



X-TubeProcessor®

# Smart 2.0

The compact 3-in-1 automation  
system for flexible tube processing

Various tube sizes

Dispensing / Labeling / Capping

GxP, ERP + LIMS integration

# Relieve your team from repetitive routine work

Laboratory workflows must be faster, safer and more flexible than ever. Manual steps are error-prone, tie up staff and make standardized processes difficult – especially under GMP/GLP conditions.

## One system. A wide range of tubes. No compromises.

360  
tubes/h

### Productive

Processes e.g. 360 labeled tubes per hour

<0,9 m<sup>2</sup>

### Compact

Fits on any lab bench (< 0.9 m<sup>2</sup> footprint)

< 2  
years ROI

### Return-on-Investment

Smart 2.0 pays for itself in under two years\*

\* Based on reducing manual work by 4 h/day for 2 employees.

## What's New with Smart 2.0

### Greater Processing Flexibility

- 0.5–15 ml tubes and vials
- Wide range of tube and vial types
- Choice between micro annular gear pump and peristaltic pump

### Supports Compliance [GxP]

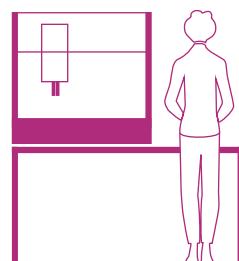
- Seamless documentation
- User management
- Audit trail options

### Control via X-Control Software

- Smart workflows with centralized and decentralized control
- Simpler job creation
- Efficient job and process management
- Easy management of labware

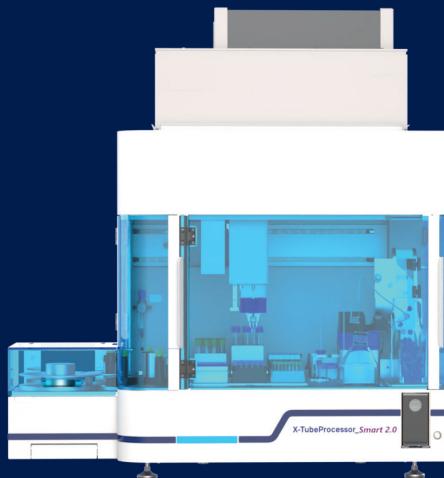
### Tube-Specific Processing

- TwinCode enables tube-specific processing
- Seamless traceability of every single tube
- Tube-specific positioning in the rack





See **Smart 2.0**  
book an  
online-demo

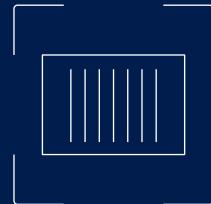


The *Smart 2.0* is depicted with a HEPA filter for sterile operation.

## More Control:

### Smart software guides every step.

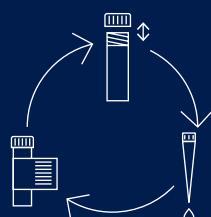
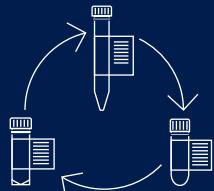
- Transparent, auditable workflows
- Barcode-based process control
- Role-based user permissions
- Automatic documentation of all processes



## More Flexibility:

### One system for many applications.

- Supports a wide range of tube formats
- Suitable for routine work, research and QC labs
- Ideal for diagnostics, life science services, biotech, environmental labs, pharma, biobanking and QC
- Easy Setup, no extra infrastructure needed
- One device, many workflows

