



# NGS Made Easy

Next Generation Sequencing Library Preparation with the epMotion®  
Automated Liquid Handlers



# Optimize Your NGS Library Prep

Preparing a high-quality Next Generation Sequencing (NGS) library is a complex process that requires a significant investment of time, money, and expertise. Precious samples are often processed for several days (depending on the kit used) until the library is ready for sequencing. A whole method consists of multiple parts, each with unique precision needs and hundreds of pipetting steps. As pipetting precision depends on the user, variability is introduced, which negatively affects the reproducibility.

The Eppendorf epMotion® automated liquid handlers can streamline this labor-intensive process with minimal user intervention and setup time, even for runs with low sample numbers. To minimize programming and get you up and running quickly, Eppendorf provides pre-optimized and manufacturer-qualified NGS kit methods, which will result in the reproducible preparation of high-quality libraries.

By automating the pipetting-intensive steps, human error can be eliminated, leading to higher-quality and more consistent results. In fact, the sequencing results from automated library preparation are comparable to or even better than those obtained through manual methods. Trust in the Eppendorf epMotion to automate your NGS library preparation to eliminate the risk of human pipetting errors, provide reproducible results and increase overall productivity.



## **Fitted to your needs:**

Small scale NGS library prep for up to 24 samples and limited lab space is possible with the epMotion® 5073t NGS Solution by intelligent accessories and optimal space usage.



## Additional Eppendorf products for your NGS workflow:



### Mastercycler® X50

- > High speed PCR with up to 10 °C/s heating rate
- > Advanced cyclers-to-cyclers networking capabilities
- > Consistent results due to excellent block homogeneity
- > flexlid® design minimizes evaporation and reduces edge effects to improve amplification specificity



### Eppendorf LoBind® Tubes and Plates

- > DNA LoBind consumables increase quality and quantity of NGS libraries by preventing sample loss due to adsorption to the plastic surface
- > Maximize the recovery of nucleic acids during sample preparation/isolation and after incubation and long-term sample storage



### Eppendorf twin.tec® PCR Plates

- > Highly uniform well geometry and rigid design makes twin.tec plates ideal for use with epMotion and highly compatible with PCR cyclers and magnets
- > Available as 96- and 384-well LoBind PCR plate to increase yield of transcript species in NGS library preparation
- > Available as Twin.tec Trace plates with lot number and expiry date on every plate for workflows that require high compliance

# epMotion 5075

**Interchangeable  
dispensing tools:**

Highest precision and accuracy covering 0.2 to 1,000  $\mu$ L with contact-free dispensing and automatic tool exchange.

**Improved Waste Concept:**

For safe disposal of solid and liquid waste and increased walk-away times.

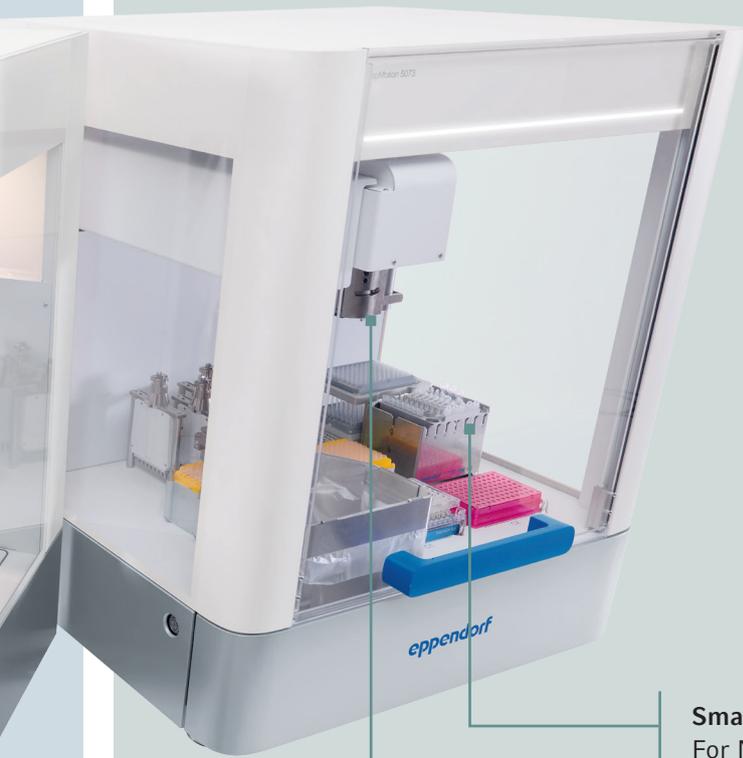
**Integrated**

**Eppendorf Thermomixer®:**

For incubation steps and bead-mixing up to 2,000 rpm.



