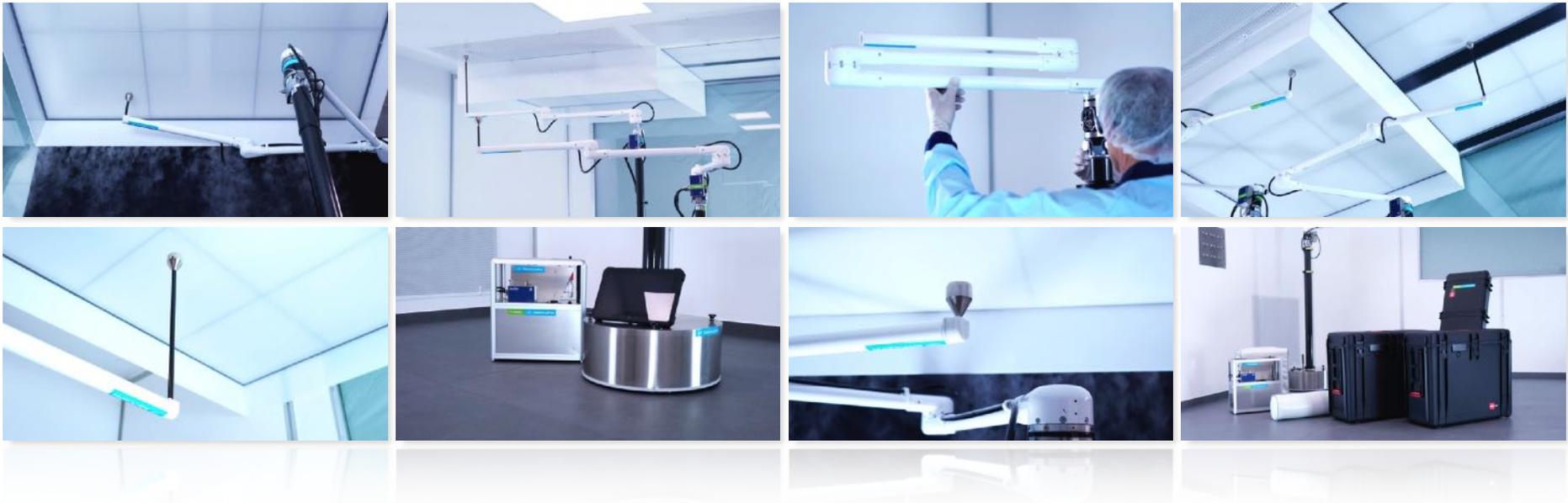


RobotScanFlex



Product Description

Supported by:



