

BOTTLES & CONTAINERS

VISION INSPECTION SYSTEMS
FOR THE
PLASTIC PACKAGING INDUSTRY



INTRAVIS

***WE SOLVE PROBLEMS.
BEFORE THEY OCCUR.***

HOW WE LIVE OUR VISION

Your quality control requirements present tasks that we gladly face and successfully solve every day. At INTRAVIS, engineers, skilled workers and technicians work every day to find solutions for challenges in the plastic packaging industry that have not been solved yet. Our customers benefit from more than 30 years of experience in the plastic packaging industry.

We are dealing with topics right now that will become challenges for the industry in the coming years. We ask ourselves: How can vision inspection systems deliver added value for pro-

spective production processes? What contribution will quality inspection solutions make to the smart factory of the future? How can inspection systems and analysis software help to increase production efficiency?

Finding answers together with customers and partners is what drives us every day.

INTRAVIS

ABOUT US

SIMPLY BETTER PRODUCTS

For more than 30 years, producers in the plastic packaging industry have relied on INTRAVIS solutions. In the areas of preforms, closures, stretch- and extrusion-blown bottles and containers, as well as decoration, we offer systems that meet all of the requirements of a sustainable quality inspection solution.

You have the choice: do you need a cost-effective standard system which fulfills fundamental inspection tasks, or a specialized solution ready to fit your specific needs? Whether you want to inspect inline or offline – all of our solutions are flexible and customizable.



PREFORMS

PreMon
PreWatcher Offline
PreWatcher Inline
Sample-PreWatcher
ColorWatcher Lab
LayerWatcher



BOTTLES & CONTAINERS

SpotWatcher Basic
SpotWatcher Customized
SpotWatcher Pharma
IntraOne
BarrierWatcher

INTRAVIS SYSTEMS OFFER:

1. Security that you will always deliver the best possible quality to your customer



CAPS & CLOSURES

CapWatcher Q-Line
CapWatcher B-Line
CapWatcher SC
CapWatcher FC
IntraOne
BarrierWatcher

PERIPHERY

CapFeeder
CapFeeder + Tower Hopper
Cross Conveyor
Cooling Conveyor

2. Full production control and optimization of your production process
3. High comparability of different production conditions and results
4. Turnkey systems with complete commissioning and extensive 24/7 service
5. Customized solutions for perfect integration into the customer's production or laboratory



LABELING & DECORATION

LabelWatcher
LabelWatcher 360°
IMLWatcher
SleeveWatcher
IntraOne

INTRAVIS

ABOUT US

YOUR ADVANTAGES

There are many reasons to buy an INTRAVIS inspection system. Some examples of how you can benefit from our solutions:

RENOWNED SOLUTIONS

- INTRAVIS technology helps you to be a global leader in the plastic packaging industry
- We are driven to develop innovative solutions to new and customized challenges
- INTRAVIS means quality “made in Germany” trusted by many global players



BARRIER LAYER

BarrierWatcher
LayerWatcher



SOFTWARE

IntraVision
IntraVisualizer
IntraRecommender

PROCESS OPTIMIZATION

- Get unique insights into your production process through comprehensive statistics, reports, diagrams and trend calculations
- Connect your INTRAVIS systems with your Manufacturing Execution System (MES) to take the next step towards your Smart Factory of the future
- Fast and space-saving integration into your production line or laboratory

SECURITY

- Enjoy the security of delivering only flawless products to your customers
- In-house programmed and userfriendly software interface to ensure that your machine operators easily handle the system on their own

- Assurance of regular maintenance and immediate troubleshooting thanks to our worldwide network of service centers and our free telephone hotline

PARTNERSHIP RELATIONS

- In cooperation with you, our team is looking forward to developing a customized solution for your individual inspection task
- We strive for long-term partnerships to provide our customers with a complete and interconnected inspection solution for an entire plant or even multiple sites

BOTTLES & CONTAINERS

We supply manufacturers of various industries worldwide to assist them in maintaining high quality standards. Our vision inspection systems for plastic bottles and containers are capable of detecting defects such as contaminations, pinholes, color deviations, long and short shots, thin areas, as well as deviations in the object geometry.

