



version 1.0

**WP**  
Winpact

# 2017 BROCHURE

**Bioreactor / Fermentor**





## Winpact Chiller



WCC-100  
WCC-101



Cat. No.	WCC-100	WCC-101
Display	LED display	
Power	1000W	
Bath capacity	10L	
Chamber Material	SUS#304	
Controller	PID control, PT100 sensor	
Temperature control range	0°C to +100°C	
Temperature stability	± 0.5°C at 20°C	
Temperature accuracy	± 0.5°C at 20°C	
Rated voltage	110V; 60Hz, 14.5A	220V; 50Hz, 8A
Safety device	<ul style="list-style-type: none"> <li>• Self-diagnosed abnormality display</li> <li>• Electronic overheating thermal fuse protection in increments of 0.1°C</li> <li>• Delayed resume compressor protection</li> </ul>	
Circulation volume	Cycles up to 5.5L/min cooling system with delayed resume protection after power outage	
Dimension (cm) (WxLxH)	Approx. 34x56x67	

## Laboratory Bioreactor / Fermentor

### Winpact Parallel (FS-05 Series)



### Winpact One (FS-06 Series)

- Control up to eight (8) systems from a single interface

- Control up to sixteen (16) systems from a single interface



1L Double Jacketed Vessel

FS-05



10L Single Wall Vessel  
with Heating base unit



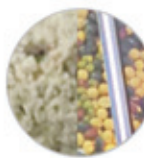
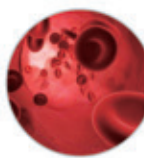
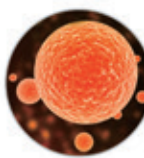
1L Double  
Jacketed Vessel



1L Single  
Wall Vessel



FS-06



### Winpact Evo (FS-07 Series)

- Control up to sixteen (16) systems from a single interface



FS-07



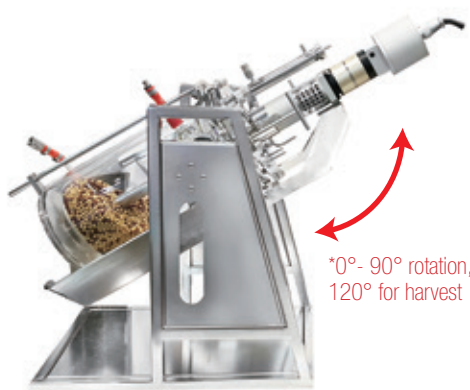
5L Air Lifter Vessel



5L Single Wall Vessel  
with Heating blanket



Front view




Side view


\*0° - 90° rotation,  
120° for harvest


- Fully integrated system specifically designed for solid-state fermentation research involving saccharification, hydrolysis and more
- Programmable angle-adjustable vessel tilting and stirring mechanism permits superior sample homogeneity
- Reduced stickiness design of impellers ensure sample integrity throughout the fermentation run
- Integrated motor shaft & air sparger assembly creates precise, disturbance-free controls of aeration and mixing
- Chemically resistant double jacketed borosilicate glass vessel design
- Customizable impeller and aeration controller available


\*For more information, please contact your local distributors.





	Vessel type	Double Jacketed Dish Bottom Vessel (FS-V-A series)					
	Material	Borosilicate glass / 316L stainless steel for headplate and all fittings					
	Working volume **	500ml	1L	3L	5L	10L	
	Total volume Δ	1L	1.5L	3.8L	6.8L	12.5L	

	Vessel type	Single Wall Dish Bottom Vessel (FS-V-B series)					
	Material	Borosilicate glass / 316L stainless steel for headplate and all fittings					
	Working volume **	1L	3L	5L	10L		
	Total volume Δ	1.5L	3.8L	6.8L	12.5L		

	Vessel type	Air Lifter Vessel (FS-V-C series)					
	Material	Borosilicate glass / 316L stainless steel for headplate and all fittings					
	Working volume **	5L single wall			5L double jacketed		
	Total volume Δ	7L					

	Vessel type	Single Wall Dish Bottom Vessel With Heating Blanket (FS-V-B series)					
	Material	Borosilicate glass / 316L stainless steel for headplate and all fittings					
	Working volume **	1L	3L	5L	10L	15L	20L
	Total volume Δ	1.5L	3.8L	6.8L	12.5L	18.7L	23.7L

