





Ultracentrifugation

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Quick-Reference Guide to Rotor Specifications and Micro-Ultracentrifuge Compatibility

Rotor	Max. RPM	Max. <i>g</i>	<i>k</i> Factor	No. of Tubes x Nominal Tube Volume (mL)	Nominal Rotor Capacity (mL)	For Use in Instruments
TLA-120.2 	120 000	627 000	16	10 x 2.0	20	TL-100, Optima™ TL, Optima TLX personal micro-ultracentrifuge, Optima MAX Series
TLA-120.1	120 000	627 000	8	14 x 0.5	7	TL-100, Optima™ TL, Optima TLX personal micro-ultracentrifuge, Optima MAX Series
TLA-110 	110 000	657 000	13	8 x 5.1	40.8	TL-100, Optima™ TL, Optima TLX personal micro-ultracentrifuge, Optima MAX Series
TLA-100.3	100 000	541 000	14	6 x 3.5	21	TL-100, Optima™ TL, Optima TLX personal micro-ultracentrifuge, Optima MAX Series
TLA-100	100 000	436 000	7	20 x 0.2	4	TL-100, Optima™ TL, Optima TLX personal micro-ultracentrifuge, Optima MAX Series
TLA-55 	55 000	186 000	66	12 x 1.5	18	TL-100, Optima™ TL, Optima TLX personal micro-ultracentrifuge, Optima MAX Series
TLS-55 	55 000	259 000	50	4 x 2.2	8.8	TL-100, Optima™ TL, Optima TLX personal micro-ultracentrifuge, Optima MAX Series
TLN-120	120 000	585 000	7	8 x 1.2	9.6	TL-100, Optima™ TL, Optima TLX personal micro-ultracentrifuge, Optima MAX Series
TLN-100	100 000	450 000	14	8 x 3.9	31.2	TL-100, Optima™ TL, Optima TLX personal micro-ultracentrifuge, Optima MAX Series
MLA-150	150 000	1,003 000	10.4	8 x 2.0	16	Optima™ MAX Series
MLA-130	130 000	1,019 000	8.7	10 x 2.0	20	Optima™ MAX Series
MLA-80	80 000	444 000	29	8 x 8	64	Optima™ MAX Series
MLA-55	55 000	287 000	53	8 x 13.5	108	Optima™ MAX Series
MLS-50	50 000	268 000	71	4 x 5	20	Optima™ MAX Series
MLN-80	80 000	389 000	20	8 x 8	64	Optima™ MAX Series
A-110	110 000	199 000	9	6 x 180 µL	1 080 µL	Airfuge®
A-100/30	92 000	167 000	19	6 x 240 µL	1 440 µL	Airfuge®
A-100/18	95 000	148 000	12	6 x 175 µL	1 050 µL	Airfuge®
A-95	95 000	178 000	19	4 x 450 µL	1 800 µL	Airfuge®
ACR-90	90 000	122 000	45	NA	3.5 mL	Airfuge®
Batch Rotor	90 000	132 000	55	NA	7 mL	Airfuge®
EM-90	90 000	118 000	NA	6 x 100 µL	600 µL	Airfuge®

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Beckman Coulter Tabletop Rotors by Use*

Bioseparation	Specific Application	MLA-150	MLA-130	TLA-120.2	TLA-120.1	TLA-110	TLA-100.3	TLA-100	MLA-80	MLA-55	TLA-55	MLA-50	TLS-55	MLS-50	TLN-120	TLN-100	MLN-80
Separation of Subcellular Particles	Largest Volume for Pelleting					●			●	●		●		●			●
	Fastest Pelleting	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●
	Largest Volume Rate-Zonal Separation					●			●	●		●		●	●	●	●
	Fastest Rate-Zonal Separation	●	●	●			●										
Separation of Viruses and Viral Particles	Largest Volume for Pelleting					●			●	●		●		●			●
	Fastest Pelleting	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●
	Largest Volume Rate-Zonal Separation					●			●	●		●		●	●	●	●
	Fastest Rate-Zonal Separation	●	●	●									●		●	●	●
Rate-Zonal Separation of Proteins in Sucrose Gradient	Fastest Separation	●	●	●			●								●	●	●
	Largest Volume					●			●	●		●		●			●
	Largest Number of Samples		●	●							●						
	Greatest Interband Distance					●			●	●		●	●	●			
Separation of Lipoproteins	Fastest Differential Flotation				●		●										
	Largest Number for Differential Flotation				●		●										
	Largest Volume for Differential Flotation					●		●	●		●		●	●			●
	Greatest Interband Space					●		●	●		●	●	●	●			●
Pelleting RNA Through a CsCl Gradient	Fastest Separation	●	●	●		●	●		●	●			●	●	●	●	●
	Largest Volume					●			●	●		●		●		●	●
Isopycnic Separation of Plasmid DNA	Fastest Separation	●	●	●		●	●		●	●			●	●	●	●	●
	Greatest Interband Distance					●			●	●		●	●	●		●	●
	Largest Volume					●			●	●		●		●		●	●

