

2024 Catalogue

Optional Devices



Gas Mixing Station with Mass Flow Controller

Automatic Mass flow controlled Gas Mixing Station is designed to have more precise gassing control and quicker response. Supplying up to four gases allows you to optimize a variety of cell and microorganism applications. Automatic oxygen and nitrogen control is able to remain the desired dissolved oxygen (DO) level and create anaerobic environments easily. Moreover, carbon dioxide supply provides you an option to control the pH of culture conditions without liquid acid addition.

Features

- Automatic control with quick response and precise flow rate control
- Perfect for cell and microorganism cultivation Individual gas control
- Blend air, oxygen, carbon dioxide and nitrogen in any proportion to optimize cell growth
- Adjust pH using carbon dioxide; avoid media dilution by addition of liquid acid
- Control DO by addition of oxygen gas and nitrogen gas
- Integrated with DO cascade for precise DO control

Gas Mixing Station

Wiinpack Gas Mixing Station enables you to supply up to four gases and control microorganism cultivation with ease by adjusting four manual flow meters individually. Dissolved oxygen (DO) level and pH value can be controlled by adjusting the gas composition supplied to the system. Four solenoid valves open and close automatically in response to the change of culture environments.

Features

- Perfect for microorganism cultivation Individual gas control
- Blend air, oxygen, carbon dioxide and nitrogen in any proportion to optimize microorganism growth
- Adjust pH using carbon dioxide; avoid media dilution by addition of liquid acid
- Control DO by addition of oxygen gas and nitrogen gas
- Integrated with DO cascade



Ordering Information

Cat. No.	Product Description
FS-O-GM-MFC	Gas mixing station with four mass flow controllers for Air, O ₂ , N ₂ and CO ₂ . The standard flow rate : Air is 2vvm, O ₂ is 1vvm, N ₂ is 0.5vvm, CO ₂ is 0.5vvm. Customizing gas flow rate is available, please contact and discuss with local dealer before order.

*vvm : gas volume flow per unit of liquid volume per minute

Specification

Control gases	Air, N ₂ , O ₂ and CO ₂						
Control parameter	DO and pH						
Components	4 Solenoid valves, 4 pressure gauges and 4 rotameters						
DO cascade	One-way (O ₂) or bi-directional (O ₂ & N ₂) DO control						
Vessel size		1 L	3 L	5 L	10 L	15L	20L
Microbial(lpm) (standard spec)	Air	2	6	10	20	30	40
	O ₂	1	3	5	10	15	20
	N ₂	0.5	1.5	2.5	5	7.5	10
	CO ₂	0.5	1.5	2.5	5	7.5	10
Cell culture(lpm) (standard spec)	Air	0.2	0.6	1	2	3	4
	O ₂	0.1	0.3	0.5	1	1.5	2
	N ₂	0.1	0.3	0.5	1	1.5	2
	CO ₂	0.1	0.3	0.5	1	1.5	2
Control mode	Manual or automatic						
Indicator	LED indicator						
Air connection	1/4" (6.35 mm) fitting for gas inlet/outlet						

* Customizing gas flow rate is available upon request.

Ordering Information

Cat. No.	Product Description
FS-O-GM	Gas Mixing Station

Oxygen Enrichment Module with Mass Flow Controller

The mass flow controller is an oxygen supplementation device for your Winpact system. It is capable of accurately adjust the flow rate of the external oxygen to control the DO level within the vessel under DO cascade mode. It features great resistance to fluctuations in gas flow which ensures precise control and repeatability for your experimental conditions.

Features

- Resistant to flow variability from gas pressure changes
- Automatic control of flow rate to gas input
- Precise control of gas flow rate
- Automatic control and DO Cascade
- Hassle-free: comes built-in to the controller

Gas Inlet Control Module

This Gas inlet control module is an optional device for your fermentation process. It enables the Winpact system to support your culture with addition of gas. The inlet control module consists of a gas pressure gauge, solenoid valve, and a rotameter. These components allow the external connection of gas to flow into the Winpact controller to be regulated either manually or automatically.

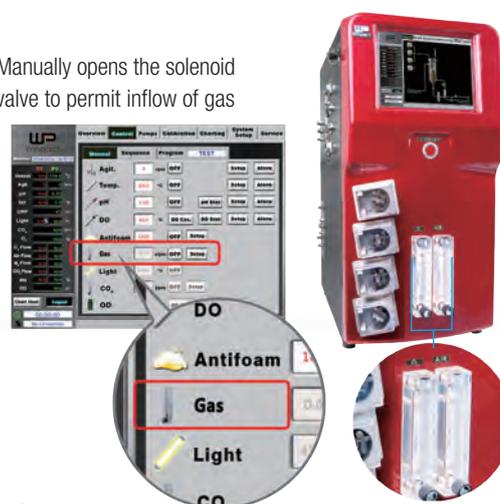
Features

- Maintain aerobic environment for fermentation process
- Designed for high cell density and cells with high oxygen requirements
- Precise control of DO level
- Controlled manually or via DO control loop
- Manually flow rate adjustment via flow meter; flow rate duration via solenoid valve



O₂ flow rate adjustment

Manually opens the solenoid valve to permit inflow of gas



Specification

Components	Includes a manual rotameter and a mass flow controller	
Function	(1) Automatic oxygen flow rate adjustment (via Mass flow controller) (2) DO cascade control: response to DO change	
Rotameter range	1 L, 3 L, 5 L	0 – 5 LPM
	10 L	0 – 10 LPM
	15 L, 20 L	0 - 20 LPM

Ordering Information

Cat. No.	Product Description
FS-O-MF01	Oxygen Enrichment with Mass Flow Controller for FS-05 Parallel Fermentation System, single module for one side
FS-O-MF02	Oxygen Enrichment with Mass Flow Controller for FS-05 Parallel Fermentation System, dual modules for two sides
FS-O-MF03	Oxygen Enrichment with Mass Flow Controller for FS-07 Evo Fermentation System

*O₂ flow rate is 1vvm.

