TECHNICAL DATA SEIDENADER CS

throughput container/h max.:	24.000
number of camera stations max.:	7
servo-driven positions in carousel:	40
containers:	ampules, vials, cartridges (max. 100 H)
container diameter:	8.15 - 51.6 mm
dimensions base machine incl. internal cabinet:	1,400 x 1,750 mm, height 2,250 mm
net weight base machine approx. incl. internal cabinet, plus vacuum pump:	2,600 kg plus 400 kg
electrical cabinet:	internal/external
dimensions external electrical cabinet:	1,200 x 600 mm, height 2,000 mm
net weight external electrical cabinet approx.:	800 kg
voltage/frequency:	400 V, 3Ph+N+PE
current consumption approx.:	8 kW
vacuum transport technology:	with external electrical vacuum pump
air consumption approx.:	10 Nm^3/h

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SEIDENADER
KÖRBER SOLUTIONS

INSPECTION MACHINE SEIDENADER CS

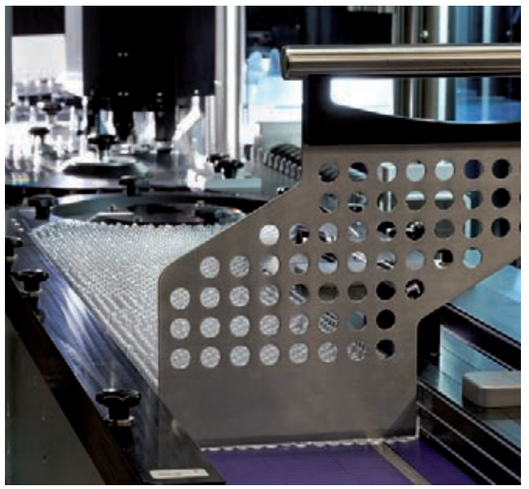
for vials, ampules and cartridges

STATE-OF-THE-ART TECHNOLOGY PUT ONTO THE SMALLEST SEIDENADER MACHINE PLATFORM MAKES HIGH-PERFORMANCE INSPECTION AVAILABLE FOR SMALLER PRODUCTION ENVIRONMENT.

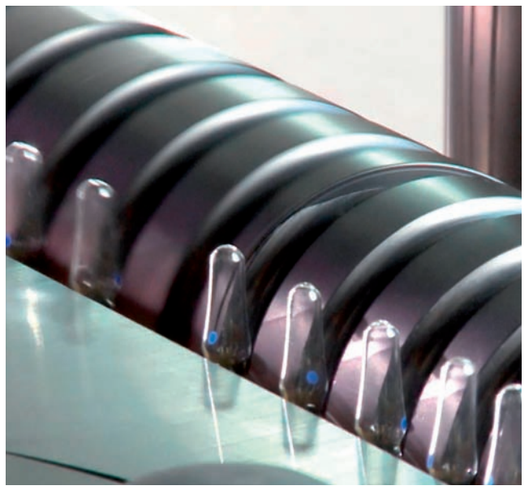
The Seidenader CS series are high-tech inspection machines for a wide range of parenterals and can be configurated either for liquid or for lyophilized products.

The CS is quipped with vision systems for the inspection of ampules, cartridges and vials to detect particles in the product and cosmetic defects of the container. To complement camera inspection, additional technologies, like high voltage leak detection (HVLD), head space gas analysis (HSA), near infrared spectroscopy (NIR) or glass stress verification (GSI) can be included.

The modular design of major machine functions for infeed, inspection and outfeed allows to build customized machines from standardized modules.



Infeed system with back pressure system for instable products



Split infeed timing screw

MODULARITY OF THE SEIDENADER CS

The new concept of modularity offers interchangeable infeed as well as outfeed systems.

Infeed modules feed the first vacuum star wheel via a split timing screw which smoothly separates the containers. The split screw can also create gaps between containers or stop the infeed to empty the machine without leaving uninspected products in the machine.

