

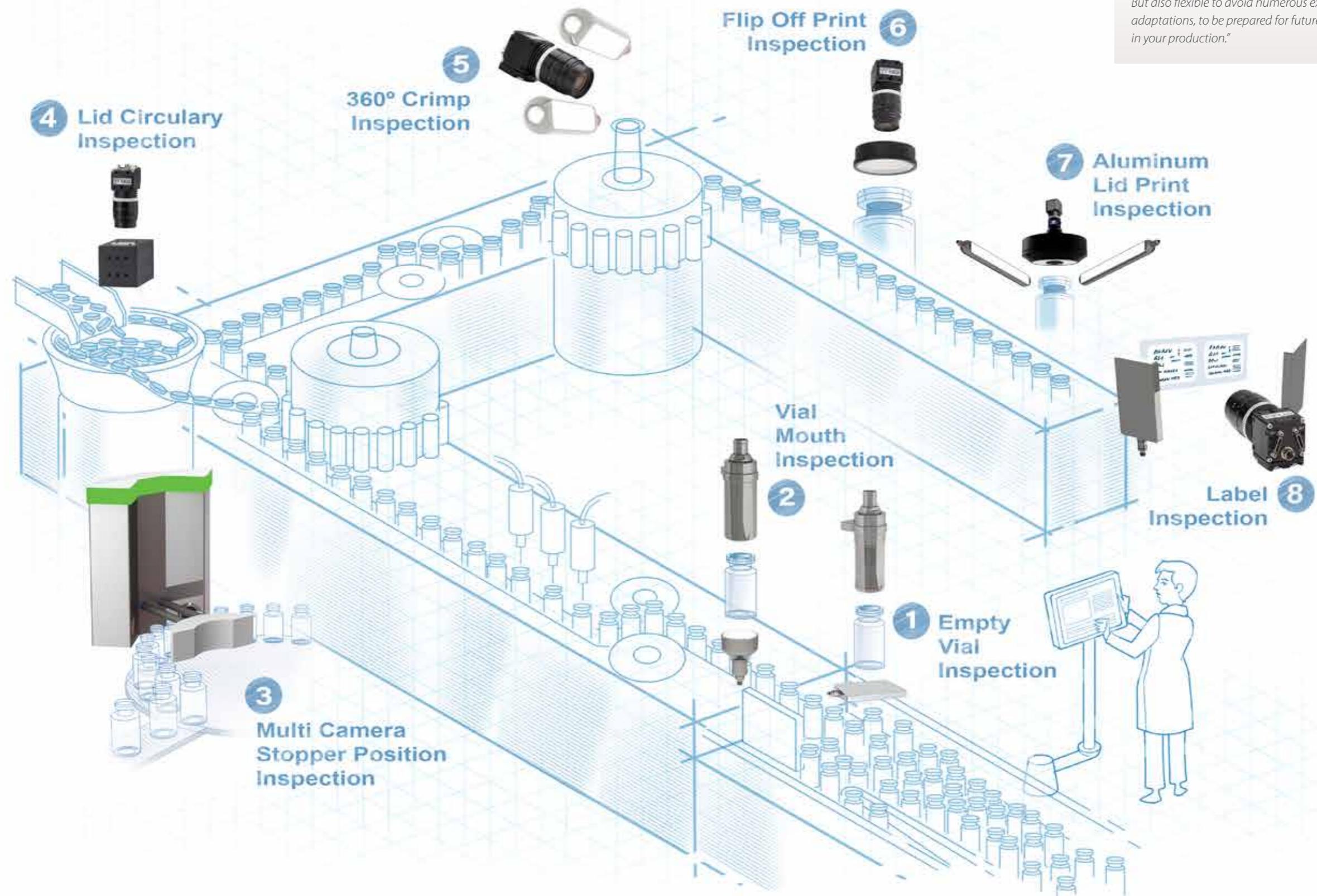
# Inspection Solutions for Pharma

## Liquid Filling Applications



- One platform for all applications
- GMP conform
- FDA conform
- Expandable by i-Automation

# Overview: inspection tasks in a pharmaceutical liquid filling production line



Helge Preuschl  
Key Account Manager Pharma

*"Using one inspection platform for all applications - compliant, reliable, easy to use, and achieving the highest precision and performance. But also flexible to avoid numerous extensive adaptations, to be prepared for future demands in your production."*



