# Seltis

# Incubator Shaker

# Seltis

## 7/10 Inches Touch Screen

Run Status

Temp. Curves

Function Running Status

Edit and Set Up To 12 Segments

Easy or Programme Control Model

Alarm History

Adjust Value

Current Value

Set Value

Run/Stop

Run All/Stop All

Main Set

High resolution touch screen enables easy operation. It displays Time, speed, temperature, humidity and all other set values.
User can set up to 12 steps for different experiment requirements.

## Sliding Out Platform

Easy Cleaning of All Corners

Easy Pull By One Hand

This slide out design makes loading and cleaning very easy. User can pull the locking handle by using just one hand to load and unload the fixtures which is fast and convenient.

## Stackable Up To 3 Units



**Suggest to use floor stand for one unit or 2 units purchase**

Users can purchase either one, two or three units which can be stacked directly on the floor. For one or two units, it is highly recommended to stack on the floor stand provided by Welso.

## Data Storage



USB port for data transmission

Welso incubator shakers record temperature, speed, concentration and humidity every minute. Users can check all records in 7 days. Or users can export 2.5 years data for future reference.

## Magnetic Drive
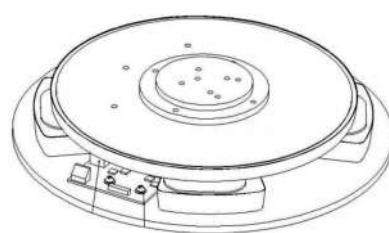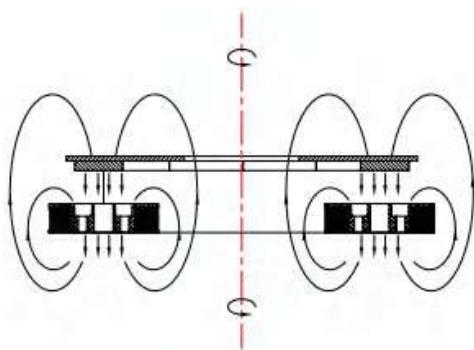


Welso incubator shaker features a magnetic drive with triple-eccentric counterbalance shafts which provides stable, reliable and consistent shaking. The magneticc non-belt drive design ensures no scraps and less maintenance which extends service life of incubator shaker even in harsh environment.

# IQ/OQ Documentation



GMP — IQ — Incubator Shaker — OQ — PQ

Seltis incubator shakers software can control and record temperature, speed, concentration, and humidity which are compatible with FDA CFR21 Part 11 for traceability. IQ/OQ documentation can be provided according to GMP procedures.

# Optional Remote Monitor



**iPhone&Ipad (Android/Apple)**

**So�ware**
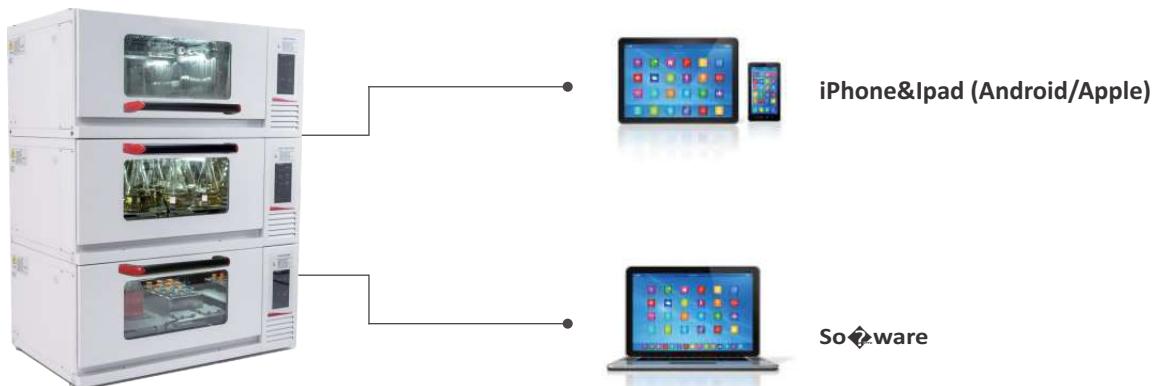
User can use software to monitor up to 32 units of incubator shakers by using LAN.