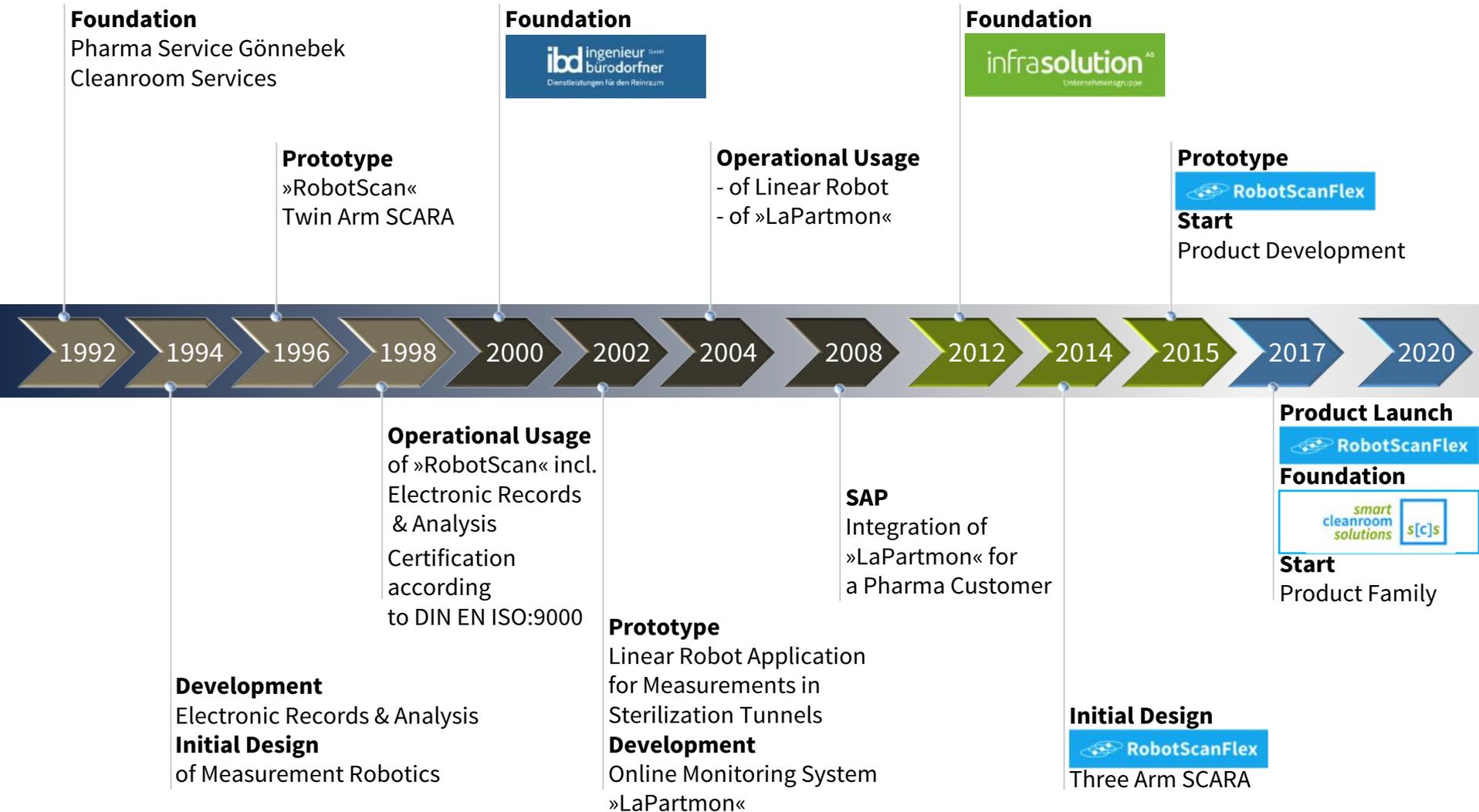
on the basis of a decision
by the German Bundestag

RobotScanFlex: Overview

- ❑ History
- ❑ State of Technology
- ❑ RobotScanFlex: System Overview
- ❑ Working Principle
- ❑ Software: ScanWare
- ❑ Electronic Records
- ❑ Software: PostProcessing
- ❑ Transport & Mobility
- ❑ Versatility
- ❑ Key Features

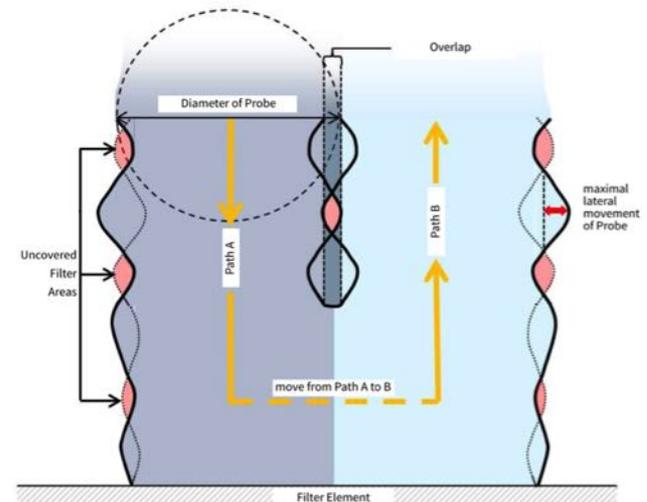
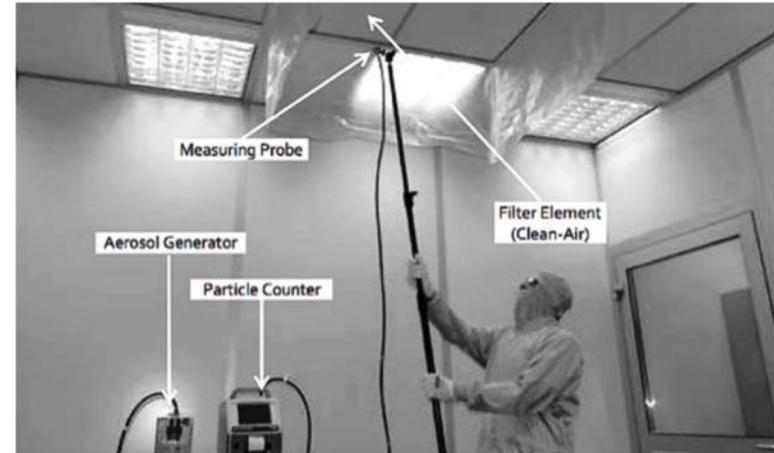


