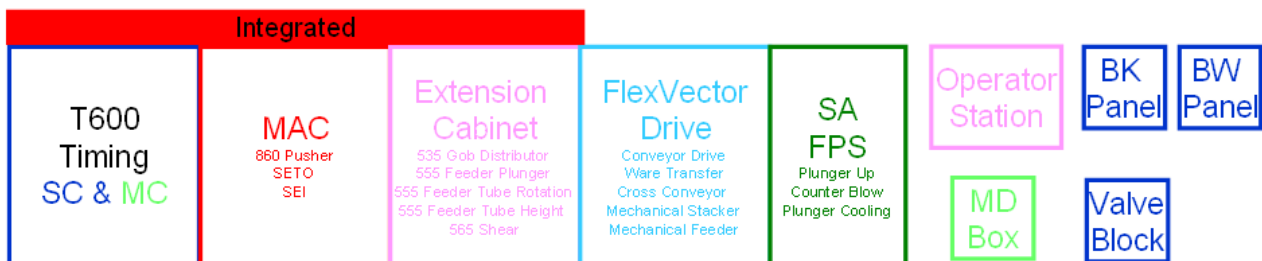


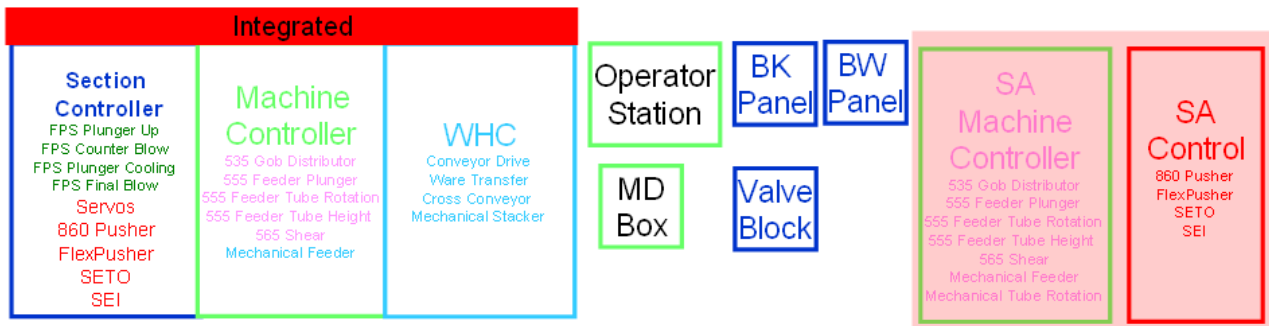
Technical News Bulletin

Steinhausen, January 2015

T600 with AC DRIVE



Flex IS TS-E



T600 Replacement with FlexIS System

- FlexIS System is today's Standard IS Machine Control System.
- How to replace the soon becoming obsolete T600 System with the FlexIS System.
- Offering a modular concept and rationalizing the investments.

Introduction

In 2006 Bucher Emhart Glass introduced the FlexIS Control System and announced the replacement of the T600 Timing System and Reliance Drive. It is becoming more and more difficult to provide spare parts and maintain the T600 system introduced 30 years ago.

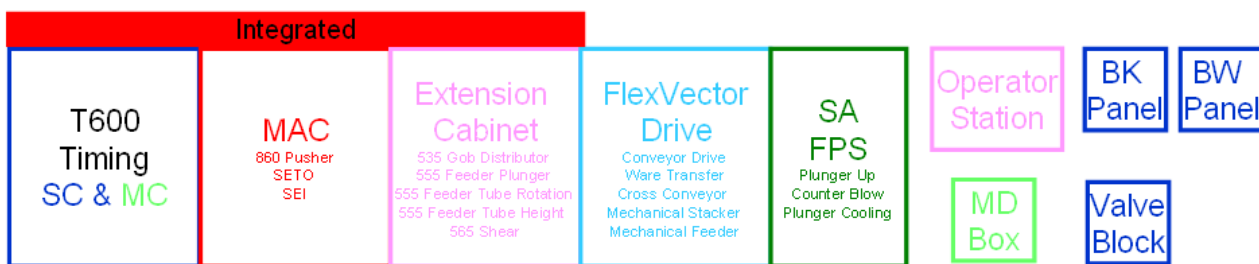
The FlexIS System is a great success and the today's Standard IS Machine Control System.

This document shows you how to replace the soon becoming obsolete T600 System with the FlexIS System, offering a modular concept and rationalizing the investments.

