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Fermentor

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Fermentor for Microorganism M-1000A・1000B

Small capacity fermentor for basic data acquisition.

M-1000A M-1000B

Features

- Simple operation fermentor suitable for acquisition of basic data.
  Provided with sumpling and system buildup possibility for measurement and control.
- Bath capacity 1.5L and 2.5L.
- Magnetic drive non-seal rotation system reduces contamination.
- Strong stirring force provides stable stirring for samples with variable viscosity.

Specifications

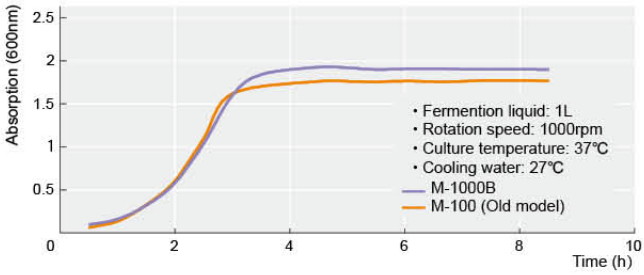
Product Name	Fermentor for Microorganism	
Model	M-1000A	M-1000B
Cat. No.	249000	249010
Temp. control range	Cooled water temp. +5～60℃	
Temp. control accuracy	±0.2℃ (with external cooling device)	
Rotation speed	80～1000rpm	
Time setting & accumulated time	0～99h59min., 1～9999h	
Temp. control system	Bath base heater, Cooling water circulation in pipe	
Safety function	Self diagnosis, Independent overheat protector, Fuse	
Timer	Auto start, Auto stop	
Stirring motor	40W	
Bath dimensions (mm)	ID114 x 160H	ID131 x 186H
Bath capacity	1.5L	2.5L
Dimensions & weight	197W x 284D x 595H 13ka	197W x 284D x 620H 14kg
Power source	300VA AC100V	

Point! Strong stirring

Air inlet by strong stirring force is suitable for fermenting of microorganism.

Data

■Bacillus coli fermentation test



System example

1.5L System for measuring pH, DO.

2.5 L High grade fermentation system

Product name	Model	Cat. No.
Fermentor for Microorganism	M-1000A	249000
pH sensor	PH-1A	249720
Cable for pH sensor	PH-C1A	249750
DO sensor	DO-4P	199190
Cable for DO sensor	DO-CIp	199850
Measuring box	mk (PH, DO)	250360
Aeration unit	MAU-1D	138370

Product name	Model	Cat. No.
Fermentor for Microorganism	M-1000B	249010
pH sensor	PH-2P	188440
Cable for pH sensor	PH-CIn	138670
DO sensor	DO-4P	199190
Cable for DO sensor	DO-CIp	199850
Bubble sensor	AF-1	139010
pH controller	FC-2000	160890
DO controller	FM-2000	160900
AF controller	MZ-2000	160910
Pump box	FB-2000-2	161070
Valb flow box	FF-3500	199160
Stacking frame	FK-2000	161100
Aeration unit	MAU-1D	138370

Fermentor for Microorganism MBF-ME

Water-jacketed fermentor assures culturing of thermally sensitive microbes.