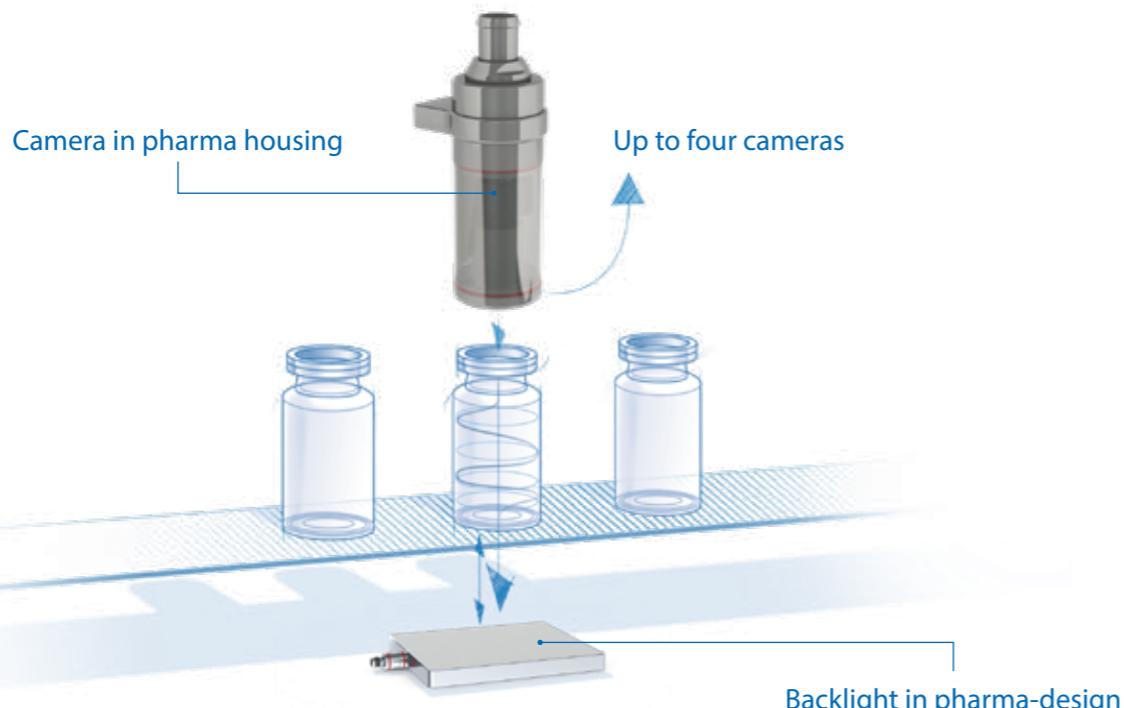
# 1 Empty vial inspection



## Scope of inspection

- Checking for contamination in vial
- Detects pieces of broken glass
- Foreign material detection
- Display of foreign material
- Optional: Up to four cameras for simultaneous inspection of multiple objects

## Machine infeed: Empty vial inspection



## Characteristics

- Format range from 2R up to 50R
- Typical evaluation time <100ms
- A single optical setup for checking all formats
- Inspection of moving objects (on the fly)

Carlo Ritter  
Application Specialist Pharma  
Key Account Team



*"With its modularity and flexibility OMRON's i-Automation offers nearly any solution for any task."*

## Integration service

Pcs	Code	Description
1		Integration of system into machine environment
1		Consulting, Tests in laboratory
1		Customizing inspection tasks / view
1		Qualification documentation
1		Qualification support at site (2x)
1		Operators training

## Machine: Module Empty vial Inspection

Pcs	Code	Description
1	FH-SMX05	High resolution FH camera 5 Megapixels
1	PCHI023	Hole inspection optics Manufacturer: Opto Engineering
1	CBS-P70-220-GK-21-21-00E-VA0	Protection Housing for camera and optics, Suitable for pharma applications Manufacturer: ETW Wollmershäuser GmbH
1	3Z4S-LE SV-EXR	Spacer set
1	FZ-VS3 10M	Camera connection cable straight 10m
1	BL-050-050-GD-RT-12-M04-VA0	Backlight 50mm x 50mm, LED, red Manufacturer: ETW Wollmershäuser GmbH
1	XS3F-E421-410-A	Lighting Cable

## Panel: Vision Controller with accessories

Pcs	Code	Description
1	FH-2050	Vision controller
2	XW2R-P34G-T	I/O Connector MIL
2	XW2Z-0050EE-L	Cable for XW2R-P34G-T I/O Connector
1	S8VK-S24024	Power Supply 24V 240VA

## HMI: Display with accessories (optional)

Pcs	Code	Description
1	NYM15W-C1000	15" Industrial Multitouch Display
1	FH-VUAB 5M	5m USB cable
1	NY000-AC00 5M	5m DVI cable