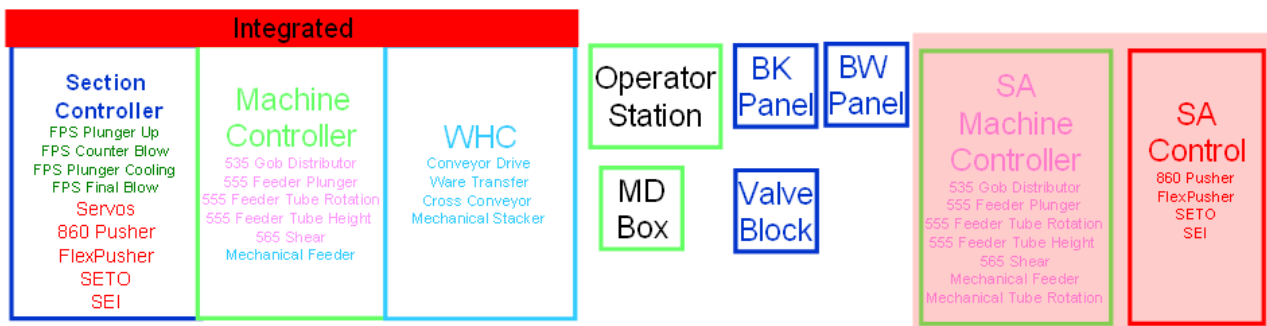
System Description – Possible replacement path's

System Comparison T600 => FlexIS

T600 with AC DRIVE



Flex IS TS-E



Four Possible Paths

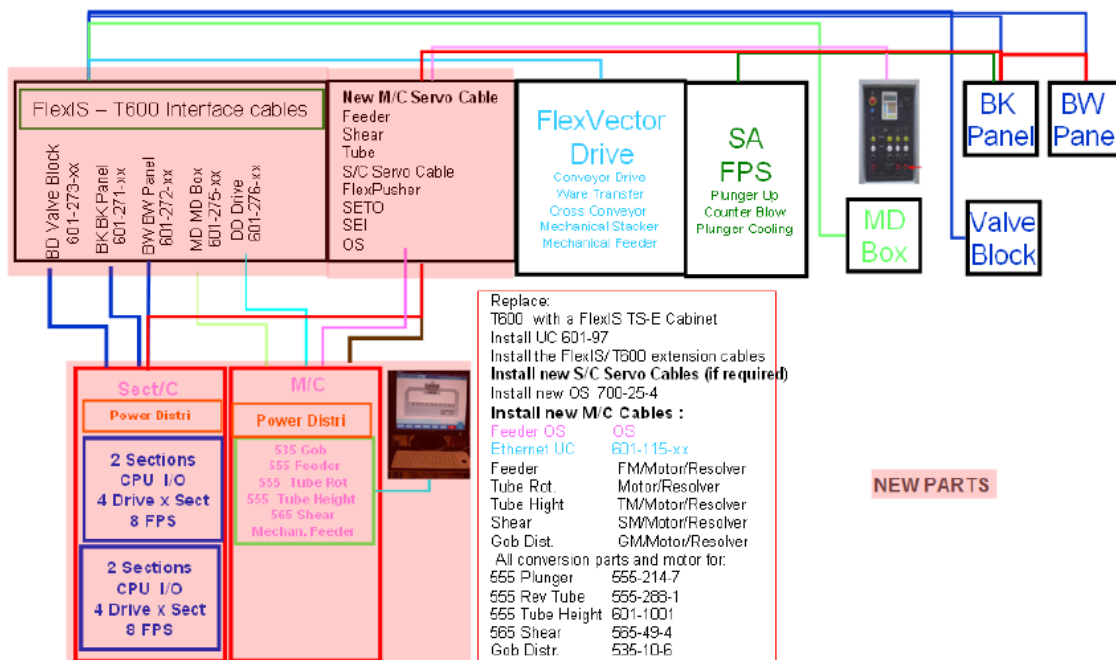
- 1) Replace T600 with FlexIS, full configuration, keeping all T600 cables, panels and boxes.
- 2) Replace T600 Extension with FlexIS Standalone Machine Control, Feeder, Shear and Gob distributor.
- 3) Replace FlexVector Drive (Reliance) with FlexIS WHC
- 4) Replace MAC Section Servos with FlexIS Stand Alone for Pushers (FlexPusher or 860) Servo Invert (SEI) and Servo TakeOut (SETO)

Proposal 1 Replace T600 with FlexIS keeping all T600 cables, panels and boxes

The following actions are required:

- Remove all the T600 cabinets
- Install FlexIS cabinets, Machine Control + Section Controls Cabinet (4 sections / cabinet).
- Install new UC computer 601-97 in the existing PLC cabinet or in a control room.
- Install new short (5 meters) interface cables between FlexIS and existing T600 cables
- Install new machine controller cables if required (555 Feeder, 565 Shear, 535 Gob Distr.)
- Install new Jetter motors and conversion parts on the Machine Controller mechanisms (Feeder, Tube, Shear and GD).

