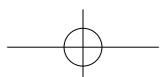
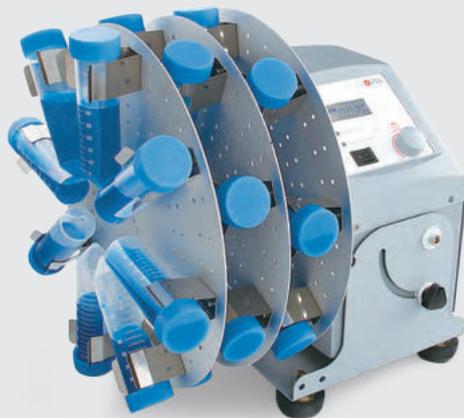
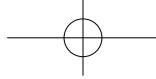


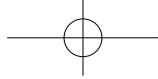
Miscellaneous





DLAB mixers range can be divided into different series as per mixing speed, working mode, load capacity etc:

| Series | Image | Model | Speed Range | Working mode | Capacity | Page |
|--------------------|---|-----------|--------------------|--|--|-------|
| Vortex Mixer |  | MX-S | 0~2500rpm | Orbital (touch + continuous modes) | - | P.115 |
| |  | MX-F | 2500rpm (fixed) | Orbital (touch + continuous modes) | - | P.115 |
| |  | MX-E | 3000rpm (fixed) | Orbital (touch mode) | - | P.116 |
| Cell disruptor |  | MX-C | 0~2500rpm | Orbital (touch + continuous modes) | 8x2ml | P.118 |
| Microplate Mixer |  | MX-M | 0~1500rpm | Orbital (continuous mode) | 0.5Kg | P.122 |
| Roller Mixer |  | MX-T6-Pro | 0~70rpm | 360° rocking&rolling (timer + continuous) | 4Kg | P.127 |
| |  | MX-T6-S | 0~70rpm | 360° rocking&rolling (continuous) | 4Kg | P.127 |
| Rocking Rotator |  | SK-R30S-E | 0~30rpm | 30±3° rocking (continuous) | 10x10ml, 4x50ml | P.126 |
| |  | SK-R30L-E | 0~30rpm | 30±3° rocking (continuous) | 16x10ml 6x50ml | P.126 |
| |  | SK-R30D-E | 0~30rpm | 40±3° rocking (continuous) | 32x10ml, 12x50ml | P.126 |
| Disk Rotator |  | MX-RD-Pro | 10~70rpm | 360° rolling (timer + continuous) | 60x1.5ml, 16x15ml, 8x50ml, (available for 3 layers) | P.123 |
| |  | MX-RD-E | 0~80rpm | 360° rolling (continuous) | 48x2ml, 16x15ml, 8x50ml | P.123 |
| Rotisserie Rotator |  | MX-RL-Pro | 10~70rpm | 360° rolling (timer + continuous) | 48x1.5ml, 24x15ml, 24x50ml | P.124 |
| |  | MX-RL-E | 0~80rpm | 360° rolling (continuous) | 32x2ml, 20x15ml, 16x50ml | P.124 |



DLAB shaker series can be divided to different types as per different motion models:

| Series | Image | Model | Plate Size | Display | Speed Range | Max. Load Capacity | Page |
|----------------|---|--------------|-------------|---------|-------------|--------------------|-------|
| Orbital Shaker |  | SK-O330-Pro | 32x32cm | LCD | 100-500rpm | 7.5Kg | P.128 |
| |  | SK-O180-Pro | 25x24.5cm | LCD | 100-800rpm | 2.5Kg | P.128 |
| |  | SK-O180-S | 24x21.5cm | LED | 40-200rpm | 3Kg | P.128 |
| |  | SK-O330-M | 33.5x33.5cm | LCD | 70-400rpm | 3Kg | P.130 |
| Linear Shaker |  | SK-L330-Pro | 32x32cm | LCD | 100-350rpm | 7.5Kg | P.131 |
| |  | SK-L180-Pro | 25x24.5cm | LCD | 100-350rpm | 2.5Kg | P.131 |
| |  | SK-L180-S | 24x21.5cm | LED | 40-200rpm | 3Kg | P.131 |
| Rocking Shaker |  | SK-R330-Pro | 30x28.5cm | LCD | 10-70rpm | 10Kg | P.133 |
| |  | SK-R1807-S | 24x21.5cm | LED | 10-80rpm | 3Kg | P.133 |
| 3D Shaker |  | SK-D3309-Pro | 30x28.5cm | LCD | 10-70rpm | 5Kg | P.135 |
| |  | SK-D1807-S | 24x21.5cm | LED | 10-80rpm | 3Kg | P.135 |

DLAB Vortex Mixers are ideal instruments for mixing liquid components in tubes, resuspension of cells, using an eccentric mechanism. They are widely used in biological and chemical analysis applications.

