

FleXinspect

An introduction to the FleXinspect portfolio

March 20, 2014

Higher Quality Forces Automation

- In the 1960's, 70's and 80's demands for increased quality forces the introduction of automated inspection equipment
 - Machines to inspect the finish quality and the bore
 - Machines to find cracks (checks) caused in the process
 - Machines to measure glass thickness
 - Machines to inspect the base
 - Machines to inspect the finish
 - Machines to inspect the sidewall / dimensions

Gauging

Checks

Thickness

Base

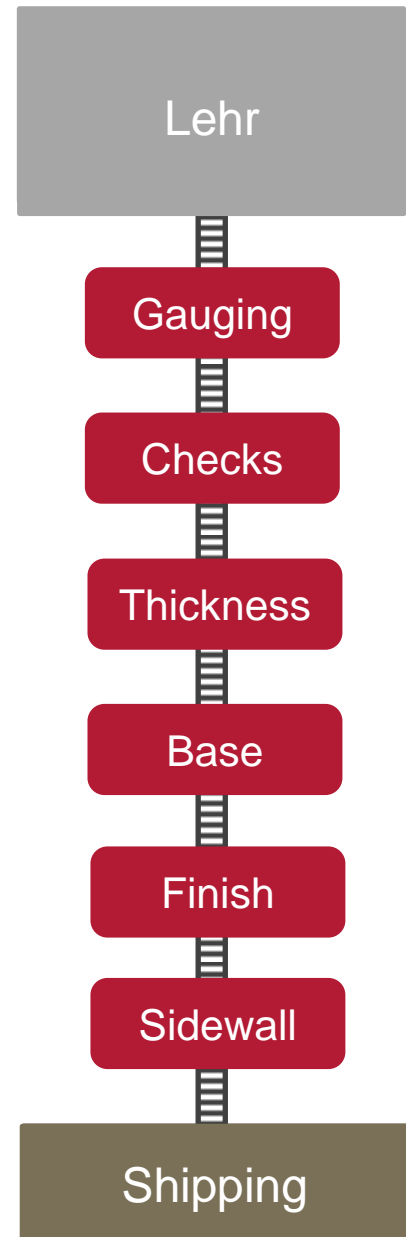
Finish

Sidewall

The “Evolution” Of Inspection

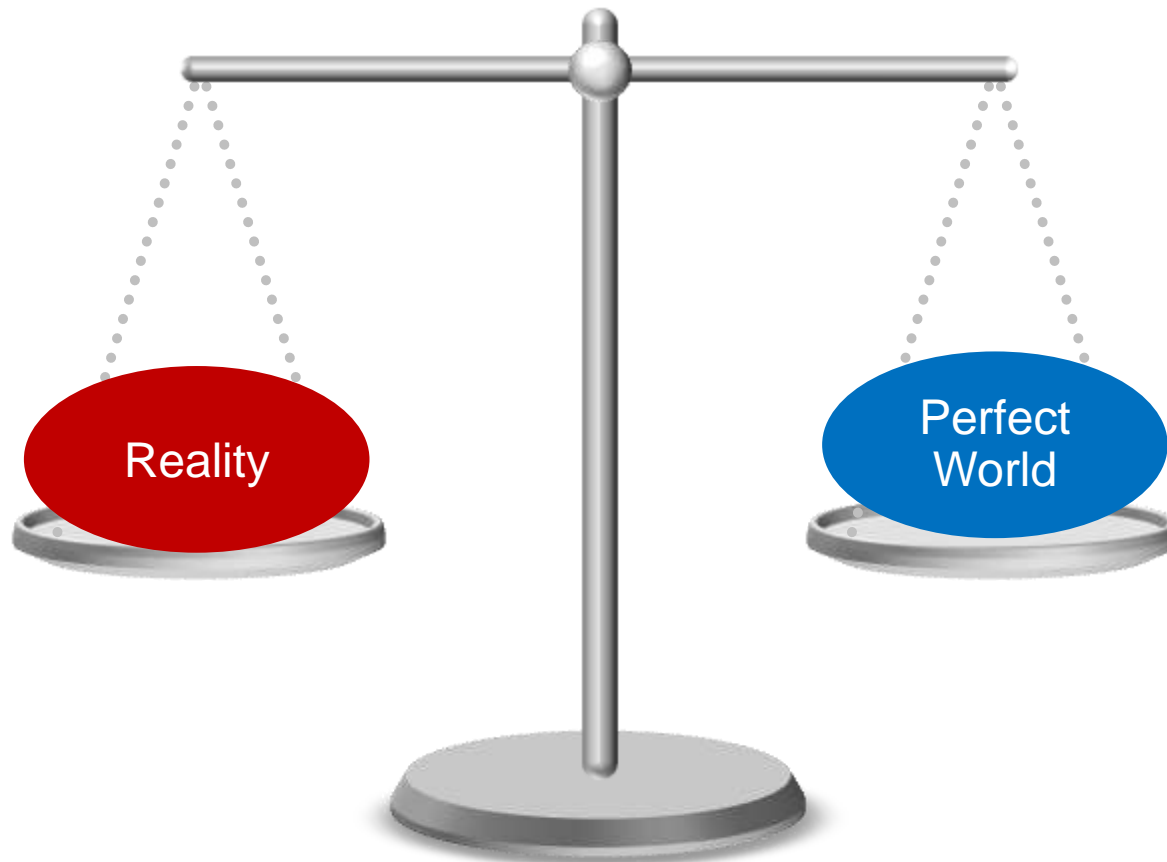
- Factories install new equipment wherever they can
- Space to install equipment soon becomes a challenge
 - The need for “Multi function” combination machines
 - Gauging, check inspection, wall thickness
 - Base, finish
- Three machine solutions become standard in the industry
- Today's inspection areas face new pressures
 - Forming machines with more sections, more cavities, higher efficiencies and cycle rates
 - Wider, longer lehr's for annealing
 - Packing areas needing to palletize, wrap, band and ship more containers