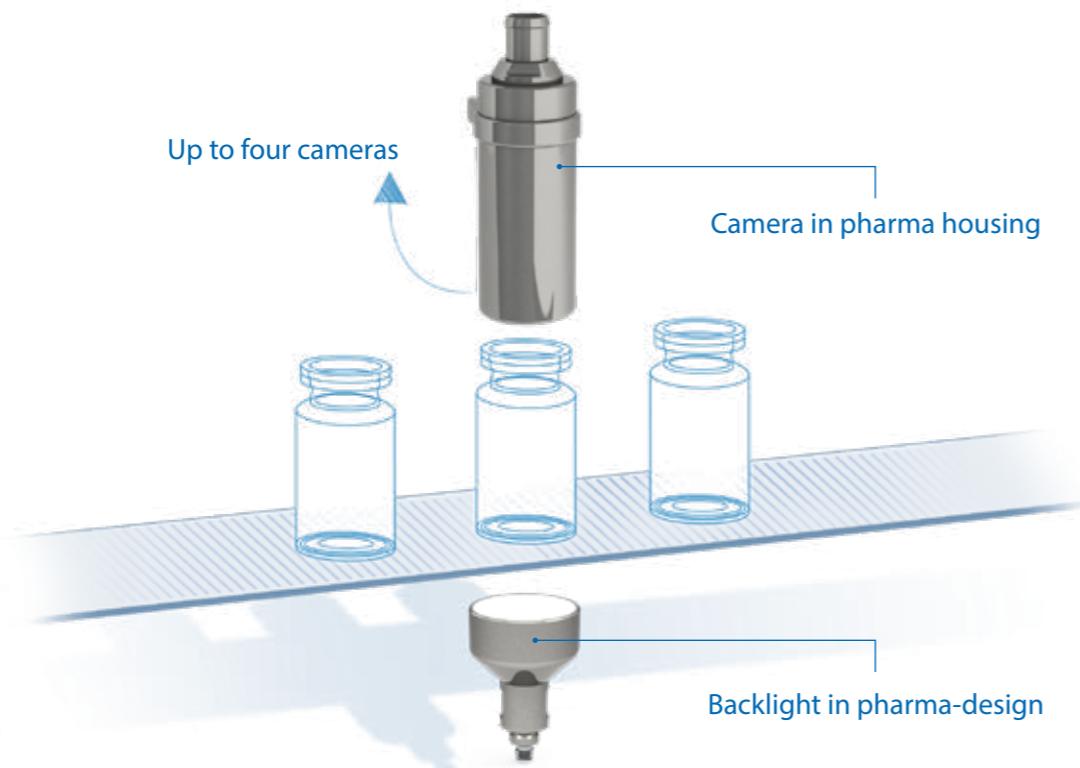
## 2 Vial mouth inspection



### Scope of inspection

- Detection of defects (scratches, burst) on vial mouth
- Dirt detection included
- Display of detected defects
- Optional: Up to four cameras for simultaneous inspection of multiple objects

### Machine infeed: Vial mouth inspection, schematics



### Characteristics

- Formats from 2R up to 30R
- Typical evaluation time <75ms
- A single optical setup for all formats
- Inspection of moving objects (on the fly)
- Lighting design highly optimized for utilisation under laminar flow conditions

Seigo Kinugawa  
CEO  
Omron Europe

*"Providing best technology and solutions for today's and tomorrow's demands is part of our contribution to a better society and to improve lives"*



### Integration service

Pcs	Code	Description
1		Integration of system into machine environment
1		Consulting, Tests in laboratory
1		Customizing inspection tasks / view
1		Qualification documentation
1		Qualification support at site (2x)
1		Operators training

### Machine: Module vial mouth Inspection

Pcs	Code	Description
1	FH-SM04	High resolution FH camera 4 Megapixels
1	3Z4S-LE SV-10028H	High resolution lens 100mm
1	3Z4S-LE SV-EXR	Spacer set
1	F150-US=ZU-FI-830RG/M37,5	Daylight cut filter
1	CBS-P70-220-GK-21-21-00E-VA0	Protection Housing for camera and optics, Suitable for pharma applications Manufacturer: ETW Wollmershäuser GmbH
1	FZ-VS3 10M	Camera connection cable 10m
1	BLR-D40-GD-IR-12-D12-VA0-S1	ED Backlight 40mm diameter, IR, Laminar Flow suitable design Manufacturer: ETW Wollmershäuser GmbH
1	BR01-02A	Lighting controller; Manufacturer: ETW Wollmershäuser GmbH
1	30004595	Lighting cable 5m

### Panel: Vision Controller with accessories

Pcs	Code	Description
1	FH-2050	Vision controller
2	XW2R-P34G-T	I/O Connector MIL
2	XW2Z-0050EE-L	Cable for XW2R-P34G-T I/O Connector
1	S8VK-S24024	Power Supply 24V 240VA

### HMI: Display with accessories (optional)

Pcs	Code	Description
1	NYM15W-C1000	15" Industrial Multitouch Display
1	FH-VUAB 5M	5m USB cable
1	NY000-AC00 5M	5m DVI cable

