AVENIO Edge System
Elevating NGS sample prep automation

Transform your laboratory with true walk away automation

The AVENIO Edge System is a fully automated system for library preparation, target enrichment and quantification. Experience high quality results from absolute automation, thanks to validated protocols, integrated components and end-to-end control. Finally, laboratory personnel have the **freedom to walk away and work away, with confidence and trust.**

Overcome the barriers of manual sample preparation

Even the most advanced laboratories are constrained by the number of steps still being performed manually, making work labor-intensive, time-consuming, error-prone, and costly. The AVENIO Edge System is designed to optimize resources, from staffing and labor to reagents and consumables, breaking down many of the obstacles laboratories face today.

- Minimize manual processes
- Reduce sample contamination
- Eliminate laborious workflows
- Enable greater flexibility

- Produce consistent and reproducible results
- Save on staffing and training time and cost
- Access global manufacturing support

Redefining Simplicity

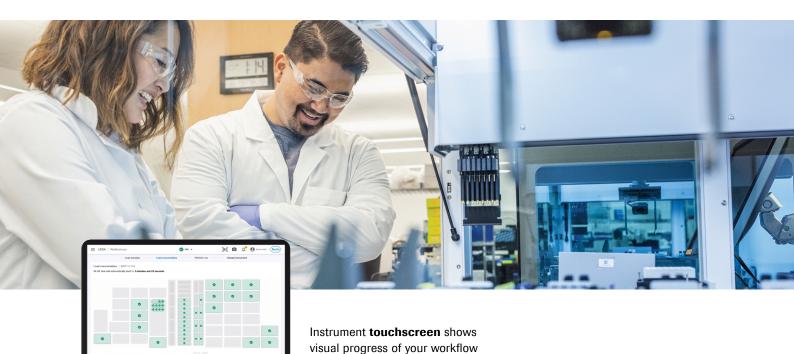**Maximizing Productivity**

Empowering Trust

Redefining simplicity

Streamline daily routines with virtually touchless sample preparation

The AVENIO Edge System minimizes manual touchpoints with all-in-one hardware, ready-to-run reagents and simple workflow management software. This powerful system is designed for effortless operation that anyone in the laboratory can use.

83%
steps reduction*

Instrument **touchscreen** shows visual progress of your workflow with estimated end-run times

Automatic **load-check** of consumables

One-box automation with quantification, thermal cycling, and pooling on-board

Reagents come pre-kitted, barcoded, and ready-to-run

*Pre-capture workflow comparison with manual KAPA Hypercap v3 data on file

Maximizing productivity

Optimize laboratory resources by alleviating demands on staff

The AVENIO Edge System increases laboratory efficiency by automating tedious, time-intensive processes that are usually performed manually. Highly qualified laboratory staff can now be freed of constant instrument surveillance to focus on other important tasks.

- Zero manual pipetting for routine use
- Set up to walk away in less than 20 minutes
- Reliable walk away automation for up to two days

Process **24** samples end-to-end in ~36 hours*

RUN UP TO **4** PANELS in one run

*For library preparation, pooling and target enrichment.

Empowering trust

Produce accurate, reliable and reproducible results

The AVENIO Edge System provides unmatched sensitivity, ensures significantly less risk of cross-contamination and carryover and reduces errors. Run any sample type from a wide range of sample inputs including plasma, cell lines and whole blood, with quality results every time.

- High sensitivity due to proprietary advanced bead-processing technology
- Powered by proven and trusted KAPA reagents*
- Excellent on-board reagent stability for ≥ seven days
- Integrated pre-analytical system checks to help prevent costly errors

*For research use only. Not for use in diagnostic procedures.

96%
lower risk of error

Error opportunities associated with manual processes such as handwriting, manual pipetting and reagent prep steps.

<0.1%
risk of cross-contamination and carryover

Based on mismatched reads/sample in a study with a minimum of 75,000 reads per sample.

Hybridization-based capture workflow performance was comparable between automated and manual workflows

Optimal balance between uniformity and specificity (on-target) with acceptable results over 90% of the time across different runs.

AVENIO Edge System workflow study used baseline library preparation/target enrichment conditions and were sub-samples to 60M reads.*

Automated and Manual Runs Comparison

1 plex N=20

	% Reads On Target	Average Median Target Coverage	Target Coverage % bp >20x
Automated HyperExome	86.9%	58.0x	96.0%
Manual HyperExome	80.2%	61.0x	96.3%

Automated HyperExome   **Manual** HyperExome

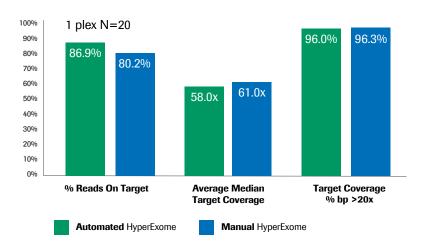## Fluorometric quality control method of the AVENIO Edge System is sensitive, highly accurate and a reliable measure of the dsDNA quantity