# Multiple Choices Of Accessories



| **Flask Clamp** | **Flask Holder** | **Sticky Mat** | **Fixture For Separating Funnel** |

| **Test Tube Holder** | **Test Tube Rack** | **Spring Platform** | **24-Deep Well Plate Clamp** |
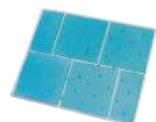
Welso provide different trays to hold flasks, test tubes, plates, vessels, bags and etc to fulfill various needs. It can maximum hold up to 8 pieces of 5L flasks.

# Seltis

## Features

- 10" high resolution LCD touch screen with simultaneous display of all parameters.
- Bi-directional ultraviolet sterilization.
- Slide-out platform for easy cleaning and accessibility of samples.
- Large capacity for batch culture and shaking.
- Optional WiFi and computer monitoring systems allow remote control to ensure safety.
- $CO_2$ infrared sensor and effective inlet filter.
- Temp. uniformity ≤±0.4°C(@37℃).
- Magnetic drive motor for stable and reliable shaking with low maintenance.

## SPECIFICATIONS

| Model | ST-SI 400 | ST-SI 400MC | ST-SI 400M | ST-SI 400 MCS |
|---|---|---|---|---|
| Product Name | Stackable Incubator Shaker, Touch Screen | Stackable Incubator Shaker With $CO_2$ Controller, Touch Screen | Stackable Incubator Shaker, Touch Screen, Shaker Diameter 50mm | Stackable Incubator Shaker With $CO_2$ Controller, Touch Screen, Shaker Diameter 50mm |
| **Shaking** | | | | |
| Orbit Diameter | 26mm | | 50mm | |
| Speed | 0 (stop), 30- 350 rpm | | | |
| Speed Accuracy | ±1rpm | | | |
| **Temperature** | | | | |
| Temp.Range | Room Temp.Minus 18℃~60℃ (lowest Temp. is 4 ℃) | | | |
| Temp.Accuracy | ±0.1℃ | | | |
| Temp.Uniformity | ±0.4℃(@37℃) | ±0.3℃(@37℃) | ±0.4℃(@37℃) | ±0.3℃(@37℃) |
| Heating Power | ≤850w | | | |
| Cooling Power | 70~230w | | | |
| **Humidity** | | | | |
| Humidity Type | NA | Evapor Naturally | NA | Evapor Naturally |
| Max.Humidity | NA | 95% | NA | 95% |
| **CO₂** | | | | |
| $CO_2$ Sensor | NA | IR | NA | IR |
| $CO_2$ Control Range | NA | 0-20% | NA | 0-20% |
| $CO_2$ Control Accuracy | NA | ±0.1% | NA | ±0.1% |
| Recover Time After Open Door 30s on Temp | ≤6min(@37℃) | | | |
| Recover Time After Open Door 30s on $CO_2$ | NA | ≤6min(@5%) | NA | ≤6min(@5%) |
| **General** | | | | |
| Platform Dimensions | 900*560mm | | | |
| Capacity | 400L | | | |
| Max.Load | 20KG | | | |
| Programmable Segments | 12 Segments | | | |
| Illumination | LED Lamps on Left and Right Walls | | | |
| Disinfection | UV Lamps on Left and Right Walls | | | |
| Protect Set Parameters | Passwords Protect | | | |
| Door Open Direction | Downward | | | |