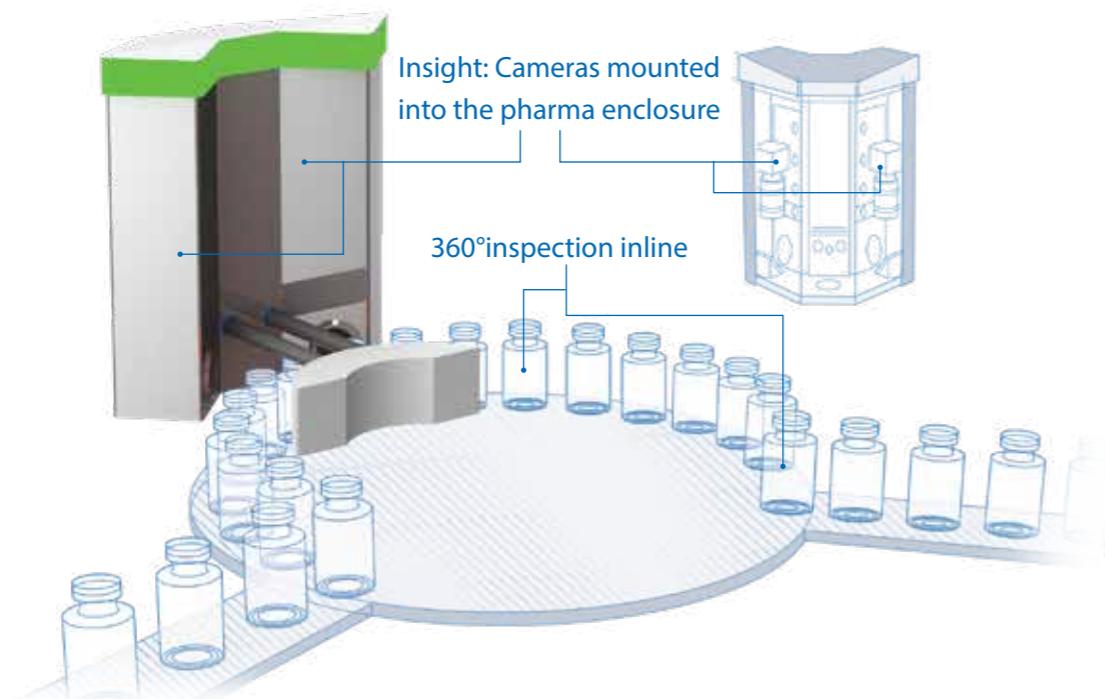
### 3 Multi Camera Stopper Position Inspection



#### Scope of inspection

- Stopper presence check
- Gap measurement on both sides of the stopper
- Gap and tilt display
- Two inspections in one display
- Optional: third camera checking for correct stopper type

#### Vial filling and capping: Stopper position inspection, schematics



#### Characteristics

- Stopper formats: Up to 32 mm
- Typical evaluation time <150ms
- Transparent and colored vials supported
- Inspection of moving objects (on the fly)

Manfred Wollmershäuser  
CEO ETW

*"Applied functional pharma enclosures and lightings are key for successful integration. Knowing the practical side within Pharma environment is our strength."*

#### Integration service

Pcs	Code	Description
1		Integration of system into machine environment
1		Consulting, Tests in laboratory
1		Customizing inspection tasks / view
1		Qualification documentation
1		Qualification support at site (2x)
1		Operators training

#### Machine: Module Stopper position Inspection

Pcs	Code	Description
2	FH-SM02	High resolution FH camera 2 Megapixels
2	3Z4S-LE VS-2514H1	High resolution Lens 35mm
8	3Z4S-LE SV-EXR05	Spacer 0,5mm
2	FZ-VS3 10m	Camera connection cable 10m
1	SKS-200-SA1	Camera enclosure with LED light Manufacturer: ETW Wollmershäuser GmbH

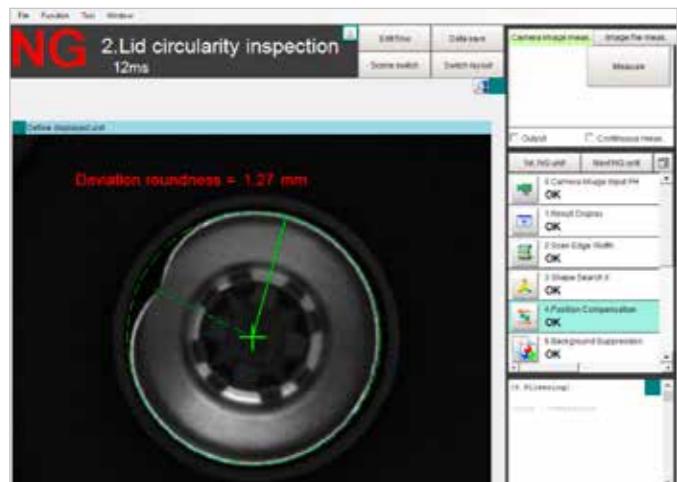
#### Panel: Vision Controller with accessories

Pcs	Code	Description
1	FH-2050	Vision controller
2	XW2R-P34G-T	I/O Connector MIL
2	XW2Z-0050EE-L	Cable for XW2R-P34G-T I/O Connector
1	S8VK-S24024	Power Supply 24V 240VA

#### HMI: Display with accessories (optional)

Pcs	Code	Description
1	NYM15W-C1000	15" Industrial Multitouch Display
1	FH-VUAB 5M	5m USB cable
1	NY000-AC00 5M	5m DVI cable

## 4 Lid Circularity Inspection



## Scope of inspection

- Checks the shape of the aluminium lid
- Detects damaged parts of the lid
- Prevents machine blocking by early rejection of deformed lids

## Vial filling and capping: Lid circularity inspection, schematics



## Characteristics

- Cap formats: up to 32 mm
- Typical evaluation time <100ms
- Supports colored aluminium lids and flip offs
- Inspection of moving objects (on the fly)

Arndt Neues  
Team Manager Key Account

*"Working for a better society and processing the Sustainable Development Goals (SDGs) of the United Nations (UN), that's our driver for a strong engagement in Pharma."*



## Integration service

Pcs	Code	Description
1		Integration of system into machine environment
1		Consulting, Tests in laboratory
1		Customizing inspection tasks / view
1		Qualification documentation
1		Qualification support at site (2x)
1		Operators training

