LORDERAN

TECHNICAL DATASHEET
DS-TGL-21M-EN · REV. B · NOV 2026

LABORATORY CENTRIFUGE

Benchtop **High-Speed Refrigerated Centrifuge**

One bench for both jobs — angle rotors to **21,000 rpm / 30,642 × g** for micro tubes, and swing rotors up to **4 × 750 ml**.

MODEL **TGL-21M**





FRONT



LID OPEN

21,000 rpm MAX SPEED	**30,642** × g MAX RCF	**4 × 750 ml** MAX CAPACITY	**−20…+40** °C TEMPERATURE RANGE
±1 °C TEMPERATURE ACCURACY	**±10** rpm SPEED ACCURACY	**14** ROTORS IN 2 TYPES	**1** year WARRANTY

01 **High speed, high capacity**
Micro tubes at 30,642 × g and bottles to 750 ml in one machine.

02 **rpm ⇄ × g in real time**
Set either value; the other is converted live.

03 **Three layers of protection**
Imbalance, lid and overspeed, plus rotor recognition.

APPLICATIONS
Molecular biology · Protein work · Clinical samples · Cell culture

1 year warranty
Major defects: full refund or replacement.

Free DDP shipping
Duties paid, no surprise import charges.

30-day returns
Most new, unopened items.

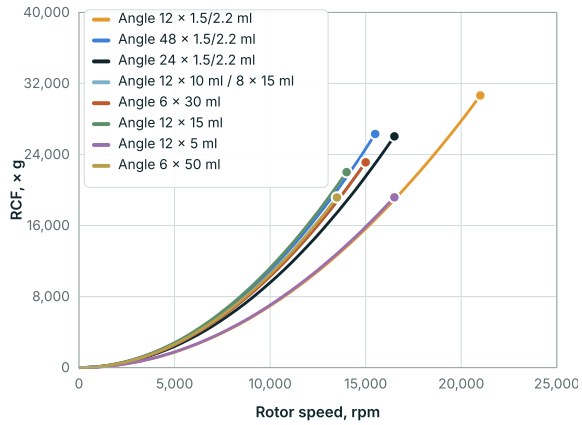
PRODUCT OVERVIEW

High-speed and high-capacity, on one bench

TGL-21M covers both ends of the work: fixed-angle rotors spin micro tubes up to 21,000 rpm and 30,642 × g for nucleic acid and protein work, while swing rotors take blood tubes, conical tubes and bottles up to 4 × 750 ml. An imported compressor with R404A keeps samples cold at full speed.

Protocols are written in × g because force, not speed, does the separating — and the same rpm gives more force in a larger rotor. Set **speed or force** directly, and a method moves between rotors and laboratories without conversion.

Speed vs. force. RCF rises with the square of speed. Each curve ends at that rotor's rated maximum.



HOW IT WORKS

01 Rotor recognition
Speed limit set per rotor.

02 Refrigeration
Imported compressor unit, R404A refrigerant (CFC-free); holds −20 to +40 °C through the run.

03 Drive control
9 up / 10 down: Acceleration and braking levels

04 Controller
LCD touch screen. 3 run modes: Program, curve or preset

05 Lid and protection
Imbalance, lid and overspeed protection work together, and automatic rotor recognition caps speed at each rotor's limit.

MAX SPEED
21,000 rpm
±10 rpm speed accuracy

MAX RCF
30,642 × g
12 × 1.5/2.2 ml rotor, r ≈ 62 mm

TEMPERATURE
−20…+40 °C
±1 °C accuracy

NOISE
< 65 dB(A)
measured at the instrument

RELATIVE CENTRIFUGAL FORCE

$$RCF = 1.118 \times 10^{-6} \times r \times n^2$$

r = radius in mm · n = speed in rpm. Example: the 12 × 1.5/2.2 ml rotor at 21,000 rpm, r ≈ 62 mm, gives **30,642 × g**.

Write methods in × g

RCF = 1.118 × 10^{-6} × r × n^2. Quote force, and any rotor can reproduce the run.

Balance every load

Fill opposite positions with equal mass. Good balance protects the drive and the run.

Pre-cool for sensitive samples

Run the empty chamber and rotor down to temperature before loading heat-sensitive material.