| Data Display | Temp, Speed | Temp, Speed, $CO_2$, RH | Temp, Speed | Temp, Speed, $CO_2$, RH |
|---|---|---|---|---|
| Display | 10" High-Res Color Touch Screen | | | |
| Timer | 0-999h59min | | | |
| USB Export Data | Yes | | | |
| Screen Data Display | In 7 Days | | | |
| Operating Data Storage Cycle | More Than 912 Days | | | |
| Data Storage Interval | 1 min | | | |
| Data Stored | Time, Temp, Speed, Status | Time, Temp, Speed, Status, $CO_2$, RH | Time, Temp, Speed, Status | Time, Temp, Speed, Status, $CO_2$, RH |
| Auto-Defrost | Yes | | | |
| Auto Screen Off | Yes | | | |
| Auto Screen Lock | Yes | | | |
| Third Platform Height | 1491mm | | | |
| Platform With Rails | Yes | | | |
| Noise Level | ≤55dB(When Compressor Is Running) | | | |
| Auto-Recovery After Power Interuption | Yes | | | |
| Power | ≤950w | ≤1000w | ≤950w | ≤1000w |
| Power Supply | AC 220V±22V, 50Hz/60Hz | | | |
| RH Control | NA | Optional(10% Above Ambient Humidity, Up To 90%) | NA | Optional(10% Above Ambient Humidity, Up To 90%) |
| Mobile Monitor And Control by Wifi | Optional | | | |
| PC Monitor And Control By RS485 | Optional | | | |
| Window Cover | Optional | | | |
| Net Weight | 265kg | 270kg | 265kg | 270kg |
| Internal Working Height | 335mm | | | |
| External Dimensions | 1400*886*(600+80 Feet High)mm | | | |

# Stack Dimensions

### Three Units Down
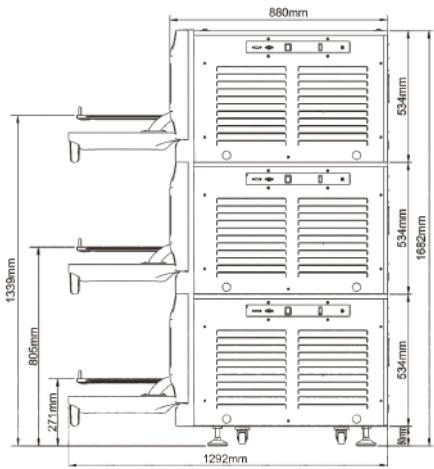


### Three Units Down And Upward Swing Door
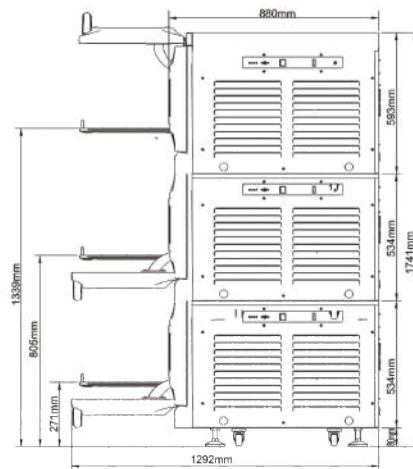


### Two Units

# Seltis
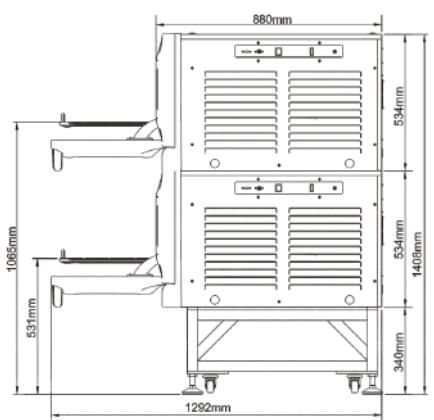


## Features

- Large capacity of 450L.
- 10" high resolution LCD touch screen with simultaneous display of all parameters.
- Large space for accommodating 5L erlenmeyer flasks.
- Stackable up to 2 units maximum.
- $CO_2$ infrared sensor and effective inlet filter.
- Triple eccentric drive for stable and reliable shaking.

