Product Insert: microTUBE-500 AFA Fiber Screw-Cap

Introduction

The microTUBE-500 AFA Fiber Screw-Cap (PN 520185) is a singular vessel designed to hold up to 500 µl of sample for sample processing. Each tube contains an AFA fiber that improves reproducibility, promotes an isothermal process, reduces fragmenting times, and allows larger sample volumes to be processed.

The microTUBE-500s have been validated for DNA shearing at volumes of 320 µl and 500 µl. They are compatible with the M-series, S220, E-series and L-Series Covaris instruments and require the use of an instrument specific Rack or Holder. Refer to the Covaris-certified Consumable Guide for further information (covaris.com/wp-content/uploads/M020065.pdf). DNA shearing protocols with the microTUBE-500 are also instrument specific. Do not store sheared samples in the microTUBEs.

The microTUBE-500 has a 2D barcode which can be used for sample traceability.

The microTUBE-500s are also a part of the truXTRAC® FFPE Plus product line and included in the following kits: PN 520255, PN 520252, PN 520262, and PN 520271. Please refer to the Nucleic Acid Extraction from FFPE Protocols: (covaris.com/resources/protocols/nucleic-acid-extraction-from-ffpe/).

Recommended instructions are subject to change without notice.

Ordering Information

- microTUBE-500 AFA Fiber Screw-Cap (25) (PN 520186)
- microTUBE-500 Screw-Cap Prep Station (PN 500510)
- microTUBE-500 Centrifuge and Heat Block Adapter (10) (PN 500503)

DNA Shearing Protocols

- Quick Guide: DNA Shearing with M220 (https://covaris.com/wp-content/uploads/pn_010252.pdf)
- Quick Guide: DNA Shearing with ME220 (https://covaris.com/wp-content/uploads/pn_010349.pdf)
- Quick Guide: DNA Shearing with S220 (https://covaris.com/wp-content/uploads/pn_010368.pdf)
- Quick Guide: DNA Shearing with E220 (www.covaris.com/wp-content/uploads/pn_010308.pdf)
- Quick Guide: DNA Shearing with LE220 (www.covaris.com/wp-content/uploads/pn_010156.pdf)
- Quick Guide: DNA Shearing with LE220-plus/R-plus/Rsc (www.covaris.com/wp-content/uploads/pn_010433.pdf)

Operating Limits and Conditions

Temperature (water bath)	4 °C minimum; 25 °C maximum
Recommended Sample Volume	500 µl, +/- 10 µl or 320 µl, +/- 10 µl
Centrifuge	Up to 5,000 x g for 15 min with centrifuge adapters PN 500503
Storage	Room temperature (15 °C to 30 °C)

CAUTION: All Covaris microTUBEs must operate within energy constraints. The power maximum levels are guides and should not be exceeded. Each instrument has been tested with the microTUBE-500 for 2x the energy of the 150 bp DNA shearing protocol, and with the truXTRAC® FFPE emulsification protocol. Operating outside of these limits or limits published in Covaris protocols may compromise the integrity of the microTUBE-500.

M220

Peak Incident Power	75 W maximum
Duty Cycle	25% maximum
Holder + Insert	Holder XTU PN 500414; Insert XTU PN 500471

ME220

Peak Incident Power	75 W maximum
Duty Cycle	20% maximum
Rack	Rack 4-Place microTUBE-500 (500525)
Waveguide	ME220 Waveguide 4 Place (500534)
Plate Definition	4 microTUBE-500 Screw-Cap PN 520185

S220

Peak Incident Power	200 W maximum*
Duty Factor	20% maximum
Holder	Holder PN 500449
Water level (RUN scale)	Level 8

*The S220 can operate using a power combinati on of 200W with 10% Duty Factor, or 175 W with 20% Duty Factor. Do not use 200 W with 20% Duty Factor.