Our product portfolio ranges from pre-configured and standardized systems to customized solutions. This enables you to find a quality inspection system that fits perfectly to your needs – no

matter whether you prefer a compact system at a low price with fundamental inspection modules or a comprehensive solution which is customized to your bottles and containers.

No matter what you choose: Each of our systems supports you in detecting defects at an early stage, improving product quality and minimizing your rejects: These are benefits that our customers in the pharmaceutical, food, medical and consumer goods industries have been utilizing and appreciating already for decades.

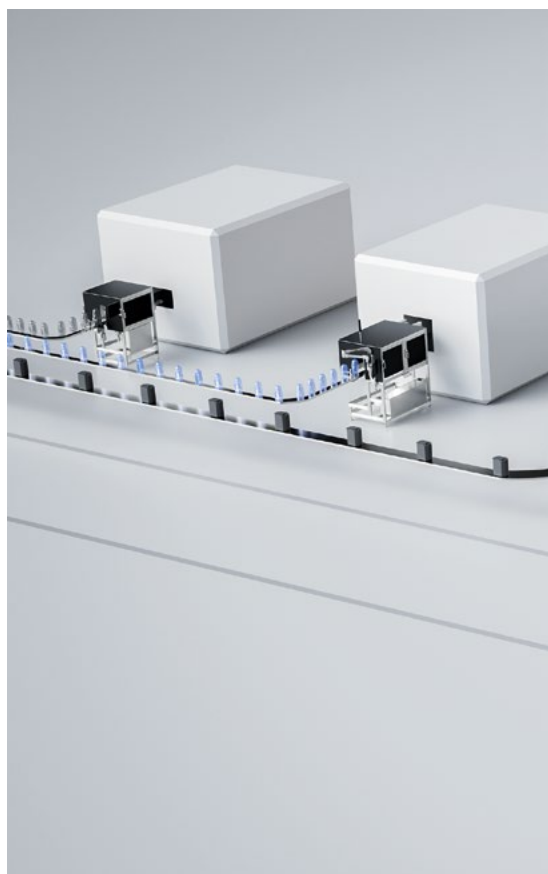
BOTTLES & CONTAINERS

OVERVIEW

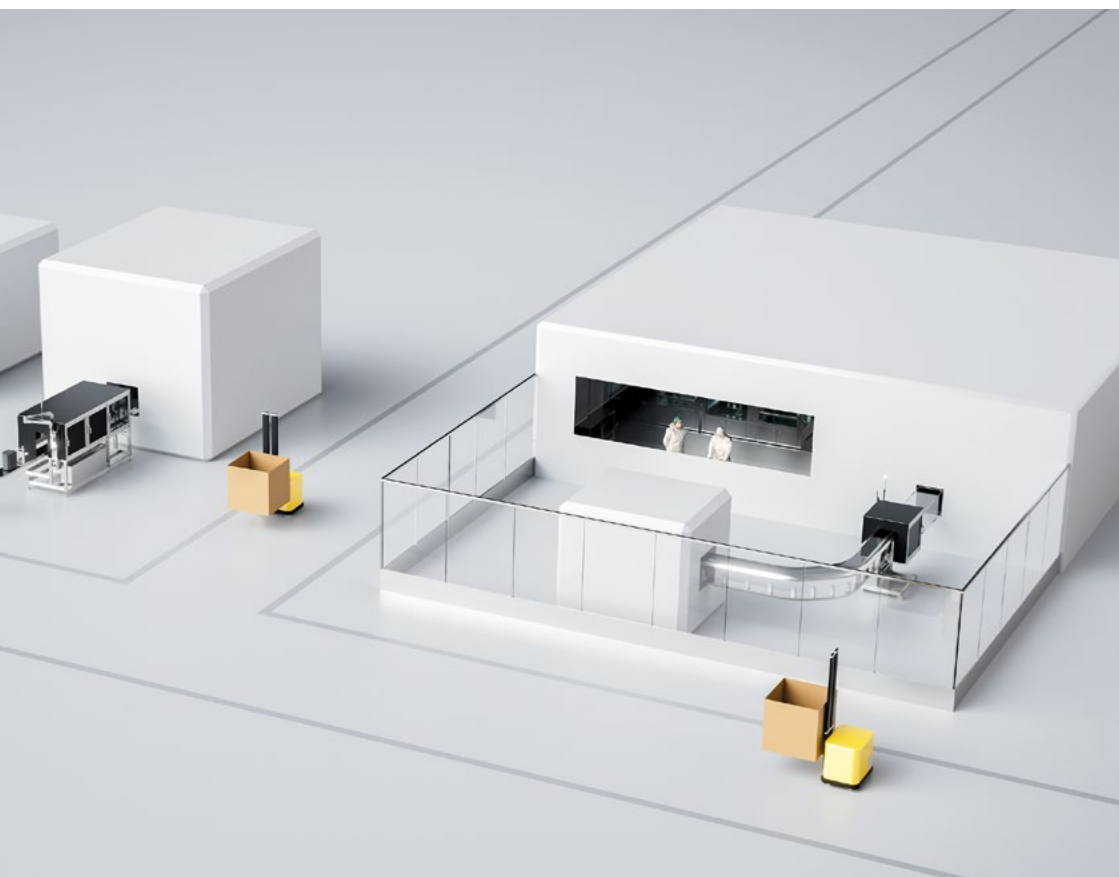
The choice is yours when it comes to our inspection systems for bottles and containers. We supply both standardized and customized solutions.

Our standardized inspection systems check common inspection criteria, ensuring that products meet the required standards – ideal for customers who prefer a fast implementation and proven performance.

For customers with specific requirements, we provide customized solutions that our experts adapt to your individual layout and desired inspection scope as well as produced objects. This gives you maximum flexibility and performance for challenging applications.



- 1 SpotWatcher Basic
- 2 SpotWatcher Customized



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- 3 SpotWatcher Customized
 - 4 SpotWatcher Pharma

BOTTLES & CONTAINERS COMPARISON

