



LAB 4.0

SUSTAINABLE CONTINUOUS IMPROVEMENT
PROGRAM FOR THE OPTICAL INDUSTRY

LAB 4.0

DRAMATICALLY IMPROVE YOUR OPTICAL LAB OPERATIONS

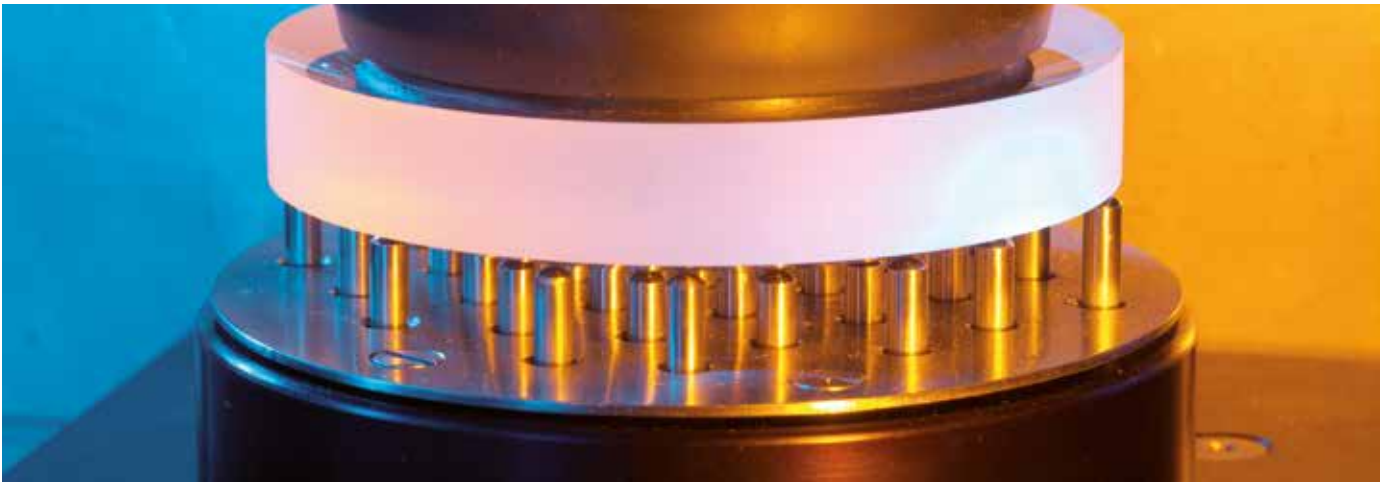
In many manufacturing industries, companies are now able to compete with off-shoring and at the same time increase quality, speed, and flexibility. Programs like Industry 4.0 merge industrial infrastructure with the Internet of Things, Cloud Computing, and a high degree of automation to create “smart factories”. This allows manufacturers to produce at superior levels of efficiency.

With Lab 4.0, Satisloh brings Industry 4.0/Smart Manufacturing to the optical industry and enables businesses to establish a truly industrialized lens manufacturing facility. Lab 4.0 focuses on driving operational efficiencies: it lowers the cost per lens by drastically reducing labor as

well as the consumption of consumables and parts while improving overall equipment effectiveness (OEE). The program leverages human-technology collaboration, increases a lab’s production quality and speed of delivery, all in a more sustainable, green way. The end result is increased revenue and maximized profitability.

Lab 4.0 is a continuous improvement program for both greenfield and brownfield installations that consists of three elements and is based on the information gathered by Satisloh’s MES-360 Manufacturing Execution System.






Lab 4.0 improves quality: ART Blocker measures blank front curve. If curve is off, MES-360 sends actual measurements to LMS or LDS for cutting path recalculation.

LAB 4.0 PROGRAM OVERVIEW

Lab 4.0 is a lab efficiency improvement program based on three pillars with MES-360 as its foundation.

<p>1. NEW GENERATION OF EQUIPMENT</p>	<p>2. COMPREHENSIVE STEP SUPPORT PROGRAM</p>	<p>3. INTELLIGENT AUTOMATION</p>
 <ul style="list-style-type: none"> • Smart machines with remote monitoring & diagnostics • More robust • Higher speed • Environmentally friendly 	 <ul style="list-style-type: none"> • Preventive maintenance check-ups • STEP maintenance parts kits • Priority tech support • Extended parts warranty (Total STEP) • Technology Umbrella • Quality and manufacturing process training 	 <p>MES controlled Automation System</p> <ul style="list-style-type: none"> • Intelligent Smart Conveyor with fast tracking • Automated ART-Block-Pod storage and dispensing system • Automated glue detection system • Paperless job tracking • Express AR with robotic automation

0. THE FOUNDATION



- Real-time machine monitoring
- Real-time breakage monitoring
- Conveyor routing
- Coating batch tracking

Collect machine and process data

Analyze and draw conclusions

Determine improvement actions

Implement actions

SMART MANUFACTURING ROADMAP

Satisloh offers smart manufacturing solutions for all labs. Any lab can become a Lab 4.0 and benefit from intelligent systems like MES-360, smart machines and advanced automation. Regardless of your choice, our approach allows for a gradual roll-out.

It's easy to become a Lab 4.0 and enter the world of Smart Manufacturing. Here's how to get started:

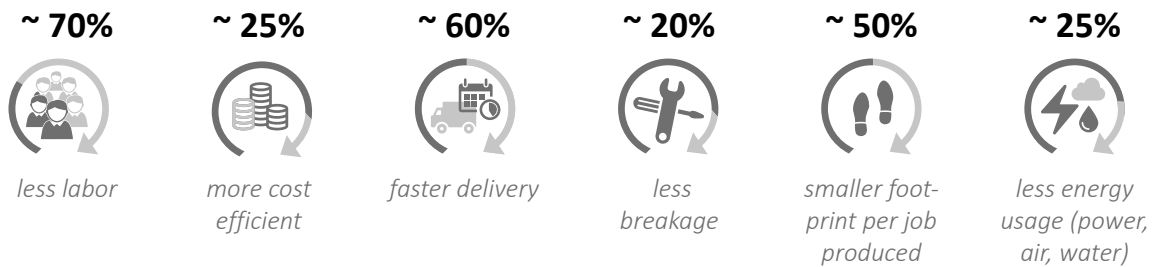


* MES-360 MM, MES-360 BT, MES-360 CR and MES-360 CB
 ** Secure STEP or higher

Then expand your Lab 4.0 and its efficiencies at your own pace by:

- Adding more Lab 4.0 ready machines
- Expanding automation to more departments
- Adding more MES-360 modules
- Automate your coating production with Express AR

LAB 4.0 BY THE NUMBERS



Numbers based on full Lab 4.0 implementation, i.e. all machines Lab 4.0 ready, all MES-360 modules implemented, automation of all key departments, Express AR.

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