## Machine: Module Lid circularity Inspection

Pcs	Code	Description
1	FH-SM	Standard resolution FH cam 0,4 Megapixels
1	3Z4S-LE SV-1214H	High resolution lens 12mm
1	3Z4S-LE SV-EXR	Spacer set
1	FZ-VS3 10m	Camera connection cable 10m
1	FLV-CL60W	Coaxial light, LED, white
1	FLV-TCC1	Lighting controller

### Panel: Vision Controller with accessories

Pcs	Code	Description
1	FH-L550	Vision controller
2	XW2R-P34G-T	I/O Connector MIL
2	XW2Z-0050EE-L	Cable for XW2R-P34G-T I/O Connector
1	S8VK-S24024	Power Supply 24V 240VA

## HMI: Display with accessories (optional)

Pcs	Code	Description
1	NYM15W-C1000	15" Industrial Multitouch Display
1	FH-VUAB 5M	5m USB cable
1	NY000-AC00 5M	5m DVI cable

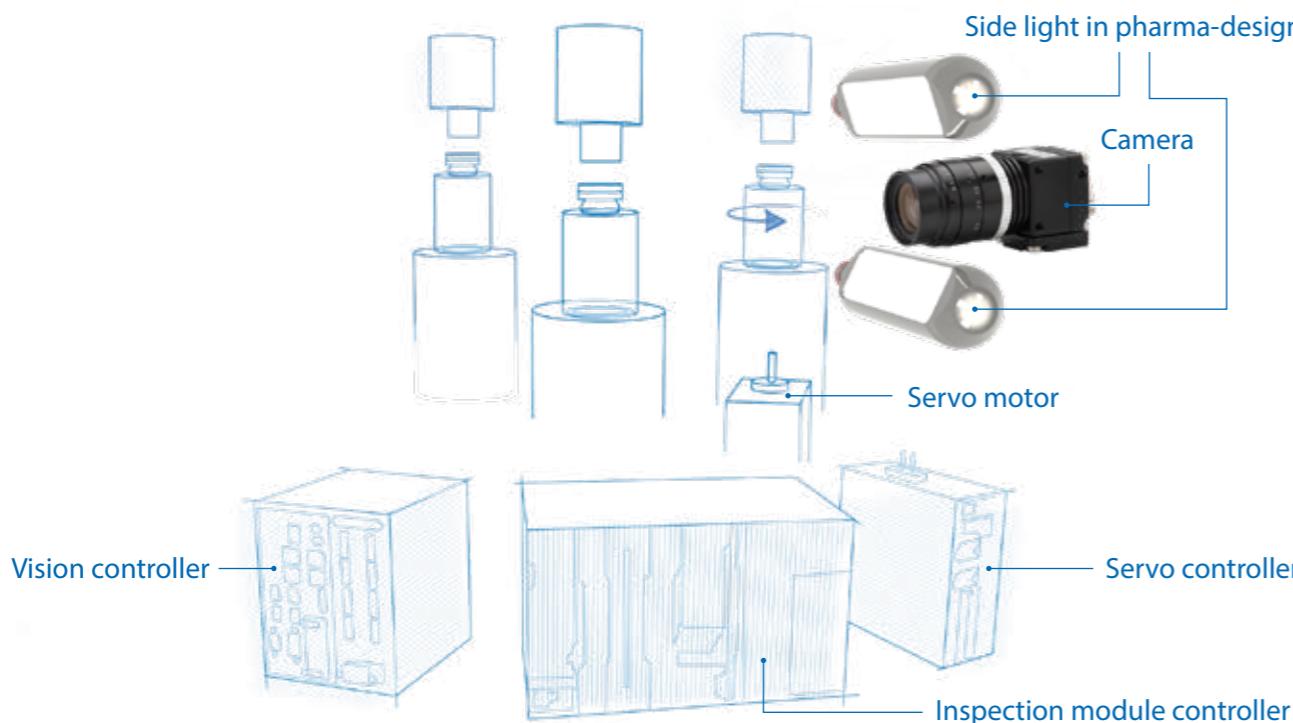
## 5 360° crimp Inspection



### Scope of inspection

- Flip off presence and color check
- Checking for dirt and damages on aluminium lid
- Detection of partially or fully uncrimped aluminium lids
- Chattermark detection
- Optional: Additional cameras for simultaneous inspection of up to four vials

### Vial filling and capping: 360° crimp inspection, schematics



### Characteristics

- Formats from 8R up to 20R
- Typical evaluation time <500ms (rotation of vial included)
- High speed synchronisation between rotation and image acquisition
- Optional: Additional liquid lense for format change without mechanical readjustment

**Robert Hölczl**  
Application Specialist Motion & Drives

*"Utmost quality achievement through strong combination of high performing motion, vision and data processing is the key of i-Automation."*



### Integration service

Pcs	Code	Description
1		Integration of system into machine environment
1		Consulting, Tests in laboratory
1		Customizing inspection tasks / view
1		Qualification documentation
1		Qualification support at site (2x)
1		Operators training

