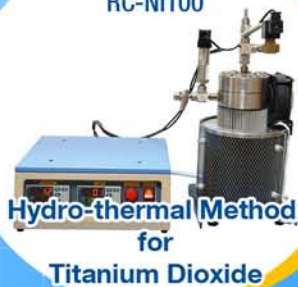




Total Solution for Advanced Material Research
MALAYSIA || INDONESIA || SINGAPORE || PHILIPPINES

PRODUCTS CATALOG

RC-NI100



**Hydro-thermal Method
for
Titanium Dioxide**

OTF-1200X-HP-30A



**Hot Isostatic Pressing for
Metal Matrix Composite**

OTF-1200X-4-II-C40V-SL



**Chemical Vapor Deposition
for
Graphene**

EQ-SP-15VIM



**Induction Heating for
New Metallic Alloy**

MSK-USP-04-LD



**Spray Pyrolysis
for
Perovskite Solar Cell**

OTF-1200X-RTP-II



**CSS Deposition for
CdTe, Sulfide, & Perovskite
Solar Cell**

OTF-1200X-80-VT



**Fluidized Bed CVD Synthesis
for
CNT, AlN, Si**

ACKNOWLEDGMENT

MTI CORPORATION, founded in 1994 by a group of material researchers from MIT and UC Berkeley, has now become the leading manufacturer of oxide crystals and substrates in the world, thanks to venture capital from Silicon Valley. MTI continues to develop new crystal substrates and maintain high quality of its single crystal substrates. MTI is equipped with the latest state of the art instruments, which allow achievement of the highest standard. We strive continuously to keep pace with customers' increasing demands on super-smoothness, super-flatness, and super-cleanliness. In 2000, by popular demand, MTI started to manufacture precision bench-top machines for material processing, analysis, and crystal wafer containers.

MTI currently operates three production factories in China. This allows for the possibility of providing high quality and low cost precision machines for material research and R&D Labs, including: low speed cutting saw, wire diamond saw, auto polishing machine, high temperature oven, tube furnace, X-Ray crystal orientation machine, and Mini XRD, as well as complete set of equipments for research of rechargeable battery materials. Simple to operate, low cost, and commitment to our customers is our priority. MTI strives to become the world's leader in bench-top machines for material lab.



MTI Corporation located nearby Richmond Inner Harbor

MTI engineering team has more than 15 years of experiences in manufacturing various type of rechargeable battery, and help many research institutes and R&D Company set up battery research lab worldwide. Now, MTI is the word leading supplier in providing desktop machines and tools for battery development; from battery powder preparation to electrode film coating, to test cell comprising.

MTI research equipments are specialized in:

- Fuel Cell R&D
- Thin Film R&D
- Super-bright LED R&D
- Advanced Ceramic R&D
- New Metal R&D
- Magnetic Material R&D
- Crystal Growth R&D
- Metallographic
- Failure Analysis

BRANCH DETAILS



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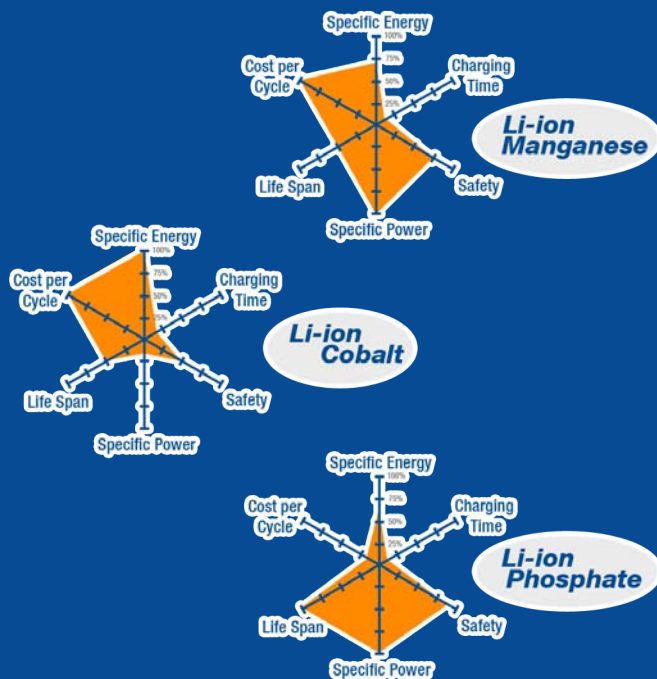
BATTERY PRODUCTION LINE



MTI ENGINEERING TEAM has more than 15 years of experiences in manufacturing various type of rechargeable battery, and has been helping many research institutes and R&D Company into consulting battery research lab setup at the worldwide. Currently, MTI is the world leading supplier in providing desktop machines and tools for battery development; from battery powder preparation to electrode film coating. If you need anything for battery research, please let us know. We will help you to find a solution.

We can provide technology transfer and full production line for battery cells with production yield from 1000 Ah/day to 100,000 Ah/day. For additional information about research line process for coin cell, pouch cell, and cylinder cell, please refer to APPENDICES. If you are interested into battery production line, please send an email to us with the following information:

1. The expected daily production capability (Ah/day)
2. Battery size and type



VACUUM CHAMBER FURNACE



Model	VBF-1200X-H8-UL
Quartz Tube Size	8" O.D x 7.5" I.D.x 13.4" L
Volume	7.6 L
Working Temperature	Maximum 1100°C for 30 minutes and 1000°C continuously
Features	<ul style="list-style-type: none"> • PID automatic control and auto-tune function • Stainless steel vacuum flange with one needle valve as gas inlet • One port for vacuum pump connection • Digital vacuum gauge provided
UL Recognition	All electric components are UL recognized

OTF-1200X-DT



- Max working temp: 1250°C
- Max heating rate: 120°C/min
- Max vacuum pressure: 20 Torr
- Max dwell time with vacuum: 60 min
- Max dwell time without vacuum: 540 min
- Inside chamber size: 100mm dia. X 140mm H
- Auto-lift and auto down sample tray
- Idle, dry, preheat, Ramp up, dwell, Cooling down, 6 segments are programmable

VBF-1200X-E8



- Water cooled vacuum flange
- Quartz chamber for clean treatment
- Automatic bottom loading for easy operation
- Max continuous working temperature: 1100°C
- DC motor with remote controller drives the opening and closing operation of the flange
- PID temperature controller for precise control of heating rate, cooling rate and dwell time

CRUCIBLE FURNACE

VBF-1200X



- Designed for sintering ceramic parts and component
- The heating element is embedded in the insulation for maximum heat transfer to the chamber
- 9 liters volume capacity double layer steel structure
- Can be used up to 1250°C

VTF-1600X



- Designed for melting metal and crystal growth via TSSG
- Consists of high quality alumina fiber brick and MoSi₂ heating elements
- Can be used up to 1600°C
- Double shell steel casing with cooling fan to keep low surface temperature

ATMOSPHERE BOX FURNACE

KSL-1600XA6



Working temperature up to 1500°C

- 5°C/min maximum heating rate
- Double skinned steel construction with air cooling convection
- Chamber size of 20" x 20" x 24"
- 157 liter volume capacity

KSL-1700XA6



Working temperature up to 1600°C

- 5°C/min heating rate
- Vacuum-sealed steel case with water cooling jacket and vacuum & gas flow control system
- 12 liter volume capacity

KSL-1700X-GS

Working temperature up to 1600°C

- 5°C/min heating rate
- Vacuum-sealed steel case with water cooling jacket and vacuum & gas flow control system
- 12 liter volume capacity

KSL-1800X-GS

Working temperature up to 1700°C

- 5°C/min heating rate
- Vacuum-sealed steel case with water cooling jacket and vacuum & gas flow control system
- 12 liter volume capacity

KSL-1700X-H2



Working temperature up to 1600°C

- 5°C/min heating rate
- Built in H₂ burning control system, pressure gauge, vacuum valves and two flowmeters
- 12 liter volume capacity

MUFFLE FURNACE

Muffle furnace (400°C-1800°C) steps in as the necessary part of laboratory that requires extreme heat environment. MTI is providing the muffle furnace at an affordable cost. The sizes of the muffle furnace are various from the smaller furnaces which are conveniently placed on a workbench, to the larger units that has a coveted capacity and competent for all duty.

General Features:

- PID automatic control and auto tune function temperature controller
- High purity alumina fiber insulation
- Double shell steel case

KSL-1400X



KSL-1100X-S



KSL-1500X-S



KSL-1200X-M



Model	Chamber Dimension L x W x H	Volume	Heating Rate	Working Temperature	Features
KSL-1100X-S	4" x 4" x 4"	1 L	Max: 30°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	<ul style="list-style-type: none"> • Energy saving (700 W max power usage) • Fe-Cr-Al Alloy doped by Mo
KSL-1100X-S-UL (UL Certified)	4" x 4" x 4"	1 L	Max: 30°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	<ul style="list-style-type: none"> • Energy saving (700 W max power usage) • Fe-Cr-Al Alloy doped by Mo
KSL-1100X-AC-80	16" x 16" x 16"	64 L	Max: 20°C/min	Max: 1200°C (< 4 hour) Cont: 1100 °C	<ul style="list-style-type: none"> • Water cooling front door and air cooling shell • Can stand at positive pressure up to 0.2MPa and vacuum up to - 0.1MP • Built in pressure gauge, vacuum valves, KF25 vacuum port, and two gas flowmeters • Water chiller is included
KSL-1200X	12" x 8" x 5"	7.2 L	Max: 50°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	<ul style="list-style-type: none"> • Resistance wire coil on 3 sides of interior chamber • Vent port installed on top • 0.5" dia observation window • Gas fill tube is included
KSL-1200X-J	6" x 6" x 7"	4.2 L	Max: 30°C/min	Max: 1200°C (< 4 hour) Cont: 1100 °C	<ul style="list-style-type: none"> • Resistance wire coil on 3 sides of interior chamber
KSL-1200X-J-UL (UL Certified)	6" x 6" x 7"	4.2 L	Max: 30°C/min	Max: 1200°C (< 4 hour) Cont: 1100 °C	<ul style="list-style-type: none"> • Resistance wire coil on 3 sides of interior chamber
KSL-1200X-M	12" x 12" x 12"	27 L	Max: 10°C/min	Max: 1200°C (< 3 hour) Cont: 1100°C	<ul style="list-style-type: none"> • Resistance wire coil on 3 sides of interior chamber • Vent port installed on top
KSL-1200X-L	16" x 16" x 16"	64 L	Max: 20°C/min	Max: 1100°C (< 1 hour) Cont: 1000°C	<ul style="list-style-type: none"> • Resistance wire coil on 3 sides of interior chamber • Vent port installed on top
KSL-1200X-L5-UL (UL Certified)	16" x 16" x 16"	64 L	Max: 20°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	<ul style="list-style-type: none"> • Resistance wire coil on 5 sides of interior chamber • Vent port installed on top
KSL-1400X	10" x 10" x 12"	19 L	Max: 10°C/min	Max: 1400°C (< 3 hour) Cont: 1300°C	<ul style="list-style-type: none"> • Double door type with sliding rails on each door • Heating element: Silicon Carbide
KSL-1500X-S-UL (UL Certified)	4.7" x 4.7" x 4.7"	1.7 L	Max: 20°C/min Cont: 10°C/min	Max: 1500°C (< 1 hour) Cont: 1400°C	<ul style="list-style-type: none"> • Gas inlet and venting port are installed • Heating element: Silicon Carbide
KSL-1700X-S	4.7" x 4.7" x 4.7"	1.7 L	Max: 20°C/min Cont: 10°C/min	Max: 1700°C (< 3 hour) Cont: 1600°C	<ul style="list-style-type: none"> • Heating element: Molybdenum Disilicide



Model	Chamber Dimension L x W x H	Volume	Heating Rate	Working Temperature	Features
KSL-1700X-A1P	6" x 6" x 6"	3.6 L	Max: 20°C/min Cont: 10°C/min	Max: 1700°C (< 3 hour) Cont: 1600°C	<ul style="list-style-type: none"> Heating element: Molybdenum Disilicide
KSL-1700X-A1P-UL (UL Certified)	6" x 6" x 6"	3.6 L	Max: 20°C/min Cont: 10°C/min	Max: 1700°C (< 3 hour) Cont: 1600°C	<ul style="list-style-type: none"> Heating element: Molybdenum Disilicide
KSL-1700X-A2	8" x 8" x 8"	8.4 L	Max: 20°C/min Cont: 10°C/min	Max: 1700°C (< 3 hour) Cont: 1600°C	<ul style="list-style-type: none"> Heating element: Molybdenum Disilicide
KSL-1700X-A3 (UL Certified)	10" x 10" x 12"	19 L	Max: 10°C/min Cont: 5°C/min	Max: 1700°C (< 3 hour) Cont: 1650°C	<ul style="list-style-type: none"> Heating element: Molybdenum Disilicide
KSL-1700X-A4-DC	12" x 12" x 12"	36 L	Max: 5°C/min	Max: 1700°C (< 3 hour) Cont: 1600°C	<ul style="list-style-type: none"> Two sets of temperature controller for safety features Rotameter and gas ports are installed Heating element: Molybdenum Disilicide
KSL-1700X-KA-S	4.7" x 4.7" x 4.7"	1.7 L	Max: 20°C/min Cont: 10°C/min	Max: 1750 °C (< 2 hour) Cont: 1720 °C	<ul style="list-style-type: none"> Gas inlet and venting port are installed for using at oxygen or inert gas atmospheres Heating element: Kanthal type Molybdenum Disilicide
KSL-1700X-KA	6.3" x 5.9" x 5.9"	3.6 L	Max: 20°C/min Cont: 10°C/min	Max: 1750°C (< 3 hour) Cont: 1700°C	<ul style="list-style-type: none"> Heating element: Kanthal type Molybdenum Disilicide
KSL-1700X-KA-UL (UL Certified)	6.3" x 5.9" x 5.9"	3.6 L	Max: 20°C/min Cont: 10°C/min	Max: 1750°C (< 3 hour) Cont: 1700°C	<ul style="list-style-type: none"> Heating element: Kanthal type Molybdenum Disilicide
KSL-1700X-KA2	8" x 8" x 8"	8.4 L	Cont: 5°C/min	Cont: 1750°C	<ul style="list-style-type: none"> ZrO2 (YSZ) chamber coating Heating element: Kanthal type Molybdenum Disilicide
KSL-1700X-KA3	10" x 10" x 12"	19 L	Max: 10°C/min Cont: 5°C/min	Max: 1750°C (< 3 hour) Cont: 1720°C	<ul style="list-style-type: none"> ZrO2 (YSZ) chamber coating Heating element: Kanthal type Molybdenum Disilicide
KSL-1800X-KA-S	4.7" x 4.7" x 4.7"	1.7 L	Max: 20°C/min Cont: 10°C/min	Max: 1800°C (< 2 hour) Cont: 1750°C	<ul style="list-style-type: none"> YSZ liner that can stand up to 2000°C Heating element: Kanthal type Molybdenum Disilicide
KSL-1800X-KA-S-UL (UL Certified)	4.7" x 4.7" x 4.7"	1.7 L	Max: 20°C/min Cont: 10°C/min	Max: 1800°C (< 2 hour) Cont: 1750°C	<ul style="list-style-type: none"> YSZ liner that can stand up to 2000°C Heating element: Kanthal type Molybdenum Disilicide
KSL-1800X-KA-UL (UL Certified)	6.3" x 5.9" x 5.9"	3.6 L	Max: 10°C/min Cont: 5°C/min	Max: 1800°C (< 1 hour) Cont: 1750°C	<ul style="list-style-type: none"> YSZ liner that can stand up to 2000°C Heating element: Kanthal type Molybdenum Disilicide

INDUSTRIAL MUFFLE FURNACE

KSL-1400X-BL



- Stable bogie-hearth with single flanged rail wheels
- Robust case designs, fibrous liner with ventilation port
- 4 sides heating elements installed (top, left, right, rear wall, bogie-hearth) for maximum uniform temperature
- Chamber dimension: 800 D x 800 W x 800 H mm (512 L)
- Continuous operating temperature: 700 - 1300°C
- Max heating rate: 10°C/min
- PID temperature control unit is in separated box

KSL-1300X-BH



- Stable bogie-hearth with single flanged rail wheels
- Robust case designs, fibrous liner with ventilation port
- 4 sides heating elements installed (top, left, right, rear wall, bogie-hearth) for maximum uniform temperature
- Chamber dimension: 1500 D x 900 W x 600 H mm (810 L)
- Continuous operating temperature: 700 - 1300°C
- Max heating rate: 10°C/min
- PID temperature control unit is in separated box

KSL-1100X-D



- Easy open top cover for sample loading
- Robust case designs, fibrous liner with ventilation port
- 6 sides heating elements installed (top, left, right, rear wall, door, bottom) for maximum uniform temperature
- Chamber dimension: 1800 D x 900 W x 450 H mm (729 L)
- Continuous operating temperature: 400 - 1100°C
- Max heating rate: 10°C/min
- PID temperature control unit is in separated box

KSL-1100X-BH



- Stable bogie-hearth with single flanged rail wheels
- Robust case designs, fibrous liner with ventilation port
- 5 sides heating elements installed (left, right, rear wall, door, bogie-hearth) for maximum uniform temperature
- Chamber dimension: 1200 D x 600 W x 450 H mm (324 L)
- Continuous operating temperature: 400 - 1200°C
- Max heating rate: 10°C/min
- PID temperature control unit is in separated box

CRYSTAL GROWTH CHAMBER

EQ-SKJ-50CZ

CZ Crystal Grower System with Vacuum Chamber for Oxide Single Crystals



- Pulling various oxide crystals with melting point up to 2100 °C, including Sapphire, GGG, YAG, LaAlO₃, Si, and Ge, etc. with diameter up to 3"
- Melting point up to 2100°C
- Vacuum chamber size: 500 Diameter x 700 H mm
- Electronic operation for controls of pulling, rotating and temperature
- Max seed rod travel distance: 400 mm
- Max crucible rod travel distance: 100 mm
- Water cooling through chamber jacket and crystal seed rod
- Puller is driven by constant torque DC motor with pulling rate: 0.1 - 20 mm/h
- Rotating rate: 0 - 40 rpm
- Electronic operation for controls of pulling, rotating and temperature
- Crucible rod raising speed is controlled manually

TUBE FURNACE

There are many types of tube furnaces which are Single Zone Tube Furnace, Multi-zone Tube Furnace, Rotary Tube Furnace, CVD/PECVD/Hydrogen Tube Furnace, Rapid Thermal Processing/Graphene Tube Furnace and Vertical Tube Furnace to meet various applications for researchers and engineers worldwide.



GSL-1600X-R60-II



OTF-1200X-R-60HG



OTF-1200X-5L-R-III-UL

Model	Working Tube Dia.	Tube Rotating Speed	Working Temperature	Features
ROTARY TUBE FURNACE				
OTF-1200X-4-R-UL	100 mm O.D	0 - 7 rpm	Max: 1200°C (< 2 hour) Cont: 1100°C	<ul style="list-style-type: none"> • Heating zone length: 400 mm (Single zone) • Fused quartz tube with four mixing blade is installed • The furnace can be tilted up to 35° by electric lift • One pair of 60mm SS sealing flange with needle valves and rotatable gas connector is included
OTF-1200X-4-R-II-UL	100 mm O.D	0 - 10 rpm	Max: 1200°C (< 2 hour) Cont: 1100°C	<ul style="list-style-type: none"> • Heating zone length: 800 mm (Two zones) • Fused quartz tube with four mixing blade is installed • The furnace can be tilted up to 35° by electric lift • One pair of 60mm SS sealing flange with needle valves and rotatable gas connector is included
OTF-1200X-5L-R-III-UL	127 mm O.D	0 - 7 rpm	Cont: 1100°C	<ul style="list-style-type: none"> • Heating zone length: 600 mm (Three zones) • Fused quartz tube with four mixing blade is installed • The furnace can be tilted up to 30° electronically • Magnetofluid for sealing the tube during rotation • One pair of 60mm SS sealing flange with needle valves and rotatable gas connector is included
OTF-1200X-R-60HG	100 mm O.D	0 - 7 rpm	Cont: 1100°C	<ul style="list-style-type: none"> • Heating zone length: 800 mm (Two zones) • Fused quartz tube with four mixing blade, vacuum pump, hydrogen generator, and hydrogen detector system with solenoid valve are installed • The furnace can be tilted up to 30° electronically • Magnetofluid for sealing the tube during rotation • One pair of 60mm SS sealing flange with needle valves and rotatable gas connector is included • Gas ports are installed
GSL-1500X-OTF-R60	60 mm & 100 mm O.D	0 - 7 rpm	Max: 1500°C (< 1 hour) Cont: 1400°C	<ul style="list-style-type: none"> • Heating zone length: 300 mm (One zone) • Two processing tubes are included which are one alumina work tube with central block zone & one quartz tube with larger central container and 60 mm SS vacuum sealing flanges are included • The furnace can be tilted up to 35° by electric lift • Gas ports are installed
GSL-1600X-R60-II	60 mm O.D	0 - 7 rpm	Max: 1600 °C	<ul style="list-style-type: none"> • Heating zone length: 800 mm (Two zones) • Alumina tube & one pair of 60mm SS vacuum sealing flange with needle valves are included • Gas ports are installed • This furnace can not be tilted

TUBE FURNACE



THERMAL PROCESSING

Model	Working Tube Dia.	Plasma RF Power Supply	Working Temperature	Features
PECVD TUBE FURNACE				
OTF-1200X-50S-PE-SL	2" O.D	<ul style="list-style-type: none"> • 5-300 W output power • 13.56 MHz RF frequency • 200 W max reflection power 	Max: 1200°C (< 1 hour) Cont: 1100°C	<ul style="list-style-type: none"> • A 300 W RF plasma generator, one pair SS vacuum sealing flanges with a KF25 port, two KF25 quick clamp, KF25 bellow hose, flange support, sliding rails, needle valves, digital pirani gauge, and vacuum pump are included
OTF-1200X-4CLV-PE-UL	2" or 3.14" or 4" O.D	<ul style="list-style-type: none"> • 5-500 W output power • 13.56 MHz RF frequency • 200 W max reflection power 	Max: 1200°C (< 1 hour) Cont: 1100°C	<ul style="list-style-type: none"> • 440 mm length single heating zone and 150 mm length constant temperate zone • A 500 W RF plasma generator, one pair SS vacuum sealing flanges with a KF25 port, two KF25 quick clamp, KF25 bellow hose, flange support, needle valves, four precision mass flow meters, mixing tank, digital pirani gauge, and vacuum pump are included
OTF-1200X-80-II-4CV-PE-SL	2" or 3.14" or 4" O.D	<ul style="list-style-type: none"> • 5-500 W output power • 13.56 MHz RF frequency • 200 W max reflection power 	Cont: 1100°C	<ul style="list-style-type: none"> • Two programmable precision digital temperature controllers with 400 mm total length of two heating zones • A 500 W RF plasma generator, one pair SS vacuum sealing flanges with a KF25 port, two KF25 quick clamp, KF25 bellow hose, flange support, sliding rails, needle valves, four precision mass flow meters, mixing tank, digital pirani gauge, and Pfeiffer vacuum pump are included
OTF-1500X-80-III-4CV-PE	80 mm O.D	<ul style="list-style-type: none"> • 5-500 W output power • 13.56 MHz RF frequency • 200 W max reflection power 	Max: 1500°C Cont: 1400°C	<ul style="list-style-type: none"> • Three programmable precision digital temperature controllers with 600 mm total length of three heating zones • A 500 W RF plasma generator, one pair SS vacuum sealing flanges with a KF25 port, two KF25 quick clamp, KF25 bellow hose, flange support, sliding rails, needle valves, four precision mass flow meters, mixing tank, digital pirani gauge, and Pfeiffer vacuum pump are included
OTF-1200X-50-II-PE-MSL	2" O.D	<ul style="list-style-type: none"> • 5-500 W output power • 13.56 MHz RF frequency • 200 W max reflection power 	Cont: 1100°C	<ul style="list-style-type: none"> • Two programmable precision digital temperature controllers with 400 mm total length of two heating zones • A 500 W RF plasma generator, one pair SS vacuum sealing flanges with a KF25 port, two KF25 quick clamp, KF25 bellow hose, flange support, sliding rails, needle valves, pre-heater, digital pirani gauge, and Pfeiffer vacuum pump are included



Model	Working Tube Dia.	Max Heating Rate	Working Temperature	Features
RAPID THERMAL PROCESSING TUBE FURNACE				
OTF-1200X-4-RTP-UL	4" I.D	50°C/sec	Max: 1100°C (< 10 min) Max: 800°C (< 120 min) Cont: 600°C	<ul style="list-style-type: none"> • Heating zone: 12" with 4" constant temperature zone • Max cooling: 60°C/min; Lowest cooling: 10°C/min • Quartz tube, sample holder, vacuum flanges, flow meter, and vacuum gauge are included
EQ-OTF-1200X-4-RTP-HV	4" I.D	50°C/sec	Max: 1100°C (< 10 min) Max: 800°C (< 120 min) Cont: 600°C	<ul style="list-style-type: none"> • Heating zone: 12" with 4" constant temperature zone • Max cooling: 60°C/min; Lowest cooling: 10°C/min • Quartz tube, sample holder, vacuum flanges, flow meter, vacuum gauge, and high vacuum station are included
EQ-RTP-1000-LV3C	4" I.D	50°C/sec	Max: 1100°C (< 10 min) Max: 800°C (< 120 min) Cont: 600°C	<ul style="list-style-type: none"> • Heating zone: 12" with 4" constant temperature zone • Max cooling: 60°C/min; Lowest cooling: 10°C/min • Quartz tube, sample holder, vacuum flanges, flow meter, vacuum gauge, three channel gas mixer, and vacuum pump are included
GSL-1500X-RTP50	2" O.D	10°C/sec (for Mullite) 30°C/sec (for Quartz)	Max: 1500°C Cont: 1400°C	<ul style="list-style-type: none"> • One sliding flange is installed on right side furnace • Digital vacuum gauge and one SS vacuum sealing flanges are included
OTF-1200X-4-RTP-SL	4" I.D	50°C/sec	Max: 1100°C (< 10 min) Max: 800°C (< 120 min) Cont: 600°C	<ul style="list-style-type: none"> • Heating zone: 12" with 4" constant temperature zone • Max cooling: 60°C/min; Lowest cooling: 10°C/min • Quartz tube, sample holder, vacuum flanges, flow meter, vacuum gauge, three channel gas mixer, sliding rail DC motor controlled and vacuum pump are included
OTF-1200X-80SL	80 mm O.D	15°C/sec	Max: 1200°C (< 1 hour) Cont: 1100°C	<ul style="list-style-type: none"> • Heating zone: 440 mm (single zone) • Slidable rails, SS vacuum flanges, Omega temperature calibrator and digital vacuum gauge are included
GSL-1500X-OTF-50SL	2" O.D (Mullite)	15°C/sec	Max: 1500°C Cont: 1400°C	<ul style="list-style-type: none"> • Heating zone: 300 mm (single zone) • Slidable rails, SS vacuum flanges, and digital vacuum gauge are included
OTF-1200X-50-SL-UL	2" O.D	15°C/sec	Max: 1200°C Cont: 1100°C	<ul style="list-style-type: none"> • Heating zone: 200 mm (single zone) • Slidable rails with mechanism, SS vacuum flanges, dual air cooling fans, and dial vacuum gauge are included
OTF-1200X-4-II-C40V-SL	100 mm & 80 mm O.D	15°C/sec	Max: 1200°C Cont: 1100°C	<ul style="list-style-type: none"> • Heating zone: 400 mm (two zones) • Slidable rails, dual tube design, SS vacuum flanges, four mass flow controller, digital vacuum gauge, and Pfeiffer's oilless vacuum pump are included
OTF-1200X-4-C4LVS	2" O.D	3°C/sec	Max: 1100°C Cont: 1000°C	<ul style="list-style-type: none"> • Heating zone: 440 mm (two zones) • Slidable rails, dual tube design, SS vacuum flanges, four mass flow controller, digital vacuum gauge, and vacuum pump are included

TUBE FURNACE



THERMAL PROCESSING

Model	Working Tube Dia.	Heating Rate	Working Temperature	Features
HORIZONTAL TUBE FURNACE				
GSL-1100X-50	2" O.D	Max: 20°C/min	Max: 1100°C (< 1 hour) Cont: 1000°C	Small quartz tube furnace with stainless steel vacuum flanges with valve, dial vacuum gauge and quartz tube installed where the chamber can be set up in vertical, horizontal, or at an angle
GSL-1100X-NT	1" O.D. or 2" O.D.	Max: 20°C/min	Max: 1100°C (< 1 hour) Cont: 1000°C	Compact tube furnace designed for firing small samples with built in 30 segments temperature controller where the chamber can be set horizontally or at an angle
GSL-1100X-50-LVT	2" O.D.	Max: 20°C/min	Max: 1100°C (< 1 hour) Cont: 1000°C	The right side of the furnace system is composed of a KF25 gas outlet with digital vacuum gauge connected to a 226l/m mechanical pump and 1/4" barbed gas inlet on the left to insert flowing gas or vacuum
OTF-1200X-S50-LVT	1" O.D. or 2" O.D.	Max: 10°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	Compact split tube furnace with insertable temperature calibrator and complete vacuum system and 1/4" barbed gas inlet on the left to insert flowing gas or vacuum
OTF-1200X-S50-2F	2" O.D.	Max: 10°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	Mini CVD tube furnace with 2 channel gas mixer, vacuum pump and anti-corrosive vacuum gauge which enable vacuum measurements with aggressive gas
OTF-1200X-S	1" O.D or 2" O.D	Max: 20°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	Compact and energy saving split tube furnace with a pair of stainless steel vacuum sealing flanges and 1/4" barb fitting for rubber hose connection for vacuum or flowing gas in heating sample
EQ-GSL-1100X-8.5-S-UL	8.5" O.D	Max: 20°C/min	Max: 1100°C Cont: 1050°C	CE certified single zone quartz tube furnace with vacuum flanges and two air cooling fans to keep flange temperature below 70°C and to achieve 24" heating zone
OTF-1200X-4-HNG-UL	4" O.D.	Max: 20°C/min	Max: 1100°C (< 1 hour) Cont: 1000°C	Pair of smart stainless steel vacuum sealing flange and valve/gauge which allow to heat sample under vacuum or flowing gas
OTF-1200X-5L	5" O.D.	Max: 20°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	Splittable single zone tube furnace with a 17" length constant temperature heating zone, one pair of vacuum sealing flanges, two vacuum valves and a pressure gauge for immediate use
OTF-1200X-60HV	60 mm O.D	Max: 40°C/min	Max: 850°C (< 1 hour) Cont: 800°C	CE certified super alloy tube furnace with CF flange and KF-D25 adapter for ultra high vacuum application up to 10^{-6} Torr
OTF-1200X-80-III-F3L	80 mm O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	CE certified splittable three zones tube furnace with mechanical vacuum pump & digital vacuum gauge, three channels gas flowing system and anti-corrosive Pirani capacitance diaphragm gauge
OTF-1200X-5-III-SF	5" O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	Three zones split tube furnace with sliding rail, three channel gas mixer, vacuum pump, and anti-corrosive gauge



Model	Working Tube Dia.	Heating Rate	Working Temperature	Features
HORIZONTAL TUBE FURNACE				
OTF-1200X-HVC	80 mm O.D or 101 mm O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	Workstation consists of an OTF-1200X series tube furnace, a precision mass flow gas control station, a high vacuum station
OTF-1200X-HVC-UL	80 mm O.D or 101 mm O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	Workstation consists of an OTF-1200X series tube furnace, a precision mass flow gas control station, a high vacuum station
OTF-1200X-III-HVC	80 mm O.D or 101 mm O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	Workstation consists of three zones tube furnace, a precision mass flow gas control station, a high vacuum station with vacuum rate goes up to 10 ⁻⁵ Torr
GSL-1700X-4-HVC	4" O.D.	Max: 5°C/min	Max: 1650°C Cont: 1600°C	CE certified single zone alumina tube furnace with high vacuum pump system and 2 channel precision digital mass flow controllers
GSL-1700X-80-HVC9	80 mm O.D	Max: 5°C/min	Max: 1700 °C (< 1 hour) Cont: 1600°C	Alumina tube furnace with vacuum pump system and 9 channel precision digital mass flow meter
OTF-1200X-80-II	3.14" O.D	Max: 20°C/min	Max: 1200°C (< 1 hour) Cont: 1000°C	CE certified dual split two zones tube furnace with vacuum flanges and valves for immediate use and two 30 segments programmable temperature controller installed
OTF-1200X-4-II	4" O.D	Max: 20°C/min	Max: 1100°C (< 1 hour) Cont: 1000°C	CE certified split two zones tube furnace with vacuum flanges with valves for immediate use and two 30 segments programmable temperature controller installed
OTF-1200X-III-S-UL	60 mm O.D/ 80 mm O.D/ 100 mm O.D/ 130 mm O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	CE certified 24" long splittable three zone tube furnace with conventional flange and 30 segments temperature controller
OTF-1200X-III-SHG	60 mm O.D/ 80 mm O.D/ 100 mm O.D/ 130 mm O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	CE certified 24" long splittable three zones tube furnace with hinged type flange and 30 segments temperature controller
OTF-1200X-III	60 mm O.D/ 80 mm O.D/ 100 mm O.D/ 130 mm O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	CE certified 36" long splittable tube furnace, vacuum sealing flanges, pressure gauge, ball valve and two fibrous ceramic blocks are included
GSL-1100X-8.5S-III	8.5" O.D	Max: 20°C/min	Max: 1100°C (< 10 min) Cont: 600°C	Three zones tube furnace consists of 24" long heating zones, three precision temperature controllers are built in with hinged type stainless steel vacuum flanges, one digital vacuum gauge, two air cooling fans and two quartz blocks equipped

TUBE FURNACE

GSL-1100X-8.5-III-SR



OTF-1500X-III-UL



OTF-1200X-V



GSL-1500X-50-UL

Model	Working Tube Dia.	Heating Rate	Working Temperature	Features
HORIZONTAL TUBE FURNACE				
GSL-1100X-8.5-III	8.5" O.D	Max:20°C/min	Max: 1100°C Cont: 1000°C	CE certified three zones tube furnace with hinged type vacuum flanges, needle valves, vacuum gauge, three 30 segments temperature controller and two fibrous ceramic tube blocks are included
GSL-1100X-8.5-III-SR	8.5" O.D	Max:10°C/min	Max: 1100°C Cont: 1000°C	Three heating zones tube furnace with slidable vacuum flange and multi-gas fed through SS tube for LPCVD processing
GSL-1100X-11-III	11" O.D	Max: 20°C/min	Max: 1100°C (< 1 hour) Cont: 1000°C	CE certified three zones tube furnace consists of stainless steel vacuum flanges, needle valves, vacuum gauge, two fibrous ceramic tube blocks with PID automatic control
OTF-1500X-III-UL	60 mm O.D or 80 mm O.D	Max: 5°C/min	Max: 1500°C Cont: 1400°C	Split three zones tube furnace with mullite tube, conventional flange and three 30 segments PID temperature controllers
GSL-1700X-60-III	60 mm O.D	Max: 10°C/min	Max: 1400°C (zone 1) 1700°C (zone 2) 1400°C (zone 3)	CE certified three zones alumina tube furnace with complete vacuum sealing flange, dial vacuum gauge and two porous ceramic blocks are included
GSL-1700X-60-III-F3LV	60 mm O.D	Max: 10°C/min	Max: 1400°C (zone 1) 1700°C (zone 2) 1400°C (zone 3)	Three zones alumina tube furnace with mechanical vacuum pump, three channels gas flowing system, stainless steel vacuum flanges, anti-corrosive Pirani capacitance diaphragm gauge and two porous ceramic blocks are included
OTF-1200X-80-V	80 mm O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	CE certified five zones quartz tube furnace with stainless steel flanges, dial vacuum gauge, valves and two fibrous ceramic tube blocks are included
OTF-1200X-V	1" to 5" O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	Five zones split tube furnace with separated temperature control unit to allow remote control furnace from a distance and constant temperature zone up to 25" length
OTF-1200X-VII	1" to 5" O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	Seven zones split tube furnace with separated temperature control unit to allow remote control furnace from a distance and constant temperature zone up to 28" length
OTF-1200X-ML76-UL	3" O.D	Max: 20°C/min	Max:1250°C Cont: 1200°C	CE certified splittable mullite tube furnace consists of a pair of smart stainless steel vacuum sealing flange and valve/gauge with MTE certified PID automatic control
GSL-1500X-50-UL	2" O.D	Max: 10°C /min	Max: 1500°C Cont: 1400°C	CE certified compact tube furnace with stainless steel vacuum flanges, high temperature silicone O-ring, vacuum gauge, valve and two fibrous ceramic tube blocks are included
GSL-1600X	60 mm O.D/ 80 mm O.D/ 100 mm O.D	Max: 5°C /min (above 1200°C) Max: 10°C /min (below 1200°C)	Max: 1600°C	CE certified bench-top tube furnace consists of double layer steel casing with air cooling fan, needle valves, flanges and sealing O-ring, tube blocks, furnace handle hook, and two fibrous ceramic tube blocks are included



Model	Working Tube Dia.	Heating Rate	Working Temperature	Features
HORIZONTAL TUBE FURNACE				
GSL-1600X-OTF	60 mm O.D	Max: 10°C /min	Max:1600°C Cont: 1500°C	CE certified splittable alumina tube furnace consists of vacuum flanges, valve, pressure gauge and two porous ceramic blocks are included with PID temperature control
GSL-1700X-S60-UL	60 mm O.D	Max: 20°C /min	Max: 1700°C (< 1 hour) Cont: 800~1600°C	CE certified alumina tube furnace controlled by SCR digital controller, vacuum flanges, needle valve, dial vacuum gauge and two fibrous ceramic tube blocks are included
GSL-1700X	80 mm O.D	Max: 5°C /min	Max: 1700°C (< 1 hour) Cont: 1600°C	Bench-top vacuum and atmosphere tube furnace consists of one pair sealing flange with double silicone high temperature O-ring, two SS needle valves and one dial vacuum gauge
GSL-1700X-80-HNG	3.25" O.D	Max: 5°C /min	Max: 1700°C (< 1 hour) Cont: 1600°C	Alumina tube furnace with hinged type flanges for loading and unloading samples at ease, SCR digital temperature controller, built in two cooling fan, gas inlet port and needle valve, KF25D vacuum port and vacuum gauge are installed
GSL-1700X-KS60-UL	60 mm O.D	Max: 10°C/min	Max: 1750°C (< 3 hour) Cont: 1720°C	CE certified alumina tube furnace controlled by SCR digital controller, two cooling fan, vacuum flanges, dial vacuum gauge, valves and four fibrous ceramic tube blocks are included
GSL-1700X-KS80	80 mm O.D	Max: 5°C/min	Max: 1750°C (< 2 hour) Cont: 1700°C	CE certified alumina tube furnace controlled by SCR digital controller, two cooling fan, vacuum flanges, dial vacuum gauge, valves and four fibrous ceramic tube blocks are included
GSL-1700X-KS100	100 mm O.D	Max: 5°C/min	Max: 1750°C (< 2 hour) Cont: 1700°C	CE certified alumina tube furnace controlled by SCR digital controller, two cooling fan, vacuum flanges, dial vacuum gauge, valves and four fibrous ceramic tube blocks are included
GSL-1700X-UL	80 mm O.D	Max: 5°C/min	Max: 1750°C Cont: 1700°C	UL recognized bench-top alumina tube furnace with two built in cooling fan, MET certified PID temperature controller, vacuum flanges, two pairs of SS tune support and two fibrous ceramic tube blocks are included
GSL-1800X-S60-UL	60 mm O.D	Max: 5°C/min	Max: 1800°C (< 1 hour) Cont: 1750°C	CE certified alumina tube furnace controlled by SCR digital controller, two cooling fan, vacuum flanges, dial vacuum gauge, valves and four fibrous ceramic tube blocks are included
GSL-1800X-KS80	80 mm O.D	Max: 5°C/min	Max: 1800°C (< 4 hour) Cont: 1700°C	CE certified alumina tube furnace controlled by SCR digital controller, two cooling fan, vacuum flanges, dial vacuum gauge, valves and four fibrous ceramic tube blocks are included
GSL-1800X-KS80-UL	80 mm O.D	Max: 5°C/min	Max: 1800°C Cont: 1700°C	UL recognized bench-top alumina tube furnace with two built in cooling fan, MET certified PID temperature controller, vacuum flanges, two pairs of SS tune support and two fibrous ceramic tube blocks are included
GSL-1800X-KS80-EU	80 mm O.D	Max: 5°C/min	Max: 1800°C Cont: 1700°C	Bench-top tube furnace with Kanthal Super-1900 MoSi ₂ heating element & consists of two cooling fans, vacuum flanges, & Eurotherm 3504 temperature controller.