MBF-300ME MBF-250ME MBF-500ME

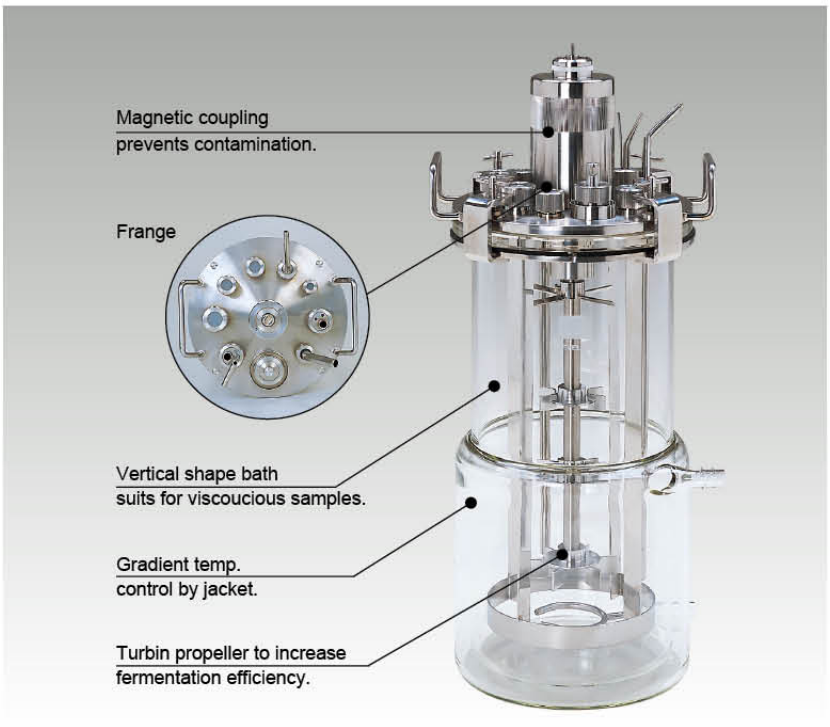
Features

- Constant temperature bath is built-in in main unit. Constant temperature water ensures fermantation of thermally sensitive microbes.
- Safety features include overheat protector, empty heating prevention and sensor break detector.
- Magnetic coupling of the stirring unit prevents contamination.
- Strong stirring force provides stable stirring for samples with variable viscosity.

Specifications

Product Name	Fermentor for Microorganism (Mini jar fermentor)				
Model	**MBF-300ME**	**MBF-250ME**	**MBF-500ME**	**MBF-800ME**	**MBF-1000ME**
Cat. No.	**181180**	**135820**	**135830**	**135840**	**135850**
Temp. control method	Jacket type hot water circulation				Hot water in pipe
Temp. control range	Cooled water temp. +5～60℃				
Rotation speed	80～800rpm				
Rotation speed setting & display	Volume setting & analog meter				
Temp. control system	Bath base heater, Cooling water circulation in pipe				
Heater	300W				
Stirring motor	60W	40W		100W	
Bath dimensions (mm)	ID143 x 195H	ID114 x 262H	ID143 x 332H	ID168 x 370H	ID168 x 382H
Bath capacity	3L	2.5L	5L	8L	10L
Dimensions (mm)	300W x 470D x 715H	300W x 470D x 865H		400W x 560D x 850H	
Weight	34kg	35kg		40kg	
Power source	500VA AC100V	440VA AC100V		550VA AC100V	

Stirring unit composition



■Stirring（MBF-300ME）

Stirring observation

Option

■Process control unit
Unit can be used independently or in combined system.

■Low temperature bath NCB
Used for temperature control of fermentation bath.

■Autoclave Sterilizer LSX, LBS

Can sterilize MBF Fermentor by high pressure steam.

Two systems available, door opening system and slide door system.

Two units can be placed in parrarel for simultaneous operation (Door openint type)

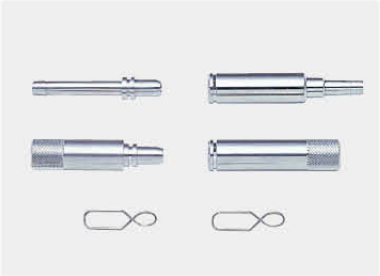
Provided with work monitor, operation pre-setting, bath steam pressure minor adjustment and door interlock.

■Measuring & control unit mK
Module type unit for pH, DO,, AF

Simple function and simple operation process realizes efficient measurement and control.

Control function covers pH, DO and AF.

Controller can be used independently or in box type with pH and DO control.



■Aseptic joint
OD: 2mm, 3mm, 6mm, 8mm

One touch joint offers sterilization by fire.

■Sensors
For pH, DO, ORP

■Aeration unit MAU
Stable air supply to Fermentor with relief valve.

■Nitrogen gas generator
Nitrogen gas generator to control gas density with built-in compressor.

02B: N2 gas volume 0.6～4L
05B: N2 gas volume 1～5L

■Sampling tube MST

Process Controller for Fermentor

Modular type control units make it posible to build up measuring and control functions fit to required culturing.

Features

- Dimensions of each control unit is uniform.
  Required measurment and control is feasible by just stacking necessary units.
  Connection between units is just by connector and power cord.
- Each unit is microprocessor controlled with LCD backlight.
- Each controller is provided with RS-232 EYELA TALK connector.
  Communication with network controller is possible.