### Machine: Module 360° crimp Inspection

Pcs	Code	Description
1	FH-SC	Standard resolution FH color camera 0,3 Megapixels
1	3Z4S-LE VS-3514H1	High resolution lens 35mm
1	3Z4S-LE SV-EXR	Spacer set
1	3Z4S-LE SV-PL405-SS	Polarisation filter
1	FZ-VS3 10M	Camera connection cable 10m
2	ABE-Z30-050-GD-WS-12-D12-VA	Barlight, LED white, 50mm, pharma design
2	XS3F-E422-410-A	Lighting cable 10m
1	NX701-1600	Machine controller
1	NX-PD7001	Machine controller power supply
1	NX-ECC203	EtherCAT coupler
1	NX-EC0142	Encoder unit
1	NX-OD4256	Digital output unit
1	NX-ID4442	Digital input unit
1	R88M-1M10030T-BS2	Servo motor
1	R88D-1SN01HECT	Servo controller

### Panel: Vision Controller with accessories

Pcs	Code	Description
1	FH-5050	Vision controller
2	XW2R-P34G-T	I/O Connector MIL
2	XW2Z-0050EE-L	Cable for XW2R-P34G-T I/O Connector
1	S8VK-S24024	Power Supply 24V 240VA

### HMI: Display with accessories (optional)

Pcs	Code	Description
1	NYM15W-C1000	15" Industrial Multitouch Display
1	FH-VUAB 5M	5m USB cable
1	NY000-AC00 5M	5m DVI cable

## 6 Flip Off Print Inspection



### Scope of inspection

- Print position check
- 2D code reading
- Reading of plain text
- Code and text comparison against user specified content or serialised information
- Optional: alternative lighting for UV print inspection

### Marking and Labeling: Flip off print inspection, schematics



### Characteristics

- Cap formats: up to 20 mm
- Typical evaluation time <75ms
- Supports colored flip offs
- Inspection of moving objects (on the fly)

**Christoph Nau**  
Application Specialist Pharma  
Key Account Team

*"Working in a strong international expert team ensures the creativity to respond on applicative challenges in Pharma environment."*



### Integration service

Pcs	Code	Description
1		Integration of system into machine environment
1		Consulting, Tests in laboratory
1		Customizing inspection tasks / view
1		Qualification documentation
1		Qualification support at site (2x)
1		Operators training

### Machine: Module Flip off print Inspection

Pcs	Code	Description
1	FH-SC	Standard resolution FH color camera 0,3 Megapixels
1	3Z4S-LE VS-2514H1	High resolution lens 25mm
1	3Z4S-LE SVPL270SS	Polarizing filter
1	FZ-VS3 10M	Camera connection cable 10m
1	FLV-DR7030W	Ring light, LED white
1	FLV-DR7030PL	Polarizing filter for FLV-DR7030 ring light
1	FLV-TCC1	Light controller

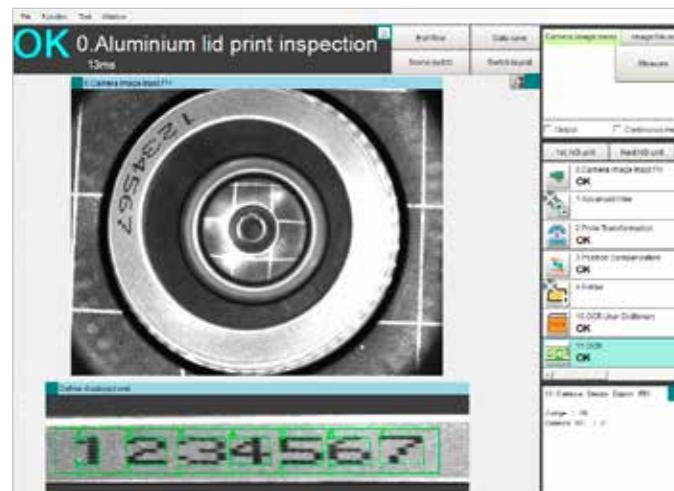
### Panel: Vision Controller with accessories

Pcs	Code	Description
1	FH-2050	Vision controller
2	XW2R-P34G-T	I/O Connector MIL
2	XW2Z-0050EE-L	Cable for XW2R-P34G-T I/O Connector
1	S8VK-S24024	Power Supply 24V 240VA

### HMI: Display with accessories (optional)

Pcs	Code	Description
1	NYM15W-C1000	15" Industrial Multitouch Display
1	FH-VUAB 5M	5m USB cable
1	NY000-AC00 5M	5m DVI cable

## 7 Aluminium Lid Print Inspection



### Scope of inspection

- 2D code reading and comparison against user specified content or serialised information
- Detection and reading of printed plain text and numbers
- Specialised optics for single-shot 360° surround view of the aluminium lid
- Two inspections in one display
- Optional: Alternative standard optics and setup with side-mounted camera for inspection of a small part of the aluminium lid

### Marking and Labeling: Aluminium lid print inspection, schematics



### Characteristics

- Formats up to 30R
- Typical evaluation time <125ms
- Colored aluminium lids supported
- Supports types with or without Flip Off
- Inspection of moving objects (on the fly)

**Marco Ceribelli**  
General Manager Sales Europe

*"Global presence and support from local experts close to your production sites ensures high production availability."*