All the panels, cables, boxes and wiring harness to valves at machine level will remain the same (NO CHANGES). Same # of Outputs at BK and BW side, it's only necessary to reconfigure the FlexIS Outputs and to restart.



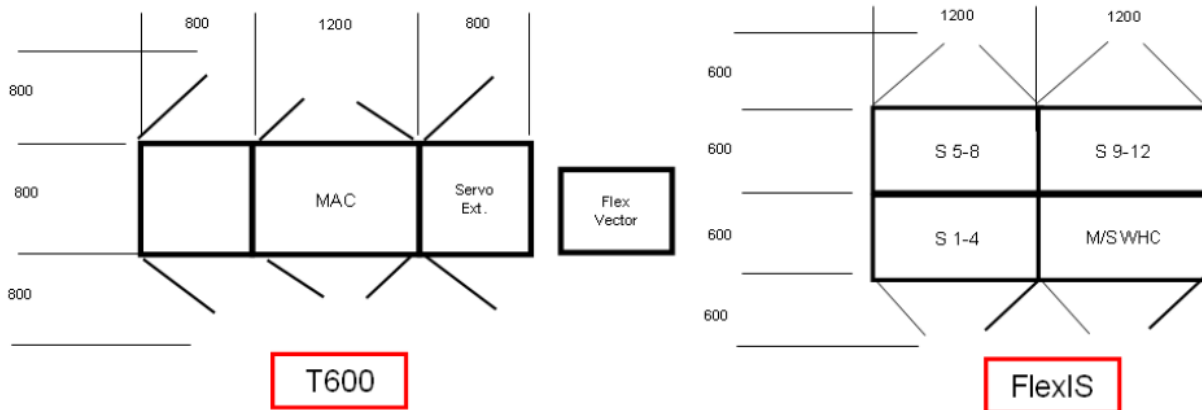
Conversion includes also Servo Invert, Servo Take-out and FlexPushers:

- Add servo drives in the FlexIS section control (max 4 Axis)
- Add override switches on BK and BW panels if not installed, wiring harness kit available.
- Install the new motors and resolver cables for Servo Invert and Servo TakeOut.

Number of outputs available on BK side is reduced to 5 in DG and to 4 in TG.

Space Requirement

The FlexIS cabinets back to back are the same as T600 (even less if Reliance Drive replaced)



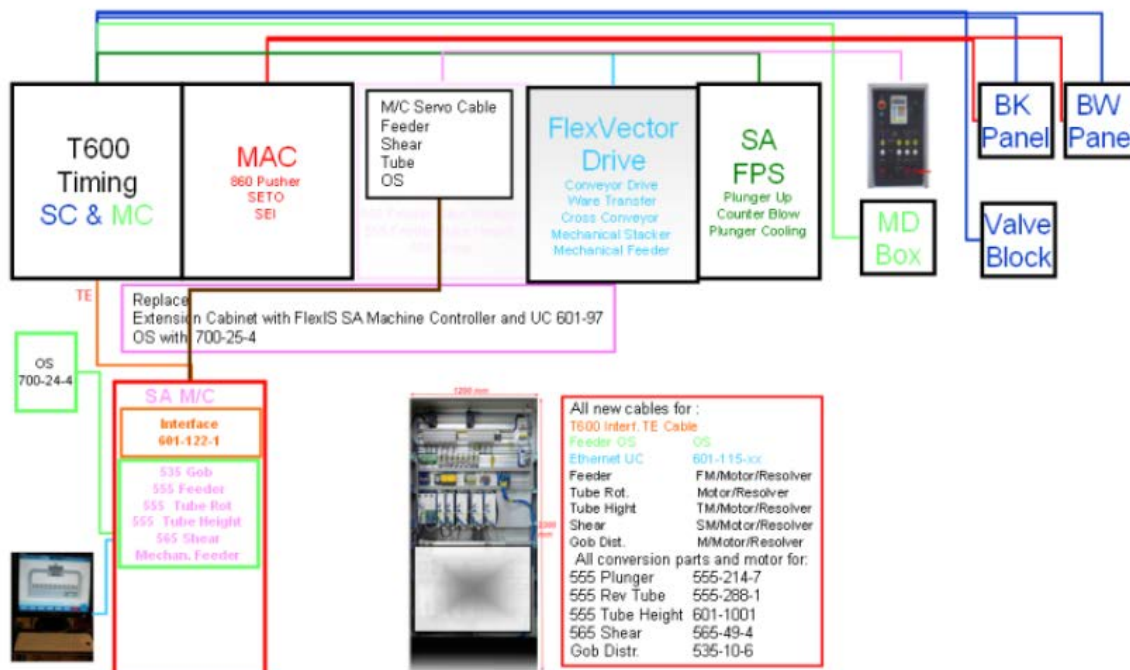
Proposal 2 Keep T600 and Replace AC Extension with FlexIS Standalone Machine Control (Feeder, Tube, Shear and Gob Distributor)