Infeed Alternatives

Inline use of the inspection machine:

- Inline interface with upstream machine to transport stable containers direct to the split infeed timing screw
- Inline connection, with turntable for manual loading
- Optional reject available for toppled containers

Manual loading from trays with Seidenader infeed system:

- Teflon guides minimize contact with the product to reduce friction
- Tight splitting at the infeed starwheel to slow down its rotation speed at same throughput
- Conveyor with separate motor to adjust individual speed for an optimal filling of the infeed starwheel
- Optional infeed pusher for unstable containers, with servo drive to optimize pressure on containers at the starwheel

Buffer system with bi-flow option for stable containers:

- Bi-flow conveyor belt feeds the containers to the split timing screw

Outfeed Alternatives

Outfeed integrated in the inspection module:

- A vacuum star wheel separates defects from good product
- Up to 3 eject allocations are possible
- Double tray available
- Inline connection available

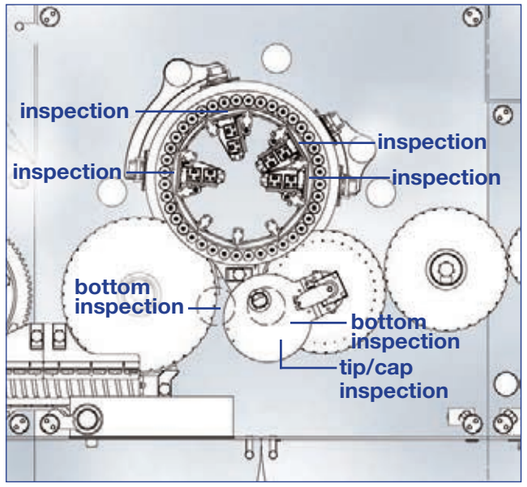
Seidenader outfeed module:

- Separate module, synchronized with the main drive, which receives the containers from the upstream vacuum star wheel
- Modular system with up to 5 ejects
- Inline connection available

Seidenader flexible outfeed trays for individual needs:

- Tray load system "Basic" with mounted module
- Tray load system "Comfort" with fold-down trays for optimal access to the machine, e.g. for cleaning
- Tray load system "Exclusive" with fold-down trays for optimal access to the machine, e.g. for cleaning, and removable tray deposit

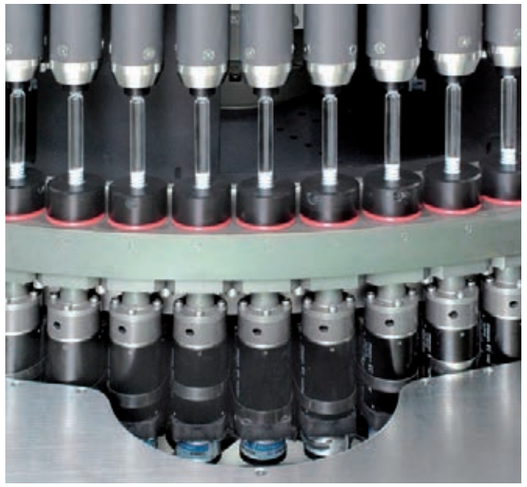
Different tray load systems can be combined in one machine.



TYPICAL INSPECTIONS FOR LIQUIDS

Parenterals have to be free of particles as they are usually injected and thus go directly into the bloodstream. Camera inspection detects moving particles like glass, fibres, metal and coating fragments, as well as heavy particles on the bottom.

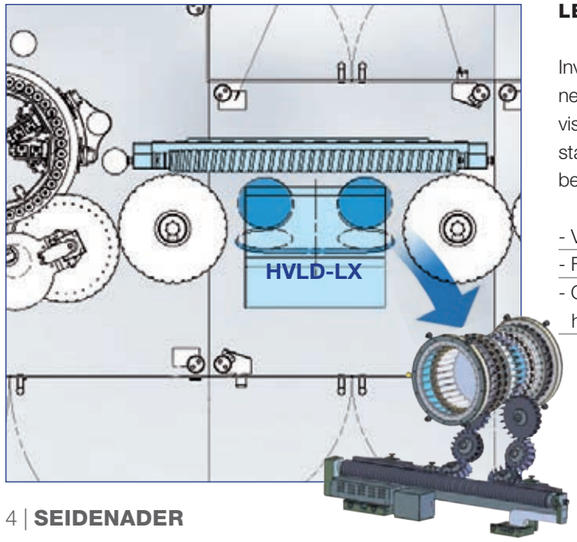
Containers like vials or cartridges are mostly also checked for closure defects, cracks and scratches. Ampules can additionally be inspected for seal quality and ampule tip geometry.



