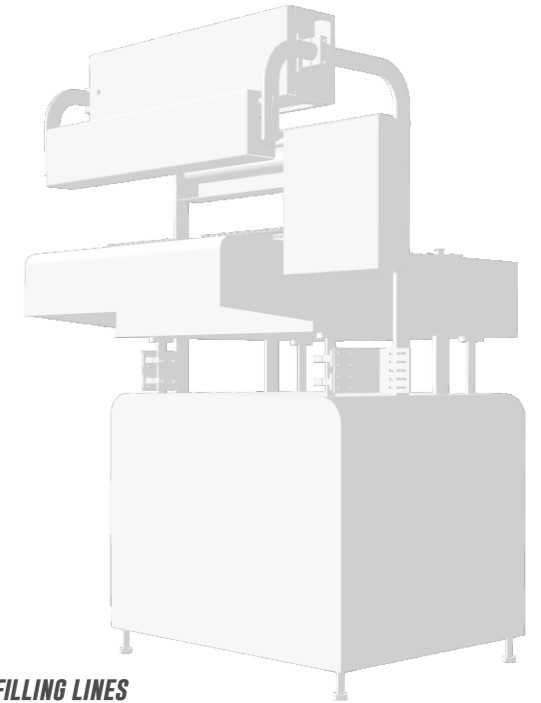


*IMPROVED VISUAL INSPECTION OF TABLETS AND CAPSULES ON BOTTLE FILLING LINES*



  
[www.spookfish.in](http://www.spookfish.in)

**MARLIN**



*Are you running your tablet counter without a*  
**Vision Inspection System**  
*risking a major quality incident that could affect  
your brand image and your business?*

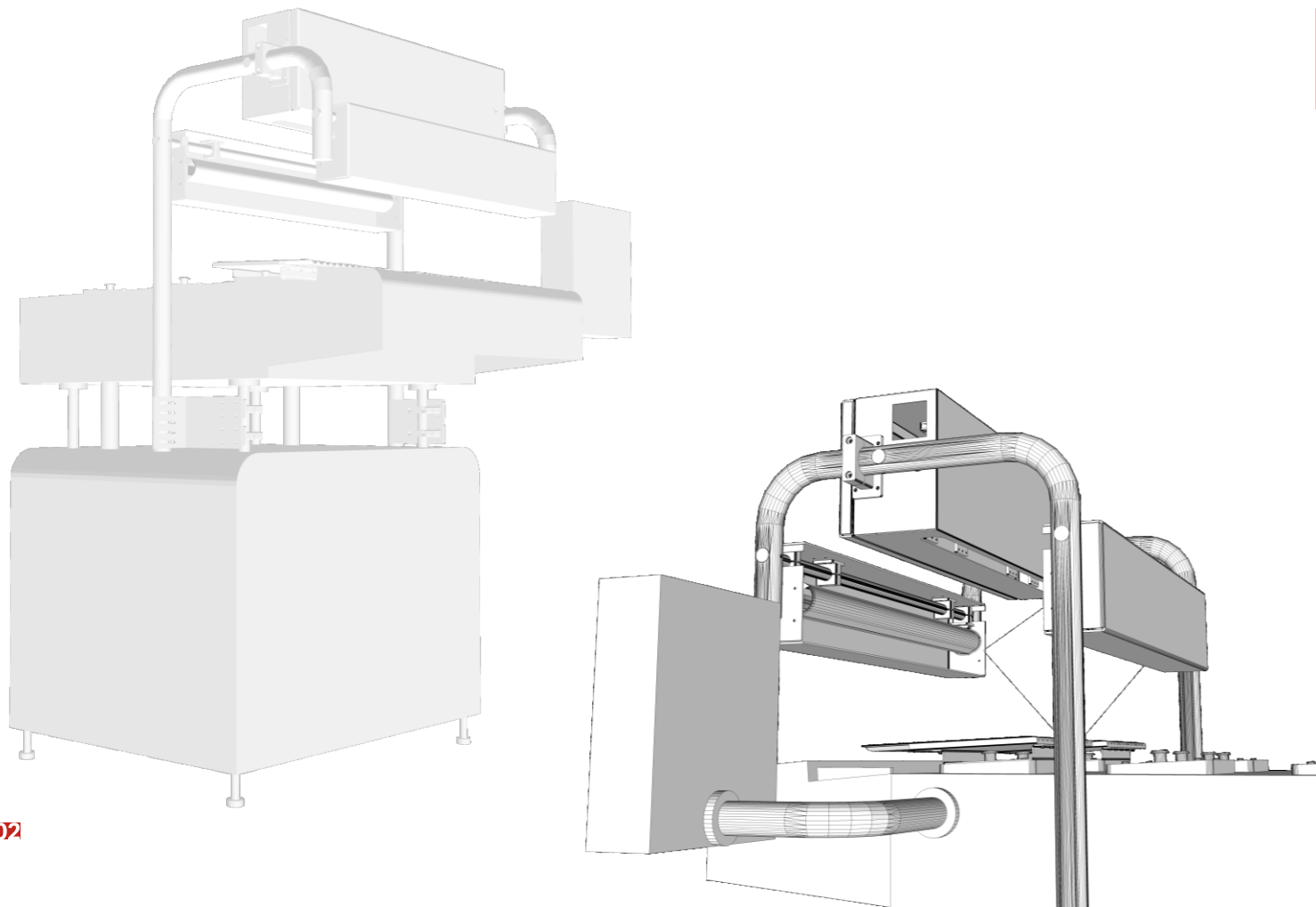
Quality control is a critical aspect of the pharmaceutical industry. Automated visual inspection solutions are now an essential part of this process, removing the chance of human error and enabling swift and accurate detection and removal of defective products.