Specification

Components	Includes a manual rotameter and a pulsed control valve	
Function	(1) Manual oxygen flow rate adjustment (via rotameter) (2) DO cascade control: response to DO change	
Rotameter range	1 L, 3 L, 5 L	0, 0.4 – 5 LPM
	10 L	0, 1 – 10 LPM
	15 L, 20 L	0, 2 – 20 LPM

Ordering Information

Cat. No.	Product Description
FS-O-OE01	Gas Inlet Control Module, including Solenoid Valve and Adjustable Rotameter for Parallel Fermentation System, single module
FS-O-OE02	Gas Inlet Control Module, including Solenoid Valve and Adjustable Rotameter for Parallel Fermentation System, dual module
FS-O-OE03	Gas Inlet Control Module, including Solenoid Valve and Adjustable Rotameter for Winpact One Fermentation System
FS-O-OE04	Gas Inlet Control Module, including Solenoid Valve and Adjustable Rotameter for Winpact Evo Fermentation System

when purchasing Gas Inlet Control Module with CO₂/O₂ off gas analyzer, CO₂ could be regulated and controlled
*note: for CO₂ gases control purposes, it requires the installation of Gas Analyzer (FS-O-GA)

Winpact Mass Flow Controller

Compare to the external mass flow module which requires connecting to the Fermentation System, Winpact's newly-developed MassFlow is now built in the FS controller itself. With smaller size, light weight and affordable price, Winpact Mass Flow will be the mass flow controller of next generation.

Features

- Affordable price
- Self-made, high quality guarantee

CO₂/O₂ Off-gas Analyzer

The Winpact CO₂ /O₂ off-gas analyzer provides real-time measurement of carbon dioxide and oxygen concentration of the bioreactor exhaust gas. The CO₂ concentration is determined using a self-calibrating non-dispersion infrared sensor, while an electrochemical sensor monitors the oxygen concentration. Using this information, the user can continuously monitor metabolism and analyze cell growth parameters.

Features

- Instant monitoring of bioreactor metabolic activity
- Directly connected to controller for real-time monitoring, recording, and data export to PC
- Sturdy, compact housing fits directly on top of Winpact control unit
- Long-life, durable, O₂ and CO₂ sensors
- Integrated soda lime column for self-calibration of CO₂ detector
- External copper sulfate column absorbs moisture from inlet gas, ensuring accurate gas measurement



Ordering Information

Cat. No.	Product Description
FS-O-MF12	Air Mass Flow Controller for FS-05 Parallel Fermentation System, single module for one side
FS-O-MF13	Air Mass Flow Controller for FS-05 Parallel Fermentation System, dual modules for two side
FS-O-MF14	Air Mass Flow Controller for FS-07 Evo Fermentation System

*Air flow rate is 2vvm.

Specification

Control gases	Carbon Dioxide	Oxygen
Range	0-10% (selectable range available)	0 – 50%
Detector type	Non-dispersion Infrared (NDIR)	Electrochemical
Accuracy	±5%	±1% (full scale)
Response time	1.6 seconds	14±2 seconds
Operating humidity	10-90% RH	
Calibration	Auto-zero; default value present in factory (Built-in initialization)	Air or calibration gas
Sample delivery	Inboard sample pump	
Sample connection	1/4" (6 mm) fittings for gas inlet/outlet ports	
Sample flow rate	300 - 1000 ml/min	
Flow meter range	100 - 1000 ml/min	
Power requirement	110 – 230 V AC, 50/60Hz	
Fuse rating	2 Amp	
Dimension	(W x L x H) 355 x 230 x 190 mm	

*CO₂ measurement range needs to be clarified when ordering.

Ordering Information

Cat. No.	Product Description
FS-O-GA	CO ₂ /O ₂ Off-Gas Analyzer

Winpact Humidifier

Winpact Humidifier is specially designed for solid state cultivation which not only provides real-time monitoring of the humidity but also adjusts the humidity to offer optimal culture conditions. Winpact Humidifier is directly connected to the controllers and it is able to automatically switch between normal air supply and moist air supply based on the desired set value and the present humidity with the software integration.



Specification

Measurement Range	20~80%RH at 25°C
Accuracy	+/- 7%RH (20~80%RH at 25°C)
Control Mode	Automatic
Power Requirement	From Winpact fermentation controller
Operation Temperature	Room temperature to 40°C
Material	Black painted iron case
Tube Connection	8X5mm PU/PTFE tube
Power Indication	LED indicator
Operation Indication	LED indicator
Dimension	(W x L x H) 241.8 X 320.5 X 138.7mm

Ordering Information

Cat. No.	Product Description
FS-O-HMD	Humidity Detector for Solid State Fermentation System

Photobioreactor Lighting Module

Winpact offers the exclusive lighting module for our Winpact systems. Our special designed lighting module is suitable for running any photon-related lab experiments such as photosynthesis reaction. This lighting module is constructed with sleek stainless steel for better appearance and reflection when light shines through the vessel. Winpact software consists of 15-step program, light intensity adjustment, and self-calibration mode.

Features

- Utilize artificial light to simulate bio-photosynthesis reaction
- Adjustable light intensity manually or automatically
- Fluorescent light source
- On/off timer
- Expandable up to 3 lighting modules
- 15-step programmable lighting schedule
- Ideal for plant algae or cyanobacteria experiments

*FS-V-C054 + FS-O-PB-2



15-step programmable lighting schedule



Specification

Light intensity control range	5-100%
Light module	3 Fluorescent lamps / each module
Lamp specification	T5/14W, Ø16 mm x L549 mm
Light color temperature	6500 K
Luminous flux per lamp	1150 lm
Sensor type	Light intensity sensor, photodiode
Light intensity	Max. 10000 lux
Control mode	On/off and timed control
Expandable modules	Up to 3 sets of the lighting modules
Dimension	(W x L x H) 200 x 326 x 648 mm
Weight	Approx. 7 Kg / each module
Rated voltage	110/220V~(selectable), 50/60Hz, 5A

Ordering Information

Cat. No.	Product Description
FS-O-PB-1	1 Photo-Bioreactor Lighting Module
FS-O-PB-2	2 Photo-Bioreactor Lighting Modules
FS-O-PB-3	3 Photo-Bioreactor Lighting Modules

*For best result, a minimum of 2 units of photo-Bioreactor lighting module is required.

Cell Density Probe

Accurate cell growth analysis is essential and crucial for bioprocesses. Real-time online cell density probes enable users to monitor cell densities without time-consuming and labor-intensive offline sampling and reduce the risk of contamination. Moreover, they provide continuous information to control and optimize culture processes more efficiently. Viable cell density and total cell density (turbidity) probes are available for a wide range of applications.

