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Water bath Shaking Water bath Immersion cooler

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Unit Water bath

Unit Water bath

Thermominder SDminiN



Thermominder SDN-B EXN-B



Thermominder SM-05N/SJ-07N SX-10N/SH-10N SP-12N



Personal-11-SDN set EXN set SM set



•Optional accessories Monode kit



Personal Lt10F-SX set Personal H-10-SH set



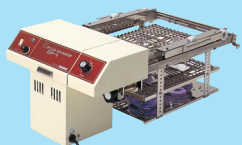
Shaking Water bath (Large size)

Water bath Shaker MM-10 Cool bath Shaker ML-10F



Combination type Shaking Water bath

Plus Shaker EP-1



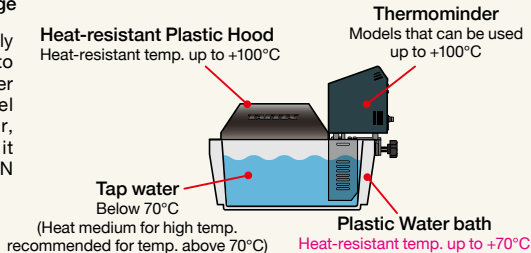
Immersion cooler

Cool pipe series



Combination and Temperature range

For example, up to +70°C can actually be used in this combination. Up to 95°C can be raised when the water bath is changed to stainless steel insulated water bath. Moreover, up to 100°C can be raised when it is changed to the model SX-10N (Thermominder set up to 105°C).



Page	Model	Features	Applications
P.130	SDminiN	•Low price	<ul style="list-style-type: none"> •Various incubations such as Enzyme reaction •Temporarily Incubation of Culture medium •Inactivation of Serum
P.131	SDN-B	•Low water level	
	EXN-B	•Low water level, High Temp. accuracy	
P.132	SM-05N	•Economy	
	SJ-07N	•Standard	
	SX-10N	•High Specifications	
	SH-10N	•High Temperature	
	SP-12N	•External Circulation	•Circulation to Capillary of Evaporator

Bench-top Shaking Water bath that can be used for many applications

Page	Model	Features	Applications
P.136	Personal-11-SDN set	•Standard	<ul style="list-style-type: none"> •Small-scale Culture of Microbe such as E. coli •Various incubations such as Enzyme reaction •Hybridization
	Personal-11-EXN set	•High Temp. accuracy	
	Personal-11-SM set	•Power saving, Low price	
P.137	MD-1218	•Monode kit for Personal-11	•Shake culture using L-shaped Test tube
P.138	Personal Lt-10F-SX set	•Low-temperature type	<ul style="list-style-type: none"> •Cultivation of microbe such as Psychrophilic bacteria •Various incubations such as Enzyme reaction
	Personal H-10-SH set	•High-temperature type	<ul style="list-style-type: none"> •Cultivation of microbe such as Thermophilic bacteria •Various incubations such as Enzyme reaction

The "long time seller" Large Integrated type shaking constant temp. bath

Page	Model	Features	Applications
P.140	MM-10	•Standard	<ul style="list-style-type: none"> •Cultivation of Microbe such as E. coli •Various incubations such as Enzyme reaction
	ML-10F	•Low-temperature type	<ul style="list-style-type: none"> •Cultivation of Microbe such as E. coli •Various incubations such as Enzyme reaction •Ames test [ML-10F with PU-6N, Some Modifications are required]

Add Shake to Unit Water bath at a low price

Page	Model	Features	Applications
P.142	EP-1	•Shaking unit	<ul style="list-style-type: none"> •Cultivation of Microbe such as E. coli •Various incubations such as Enzyme reaction •Hybridization

Simple cooling. Low temp. constant temp. bath by combination.

Page	Model	Features	Applications
P.144	80LF	•Easy to insert the tip of cooling pipe in the object for use.	<ul style="list-style-type: none"> •Combined with Constant temperature Water bath •Cooling for Trap container and Reaction container •Cooling for Samples
	150LF	•Cooling pipe is made of stainless steel and has movable flexibility.	
P.145	250DF	•Cooling function, but without the Temperature control function.	

•Can achieve the max (min) temp. with the optional combination and then it is limited conversely (see left figure). "(Substantial) operational temp. ranges show each product and temp. ranges that can be achieved by optional selection.

(*1)The operational temp. ranges of each product are shown when the included plastic water bath C-type (heat resistant temp: 70°C) used. (SDN/EXN-B comes with the Heat insulation bath B-type so heat resistant temp. is not a problem. 70°C cannot be achieved due to the heat radiation when the hood is not used).

(*2)SDminiN cannot be combined with coolers such as the Cool pipe. Use it inside a low temp room around 4°C when low temp. is required. For other models, use antifreeze solution when the temp. is below 7°C. Please note that it is not recommended to operate at high temp. with antifreeze liquid as it is.

(*3)SH-10N is compatible with heat medium for high temp. Be sure to use it above 100°C (recommended from above 70°C). Because other models are not compatible with heat medium for high temp, the upper limit is 90°C to 100°C even when heat insulation water bath is used.

•The higher the heater output, the faster the heating speed.

	Settable temp. range	(Realistic) Temperature range			Temp. control accuracy	Heater	Page
		Thermominder only (With the standard accessory Water bath) (*1)	Used with Thermal Insulation water bath and Hood or Lid	Lower limit when immersion cooler added shown in the left (*2)			
	•-20°C to +80°C	5°C above Room temperature to +70°C	•5°C above Room temp. to 80°C	•Around +10°C	•±0.1°C	•500 W	P.130
	•-20°C to +100°C		•5°C above Room temp. to about +95°C	•-20°C	•±0.1 to 0.3°C	•800 W	
	•-20°C to +100°C		•5°C above Room temp. to about +95°C		•±0.02 to 0.08°C	•800 W	
	•-20°C to +85°C		•5°C above Room temp. to about +85°C		•±0.1°C	•500 W	P.132
	•-20°C to +95°C		•5°C above Room temp. to about +90°C		•±0.1°C	•700 W	
	•-20°C to +105°C		•5°C above Room temp. to about +100°C		•±0.05°C	•1 kW	
	•-20°C to +180°C		•5°C above Room temp. to +180°C (*3)	•±0.1°C	•1 kW		
•-20°C to 100°C	•5°C above Room temp. to about +95°C	•±0.1°C	•1.2 kW				