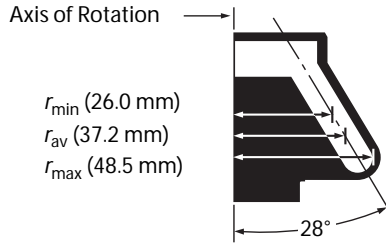
*Selected rotor has the capability (RCF, volume, labware) to accommodate the application, but may not be the most optimal/efficient choice for the specific application.

TLA-110



8 x 5.1 mL

TLA-110



Fixed-Angle Rotor, Titanium

For use in the TL-100, Optima™ TL, Optima TLX personal micro-ultracentrifuges, and Optima MAX Series Ultracentrifuges.

Major applications: Moderate volume differential sedimentation (pelleting) of subcellular organelles and viruses.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
110 000	657 000	13	8 x 5.1 mL 13 x 56 mm	40.8 mL

No. 366735. TLA-110 Fixed-Angle Rotor Package. Includes Biocontained Rotor, one box of 361621 OptiSeal™ Tubes, eight each 361676 Floating Spacers, 854519 and 824412 O-ring, 348122 Rack Assembly, 927208 Hemostats, 306812 Spinkote™ Lubricant, and 335148 Vacuum Grease.

No. 366730. TLA-110 Fixed-Angle Rotor Assembly.

Tubes and Bottles

Tube Style/Material	Vol.(mL)	Part No.	Quantity	Size (mm)	Floating Spacers (qty. 1)	Adapters (qty. 1)	g-Force	k Factor	Max. Speed
OptiSeal™ Polyallomer Bell Top	4.7	361621	56	13 x 48	361676*	—	657 000	12	110 000
Quick-Seal® Polyallomer Bell Top	2.0	345829	50	13 x 25	360270**	—	657 000	5	110 000
	3.5	349621	50	13 x 32	360270**	—	657 000	7	110 000
	5.1	362248	50	13 x 51	362307**	—	657 000	13	110 000
Thickwall Polyallomer	3.2	362333	50	13 x 56	—	—	267 000	37	70 000
Thickwall Polycarbonate	3.2	362305	50	13 x 56	—	—	657 000	13	110 000
Microcentrifuge Polyallomer	1.5	357448	500	11 x 38	—	360951**	206 000	19	70 000

* Set of 2

** Package of eight.

Rotor Accessories

- 338765 Spacer Removal Tool for 3.5-mL and 2.0-mL Quick-Seal Tube Spacers
- 355872 Tube Rack for 13-mm Tubes (included in Rotor Package)
- 348122 Tube Topper Rack for 13-mm Tubes
- 349487 Tube Rack for g-Max® Quick-Seal Tubes†
- 355582 Tube Rack Adapter for 13 x 32 mm, 3.5-mL Quick-Seal Tubes for use in 349487 Tube Rack†
- 345832 Tube Rack Adapter for 13 x 25 mm, 2.0-mL Quick-Seal Tubes for use in 349487 Tube Rack†
- 347404 Rotor Cleaning Brush
- 927208 Hemostats, 6-in. curved
- 358312 Quick-Seal Cordless Tube Topper Kit, 60 Hz
- 358313 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Europe)
- 358314 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Great Britain)
- 358315 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Australia)
- 367803 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Canada)
- 361638 OptiSeal Tube Rack Assembly
- 361668 Tube Removal Tool
- 961519 Hemostat, 6 in. straight
- 342025 Fraction Recovery System
- 347828 Fraction Recovery System Adapter Kit for TL-series tubes

- 347960 Centri-Tube Slicer
- 348299 CentriTube Slicer Replacement Blades (pkg of 10)
- 354526 CentriTube Slicer Adapter for 13mm tubes
- 306812 Spinkote Lubricant (2 oz)
- 335148 Silicone Vacuum Grease
- 339558 Rotor Cleaning Kit
- 347404 Rotor Cleaning Brush
- 339555 Beckman Solution 555 (1 qt)

† Required for obsolete Bench Quick Sealer.

