4.

Silma

Offline programming,
advanced simulation tools
and digital twin for 3D metrology

Inspect with confidence

metrologic®
group

advanced **3D** measurement software & solutions

Improve your inspection workflow with an outstanding virtual programming software

Silma is the first software enabling complete intuitive offline program creation and simulation. Many claim they can offer simulation, import objects and build digital twin systems, but fail when it comes to simulating the true functioning of both CMM and measuring devices. That's where Silma makes the difference. It handles both CMM and inspection commands in one single-part program. Operating on a powerful software foundation, Silma provides the digital mirror of the complete real-world 3D measurement environment and much more: point cloud simulation, measuring equipment capabilities, operation, interactions and visibility rules for the most precise 3D measurement planning.

Silma X4 utilises digital data from engineering allowing inspection programs to be created and validated even before the first part appears on the manufacturing line.
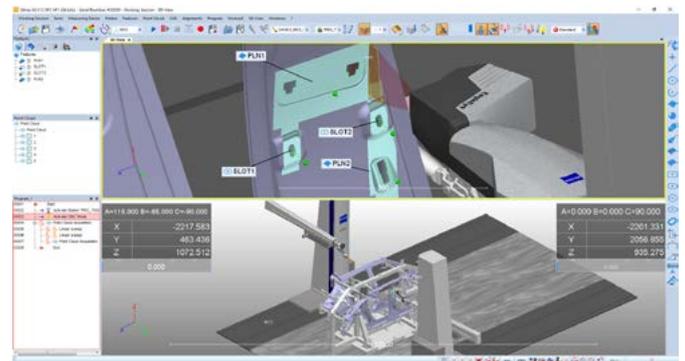
Silma density cloud simulation according to the equipment datasheet.

Using Silma, you can:

• Program all of your CMM using one universal software, independent of machine size, brand or configuration,

• Simulate the measurement workflow and detect collisions using a digital twin – the virtual representation of your real-life CMM environment,

• Prepare your inspection reports without using your online software, while your equipment is up and running,

• Perform post inspection analysis including report generation, best-fit analysis and additional GD&T evaluations,

Why simulation is so important for building your quality inspection?

• Better throughput

First, when metrologists program offline inspection tasks on complete simulated twins of their actual environment and equipment, the CMM are free to continue measuring and monitoring.

• Improved efficiency

Second, when inspection programs have been simulated and virtually tested, they are error- and collision-free once applied to the manufacturing process.

• Faster programming & results interpretation

Third, an offline simulation program like Silma X4 can work directly with native or neutral CAD files and automatically interpret GD&T.

• Training & Education accelerator

Our simulation software, Silma, can also be used for training purposes, as an e-learning tool.
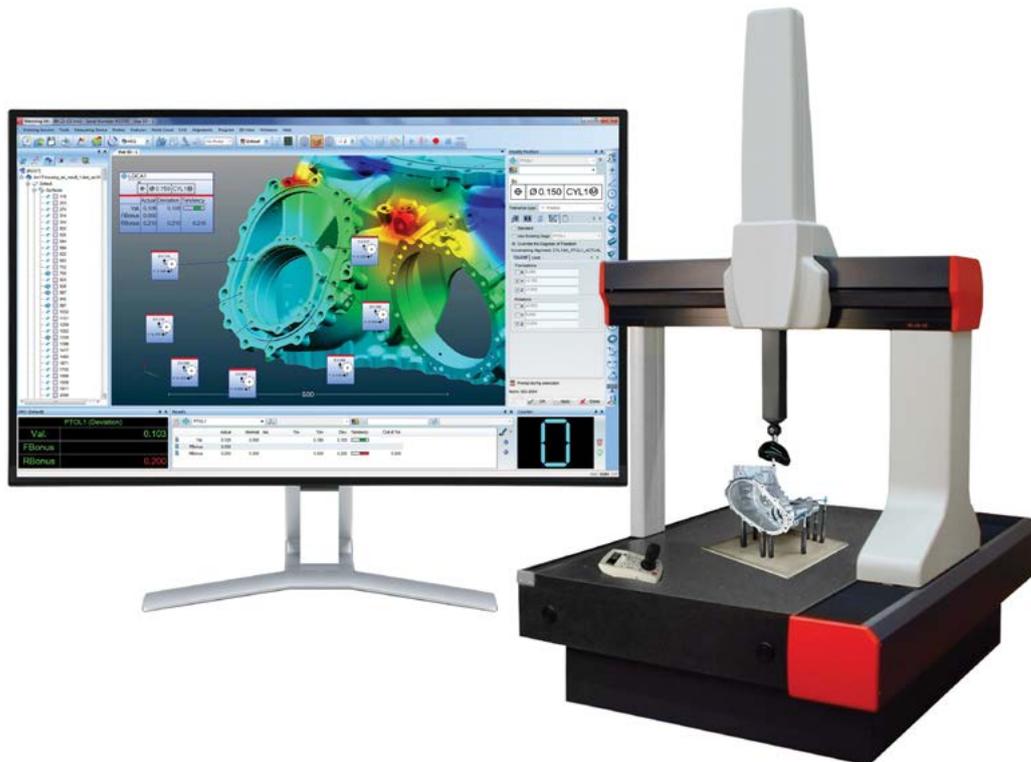
Key features