	Shaking method	Temperature range	Temp. control accuracy	Cooling function	Page
	•Reciprocal	•5°C above Room temperature to +70°C	•±0.1 to 0.3°C	-	P.136
			•±0.02 to 0.08°C	-	
			•±0.1°C	-	
	•Monode	-	-	-	P.137
	•Reciprocal	•-10°C to +50°C	•±0.1°C	✓	P.138
		•5°C above Room temperature to +180°C	•±0.1°C	-	

	Shaking method	Temperature range	Temp. control accuracy	Cooling function	Page
	•Reciprocal	•+5°C above Room temperature to +80°C	•±0.02 to 0.1°C	-	P.140
		•0°C to +50°C	•±0.05 to 0.2°C	✓	

	Shaking method	Temperature range	Temp. control accuracy	Cooling function	Page
	•Reciprocal	*Shaking unit only (temp. control unit and water bath are sold separately)			P.142

	Temperature range	Cooling capacity	Page
	•-10°C to +30°C	•Approx. 150 W	P.144
	•-15°C to +30°C	•Approx. 290 W	
	•-45°C to +30°C	•Approx. 130 W	P.145

[Immersion cooler] Cool pipe series

Can easily make a low temp. bath with the combination of Thermominder. Recommended when you want to freely determine the water bath size.

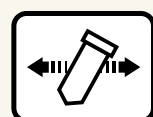


Combination of Thermominder, Immersion cooler, and Stainless steel thermal insulation water bath

Stable shaking

The slow start function avoids sudden shocks at the start of shaking and allows shaking to begin smoothly. The speed can be freely set between 20 and 160 r/min.

Reciprocal shaking



Reciprocating movement in the horizontal direction. Suitable mainly for Test tubes and Centrifuge tubes.

Monode shaking



The most effective shaking motion in culture using L-shaped Test tubes.

Spring net shaking platform in which various vessels can be mounted.

Stainless steel Spring net shaking platform makes it easy to install test tubes and flasks. Moreover, each step height including the bottom plate can be changed according to the vessel sizes (except for Monode shaking type).



NEW

Constant temperature incubator shaker OD Monitor

For cell culture related products

Shaker

Mixer Rotator Stirrer

Bead beater homogenizer Ultrasonic homogenizer

Aluminum block Bath Mini-size Bath

Water bath Shaking Water bath Immersion cooler

Hybridization incubator Constant temperature Chambers

Centrifugal Concentrators Cold Trap
























Freeze dryers

Substrate Electrophoresis apparatus Blotting device for hybridization

Constant-temperature water circulating system [Chilled]

Appendix

Correspondence table of the Unit Water bath "Thermominder" series

	Released in 1992	1993 - 1996	after 1997
Released in 1982	<p>Mini-80 10°C to +80°C Popular edition</p> 	<p>SM-05 0°C to +100°C Popular edition</p> 	<p>SDmini -20°C to +80°C Dedicated for Plastic Water bath</p> 
Released in 1980	<p>Ace-80 0°C to +80°C Temp. control with Electromagnetic Contactor</p> 	<p>Discontinued (SX-10N below is recommended, however, it</p>	
Released in 1988	<p>Jr-100 0°C to +100°C Standard</p> 	<p>SJ-10 0°C to +100°C Standard</p> 	
Released in 1988	<p>Dx-100 0°C to +100°C High Specs</p> 	<p>DX-10 -20°C to +100°C High Specs, Stirring force adjustment</p> 	
Released in 1988	<p>Lt-100 -50°C to +50°C Enables Low temp. setting, High Specs</p> 	<p>Discontinued (All of the current models can be set from -20°C)</p>	
Released in 1988	<p>G-100 0°C to +100°C Remote setting, High Specs</p> 	<p>DG-10 -20°C to +100°C Remote setting, High Specs</p> 	
Released in 1988	<p>H-100 0°C to +180°C High Temp</p> 	<p>DH-12 0°C to +180°C High Temp</p> 	<p>SH-12 0°C to +180°C High Temp</p> 
Released in 1980	<p>P-80 10°C to +100°C External Circulation</p> 	<p>SP-12 0°C to +100°C External Circulation</p> 	
Released in 1988	<p>C-630 0°C to +100°C External Circulation, High Specs, Deep water level</p> 		
Released in 1988	<p>C-650 0°C to +105°C External Circulation, High Specs, Deep water level</p> 		
		<p>SD-B 0°C to 100°C Low water level. For attached water bath</p> 	
		<p>EX-B 0°C to 100°C Low water level, High Specs, For attached water bath</p> 	

- The models on the most right (model names shown in yellow) are currently being produced. Refer to these new models to replace the older models.
- The body color of the actual models is matched with the background color. Please refer to this to identify the model you have.

NEW
 Constant temperature incubator/shaker
 OD Monitor
 For cell culture related products
 Shaker
 Mixer
 Rotator
 Stirrer
 Bead beater
 homogenizer
 Ultrasonic homogenizer
 Aluminum block Bath
 Mini-size Bath
 Water bath
 Shaking Water bath
 Immersion cooler
 Hybridization
 Incubator
 Consistent temperature Chambers
 Centrifugal
 Concentrators
 Cold Trap
 Freeze dryers
 Substrate
 Electrophoresis apparatus
 Blotting device for hybridization
 Constant-temperature
 water circulating system [Chiller]
 Appendix

from the First-generation models to the Latest models

1999	2000 - 2010	2011 - Present
	SM-05R -20°C to +80°C Correspond to optional accessories water bath	SDminiN -20°C to +80°C Correspond to Plastic Water bath C and Stainless steel Thermal insulation Water bath F --> P.130
	SM-05N -20°C to +85°C Correspond to optional accessories water bath	 --> P.132
is not equipped with an Electromagnetic Switch.)		
	SJ-10R -20°C to +80°C Standard	SJ-07N -20°C to +95°C Standard --> P.132
	SX-10R -20°C to +100°C High Specs, Stirring force adjustment	SX-10N -20°C to +105°C High Specs, Stirring force adjustment --> P.132
	Discontinued (The equivalent model is EXN-B below)	
	SP-12R -20°C to +100°C External Circulation	SH-10N -20°C to +180°C High Temp --> P.132
	SP-12N -20°C to +100°C External Circulation --> P.132	
	Discontinued (The equivalent model is SP-12N above)	
	Discontinued (The equivalent model is SP-12N above)	
	SDN-B -20°C to +100°C Low water level, For included water bath --> P.131	
	EXN-B -20°C to +100°C EX-B + Remote setting, etc.	

USER'S VOICE

This table helps you when upgrading from an older model to a current model.