## SPECIFICATIONS

| Model | ST-SI 450 | ST-SI 450MC | ST-SI 450M | ST-SI 450MCS |
|---|---|---|---|---|
| Product Name | Stackable Incubator Shaker, Touch Screen | Stackable Incubator Shaker With $CO_2$ Controller, Touch Screen | Stackable Incubator Shaker, Touch Screen, Shaker Diameter 50mm | Stackable Incubator Shaker With $CO_2$ Controller, Touch Screen, Shaker Diameter 50mm |
| **Shaking** | | | | |
| Orbit Diameter | 26mm | | 50mm | |
| Speed | 0 (stop), 30- 300 rpm | | | |
| Speed Accuracy | ±1rpm | | | |
| **Temperature** | | | | |
| Temp.Range | Room Temp.Minus 18℃~60℃ (lowest Temp. is 4℃) | | | |
| Temp.Accuracy | ±0.1℃ | | | |
| Temp.Uniformity | ±0.5℃ (@37℃) | | | |
| Heating Power | ≤850w | | | |
| Cooling Power | 70~230w | | | |
| **Humidity** | | | | |
| Humidity Type | NA | Evapor Naturally | NA | Evapor Naturally |
| Max.Humidity | NA | 95% | NA | 95% |
| **$CO_2$** | | | | |
| $CO_2$ Sensor | NA | IR | NA | IR |
| $CO_2$ Control Range | NA | 0-20% | NA | 0-20% |
| $CO_2$ Control Accuracy | NA | ±0.1% | NA | ±0.1% |
| Recover Time After Open Door 30s on Temp | ≤6min(@37℃) | | | |
| Recover Time After Open Door 30s on $CO_2$ | NA | ≤6min(@5%) | NA | ≤6min(@5%) |
| **General** | | | | |
| Platform Dimensions | 900*560mm | | | |
| Capacity | 450L | | | |
| Max.Load | 20KG | | | |
| Programmable Segments | 12 Segments | | | |
| Illumination | LED Lamps on Left and Right Walls | | | |
| Disinfection | UV Lamps on Left and Right Walls | | | |
| Protect Set Parameters | Passwords Protect | | | |
| Door Open Direction | Downward | | | |

| Data Display | Temp, Speed | Temp, Speed, $CO_2$, RH | Temp, Speed | Temp, Speed, $CO_2$, RH |
|---|---|---|---|---|
| Display | 10" High-Res Color Touch Screen | | | |
| Timer | 0-999h59min | | | |
| USB Export Data | Yes | | | |
| Screen Data Display | Displays Most Recent 7 Days Of Data | | | |
| Operating Data Storage Cycle | More Than 912 Days | | | |
| Data Storage Interval | 1 min | | | |
| Data Stored | Time, Temp, Speed, Status | Time, Temp, Speed, Status, $CO_2$, RH | Time, Temp, Speed, Status | Time, Temp, Speed, Status, $CO_2$, RH |
| Auto-Defrost | Yes | | | |
| Auto Screen Off | Yes | | | |
| Auto Screen Lock | Yes | | | |
| Third Platform Height | 1256mm | | | |
| Plateform with Rails | Yes | | | |
| Noise Level | ≤55dB(When Compressor Is Running) | | | |
| AuTo-recovery After Power Interuption | Yes | | | |
| Power | ≤950w | ≤1000w | ≤950w | ≤1000w |
| Power Supply | AC 220V±22V, 50Hz/60Hz | | | |
| RH Control | NA | Optional(10% Above Ambient Humidity, Up To 90%) | NA | Optional(10% Above Ambient Humidity, Up To 90%) |
| Mobile Monitor And Control By Wifi | Optional | | | |
| PC Monitor And Control By RS485 | Optional | | | |
| Window Cover | Optional | | | |
| Net Weight | 325kg | 325kg | 325kg | 330kg |
| Internal Working Height | 430mm | | | |
| External Dimensions | 1400*886*(700+80 Feet High)mm | | | |
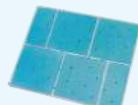
## Stack Dimensions