FC-2000

■Ph controller

Minimum scale 0.01
Control output with interval timer
Tenperature compensation function

FM-2000

■DO controller

PPM and % control is possible.
Temperature compensation and interval timer

FO-2000

■ORP Controller

Control range -1000～+1000mV
Interval timer and alarm output

MZ-2000

■Bubble/water surface controller

With interval timer

FA-2000

■Flow rate & stirring controller

Air volume and stirring controll is possible.

FF-2500

■Mass flow box

Controls air flow to fit to DO value.
3 flow volumes available.

FF-3500

■Bulb flow box

3 flow volumes available.

FB-2000-2

■Pump box

Injects bulb suppresser like acid or alkali.

■Ph, DO, ORP controller, Bulb/water sauface controller

Product name	pH controller	DO controller	ORP controller	Bulb/water surface controller
Model	FC-2000	FM-2000	FO-2000	MZ-2000
Cat. No.	160890	160900	160920	160910
Control range	0.00～14.00 (pH)	0.0～20.0 ppm or 0.0～100.0%	-1000～+1000mV	0.5～5MΩ
Control output	No voltage connection output (SSR) AC264V Max. 1.5A			
	2 channel	3 channel	2 channel	1 channel
Dimensions(mm)& weight	144W x 370D x 72H 3.5kg			
Power souce	50VA AC100V			

■Flow/stirring controller

Product name	Flow/stirring controller
Model	FA-2000
Cat. No.	160930
Applicable unit	Flow; FF-2500
	Stirring; MBF-ME
Power souce	50VA AC100V

■Mass flow box, Bulb flow box

Product name	Mass Flow Box	Bulb Flow Box
Model	FF-2500	FF-3500
Cat. No.	Refer below table	
Type	0.5•2•10L/min	
Control input	From FA-2000	From FM-2000
Flow control range	2～100% (Full scale)	0～100%(Step setting)
Dimensions (mm)	144W x 350D x 72H	
Power souce	0.3A 30VA AC100V	0.7A 70VA AC100V

■Pump box

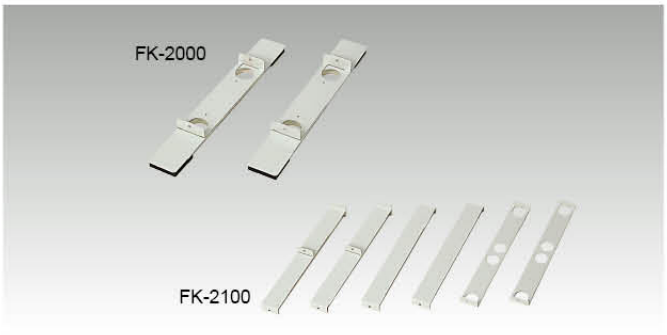
Product name	Pump Box	
Model	FB-2000-1	FB-2000-2
Cat. No.	161060	161070
Control input	From FC-2000, FO-2000, MZ-2000	
Pump	1 unit	2 units
Dimensions (mm)	144W x 370D x 144H	
Power souce	0.04A 4VA AC100V	0.07A 7VA AC100V

Model	Max. flow	Cat. No.
FF-2500-A	0.5L/min	199120
FF-2500-B	2L/min	199130
FF-2500-C	10L/min	199140
FF-3500-A	0.5L/min	199150
FF-3500-B	2L/min	199160
FF-3500-C	10L/min	199170

■Stacking Frame

Product name	Stacking Frame	
Model	FK-2000	FK-2100
Cat. No.	161100	161110
Low	1 low	2 low

■FK-2000, FK-2100



Product name	Stacking Frame	
Model	FK-2000	FK-2100
Cat. No.	161100	161110
Application	One line	Two lines