Geschichte



Filter Integrity Test: State of Technology

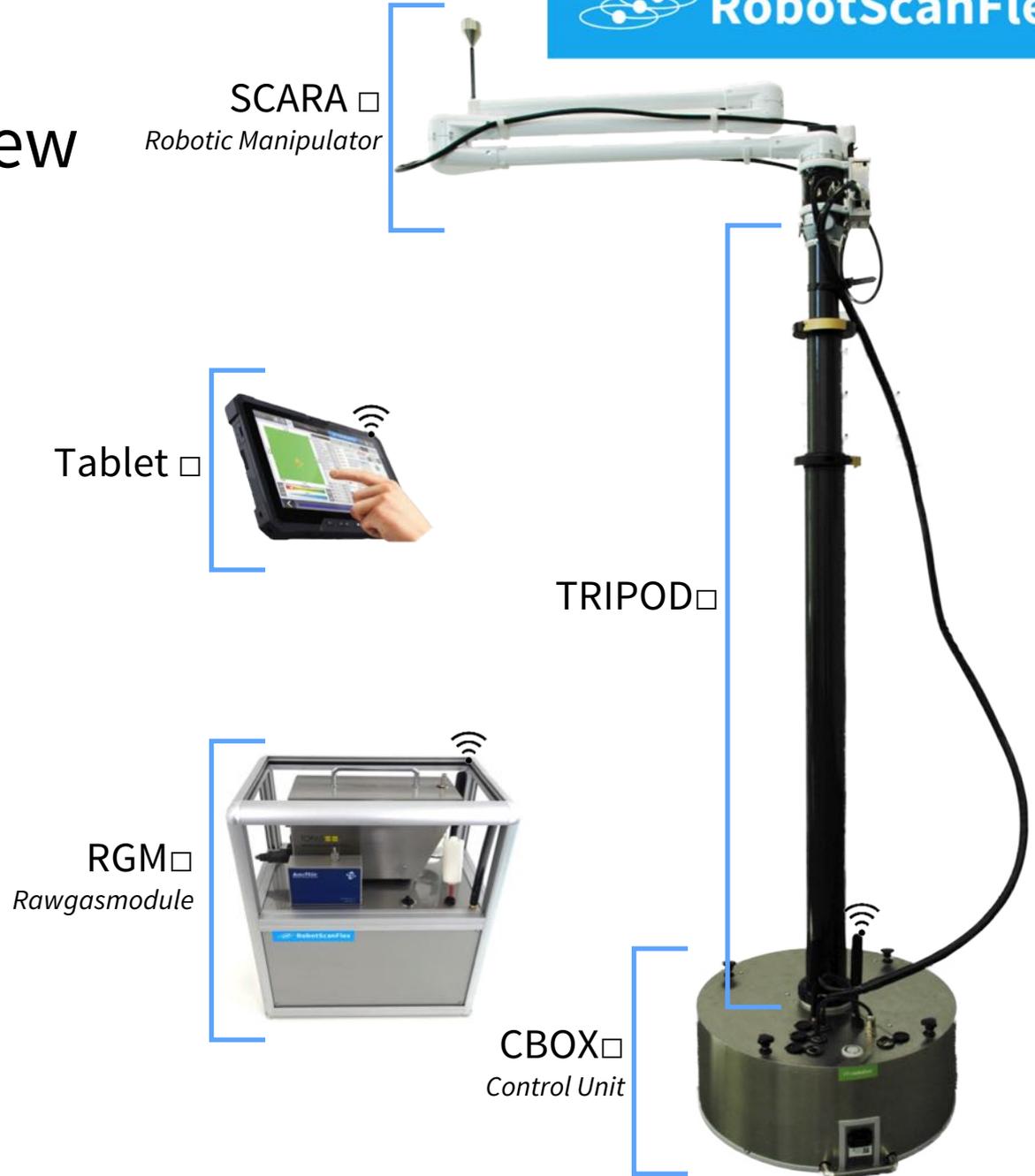
- ❑ Measurement Results depend on Technician
 - ❑ training and experience
 - ❑ condition and fatigue
 - ❑ non ergonomic work position
- ❑ Imprecise Movement of Measurement Probe
 - ❑ controlled distance to filter surface
 - ❑ capturing of entire filter surface not guaranteed due to lateral probe movement (cp. figure Kuhn et al.)
- ❑ Probe Velocity is subject to Fluctuations
- ❑ upstream Particle Concentration is only checked twice per Filter Element and could vary with time
- ❑ Protocol Generation according to acquired Measurement Results is usually very time consuming
 - ❑ paper based evaluation in general
 - ❑ some results are transferred manually from paper to electronic data
 - ❑ required “man-in-the-loop” processes is error prone