•The temp. range shown is the "Settable temp. range". Immersion cooler, etc. are required for temp. control below RT (25°C). "Operational temp. range" and "Settable temp. range" may be narrow due to the performance of the corresponding optional accessories.

NEW

Constant temperature incubator/shaker
OD Monitor

For cell culture related products

Shaker

Mixer
Rotator
Stirrer

Bead beater
homogenizer
Ultrasonic

Aluminum block Bath
Mini-size Bath

Water bath
Shaking Water bath
Immersion cooler

Hybridization
Incubator
Constant temperature Chambers

Centrifugal Concentrators
Cold Trap

Freeze dryers

Substrate Electroporation apparatus
Blotting device for hybridization

Constant-temperature water-circulating system (Chilled)

Appendix

Thermominder SDminiN

Even water level of 45 mm from the bottom of the bath can be used. With the included Plastic Water bath, it is easy to use. The Optional Thermal insulation Water bath can be combined.

•Optional Combination Examples --> P.135



Corresponds to Low water level



Model	SDminiN
Temperature range (*1)	+5°C above RT to +80°C (*2)
Settable temp. range (*3)	-20°C to +80°C
Temp. control accuracy (*4)	±0.1°C
Stirring method in Bath	Jet flow
Temperature display	Digital (Changeable Preset/Current value)
Timer	Buzzer notification for Preset time Operation OFF Each Setting range: 1 min to 99 h 59 min
Other functions	Buzzer notification when Preset temp. is reached, Automatic tuning
Minimum Water level	45 mm from the bottom of the bath
Heater	500 W (Time proportional output variable)
Safe devices/protections	Circuit protector, Fuse, Dry-heating protection with float, Heater protection cover, Sensor error, Short circuit, High/Low temp. sample protection, Water level alarm, Non-volatile memory error, Automatic tuning error, Alarm setting error
Power failure	Switchable Automatic/Manual recovery
Dimensions inside Bath (WxDxH)	180 × 237 × 155 mm (Occupancy Dim.: 190 × 83 × 147 mm)
Main unit dimensions (WxDxH)	220 × 127 × 235 mm (When Bath C-type is used: 220 × 398 × 262 mm)
Weight	Approx. 3 kg
Power supply/consumption	AC100V/5.5A (Need a step-down transformer) 75 Wh at 37°C (46 Wh when Hood used) (*5)
Standard accessories	Plastic Water bath C-type × 1 pc (*2)

(*1) Max. temperature may not be reached when the optional Hood is not used or depending on the usage conditions. As it is dangerous due to steam when using high temp. with tap water, it is recommended to use our specified Heat medium for High temp. (See page 134). (*2) As the Max. Heat-resistant temperature of bath C-type is up to 70°C, you can use the optional stainless steel insulated bath F-type for above 70°C. (*3) Not equipped with a cooling function. Can be used together with our Chiller/Coolnit, Immersion cooler, etc. at below RT (25°C). (*4) The value under the conditions of RT (25°C), AC 100 V/50 Hz, Capacity 6 liters water, Preset temp. 37°C, and No heat load. (*5) The reference value when the Plastic Water bath C-type and optional Heat-resistant Plastic Hood PF-SDM at each preset temp. used under the condition of *4.

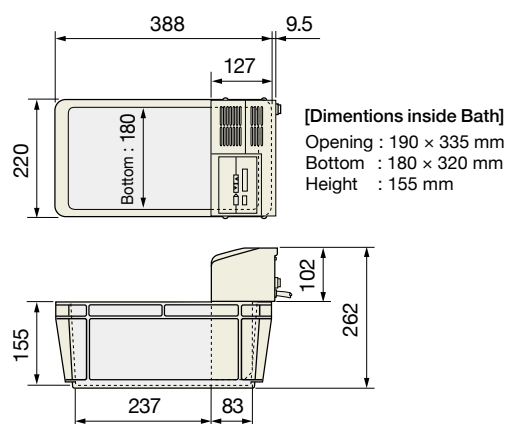
Features

- Low water level of 45 mm is suitable for small vessels
- Simple operation system with Operation OFF Timer
- Optional Heat-resistant Plastic Hood and Thermal insulation Water bath are available

Applications

- Various incubations such as Enzyme reaction
- Temporarily Incubation of Culture medium
- Inactivation of Serum

Dimensions of SDminiN with Plastic Water bath C-type



Optional accessories : Heat-resistant Plastic Hood

Heat-resistant Plastic Hood PF-SDM
Plastic Water bath C
Combination Examples



Description/Model	Remarks
Heat-resistant Plastic Hood PF-SDM	Heat-resistant temp. 100°C. Low power consumption with reduced evaporation. Dedicated for the SDminiN.

Thermominder SDN-B/EXN-B

Even water level of 45 mm from the bottom of the bath can be used. Thermal insulation tray is included. The EXN-B is equipped with Temp. control accuracy with two decimal places and a Timer function.

•Optional Combination Examples --> P.136

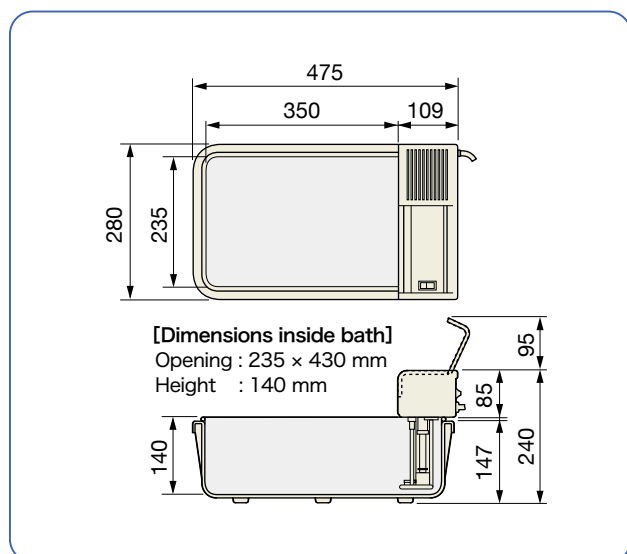
Features

- Low water level of 45 mm is suitable for small vessels
- Simple operation system with Temperature memory
- Comes with a Stainless steel Insulation tray (Water bath)

Applications

- Various incubations such as Enzyme reaction
- Temporarily Incubation of Culture medium
- Inactivation of Serum

Dimensions (Common in all models)



Optional accessories : Heat-resistant Plastic Hood

Heat-resistant Plastic Hood
PF-B
Combination Examples



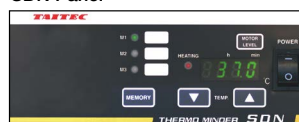
Shaking Water bath
Personal-11
Combination Examples



Description/Model	Remarks
Heat-resistant Plastic Hood PF-B	Low power consumption with reduce evaporation. Designed for SDN-B and EXN-B.
Shaking Water bath Personal-11	The water bath equipped with a shaking function. See page 136 for details.