**Two Units**



886mm

（Downward）

700mm

1256mm

（Downward）

700mm

1740mm

556mm

340mm

1348mm
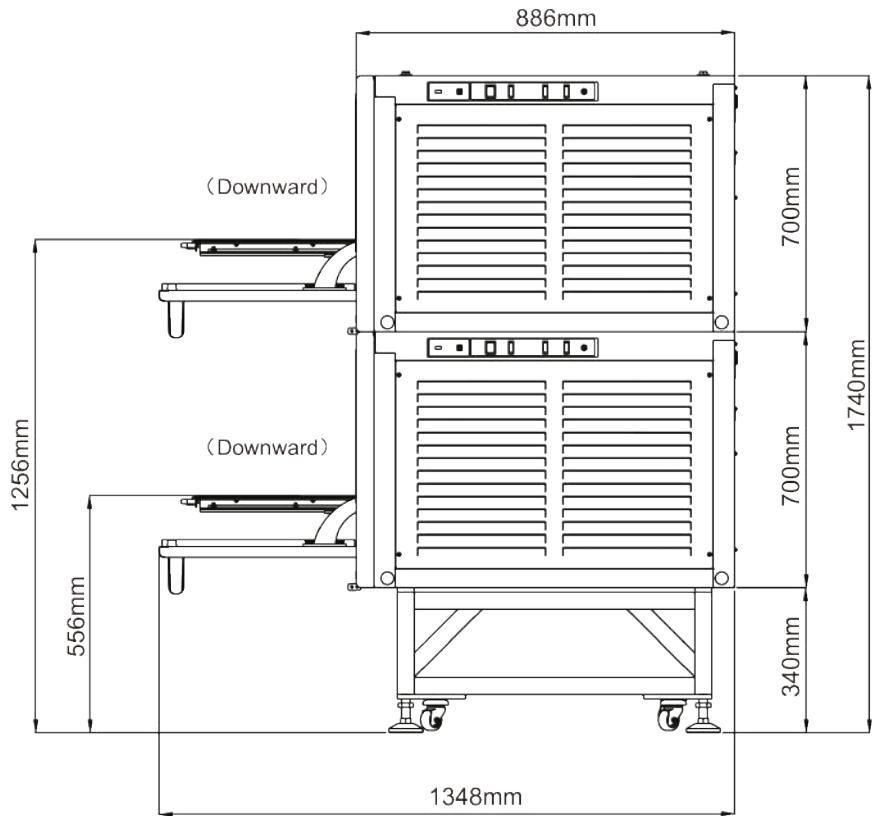
# Accessories

## Incubator Shaker Accessories

| Product | Model | Details |
|---------|-------|---------|
| Flask Clamp | ST-A1~A10<br>ST-A50 | 50mL/100mL/150mL/200mL/250mL/<br>500mL/1000mL/2000mL/3000mL/5000mL/25mL |
| Test Tube Rack | ST-A11 | 40 hole Ø14mm for 5mL Tube; W×D×H: 262×112×140mm |
| | ST-A12 | 40 hole Ø16mm for 10mL Tube; W×D×H: 262×112×140mm |
| | ST-A23 | 40 hole Ø18mm for 15mL Tube; W×D×H: 262×112×140mm |
| | ST-A24 | 27 hole Ø22mm for 20mL Tube; W×D×H: 262×112×140mm |
| | ST-A42 | 21 hole Ø30mm for 50mL Tube; W×D×H: 262×112×140mm |
| Fixed Test Tube Rack | ST-A101 | 21 hole Ø30mm for 50mL Tube; W×D×H: 262×112×142mm |
| | ST-A106 | 40 hole Ø18mm for 15mL Tube; W×D×H: 262×112×142mm |
| | ST-A103 | 10 hole Ø30mm for 50mL Tube; W×D×H: 197×86×105mm |
| | ST-A105 | 24 hole Ø16mm for 15mL Tube; W×D×H: 197×86×105mm |
| Test Tube Rack | ST-A20 | 40 hole Ø14mm for 5mL Tube; W×D×H: 267×125×172mm |
| | ST-A21 | 40 hole Ø16mm for 10mL Tube; W×D×H: 267×125×172mm |
| | ST-A30 | 40 hole Ø18mm for 15mL Tube; W×D×H: 267×125×172mm |
| | ST-A109 | 40 hole Ø16mm for 15mL Tube; W×D×H: 267×125×172mm |
| | ST-A31 | 27 hole Ø22mm for 20mL Tube; W×D×H: 267×125×172mm |
| | ST-A32 | 21 hole Ø30mm for 50mL Tube; W×D×H: 267×125×172mm |
| | ST-A102 | 21 hole Ø28mm for 50mL Tube; W×D×H: 267×125×172mm |
| Test Tube Rack | ST-A37 | 24 hole Ø30mm for 30mL Tube; W×D×H: 267×125×172mm |
| Multifunction Spring Platform | ST-A19 | W×D×H:165×165×80mm; 1.2Kg; for all shakers |