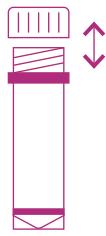
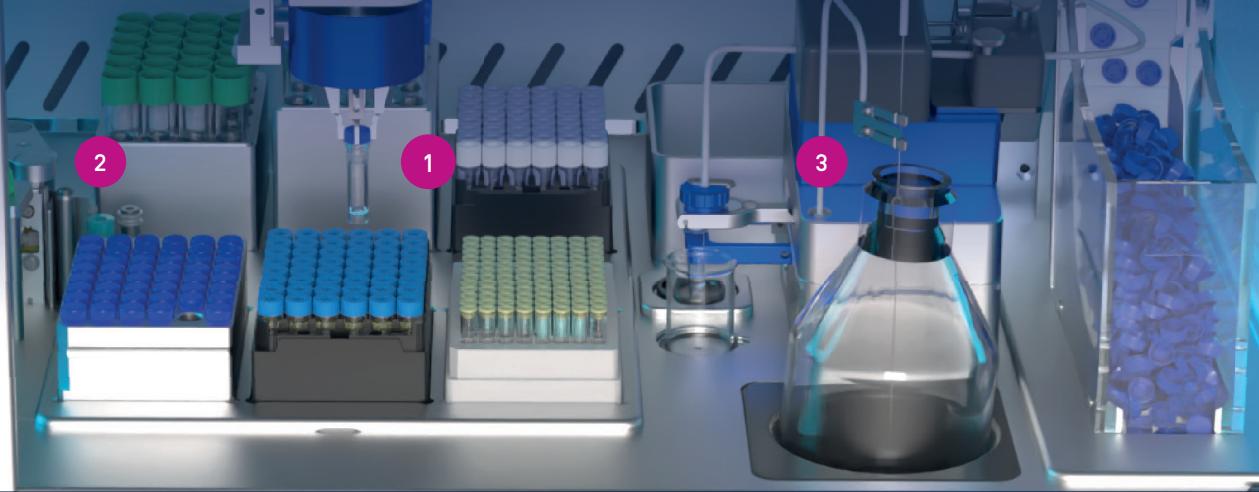


## More Efficiency:

### Three process steps in one system.

- Less hands-on time
- More walkaway time
- Consistent, reproducible results

# The 3-in-1 multitalent: Key functions of Smart 2.0



## Cap Handling

- Handles tube types from 0.5–15 ml
- Reliable opening and closing of screw-cap vessels
- Optional cap feeder for open micro screw tubes up to 2 ml
- Reduced error rates through automated handling

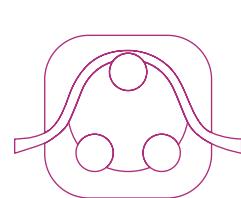
1



## Labeling

- Label templates with dynamic data (lot no., expiry date)
- Label templates with fixed content
- Automatic positioning and labeling
- Can be used as a network printer (e.g. Bartender files)
- Optional label verification with TwinCode (in-process control)

2



3

## Liquid Handling

### Peristaltic pump

- Dispensing without medium contact
- Fast tube change to avoid cross-contamination
- Large reservoir bottle up to 1 liter

### Microannular gear pump (optional)

- Very high dosing accuracy
- Stable dispensing even for large volumes

### Both pumps:

- DosingPumpManager controls priming, cleaning and calibration.

## Process times

Example calculation for micro screw tubes in serial processing:

Please feel free to ask us for an indication of the processing times for your individual workflow.

360

Labeling  
tubes/h

310

Dispensing +  
Capping  
tubes/h

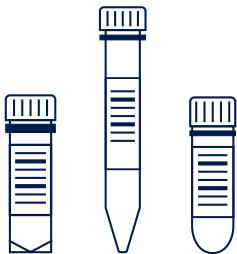
200

Dispensing +  
Capping +  
Labeling  
tubes/h

# Intelligent and flexible.

The workstation that adapts to your tubes.

## Flexible processing of different tube and vial types



- 0.5–15 ml tubes & vials
- No gripper change required
- Plastic & glass
- Capacity up to 6 racks in SBS format

### Compatible with:

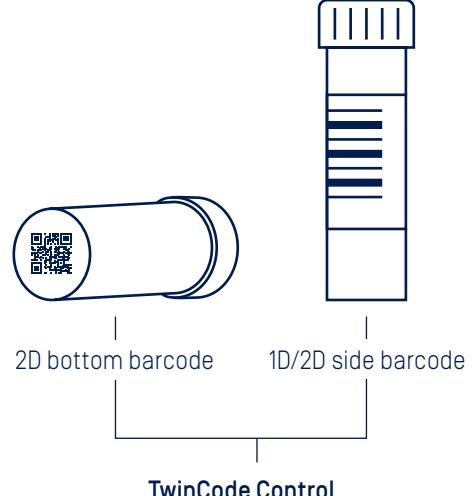
Micro screw-cap tubes, cryovials, biobank tubes, HPLC vials, FACS tubes, blood collection tubes, conical tubes and many more...



