       |       |        |        |        |        |        |        |
| Arm angle out [arc]                                                                                                                                                                                                                     | 175.0 | 175.0  | 175.0 | 175.0 | 165.0  | 165.0  | 165.0  | 165.0  | 165.0  | 165.0  |
| Extend ON [° rel]                                                                                                                                                                                                                       | -88.4 | -84.5  | -82.4 | -88.4 | -130.0 | -130.0 | -130.0 | -130.0 | -130.0 | -130.0 |
| Extend OFF [° rel]                                                                                                                                                                                                                      | -1.0  | -1.0   | -1.0  | -1.0  | -20.0  | -20.0  | -20.0  | -20.0  | -20.0  | -20.0  |
| Arm hard stop [arc]                                                                                                                                                                                                                     | 21.0  | 22.0   | 18.0  | 18.0  | 13.0   | 13.0   | 18.0   | 18.0   | 18.0   | 18.0   |
| Finger hard stop [arc]                                                                                                                                                                                                                  | 14.0  | 10.0   | 6.0   | 13.0  | 8.0    | 8.0    | 9.0    | 9.0    | 9.0    | 9.0    |
| Offset [°]                                                                                                                                                                                                                              | 0.00  | 348.00 | 67.00 | 56.00 | n/a    | n/a    | n/a    | n/a    | n/a    | 0.00   |
| Sweep angle [arc]                                                                                                                                                                                                                       | 60.0  | 60.0   | 60.0  | 60.0  | 60.0   | 60.0   | 60.0   | 60.0   | 60.0   | 60.0   |
| Linear Begin [arc]                                                                                                                                                                                                                      | 90.0  | 90.0   | 90.0  | 90.0  | 80.0   | 80.0   | 80.0   | 80.0   | 80.0   | 80.0   |
| Linear End [arc]                                                                                                                                                                                                                        | 120.0 | 120.0  | 120.0 | 120.0 | 110.0  | 110.0  | 110.0  | 110.0  | 110.0  | 110.0  |
| Return dur. [° rel]                                                                                                                                                                                                                     | 50.0  | 60.0   | 60.0  | 60.0  | 40.0   | 40.0   | 40.0   | 40.0   | 40.0   | 40.0   |
| Actual Deviation [°]                                                                                                                                                                                                                    | 0.00  | 0.02   | -0.04 | -0.06 | ---    | ---    | ---    | ---    | ---    | ---    |

Alarms: 6

Bar Chart

Pusher

Section Offsets

HEWR

Closed Loop Adjustment

FlexPusher user interface page with FlexIS Bottle Spacing Control (UC 2): Coloured status indication, measured deviation values for each section, corrected Pushout On angles.

## Settings

- FlexIS Bottle Spacing Control on / off
- Limits for the correction of the Pushout On angle are calculated automatically out of the relevant timing settings of the FlexIS.

## Feedback to the user

- Actual (measured) deviation values – per section
- Corrected Pushout On angles – per section
- Corrected Pushout On angle reached a limit (status) – per section
- FlexIS Bottle Spacing Control on / off (status) – common for all sections

## Remote Access Extension

Due to the communication with the FlexIS, the FlexRadar gets accessible through the FlexIS remote access system.

## Specification

FlexIS Bottle Spacing Control includes:

- 601-20001-6 Software License FlexIS Bottle Spacing Control
- 601-217-4 Communication Kit for FlexRadar (specify cable length to FlexIS MC cabinet)
- 1 day Service engineer for installation
- 1 day Production specialist for commissioning and on site training

## Availability / Application

FlexIS Bottle Spacing Control is very beneficial for all types of production.

## Installation Requirements

FlexIS Bottle Spacing Control can be ordered for any forming machine having:

- ✓ FlexIS 1 Timing Control - Software Version 1.07.03.033 or higher
- ✓ FlexPusher
- ✓ FlexRadar
- ✓ Basic Closed Loop Equipment (TNB248)

## Documentation

H11105BEN is the English manual of FlexIS Bottle Spacing Control with UC 1.

H11107\_EN is the English manual of FlexIS Bottle Spacing Control with UC 2.

## Features

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Automatically adjusts Pushout On angles (and related events like Pocket Air etc.) for each section

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FlexIS Bottle Spacing Control is fully integrated into the FlexIS controls

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FlexRadar remote access through the FlexIS remote access system

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## Benefits

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- Keeps equally distributed container spacing
  - prevents interference on conveyor
  - prevents jams at ware transfer
  - maintains 'hitting the gap' constantly

Machine reaches steady state production faster after job change

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Reduced complexity / better ease of use

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Optimal addition to FlexIS remote service. Experts can support remotely auditing real time FlexRadar and Bottle Spacing closed loop

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