

The NIROX answer to securing primary packaging quality



NIROX is an Italian company that both designs and produces optical measurement sensors and systems. Its optical technologies range from point reflective sensors for measuring geometric features to advanced systems for cosmetic inspections based upon machine-vision. Here the company's no-touch, no-contact system design forms a fundamental feature towards facilitating seamless integration into production lines.

The primary target market for NIROX solutions has always been that of glass packaging. Consequently, its measuring solutions are trusted today by industry leaders in both pharmaceutical tubing manufacturing and tube converting. The company serves other sectors too, including Electronics, Scientific and Automotive Glass - all of which have stringent requirements where measurement and inspection are equally vital. Indeed, NIROX's portfolio of solutions is continually expanding as the company confronts new challenges from its customers.

PHARMACEUTICAL TUBE SEGMENT

Dimensional and finishing inspections are crucial to meeting stringent pharmaceutical standards within the industry's packaging industry, where specialised glass is used to create ampoules, vials, cartridges and syringes. Here NIROX's NCSline family of systems measures wall thickness, concentricity,

With its diverse range of solutions, Italian optical measurement systems leader NIROX excels at glass packaging with its no-touch, easy-to-integrate designs. Meeting strict inspection demands, the company's advanced measurement and control systems all raise the bar in taking pharmaceutical packaging to the next level.



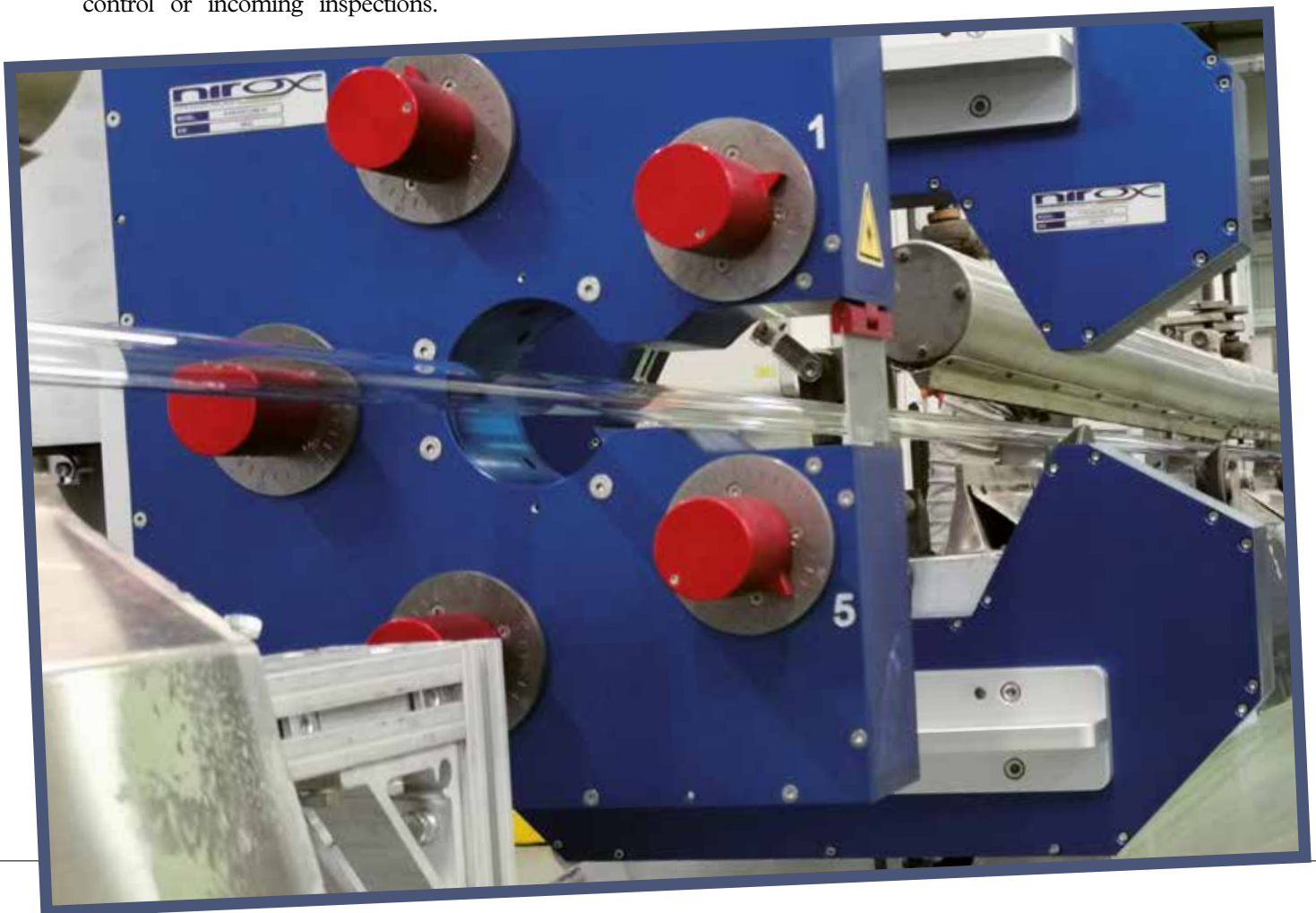
outer and inner diameters, and ovality. It also offers tube sorting and data logging for comprehensive control and performance analysis of the production line.