	Vessel type	Single Wall Plain Bottom Vessel With Heating Base Unit (FS-V-D series)					
	Material	Borosilicate glass / 316L stainless steel for headplate and all fittings					
	Working volume **	3L		5L		10L	
	Total volume Δ	3.7L		6.7L		13.1L	

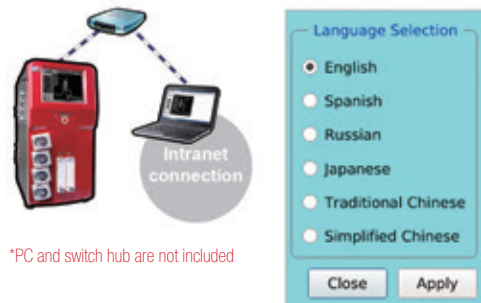
	Vessel type	Soled State (FS-V-D05P)					
	Material	Borosilicate glass / 316L stainless steel for headplate and all fittings					
	Working volume **	5L					
	Total volume Δ	6.8L					

\*\* Suggested Max.

Δ Total volumes are approximate and may vary slightly.

- Winpack \*\*EZScript software for advanced fermentation process(optional)

\*\* Winpack EZScript is a command software specifically designed with user-define programming capability to optimize and control of your process.



\*PC and switch hub are not included



Multi-language operation interface (Russian language)



Charting

Real-time data recording and exporting



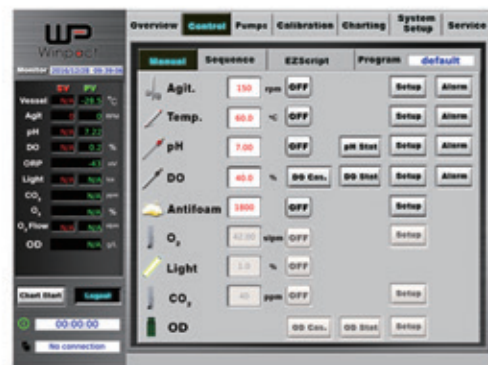
System Setup

Set up for optional devices



Calibration

Easy sensor calibration with help menu



Control / Manual

Performs manual, sequence or EZScript control(optional) of each parameter.



Control / Sequence



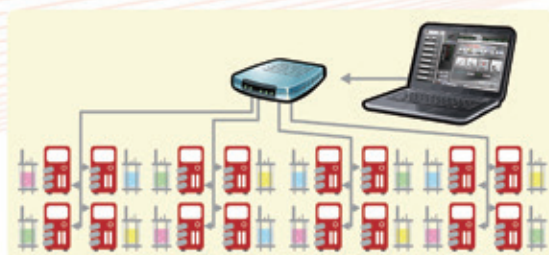
Pumps

Control speed, direction, total volume and flow rate

\*Technical specification subject to change without notice.

\*Please visit our website at [www.majorsci.com](http://www.majorsci.com) for more product selection and detailed information.

## Duo Heating Control: FS-05 / FS-06 / FS-07 series



- These Winpack controllers can operate with all types of vessels
- Compatible with microbial and cell culture applications
- Intuitive user-interface for short learning curve with multi-language support
- Ethernet communication with Winpack SCADA software, and IP addressing