MX-S Vortex Mixer

MX-F Vortex Mixer

Features

- Touch operation or continuous mode
- Variable speed control from 0 to 2500rpm (MX-S)
- Fixed Speed 2500rpm (MX-F)
- Used for various mixing applications with optional adapters (MX-S)
- Specially designed vacuum suction feet for body stability
- Robust aluminum-cast construction



Wide range of accessories

| Specifications | MX-S (Adjustable speed) | MX-F (Fixed speed) |
|---------------------------------|--------------------------------|--------------------------------|
| Voltage | 100-120V/200-240V,50/60Hz | 100-120V/200-240V,50/60Hz |
| Power | 60W | 60W |
| Mixing motion | Orbital | Orbital |
| Orbital diameter | 4mm | 4mm |
| Motor type | Shaded pole motor | Shaded pole motor |
| Motor rating input | 58W | 58W |
| Motor rating output | 10W | 10W |
| Speed range | 0-2500rpm | 2500rpm |
| Speed display | Scale | - |
| Run type | Touch operation/ Continuous | Touch operation/ Continuous |
| Dimension[W×H×D] | 127×130×160mm | 127×130×160mm |
| Weight | 3.5kg | 3.5kg |
| Permissible ambient temperature | 5-40°C | 5-40°C |
| Permissible relative humidity | 80%RH | 80%RH |
| Protection class | IP21 | IP21 |

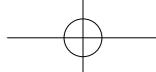


VT1.1 Standard top (Default)

for \varnothing30mm tubes and small vessels

Cat. No.18900034





MX-E Economic Vortex Mixer

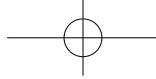
Features

- For small amount of sample mix
- Touch operation
- Fixed speed: 3000rpm
- Small and beautiful
- DC brushless motor, stable performance



Specifications

| | MX-E |
|--|-------------|
| Power supply [VAC] | 100-240 |
| Frequency [Hz] | 50/60 |
| Power [W] | 12 |
| Mixing motion | Orbital |
| Revolving diameter [mm] | 4.8 |
| Motor rating output[W] | 10 |
| Rotational speed [rpm] | 3000 |
| Operating mode | Inching |
| External dimension [mm] | 133×133×80 |
| Dimension of packing box [mm] | 250×185×130 |
| Weight [kg] | 0.6 |
| Allowable environment temperature [°C] | 5-40 |
| Permissible Ambient Temperature | ≤80%RH |
| Protection class | IP21 |



VT1.2 Tube holding rod

used with tube adapters

Cat. No. 18900044

VT1.3 Universal top plate

Ø 100mm

Cat. No.18900505



VT1.3.1 tube adapter

for 48 holes test tubes, Ø6mm (1ml)

Cat. No.18900020



VT1.3.2 tube adapter

for 15 holes test tubes, Ø10mm (1.5ml-2ml)

Cat. No.18900021



VT1.3.3 tube adapter

for 16 holes test tubes, Ø12mm (5ml)

Cat. No.18900022



VT1.3.4 tube adapter

for 8 holes test tubes, Ø16mm (10ml)

Cat. No.18900023



VT1.3.5 tube adapter

for 8 holes test tubes, Ø20mm (10ml-15ml)

Cat. No.18900024



VT1.3.6 Platform pad

for $\lt; \text{Ø}99\text{mm}$ tubes and small vessels

Cat. No.18900043



Application of accessories

| Accessories | Adjustable speed model (0-2500rpm) | |
|-----------------|---------------------------------------|-------------------------------------|
| | Touch mode (High speed area) | Continuous mode (Low speed area) |
| VT1.1 | Y | Y |
| VT1.2 + VT1.3.1 | Y | |
| VT1.2 + VT1.3.2 | Y | |
| VT1.2 + VT1.3.3 | Y | |
| VT1.2 + VT1.3.4 | Y | |
| VT1.2 + VT1.3.5 | Y | |
| VT1.3 + VT1.3.6 | Y | |
| VT1.3 + VT1.3.1 | | Y |
| VT1.3 + VT1.3.2 | | Y |
| VT1.3 + VT1.3.3 | | Y |
| VT1.3 + VT1.3.4 | | Y |
| VT1.3 + VT1.3.5 | | Y |

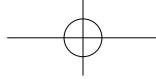


VT1.3.7 vacuum chuck

made of rubber

Cat. No.18900158





MX-C Cell Disruptor

Cell disruption is the method or process for releasing biological molecules from inside a cell. The cell suspension and the microbeads are fully mixed under controlled rapid oscillation. The microbeads and the cells shear and collide with each other effectively breaking the cell wall and releasing its contents. Best suited for research work in laboratories ideal for accurate, reproducible, repeatable results.