See Smart 2.0  
book an  
online-demo

## Tube-specific processing and traceability with TwinCode.

The *Smart 2.0* processes both bottom and side barcodes. Barcodes ensure traceability and, in combination with X-Control software, guide process-relevant decisions such as dispensing, labeling, in-process control and documentation.



### 1. Process control via barcodes

- Bottom/side barcode for tube-specific dispensing
- Bottom barcode for tube-specific labeling
- Ideal for LIMS-driven workflows

### 2. Verification and safety

- For label print verification
- For rack position verification
- Barcode data linked to exportable job logfiles

### 3. Complete traceability

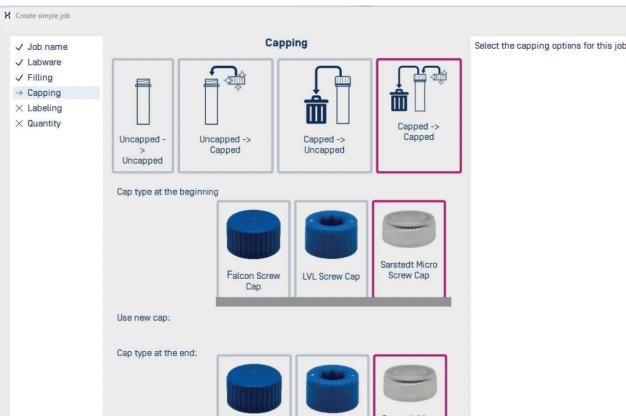
- Linking barcode information with exportable job log files
- Enables complete traceability of the manufacturing process with individual tube identification
- Support for GLP/GMP processes

# X-Control: The modular intelligence for connected labs.

The *Smart 2.0* software platform enables transparent and flexible control over tube and vial processing.

## Job Creation

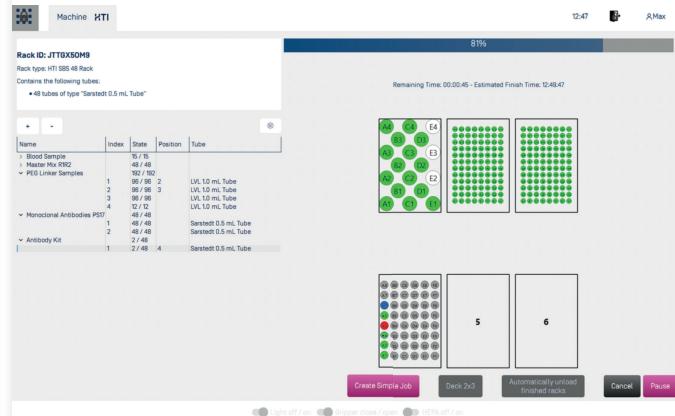
Jobs created in under 3 minutes



- **Various jobs** can be defined quickly and flexibly. User-training is quickly completed.
- **Labware availability** at a glance – you can see immediately which labware you can use. [Rack, tubes, labels]
- **Intuitive symbols for different process steps enables simple creation of work orders/jobs** [Tube handling, dispensing, cap handling, labeling, and barcode function]
- **The recipe function** allows freely definable work steps such as cap and tube handling, dispensing, and labeling. In addition, parameters such as the number of tubes or fillings can be locked to ensure protected process sequences.
- **Take advantage of the high flexibility** offered by numerous processing combinations. [Capping, labeling, dispensing, liquid classes, various tube and vial types, etc.]

## Job Management

All jobs under control – from anywhere



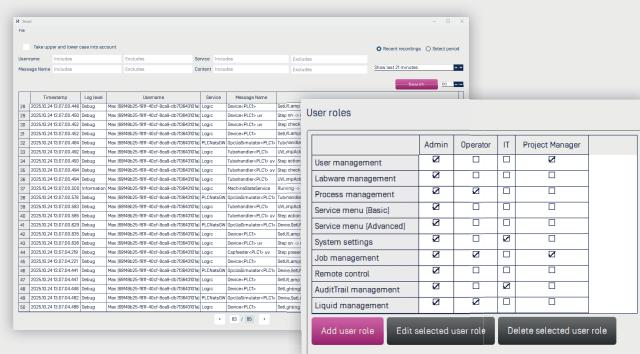
- **Local or decentralized** – Plan, manage, and control all jobs clearly in one place – locally on the machine or decentralized via the Job Manager Remote.
- **Individual labeling** with position assignment in the rack.
- **Clear status display** – Order management clearly visualizes the progress and status of jobs with color coding (grey, green, blue, red).
- **ERP/LIMS integration** is carried out via the optional REST API interface and guarantees smooth integration into your processes.