THERMAL PROCESSING

TUBE FURNACE



THERMAL PROCESSING

Model	Working Tube Dia.	Heating Rate	Working Temperature	Features
HORIZONTAL TUBE FURNACE				
OTF-1200X-4-NW	4.33" O.D (CVD) 1.2" O.D (Heater)	Max: 20°C/min	Cont: 1000°C (CVD) Cont: 500°C (Heater)	Growing substrate up to 3" diameter. Consists of four channels gas inlet (built in at flanges), small heater at left flange to preheat feed-in gas, slidable sample holder, separated temperature control for CVD and heater, and digital vacuum gauge
OTF-1200X-III-D5-4	130 mm O.D (Outer tube) 102 mm O.D (Inner tube)	Max: 20°C/min	Max: 1200°C Cont: 1100°C	A dual tube and three zone tube furnace for growing film on metallic foil by CVD with one pair SS vacuum sealing flanges, three precision temperature controllers, needle valves, vacuum gauge, and two fused quartz tube are included
OTF-1200X-60HG	60 mm O.D	Max: 20°C/min	Max: 1100°C (< 1 hour) Cont: 1000°C	Consists of PID temperature controller, double layer steel casing, two sets of flanges, gas inlet with pressure gauge, flowmeter, hydrogen detector, hydrogen generator, and solenoid valve.
OTF-1200X-60HG-SS	60 mm O.D	Max: 20°C/min	Max: 800°C (< 1 hour) Cont: 600°C	Consists of PID temperature controller, pressure sensor which is installed at the flange, hydrogen detector, hydrogen generator, gas inlet with pressure gauge, needle valve, flowmeter. Can stand up to 125 atm at 600°C
OTF-1200X-4-C4LVS	100 mm O.D (Outer tube) 80 mm O.D (Inner tube)	Max: 20°C/min	Max: 1100°C Cont: 1000°C	Consists of slidable rails, SS vacuum sealing flanges using dual tube, water cooling on the flanges, four precision mass flow controller with digital display, 80 ml mixing tank, needle valve, vacuum pump, and PID temperature controller
OTF-1200X	60 mm O.D/ 80 mm O.D/ 100 mm O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	Consists of double layer steel casing with air cooling fan, needle valves, flanges and sealing O-ring, tube blocks, furnace handle hook, and two fibrous ceramic tube blocks
GSL-1700X-60-II	60 mm O.D	Max: 20°C/min	Zone 1: 1400°C Zone 2: 1700°C	Two zone tube furnace with SS vacuum sealing flanges, 1/4" barb fitting, built in precision temperature controller, and digital vacuum gauge
GSL-1700X-F3LV	60 mm O.D/ 80 mm O.D/ 100 mm O.D	Max: 5°C/min	Max: 1700°C	Consists of mechanical vacuum pump and three channels gas flowing system, anti-corrosive Pirani gauge, flange support, right angle valve, SS bellow, and SS vacuum sealing flanges
GSL-1800X-80-III	80 mm O.D	Max: 5°C/min	Max: 1800°C (< 2 hour) Cont: 1750°C	Three zones tube furnace with recirculating water chiller & SS vacuum sealing flanges, YSZ fibrous insulation, alumina tube, and digital pressure gauge
GSL-1700X-KS80-UL	80 mm O.D	Max: 5°C/min	Max: 1750°C Cont: 1700°C	Consists of Kanthal type heating element, temperature controller, SS vacuum sealing flanges, and dial vacuum gauge
GSL-1100X-6	6" O.D	Max: 20°C/min	Max: 1100°C Cont: 1050°C	Consists of SS hinged type vacuum flanges, dial pressure gauge, and one digital temperature controller
EQ-GSL-1100X-11-S2	11" O.D	Max: 20°C/min	Max: 1100°C Cont: 1050°C	Consists of SS hinged type vacuum flanges, digital pressure gauge, and two digital temperature controller



Model	Working Tube Dia.	Heating Rate	Working Temperature	Features
HORIZONTAL TUBE FURNACE				
OTF-1500X-II-UL	84 mm O.D	Max: 5°C/min	Max: 1500°C Cont: 1400°C	Splittable two zones tube furnace with mullite tube with SS vacuum sealing flanges, thermal blocks, and dial pressure gauge with gas inlet
OTF-1600X-III-UL	82 mm O.D	Max: 5°C/min	Max: 1600°C (< 1 hour) Cont: 1500°C	Splittable three zones tube furnace with mullite tube with SS vacuum sealing flanges, thermal blocks, and dial pressure gauge with gas inlet
OTF-1200X-VI-2M	1 to 4" O.D	Max: 20°C/min	Max: 1600°C (< 1 hour) Cont: 1500°C	Six independent zones and ultra-long split tube furnace with separated temperature control units. Consists of 6 PID temperature controller, high fibrous alumina insulation, 4" quartz tube with cold water flanges are included
OTF-1200X-50-DSL	50 mm O.D	Max: 20°C/min	Max: 1100°C (< 1 hour) Cont: 1000°C	Horizontal sliding 2" tube furnace with variable speed from 1 mm/sec - 100 mm/sec and programmable repeating time. Vacuum flanges and digital vacuum gauge are installed
OTF-1200X-HP-30A	30 mm O.D	Max: 20°C/min	Max: 1100°C	Compact high pressure furnace featuring Ni based alloy tube vessel. Consists of aluminum heat radiator, PID temperature controller, pressure transducer controlled by pressure monitor, high pressure valves, and copper gasket. 37 MPa max pressure at 800°C
OTF-1200X-HP-55	55 mm O.D	Max: 30°C/min	Max: 1100°C	Splittable tube furnace with Ni based super-alloy tube. Consists of aluminum heat radiator, high pressure valves, pressure sensor controlled by pressure controller, PID temperature controller, and copper gasket. 60 MPa max pressure at 600°C
OTF-1200X-HVHP-80-SS	80 mm O.D	Max: 30°C/min	Max: 900°C	Splittable tube furnace with SS alloy tube. Consists of PID temperature controller, pressure alarm system, and CF-63 flanges with copper gasket. 1457 PSI max pressure at 600°C
OTF-1200X-HVHP-60-SS	60 mm O.D	Max: 30°C/min	Max: 900°C	Splittable tube furnace with SS alloy tube. Consists of PID temperature controller, pressure alarm system, and CF-63 flanges with copper gasket. 1457 PSI max pressure at 600°C
OTF-1200X-HVHP-60-GH	60 mm O.D	Max: 20°C/min	Max: 1100°C	Splittable tube furnace with Ni based super-alloy tube. Consists of PID temperature controller, pressure alarm system, and CF-63 flanges with copper gasket. 1460 PSI max pressure at 800°C
OTF-1200X80-HPV-III	85 mm O.D	Max: 10°C/min	Max: 1100°C (< 1 hour) Cont: 1000°C	Three zones high pressure split tube furnace with Ni based super-alloy tube. Consists of three PID temperature controller, digital pressure gauge, CF type flange, copper gasket and valves
OTF-1200X80-HPV-III-GF	85 mm O.D	Max: 10°C/min	Max: 1100°C (< 1 hour) Cont: 1000°C	Three zones high pressure split tube furnace with Ni based super-alloy tube. Consists of three PID temperature controller, digital pressure gauge, CF type flange, copper gasket, water cooling ring, recirculating water chiller, gas control system, heavy duty mobile table, safety frame, and laptop for remote control

TUBE FURNACE



OTF-1200X-S-FB



GSL-1100X2-VF



OTF-1200X-80-VT



OTF-1200X-5-VT-III



GSL-2000X-25

Model	Working Tube Dia.	Heating Rate	Working Temperature	Features
VERTICAL TUBE FURNACE				
OTF-1200X-S-VT	1" or 2" O.D	Max: 20°C/min	Max: 1100°C Cont: 1100°C	Consists of SS vacuum flanges whereby hook ring is welded inside of the top flange for hanging samples, needle valves, and dial pressure gauge
OTF-1200X-S-FB	1" or 2" O.D	Max: 20°C/min	Max: 1100°C Cont: 1100°C	Consists of a built-in filter right in the lower middle section of the central heating zone. Its filter is a porous (15~40 microns) quartz frit that allows the controlled gas flow pass through. Top SS flange is designed as gas inlet & exhaust
GSL-1100X2-VF	2" O.D	Max: 20°C/min	Max: 1100°C Cont: 1100°C	Three buttons on the back of the furnace can be adjusted to flexibly change the furnace position within travel distance 4.5" (with hanger and supporter) ~ 12" (without hanger and supporter)
OTF-1200X-80-VT	80 mm O.D	Max: 20°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	One heating zone split vertical tube furnace with vacuum sealed quartz tube installed in a heavy duty mobile cart for easy moving. SS top flange is welded with hook ring. Dial pressure gauge is included
OTF-1200X-100-VT-II	4" O.D	Max: 20°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	CE certified two zones split vertical tube furnace with vacuum sealed quartz tube, stainless steel flanges with vacuum gauge, valves and a hook ring included
OTF-1200X-125-VT	130 mm O.D	Max: 20°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	CE certified single zone split vertical tube furnace with vacuum sealed quartz tube, stainless steel flanges with vacuum gauge, valves and a hook ring included
OTF-1200X-5-VT-III	5" O.D	Max: 20°C/min	Max: 1200°C Cont: 1100°C	CE certified splittable vertical tube furnace, stainless steel flanges, a hook ring, pressure gauge and valve are installed in a heavy duty mobile for easy moving
OTF-1200X-4-VT-V	4" O.D	Max: 20°C/min	Max: 1200°C (< 1 hour) Cont: 1100°C	CE certified five zones split vertical tube furnace with vacuum sealed quartz tube, stainless steel flanges with vacuum gauge, valves and a hook ring included
GSL-2000X-25	1" O.D	Max: 10°C/min	Max: 2000°C (< 30 min) Cont: 1900°C	Ultra-high temperature furnace consists of 6" length heating chamber, tungsten wire as heating element, fibrous zirconia liner for process chamber and water cooling jacket with sample holder driven by electric motor
GSL-1700X-80VT	80 mm O.D	Max: 5°C/min	Max: 1700°C (< 1 hour) Cont: 1600°C	High temperature vertical alumina tube furnace consists of 150 mm heating area, MoSi ₂ as heating element, vacuum flanges, dial vacuum gauges, valve and thermal blocks are included
GSL-1700X-100VT	4" O.D	Max: 5°C/min	Max: 1700°C (< 1 hour) Cont: 1650°C	High temperature vertical alumina tube furnace consists of 200 mm heating area, MoSi ₂ as heating element, vacuum flanges, dial vacuum gauges, valve and thermal blocks are included

CLOSE SPACE SUBLIMATION FURNACE



OTF-1200X-RTP-II



Vacuum Chamber



OTF-1200X-RTP-II-5

Model	Features
OTF-1200X-RTP-II	<ul style="list-style-type: none"> • 3" round wafer holder is built in with top heater to load substrate within 11" O.D quartz tube • Heated by two group of halogen heaters (Top and Bottom) separately with max. 20°C/s heating rate up to 650°C • Two 30 segment precision temperature controllers are built in with +/-1°C accuracy • Top Flange with one KFD-25 vacuum port and two gas outlets can slide up or down manually • Bottom flange has one KFD-25 vacuum port with right-angle valve and two gas inlets with needle valves • One digital vacuum gauge is installed on the top flange • Two flowmeters are installed with the range of 16-160 ml/min and 400-4000 ml/min • The distance between two heaters is adjustable from 10 - 50 mm • Water cold jacket is made of SS316 with PTFE fitting • One high thermal conductive AlN plate (3" Dia x 0.5mm Thick) is included
OTF-1200X-RTP-II-5	<ul style="list-style-type: none"> • 5" square wafer holder is built in with top heater to load substrate within 11" O.D quartz tube • Heated by two group of halogen heaters (Top and Bottom) separately with max. 20°C/s heating rate up to 800°C • Two 30 segment precision temperature controllers are built in with +/-1°C accuracy • Top Flange with one KFD-25 vacuum port and two gas outlets can slide up or down manually • Bottom flange has one KFD-25 vacuum port with right-angle valve and two gas inlets with needle valves • One digital vacuum gauge is installed on the top flange • Two flowmeters are installed with the range of 16-160 ml/min and 400-4000 ml/min • The distance between two heaters is adjustable from 2 - 50 mm by DC motor • Water cold jacket is made of SS316 with PTFE fitting • One high thermal conductive AlN plate (5" Dia x 0.5mm Thick) and one recirculating water chiller are included

HYDROTHERMAL REACTOR



RC-NI100



RC-TI100

- Pressure vessel made of Ni-based Super-alloy
- Air cold flange via aluminum heat radiator
- Precision high pressure sensor up to 250 bar installed on pressure vessel
- Pressure monitor can display pressure in Bar and the high pressure alarm set point can be set
- Working temperature up to 1100°C
- Digital temperature controller with 30 segments programmable
- 36 Mpa max pressure at 500°C
- 100 ml capacity with 55 mm OD x 20 mm ID x 214 mm H

- Pressure vessel made of high purity Titanium metal
- Can reach pressure up to 4 MPa
- Dial pressure gauge is installed to monitor the pressure
- Working temperature up to 400°C
- Digital temperature controller with 30 segments programmable
- 3 MPa max pressure at 400°C
- Optional 30 segments programmable temperature controller & mini heater with built in thermocouple
- 100 ml capacity with 55 mm OD x 45 mm ID x 75 mm H
- Stainless steel needle valve with 1/4 pipe connector

CONVECTION OVEN



DHG-9023Q



DHG-9040



EQ-DHG-9015



EQ-DHG-9070V



EQ-DHG-9440V220



EQ-HC-27

Convection oven from MTI is a CE Certified Mechanical Convection Oven with digital temperature controller. It can achieve dependable, uniform conditions by convecting heat to the sample evenly. Such convection oven can be widely used for drying, stoving, wax-melting and sterilization. It is ideal heating equipment for material R&D laboratories.

THERMAL PROCESSING

Model	Chamber Dimension L x W x H	Volume	Working Temperature	Features	Power
DHG-9023Q	12" x 12" x 11"	25 L	Max: 250°C	28 segments temperature controller and 3" glass wool insulation to prevent heat loss from working chamber	500 W
EQ-DHG-9070V	18" x 14" x 18"	71 L	Max: 300°C (< 8 hour) Cont: 250°C	28 segments temperature controller and overheat protection sensor automatically cuts power if over-heated	1500 W
EQ-DHG-9140V220	21.6" x 21.6" x 16"	122 L	Max: 300°C (< 8 hour) Cont: 250°C	28 segments temperature controller and overheat protection sensor automatically cuts power if over-heated	2300 W
EQ-DHG-9440V220	28" x 26" x 35"	410 L	Max: 300°C (< 8 hour) Cont: 250°C	28 segments temperature controller and overheat protection sensor automatically cuts power if over-heated	3500 W
EQ-DHG-9000JB	14" x 14" x 14"	43 L	Max: 400°C	28 segments temperature controller and overheat protection sensor automatically cuts power if over-heated	2200 W
EQ-DHG-9000J	14" x 18" x 18"	71 L	Max: 400°C	28 segments temperature controller and overheat protection sensor automatically cuts power if over-heated	3200 W
EQ-DHG-9015-220	10" x 10" x 8"	12 L	Max: 250°C	Single point digital precision temperature controller with one setting point and $\pm 1^\circ\text{C}$ tolerance	750 W
DHG-9040	14" x 14" x 14"	30 L	Max: 250°C	3" glass wool insulation to prevent heat loss from working chamber and radiant warm wall heating system provides optimal uniformity and conserves chamber space for drying, curing, and plating applications	1000 W
EQ-HC-27	12" x 12" x 12"	27 L	Max: 250°C	Clean room compatible 100 grade ULPA filter included and dust particle more than 0.5 micron with 30 segments programmable temperature controller	3000 W

VACUUM OVEN



EQ-DZF-6050



EQ-DZF-6020-HT500P



EQ-DZF-6210

General Features:

- The chamber is designed with stainless steel and welded with bracing pieces
- A good vacuum seal is achieved by silicone door gasket and positive latch door
- Vacuum port and gas inlet are installed to create a gas environment in the chamber
- PID temperature controller is installed

Model	Chamber Dimension L x W x H	Volume	Working Temperature	Features	Power
EQ-DZF-6020	12" x 12" x 11"	25 L	Max: 250°C (< 4 hour) Cont: 200°C	28 Segments Temperature Controller	1000 W
EQ-DZF-6050	16.3" x 13.5" x 14.5"	53 L	Max: 250°C (< 4 hour) Cont: 200 °C	28 Segments Temperature Controller	1500 W
EQ-DZF-6020 -FP	12" x 12" x 11"	25 L	Max: 250°C (< 4 hour) Cont: 200 °C	28 Segments Temperature Controller, Flowmeter and Vacuum Pump System	1000 W
EQ-DZF-6020 -HT500P	12" x 12" x 11"	25 L	Max: 500°C	30 Segments Temperature Controller, Flowmeter, Chiller and Vacuum Pump System	2500 W
EQ-DZF- 6020-HT400P	12" x 12" x 11"	25 L	Max: 400°C	Vacuum Oven With Close-able Quartz Window, Gas Flow-meter & Water Chiller	1600 W
EQ-DZF-6050 -HT	16.3" x 13.5" x 14.5"	53 L	Max: 500°C	30 Segments Temperature Controller, Flowmeter, Chiller and Vacuum Pump System	2200 W
EQ-DZF-6090 -HT	18" x 18" x 18"	91 L	Max: 550°C	Floor-Stand Vacuum Oven with 30 Segments Temperature, Two heating Zones and Vacuum Pump & Water Chiller	2600 W
EQ-DZF-6210	22" x 25" x 24"	215 L	Max: 270°C	Floor-Stand Large Vacuum Oven with Vacuum Pump and 3 Digital Temperature Controllers	2500 W

SURFACE TREATMENT



GSL1100X-PJF

Atmospheric Plasma Jet Flow System (Plasma Pen)

- Two plasma Beam heads are included:
 - round head (10-12 mm)
 - rectangular head (15-18 mm)
- Handheld or in-line processing at low cost
- Output frequency RF Generator: 20-23 kHz, 25 kV
- High speed surface treatment with simple and safe operation



GSL1100X-PJF-A

Atmospheric Plasma Beam with Automatic Scanning System

- Two plasma Beam heads are included:
 - round head (10-12 mm)
 - rectangular head (15-18 mm)
- X-Y two dimension are driven by step motors and controlled by SBC controller box
- Z axis is adjustable by manual
- Output frequency RF Generator: 20-23 kHz, 25 kV
- Max scanning area: 8" x 9"
- One vacuum pump and heavy duty mobile cart are included

MELTING SYSTEM



EQ-VMCS-1200-LD



EQ-FMF-40



EQ-SP-25TC






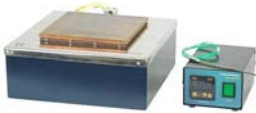
EQ-SP-15VIM

Model	Specifications	Features
EQ-VMCS-1200-LD	<ul style="list-style-type: none"> Working temperature: 1200°C Flasks diameters from 2.5" - 4" and up to 9" high Compact footprint (18" x 18") 	<ul style="list-style-type: none"> Heating is electronically controlled to minimize temperature overshoot, and to hold the set-point temperature Fast cycle times allow re-casting in just 6 minutes after each pour Large 60 mm graphite crucible helps prevent oxide inclusions Resistance heating coil (long-life design) surrounds crucible for maximum heat transfer and fast melting An immersion thermocouple placed in the center of the melting pool allows user to closely control and monitor the temperature with the most accurate readings
EQ-FMF-40	<ul style="list-style-type: none"> Output frequency: 50-200 kHz Max output power: 40KW Copper crucible: 3 ml 	<ul style="list-style-type: none"> One heavy duty mechanical pump with exhaust filter, induction heater, one pair of vacuum sealing flanges with silicone o-rings, and water chiller are integrated into movable steel case Top flange is hinged type for easy sample loading Bottom flange can be controlled automatically for easy sample loading Water cooling inside copper crucible 20 g max load for ferro metal or alloy
EQ-SP-15VIM	<ul style="list-style-type: none"> Output frequency: 30 - 80 kHz Max output power up to 15 kW Duty cycle: 80% Induction coil: 70 mm O.D x 65 mm ID x 80 mm H 	<ul style="list-style-type: none"> Ideal for sample's melting point < 1900°C and quantity < 100 g Complete refractory assembling made of alumina, including bottom crucible support, crucible holder and cover Automatic water pressure, over temperature, and over power protection Vacuum flanges with o-ring, two valves, vacuum gauge, half open quartz tube (60 O.D x 57 I.D x 250 L mm), KF25 connector, SS bellow, vacuum pump, and recirculating water chiller are mounted onto mobile cart
EQ-SP-25VIM	<ul style="list-style-type: none"> Output frequency: 30-80 kHz Max output power up to 25 kW Duty cycle: 80% Induction coil: 95 mm O.D x 85 mm ID x 50 mm H 	<ul style="list-style-type: none"> Ideal for sample's melting point < 2000°C and quantity < 500 g Complete refractory assembling made of alumina, including bottom crucible support, crucible holder and cover Automatic water pressure, over temperature, and over power protection Vacuum flanges with o-ring, two valves, vacuum gauge, half open quartz tube (80 O.D x 75 I.D x 300 L mm), KF25 connector, SS bellow, vacuum pump, and recirculating water chiller are mounted onto mobile cart
EQ-SP-15TC	<ul style="list-style-type: none"> Output frequency: 30-80 kHz Max output power up to 15 kW Duty cycle: 80% Induction coil: 90 mm O.D x 82 mm ID x 90 mm H 	<ul style="list-style-type: none"> Ideal for sample's melting point < 1700°C PID temperature controller, high purity graphite crucible with double layer refractory liner, SS hinged type flange with feedthrough and vacuum port, two end open quartz tube (80 O.D x 76 I.D x 355 L mm), KF25 right angle valve, clamps, SS bellow, anti-corrosive Pirani gauge, recirculating water chiller, and vacuum pump are included
EQ-SP-25TC	<ul style="list-style-type: none"> Output frequency: 30-80 kHz Max output power up to 25 kW Duty cycle: 80% Induction coil: 120 mm O.D x 110 mm ID x 90 mm H 	<ul style="list-style-type: none"> Ideal for sample's melting point < 1700°C PID temperature controller, high purity graphite crucible with double layer refractory liner, SS hinged type flange with feedthrough and vacuum port, two end open quartz tube (100 O.D x 92 I.D x 355 L mm), KF25 right angle valve, clamps, SS bellow, anti-corrosive Pirani gauge, recirculating water chiller, and vacuum pump are included



Model	Specifications	Features
EQ-SPG-6-VMS	<ul style="list-style-type: none"> Output frequency: 0.6 - 1.1 MHz adjustable Max output power up to 6 kW Input current: 5 - 30 A 	<ul style="list-style-type: none"> Multi-turn helical conical heating coil is used to balance the three-dimensional force Can levitate electrically conductive material up to 10 g Single end opened quartz tube: 25 mm (OD) x 22 mm (ID) x 180 mm (L) Consists of vacuum sealing flanges with silicone o-ring, 1/4" barbed hose fitting, KF25 vacuum port, dial pressure gauge, and two needle valves Induction heater, water chiller and vacuum pump are integrated on a heavy duty mobile steel cart Motor-driven manipulator provides rigid support and easy height adjustment
EQ-SPG-6A-I	<ul style="list-style-type: none"> Output frequency: 100-500 kHz Max output power up to 6 kW Duty cycle: 100% 	<ul style="list-style-type: none"> To melt and perform heat treating less than 100 g Automatic timer control or manual control selectable Over pressure and over temperature switch Using rear fan for air cooling Induction coil consists of 20 mm O.D x 45 mm H is included
EQ-SPG-6A-III	<ul style="list-style-type: none"> Output frequency: 600-1100 kHz Max output power up to 6 kW Duty cycle: 100% 	<ul style="list-style-type: none"> To melt and perform heat treating less than 100 g Automatic timer control or manual control selectable Over pressure and over temperature switch Using rear fan for air cooling Induction coil consists of 20 mm O.D x 45 mm H is included
EQ-SPG-10A-I	<ul style="list-style-type: none"> Output frequency: 200-500 kHz Max output power up to 10 kW Duty cycle: 100% 	<ul style="list-style-type: none"> To melt and perform heat treating less than 100 g Automatic timer control or manual control selectable Over pressure and over temperature switch Using rear fan for air cooling Induction coil consists of 20 mm O.D x 45 mm H is included
EQ-SP-15AB	<ul style="list-style-type: none"> Output frequency: 30-80 kHz Max output power up to 15 kW Heating current: 200-600 A Duty cycle: 80% 	<ul style="list-style-type: none"> To melt and perform heat treating up to 1 kg Over pressure and over temperature switch Automatic timer control or manual control selectable Over pressure and over temperature switch Digital display shows output power and current One port is built in to connect temperature controller and thermocouple Three coils with different outer diameter with foot pedal and water connector are included
EQ-SP-25A	<ul style="list-style-type: none"> Output frequency: 30-80 kHz Max output power up to 25 kW Heating current: 200-1000 A Duty cycle: 80% 	<ul style="list-style-type: none"> To melt and perform heat treating up to 2 kg Over pressure and over temperature switch Automatic timer control or manual control selectable Over pressure and over temperature switch Digital display shows output power and current One port is built in to connect temperature controller and thermocouple Three coils with different outer diameter with foot pedal and water connector are included

HOT PLATES

EQ-SH-3	EQ-SP-131320Q-230V-LD	EQ-HP-3040	EQ-HP-1515
			
<ul style="list-style-type: none"> • Flat top and high-wattage heating elements max working temperature 300°C • Integral ring-stand holder accommodates 0.5" (1.3 cm) diameter support rod • Accommodates sample volume: 1000 ml • Adjustable speed range from 50 to 1600 rpm 	<ul style="list-style-type: none"> • Easy-to-read digital display indicates temperature settings, adjustable in 5°C increments, from 5°C up to 540°C • Adjustable speed range from 50 to 1200 rpm • StirTrac technology offers improved slow speed stirring and consistent speed control 	<ul style="list-style-type: none"> • IC digital temperature control from 35°C - 280°C with +/- 1°C accuracy • Extra flat surface and ideal for flat substrate wax mounting during polishing • Excellent for heating and mounting brittle crystal materials at uniform temperature • Heating area: 373 x 273 mm 	<ul style="list-style-type: none"> • Max temperature: 500°C with accuracy +/- 1°C • Extra flat surface and ideal for flat substrate wax mounting during polishing • SS surface which provides uniform heat distribution and resists spills and corrosion • Heating area: 150 x 150 mm

TEMPERATURE CONTROL UNIT



EQ-MTC-808



EQ-MTC-C4



EQ-MTC-A5



EQ-MTC-Z3



EQ-MTM-3




Model	Features
EQ-MTC-808	<ul style="list-style-type: none"> • PID temperature controller with precise control of heating rate, cooling rate, and dwell time • Thermocouple accepted: K, J, S, B, and C type • Over temperature protection and alarm allows for operation without attendant(s) • Power cable, 6 pin connector to SP-25A/SP-15AB Induction Heater, and pin connector to thermocouple
EQ-MTC-C4	<ul style="list-style-type: none"> • Max power consumption up to 5000 W • Thermocouple accepted: J, K, T, E, N, B, R and S type • Overall dimension: 295 x 190 x 90 mm • Designed for precision control of high temperature furnace from 500 - 1800°C with heating elements of resistant wire or SiC • PID via SCR power control with 30 segments programmable
EQ-MTC-A5	<ul style="list-style-type: none"> • Max power consumption up to 5000 W for single zone precision • Thermocouple accepted: K, S, R, J, B, C (W/Re-5/26) and D (W/Re-3/25) type • Overall dimension: 533 L x 431W x 165 H mm • Designed for precision control of high temperature furnace from 1000 - 1500°C with heating elements of resistant wire or SiC • PID via SCR power control with 30 segments programmable
EQ-MTC-Z3	<ul style="list-style-type: none"> • Max power consumption up to 9000 W for three zone precision • Thermocouple accepted: K, S, R, J, B, C (W/Re-5/26) and D (W/Re-3/25) type • Overall Dimension: 462 L x 434W x 200 H mm • Compatible with following 3 zone tube furnaces: <ul style="list-style-type: none"> - MTI OTF-1200X Series Tube Furnace - Thermo Fisher Scientific Lindberg/Blue M Three-Zone 1200°C Tube Furnaces - Thermcraft 1200°C Three Zone Tube Furnace • PID via SCR power control with 30 segments programmable
EQ-MTM-3	<ul style="list-style-type: none"> • Three channels temperature monitoring system with temperature alarm system • Using BT119 controller • Thermocouple accepted: K, S, and B type

HOT PRESS



Model	Specifications	Features
EQ-HP-88V	<ul style="list-style-type: none"> • Max working pressure up to 250 kN • 200°C continuous with water cooling • Max travel distance is 140 mm • Platen area is 200 mm x 200 mm 	<ul style="list-style-type: none"> • Consists of a manual hydraulic press oil pump and two heated platens • Water cooling jackets are installed with heating plate • The temperature of heated platens are controlled by two digital temperature controllers • Pressure gauge is mounted to monitor the pressure applied on the platens • Platens made of headen steel with Cr plated and surface flating with CNC grinding
EQ-DIE12-HC	<ul style="list-style-type: none"> • Working temperature range: 50 - 250°C 	<ul style="list-style-type: none"> • 1/2" diameter heat-able pressing die with digital temperature controller • High strength tool steel die material with hardness more than RC60 • Die outside diameter: 73 mm
EQ-HC-1	<ul style="list-style-type: none"> • Working temperature range: 50 - 250°C 	<ul style="list-style-type: none"> • 3" diameter heating jacket with digital temperature controller and PT100 thermocouple • 50 mm heating jacket width • Jacket holding diameter: 3"
EQ-HC-2	<ul style="list-style-type: none"> • Working temperature range: 50 - 250°C 	<ul style="list-style-type: none"> • 5" diameter heating jacket with digital temperature controller and PT100 thermocouple • 50 mm heating jacket width • Jacket holding diameter: 4.5"
EQ -HP-6T	<ul style="list-style-type: none"> • Max working temperature up to 1100°C • Max working pressure up to 6 T • Max travel distance is 25 mm • Platen area is 50 mm x 50 mm 	<ul style="list-style-type: none"> • Integrated with split vertical tube furnace with a vacuum-sealed 2" quartz tube and 12T manual hydraulic press • Digital pressure gauge with max pressure setting and alarm • Temperature control unit is separated from the main frame with auto tune PID and overheat protection
VHP-5T-4	<ul style="list-style-type: none"> • Max working temperature up to 500°C • Max working pressure up to 6 T • Max travel distance is 15 mm • Platen area is 150 mm x 150 mm 	<ul style="list-style-type: none"> • Modified 20T electric hydraulic press is connected to vacuum chamber • 1000W Heating tube is inserted into the center of the heating area for fast heating • Two 150mm x150mm flat heating plates made of high temperature Cr steel • Two precision temperature controllers control the heating plates separately with max pressure controlled by digital pressure gauge • One recirculating water chiller is included • Vacuum sealed 150mm diameter glass window is installed on the front door
OTF-1200X-VHP4	<ul style="list-style-type: none"> • Max working temperature up to 1100°C • Max working pressure up to 6 T • Max travel distance is 15 mm • Cylinder size: 25 mm 	<ul style="list-style-type: none"> • Integrated with split vertical tube furnace with a vacuum-sealed 4" quartz tube and 20T electric hydraulic press • Water cooled flanges are installed on two ends with KF25 vacuum port & pressure gauge as well as 1/4" gas inlet port with SS needle valve • Could achieve 10E⁻⁵ torr bacuum level by molecular pump • Two graphite pushing rods are buil in with one set of 0.5" I.D graphite die are included • Automated max pressure controller
EQ-HP-100	<ul style="list-style-type: none"> • Max working temperature up to 450°C • Max working pressure up to 24 T • Max travel distance is 50 mm • Platen area is 90 mm x 90 mm 	<ul style="list-style-type: none"> • Consists of 24T manual hydraulic press with two heated platens • Material of heated platen area is Cr12MoV alloy with surface flating with CNC grinding • Two water cooling jacket are built on back of top and bottom heating plate separately • Heated platens are controlled by separated two digital temperature controller

COLD ISOSTATIC PRESS

CIP-15	CIP-20TA	CIP-50A
		
Miniature CIP with Protection Cover	Electric CIP with Protection Cover	Electric CIP Machine
<ul style="list-style-type: none"> • 22 mm ID x 90 mm hydraulic chamber made by ultra strength alloy • Hydraulic pressure up to 15 metric tone • Operating temperature between 10 - 40°C • Max pressure up to 300 MPa 	<ul style="list-style-type: none"> • 30 mm ID x 100 mm hydraulic chamber made by ultra strength alloy • Hydraulic pressure up to 20 metric tone • Operating temperature between 10 - 40°C • Max pressure up to 278 MPa 	<ul style="list-style-type: none"> • Operated manually with 50mm ID x 150mm H chamber • Hydraulic cylinder pressure up to 50 metric tone • Chamber pressure range in 0 - 250 MPa • 1 MPa per 5 minutes pressure stability

HYDRAULIC PRESS



Model	Max Pressure	Features
EQ-YLJ-12T	12 T	<ul style="list-style-type: none"> • Built in hydraulic pump with auto return function and transparent protection cover • 16.5" length of press rocker with net weight of 30 kg • Max lifting height of bottom cylinder is 25 mm
EQ-YLJ-20TA	20 T	<ul style="list-style-type: none"> • Built in hydraulic pump with auto return function and transparent protection cover • Pressure gauge with adjustable pressure limit switch • 0 - 100 seconds timer setting • Bottom hydraulic cylinder travel distance ranges in 0 - 20 mm • Net weight of 64 kg
EQ-YLJ-24T	24 T	<ul style="list-style-type: none"> • Built in hydraulic pump with auto return function and transparent protection shield • Net weight of 34 kg • Max lifting height of bottom cylinder is 25 mm
EQ-YLJ-20TA-H	20 T	<ul style="list-style-type: none"> • Built in electric hydraulic pump with automatic pressure limit switch and warning timer • Pressure gauge with built in pre-stable pressure switch and timer • Pressure load will stop when pressure reach pre-setting point
EQ-YLJ-40TA	40 T	<ul style="list-style-type: none"> • Built in electric hydraulic pump with automatic pressure limit switch and warning timer • Pressure gauge with built in pre-stable pressure switch • Pressure load will stop when pressure reach pre-setting point • Bottom hydraulic cylinder travel distance ranges in 0 - 25 mm • Net weight of 55 kg
EQ-YLJ-60TA	60 T	<ul style="list-style-type: none"> • Built in hydraulic pump which is driven by electric oil pump with large pressure gauge • Bottom hydraulic cylinder travel distance ranges in 0 - 50 mm • Net weight of 209 kg
EQ-YLJ-100G	100 T	<ul style="list-style-type: none"> • Built in manual operated hydraulic pump with auto return, which is design for materials/chemistry research laboratories to prepare larger samples/targets of compound ceramics • 180 mm diameter of piston

