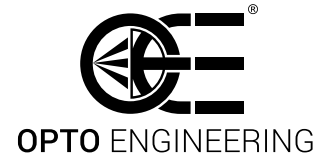


OE products for Pharma & Medical Industries



WHY OPTO ENGINEERING®?

We offer imaging components tailored for a wide variety of pharma quality control needs: standard and special lenses, lighting, cameras, controllers and machine vision software.

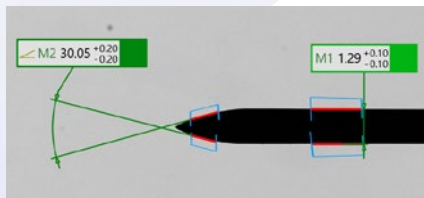
With almost 20 years of experience in the machine vision field, we can closely cooperate with you and bring our technical expertise at your service to assist you in finding the best product combination for your application.

All the solutions listed below are just examples of successful quality control approaches in the pharma&medical industry.

Contact us to discuss your needs!

SYRINGE NEEDLES INSPECTION & MEASUREMENT

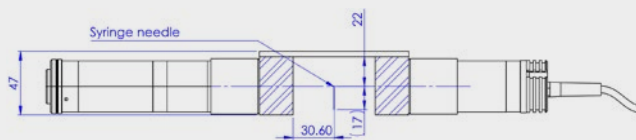
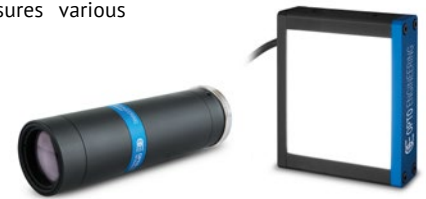
Needle tip dimensional gauging



The needle angle tip and diameter are accurately measured with our Horus software.

Our TCLWD050 telecentric lens and LT2BC LED backlights, together with Horus software, accurately measures various dimensions of the needle's tip:

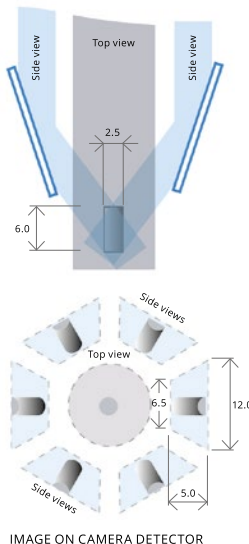
- NEEDLE'S TIP CUT ANGLE
- NEEDLE DIAMETER
- NEEDLE LENGTH



The combination of prism and beamsplitter provides two telecentric images on the object from a single lens.

Our TCCAGE multiview telecentric lens can be customized with 0.5 x magnification and two 90° views for needle measurement (e.g. 17 mm needle height on a 60mm syringe).

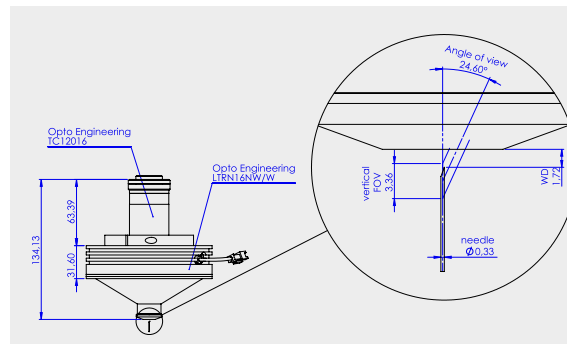
Needle tip inspection



Optical principle of the PCMP multiview lenses.

Our PCMP optics is designed for the imaging of small elongated objects from multiple angles with a single camera system, to perform:

- ELABORATE DIMENSIONAL MEASUREMENTS
- BURR DETECTION
- HOOK DETECTION



PCMP can be customized to see smaller fields of view, such as 0.33 mm diam x 3.36 mm height needle tips.



SYRINGES INSPECTION & MEASUREMENT

Syringes assembly inspection



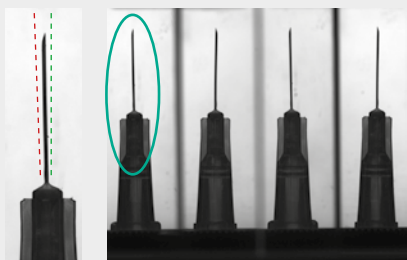
Thanks to the TCCAGE special multiview, inspection can be carried out without multiple cameras.