| Smart offline programming | Quickly generate robot and CMM paths | Acquisition group creation | Set the parameters for extraction | Potential collision detection & automatic avoidance | Path optimization | Singularity- and overspeed-free, for Silma X4 i-Robot |

Offline programming solutions that pay off

Prepare & program

Silma X4 is used to simulate existing measurement programs, as well as creating new ones using the CAD file. All without machine downtime. No additional know-how is required; reality merges with virtual reality to create the impression of sitting in front of a machine. Silma X4 sets the standard for all other software to aspire to.
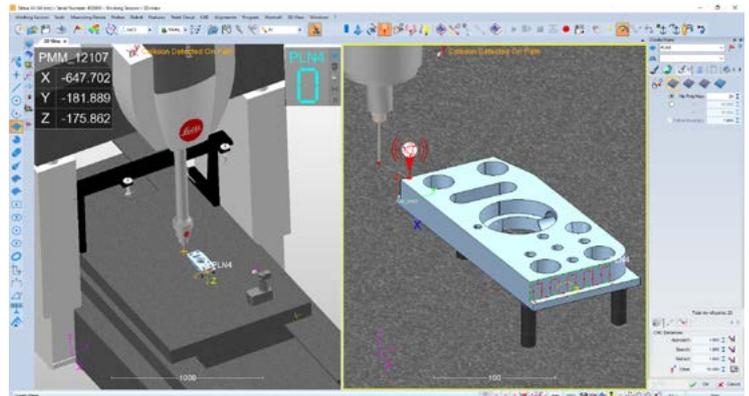

CMM with moving table. Inspection path creation with collision detection and automatic avoidance.

Workcell and virtual environment definition

Silma X4 is a time saver as it takes over the cost-intensive work cell and virtual environment definition: scanning, self-centering, rotary tables, tool changers can all be realised offline. Besides this, commonly available CMMs, detailed probe heads, probes, styli and accessories from the extensive CMM library are right at your fingertips. We support all commonly available brands: Wenzel, Zeiss, Leitz, Mitutoyo, Hexagon, API, Creaform, Faro, Kreon, Leica, Mora, Nikon, Renishaw and so many more… Still having a doubt? Then check with us!
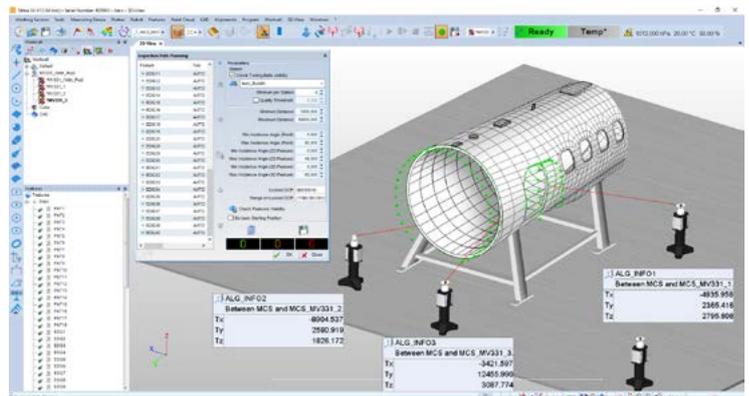

Advanced module for automatic portable device positioning.