From a space-saving basic inspection to an all-embracing quality assurance: The individual strengths of each bottle inspection system take your specific requirements into account.

	INSPECTED OBJECTS				
	Shape	Height (mm)	Neck diameter (mm)	Body width (mm)	Body depth (mm)
SPOTWATCHER BASIC	all	55-362	≤ 125	≤ 300	≤ 150
SPOTWATCHER CUSTOMIZED	all	all	all	all	all
SPOTWATCHER PHARMA	round & symmetrical	50-200	15-55	30-100	30-100
INTRAOONE ¹	all	all	all	all	all
BARRIERWATCHER ²	all	all	all	all	all

¹ Single-camera-system: Inspection criteria depend on area of application / camera position

² Inspection with regard to the barrier layer



WHICH ONE FITS YOUR NEEDS
BEST? GET IN TOUCH WITH
OUR SALES TEAM.

MATERIAL		FOOTPRINT m ²	MAX. INSPECTION SPEED parts / h	INSPECTION CRITERIA
PE	<input checked="" type="checkbox"/>	1.6	18,000	Object body <input checked="" type="checkbox"/>
HDPE	<input checked="" type="checkbox"/>			Contour <input checked="" type="checkbox"/>
LDPE	<input checked="" type="checkbox"/>			Sealing surface <input checked="" type="checkbox"/>
PET	<input checked="" type="checkbox"/>			Thread <input type="checkbox"/>
PP	<input checked="" type="checkbox"/>			Thin areas <input type="checkbox"/>
	<input checked="" type="checkbox"/>	custom	48,000	Label <input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	< 1	18,000	Fill level line <input type="checkbox"/>
	<input checked="" type="checkbox"/>	< 0.5	72,000	Object shoulder <input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	< 1	36,000 ⁴	Inner base inspection <input checked="" type="checkbox"/>
				Outer base inspection with clamping belt conveyor <input type="checkbox"/>
				Barrier layer <input checked="" type="checkbox"/>