Features

- Easy to operate Rapid hands-free disruption
- Processes at a Constant, Controlled Shear Rate
- Simultaneous processing of multiple samples
- Maintains genome integrity of the biological samples
- Facilitates subsequent purification



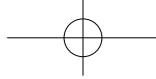
Key Applications

Suitable for all sample types; Lysing highly contagious samples; Lysis of yeast and fungi; Used for Isolation of PCRReady Genomic DNA from Fecal Samples; Used for Isolation of PCR-Ready Genomic DNA from Fungi and Bacteria Samples; Used for Isolation of PCR-Ready Genomic DNA from Soil Samples; DNA & RNA Purification; Lysis of bacteria; Lysis of soft tissues; Isolation of genomic DNA; Purification of DNA; Cell Lysis; Used to lyse cell wall of yeast; Break hard/brittle samples.

The Cell Disruptor effectively solves the cell disruption difficulties caused by cell wall structure and cell number.

1. The cell wall of Gram-positive bacteria is mainly composed of peptidoglycan and acid polysaccharide. The cell walls of various yeasts and fungi are mainly composed of polysaccharides and proteins, and their dense network structure is not easy to break.
2. Some samples are more rare and precious and limited in number or volume.
3. Inappropriate crushing methods may cause genome breakage and affect subsequent experiments.

| Specifications | MX-C |
|-----------------------|--|
| Functions | Disrupts cells, yeast, bacteria, algae, fungi, etc. to prepare cell lysates for further processing |
| Mixing motion | High-speed circumferential vortex and oscillation function |
| Orbital diameter [mm] | 4 |
| Speed range [rpm] | 0-2500 (Adjustable) |
| Speed display | Scale |
| Capacity | 8x2mL |
| Voltage [VAC] | 200-240V/ 100-120V, 50/60 Hz, 60W |
| Dimension [mm] | 127x130x160 |
| Weight [kg] | 3.5 |



For most research of microorganism and algae, the cell wall lysis is the first step, no matter what the subsequent process is such as sequencing, identification and cloning, or intracellular substances research such as various proteins and other biomolecules. The existing common cell disruption methods has its own disadvantages which are explained below:

| Common methods | Disadvantage |
|------------------------------|---|
| Enzymatic method | It is not versatile. Different microorganism need different enzymes, and their effects are different. Enzymes cause product inhibition, and its price is high. |
| Chemical method | The addition of chemical reagents will form new pollution, adding trouble to further separation and purification. |
| Ultrasonic method | It is easy to generate heat during the ultrasonic process, which may cause protein denaturation and destroy molecular activity. |
| Liquid nitrogen grinding | The operation is required fast, and it is easy to be frostbite if the operation is careless. Only one sample can be processed one time. |
| Repeated freeze-thaw | This method can be used for bacteria with weak cell walls, but the process takes longer time. The freeze-thawing time and frequency need to be optimized to preserve cell lysate. |
| High-pressure homogenization | It is suitable for large number of samples. Gram-positive bacterial and fungal hyphae may cause blockage and damage to the instrument, and its cost is high too. |