Rotor Replacement Parts

- 854519 O-ring (outer, Rotor Lid)
- 824412 O-ring (inner, Rotor Lid)
- 349477 Cap & Plunger Assembly
- 366732 Rotor Lid Assembly
- 347903 Spring
- 346133 Rotor Vise

Adapters/Spacers

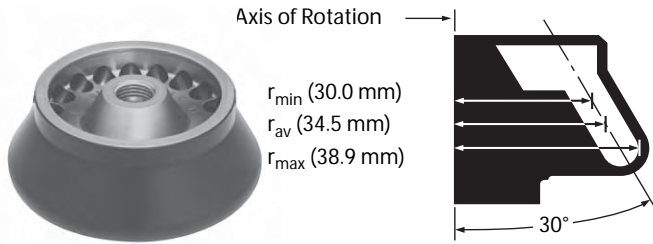
360270 360951 361676 362307



TLA-100

20 x 0.2 mL

TLA-100



Fixed-Angle Rotor, Titanium

For use in the TL-100, Optima™ TL, Optima TLX personal micro-ultracentrifuges, and Optima MAX Series high-capacity personal micro-ultracentrifuges.

Note: Non-precipitating solutions up to 1.7 g/mL in density can be run in this rotor without a reduction in rotor speed.

Major applications: Pelleting of subcellular fractions; proteins; RNA.

Max. RPM	Max. <i>g</i>	<i>k</i> Factor	Number of Tubes Volume/Size	Rotor Capacity
100 000	436 000	7	20 x 0.2 mL 7 x 20 mm	4 mL

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No. 343840. TLA-100 Fixed-Angle Rotor Assembly.

No. 343837. TLA-100 Fixed-Angle Rotor Package. Includes Rotor, 1 box 343775 Thickwall Polycarbonate Tubes, 348302 Tube Rack, 824412 and 824953 O-rings, 927208 Hemostats, 346133 Rotor Vise/Stand, 306812 Spinkote™ Lubricant, and 335148 Vacuum Grease.

Tubes and Bottles

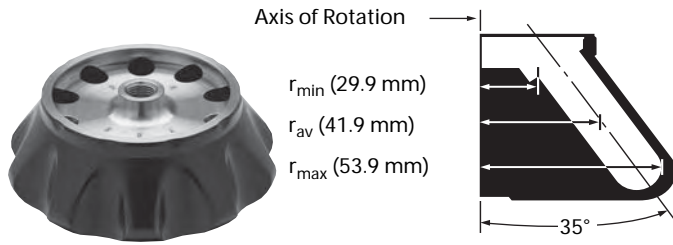
Tube Style/Material	Vol.(mL)	Part No.	Quantity	Size (mm)	Floating Spacers (qty. 1)	Adapters (qty. 1)	<i>g</i> -Force	<i>k</i> Factor	Max. Speed
Thickwall Polyallomer	0.2	343621	100	7 x 20	—	—	279 000	10	80 000
Thickwall Polycarbonate	0.2	343775	100	7 x 20	—	—	436 000	7	100 000
Thickwall Cellulose Propionate	0.2	342303	100	7 x 20	—	—	184 000	16	65 000

Rotor Accessories

- 348302 Tube Rack for 7-mm Tubes (included with Rotor Package)
- 927208 Hemostats, 6-in. curved
- 347404 Rotor Cleaning Brush
- 361668 Tube Removal Tool
- 961519 Hemostat, 6 in. straight
- 342025 Fraction Recovery System
- 347828 Fraction Recovery System Adapter Kit for TL-series tubes
- 347960 Centri-Tube Slicer
- 348299 CentriTube Slicer Replacement Blades (pkg of 10)
- 306812 Spinkote Lubricant (2 oz)
- 335148 Silicone Vacuum Grease
- 339558 Rotor Cleaning Kit
- 339555 Beckman Solution 555 (1 qt)

Rotor Replacement Parts

- 824953 O-ring (outer, Rotor Lid)
- 824412 O-ring (inner, Rotor Lid)
- 343845 Rotor Lid Assembly (O-rings not included)
- 349318 Cap & Plunger Assembly
- 346133 Rotor Vise



Fixed-Angle Rotor, Titanium

For use in the Optima™ MAX Series Ultracentrifuges.