*) according to Kuhn and Moschberger, 2013

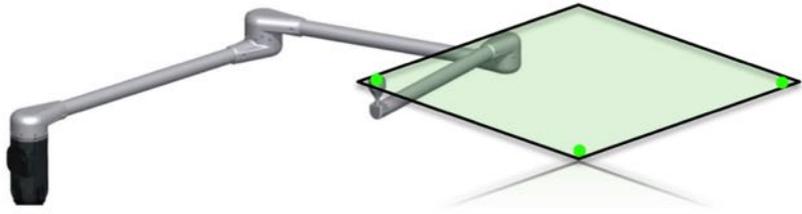
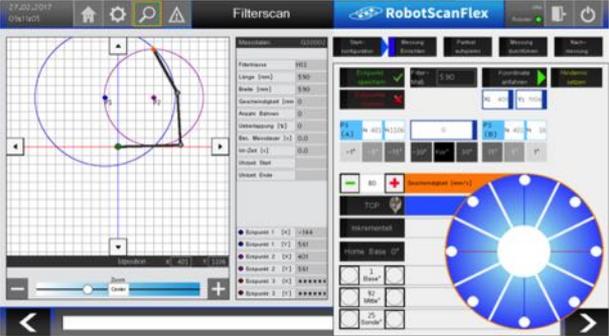
System Overview

- ❑ CBOX
 - ❑ Control Box
 - ❑ Automation PC with ScanWare
 - ❑ LAN/WLAN Connection
- ❑ TRIPOD
 - ❑ 4m working height
- ❑ SCARA
 - ❑ three arm SCARA
 - ❑ \varnothing 3,7m working area
- ❑ RGM
 - ❑ Aerosol Generator
 - ❑ LAN/WLAN Connection
- ❑ Tablet
 - ❑ ScanWare Visualization
 - ❑ PostProcessing
 - ❑ LAN/WLAN Connection



