Complete Control over Glass Production Quality

Optical In-Line Inspection of Float Glass

Glass is one of the oldest but at the same time most modern materials. In many technological fields, it offers fascinating possibilities of application and design. However, its even, undistorted transparency requires flawless surfaces and structures created by a perfectly controlled and inspected production process. Moreover, homogeneity, color, specified thickness and dimensional accuracy are also decisive factors in the glass product quality. Only constant monitoring of the float glass processes can guarantee the desired quality and productivity. To that purpose, ISRA GLASS VISION offers the sturdy FLOATSCAN system line with efficient inspection tools for all the relevant quality parameters.

Ever-faster production speeds multiply the risks of error and make inspection more difficult. Only 100% inspection can ensure impeccable delivery quality. Integrated, fully automatic testing systems guarantee reproducible results. It is important not to forget that the glass ribbon originates in a red-hot molten mass. The environmental conditions are remarkably harsh in which the thickness and width are measured by means of laser technology as soon as the glass emerges from the float bath. Continuous inspection of thickness, length and cross profile allows for optimal process control. It can be performed on the hot glass ribbon – the
hotgauge technique – or on the cold end of the ribbon – coldgauge. That allows for reductions in material utilization and increases productivity through faster adjustment of the thickness.

A wide range of defects can make the processed glass ribbon completely or at least partially unusable. Excessive transmitted distortion is one possible grave defect. But scratches, bubbles, inclusions, streaks, color defects, foreign bodies and contour defects may also occur.

**Online-Moiré-Technology**

At the end of the float line, the FLOATSCAN Catcher&Optics System uses patented Online-Moiré-Technology to check the transmitted distortion and point defects. The optional additional channel for measuring reflected distortion provides important parameters for further processing the glass into mirrors and car windows. Another channel can be used to detect even the slightest defects in the tin coating on the top and bottom of the glass ribbons. Such defects cause serious problems in surface coating and processing glass into car windows.

Unlike the very elaborate manual measurement of striation or point distortion for detection of dioptric characteristics of glass, the fully automated ISRA measurement systems based on Online-Moiré-Technology provide a basis for both offline use in laboratory environments and online use in production. The patented Online-Moiré-Technology measures the optical refraction of the glass and is therefore completely resistant to dust and other environmental influences during error detection.

**Comprehensive Quality Management**
All the defects are then evaluated according to the current data and entered in a selective defect matrix, which can be used for direct control of a cutting computer or marker bridge. The resulting measurements are also available for subsequent sorting and finishing operations.

The Quality Information System (QIS) guarantees quick processing and factory-wide availability of all relevant quality and production data. The data is fed into it, processed, graphically formatted and saved. The information can then be accessed on the company computer network. The particularly clear display of all the data simplifies operation and makes it easier to draw up statistical analyses.

A laboratory device for measurement of transmitted and reflected distortion rounds out the portfolio. Thanks to it, the unrivaled Moiré technology can also be used for research and development projects. That makes objective and reproducible measurements available as a database and for comparisons. Naturally, the system is also suitable for detailed testing of samples.

Installations in continuous production require rapid, round-the-clock maintenance, regardless of the location. The integrated remote maintenance in our systems allows for reliable servicing independently of time and space. In addition to tele-maintenance, tele-training and software updates can be performed quickly and inexpensively. This will keep your staff and installations up to date.

A Complete Program

The painstaking search for the occasionally tiny defects in the transparent surfaces through the costly use of human inspectors in the subsequent finishing operations has so far achieved hardly
any reproducible measurements, especially in error-detection and evaluation. Quality testing is influenced by such factors as personal tolerance, dimensional tolerance and the state of mind on a given day.

The optical inline inspection installations of the technological leader ISRA GLASS VISION also provide highly developed, well-tested solutions for such tasks. The common design of the installations is based on proprietary standard modules and units, which can be easily adapted to customer specifications.

Naturally, ISRA’s skills extend to all areas of glass production and utilization. For example, the company has a complete product portfolio for curved automotive glass, inspection of various coatings, as well as the range of Robot Vision products, whose 2D- and 3D-systems have proven excellent for the control of robots for inline glass handling. Highly successful streamlining ensures a quick return on your investment.

- Imprint fee free –

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Images:

Picture 1: Float1.jpg

Title:
Defect images tin

Picture 2: Float 2.jpg

Title:
Reflection distortion (RD) inspection channel
Title: Recognition of the smallest defects in float glass allows cut optimisation at the lowest possible cost

Title: Quality information management
Picture 5: Float 5.jpg

Title:
Transmitted distortion exact checked