



# THE INSPEX LINE

Industrial vision



setsmart  
KEP TECHNOLOGIES

# INDUSTRIAL CONTROL

KEP Technologies is a full solution provider. With **SETSMART** we offer a range of advanced standard and customized industrial control solutions with end-to-end project management, as required.

We are confident that with KEP Technologies you will find a dedicated industrial control solution with the performance needed to accurately control your parts and assemblies production. This being the case no matter which of our below market segments you may work in.

## MARKETS

We address all industrial markets including:

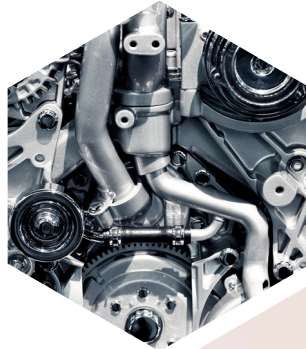
### AERONAUTICS

Surface and assembly defects - Material failure - Complex geometry parts - Small to medium volume productions.



### AUTOMOTIVE

Detection of surface defect or incorrect assembly of parts or sub-systems - Inspection of fuel cells' electrodes.



### DEFENSE

Surface and assembly defects - Material failure - Complex geometry parts - Small to medium volume productions.



### MEDICAL & PHARMACEUTICAL

Incorrect assembly of medical devices.



### PACKAGING

Detection of surface defects or of foreign objects in food packaging.



### ELECTRONICS & CONSUMER GOODS

Control of electronic boards – Detection of incorrect assemblies in systems (eg home automation) – Detection of incorrect assembly or material failure in the watch industry.



# THE KEP TECHNOLOGIES ADVANTAGE

Each INSPEX solution incorporates three essential elements to ensure the best Industrial Control for Smart Industry - Smart Control, Measurement Versatility and Quality Results. We know that solutions providing these benefits will deliver the highest value to our customers

**SMART CONTROL** With various options for automation, statistical data analysis, feedback loops for manufacturing machines.

**MEASUREMENT VERSATILITY** With one solution : multiple specifications controlled on one part and multiple types of parts can be controlled.

**QUALITY RESULTS** High accuracy and high precision transducers to meet and surpass your control requirements.



In addition to our core product offer, we are able to provide customized solutions by harnessing the engineering and project management expertise of our highly skilled organization.

## THE INSPEX LINE

**INSPEX** solutions offer a perfect control over the aspect of your products, and over the quality of their assembly. They let you guarantee the highest product quality to your customers.

They are based on various vision and X-ray technologies, for surface or in-depth non-destructive control, to fit perfectly to your challenges.

The INSPEX range integrates core concepts from Industry 4.0 such as options for :

- Measurement automation
- Insertion of measurement systems at the core of the manufacturing process
- Statistical treatment of measurement data

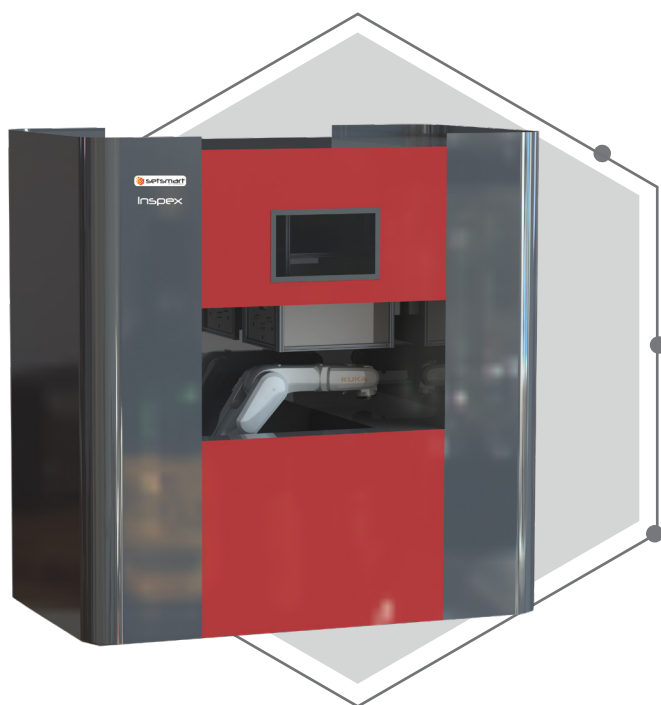
They contribute to making your control processes reliable and to improving your productivity.

