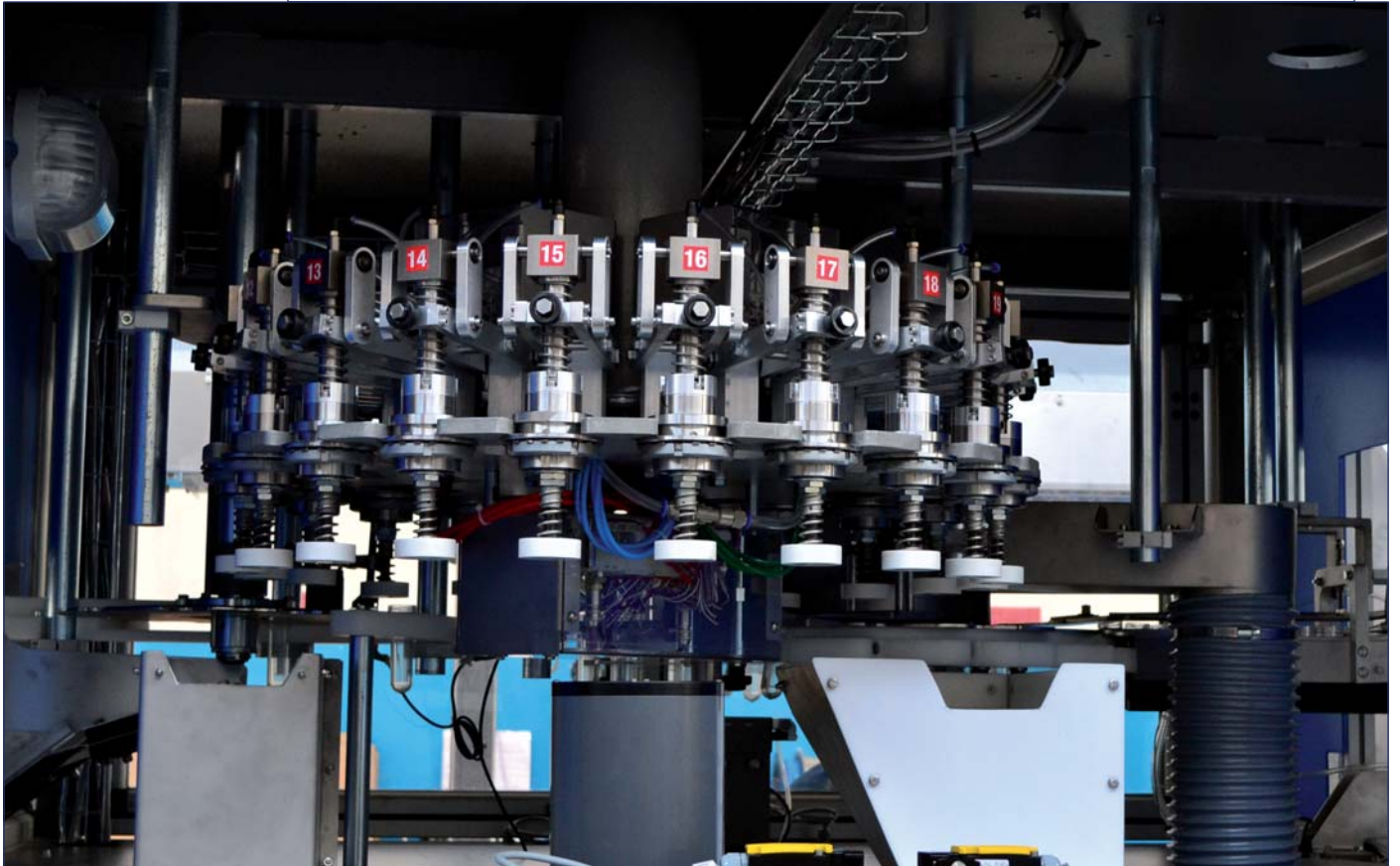




LANFRANCHI *The right side of technology*

off-line quality vision inspection system model LRIS for preforms



Truly a high performance system, both in terms of speed and total number of defects that can be detected, represents a major step in Lanfranchi's evolution in the research and development of new products. We have been able to develop a high performance system that can inspect 40.000 preforms/hour.

Working process

Preforms are discharged in the loading hopper with a box dumper and the bulk elevator transfers them into the preforms unscrambler LRPU; the unscrambler delivers a constant stream of oriented preforms to the vision inspection unit.

The inspection unit starts with a vacuum starwheel, that picks up the preforms, and the first of 2 vision cameras; an initial batch of defects is checked in this area against the quality accepted parameters in reference.

From the vacuum starwheel the preforms transfer to the main carousel made of a number of special grippers connected again to a vacuum circuit.

Each gripper can turn 360° on its own axes allowing to a set of vision cameras to inspect the full side of preforms.

Defective preforms are promptly and automatically discharged and collected separately.

A final mechanical starwheel removes the inspected and passed preforms from the main carousel into a bulk conveyor filling up a shipping box.

The entire process is controlled by PLC and a multifunction monitor permits the operator to input the inspection parameters for any kind of preform.

The Lanfranchi preforms inspection LRIS installs a minimum of 3 vision cameras up to a maximum of 7 vision cameras depending on the number and type of defects to be checked out.

The changeover operations for different neck size preforms are quick and safely repeatable; a single operator can perform the complete change-over in 20 minutes.

LRIS vision inspector can be installed directly at the injection molding machine outfeed or just before the blow mold machine infeed starwheel.

In addition the LRIS can be easily integrated with the Lanfranchi FLEX-CLAMP preforms conveyor, a special conveyor designed to move oriented preforms efficiently and safely between equipment.



preform box loader



hopper to collect preforms complete with elevator



preform unscrambler



preform descent guides



preform inspection machine

Checking process accomplished:

- Incomplete finish
- Out-of-roundness
- Crushed necks/fractures
- Irregular dimensions
- Material contractions (parts of preform having smaller thickness)
- Production inclusion
- Crystalline aspect
- Problems in the injection point (craters and holes)
- Granule Inclusion
- Not fully melted granules
- Opacity
- Air bubbles
- Not fully dried material
- Degraded material

- Mould marks

- Colour modifications
- cavity ID
- thread integrity

Main construction features:

- Maximum power installed: 8 Kw
- Compressed Air consumption: 10 NI/m
- Maximum neck diameter of preform to be handled: 43 mm
- Minimum neck diameter of preform to be handled: 28 mm
- Maximum height of preform to be handled: 160 mm
- Minimum height of preform to be handled: 40 mm

models

model	A (mm)	B (mm)	C (mm)	p/h production	number of heads
LRIS 10-5	7,500	4,500	3,500	10,000	5
LRIS 20-10	8,000	4,750	3,500	20,000	10
LRIS 40-20	8,500	5,000	3,500	40,000	20