SDN Panel



EXN Panel



EXN-B with Timer function. 3 steps simple program operation with temperature memory in combination.

The EXN-B is also capable of output by an external recorder, input by an external sensor, etc.

Switch on the back of the main unit



Normal External



Model	SDN-B	EXN-B
Temperature range (*1)	5°C above RT to +70°C	
Settable temp. range (*2)	-20°C to +100°C	
Temp. control accuracy (*3)	±0.1°C to ±0.3°C	±0.02°C to ±0.08°C
Stirring method in Bath	Jet flow	Jet flow (4-level control)
Temperature display/ Temperature memory	Display: Digital (Changeable Preset/Current value) Memory: 3	
Timer	-	Buzzer notification for Preset time Operation OFF/Operation ON Each Setting range: 1 min to 99 h 59 min
Other functions	Buzzer notification when Preset temp. is reached Automatic tuning	Buzzer notification when preset temp. is reached Simple program (3 steps) Safety device output, Temp. input/output (*4) Automatic tuning
Minimum Water level	45 mm from the bottom of the bath	
Heater	800 W	
Safe devices/ protections	Circuit protector, Fuse, Dry-heating protection with float, Sensor error, Short circuit, High/Low temp. sample protection, Water level alarm, Non-volatile memory error, Automatic tuning error, Alarm setting error	
Power failure	Switchable Automatic/Manual recovery	
Dimensions inside Bath (W×D×H)	230 × 350 × 140 mm	
Main unit dimensions (W×D×H)	280 × 109 × 215 mm (When Thermal insulation tray B-type is used: 280 × 475 × 240 mm)	
Weight	Approx. 3 kg (6 kg: Thermal insulation tray B-type is included)	
Power supply/consumption	AC100V/8.5A (Need a step-down transformer)	
Standard accessories	Thermal insulation bath B-type × 1 pc (*5)	

(*1)Max. temp. may not be reached when the optional Hood is not used or depending on the usage conditions. As it is dangerous due to steam when using high temp. with tap water, it is recommended to use our specified Heat medium for High temp. (See page 134) (*2)Not equipped with a cooling function. Can be used together with our Chiller/Coolnit, Immersion cooler, etc. at below RT (25°C). Use our specified Antifreeze fluid (Thermal medium for Low temp. See page 134) when preset temp. is below 7°C. The usage life of the components may be shortened when used at the upper limit temp. (*3)The value under the conditions of RT (25°C), AC100 V/50 Hz, Capacity 6 liters water, Preset temp. 37°C, and No heat load with Thermal insulation tray B-type. For EXN-B, this is an actual measured value (0.01 unit). (*4)Optional Signal cable CA-671 is required to output. Ask us for the Temperature Input. (*5)Thermal insulation bath B-type is sold separately.

We contribute to the development of research and industry.
[General Catalog] **TALTEC**

NEW

Constant-temperature incubator/shaker OD Monitor

For cell culture related products

Shaker

Mixer Rotator Stirrer

Bead beater homogenizer Ultrasonic homogenizer

Aluminum block Bath Mini-size Bath

Water bath Shaking Water bath Immersion cooler

Hybridization Incubator Constant temperature Chambers

Centrifugal Concentrators Cold Trap

Freeze dryers

Substrate Electrophoresis apparatus Blotting device for hybridization

Constant-temperature water circulating system [Chilled]

Appendix

Thermominder SM-05N/SJ-07N/SX-10N/SH-10N/SP-12N

Five models: Economy, Standard, High Specs, High Temp., and External Circulation. Select the most suitable model according to your purpose. Each Power consumption example is described for each model (See below).

•Optional Combination Examples --> P.135 •Shaking Water bath "Personal-11 SM Set" --> P.136



Economy SM-05N **Standard SJ-07N** **High Specs SX-10N** **High Temp SH-10N** **External Circulation SP-12N**
With Heat resistant Plastic Hood (sold separately)

Features

- Comes with a Plastic Water bath, Heat insulation Water bath is available as an option
- Combined with an optional cooler for Low temp. Water bath
- Corresponds to High temp. [SH-10N], External circulation [SP-12N]

Applications

- Various incubations such as Enzyme reaction
- Temporarily Incubation of Culture medium and Serum
- Circulation to Capillary of Evaporator [SP-12N]

Type	Economy	Standard	High Specifications	High Temperature	External Circulation
Model	SM-05N	SJ-07N	SX-10N	SH-10N	SP-12N
Temperature range (*1)	5°C above RT to +85°C	5°C above RT to +95°C	5°C above RT to +105°C	5°C above RT to +180°C	5°C above RT to +100°C
Settable temp. range (*2)	-20°C to +85°C	-20°C to +95°C	-20°C to +105°C	-20°C to +180°C	-20°C to +100°C
Temp. control accuracy (*3)	±0.1°C~		±0.05°C~	±0.1°C~	
External Circulation volume	-				Max. 6.2 L/min (*4)
Stirring method in Bath	Jet flow (Weak)	Jet flow (Controllable)		Jet flow	Jet flow (Controllable)
Temperature memory	-		1 pc	-	
Timer	Buzzer notification for Preset time, Operation OFF, Temp. memory interlock (= Temp. transition timer, only for SX-10N) Setting range: 1 min to 99 h 59 min (Each model)				
Other functions	Buzzer notification when preset temp. is reached, Automatic tuning, Safety device output (SM-05N is excluded. Alarm out cable AOC-2 is required to output.)				
Min. Water level	55 mm from the bottom of the bath, 80 mm from the bottom of the bath			70% to 80% of Bath water capacity is maintained	
Heater	500 W (Time proportional output variable)	700 W (Time proportional output variable)	1000 W (Time proportional output variable)	1000 W (Time proportional output variable)	1200 W (Time proportional output variable)
Safe devices/ protections	Circuit protector, Fuse, Dry-heating protection with float, Heater protection cover, Sensor error, Short circuit, High/Low temp. sample protection, Water level alarm, Nonvolatile memory error, Automatic tuning error, Alarm setting error				
Power failure	Switchable Automatic/Manual recovery				
Dimensions inside Bath (WxDxH)	130 × 66 × 135 mm			130 × 75 × 137 mm	130 × 85 × 145 mm
Main unit dimensions (WxDxH)	130 × 135 × 304 mm			130 × 165 × 302 mm	130 × 164 × 315 mm
Weight	Approx. 3.4 kg			Approx. 5 kg	
Power supply	AC100V/5.5A (Need a step-down transformer) (*5)	AC100V/7.5A (Need a step-down transformer) (*5)	AC100V/10.5A (Need a step-down transformer) (*5)	AC100V/11A (Need a step-down transformer) (*6)	AC100V/13A (Need a step-down transformer) (*6)
Standard accessories	Microtube Floater × 1 pc, Plastic Water bath C-type × 1 pc (*7)				