ROLLING PRESS



Model	Features
MSK-HRP-MR100A	<ul style="list-style-type: none"> Power: Driven by 0.5 HP high torque gear AC Motor Constant rolling speed: 65 mm/second Dual micrometer for accurate thickness adjustment in the range 0 - 1.8 mm maximum. Dimension rollers: 100 mm Dia. x 100 mm W
MSK-HRP-MR100B	<ul style="list-style-type: none"> Dual rollers made from hardened tool steel with Cr electroplated coating Dual micrometer for accurate thickness adjustment in the range 0 - 1.8 mm maximum Ceramic coated on hardened tool steel with HRC>72 High resistance to corrosion, acid and alkalinity, and reducing metallic contamination Power driven by 0.5 HP high torque gear AC motor Constant rolling speed: 65 mm/second
MSK-HRP-01	<ul style="list-style-type: none"> Max. heating temperature: 125°C (< 1hour) Constant rolling speed: 0 - 40mm /sec adjustable Calendering thickness: 0 - 1.2 mm adjustable Dimension rollers: 100 mm Dia. x 100 mm W Dial gauge accuracy: 0.01 mm
MSK-HRP-03	<ul style="list-style-type: none"> Max. heating temperature: 80°C Max. power consumption: 2000 W Constant rolling speed: 0 - 40 mm/sec adjustable Roller size: 8" D x 10" W made from high quality tool steel with Cr plated Pressing thickness: 0 - 2 mm adjustable Surface hardness of rollers: HRC60-62
MSK-2150	<ul style="list-style-type: none"> Power of motor: 120 W Constant rolling speed: 35 mm/second Dual micrometer for accurate thickness adjustment in the range 0 - 1.5 mm Dimension rollers: 94 mm Dia. x 150 mm W
MSK-E2300A	<ul style="list-style-type: none"> Roller dimension: 200 D x 330 W mm Material: HRC60-62 Effective rolling width: <250 mm Pressure gap: 0.05 - 1 mm adjustable by dual micrometer knobs Press Planeness +/- 0.0025 mm Pressure load: 2 - 20 T adjustable by digital control Digital pressure gauge with RS-232 PC port to show and record pressure change Rolling speed: 0-3.5 m/min adjustable by digital controller
MSK-E2300B	<ul style="list-style-type: none"> Roller dimension: 200 D x 330 W mm Material: HRC60-62 Effective rolling width: <250 mm Pressure gap: 0.05 - 1 mm adjustable by dual micrometer knobs Press Planeness +/- 0.0025 mm Pressure load: 2 - 20 T adjustable by digital control Digital pressure gauge with RS-232 PC port to show and record pressure change Rolling speed: 1-6 m/min adjustable by touch screen control panel
MSK-MR-500-ROLL	<ul style="list-style-type: none"> Roller size: 2.5" D x 5" W made from hardened tool steel Overall dimension: 225 mm L x 530 mm W x 425 mm H Made from heavy duty steel frame, gears and handle Rolling thickness is adjustable from 0.1 - 1.5 mm Min thickness: 0.1 mm

LABORATORY MILL/MIXER



SAMPLE PREPARATION

Model	Speed (rpm)	Features
MSK-SFM-1	Main plate: 30 -350 Mixing tank: 0 - 300	<ul style="list-style-type: none"> Granularity can be as small as 0.1 micron Timer controls major platen's running time from 1 - 999 min Timer control tank rotation time from clockwise to anticlockwise direction from 1 - 99 min 4 500 ml alumina jars with various size of YSZ mill balls are included
MSK-SFM-2	Main plate: 0 -100 Mixing tank: 0 - 300	<ul style="list-style-type: none"> Granularity can be as smaller than 0.5 micron Three dimensions rotation: major platen, individual tank and up-down gravity Digital display the speed of tank rotation in rpm Running time can be set from 1 - 999 min The ratio of main cycle speed and tank rotation speed: 1:3 Four sets of agate milling balls included (96 balls in total) in standard package with various sizes
MSK-SFM-3	1200	<ul style="list-style-type: none"> Granularity can be as small as 0.1 micron Can be used in either dry or wet method to mill materials and mix all kinds of solids, suspended liquids, and pastes with different sizes and materials Timing range from 0 - 120 min One 50 ml alumina jar with one set Zirconia mill balls are included
MSK-SFM-5	0 - 1200	<ul style="list-style-type: none"> Granularity can be as small as 1 micron 5 liter stainless steel container with water cooling jacket Programmable controller to set time, speed and rotation direction
MSK-SFM-6E	Rotor Rod: 0 - 1400 Clean Blade: 10 - 110	<ul style="list-style-type: none"> Advanced T type sealing to keep vacuum pressure up to 12 hours 5 liter 304 stainless steel container with double layer water cooling jacket Multi-layer blending blade has variable speed from 0-2800 rpm A rotating blade close to container wall to keep container constantly cleaning during mixing
MSK-SFM-7	320	<ul style="list-style-type: none"> Built in vacuum pump with -0.08 - 0.09 MPa The vibration plate is located at the bottom to remove gas bubble before vacuum mixing and disperse the slurry after mixing Vibration plate frequency at 1 kHz One 150 ml stainless steel and one 100 ml aluminum container are included
MSK-SFM-8	Mortar: 0 -10 Pestle: 0 - 80	<ul style="list-style-type: none"> Granularity can be as small as nanometers 5" agate mortar and agate head pestle Grinding pressure is adjusted by spring Grinding time can be set according to using the automated controller The mortar can be taken off easily for cleaning.
MSK-SFM-9	Stirring: 0 - 112 Dispersing: 0 - 6100	<ul style="list-style-type: none"> 5 Liter tri-shaft planetary vacuum mixer with vacuum pump and PLC touch panel control One digital temperature controlled recirculating water chiller included Vacuum pump built in Water cooling jacket with temperature monitor and over-temperature alarm installed
MSK-SFM-11	20 - 90	<ul style="list-style-type: none"> V-shaped mixing tank for separating and combining powder granules (made of SS 304) Digital display and simple control interface provides easy programming of mixing operations Timer Setting Range 1 - 900 min Mixing tank capacity: 2.5 L



Model	Speed (rpm)	Features
MSK-SFM-10M	Stirring: 0 - 112 rpm Dispersing: 0 - 3800 rpm	<ul style="list-style-type: none"> • 2 Liter multi-movement during stirring, including, revolution and rotation, double stirring shaft, single scattered shaft & scraping the walls to make slurry gas-bubble free and extreme uniform under vacuum • One digital temperature controlled recirculating water chiller included
MSK-SFM-12M	2700 - 4000	<ul style="list-style-type: none"> • Simultaneous homogenization of up to 3 samples at 2 ml tube takes place (often within 45 seconds) inside the disposable 2ml screw cap microtubes • Timer can be set within 3 sec to 3 min • Three types of Pure High Impact Zirconia Beads are included for rapid milling • 6 Prefilled Tube Kits and 4 empty tube kits (non-skirted with caps)
MSK-SFM-ALO	500	<ul style="list-style-type: none"> • Compact electric jaw crusher with adjustable digital crushing size controller • Input size: 5-20 mm diameter/thickness • Two high purity alumina plates which easy to be removed for cleaning
MSK-SFM-14	60 - 600	<ul style="list-style-type: none"> • Max driving load is 25 kg • Can accept mill tank with max diameter of 250 mm and max length of 175 mm • Running time can be set up from 1-9999 minutes
MSK-FT01	3 l/m (Pump Flow Rate)	<ul style="list-style-type: none"> • Slurry filtration system is designed for laboratory use with SS304 slurry container • To remove particle sizes with diameter more than 24 micrometer • Absolute vacuum level of 65 kPa
MSK-FT02	8000 - 1000 GC (De-ironing function)	<ul style="list-style-type: none"> • De-ironing filtration system designed for optimizing the condition of slurry before the coating process • Structure made of SS304 with capacity 5 liters • Optional filter from 80-120 mesh upon request
MSK-VUSP-12	1200 W (Ultrasonic Output Power)	<ul style="list-style-type: none"> • The ultrasonic processing rod is made of high purity alumina to avoid metallic contamination • An ideal tool for preparing new generation of LED phosphor, Li-ion battery slurry and quality thin film by sol-gel method • Processor head is made from alumina ceramic with 12 mm diameter • Liquid handling: 100 ml - 2000 ml • Adjustable digital timer from 1 sec to 99 hour with temperature control built in
MSK-USP-12N	1200 W (Ultrasonic Output Power)	<ul style="list-style-type: none"> • One sound-proof box is included to put ultrasonic processor into the chamber • Designed for dispersing nano-powder in liquid, homogenizing liquid phase from co-precipitation and mixing multi-chemical in one solution • Processor head is made from Ti metal with 12 mm diameter • Liquid handling: 100 ml - 2000 ml • Adjustable digital timer from 1 sec to 99 hour with temperature control built in
MSK-USP-3N	300 W (Ultrasonic Output Power)	<ul style="list-style-type: none"> • One sound-proof box is included to put ultrasonic processor into the chamber • Designed for disperses nano-powder in liquid with smaller quantity, homogenize liquid phase from co-precipitation and mix multi-chemical in one solution • Processor head is made from Ti metal with 8 mm diameter • Liquid handling: 100 ml - 2000 ml • Adjustable digital timer from 1 sec to 99 hour with temperature control built in

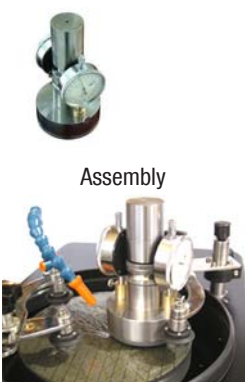
POLISHING MACHINE

MTI's polishing machine can be used as a high precision lapping machine for polishing crystal components, semiconductor wafers and ceramic substrates. They also can be adopted as a standard grinding and polishing machine for preparing metallographic samples.



Model	Speed	Description
EQ-UNIPOL-300	0 - 160 rpm	<ul style="list-style-type: none"> One rubber polishing bowl with one 3" glass lapping plates, two 1" dia. sample holders are included Adjustable speed and time with analog control
EQ-UNIPOL-800-LD	500 - 3000 rpm	<ul style="list-style-type: none"> Coolant reservoir (top black) with valve and drain container (bottom black) are included for operating the machine anywhere Adjustable speed and time with analog control
EQ-UNIPOL-1210	50 - 600 rpm	<ul style="list-style-type: none"> 12" Aluminum mater plate with magnetic pad and steel buffer sheet to make replace diamond plate and sand paper at easy Digital control panel with touch button operation and water resistance
EQ-UNIPOL-820	0 -600 rpm	<ul style="list-style-type: none"> Heavy duty grinding / polishing machine with two 8" lapping plates and independent speed control Upgraded magnetic plates were installed in the machine, which makes installing sand paper/ polishing pad quickly and easily
EQ-UNIPOL-810	80 - 600 rpm	<ul style="list-style-type: none"> Automatic slurry feeder can realize automatic dropping grinding lubricant Desk top installation, stepless speed adjustable, digital display rotary speed, convenient to operate
EQ-UNIPOL-802	0 - 125 rpm	<ul style="list-style-type: none"> Equipped with 8" super flat lapping plate and can be used as a high precision lapping machine for polishing crystal components, semiconductor wafers, and ceramic substrates up to 3" in diameter
EQ-UNIPOL-1000S	20-350 rpm	<ul style="list-style-type: none"> Adjustable pressing force for different polishing conditions and materials Multiple sample polishing if sample size less than 50mm in diameter with adjustable speed
EQ-UNIPOL-1202	0 - 125 rpm	<ul style="list-style-type: none"> Two super flat lapping plate with flatness < 0.25 micron/inch². One cast iron plate for lapping and one cast aluminum plate for polishing Two rocking work stations with wafer holders and condition rings, which can be controlled independently for polishing 2 pcs of 4" wafers in same time
EQ-UNIPOL-160D	0 - 1500 rpm	<ul style="list-style-type: none"> Can lap and polish 4 pieces of maximum 2" wafers in double sides at same time, and achieves TTV less of one micron in 2" diameter area Adjustable speed analog control
EQ-UNIPOL-1502	0 - 80 rpm	<ul style="list-style-type: none"> Three rocking work stations with wafer holders and condition rings Can be controlled independently for polishing 3 pcs of 4" wafers or 9 pieces of 2" wafers in one running

EQ-PF-2-1

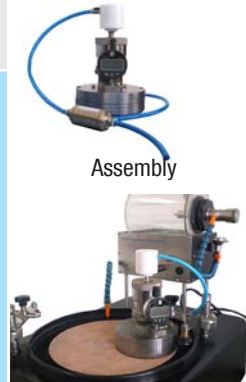


Assembly

2" Polishing Fixture for Precision/ Automatic Thinning and Polishing

- 2" sample holder to take wafer or substrate up to 2"
- Thickness control screw fixture with resolution of 0.005 mm
- Two micrometers are included with resolution of +/- 1 micron
- Can fit with Unipol 801, Unipol 802 and any precision 8" polishing machine with York support

EQ-PF-4-1V



Assembly

4" Polishing Fixture with Vacuum Chuck for Faster Thinning and Polishing

- 4" sample holder vacuum chuck to take wafer or substrate up to 4"
- Vacuum chuck can suck wafer through vacuum pump without wax
- One digital micrometer is included with resolution of +/- 1 micron
- Can fit with Unipol 1202 and Unipol 1502 and any precision 12" or larger polishing machine with York support

CUTTING AND DICING SAWS



Model	Speed	Description
SYJ-30	Up to 2800 rpm	<ul style="list-style-type: none"> Two 10" OD x 1.25" (I.D) x 2 mm (Thick) SiC cutting blade included Maximum cutting section: 30 mm x 30 mm
EQ-MT-5-LD	Up to 7800 rpm	<ul style="list-style-type: none"> One 2" diameter high speed steel blade for cutting metallic sample and two SiC blade for cutting non-ferrous metal and ceramic sample
SYJ-40-LD	400 - 3250 rpm	<ul style="list-style-type: none"> 4 pieces cutting blade with the diameter of 4"
SYJ-150	0 - 600 rpm	<ul style="list-style-type: none"> Three 4" blades (SiC, Al₂O₃ and full sintered diamond type) are included for cutting various materials Adjustable speed with LED display
SYJ-160	0 - 600 rpm	<ul style="list-style-type: none"> Three 6" cutting blades (edge sintered diamond, SiC and Al₂O₃) are included for cutting various materials Water-proof LCD digital micrometer with reading of 0.001 mm and accuracy of 0.003 mm
SYJ-200	300 - 3500 rpm	<ul style="list-style-type: none"> Three 8" cutting blades (Sintered diamond, SiC and aluminum) are included for cutting various materials Re-circulating coolant system with adjustable nozzles
SYJ-400	Up to 3000 rpm	<ul style="list-style-type: none"> One 4" dia x 0.35 mm thick fully sintered diamond blade with two pairs of flanges of 62 mm dia. (for dicing) and 42 mm dia. (for deep cutting)
SYJ-800	Up to 3000 rpm	<ul style="list-style-type: none"> Two 4" cutting blades (Fully sintered diamond and edge sintered diamond) are included for cutting various materials Adjustable speed with digital controller

DIAMOND WIRE SAWS



Model	Wire Travelling Speed	Description
STX-201	0 - 5 mm/sec	<ul style="list-style-type: none"> Traveling position accuracy +/- 0.003 mm (3 microns) with a 2" Digital micrometer head Stage traveling distance: Maximum 2" with 360° horizontal rotating and 30° tilt stage included
STX-202A	0 - 1.5 m/sec	<ul style="list-style-type: none"> Stage traveling distance Y axis: 50 mm, Z axis: 60 mm, 360° horizontal rotating, and +/-10° tilting Traveling position accuracy: +/- 0.01 mm
STX-402	0 - 2 m/sec	<ul style="list-style-type: none"> 6" digital control panel with LCD touch screen to control moving speed of diamond wire, feeding speed of sample stage, slicing thickness and diameter Maximum cutting sample: 110 mm x 110 mm
STX-603	0 - 2 m/sec	<ul style="list-style-type: none"> Z and Y axis maximum traveling distance: 160mm (±0.01mm accuracy) 1 - 35mm/min adjustable cutting speed
STX-1202	0 - 4 m/sec	<ul style="list-style-type: none"> 6" digital control panel with LCD touch screen to control moving speed of diamond wire, feeding speed of sample stage, the slicing thickness and coolant pump operation Maximum cutting dimensions: Ø 300 mm x 300 mm
STX-2401	0 - 4 m/sec	<ul style="list-style-type: none"> 6" digital control panel with LCD touch screen to control moving speed of diamond wire, feeding speed of sample stage, the slicing thickness and coolant pump operation Maximum cutting dimensions: Ø 600 mm x 600 mm

DISC CUTTERS



MSK-T-06



MSK-T-07



MSK-T-09



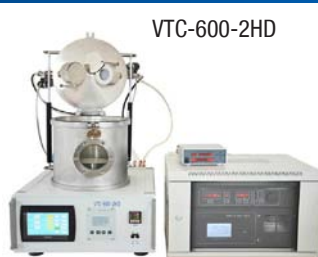
MSK-T-50



MSK-T-10

Model	Max Cutting Thickness	Description
MSK-T-06	0.2 mm	Precision disc cutter with standard 15, 19, 20 & 24 mm and optional sizes of 10, 12, 12.7 (1/2"), 16, 18 mm available diameter cutting die
MSK-T-07	0.5 mm	Compact precision disc cutter with standard 15, 19, 20 & 24 mm diameter cutting die
MSK-T-09	1.29 mm	Round Disc and Ring Cutter Set for Metallic Sheet upto 1.29 mm Thick
MSK-T50	0.5 mm	Portable precision disc cutter for 48.5 mm round disc
MSK-T-10	0.5 mm	Compact & precision disc cutter with standard 16, 19, 20 (optional sizes of 3 - 24 mm available) diameter cutting die

PLASMA SPUTTERING COATER



VTC-600-2HD



GSL-1100X-SPC-16-M-LD






VTC-16-3HD



GSL-1800X-SBC2

Model	Description
GSL-1100X-SPC12-LD	<ul style="list-style-type: none"> Designed for making metallic coatings, such as gold, platinum, Indium and silver etc which can be applied on a sample up to 40 mm diameter with 300 Angstrom thickness Maximum sample of 1.5" with gold sputtering target and vacuum pump
GSL-1100X-SPC12H-LD	<ul style="list-style-type: none"> Heatable plasma sputtering coater and designed for making metallic coatings, such as gold, platinum, Indium and silver etc, on a sample up to 40 mm diameter with 300 Angstrom thickness Built in 60 mm diameter substrate heater up to 600°C
GSL-1100X-SPC-16-M-LD	<ul style="list-style-type: none"> Single target compact magnetron plasma sputtering coater with double step rotary vane vacuum pump One magnetron with Peltier cooling device is installed on top of machine, which will provide strong sputtering energy and produce better and faster coating for metallic target, such as Al, Zinc, and Mg etc
GSL-1100X-SPC-15E-LD	<ul style="list-style-type: none"> Compact evaporating coater with double step rotary vane vacuum pump, which is suitable for coating light metal, Al, Mg, and Li as well as carbon film to sample up to 2" wafer 45 mm diameter of max coating area
VTC-16-3HD	<ul style="list-style-type: none"> Three rotary target plasma sputtering coater with 2" substrate heater up to 500°C and touch screen digital controller Can coat 1- 3 type of metallic material to one sample up to 50 mm diameter
VTC-600-2HD	<ul style="list-style-type: none"> Dual target position magnetic sputtering system which is RF/DC convertible source Equipped with film thickness tracker for user easily addressing coating progress and handling data recording Target size: 2" dia. x 0.5-1mm thickness within up to 20 rpm rotation
GSL-1800X-SBC2	<ul style="list-style-type: none"> Integrates thermal evaporation, carbon coating and plasma sputtering coating into one machine High speed turbomolecular vacuum pump are installed bottom of the coater
VTC-2D	<ul style="list-style-type: none"> A compact 2" single head DC Plasma magnetron sputtering system coating non-metallic. It integrates all components into one floor stand cabinet, including DC 300 power source, quartz vacuum chamber, vacuum pump, recirculating water chiller and film thickness monitor etc
VTC-2RF	<ul style="list-style-type: none"> A compact 2" single head RF Plasma magnetron sputtering system coating non-metallic. It integrates all components into one floor stand cabinet, including RF 300 power source, quartz vacuum chamber, vacuum pump, recirculating water chiller and film thickness monitor etc

SCREEN PRINTING COATER

EQ-SPC-1	EQ-SPC-2	EQ-SPC-32
		
<ul style="list-style-type: none"> • X, Y, and Z positions can be adjusted by the three micrometers with vacuum chuck to load and unload substrate easily • Max 70 x 50 mm printing area • Vacuum chuck, 100mm x 80mm • Screen Frame adjusting, $\pm 10^\circ$ adjustable • One 120L/min Oilless Vacuum Pump is included for immediate use 	<ul style="list-style-type: none"> • Dia. 150 mm precision position adjustable at three dimension and vacuum chuck to load and unload substrate easily • Max. 155 x 255 mm printing area • Vacuum chuck, 150 mm diameter • Screen Frame adjusting, $\pm 20^\circ$ adjustable • One 120L/min Oilless Vacuum Pump is included for immediate use 	<ul style="list-style-type: none"> • Max. Area: 300 mm x 200 mm • Max. substrate height: 30mm • Working table area: 400mm W x 330mm D • Printing blade is driven by compressed air • Vacuum pump is included • Linear motion is driven by precision motor with linear guide with adjustable speed controller • Resolution of repeatable printing: < 0.03mm

DIP COATER



Model	Specifications	Features
PTL-MM01	<ul style="list-style-type: none"> • Dipping speed within 1-200 mm/min adjustable • Dipping travelling within 0-200 mm adjustable • Max sample size within 50 L x 25 W x 2.5 H mm 	Two screw sample clips and one 150 ml beaker are included
PTL-MM02	<ul style="list-style-type: none"> • Dipping speed within 1-200 mm/min adjustable • Dipping travelling within 0-75 mm adjustable • Max sample size within 50 L x 25 W x 2.5 T mm 	Programmable dip coater with color touch screen control. Two screw sample clips and one 150 ml beaker are included
PTL-200	<ul style="list-style-type: none"> • Dipping speed within 1-200 mm/min adjustable • Stroke length max is 300 mm • Max sample size within 10" L x 12" W x 15 mm T 	The ball screw pulling system and 6"x4" Color PLC controller offers smooth, vibration-free travel in both directions. Pulling rate, immersion rate, dwell time, and cycling time are fully programmable
PTL-SC-6	<ul style="list-style-type: none"> • Dipping speed within 2-9000 micron/sec adjustable • Stroke length max is 75 mm • Up to 999 dips 	Has 6 positions sample holder for programmable. The dipping speed, dip duration, retrieval speed and dry duration can be set for each beaker
PTL-SC-6S-LD	<ul style="list-style-type: none"> • Dipping speed within 2-9000 micron/sec adjustable • Stroke length max is 75 mm • Up to 999 dips • Working temperature is up to 350°C from ambient 	Has a motorized substrate holder. The dipping speed, dip duration, retrieval speed and dry duration can be set for each beaker. Each hot plate can be set at different temperatures.
PTL-HT-2-LD	<ul style="list-style-type: none"> • Dipping speed within 2-9000 micron/sec adjustable • Stroke length max is 150 mm • Up to 999 dips • Working temperature is up to 200°C from ambient 	Movements achieved by precision servo motor that offers vibration and noise free with dual mode either manual or PC mode. Infrared heater is incorporated with it to manipulate temperature
PTL-MM02-8P	<ul style="list-style-type: none"> • Dipping speed within 1-200 mm/min adjustable • Stroke length max is 65 mm • Horizontal moving speed: 50-500 mm/min adjustable 	A multi position precision dip coater, which can coat 5 pcs sample in one row at each time, and dip each row of sample up to 8 position as program to achieve multi-sample coating upto 40 pcs at each time

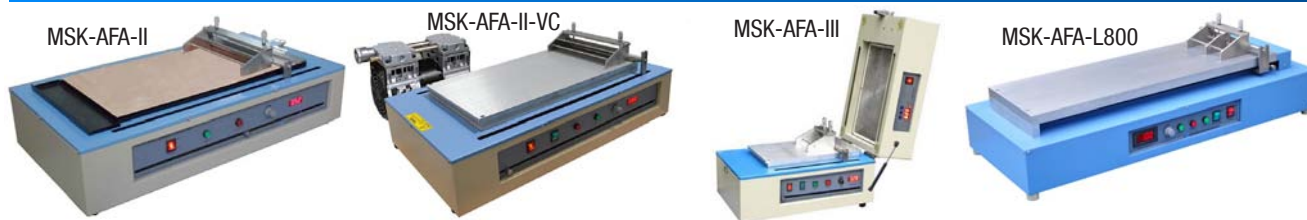
DIP COATER WITH CHAMBER



SAMPLE PREPARATION

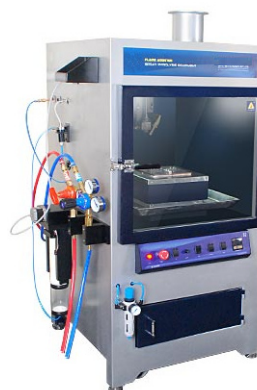
Model	Specifications	Features
PTL-UMB	<ul style="list-style-type: none"> • Pulling speed: 1-500 um/sec • Max sample size: 3" L x 2" W • Continuous working temperature: 50-200°C • Travelling distance: 0-60 mm adjustable 	Dipping rate, pulling rate, dwell time, and cycle life can be setup by touch screen controller and run dip coating automatically in the temperature controllable oven
PTL-HT	<ul style="list-style-type: none"> • Total stoke length: 620mm • Pulling Speed: 1-200 mm/min • Dwelling time: 1-999 seconds • Continuous working temperature: 1000°C 	Consists of 2" tube furnace and color touch screen controller. Dipping rate, pulling rate, dwell time and life cycle can be setup by touch screen. Solution is located at the bottom of the sealed tube at room temperature, and sample can go through a hot zone up to 800°C
PTL-MMB01	<ul style="list-style-type: none"> • Travelling distance: 0-200 mm adjustable • Dipping/pulling speed: 1-200 mm/min • Max. Sample size: 3" L x 2" W • Temperature range: 50-200°C 	Controlled by SBC, which provides adjustable dipping speed, pulling speed, and travelling length.
PTL-MMB02	<ul style="list-style-type: none"> • Travelling distance: 0-60 mm adjustable • Dipping/pulling speed: 1- 200 mm/min • Max. Sample size: 3" L x 2" W • Temperature range: 50 - 200°C 	CE Certified Millimeter Grade Desktop Programmable Dip Coater (1-200 mm/min) with "touch-screen" digital control. Dipping rate, pulling rate, dwell time, and cycle life can be setup by touch screen controller and run dip coating automatically in the temperature controllable oven
PTL-NMB	<ul style="list-style-type: none"> • Travelling distance: 0-60 mm adjustable • Dipping/pulling speed: 1-500 nm/sec • Max. Sample size: 3" L x 2" W • Temperature range: 50 - 200°C 	CE Certified Nanometer Grade Desktop Programmable Dip Coater (1-500 nm/sec) with "touch-screen" digital control. Dipping rate, pulling rate, dwell time, and cycle life can be setup by touch screen controller and run dip coating automatically in the temperature controllable oven
PTL-OV5P	<ul style="list-style-type: none"> • Travelling distance: 0- 75 mm adjustable • Dipping/pulling speed: 1-200 mm/min programmable with accuracy within +/- 0.02% • Temperature range: 50 - 200°C 	CE Certified Programmable Dip Coater (1-200 mm/min) designed to preparing multilayer coating up to 5 solutions inside a temperature controlled oven with touch-screen digital control. Dipping rate, pulling rate, dwell time, and amount of cycles can be setup by touch screen controller
PTL-OV6P	<ul style="list-style-type: none"> • Travelling distance: 0-80 mm adjustable • Dipping/pulling speed: 1-40 mm/min programmable with accuracy within +/- 0.02% • Temperature range: 50 - 200°C (+/- 1°C accuracy) 	CE Certified Programmable Dip Coater (1-200 mm/min) designed to preparing multilayer coating up to 6 solutions inside a temperature controlled oven with touch-screen digital control. Dipping rate, pulling rate, dwell time, and amount of cycles can be setup by touch screen controller
PTL-MMB02-200	<ul style="list-style-type: none"> • Travelling distance: 0-250 mm adjustable • Dipping/pulling speed: 1-200 mm/min adjustable • Max. Sample size: 16" Lx 9" W • Max. Working temperature: 100°C with +/- 1.5°C accuracy 	CE Certified Millimeter Grade Desktop Programmable Dip Coater (1 - 200mm/min) with 124L drying oven. It is designed to accommodate the substrates up to 16"x 9" with fully programmable dipping/pulling speed, dwell time and amount of cycles. The ball screw pulling system offers smooth vibration free travelling in both directions

DOCTOR BLADE FILM COATER



Model	Max Coating Dimensions	Features
MSK-AFA-II	12" W x 24" L	<ul style="list-style-type: none"> • 10 - 550 mm adjustable by using adjustable position switch • 250 mm adjustable doctor blade included
MSK-AFA-II-VC	12" W x 24" L	<ul style="list-style-type: none"> • 10 - 550 mm adjustable by using adjustable position switch • 250 mm adjustable doctor blade included • 120L/m oilless vacuum pump included for immediate use
MSK-AFA-III	365 mm L x 200 mm W	<ul style="list-style-type: none"> • 10 - 250 mm adjustable by using adjustable position switch • 100 mm adjustable doctor blade included • 120L/m oilless vacuum pump included for immediate use
MSK-AFA-L800	800 mm L x 250 mm W	<ul style="list-style-type: none"> • 800 mm long tape casting coater with vacuum chuck, oilless vacuum pump, and micrometer adjustable applicator. • 10 - 800 mm adjustable by using adjustable position switch • 250 mm adjustable doctor blade included • 120L/m oilless vacuum pump included for immediate use

SPRAY PYROLYSIS COATING EQUIPMENT



MSK-USP-02-LD	MSK-USP-04-LD
<ul style="list-style-type: none"> • Three Spray heads are included <ul style="list-style-type: none"> -Ultrasonic spayhead: for thinner film coating -Compressive air spary : for thick film -20ml Syringe pump with compressive air • Dispensing unit capacity: 50ml & 250ml (two containers included) • Dispensing rate: 1-20ml / sec. adjustable via software. • One brand new laptop computer with pre-installed software is included for immediate use • Ultrasonic atomizer nozzle: 40 KHz, 130W • Producing a fine spray of droplets of 50 micron average size. • Sprayer traverse: X - Y 200 mm max. • Drive speed X axis (min-max): 10-800 mm / sec • Drive speed Y axis (min-max): 1-12 mm / sec • Substrate plate dimension: 150 X 150 mm • Max temperature: 500°C • PC connectivity: RS232 Port • One Compact air ompressor is included for immediate use 	<ul style="list-style-type: none"> • Three Spray heads are included <ul style="list-style-type: none"> -Ultrasonic spayhead: for thinner film coating -Compressive air spary : for thick film -20ml Syringe pump with compressive air • Dispensing unit capacity: 50ml & 250ml (two containers included) • Dispensing rate: 1-20ml / sec. adjustable via software. • One brand new laptop computer with pre-installed software is included for immediate use • Ultrasonic atomizer nozzle: 40 KHz, 130W • Producing a fine spray of droplets of 50 micron average size. • Sprayer traverse: X - Y 200 mm max. • Drive speed X axis (min-max): 10-800 mm / sec • Drive speed Y axis (min-max): 1-12 mm / sec • Substrate plate dimension: 150 X 150 mm • Max temperature: 500°C • PC connectivity: RS232 Port • One Compact air compressor is included for immediate use • Digital temperature controller with 7 segment programmable

ELECTROSPINNING STATION



MSK-NFES-3LD

- Digital control for various features like rotating mandrel speed, spin duration, syringe pump flow rate etc
- Rotating mandrel targets of varying diameters, stationary target provided with the system
- System hood has features like exhaust fan, halogen lighting and transparent door for monitoring electrospinning process
- Built-in ark protection circuit
- Four syringe dispensing system
- SS Plate with grounding facility
- Stationary target dimension: 320 mm x 100 mm x 2 mm
- Drum collector rotational speed: 300 - 4000 rpm
- Microprocessor controlled BLDC motor with hall sensor feedback
- Drum collector speed stability: +/-1%
- Transparent glass windows on four sides for easily monitoring the electrospinning process



MSK-NFES-4LD

- PC control for various features like rotating mandrel speed, spin duration, syringe pump flow rate etc
- Rotating mandrel targets of varying diameters, stationary target provided with the system
- System hood has features like exhaust fan, halogen lighting and transparent door for monitoring electrospinning process
- Built-in ark protection circuit
- Four syringe dispensing system
- SS Plate with grounding facility
- Stationary target dimension: 320 mm x 100 mm x 2 mm
- Drum collector rotational speed: 300 - 4000 rpm
- Microprocessor controlled BLDC motor with hall sensor feedback
- Drum collector speed stability: +/-1%
- Transparent glass windows on four sides for easily monitoring the electrospinning process
- Centralized software control of almost all of the electrospinning parameters (laptop is included for immediate usage)

THIN FILM ANALYZER



EQ-TM106

Compact High Resolution Film Thickness Monitor and Controller

- Based on the principle that the oscillating frequency of a quartz crystal is changed by the mass of a deposited film on its upper face
- Electronically measuring this effect allows for a determination of the thickness of a deposited film
- Once the density of the evaporated material is entered into the system, the thickness is measured to a resolution of 0.1 Å on a digit LED display having a range of 0-999.9 nanometers
- Crystal frequency of 6 MHz with resolution of 0.03 Hz
- Probe length: 120 mm standard
- Probe diameter: 10 mm
- Built in water cold jacket to keep probe temperature lower than 150°C
- 10 pieces new oscillators crystal (14mm diameter) included
- 6 digital LED display with thickness termination program



EQ-TFCAS

Thin Film & Coating Analysis Systems with Measurement Capability

- Provides a non-contact solution to analyze thin films and coatings with thickness from 5nm to 200µm in less than a second
- Capable of measuring the thickness and index of films and support both single and multiple (up to 5+) layers
- Film measurement is carried out in two steps: data acquisition and data analysis
- Optical properties obtained from reflection and thickness is measured by detecting the sinusoidal fringe pattern from the sample's specular reflectance
- Real-time Spectral Capture and Instrument control for Reflectance and/or Transmittance
- Supports Parameterized materials: Cauchy, Sellmeier, Effective Medium Approximation, Harmonic Oscillator, Tauc-Lorentz Oscillator, Drude-Lorentz and much more

SAMPLE PREPARATION

THERMAL EVAPORATION COATER

GSL-1800-ZF4



- Ultra-vacuum evaporation coater designed for coating oxygen sensitive metallic materials, such as Ti, Al and Ir etc, also can be used for coating all kinds of materials. which has four evaporation heater sources and coat two type of materials in same time at high vacuum up to 10E-6 torr.
- Stainless steel chamber: 280mm ID. x 375 mm Height, (~23 Liter) Sand blasting electrolytic polishing surface
- Hinged type door for easy sample loading
- Vacuum, thickness and power control are integrated into one control box
- 100 mm diameter rotating sample holder is on top of chamber with diameter 260mm, which can be heated up to 600°C max. via digital temperature controller with +/- 1°C accuracy
- The distance between evaporation source and sample holder is 150-300 mm adjustable
- Tungsten heating boat has dimension 70mm L x 12 mm W x 3 mm H

SPIN COATER

VTC-50



Desktop Spin Coater with Complete Accessories

- 4" stainless steel spin plates are included, which can hold one or multiple samples by wax or double-sided tape
- The spinning speed is variable from 0-5100 rpm

VTC-100A



Programmable Spin Coater with Vacuum Chucks, Oilless Vacuum Pump & Accessories

- Liquid disk made of polypropylene to resist most of corrosive solutions (1", 2", & 4")
- The spinning speed is variable from 500-8000 rpm with two programmable segments
- One oilless vacuum pump and one filter are included

VTC-200



Programmable Vacuum Chuck Spin Coater with Complete Accessories

- One 6" vacuum chuck is included for holding 6" and 8" wafers
- 500 - 5000 rpm adjustable spinning speed
- Digital control panel with two programmable segments of different spin times and speeds

VTC-100B-LD



Programmable Spin Coater with Vacuum Chucks, Nylon Chamber and Optional Digital Pipette

- Nylon chamber for anti-crossive operation
- One gas inlet port on top of cover which can fill inert gas during coating
- 5 - 8000 rpm spinning speed programmable
- Digital control panel can store 9 programs and each program has 9 segments programmable for speed, acceleration, and spin duration

VTC-100C-LD



Programmable Spin Coater with Full NPP Chamber, Vacuum Chucks and Optional Diaphragm Pump, Digital Pipette

- Seamless full-PP chamber for anti-crossive operation
- Storage of unlimited* programs of unlimited steps of ± 0.1 seconds minimum each
- Speed 1-10,000 rpm ± 1 rpm steps with ± 0.1 rpm accuracy
- Spin Rotation: clockwise, counter clockwise and puddle
- Detachable control panel with full size touchscreen
- USB port for outputting the spin recipe