| | ST-A27 | W×D×H: 350×240×80mm; 2.5Kg |
| | ST-A22 | W×D×H: 450×400×80mm; 5.1Kg; for Bench Top Shakers |
| | ST-A14 | W×D×H: 428×295×80mm; 3.6Kg; for Upright shakers |
| | ST-A39 | W×D×H: 720×440×80mm; 11.4Kg; for ST2500 |
| | ST-A94 | W×D×H: 740×440×81.5mm; 11.6Kg; for ST2500 |
| | ST-A48 | W×D×H: 840×440×80mm; 12Kg; |
| | ST-A63 | W×D×H: 899×539×81.5mm; 13.8Kg; for ST4000, ST5000 |
| | ST-A96 | W×D×H: 550×470×80mm; 6.7Kg; for ST1900, ST1900M |
| Fixture for Separating Funnel | ST-A25 | W×D×H: 355×402×153mm; for separating funnel with 5000mL |
| | ST-A35 | for separating funnel with 500mL |
| Infusion Bottle Clamp | ST-A33 | 500mL, made of SS, for shakers platform |
| | ST-A34 | 1000mL, made of SS, for shakers platform |
| Pasteboard | ST-A36 | W×D:140×355mm; black, a little odor |
| Self-Adhesive Silica Mat | ST-A47 | W×D: 140×140mm; 1/3 water, within 2000mL can reach 280rpm,<br>within 5000mL can reach 250rpm; |
| | ST-A169 | W×D: 140×140mm; 1/3 water, within 2000mL can reach 280rpm,<br>within 5000mL can reach 250rpm; with hard flask sheet, can not deform in using |
| | ST-A122 | W×D: 140×140mm; 1/3 water, within 2000mL can reach 280rpm,<br>within 5000mL can reach 250rpm; |
| Rack for Stacking | ST-A62 | W×D×H: 1440×775×330mm support for ST5000 series stackable shakers |
| | ST-A91 | W×D×H: 1241×651×340mm support for ST2500 series stackable shakers |
| | ST-A93 | W×D×H: 971×625×340mm support for ST1900/1900M series stackable shakers |
| | ST-A118 | W×D×H: 1305×745×340mm support for ST3000 series stackable shakers |
| | ST-A154 | W×D×H: 1441×797×340mm support for ST5000 series stackable shakers |

