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Shaker

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Water Bath Shaker NTS-4000A·4000B·4000C

Highly durable and silent shaking mechanism.

Three types, 7 models available to cover small/large volume samples.

Three heater output available. 300W (L type), 700W (M type), 1300W (H type).

Simultaneous operation of 4 units (300W) or 2 units (700W) is possible by 15A outlet.

+80°C
+10°C



NTS-4000A



NTS-4000B



NTS-4000C

Features

- Temperature, shaking speed and shaking time are controlled by microprocessor. Microprocessor controls every setting and stops heating/shaking when sensor detects abnormal signal. Shaking time integration function is provided.
- With newly designed shaking mechanism, low noise level (less 55dB) is realized.
- Auto-start and auto-stop function is provided as standard. 4 step program function is also provided to realize auto-start with different setting after one sequence shaking.
- Anti bacteria stainless steel bath can be dismantled for cleaning. The unit is equipped with drain cock and water in the bath can easily be drained after shaking.
- Slow-up function prevents bath water overflowing.
- One touch mounting/dismounting of both shaking chamber and water bath.

Specifications

Product Name	Water Bath Shaker						
Model	NTS-4000AL	NTS-4000AM	NTS-4000BL	NTS-4000BM	NTS-4000BH	NTS-4000CM	NTS-4000CH
Cat. No.	211850/211858	211869/211868	211870/211878	211889/219888	211890	211900/211908	211910
Shaking method	Reciprocating shaking						
Temp. setting range	10~80°C						
Temp. control accuracy	±0.1 (at 37°C)						
Shaking speed & stroke	20~180rpm·25mm		20~160rpm·25mm			20~140rpm·40mm	
Temp. control range	RT+5°C~60°C	RT+5°C~80°C	RT+5°C~40°C	RT+5°C~60°C	RT+5°C~80°C	RT+5°C~40°C	RT+5°C~70°C
Temp. control	Microprocessor P.I.D. control, Auto tuning function						
Temp. setting & display	Sheetkey input·digital setting & display, min. setting 0.1°C						
Program	Auto start, Auto stop, Step program						
Heater	300W (SUS316L)	700W (SUS316L)	300W (SUS316L)	700W (SUS316L)	1300W (SUS316L)	700W (SUS316L)	1300W (SUS316L)
Safety features	Self diagnosis (Heater brake, Sensor error, Limit temp. alarm, Motor malfunction), Empty heating protection, Independent over heating protection, Leak/over current breaker, Fuse						
Shaking chamber size (mm)	Shelf OD 150W x 220D		Shelf OD 230W x 280D			Shelf OD 380W x 388D	
	Shelf ID 130W x 199D		Shelf ID 210W x 259D			Shelf ID 360W x 350D	
Dimensions (mm) & weight	220W x 490D x 342H 18.5kg		330W x 540D x 342H 22.5kg			450W x 660D x 442H 36.5kg	
Power source	350VA AC100V 770VA AC220V	750VA AC115V 1.7kVA AC220V	350VA AC115V 770VA AC220V	750VA AC115V 1.5kVA AC220V	1.35kVA AC100V	800VA AC100V 1.7kVA AC220V	1.4kVA AC100V

Point!

One touch mounting/detaching of shaking chamber.

Stainless bath can also be detached by one touch for easy cleaning.



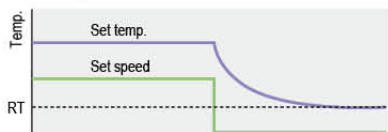
Drain cock is provided for easy draining of remaining water in bath after shaking.