COIN CELL PREPARATION





Model	Function	Description
MSK-110	Crimping	<ul style="list-style-type: none"> One set of crimping die for CR2032, CR2025, and CR2016 Optional die available from product option for crimping CR2325, CR2450, AG3, AG5 PTFE Anti-Corrosion Core prevents coin cells from being short circuited
MSK-110D	Disassembling	<ul style="list-style-type: none"> One set of disassembling die for CR2032, CR2025, & CR2016 PTFE Anti-Corrosion Core prevents coin cells from being short circuited
MSK-160D2	Crimping & Disassembling	<ul style="list-style-type: none"> CE Certified electric crimper for the CR20XX series coin cells such as CR2016, CR2025, and CR2032 Two sets of dies included in the standard package for enabling this machine's crimping or de-crimping capabilities
MSK-E110	Crimping	<ul style="list-style-type: none"> CE Certified auto crimper for various types of coin cells, such as CR2016, CR2025 and CR2032 Crimping pressure is adjustable according to cell size with digital display on the front panel
MSK-PN110	Crimping	<ul style="list-style-type: none"> Precision electric crimper driven by compressed inert gas or compressed air for various types of coin cells, such as CR2016, CR2025 and CR2032 Force Display: digital display force on crimping die: 600 - 1150 Kg adjustable

POUCH CELL PREPARATION

MSK-120	MSK-180	MSK-140
Pouch Cell Case Forming Machine <ul style="list-style-type: none"> <6.0 mm max pouch depth to punch <8 seconds per trial for stroke frequency Max die size is up to 150 L x 120 W x 6 H mm 	Semi-Automatic Die Cutter <ul style="list-style-type: none"> 300 L x 250 W mm working table area 81 L x 49 W mm with current collect die set is included +/- 0.1 mm cutting accuracy 	Compact Heating Sealer <ul style="list-style-type: none"> Max sealing is up to 190 mm Sealing width is up to 3.2 mm Sealing thickness is from 0.19 - 0.3 mm 50-300°C adjustable sealing temperature

MSK-115A	MSK-111A	MSK-112A-POUCH
Compact Vacuum Sealer <ul style="list-style-type: none"> Sealing pressure is up to 7 kg/cm² adjustable 200 L x 150 W mm max sealing dimension 50-250°C adjustable sealing temperature 	Semi-Automatic Stacking Machine <ul style="list-style-type: none"> 200 mm max stacking layer length 400 mm fixed travel distance 1-9999 travel cycles 	Semi-Automatic Winding Machine <ul style="list-style-type: none"> Winding speed up to 250 rpm adjustable Winding blade to wind up pouch cell Switchable between clockwise and counterclockwise

CYLINDER CELL PREPARATION

MSK-510M	MSK-510L	MSK-500	MSK-500L
			
<p>Hydraulic Crimping Machine</p> <ul style="list-style-type: none"> • Six standard die selectable: CR123 /18650 / 26650 / 32650 / AA /AAA • Manual hydraulic pressing up to 5T 		<p>Semi-Automatic Grooving Machine</p> <ul style="list-style-type: none"> • Used for grooving various cylindrical cases including CR123, 18650, 26650, 32650 and AA • 400 grooving per hour productivity 	

MSK-CSE-300	MSK-112A-CYLINDER	MSK-530
		
<p>Semi-Automatic Slitting Machine</p> <ul style="list-style-type: none"> • 4 sets of slitting blades (58 mm & 56 mm) • 100-300 microns cutting thickness • 0 - 4 m/min adjustable speed 	<p>Semi-Automatic Winding Machine</p> <ul style="list-style-type: none"> • Winding speed up to 250 rpm adjustable • Winding blade to wind up cylinder cell • Switchable between clockwise and counterclockwise 	<p>Compact Disassembling Machine</p> <ul style="list-style-type: none"> • Slicing motor speed: 1000 rpm • Die rotating speed: 1000 rpm • Micrometer accuracy: 0.05 mm • To disassemble cylinder cases

OTHERS RELATED TO BATTERY PREPARATION

MSK-170	MSK-540	MSK-150
		
<p>Electrolyte Diffusion Chamber</p> <ul style="list-style-type: none"> • 326 L x 206 W x 148 H mm inner chamber size • 0-99.99 sec air inflation time • 0-99.99 sec vacuum condition hold time • -20 to 40°C operation temperature • 0 - 1 MPa adjustable air pressure • Easy program setting for specific vacuum condition 	<p>Roll to Roll Edge Slitting Machine</p> <ul style="list-style-type: none"> • Blade engagement: Adjustable 0.2-0.4mm • Max. Reeling/Unreeling Diameter: 250mm • Burr condition: ≤ 25 um • Blade Materials: Ultrafine tungsten alloy • Blade Diameter: 100mm • 30 ~ 300mm adjustable • Stepless adjustable, manual adjustment, digital display 	<p>Desktop Precision Electrolyte Filler</p> <ul style="list-style-type: none"> • Filling volume range: 0 - 2.5 ml • Increment Displayed: 5µl/Thou • Digital Scale Accuracy: 0.01g • Metering Pump and Rack: 220 x 250 x 320mm • Control Box: 140 x 170 x 160mm

BATTERY SAFETY TESTING EQUIPMENT



Model	Description	Features
MSK-TE903	Dual Explosion-Proof Box	<ul style="list-style-type: none"> Provides a safe enclosure for over-charging & forced discharging of all kinds of battery cells required by the UN38.3 standard (38.3.4.7 & 38.3.4.8) It is two separate compartments with a total of 4 feedthrough ports allow for testing multiple batteries at the same time One safety door is built in the back of each chamber. In the event of a battery explosion, the door will open to reduce pressure inside of the chamber
MSK-TE901-UL	Short Circuit Test Chamber	<ul style="list-style-type: none"> Allows for testing rechargeable batteries & packs under a large current draw up to 1000A This test system consists of two units: 1) a power control unit with high current switch and 2) explosion proof chamber for meeting the UN38.3 standard A remote control is included to allow the user to safely perform the short circuit test up to 7 meters away
EQ-DHG-9070V-TA	Thermal Abuse Test Chamber	<ul style="list-style-type: none"> An explosive-proof air circulating oven with max. working temperature 200°C and 71 Liter capacity The oven is designed for battery thermal abuse test under IEC62133-8.2.2. Digital temperature control will provides +/-1°C accuracy with over-heated alarm and finishing alert
EQ-TA-6050	Thermal Abuse Test Chamber	<ul style="list-style-type: none"> An explosive-proof oven with 150°C max. working temperature and 53 Liter capacity This oven is designed for battery thermal abuse test under IEC62133-8.3.4. Digital temperature controller provides +/-2°C accuracy with over-heated alarm and completion alert It also can be operated under vacuum or inert gas condition to avoid flame and firing
MSK-TE902	Gravity Impact (Free Fall) Tester	<ul style="list-style-type: none"> It is a Gravity Impact (Free Fall) Tester for impact testing of all kinds of lithium battery according UN38.3 standard (38.3.4.6) or IEC-62133-8.3.3 standard A safety door is built in the back of the chamber. In the event of a battery explosion, the door will open to reduce the pressure inside of the chamber
MSK-ISC	Battery Forced Internal-Short Circuit (ISC) Tester	<ul style="list-style-type: none"> A highly integrated 3-in-1 battery ISC testing system which is able to simulate the actual testing and performs cell voltage measurement with various enviromental conditions applied such as temperature & humidity and crushing pressure System is designed based on IEC 62133-2012 8.3.9 testing standards which helps ensure the battery safety and reliability
MSK-TE905	Hydraulic Driven Crushing & Nail Penetration Tester	<ul style="list-style-type: none"> Combines crushing test and nail penetration into one machine with explosion-proof box and remote control panel for the IEC 62133.8.3.5 standard An electric hydraulic pump allows the machine to achieve the required force for crushing/penetrating the battery cells
MSK-CT6045	Crushing Tester	<ul style="list-style-type: none"> A crushing test machine with explosion-proof box and remote control pannel for IEC 62133.8.3.5 standard, also meet the requirement of GB8897.4-2002, IEC60086-4:2000, SJ/T11170-1998, UL2054:1997 Force 1000N ~13KN (1.5 TN)



Model	Description	Features
MSK-TE9002	Nail Penetration Tester	<ul style="list-style-type: none"> • A professional nail penetration tester for all types of rechargeable battery, which meets international standards, such as UN 38.3, UL2054:1997, GB/T18287-2000, SJ/T11170-1998 etc • The nail penetration is carried on a safe and vented stainless steel chamber using 2~8 mm diameter steel nail at variable speed from 10~40mm/s • There is a fixture to tighten various type cells, pouches or cylinders in the safety chamber
MSK-TE906	Programmable Fast Thermal Test Chamber	<ul style="list-style-type: none"> • A 150 liter Programmable Thermal Test Chamber for thermal test of Rechargeable Battery & Battery Pack according to UN38.3 (38.3.4.2) and other thermal test from -75°C to + 150°C at faster heating and cooling rate • 6" touch-screen control panel to set up program, and display temperature profile
MSK-ES-4	Computerized Automatic Vibration System	<ul style="list-style-type: none"> • A compact computerized Vibration Testing System for Li-Ion battery and battery pack up to 200Hz based on UN38.3 standard (38.3.4.3), which integrates computer and all control units into one box with less stand foot
MSK-SS-10	Automated Pneumatic Shock Tester	<ul style="list-style-type: none"> • A computerized automatic shock tester designed for testing Li-Ion battery cells or packs according to the 38.3.4.4; Test T.4: Shock section of the UN38.3 standard • This section tests batteries under the simulation of possible impacts during transportation with the pack or cell subjected to an acceleration of 150 gn with a duration of 6 milliseconds (50 gn with 11 milliseconds for larger packs or cells) • The shock tester is capable of handling battery packs up to 10Kg (22 lbs)
MSK-SS-25	Automatic Shock Tester	<ul style="list-style-type: none"> • A computerized automatic shock tester designed for testing Li-Ion battery cells or packs according to the 38.3.4.4; Test T.4: Shock section of the UN38.3 standard • This section tests batteries under the simulation of possible impacts during transportation with the pack or cell subjected to an acceleration of 150 gn with a duration of 6 milliseconds (50 gn with 11 milliseconds for larger packs or cells) • The shock tester is capable of handling battery packs up to 15Kg
MSK-TE5068	Compact Nail Penetration Tester	<ul style="list-style-type: none"> • A professional nail penetration tester for all types of rechargeable battery, which meets international standards, such as UL2054, UL1642, GB/T 18287-2000, GB/T2900.11-1988 idt IEC60086-4: 2000 etc • The nail penetration is carried on a safe and vented stainless steel chamber using 2~8 mm diameter steel nail at variable speed from 10~40mm/s • There is a manual fixture to tighten various type cells, pouches or cylinders in the safety chamber
MSK-TE910	Short Circuit Test System	<ul style="list-style-type: none"> • Allows for testing pouch cell or its battery pack with adjustable temperature and pressure • This machine tests insulation resistance precisely to recognize the micro circuit status of the battery in order to test the safety issue of the battery

SPLIT TEST CELL



EQ-SC-26650



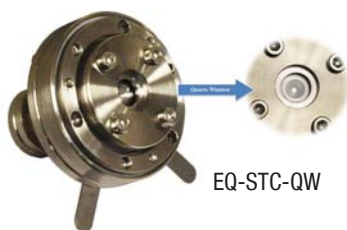
STC-ZINCAIR-W



EQ-STC-LI-AIR



EQ-STC



EQ-STC-QW



EQ-3ESTC15P

Model	Features
EQ-SC-26650	<ul style="list-style-type: none"> • Designed for testing 26650 batteries • Full stainless steel end caps • Electrolyte corrosive-proof PTFE body can sustain with temperature up to 250°C • Sealed by electrolyte corrosive-proof PTFE O-rings • ID of PTFE body: 26 mm; Height of PTFE body: 65 mm
EQ-SC-18650	<ul style="list-style-type: none"> • Designed for testing 18650 batteries • Full stainless steel end caps • Electrolyte corrosive-proof PTFE body can sustain with temperature up to 250°C • Sealed by electrolyte corrosive-proof PTFE O-rings • ID of PTFE body: 18 mm; Height of PTFE body: 65 mm
STC-ZINCAIR-W	<ul style="list-style-type: none"> • SS316 structure ensures high electrical conductivity and good corrosion protection • Internal compress spring ensures a good metal contact of the electrodes • Electrolyte corrosive-proof PTFE Guide Sleeve and Sealing O-rings • 10mm Dia. x 1mm Thick Quartz Observation Window allows X-Ray and infrared beam penetration • Bottom Recess Area: 16mm Dia. • Max. Working Temperature: 200°C
EQ-STC-LI-AIR	<ul style="list-style-type: none"> • Stainless Steel Structure with internal Silver-Clad surface treatment ensures high electrical conductivity and good corrosion protection • Electrolyte corrosive-proof PTFE Guide Sleeve and Sealing O-rings • Cell thickness: 1-3 mm (cathode+separator+anode) • Bottom Recess Area: 20 mm dia. • Max working temperature: 250°C • Dial pressure gauge with display range from -0.1 - 0.15 MPa • Two SS needle valves with 1/4" tube fittings
EQ-STC	<ul style="list-style-type: none"> • A 6 mm height spacer inside the test cell to press down on the electrode and prevent the electrode from curling • Sealed by electrolyte corrosive-proof PTFE O-rings • Electrolyte corrosive-proof PTFE guide sleeve capable of withstanding up to 250 °C • Easy to separate after testing • 10, 12, 15, 19, 20, and 24 mm diameter inserts
EQ-STC-QW	<ul style="list-style-type: none"> • A 6 mm height spacer inside the test cell to press down on the electrode and prevent the electrode from curling • 17 mm dia. quartz observation window ensures the X-Ray beam penetration • Sealed by electrolyte corrosive-proof PTFE O-rings • Electrolyte corrosive-proof PTFE guide sleeve capable of withstanding up to 250 °C • Max cell thickness: 6 mm (Cathode+separator+anode) • 19, 20, and 24 mm diameter inserts
EQ-3ESTC15	<ul style="list-style-type: none"> • Full SS304 structure • 24 mm diameter insert • Sealed by electrolyte corrosive-proof PTFE O-rings • Electrolyte corrosive-proof PTFE Guide Sleeve capable of withstanding up to 250 °C • Adjustable spring tension on top to accept various electrode thicknesses • Easy to separate after testing • Designed for R&D of rechargeable battery materials by testing three electrodes
EQ-3ESTC15P	<ul style="list-style-type: none"> • A three-electrode split cell used for testing anode/cathode with a reference electrode in between • 24 mm diameter insert • The addition of a Digital Pressure Gauge makes it possible to monitor the air pressure inside the chemical reaction chamber • A 1/4" inlet/outlet barb with needle valve allows for easy gas in/out • Electrolyte corrosive-proof PTFE Guide Sleeve capable of withstanding up to 250 °C • Sealed by electrolyte corrosive-proof PTFE O-rings

ROLL TO ROLL COATER



MSK-AFA-E300	MSK-AFA-E200
Automatic Roll to Roll Battery Electrode Coating System with Drying Oven	Compact Roll to Roll Tape Casting Machine with Drying Oven
<ul style="list-style-type: none"> • Can coat electrode sheets up to 250 mm in width and 600 meter in length automatically • Integrates the functions/features of metallic foil roll unwinding (reeling out), slurry feeder, coating blade, baking oven, and final electrode winding (reeling in) together with touch screen operation 	<ul style="list-style-type: none"> • Can coat electrode sheets up to 160 mm in width and 500 meter in length automatically • Integrates the functions/features of reeling in & out, slurry feeder, coating blade, baking oven, and final electrode winding (reeling in).

SPOT & ULTRASONIC WELDER



MSK-310A



MSK-330A



MSK-320B



MSK-360A



MSK-800

Model	Description	Specification
MSK-310A	Compact AC Pulse Spot Welder (Pneumatic Type)	<ul style="list-style-type: none"> • Input air pressure: 0.1 - 0.8 MPa • Welding current: 0-99% adjustable • Tab thickness applicable: 0.03 - 0.2 mm tab
MSK-330A	Precise Pneumatic Point Welding Machine	<ul style="list-style-type: none"> • Input air pressure: 0.1 - 0.8 MPa • Welding current: 0-99% adjustable • Tab thickness applicable: 0.03 - 0.25 mm tab • Controlled by microcontroller, achieve monopulse, dipulse, multiple-pulse welding
MSK-320B	Desk-Top Micro-computer Control Capacitive Discharge Spot Welder (Pedal Type)	<ul style="list-style-type: none"> • Built in optoelectronic welding switch • Welding current: 0-99% adjustable • Tab thickness applicable: 0.03 - 0.5 mm tab • Single chip control with LCD control panel
MSK-360A	Heavy Duty Spot Welder (Pneumatic Type) with Flat Welding Head for Thick Tab & Larger Battery Pack	<ul style="list-style-type: none"> • Input air pressure: 0.1 - 0.8 MPa • Welding current: 0-99% adjustable • Tab thickness applicable: 0.03 - 0.5 mm tab • Single chip control with LCD control panel
MSK-800	Desk-Top Ultrasonic Metal Welder	<ul style="list-style-type: none"> • Input air pressure: 0.1 - 0.8 MPa • Ultrasonic frequency: 30-40 kHz adjustable • Welding area: 5.2 mm(L) x 5.2 mm(W) • Pneumatic control air pressure at 85 psig
MSK-800W	Desk-Top 800W Ultrasonic Metal Welder with Touch-Screen Digital Controller	<ul style="list-style-type: none"> • Up to four recipes can be stored in the Al or Cu welding programs • Ultrasonic frequency: 30-40 kHz adjustable • Welding area: 4 mm(L) x 4 mm(W) • Pneumatic control air pressure at 85 psig
MSK-320A	Desk-Top Capacitive Discharge Spot Welder (Pneumatic Type)	<ul style="list-style-type: none"> • Input air pressure: 0.1 - 0.8 MPa • Welding current: 0-99% adjustable • Tab thickness applicable: 0.03 - 0.5 mm tab • Built in optoelectronic welding switch

BATTERY/CAPACITOR ANALYZER



BATTERY R&D

Model	Description
BST8-WA	<ul style="list-style-type: none"> An eight-channel battery analyzer to analyze small coin cells and cylindrical batteries from 0.002 mA to 1 mA, up to 5V Provides most applications in battery testing fields such as electrode materials research, battery performance test, small-scale battery formation, capability grading, battery pack testing and etc
BST8-MA	<ul style="list-style-type: none"> An eight-channel battery analyzer to analyze small coin cells and cylindrical batteries from 0.1 mA to 10 mA, up to 5V Provides most applications in battery testing fields such as electrode materials research, battery performance test, small-scale battery formation, capability grading, battery pack testing and etc
BST8-3	<ul style="list-style-type: none"> An eight-channel battery analyzer to analyze small coin cells and cylindrical batteries from 6.0 mA to 3000 mA, up to 5V Provides most applications in battery testing fields such as electrode materials research, battery performance test, small-scale battery formation, capability grading, battery pack testing and etc
BST8-STAT-LD	<ul style="list-style-type: none"> Single channel potentiostat/galvanostat with laptop & software for battery/capacitor analysis Suited for electro-chemical -analysis, including cyclic voltammetry, chronoamperometry and chronopotentiometry
BST8-4C10A50V	<ul style="list-style-type: none"> 4 channel battery analyzing system for Li-ion, LiFePO3, Ni-MH, Ni-Cd, and Lead acid battery packs with up to 50V and 10A per channel Intelligent power failure protection
BST8-5V40A-RT	<ul style="list-style-type: none"> 8 channel battery analyzing system for Li-ion, LiFePO3, Ni-MH, Ni-Cd, and Lead acid battery packs with up to 5V and 40A per channel Based on network communication design and software combines a DC Internal Resistance Analysis function when doing cycle charging/discharging, which ensures a stable connection and high integration testing platform
BST8-16-10V2A-IR	<ul style="list-style-type: none"> 16-channel battery analyzer used for testing all kinds of battery including Li-ion battery, NiMH, NiCd, battery pack, and etc Each channel is an independent constant-current (0.1 - 2A) and constant-voltage (0 - 10V) source which can be programmed and controlled by testing software
BST8-10A30V	<ul style="list-style-type: none"> 8 channel battery analyzing system for Li-ion, LiFePO3, Ni-MH, Ni-Cd, and Lead acid battery packs with up to 30V and 10A per channel Intelligent power failure protection
EQ-M9711	<ul style="list-style-type: none"> DC programmable electronic load with PC control software for Battery and Capacitor Discharging Test : 0-30A, 0-150V, 150W Over current, over voltage, over power, over heat, polarity reversed protection
EQ-BVIR	<ul style="list-style-type: none"> Battery internal resistance tester can be used for measuring the Internal Resistance and Open Circuit Voltage of almost all of the commercial batteries such as Secondary battery, Lead acid battery, Nickle cadmium, Nickle-metal Hydride and Li-ion battery
EQ-MSK-BK300	<ul style="list-style-type: none"> Precision internal resistance meter for R&D or quality control of all rechargeable battery, which has accuracy up to 1 milli-ohm and can measure any battery from 0-19.99V Adopts sine wave AC power with frequency of 1000Hz to carry out test on the battery internal resistance
EQ-IT9712	<ul style="list-style-type: none"> 300W DC programmable electronic load for Battery Test: 120V / 30A Over current, over voltage, over power, over heat, polarity reversed protection

DESKTOP X-RAY INSTRUMENT

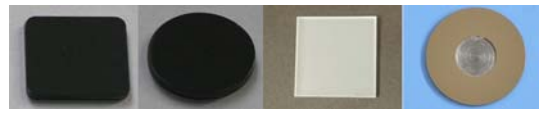


EQ-MD-10-LD



EQ-DX-100G

EQ-MD-10-LD	EQ-DX-100G
Precision Mini X-Ray Diffractometer with Software & Laptop Computer <ul style="list-style-type: none"> Angular range of measurements: 16 -120° (2 theta) Angular accuracy of peak positioning: +/- 0.02° (2 theta) Peak-to-peak resolution (degrees): 0.1° Sample spinning : 60 rpm One high purity Al₂O₃ powder sample and two sample holders are included X-ray tube power (W): 10 (at 25 kV, 0.4 mA) Anode materials: Cu 	Desktop X-Ray Orientation Machine for Single Crystal Orientation Measurement <ul style="list-style-type: none"> X-Ray Tube: Cu target, air cooling , Cu-Ka output Max. Tube Current: 35 kV, 5 mA X-Ray Detector: Max. Voltage at 1050 V Measure Range: 2 Theta = 10 - 140° ; Theta 10 - 70° Reading Display: Digital display with resolution 15" High Voltage Power Supply: Included in a separated unit which can be placed under table desk



Zero Diffraction Plate	
SiZero24D10C1-cavity	Zero diffraction plate for XRD sample: 24.6 Dia. x 1.0 T mm with Cavity 10 ID x 0.2 mm, Si Crystal
Zero3030-cavity	Zero diffraction plate for XRD sample: 30 x 30 mm x 2.5 mm (2 sp) with Cavity 10mm ID x 1.0 mm, SiO ₂ Crystal
SiO₂Zero303025-cavity	Zero diffraction plate for XRD sample: 30 x 30 x 2.5 mm (2 sp) with Cavity 20 ID x 1.0 mm, SiO ₂ Crystal
SiZero201815S2	Zero diffraction plate for XRD sample: 20 x 18 x 1.5 mm (2 sp), Si single crystal
SiZero24D05C1	Zero diffraction plate for XRD sample: 24.6 mm Dia. x 0.5 mm T, Si single crystal
SiZero24D10C1	Zero diffraction plate for XRD sample: 24.6 mm Dia. x 1.0 mm T, Si single crystal
S0Zero25	Zero diffraction plate for XRD Sample: 25 Dia. x 2.5 mm (2sp), SiO ₂ single crystal
SiZero252520S1	Zero diffraction plate for XRD sample: 25 x 25 x 2.0 mm (1sp), Si single crystal
SoZero303025S1	Zero diffraction plate for XRD sample: 30 x 30 x 2.5 mm, SiO ₂ single crystal
SoZero303025S2	Zero diffraction plate for XRD sample: 30 x 30 x 2.5 mm, SiO ₂ single crystal
SiZero32D10C1	Zero diffraction plate for XRD sample: 32 mm Dia. x 1.0 mm T, Si single crystal
SiZero32D20C1	Zero diffraction plate for XRD sample: 32 mm Dia. x 2.0 mm T, Si single crystal
SiZero16D15C1	Zero diffraction plate for XRD sample: 16.1 mm Dia. x 1.5mm T, Si single crystal

DIGITAL MICROSCOPE



EQ-MM500T-USB



EQ-AS-SE304-PZ-LD

EQ-MS-XJM413H-3M

Model	Description
EQ-MM500T-USB	<ul style="list-style-type: none"> An up-right reflected and transmitted metallurgical microscopy system with a USB digital image camera 3.0 M pixel resolution Comes with a quintuple nosepiece, seven levels of infinite plan objectives 5X/0.12, 10X/0.25, 20X/0.4, 50X/0.75, 100X/0.9, 40X/0.65, 100X/1.25.
EQ-MS-XJM413H-3M	<ul style="list-style-type: none"> An inverted, metallurgical microscope system that provides superb optics, built-in polarization capabilities, color filters and up to 100X objective magnification with a USB digital image camera 3.0 M pixel resolution Five infinite Plan Achromatic objectives included. (4X, 10X, 20X, 40X, 100X oil).
EQ-AS-SE304-PZ-LD	<ul style="list-style-type: none"> Comes with three magnification power settings (20X, 40X & 80X) and an illumination system that provides both incident (top) lighting. 45° inclined binocular head ensures an easy observation and rubber eye-guards provide further comfort.

VACUUM GLOVE BOX



OTHER LAB EQUIPMENT

Model	Features
EQ-VGB-1	<ul style="list-style-type: none"> Stainless steel chambers casing with dimensions: 555(L)x444(W)x414(H) mm up to 0.5 Torr vacuum level Air-lock chamber with dimensions: 200(ID)x270(L) mm up to 0.05 Torr vacuum level Two vacuum flanges, one KF-25 vacuum fitting ports with quick clamp are installed One pair of Latex Gloves are included for immediate use
EQ-VGB-2Y	<ul style="list-style-type: none"> Transparent polycarbonate main chamber casing with dimensions: 875(L)x480(W)x500(H) mm up to 675 Torr vacuum level Air-lock chamber with dimensions: 230(L)x220(W)x230(H) mm up to 100 Torr vacuum level One mechanical vacuum gauge and two solenoid valves are installed for pressure control Two needle valves for main chamber and air-lock chamber are installed for immediate use One pair of Latex Gloves are included for immediate use
EQ-VGB-3	<ul style="list-style-type: none"> Stainless steel chambers casing with dimensions: 780(L)x700(W)x650(H) mm up to 0.5 Torr vacuum level Air-lock chamber with dimensions: 240(ID)x260(L) mm up to 0.05 Torr vacuum level Two vacuum flanges, two KF-25 vacuum fitting ports with quick clamp are installed One pair of Latex Gloves are included for immediate use
EQ-VGB-3P	<ul style="list-style-type: none"> Equipped with EQ-VGB-3 glove box and purification system to automatically remove moisture <10 ppm, precision humidity analyzer, large capacity moisture filter, regeneration temperature controller, automatic pressure control, PLC touch panel, and extension socket are installed
EQ-VGB-4A	<ul style="list-style-type: none"> Stainless steel chambers casing with dimensions: 1120(L)x740(W)x900(H) mm up to 0.5 Torr vacuum level Air-lock chamber with dimensions: 360(ID)x435(L) mm up to 0.05 Torr vacuum level Air lift transparent front panel removable for putting in devices One vacuum gauge, 1/2" barbed needle valve, three KF-25 vacuum ports and three KF-40 are installed One pair of 8" Butadyl® Gloves are included for immediate use
EQ-VGB-7	<ul style="list-style-type: none"> Equipped with EQ-VGB-4A glove box, heavy duty vacuum pump with filter, stainless steel vacuum bellow and valve, one flowmeter, an automatic humidity purification with vacuum flange for Li-Ion Battery (H₂O<2ppm)
EQ-VGB-7HO	<ul style="list-style-type: none"> Equipped with EQ-VGB-4A glove box, heavy duty vacuum pump with filter, stainless steel vacuum bellow and valve, one flowmeter, an automatic humidity purification with vacuum flange for Li-Ion Battery (H₂O&O₂<5ppm)
EQ-VGB-6-LD	<ul style="list-style-type: none"> Stainless steel chamber with dimensions of 1220(L)x760(W)x900(H) mm with built in fluorescent lamp inside chamber Chamber condition: H₂O&O₂<1ppm Installed with gas purification system, filter system, pressure control system, automatic purging system with Siemens PLC control system and RV-8 EDWARDS pump are included A pair of 9 3/4" butyl glove is included for immediate use
EQ-VGB-10-II	<ul style="list-style-type: none"> Stainless steel chamber with dimensions of 2400(L)x800(W)x930(H) mm with double layer laminated safety glass with built in fluorescent lamp and three slidable shelves Chamber condition: H₂O&O₂<1ppm Installed with gas purification system, filter system, pressure control system, automatic purging system with Siemens PLC control system and EDWARDS pump are included A pair of NORTH butyl glove is included for immediate use

FUME HOOD

EQ-FH-36



Bench-Top Fume Hood with Explosion Proof Blower & Lamp

- Explosion proof blower with air flow rate 1900 m³/min
- Touch button power panel with built in 30 W vapor proof lamp
- Ducted type fume hood with sliding door and steel frame (tempered glass panel)
- Two power plugs are installed inside fume hood
- 10" horse pipe port
- Dimension: 36" W x 22" D x 59" H
- An ideal fume-hood for material research lab to handle flammable or toxic gases

VACUUM STORAGE BOX

SVC-6050



Stainless Steel Vacuum Chamber

- 53 liter capacity with inside dimension of 16" L x 13" W x 14" H
- Safely supports vacuum until -0.1 MPa
- Double-wall stainless steel construction
- Electric strip built inside chamber to allow electrical device usage under vacuum
- Inert gas can be filled inside chamber

MSK-VA25



Vacuum Chamber with Automatic Control

- 25 liter capacity with inside dimension of 12" L x 12" W x 11" H
- Vacuum pressure until 7.5 Torr using mechanical pump
- Built in pressure sensor to cut off pump at 11.6 kPa
- 6" touch screen PLC panel for automation
- 226 l/m vacuum pump is built in

MSK-VA53

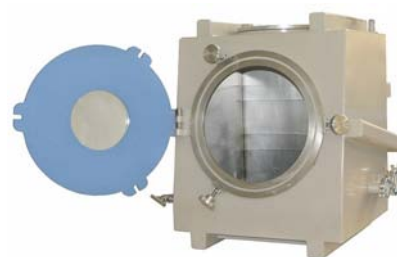
- 53 liter capacity with inside dimension of 16.3" L x 13.5" W x 14.5" H
- Vacuum pressure until 7.5 Torr using mechanical pump
- Built in pressure sensor to cut off pump at 11.6 kPa
- 6" touch screen PLC panel for automation
- 226 l/m vacuum pump is built in



EQ-SP-VC-3

Vacuum-able Dessicator with Internal Pump

- 11 liter capacity with inside dimension of 320 W x 240 D x 260 H mm
- Delicate appearance with solid and rigid structure made of high intensity polycarbonate materials
- Dust, mildew, and moisture proof
- Can be operated without a power supply and design is free of fragile moisture absorption reading electronics






HVC-SS




High Vacuum Chamber

- Vacuum chamber is made of 304 stainless steel with reinforcing rib
- Inside vacuum chamber size: 470 L x 445 D x 522 H mm (105 L)
- Round 380 mm dia. hinged type door with 150 mm Dia glass window
- Vacuum sealed 150mm diameter glass window is installed on the front door for easy observation
- Pressure range: 1 · 10⁻⁶ torr to ambient pressure
- Temperature range: -15 to 150 °C
- Top plate is removable to made customized port and fitting
- Four KF25 ports and one KF40 are built in the chamber



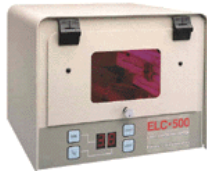
DIGITAL LAB BALANCE

EQ-BAL-IB601-LD	BAL-IB101-LD	EQ-BAL-VB
		
<ul style="list-style-type: none"> • Reads 600g x 0.01g • Rechargeable battery included • Reads in Gram, Troy Ounce, and Carat Weight • Included stainless steel tray and wind screen • Adjustable auto-zero tracking • Digital auto calibration 	<ul style="list-style-type: none"> • Reads 100g x 0.005 g • F2 calibration weight, wind screen and AC adaptor included • Operating temperature: 0-40°C • Adjustable auto-zero tracking • Digital auto calibration 	<ul style="list-style-type: none"> • Three models: 3000g, 6000g and 10,000g can be selected • Operating temperature: 0-40°C • Adjustable auto-zero tracking • Digital auto calibration • Large LCD display with low battery indication

ULTRASONIC CLEANER




EQ-UL-CD-3800C-LD	EQ-VGT-1613QTD	EQ-VGT-1620QTD	EQ-VGT-1860QTD
			
<ul style="list-style-type: none"> • Ultrasonic frequency: 42 kHz • Ultrasonic power: 35 W • Stainless steel 600 ml tank • 5 cycles digital display timer 	<ul style="list-style-type: none"> • Ultrasonic frequency: 40 kHz • Ultrasonic power: 60 W • Stainless steel 1300 ml tank • Temperature setting: 20-80°C • Time setting: 1-99 minutes 	<ul style="list-style-type: none"> • Ultrasonic frequency: 40 kHz • Ultrasonic power: 60 W • Stainless steel 2000 ml tank • Temperature setting: 20-80°C • Time setting: 1-99 minutes 	<ul style="list-style-type: none"> • Ultrasonic frequency: 40 kHz • Ultrasonic power: 480 W • Stainless steel 6000 ml tank • Temperature setting: 20-80°C • Time setting: 1-99 minutes

UV EQUIPMENTS

EQ-UV-EC410-LD	EQ-UV-81485-LD	EQ-UV-EC500-LD
		
<p>Electro-Cure 410 UV Curing System</p> <ul style="list-style-type: none"> • UV Output: 90mW/cm2 @ 365nm • Lamp Life: 1000 hrs • Dimensions: 10"W x 5.5"H x 9.5"D • Weight: 5 lbs, 10 oz 	<p>Fluor-Tek UV Black Light Inspection System</p> <ul style="list-style-type: none"> • UV Output: 10 mW/cm2 Black Light • Exposure Area: 5" x 1 3/4" • Timer: 1,2 and 3 minutes • Dimensions: 2 1/2"W x 12"H x 1"D • Weight: 1 lb 8 oz 	<p>UV/Visible Light Exposure Chamber</p> <ul style="list-style-type: none"> • Perfect curing at an excellent price • Versatile, compact and durable • Excellent for assembly and non-destructive quality testing • Powered by four uva lamps - 350nm • Operator safe

OTHER LAB EQUIPMENT

PRECISION MILLING MACHINE

EQ-MT-115-LD	EQ-MT-20K-LD	EQ-SL5400-MILLING-LD
		
Precision Micro Drilling Machine	Precision Micro Milling Machine	Precision Desktop Vertical Milling Machine
<ul style="list-style-type: none"> • Flat belt provides 3 spindle speeds of 1,800, 4,700 and 8,500 rpm allowing triple torque at low speeds. • The spindle has an extremely high rotational accuracy and a 30 mm feed. • Max height is up to 140 mm 	<ul style="list-style-type: none"> • Speed 5,000 - 20,000 rpm variable • Table Size 7 7/8" x 2 3/4" (200 x 70mm) • X-Y travel is up to 134 and 46mm • Vertical travel is up to 70 mm • Footprint size is 130 x 225mm • Max. height is up to 340 mm 	<ul style="list-style-type: none"> • Has spindle that can take side loads as well as end loads and an accurate method of moving the work in relation to the spindle on all three axes. • The deluxe mill features with: 12" base with 5" inches of Y-axis travel, adjustable 'zero' handwheels, 1/4" drill chuck and laser-engraved reference scales on the base and table.