### Controller Specification

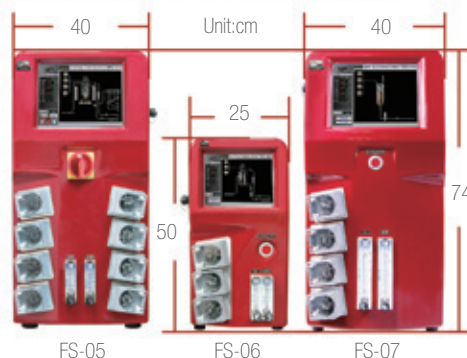
Controller	Duo heating control ( FS-05, FS-06, FS-07 )					
Vessel	Double Jacketed (FS-V-A series)	Single Wall (FS-V-B series)	Air Lifter (FS-V-C series)	Single Wall with Heating Blanket (FS-V-B series)	Single Wall with Heating Base Unit (FS-V-D series)	Solid State
Agitation motor	Brushless motor	Brushless motor	N/A	Brushless motor	Brushless motor	Brushless motor
Impeller*	Rushton-type	Rushton-type	N/A	Rushton-type	Rushton-type	Multi-Type
Temp range	5 °C above coolant to 60°C	5 °C above coolant to 60°C	5 °C above coolant to 60°C	5°C above coolant to 60°C	5°C above coolant to 90°C	5°C above coolant to 60°C
Vessel size	500 ml - 10 L	1 - 10 L	5 L only, single or double jacketed	1 - 20 L	3 - 10 L	5 L
Speed range	30 - 1,200 rpm (500 ml - 5 L) 30 - 1,000 rpm (10 L)	30 - 1,200 rpm (1 - 5 L) 30 - 1,000 rpm (10 L)	N/A	30 - 1,200 rpm (1 - 5 L) 30 - 1,000 rpm (10 L) 30 - 700 rpm (15, 20 L)	30 - 1,200 rpm (3 - 5 L) 30 - 1,000 rpm (10 L)	1 - 60 rpm
Heating	Built-in heat exchanger			Heating blanket	Heating base unit	Built-in heat exchanger
Cooling	External chiller, automatic cooling water valve					
Aeration	Orifice ring sparger	Orifice ring sparger	PTFE micro sparger	Orifice ring sparger	Orifice ring sparger	Grounding port: shaft sparger
Grounding port	No need	No need	Yes	No need	No need	No need
Application	Excellent for temperature sensitive and shear-force sensitive cells such as mammalian and insect cell culture	Great for aerobic or anaerobic microbial culture; suitable for plant cell and photosynthesis cell culture	Excellent for shear-sensitive cells; ideal for plant cells, fungal cells, algae cell and photosynthesis cell culture	Ideal for rapid temperature change aerobic and anaerobic microbial (bacteria and yeast) fermentation	Excellent for aerobic and anaerobic microbial (bacteria, yeast) culture, such as E.coli	Special for the culture of microbial in substrates with low water levels condition , generally suitable for fungi, such as filamentous fungi

\*For cell culture, it is equipped with pitched blade.

### Winpack Controller Selection Guide

Model	FS-05	FS-06	FS-06 + FS-06EPM*	FS-07
Product name	Winpack Parallel	Winpack One	Winpack One	Winpack Evo
Heating system	Duo heating			
Working volume range	500 ml - 20 L	500 ml - 10 L	500 ml - 10 L	500 ml - 20 L
Autoclavable glass vessels	Yes			
Interchangeable vessels	All types			
Number of vessels controlled per controller	2	1	1	1
Number of vessels controlled via remote software	Max 16			
Touchscreen controller	10.4"	8"	8"	10.4"
Number of peristaltic pumps	8	3	3	4
Gas mixing options	Available	No	Available, *	Available
Oxygen enrichment	Available	No	Available, *	Available
Mass flow controller	Available	No	No	Available
Off gas analyzer	Available	No	No	Available
ORP probe	Available	No	Available, *	Available
Lighting module	Available	No	Available, *	Available
External pump	Multiple	1 max.	2 max.	Multiple
Solid State	No	No	No	Available

\* Optional expansion module (FS-06-EPM) needed.