SERVO DRIVEN INSPECTION

Using two particle inspection stations allow to vary the rotation speeds to detect lighter and heavier particles. The presettings for rotation speed and brake point are stored together with the product inspection configuration (recipe) for each product. Programmable servo drives in every position of the inspection carousel allow repro-ducible rotation distances and rotation speeds.

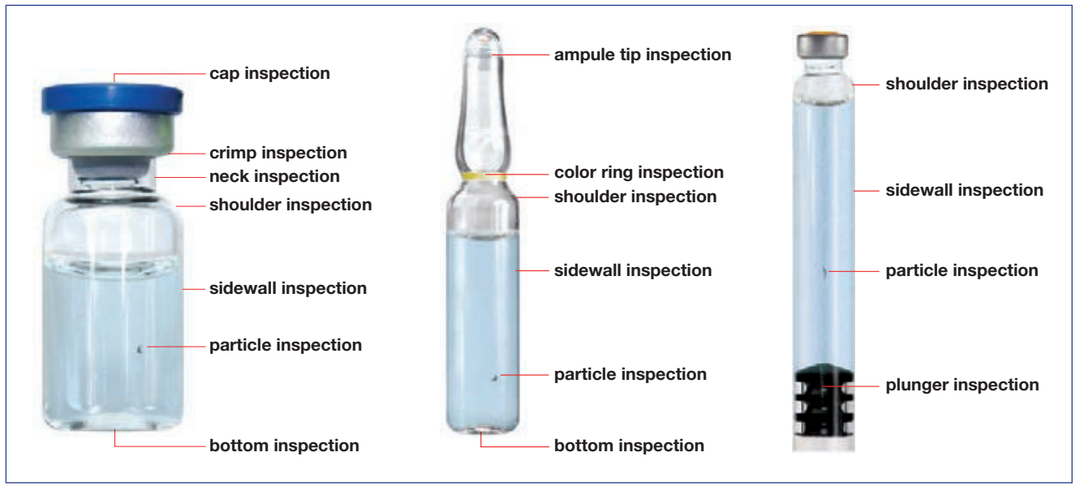
- Different liquids require different rotation speeds to bring the liquid in the dedicated movement.
- Different particles require different rotation speeds.



LEAK DETECTION WITH HIGH VOLTAGE

Invisible leakages like cracks or pinholes in the container may not be detected by cameras. To complement vision inspection for critical zones high voltage inspection stations (e.g. HVLD-LX module, HV bottom station) can be integrated on Seidenader machines.

- Very compact design
- Fully integrated on Seidenader inspection machine
- One operator interface for camera and high voltage check



Typical inspection criteria

MICRO CRACKS

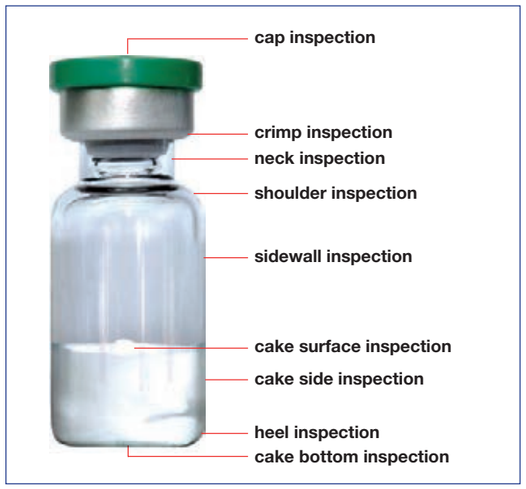
Container integrity is one of the major concerns when it comes to patient's safety. Invisible leakages like cracks of microscopic dimensions or pinholes in the container weaken the mechanical properties and put sterility of product at risk.

The Seidenader HVLD is specialized in detecting even small pinholes and cracks at high throughput rates using high voltage technology.

