eppendorf

NGS Compact

No more manual NGS library preparation with the switch to ep*Motion*®

Optimize Your NGS Library Prep

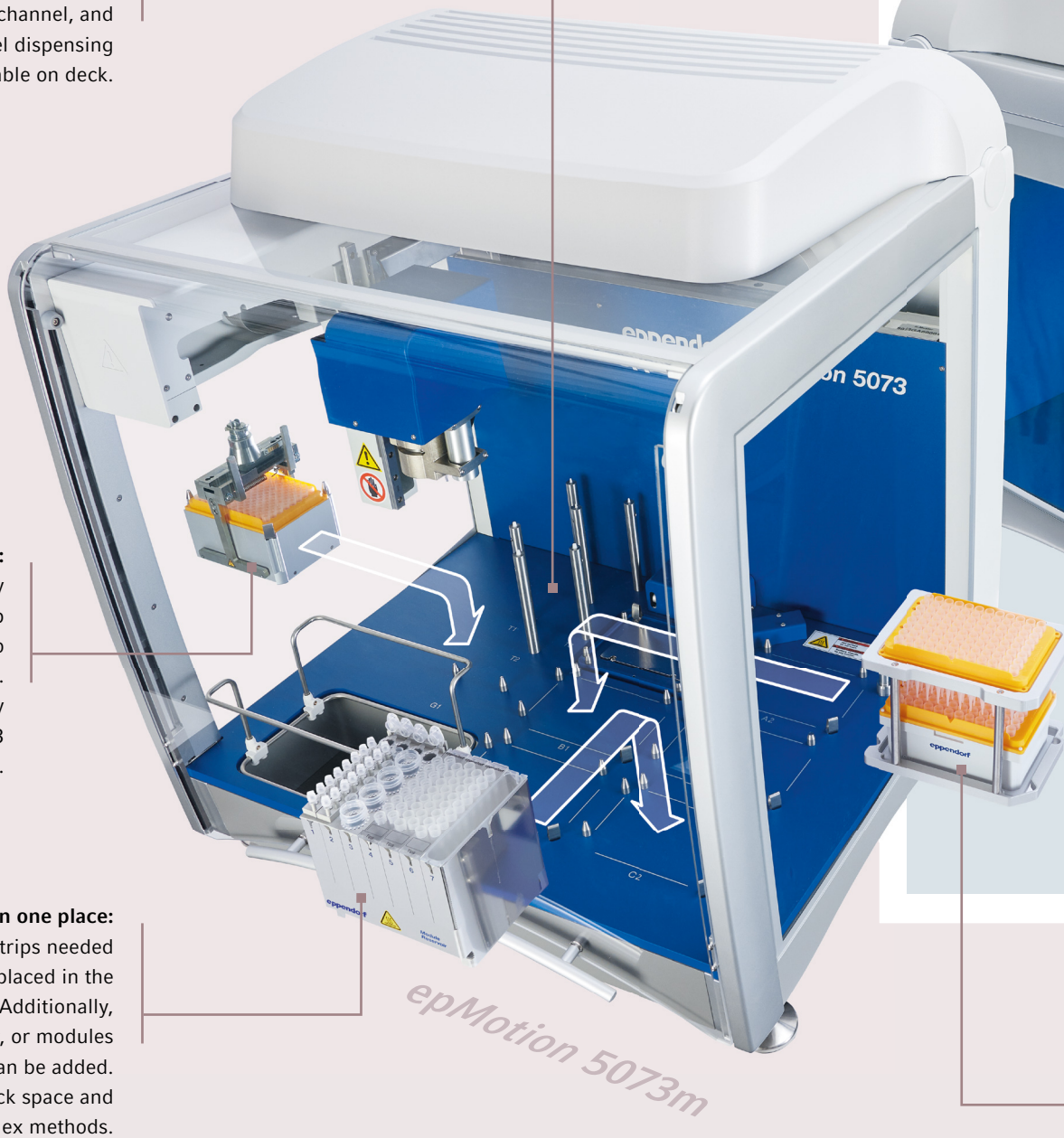
The preparation of a high-quality NGS library is a cost-, labor-, and time-intensive process which requires experience and a lot of concentration. Precious samples are often processed for several days (depending on the kit used) until the library is ready for sequencing. A whole method consists of multiple parts, each with unique precision needs and hundreds of pipetting steps. When working with low sample numbers, 1–24 samples, NGS library prep is often done manually. But this can be prone to errors and variation amongst libraries. As pipetting precision depends on the user, variability is introduced, which negatively affects the reproducibility. A solution for reliable preparation of highly reproducible NGS libraries is automating the process. Minimal user intervention utilizing optimal pipetting precision increases your time for other tasks, such as the evaluation of the sequencing data. Your overall productivity rises and the quality of your data is improved by reduced pipetting errors, consequently leading to more consistent results.