³ for contamination only

⁴ Inspection speed scalable

BOTTLES & CONTAIN

SPOTWATCHER BASIC

With the SpotWatcher Basic all fundamental requirements for the quality inspection of plastic bottles and containers are covered. No matter which object shape you would like to inspect or whether your products are made of HDPE, LDPE, PE, PP or PET: with this

pre-defined solution you will receive a standardized system for typical inspection tasks.

WHAT CHARACTERIZES THE SYSTEM?

The SpotWatcher Basic combines the versatility of other INTRAVIS solutions



Bottle inspection system covering all fundamental and most common defects

with our experience to a pre-configured and standardized system. Hence, it is particularly budget-friendly and stands out by a short lead time.

With its inspections, you are guaranteed to identify most of the defects that commonly occur in the production of plastic containers. Since the SpotWatcher Basic is an inline system, you can be confident that every bottle leaving your production meets the quality standards your customers expect.

OVERALL PRODUCTION OVERVIEW

You receive all software functions to reliably inspect your products. In addition, the collected product-related quality data supports you in making the right decisions to improve your production processes.



As with all INTRAVIS systems, the SpotWatcher Basic is a turnkey system that will be integrated by our qualified technicians.



Bottle inspection system covering all fundamental and most common defects



Compact design: space-saving integration on 1.6 m²



Standardized system: budget-friendly and short lead times

BOTTLES & CONTAINERS

SPOTWATCHER CUSTOMIZED

The SpotWatcher Customized is the all-rounder of the INTRAVIS portfolio when it comes to the inspection of bottles and containers. The system gives you the assurance that each of your extrusion-blown or stretch-blown plastic containers leaves your production fully inspected. The Spot-Watcher Customized detects even

small and hidden defects and reliably ejects all containers that do not meet your standards.

TAILORED TO YOUR NEEDS

The SpotWatcher Customized bears its name for good reason. You have various options to influence both the choice of inspections as well as the



Customized vision system designed for an all-embracing inspection of your bottles and containers



design of the system. We offer you the full range of our technologies to choose from.

A choice of more than 25 different inspection options ensure that your customers receive only flawless products. Due to the high variability and combinability of software options as well as the hardware components, each SpotWatcher is specifically designed to meet your inspection requirements. With its inspection speed of up to 13 objects per second, the system is fast enough for virtually any production line.

The SpotWatcher Customized can be integrated in almost every production line. It is not only developed as a customized, but also as a turnkey system. The SpotWatcher will be installed in your production line by our highly qualified INTRAVIS technicians.

In addition, extensive training sessions and 24/7 after-sales service are provided by us.



Extensive product safety:
> 25 inspection criteria available



Inspection of bottles and containers of all types, materials, colors and shapes



Fully automated product change-over available

BOTTLES & CONTAINERS

SPOTWATCHER PHARMA

In the pharmaceutical and medical sector, product safety is the highest priority. Here the SpotWatcher Pharma is essential: The system guarantees the flawless quality of all produced bottles and containers while considering legal requirements.

The SpotWatcher Pharma covers a wide spectrum of inspections for the quality assurance of your opaque bottles and containers. With the 100% inspection, you can be confident that no defective object leaves your production facility. A comprehensive package



Extensive quality inspection of pharmaceutical and medical products



of inspection options is already included. Not only the body, inner base and the thread area of a bottle, but also the sealing surface and contour are precisely inspected. Since the SpotWatcher Pharma is designed as a standardized system, it is particularly budget-friendly and stands out by short lead times.

HARDWARE & SOFTWARE COMPLYING WITH PHARMA REQUIREMENTS

With a footprint of less than 1 m², the SpotWatcher Pharma is very space-saving and suitable for cleanroom applications. The system is designed to fit perfectly in a pharmaceutical production environment. Thanks to the variable height adjustment, for instance, the system can be integrated into any production line.