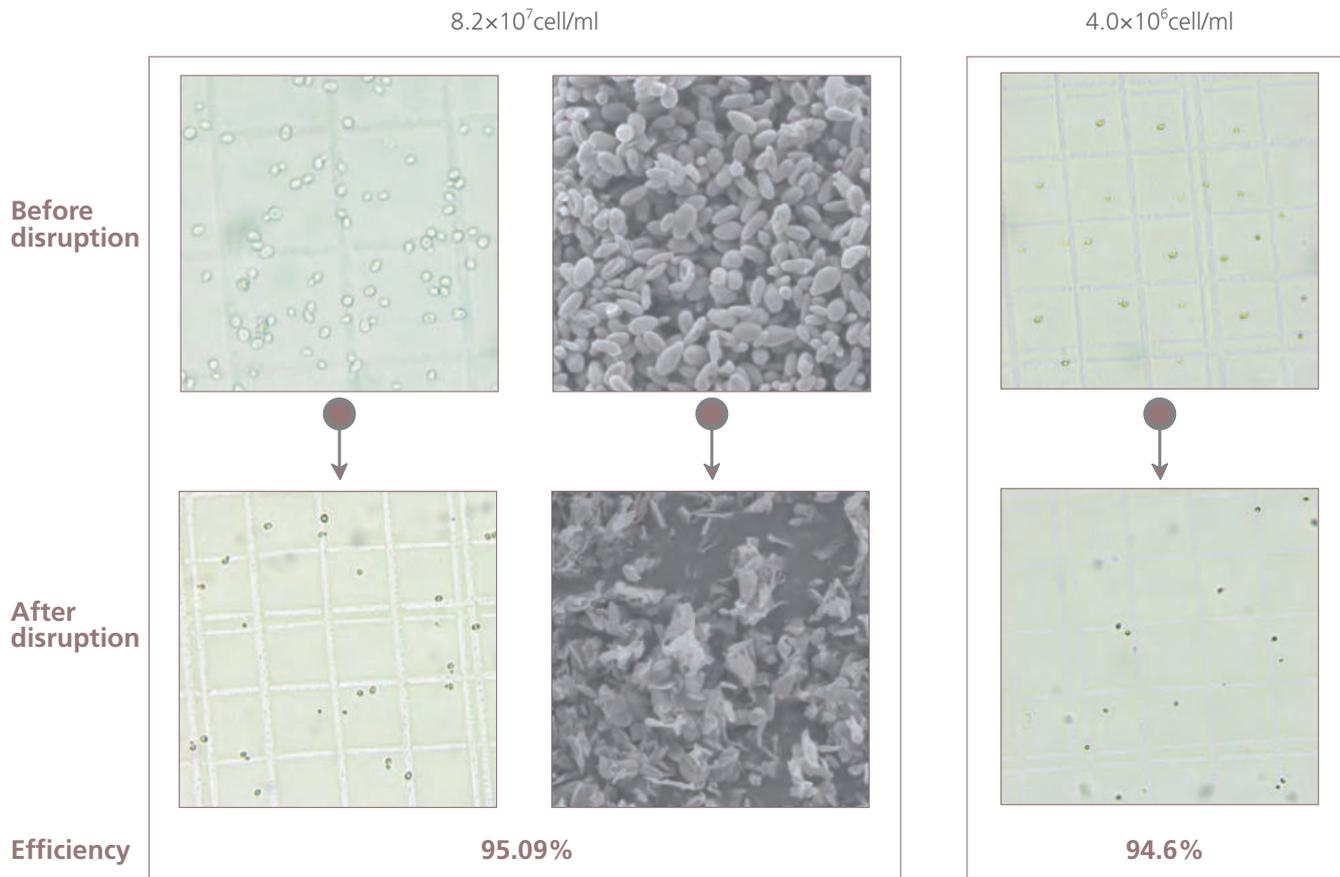
Application Examples

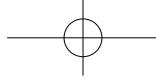
1 Yeast cells

1ml yeast solution (OD600=1) is diluted 10 times and counted using microscope (magnification $\times 400/\times 1000$). Add 0.5g 1mm/0.2mm mixed microbeads and 300ul yeast solution to the 2ml centrifuge tube. Set maximum rotation to disrupt for 5 minutes. Then count again using microscope quantification.



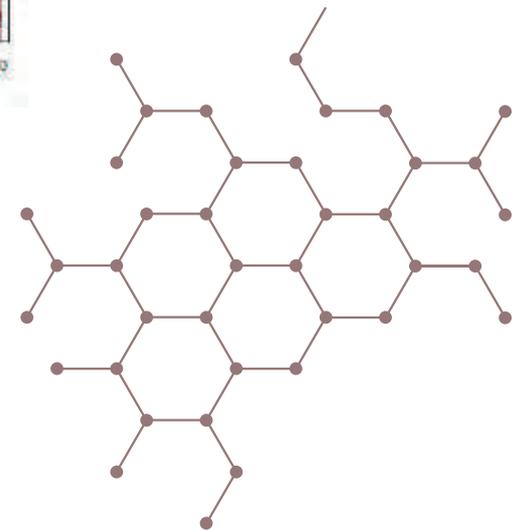
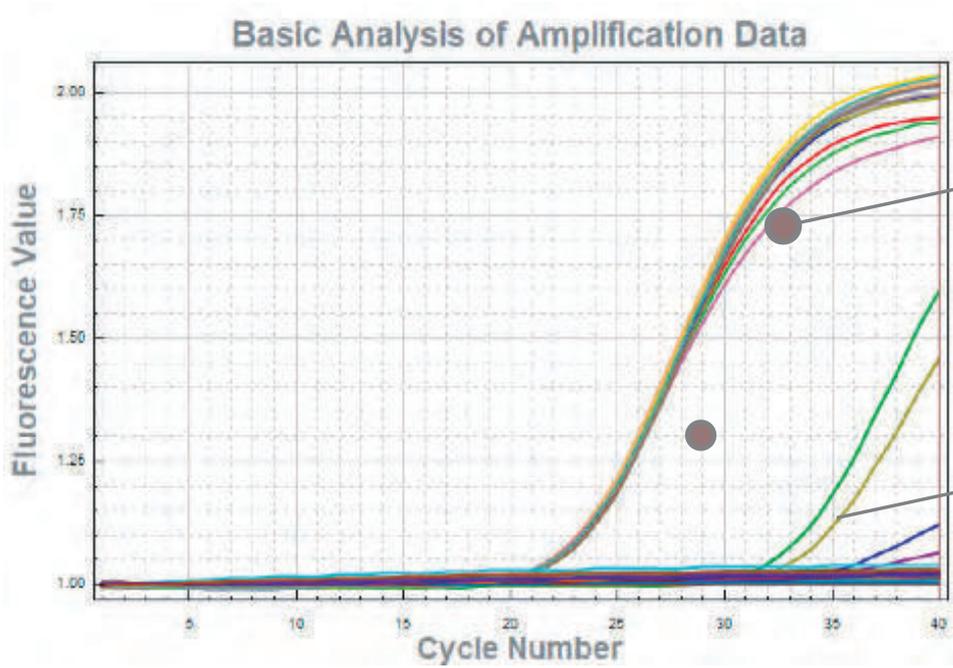
Microscopic verification