# Compliance required? Well prepared for GMP/GLP.

The workstation that adapts to your tubes.

## Control & Governance

GMP/GLP ready



The screenshot shows a software interface for managing audit logs and user roles. The top part displays a table of audit logs with columns for timestamp, user, message, and details. The bottom part shows a 'User roles' table with columns for role, Admin, Operator, IT, and Project Manager. Buttons for 'Add user role', 'Edit selected user role', and 'Delete selected user role' are at the bottom.

### User Management

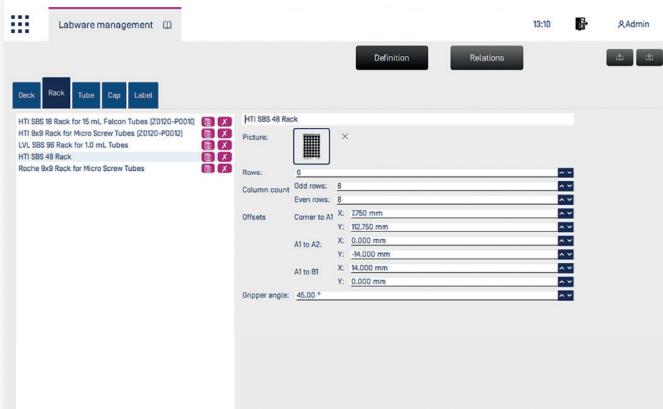
- Management of role-based access rights
- Creation and management of user accounts
- Unique and traceable authorization management

### Audit Trail

- Complete recording of system activity with timestamp, user and event identification
- Selectable log level display of events with export function
- Optional access to the audit trail database for external analysis functions
- Export the Audit Trail via CSV or PDF

## Labware & Pump

Simple management of new labware and liquids



The screenshot shows a software interface for managing labware. It displays a table for a 'HTI SBS 48 Rack' with columns for Deck, Rack, Tube, Cap, and Label. The table includes rows for various labware items like 'HTI SBS 18 Rack for 1 ml. Falcon Tubes (2010-P010)', 'HTI 960 96 Rack for Micro Screw Tubes (2010-P012)', 'LVL SBS 96 Rack for 10 ml. Tubes', and 'HTI SBS 48 Rack'. A 'Roche 9x8 Rack for Micro Screw Tubes' is also listed. The interface includes sections for 'Definition' and 'Relations'.

### Labware Management

- Easy management of usable racks, tubes, caps, and labels [labware] with assignment function
- Labware-Manager-Pro enables flexible creation of additional usable labware

### DosingPumpManager

- Control of routine pump processes such as priming, cleaning, and calibration
- Management of existing liquid classes
- Creation of custom liquid classes for new buffers and solutions

## Partnership-driven. Competent and proven in practice.

For more than 20 years, HTI has continuously reinvented itself — together with and for our customers. With our engineering services and automation solutions for laboratory and production environments, we are the reliable partner for your long-term success.

**+20 years**  
experience in  
laboratory  
automation

**+ 1100 devices  
and equipment**  
developed and  
produced

## Service and Quality

- ISO 9001 certified
- Service level agreements
- IQ/OQ packages
- International service availability
- Remote & on-site support

## Quality management

according to  
DIN ISO 9001

**Engineering  
Made in Germany –**  
International service  
network

Selected clients:



MAX PLANCK INSTITUTE  
OF COLLOIDS  
AND INTERFACES



## Questions regarding our products and services:

📞 +49 (0) 8092 2092-70  
✉️ sales@hti-automation.com

## Support requests:

📞 +49 (0) 8092 2092-60  
✉️ support@hti-automation.com

**Imprint:**  
HTI Automation GmbH  
Am Forst 6  
85560 Ebersberg, Germany

Managing director authorized to represent:  
Dr. Thomas Krüger  
Dr. Wolfgang Heimberg

Design: noahkoesel.de