Most tablet and capsule production lines include some form of visual inspection (manual or automatic) prior to loading onto a counter. However, during the handling and loading

process, there is occasional presence of:

- Foreign objects such as plastic strip, screws and wire tags
- Incorrect products
- Broken tablets/capsules

Although the presence of defective or foreign objects during the tablet counting process is rare, the impact to the business if undetected can be extremely high.



MARLIN - is an online tablet inspection system designed to provide improved visual inspection of tablets and capsules on bottle filling lines.

The system is retrofitted to existing bottle filling lines, with minimal or zero changes required to the existing setup.

The industrial machine vision cameras are driven by intelligent, customised software and capable of detecting inconsistencies in

colour, shape or size with high precision. Once detected, defective tablets, capsules and objects are removed via a custom-built rejection mechanism, with the capability of rejecting either individual tablets or entire bottles.

Marlin has been tested and approved for use in live production environments, using a wide range of variants including transparent capsules.

# FEATURES

## High precision, High speed

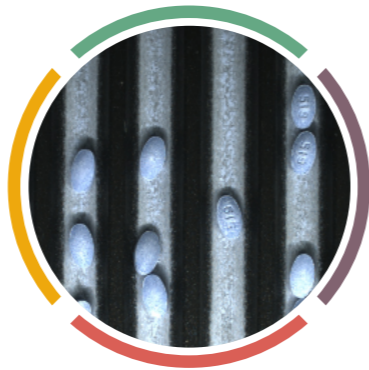
- Low false rejections
- Accurate detection of 100% of defective tablets/capsules.
- No compromise on the production output
- Capable of inspecting even when there is little or no gap between the products

## Automated System Calibration

- Machine learning framework to automatically learn appearance properties of new tablet/capsule variant

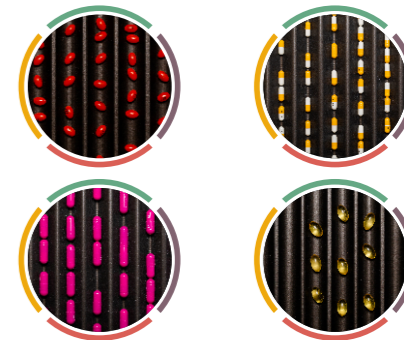
## Resilience to Dust

- Adaptable to handle uncoated tablets in spite of dusty background.
- Self-cleaning cameras



## Handling Challenging Products

- Dark coloured products
- Print on products
- Transparent capsules
- Dual coloured capsules
- Soft gelatin capsules
- Bilayered tablets
- Irregular shape of tablets - triangle, square etc.