The software offers comprehensive user management, an audit trail, a

command log and diverse protocol functionalities that support you in compliance with important pharmaceutical regulations such as „GMP Guide Annex 11“, „GAMP 5“ and „21 CFR Part 11“.



Compliant with common pharmaceutical regulations



Space-saving cleanroom application: Footprint of only 1 m²



Standardized system: budget-friendly and short lead times

BOTTLES & CONTAINERS

INTRAOONE

Designed as a single-camera-system, the IntraOne combines the advantages of a smart camera solution with the well-established IntraVision software. It can be used for the quality control of closures, bottles, containers as well as labels and decoration.

The IntraOne can be easily integrated into any production line. Its design allows for the use even in the most demanding environments. The vision system uses an integrated industrial PC and is therefore particularly space-saving. The system can be installed quickly and effortlessly. To-



Smart camera solution – universally applicable

gether with you and on-site, our experienced service technicians will find the ideal configuration for your inspection task.

WIDE-RANGING CAPABILITIES

The IntraOne is based on INTRA-VIS' long-time experience and expertise in the quality control of plastic packages. The well-known IntraVision software is installed on the system and enables the use of all proven inspection modules. All data collected is presented in the form of statistics and diagrams. Trends and possible countermeasures can be identified at an early stage.

The system inspects for typical defects such as contaminations, color, or contour deviations. In addition to the basic package consisting of a camera and appropriate lighting, further options like a rejector or IP65 protection are available.



Smart camera solution: ready-to-use, but full service and comprehensive training



Focus on 1 camera: budget-friendly and short delivery time



Space-saving design: integrable in any production line

BOTTLES & CONTAINERS

BARRIER-WATCHER

The BarrierWatcher accomplishes the inspection of the entire EVOH barrier layer without destroying the packaging. The system is easy to use and detects holes and thin areas in the barrier layer with a special measurement procedure.

The BarrierWatcher typically inspects

containers, cups, single-serve capsules and closures.

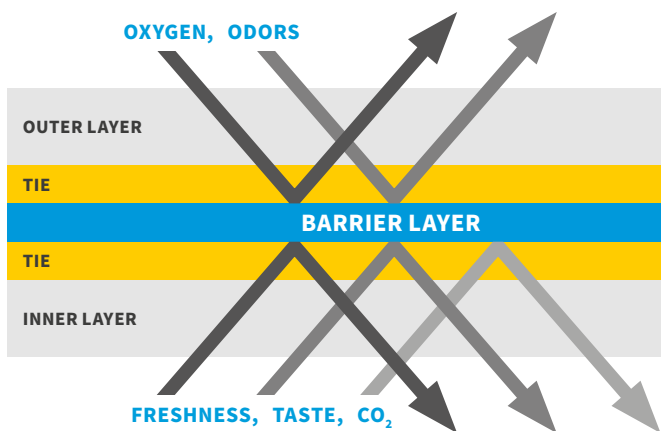
SPECIALIZED IN BARRIER LAYER INSPECTION

The specific characteristics of the objects are analyzed and a distinction between the base material and the barrier



Making invisible defects visible: Non-destructive inspection of EVOH barrier layers

layer can be made. Holes in the barrier layer are made apparent through comparison to a reference sample. Defective parts are automatically sorted out from the production line.



MULTIPLE WAYS OF APPLICATION

The BarrierWatcher is available as a laboratory system with manual feeding or as an inline system integrated into the production line. When used as an inline system, the BarrierWatcher identifies defects and correlates them to the specific cavity. This enables the operator to easily identify faults at the production machine and to carry out a targeted maintenance. As an inline system, the BarrierWatcher can be configured to all current production rates.