Features

- Continuous and accurate control
- Reduce labor and the risk of contamination
- Early detection of deviations



Ordering Information

Cat. No.	Product Description
Viable Cell Density Sensor	
FS-0-OD-INCYTE-101	Hamilton Incyte Arc viable cell density measurement probe kit, includes 120mm Incyte Arc Expert sensor, Incyte Arc Expert sensor cable, probe adaptor
FS-0-OD-INCYTE-102	Hamilton Incyte Arc viable cell density measurement probe kit, includes 220mm Incyte Arc Expert sensor, Incyte Arc Expert sensor cable, probe adaptor
FS-0-OD-INCYTE-103	Hamilton Incyte Arc viable cell density measurement probe kit, includes 320mm Incyte Arc Expert sensor, Incyte Arc Expert sensor cable, probe adaptor
FS-0-OD-INCYTE-104	Hamilton Incyte Arc viable cell density measurement probe kit, includes 420mm Incyte Arc Expert sensor, Incyte Arc Expert sensor cable, probe adaptor
Total Cell Density Sensor	
FS-0-OD-DENCYTEE-101	Hamilton Dencytee Arc total cell density measurement probe kit, includes 120mm Dencytee Arc RS485 probe, Dencytee Arc RS485 probe cable, probe adaptor
FS-0-OD-DENCYTEE-102	Hamilton Dencytee Arc total cell density measurement probe kit, includes 225mm Dencytee Arc RS485 probe, Dencytee Arc RS485 probe cable, probe adaptor
FS-0-OD-DENCYTEE-103	Hamilton Dencytee Arc total cell density measurement probe kit, includes 325mm Dencytee Arc RS485 probe, Dencytee Arc RS485 probe cable, probe adaptor
FS-0-OD-DENCYTEE-104	Hamilton Dencytee Arc total cell density measurement probe kit, includes 425mm Dencytee Arc RS485 probe, Dencytee Arc RS485 probe cable, probe adaptor

Specification

	Viable Cell Density Sensor	Total Cell Density Sensor
Sensor Family	Incyte Arc Expert	Dencytee Arc
Parameter	Viable Cell Density, VCD	Total Cell Density, TCD
Measuring Range	0 to 700 pF/cm, equivalent to 5 x 10 ⁵ to 8 x 10 ⁹ cells/mL (mammalian)	e.g. 0-200g/l cell dry weight yeast 0-4 AU 0-30'000 NTU
Measurement Principle	Permittivity	Transmission and Reflection
Autoclavable	Yes, max. Temperature 140 °C	Yes
Steam Sterilizable	Yes, max. Temperature 140 °C	Yes, max. Temperature 140 °C
Operating Temperature Range	0 to 60 °C	0 to 140 °C; the sensor provides no TCD reading above 80 °C
Pressure Range bar	0 to 12 bar	0 to 12 bar
Diameter	12mm	12mm
Process Connection	PG13.5	PG13.5

Dissolved Carbon Dioxide (DCO₂) Sensors

Dissolved carbon dioxide (DCO₂ or dCO₂) is an on of important critical process parameter in biopharma production processes. Real-time DCO₂ monitoring can help to deliver higher viable cell density, a prolonged growth phase, and higher product yield, and can enables consistent process performance across different R&D and production scales and optimizing manufacturing efficiency.

pH Probe

This state-of-the-art, gel-filled low maintenance pH-electrode with excellent pressure resistance is specifically developed for reliable measurements in bioprocess. With pressure resistance to 6 bar and silver-ion trap to prevent fouling of diaphragm in sulfide-bearing media, the glass body pH electrode can be used on an universal basis in bioprocess applications.

Features

- Fast response
- Proven reliability
- High resolution and precision
- Suitable for autoclave, SIP and CIP
- User-calibration available



Specification

Viable Cell Density Sensor	
Sensor Family	CO ₂ NTR0L
Parameter	DCO ₂
Measuring Range	5 - 1000 mbar or 0.5 - 100 % vol or 7.5 - 1500 mg/L in liquid phase at 101.3 kPa and 25°C
Measurement Principle	Non-dispersive Infra-Red (NDIR) absorption of wavelength selective for CO ₂ ; temperature compensation
Autoclavable	Yes, max. Temperature 140 °C
Steam Sterilizable	Yes, max. Temperature 140 °C
Operating Temperature Range	-10 to 140 °C; the sensor provides no CO ₂ reading above 60 °C
Pressure Range bar	-1 to 12 bar
Diameter	12mm
Process Connection	PG13.5

Ordering Information

Cat. No.	Product Description
FS-0-DC02-CO2NTR0L-101	Hamilton CO ₂ NTR0L Dissolved Carbon Dioxide Sensor kit, includes 120mm CO ₂ NTR0L RS485 probe, CO ₂ NTR0L RS485 probe cable, probe adaptor
FS-0-DC02-CO2NTR0L-102	Hamilton CO ₂ NTR0L Dissolved Carbon Dioxide Sensor kit, includes 225mm CO ₂ NTR0L RS485 probe, CO ₂ NTR0L RS485 probe cable, probe adaptor
FS-0-DC02-CO2NTR0L-103	Hamilton CO ₂ NTR0L Dissolved Carbon Dioxide Sensor kit, includes 325mm CO ₂ NTR0L RS485 probe, CO ₂ NTR0L RS485 probe cable, probe adaptor
FS-0-DC02-CO2NTR0L-104	Hamilton CO ₂ NTR0L Dissolved Carbon Dioxide Sensor kit, includes 425mm CO ₂ NTR0L RS485 probe, CO ₂ NTR0L RS485 probe cable, probe adaptor



FS-A-PPH01-MT FS-A-PPH01-HM FS-A-PPH05-MT

Specification

pH range	0 -14 (2-12 for maximum precision)
Temperature	0-135°C (275°F)
Resolution of pH	0.01
Pressure	6 bar maximum
Shaft diameter	12 mm
Connection	Pg 13.5
Temperature compensation	Integral PT-100 (VP model)