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## Vessel Application

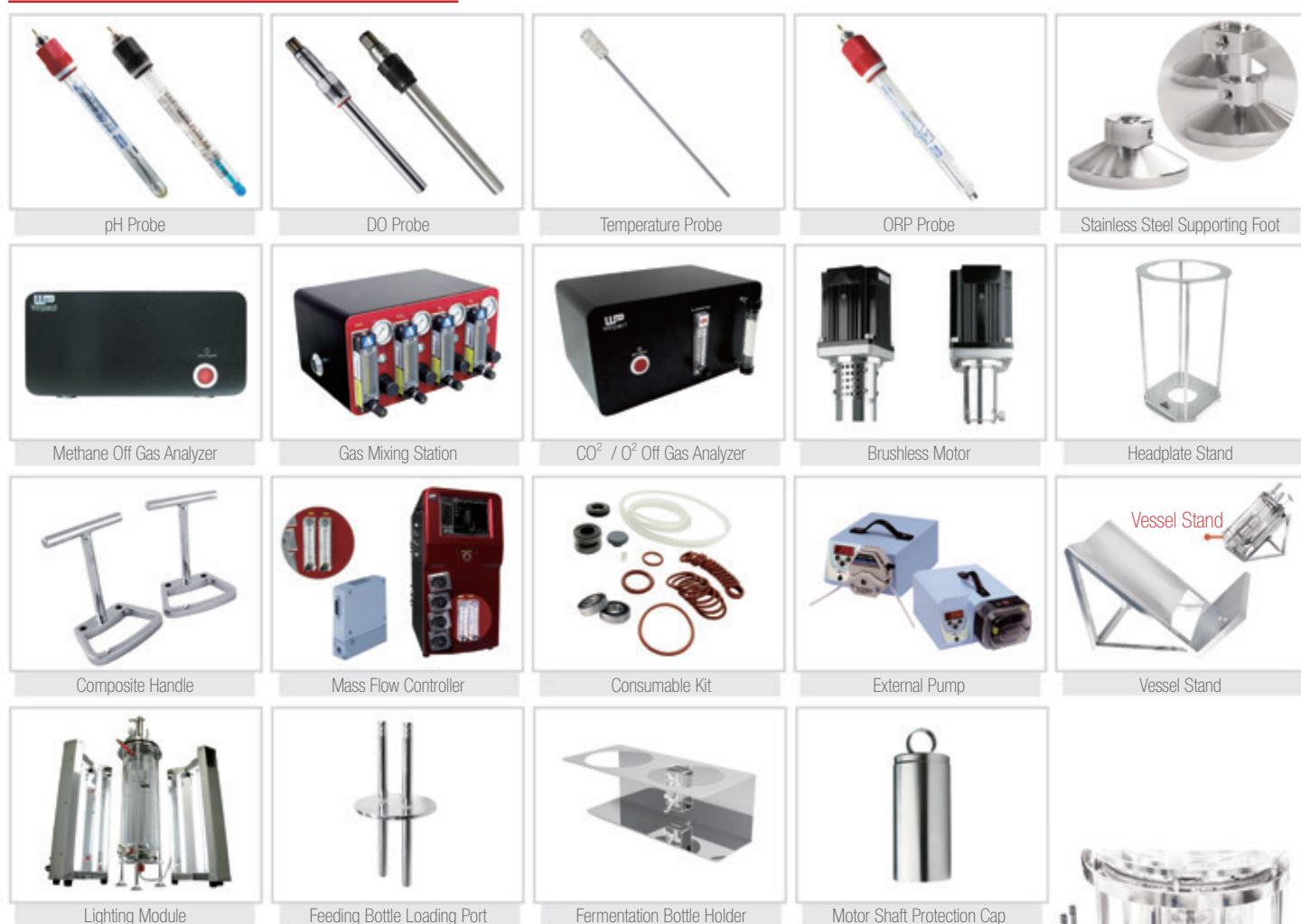
Application \ Vessel	FS-V-A series	FS-V-Bseries	FS-V-C series	FS-V-B series	FS-V-D series	FS-07-SA05P
	Double Jacketed Dish Bottom Vessel	Single Wall Dish Bottom Vessel	Air Lifter Vessel	Single Wall Dish Bottom Vessel with Heating Blanket	Single Wall Plain Bottom Vessel with Heating Base Unit	Solid State
Mammalian cell culture	● ●	● ○	○ ○	● ○	○ ○	○ ○
Aerobic microorganism culture (Note 1)	● ●	● ●	● ●	● ●	● ●	○ ○
Micro-aerobic microorganism culture (Note 2)	● ●	● ●	○ ○	● ●	● ●	○ ○
Anaerobic microorganism culture (Note 3)	● ●	● ●	○ ○	● ●	● ●	○ ○
Fragile cell culture (Note 4)	● ●	● ○	● ●	● ○	○ ○	○ ○
Photosynthesis cell culture (Note 5)	● ○	● ●	● ●	○ ○	● ○	○ ○
Plant cell culture	● ○	● ○	● ●	○ ○	○ ○	○ ○
Insect cell culture	● ●	● ○	○ ○	● ○	○ ○	○ ○
Solid state / semi-solid state	○ ○	○ ○	○ ○	○ ○	○ ○	● ●

● ● Excellent      ● ○ Good      ○ ○ Not recommended

Note:

1. Some bacteria; yeast; fungi
2. Facultative culture (For example, some Lactobacillus; ethanol production)
3. Same as Note 2
4. This vessel is excellent for fragile cells that are easily sheared by any type of mechanical impeller
5. Plant; algae; cyanobacteria (blue-green algae)

## Optional Devices and Accessories



### Other Optional Devices:

- Antifoam Probe
- Impellers
  - Rushton 6 blade impeller
  - Pitched blade impeller
  - Foam breaker impeller
  - Broken type Impeller (5L only)
  - Paddle type Impeller (5L only)
  - Spiral type Impeller (5L only)
  - Skeleton type Impeller (5L only)
- Sampling Devices
  - Triport sampling device
  - Dual ports sampling device
  - Ball valve sampling device
  - Pneumatic sampling device
- EZScript Software
- Optical Density Sensor modules
- Perfusion system
- Quad Loading Port
- Stainless Steel Condenser
- Protective double jacket 5 liter vessel cover in sterilization

\*Please contact Major Science for more information on Other Optional Devices.