## epMotion 5073



### Key highlights of epMotion 5073t and 5075t NGS Solution:

- > Sample throughput: 1–24 samples per run for epMotion 5073t NGS Solution and up to 96 samples per run for epMotion 5075t NGS Solution
- > Excellent pipetting precision, below 2% CV at 1  $\mu\text{L}$ \*
- > Optional UV lamp and air filter system for decontamination and clean air conditions
- > Intuitive drag-and-drop-based software
- > 3D run simulation to optimize speed and efficiency of new methods
- > Intelligent accessories maximize available deck space and walk-away time
- > Integrated Eppendorf ThermoMixer® and thermal module allow for the efficient mixing of magnetic beads and reliable temperature incubations on the deck
- > Touchscreen MultiCon PC with Windows 10
- > Powerful, spring-loaded plate magnet allows bead-based purification in plate format with minimal elution volumes
- > Optional: Miniaturization of sample volume down to 200 nL is possible with the high-precision 10  $\mu\text{L}$  dispensing tools
- > LED status light bar for visual feedback of the system status and separate LED light for worktable illumination

\* Eppendorf application note 168: »Evaluation of the Eppendorf epMotion® Pipetting Tools using the Artel MVS®.«

### Smart Accessories:

For NGS library preparation on the compact epMotion 5073.

### Optical sensor:

Contact-free detection of volume levels and labware.

With our knowledge in liquid handling automation and our expert applications support and service, we successfully automated **more than 40** NGS library preparation kits. That is more than on any comparable system!



Unable to find the kit you are using on this list?  
We do custom method development for you as well!  
[www.eppendorf.com/epmotionmethods/](http://www.eppendorf.com/epmotionmethods/)

## Pain points and their solution during NGS library preparation

Issue	Potential reason	Solution
<b>I do have very poor library yields or no libraries at all.</b>	Inhomogeneous bead-solution to begin with and/or insufficient mixed bead-sample solution	<ul style="list-style-type: none"> <li>&gt; Ensure to properly mix the bead solution before adding to your samples.</li> <li>&gt; Carefully mix bead solution and sample. Increase the number of mixing cycles and use around 80 % of the total volume for mixing. Solution mixing by tip mixing is preferred over shaking.</li> </ul>
	Loss of sample during the bead washing procedure	<ul style="list-style-type: none"> <li>&gt; Use freshly prepared ethanol and use prewetting when pipetting ethanol.</li> <li>&gt; Make sure to remove any residual ethanol during the final washing step. Use a smaller tip size for the final ethanol removal step.</li> <li>&gt; Do not over-dry your beads. Always air-dry beads at room temperature do not use heat to accelerate the drying process.</li> </ul>
	Loss of bead-sample solution	<ul style="list-style-type: none"> <li>&gt; Avoid the accidental aspiration of beads when removing supernatant. Use slow aspiration speed. Consider using a stronger magnet, if the problem persists.</li> <li>&gt; Use slow speed and a blowout when dispensing beads. Apply tip dipping to remove droplets from the outside of the tip.</li> </ul>
	Loss of sample during storage	<ul style="list-style-type: none"> <li>&gt; Avoid storage of intermediate products if possible. Do not extend the maximum storage times given in the kit protocol.</li> </ul>
<b>My final libraries do have the wrong size.</b>	Insufficient enzymatic fragmentation or overfragmented samples	<ul style="list-style-type: none"> <li>&gt; Make sure to use the correct temperature during enzymatic fragmentation. Increase the fragmentation time if your libraries are too big, decrease it if the libraries are too small.</li> </ul>
	False size selection	<ul style="list-style-type: none"> <li>&gt; Make sure that the used size selection ratio is correct.</li> <li>&gt; Make sure that your sample is in the correct buffer/reagent.</li> <li>&gt; Check, if the correct volumes are used. The given size selection ratios are based on volume.</li> <li>&gt; Avoid evaporation during the library preparation process (e.g. by using vapor lock) to keep the volumes correct.</li> </ul>
	PCR biased overamplification of shorter fragments	<ul style="list-style-type: none"> <li>&gt; Introduce a size selection step after adapter ligation, if possible.</li> <li>&gt; Reduce the number of PCR cycles.</li> </ul>
<b>I do see a high molecular weight product during my final QC. This appears to affect my sequencing results.</b>	Overamplification	<ul style="list-style-type: none"> <li>&gt; Increase the concentration of primers. Ensure that primers are intact.</li> <li>&gt; Decrease the amount of input material.</li> <li>&gt; Reduce the number of PCR cycles.</li> </ul>
<b>I do see a huge sharp peak at around 100 bp during my final QC. This appears to affect my sequencing results.</b>	Formation of adapter dimers	<ul style="list-style-type: none"> <li>&gt; Lower the adapter concentration.</li> <li>&gt; Do not pre-mix adapters and ligation mix.</li> <li>&gt; Consider one additional bead cleanup step.</li> </ul>