High inspection accuracy of 1x1 mm (at 50 mm object diameter)



Comprehensive quality control: inspection for presence, holes and thin areas



Non-destructive method: without cutting and delaminating the objects

SOFTWARE

INTRAVIS develops proprietary software for the vision inspection of plastic packages. It is our goal to develop inspection solutions customized to the packaging producers' requirements. Our software products are user-friendly, easy to handle and provide automatic functionalities. Thus, machine operators as well as production managers can focus on their core activities without spending much time setting up the inspection systems.

Our software products aim to reach two main goals:

1. Detect and eject defective products so that only products with the desired quality are delivered to your customers. Therefore, software is needed that can quickly and precisely identify and analyze defects.
2. Quickly react in the right way and prevent the production of faulty products. In this way, production costs can be reduced and profitability is improved. This goal can be achieved by permanently analyzing quality trends and by receiving detailed production insights.

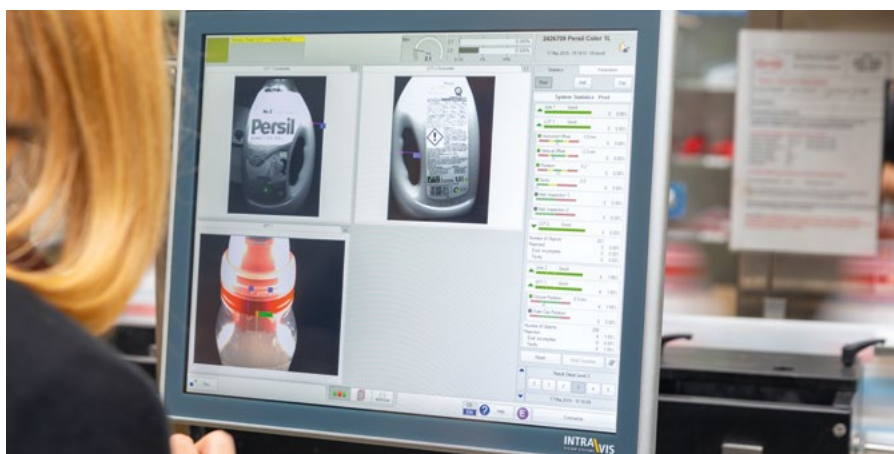
SOFTWARE

INTRAVISION

The IntraVision is the inspection and administration software for every IN-TRAVIS system. Based on the customer's products, several suitable inspection modules are embedded in it. They are used to analyze parameters which present important quality characteristics for the products to be inspected.

STATISTICS & REPORTING

The user interface shows current statistical data in various time intervals and display modes about every inspection criterion separately. Do you need to submit these data in extensive, meaningful inspection reports to your customers? No problem for the export



IntraVision UI for an integrated LabelWatcher

function for reports! In addition, all data can be used for further processing by means of Factory Automation Services (FAS) – either as a database export or as a status message to higher-level systems.

PROCESS SAFETY

To meet all legal requirements, you can also set up a detailed Audit Trail to keep track of any change in the process settings. In addition, the IntraVision offers comprehensive possibilities of authorization assignment. Each operator gets exactly the access rights needed. Trend calculations are possible as well! The Warning Threshold issues a warning to the operator if the deviation of a measurement increases during a period of time and if it is expected that the adjusted tolerance will be exceeded soon.

MAINTENANCE

Every system requires regular maintenance for optimal performance. On the

one hand, the software supports you by establishing defined maintenance intervals, after which a warning message is displayed on the system. On the other hand, the System Self Monitoring helps you to recognize malfunctioning of all inspection-relevant components. Potential disruptions and failures are prevented and unwanted machine downtimes are reduced to a minimum.



Easy operation: simple setup and clear user interface



Customized software extensions: tailored to your production requirements



Overall production overview: through extensive statistics, diagrams and reports

SOFTWARE

INTRAVISUALIZER

IMPROVE YOUR PRODUCTION ...

Nowadays, inspection systems provide a huge amount of data and deep insights into your production lines. But: Are you already taking advantage of all this information?