Ordering Information

Cat. No.	Product Description
FS-A-PPH00-MT	pH Electrode Cable, AK9 Type, Mettler Toledo
FS-A-PPH01-MT	120 mm pH Probe for 0.5 L, 1 L vessel, Mettler Toledo
FS-A-PPH02-MT	225 mm pH Probe for 3 L vessel, Mettler Toledo
FS-A-PPH03-MT	325 mm pH Probe for 5-15 L vessel, Mettler Toledo
FS-A-PPH04-MT	425 mm pH Probe for 20 L vessel, Mettler Toledo
FS-A-PPH05-MT	325mm pH probe with protective case and cable, for 5L solid state vessel only, Mettler Toledo
FS-A-PPH00-HM	pH Electrode Cable, AK9 Type, Hamilton
FS-A-PPH01-HM	120 mm pH Probe for 0.5 L, 1 L vessel, Hamilton
FS-A-PPH02-HM	225 mm pH Probe for 3 L vessel, Hamilton
FS-A-PPH03-HM	325 mm pH Probe for 5-15 L vessel, Hamilton
FS-A-PPH04-HM	425 mm pH Probe for 20 L vessel, Hamilton



DO Probe

This stainless steel constructed dissolved oxygen sensor is designed for maximum accuracy and reliability. Modular and robust design along with state-of-the-art interior sensor design allows for easy disassembly for maintenance. PTFE/silicone membrane designed with an internal steel mesh makes the membrane more rugged, drastically improving repeatability of these sensors in bioprocess applications.

Features

- Fast response
- Proven reliability
- High resolution and precision
- Suitable for autoclave, SIP and CIP
- User-calibration available

Oxidation Reduction Potential (ORP) Probe

This ORP probe is an optional accessory for the Winpact fermentation system. It measures the oxidation-reduction potential of the fermented media, which could be an indicator for the anaerobic conditions/reactions. This low-maintenance and sterilizable probe is designed to withstand repeated autoclave cycles without any decline in the measuring accuracy.

Features

- Designed to use for Winpact fermentation system
- Low maintenance
- Fully autoclavable sensor
- Long operation lifetime



FS-A-PDO01-MT

FS-A-PDO01-HM



Specification

DO sensor type	Polarographic
Dissolved oxygen	0.1- 100% air saturation 10 ppb to saturation
Temperature	0 - 135°C (275°F)
Resolution	0.1%
Pressure	4 bar maximum
Temperature compensation	22 kohm thermistor
Wetted material	316L stainless steel
Shaft diameter	12 mm
Surface finish	Ra 12 (electro-polished)

Ordering Information

Cat. No.	Product Description
FS-A-PDO00-MT	DO Probe Cable VP Type, Mettler Toledo
FS-A-PDO01-MT	120 mm DO Probe for 0.5 L, 1 L vessel, Mettler Toledo
FS-A-PDO02-MT	220 mm DO Probe for 3 L vessel, Mettler Toledo
FS-A-PDO03-MT	320 mm DO Probe for 5-15 L vessel, Mettler Toledo
FS-A-PDO04-MT	420 mm DO Probe for 20 L vessel, Mettler Toledo
FS-A-PDO00-HM	DO Probe Cable VP Type, Hamilton
FS-A-PDO01-HM	120 mm DO Probe for 0.5 L, 1 L vessel, Hamilton
FS-A-PDO02-HM	225 mm DO Probe for 3 L vessel, Hamilton
FS-A-PDO03-HM	325 mm DO Probe for 5-15 L vessel, Hamilton
FS-A-PDO04-HM	425 mm DO Probe for 20 L vessel, Hamilton

Specification

Electrode	Gel-filled, Low-maintenance redox electrode
Scale	-2000~2000 mV
Temperature range	0 - 130°C (32 - 266 °F)
Autoclavable	Yes

Ordering Information

Cat. No.	Product Description
FS-A-PORP00	ORP Probe Cable
FS-A-PORP01	120 mm ORP Probe for 0.5 L, 1 L vessel
FS-A-PORP02	225 mm ORP Probe for 3 L vessel
FS-A-PORP03	325 mm ORP Probe for 5 L-15 L vessel and above
FS-A-PORP04	425 mm ORP Probe for 20 L vessel

ORP Monitoring Kit

FS-O-ORP-101	ORP Monitoring Kit, includes 120 mm ORP Probe, ORP Probe Cable, and Probe Adaptor
FS-O-ORP-102	ORP Monitoring Kit, includes 225 mm ORP Probe, ORP Probe Cable, and Probe Adaptor
FS-O-ORP-103	ORP Monitoring Kit, includes 325 mm ORP Probe, ORP Probe Cable, and Probe Adaptor
FS-O-ORP-104	ORP Monitoring Kit, includes 425 mm ORP Probe, ORP Probe Cable, and Probe Adaptor

Temperature Probe

This temperature probe is placed inside of a stainless steel tube in the head plate to measure the vessel temperature while maintaining sterility. With high accuracy and proven reliability, it is applicable to all of our fermentation systems in all kinds of fermentation conditions.

Features

- High accurate PT100 sensor - platinum resistance thermometers (PRTs)
- Customized length- we offer the most suitable probe lengths for different vessel size
- Proven reliability
- Non-autoclavable

Antifoam Probe

This antifoam probe is height-adjustable with proven reliability. It can be equipped with our controllers for the vessels. Once foaming is detected within the vessel, the controller unit will respond by pumping defoamer solution to disperse the foam and ensure the experiment progresses properly. This will ensure your experiment runs smoothly without worrying about the foam formation.

Features

- Adjustable height
- Made with stainless steel tips and PTFE coating
- Proven reliability
- Suitable for autoclave, SIP, CIP



Specification

Housing materials	316L stainless steel
Accuracy	± 0.2°C
Resolution	0.1°C

Specification

Housing materials	Stainless steel tips and PTFE body
Sensitivity	Adjustable via controlling software

Ordering Information

Cat. No.	Product Description
FS-A-PPT00	Temperature Probe Cable
FS-A-PPT01	150 mm Temperature Probe for 0.5 L vessel
FS-A-PPT02	250 mm Temperature Probe for 1 L, 3 L vessel
FS-A-PPT03	350 mm Temperature Probe for 5 L vessel
FS-A-PPT04	400 mm Temperature Probe for 10-15 L vessel
FS-A-PPT05	550 mm Temperature Probe for 20 L vessel

Ordering Information

Cat. No.	Product Description
FS-A-PLV00	Foam/Level Sensor Cable
FS-A-PLV02	Foam/Level Sensor with PTFE black coating



Sampling Device

Our simple and intuitive sampling devices allow you to aseptically take out your sample for cell density measurement.