Reduced part programming capacity

The virtual measuring machine is even more convenient and quick to operate thanks to smart algorithm that lies within the Inspection Path Planning (IPP) module. Instead of programming a whole measurement routine - only a click-away - Silma X4 computes the best measurement trajectory, with:
• Automatic head orientation
• Automatic obstacle avoidance
• Optimized path, with minimum crossing points - smart and fast, independent of type of probe, be it touch or optical.
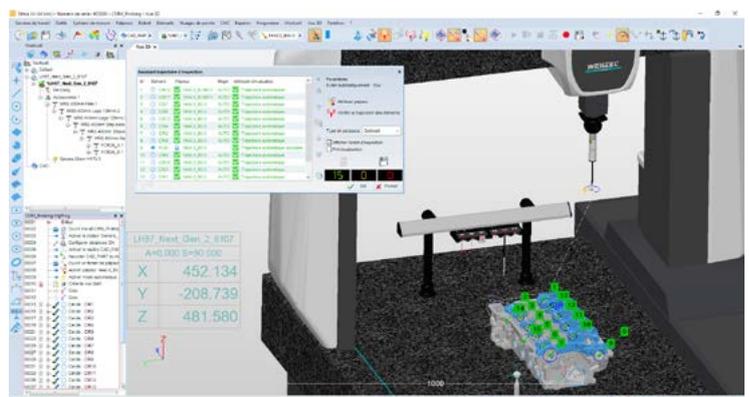
Path planning module for CMM. Optimized and collision-free path. Automatic head orientation. Real kinematic head replication.

Offline programming smart & easy

Not only can you create and simulate part programs with Silma X4, but it also entirely validates and troubleshoots them using advanced probing and measurement routines. Based on a programmer-orientated and user-friendly interface, part program proofing is fast and easy.
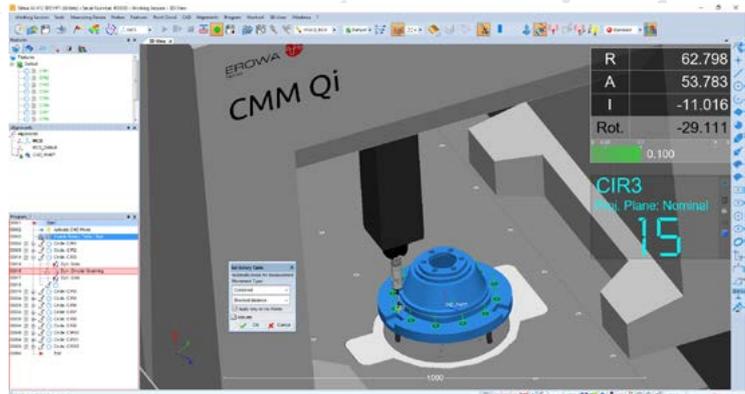
4-axis measurement simulation. CMM with rotary table using a touch probe.

Safe part program validation

Having doubts about part program validation? Do not worry anymore; program consistency is validated thanks to a genuine 3D inspection and analysis engine. In addition to collision detection, automatic obstacle avoidance gives you the overview and possibility to optimize your entire probing path.
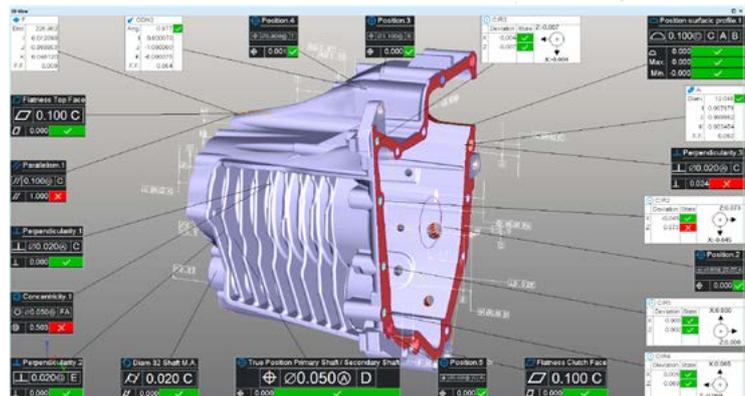
Silma takes advantage of extensive analysis capabilities from X4 software foundation. Embedded GD&T within CAD file.