An automatic offline measuring system, NCSlab, quickly provides tube measurements for production control or incoming inspections.

It also offers complete dimensional mapping of the tube and can include defect inspection by way of an added camera module.

Another family of systems, EVline, inspects glass tubes after end-forming. As a stand-alone solution, it's easily mounted and

its modularity allows for the integration of multiple controls within a single inspection station. Here, camera modules employ high-quality optics for optimal performance. Depending upon layout, classified features include geometric and cosmetic inspection of tube.



VISION & COLD END



PHARMACEUTICAL TUBE CONVERTING SEGMENT

Glass pharmaceutical primary packaging must meet extreme tolerances, with dimensions requiring 100 percent inspection to ensure packaging functionality. Here NIROX has been a pioneer in applying optical technologies that will measure previously challenging bottom features, such as bottom thickness distribution and concavity.

The company's expanded portfolio covers all requirements, from dimensional to cosmetic inspection:

VISline.B measures the

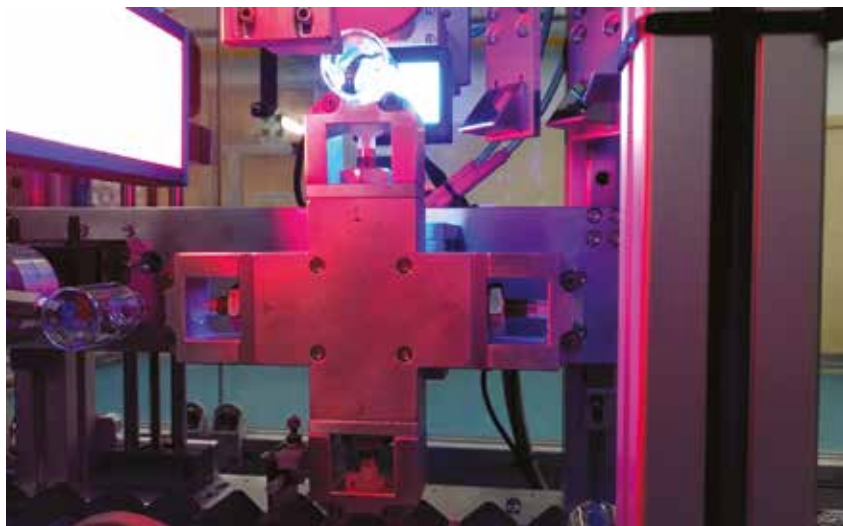
bottom features of vials or ampoules, including bottom thickness, concavity and footprint. It offers various layouts that are adaptable to different after-forming transport line designs, thereby ensuring high-precision inspections.

VISline.D will also perform dimensional inspection while the container is still mounted in a chuck on the forming machine. Subsequent inspection before the annealing oven on the after-forming line will then measure inner diameter and length.

After the annealing oven,

VISline.C conducts cosmetic inspections as the final step prior to packaging.

These systems all feature various viewing angles and are equipped with multiple cameras - both to ensure comprehensive inspections and to guarantee container quality. In each case objects are typically presented in front of the cameras, using either push-up or rotating mechanisms for optimal repeatability. NIROX team offers its skills and experience in optoelectronics to propose solutions to specific measuring and control issues. We can design and manufacture turn-key solutions according to your requirements. ■



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