The tri-port design ensures your sample is sterile and contamination-free when sampling. For stainless steel ball valve and sanitary valve sampling device, please contact your regional managers for detail information.

Features

- Easy and simple sampling device
- Ensure sterility during sampling

Specification

Tube capacity	15 ml
Construction material	316L stainless steel

Ordering Information

Cat. No.	Product Description
FS-ACC-001	Triport Sampling Device, 15 ml
FS-ACC-002	Dual Port Sampling Device, 15 ml

Stainless steel ball valve sampling device

FS-ACC-011	For FS-V-B01, FS-V-A01, FS-V-AS5
FS-ACC-012	For FS-V-A03, FS-V-B03, FS-V-D03
FS-ACC-013	For FS-V-D05, FS-V-A05, FS-V-B05
FS-ACC-015	For FS-V-B10, FS-V-A10
FS-ACC-016	For FS-V-D10
FS-ACC-017	For FS-V-B15, FS-V-C053, FS-V-C054
FS-ACC-019	For FS-V-B20

Stainless steel sanitary valve sampling device

FS-ACC-021	For FS-V-B01, FS-V-A01, FS-V-AS5
FS-ACC-022	For FS-V-A03, FS-V-B03, FS-V-D03
FS-ACC-023	For FS-V-D05, FS-V-A05, FS-V-B05
FS-ACC-025	For FS-V-B10, FS-V-A10
FS-ACC-026	For FS-V-D10
FS-ACC-027	For FS-V-B15, FS-V-C053, FS-V-C054
FS-ACC-029	For FS-V-B20

Stainless steel pneumatic sampling device

FS-ACC-031	For FS-V-B01, FS-V-A01
FS-ACC-032	For FS-V-A03, FS-V-B03, FS-V-D03
FS-ACC-033	For FS-V-D05, FS-V-A05, FS-V-B05
FS-ACC-035	For FS-V-B10, FS-V-A10
FS-ACC-036	For FS-V-D10
FS-ACC-037	For FS-V-B15, FS-V-C053, FS-V-C054
FS-ACC-039	For FS-V-B20

Stainless steel Solid Sampler

CM-FS-O-SS	For FS-V-SA05
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Stainless steel ball valve sampling device



External Pump

Our digital control peristaltic pump fits perfectly with our Winpact series. This easy-to-use pump design allows different silicone tubing sizes to be fitted. With the capability of reverse your flow direction, it provides convenience and flexibility to the operators.

Features

- Microprocessor controller
- Compact size
- Easy load pump head
- Wide applications
- Reversible for purging
- Capable of 2 pump heads installation (except MU-D03)

Specifications

Cat. No	MU-D01	MU-D02	MU-D03
Controller	Digital microprocessor controller		
Motor	Brushless motor		
Power	50W		100W
Pump Speed / Increment	20 - 300rpm / 1rpm	5 - 600rpm / 1rpm	20 - 300rpm / 1rpm
Flow Range **	1.2 - 1,140ml/min	0.3 - 2,280ml/min	8 - 3,272ml/min
Number Of Rollers	4		2
Operating Temperature	Ambient to 40 °C		
Dimension (WxLxH)	Approx. 7.9"x13.4"x5.1" (200x340x130mm)		Approx. 9.5"x13.3"x 6.6" (240x338x167mm)
Material	Painted iron metal		
Weight	Approx. 12.5lb (5.7kg)		Approx. 13.4lb (6.2kg)
Rated Voltage	110V/220V~	100V-240V~	100V-240V~
Program	2-step Program (running & ceasing); Max. of timer: 99 (hr) : 59 (min) : 59 (sec)		
Auto Resume Function	Yes		

**The flow range is subject to the silicone tube that used. Please see Silicon tubing specifications table for reference.

Ordering Information

Cat. No.	Product Description
MU-D01	Digital Peristaltic Pump, 110V / 220V
MU-D02	Superior Digital Peristaltic Pump, 100 - 240V
MU-D03	Supreme Digital Peristaltic Pump, 100 - 240V
PWI-FS-05-00000000	Digital Peristaltic Pump Connection Cable for FS-05
PWI-FS-06-00000000	Digital Peristaltic Pump Connection Cable for FS-06, FS-07

Accessories

Cat. No.	Product Description
MU-S13	Silicone Tube I.D. 1/32" (0.8 mm), 25 ft (7.6 m)
MU-S14	Silicone Tube I.D. 1/16" (1.6 mm), 25 ft (7.6 m)
MU-S16	Silicone Tube I.D. 1/8" (3.1 mm), 25 ft (7.6 m)
MU-S25	Silicone Tube I.D. 3/16" (4.8 mm), 25 ft (7.6 m)

Tubing Information(wall thickness is 1.6mm)

Silicone Tubing Specifications				
Cat. No.	MU-S13	MU-S14	MU-S16	MU-S25
Inner Diameter Inches. (mm)	0.03(0.8)	0.06(1.6)	0.12(3.1)	0.19(4.8)
Hose Barb Size Inches. (mm)	1/16(1.6)	1/16(1.6)	1/8(3.2)	3/16(4.8)
Flow Range With 6 To 600rpm Drive (ml/min)	0.36 to 36	1.3 to 130	4.8 to 480	10 to 1000
	*The flow range is subject to the motor drive of the pump. Please see Peristaltic Pump specifications for reference.			
Maximum Pressure, Continuous	25psig (1.7bar)		20psig (1.4bar)	
Maximum Pressure, Intermittent	40psig (2.7bar)		35psig (2.4bar)	
Maximum Vacuum	26" Hg (660mm Hg)			
Suction Lift	29ft H ₂ O (8.8m H ₂ O)			



MU-D01 / MU-D02



MU-D03

Brushless Agitation Motor

Our special designed brushless agitation motor fits on all of our systems to avoid emission of carbon particles. The lower voltage design also provides a higher safety level to the operator.

Features

- Low noise
- Low vibration
- Controlled torque
- Smooth operation
- Long life
- Minimal maintenance

Stainless Steel Condenser

Winpact offers flexibility in our condenser to help you maintain the best performance for your experiment.