# SIP Fermentation System (Production Scale)

Sterilization-in-place

Mechanical seal lubricate and automatic cooling device

Harvest valve  
Sanitary level  
diaphragm valve

Detachable aseptic  
feeding device

Pump

**WP**  
Winpact

100L System

500L System

1000L System

200L System

- Pneumatic valves for accurate and automatic control
- Orbital welding provides top quality



Monitor page for operation overview

Automatic and manual operation

Automatic sterilization process

Online system calibration

Capacity	10 L	30 L	50 L	100 L	200 L	500 L	1000 L
Total volume	15 L	42 L	67 L	120 L	268 L	700 L	1500 L
Working volume	10 L	30 L	50 L	100 L	200 L	500 L	1000 L
Vessel and jacket maximum working pressure	3 bar (43.5 psig) / 4 bar (58 psig)			3 bar (43.5 psig) / 3 bar (43.5 psig)			
Type	Double layered fully enclosed capsule-type tank			Double layered fully enclosed capsule-type tank, with an outer temperature protective layer			
Material	Direct contact to medium - 316L stainless steel; all others - 304 stainless steel						
Surface finish	Interior polish ≤ 25 Ra/in (0.6 μm) Mechanical polishing; Electropolish optional Exterior polish ≤ 32 Ra/in (0.8 μm) Mechanical polishing; Electropolish optional						

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# SIP Fermentation System (Pilot Scale)

## 10L / 30L / 50L System

### Motor

Manual or automatic control of constant agitation speed

### Peristaltic Pump

Uses four Watson Marlow built-in peristaltic pumps for all your feeding needs

### Stainless Steel Vessel

Special designed heating jacket provides better heating efficiency

Harvest valve sterilizable, diaphragm-type tank bottom valve for sanitary post-process harvest

### Control Station

Large screen and graphical user interface

Sampling valve steam-sterilizable valve permits repeatedly sanitary sample collection

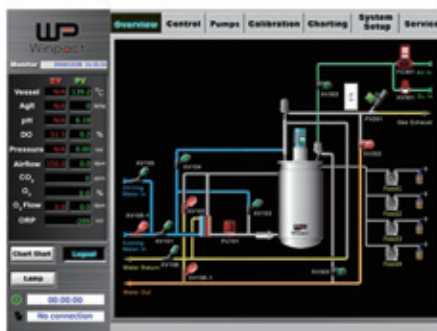
### Features

- Wide range of vessel selection, from 10 L to 50 L working volume
- Multi-lingual 10.4" and above colored graphical control interface
- Fully automated process with remote monitoring
- 15-step automatic program setting
- Orbital welding ensures minimal residue buildup
- Highest grade construction with 316L stainless steel
- Jacket design provides astounding temperature control
- Exhaust pressure relief valve for maximum safety precaution
- Multiple safety design integration for peace of mind operation
- Remote monitoring & controlling software free from purchase
- Password protection for multiple users with customized access levels
- Various optional devices for process optimization and needs
- Ethernet communication with Winpack SCADA software, and IP address

\* All images are for reference only, actual products might differ from the pictures above.

Four-staged DO cascade

15-Step programmable PID control



Immediate visualization on operation overview



Easy and intuitive operation for manual and sequence control



One-Touch automatic sterilization for vessel and system tubings



Online system calibration with system feedback



System expansion with various optional devices

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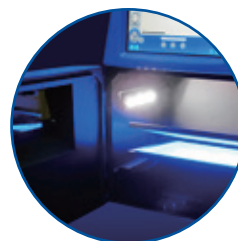
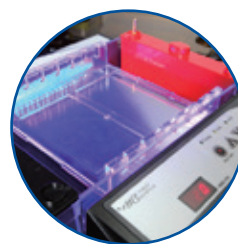
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