Major applications: Rapid differential sedimentation (pelleting) of small particles such as subcellular organelles and viruses.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
130 000	1 019 000	8.7	10 x 2.0 mL 11 x 32 mm	20 mL

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No. 367114. MLA-130 Fixed-Angle Rotor Package. Includes Rotor, one box of 100 each 344625 Polyallomer Quick-Seal® Tubes, 367310 Spacer, 348305 Tube Rack, 975001 O-ring, 927208 Hemostats, 306812 Spinkote™ Lubricant and 335148 Vacuum Grease.

No. 367120. MLA-130 Fixed-Angle Rotor Assembly.

Tubes and Bottles

Tube Style/Material	Vol. (mL)	Part No.	Quantity	Size (mm)	Floating Spacers (pkg. of 10)	Adapters (qty. 1)	g-Force	k factor	Max. Speed
Quick-Seal® Polyallomer	1.5	344624	100	11 x 25	367310	—	1 008 000	7.0	1 008 000
	2.0	344625	100	11 x 32	367310	—	1 008 000	8.7	1 008 000
Thickwall Polyallomer	1.0	347287	100	11 x 34	—	—	390 000	23	80 000
Thickwall Polycarbonate	1.0	343778	100	11 x 34	—	—	1 008 000	5.8	1 008 000

Rotor Accessories

- 358312 Quick-Seal Cordless Tube Topper Kit, 60 Hz
- 358313 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Europe)
- 358314 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Great Britain)
- 358315 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Australia)
- 367803 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Canada)
- 349387 Tube Topper Rack
- 361668 Tube Removal Tool
- 927208 Hemostat, 6 in. curved
- 961519 Hemostat, 6 in. straight
- 342025 Fraction Recovery System
- 347828 Fraction Recovery System Adapter Kit for TL-series tubes
- 306812 Spinkote Lubricant (2 oz)
- 335148 Silicone Vacuum Grease
- 339558 Rotor Cleaning Kit
- 347404 Rotor Cleaning Brush
- 339555 Beckman Solution 555 (1 qt)

Rotor Replacement Parts

- 367116 Rotor Lid
- 975001 O-ring for Lid
- 347373 Rotor Vise

Adapters/Spacers

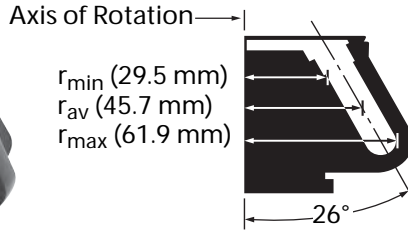
367310



MLA-80

8 x 8 mL

MLA-80



Fixed-Angle Rotor, Titanium

For use in instruments classified: **Optima™ MAX Series High-Capacity Personal Micro-Ultracentrifuges.**

Major applications: Large volume differential sedimentation (pelleting) of subcellular organelles and viruses.

Max. RPM	Max. <i>g</i>	<i>k</i> Factor	Number of Tubes Volume/Size	Rotor Capacity
80 000	444 000	29	8 x 8 mL 16 x 64 mm	64 mL

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No. 367096. MLA-80 Fixed-Angle Rotor Package. Includes Rotor, one box of 50 each 344621 Tubes, 367094 Quick-Seal® Bell Top Spacer, 892292 O-ring, 348123 Tube Rack, 927208 Hemostats, 338765 Stem Lifter, 306812 Spinkote™ Lubricant and 335148 Vacuum Grease.

No. 367087. MLA-80 Fixed-Angle Rotor Assembly.