BUCHER
emhart glass



Finding Your Balance

- Bucher Emhart Glass understands that no two glass plants face the same challenges when looking for their solution to make better containers
 - Customers need to find their balance between a “Perfect World” and “Reality”



How Do You Decide?

- In a “Perfect World” your factory would be state of the art
 - Fully redundant inspection capabilities
 - Two methods of inspection to detect every defect
 - Excess capacity with extra machines
 - Ability to handle all production with machines turned off
 - Clean sheet, blank check, no limits
 - Straight single lines, accumulation, free space
- In most cases your “Reality” doesn’t include new bricks and mortar
 - Budget driven constraints allowing small incremental improvements
 - Single machine replacements
 - Limitations in space
 - Squeezing new machines in existing layouts can be difficult
 - Unknown, undetermined future needs
 - Investing for the next 10-15- 20 years without knowing what tomorrow will bring

- Bucher Emhart Glass understands that advances in technologies will continue at an ever increasing pace
- To keep pace with technology we realized a new machine platform with the proper foundation was needed **“Versatile, Expandable, Flexible”**
 - Built on a modern electronics platform
 - Ethernet based communications and controls
 - Robust mechanical designs
 - Modular “add on” philosophy
 - Utilizing today's advanced technologies in motion, optics and computing
 - Servo driven motions
 - High intensity LED illumination
 - High resolution cameras
 - Today's CPU standards
- We created a machine platform designed to evolve with the newest technology - accepting the “Next best thing”

Welcome To FleXinspect

- Today Bucher Emhart Glass offers five inspection machines to the market built on the FleXinspect platform



- Two rotary indexing stop rotate mechanical machines

- FleXinspect T
- FleXinspect M

- Three vision machines

- FleXinspect B
- FleXinspect C
- FleXinspect BC



- Standard Inspections

- Modulated Check Detection
- MNR - Heel Code reader
- Vision Plug
- Vision Ring
- Vision Dip / Saddle / Height

- Additional Inspections

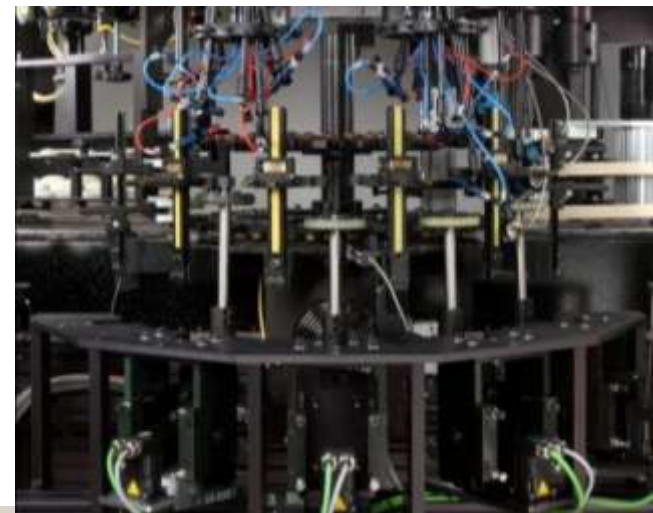
- Chromatic Wall Thickness
- Wire edge
- 2 point out of round
- Mechanical Plug / Ring
- Mechanical Dip / Saddle / Height
- VMNR - Alpha Numeric / Bottom Dots
- Sidewall Upper / Lower
- Sidewall Stress Upper / Lower
- Dimensional (Height, Lean, Dia)