Trusted part program execution

You can send the virtually generated part program to the real machine for on-line validation confident that it is error-and-collision free. This affords complete time compression - with the program written and validated virtually, and often long before the first off is available, there is no downtime on the real machine while the program is verified, and hence no interruption in production!
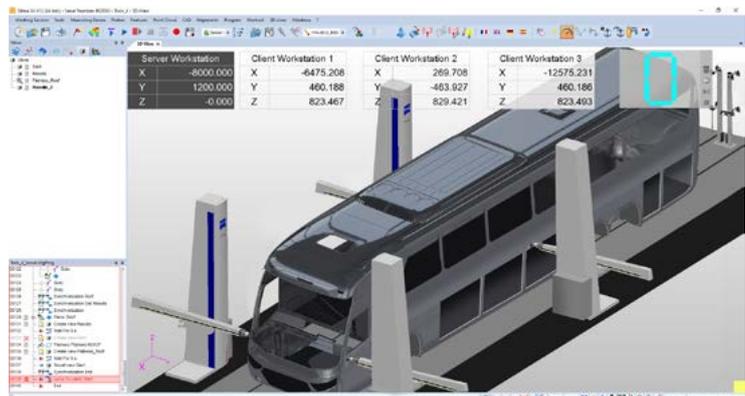
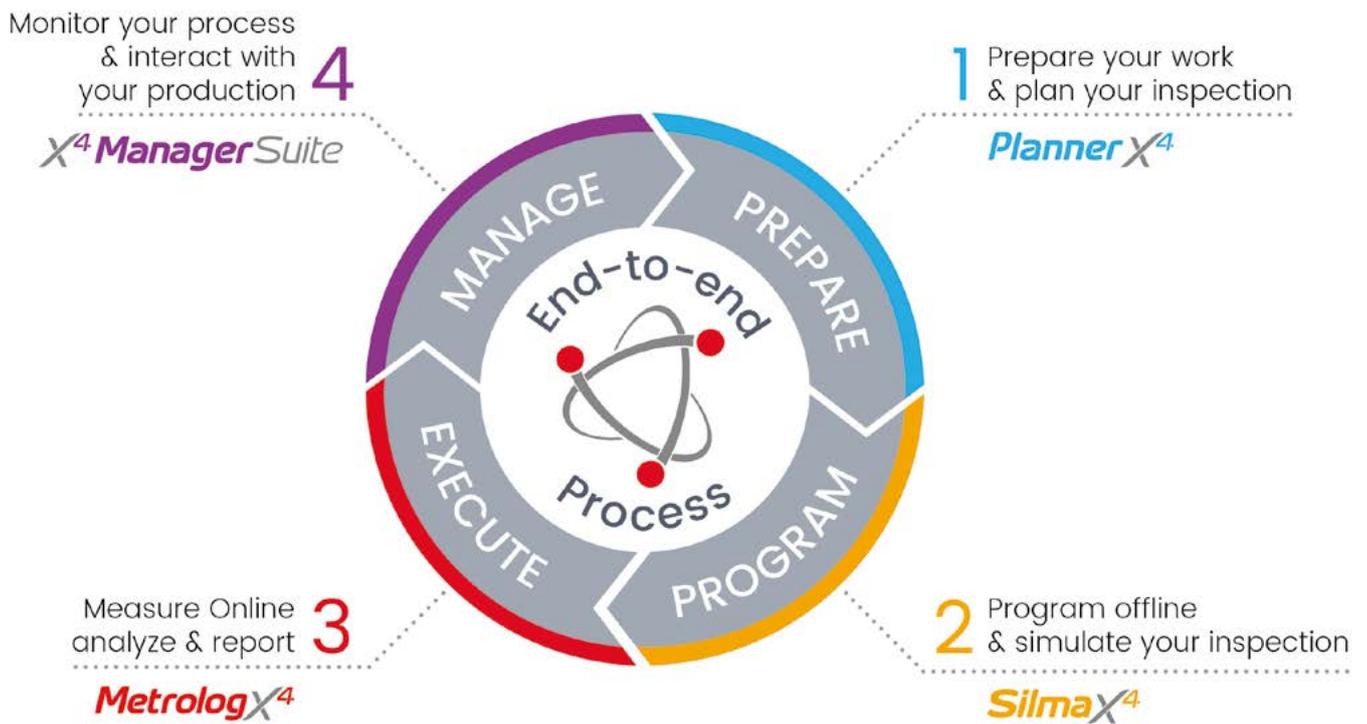CMM quadriplex simulation with tool changer.

Scale your quality inspection fast and make sense of your 3D measurements

Your End-to-End 3D inspection solution to streamline your worksflow.

Take your quality inspection to the next level with the combination of both simulation and measuring software. Gain peace of mind with Silma for preparing and programming before you inspect and Metrolog X4 for on-machine execution and analysis. The most comprehensive and universal 3D measurement software solution on the market.

Let us show you how it works

Contact us for a free onsite demo. Using your own part and measuring device, we'll demonstrate specifically how we can help make your processes more efficient, cost-effective and easier.

Monitor your process & interact with your production **4**

X⁴ManagerSuite

Prepare your work & plan your inspection **1**

Planner X⁴

MANAGE · PREPARE · EXECUTE · PROGRAM

End-to-end Process

Measure Online analyze & report **3**

Metrolog X⁴

Program offline & simulate your inspection **2**

Silma X⁴

ANY DATA | ANY TECHNOLOGY | ANY APPLICATION

To learn more about our products and services, visit www.metrologic.group

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