Working Principle

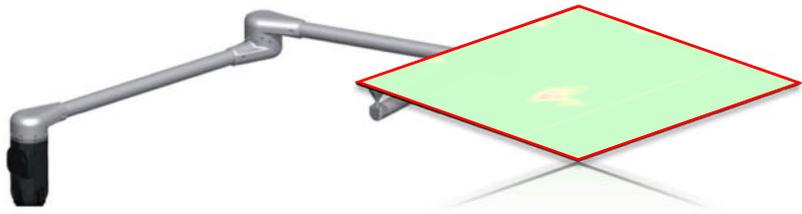
configure filter area □



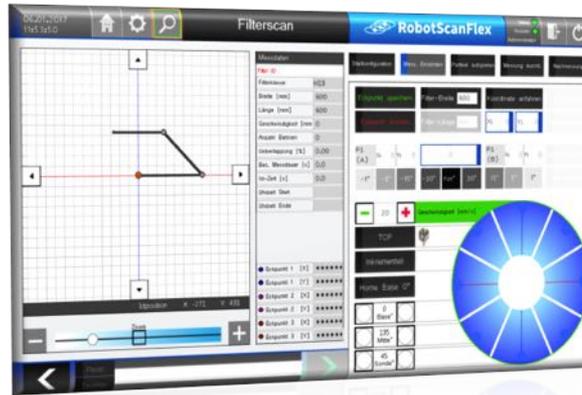
perform automatic measurement □



obtain results in real-time □



ScanWare

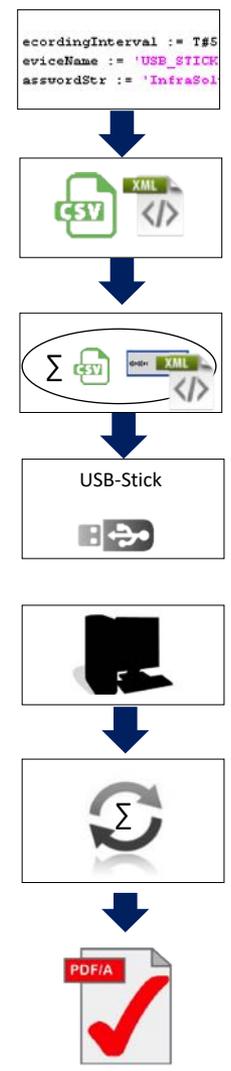
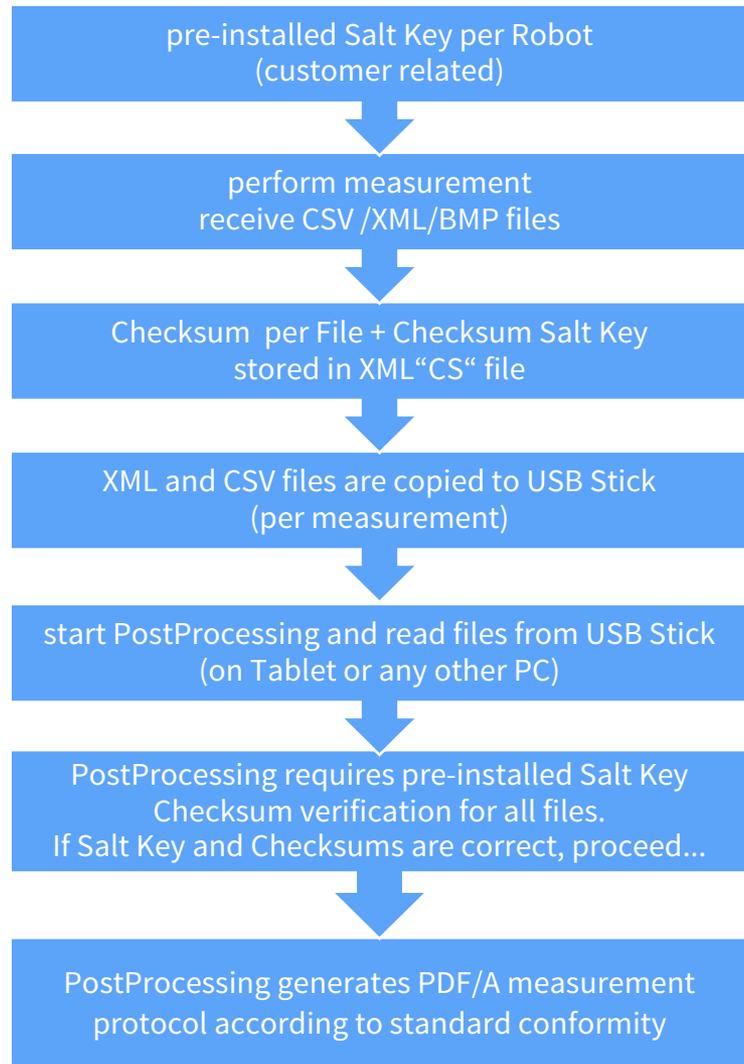
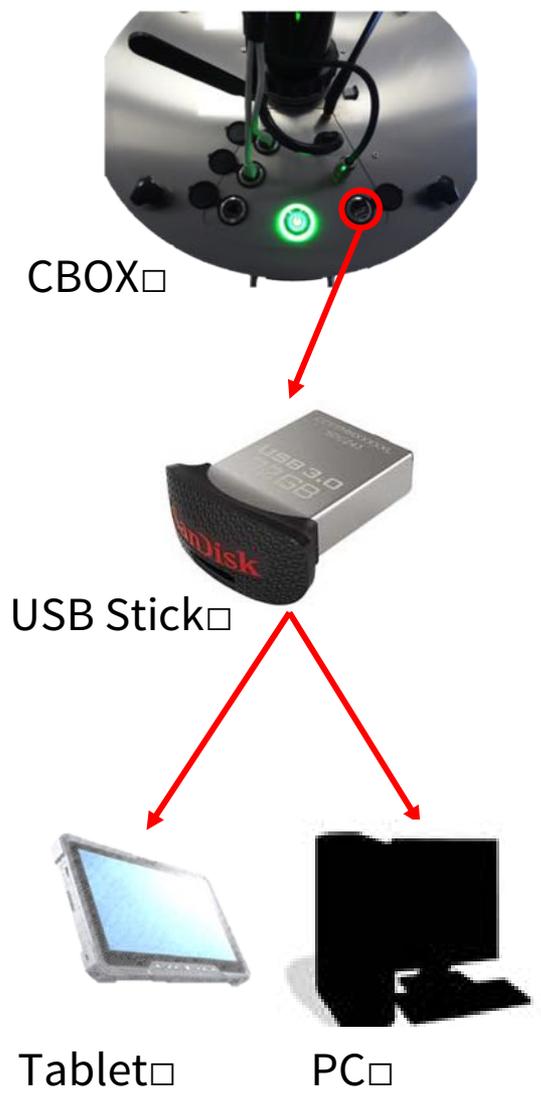