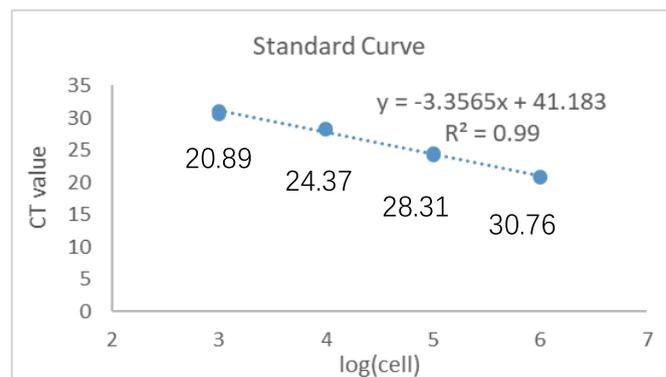
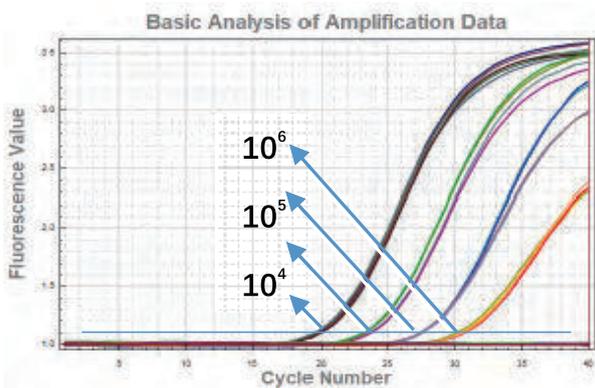


QPCR verification

Extract the genomes of 10^6 cell for QPCR verification.



A total of 10^6 yeast cells were serially diluted to 10^5 , 10^4 , and 10^3 . Genome was extracted after cell disruption, and then verified by QPCR.



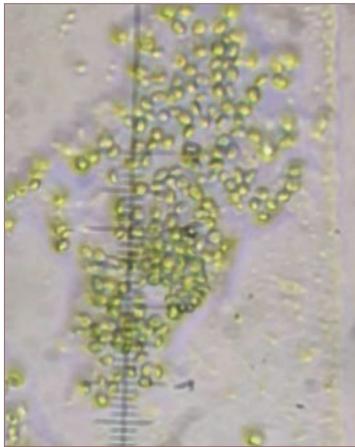
$R^2 = 0.99$. It indicate that the cell disruption efficiency is basically the same when cells number are in the range of 10^3 - 10^6 . This method is very suitable for rare-cell analysis.

2 / Chlorella cells

Use the same method to disrupt Chlorella cells.

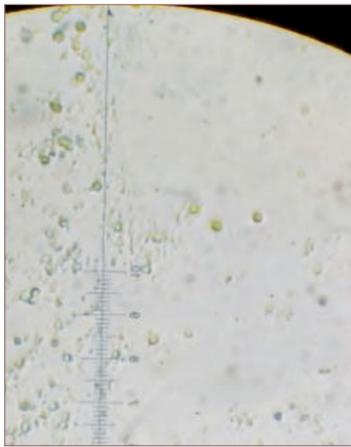
Microscopic verification

Untreated Solution



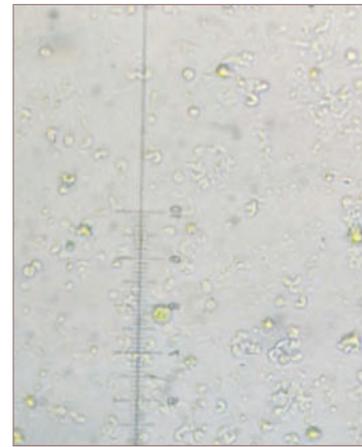
The cell structure can be clearly observed

Disruption Time: 3min



Large amount of cell debris and a small amount of unbroken cell structure can be observed.