LATHE



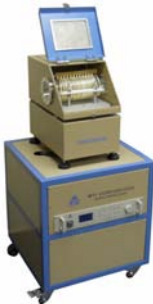
EQ-SL4400-LATHE-LD

Precision Desktop Lathe



- The electronic speed control allows continuously variable speed control from 70 to 2800 rpm without belt changes
- Cosslide, pulleys, belt, faceplate, lathe dog, two dead centers, three hexagonal keys, sharpened high-speed steel cutting tool, eight-foot, three-wire power cord and instruction booklet are included
- 90 VDC motor with electronic speed controller with worldwide power support (AC 110 - 240V)
- Has a 24" (610mm) bed that has 17" (431mm) between centers, a 2.5" (63mm) resettable "zero" handwheel on the leadscrew, two 2" (51mm) resettable "zero" handwheels on the crossslide and feed screw and a rocker tool post substituted for the standard tool post used on the shortbed lathes

LAB GENERATOR

QL-500	EQ-DFN-500	OTF-PECVD-RF
		
Hydrogen Gas Generator	Nitrogen Gas Generator	RF Generator
<ul style="list-style-type: none"> • Output volume less than 510 liter/min • Output pressure varies from 0.02 - 0.4 MPa • Hydrogen purity more than < 99.999% • 3.2 liter tank volume • 24.10 g/h water consumption 	<ul style="list-style-type: none"> • Producing N2 gas form air without liquid and chemical • Output nitrogen gas is of 99.99% high purity and up to 500 ml/min • Output pressure is adjustable by a valve from 0 - 0.4 Mpa • Built in oil-less compressing air pump and one button operation 	<ul style="list-style-type: none"> • 13.56 MHz RF frequency • 200 W maximum reflection power • 50 - 80 mm tube size insertion • Generate up to 500 W for PECVD function • Noise less than 50 dB • Air cooling installed

MECHANICAL & MOLECULAR PUMP







Model	Flow Rate (Pressure)	Description
EQ-TW-3A	187 liter/min (0.075 torr)	Single Step Rotary Vane Vacuum Pump (6.6 CFM) with KF25 Adapter and Alternative Exhaust Filter
EQ-2XZ	120 liter/min (0.004 torr)	Double Stage Rotary Vane Vacuum Pump with Oil Trap, Exhaust Filter, Bellow & KF-D25 Inlet
EQ-YTP-550-LD	220 liter/min (0.003 torr)	Heavy Duty Double Stage Rotary Vane Vacuum Pump with Exhaust Filter, KF25D Adaptor and Clamp
EQ-KY-SUITE	220 liter/min (0.003 torr)	KF-25 series Vacuum Suite (Vacuum pump, Exhaust Filter, Clamp, Bellows and Valve)
EQ-ADIXEN-2015SD	250 liter/min (0.0015 torr)	Pfeiffer's Two-Stage Rotary Vane Vacuum Pump with SS Vacuum Bellows, Quick Clamps And A Right Angle Valve
EQ-PT-35-LD	566 liter/min (0.007 torr)	Pfeiffer's Two-Stage Rotary Vane Vacuum Pump with SS Vacuum Bellows, Quick Clamps And A Right Angle Valve
EQ-PV-HVS-LD	15 liter/min (0.007 mtorr)	Compact Turbo-molecular Vacuum Pump System with Gauge, Ball Valve & SS Bellows
EQ-PV-HVS2-LD	15 liter/min (0.007 mtorr)	Turbomolecular Vacuum Pump Station in Mobile Cart including SS Vacuum Bellows With Kf40 Port, & Lcd Digital Display
EQ-VBS-M1	220 liter/m (0.5 mtorr)	Heavy Duty Double Step Rotary Vane Vacuum Pump with Exhaust Filter & KF-D25 Inlet is installed inside a heavy duty mobile cart
EQ-PAC-LD	2340L/minute (0.007 mtorr)	Consists of a High Quality Dual Stage Edwards Pump as backing pump (Edwards RV8) and a turbo-molecular pump (Pfeiffer's) in Mobile Cart
EQ-EDWARDS-RV8-LD	141 liter/m (1.5 mtorr)	Edwards RV8 High Performance Two Stage Rotary Vane Pump with SS Vacuum Bellows, Quick Clamps And A Right Angle Valve





VISCOSITY TESTER

EQ-0FP-14	EQ-ISP250C-LD	EQ-ADIXEN-ACP15-LD	EQ-ADIXEN-ACP15-LD
<ul style="list-style-type: none"> • 120 l/m pumping speed • 80 - 100 Torr ultimate pressure • KFD25 vacuum pump connection port • Less than 60 dB noise level 	<ul style="list-style-type: none"> • Max vacuum level till 20 mTorr • 250 L/min for 50Hz (300L/min for 60Hz) displacement • Air flush system removes moisture 	<ul style="list-style-type: none"> • 3.7 l/s (226l/m) pumping speed with ultimate pressure of 2.2×10^{-2} Torr • KF25 flange in and KF16 flange out 	<ul style="list-style-type: none"> • 3.38 torr with rotation speed at 1500 rpm • 0.50 m³/h pumping speed • Longer running life and Ideal for small gas circulating system

RECIRCULATING WATER CHILLER

EQ-KJ3000	EQ-KJ5000	EQ-KJ5300	EQ-KJ6200
			
<ul style="list-style-type: none"> Water flow rate: 10 lpm 9 liters capacity with max pump head 10 m Over-flow alarm installed with digital temperature display Cooling via radiator and cooling fan with capacity 50W/°C 	<ul style="list-style-type: none"> Water flow rate: 16 lpm 6 liters capacity with max pump head 10 m Over-flow alarm installed with digital temperature display Cooling via radiator and cooling fan with capacity 2866 BTU/h Temperature range: 2 - 35 °C 	<ul style="list-style-type: none"> Water flow rate: 16 lpm 12 liters capacity with max pump head 25 m Over-flow alarm installed with digital temperature display Cooling via radiator and cooling fan with capacity 7000 BTU/h Temperature range: 5 - 35 °C 	<ul style="list-style-type: none"> Water flow rate: 58 lpm 15 liters capacity with max pump head 28 m Over-flow alarm installed with digital temperature display Cooling via rotary compressor with capacity 17500 BTU/h Temperature range: 5 - 35 °C

PLASMA CLEANER

Model	Features
 <p>EQ-PDC-32-G-LD</p>	<ul style="list-style-type: none"> Adjustable RF power which is Low, Medium, and High 3" diameter x 6.5" length high purity quartz chamber is included A removable front cover assembly is included The rate of organic removal is about 10 nm/min
 <p>EQ-PDC-36G</p>	<ul style="list-style-type: none"> Adjustable RF power which is Low, Medium, and High 3" diameter x 6.5" length made of high purity quartz chamber A vacuum sensor is installed on the hinged door with indicator The rate of organic removal is about 10 nm/min
 <p>EQ-PDC-001-LD</p>	<ul style="list-style-type: none"> Adjustable RF power which is Low, Medium, and High Includes a 6" diameter x 6.5" length Pyrex chamber and an integral switch for a vacuum pump Its hinged cover features a magnetic closure and a viewing window Vacuum pump is included for quick usage The rate of organic removal is about 20 nm/min
 <p>EQ-PCE-80</p>	<ul style="list-style-type: none"> RF power is adjustable within 0 - 100W 8.5" O.D x 8.2" I.D x 12.5" L high purity quart chamber Totally RF radiation shield with zero RF leaking 6" color touch screen to control all parameters such as vacuum level, gas flow rate, RF power level, and cleaning time Vacuum pump and mass flow meter are included for quick usage The rate of organic removal is about 20 nm/min

OTHER LAB EQUIPMENT

VISCOSITY TESTER

MSK-SFM-VT-LD



Digital Slurry Viscosity Tester

- Used for fluid or paste viscosity testing if within the range 10mPa·s-10⁵ mPa·s
 - Stepless speed adjustable
 - Testing Accuracy: ±2% (Newtonian fluid)
 - 4 different rotators are included
 - RS232 port for computer data collection (software included)
 - Dimension: 105mm×120mm×160mm
- Since the viscosity of battery electrode paste/slurry plays an important role during the electrode coating on the current collector, it is necessary to use a tester to monitor and then to adjust the viscosity during the mixing

GAS DELIVERY SYSTEM

EQ-CGM-3F-PTFE



EQ-GSL-3F-PTFE



EQ-GSL-4ZCC



EQ-GSL-4Z-LCD



EQ-GSL-6Z

Model	Features	Gas/Fluid Flow Rate
EQ-CGM-2F	<ul style="list-style-type: none"> One stainless steel mixing tank for better gas mixing Including dial pressure gauge (0 - 1.0 MPa) Compact size: 340 L x 300 D x 180 H mm 	Two rotameter with flow rate range from 16 to 160 ml/min
EQ-CGM-2Z	<ul style="list-style-type: none"> Fitting & Valves: 316SS material Gas mixing tank size: 80 dia x 120 mm Dimension: 600 L x 600 x 650 mm 	Two mass flow controller with display and 1% FS accuracy Controller 1: 1~199 SCCM Controller 2: 1~499 SCCM
EQ-GSL-3F-SS	<ul style="list-style-type: none"> Including dial pressure gauge (0 - 0.15 MPa) Two channel gases flow into a gas mixer container and one gas channel independent Compact size: 600 L x 600 D x 650 H mm 	Three rotameter with various flow rate range and 4% FS accuracy A: 10 - 100 ml/min B: 16 - 160 ml/min C: 25 - 250 ml/min
EQ-CGM-3F-PTFE	<ul style="list-style-type: none"> 500 ml gas tank made of PTFE Including dial pressure gauge (0 - 1.0 MPa) Two channel gases flow into a gas mixer container and one gas channel independent Compact size: 340 L x 300 D x 180 H mm 	Three anti-corrosive rotameter made of PTFE material with flowing rates of 10 - 160 mL/min
EQ-GSL-3F-PTFE	<ul style="list-style-type: none"> 1000 ml gas tank made of PTFE Each channel gas will flow into the tank for mixing before flow-out Siize: 600 L x 600 D x 650 H mm 	Three anti-corrosive rotameter of PTFE material with flowing rates of 10 - 1000 mL/min
EQ-GSL-3Z	<ul style="list-style-type: none"> Fitting & Valves: 316SS material Gas mixing tank size: 80 dia x 120 mm Dimension: 600 L x 600 D x 650 H mm 	Three mass flow controller with display and 1% FS accuracy Controller 1: 0~100 SCCM Controller 2: 1~199 SCCM Controller 2: 1~499 SCCM
EQ-GSL-3Z-103	<ul style="list-style-type: none"> One rotary mechanical pump as first stage vacuum for achieving vacuum of 10^{-2} torr One molecular pump as second stage for achieving vacuum of 5×10^{-7} tor Installed digital vacuum gauge and monitor 	Three mass flow controller with display and 1% FS accuracy Controller 1: 0~100 SCCM Controller 2: 20~200 SCCM Controller 2: 50~500 SCCM
EQ-GSL-4ZCC	<ul style="list-style-type: none"> Computer controlled (Laptop and software included) Fitting & Valves: 316SS material Gas mixing tank size: 80 dia x 120 mm Dimension: 600 L x 600 D x 650 H mm 	Four mass flow controller with display and 1% FS accuracy Controller 1: 0~100 SCCM Controller 2: 1~199 SCCM Controller 3: 1~199 SCCM Controller 4: 1~499 SCCM
EQ-GSL-4Z	<ul style="list-style-type: none"> Fitting & Valves: 316SS material Gas mixing tank size: 80 dia x 120 mm Dimension: 600 L x 600 D x 650 H mm 	Four mass flow controller with display and 1% FS accuracy Controller 1: 0~100 SCCM Controller 2: 1~199 SCCM Controller 3: 1~199 SCCM Controller 4: 1~499 SCCM
EQ-GSL-4Z-LCD	<ul style="list-style-type: none"> PLC touch panel control Fitting & Valves: 316SS material Gas mixing tank size: 80 dia x 120 mm Dimension: 600 L x 600 D x 650 H mm 	Four mass flow controller with display and 1% FS accuracy Controller 1: 0~100 SCCM Controller 2: 1~199 SCCM Controller 3: 1~199 SCCM Controller 4: 1~499 SCCM
EQ-GSL-6Z	<ul style="list-style-type: none"> Fitting & Valves: 316SS material Gas mixing tank size: 80 dia x 120 mm Dimension: 600 L x 600 D x 650 H mm 	Four mass flow controller with display and 1% FS accuracy (value can be requested) Controller 1 till 6: 0~100 SCCM

OTHER LAB EQUIPMENT

MISCELLANEOUS

LVD- FI	MSK-NMP-1	GF-20A	
Liquid Vaporization System	Dual Filtration System for NMP	PPM Grade Dual Inert Gas Purifier	
<ul style="list-style-type: none"> Precision digital control with +/- 0.01% FS accuracy Flow rate range: 0-80 ml/min adjustable Liquid and carrying gas are go through a SS316 coil, which is heated by a built in small furnace up to 250°C Oil Mist Reduction Unit with KF-25 Adapter and Quick Clamp are included 	<ul style="list-style-type: none"> Dual filtration level NMP filtering (N-Methyl-2-pyrrolidone) Capacity: 600mm³/h Recycle rate less than 80% Filling gas temperature: 150 °C Can be used to filter the vapor formed from the process of coating and drying with dual-filtration level in Li-Ion battery R&D 	<ul style="list-style-type: none"> Input gas purity requirement: < 1000 ppm (99.9%) Output : Removal of impurities to < 0.1 ppm Can purify inert gas up to 6 standard tanks No heaters or power required 	
EQ-RMP-1	EQ-RMP-2-LD	PF-02-PPM	PF-H2O-PPM
Auto Recirculating Moisture Purification System	Auto Recirculating Moisture & Oxygen Purification System	PPM Grade Inert Gas Purifier for De-Oxygen	PPM Grade Inert Gas Purifier for De-Humidity
<ul style="list-style-type: none"> Automatic moisture remove to <2 ppm Precision Humidity Analyzer is installed on the Purification System with accuracy of +/- 0.1 ppm Can soak moisture up to 1.5 kg 6" color PLC touch panel is included 	<ul style="list-style-type: none"> Automatic moisture and oxygen removal to <2 ppm Precision Humidity Analyzer and oxygen sensor are installed on the Purification System with accuracy of +/- 0.1 ppm Can soak moisture up to 1.5 kg 6" color PLC touch panel is included 	<ul style="list-style-type: none"> Input gas purity requirement: < 1000 ppm (99.9%) Output : Removal of impurities to < 0.1 ppm Can purify inert gas up to 3 standard tanks No heaters or power required 	<ul style="list-style-type: none"> Input gas purity requirement: < 1000 ppm (99.9%) Output : Removal of humidity to < 0.1 ppm Can purify inert gas up to 3 standard tanks No heaters or power required
EQ-OM-OS524E-LD	EQ-W3000	EQ-RH-800	EQ-RH-606B
Infrared Laser Thermometer	Trace Oxygen Analyzer	Precision Humidity Analyzer	Humidity & Temperature Monitor
<ul style="list-style-type: none"> Measurement range from 538°C - 2482°C Built-in Laser sighting 100 ms response time Spectral response within 2 to 2.5 microns 	<ul style="list-style-type: none"> Three auto-ranging scales: 0.01 ppm - 3000 ppm ZrO2 fuel-cell as the oxygen sensor Up-limit and low-limit alarm signal programmable 	<ul style="list-style-type: none"> Humidity level up to 999.9 ppm Working pressure range is 0.1 Pa - 30 MPa Gas flow rate range is 1-5 lpm Alarm signal when higher than 20 mA or lower than 4 mA 	<ul style="list-style-type: none"> Temperature range: 0°C- 80°C Humidity range: 2%RH to 95%RH Accuracy: ±3%RH Alarm can be set

HEATING ELEMENT



Model	Dimension	Description	Max Working Temperature
EQ-HEL1750-30x270	30 mm x 270 mm	Super 1750°C MoSi ² Heating Element	1700°C
EQ-HEL1750-30x300	30 mm x 300 mm	Super 1750°C MoSi ² Heating Element	1700°C
EQ-HEL1750-30x330	30 mm x 330 mm	Super 1750°C MoSi ² Heating Element	1700°C
EQ-HEL1750-40x300	40 mm x 300 mm	Super 1750°C MoSi ² Heating Element	1700°C
EQ-HEL1750-30x360	30 mm x 360 mm	Super 1750°C MoSi ² Heating Element	1700°C
EQ-HEL1800-30x270	30 mm x 270 mm	Super 1800°C MoSi ² Heating Element	1750°C
EQ-HEL1800-30x330	30 mm x 330 mm	Super 1800°C MoSi ² Heating Element	1750°C
EQ-HEL1800-30x300	30 mm x 300 mm	Super 1800°C MoSi ² Heating Element	1750°C
EQ-HEL1800-30x360	30 mm x 360 mm	Super 1800°C MoSi ² Heating Element	1750°C
EQ-HEL1800-30x420	30 mm x 420 mm	Super 1800°C MoSi ² Heating Element	1750°C
EQ-HEL1800-40x300	40 mm x 300 mm	Super 1800°C MoSi ² Heating Element	1750°C
EQ-KSKSL-1800-M-LD	30 mm x 330 mm	Kanthal Super 1800°C MoSi ² Heating Element	1750°C
EQ-KSKSL-1800-S-LD	30 mm x 270 mm	Kanthal Super-1800°C MoSi ² Heating Element	1750°C
EQ-KSKSL-1800-ML-LD	30 mm x 330 mm	Kanthal Super 1800°C MoSi ² Heating Element	1750°C
EQ-KSKSL-1800-L-LD	30 mm x 360 mm	Kanthal Super 1800°C MoSi ² Heating Element	1750°C
EQ-KSKSL-1900-S-LD	30 mm x 270 mm	Kanthal Super-1900°C MoSi ² Heating Element	1850°C
EQ-KSKSL-1900-M-LD	30 mm x 290 mm	Kanthal Super-1900°C MoSi ² Heating Element	1850°C
EQ-KSKSL-1900-ML-LD	30 mm x 330 mm	Kanthal Super-1900°C MoSi ² Heating Element	1850°C
EQ-KSKSL-1900-L-LD	30 mm x 360 mm	Kanthal Super-1900°C MoSi ² Heating Element	1850°C
EQ-GSL1500-HEL	14 mm x 368 mm	1500°C SiC Electric Heating Elements	1500°C
EQ-OTF1500-HEL	12 mm x 520 mm	1500°C SiC Electric Heating Elements	1500°C
EQ-1600sp-HEL-12-LD	12 mm x 520 mm	Kanthal GLOBAR SG SiC Heating Element (1650°C Grade)	1650°C
EQ-1600sp-HEL-6-LD	12 mm x 381 mm	Kanthal GLOBAR-SG SiC Heating Element(1650°C Grade)	1650°C
EQ-KSL-1400A2B-HEL	42 mm x 360 mm	SiC Heating element for KSL-1400A2B Muffle Furnace	1400°C
EQ-KSL-1400A4-HEL	42 mm x 500 mm	SiC Heating Element for KSL-1400A4 Muffle Furnace	1400°C
EQ-KSL-1400X-HEL	42 mm x 410 mm	SiC Heating element for KSL-1400X Muffle Furnace	1400°C
EQ-KSL-1500XS-HEL	42 mm x 270 mm	SiC Heating element for KSL-1500X-S Muffle Furnace	1500°C
EQ-RTP-HALOGEN-LIGHT	10 (dia.) x 303 (l) mm	Halogen light Heater (1KW) for Compact RTP Tube Furnace	
EQ-MHEL	-	Mo Heating Coil for MTI Hydrogen Muffle Furnace	

LABWARES & ACCESSORIES

FURNACE HEATING MODULE

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Model	Description
EQ-KSL-1100X-MODULE	Furnace Heating Module for KSL-1100X
EQ-KSL-1100X-S-MODULE	Furnace Heating Module for KSL-1100X-S
EQ-OTF-1200X-MODULE	Furnace Heating Module for OTF-1200X
EQ-OTF-1200X-S-MODULE	Furnace Heating Module for OTF-1200X-S
EQ-GSL-1100-MODULE	Furnace Heating Module for GSL-1100X - EQ-GSL1100

EQ-KSL-1100X-MODULE



EQ-OTF-1200X-MODULE

THERMAL BLOCKS

ALUMINA FOAM BLOCK

Model	Diameter (mm)	Length (mm)
EQ-F-T-BLOCK-18	18	40
EQ-F-T-BLOCK-20	18	50
EQ-F-T-BLOCK-35	35	65
EQ-F-T-BLOCK-42	42	65
EQ-F-T-BLOCK-52	52	65
EQ-F-T-BLOCK-65	65	65
EQ-F-T-BLOCK-70	70	65
EQ-F-T-BLOCK-92	92	65
EQ-F-T-BLOCK-120	120	75
EQ-F-T-BLOCK-140	140	100
EQ-F-T-BLOCK-206	192	65



QUARTZ BLOCK

Model	EQ-QBLOCK-40	EQ-QBLOCK-50	EQ-QBLOCK-70	EQ-QBLOCK-90
Diameter (mm)	40	50	70	90
Length (mm)	60	60	60	60
O.D (mm)	50	60	80	100

Model	EQ-QTB-5	EQ-QTB-8	EQ-QTB-8-H	EQ-QTB-11
Description	Quartz block with high purity Al ₂ O ₃ fiber ceramic inside	Quartz Thermal Block for 8" quartz tube Furnace	Quartz block with high purity Al ₂ O ₃ fiber ceramic inside	Quartz block with high purity Al ₂ O ₃ fiber ceramic inside
Thickness (mm)	76.2	73.7	73.7	120
O.D (mm)	109.2	185.4	185.4	270

THERMAL ADAPTOR

Model	Description
EQ-2-1-ADAPTOR	Refractory ceramic adaptor for fitting 1" processing tube
EQ-F-ADAPTOR-D2	Fiber alumina tube adaptor for OTF1200X 2" processing tube
EQ-F-ADAPTOR-D60	Fiber alumina tube adaptor for OTF1200X 60 mm processing tube
EQ-F-ADAPTOR-D1	Fiber alumina tube adaptor for OTF1200X 1" processing tube
EQ-RCS-D60	Refractory ceramic sheath for 60 mm processing tube
EQ-RCS-D80	Refractory ceramic sheath for 80 mm processing tube
EQ-RCSH-D100	Refractory ceramic support for 100 mm processing tube



INSULATION TAPE



Model	EQ-ABT-2X50	EQ-ABT-3X50	EQ-WT-2X100	EQ-WT-3X100
Width	50.8 mm	76.2 mm	50.8 mm	76.2 mm
Thickness	1.6 mm	1.6 mm	1.6 mm	1.6 mm
Length	50 ft	50 ft	100 ft	100 ft
Continuous Temperature	800°C	800°C	800°C	800°C

HIGH TEMPERATURE O-RING



SILICONE RUBBER O-RING

Model	I.D (mm)	O.D (mm)	W (mm)
EQ-SOR-63	62	72	5
EQ-SOR-76	75	76	5
EQ-SOR-89	86	96	5
EQ-SOR-100	98	100	5
EQ-SOR-110	108	114	4.5
EQ-SOR-128	118	128	5
EQ-SOR-130	128	130	5
EQ-SOR-152	148	152	5
EQ-SOR-40	40	40	5
EQ-SOR-50	48	50	5
EQ-SOR-60	58	60	5
EQ-SOR-80	79	80	5
EQ-SOR-25	24	25	3.5
EQ-SOR-VBF190	200 (2 pcs) and 195 (1 pcs)	-	7 (2 pcs) and 3.5 (1 pcs)
EQ-SOR-TCGASKET	-	14	-
EQ-SOR-TCRING	7	-	3
EQ-SOR-GSL8-215	213	-	5.8
EQ-SOR-GSL8-230	230	-	5.3

COPPER O-RING



Model	I.D (mm)	O.D (mm)	Thickness (mm)
EQ-ORING-CU27	20	27	2
EQ-ORING-OFCU27	20	27	2
EQ-ORING-CU48	36.5	48	2.4
EQ-ORING-CU82	64	81.9	2.2
EQ-ORING-CU98	80	98	2.2

OVEN SEALING O-RING



EQ-OR-DHG9015	High Temperature Sealing O-Ring for DHG-9015AS Oven
EQ-OR-DHG9070	High Temperature Sealing O-Ring for DHG-9070AS Oven
EQ-OR-DZF6020	High Temperature Sealing O-Ring for DZF-6020 Oven
EQ-OR-DZF6050	High Temperature Sealing O-Ring for DZF-6050 Oven
EQ-OR-DZF6210	High Temperature Sealing O-Ring for DZF-6210 Oven

HIGH TEMPERATURE COATING & ADHESIVE

Model	Description
EQ-634-SIC-LD	1400°C Silicone Carbide refractory coating
EQ-634-YO	1500°C Yttrium Oxide protective coating
EQ-CAA-2-LD	1650°C Hi-Purity Alumina Adhesive for bonding & repairing
EQ-634-AL-LD	1760°C Hi-Purity Alumina coating
EQ-634-ZO-LD	1800°C Hi-Purity Zirconia coating
EQ-904-ZO-LD	2200°C Zirconia Ultra Hi-Temp ceramic adhesive
EQ-SEAL-4030-LD	593°C Special coating for fibrous refractory






REFRACTORY PLATE

Model	Description
EQ-ALPLATE-25181	Mullite sample plate (250 x 180 x 8 mm) with max working temperature at 1400°C
EQ-ALPLATE-1512	Refractory Alumina board (150 x 120 x 10 mm) with max working temperature at 1500°C
EQ-PMF-1600B	Polycrystalline Mullite blanket type with max working temperature at 1600°C
EQ-RFZB-2200	Zirconia refractory board (12" x 12" x 1") with max working temperature at 2200°C
EQ-RFAB-1800	Alumina refractory board (35.5" x 24" x 2.5") with max working temperature at 1800°C



RTP FURNACE TYPE ACCESSORIES

EQ-AIN-HOLDER	EQ-RTP-ACC-01	EQ-RTP-ACC-02
		
3" Aluminum Nitride Substrate for RTP Furnace's Sample Holder	Sample Holder for RTP furnace with Quartz, stability in use under 1200°C	One pair of quartz insulating heatshield disks for RTP-1000-D4

THERMOCOUPLE & CABLIBRATION KIT

Model	Description
EQ-TC-K-17	K type (Ni-Cr/Ni-Al) 170mm (6.7") length with ceramic sheath
EQ-TC-K-22	K type (Ni-Cr/Ni-Al) 220mm (8.7") length with ceramic sheath
EQ-TC-K-S	K type (Ni-Cr/Ni-Al) for OTF-1200X-S
EQ-TC-K-CALI-12S-LD	K type 1/4"OD x 12" L with alloy sheath, and male plug for calibration
EQ-TC-K-CALI-12S-DT-LD	K type 1/4"OD x 12" L with alloy sheath, detective probe and male plug for calibration
EQ-TC-K-CALI-24S-LD	K type 1/4"OD x 24" L with alloy sheath and male plug for calibration
EQ-TC-K-CALI-36S-LD	K type 1/4"OD x 36" L with alloy sheath and male plug for calibration
EQ-TC-K-CALI-48S-LD	K type 1/4"OD x 48" L with alloy sheath and male plug for calibration
EQ-TC-K-CALI-12S-3MM-LD	K type 3mm OD x 12" L with alloy sheath and male plug for calibration
EQ-TC-S-GSL-13	S type (Pt-Rh to Pt) 5" length with ceramic sheath
EQ-TC-S-KSL-15	S type (Pt-Rh to Pt) 8" length with ceramic sheath
EQ-TC-S-KSL-14	S type (Pt-Rh to Pt) 9.5" length with ceramic sheath
EQ-TC-B-GSL-16	B type (Pt-Rh to Pt-Rh) 9" length with ceramic sheath (Up to 1700°C)
EQ-TC-B-GSL-18	B type (Pt-Rh to Pt-Rh) 9" length with Zirconia sheath (Up to 1800°C)
EQ-TC-K-22	K type (Ni-Cr/Ni-Al) 220mm (8.7") length with ceramic sheath
EQ-USB-TC	8 channels computerized temperature monitor with software
EQ-TC-CALIBRATOR-WIRE-LD	K type thermocouple extension wire with mini male plug
EQ-TC-CALIBRATOR-LD	Portable digital temperature calibrator with usb and RS232 interface & software
EQ-TC-C-16-LD	C type (W-WLa) 1/4" OD x 16" Length with Molybdenum sheath up to 2300°C
EQ-TC-C-10-LD	C type (W-WLa) 1/4" OD x 10" Length with Molybdenum sheath up to 2300°C
EQ-TC-K-220	K type for OTF-1200X-S
EQ-TC-C-20-LD	C type (W-WLa) 1/4" OD x 20" Length with Molybdenum sheath up to 2300°C

EQ-TC-CALIBRATOR



EQ-TC-CALIBRATOR-WIRE



EQ-USB-TC



EQ-TC-K-17



SOFTWARE FOR TEMPERATURE CONTROLLER

EQ-MTS02



Temperature Control System sets up a communication link between the computer and a compatible MTI furnace with the 518/708 PLC or BT119 (please select the correct version in the optional bar). This setup enables the customer to efficiently control and monitor the furnace temperature via a GUI (Graphical User Interface) in real time

- Can be used for MTI furnaces with 518P controller except GSL-1100X-S, KSL-1200-S and OTF-1200X-S.
- One control module, serial port controller cable and one disc of software package are included
- For customers who need to upgrade their existing furnaces with this system, a detailed operation manual for its installation and application is available For MTI furnaces with 518P controller such as OTF-1200X, OTF-1500X, GSL-1600X, 1700X & 1800X, please select EQ-MTS02-Y
- For GSL-1100X, OTF-1200X-S, and KSL-1100-S furnaces with BT119 controller, please select EQ-MTS02-B
- For MTI High Pressure Furnaces, please select module EQ-MTS02-YP

FLOW METER & CONTROLLER

Model	Flow Rate	Description
EQ-FM-1000CC	100-1000 cc/min	Compact direct read flow meter with 5.35" height scale and 0.32" outlet
EQ-FM-160CC	16-160 cc/min	Compact direct read flow meter with two male fittings
EQ-FM-100CC	10-100 cc/min	Compact direct read flow meter with 4" height scale, 1/4" NPS connector and one hose barb for 1/4" I.D tube
EQ-FM-60CC	0-60 cc/min	Compact direct read flow meter with 4" height scale, one 1/4" NPS connector and one hose barb for 1/4" I.D tube
EQ-MFC-1-LD	0 - 200 cc/min	Precision mass flow controller with digital display & stainless steel body



PRESSURE GAUGE & CONTROLLER



Model	Pressure	Description
EQ-DVPG-LD	Up to 100 psi	• 1/4" male NPT with 4 digit LCD (9 V alkaline battery powered)
EQ-CVM-YZ60	-0.1 to 0.15 Mpa	• 3/8 " NPS fitting with 50 mm diameter dial size
EQ-PGC-554-LD	3.8x10 ⁻⁵ to 1125 Torr	• Fully ceramic coated sensor unit for highly corrosive applications • Fast atmospheric detection eliminates waiting time and shortens process cycle
EQ-CVM-211-P-LD	10 ⁻⁴ to 1000 Torr	• Convection enhanced Pirani vacuum gauge module with on-board controller
EQ-KJT-2V	0 - 230 KPa	• One pressure transducer with M14 male port : 0 - 230 kPa with 1% accuracy • One control box with digital pressure display and controller
EQ-KJF-2V	10 ⁻⁴ to 1000 Torr	• Two solenoid valves with 1/4 NPT (F) connecting ports • One digital pressure gauge with 1/8 to 1/4 NPT adapter: 10 ⁻⁴ to 1000 Torr
EQ-SN-VALVE	0.15-0.8 Mpa	• Solenoid valve for automatic gas control system • Clean gas media compatibility
EQ-DHPG	Up to 60 Mpa	• 1/4" male NPT with 4 digit LCD (22 VDC power adapter)
EQ-VPC-30D	0 to 800 Torr	• Dual Valve digital vacuum and pressure gauges/controllers for closed system • Clean, dry, non-corrosive, inert gases media compatibility
EQ-VPC-30-LD	0 to 800 Torr	• In-line digital vacuum pressure controller • Clean, dry, non-corrosive, inert gases media compatibility

FITTINGS, PIPES & VALVES



VALVES

EQ-KF-VALVE-D25	KF25 Vacuum Right-Angle Valve
EQ-KF-VALVE-D40	KF-40 Vacuum Right-Angle Valve
EQ-VALVE-ON/OFF	On-off valve with 1/4" BSP male/female connector
EQ-KF25-1/4VCR-V	KF25 Fitting to 1/4" Swagelok® Tube Fitting with SS Needle Valve
EQ-SN-VALVE	Solenoid Valve for Automatic Gas Control System, 24VDC
HIP-RV10-MTI	Adjustable High Pressure Relief Valve in pressure range of 1000 - 10,000 PSI
6LVV-ALD3FR4-P-C	ALD Valve, 1/4 in. Female VCR, SC-01, NC Actuator
6LVV-ALD3TC333P-C	ALD Valve, 3-Port, C Pattern, 1/4 in. Female VCR Fittings

FITTINGS

EQ-TPE	SS T-Piece with 1/4 NPS & Extended Branches Fitting Connector
EQ-TP-14NPS	SS T-Piece with 1/4 NPS & M14 Fitting Connector
EQ-TVF-1/4	Tee Type with Two Swagelok® Fitting for 1/4" Tube
EQ-FIT-14-18P	304SS 1/4" O.D Tube Fitting x 1/4" BSPP Male Connector
EQ-UC-14NPS	Stainless steel 1/4NPS male union connector (1/4NPS male - 1/4nps male)
EQ-FIT-14S18T	316 SS Hex Bushing: 1/4 M X 1/8 F
EQ-FIT-3-8-BARBED	3/8" Barbed Hose Fitting

SUPPORTS, BELLOW & TUBE

EQ-FLS-KF25	Adjustable Tube Support (320 - 510mm H) for KF25 Flanges
EQ-FLS-KF40	Adjustable Tube Support (320 - 510mm H) for KF40 Flanges
EQ-SWA-HOSE-1-LD	316 L SS 1/4" Swagelok® Flexible Hose with 1/4" NPT Male Connector
EQ-KF-PIPE-D16-1000	KF-16 flexible Stainless Steel Vacuum Hose (Bellows) - 1" dia x 1000mm Length for high vacuum furnace
EQ-KF-PIPE-D25-600	KF-25 flexible Stainless Steel Vacuum Hose (Bellows) - 1" dia x 600mm Length for high vacuum furnace.
EQ-KF-PIPE-D40	KF-D40 Vacuum Bellows - 1 Meter Length for high vacuum furnace.
EQ-KF-PIPE-D25	KF-D25 flexible Stainless Steel Vacuum Hose (Bellows) - 1" dia x 1 Meter Length for high vacuum furnace.
EQ-KF-PIPE-D40-600	KF-D40 Vacuum Bellows - 600mm Length for high vacuum furnace.