- Initialize Robot relative to Filter
- Configuration of Scan Task



- Continuous Task Supervision
- Direct Evaluation

Electronic Records & Electronic Signatures



PostProcessing



- List of all Measurement Results □
- Selection of Filter Elements □



- automatic PDF protocol generation □
- incl. Overview, Heatmap and Certificates □

Transport & Mobility



Versatility

- ❑ Laminar Flow
- ❑ Terminal Filter
- ❑ Safety Cabinet
- ❑ open/close RABS
- ❑ Isolator

- ❑ Qualification
- ❑ Re-Qualification

- ❑ Across Industry Sectors



A close-up photograph of a machine's control panel. The panel is dark, and a prominent feature is a circular power button that is illuminated with a bright green light. The button has a standard power symbol (a circle with a vertical line through it). The background is slightly blurred, showing other parts of the machine and a green light source above.

Summary – Key Features

- ❑ Automatic Measurement Process according to DIN EN ISO 14644-3
 - ❑ probe velocity
 - ❑ constant distance between probe and filter surface
 - ❑ precise capturing of entire filter surface
- ❑ Real-time 2D-Heatmap Generation
- ❑ Reproducible Results
- ❑ Automatic Leakage Verification
- ❑ Integrated Analysis and Evaluation
- ❑ Electronic on-the-fly protocol generation according to standard conformity
- ❑ Electronic Records according to FDA¹ and GMP² Requirements
- ❑ Increased Work Safety

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