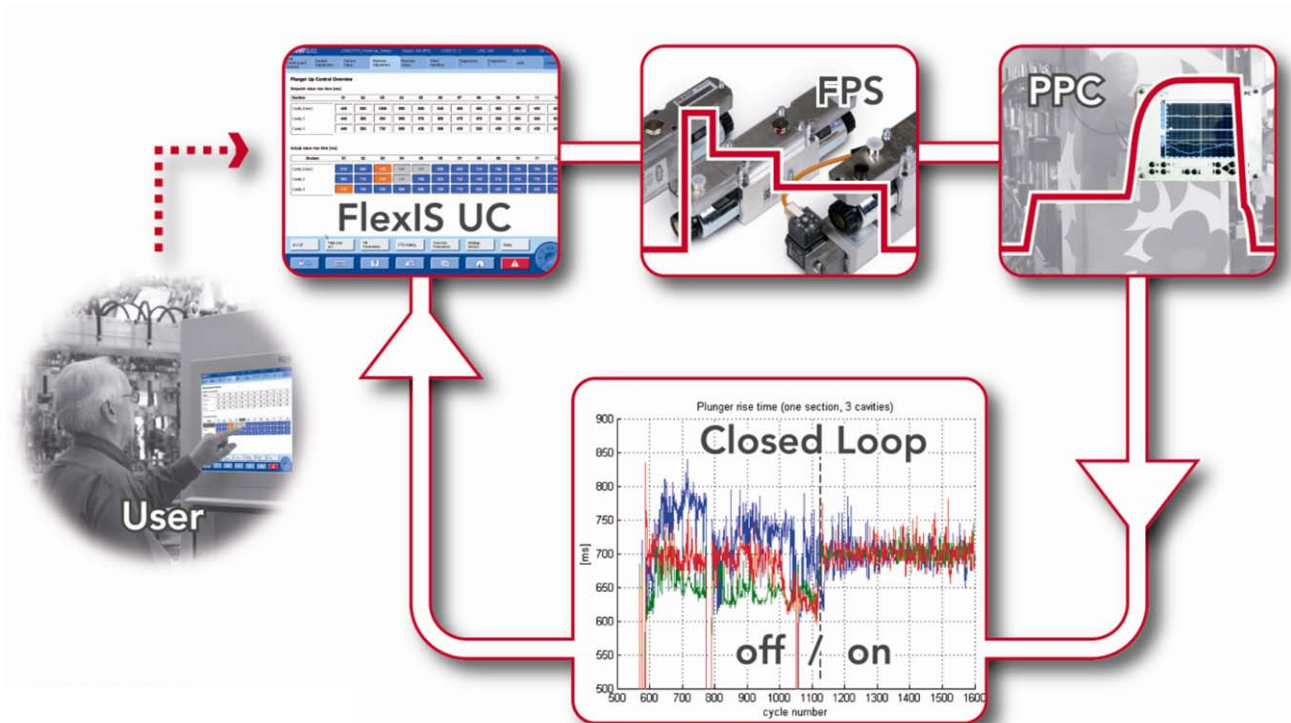


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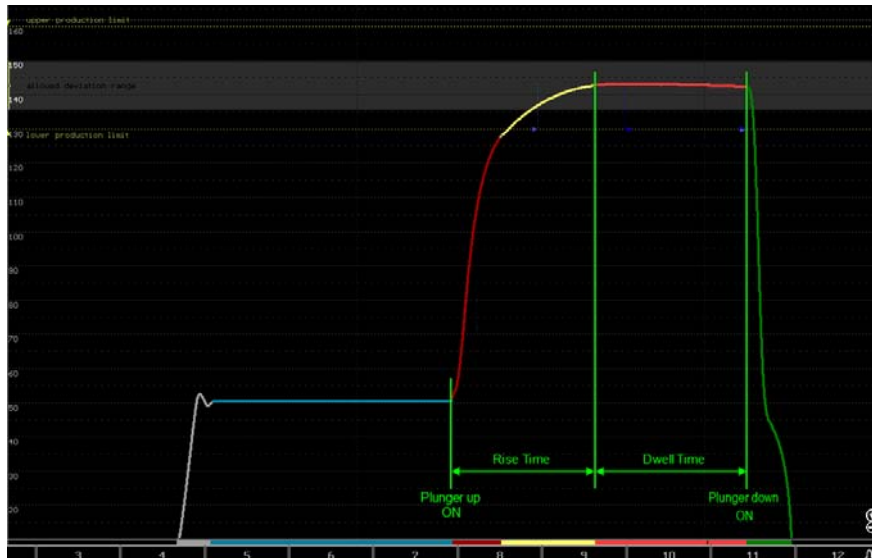
Cham, September 2012

FlexIS Plunger Up Control



Introduction

FlexIS Plunger Up Control is a new optional control loop available in the FlexIS Timing using information from the PPC (Plunger Process Control). In Press and Blow (P&B) and Narrow Neck Press and Blow (NNPB) production, it determines the time needed to move the plunger up to its end pressing position. It adjusts FPS pressures and sets FPS timing values so that the desired time to raise the plunger is maintained. Having a defined plunger rise time means also having a defined full contact time ('dwell time'), which is – in common understanding - an important process parameter.



Plunger Rise- and Dwell-Time between Plunger up and down movement. Display: PPC full stroke sensor.