E220*evolution*

Peak Incident Power	200 W maximum*
Duty Factor	20% maximum
Rack	Rack E220e 4 microTUBE-500 Screw Cap (500484)
Intensifier	500141 required, installed on transducer (See Appendix A for details)
Water level (RUN scale)	Level 6
Plate Definition	500484 E220e 4 microTUBE-500 Screw-Cap -9.9mm offset

*The E220*evolution* can operate using a power combination of 200 W with 10% Duty Factor, or 175 W with 20% Duty Factor. Do not use 200 W with 20% Duty Factor.

E220

Peak Incident Power	200 W maximum
Duty Factor	20% maximum
Rack	Rack, 24 microTUBE-500 Screw Cap (500452)
Intensifier	500141 required, installed on transducer (See Appendix A for details)
Water level (RUN scale)	Level 6
E220 Plate Definition	E220_500452 Rack 24 Place microTUBE-500 Screw-Cap +6mm offset

*The E220 can operate using a power combination of 200 W with 10% Duty Factor, or 175 W with 20% Duty Factor. Do not use 200 W with 20% Duty Factor.

LE-Series

Peak Incident Power	450 W maximum
Duty Cycle	30% maximum
Rack	Rack, 24 microTUBE-500 Screw Cap (500452)
LE220 Water level (RUN scale)	Level 6
LE220 Plate Definition	LE220_500452 Rack 24 Place microTUBE-500 Screw-Cap +6mm offset
LE220-plus/R-plus Plate Definition	LE220plus_500452 Rack 24 Place microTUBE-500 Screw-Cap +6mm offset
LE220Rsc-plus	LE220PRSC_500452 Rack 24 Place microTUBE-500 Screw-Cap +6mm offset

NOTE: If the plate definition is not present on the system, contact Covaris Technical Support (TechSupport@covaris.com) with the system serial number.

Instructions for Use

1. The microTUBE-500 has a closed septum. Load the microTUBE-500 into the microTUBE-500 Screw-Cap prep station.
2. Unscrew the cap.
3. Add sample, being careful to keep the AFA Fiber in the microTUBE-500.
4. Screw the cap back on until the stop point.
5. Load the microTUBE-500 into the appropriate rack or holder and process the sample.
6. Once finished, remove all sample from the microTUBE-500. Do not store sample in the microTUBE.

Revision History

Document Part #	Revision	Date	Description of change
010526	A	6/2020	New document

Appendix A: Removing or Installing the Intensifier (Covaris PN 500141) from a Covaris E System

The 500141 Intensifier is a small inverted stainless steel cone centered over the E-Series transducer by four stainless wires. The wires are held in place by a black plastic ring pressed into the transducer well.

If an AFA protocol requires "no Intensifier", please remove the Intensifier, using the following steps:

1. Empty the water bath. Start the instrument and start the SonoLab™ software.
2. Wait for the homing sequence to complete (the transducer will be lowered with the rack holder at the home position, allowing easy access to the Intensifier).
3. Grasp opposite sides of plastic ring and gently pull the entire assembly out of the transducer well. Do not pull on the steel cone or the wires. The ring is a friction fit in the well – no hardware is used to hold it in place.

The 500141 Intensifier (left) shown installed in the E-Series transducer well and (right) removed. Note the "UP" marking at the center of the Intensifier.

If a protocol requires the Intensifier to be present, simply reverse this process:

4. Align the black plastic ring with the perimeter of the transducer well. Note that the flat side of the center cone (marked UP) should be facing up (away from the transducer).
5. Gently press each section of the ring into the well until the ring is seated uniformly in contact with the transducer, with approximately 2 mm of the ring evenly exposed above the transducer assembly. Do not press on the cone or wires. The rotation of the ring relative to the transducer assembly is not important.
6. Refill the tank. Degas and chill the water before proceeding.

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

- Telephone
  - United States: Tel: +1 781.932.3959 during the hours of 9:00 a.m. to 5:00 p.m., Monday through Friday, Eastern Standard Time (EST), Greenwich Mean Time (GMT-05:00)
  - Europe: Tel: 44 (0) 845 872 0100, during the hours of 9:00 a.m. to 5:00 p.m., Monday through Friday, Greenwich Mean Time
- E-mail queries to techsupport@covaris.com or applicationsupport@covaris.com