ApolloZ

The most impeccable medication inspection:
fast, efficient and in complete control

**Next-generation industrial medication
dispensing checking device**

ZIUZ.

The future of patient safety is now

Specialists in hospital and retail pharmacies worldwide work around the clock to provide patients with the pharmaceutical care they need. They dispense millions of medication pouches daily, working as fast and efficiently as possible. In an industry where people's lives rely on the right medication, there is no room for error.

With the development of ApolloZ, we are pushing the boundaries in the industrial medication dispensing checking process. We help specialists do their work faster and more efficiently while remaining in complete control.

At ZiuZ, we have experience in visual intelligence leading to technology leadership in pouch medication over the last ten years. Our devices analyze the contents of millions of pouches every day, leaving no pill undetected and making the medication dispensing process safer for the patient.

An unparalleled matching process, ready to enter the era of hyperspectral imaging

The recent growth of online and central fill pharmacies and the fast-growing demand for nutraceutical solutions drive the need for higher patient safety, efficiency, and overall quality. New technologies like checking the chemical fingerprint of pills via hyperspectral imaging and checking the pouch quality, like print quality and perforation, are emerging.

The modular ApolloZ platform is ready for all these innovations.

A smooth operation with production data at your fingertips

ApolloZ provides the user with a smooth operation and instant insight into the production process. Detecting and identifying malfunctions immediately and accurately.

Always in complete control
Monitoring your inspection process is key to ensuring the highest patient safety possible. That's why ApolloZ comes equipped with MedInspect, the inspection workflow management system that connects everything and provides you with a complete overview of your pouch inspection process including:
• Checking
• Scan & Sort
• Correct
• Release

Crystal clear insights
The integrated ZiuZ Analytics application uses data generated by ApolloZ to monitor and improve production through instant data usage. It provides a way to directly manage process errors and increase production efficiency.

All your data is safe and secure
ApolloZ is API-based (Application Programming Interface), enabling data transfer to and from other systems in a unified and secure way, automating the data stream. It creates a complete audit trail while all data is retraceable and retrievable. This makes it easy to report the complete inspection process and produce management reports at the push of a button.

Easily integrated
ApolloZ is designed for seamless integration into high-end production environments like central fill pharmacies by connecting third-party transport systems to its cutter and winder.

Maximum productivity and efficiency

ApolloZ maximizes production speed up to 8000 pouches per hour. This number considers all factors, such as actual run time, the time between cutting and rolling, the time for batch and reel switches, recovery of jams, user inefficiencies, and personnel taking breaks.

With ApolloZ's high input capacity, high transport speed, and intelligent ways for tote handling, downtime is kept to a bare minimum. The unwinding of the reels is fully automated. ApolloZ has as few mechanical parts as possible, preventing breaking of the string at startup of a reel. Combined with its intrinsic robustness, ApolloZ delivers on its promises:
• the lowest price per pouch
• improved Total Cost of Ownership and
• maximized value for money.

Always the right medication for the right patient

ApolloZ makes a huge leap in our line of products and ensures an increase in cost-effectiveness, production quality, and safety. ApolloZ makes the medication dispensing process even more transparent. It reduces the risk of human error by applying the four-eyes principle throughout the process, reducing false alarm rates, and providing the user with relevant information about the production process.

The dual CMOS camera takes high-resolution photos, while the LED dome light eliminates all reflections and shadows. ApolloZ is provided with a state-of-the-art vision system and algorithm using 13 parameters, including color, size, shape, and number. With this, ApolloZ detects medicine crumbs as small as $1mm^2$, maximizing the highest patient safety.

Elements of ApolloZ

Keeping the number of jams to a minimum
Sticker unit and cutter are part of the main unit

No reflections and shadows
Dual sensor technology (RGB+NIR) and LED dome-light make perfect images for automatic analysis by algorithms

Tensionless foil transport
with the motorized unwinder

Optimal roll quality
Medication roll unit (winder) with integrated drop sensors and improved 'pin' and 'bridge' system

Lowest False Alarm rate
via the built-in pouch shaker

Ergonomically designed
The crate platform can be adjusted in height and orientation (transversal) and can be removed for direct connection to tote transport systems

The systems allow for a variety of pouch lengths
Images are triggered on the cross-seal (minimizing missed images/maximizing cutting precision)

A bottom camera
takes text-side images

The sensor
checks if a crate is present, so rolls do not drop on the floor

The full flat transport belt system
keeps pouches under control and at the right camera distance to prevent images getting out of focus

ApolloZ secures the highest level of accuracy

– Controlled light conditions using a high-end LED dome eliminates reflections on cellophane.
– Cameras are calibrated using a purpose-designed calibration card.
– Japanese dual-CMOS sensor camera makes Near-Infrared and RGB pictures at the exact same moment.

Best of class performance

Performance on transparent medication	Excellent
Performance on dark/black medication	Excellent
Integration with transport system in logistics systems	Yes
ZiuZ Analytics to improve pouch packaging process	Yes

Main parameters used for analyses

Color Red (1), Green (2), Blue (3)	Surface detection (8)	Length detection (11)
Color standard deviation Red (4), Green (5), Blue (6)	Roundness detection (9)	Width detection (12)
Contour detection (7)	Distance to center detection (10)	Crumbs (13)

Main parameters used for analyses

Number of cameras	2 (top RGB + NIR and bottom BW)
Type of light being used	LED Dome, taking away reflections and shadows
False Alarm reduction via learning references on the fly	Yes
False Alarm reduction via Reference Optimizer	Yes
False Alarm reduction via build-in pouch shaker	Yes
Tensionless reel unwinding	Yes
Cutting & rolling	Yes
Display	Touch screen
Maximum number of users	Unlimited
Compatible with dispensing robots	All
Production speed incl. cutting and rolling	8000 pouches per hour[1]
Processing speed incl. cutting and rolling	11000 pouches per hour[2]
Maximum transport speed excl. cutting and rolling	14000 pouches per hour[3]
Power supply Europe	230 V-50 Hz. – max.10 Amp. + Grounded
Power supply USA	115 V - 60 Hz.- max. 10 Amp. + Grounded

Dimensions		Floor space requirements		Pouch specifications	
Length	1500 mm	Length	3500 mm	Smallest pouch size	55 x 42 mm
Width	470 mm	Width	2000 mm	Largest pouch size	105 x 74 mm
Height	1405 mm	Height	2500 mm	Foil type	Clear on white
Weight	230 kg				

ApolloZ workstations in combination with the MedInspect software platform

Viewer station	View alerted pouches
Scan & Sort	Scan and sort medication rolls
Correction station	Correction of erroneous pouches + take a picture

[1] approximately, including all inefficiencies like reel change, with two weeks rolls and 85 mm pouches
[2] with two weeks rolls and 85 mm pouches
[3] with 85 mm pouches

About ZiuZ

ZiuZ is a leading innovative company in developing and applying high-grade technology in visual intelligence applications. We develop various medical applications for pharmacies and hospitals. In addition to the products for the medical world, ZiuZ Forensic develops products for forensic footage analysis, helping law enforcement agencies to fight child abuse.

Mission
ZiuZ wants to achieve a worldwide impact with profitable and innovative solutions based on visual intelligence applications that contribute to solving socially relevant problems in the world.
ZiuZ Pharmacy Automation focuses on developing pouch inspection systems and workflow solutions for the pharmacy automation market.

Determined to make a difference

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Patient safety first