QUICK CLAMP & ADAPTOR

KF16, 25 & 40	Blank Flange of KF Fittings
EQ-RU-KF40-25	KF40 to KF25 Reducer Union
EQ-RT-KF-40-25-40	Reducing T Piece KF40-25 with 2 KF40 ports and 1 KF25 port for Pfeiffer Pump
EQ-NPS-KF25-S	1/4NPS to KF-25 Adapter
EQ-KF-CLAMP-D25	KF-25 Quick Clamp with Rubber O-Ring
EQ-KF-CLAMP-D40	KF-40 Quick Clamp with Rubber O-Ring
EQ-KF-CLAMP-D16	Quick Clamp with Rubber O-Ring for KF-D16 Vacuum adaptor

SEALING FLANGES & ACCESSORIES



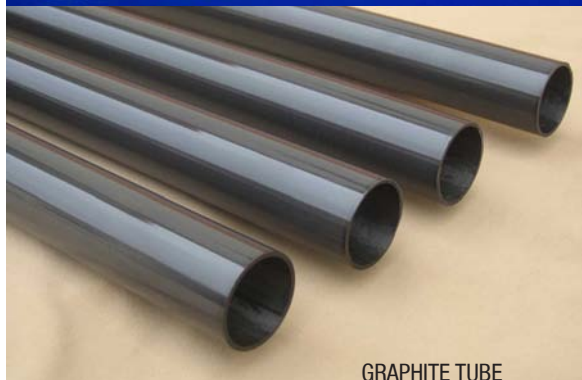
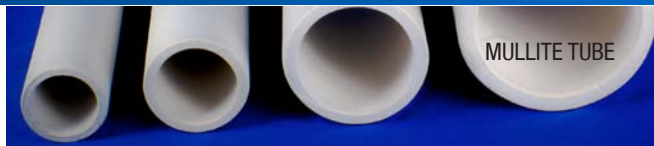
Model	Description
EQ-FL-25	Vacuum sealing assembly for 1" diameter tube furnace with valve/vacuum meter
EQ-FG-40WC	Sealing flange with water cool jacket for 40-42 mm diameter tube
EQ-FG-25WC	Sealing Flange with Water Cool Jacket for 1" (25-26mm) dia. Tube
EQ-FG-76WC	Water Cold Sealing Flange for 3" dia. Tube
EQ-FL-50KF25-FT (D/M)	Vacuum sealing assembly for 50 mm dia tube furnace with KF-25 vacuum port & 1/4 feedthrough
EQ-FL-50	Sealing flange assembly for 50 mm diameter tube
EQ-FG-50WC	Water cooled sealing flange for 50 mm diameter processing tube
EQ-FL-80	Vacuum Sealing Assembly for 80 - 82 mm dia Tube Furnace with Valve / Vacuum Meter
EQ-FL-125-LV	CVD special 5" flange with 1/4" tube fitting inlet and outlet, water cooling and flange support
EQ-HFR-50	Vacuum sealing assembly for single end 50 mm diameter with vacuum valves
EQ-HFL-50	Vacuum sealing assembly for single end 50 mm diameter tube with vacuum meter/valve
EQ-FL60-PTFE	PTFE sealing flange with digital pressure gauge, valves & fittings for 60mm diameter processing tube
EQ-FG-60WC	Sealing flange with water cool tubing for 60mm diameter tube
EQ-FL-60KF25-FT (D/M)	Vacuum sealing assembly for 60 mm dia tube furnace with KF-25 vacuum port & 1/4 feedthrough
EQ-FL-60	Vacuum sealing assembly for 57 - 60 mm dia tube furnace with valve/vacuum meter
EQ-FG-60TCV	Sealing flange for single end 60mm dia. Tube with 1/4" fitting & vacuum valve
EQ-HFL-60	Vacuum sealing assembly for single end 60mm dia. Tube with vacuum meter/valve
EQ-HFR-60	Vacuum sealing assembly for single end 60mm dia with vacuum valves
EQ-FL-60K25-1/8NPT	Vacuum flange with digital vacuum gauge, ball valve and KF25D adaptors for 60 mm dia tube
EQ-HFL-76	Vacuum sealing assembly for single end 76 mm (3") diameter tube with vacuum meter/valve
EQ-FL-75	Vacuum sealing assembly for 3" dia tube furnace with valve/vacuum meter
EQ-FG-80PTFE	PTFE sealing flange with valves for 80 mm diameter processing tube
EQ-FL-80KF25-FT	Sealing Flange for 80mm dia. Quartz Tube with 1/4" Feed-through, Two Valves & KF-25 Vacuum Ports
EQ-FG-80TCVF	Sealing flange for 80 mm diameter quartz tube with 1/4" feed-through, two valves & KF-25 vacuum ports
EQ-HFR-80	Vacuum sealing assembly with vacuum valves for single end 80 mm dia processing tube
EQ-FG-80WC	Water cold sealing flange for 80 mm diameter tube
EQ-HFL-80	Single end vacuum sealing assembly for 80 mm diameter quartz tube with vacuum meter/valve
EQ-HFL-80W30	Vacuum sealing flange with view window for single end 80 mm diameter processing tube
EQ-FL-101KF25-HG	Hinged vacuum sealing assembly with flange support for 101 mm dia tube furnace
EQ-FL-101KF25-FT (D/M)	Vacuum sealing assembly for 101 mm dia tube furnace with KF-25 vacuum port & 1/4 feedthrough
EQ-FG-100WC	Water cold sealing flange with valves & vacuum gauge for 100 mm diameter tube
EQ-FG-100TCV	Sealing flange for single end tube with 1/4" thermocouple feedthrough & vacuum valve
EQ-RTP-KF25-16	KF-D25 high vacuum flange for 4" diameter tube of RTP furnace
EQ-FL-101	Vacuum sealing assembly (flange lip I.D. 101 mm for quartz tube) with vacuum gauge and valves
EQ-FL-104	Vacuum sealing assembly (flange lip I.D. 104 mm) with vacuum gauge and valves
EQ-FL-114	Vacuum sealing assembly for 4.5" (114 mm) dia tube furnace with vacuum meter/valves
EQ-FL-125	Vacuum sealing assembly (flange lip I.D. 130 mm) with KF-25D adaptor & vacuum gauge for 5" processing tube
EQ-FL-152	Hinged type vacuum sealing assembly for 6" (152 mm) dia processing tube with KFD25 vacuum port
EQ-FL-85	Hinged type vacuum sealing flange with KF-25D adaptor for 8.5" (216mm) processing tube
EQ-FL-80KF25-HG	Hinged vacuum sealing assembly with flange support for 80 mm dia tube furnace
EQ-FG-80PTFE-OE	PTFE sealing flange (one end) with KF-25 port for 80 mm diameter processing tube
EQ-FL-279	Hinged type vacuum sealing flange with KF-25 D adaptor for 11" processing tube

QUARTZ TUBE



Model	Dimension n(I.D x O.D x L)	Description
EQ-QZTUBE-25GE-450	22 x 25 x 450 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-25GE-610	22 x 25 x 600 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-25GE-1000	22 x 25 x 1000 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-40GE	36 x 40 x 1219 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-HQT25	19.8 x 25 x 180 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-50GE-450	44 x 50 x 450 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-50-44-24-GE	44 x 50 x 600 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-50-46-24-GE	46 x 50 x 610 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-60GE-1200	55 x 60 x 1219 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-60GE-1400	55 x 60 x 1400 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-60G-1000	55 x 60 x 1000 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-HQT50	44 x 50 x 300 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-HQT60	54 x 60 x 250 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-75D	70 x 76.2 x 1000 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-80D40	72 x 80 x 1000 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-80D-48	75 x 80 x 1219 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-80D-1400	72 x 80 x 1400 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-80D-1540	72 x 80 x 1540 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-HQT80	73 x 80 x 300 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-100	92 x 101 x 1000 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-101D-1400	92 x 101 x 1400 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-101D-1480	92 x 101 x 1480 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-101D-1200	93 x 101 x 1200 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-RTP	103 x 110 x 411 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-DI-1540	94 x 102 x 1540 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-115-LD	110 x 115 x 1500 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-125GE-1400	120 x 130 x 1400 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-DE-1480	122 x 130 x 1480 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-6-1500	143 x 152 x 1500 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-R	-	4" Tube for Both MTI Single Zone & Dual-Zone Rotary Tube Furnaces
EQ-QZTUBE-R5	-	5" Tube for MTI Three Zone Rotary Tube Furnace - EQ-QZTube-R5
EQ-HQT100	92 x 100 x 300 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-6-1300	143 x 152 x 1300 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-216RF	206 x 216 x 1524 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-216GE	206 x 216 x 1295 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-279GE-1	269 x 279 x 1295 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-HQT200	192 x 203 340 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-50GE-1219	44 x 50 X 1219 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-50GE-1000	46 x 50 x 1000 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-80D-1800	72 x 80 x 1800 mm	DIY tube furnace with max operating temperature of 1200°C
EQ-QZTUBE-6-1500	143 x 152 x 1500 mm	DIY tube furnace with max operating temperature of 1200°C

OTHER TYPES OF PROCESSING TUBE



Model	Dimension (I.D x O.D x L)	Description
EQ-TG-60D-46L	50.8 x 63.5 x 1168 mm	High Purity Graphite Tube with purity of > 99.999%
EQ-TG-60D-26L	50.8 x 63.5 x 660 mm	High Purity Graphite Tube with purity of > 99.999%
TUBE-SS-60-4-12	52 x 60 x 1200 mm	Heat Resistance Alloy Seamless Tube with max temperature of 1000°C
TUBE-SS-80-4-12	72 x 80 x 1200 mm	Heat Resistance Alloy Seamless Tube with max temperature of 1000°C
TUBE-GH60-4-12	52 x 60 x 1200 mm	Ni-Based Super Alloy Seamless Tube with max temperature of 1000°C
EQ-TA-40D-700	38 x 42 x 700 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-TA-50D-M700	41.8 x 51.5 x 700 mm	High purity Alumina (99.8%) Ceramic Tube with max temperature 1800°C
EQ-TA-50D-M1000	44 x 50.2 x 1000 mm	High purity Alumina (99.8%) Ceramic Tube with max temperature 1800°C
EQ-TA-50D-M1200	43.7 x 50.3 x 1200 mm	High purity Alumina (99.8%) Ceramic Tube with max temperature 1800°C
EQ-TA-60D-M610	60.6 x 53.5 x 610 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-TA-60D-M800	60.6 x 53.5 x 800 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-TA-60D-M1000	60.6 x 53.5 x 1000 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-TA-60D-M1200	60.6 x 53.5 x 1200 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-TA-80D-M1000	74.5 x 80.4 x 1000 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-TA-82D-M1000-LD	72 x 81.7 x 1000 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-TA-82D-M1200-LD	72 x 81.7 x 1200 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-TA-101D-M1000	92.3 x 101.7 x 1000 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-MC-AXF1180-19-24-1-LD	1.57 x 6.35 x 631 mm	4 Holes Round Four Bore Tube, Alumina 99.8%
MC-AXF1180-19-24-2-LD	1.57 x 4.75 x 631 mm	Round Double Bore Tube, Alumina 99.8%
MC-AXF1180-19-24-3-LD	1.57 x 6.35 x 785 mm	Round Double Bore Tube, Alumina 99.8%
EQ-TM-40D-700	34.92 x 41.92 x 762 mm	Mullite Ceramic Tube with max temperature of 1500°C
EQ-TM-50D-762-LD	44.45 x 50.8 x 762 mm	Mullite Ceramic Tube with max temperature of 1500°C
EQ-TM-50D-12L-LD	44.45 x 50.8 x 304.8 mm	Mullite Round Single Bore Tubes (One End Closed) 1500°C
EQ-TM-76D-42L-LD	69.85 x 76.2 x 1016 mm	Mullite Ceramic Tube with max temperature of 1500°C
EQ-TM-80D-42L-LD	73.02 x 84 x 1016 mm	Mullite Ceramic Tube with max temperature of 1500°C
EQ-TM-80D-55L-LD	73.02 x 84 x 1393 mm	Mullite Ceramic Tube with max temperature of 1650°C
EQ-TM-100D-42L-LD	92.07 x 104 x 1016 mm	Mullite Ceramic Tube with max temperature of 1650°C
TUBE-GH80-5-12	70 X 80 X 1200 mm	Ni-Based Super Alloy Seamless Tube with max temperature of 1100°C
EQ-TA-62D-M790-LD	54 x 62 x 790 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-TA-76D-M1000	67 x 76 x 1000 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-TA-101D-M1000-LD	92 X 101 X 1000 mm	High purity Alumina (Al ₂ O ₃) with max temperature 1750°C
EQ-TM-40D-760-LD	35 x 41 x 760 mm	Mullite Ceramic Tube with max temperature of 1650°C

MOBILE CART

EQ-FM-CART-66	EQ-FM-CART-68	EQ-FM-CART-2
<ul style="list-style-type: none"> Steel frame shelf cart Dimension: 600 L x 600 W x 600 H mm 	<ul style="list-style-type: none"> Steel frame shelf cart Dimension: 600 L x 800 W x 600 H mm 	<ul style="list-style-type: none"> Steel frame shelf cart Dimension: 1200 L x 600 W x 600 H mm

OIL TRAP & EXHAUST FILTER

EQ-OTS-KF25	EQ-SAT25A-LD	EQ-VFS-25	EQ-CG-4L
Oil Trapping Sphere - Prevents Oil Backstreaming	Rechargeable In-Line Trap to Prevent Backstreaming in Vacuum Pump	Single Stage Vacuum Pump Oil Mist Reduction Unit with KF-25 Adaptor & Quick Clamp	Vacuum Pump Exhaust Filter with KF-D25 Adaptor & Quick Clamp

PRESSING DIE



Model	Max Pressure	Description
EQ-DIE-03D	1 metric Tone	One set of 1/8" Diameter (I.D.) Dry Pressing Die
EQ-DIE-06D	4 metric Tone	One set of 1/4" Diameter (I.D.) Dry Pressing Die
EQ-DIE-12D	20 metric Tone	One set of 1/2" Diameter (I.D.) Dry Pressing Die
EQ-DIE-15D	24 metric Tone	One set of 14.85mm Diameter (0.58" I.D.) Dry Pressing Die
EQ-DIE-18D	40 metric Tone	One set of 3/4" Diameter (I.D.) Dry Pressing Die
EQ-DIE-25S	30 metric Tone	One set of 1" Square Dry Pressing Die
EQ-DIE-25D	40 metric Tone	One set of 1" Diameter (I.D.) Dry Pressing Die
EQ-DIE-38D	40 metric Tone	One set of 1.5" Diameter (I.D.) Dry Pressing Die
EQ-DIE-50D	200 metric Tone	One set of 2" Diameter (I.D.) Dry Pressing Die
EQ-DIE-75D	500 metric Tone	One set of 3" Diameter (I.D.) Dry Pressing Die
EQ-DIE-12D-GP	5 metric Tone	One set of Graphite Dry Pressing Die of 1/2" I.D.
EQ-DIE-10D	12 metric Tone	One set of 10mm Diameter (I.D.) Dry Pressing Die
EQ-DIE-105D-GP-4	5 metric Tone	One set of Graphite Dry Pressing Die of 1/2" I.D.
EQ-DIE-12DHT	6 metric Tone	Refractory Alloy Die up to 400°C, 1/2" I.D. Dry Pressing Die

CUTTING & DICING BLADE



DIAMOND BLADE

EQ-IPDB40305	3 pieces 4" dia. x 0.35 mm x0.5" arbor impregnated diamond cutting blades for cutting saw (Fine grade 40 micron)
EQ-DF0403	4" dia. x 0.35 mm T x 0.5" arbor sintered full diamond cutting blades (Fine grade 40 micron)
EQ-DF0302	3" dia. x 0.2 mm T x 0.5" arbor fully sintered diamond cutting blades for low speed saw
EQ-DF0303	3" dia. x 0.3 mm T x 0.5" arbor fully sintered diamond cutting blades for low speed saw
EQ-DF0403C	4" dia. x 0.35 mm T x 0.5" arbor sintered full diamond cutting blades (Coarse grade 63 micron)
EQ-DB-153742-LD	4" dia. x 0.014" T x0.5" arbor edge sintered diamond blade
EQ-IPDB6050505	Two 6" dia. x 0.5mm T x 0.5" arbor impregnated diamond cutting blades
EQ-IPDB650505	Two 6.5" dia. x 0.5mm T x0.5" arbor impregnated diamond cutting blades
EQ-DB-153744-LD	6" dia. x 0.014" T x 0.5" arbor edge sintered diamond blade
EQ-DB-153741-LD	8" dia. x 0.025" T x1.0" arbor sintered diamond blade
EQ-EC-422	86 mm OD x 0.1 mm thickness diamond cutting blades with 0.5" arbor flange
EQ-EC-422-BLADE	86 mm OD x 0.1 mm thickness diamond dicing blades
EQ-MT-100-BSB	One 37.7" (96 cm) loop diamond blade for MT-100 mini diamond band saw

CUBIC BORON NITRIDE BLADE

EQ-CBN40305	CBN (Cubic Boron Nitride) Blade 4"diameter x 0.35 mm x 0.5" arbor for precision cutting
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SILICONE CARBIDE BLADE

EQ-MT-5-SiC	SiC blade, 2"diameter x 3/8" arbor
EQ-SC0404	4" diameter x 0.35 mm x 0.5" arbor SiC abrasive cutting blades for low speed / trim saw
EQ-SC0604	6" diameter x 0.5 mm x 0.5" arbor SiC abrasive cutting blades for low speed / trim saw (SC0604)
EQ-SC0801	8" diameter x 0.05" x 1.25" arbor SiC abrasive cutting blades for SYJ-200 auto section saw
EQ-SC1075	10" diameter x 0.075" x 1.25" arbor SiC abrasive cutting blades for cut-off saw

ALUMINA BLADE

EQ-AL0404	4" diameter x 0.35 mm x 0.5" arbor alumina abrasive cutting blade for low speed / trim saw
EQ-AL0605	6" diameter x 0.5 mm x 0.5" arbor alumina abrasive cutting blade for low speed / trim saw
EQ-AL0801	8" diameter x 0.05" x1.25" arbor alumina abrasive cutting blade for SYJ-200 auto section saw

DIAMOND CUTTING WIRES

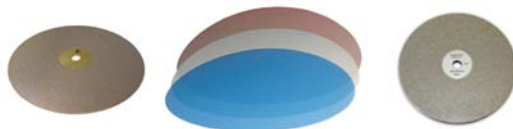
EQ-DW012x65	Diamond wire of 0.12 mm diameter x 65 m L (215 feet) for wire saw cutting
EQ-DW023x60	Diamond wire of 0.23 mm diameter x 65 m L (215 feet) for wire saw cutting
EQ-DW028x60	Diamond wire of 0.28 mm diameter x 65 m L (215 feet) for wire saw cutting
EQ-DW020x990	Diamond wire of 0.20 mm diameter x 300 m L (0.008"Dia x 990 ' L) for wire saw cutting - Made in USA
EQ-DW025x100	Diamond wire of 0.25 mm diameter x 100 Meter (333 feet) for wire saw cutting - Made in USA
EQ-DW025x200	Diamond wire of 0.25 mm diameter x 200 m L (666 feet) for wire saw cutting - Made in USA
EQ-SXJ-PW3-LD	One 0.3 mm diameter diamond loop wire (84 cm) for STX-201 wire saw
EQ-SXJO-PW2-LD	One 0.25 mm thick plain steel loop wire for cutting almost all materials by feeding selected slurry

SAND PAPER DISC

EQ-SD-8PB	SiC sand disc (Plain back), waterproof 8" 240 - 2000 grit optional, 20 pieces
EQ-SD-8PSA	SiC sand disc (PSA), waterproof, 8" diameter 240 - 2000 grit optional (10 pieces/item)
EQ-SD-12PB	SiC sand disc (Plain back), waterproof, 12" diameter 240 - 2000 grit optional 20 pieces
EQ-SD-12PSA	SiC sand disc (PSA), waterproof, 12" diameter 240 - 2000 grit optional (10 pieces/item)



DIAMOND LAPPING DISC



Model	Description
EQ-DGP-6PB-320	Electro-plated 6" dia. diamond grinding plate with PSA, 320 - mesh
EQ-DGP-6PB-600	Electro-plated 6" dia. diamond grinding plate with PSA, 600 - mesh
EQ-DGP-6PB-800	Electro-plated 6" dia. diamond grinding plate with PSA, 800 - mesh
EQ-DGP-6PB-1200	Electro-plated 6" dia. diamond grinding plate with PSA, 1200 - mesh
EQ-DGP-6PB-1500	Electro-plated 6" dia. diamond grinding plate with PSA, 1500 - mesh
EQ-DGP-8PB320	Electro-plated 8" dia. diamond grinding plate with PSA, 320 mesh
EQ-DGP-8PB600	Electro-plated 8" dia. diamond grinding plate with PSA, 600 mesh
EQ-DGP-8PB800	Electro-plated 8" dia. diamond grinding plate with PSA, 800 mesh
EQ-DGP-8PB1200	Electro-plated 8" dia. diamond grinding plate with PSA, 1200 mesh
EQ-DGP-8PB1500	Electro-plated 8" dia. diamond grinding plate with PSA, 1500 mesh
EQ-DGP-8PB1800	Electro-plated 8" dia. diamond grinding plate with PSA, 1800 mesh
EQ-DGP-8PB2000	Electro-plated 8" dia. diamond grinding plate with PSA, 2000 mesh
EQ-DLF-8PSA-LD	8" dia. diamond lapping film (PSA) 0.1 - 30 microns grit optional
EQ-DGP-12PB320	Electro-plated 12" dia. diamond grinding / lapping plate with PSA back, 320 mesh
EQ-DGP-12PB600	Electro-plated 12" dia. diamond grinding / lapping plate with PSA back, 600 mesh
EQ-DGP-12PB800	Electro-plated 12" dia. diamond grinding / lapping plate with PSA back, 800 mesh
EQ-DGP-12PB1200	Electro-plated 12" dia. diamond grinding / lapping plate with PSA back, 1200 mesh
EQ-DGP-12PB1500	Electro-plated 12" dia. diamond grinding / lapping plate with PSA back, 1500 mesh
EQ-DGP-12PB1800	Electro-plated 12" dia. diamond grinding / lapping plate with PSA back, 1800 mesh
EQ-DGP-12PB2000	Electro-plated 12" dia. diamond grinding / lapping plate with PSA back, 2000 mesh

POLISHING PAD



Model	Description
EQ-PP-8PSA-PC	8" poromeric polishing pad (PSA) for final polishing
EQ-PP-12PSA-PC	12" poromeric polishing pad (PSA) for final polishing
EQ-PP-15PSA	15" poromeric polishing pad (PSA) for Final Polishing
EQ-PFP012	12" polyamide foam polishing pad
EQ-PFP015	15" polyamide foam polishing pad
EQ-PP-8FPB-SY	8" polyamide foam polishing pad
EQ-PP-3PSA-SY	Three 3" poromeric polishing pad (PSB) for final polishing
EQ-MBP-8-2-LD	Two 8" master plate (backing plate) for PSA diamond plate, sand paper, and polishing pad

MAGNETIC BUFFER PLATE

EQ-SD-8PB	SiC sand disc (plain back), waterproof 8" 240 -2000 grit optional (20 pieces/item)
EQ-SD-8PSA	SiC sand disc (PSA), waterproof, 8" diameter 240-2000 grit optional (10 pieces/item)
EQ-SD-12PB	SiC sand disc (Plain back), waterproof, 12" diameter 240-2000 grit optional (20 pieces/item)
EQ-SD-12PSA	SiC sand disc (PSA), waterproof, 12" diameter 240 -2000 grit optional (10 pieces/item)



DIAMOND POLISHING PASTE



Model	Description
EQ-MW025	Diamond compound polishing paste, 0.25 micron, 10 gram syringe
EQ-MW05	Diamond compound polishing paste, 0.5 micron, 10 gram syringe
EQ-MW10	Diamond compound polishing paste, 1.0 micron, 10 grams syringe
EQ-MW25	Diamond compound polishing paste, 2.5 micron 10 grams syringe
EQ-MW30	Diamond compound polishing paste, 3.0 micron, 10 grams syringe
EQ-MW35	Diamond compound polishing paste, 3.5 micron 10 grams syringe
EQ-MW50	Diamond compound polishing paste, 5.0 micron 10 grams syringe
EQ-MW70	Diamond compound polishing paste, 7.0 micron 10 grams syringe
EQ-MW140	Diamond compound polishing paste, 14 micron 10 grams syringe
EQ-MW280	Diamond compound polishing paste, 28 micron 10 grams syringe
EQ-MW540	Diamond compound polishing paste, 54 micron 10 grams syringe

SAMPLE MOUNTING ACCESSORIES

EQ-HM-POWDER5L-LD



EQ-CM-MOLD-SR-125-LD



EQ-CM-EP-FAST-32-LD

EQ-MP-300



EQ-160DT



EQ-MOUNTINGCLIP-LD

Model	Description
EQ-HM-POWDER5L-LD	Compression mounting powder (5 lb) optional color of black, red, green
EQ-CM-EP-FAST-32-LD	Cold mounting fast-curing epoxy with hardener (32 oz epoxy 8 oz hardener)
EQ-CM-EP-LOWV-32-LD	Cold mounting low viscosity epoxy with hardener (32 oz epoxy 8 oz hardener)
EQ-MP-300	Mounting press for metallographic samples
EQ-CM-MOLD-SR-125-LD	Reuseable plastic mold for cold mounting, 1.25" Diameter
EQ-CM-MOLD-SR-150-LD	Reuseable plastic mold for cold mounting, 1.5" Diameter
EQ-CM-MOLD-SR-1	Reuseable plastic mold for cold mounting, 1" diameter
EQ-MOUNTINGCLIP-LD	Plastic sample clip for cold mounting
EQ-160DT	Template for holding various size wafer

GRAPHITE BLOCKS & WAX

EQ-GRAPHITEB



EQ-WAXB-1



Model	Description
EQ-GRAPHITEB-75X25	2 pcs of 75 x 25 high quality graphite blocks for samples holding
EQ-GRAPHITEB	2 pcs of 75 x 75mm high quality graphite blocks for samples holding
EQ-WAXB-1	2 pcs of high quality wax bulks for samples bonding

ACCESSORIES RELATED TO CUTTING SAW



Model	Description
EQ-CCP-01-LD	Coolant circulating pump for Precision Wire Saw STX Series
EQ-LUBECOOL-150	Smart solid lubricant and coolant for diamond saw cutting
EQ-LSS011	Mini vise for low speed saw
EQ-EC-401	Precision cross mount vise for EC400 dicing and SYJ-150 low speed saw
EQ-SXJ-2-4	Precision cross mount vise for SXJ-2 diamond wire saw
EQ-ECO-430	Heavy duty coolant circulating tank with pump for MTI cutting saw
EQ-LSS-021	Diamond blade dressing stone
EQ-GP-1	Glass sample plate for SYJ-800
EQ-LSS021	Multi-blade spacer 10 mm thickness for SYJ-150 low speed saw
EQ-LSS023	Multi-blade spacer 1/4" thickness for SYJ-150 low speed saw
EQ-ECO-423	Water splash guard for covering 6" blade
EQ-ECO-402	4" vacuum chuck to mount sample
EQ-ECO-419-LD	Water bonding tape for vacuum chuck in dicing saw





EQ-MHD-25C	EQ-MHD-50C	EQ-MH-250
Digital Micrometer Head 1" Travel 0.003 mm accuracy	Digital Micrometer Head 2" Travel 0.005 mm accuracy	Micrometer Drive: 1" 0.005mm Division

ACCESSORIES RELATED TO POLISHING MACHINE



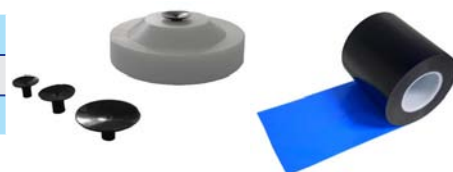
Model	Description
EQ-SKZD-2	Automatic slurry feeder for any 8" to 15" polishing machine
EQ-SKCH-1	Precision thickness checker with 0.001 dial indicator
EQ-PF-3H1W2	3" Polishing sample holder with three 1" holes/ Two dead weight for metallurgy
EQ-PF-1	Volumetric Feeder with built-in agitation paddles
EQ-MTI-50-CSO	Colloidal Silica (SiO ₂) Slurry for CMP, 16 Oz/ bottle at 0.05 micron
EQ-MTI-1000CA0-LD	Colloidal Alumina (Al ₂ O ₃) Slurry, 16 OZ/ bottle 1.0 Micron

ACCESSORIES RELATED TO VACUUM GLOVE BOX




EQ-AGB-GLOVE-6-32-LD	EQ-AGB-GLOVE-8-32-LD	EQ-GB-GLOVE	EQ-GB-VG
			
Antistatic Butadyl® Glove	Antistatic Butadyl® Glove	Economy Gloves	High Vacuum Silicone Grease
6"D x 32"L dimension for Larger Glove Box (a pair)	8" D x 32"L dimension for Larger Glove Box (a pair)	6"D x 32"L dimension (a pair)	For glove box sealing

ACCESSORIES RELATED TO SPIN COATER

Model	Description
EQ-ECO-MS-C	Mini suction cup for VTC-100 spin coater for holding wafer less than 1"
EQ-ECO-519-LD	Blue Adhesive Plastic Film (PVC) for vacuum chuck at spin coater



LIQUID SOLUTION HANDLING


BD-10ML	BD-200UL	VTC-1008-B
		
Bottletop Electrolyte Digital Dispenser	Precision Electronic Single Channel Pipette	Mini Centrifuge with 16 Adaptors & 8 Tubes
<ul style="list-style-type: none"> • 4 PP bottle adapters • One 1000 mL stainless steel bottle included • 1- 10 ml adjustable volume 	<ul style="list-style-type: none"> • 20 -200uL volume range • Easy calibration adjustments • Rechargeable battery included 	<ul style="list-style-type: none"> • 1600 rpm spin speed • Eight-position microtube rotor is included • Capacity up to 8 x 0.2~2.0ml tubes (8 tubes included)

MICROMETER ADJUSTABLE FILM APPLICATOR

Model	Width (mm)	Thickness (mm)
EQ-SE-KTQ-150	150	0.01-5
EQ-SE-KTQ-150A	150	4.5
EQ-SE-KTQ-150D	150	6
EQ-SE-KTQ-180	180	5
EQ-SE-KTQ-250	250	5
EQ-SE-KTQ-50	50	6
EQ-SE-KTQ-100	100	3.5



DIAMOND SCRIBER

EQ-DS-01

<ul style="list-style-type: none"> • Pen style diamond scriber for use on cutting thin single crystal substrate • 5.7" of length, provided with clip

MILLING/MIXING JAR



Model	Description
EQ-MC-A2	150ml Stainless Steel Mixing Container for Desk-Top Variable Speed Vacuum Mixer SFM-7
EQ-MJ-500A	Agate Jar (500ml) with milling balls for SFM-1 Milling Machine
EQ-MJ-500	Al2O3 jar of SFM-1 milling machine (3.2lbs 500ml)
EQ-AJ-50	Al2O3 Jar with SS Jacket for SFM-3 Milling Machine (50 ml)
EQ-MJ-2-1000NL	Nylon jar of SFM-2 milling machine (1000ml, 4pcs/package)
EQ-MJ-2-500NL	Nylon jar of SFM-2 milling machine (500ml, 4pcs/package)
EQ-MJ-1-250SS	Stainless steel jar of SFM-1 milling machine (250ml)
EQ-MJ-500S	Stainless steel jar of SFM-1 milling machine (500ml)
EQ-MJ-3-80SS	Stainless Steel Jar of SFM-3 milling machine (80ml)
EQ-MJ-3-80VSS	Vacuum Stainless steel jar of SFM-3 milling machine (80ml)
EQ-MJ-250	Stainless Vacuum Jar of SFM-1 milling machine (250ml)
EQ-MJ-1-500NL	Nylon jar of SFM-1 milling machine (500ml, 4pcs/package)
EQ-MJ-80NL	Nylon Jar of SFM-3 milling machine (80ml)
EQ-MC-A3	30ml stainless steel vacuum mixing jar with blade for SFM-7 vacuum mixer

MILLING/MIXING BALL



Model	Description
EQ-SSBALL	Stainless steel 304 milling balls combo: 12 pcs with various size (6-19.5 mm diameter)
EQ-YSZBALL	YSZ milling ball combo: 8 pcs with various size (19.5 - 10 mm diameter)
EQ-YSZBALL-S	YSZ milling ball: same diameter from 9-20 mm selectable (1 kg/quantity)
EQ-AGBALL	Agate milling ball any size from 0-19mm diameter selectable (20 balls/quantity)

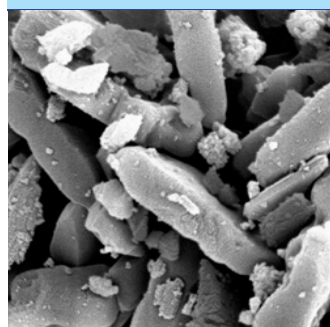
MISCELLANEOUS

LEAD-TAPE	EQ-EM-100	EQ-V0-SF	EQ-FLG-KIT-2
Lead Foil Tape: 2" W x 0.0063" Thick x 36 Yard length	Round Electromagnet for holding sample by its magnetism	Vacuum Oven Stainless Steel Sample Shelf and Four Fixing Holder	Furnace Handle Hook (26" L)

HD-11	EQ-GD-01	BL-200	EQ-SP-IHV
3M Hydrogen Gas Detector with Solenoid Valve	Laboratory Gas Drying Unit	Evaporator for Liquid Sources & Chemical Precursors Delivery	Vacuum Melting Vessel for Induction Heating

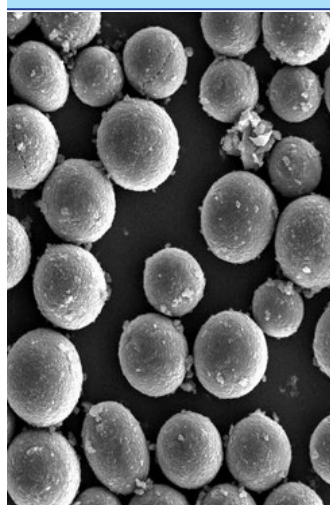
CONSUMABLES FOR BATTERY R&D

LI-ION BATTERY CATHODE POWDER



NP-SI-P100	100 g Si (99.%, 100 nm) Nanopowder
EQ-LIB-LFPO-KJ2	High-Rate (Upto 15C) LiFePO4 Powder for Li-ion battery Cathode, 150g/bag
EQ-LIB-LCN	Li2CO3 (Carbonate) Powder for Li-ion Battery Cathode, 200g/bottle
EQ-LIB-LCO	LiCoO2 (Cobalt) Powder for Li-ion Battery Cathode, 200g/bag
EQ-LIB-LMO	LiMn2O4 (Manganese) Powder for Li-ion Battery Cathode, 200g/bag
EQ-LIB-LFPO	LiFePO4 (Phosphate) Powder for Li-ion battery Cathode, 150g/bag
EQ-LIB-LNCM523	LiNiCoMnO2 (NCM) Powder for Li-ion Battery Cathode 200g/bottle
EQ-LIB-LNCM111	LiNiCoMnO2 (NCM) Powder for High Capacity Li-ion Battery Cathode, 200g/bag

LI-ION BATTERY ANODE POWDER



EQ-LIB-LTO	Li4Ti5O12 (Titanate) Powder for Li-ion Battery Anode, 200g/bag
EQ-LIB-AB	Conductive Acetylene Black for Li-ion battery Anode/Cathode, 25g/bag
EQ-LIB-CGP	Conductive Graphite Powder for Li-ion battery Anode/Cathode, 80g/bag
EQ-LIB-SUPERC45	TIMCAL SUPER C45 Conductive Carbon Black as Conductive Additive for Lithium-Ion Batteries 80g/bag
EQ-LIB-SUPERP	TIMCAL Graphite & Carbon Super P® Conductive Carbon Black, 100g/bag
EQ-LIB-SUPERC65	TIMCAL SUPER C65 Conductive Carbon Black as Conductive Additive for Lithium-Ion Batteries 80g/bag
EQ-LIB-CMSG	Artificial Graphite Powder for Li-ion battery Anode, 200g/bag
EQ-LIB-MCMB	MCMB (MesoCarbon MicroBeads) Graphite Powder for Li-ion Battery Anode, 250g/bag
EQ-LIB-CMC	Carboxymethyl Cellulose (CMC) for Li-ion Battery Anode 100g/bottle
EQ-AB-520	High Surface Active Carbon For Super-Capacitor Electrode (70g / Bag)



BATTERY ELECTRODE/LI CHIPS

EQ-CC-CU-20	Conductive Carbon Coated Copper Foil for Battery Anode Substrate (280mm width x 11um thick, 1.3 kg/roll)
BC-AF-241LPF-DS	Li-Ion Battery Cathode - Aluminum foil double side coated by LiFePO4 (241mm L x 200mm W x 0.2mm T) 5 sheets/bag
BC-CF-241LPF-SS	Li-Ion Battery Cathode - Aluminum foil single side coated by LiFePO4 (241mm L x 200mm W x 0.1mm T) 5 sheets/bag
BC-AF-267MN-DS	Li-Ion Battery Cathode - Aluminum foil double side coated by LiMn2O4 (267mm L x 214mm W x 0.2mm T) 5 sheets/bag
BC-AF-267CO-DS	Li-Ion Battery Cathode - Aluminum foil double side coated by LiCoO2 (241mm L x 200mm W x 94um T) 5 sheets/bag
BC-AF-241CO-SS	Li-Ion Battery Cathode - Aluminum foil single side coated by LiCoO2 (241mm L x 200mm W x 0.1mm T) 5 sheets/bag
BC-CF-241-DS	Li-Ion Battery Anode -Copper foil double side coated by CMS Graphite (241mm L x 200mm W x 0.2mm T) 5 sheets/bag
BC-CF-241-SS	Li-Ion Battery Anode - Copper foil single side coated by CMS Graphite (241mm L x 200mm W x 0.1mm T) 5 sheets/bag
BC-CF-241-SS-005	Li-Ion Battery Anode -Copper foil single side coated by CMS Graphite (241mm L x 200mm W x 0.05mm T) 5 sheets/bag
BC-CF-750-DS	18650 Li-Ion Battery Anode Strip -Copper foil double side coated by CMS Graphite(750mm L x 58mm W x 0.11mm T) 50 pcs/roll
BC-AF-670MN-DS	18650 Li-Ion Battery Cathode Strips - Aluminum foil double side coated by LiMn2O4 (670mm L x 56mm W x 0.15mm T) 50pcs/roll
EQ-LIB-LIC45	Lithium Chip 15.6 Dia x 0.45 t mm for Li-ion Battery R&D 130g/bottle
EQ-LIB-LIC25	Lithium Chip 15.6 Dia x 0.25t mm for Li-ion Battery R&D 100g/bottle (4000 pcs)
LIB-LIF-30M	Lithium (Li) Foil: 30 Meter Length x 35 mm Width x 0.17mm Thick
LIB-LIF-35M	Lithium (Li) Foil: 35 Meter Length x 76.5 mm Width x 0.06mm Thick

LI-ION BATTERY BINDERS

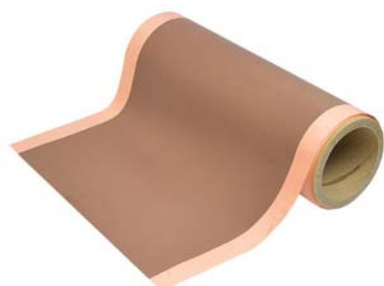


EQ-LIB-PVDF	PVDF binder for Li-ion battery electrodes 80g/bag
EQ-LIB-NMP	N-Methyl-2-pyrrolidone (NMP) solvent for PVDF 250g/bottle
EQ-LIB-CMC	Carboxymethyl Cellulose (CMC) for Li-ion Battery Anode 100g/bottle
EQ-LIB-SBR	Styrene-Butadiene Rubber (SBR) binder for Li-ion Battery Anode 260g/bottle
EQ-LIB-PTFE	Polytetrafluoroethylene (PTFE) Condensed Liquid Binder for Li-ion Battery 360g/bottle
EQ-LIB-520L	Water-based (Aqueous) Binder Powder for Li-ion Battery Cathode 120g/bottle

LI-ION BATTERY SEPARATOR



EQ-BSF-0016-500A	Ceramic Coated Membrane (16um thick x 60mm W x 500m L) as Separator of Li-ion Battery
EQ-BSF-0025-400C	Li-ion Battery Separator Film (25um thick x 60mm W x 400m L, Celgard)
EQ-BSF-0025-60C	Li-ion Battery Separator Film (25um thick x 85mm W x 60m L, Celgard)
EQ-PTFE-02-47	PTFE Membrane as Separator for Lithium Air Battery 100/pk



ELECTRODE SUBSTRATE (CURRENT COLLECTOR)