FEATURES

Controlled from micro tubes to 750 ml bottles



Control panel
LCD touch screen



Chamber and rotor
Chamber -20 to +40 °C



Outer size
734 × 620 × 445 mm (L × W × H), 100 kg net

01 Operation & programs

- **LCD touch screen** — Clear status and set-up
- **3 run modes** — Program, curve or preset
- **rpm ⇄ × g** — Converted in real time
- **9 up / 10 down** — Acceleration and braking levels

02 Drive & refrigeration

- An imported compressor with CFC-free R404A refrigerant holds the set temperature at up to 21,000 rpm, and shuts down within 3 minutes once the lid opens.
- **R404A cooling** — CFC-free; stops 3 min after lid opens
- **Silicone seal ring** — Meets GMP requirements

03 Safety

- Imbalance, lid and overspeed protection work together, and automatic rotor recognition caps speed at each rotor's limit.
- **Imbalance, lid, overspeed** — Three layers of protection
- **Rotor recognition** — Speed limit set per rotor

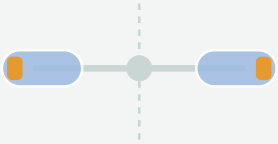
04 Rotors & capacity

- **14 rotors in 2 types** — angle, swing
- Max capacity **4 × 750 ml**
- Highest force: **angle 12 × 1.5/2.2 ml**, 21,000 rpm / 30,642 × g
- Every bucket, holder and adapter listed in the rotor table

ROTOR TYPES



Angle rotor
Tubes sit at a fixed angle. The fastest option; the pellet forms on the tube wall.



Swing rotor
Buckets swing out level. A flat pellet at the bottom; best for blood, layers and large volumes.

TECHNICAL SPECIFICATIONS

Technical specifications

Specification	
PERFORMANCE	
Max speed	21,000 rpm
Max RCF	30,642 × g
Max capacity	4 × 750 ml
Speed accuracy	±10 rpm
Time setting	1 s – 99 min 59 s / 1 min – 99 h 59 min
Temperature range	−20 to +40 °C
Temperature accuracy	±1 °C
Display	LCD touch screen

Specification	
POWER AND COOLING	
Compressor	Imported compressor unit, R404A refrigerant (CFC-free)
Noise	< 65 dB(A)
Power supply	AC 220 V, 50 Hz, 20 A
Power	1.5 kW
SIZE AND WEIGHT	
Outer size	734 × 620 × 445 mm (L × W × H)
Crate size	910 × 720 × 620 mm (L × W × H)
Net weight	100 kg

Specifications from the LORDERAN product documentation. Subject to change without notice for product improvement.

ROTORS AND ACCESSORIES

14 rotors, every bucket and adapter

Type	Rotor	Max rpm	Max × g	r, mm*	Buckets, holders and adapters
SWING	**4 × 750 ml**	4000	3780	211	750 ml bucket · 750 ml bottle · 4 × 21 × 1.5 ml · 4 × 24 × 5/7 ml vacuum tubes · 4 × 37 × 5/7 ml · 4 × 20 × 10 ml snap cap · 4 × 14 × 15 ml · 4 × 12 × 20 ml · 4 × 5 × 50 ml · 4 × 3 × 100 ml · 4 × 250 ml · 4 × 500 ml · 4 × 7 × 50 ml · 4 × 15 × 15 ml
SWING	**4 × 500 ml**	4000	3040	170	500 ml bucket · 500 ml bottle · 4 × 19 × 5/7 ml vacuum tubes · 4 × 9 × 15 ml · 4 × 7 × 20 ml · 4 × 14 × 10 ml · 4 × 3 × 50 ml · 4 × 100 ml · 4 × 250 ml · 4 × 24 × 5 ml vacuum tubes · 4 × 37 × 7 ml · 4 × 14 × 5/7 ml aerosol-tight cover · 4 × 19 × 5/7 ml aerosol-tight cover
SWING	**Square buckets** Square buckets and microplate carriers for the swing rotors			—	Square bucket · 4 × 2 × 96 microplate carrier · 4 × 25 × 1.5 ml · 4 × 28 × 5 ml vacuum tubes · 4 × 20 × 10 ml snap cap · 4 × 10 × 15 ml · 4 × 4 × 50 ml · 4 × 250 ml
ANGLE	**12 × 1.5/2.2 ml**	21,000	30,642	62	Adapters 0.2, 0.5 ml
ANGLE	**24 × 1.5/2.2 ml**	16,500	26,050	86	Adapters 0.2, 0.5 ml
ANGLE	**48 × 1.5/2.2 ml**	15,500	26,307	98	Adapters 0.2, 0.5 ml
ANGLE	**12 × 5 ml**	16,500	19,175	63	Adapters 0.5, 1.5 ml
ANGLE	**12 × 10 ml / 8 × 15 ml**	15,000	23,120	92	Adapters 1.5, 5 ml
ANGLE	**12 × 15 ml**	14,000	22,011	100	Adapters 0.5, 1.5 ml

