



Quality controlled

Optician takes a look at the new lens verification system installed by Essilor at its Thornbury, South Gloucestershire plant

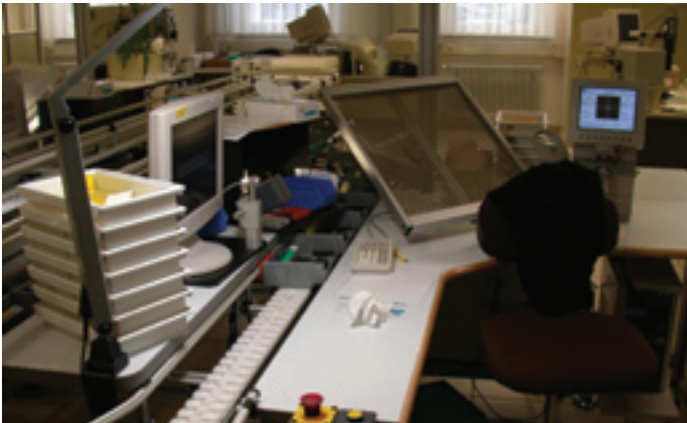


Figure 1



Figure 2



Figure 3



Figure 4

Lens production needs to be accurate. Not only do lenses have to meet the correct standard within known tolerance, but there is also the matter of providing good customer service. Who is really going to continue using a lens supplier with a less than perfect track record?

Essilor surfaces and coats thousands of lenses each week to be shipped out to practices. There is necessarily some spoilage in the system, not least of all due to imperfections in the bulk materials supplied to them in the first place. Each lens check takes time and, if an imperfection is identified, the system needs to be analysed and the error addressed, whether that be an individual worker with some training requirement, a material problem with

a batch of lenses, or even an issue with one of the machines. Formally this was done by sampling lenses along with the usual power and surface quality checks.

The new Carex system installed towards the end of last year allows for a more rigorous checking of lenses and a feedback mechanism making identification of the source of error easier. Manufacturing director Chris Ball has been dedicated to developing the Thornbury plant over many years. The heavy reliance upon water has been an issue, for example, since supply restrictions have been introduced and Ball has installed a back-up supply should the main supply fail.

'When I first looked into installing the Carex system, many people warned me that there would be a rise in the number of failed lenses,' recalls Ball. This was correct, but he also knew

that by a more vigorous analysis, initial wastage might increase but long term there would be an improved efficiency. This would have the knock-on effect of improved customer service so hopefully a better commercial profile.

Automatic control

The Carex system is an automatic control and shipment system for prescription labs. It looks like a giant Hornby train set, with individual lenses being moved between checking stations before finally, once approved, being bagged and made ready for postage.

The conveyor system runs between several manual stations (cosmetic control, decision and manual shipment) and some automatic stations (control and pad printing, and packaging).

The cosmetic control station acts also

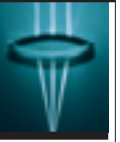


Figure 5

- 1 Diameter measurement
- 2 Carousel loading and contour measurement
- 3 Lensmapping for prepositioning and addition determination
- 4 Automatic fine positioning
- 5 Thickness measurement
- 6 Focovision 1
- 7 Tilt measurement
- 8 Free station (maintenance)
- 9 Mobile Focovision
- 10 Pad printing (facing) and blocking
- 11 Pad printing alignment control
- 12 Gripper reset/manipulator of blocked lens (upside down)
- 13 Carousel unloading (loading of lens into job tray)
- 14 Job tray buffer
- 15 Balogh identification way in
- 16 Balogh identification way out

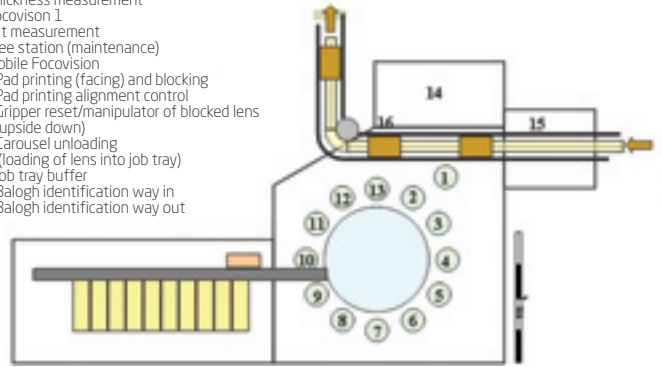


Figure 6



Figure 7



Figure 8



Figure 9

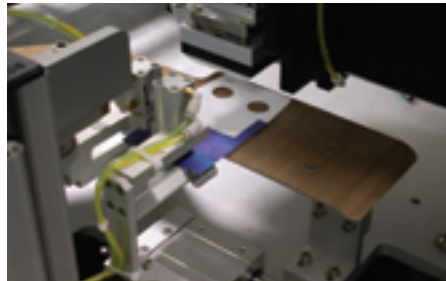


Figure 10



Figure 11

as the entry station where a number of tasks are carried out (Figures 1 and 2). Lenses are identified for the correct track (such as whether single vision or progressive), and there is a lamp for surface inspection, a Waldemann light for anti-reflection coating assessment, a Humphrey focimeter, thickness measurement and a diameter rule.

Lenses next move on to the decision station (Figures 3 and 4) where lenses are re-checked and rejected if necessary. Assuming all is well, lenses then move to the manual shipment station to be bagged with a despatch note and marketing materials (Figure 5).

The automatic control and pad printing unit is essentially a carousel with each point on the rotation serving a distinct purpose (Figure 6). Lenses passed at this stage are moved on to the automatic packaging unit (Figure

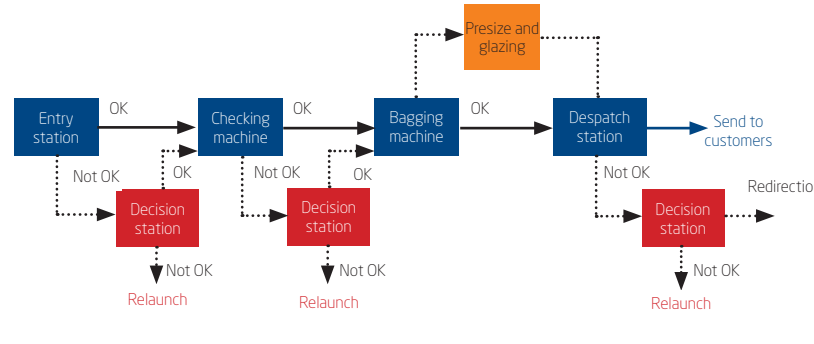


Figure 12

7) while those failed are diverted to an operator.

The process of packaging may be seen in more detail in Figures 8 to 11. The overall flow of lenses through the system is shown in Figure 12.

Since investing in the multimillion

pound system, Essilor has seen its yields go up and the investment has been justified. It also has the knock-on benefit of improving auditing so making any training more focal and relevant wherever a specific problem has been identified. ●