Common conversion (> 80 SA FlexIS Machine Controls are installed). Part of Proposal 1

The actions required:

- Remove T600 AC Extension Cabinet – Feeder, Tube, Shear and Gob Distr.
- Install FlexIS Machine Control Cabinet
- Install new UC computer 601-97 in the existing PLC cabinet or in a control room.
- Install Interface 601-122-1 and TE cable to synchronize FlexIS S.A. M/C with T600.
- Install new machine controller motors, resolvers and signals cables for 555 Feeder /Tube, 565 Shear, 535 Gob Distr.
- Install new Jetter motors and conversion parts for the above mechanisms.

Only the cables at feeder/gob platform level are new. Panels, section cables, distribution box and wiring harness to valves at machine level are NOT TOUCHED.

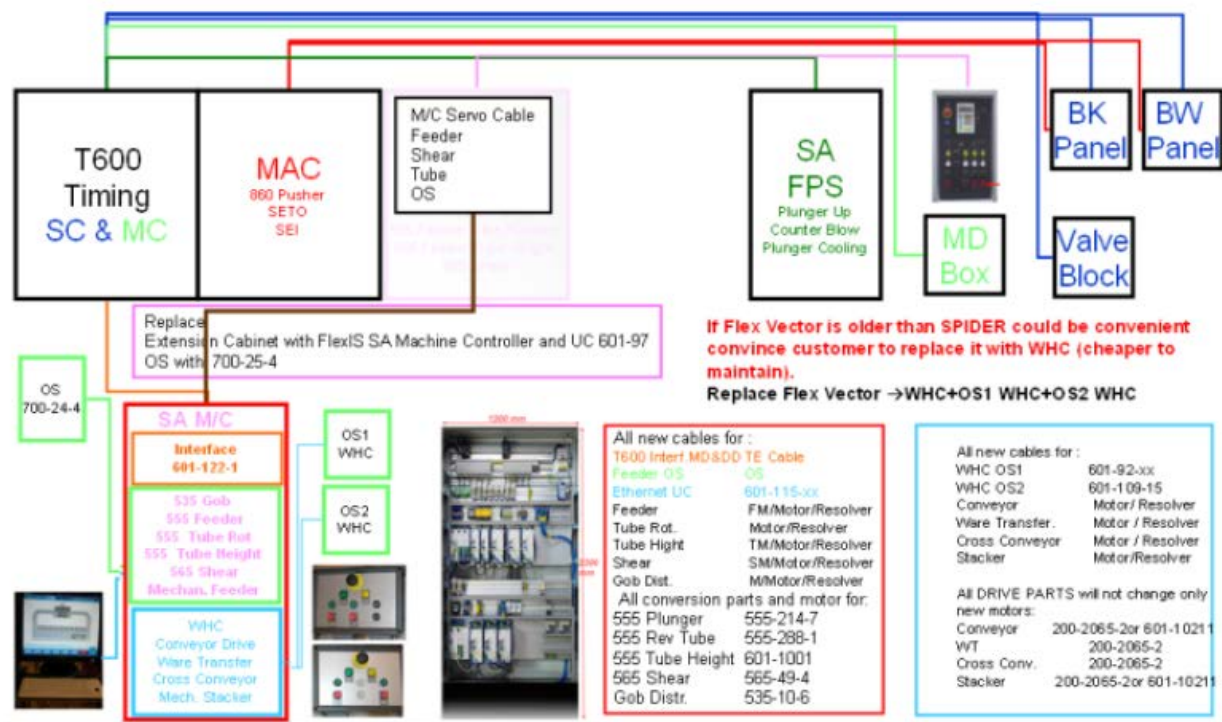


Proposal 3 Replace FlexVector Drive (Reliance) with FlexIS WHC

The Reliance Drive, or any other drive can be replaced with the Ware Handling Control **(strongly suggested if the inverters are older than Spider type)**

Following actions are required:

- Remove Reliance Drive
- Install the WHC plate in the bottom of Machine Controller Cabinet
- Install new motor and resolver cables for each motor configured
- Install new WHC Operator Station1 (Conveyor & Ware Transfer) and WHC Operator Station2 (Cross Conveyor and Stacker) with cables.
- Replace all the existing motors with the FlexIS servomotors (200-2065-2 or 601-10211).