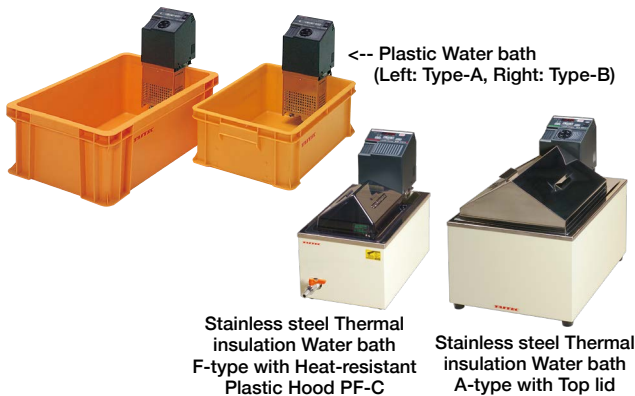
(*1) Max. temp. may not be reached when the optional Hood is not used or depending on the usage conditions. Recommended to use our specified Heat medium for High temp (See page 134) when using tap water at high temp. as dangerous due to the steam. (*2) Not equipped with a cooling function. Can be used together with our Chiller/Coolnit, Immersion cooler, etc. at below RT (25°C). Use our specified Antifreeze fluid (Heat medium for Low temp. See page 134) when preset temp. is below 7°C. The usage life of the components may be shortened when used at the upper limit temp. (*3) The value under the conditions of RT (25°C), AC100 V/50 Hz, Capacity 6 liters water, Preset temp. 37°C, and No heat load. For SX-10N, this is an actual measured value (0.01 unit). (*4) The value varies depending on the inner dia, length of the hose and hydraulic head. (*5) The reference value when the Stainless steel Thermal insulation Water bath F-type and Optional Hood PF-SDM is used under the condition of *3. The power consumption increases by approx. 20% to 50% when the Optional Hood is not used. (*6) The reference value when the Stainless steel Thermal insulation Water bath F-type is used under the condition of *3. (*7) As Heat-resistant temp. of Plastic Water bath C-type is 70°C, use the Optional Stainless steel Thermal insulation Water bath.

Optional accessories ① •Optional Combination Examples --> P.135

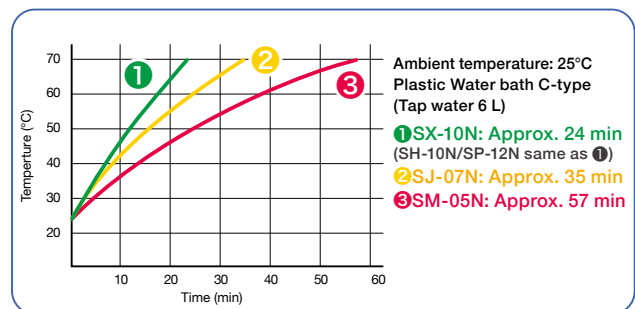
The combination of Thermominders with Water baths and Hood/Lids

Water bath		Used with Water bath					Applicable Hood/Lids	Used with Water bath and Hood/Lids				
Description/Model	Min. Inner Dim. And Capacity (Water level 75%)	SM-05N	SJ-07N	SX-10N	SH-10N	SP-12N	Model/Product name	SM-05N	SJ-07N	SX-10N	SH-10N	SP-12N
Plastic Water bath A-type (*1)	333 x 533 x 200H mm Approx. 28 L	(*2) ✓	✓	✓	✓	✓	-	-	-	-	-	-
Plastic Water bath B-type (*1)	295 x 450 x 160H mm Approx. 17 L	✓	✓	✓	✓	✓	-	-	-	-	-	-
Plastic Water bath C-type (*1)	180 x 320 x 155H mm Approx. 7 L	✓	✓	✓	✓	✓	Heat-resistant Plastic Hood PF-C	✓	✓	✓	-	-
Stainless steel Thermal insulation Water bath A-type	300 x 400 x 200H mm Approx. 18 L	✓	✓	✓	✓	✓	Stainless steel-made Flat lid A/B (SM/SJ/SX)	✓	✓	✓	-	-
		✓	✓	✓	✓	✓	Stainless steel-made Top lid A/B (SM/SJ/SX)	✓	✓	✓	-	-
		✓	✓	✓	✓	✓	Stainless steel-made Flat lid A/B (SH)	-	-	-	✓	-
		✓	✓	✓	✓	✓	Stainless steel-made Top lid A/B (SH)	-	-	-	✓	-
Stainless steel Thermal insulation Water bath B-type	300 x 400 x 150H mm Approx. 14 L	✓	✓	✓	✓	✓	Stainless steel-made Flat lid A/B (SM/SJ/SX)	✓	✓	✓	-	-
		✓	✓	✓	✓	✓	Stainless steel-made Top lid A/B (SM/SJ/SX)	✓	✓	✓	-	-
		✓	✓	✓	✓	✓	Stainless steel-made Flat lid A/B (SH)	-	-	-	✓	-
		✓	✓	✓	✓	✓	Stainless steel-made Top lid A/B (SH)	-	-	-	✓	-
Stainless steel Thermal insulation Water bath D	355 x 600 x 155H mm Approx. 25 L	✓	✓	✓	✓	✓	Stainless steel-made Flat lid D (SM/SJ/SX)	✓	✓	✓	-	-
		✓	✓	✓	✓	✓	Stainless steel-made Top lid D (SM/SJ/SX)	✓	✓	✓	-	-
		✓	✓	✓	(*3)	✓	Stainless steel-made Flat lid D (SH)	-	-	-	✓	-
		✓	✓	✓	✓	✓	Stainless steel-made Top lid D (SH)	-	-	-	✓	-
Stainless steel Thermal insulation Water bath E-type	300 x 500 x 155H mm Approx. 17 L	✓	✓	✓	✓	✓	Stainless steel-made Flat lid E (SM/SJ/SX)	✓	✓	✓	-	-
		✓	✓	✓	✓	✓	Stainless steel-made Top lid E (SM/SJ/SX)	✓	✓	✓	-	-
		✓	✓	✓	✓	✓	Stainless steel-made Flat lid E (SH)	-	-	-	✓	-
		✓	✓	✓	✓	✓	Stainless steel-made Top lid E (SH)	-	-	-	✓	-
Stainless steel Thermal insulation Water bath F-type (*4)	192 x 330 x 155H mm Approx. 7 L	✓	✓	✓	✓	✓	Heat-resistant Plastic Hood PF-C	✓	✓	✓	-	-
		✓	✓	✓	✓	✓	Stainless steel-made Top lid F	✓	✓	✓	✓	✓