Program operation

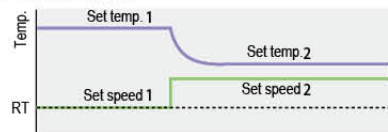
■ Auto start



■ Auto stop



■ Step program

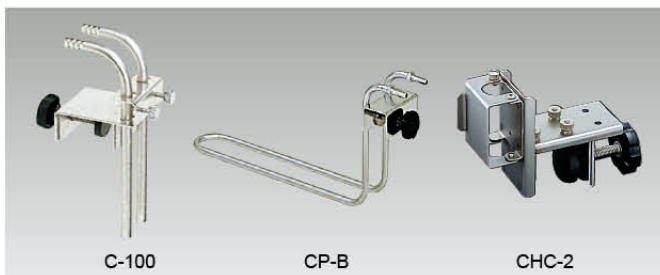


■ Mountable vessel according to shelf

Vessel	Shelf	Shelf (Standard)			Shelf (Option)			
		NTS-4000A	NTS-4000B	NTS-4000C	NTS-4000A	NTS-4000B	NTS-4000A	NTS-4000B
					Shelf for micro tube		Shelf for test tube	
				MTR-1.5A	MTR-1.5B	SSR-A	SSR-B	
Micro tube	1.5mL	—	—	—	54	120	—	—
Test tube	φ12	84	180	(289)	—	—	45	80
	φ16.5	39	90	289	—	—	23	40
Centrifugal tube	50mL	12	30	(72)	—	—	11	20
	50mL	8	20	(49)	—	—	—	—
Triangular flask	100mL	6	12	(25)	—	—	—	—
	200mL	3	8	(16)	—	—	—	—
	300mL	2	6	16	—	—	—	—
	500mL	1	4	9	—	—	—	—
	1L	0	1	4	—	—	—	—
	2L	0	0	2	—	—	—	—

※ () is possible by changing height of bottom plate.

Options



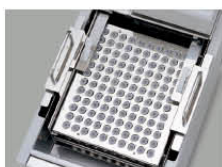
Circulation hose clamp, Cooling pipe, Cooler clamp

Product name	Model	Cat. No.	Applicable	Cooling circulator
Cooling hose clamp	C-100	113200	NTS-4000B	—
	C-300	113220	NTS-4000C	—
Cooling pipe	CP-B	211920	NTS-4000B	Nozzle dia. 10.5mm
	CP-C	211930	NTS-4000C	
Cooler clamp	CHC-2	181840	NTS-4000B NTS-4000C	ECS-0SS



Bath cover

Model	Cat. No.	Applicable
RBC-A	212020	NTS-4000A
RBC-B	212030	NTS-4000B
RBC-C	212040	NTS-4000C



Shelf for microtube

Application	Model	Cat. No.	Applicable
1.5mL 54 vessels	MTR-1.5A	211980	NTS-4000A
1.5mL 120 vessels	MTR-1.5B	212000	NTS-4000B
Shelf support (2 pcs)	SRS-A	211960	NTS-4000A
	SRS-B	212010	NTS-4000B



Sliding shelf for test tube

Application	Model	Cat. No.	Applicable
Shelf for 11-45 tubes	SSR-A	211940	NTS-4000A
Shelf for 20-80 tubes	SSR-B	211950	NTS-4000B
Shelf support (2 pcs)	SRS-A	211960	NTS-4000A
	SRS-B	212010	NTS-4000B

- 1 Rotary Evaporator
- 2 Vacuum Pump & Aspirator
- 3 Organic Synthesizer
- 4 Freeze Dryer / Spray Dryer
- 5 Shaker
- 6 Stirrer
- 7 Tube Pump
- 8 Low Temperature Circulator
- 9 Cold Trap
- 10 Constant Temperature Bath
- 11 Incubator
- 12 Oven
- 13 Fermentor

Multi Shaker MMS-410•4010•310•3010

Stable, gentle and effective 8-shaped shaking; MMS-410

8-shaped, reciprocating or orbit shaking; MMS-4010

Reciprocating or orbit shaking by one touch change lever; MMS-310•3010



MMS-410



MMS-4010



MMS-310



MMS-3010

Features

- The unit can be installed in constant temperature chamber FMC•FMS series or in incubator SLI•LTI•FLI series.
- 8-shaped low speed shaking provides smooth and stable shaking suitable for cleaning of gels and membrane. It is also suitable for ELISA reaction or western blot reaction study.
- Wide selection of shaking speed;
 - 20~120rpm (MMS-410)
 - 20~200rpm (MMS-4010 reciprocating and orbit shaking)
 - 20~120rpm (MMS-4010 8-shaped shaking)
 - 20~250rpm (MMS-310•3010)