Our TCCAGE multiview telecentric lens is used to check:

- INCORRECT CAP PLACEMENT
- BENT NEEDLES
- CUTTERS, LEVERS, SHIELDS



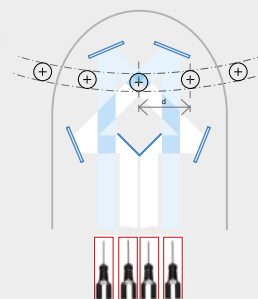
Cannula dimensional gauging



The lack of perspective given by the telecentric view of TCCAGE provides a quick alignment check regardless of the part orientation.

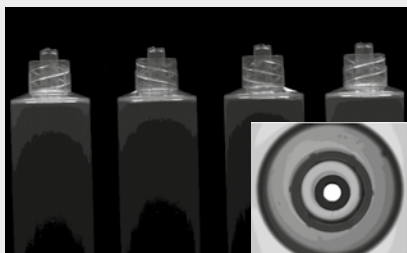
Our TCCAGE multiview telecentric lens can be used to measure:

- CANNULA ANGLE
- CANNULA BOW
- DEGREE OF ALIGNMENT



Optical principle of the TCCAGE lenses.

Syringe plastic tip inspection



TCCAGE allows for an easy integration with any lens from the MC SERIES of macro optics.

TCCAGE can also be used to check:

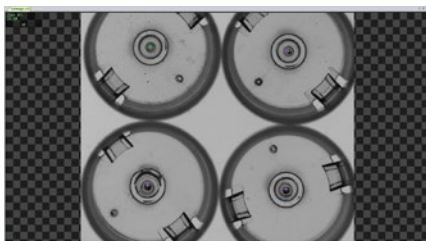
- PRESENCE OF CONTAMINANTS AND INCLUSIONS
- BURRS

Our macro MC05X can be combined with TCCAGE to look for:

- OCCLUSIONS IN THE TOP PLASTIC HOLE



Needle presence check



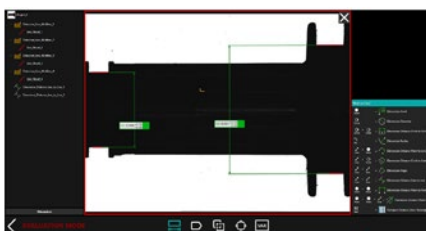
A set of four syringes can be checked for needle presence with a single telecentric lens thanks to the lack of perspective and elaborated in our FabImage software.

Our TC23056 telecentric lens and our LT2BC backlights check for:

- PRESENCE/ABSENCE OF THE NEEDLE ON MULTIPLE SYRINGES AT THE SAME TIME



Dimensional gauging of plastic syringe body



Horus software provides high accuracy and repeatability on the measurements.

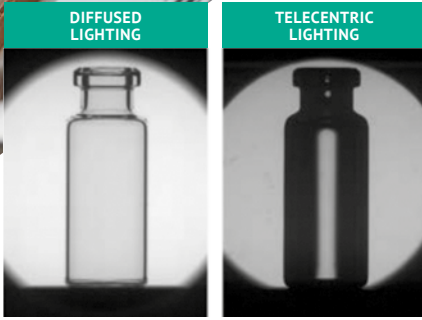
Our TC3MHR036-C telecentric lens and LTCLHP036-G collimated light and a 12 MPx camera are used to measure.

- BARREL LENGTH
- BARREL DIAMETER
- BARREL PARALLELISM
- COMPLIANCE TO 2D SPECS (e.g. DXF)



VACCINE VIALS MEASUREMENT AND INSPECTION

Glass vials measurement



Clear object contours can be seen under telecentric lighting, making accurate measurements of the object possible.

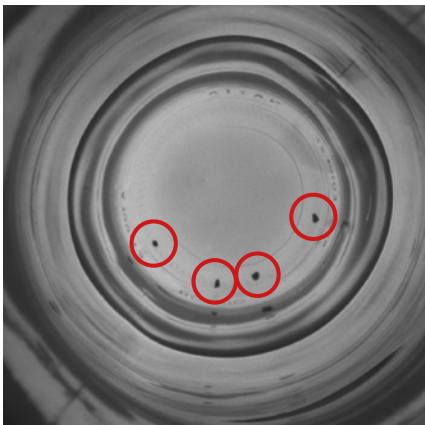
Our Telecentric lens TC23036 and telecentric illuminator LTCLHP036-G accurately measure:

- FINISH / COLLAR/ CONE PROFILE
- DIAMETER OF THE NECK / CONE
- PLANARITY OF THE MOUTH
- AXIALITY OF THE NECK
- SHOULDER ANGLES
- TOTAL LENGTH



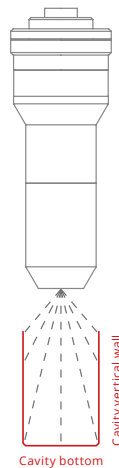
Telecentric light offers higher edge contrast when compared to diffused backlight illuminators and therefore higher measurement accuracy, especially recommended for round or cylindrical parts to avoid diffuse reflections coming from the edges of the object.