### Integration service

Pcs	Code	Description
1		Integration of system into machine environment
1		Consulting, Tests in laboratory
1		Customizing inspection tasks / view
1		Qualification documentation
1		Qualification support at site (2x)
1		Operators training

### Machine: Module Aluminium lid print Inspection

Pcs	Code	Description
1	FH-SMX05	High resolution FH camera 5 Megapixels
1	PCCD023	Catadioptric lens for 360° top and lateral view Manufacturer: Opto Engineering
1	PCCDLFAT	Interchangeable attachment for extra-wide field of view Manufacturer: Opto Engineering
1	3Z4S-LE SV-EXR	Spacer set
1	FZ-VS3 10M	Camera connection cable 10m
2	ABE-Z30-050-GD-WS-12-Z12-VA0	Barlight, LED white, special pharma design Manufacturer: ETW Wollmershäuser GmbH
2	XS3F-E422-410-A	Lighting cable 10m

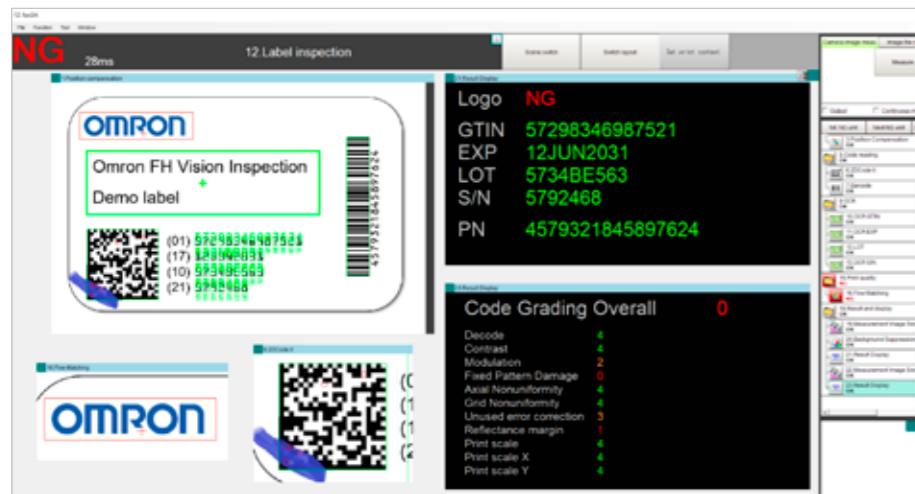
### Panel: Vision Controller with accessories

Pcs	Code	Description
1	FH-2050	Vision controller
2	XW2R-P34G-T	I/O Connector MIL
2	XW2Z-0050EE-L	Cable for XW2R-P34G-T I/O Connector
1	S8VK-S24024	Power Supply 24V 240VA

### HMI: Display with accessories (optional)

Pcs	Code	Description
1	NYM15W-C1000	15" Industrial Multitouch Display
1	FH-VUAB 5M	5m USB cable
1	NY000-AC00 5M	5m DVI cable

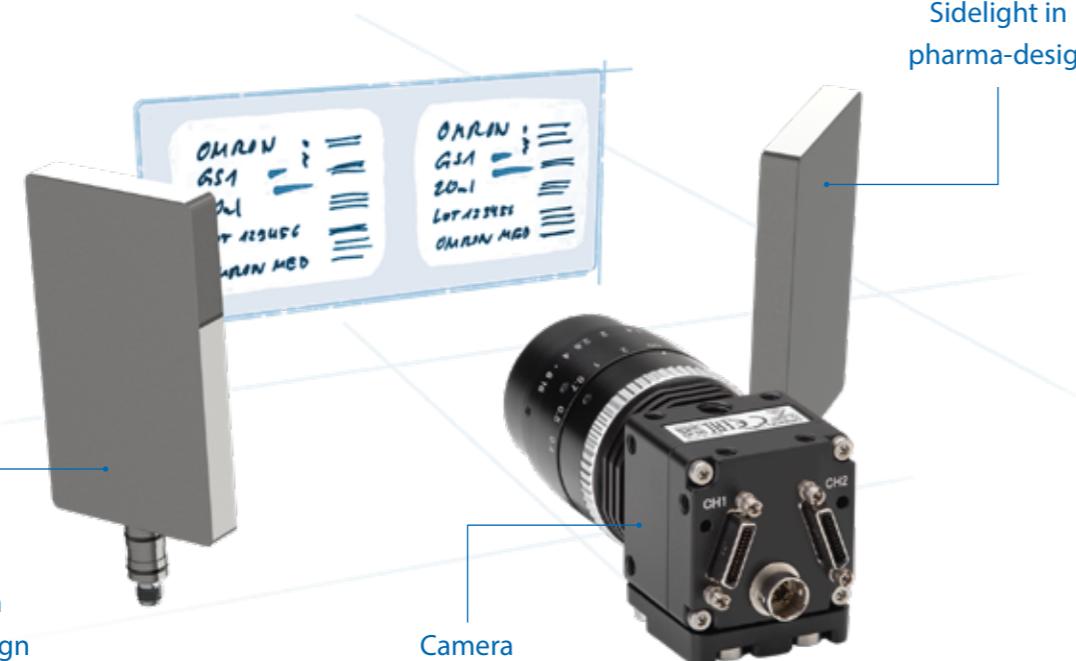
## 8 Label Inspection



### Scope of inspection

- Check presence and position of the print
- Plain text reading and comparison to user specified content
- Checking position, quality and defects of logos, symbols, etc. Detection of missing print or additional print/dirt
- Reading of 1D and/or 2D codes and comparison to user specified content or serialised information