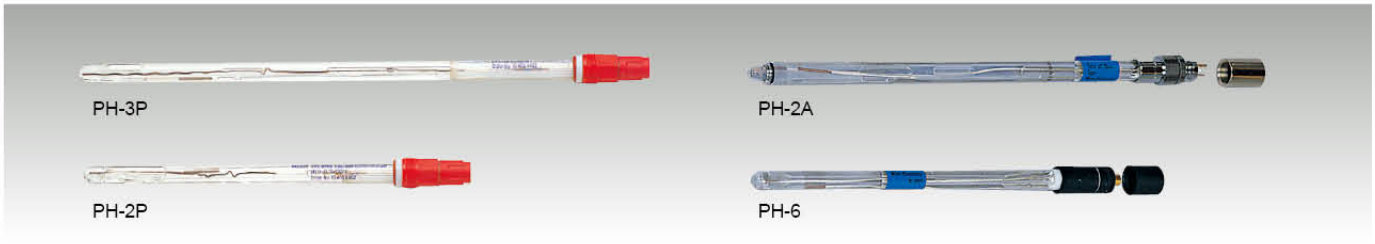
■Recoder

REC-7

Product name	Recorder
Model	REC-7
Cat. No.	172170
Measuring point	6
Input	DC0～10mV
Chart speed	10•20•40mm/h
Dimensions (mm)	144W x 380D x 144H
Power souce	0.1A 10VA AC100V

* REC-7FT: With heat changer
  Cat. No. 178950

Electrode for fermentors
pH, ORP



pH Sensor

pH Sensor				Connection cord		Applicable fermentor
Model	Cat. No.	OD (mm)	Length (mm)	Model	Cat. No.	
PH-2P	188440	12	225	PH-CIn	138670	MBF-250・300ME, M-1000B
PH-3P	188450		325			MBF-500・800・1000
PH-1A	249720	12.3	180	PH-C1A	249750	M-1000A
PH-2A	249730		250			MBF-250ME
PH-5A	249740	12.3	320			MBF-500・800・1000ME

Option

pH electrod liquid

Model	PH-E
Cat. No.	138700
Sensor	PH-1A・2A・4・5A・6

Calibration standard liquid

PH4	PH7	PH9
138710	138720	138730

Washer

pH electrode washer	pH diaphragm washer
138740	138750

ORP Sensor

Length (mm)				Connection cord		Applicable fermentor
Model	Cat. No.	OD (mm)	ORP Sensor	Model	Cat. No.	
ORP-1	138940	12.1	180	ORP-C	138990	M-1000A
ORP-2	138950	12.1	250			MBF-250・300ME
ORP-5	138970	12.1	320			MBF-500・800・1000ME
ORP-2P	234820	12	225	PH-CIn	138670	MBF-250・300ME, M-1000B
ORP-5P	234830	12	325			MBF-500・800・1000ME

Electrode for fermentors
DO・AF・T

DO Sensor

Length (mm)				Connection cord		Applicable fermentor
Model	Cat. No.	OD (mm)	Length (mm)	Model	Cat. No.	
DO-4P	199190	12	220	DO-Cip	199850	M-1000B
DO-5P	199200	12	320			MBF-800・1000ME
DO-1A	249760	15.8	180			MBF-300ME, M-1000A
DO-2A	249770		250	DO-C1A	249790	MBF-250ME
DO-5A	249780		320			MBF-500・800・1000ME

Option

DO electrod liquid

DO-E	DO-Ein
138880	138890
DO-1A・2A・4・5A・6	DO-3P～6P

DO Membrane

DO-M1	DO-M2
138900	138910
DO-1A・2A・5A	DO-4・6
10 pcs	

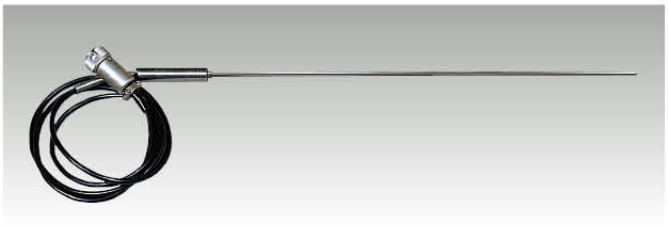
Membrane kit

Membrane kit
209730
DO-3P～6P
4 membrane, 25mL liquid

Bubble Sensor

Model	Cat. No.	OD (mm)	Detector L (mm)	Applicable fermentor
AF-1	139010	7	130	M-1000A
AF-3	139020	7	195	MBF-250・300・500・800・1000ME, M-1000B

Temperature Sensor



Model	Cat. No.	OD (mm)	Detector L (mm)	Applicable fermentor
T-1	139040	3.22	210	M-1000A・B