**All solutions in the INSPEX family can be adapted to your specific control needs.**



# INSPEX OUT

VERSATILE INSPECTION SOLUTION BY INDUSTRIAL VISION



## VERSATILE CONTROL

- Surface defects (cracks, scratches, deformation, etc), incorrect assemblies (absence or wrong positioning of screws, connectors, etc), finish (color, burr, etc), dimensions, foreign objects
- On mono or multi-material parts and systems of various sizes and shapes

## FAST AND EASY INSPECTION

- Achieved in a few seconds, user independent
- Non-destructive, non-intrusive, adapted to online control

## AUTOMATION OPTIONS

Loading and unloading of parts, camera angles, sorting and marking, etc

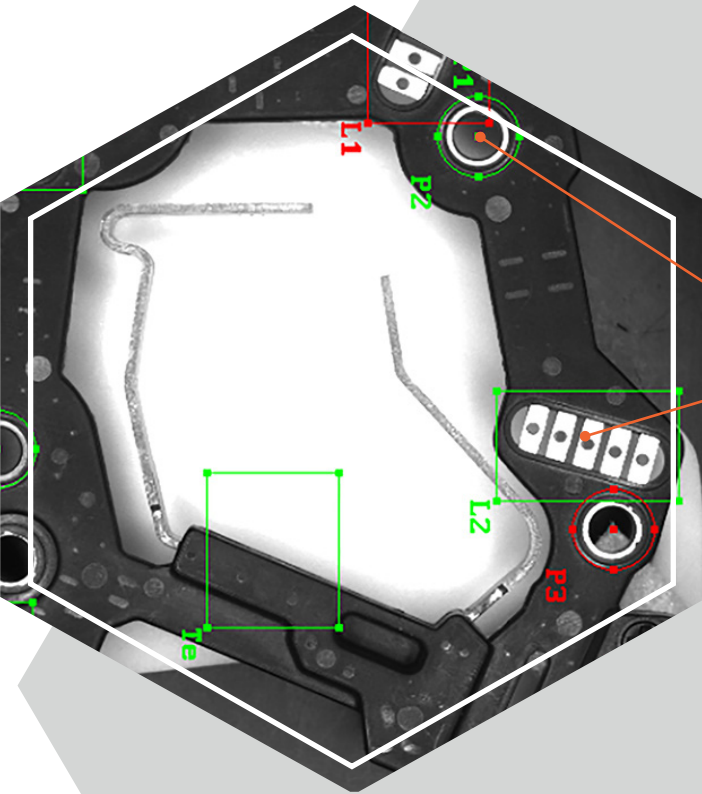
## PERFORMANCE

Imaging system*	Frame 1*	Frame 2*
	CMOS 3000x2208 pixel monochromatic camera	CMOS 640x480 pixel monochromatic camera
	Up to 5 frames per second	Up to 60 frames per second
	Focal length 25mm	Focal length 12mm
	Aperture F/1.4 to F/22	Aperture F/1.4 to F/16
Measurement uncertainty - dimensions**	0.25 mm	
Measurement uncertainty - area**	0.9 mm <sup>2</sup>	
Cycle time	Within seconds	
GENERAL		
Dimensions in mm* (H / D / L)	1940 / 1150 / 1884	