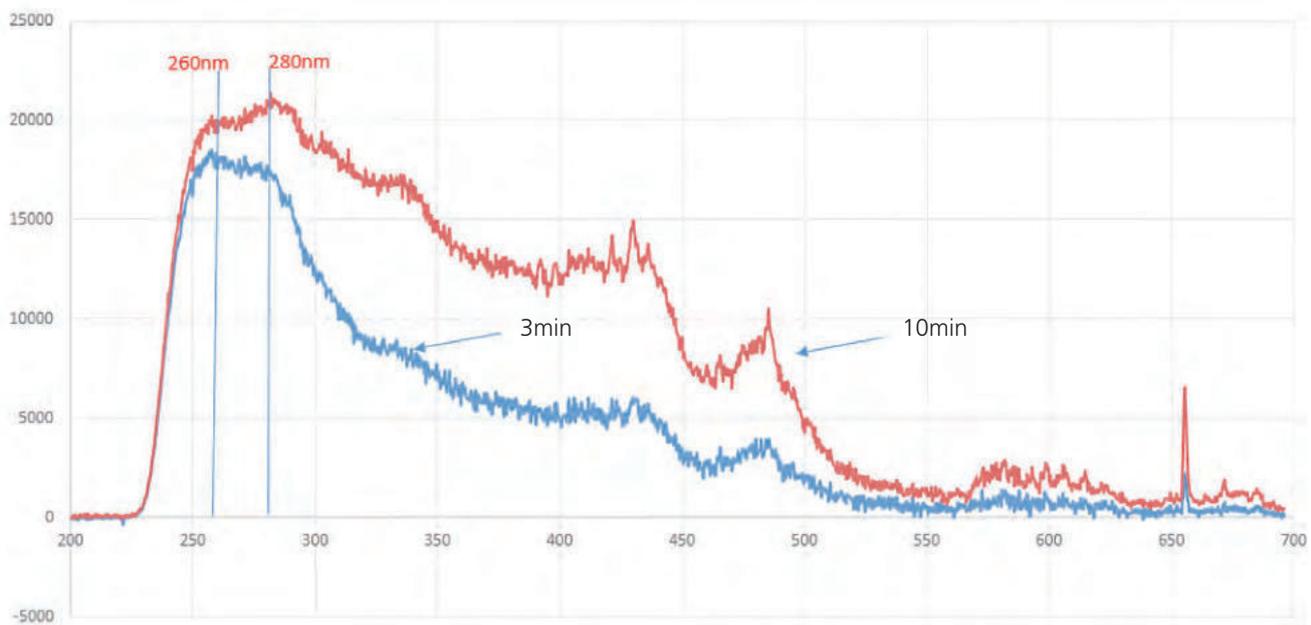
DisruptionTime:10min

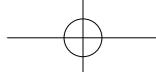


A large amount of cell debris is observed.

Spectrophotometer verification

The broken cells were filtered with 0.45 μ m filter membrane. The spectral absorbance was measured with spectrophotometer. There was an obvious absorption at 260 nm and 280 nm after 3min disruption, but the difference of absorbance at 10 min and at 3 min was small.





D LAB Microplate Mixer is used for holding single or double microplates. The compact shape of MX-M Microplate Mixer occupies less bench space and makes the storage easier. It is widely used in life sciences including microbiology, cell and molecular biology, immunology and biotechnology.

MX-M Microplate Mixers

Features

- A wide range of speed from 0 to 1500rpm
- Used for various mixing applications with optional adapters
- Maintenance-free brushless DC motor



Brushless DC motor



Wide range of accessories



PS1.2 Microplate clamp(Default)

Cat. No.18900042



PS1.1 Universal top plate

Used with tube adapters

Cat. No.18900067



VT1.3.1 tube adapter

for 48 holes test tubes, Ø6mm

Cat. No.18900020



VT1.3.2 tube adapter

for 15 holes test tubes, Ø10mm

Cat. No.18900021



VT1.3.3 tube adapter

for 12 holes test tubes, Ø12mm

Cat. No.18900022



VT1.3.4 tube adapter

for 8 holes test tubes, Ø16mm

Cat. No.18900023



VT1.3.5 tube adapter

for 8 holes test tubes, Ø20mm

Cat. No.18900024



MXM-116

Double microplate clamps

Cat. No.18900079

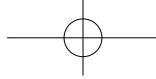


Specifications

Shaking movement
Orbital diameter
Max. shaking weight (with accessory)
Motor type
Motor rating input
Motor rating output
Speed range
Speed display
Voltage
Power
Dimension
Weight
Permissible ambient temperature and humidity
Protection class

MX-M

Orbital
4.5mm
0.5kg
Brushless DC motor
18W
10W
Single microplate: 0-1500rpm
Double microplate: 0-1000rpm
Scale
100-240V,50/60Hz
20W
260×150×80mm
3kg
5-40°C,80%RH
IP21

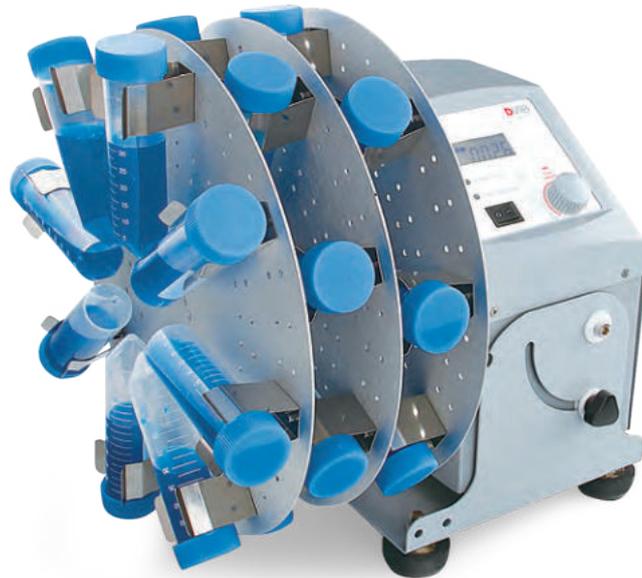


DLAB rotators give gentle but effective mixing of biological samples held in 1.5mL to 50mL tubes, and are used in a variety of applications including immune precipitations, prevention of blood coagulation, latex diagnostics, etc.