All of our fermentation condensers are constructed from SUS316L stainless steel with quick connector installment. The quick connector brings you quick and convenience during system installation. The new designed 360° condenser (FS-A-CON04) for Air Lifter vessel allows you to dramatically reduce the height to fit in the conventional autoclave. Condenser is included in the vessel package.

Features

- Stainless steel construction
- Quick connector assembled for easy operation
- Compatible with all types of Winpact vessels



FS-M2

FS-M3

FS-M4

Specification

Motor type	24V DC brushless motor
Connection with vessel	Quick connector, no tools required

Ordering Information

Cat. No.	Product Description
FS-M2	Agitation Motor 30 -1200 rpm for 3-5 L vessel; 30 -1000 rpm for 10 L vessel; 30 - 700 rpm for 15, 20 L vessel
FS-M3	Agitation Motor 30-1800rpm for 0.5 L, 1 L vessel
FS-M4	Agitation Motor 60rpm for 5 L solid state vessel



FS-A-CON01

Specification

Cat. No.	FS-A-CON01	FS-A-CON02
Suitable vessel size	3 L vessel only	5 - 10 L vessel
Material	316L stainless steel	
Height	257.6 mm	210.6 mm
O.D. for outlet	6.35 mm	

Cat. No.	FS-A-CON03	FS-A-CON04
Suitable vessel size	15 - 20 L vessel	Air lifter vessel
Material	316L stainless steel	
Height	214.1 mm	281.76 mm (1) 96 mm (2)
O.D. for outlet	12.7 mm	6.35 mm

Cat. No.	FS-A-CON05
Suitable vessel size	0.5 - 1 L vessel
Material	316L stainless steel
Height	200 mm
O.D. for outlet	6.35 mm

Ordering Information

Cat. No.	Product Description
FS-A-CON01	Stainless Steel Condenser, 3 L vessel only
FS-A-CON02	Stainless Steel Condenser, 5 - 10 L vessel
FS-A-CON03	Stainless Steel Condenser, 15 - 20 L vessel
FS-A-CON04	Stainless Steel Condenser, Air lifter vessel
FS-A-CON05	Stainless Steel Condenser, 0.5 - 1 L vessel only

Condenser customization is available upon request.

Impeller

Two standard agitation impellers are available for your selection. Whereas Rushton impeller offers high shearing force and pitched blade offers moderate shearing force for your sensitive and fragile experiment. Foam-breaking impeller help you maintain foam free environment.

Features

- 316 stainless steel construction
- Height adjustable
- Angle adjustable (pitched blade only)
- Customization available



Specification

Construction materials	316L stainless steel
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Ordering Information

Cat. No.	Product Description
FS-A-IM101	Rushton 4-Blade Impeller, suitable for 0.5 L, 1 L Vessel, 2/pk
FS-A-IM103	Rushton 6-Blade Impeller, suitable for 3 L Vessel, 3/pk
FS-A-IM105	Rushton 6-Blade Impeller, suitable for 5 L Vessel, 3/pk
FS-A-IM110	Rushton 6-Blade Impeller, suitable for 10 L Vessel, 3/pk
FS-A-IM120	Rushton 6-Blade Impeller, for 15 L or 20 L Vessel, 3/pk
FS-A-IM201	Pitched Blade Impeller, suitable for 0.5 L, 1 L Vessel, 2/pk
FS-A-IM203	Pitched Blade Impeller, suitable for 3 L Vessel, 3/pk
FS-A-IM205	Pitched Blade Impeller, suitable for 5 L Vessel, 3/pk
FS-A-IM210	Pitched Blade Impeller, suitable for 10 L Vessel, 3/pk
FS-A-IM215	Pitched Blade Impeller, suitable for 15 L Vessel, 3/pk
FS-A-IM220	Pitched Blade Impeller, suitable for 20 L Vessel, 3/pk
FS-O-DB-01	Foam Breaker Impeller, 95 mm, suitable for FS-V-A10 and FS-V-B10 and FS-V-D05
FS-O-DB-02	Foam Breaker Impeller, 110 mm, suitable for FS-V-B15 and FS-V-B20
FS-O-DB-03	Foam Breaker Impeller, 130 mm, suitable for FS-V-D10 only



Motor Shaft Protection Cap

Motor Shaft Protection Cap is designed for the motor shaft of Winpact vessels. The cap can be used when the fermentor is not in use or during sterilization. Major Science provides a convenient and simple way to protect the motor shaft from any possible damage caused by environment.

Features

- Stainless steel construction
- Suitable for all vessel types
- Protect the motor shaft when the fermentor is not in use or during sterilization

Headplate Stand

Our customized headplate stand provides a suitable and stable home for your headplate whenever the headplate is dispatched from the glass vessel. It could also eliminate the possibility of the damages caused by random misplacement of the headplate.

Features

- Stable configuration
- Easy to use
- Stainless steel construction
- Light weight



FS-A-MCAP

Specification

Cat. No.	FS-A-MCAP
Cap dimension	125 x 47.5 mm (W x H)
Pull-Ring dimension	25.4 x 10 mm (W x H)
Material	304 stainless steel

Ordering Information

Cat. No.	Product Description
FS-A-MCAP	Stainless Steel Protected Cap



FS-A-HS03

Specification

Cat. No.	Dimension	Material
FS-A-HS01	Total: 170 x 170 x 213 mm Headplate holder: Ø170 x 2T Bottom plate: 170 x 170 x 3T Pole: Ø10 x L200 (mm)	304 stainless steel
FS-A-HS02	Total: 230 x 230 x 363 mm Headplate holder: Ø230 x 2T Bottom plate: 230 x 230 x 3T Pole: Ø10 x L350 (mm)	
FS-A-HS03	Total: 260 x 260 x 463 mm Headplate holder: Ø260 x 2T Bottom plate: 260 x 260 x 3T Pole: Ø10 x L450 (mm)	
FS-A-HS04	Total: 260 x 260 x 613 mm Headplate holder: Ø300 x 2T Bottom plate: 300 x 300 x 3T Pole: Ø10 x L600 (mm)	
FS-A-HS05	Total: 260 x 260 x 513 mm Headplate holder: Ø210 x 2T Bottom plate: 210 x 210 x 3T Pole: Ø10 x L500 (mm)	

Ordering Information

Cat. No.	Product Description
FS-A-HS01	Headplate Stand for 1 L vessel
FS-A-HS02	Headplate Stand for 3-5 L vessel
FS-A-HS03	Headplate Stand for 10 L vessel
FS-A-HS04	Headplate Stand for 15-20 L vessel
FS-A-HS05	Headplate Stand for Air Lifter (FS-V-C series) vessel

Fermentation Bottle Holder

This simple stainless steel constructed feeding bottle holder fits perfectly with our glass vessel. Assembly is free from any tools and easy installation. Each bottle holder can hold up to 2 x 250ml bottles and perform easy organization with your tubing and feeding materials.