## Retrofit Design

- Integration with any make and model of the counter without support from the OEM
- Minimalistic design



## Real-Time/Archived Statistics and Analysis

- Live summary of inspection
- Real time monitoring with rich statistical tools for analysis of historical data
- SMS/email alerts for critical defects



# SPECS

100% inspection of tablets and capsules

## Speed

- Upto 7200 tablets per minute (for a 60BPM counter)
- Upto 14,400 tablets per minute (for a 120BPM counter)
- Upto 24,000 tablets per minute (for a 200BPM counter)
- Above outputs are for 10mm diameter round flat tablets

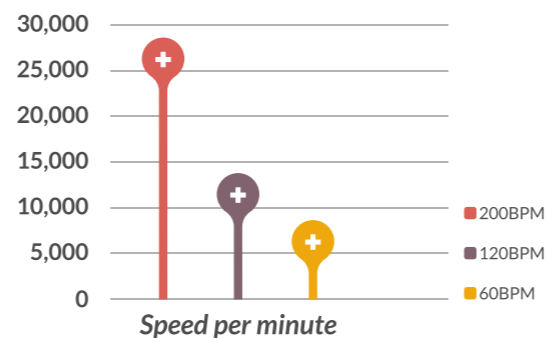
## Product Types

- All shapes
- Tablets - coated & uncoated
- Capsules - hard gel & soft gel
- Bilayer tablets

## Product Working Range

- Diameter (outer): 5mm - 30mm
- Thickness: 2mm - 15mm

Speed vs Number of tablets



## Defects Identified

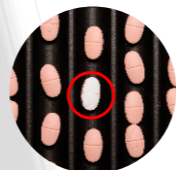
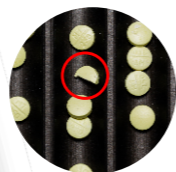
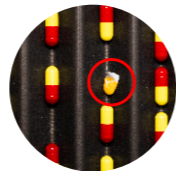
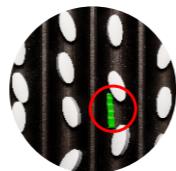
- Foreign objects
- Broken products
- Black spots
- Colour variation
- Cap/body missing

## Rejection Mechanism

- Online bottle rejection - for minor defect cases
- Vibrator stop - for major defect cases
- Optional - Online individual tablet rejection using high speed pneumatics

## Compliances

- Documentation available
- 21 CFR part 11 compliant



# MACHINE DIMENSIONS

## 1 Head (60BPM)

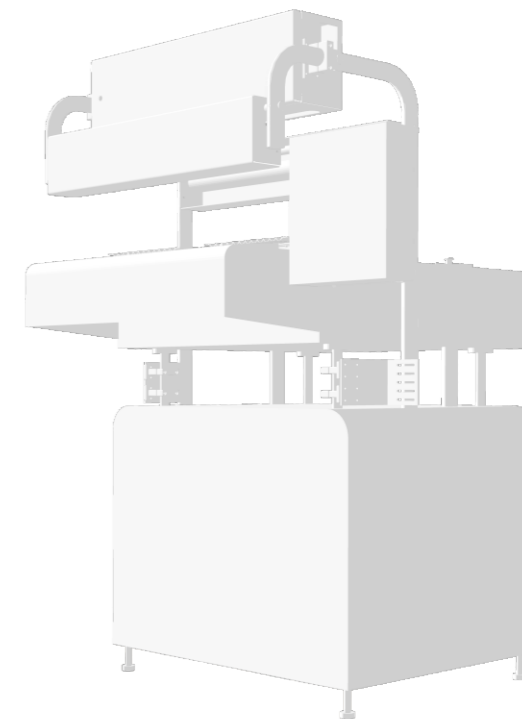
Length: 600mm  
Breadth: 650mm  
Height: 850mm

## 2 Head (120BPM)

Length: 1100mm  
Breadth: 800mm  
Height: 850mm

## 3 Head (200BPM)

Length: 900mm  
Breadth: 800mm  
Height: 850mm



# HOW WE ARE DIFFERENT FROM OTHERS

Parameter		Competitors
Handling challenging products	Transparent capsules, softgels and dark coloured products	No
Calibration	Calibration of new products takes place within 10 minutes	Calibration of new products takes up to 1 day
Compatibility	Integration with any make and model of counter without support from the OEM	Restricted to certain manufacturers
System Size	Weight of the system is 5-6 kgs for the aluminium make, other materials will be higher	Heavy and bulky systems
Machine Speed	Up to 72 bottles of 100 tablets each, per minute per head for a 60 BPM machine	Up to 60 bottles of 100 tablets each, per minute per head
Dusty Background	Adaptable to handle uncoated tablets in spite of dusty background	No
Self Cleaning Cameras	Cameras Equipped with pneumatic cleaning	No

# DEFECTS





*With a strong focus on innovation, Spookfish offers a fresh approach to solving problems using computer vision.*

*With expertise in machine learning algorithms, our solutions are customized to client's requirements ensuring successful implementation of automated vision systems.*

*Spookfish continues to work closely with its customers, even after deployment, ensuring a smooth and effective transition.*



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