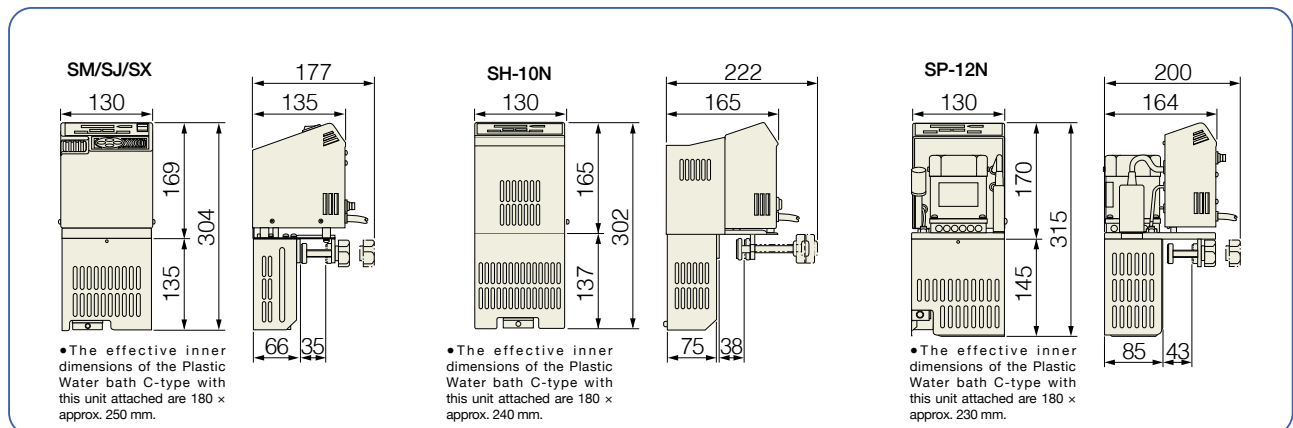
(*1) Heat-resistant temperature 70°C (*2) Temp. reaching time to 37°C or more may be slow due to the heater output capacity to the water bath volume. (*3) The entire water bath may not be stirred. Please be careful of the convection. (*4) Comes with a Drain cock (Outer dia. 14 mm for -10°C to 80°C). Other drain cocks are required when used with other temp. ranges. •Stainless steel-made Flat Lid/Top lid is made to order. •The Lid for water bath for the SN-12 can be customized to order. Ask us for details.



Temperature rising time (25°C --> 70°C)



SM-05N/SJ-07N/SX-10N/SH-10N/SP-12N



NEW

Constant temperature incubator/shaker OD Monitor

For cell culture related products

Shaker

Mixer Rotator Stirrer

Bead beater homogenizer Ultrasonic homogenizer

Aluminum block Bath Mini-size Bath

Water bath Staking Water bath Immersion cooler

Hybridization Incubator Constant temperature Chambers

Centrifugal Concentrators Cold Trap

Freeze dryers

Substrate Electrophoresis apparatus Blotting device for hybridization

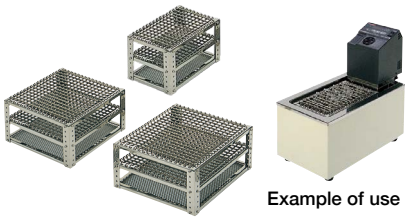
Constant-temperature water circulating system (Chiller)

Appendix

Optional accessories ② (SM-05N/SJ-07N/SX-10N/SH-10N/SP-12N)


•"ThermominderSM-05N/SJ-07N/SX-10N/SH-10N/SP-12N"--> P.132

Spring net stand

	Model	Dimensions (WxDxH)	Water Bath
	A2	270 × 270 × 140 mm	Stainless steel Thermal insulation Water bath A/B, Plastic Water bath A/B
	B2	280 × 320 × 140 mm	Stainless steel Thermal insulation Water bath A/B/F (*Stainless steel Thermal insulation Water bath F can't be used with Type-c and SP-12N sets.) Plastic Water bath A/B/C Thermal insulation Tray B (For SDN-B-EXN-B, See page 131 for details.)
C	140 × 240 × 140 mm		

Immersion cooler


Enables temp. control below RT (25°C). by throwing Cool Pipe into the water bath.

	Description/Model	Cool Pipe 80LF/150LF
	Applications	Makes the Thermominder a Low temp. constant bath
	Main Specs	Temperature range: -10/-15°C to +30°C Cooling capacity: about 150/290 W (When Liquid temp and Electrical frequency is 10°C and 50 Hz.)


•80LF shown •See page 144 for details.

Pipe clamp

Fixes the cooling pipe, the pipe of the Immersion cooler to the water bath.

	Product	Pipe clamp
	Applications	Fixes the cooling pipe, the pipe of the Immersion cooler to the water bath
	Clamping width	Adjustable to 5 to 35 mm or 25 to 60 mm by replacing the pressing plate according to the thickness of the water bath

Energy saving effect of Lid



USER'S VOICE
Power consumption is reduced by nearly 40% just by covering the lid onto the Unit.

Enables power consumption savings by covering the lid onto the Unit water bath.

Temp. (°C)	Power Consumption (Wh) for SM/SJ/SX	
	Without Lid	With Lid
37	80	41
55	184	109
70	343	182

Heat medium for Low temp./Heat medium for High temp.

Use it if necessary when the Immersion cooler is used together or an operation at high temp.