Specifications

Product Name	Multi Shaker			
Model	MMS-410	MMS-4010	MMS-310	MMS-3010
Cat. No.	242050	242060	190980/190988	190990/190998
Shaking method	8-shaped	Reciprocating, orbit 8-shaped	Reciprocating, orbit	
Shaking speed & stroke	20~120rpm, 40mm	20~200rpm (reciprocating & orbit), 20~120rpm (8-shaped), 40mm	20~250rpm, 25mm	
Shaking speed setting & display	Volume setting & digital display			
Maximum load	5kg	8kg	5kg	8kg
Dimensions (mm)	356W x 329D x 150H	456W x 379D x 150H	356W x 329D x 150H	456W x 379D x 150H
Power source	30VA AC100V		30VA AC100V/66VA AC220V	

Multi Shaker MMS-110•210•510•5010

Selectable speed and container for multipurpose testing; MMS-110•210

Wide range of shaking speed from 20rpm to 450rpm; MMS-510•5010



MMS-110



MMS-210



MMS-510



MMS-5010

Features

- Reciprocating shaking; MMS-110
- Orbital shaking; MMS-210•510•5010
- The unit can be installed in constant temperature chamber FMC•FMS series or in incubator SLI•LTI•FLI series.
- Digital display of integrated shaking time.
- Wide selection of shaking speed;
 - 20~250rpm (MMS-110•210)
 - 20~450rpm (MMS-510•5010)

Specifications

Product Name	Multi Shaker			
Model	MMS-110	MMS-210	MMS-510	MMS-5010
Cat. No.	192780/192788	192780/192798	194480	194530
Shaking method	Reciprocating		Orbit	
Shaking speed & stroke	20~250rpm, 25mm		20~450rpm, 25mm	
Shaking speed setting & display	Volume setting & digital display			
Maximum load	5kg		2.5~5kg	4.6~8kg
Dimensions (mm)	356W x 329D x 150H		356W x 329D x 140H	456W x 379D x 145H
Power source	30VA AC100V/66VA AC220V		30VA AC100V	

Testing Shaker MMS-3011



MMS-3011



With centrifugal tube



With 2 stage shaking base (Option)

Features

- Exclusive use for allergens and pesticide residue ELISA measurement.
- Shaking base for 50mL centrifugal tube x 24 is included as standard.
By using 2 stage shaking base (option), 48 centrifugal tubes can be mounted.
- Digital setting and display of shaking speed.
- Digital display of integrated shaking time.

Specifications

Product Name	Testing Shaker
Model	MMS-3011
Cat. No.	217930
Shaking method	Reciprocating
Shaking speed & stroke	20~250rpm, 30mm
Shaking speed setting & display	Volume setting & digital display
Shaking base	50mL centrifugal tube x 24
Dimensions (mm) & weight	456W x 379D x 175H 23kg
Power source	30VA AC100V

Incubate Shaker MMS-1



MMS-1

Features

- Compact and low cost personal shaker.
- Shaking base is wide enough (280Wx150Dmm) to accommodate test tube or micro tube with rack.
- Wide observation window is provided.

Specifications

Product Name	Incubate Shaker
Model	MMS-1
Cat. No.	140460
Shaking method	Reciprocating
Shaking speed & stroke	20~160rpm, 25mm
Inner Dimensions (mm)	315W x 220D x 170H
Dimensions (mm) & weight	482W x 260D x 280H 14kg
Power source	90VA AC100V

Constant Temp. Chamber for shakers FMC·FMS series



FMC-100

FMS-1000

Features

- Accommodates shakers in the chamber; for both small centrifugal tube and large triangle flask.
Can also be used as incubator when shaker is not installed in chamber.
- Shaker of 400Wx340Dmm can be installed in chamber (FMC-100, FMS-100), or 500Wx390Dmm shaker (FMC-1000, FMS-1000).
- Front/rear sliding base plate makes it easy to place or take out shakers or vessels.
- Equipped with refrigerator to secure constant temperature between 4~50°C (FMC).