EQ-BCAF-15U-280	Aluminum Foil for Battery Cathode Substrate (350m Length x 280mm width x 15um thickness)
EQ-BCANF-45U	Aluminum Mesh Foil for Battery Cathode Substrate (240mm width x 45um thick x 50 Meter Length)
EQ-BCANF-20U	Aluminum Mesh Foil for Battery Cathode Substrate (265mm width x 20um thick)
EQ-CC-AL-20U-260	Conductive Carbon Coated Aluminum Foil for Battery Cathode Substrate (260mm W x 16um Thick, 80m / Roll)
EQ-CC-CU-20	Conductive Carbon Coated Copper Foil for Battery Anode Substrate (280mm width x 11um thick, 1.3 kg/roll)
EQ-BCCF-9U	Copper Foil for Battery Anode Substrate (190 m L x 280mm W x 9um thick)
EQ-BCCF-25U	Copper Foil for Graphene Growth (90m length x 150mm width x 25um thickness)
EQ-BCCNF-45U	Copper Mesh Foil for Battery Anode Substrate (240mm width x 45um thickness x 20 Meter L)
EQ-BCCNF-55U	Copper Mesh Foil for Battery Anode Substrate (240mm width x 55um thickness x 20 Meter L)
EQ-BCCF-2MM	Copper Foam for Battery Cathode Substrate (500mm length x 300mm width x 1.6mm thickness)
EQ-BCGDL-1400S	Carbon Foam as Gas Diffusion Layer (225 W x 270L x 0.454 mm thick) for Metal Air Battery
MF-TA-FOIL-400L200W005TH	Tantalum Polycrystalline Metallic Foil: 0.05mm thick x 200mm Width x 400 mm Length
MF-TA-FOIL-252505SN	Tantalum Polycrystalline Metallic Foil: 25x25x0.5mm, un-polished
MF-TI-FOIL-700L-105	Titanium (Ti) Foil: 110mm Width x 0.1mm thick x 700 mm Length
MF-W-FOIL-200L	Copper Foam for Battery Cathode Substrate (500mm length x 300mm width x 1.6mm thickness)
EQ-BCNF-16M	Nickel Foam for Battery Cathode Substrate (1000mm length x 300mm width x 1.6mm thickness)
EQ-BCNF-80UM	Nickel Foam for Battery or Supercapacitor Cathode Substrate (300mm length x 80mm width x 0.08mm thickness)
NFOIL-25U	Nickel Foil: (0.03mm thick x 150mm width x 5000 mm length)
SSF-316-300-01	Stainless Steel Foil: SS316 0.1mm Thick x 300mm W x 4000 mm L
SF-316-100-1.6	Stainless Steel Foam: SS316 1.6mm Thick x 100mm W x 1000 mm L
EQ-SSMD-304	304 Stainless Steel Meshed Disc as Electrode Substrate for CR20XX Coin Cell
MCMG-FOIL-18L-1000	Magnesium (Mg) Foil: 100mm Width x 0.1 mm thick x 1000 mm Length
MF-V-FOIL-100L-0.25T	Vanadium Foil (V) Foil: 0.25mm t x50 mm W x 100 mm L

CONSUMABLES FOR BATTERY R&D



COIN CELL CASES	
EQ-CR2032-CASE	CR2032 coin cell cases (20d x 3.2t mm) with O-rings for Battery Research - 100 pcs/pck
EQ-CR2032-CASE-316A	Al-Clad CR2032 Coin Cell Can (20d x 3.2mm) for Li-ion Battery up to 5.5V-20 Pcs/pck
EQ-CR2016-CASE-304	CR2016 coin cell cases (20d x 1.6 mm) with seal O-rings for Battery Research - 100 pcs/pck
EQ-CR20-WS	Wave Spring and Spacer for CR2032 (100 pairs/pck)
CR2016-KAPTON	CR2016 Case with one side Kapton Window (10mm) for in-situ X- Ray Analysis - 5 set/pck
EQ-CR2016-KAPTON-2S	CR2016 Case with two sides Kapton Windows for in-situ Neutron Diffraction Analysis - 5 pairs/pkg
CR2032-CASE-304-MESH	Meshed CR2032 Coin Cells Cases (20d x 3.2mm) with seal O-rings for Lithium Air Battery Research - 10pcs/pck
EQ-CR2325-CASE-316	Stainless Steel-CR2325 button cells cases (23d x 2.5t mm) with seal O-rings for Battery Research - 100 pcs/pck
EQ-CR1220-CASE-304	CR1220 Stainless Steel Coin Cell cases (12.5 d x 2 mm) with seal O-rings for Battery Research - 100 pcs/pck
EQ-CR2025-CASE-304	CR2025 Button Cell Case (20d x 2.5mm, 304SS) with Seal O-rings for Battery Research - 100pcs/pck
EQ-CR20WS-SPRING316	Stainless Steel Wave Spring for CR2032 Case - 100 pcs/pck
EQ-CR2450-CASE-304	CR2450 Stainless Steel button cell cases (24d x 5.0mm) with seal O-rings for Battery Research - 100 pcs/pck
CR2032-CASE-304G	Gold-Coated SS304 CR2032 Button Cell Cases (20d x 3.2mm) with (1 pair with O-ring)
CR2032-CASE-304PT	Platinum-Coated SS304 CR2032 Button Cell Cases (20d x 3.2mm) with O-ring, 1 pair
EQ-CR20BW-SPRING304	Stainless Steel Spring (Belleville Washers) for CR2032 Cases - 100 pcs/pck
EQ-CR20-SPACER304-02	Stainless Steel Spacer for CR20XX Cell (15.4 mm Dia x 0.2 mm) - 100 pcs/pck
EQ-CR20-SPACER304-05	Stainless Steel Spacer for CR20XX Cell (15.8mm Diam x 0.5 mm) - 100 pcs/pck
EQ-CR2450-SPACER316	Stainless Steel Spacer for CR2450 Cell (20mm Dia x 1mm) - 100 pcs/pck
EQ-AG3-CASE	Stainless Steel-AG3 / 312 button cell cases (7.9d x 3.6t mm) with O-rings for Battery Research - 100 pcs/pck



LAB WARES & ACCESSORIES

CYLINDER CELL CASE	
EQ-LIB-18650	18650 Cylinder Cell Case with Anti-Explosive Cap and Insulation O-ring - 100 Pcs/package
EQ-LIB-26650	26650 Cylinder Cell Case and Anti-Explosive Cap with Insulation O-ring - 100 Pcs/package
EQ-LIB-32650	32650 Cylinder Cell Case and Anti-Explosive Cap with Insulation O-ring - 60 Pcs/package
EQ-LIB-AA	AA Size (14500) Cylinder Cell Case with Anti-Explosive Cap (Built-in PTC) & Insulation O-ring - 100 Pcs/package
EQ-LIB-50100	Cylindrical Aluminum Case with Cap and Terminals for Supper Capacitor and Battery R&D 5pcs/pack
EQ-LIB-AAA	AAA Size (10440) Cylinder Cell Case with Anti-Explosive Cap & Insulation O-ring - 100 Pcs/package

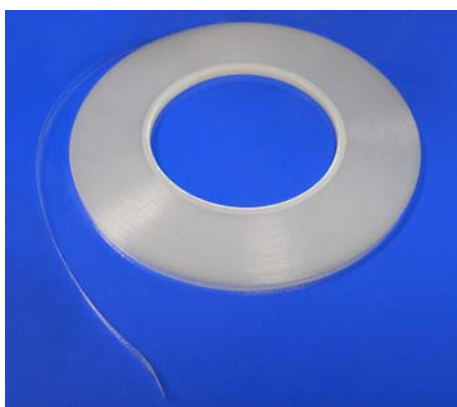


POUCH CELL CASES	
EQ-ALF-100-210	Aluminum Laminated Film for Pouch Cell Case, 100mm W x 210mm L 50pcs/Bag
EQ-ALF-400-7.5M	Aluminum Laminated Film for Pouch Cell Case, 400mm W x 7.5 m L
EQ-PLIB-604694	Formed Pouch Cell Case - 94x46x6.0t mm, 50pcs/Bag
EQ-PLIB-302025	Formed Pouch Cell Case with Air Receiver - 20x25x3.0t mm L 50pcs/Bag
EQ-PLIB-475075	Formed Pouch Cell Case, 75x50x4.7t mm, 50pcs/Bag

NICKEL TAB	
EQ-PLIB-NTA3	3mm Width Nickel Tab as Negative Terminal for Polymer Li-ion Battery 40pcs/Box
EQ-PLIB-NTA4	4mm Width Nickel Tab as Negative Terminal for Pouch Cell, 50pcs/Box
EQ-PLIB-NTA8	8mm Width Nickel Tab as Negative Terminal for Pouch Cell, 50pcs/Box
EQ-PLIB-ATC3	3mm Width Aluminum Tab as Positive Terminal for Pouch Li-ion Cell 40pcs/Box
EQ-PLIB-ATC4	4mm width Aluminum Tab as Positive Terminal for Pouch Cell, 50pcs/Box
EQ-PLIB-ATC8	8mm Width Aluminum Tab as Positive Terminal for Pouch Cell, 50pcs/Box
LIB-SSWT	Stainless Steel Battery Welding Lead/Tab/Terminal (27 x 6 x 0.2mm) 10 pcs/pck



ELECTROLYTE	
EQ-Be-LiPF6	Electrolyte LiPF6 for Lithium-ion battery R&D (LiPF6 in Organic Solvent for Immediate Use) 500g (10 x 50g)
EQ-LBC3015B	Electrolyte LiPF6 for LiMn2O4/LiFePO4 Lithium-ion battery R&D, 1Kg in Stainless Steel Container
EQ-LBC3051C	Electrolyte LiPF6 for LiCoO2 Lithium-ion battery R&D, 1Kg in Stainless Steel Container



STRAPPING TAPE	
EQ-PLIB-HMA8	Hot Melt Adhesive (Polymer Tape) for Heat Sealing Pouch Cell Tabs (100m L x 8mm W x 0.1mm Thickness)
EQ-PLIB-HMA4	Hot Melt Adhesive (Polymer Tape) for Heat Sealing Pouch Cell Tabs (100m L x 4mm W x 0.1mm Thickness)
EQ-LIB-ST	Strapping Tape (200m L x 10mm W x 0.03mm Thickness) for Pouch/Cylinder Cell

TWEezer & VACUUM PEN



Model	Description
EQ-TZR-CF-5413	High precision & carbon fiber reinforced tweezer (flat tips)
EQ-TZR-CF-5412	High precision & carbon fiber reinforced tweezer (sharp points)
EQ-TZR-5-SA	High precision & ultra fine tweezer with tapered micro tips
EQ-TZR-2A-SA	High precision & ultra fine stainless steel tweezer with flat, rounded tips
EQ-TZR-2AB-SA	High precision & ultra fine stainless steel tweezer with curve tips
EQ-TZR-00-SA	High precision & ultra fine stainless steel tweezer with strong thick tips
EQ-TZR-00D-SA	High precision & ultra fine stainless steel tweezer with inside tip serrations

EQ-EVP-V20	EQ-SMT-150C	EQ-SMT-72-NORMAL	EQ-SMT-72-ESD
Electric Vacuum Pen	Portable Vacuum Pen	Compact Vacuum Pen	Anti-Static Vacuum Pen
<ul style="list-style-type: none"> • Continuous & stable suction force, generated by a small built in vacuum pump • Strong suction force up to 1000 g with different cupule applied • Cupule material: rubber • Standard cupule sizes given are 3.4/ 6.4/12.5/16 mm 	<ul style="list-style-type: none"> • Continuous & stable suction force, generated by a small built in vacuum pump • Suction up to 500 g • Cupule material: rubber • Standard cupule sizes given are 3.2/ 6.4/9.5/12.5/19 mm 	<ul style="list-style-type: none"> • 4 suction cups are included • Suction up to 150 g • Cupule material: conductive silicone or solvent resistant silicone • Standard cupule sizes given are 6.4/9.5/12.5/19 mm 	<ul style="list-style-type: none"> • 4 suction cups are included • Suction up to 150 g • Cupule material: conductive silicone • Standard cupule sizes given are 6.4/9.5/12.5/19 mm

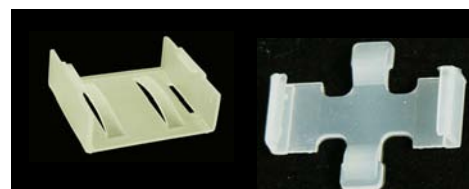
SAMPLE HANDLING

IC TRAY



NH20-COVER	2"x2" dimension cover for IC tray (20 pcs/box)
NH20-20-20-15	2"x2" dimension 1600 pockets of size (mil): L20xW20xD15 (20 pcs/box)
NH20-60-50-28	2"x2" dimension 400 pockets of size (mil): L60xW50xD28 (20 pcs/box)
NH20-48-46-22	2"x2" dimension 500 pockets of size (mil): L48xW46xD22 (20 pcs/box)
NH20-90-80-24	2"x2" dimension 250 pockets of size (mil): L90xW80xD24 (20 pcs/box)
NH20-105-110-28	2"x2" dimension 200 pockets of size (mil): L105xW110xD28 (20 pcs/box)
NH20-115-68-28	2"x2" dimension 250 pockets of size (mil): L115xW68xD28 (20 pcs/box)
NH20-265-195-22	2"x2" dimension 48 pockets of size (mil): L265xW195xD22 (20 pcs/box)
NH20-210-210-24	2"x2" dimension 49 pockets of size (mil): L210xW210xD24 (20 pcs/box)
NH20-280-280-30	2"x2" dimension 36 pockets of size (mil): L280xW280xD30 (20 pcs/box)
NH20-130-130-30	2"x2" dimension 100 pockets of size (mil): L130xW130xD30 (20 pcs/box)
NH20-300-300-30	2"x2" dimension 25 pockets of size (mil): L300xW300xD30 (20 pcs/box)
NH20-200-100-28	2"x2" dimension 100 pockets of size (mil): L200xW100xD28 (20 pcs/box)
NH20-411-411-30	2"x2" dimension 16 pockets of size (mil): L411xW411xD30 (20 pcs/box)
NH20-480-510-30	2"x2" dimension 9 pockets of size (mil): L480xW510xD30 (20 pcs/box)

Model	Description
NH20-C5	Two clamps of 5 layers of 2" die / IC tray
NH20-CS	Two clamps of single layer of 2" die / IC tray



MEMBRANE FILM BOXES



Model	Description
SP3-5525	Membrane area: 43x43x22 mm
SP3-3818	Membrane area: 28x28x10 mm
SP3-4516	Membrane area: 35 mm diameter
SP3-7512	Membrane area: 60x60x10 mm
SP3-8018	Membrane area: 66x28x10 mm
SP3-100	Membrane area: 105 (O.D) x 24 (H) mm
SP3-16030	Membrane area: 140x30x15 mm
SP3-7516	Membrane area: 60x56x10 mm
SP3-7530	Membrane area: 66x66x25 mm
SP3-10032	Membrane area: 90x75x28 mm
SP3-10050	Membrane area: 81x81x45 mm
SP3-10025	Membrane area: 81x56x20 mm
SP3-12525	Membrane area: 106x56x20 mm
SP3-17525	Membrane area: 156x81x20 mm
SP3-17550	Membrane area: 156x106x45 mm
SP3-150100	Membrane area: 131x131x95 mm
SP8-19038-T/BK	Smart carrying box for laser rod selectable from diameter 3-8 mm up to 160 mm
SMY-D3-D8	Silicone support kit for laser rod box, selectable from 3-8 mm diameter

PLASTIC FOAM MODULE WAFER CARRIER



Model	Description
SP4-8512T/BK-1	Carry up to 3" diameter of single wafer
SP4-8512T/BK-H	Carry up to 3" diameter or 3" square single wafer
SP4-12012T/BK	Carry up to 4" diameter of single wafer
SP4-12030T/BK	Carry up to 4" diameter of multi wafer
SP4-18060T/T	Carry up to 6" diameter or 6" square multi wafer

GEL STICKY BOXES



Model	Description
SP1-5510BK/BK-LH-P33	55 mm x 55 mm (2.17"x2.17") Gel sticky carrier box - black color
SP1-5510T/BK-LH-P33	55 mm x 55 mm (2.17"x2.17") Gel sticky carrier box - transparent cover
SP1-5510T/T-LL-P33	55 mm x 55 mm (2.17"x2.17") Gel sticky carrier box - transparent
SP1-7515BK/BK-LL	75 mm x 55 mm (3" x 2.17") Gel sticky carrier box - black color
SP1-7515T/BK-LL	75 mm x 55 mm (3" x 2.17") Gel sticky carrier box - transparent cover
SP1-7515T/T-LL	75 mm x 55 mm (3" x 2.17") Gel sticky carrier box - transparent
SP1-8512T/BK-LL-P66	85 mm x 85 mm (3.35"x3.35") gel sticky carrier box - transparent cover
SP1-8512T/T-LL	85 mm x 85 mm (3.35"x3.35") Gel sticky carrier box - transparent
SP1-12012T/T-LL	120 mm x 120 mm (4.72"x4.72") Gel sticky carrier box - transparent cover
SP1-12012T/BK-LL	85 mm x 85 mm (3.35"x3.35") Gel sticky carrier box - transparent cover
SP2-5510BK/BK-LL-P33	55 mm x 55 mm (2.17"x2.17") Gel sticky carrier box - black cover
SP2-5510T/T-LL-P33	55 mm x 55 mm (2.17"x2.17") Gel sticky box with tray - Transparent

SINGLE WAFER CONTAINER



Model	Description
SP5-S1	1" single wafer container with cover and spring (10 set/package)
SP5-S2	2" single wafer container with cover and spring (20 set/package)
SP5-S25	2.5" single wafer container with cover and spring (10 set/package)
SP5-S3	3" single wafer container with cover and spring (10 set/package)
SP5-S4	4" single wafer container with cover and spring (10 set/package)
SP5-S6	6" single wafer container with cover and spring (10 set/package)
SP5-S170	4" - 6" single wafer with adjustable silicone support rod

MULTI LAYER CONTAINER



Model	Description
SP5-2-25	One set of 2" diameter 25 group wafers Carrier Box
SP5-3-25	One set of 3" diameter 25 group wafers Carrier Box
SP5-4-25	One set of 4" diameter 25 group wafers Carrier Box

PFA WASHING HANDLE



Model	Description
SP5-2-25	2" diameter PFA wafer carrier (Capacity: 25) for Wafer Cleaning
SP5-3-25	3" diameter PFA wafer carrier (Capacity: 25) for Wafer Cleaning
SP5-4-25	4" diameter PFA wafer carrier (Capacity: 25) for Wafer Cleaning

BLUE WAFER WASHING CARRIER



Model	Description
Blue-PP-2-25	2" Diameter blue wafer carrier for wafer cleaning (capacity: 25)
Blue-PP-3-25	3" Diameter blue wafer carrier for wafer cleaning (capacity: 25)
Blue-PP-4-25	4" Blue wafer carrier for wafer cleaning (capacity: 25)

MORTAR & PESTLE



Model	Outside diameter (mm)	Inside diameter (mm)	Size (inch)
MTA-2	50	40	2
MTA-3	75	60	3
MTA-4	100	80	4
MTA-5	125	110	5
MTA-6	150	130	6
MTA-7	175	160	7
MTA-8	200	190	8

GRAPHITE CRUCIBLE



EQ-G40



EQ-GR009G

Model	EQ-G40	EQ-GR009G
O.D.	1.5"	Top: 2.285" Bottom: 1.81"
I.D.	1.25"	1.415"
Depth	3.75"	3.06"
Height	3.96"	3.435"
Temperature	399°C to 2760°C	
Compressive Strength	42.7 MPa	

ALUMINA CRUCIBLE

High purity alumina products can withstand very high temperature under reducing, inert or high vacuum condition. They remain good chemical resistance under high temperatures, and have excellent wear and abrasion resistance. Alumina products can withstand up to 1750°C.

Alumina Crucible Low Form 99.6%				
Model	Top diameter (mm)	Bottom diameter (mm)	Height (mm)	Capacity (ml)
AL-1020	35	24	42	20
AL-1050	48	30	54	50
AL-1100	58	35	68	100
AL-1150	66	40	80	150
AL-1250	79	42	93	250
AL-1500	100	60	110	500

Alumina Crucible Low Form Lid		
Model	Top diameter (mm)	Capacity (ml)
AL-1020-LID	35	20
AL-1050-LID	48	50
AL-1100-LID	58	100
AL-1150-LID	66	150



Alumina Crucible Low Form



Alumina Crucible Lid



Alumina Crucible High Form

Alumina Boat Rectangular 99.8%			
Model	Length (mm)	Width (mm)	Height (mm)
EQL54W38H20	54	38	20
EQL82W42H23	82	42	23
EQL50W40H20	50	40	20
EQL50W20H20	50	20	20
EQL82-W42H23	82	42	23
EQL65W88H28	65	88	28
EQL65W65H30	65	65	30
EQL100W40H18	100	20	20
EQL100W20H20	100	40	18
EQL90W65H30	90	65	30
EQL150W50H30	150	50	30
EQL300W40H20	300	40	20

Alumina Crucible High Form			
Model	Top diameter (mm)	Height (mm)	Capacity (ml)
AL-2010A	25	25	10
AL-2050A	45	35	50
AL-2050B	40	45	50
AL-2100	40	95	100
AL-2250	60	100	250
AL-2500	72	148	500



Alumina Boat Rectangular

Alumina Plate Rectangular 99.8%			
Model	Length (mm)	Width (mm)	Thickness (mm)
AL-P220-220-6	220	220	6
AL-P150-80-6	150	80	6
AL-P102-25-6	102	25	6
AL-P90-65-6	90	65	6



Alumina Plates

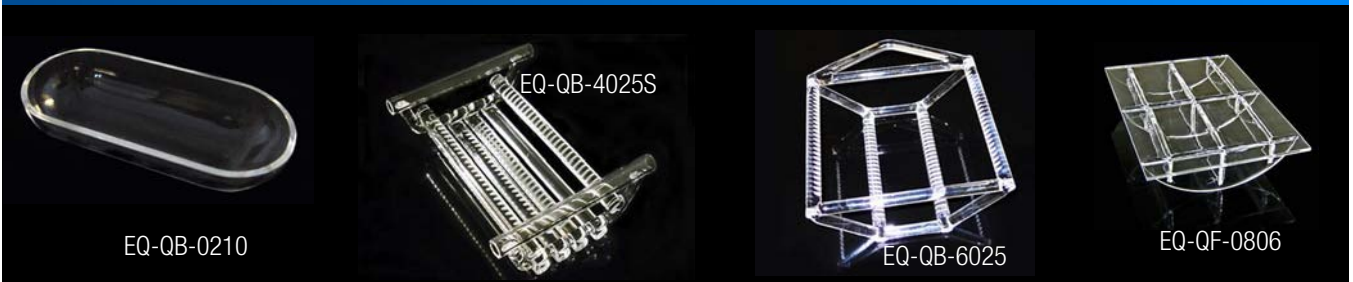
STATIC SHEILDING BAG

EQ-DZQ300B-1



- Vacuum seal Polymer Li-Ion battery with DZQ-300 Vacuum Sealing Machine before shipping
- 3.1 mil translucent metallic bags for easy content identification.
- Metal "Faraday cage" layer shields products from electric energy inside and prevents static build-up.
- 4-layers protection guards against charges inside and out.
- Variable size available which are:
 - 6" x 8"
 - 8" x 12"
 - 9" x 12"
 - 18" x 12"

QUARTZ BOAT



Quartz boat is made from high purity quartz (4N purity) with 1200°C working temperature.

Model	Dimension	Features
EQ-QB-0210	20 x 10 x 8 mm	Can fit in MTI GSL-1100X and OTF-1200X-S (1" O.D tube furnace)
EQ-QB-1017	100 x 17 x 10 mm	Can fit in MTI GSL-1100X and OTF-1200X-S (1" O.D tube furnace)
EQ-QB-1042	100 x 42 x 20 mm	Can fit in MTI 50 - 80 mm O.D tube furnace
EQ-QB-1062	100 x 60 x 26 mm	Can fit in MTI OTF1200-80 tube furnace (3" - 80 mm O.D tube furnace)
EQ-QB-3062	300 x 60 x 28 mm	Can fit in MTI OTF1200-80 tube furnace (3" - 80 mm O.D tube furnace)
EQ-QB-4284	420 x 80 x 40 mm	Can fit in MTI OTF1200-100 tube furnace (1000 O.D tube furnace)
EQ-QF-0806	218 x 162 x 50 mm	<ul style="list-style-type: none"> Constructs a flat surface inside the processing tube where can put sample on Can be fit in MTI VBF-1200X-H8 Bench Top Vacuum Chamber Furnace
EQ-QB-1025	Diffusion of 1" wafer processing	<ul style="list-style-type: none"> Design for diffusion, oxidation and annealing 1" Si wafer Can fit in MTI OTF-1200X-S50 tube furnace (2" tube furnace)
EQ-QB-8025	Diffusion of 8" wafer processing	<ul style="list-style-type: none"> Can fit in MTI GSL1100X8 tube furnace Can carry 25 piece wafers of 8" diameter in each boat
EQ-QB-2025	Diffusion of 2" wafer processing	<ul style="list-style-type: none"> Can carry 25 piece wafers of 2" diameter x 0.5 mm thickness in each boat Can fit in MTI OTF1200-3 tube furnace (3" tube furnace)
EQ-QB-3025	Diffusion of 3" wafer processing	<ul style="list-style-type: none"> Can carry 25 piece wafers of 3" diameter x 0.5 mm thickness in each boat Can fit in MTI OTF1200-4 tube furnace
EQ-QB-4025	Diffusion of 4" wafer processing	<ul style="list-style-type: none"> Can carry 25 piece wafers of 4" diameter x 0.5 mm thickness in each boat Can fit in MTI OTF1200X6 tube furnace
EQ-QB-6025	Diffusion of 6" wafer processing	<ul style="list-style-type: none"> Can carry 25 piece wafers of 6" diameter in each boat Can fit in MTI GSL1100X8 tube furnace and Compact Vacuum Chamber Furnace EQ-VBF-1200X
EQ-QB-4025S	Diffusion of 4"X 4" wafer processing	<ul style="list-style-type: none"> Can carry 25 piece wafers of 4" x 4" square x 0.5 mm thickness in each boat Can fit in MTI OTF-1200X-5L, VBF-1200X-H8, and OTF-1100X-8.5 tube furnace

SAMPLE HANDLING

DUST-FREE WIPER



Model	Specifications	Features
WIPER-YX-2001	<ul style="list-style-type: none"> Weight/gram: 85-95 g/m² The grade of suitability: class 100 Thickness: 180-200 um Composition: 75% polyester and 25% nylon Size: 4" x 4" Packing methods: 100 pcs/bag Sealed edge methods: laser sealed edge 	<ul style="list-style-type: none"> The dust free micro-fiber cloth wiper is knitted with 100% complete continuous micro-fiber. The four sides of wipe cloth is cut by the laser sealed-edge technology. It prevents fiber loss and sharply reduces micro-dust generation, ideal for clean wafer / substrate surface The dusk-free wiper is cleaned with the D.I. water of grade of 18 M-ohm and packed under 10 class clean room Highly efficient water suction ability and not easy to cause chemical reactions Pre-cut 9"x18" wiper and sold in 60 pcs per bag It is soft, and will not scratch the surface of any material

LiFePO4 BATTERIES



Lithium Iron Phosphate (LiFePO₄, LFP) is one of Li-Ion rechargeable battery for high power applications, such as EV car, Power Tool and RC hobby. LFP cells feature with high discharging current, non explosive, long cycle life (>2000@0.2C rate, IEC Standard), but its energy density is lower than normal Li-Ion cell (Li-Co) but higher than NiMH cell. LFP cell has 3.2V nominal working voltage and shall be cut-off power at 3.6-3.8V per cell during charging. The range of the DC voltage offered for the LFP cell is 3.2V, 6.4V, 9.6V, 12V, 24V, 48V, 72V, and 64V.

LiFePO4 18650 Battery

Voltage, V	Capacity, mAh	Energy, Wh	Type	Size
3.2	1,250	4.8	18650	65 mm x 23 mm
	13,200	42	26650	60 mm x 60 mm x 85 mm
	60,000	192	40152SE	88 mm x 88 mm x 189 mm
12	600	7.68	14505	60 mm x 60 mm x 22 mm
	6,000	72	Motorcycle Battery	125 mm x 68 mm x 97 mm
	40,000	512	Polymer Battery	208 mm x 126 mm x 88 mm
48	20,000	1,024	Prismatic Battery	178 mm x 76 mm x 165 mm
	40,000	2,048	Prismatic Battery	365 mm x 261 mm x 258 mm
	200,000	13,000	Prismatic Battery	88mm x 88 mm x 189 mm
96	40,000	4,100	Prismatic Battery	65 mm x 23 mm
	100,000	10,000	Prismatic Battery	60 mm x 60 mm x 85 mm
	200,000	20,000	Prismatic Battery	88 mm x 88 mm x 189mm



LiFePO4 Polymer Battery



LiFePO4 Prismatic Battery



LiMnNi BATTERIES

Low internal cell resistance is key to fast charging and high-current discharging. In an 18650 package, Li-manganese can be discharged at currents of 20–30A with moderate heat buildup. It is also possible to apply one-second load pulses of up to 50A. A continuous high load at this current would cause heat buildup and the cell temperature cannot exceed 80°C (176°F). Li-manganese is used for power tools, medical instruments, as well as hybrid and electric vehicles.

Voltage, V	Capacity, mAh	Energy, Wh	Type	Size
3.7	8,000	29.80	26650	67 mm x 53 mm x 26 mm
7.4	4,000	29.60	26650	59mm x 30mm x 75 mm
14.8	12,000	177.60	Polymer	65mm x 95mm x 150mm
18.5	12,000	222.00	26650	148 mm x 88 mm x 84 mm
25.9	12,000	310.80	26650	190mm x 84mm x 84 mm
88	7,200	259.20	26650	270 mm x 66 mm x 82 mm



LiMnNi
26650 Battery



LiMnNi Polymer Battery

LiNiMnCo BATTERIES

Lithium Nickel Manganese Cobalt Oxide also lithium-manganese-cobalt-oxide (LiNiMnCo, NMC, NCM), Li[NiMnCo]O₂ based Cathode & Graphite based Anode, is the newest generation Li-Ion rechargeable battery for high power applications, such as EV car, E-scooter and E-bike. The NMC cells compromise between high current rate and high capacity rate. Compared with LiCoO₂ series Li-Ion cell, the NMC cells provide higher energy density with lower cost, long cycle life (>1000@1.0C, IEC standard). NMC cell has 3.6 +/- 0.5V nominal working voltage and shall be cut-off power at 4.15-4.20V per cell during charging.

Voltage, V	Capacity, mAh	Energy, Wh	Type	Size
3.6	7,200	25.92	26650	58 mm x 30 mm x 85 mm
	14,400	51.84	26650	114 mm x 30 mm x 85 mm
14.4	7,200	103.68	26650	144 mm x 56 mm x 70 mm
	10,800	272.16	26650	190 mm x 84 mm x 98 mm
50.4	14,400	518.4	26650	138 mm x 114 mm x 155 mm
	30,000	1,080	26650	190 mm x 165mm x 118mm

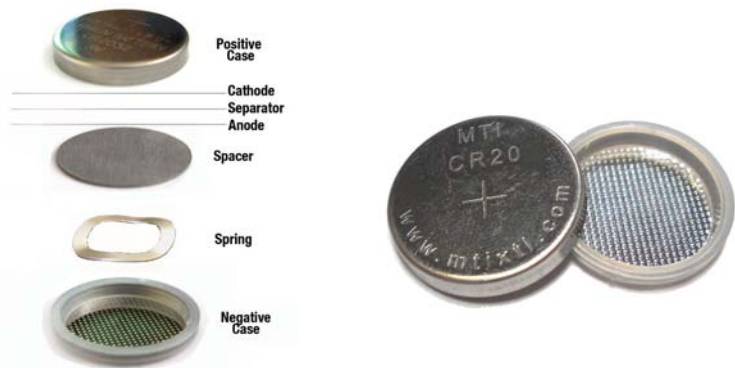


LiNiMnCo
26650 Battery

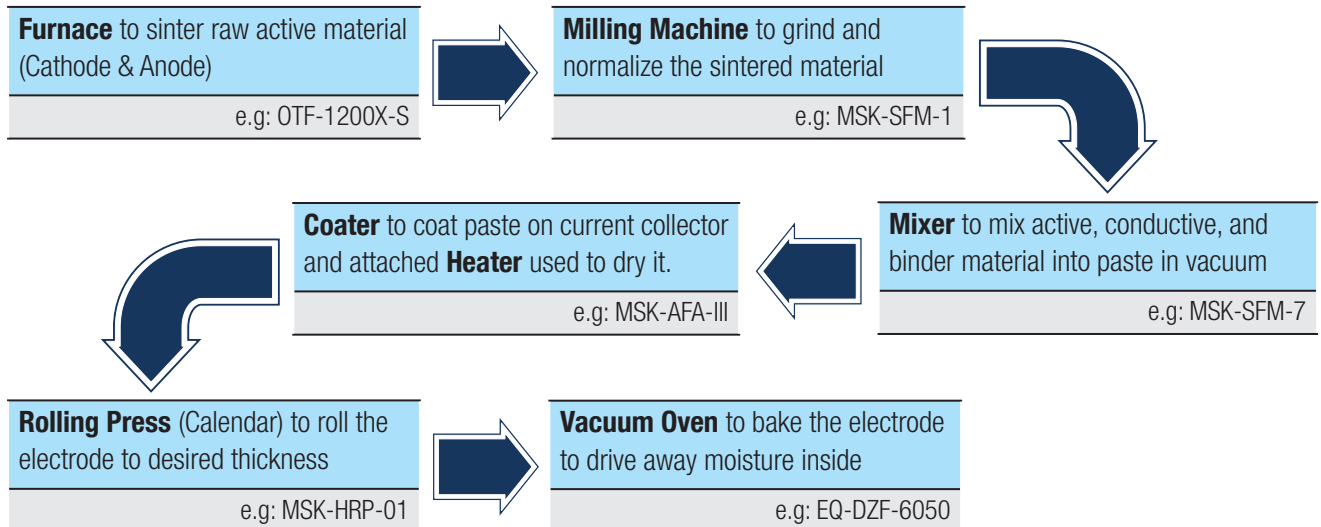


All of the power packs come with the Battery Management System (BMS). We can provide BMS for customized Battery Power Pack configuration

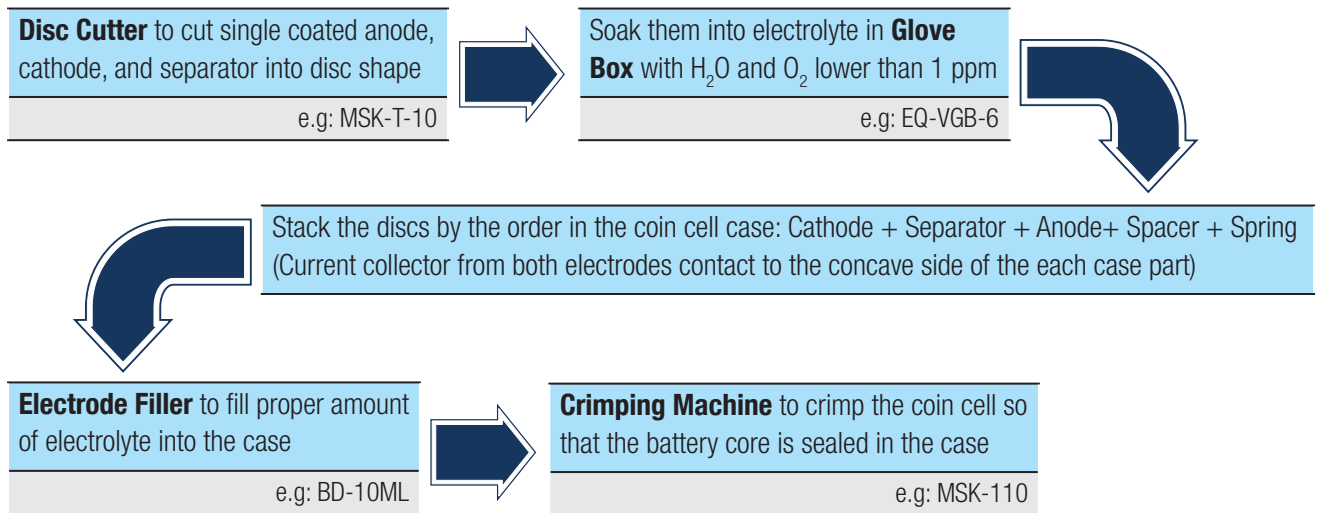
LI-ION COIN CELL FABRICATION & EQUIPMENT