Comparable results across all samples between the gold standard used in manual workflows (Qubit) and the AVENIO Edge DNA Quantification kit.
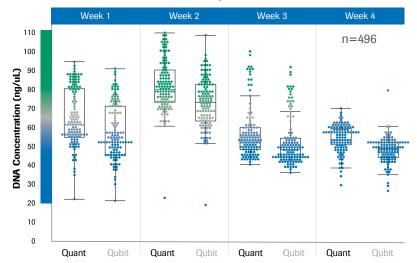
Feasibility data over 4 weeks and 5 instruments (total of 18 runs and 982 samples). The integrated quantification on the AVENIO Edge System showed high accuracy and sensitivity of the DNA concentration (ng/µL) in pre-capture PCR and post-capture PCR. Comparing the Qubit (manual) to AVENIO Edge Quantification Kit measurements showed comparable or sometimes higher detection sensitivity for the AVENIO Edge quantification module across all samples. Note: Quantification was performed using the standalone quantification module and preparation of quantification master mix and quantification plate done manually.

Pre-Capture PCR

n=496

Week 1   Week 2   Week 3   Week 4

DNA Concentration (ng/uL)

Quant   Qubit   Quant   Qubit   Quant   Qubit   Quant   Qubit

AVENIO Edge vs. Manual Methods

Post-Capture PCR

n=496

Week 1   Week 2   Week 3   Week 4

DNA Concentration (ng/uL)

Quant   Qubit   Quant   Qubit   Quant   Qubit   Quant   Qubit

AVENIO Edge vs. Manual Methods

* e-Poster P15.032.D, title: "Introduction of a walk-away automated Roche NGS workflow solution: Integrated KAPA Library Preparation, KAPA Target Enrichment and the AVENIO Edge instrument." MC--08364
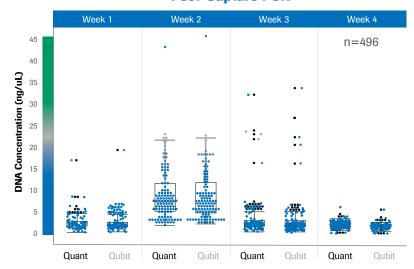
Innovation and quality only from Roche

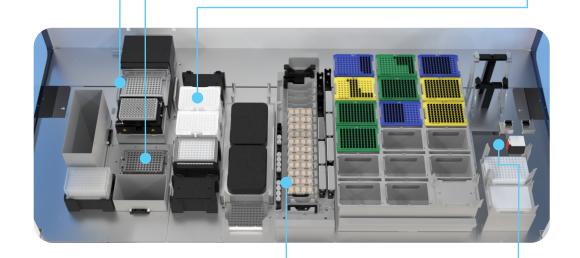*Exclusive features that set the AVENIO Edge System apart*

Fully integrated **on-deck thermal cycler** streamlines sample amplification

Proprietary advanced bead-processing station provides unparalleled sensitivity and yield

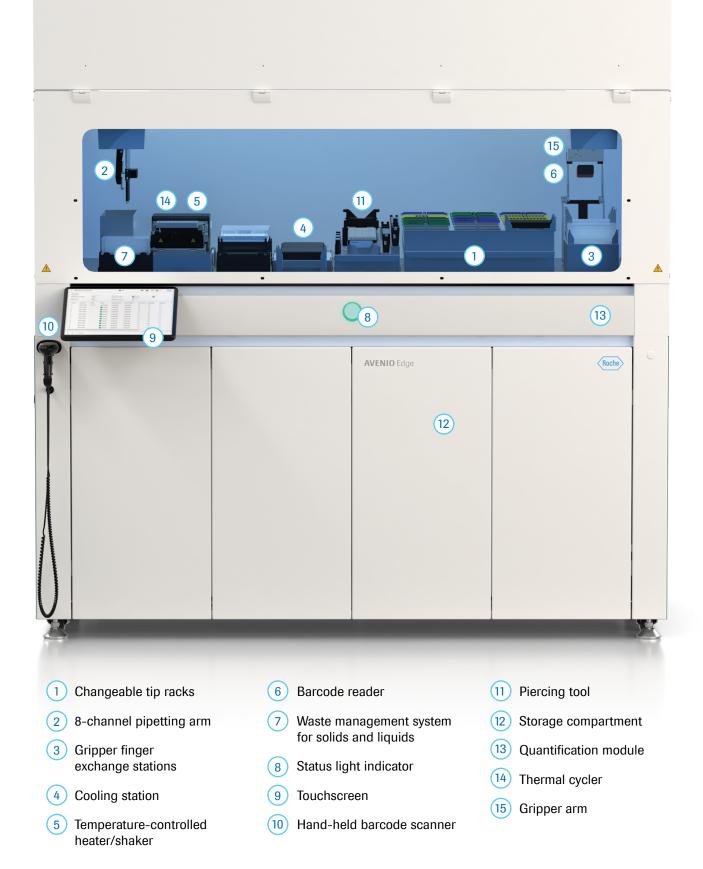**Tip park** reduces reloading time, risk of contamination and need for disposables