Specifications

Product Name	Constant Temp. Chamber for shaker			
	FMC-100	FMC-1000	FMS-100	FMS-1000
Model	FMC-100	FMC-1000	FMS-100	FMS-1000
Cat. No.	195240/195248	195250/195258	191060/191068	191070/191978
Circulation system	Forced air natural convection			
Temp. control range	4~50°C		RT+5~50°C	
Temp. control accuracy	±0.2°C			
Inner Dimensions (mm)	425W x 430D x 455H	525W x 480D x 455H	425W x 430D x 490H	525W x 480D x 520H
Heater	600W	650W	600W	
Dimensions (mm) & weight	495W x 585D x 810H 74kg	595W x 635D x 810H 87kg	610W x 540D x 640H 45kg	710W x 590D x 670H 55kg
Power source	940VA AC100V/2kVA AC220V		690VA AC100V/1.5kVA AC220V	

1 Rotary Evaporator

2 Vacuum Pump & Aspirator

3 Organic Synthesizer

4 Freeze Dryer - Spray Dryer

5 Shaker

6 Stirrer

7 Tube Pump

8 Low Temperature Cooler

9 Cold Trap

10 Constant Temperature Bath

11 Incubator

12 Oven

13 Fermentor

High Speed Mixer CM-1000

For extracting DNA and RNA, mixing and melting reagents, and ELISA experiments.



CM-1000

Features

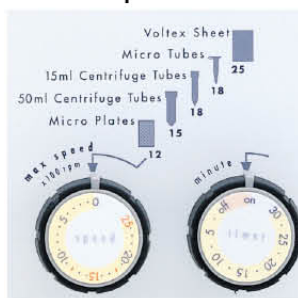
- Seven types of tube rack available according to applications.
- Can be used as tube mixer for DNA and RNA extraction.
- One touch rack mounting.
- Rack for micro tube is two staged to save space.
- Three color variations.
- Equipped with 30 minutes timer.

Specifications

Product Name	High speed mixer
Model	CM-1000
Cat. No.	188140
Shaking method	Orbital shaking
Shaking speed	300 ~ 2500rpm
Shaking stroke	3mm
Shaking speed setting	Volume setting
Applicable tubes	Micro tube 0.5mLx24, 1.5mLx24, 2.0mLx24, Centrifugal tube 15mLx12, 50mLx6, Microplate x2, Deep well plate x1, Voltex sheet
Shaker max. load	1kg
Dimensions (mm) & Weight	150W x 157D x 133H 4.5kg
Power source	50VA AC100V

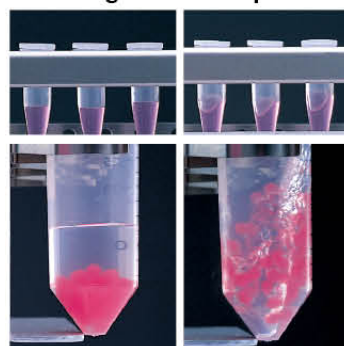


Control panel



Rotation speed according to tube will be displayed. Equipped with 30 min. timer.

Stirring without dispersion



Stop

Stirring

Option



Rack

Product name	Model	Cat. No.
50mL centrifugal tube rack (6 tubes)	CM-R50	188170
15mL centrifugal tube rack (12 tubes)	CM-R15	188180
Deep well rack (1 stage)	CM-RD	192310
Micro plate rack (2 stage)	CM-RP	188190
1.5mL tube rack (24 tubes)	CM-R1.5	188160
0.5mL tube rack (24 tubes)	CM-R0.5	188150
Voltex rack (spnge plate)	CM-RV	188200

Multi Funnel Shaker MMV-1000W

Inclined shaker for increased mixing efficiency.
One touch mounting of separation funnel.



Features

- Shaking angle can be adjusted from vertical (90°C) to inclined angle (70°C) which provides increased mixing efficiency.
- One touch mounting of separation funnel by constant load spring system.
- Low operation noise level (less than 55dB at 200rpm).
- Steplessly variable shaking speed and digital speed display.
- Setting of the desired shaking speed with high reproducibility.
- Two operation modes; Timer operation (999.9min.) and continuous operation.
- Slow up & down function reduces shock to separation funnel.