# Order Your NGS Solution Package

## epMotion® 5073t NGS Solution

epMotion® 5073t NGS Solution	5073 000 112
CleanCap Upgrade Set for epMotion® 5073 (optional)	5073 001 333

## epMotion® 5075t NGS Solution

epMotion® 5075t NGS Solution	5075 000 045
CleanCap Upgrade Set for epMotion® 5075 (optional)	5075 001 888

Accessories included*	epMotion 5073t	epMotion 5075t
License »Enhanced Feature Set 1« (5075 000 964)	●	●
Thermal Modul (5075 757 508, on C2 position)	✗	●
TS 50 single-channel dispensing tool (5280 000 010 / 960001010)	●	●
TS 300 single-channel dispensing tool (5280 000 037 / 960001028)	●	●
TM 50 eight-channel dispensing tool (5280 000 215 / 960001044)	✗	●
TM 300 eight-channel dispensing tool (5280 000 231 / 960001052)	●	●
Gripper with holder (52820 00 018 / 960002270)	●	●
Gripper Tower (5075 751 895)	●	✗
Thermoblock PCR 96 OC (5075 751 666)	●	●
Thermoadapter for PCR 96 (5075 787 008 / 960002199)	● (1 pc per package)	● (2 pcs per package)
Reservoir Rack (5075 754 002 / 960002148)	●	●
Reservoir Rack Module NGS (5075 751 917)	●	✗
Rack ILMN tubes (5075 751 747)	✗	●
TipHolder 73 (5075 751 879), 2 pcs	●	✗
Eppendorf Magnum FLX® Magnet Adapter (5075 751 836)	●	●

Consumables included*	epMotion 5073t	epMotion 5075t
Box for epT.I.P.S.® Motion 10/50/300µL Reload (0030 014 669)	● (1 pc per package)	● (2 pcs per package)
Clip for epT.I.P.S.® Motion Reloads (5075 751 070)	● (1 pc per package)	● (2 pcs per package)
epT.I.P.S.® Motion as Reload System, with filter, PCR clean, 50 µL, 2,304 tips: 24 trays × 96 tips (0030 014 430)	●	●
epT.I.P.S.® Motion as Reload System, with filter, PCR clean, 300 µL, 2,304 tips: 24 trays × 96 tips (0030 014 472)	●	●
Eppendorf twin.tec® PCR plate 96, semi-skirted, PCR clean, 25 pcs. (0030 128 575)	●	●
epMotion® reservoir 30 mL, PCR clean, 50 pcs. (0030 126 505 / 960051009)	●	●
Eppendorf Safe-Lock tubes, 1.5 mL tubes, PCR clean, 1000 pcs. (0030 120 086)	●	●
Eppendorf Tubes® 5.0 mL with screw cap, sterile, 200 pcs. (0030 122 321)	●	✗
Waste bags, for epMotion®, up to 7 L volume, autoclavable, 50 pcs. (5075 751 780)	●	✗
Waste bags, for epMotion®, up to 10 L volume, autoclavable, 50 pcs. (5075 752 050)	✗	●

- Accessories/Consumables included
- ✗ Accessories/Consumables not included

\* 1 pcs. each if not stated otherwise; article numbers are stated as international only or international/US wherever applicable

AC Power Cords with suitable plugs need to be ordered separately

**epServices**  
for premium performance

## Services for epMotion® – Keep Your Process in Motion

### It's all about accuracy and reliability

The epMotion and its dispensing tools are precision instruments. As such, they require regular maintenance, which help prevent failures and keep your processes moving forward. Regular calibration of the dispensing tools will ensure system accuracy, precision and reliability.

Our Service and Extended Warranty Agreement options will allow you to maintain premium functioning of your epMotion over the full lifetime of the system. Eppendorf's highly skilled service technicians perform the adjustments and repairs to return your system to manufacturer specifications.



For more detailed information on our service portfolio please download the epMotion Services brochure here.

Further information:  
[www.eppendorf.com/epServices](http://www.eppendorf.com/epServices)

For local offers please visit our local websites.

Services may vary according to country.

Contact your local Eppendorf Service organization.



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