Powerful **AVENIO Designer Software** offers coding-free protocols and flexible configuration of user-defined workflows
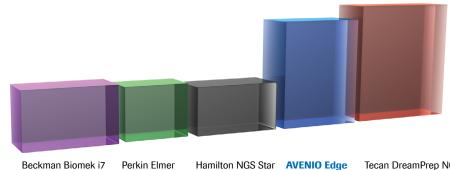

Fully barcoded reagents and consumables are automatically loaded and calculated, reducing waste and increasing accuracy

Integrated, automated quantification module minimizes manual tasks and reduces risk of inconsistencies and human error

1	Changeable tip racks	6	Barcode reader	11	Piercing tool
2	8-channel pipetting arm	7	Waste management system for solids and liquids	12	Storage compartment
3	Gripper finger exchange stations	8	Status light indicator	13	Quantification module
4	Cooling station	9	Touchscreen	14	Thermal cycler
5	Temperature-controlled heater/shaker	10	Hand-held barcode scanner	15	Gripper arm

Efficient footprint maximizes your laboratory space

Beckman Biomek i7
1700mm x 810mm
(66.9 in x 31.9 in)

Perkin Elmer
Sciclone NGS
Workstation
1219mm x 711mm
(48 in x 28 in)

Hamilton NGS Star
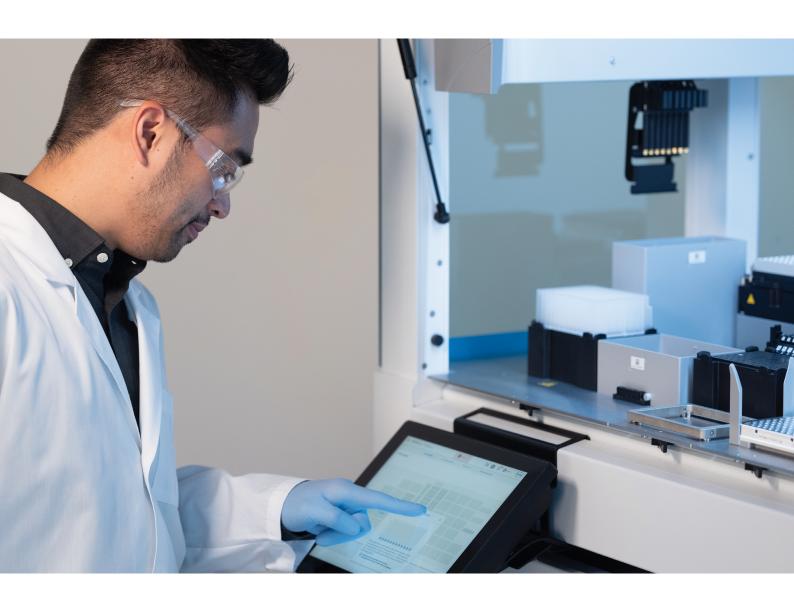1664mm x 795mm
(65.5 in x 31.3 in)

AVENIO Edge
1659mm x 900mm
(65.3 in x 35.4 in)

Tecan DreamPrep NGS
2150mm x 785mm
(84.6 in x 30.9 in)

Software that seamlessly integrates into your laboratory for easy workflow management at every step

AVENIO Edge Software

Powerful software comes standard with the AVENIO Edge System for smooth, reliable operation and workflow guidance.

- No special training required for staff—easy step-by-step instructions are provided
- Consumables list is displayed prior to every run for efficient resource management
- Touchscreen monitor works even if operator is wearing gloves
- Visual progress of the workflow and samples is available at any time

AVENIO Designer Software*

Intuitive, templated design software for rapid
and flexible user-defined workflow deployment.

Easy-to-use interface with tunable parameters

Unparalleled flexibility allows changing
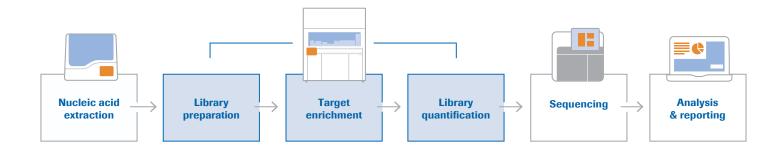workflows at any time

Workflows can be configured to stop or start
at any step

Validated workflows are pre-populated with
recommended parameters and
the ability to adjust if needed

* User-defined protocols created using AVENIO Designer Software are for research use only workflows, not for use in diagnostic procedures.

The foundation for an end-to-end future

As demands change, adaptability is a key attribute for any laboratory. The AVENIO Edge System can function as a powerful component in a single- or multi-room configuration—yet it is also the foundation for an all-inclusive standalone system. Install it today for day-one productivity, and build on it as the future of next-generation sequencing develops.

| Nucleic acid extraction | Library preparation | Target enrichment | Library quantification | Sequencing | Analysis & reporting |

With Roche legacy, service and support, we will be with you to keep your laboratory moving forward. **Contact your Roche representative for an in-person demonstration of the AVENIO Edge System.**

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