Product/Model	Remarks
Showbrine blue	Heat medium for Low temp. (Antifreeze) 20 kg, One (1) Can. Recommended for temp. below 7°C.
Silicone oil MA-50	Heat medium for High temp. 18 kg, One (1) Can. Kinetic viscosity 50 mm ² /s (at 25°C), Focuses Temp. accuracy, Recommended for temp. above 70°C
Silicone oil MA-100	Heat medium for High temp. 18 kg, One (1) Can. Kinetic viscosity 100 mm ² /s (at 25°C), Focuses Low evaporation, Recommended for temp. above 70°C

•See page 218 for details on Heat medium for details on Heat medium for High temp.

Physical properties of Silicone oil

Silicone oil is excellent in thermal and oxidation stability and is flame retardant with high flash points. As the vapor pressure is very low and the amount of evaporation loss is small, it does not contaminate the work environment and is suitable for long-time operation at high temp. It has a feature that can easily be warm or cool because its specific heat is about one-third of water.

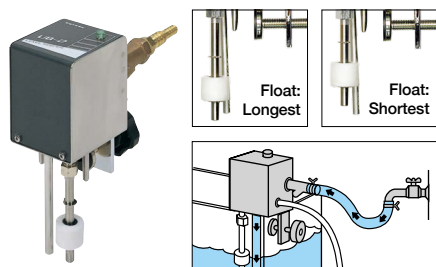
USER'S VOICE

Thermal conductivity is about one-fourth compared to water but Eight times as much as air so it can be expected to be more effective than air bath.



Automatic water supply Unit : Level Keeper UB-2

Supplies water automatically to the preset water level when the water level drops.



Water level can be set from 40 to 75 mm from the upper surface of the bath by adjusting the float.

Use a pressure-resistant hose and secure it with the included hose band so that the hose does not come off during water pressure.

Model	UB-2
Max. Operable differential pressure	Below 1.0 MPa (10 kg/cm ²)
Heat-resistant temp.	-10 to +70°C (Water supply temp. Up to +40°C)
Control method	Water supply: Solenoid valve, Water level: Float
Dimensions inside Bath	70 × 35 mm (Clampable width within 30 mm)
Water level adjustment width/ Water supply port	40 to 75 mm (Upper surface of bath), Outer dimensions 10 mm/14 mm
Power supply	AC 100 V / 0.1 A~240V
Standard accessories	Hose band × 1 pc

Optional Combination Examples of Thermominder

Please select a combination of the Thermominder, Water bath, Lid, Cooler, Heat medium, etc. according to the target temperature range from Low temp. to High temp.

•"ThermominderSDminiN" --> P.130 •"Thermominder SM-05N/SJ-07N/SX-10N/SH-10N/SP-12N" --> P.132 •"Cool Pipe150LF" --> P.144



Combination Example (1)

I often use at 37°C so I want a compact and energy saving model as much as possible!

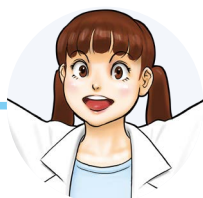
Configuration
①Unit Water bath SDminiN
②Plastic Water bath C *Included in SDminiN
③Heat-resistant Plastic Hood / PF-SDM



Combination Example (2)

I want to use one for Food quality inspection (44.5°C) !!

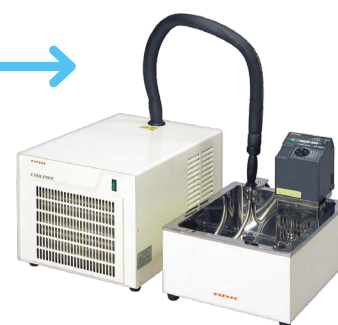
Configuration
①Unit Water bath SJ-07N
②Stainless steel Thermal insulation Water bath A Approx. 18 L (Water level 75%)
③Stainless steel-made Top lid A/B



Combination Example (3)

I want to use as much capacity as possible in the bath while keeping the water temp. around 0°C!

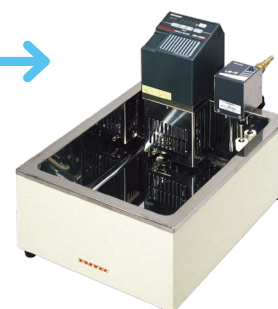
Configuration
①Unit Water bath SX-10N
②Immersion cooler / Cool Pipe 150LF
③Stainless steel Thermal insulation Water bath B Approx. 14 L (Water level 75%)
④Pipe clamp
⑤Heat medium for Low temp. / Showbrine blue



Combination Example (4)

I want to automatically supply water to prevent the bath from boiling dry when operating at 37°C for a long time!!

Configuration
①Unit Water bath SM-05N
②Automatic Water supply Unit Level Keeper / UB-2
③Stainless steel Thermal insulation Water bath B Approx. 14 L (Water level 75%)



NEW

Constant temperature incubator/shaker
OD Monitor

For cell culture related products

Shaker

Mixer
Rotator
Stirrer

Bead beater
homogenizer
ultrasonic
homogenizer

Aluminum
block Bath
Mini-size Bath

Water bath
Shaking Water bath
Immersion cooler

Hybridization
Incubator
Constant temperature
Chambers

Centrifugal
Concentrators
Cold Trap

Freeze dryers

Substrate
Electrophoresis apparatus
Blotting device for
hybridization

Constant-temperature
water circulating
system [Chillief]

Appendix

Personal-11 SDN/EXN/SM Set

Versatile Bench-top Water bath that is equipped with Reciprocal shaking. Unique Monode shaking platform for shaking L-shaped test tubes is available as an option.

•"Thermominder SDN/EXN-B" --> P.131 •"Thermominder SM-05N" --> P.132

※The lid cannot be used when Monod Kit is combined.



Personal-11 SDN Set

※The lid cannot be used when Monod Kit is combined.