| | | | |
|---|---|---|---|
| 96 Well Microplate Holder | ST-A13 | can be fixed on any platform of incubator shakers |
| Flask Holder | ST-A26 | 5000mL, for 5000mL flask |
| 24 Deep Well plate Holder | ST-A107 | can be fixed on 24 well plate, W×D×H |
| Deep Well plate Clamp | ST-A61 | W×D×H: 780×450×84mm, can put 21 |
| Static Separator | ST-A110 | W×D: 1005×600mm, for IS-RDS6 Series, IS-6L to put cell dish |
| | ST-A116 | W×D: 864×500mm, for IS-4 Series, IS-7L  to put cell dish |
| | ST-A162 | W×D: 600×500mm, for IS-A/AX/AM, to put cell dish |
| Double Cradle | ST-138 | W×D: 900×560mm, Height: 180mm, for IS-5/6 series, for placing culture vessel or conical bottles under 150mL, can be operated within 180rpm |
| Fixed Test Tube holder | ST-A111 | 36 hole Ø21.5mm for 20mL Tube; W×D×H: 250×134×160mm |
| | ST-A112 | 36 hole Ø18.5mm for 15mL Tube; W×D×H: 250×134×161mm |
| | ST-A113 | 55 hole Ø15.5mm for 10/15mL Tube; W×D×H: 250×134×162mm |
| | ST-A114 | 15 hole Ø30mm for 50mL Tube; W×D×H: 250×134×163mm |
| Centrifuge Test Tube Cradle | ST-A165 | 8 hole Ø63mm for 250mL centrifuge Tube; W×D×H: 411×176×110mm；can fixed by either bolt or sticker mat |
| | ST-A166 | 3 hole Ø100mm for 500mL centrifuge Tube; W×D×H: 435×170×99mm; can fixed by either bolt or sticker mat |
| Stainless Steel Test Tube Holder | ST-A117 | 24x Ø30mm, for 50mL test tube,  W×D×H: 382×139×75mm |
| | ST-A133 | 24x Ø30mm, for 50mL test tube, W×D×H: 365×139×126mm |
| | ST-A136 | 44x Ø18.5mm, for 50mL test tube, W×D×H: 365×139×126mm |
| 24 Well Vent Cap Accessories | ST-A150 | suggested to use together with ST-A107 or ST-A152 |
| Alert System | ST-A153 | for ST1900M/2500/5000/4000 series incubator shakers, has the function of Machine stall or abnormal speed, excessive speed, excessive concentration, excessive humidity, etc |

## Universal Platforms and Clamps Capacity

| | ST5000 | | ST4000/4000M | | ST3000 | | ST2500 | | ST1900/1900M | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Clamps | Sticky Mat | Clamps | Sticky Mat | Clamps | Sticky Mat | Clamps | Sticky Mat | Clamps | Sticky Mat |
| 50mL Erlenmeyer flasks | 135 | 187 | 135 | 187 | 135 | 187 | 104 | 112 | 72 | 80 |
| 100mL Erlenmeyer flasks | 60 | 112 | 60 | 112 | 60 | 112 | 45 | 72 | 30 | 56 |
| 150mL Erlenmeyer flasks | 60 | 104 | 60 | 104 | 60 | 104 | 45 | 60 | 30 | 42 |
| 200mL Erlenmeyer flasks | 60 | 84 | 60 | 84 | 60 | 84 | 45 | 45 | 30 | 30 |
| 250mL Erlenmeyer flasks | 60 | 77 | 60 | 77 | 60 | 77 | 40 | 40 | 30 | 30 |
| 500mL Erlenmeyer flasks | 38 | 40 | 38 | 40 | 38 | 40 | 25 | 28 | 16 | 20 |
| 1000mL Erlenmeyer flasks | 24 | 28 | 24 | 28 | 24 | 28 | 20 | 15 | 12 | 12 |
| 2000mL Erlenmeyer flasks | 15 | 15 | 15 | 15 | 15 | 15 | 12 | 12 | 6 | 8 |
| 3000mL Erlenmeyer flasks | 12 | 15 | 12 | 15 | 12 | 15 | | | | |
| 5000mL Erlenmeyer flasks | 6 | 8 | 6 Thomson | 8 Thomson | 6 Thomson | 8 Thomson | 6 Thomson | 6 Thomson | 4 Thomson | 4 Thomson |
| Platform size(cm) | 900x560mm | | 900x560mm | | 900x560mm | | 770x4700mm | | 550x470mm | |

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