MX-RD-Pro LCD Digital Rotator

Features

- Electronic adjustment of speed and time
- LCD display of speed and time
- Speed range from 10 to 70rpm
- Rolling action, gives gentle but effective mixing
- Adjustable mixing angle from 0 to 90°
- A wide variety of accessories are available



MX-RD-E Economical Rotator

Features

- Provides gentle and effective mixing of biological samples
- Adjustable speed range from 0 to 80rpm
- A wide variety of accessories are available



LCD display



Adjustable angle

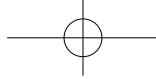


Wide range of accessories



Specifications

| | MX-RD-Pro | MX-RD-E |
|--|--------------------|-------------------|
| Motor type | DC motor | DC motor |
| Tilt angle | 0-90° | - |
| Speed range | 10-70rpm | 0-80rpm |
| Speed display | LCD | Scale |
| Timer display | LCD | Scale |
| Timer | 1-1199min | - |
| Operation mode | Continuous / timer | Continuous |
| Voltage | 100-240V, 50/60Hz | 100-240V, 50/60Hz |
| Power | 40W | 20W |
| Dimension [D×W×H] | 280×210×300mm | 300×220×310mm |
| Permissible ambient temperature and humidity | 5-40°C, 80%RH | 5-40°C, 80%RH |
| Protection class | IP21 | IP21 |



MX-RL-Pro LCD Digital Rotator

Features

- Electronic adjustment of speed and time
- LCD display speed and time
- Speed range from 10 to 70rpm
- Provides gentle but effective rolling
- A wide variety of accessories are available



MX-RL-E Economical Rotator

Features

- Provides gentle but effective rolling
- Adjustable speed range from 0 to 80 rpm
- A wide variety of accessories are available



LCD display

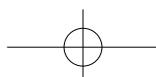


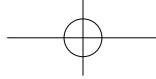
Wide range of accessories



Specifications

| | MX-RL-Pro | MX-RL-E |
|--|-------------------|-------------------|
| Motor type | DC motor | DC motor |
| Speed range | 10-70rpm | 0-80rpm |
| Speed display | LCD | Scale |
| Timer display | LCD | Scale |
| Timer | 1-1199min | - |
| Operation mode | Continuous/timer | Continuous |
| Voltage | 100-240V, 50/60Hz | 100-240V, 50/60Hz |
| Power | 40W | 20W |
| Dimension[D×W×H] | 220×510×260mm | 150×530×190mm |
| Permissible ambient temperature and humidity | 5-40°C, 80%RH | 5-40°C, 80%RH |
| Protection class | IP21 | IP21 |





Disk Accessories Type-1

Used for MX-RD-Pro
for 1.5mLx60 centrifuge tubes holder

Cat. No.

18900160



Disk Accessories Type-2

Used for MX-RD-Pro
for 15mLx16 centrifuge tubes holder

Cat. No.

18900161



Disk Accessories Type-3

Used for MX-RD-Pro
for 50mLx8 centrifuge tubes holder

Cat. No.

18900162



Disk support rods

4pcs in a group
use with disk accessories

Cat. No.

18900140



Rotisserie Accessory Type-1

Used for MX-RL-Pro, for 1.5mLx48
centrifuge tubes held horizontally

Cat. No.

18900142



Rotisserie Accessory Type-2

Used for MX-RL-Pro, for 15mLx24
centrifuge tubes held horizontally

Cat. No.

18900143



Rotisserie Accessory Type-3

Used for MX-RL-Pro, for 50mLx24
centrifuge tubes held horizontally

Cat. No.

18900144



Rotisserie Accessory Type-4

Used for MX-RL-Pro, for 1.5mLx32
centrifuge tubes held vertically

Cat. No.

18900145



Rotisserie Accessory Type-5

Used for MX-RL-Pro, for 15mLx16
centrifuge tubes held vertically

Cat. No.