- Sealing Surface
- Base
- Base Stress

FleXinspect M

- Standard Inspections
 - Modulated Check Detection
 - MNR - Heel Code reader
 - Mechanical Plug / Ring
 - Mechanical Dip / Saddle / Height
- Additional inspections
 - Chromatic Wall Thickness
 - VMNR - Alpha Numeric / Bottom Dot
 - Sealing Surface
 - Base
 - Base stress



FleXinspect B, C, BC

- Standard Inspections

- Sealing Surface
- Base
- 6 views opaque sidewall
 - w/ 3 Dimensional

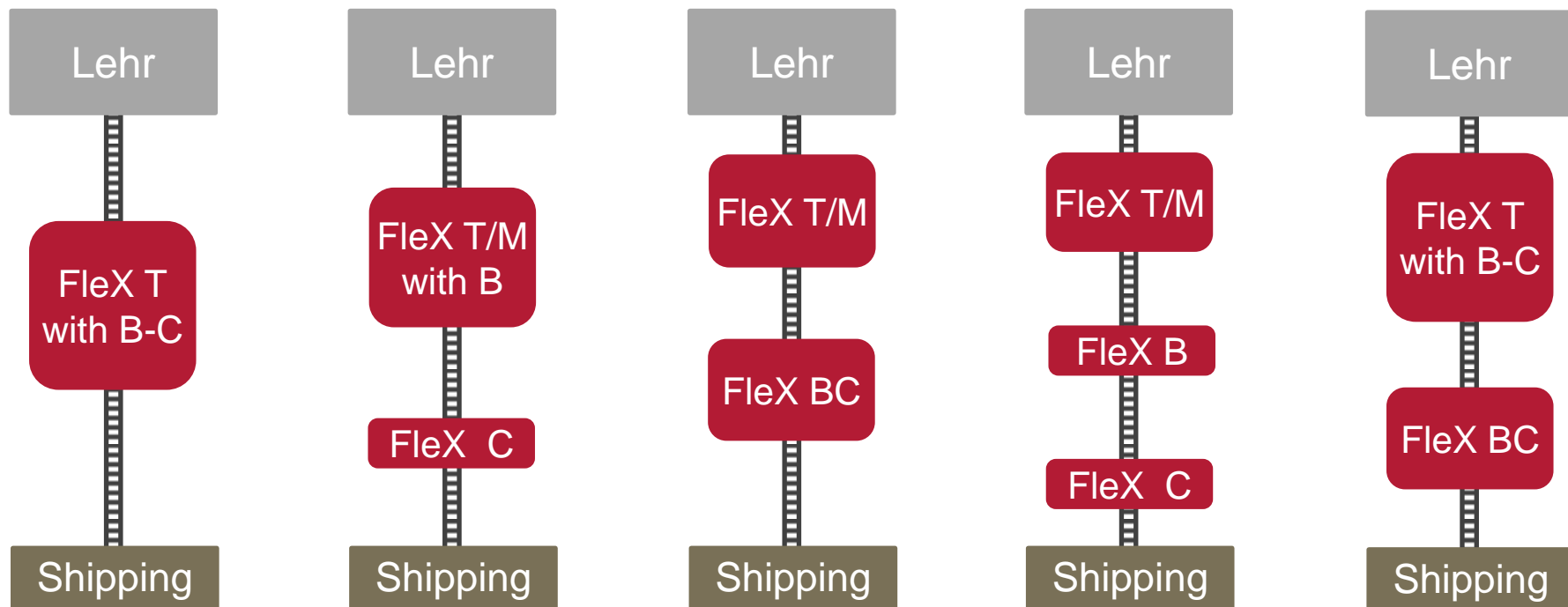
- Additional inspections

- Base stress
- Bottom code mold reader
- Heel dot mold reader
- Vision plug
- Wire edge
- Vision dip / saddle
- 6 views transparent sidewall
- 6 views stress sidewall
- 6 views shoulder / shoulder stress



FleXinspect Is The Answer

- Bucher Emhart Glass understands your “Reality”
 - The FleXinspect is the first machine portfolio providing a solution for everyone
 - FleXinspect T – Combination machine configurable for all inspections
 - FleXinspect M – Configurable for gauging / check / thickness / finish / base
 - FleXinspect C – Stand alone sidewall
 - FleXinspect BC – Combination sidewall / finish / base
 - FleXinspect B – Stand alone finish / base



Thank you

**Product specialists for the Flexinspect
product line are available at booth 16**

Looking forward to discussing your solutions.

Mike Rentschler, Product Manager Inline Inspection Equipment