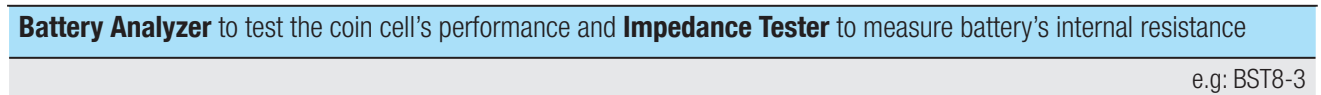
Step 1: Electrode Sheet Preparation



Step 2: Cell Assembly

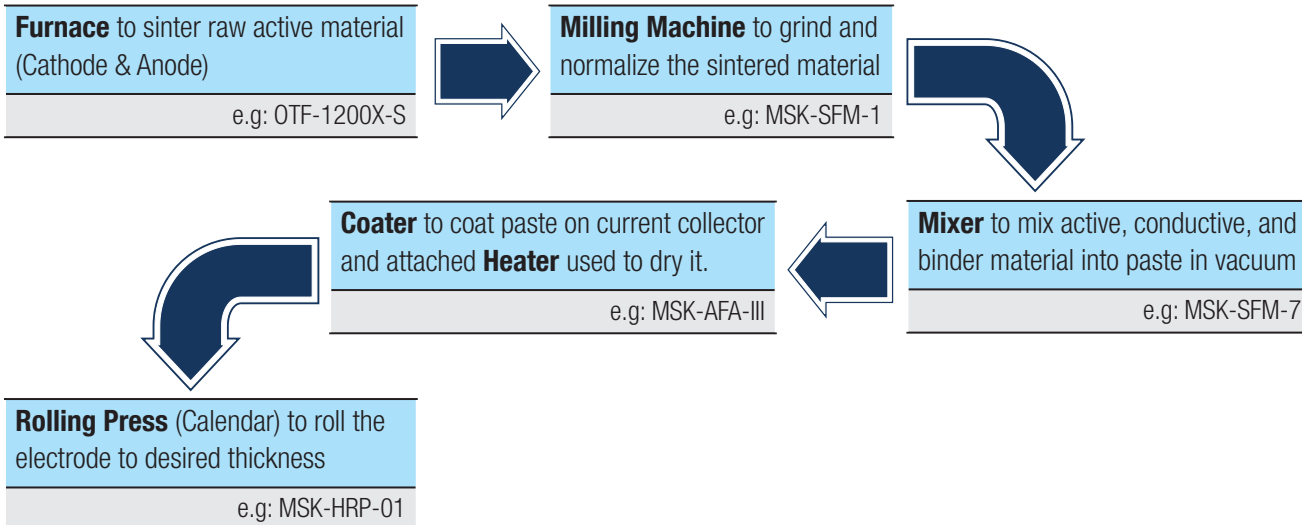


Step 3: Battery Testing

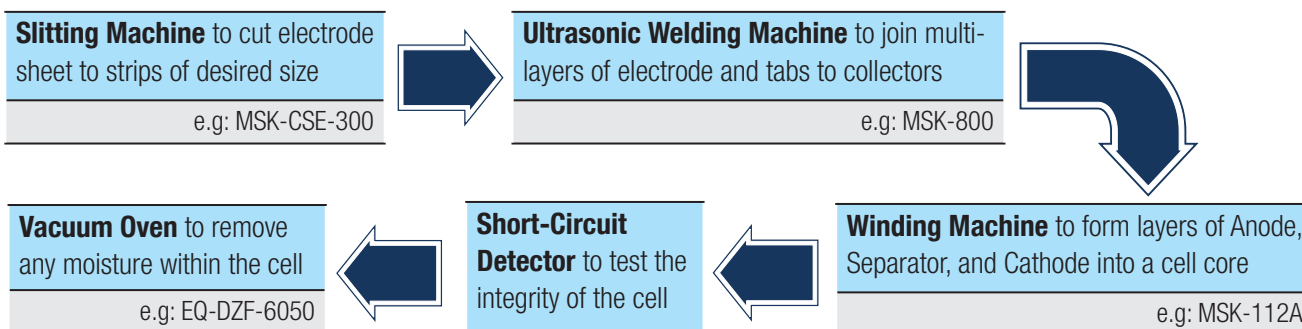


LI-ION CYLINDRICAL BATTERY FABRICATION & EQUIPMENT

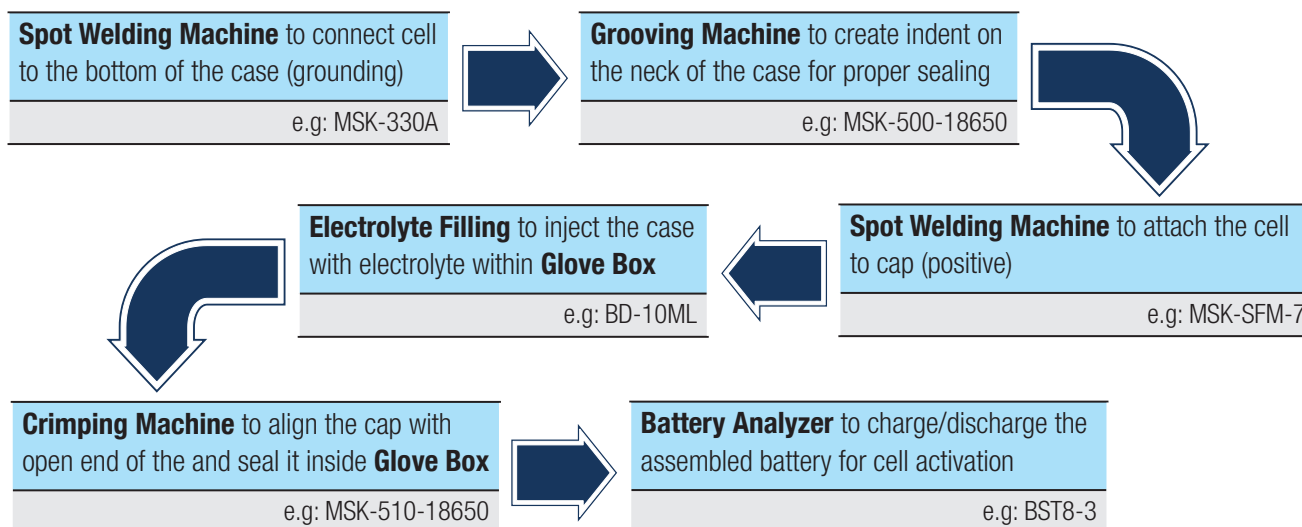
Step 1: Electrode Sheet Preparation



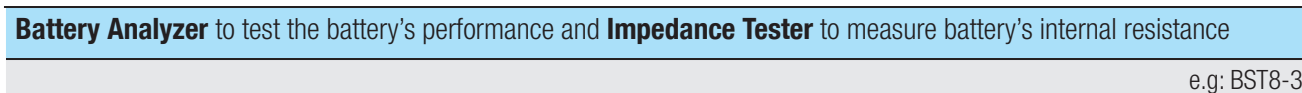
Step 2: Cell Assembly (Winding Method)



Step 3: Case Sealing

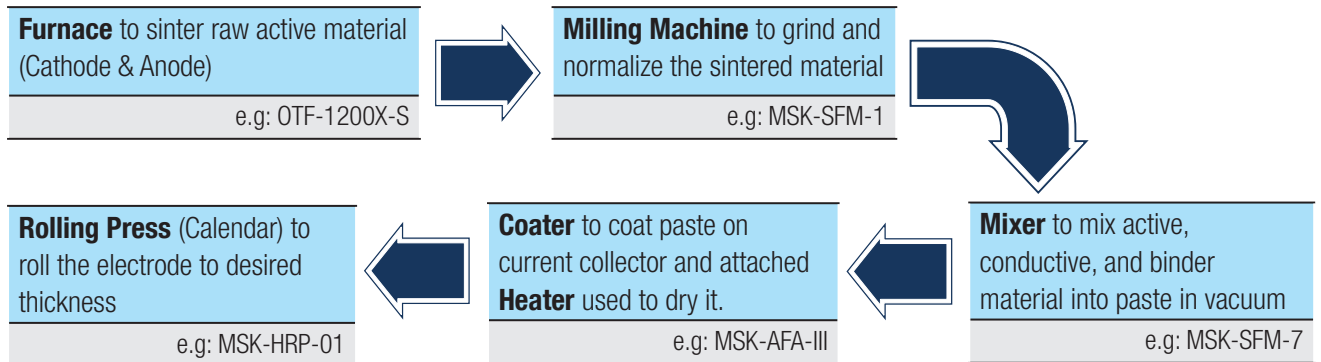


Step 4: Battery Testing

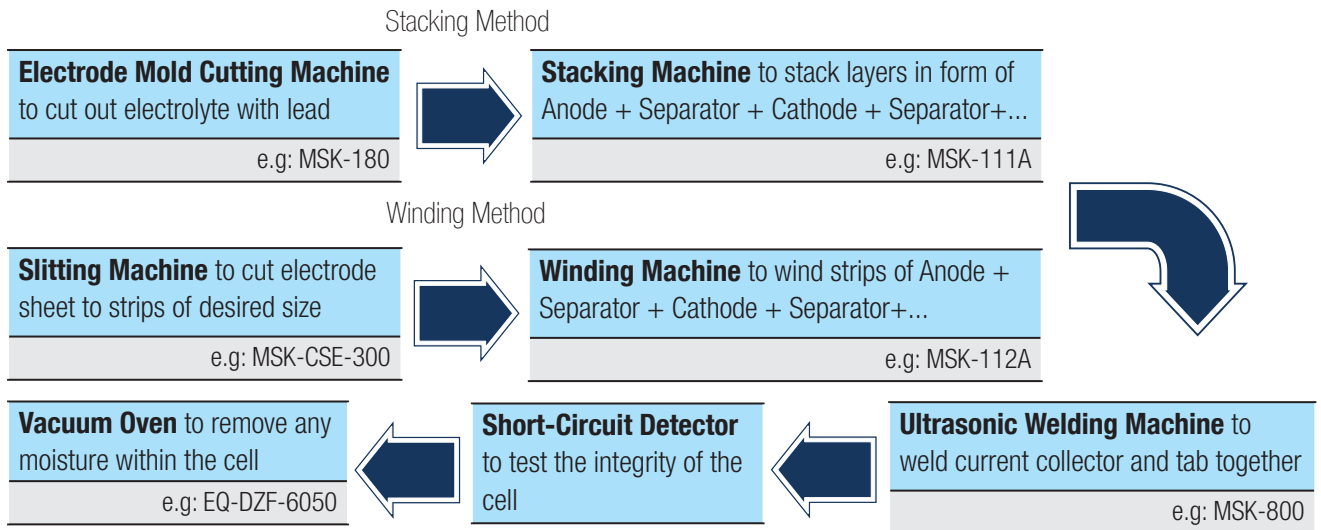


LI-ION POUCH BATTERY FABRICATION & EQUIPMENT

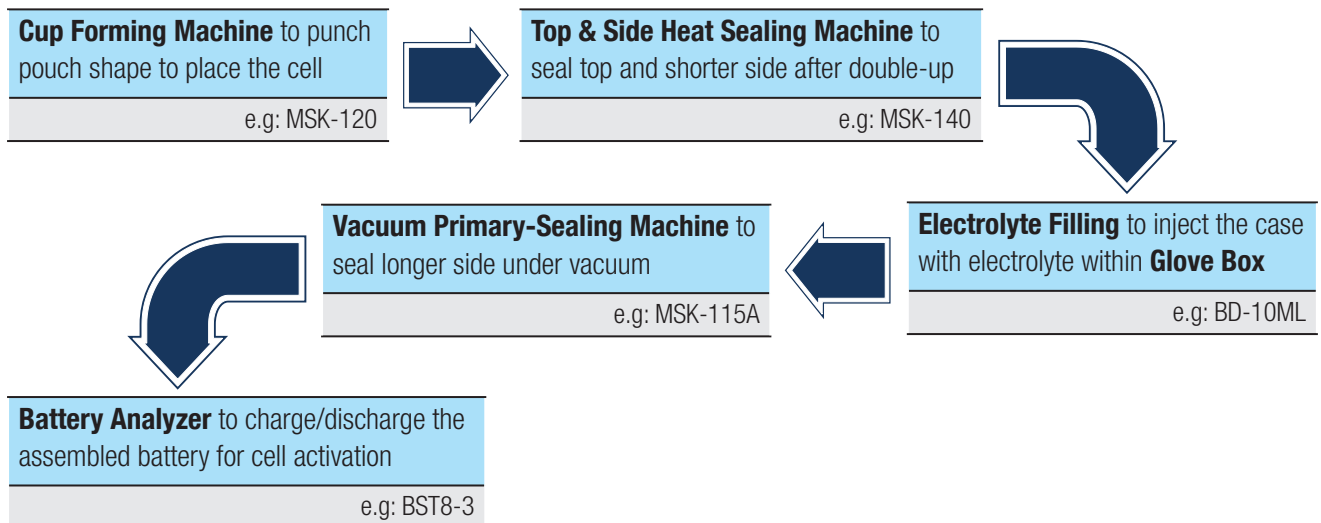
Step 1: Electrode Sheet Preparation



Step 2: Cell Assembly



Step 3: Case Formation & Sealing



Step 4: Battery Testing



METHOD SUMMARIZATION

Process	Definition	Diagram
Hydro-thermal Method	A method to produce different chemical compounds and materials using closed-system physical and chemical processes flowing in aqueous solutions at temperatures above 100°C and pressures above 1 atm	
Hot Isostatic Pressing	A manufacturing process used to reduce the porosity of metals and increase the density of many ceramic materials. This improves the material's mechanical properties and workability.	
Chemical Vapor Deposition	Chemical vapour deposition is a technique whereby gaseous reactants can be deposited onto a substrate.	
Induction Heating	A process which is used to bond, harden or soften metals or other conductive materials. For many modern manufacturing processes, induction heating offers an attractive combination of speed, consistency and control.	
Spray Pyrolysis	A process in which a thin film is deposited by spraying a solution on a heated surface, where the constituents react to form a chemical compound	
CSS Deposition	The coating method that involves purely physical processes such as high-temperature vacuum evaporation with subsequent condensation, or plasma sputter bombardment rather than involving a chemical reaction at the surface to be coated as in chemical vapor deposition.	
Fluidized Bed CVD Synthesis	A combustion technology used to burn solid fuels. Fuel particles are suspended in a hot, bubbling fluidity bed of ash and other particulate materials (sand, limestone etc.) through which jets of air are blown to provide the oxygen required for combustion. The resultant fast and intimate mixing of gas and solids promotes rapid heat transfer and chemical reactions within the bed.	

LJ-UHV COMPANY PROFILE

In order to support our customer towards sophisticate research especially in the area of Nanomaterial, Semiconductor, MEMS, PV, LED, Surface Acoustic Wave Technology, Thin Film Coating, and Ultra High Vacuum Technology; we are currently forming business alliance with LJ-UHV in providing the technology know how and equipment for the above endeavor. Aside from the precision equipment, we are supplying a complete line of pure material, compound, and substrate in various purity for completion of our equipments.



LJ-UHV Site Work located in Taiwan

The customized systems are inclusive of: Pulse Laser Deposition Coating, Ultra High Vacuum Magnetron Sputtering, Continuous Vacuum Magnetron Sputtering, Ion Sputtering, Electron Beam Evaporation, Thermal Evaporation with Plasma Assisted Vapor Deposition Equipment and Induction Coupled Plasma. LJ-UHV Customized System are featured with Human-Machine Interface (HMI) controller for user convenience in handling their system.

HIGH VACUUM CONFOCAL SPUTTERING SYSTEM

PROCESS CHAMBER

- Single layered inner chamber made of SUS304; while outer chamber is electro-polished
- Rectangular type of chamber consists of front door with 4" view port
- Dimension: 380 D x 420 H x 380 W mm
- Removable top plate for confocal sputtering source
- 1" diameter of confocal sputter cathode inlet at top plate
- Main high vacuum port, low vacuum gauge port, capacitance pressure gauge port, rough exhaust pumping port, and RGA spare port are installed at the rear plate
- Rectangular exhaust pumping port and spare view port are installed at the right side plate
- Aluminum alloy type font access door with shutter shielding to permit uncoated viewing window
- Rotation inlet port, substrate up/down inlet port, and thermal test port are installed at the base plate

HIGH VACUUM PUMPING CONTROL

- High vacuum turbo pump with flow rate up to 400 l/sec equipped with air cooling function
- Oil seal mechanical pump with flow rate up to 500 l/sec
- Pump control using pneumatic system

VACUUM GAUGE CONTROLLER & DISPLAY

- Dual digital LED display with 5 set points relay (Low vacuum gauge from 760 torr - 10^{-3} torr while high vacuum gauge up to 10^{-3} torr - 10^{-8} torr)
- Digital display for load-lock chamber (Low vacuum gauge from 760 torr - 10^{-3} torr)

PRESSURE & FLOW CONTROL

- Mass flow controller to control inert gas and working gas
- Process pressure controller to hold function for plasma ignition

SPUTTER CATHODE & POWER SUPPLY

- Water cooling magnetron sputter cathode
- Plasma generator RF 300 W & auto match network
- Plasma generator DC 1000 W
- Sputter shutter pneumatic control



SUBSTRATE HEATER & TEMPERATURE CONTROL

- 4" dia. vacuum heating pipe
- Max working temperature: 450°C
- PID temperature controller with digital display

SYSTEM CONTROL

- PLC control with 7" LCD touch screen
- Auto/manual operation
- Graphic user interface
- Vacuum pumping/venting control
- Facilities monitor & safety control
- Process manual control
- Alarm message display
- Safety interlock

RACK & FOOT PRINT

- 1250 L x 1000 W x 1800 H mm
- Castor wheel with adjuster pads

PECVD SYSTEM FOR DEPOSITION OF SiC, SiO_x, SiN_x

This system is specifically designed for thin film deposition solutions of SiC, SiN_x, SiO_x, and SiO_xN_y materials used in the manufacturing of IC's, MMICs, LEDs, LDs, VCSELs, and waveguides and MEMS devices of Si and GaAs substrates. It utilizes a capacitively RF coupling plasma technology to independently bias the upper electrode and/or substrate for controlling the plasma density and ion energy. Reproducible thermal uniformity using a calotto heater with thermocouple calibration with optimized uniform gas laminar flow stream provided by specially designed shower head and pumping channels. This system is customized to optimize deposition rate, refractive index, film stress control, yield, throughput, and device performance.



DEPOSITION CHAMBER/LOAD-LOCK CHAMBER

- Material made from aluminum alloy T6061
- Interior and outer surface are anodized to prevent corrosion by plasma chemical
- Embedded heating water flow is fabricated into aluminum chamber wall to control the reactor environment temperature
- 3 view ports of 2" dia. located at side walls for observation and diagnostics, with plasma shielding to avoid RF power leakage
- Top/bottom door with manual opening/closing operation
- Door seal is designed as elastomeric seals
- 3 view ports of 2" dia. located at side walls for observation and diagnostics, with plasma shielding to avoid RF power leakage
- Top/bottom door with manual opening/closing operation
- Door seal is designed as elastomeric seals
- Pumping neck is designed for maximum pumping efficiency

ETCHING CHAMBER PUMPING SYSTEM & VACUUM MEASUREMENT

- Equipped with dry pump with corrosion resistant (800 lpm)
- Root pump system (250 m³/h)
- LJ APT-63, vacuum throttling valve, ISO 63 flange, with adaptive pressure controller by stepper motor actuator
- Capacitance manometer with full scale range of 10 torr is mounted on the reactor wall and will be monitored on the system (10 torr - 10 mtorr)
- Pirani vacuum gauge is mounted on the pumping neck and will be monitored on the system (1000 torr - 1 torr)
- Compressed air distribution

ACCESSORIES FOR DUAL RF SOURCES' SAMPLE STAGE & SHOWER HEAD

- 4" shower head with capacitive parallel upper and lower sample stage electrodes
- Wafer carrier which is made from graphite will be positioned on the 3" dia. uniformly constant temperature stage
- Pre-fabricated carrier to accept up to 3" wafer
- Backside resistive heater (max 350°C) with PID automatic control on the system to reach sample stage's temperature uniformity
- The sample stage temperature is controlled accurately and constantly during the process between ambient - 350°C within +/-3°C of the set point
- The sample stage is shielded for plasma confinement and stability that would allow only the carrier surface to be exposed to the plasma, enhancing the plasma uniformity on the wafer surface and preventing the deposition on the chamber environment
- Shower head of the upper electrode is designed to provide uniform laminar gas flow across the surface of the wafer to achieve excellent uniform mass transfer mechanism
- The area of the upper electrode is large enough so that the sputtering of the upper electrode material is negligible
- The bias voltage of the upper electrode is driven by the RF generator with air cooling system
- RF power supply (300 W output at 13.56 MHz) with remote setup/readout digital control panel, coupled to an automatic match network

PROCESS GASES DELIVERY SYSTEM

- Gas enclosure panel for all processing piping lines
- All piping lines are constructed from electropolished SUS316L tube, orbital welded and VCR fittings
- Each gas lines consists of a metal sealed mass flow controller and bellow sealed normal closed pneumatic actuator isolation valves on both inlet and outlet

SYSTEM CONTROL/OPERATION MODE

- Industrial computer is used to control the system together with PLC
- Graphic multi-tasking real time control/display software operating for all sensors
- Multiple operation modes:
 - 1) Manual
 - 2) Automatic
 - 3) Maintenance
 - 4) Automatic process sequence generating and editing
- Automatic process sequences:
 - 1) Auto-pump
 - 2) Autovent
 - 3) Multi-steps deposition and in-situ cleaning procedures
- Alarm history and process parameters history backup abilities
- Fully safety interlock mechanism for both hardware/software
- Authorities enactment



PLC System



View ports at the side wall

ELECTRON BEAM EVAPORATOR SYSTEM



This system is specifically designed for metal/non-metal film deposition process of R&D laboratory and pilot plant production applications. Key performance features are including evaporation of uniform metal, dielectric, and insulator films on a variety of substrate materials (metal, semiconductor, insulator). Additional features are including versatility, ease of operation, and long term reliability for evaporation of single and multi-layer thin/thick films.



Substrate Stage

DEPOSITION CHAMBER

- D type chamber with single layer made of SUS304, electropolished
- Welded on semi-rectangular pipes for cooling
- Front opening/closing door with automatic electro-magnetic lock/unlock
- Door seal is designed as elastomeric seal
- View port 4" dia. on the front door and optical reflector to permit unresisted viewing of all installed deposition sources and substrate fixturing
- High voltage fittings, sweep signal, crucible index drive, E-Gun body cooling and shutter drive feedthrough are provided at the base plate
- High vacuum valve, heating power feedthrough, thermocouple fitting feedthrough, ion gauge head, fitting vent valve, vacuum gauge head and RGA fitting are provided at the side wall of the chamber
- Gas inlet feedthrough, rotation drive, and quartz sensor feedthrough are provided at the top plate

VACUUM PUMPING SYSTEM

- High vacuum turbo pump with the pumping speed up to 600 lps and ultimate pressure up to 5×10^{-10} mbar is equipped
- Water cooling to cool down the turbo pump, power supply and controller are provided
- LJ APT-63, vacuum throttling valve, ISO 63 flange, with adaptive pressure controller by stepper motor actuator
- Rotary vane pump up to 800 lpm with roughing valve, bellow-sealed open/close by pneumatic actuator, venting valve, anti turbulence valve for delayed venting, foreline valve are installed
- Compressed air distribution

VACUUM GAUGES & CONTROLLER

- Dual channel digital display controller with RS232 interface; up to 5 set point to 3 units of sensor connection
- Measurement range from 1000 to 5×10^{-9} mbar (1000 to 5×10^{-4} for low vacuum Pirani gauge and 5×10^{-3} to 5×10^{-9} mbar for high vacuum hot ion gauge)
- Pre-fabricated carrier to accept up to 3" wafer

ACCESSORIES FOR SUBSTRATE STAGE

- Substrate carrier rotary driver with flange to connect the layer thickness measuring system
- Indirect-drive gear motor via high performance rotary motion ferro-fluid feedthrough
- Rotation speed from 5 - 20 rpm of single substrate carrier
- Backside quartz radiant heater arrays with reflector, deposition shield (max 320°C)
- Vacuum step-down/isolation transformer to minimize the possibility of the spurious glow discharges and feedback from E-Beam power supply

ACCESSORIES OF PROCESS SOURCES

- Telemark rotatable multi-pocket sources
- Electron beam evaporator 6 kW
- Source with 270° deflection
- Angle gear drive base plate feedthrough for crucible index
- X and Y sweep signal feedthrough
- Rotating crucible with 4 pockets of 7 cc
- Variable high voltage unit and beam positioning control

PROCESS CONTROLLER/LAYER THICKNESS MEASUREMENT

- Telemark deposition controller for layer thickness, rate, and process monitoring
- Memory space for 9 sets of material parameters in conjunction with 99 process sequences and 999 process steps
- Sequence routine for 100 sequence steps from material and process parameters
- Up to 99 fold repeat routine for a process
- Process control by RS-232 interface
- Quartz sensor with 6 MHz oscillator
- With cooling piping lines and signal cables (adjustable height)

SYSTEM CONTROL/OPERATION MODE

- PLC based operation control with color touch screen HMI interface
- Graphic multi-tasking real time control/display software operating for all sensors
- Multiple operation modes:
 - 1) Manual;
 - 2) Automatic;
 - 3) Maintenance
- Vacuum pumping/venting control
- Facilities monitoring and safety control
- Alarm message display, safety interlock and authorities enactment



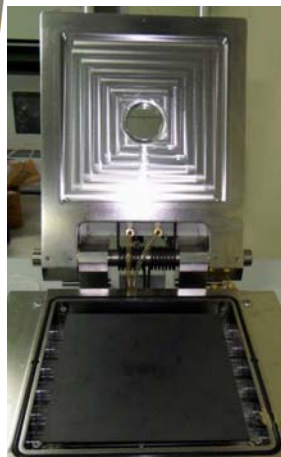
HIGH VACUUM REFLOW OVEN

This system consists of rapid thermal annealing capability, are multipurpose “cold wall” process ovens. It is ideal for R & D, process development, and low to high volume production. Fully automatic production capability is available by in-line integration with die bonders, by direct system integration into the die bonder, by cassette to cassette wafer transfer, and robotic system substrate handling. The main application is void-free soldering and the generation of perfect flux-less solder joints. Perfect soldering by use of liquid flux or solder paste is accomplished by the optionally available solder paste feature, protecting the original process chamber walls and vacuum system.

Due to the leak tight chamber design and stainless steel piping and fittings, a 5×10^{-6} mbar(Torr) vacuum can be achieved. The Helium leak rate is only about 5×10^{-9} mbar l/s. The inert gas atmospheres can be as good as 1 ppm residual Oxygen. Processing under steady state or pulsing pressure up to 2 bar (30 psi) is possible. The processing under reactive atmospheres enhances significantly the wetting properties of non-virgin surfaces with oxide and organic contaminations. The key for void-free soldering is the perfect wet ability assisted by vacuum prior to and during reflow and by mechanical impact to the liquid solder by pulsed pressure. Even the bottom side of an oxidized copper coin placed on the heated plate is perfectly clean when exposed to Nitrogen, enriched with Formic Acid vapor (HCOOH) for very short time periods at low temperatures between 150°C up to a maximum of 200°C. Similar results at higher surface temperatures can be obtained by safe processing under pure Hydrogen with the dedicated Hydrogen safety feature. ArH2 plasma is the ideal surface cleaning method prior to and during flux free reflow of electrolytic plated wafer bumps.

The aluminum process chamber with polished inner walls is accessed via a manually locking lid with viewing window made of safety glass. The viewing window option can be an optical glass used either for laser based surface metrology or for high magnification microscope based process monitoring. Lid and bottom are water cooled. The option of a program controlled motorized lid open/close and locking is available. On the bottom side of process chamber there is an IR quartz lamp and cooling gas nozzle array. Each lamp is placed inside a quartz glass tube sealing the IR lamp from chamber atmosphere. Also the lid can be equipped with an IR lamp array and cooling gas nozzles. By offsetting the upper lamp array by 90° from the lower lamp array and multiple heater zone control the best temperature uniformity can be obtained in both the X and Y directions over the heated area. The heated low mass plate, available in a variety of different materials, is located above the lower field. It is heated by the radiant energy emitted by the IR lamps and cooled by the cooling gas flow against it. The PID controller with control thermocouple located inside the heated plate controls precisely the IR lamp energy and cooling gas flow. The standard material for heat plates is aluminum. Depending on the application, other materials are available including surface treated, CVD SiC coated graphite, SiC, Poly Si, quartz glass, copper, metal mesh, etc.

For rapid cool down requirements such as solidification of the solder under vacuum as used to minimize the grain structure of the solder joint or to “freeze” the perfect liquid solder ball shape formed under vacuum, a water cooled heated plate can be installed. The heated plate is attached by quick release fasteners for easy replacement. For rapid ramping applications such as AuGe alloying on GaAs direct radiant energy heating with low mass, wafer carriers and susceptor are available.



Substrate Stage

CHAMBER & COVER

- Rectangular SS304 chamber with double layer, water cooling fabricated
- Chamber size: 230 x 230 x 25 H mm
- Consists of main exhaust port, rough pumping port, and vacuum gauge port
- 20 mm dia. holes for quartz tube installation
- 1” temperature measurement hole
- Base pole consist of 200 x 200 mm
- Water cooling top lift cover: 230 x 230 x 20 H mm
- 2” high vacuum view port

VACUUM EXHAUST MODULE

- Rotary mechanical pump up to 500 lpm
- Consists of front end pneumatic control valve and pneumatic control valve for exhaust buffering
- Digital vacuum gauge with pressure range from atmosphere pressure to 10×10^{-3} torr

MASS FLOW CONTROLLER

- To control inert gas and working gas into chamber
- Equipped with pneumatic control isolation valve
- Hardware to read out data into PLC programming

SYSTEM CONTROL/OPERATION MODE

- PLC programmable control with 10” color touch screen HMI
- Vacuum exhaust/vent control
- Mass flow control/working procedure control
- Programmable temperature control
- Alarm display and record; authority control, and interlock for safety

ICP-RIE SYSTEM FOR METAL, DIELECTRIC & SEMICONDUCTOR



Substrate Stage



This system is specifically designed for dry etching solutions of a wide variety of metals, dielectrics, and semiconductor materials. It utilizes an Inductively Coupled Plasma (ICP) source to generate a high-density plasma with a separate RF power supply to independently bias the substrate for controlling the ion energy. Reproducible and uniform thermal control is achieved with active cooling/heating using mechanical clamping, (helium) backside cooling, and a recirculating fluid electrode. The robust, reliable, production-proven ICP-100 is customized to optimize smooth sidewall profile control, yield, throughput, and device performance.

LOAD-LOCK CHAMBER, PUMPING SYSTEM & VACUUM MEASUREMENT

- Single layer SUS304, electropolished chamber with manual open/close door with a view port
- Chamber dimension: 150 dia. x 100 H mm
- Manual loading of the wafer carrier onto loader finger stage
- Linear automatic magnetic (with manual override) vacuum transfer system for the transfer of the carrier between the load-lock chamber and main vacuum chamber
- Up/down wafer lifter for accepting/releasing wafer from/onto carrier finger into process chamber
- Carriers for mounting 4" wafer or small irregular pieces
- 3" diameter view port for observing samples on manually open/close lid
- Roughing pump up to 300 lpm with vacuum level less than 5×10^{-4} torr
- Pneumatic control for roughing valve, purge/vent valve, foreline valve
- Vacuum gauge controller attached with Pirani gauge heads ranges from atmosphere pressure to 5×10^{-4} torr

ETCHING CHAMBER PUMPING SYSTEM

- Fabricated from a solid billet of 6061-T6 aluminum alloy and interior surface anodized to prevent corrosion by chlorine or bromine based plasma chemical
- Chamber dimension: 200 dia. x 130 H mm
- Door seal is designed as elastomeric seals
- Embedded heating/cooling water flow in aluminum chamber wall to control the reactor temperature
- Two view ports with 2" dia., at side wall for observation and diagnostics, with plasma shield to avoid RF power leakage
- Turbomolecular pump is corrosion resistant (400 lps) with nitrogen gas purge, water cooling, and power supply/read out control unit with vacuum less than 5×10^{-6} torr
- Two stage rotary vane pump is corrosion resistant (660 lpm) with vacuum level less than 5×10^{-4} torr
- Vacuum throttling valve with adaptive pressure controller by stepper motor actuator
- Capacitor manometer is mounted on the reactor wall and it is monitored on the computer system
- Closed loop pressure control via throttling valve and capacitance manometer, process pressure controllable range 0.2 - 10 Pa
- Vacuum gauge controller with ranges from atmosphere pressure to 5×10^{-10} torr
- Corrosion resistance ion gauge head with ranges from 1×10^{-2} to 1×10^{-9} torr and isolation valve are installed between reactor and ionization gauge head to prevent contamination and corrosion
- Pneumatic control consists of roughing valve, purge/vent valve, and foreline valve

RF BIAS POWER SUPPLY

- SEREN RF power supply (600 W output at 13.56 MHz with remote setup/readout digital control panel and coupled to integrated automatic matching network
- Output power is remotely controlled by computer system

SUBSTRATE STAGE COOLING

- Direct liquid Helium cooling of the substrate stage with manometer for pressure monitoring
- Substrate electrode surface temperature is controlled by cooling water jacket

ICP SOURCE CONSTRUCTION

- Ceramic tube, 8" inner dia. and inductive coil assembly to high density plasma source
- Forced air cooling for inductive coil assembly and ceramic tube
- Process gases injected through gas shower head for uniform plasma distribution

RF ETCHING POWER SUPPLY

- SEREN RF power supply (1 kW output at 13.56 MHz) with remote setup/read out digital control panel coupled to integrated automatic matching network
- Power range variable between 10 W to 1 kW
- Plasma density is more than 10×10^{11} cm³, minimum ion energy: 10 eV
- Stable and uniform plasma over 4" wafer area, +/-5% uniformity
- Output power remotely controlled by computer system

PROCESS GAS DELIVERY SYSTEM

- Gas enclosure panel for all processing gas lines
- Mass flow controllers integrated with data read out to PLC programming

SYSTEM CONTROL/OPERATION MODE

- PLC/PC based industrial computer to control complete system
- Graphic multi-tasking real time control/display software operation for all sensors and drivers
- Multiple operation modes:
 - 1) Semi-auto
 - 2) Auto
 - 3) Maintenance
- Automatic process sequence:
 - 1) Auto-pump
 - 2) Auto-vent
 - 3) Auto-heat
 - 4) Auto transfer from load-lock to reactor chamber
 - 5) Multi-steps etching and in-situ cleaning procedure
- Alarm history, process parameters, data logging, authorities enactment, and fully safety interlock mechanism are provided

IN LINE SPUTTER SYSTEM

CHARACTERISTIC

- Designed for pilot scale, experimental usage
- Suitable for Solar Cell, Laser, EMI
- Horizontal sputtering deposition
- Uniform gas flow conductance design
- High target utilization of magnetron cathode design
- Quick exchanging target design
- 19" TFT panel HMI
- Alarm history record
- DC & RF power safety interlock



In Line Sputter for CIGS Solar Cell



CUSTOMIZED EQUIPMENT ACCORDING TO CLIENT REQUEST



Sputter System



PLD+Sputter System



Lab Scale PECVD



Crystal Puller



Lab Scale Thermal Evaporation System



Confocal Sputter with Load-lock Chamber

LINEAR/ROTARY FEEDTHROUGH

ANGLE ADJUSTMENT AND LINEAR FEEDTHROUGH

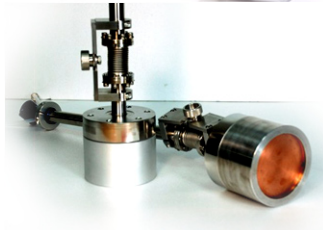
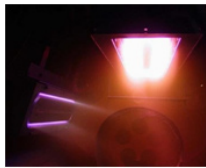
- Standard length From 14" to 40" 35CF mount flange
- Customer size acceptable



ROTARY FEEDTHROUGH

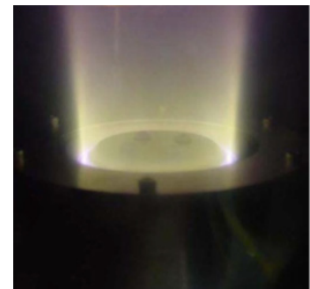
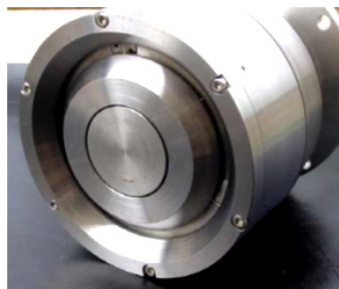
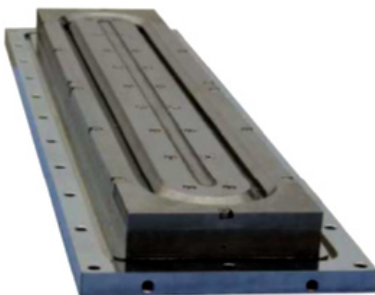
- 16CF(short) torque: 2.2 kg/cm
- 16CF(long) torque: 3.3 kg/cm
- 35CF torque: 16 kg/cm

SPUTTER CATHODE

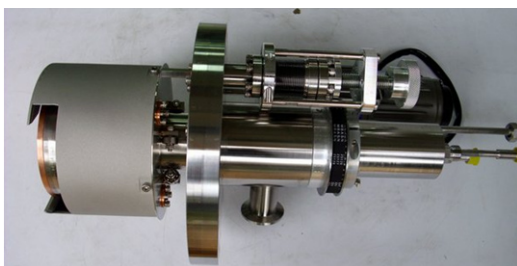


- By type
 - Magnetic
 - +Suitable for ferrous magnetic material
 - Non Magnetic
 - +General purposes (metallic, non-metallic, alloy)
 - +DC/RF power supply suitable
- By shape
 - Round
 - +Small production, research
 - +Inner dia.: 2", 3", 4", 6"....
 - Rectangular
 - +Big volume production
 - +All sizes are suitable
 - Flex mount
 - +Can adjust the target angle
 - +Inner Dia.: 2", 3", 4", 6"....

ION SOURCE



ROTATION SUBSTRATE HOLDER & HEATER



TYPES OF SUBSTRATE HEATER

- Quartz Infra Red heater
 - Common type, easy control but limitation in temperature (600°C)
- Alloy heating element
 - Tubular heating element
 - +Cheap, low temperature, suitable for big area
 - Ultra high vacuum heating element
 - +Expensive, high vacuum heating element with low outgas
 - High resistance oxidize heating element
 - +Expensive, coating process require gas flow of oxygen air

CHAMBER & HARDWARE

*PROCESS CHAMBER*

- Type: Spherical, Cylinder, Box
SUS304, Electropolished

LOAD-LOCK CHAMBER

- Type: Spherical, Cylinder, Box
SUS304, Electro polished
Optional
Suitable for ultra high vacuum usage



CHAMBER & HARDWARE

Providing the original equipment supply, consultation, calibration services, and equipment integration for ultra high vacuum (1×10^{-8} ~ 1×10^{-9} torr) application in thin film coating, Molecular Beam Epitaxial, Nano-wire synthesis and etc.





MTI MALAYSIA

Total Solution for Advanced Material Research

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