... WITH THE INTRAVISUALIZER

The IntraVisualizer is a complete software solution that analyzes and visualizes the product data of all INTRAVIS systems in your production plant.

This key information supports you in your daily job to keep the product



Data analytics software for comprehensive analysis of all production lines simultaneously

quality at high level, by delivering crucial production insights to your management and by helping your manufacturing team to plan the production.

DEPLOYMENT CONVENIENCE

The IntraVisualizer is available for you as a cloud solution. This means: This means: Full flexibility and simplicity, scaling as needed, and connection of unlimited systems. We care for updates and backups so that you do not need any IT infrastructure.

Thanks to the browser-based software, you can use it from everywhere in the world on your computer and mobile device.

BENEFITS FOR YOUR TEAMS

Your quality team, manufacturing team as well as management team can exploit the IntraVisualizer's huge range of functionalities. It helps you to minimize recalls, assure quality standards, react promptly to unforeseen events,

and gain overall strategic insights.

YOU ALREADY HAVE A DATA ANALYTICS SOFTWARE?

If you prefer to export the data of your INTRAVIS inspection systems to your ERP, MES, IIOT or other analytics software, we can also offer you several solutions.



Performance monitoring of all inspection systems at a glance



Detection of quality issues and their reasons to increase production efficiency



Trend analysis to detect maintenance needs and minimize unplanned downtime

SOFTWARE

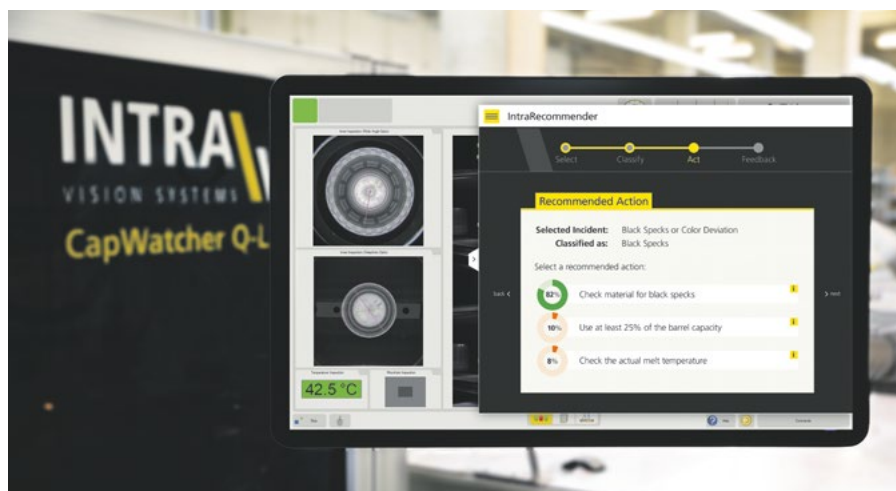
INTRA- RECOMMENDER

IMPROVE YOUR PRODUCTION ...

Is the IntraVisualizer not sufficient for your production data analysis and usage? Take your data analysis to the next level with recommended actions to optimize the production process.

... WITH THE INTRARECOMMENDER

The IntraRecommender is your intelligent production assistant. Through recommended actions, every machine operator can immediately make the right decisions to solve production issues and reduce machine downtimes significantly.



Well-founded recommendations for optimizing the production process

cantly. Production process optimization as well as the overall effectiveness of your production line will be raised to a new level.

DATA COLLECTION OF THE WHOLE PRODUCTION LINE

The IntraRecommender collects high-precision, comprehensive quality data from your INTRAVIS inspection system during production. At the same time, the IntraRecommender receives a variety of important process data from the injection molding machine, hot runner, cavity pressure sensors and more via a robust OPC UA interface according to the EUROMAP standard.

RECOMMENDED ACTIONS

Machine learning algorithms analyze product and process data in real time, recognizing correlations and combining them with your process know-how. Based on this comprehensive database, the machine operator receives

well-founded recommendations for optimizing the production process. As a result, the IntraRecommender continuously learns and creates an extensive knowledge database, specialized to your production process. Every machine operator receives the same reliable recommendations for action and can immediately make targeted decisions in the event of a problem.