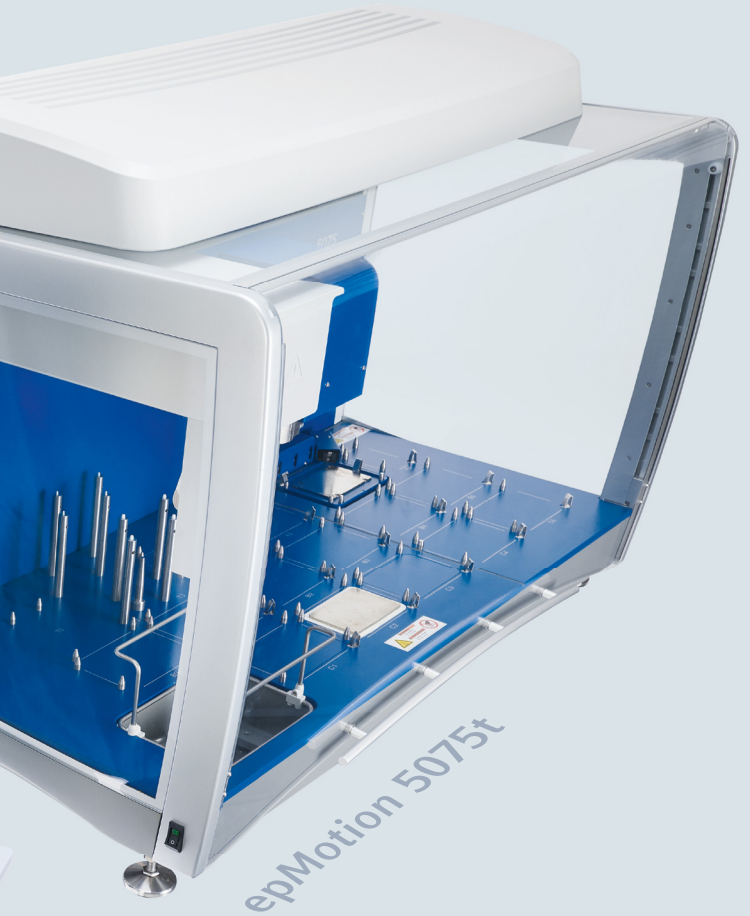
Fitted to your needs:
Small scale NGS library prep for up to 24 samples and limited lab space is possible with the ep*Motion*® 5073m NGS solution by intelligent accessories and optimal space usage.

All dispensing tools on deck:
NGS library preps can be executed without manual exchange of dispensing tools, having single-channel, and eight-channel dispensing tools available on deck.

Two in one:
Increase walk-away time by placing the Gripper above a tip rack on the Gripper Tower to further increase tip capacity. This tip rack is automatically transferred to the TipHolder 73 without user intervention.

All reagents in one place:
All reagents, tubes and PCR strips needed for NGS library prep can be placed in the Reservoir Rack Module NGS. Additionally, reservoirs with larger capacity, or modules with up to 16 tips can be added. This saves precious deck space and enables more complex methods.





Key highlights of ep*Motion* 5073m and 5075t NGS solution:

> Sample throughput: ep*Motion* 5073m NGS 1–24 samples per run; ep*Motion* 5075 NGS 96 samples per run
> Qualified next generation sequencing library prep methods for high quality libraries
> Outstanding pipetting accuracy (0.31 % systematic error at 1 µL) and precision (1.97 % random error at 1 µL), provide reproducible results
> Optional UV decontamination and HEPA air filter to protect precious samples and avoid cross-contamination
> Intuitive software for ease-of-use and rapid method design
> 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 efficient mixing of magnetic beads and reliable temperature incubations on deck
> Touchscreen MultiCon PC, or EasyCon tablet with Windows 10
> Powerful, spring-loaded plate magnet allow bead-based purification in plate format with minimal elution volumes
> Unique for ep*Motion* 5073m: Integrated magnet fingers allow bead-based purification in tube format
> Optional: Miniaturization of sample volume down to 200 nL for reagent saving is possible with the high-precision 10 µL dispensing tool

Optimal space usage:
Improve tip availability during your application by stacking two times 96 tips in one TipHolder 73. This reduces user interventions and increases your walk-away time.

Excerpt of methods available for ep*Motion* NGS solution:

Ampliseq® for Illumina®: Focus Panel
Ampliseq for Illumina: Myeloid
Illumina Nextera® XT DNA
Illumina Nextera DNA Flex
Illumina TruSeq® Stranded mRNA
Illumina TruSeq Nano DNA
Illumina 16s Metagenomic