Features

- Easy installation
- Light weight
- Capable of loading two Ø70 bottles



Stainless Steel Supporting Foot

The stainless steel supporting foot is designed to provide a more steady position for your vessel. This stainless steel foot is suitable for all vessel types and is easy to install.

Features

- Stainless steel construction
- Suitable for all vessel types
- No additional tools required for installation
- Autoclavable



PFSV-D54-000-R01

Specification

Cat. No.	FS-O-BH01
Dimension	190 x 90 x 70 mm (W x L x H)
Compatible bottle size	2 bottles / Ø70 / 250 ml
Weight	0.38 kg
Materials	316L stainless steel

Specification

Cat. No.	PFSV-D54-000-R01
Dimension	Ø50 X L25 (mm)
Materials	316L stainless steel

Ordering Information

Cat. No.	Product Description
FS-O-BH01	Fermentation Bottle Holder

Ordering Information

Cat. No.	Product Description
PFSV-D54-000-R01	Stainless Steel Supporting Foot for 0.5~10 L vessel

Composite Vessel Handles

Our stainless steel composite handle is now available as an accessory for you to choose. These handles are specially designed for ease of use when lifting or moving the vessel in facilities with horizontal autoclave or hard to reach area.

Features

- Stainless steel
- Ease of use, no extra tool needed
- Compatible with all types of Winpact vessels

Loading Port

We offer customized feeding loading port according to your need. Whether a larger/smaller diameter or extra ports, we are fully capable of customization based on the specification request. Evaluation upon request.

Features

- Stainless steel construction
- Easy assemble
- Customization available



FS-A-CH-02

FS-A-CH-01



Composite vessel handles for easy vessel lifting



Specification

Cat. No.	PFSV-A05-003-R01
Suitable vessel size	3 - 20 L vessel
Material	316L stainless steel
Dimension	Ø30x L80 (mm)

Cat. No.	PFSV-D55-000-R01	PFSV-A54-003-R01
Suitable vessel size	3 L vessel or less (excluding 1 L)	5 L vessel and above
Material	316L stainless steel	

Cat. No.	PFSV-C86-003-R01	FS-A-LP02
Suitable vessel size	1 L vessel only	3 - 15 L vessel
Material	316L stainless steel	
Dimension	Ø24 x L45 (mm)	Ø30 x L35 (mm)

Specification

Material	316L stainless steel (Vertical T-bar handling)
	304 stainless steel (Horizontal handling ear)
Dimension	55 x 80 x 114 mm (W x L x H) (FS-A-CH-01)
	65 x 80 x 115 mm (W x L x H) (FS-A-CH-02)
Loading weight	30 kg / per handle

Ordering Information

Cat. No.	Product Description
FS-A-CH-01	Composite Handle for vessel size 0.5 L, 1 L, 3 L, 5 L and 10 L (2 per set)
FS-A-CH-02	Composite Handle for vessel size 15 L and 20 L (2 per set)

Ordering Information

Cat. No.	Product Description
PFSV-A05-003-R01	Twin Loading Port for 3 L-20 L vessel
PFSV-D55-000-R01	Microbial large inoculation port, suitable for 3 L vessel only
PFSV-A54-003-R01	Microbial large inoculation port, suitable for 5 L vessel and above.
PFSV-C86-003-R01	Quad Loading Port for 1 L vessel
FS-A-LP02	Quad Loading Port for 3 L~20 L vessel

■ Feeding Bottle Loading Port

We offer customized feeding bottle loading port according to your need. Whether a larger/ smaller diameter or extra ports, we are fully capable of customization based on the specification upon request.



■ Vessel Stand

Our customized vessel stand provides a suitable and stable home due to various restrictions from the autoclave. The vessel can be set at an angle to fit the autoclave height restrictions.



Vessel Stand



Consumable Parts

Ordering Information

Cat. No.	Product Description
FS-A-SK	Winpact Evo Fermentation System Start-up Kit, for 1 vessel (3 L or more)
FS-A-SK01	250 ml Glass Feeding Bottle, Includes Two Stainless Steel Connecting Ports, Cap, and Silicone Washer
FS-A-SK02	500 ml Glass Feeding Bottle, Includes Two Stainless Steel Connecting Ports, Cap, and Silicone Washer
FS-A-SK03	50 mm, 0.2 µm Autoclavable Disc Filter, 10 /pk
FS-A-SK04	50 mm, 4.5 µm (L) Stainless Steel Connecting Tube, 15 /pk
FS-A-SK05	Handy Burner
FS-A-SK06	Silicone Tubing Clamp, 20 /pk
FS-A-SK07	2 mm Hex Wrench
FS-A-SK08	12 mm & 14 mm Double Open-end Wrench
FS-A-SK09	Crosshead(+) Screwdriver
FS-A-SK10	Two Stainless Steel Loading Ports, includes cap and silicon washer
FS-A-SK11	Winpact One Fermentation System Start-up Kit for 1 vessel (3L or more)
FS-A-SK17	Winpact Evo Fermentation System Start-up Kit for 1 vessel (1L or less)
FS-A-SK18	Winpact One Fermentation System Start-up Kit for 1 vessel (1L or less)
FS-A-SK19	Winpact Parallel Fermentation System Start-up Kit for 2 vessel (1L or less)
FS-A-SK20	Winpact Parallel Fermentation System Start-up Kit for 2 vessel (3L or more)
FS-A-SK21	Winpact Parallel Fermentation System Start-up Kit for 1 vessel (1L or less) and 1 vessel (3L or more)
FS-A-SK25	Winpact Solid state Fermentation System Start-up Kit
MU-S13	Silicone Tube, I.D. 1/32" (0.8 mm) 25 ft (7.6 m)
MU-S14	Silicone Tube, I.D. 1/16" (1.6 mm) 25 ft (7.6 m)
MU-S16	Silicone Tube, I.D. 1/8" (3.1 mm) 25 ft (7.6 m)
MU-S25	Silicone Tube, I.D. 3/16" (4.8 mm) 25 ft (7.6 m)

