

## Maximizing Efficiency and Quality

### Implementing IVS Automated Vision Metrology in Orthopaedic Manufacturing

In an era of rapidly evolving technology, orthopaedic manufacturers continually seek innovative solutions to enhance efficiency and maintain high product quality standards. This case study examines the transition of a large blue-chip medical device manufacturing company from manually loaded CMM (coordinate measuring machine) processes to the integration of an IVS automated metrology vision inspection machine. Through this shift, the company aimed to optimize resource utilization, boost productivity and elevate product quality.



## Background

The blue-chip manufacturer produces a variety of knee joint parts which are used in surgery and every joint made has to be inspected via a CMM. This has become increasingly inefficient due to volumes increasing, coupled with the slow manual process and a lack of tangible data from the system.



## Challenges Faced

1

### Manual Inspection Limitations

There are significant problems with manual inspection, such as human error, time consumption, and inconsistency in detecting defects.

2

### Resource Allocation

The allocation of labour resources solely for loading and unloading a CMM was wasting time and budget, which could be redirected to more value-added activities.

3

### Quality Assurance Concerns

Relying on temporary staff and operators to protect the product quality and brand reputation was seen as a major quality concern.

## The Solution

The implementation of an automated non-contact vision metrology system emerged as a viable solution to address the aforementioned challenges, concentrating on the Critical to Quality (CTQ) aspects of the product. This system utilizes advanced imaging technology and machine learning algorithms to measure product characteristics and detect defects with precision and efficiency.

## Key Benefits



### Enhanced Efficiency

Automated vision metrology accelerates the inspection process, reducing cycle times and enabling real-time decision-making.



### Resource Optimization

Allows the redeployment of labor resources to higher-value tasks, resulting in cost savings and increased overall productivity.



### Improved Quality Control

Non-contact inspection does not touch the part, thereby minimizing the risk of defective products reaching the market.



### Data-Driven Insights

The system creates actionable insights through data analytics, facilitating continuous process improvement and informed decision-making. An image of every product is saved for warranty protection.



## Return on Investment

### Cost Savings

Cost savings are made through reduced labor costs, minimized scrap and rework, and enhanced operational efficiency.

### Revenue Growth

Improved product quality translates into increased customer satisfaction, repeat business, and market competitiveness.

### Long-Term Sustainability

Investing in automation, including scalability, adaptability to market changes, and future-proofing against industry disruptions.

## Conclusion

The successful implementation of an automated vision metrology system from IVS has revolutionized the manufacturing processes of the company, yielding substantial returns on investment while elevating product quality and customer satisfaction. This case study underscores the transformative power of embracing technological advancements to drive efficiency, innovation, and sustainable growth in today's competitive landscape.