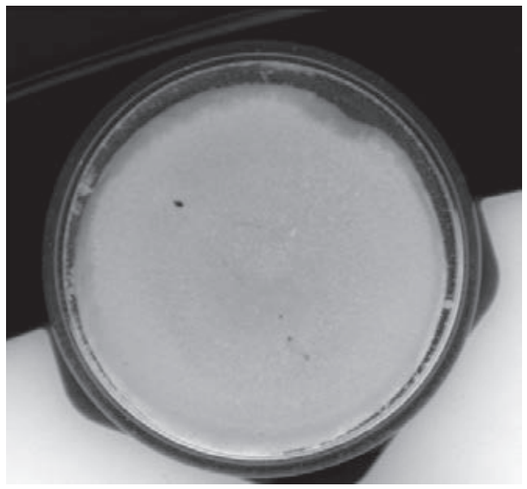
HV bottom station

HVLD module
Closure, neck and sidewall inspection - each product is held in a reproducible position towards the electrodes.

SEIDENADER CS
INSPECTION OF VIALS, AMPULES AND CARTRIDGES



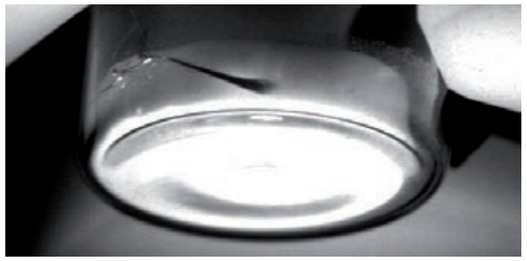
Typical inspection criteria of vials filled with lyophilized product



Bottom inspection of lyo cake

INSPECTION OF LYOPHILIZED PRODUCTS

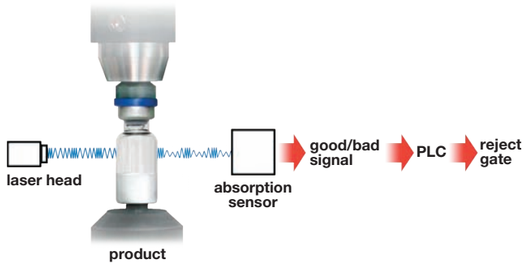
The Seidenader CS machines can be used as dedicated lyo inspection. The process of freeze drying puts enormous stress to the glass container, especially to the heel, often causing cracks. Seidenader integrates a camera station to detect especially these cracks at the heel. Lyo inspection typically detects: missing product, over-/underfill, particles, cracked glass, scratches, and dirt.

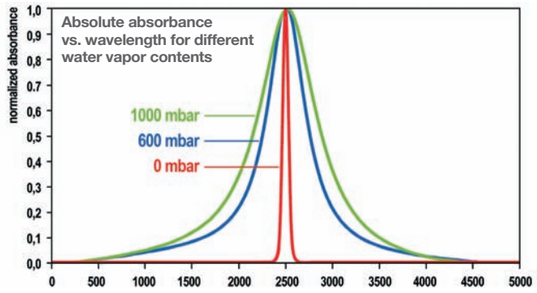


Camera station for heel inspection of vial filled with freeze dried product

INTEGRITY TESTING WITH HEAD SPACE ANALYZER

Seidenader's compact HSA module (Head Space Analyzer) is a high-speed inline 100% testing of containers for absolute pressure, water partial pressure in the headspace of vials filled with lyophilized or liquid product — Seidenader's answer to container/closure integrity testing requirements following U.S. Pharmacopeia Appendix 1 regulations.





Seidenader cabinet design: accessibility of machine from all sides - quick access to electrical components

SPECIAL FEATURES

Smooth product handling by vacuum transport system:

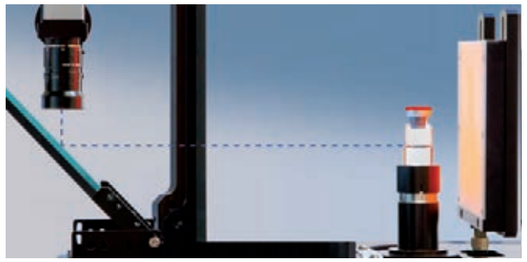
- Minimal contact of glass to side guidings
- Reduced friction by special guide part design
- Reduced format parts – quick change over

Seidenader "hyseptic" standard (GMP compliant):

- Sealed optical elements
- Column concept for good access and easy cleaning
- Trimmed edges, hidden cables

Enhanced software design:

- New advanced recipe manager
- Smart camera trigger technology
- OEE report for easy analysis of line efficiency



Seidenader "SPI" technology:

- No moving optical parts
- Less vibration entails less abrasion
- Less spare parts cause less maintenance