

AI-based 360° Pen Inspection

High-quality cosmetic products stand for aesthetics, premium brand quality, and precision. Whether eyeliner, lip liner, kohl, or eyeshadow pencils: every surface of the manufactured pen, every finish, and every printed detail must be perfect.

The AI-based 360° inspection solution was developed for 100% end-of-line inspection of all types of pens, ranging from premium cosmetics and writing instruments to industrial applications.

With a machine cycle time of less than one second (up to 70 pens per minute), the rotating products undergo a complete 360° inspection. Printed details, type designations, manufacturer information, colors, and positioning are inspected, as well as surface defects such as scratches, dents, or breaks. Maximum process reliability ensures that every individual product leaves the production stage in flawless condition and can be transferred to the next process step (e.g., packaging).



The intelligent lighting concept featuring *trevista*® DOME in combination with Shape-from-Shading technology enables stable, high-contrast analysis even on highly demanding surfaces, including painted wood, polished metal, gold finishes, PVC, and matte plastics.

The “all-around inspection” ensures that every pen is fully captured and inspected. This means that only products meeting the highest quality standards reach the end customer on the store shelf. The various printed details are clearly and unambiguously legible.

The solution is scalable, expandable, and optionally integrable, not only into modern, data-driven production environments, but also as a building block for genuine Industry 4.0 quality assurance.

Technical Highlights & Benefits

- **100% 360° Inline Inspection:** Complete inspection of rotating pens with <1s cycle time / up to 70 parts/min
- **AI-Powered Defect Detection & OCR Inspection:** Inspection of printing, legibility, position, color, and surface quality
- **Advanced Lighting & 3D Surface Analysis:** *trevista*® DOME + Shape-from-Shading for stable results on even the most demanding materials
- **Industry 4.0 Ready:** Fully integrable into automated production lines and data-driven quality assurance systems

We'll show you how you can improve quality while reducing costs at the same time. Get a no-obligation consultation now: sales@ait.de