\*Typical values, can be tailored to your control requirements

\*\*Guideline values, depend on the controlled part

# INSPECTION BY VISION



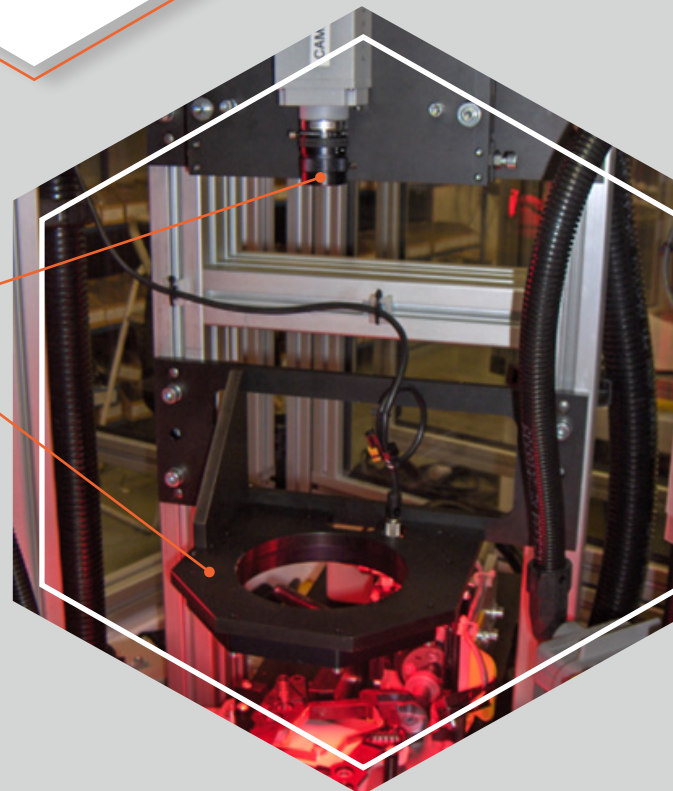
Several **inspection points** (regions of interest) **are automatically treated** for measurements or detection.

They are identified by comparing the part's picture with a compliant parts' photo library.

**Parts handling is automated** using robots, conveyors, etc. They can be automatically sorted based on the inspection results.

**Vision technologies** (cameras, lighting) are selected and combined **to obtain the best picture for the part's control**. Several pictures can be shot by several cameras, or by placing the part at different angles in front of one camera.

One machine's software and robot can handle several parts, with a possibility of automated identification of the part.



# INSPEX IN

## INDUSTRIAL X-RAY INSPECTION SOLUTION



### NON-DESTRUCTIVE AND VERSATILE INSPECTION

- Incorrect assembly (absence or wrong position of screws, connectors, etc), material failure (cracks, etc), dimensions, foreign bodies
- On pre-assembled and complex systems

### SAFE CONTROL

With protection devices to ensure containment of radiation during the control cycle

### AUTOMATED OPTIONS

Loading and unloading of parts, camera angles, sorting and marking, etc

### PERFORMANCE

<b>Imaging system*</b>	1000x1000 pixels CCD camera
	Up to 30 frames per second
	Focal length 30 mm +/- 1%
	Aperture F/2 to F/12
<b>Measurement uncertainty – dimension*</b>	Up to 0.2mm
<b>Cycle time*</b>	Less than 15 seconds

### GENERAL

<b>Dimensions in mm*</b> (H / D / L)	3110 / 2220 (closed) to 2830 (open) / 3300
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\*Typical values, can be tailored to your control requirements

# X-RAY INSPECTION

**The controlled part is placed between the X-ray source and a detector** for taking the picture. Radioprotection is possible thanks to a lead body and trapdoor.

**Several inspection points** (regions of interest) **are automatically treated** for dimensions measurement or defects detection. They are identified by comparing the part's picture with a compliant parts' photo library.



**Parts handling is automated** thanks to robots, conveyors, etc. They can be sorted automatically, based on the inspection results.

One machine's software and robot can handle several parts, with a possibility of automated identification of the parts.



Switzerland - France - China - United States - India - Hong Kong  
For contact details: [www.setsmartsolutions.com](http://www.setsmartsolutions.com) or [setsmart@kep-technologies.com](mailto:setsmart@kep-technologies.com)