Increased OEE through analysis of product and process data



Multiplication of expert knowledge through an extensive knowledge database



Significant reduction of machine downtimes through real-time recommendation

SERVICE

At INTRAVIS, we recognize our customers as partners and invest in a long-term relationship. Therefore, our work does not end with the successful acceptance of the system.

Whenever questions or problems occur, INTRAVIS is ready to support you with skilled technicians and service locations spread over four continents.

SERVICE WORLDWIDE

RETENTION OF SYSTEM VALUE

If you decide to purchase an inspection system, you expect that it performs its tasks reliably and permanently. Regular service visits by our

qualified service technicians increase the average service life and ensure consistently high performance. How? Our technicians identify failing parts before they break, adjust your system



At your service at any time: our INTRAVIS service technicians

optimally for your inspection tasks, and train your team to keep your system performing at peak performance.

MINIMIZE DOWNTIME AND COSTS THROUGH SERVICE VISITS

Schedule service visits so that they match the service intervals of your upstream and downstream machines. In this way, your production line will have less downtime and you can resume production faster. A variety of service contracts are available that allow you to calculate your costs clearly in advance.

RELIABILITY THROUGH SERVICE CHECKS

Imagine your products must be shipped to the customer uninspected because your inspection system failed due to a missing wear part. Regular service checks ensure your inspection system operates reliably and without problems. Thanks to our service hot-

line and worldwide service centers, a technician can be at your site within the shortest possible time.

PROCESS OPTIMIZATION BY TRAINED PERSONNEL

An inspection system can only achieve optimum performance through the correct handling by a trained operator. Therefore, we offer training sessions for your key users with a final user certificate for every installation of a system. This training helps to perfectly operate the system in everyday life, and to draw the right conclusions from the comprehensive data that is generated by the system. Of course, you can receive additional training for new employees at any time.

SERVICE CONTRACTS

Focus on your strengths, we take care of everything else. It does not matter how many INTRAVIS systems you have – a service contract guarantees maximum system availability.

To offer you full flexibility, our service contracts consist of a basic package and possible optional packages. Among other things, our basic contract contains:

- an annual service check,
- free software updates,
- telephone support, and
- the exclusive availability of a service technician departing within 96 hours.

For extra protection, you can include optional packages. For example, you can add 24/7 telephone support and faster availability of a service technician.

ANNUAL SERVICE CHECK

INTRAVIS systems are stable and durable. Nevertheless, annual service checks are recommended for each of our systems. With an annual service check, you can make sure that your systems are in an optimal condition, so you can ensure a flawless inspection performance. This increases the effectiveness of your system and thus the efficiency of your entire production line.

HIGHER SUPPORT AVAILABILITY

If you need a service technician on site, a service contract means that you are of highest priority. With an optional package, you have the security to reach a technician of our service department at any time and every day of the week.

REMOTE ASSISTANCE

Some challenges need more than phone calls and email support. In



**MAXIMUM SYSTEM AVAILABILITY
DESIRED? GET IN TOUCH WITH
OUR SERVICE TEAM.**

these moments, remote assistance provides us the tools to assist you as if we were there.

- **REMOTE SUPPORT:** Our service technicians support you remotely by accessing your system with TeamViewer via Internet connection. In this way, we can quickly solve many problems from a remote location.
- **REMOTE GUIDANCE:** Our technicians will guide you with TeamViewer Pilot in a video call with augmented reality via smartphone, tablet, or even smart glasses. Thus, our technicians see what you see as if they were directly at your production site.

SPARE PARTS KITS AND TRAININGS

We provide kits with the most frequently used spare parts. With these kits, you have the most important parts

for a maintenance job already on site.

And if you have new employees, you can always book training for your IN-TRAVIS systems whenever you need it. For more information, please contact us.



Remote guidance by our service technicians

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