Specifications

Product Name	Multi Funnel Shaker
Model	MMV-1000W
Cat. No.	205100/205108
Shaking method	Two sides vertical & inclined shaking (90~70°C variable)
Shaking speed	Vertical: 20~300rpm Inclined: 20~250rpm
Shaking stroke	40mm (fixed)
Shaking speed setting & display	Volume setting & digital display
Additional functions	Slow up & down Digital timer (0.1~999.9min)
Motor	DC brushless motor 90W
Max. load	5.5kg
Dimensions (mm) & Weight	600W x 400D x 430H 44kg
Power source	250VA AC100V/550VA AC220V



Vertical shaking and inclined shaking to realize highly efficient mixing (200rpm).

Options



Separation funnel holder
Standard type (50mL~1L)
Cat. No. 205110

Large type (50mL~3L)
Cat. No. 205120

Applications

- Endocrine disturbing chemicals
- Food
- Pesticide residue
- Industrial and trade waste, soil
- Aquatic contamination

Separation funnel & mountable number

Capacity (mL)	Separation funnel Shape	Holder (option)		Max. mountable No. (on both sides)
		Standard	Large	
50	Round	●	●	10
	Pear shaped	●	●	10
100	Round	●	●	10
	Pear shaped	●	●	10
200	Round	●	●	6
	Pear shaped	●	●	10
300	Round	●	●	6
	Pear shaped	●	●	6
500	Round	●	●	6
	Pear shaped	●	●	6
1000	Round	●	●	6
	Pear shaped	●	●	6
2000	Round	—	●	4
	Pear shaped	—	●	4
3000	Round	—	●	2