Tubes and Bottles

Tube Style/Material	Vol. (mL)	Part No.	Quantity	Size (mm)	Required Caps/ Spacers (qty. 1)	Required Adapters (qty. 1)	<i>g</i> -Force	<i>k</i> factor	Max. Speed
Quick-Seal®	4.2	356562	50	16 x 38	367094	—	444 000	18	80 000
Polyallomer	6.3	345830	50	16 x 45	367094	—	444 000	23	80 000
	8.0	344621	50	16 x 58	367094	—	444 000	29	80 000
Thickwall Polyallomer	6.5	355646	25	16 x 64	—	—	84 900	153	35 000
Thickwall Polycarbonate	6.5	355647	25	16 x 64	—	—	417 000	19	80 000

Rotor Accessories

- 358312 Quick-Seal Cordless Tube Topper Kit, 60 Hz
- 358313 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Europe)
- 358314 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Great Britain)
- 358315 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Australia)
- 367803 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Canada)
- 348123 Tube Topper Rack
- 361668 Tube Removal Tool
- 338765 Floating Spacer Removal Tool
- 927208 Hemostat, 6 in. curved
- 961519 Hemostat, 6 in. straight
- 306812 Spinkote Lubricant (2 oz)
- 335148 Silicone Vacuum Grease
- 339558 Rotor Cleaning Kit
- 347404 Rotor Cleaning Brush
- 339555 Beckman Solution 555 (1 qt)

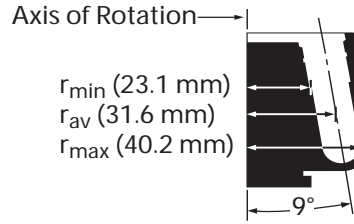
Rotor Replacement Parts

- 367089 Rotor Lid
- 892292 O-ring
- 346133 Rotor Vise

Adapters/Spacers

367094





Near-Vertical Tube Rotor, Titanium

For use in the Optima™ MAX Series Ultracentrifuges.

Major applications: Rapid contamination-free isopycnic isolation of plasmid DNA.

Max. RPM	Max. <i>g</i>	<i>k</i> Factor	Number of Tubes Volume/Size	Rotor Capacity
80 000	389 000	20	8 x 8 mL 16 x 58 mm	64 mL

1

No. 367100. MLN-80 Near-Vertical Tube Rotor Package. Includes Rotor, one box of 50 each 344621 Tubes, 367101 Spacer, 348123 Tube Rack, 347373 Vise, 355875 Plug and Cell, 349290 Washer and Plug, 927208 Hemostats, 338765 Stem Lifter, 306812 Spinkote™ Lubricant and 335148 Vacuum Grease, 976959 Torx Wrench Adapter.

No. 367099. MLN-80 Near-Vertical Tube Rotor Assembly.

Tubes and Bottles

Tube Style/Material	Vol. (mL)	Part No.	Quantity	Size (mm)	Required Caps/ Spacers (qty. 1)	Required Adapters (qty. 1)	<i>g</i> -Force	<i>k</i> factor	Max. Speed
Quick-Seal® Polyallomer	4.2	356562	50	16 x 38	349289	—	390 000	16	80 000
	6.3	345830	50	16 x 45	367312 349289 367313	—	390 000	18	80 000
	8.0	344621	50	16 x 58	367101	—	390 000	20	80 000

Rotor Accessories

- 306812 Spinkote Lubricant (2 oz)
- 335148 Silicone Vacuum Grease (1 oz)
- 338765 Floating Spacer Removal Tool
- 339379 Rotor Cleaning Brush
- 339555 Beckman Solution 555 (1qt)
- 339558 Rotor Cleaning Kit
- 356306 Hex Plug Adapter
- 358312 Quick-Seal Cordless Tube Topper Kit, 60 Hz
- 358313 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Europe)
- 358314 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Great Britain)
- 358315 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Australia)
- 361668 Tube Removal Tool
- 367803 Quick-Seal Cordless Tube Topper Kit, 50 Hz (Canada)
- 858121 Torque Wrench

Rotor Replacement Parts

- 355875 Plug, Cell
- 349290 Washer, Seal
- 976959 Torx Wrench Adapter
- 349290 Plug Gasket
- 347373 Rotor Vise Assembly

Adapters/Spacers

349289 367101 367312 367313

