



DNA Shearing Quick Guide for truCOVER WGS PCR-free Library Prep Kit

M220, S220, ME220, E220*evolution*, and E220
Covaris Focused-ultrasonicators

Introduction

The truCOVER WGS PCR-free Library Prep Kit ([PN 520361](#)) enables precise DNA shearing for optimal whole genome sequencing (WGS) fragment sizes. The kit is designed for use with multiple Covaris Instruments, including the ML230 ([PN 500656](#)), LE220Rsc ([PN 500652](#)), LE220-plus ([PN 500569](#)), LE220R-plus ([PN 500578](#)), and R230 ([PN 500620](#)) Focused-ultrasonicators, with specific settings detailed in the user manual to achieve consistent shearing performance. The kit is compatible with the 8 AFA-TUBE TPX Strips ([PN 520292](#)) and the 96 AFA-TUBE TPX Plate ([PN 520291](#)), ensuring efficient and reproducible fragmentation tailored for high-quality WGS library preparation. Refer to the [truCOVER WGS PCR-free Library Prep Kit Product Manual](#) for all guidelines for sample preparation. When performing truCOVER library prep using Covaris ultrasonicators and the consumables outlined in this quick guide, transfer the sheared DNA into either a 96-well PCR plate or an 8-well PCR strip with well volume $\geq 200 \mu\text{L}$ which is compatible with heat blocks and magnets to ensure successful library preparation.

This quick guide provides starting settings for DNA shearing using the microTUBE-50 consumables on the M220 ([PN 500295](#)), S220 ([PN 500217](#)), ME220 ([PN 500506](#)), E220evolution ([PN 500429](#)), and E220 ([PN 500239](#)) Covaris Focused-ultrasonicators. These guidelines help optimize DNA shearing to achieve the required fragment size ($500 \text{ bp} \pm 15\%$) for optimal input into the truCOVER WGS PCR-free Library Prep Kit.

Sample Input Requirements

Dilute the starting genomic DNA with Low EDTA TE, pH 8.0 to the concentration recommended in the Product Manual. The volume in each Adaptive Focused Acoustics® (AFA®) vessel should be between 52.5–55 μL and the DNA mass should be between 50–500 ng (1–10 ng/ μL).

DISCLAIMER: DNA fragment size variability may occur depending on the upstream DNA extraction kit used and starting DNA quality. Please be advised that this protocol offers guidance for experimental procedures with no specific outcomes guaranteed, and the provider assumes no liability for deviations or discrepancies from expected results.

Fragmentation Starting Settings

Table A: M220 starting settings with the microTUBE-50 AFA Fiber Screw-Cap.

Model	M220
Consumable	microTUBE-50 AFA Fiber Screw-Cap (PN 520166)
Holder	M220 Holder XTU (PN 500414)
Insert	M220 Holder XTU Insert microTUBE 50 µL (PN 500488)
Water	At least 16 mL
Batch Size	1 sample
Sample Volume	55 µL
Temperature	20°C
Peak Power	25 W
Duty Factor	10%
Cycles per Burst (#)	500
Total Shearing Time	45 seconds

Table B: S220 starting settings with the microTUBE-50 AFA Fiber Screw-Cap.

Model	S220
Consumable	microTUBE-50 AFA Fiber Screw-Cap (PN 520166)
Holder	S-Series Holder microTUBE-50 Screw-Cap (PN 500492)
Water Level (RUN)	10
Batch Size	1 sample
Sample Volume	55 µL
Temperature	7°C
Peak Power	50 W
Duty Factor	10%
Cycles per Burst (#)	1000
Total Shearing Time	50 seconds

Table C: ME220 starting settings with the 8 microTUBE-50 AFA-Fiber H Slit Strip V2.

Model	ME220
Consumable	8 microTUBE-50 AFA Fiber H Slit Strip V2 (PN 520240)
Rack	Rack 8 microTUBE Strip V2 (PN 500518)
Waveguide	ME220 Waveguide 8 Place (PN 500526)
Plate Definition	8 microTUBE-50 H Slit Strip V2 PN 520240.2.rck
Sample Processing	1–8 samples
Sample Volume	55 µL
Temperature	20°C
Peak Power	50 W
Duty Factor	10%
Cycles per Burst (#)	1000
Total Shearing Time	40 seconds

Table D: E220*evolution* starting settings with the 8 microTUBE-50 AFA Fiber H Slit Strip V2.

Model	E220 <i>evolution</i>
Consumable	8 microTUBE-50 AFA Fiber H Slit Strip V2 (PN 520240)
Rack	Rack E220e 8 microTUBE Strip V2 (PN 500437)
Plate Definition	500437 E220e 8 microTUBE-50 Strip V2 -10mm offset
Water Level (RUN)	-2
Batch Size	1–8 samples
Sample Volume	55 µL
Temperature	7°C
Peak Power	50 W
Duty Factor	10%
Cycles per Burst (#)	1000
Total Shearing Time	50 seconds
Intensifier	Yes (PN 500141)

Table E: E220 starting settings with the 8 microTUBE-50 AFA Fiber H Slit Strip V2.

Model	E220
Consumable	8 microTUBE-50 AFA Fiber H Slit Strip V2 (PN 520240)
Rack	Rack 12 Place 8 microTUBE Strip (PN 500444)
Plate Definition	E220_500444 Rack 12 Place 8 microTUBE-50 Strip V2-10mm offset
Water Level (RUN)	-2
Batch Size	1–96 samples
Sample Volume	55 µL
Temperature	7°C
Peak Power	75 W
Duty Factor	10%
Cycles per Burst (#)	1000
Total Shearing Time	52 seconds
Intensifier	Yes (PN 500141)

Additional Information

- [truCOVER WGS PCR-free Library Prep Kit Product Manual](#)

Support and Technical Assistance

Tech Support: Ongoing assistance with the operation or application of the equipment and/or troubleshooting is provided via:

- **Telephone:**
 - **US & APAC:** +1 781.932.3959, during the hours of 8:30 a.m. to 5:00 p.m. (EST), Monday through Friday
 - **EU:** +44 (0) 845 872 0100, during the hours of 9:00 a.m. to 5:00 p.m. (GMT), Monday through Friday
- **E-mail:**
 - **US Customer Service:** customerservice@covaris.com
 - **EU/UK Customer Service:** emeacustomerservice@covaris.com
 - **APAC Customer Service:** APACcustomerservice@covaris.com
 - **Service and Instrumentation:** techsupport@covaris.com
 - **Applications:** applicationsupport@covaris.com

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