Type	Rotor	Max rpm	Max × g	r, mm*	Buckets, holders and adapters
ANGLE	6 × 30 ml	15,000	23,120	92	
ANGLE	6 × 50 ml	13,500	19,166	94	
ANGLE	8 × 50 ml	12,000	17,615	109	Adapters 1.5, 5, 10, 15, 20, 30 ml
ANGLE	6 × 85 ml	12,000	15,805	98	Adapters 15, 20, 50 ml
ANGLE	6 × 100 ml	10,000	11,960	107	Adapters 10, 20 ml

* Effective radius calculated from the rated values, r = RCF / (1.118 × 10^{-6} × n^2). Reference figure for converting between rpm and × g; not measured rotor geometry.

AT A GLANCE

INSTRUMENT

TGL-21M

Outer size, L × W × H
734 × 620 × 445 mm

Net weight
100 kg

Power
AC 220 V, 50 Hz, 20 A · 1.5 kW

SHIPPING

Crate

Crate size, L × W × H
910 × 720 × 620 mm

Delivery
Duty paid (DDP)

Ship date
Confirmed on order

PERFORMANCE

At full speed

Max speed / RCF
21,000 rpm · 30,642 × g

Max capacity
4 × 750 ml

Temperature
−20 to +40 °C

THE LORDERAN CENTRIFUGE RANGE · THIS MODEL HIGHLIGHTED

Model	Format	Max rpm	Max × g	Max capacity	Cooling
DL-5M	Floor	5000	4100	4 × 1000 ml	Refrigerated
D5B	Floor	5000	4640	4 × 1000 ml	Ambient
DL-5B	Floor	5000	3780	4 × 750 ml	Refrigerated
D5M	Floor	5000	3780	4 × 750 ml	Ambient
TDL-5A	Bench	5000	4390	4 × 2 × 100 ml	Refrigerated
TDL-8A	Bench	8000	9100	4 × 500 ml	Refrigerated
L580R	Bench	5800	5060	4 × 750 ml	Refrigerated
TGL-21M	**Bench**	**21,000**	**30,642**	**4 × 750 ml**	**Refrigerated**
H2500R	Floor	25,000	64,983	4 × 1000 ml	Refrigerated
H2100R	Floor	21,000	50,400	6 × 500 ml	Refrigerated
GL-25M	Floor	25,000	64,983	4 × 1000 ml	Refrigerated
GL-21M	Floor	21,000	50,400	6 × 500 ml	Refrigerated
BH2500R	Floor	25,000	64,983	4 × 1000 ml	Refrigerated
BH2300R	Floor	23,000	60,900	4 × 1000 ml	Refrigerated
BH2200R	Floor	22,000	52,000	6 × 600 ml	Refrigerated
BH2100R	Floor	21,000	50,400	6 × 500 ml	Refrigerated

APPLICATIONS & SERVICE

Where it works, and what comes with it

Molecular biology

DNA and RNA extraction in micro tubes at up to 30,642 × g, chilled to protect nucleic acids.

Protein work

Clarify cell lysates and precipitate proteins in 5 to 100 ml angle rotors.

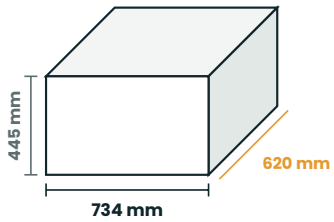
Clinical samples

Switch to a swing rotor for blood collection tubes, conical tubes and bottles up to 750 ml.

Cell culture

Harvest and wash cells at low speed, then move to high speed without changing machines.

Footprint. Outer dimensions drawn from the specifications.



INSTALLATION

Floor or bench
Level, rigid surface rated for the 100 kg instrument plus rotor and load.

Power
AC 220 V, 50 Hz, 20 A; 1.5 kW.

Clearance
Keep the air vents free so the refrigeration can reject heat.

Footprint
734 × 620 × 445 mm (L × W × H)

WARRANTY & SERVICE

1 year warranty
Major defects under warranty: full refund or replacement.

30-day returns
Return most new, unopened items within 30 days.

Free DDP shipping
Delivered duty paid, no surprise import charges.

Formal quotation
PDF quote on request, with a confirmed ship date.

Request a quotation

Send your application, model and quantity through www.lorderan.com and we will reply with a formal PDF quotation.

DS-TGL-21M-EN · Rev. B · Nov 2026 · Calculated values are reference figures. Specifications may change without notice for product improvement.

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Laboratory and environmental test equipment