Up to now, controlling the plunger rise time and thus the full contact time between plunger and glass was hardly done systematically for all cavities. The result depended on many influencing factors like friction in the plunger mechanism, glass viscosity, loading situation etc. Even if it was controlled systematically, pressing with only one pressure offered a limited range to influence the plunger rise time without risking other quality issues.

FlexIS Plunger Up Control uses multi pressure pressing to have a wide range of influence on the plunger rise time. By continually adjusting the initial pressure levels and also the switch points (timing) for stepping between the pressure levels, the system makes multi pressure pressing usable in a comfortable way without risking any quality issues.



Press curve and FPS pressure sequence shown as example.

Application

FlexIS Plunger Up Control is very beneficial for NNPB and P&B production.

Setting Description

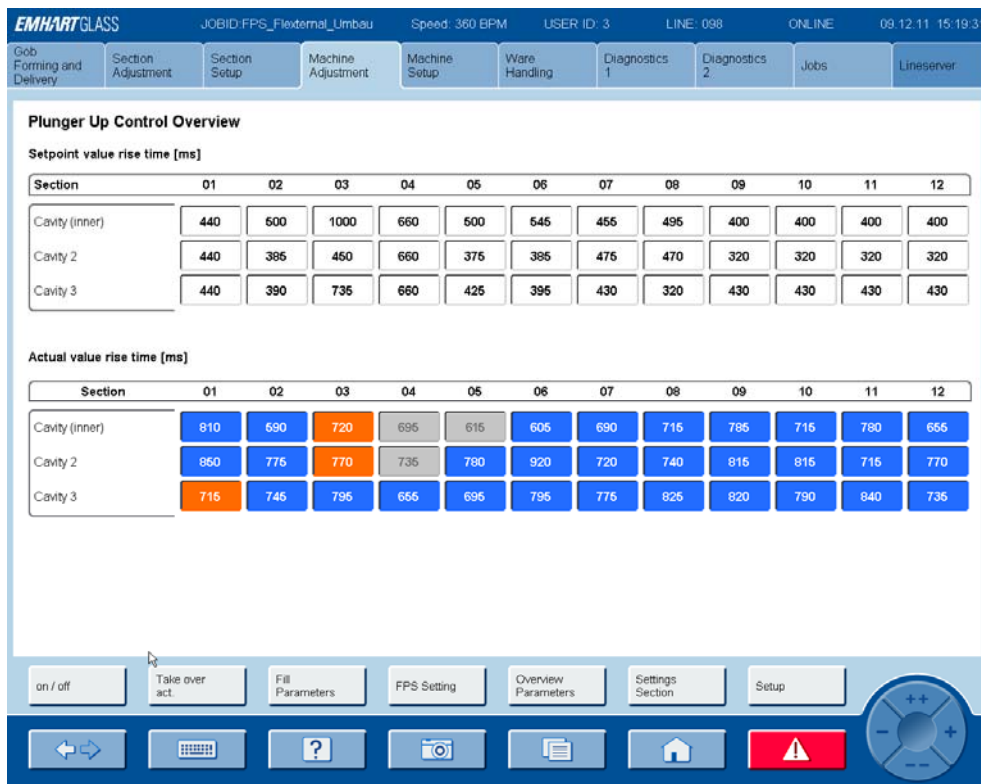
FlexIS Plunger Up Control is fully integrated into the FlexIS controls. All settings are done on the User Console and are stored as job data.

Settings (all per cavity)

- FlexIS Plunger Up Control on / off
- Setpoint value for plunger rise time
- Upper and lower limits

Feedback to the user (all per cavity)

- Actual (measured) value for plunger rise time
- FlexIS Plunger Up Control on / off
- Pressure reached a limit



Set point values and measured values with colored status indication shown in the Overview page (sample values).

Functions

- See all values per section or grouped in an overview
- Fill values to all cavities or to all sections

Remote Access Extension

The 'PPC remote access box' makes PPC accessible through the FlexIS remote access system

Installation Requirements

FlexIS Plunger Up Control can be ordered as an **option** on any forming machine controlled by **FlexIS** and having **PPC** (Plunger Process Control) and **FPS** (Flex Pressure System) Plunger up.

Package includes:

- 601-20001-3 Software License " FlexIS Plunger Up Control
Minimal FlexIS software version: update package 1.07.03.019
- 601-217-1&2 External System Communication Kit (communication between PPC and FlexIS), fits into machine controller cabinet.
- 601-20015 Latest UC hardware for older installations
- 601-217-5 PPC remote access box

Documentation

H11103_EN is the English manual of FlexIS Plunger Up Control

Availability

The 'FlexIS Plunger Up Control' closed loop is available from September 2012.

Feature/Benefit

Features	Benefit
<ul style="list-style-type: none"> • FlexIS Plunger Up Control is fully integrated into the FlexIS controls, stored in the job file 	<ul style="list-style-type: none"> • Reduced complexity / better ease of use • Improved start up after job change
<ul style="list-style-type: none"> • Uses FPS multi pressure pressing 	<ul style="list-style-type: none"> • More regular plunger motion due to higher initial pressure levels.
<ul style="list-style-type: none"> • Automatically adjusts FPS pressure levels and switch points between pressures according to press curve 	<ul style="list-style-type: none"> • Keeps process steady / less variation <ul style="list-style-type: none"> - over time - from cavity to cavity - less stops ⇒ higher quality / pack rate
<ul style="list-style-type: none"> • PPC remote access through the FlexIS remote access system 	<ul style="list-style-type: none"> • Optimal addition to FlexIS remote service. Experts can support remotely auditing real time PPC and Plunger Up closed loop.