> The complete list is available at:
www.eppendorf.com/epMotion-vip

Pain points and their solution during NGS library preparation		
Issue	**Potential reason**	**Solution**
I do have very poor library yields or no libraries at all.	Inhomogeneous bead-solution to begin with and/or insufficient mixed bead-sample solution	> Ensure to properly mix the bead solution before adding to your samples. > 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.
	Loss of sample during the bead washing procedure	> Use freshly prepared ethanol and use prewetting when pipetting ethanol. > Make sure to remove any residual ethanol during the final washing step. Use a smaller tip size for the final ethanol removal step. > Do not over-dry your beads. Always air-dry beads at room temperature do not use heat to accelerate the drying process.
	Loss of bead-sample solution	> Avoid the accidental aspiration of beads when removing supernatant. Use slow aspiration speed. Consider using a stronger magnet, if the problem persists. > Use slow speed and a blowout when dispensing beads. Apply tip dipping to remove droplets from the outside of the tip.
	Loss of sample during storage	> Avoid storage of intermediate products if possible. Do not extend the maximum storage times given in the kit protocol.
My final libraries do have the wrong size.	Insufficient enzymatic fragmentation or overfragmented samples	> 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.
	False size selection	> Make sure that the used size selection ratio is correct. > Make sure that your sample is in the correct buffer/reagent. > Check, if the correct volumes are used. The given size selection ratios are based on volume. > Avoid evaporation during the library preparation process (e.g. by using vapor lock) to keep the volumes correct.
	PCR biased overamplification of shorter fragments	> Introduce a size selection step after adapter ligation, if possible. > Reduce the number of PCR cycles.
I do see a high molecular weight product during my final QC. This appears to affect my sequencing results.	Overamplification	> Increase the concentration of primers. Ensure that primers are intact. > Decrease the amount of input material. > Reduce the number of PCR cycles.
I do see a huge sharp peak at around 100 bp during my final QC. This appears to affect my sequencing results.	Formation of adapter dimers	> Lower the adapter concentration. > Do not pre-mix adapters and ligation mix. > Consider one additional bead cleanup step.

Order Your NGS Solution Package

epMotion® 5073m NGS Solution

	with CleanCap**		without CleanCap	
	EasyCon	MultiCon	EasyCon	MultiCon
INT	5073000957	5073000965	5073000930	5073000949
US	5073000958	5073000966	5073000931	5073000950
GB	5073000960	5073000968	5073000933	5073000952
AU	5073000961	5073000969	5073000934	5073000953
CN	5073000964	5073000972	5073000937	5073000956
AR	5073000976	5073000973	5073000938	5073000975

epMotion® 5075t NGS Solution

	with CleanCap***	without CleanCap
	MultiCon	MultiCon
INT	5075000963	5075000962
US	5075000974	5075000973
GB	5075000970	5075000969
AU	5075000972	5075000971
CN	5075000978	5075000977
AR	5075000980	5075000979
JP	5075000976	5075000975

Accessories included*	ep*Motion* 5073m	ep*Motion* 5075t
License »Enhanced Feature Set 1« (5075000964)	■	■
Thermal Modul on C2 position (5075002612)	■	■
TS 50 single-channel dispensing tool (5280000010)	■	■
TS 300 single-channel dispensing tool (5280000037)	■	■
TM 50 eight-channel dispensing tool (5280000215)	■	■
TM 300 eight-channel dispensing tool (5280000231)	■	■
Gripper with holder (5282000018)	■	■
Gripper with gripper tower (5075751895)	■	■
Thermoblock PCR 96 OC (5075751666)	■	■
Thermoadapter for PCR 96 (5075787008)	■ (1 pc per package)	■ (2 pcs per package)
Reservoir Rack (5075754002)	■	■
Rack ILMN tubes (5075751747)	■	■
TipHolder 73 (5075751879), 2 pcs	■	■
Eppendorf Magnum FLX® Magnet Adapter (5075751836)	■	■
Waste Bag Holder (5075753103)	■	■
400 mL Liquid Waste Tub (5075751720)	■	■

Consumables*	epMotion 5073m	epMotion 5075t
epT.I.P.S.® Motion pipette tips, with filter, PCR clean, 50 µL, 960 tips: 10 racks × 96 tips (0030014413)	■	■
epT.I.P.S.® Motion as Reload System, with filter, PCR clean, 50 µL, 2.304 tips: 24 trays × 96 tips (0030014430)	■	■
epT.I.P.S.® Motion pipette tips, with filter, PCR clean, 300 µL, 960 tips: 10 racks × 96 tips (0030014456)	■	■
epT.I.P.S.® Motion as Reload System, with filter, PCR clean, 300 µL, 2.304 tips: 24 trays × 96 tips (0030014472)	■	■
Eppendorf twin.tec® PCR plate 96, semi-skirted, PCR clean, 25 pcs. (0030128575)	■	■
epMotion reservoir 30 mL, PCR clean, 50 pcs. (0030126505)	■	■
Eppendorf Safe-Lock tubes, 1.5 mL tubes, PCR clean, 1000 pcs. (0030120086)	■	■
Eppendorf Tubes® 5.0 mL with screw cap, sterile, 200 pcs. (0030122321)	■	■
Waste bags, for ep*Motion*, up to 7 L volume, autoclavable, 50 pcs. (5075751780)	■	■

■ Accessories/Consumables included
■ Accessories/Consumables not included

* 1 pcs. each if not stated otherwise

** S/N > 4921: upgradable with Waste bin UV-shield 45 mm (5075751976) or Waste bin UV-shield 100 mm (5075751992); S/N > 6000: Waste bin UV-shield 45 mm (5075751976) included, upgradable with Waste bin UV-shield 100 mm (5075751992)

*** S/N > 4657: upgradable with Waste bin UV-shield 45 mm (5075751976) or Waste bin UV-shield 100 mm (5075751992)

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