



VMA: EXPERTISE IN NON-CONTACT THICKNESS MEASUREMENT AND DIMENSION CHECK SYSTEMS

VMA is specialized in designing and producing opto-electronic measuring and testing equipment for the glass industry, also thanks to the experience of its engineers. Company equipment is designed in accordance with the special needs of clients, with all necessary components for turnkey systems.

VMA GmbH has been a reliable partner for non-contact thickness measurement and dimension check systems in the glass industry for more than 20 years. Founded in 1991 by engineers working for the glass industry for many years, VMA has since undergone continuous growth and development. Located near the Thuringian forest, the green heart of Germany, the company enjoys excellent communications to main airports, high-speed trains and motorways.

Today VMA provides products and services in the fields of container glass (TMC), tube glass (TC), float glass (TMF), and a very recent addition, the patterned (solar) glass (TMP) industry. Together with partners in the field

of strain and defect detection, VMA is able to provide comprehensive solutions. Thanks to close and direct contact with clients, VMA is able to recognize their actual needs and to adapt existing products to suit, or to transform them into new products.

Situated not far from the Technical University of Ilmenau, VMA can also benefit from latest trends and technologies.

TMC - WALL THICKNESS MEASUREMENT SYSTEM FOR THE CONTAINER GLASS INDUSTRY

The TMC system, with its numerous options and different sensor types, is a very flexible and versatile system for 100 per cent

on-line wall thickness inspection of container glass. VMA's modular non-contact measurement and sorting device works irrespective of colour and shape. With its different sensor types, the TMC system is able to combine two physical principles; triangulation and chromatic aberration, to suit the specific needs of each and every client. Both principles are well



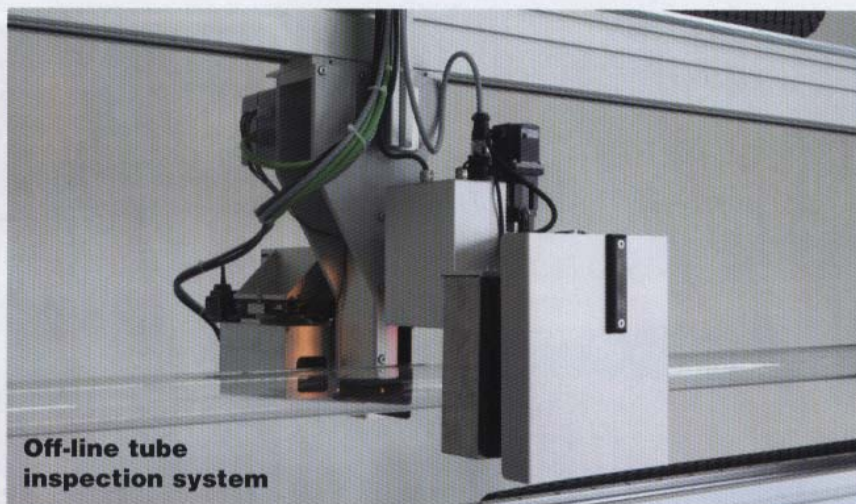


TMF cold-end system with strain measurement

introduced and have their own advantages. The latest development in this field is VMA's sensor system TMC-C54, a smaller and less expensive chromatic sensor system which is primarily used for non-round containers or inspection machines with strong vibrations or strong limitations in available space such as CIM/Checkdetector or FP-machines.

TUBE CONTROL – MODULAR SYSTEM FOR TUBE GLASS PRODUCTION

Tube Control is a system which comprises all components for on-line diameter and wall thickness measurement, sorting, automatic



Off-line tube inspection system

control, quality control and defect detection, and off-line sample checking and defect detection.

The on-line system for wall thickness or diameter control can be placed in both hot-end and cold-end positions. Heat protection glasses, water cooling and cooling air enable the on-line system to be used at thermally exposed measuring places within the production process.

The off-line system comprises a rotation bench for the tubes, including wall thickness sensor head and cameras, as well as an electronic unit. The instrument is used for checking rod and tube samples. Parameters such as diameter, ovality, wall thickness, eccentricity and bend can be measured. Clients in the fiberglass industry especially,

upgrade and combine this equipment with a defect detection system from VMA's partner JLI.

TMF – THICKNESS AND STRAIN MEASUREMENT SYSTEM FOR THE FLOAT GLASS INDUSTRY

TMF is VMA's measuring equipment for the on-line control of float glass lines. TMF can be used both at the hot- and cold end of float glass lines. At the cold end in particular, it can be combined with a stress measuring instrument. Complete inspection sys-



New TMC-C54 sensor system

tems are available from VMA, which are supplied in collaboration with a partner who specializes in defect detection. It is of essential benefit to know the thickness as soon as possible, immediately after forming.

The hot end version can take measurements between the discharge from the tin bath and the entry into the annealing lehr.

The TMF has been frequently installed both below and above the glass ribbon. TMF is always custom-designed and is supplied turnkey.

TMP – THICKNESS MEASUREMENT SYSTEM FOR THE PATTERNED (SOLAR) GLASS INDUSTRY

This very new field of business was created in response to the growing demand for means to control the process during patterned glass production.

With their knowledge of glass thickness or other relevant parameters, such as roundness error at the rollers, clients are able to react to and re-adjust the production and the process parameters accordingly without any loss of time.

VMA provides measurement systems for hot- and cold-end use, and the complexity of these systems is comparable with the well-introduced TMF systems. ■



TMF hot-end system



New patterned (solar) glass system



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