### Marking and Labeling: Label inspection, schematics



### Characteristics

- Labelsize up to 100 mm x 70 mm
- Typical evaluation time <100ms
- Inspection of moving objects (on the fly)
- Easy and quick input of user specific print content
- Flexible number of regions for quality checking

Johannes Schade  
CEO isys vision

*"Ease of use, performance and support are the keys for our customers using OMRON. We provide all necessary documentation and additional services required by regulations and own production standards."*

### Integration service

Pcs	Code	Description
1		Integration of system into machine environment
1		Consulting, Tests in laboratory
1		Customizing inspection tasks / view
1		Qualification documentation
1		Qualification support at site (2x)
1		Operators training

### Machine: Module Label Inspection

Pcs	Code	Description
1	FH-SM04	High resolution FH camera 4 Megapixels
1	3Z4S-LE VS-2514H1	High resolution lens 25mm
1	3Z4S-LE SV-EXR	Spacer set
1	FZ-VS3 10M	Camera connection cable 10m
2	BL-100-100-AD-RT-12-004-AL1	Rectangular light 100mm x 100m, LED red Manufacturer: ETW Wollmershäuser GmbH
2	XS3F-E422-410-A	Lighting cable 10m

### Panel: Vision Controller with accessories

Pcs	Code	Description
1	FH-2050	Vision controller
2	XW2R-P34G-T	I/O Connector MIL
2	XW2Z-0050EE-L	Cable for XW2R-P34G-T I/O Connector
1	S8VK-S24024	Power Supply 24V 240VA

### HMI: Display with accessories (optional)

Pcs	Code	Description
1	NYM15W-C1000	15" Industrial Multitouch Display
1	FH-VUAB 5M	5m USB cable
1	NY000-AC00 5M	5m DVI cable

Would you like to know more?

## OMRON EUROPE

 +31 (0) 23 568 13 00  
 [industrial.omron.eu](mailto:industrial.omron.eu)

*All integration services performed by qualified and certified OMRON partners*

*Products and their position are just schematically.  
Final positioning and appearance of components  
might slightly differ.*

### Austria

Tel: +43 (0) 2236 377 800  
[industrial.omron.at](mailto:industrial.omron.at)

### Belgium

Tel: +32 (0) 2 466 24 80  
[industrial.omron.be](mailto:industrial.omron.be)

### Czech Republic

Tel: +420 234 602 602  
[industrial.omron.cz](mailto:industrial.omron.cz)

### Denmark

Tel: +45 43 44 00 11  
[industrial.omron.dk](mailto:industrial.omron.dk)

### Finland

Tel: +358 (0) 207 464 200  
[industrial.omron.fi](mailto:industrial.omron.fi)

### France

Tel: +33 (0) 1 56 63 70 00  
[industrial.omron.fr](mailto:industrial.omron.fr)

### Germany

Tel: +49 (0) 2173 680 00  
[industrial.omron.de](mailto:industrial.omron.de)

### Hungary

Tel: +36 1 399 30 50  
[industrial.omron.hu](mailto:industrial.omron.hu)

### Italy

Tel: +39 02 326 81  
[industrial.omron.it](mailto:industrial.omron.it)

### Netherlands

Tel: +31 (0) 23 568 11 00  
[industrial.omron.nl](mailto:industrial.omron.nl)

### Norway

Tel: +47 (0) 22 65 75 00  
[industrial.omron.no](mailto:industrial.omron.no)

### Poland

Tel: +48 22 458 66 66  
[industrial.omron.pl](mailto:industrial.omron.pl)

### Portugal

Tel: +351 21 942 94 00  
[industrial.omron.pt](mailto:industrial.omron.pt)

### Russia

Tel: +7 495 648 94 50  
[industrial.omron.ru](mailto:industrial.omron.ru)

### South Africa

Tel: +27 (0)11 579 2600  
[industrial.omron.co.za](mailto:industrial.omron.co.za)

### Spain

Tel: +34 902 100 221  
[industrial.omron.es](mailto:industrial.omron.es)

### Sweden

Tel: +46 (0) 8 632 35 00  
[industrial.omron.se](mailto:industrial.omron.se)

### Switzerland

Tel: +41 (0) 41 748 13 13  
[industrial.omron.ch](mailto:industrial.omron.ch)

### Turkey

Tel: +90 212 467 30 00  
[industrial.omron.com.tr](mailto:industrial.omron.com.tr)

### United Kingdom

Tel: +44 (0) 1908 258 258  
[industrial.omron.co.uk](mailto:industrial.omron.co.uk)

### More Omron representatives

[industrial.omron.eu](mailto:industrial.omron.eu)