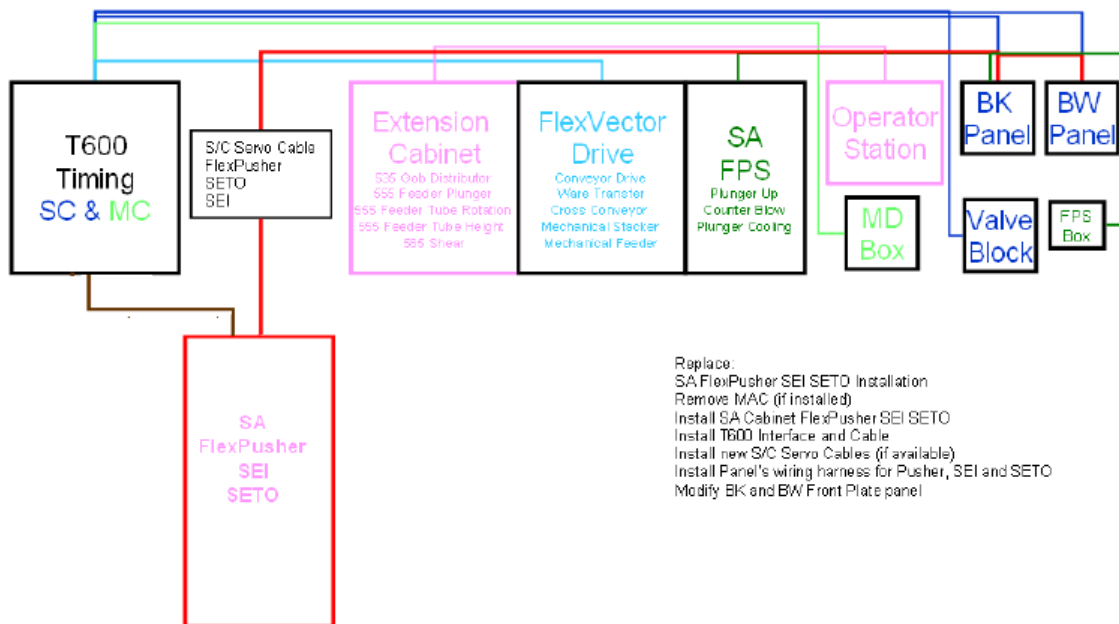


Proposal 4 Keep T600 Timing, replace Section Servo Control (MAC) with FlexIS Stand Alone

Used for a FlexPusher conversion or to install a new Servo Axis with an existing Timing.

The following actions are required:

- Remove Multi Axis Control (MAC), if installed
- Install FlexIS Stand Alone Cabinet
- Install T600 Timing Interface 601-125 and cables
- Install new motor, new motor and resolver cables for Servo Mechanisms
- Install new wiring harness on Blank and Blow side Panel
- Add override and disable switches on Blank and Blow side Front plate



Availability

All the proposals are available.

For additional information or quotes please contact your local Bucher Emhart Glass representative.

Summary

Proposal 1:

Replace T600 with full FlexIS using existing T600 Cables, Panels and Parts

Recommended:

- Replace T600 hardware with FlexIS during short repair of the IS machine.
- Standardize to FlexIS hardware reducing the first investment, panels and cables can be replaced any time in future
- Servo axis can be expanded in the future
- Reduce maintenance and machine downtime cost

Proposal 2

Keep T600 Timing and Replace AC Servos Extension with FlexIS Stand Alone Machine Control

Recommended:

- Standardize to FlexIS hardware but split the investment into different time periods, expand to a complete FlexIS TS-E configuration adding section cabinets in a second phase.
- FlexIS hardware is more reliable, easy to maintain, update and to troubleshoot also by remote.
- Possibility to use the Multi Gob Weight Software

Proposal 3

Replace FlexVector Drive (Reliance) with FlexIS WHC

Recommended:

- Reduce the high maintenance cost of the Reliance system, due to the age of the components and reduced parts turnover. In addition the WHC is much more flexible and uses the same FlexIS hardware.

Proposal 4

Keep T600 Timing and Replace only Section Servos (MAC) with FlexIS Stand Alone

Recommended:

- Conversion of lines with 860 pushers and SETO gen.1 - old brain box and amplifier.
- Conversion to FlexPusher on lines with old 317 - 560 pushers or other pushers.
- Servo Axis conversion on lines with non-Bucher Emhart Glass Timing.