18900146



Rotisserie Accessory Type-6

Used for MX-RL-Pro, for 50mLx16
centrifuge tubes held vertically

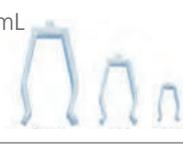
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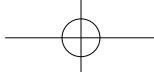
18900147



Plastic Clips

Used with MX-RL-E/MX-RD-E
Disk/Rotisserie accessory, for
50mL, 15mL and 1.5mL
centrifuge tubes





The rocking rotators combine the advantages of the long axis rotator and the rocking shaker. Compared with the rocking shaker, it can provide a greater tilt angle, for better performance in some clinical laboratory applications (such as the mixing of blood samples in vacuum blood vessels). At the same time, the series minimizes redundant functional settings for straighter and simpler user operation under clinical conditions.

SK-R30S-E Short Deck Rocking Rotator

Features

- It can accommodate up to 10 × 5~10ml blood vessels, or 4 × 50ml tubes, with different silicon mattress accessories.



New

SK-R30L-E Long Deck Rocking Rotator

Features

- It can accommodate up to 16 × 5~10ml blood vessels, or 6 × 50ml tubes, with different silicon mattress accessories.

SK-R30D-E Long Deck Double Layer Rocking Rotator

Features

- It can accommodate up to 16 × 5~10ml blood vessels, or 6 × 50ml tubes on each of the two layers with different silicon mattress accessories.
- Tilt angle up to 40°.



| Specifications | SK-R30S-E | SK-R30L-E | SK-R30D-E |
|--|--------------------|--------------------|--------------------|
| Tilt angle | 30±3° | 30±3° | 40±3° |
| Load capacity | 1kg | 1kg | 1kg |
| Motor type | Brushless DC motor | Brushless DC motor | Brushless DC motor |
| Speed range[rpm] | 0~30 | 0~30 | 0~30 |
| Operation mode | Continuous | Continuous | Continuous |
| Dimension (W×D ×H) | 295×160×120mm | 405×160×120mm | 405×160×160mm |
| Voltage | 100~240V, 50/60Hz | 100~240V, 50/60Hz | 100~240V, 50/60Hz |
| Power | 15W | 15W | 15W |
| Weight | 1.8kg | 2kg | 2.2kg |
| Permissible ambient temperature and humidity | 5~40°C, 80%RH | 5~40°C, 80%RH | 5~40°C, 80%RH |

Accessories Information



Cat. No.18202835

Silicone mattress for 16× 5~10ml blood collection tubes on long decks (SK-R30L-E&SK-R30D-E)



Cat. No.18202852

Silicone mattress for 10× 5~10ml blood collection tubes on short decks (SK-R30S-E)



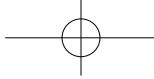
Cat. No.18202846

Silicone mattress for 6× 50ml test tubes on long decks (SK-R30L-E&SK-R30D-E)



Cat. No.18202853

Silicone mattress for 4× 50ml test tubes on short decks (SK-R30S-E)



MX-T6-Pro LCD Digital Tube Roller

Features

- LCD displays the speed and time
- Speed range of 10-70rpm
- Six roller design for gentle rolling and easy to clean
- Continuous or timer operation



MX-T6-S Tube Roller

Features

- Speed range of 0-70rpm
- Six roller design for gentle rolling and easy to clean

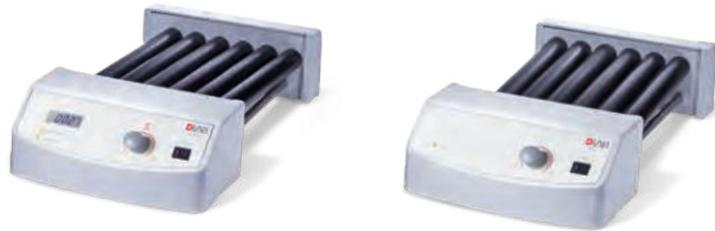
DLAB tube rollers provide a gentle and highly efficient rolling motions, ideal for mixing blood samples, viscous substances and liquid-solid suspensions. Used in a variety of applications, such as the prevention of blood coagulation, immune precipitation, etc.



LCD display



Timer



Specifications

| | MX-T6-Pro | MX-T6-S |
|--|---------------------|---------------------|
| Amplitude | 24mm | 24mm |
| Motor type | DC motor | DC motor |
| Rocking motion | Rocking and rolling | Rocking and rolling |
| Max. load capacity | 4kg | 4kg |
| Number of rollers | 6 | 6 |
| Roller size[length] | 280mm | 280mm |
| Speed range | 10 -70rpm | 0-70rpm |
| Speed display | LCD | Scale |
| Timer | Yes | - |
| Timer display | LCD | - |
| Time setting range | 1-1199min | - |
| Operation mode | Continuous/timer | Continuous |
| Voltage | 100-240V,50/60Hz | 100-240V,50/60Hz |
| Power | 30W | 25W |
| Dimension [D×W×H] | 450×260×120mm | 450×260×120mm |
| Weight | 5.1kg | 4.5kg |
| Permissible ambient temperature and humidity | 5-40°C,80%RH | 5-40°C,80%RH |
| Protection class | IP21 | IP21 |