Consumable Kit Ordering Information

Cat. No.	Product Description
FS-A-CK-AS5	FS-V-AS5 Consumables Kit, including O-rings, Silicone Tubes, Silicone Stopper, Connector and Cap
FS-A-CK-A01-CPC	FS-V-A01 Consumables Kit (CPC), including O-rings, Silicone tubes, Silicone stopper, CPC connector and Cap
FS-A-CK-A03-CPC	FS-V-A03 Consumables Kit (CPC), including O-ring, Silicone tube, Mechanical seal, Silicone stopper, CPC Connector, Cap
FS-A-CK-A05-CPC	FS-V-A05 Consumables Kit (CPC), including O-ring, Silicone tube, Mechanical seal, Silicone stopper, CPC Connector, Cap
FS-A-CK-A10-CPC	FS-V-A10 Consumables Kit (CPC), including O-ring, Silicone tube, Mechanical seal, Silicone stopper, CPC Connector, Cap
FS-A-CK-B01-CPC	FS-V-B01 Consumables Kit (CPC), including O-rings, Silicone tubes and Silicone stopper
FS-A-CK-B03-CPC	FS-V-B03 Consumable Kit (CPC), including O-ring, Silicone tube, Mechanical seal
FS-A-CK-B05-CPC	FS-V-B05 Consumable Kit (CPC), including O-ring, Silicone stopper, Silicon tube, Mechanical seal
FS-A-CK-B10-CPC	FS-V-B10 Consumable Kit (CPC), including O-ring, Silicone stopper, Silicon tube, Mechanical seal
FS-A-CK-B15-CPC	FS-V-B15 Consumable kit (CPC), including O-ring, Silicone stopper, Silicon tube, Mechanical seal
FS-A-CK-B20-CPC	FS-V-B20 Consumable Kit (CPC), including O-ring, Silicone stopper, Silicon tube, Mechanical seal
FS-A-CK-C053-CPC	FS-V-C053 Consumable Kit (CPC), including O-ring, Silicone washers, Silicone tube, Silicone stopper, CPC Connector, Cap
FS-A-CK-C054-CPC	FS-V-C054 Consumable Kit (CPC), including O-ring, Silicone washers, Silicone tube, Silicone stopper, CPC Connector, Cap
FS-A-CK-D03-CPC	FS-V-D03 Consumable Kit (CPC), including O-ring, Silicone tube, Mechanical seal
FS-A-CK-D05-CPC	FS-V-D05 Consumable Kit (CPC), including O-ring, Silicone tube, Mechanical seal, Silicone stopper
FS-A-CK-D10-CPC	FS-V-D10 Consumable Kit (CPC), including O-ring, Silicone tube, Mechanical seal, Silicone stopper
FS-A-CK-SA05-CPC	FS-V-SA05 Consumable Kit (CPC), including O-rings, PTFE scrapers, Bearings, Mechanical seal

Tubing Order Information

Silicon Tubing Specifications				
Cat. No.	MU-S13	MU-S14	MU-S16	MU-S25
Inner Diameter Inches. (mm)	0.03(0.8)	0.06(1.6)	0.12(3.1)	0.19(4.8)
Hose Barb Size Inches. (mm)	1/16(1.6)	1/16(1.6)	1/8(3.2)	3/16(4.8)
Flow Range With 6 To 600rpm Drive (ml/min)	0.36 to 36	1.3 to 130	4.8 to 480	10 to 1000
Maximum Pressure, Continuous	25psig (1.7bar)			20psig (1.4bar)
Maximum Pressure, Intermittent	40psig (2.7bar)			35psig (2.4bar)
Maximum Vacuum	26" Hg (660mm Hg)			
Suction Lift	29ft H ₂ O (8.8m H ₂ O)			

Winpact Chiller

The Winpact Chiller series is Major Science's newest addition to the bioprocessing technology portfolio to provide precise temperature control and excellent cooling performance for your fermentation needs and beyond. The recirculating chillers are compactly designed and require very little space; the built-on wheels offer an added bonus of mobility to any space-conscious labs. With a low procurement cost, it is your best option to stray away from costly tap water and is the perfect alternative for basic cooling needs.



CE

Features

- Compact design
- Overheat protection
- LED display with PID control of 0.1°C resolution
- Self-diagnosed abnormality function
- Delayed resume compressor protection
- Jetstream forced-flow circulation



Digital controller for easy operation

Specification

Cat. No.	WCC-100	WCC-101
Display	LED Display	
Temperature control range	0°C to +100°C	
Temperature stability	± 0.5°C at 20°C	
Temperature accuracy	± 0.5°C at 20°C	
Controller	PID control, PT100 sensor	
Setting / display resolution	± 0.1°C	
Cooling capacity (Medium Ethanol)	1900 BTU/h @ 0°C	
Pump capacity flow rate (L/min)	5.5 L/min	
Hydraulic head	2.5 meter	
Pump capacity flow pressure (bar)	0.19 bar	
Pump connections	1/4" silicone tubing	
Barbed fittings diameter (inner dia. / mm)	6.35 mm or 1/4"	
Bath capacity	10 L	
Refrigerant	CFC free refrigerants-R134a	
Operating temperature	+20°C~+40°C	
Operating humidity	Max.80%	
Rated voltage	110V; 60Hz, 14.5A	220V; 50Hz, 8A
Chamber material	304 stainless steel	
Bath inner dimension (W x L x H)	9.25"x11.61"x5.90" (235x295x150 mm)	
External material	Powder coating	
Compressor	1/4 HP	
Dimension (W x L x H)	13.39"x22.04"x26.38" (340x560x670 mm)	
Weight	Approx. 110.2 lb (50 kg)	
Safety device	- Self-diagnosed abnormality display - Electronic overheating thermal fuse protection in increments of 0.1°C - Delayed resume compressor protection	
Circulation volume	Cycles up to 5.5 L/min cooling system with delayed resume protection after power outage	
Circulation type	Jet stream flow forced circulation, can be accessed through the outer loop	
Power	1000W	

Ordering Information

Cat. No.	Product Description
WCC-100	Winpact Chiller, 110V
WCC-101	Winpact Chiller, 220V



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