Rotary Evaporator 1

Vacuum Pump & Aspirator 2

Organic Synthesizer 3

Freeze Dryer - Spray Dryer 4

Shaker 5

Stirrer 6

Tube Pump 7

Low Temperature Cooler 8

Cold Trap 9

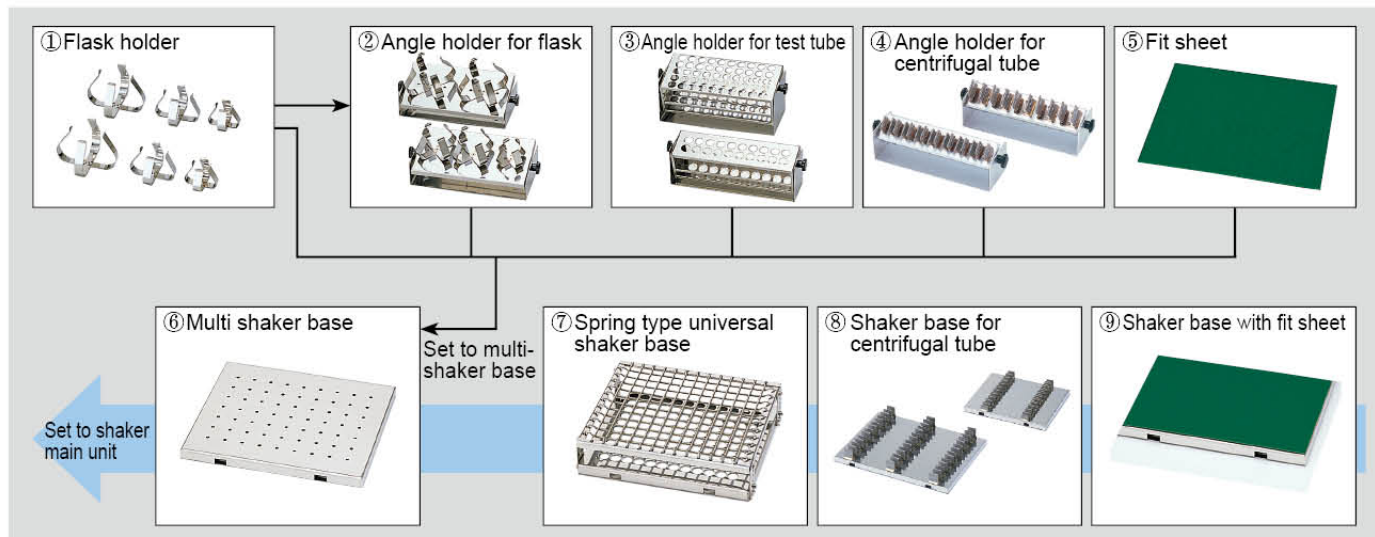
Constant Temperature Bath 10

Incubator 11

Oven 12

Fermentor 13

Options for shaker MMS series



① Flask holder

Model	Flask capacity	Cat. NO.	Weight (g)	mountable number	
				MMS-110 • 210 • 310 • 410 • 510	MMS-3010 • 4010 • 5010
MMS CLAMP	50mL	140170	10	20	35 (20)
	100mL	140180	20	10	18 (10)
	200mL	140190	40	9	12
	300mL R	140200	50	5	10
	500mL R	140210	60	4	6
	1L R	140220	70	2	4
	2L RH	140230	80	1	2
MMS HI-CLAMP (high speed shaking)	3L RH	140240	90	1	2
	200mL R	194510	50	9 (6)	12 (6)
	300mL RH	194580	65	5 (4)	10 (4)
	500mL RH	194590	70	4 (2)	6 (2)

* Flask capacity: Blue figure character is for maximum shaking speed 400rpm and black figure is for 250rpm.

R: with ring spring
RH: with ring spring and flask holder rubber.

② Angle holder for flask

Model	MMS FKH-S	MMS FKH-L	
Cat. No.	140290	140300	
Applicable unit	All models of MMS		
Triangular flask	50mL	4	5
	100mL	3	4
	200mL	2	3
	300mL	2	2
	500mL	1	2

③ Angle holder for test tube

Model	MMS TST-A	MMS TST-B	MMS TST-C	MMS TST-D
Cat. No.	140250	140260	140270	140280
Applicable unit	All models of MMS			
No. of test tube	Φ12mm×50	Φ16.5mm×20	Φ16.5mm×50	Φ18mm×20

④ Angle holder for centrifugal tube

Model	MMS-FKH15	MMS-FKH50
Cat. No.	194500	194570
Applicable unit	All models of MMS	

⑤ Fit sheet

Model	MMS SHEET-S	MMS SHEET-L
Cat. No.	140150	140160
Applicable unit	MMS-110 • 210 • 310 • 410 • 510	MMS-3010 • 4010 • 5010

⑥ Multi shaker base

Model	MMS BASE-S	MMS BASE-L	
Cat. No.	140110	140120	
Applicable unit	MMS-110 • 210 • 310 • 410 • 510	MMS-3010 • 4010 • 5010	
Angle holder for centrifugal tube	FKH-15	3 (2)	4 (3)
	FKH-50	3 (2)	4 (3)
Angle holder for test tube	TST-A	2	3
	TST-B	3	4
	TST-C	2	3
Angle holder for flask	TST-D	3	4
	FKH-S	2	3
	FKH-L	2	3

⑦ Spring type universal shaker base

Model	MMS TRAY-S	MMS TRAY-L	
Cat. No.	140090	140100	
Applicable unit	MMS-110 • 210 • 310 • 410 • 510	MMS-3010 • 4010 • 5010	
Test tube	Φ16mm	120	204
	50mL	20	24
Triangular flask	100mL	10	20
	200mL	9	12
	300mL	5	9
Angle holder for flask	500mL	4	6
	1L	2	3
	2L	1	2

⑧ Shaker base for centrifugal tube (15mL)

Model	MMS BASE-S15	MMS BASE-L15
Cat. No.	194490	194560
Applicable unit	MMS-110 • 210 • 310 • 410 • 510	MMS-3010 • 4010 • 5010
No. of mountable tube	22	36

⑧ Shaker base for centrifugal tube (50mL)

Model	MMS BASE-S50	MMS BASE-L50
Cat. No.	194540	194560
Applicable unit	MMS-110 • 210 • 310 • 410 • 510	MMS-3010 • 4010 • 5010
No. of mountable tube	12	21

⑨ Shaker base with fit sheet

Model	MMS FIT-S	MMS FIT-L
Cat. No.	140130	140140
Applicable unit	MMS-110 • 210 • 310 • 410 • 510	MMS-3010 • 4010 • 5010
No. of mountable tube	Φ50mm×6, Φ90mm×5	Φ50mm×12, Φ90mm×8