Glass vials contamination and impurity check



Backlighting provides a high contrast on the features of interest.

Hole inspection optics



Our PCHI SERIES and powerful homogeneous LTBP backlights are used for:

- RESIDUALS AND CONTAMINANTS CHECK

By focusing the bottom and inner walls with one single camera at high resolution.



PCHI lenses can be customized changing the angle of view to maximize resolution on specific diameter x height samples.

Syringe plastic tip inspection



FabImage Studio can be used to create a software indicating the liquid level in just a few steps.

Our EN2MP series and high power LTBP backlights can easily be used to:

- CHECK THE FILL LEVEL IN GLASS VIALS

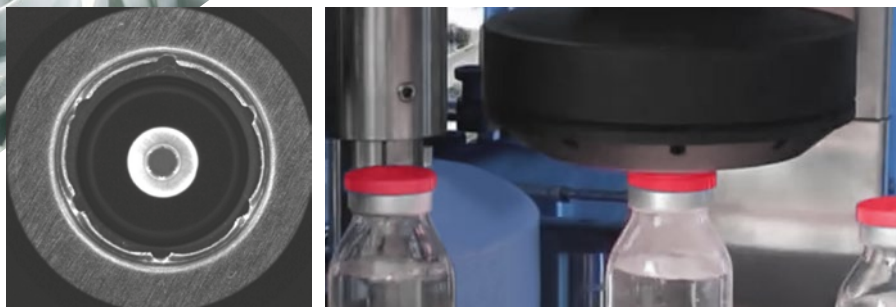
Delivering bright images even at low exposure times.



LTBP backlights can be customized with IR LEDs to solve applications with non-transparent vials.

VACCINE VIALS STOPPERS AND CLOSURES

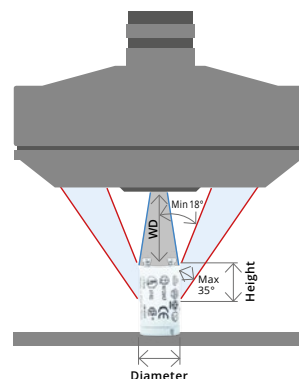
Check for correct sealing of vials (flip off cap)



High speeds can be reached thanks to the low F/# of the PCCD lens.

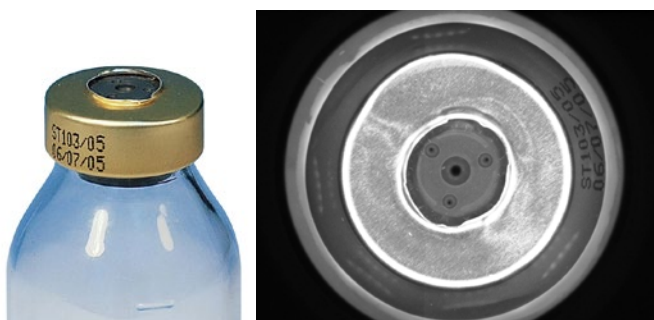
Our PCC012 lens and our high power ringlight LTRNHP165W45 can detect with one single camera:

- STOPPER ABSENCE
- DENTS
- WRONG COLOR
- DEFECTIVE CRIMP
- FLIP OFF DEFORMATION
- CAP SCRATCHES AND DEFORMATION



Optical principle of the PCCD lenses.

OCR and Matrix code reading



The expiration date can be easily read with this 360° setup without the need to know the bottle orientation.

Our PC SERIES lenses can inspect 7.5x5 to 55x20 mm field of views such as vial caps for:

- EXPIRATION DATE READING
- MATRIX CODE READING
- BARCODE READING
- TRACE AND TRACE PROCESSES



Check for defects in rubber stoppers for vial caps

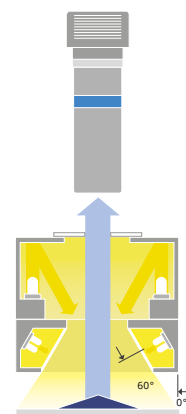


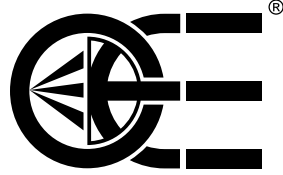
Our EN5MP high resolution fixed focal length lens, our DOME + LOW ANGLE illuminator LTDMLAC2-WW powered by our high performance LED strobe controller LTDVE2CH.20F perfectly inspect the following defects:

- CUTS
- FIBERS
- SPOTS
- SCRATCHES
- CONTAMINATION



Various illumination geometries provide different kind of information on the object. Here, a mixed illumination is the best choice.





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