Personal-11 EXN Set Combined with Monode Kit (Optional)



Personal-11 SM Set

Features

- Thermominder and Personal (Shaking water bath) come as a set
- Easy to remove the included shaking platform and inner tank
- Reciprocal shaking, Shaking width adjustment, Monode shaking (Optional)

Applications

- Small-scale Culture of Microbe such as E. coli
- Various incubations such as Enzyme reaction
- Hybridization

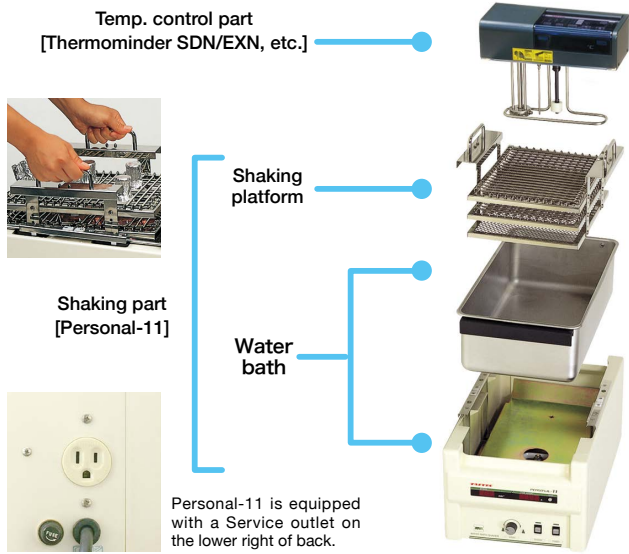
Model	Personal-11 SDN Set Thermominder SDN comes as a set	Personal-11 EXN Set Thermominder EXN comes as a set	Personal-11 SM Set Thermominder SM comes as a set (*1)	
Thermominder	Temperature range (*2)	5°C above RT to +70°C (Preset/Current temp. displayed simultaneously in the SDN/EXN switch. Switchable Preset/Current temp display in SM.)		
	Temp. control accuracy (*3)	±0.1°C to 0.3°C	±0.02°C to 0.08°C	±0.1°C
	Temperature memory	3		-
	Timer (*4)	-	Buzzer notification for Preset time, Operation OFF/Operation ON	Buzzer notification for Preset time, Operation OFF
	Other functions	Buzzer notification when preset temp. is reached, Automatic tuning	Buzzer notification when preset temp. is reached, Simple Program (3 Steps), Safety device output, Temp. input/output, Automatic tuning	Buzzer notification when preset temp. is reached, Automatic tuning
	Heater	800 W		500 W
	Safe devices/ protections	Circuit protector, Fuse, Dry-heating protection with float, Heater protection cover (SM-05N), Sensor error, Short circuit, High/Low temp. Sample protection, Water level alarm, Non-volatile memory error, Automatic tuning error, Alarm setting error, Switchable Automatic/Manual recovery when power failure		
	Power supply	AC 100 V/8.5 A		AC 100 V/5.5 A
Standard accessories	-		Microtube Floater × 1 pc, Plastic Water bath C-type × 1 pc (*5)	
Personal	Shaking method	Reciprocal shaking, Shaking speed: 20 to 160 r/min (displayed digitally), Shaking width: 10 to 40 mm (Stepless variable, Default 30 mm)		
	Platform dimensions	220 × 310 mm		
	Other functions	Elapsed time indicator (0.1 to 999.9 h, with Automatic reset) × 1, Service outlet for Thermominder ×1		
	Bath inside dim. (W×D×H)/volume	235 × 430 × 140 mm, Approx. 11 L (80% Water level) (*6)		
	Power supply	AC100V/0.5A /Max.9A with SDN (Need a step-down transformer)	AC100V/0.5A /Max.9A with EXN (Need a step-down transformer)	AC100V/0.5A /Max.6A with SM-05N (Need a step-down transformer)
Standard accessories	Spring net Shaking Platform × 1 pc, Clamp Spacer × 1 pc			
Dimensions (W×D×H)/weight	300 × 495 × 336 mm, Approx. 19 kg		300 × 527 × 420 mm, Approx. 19.4 kg	

(*1) Can be combined with SJ-07N and SX-10N. (*2) Max. temp. may not be reached when the optional Hood is not used or depending on the usage conditions. (*3) The value under the conditions of RT (25°C), AC 100 V/50 Hz, 80% Water level, Preset temp. 37°C, and No heat load. Only for EXN Measured value. (*4) Each setting range is 1 min to 99 h 59 min. (*5) This also serves as a packing box whereas it is not used together with the Personal-11 Set. (*6) The proper volume is 7 L to 9 L when shaking with the capacity (max. number) such as Centrifuge tubes and max. 500 mL of Erlenmeyer flasks at 120 to 160 r/min.

Optional accessories

- If you want a larger capacity (Num. of vessels) of Monode Shaking. --> P.140
- If you want Monode shaking in Air bath --> P.150 to 152

Product configuration ~Each part easily detachable~

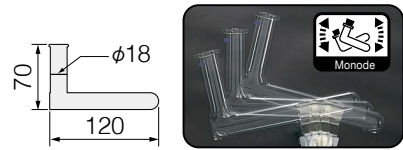


Capacity of Vessels Example

Spring net shaking platform (Spring pitch 15 mm)	φ11 mm Test tube (vertical)	187
	Centrifuge tube (30° tilted) 50 mL	12
	Erlenmeyer flask 100 mL	8
	Erlenmeyer flask 200 mL	6
	Erlenmeyer flask 250 mL	5
	Erlenmeyer flask 300 mL	5
Monode kit (Corresponds to SDN/EXN set)	Erlenmeyer flask 500 mL	3
	Optional L-shaped Test tube (See below)	12

L-shaped Test tube and Monod Shaking

Monod shaking is the most effective shaking motion in culture using L-shaped Test tubes. We offer L-shaped Test tubes with the dimensions on the left and Shaking platform suitable for it.



Option for Personal-11 SDN/EXN Set



Monod kit MD-1218

Option for Personal-11 SM Set



Related products: WTB-Shaker

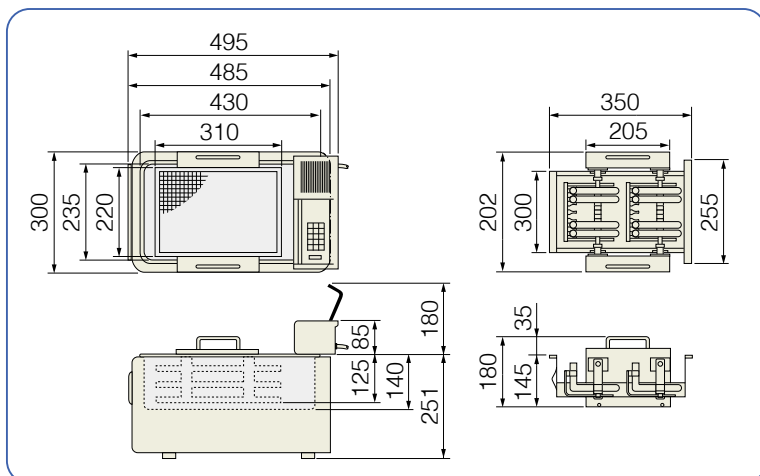


Description/Model	Remarks
Heat-resistant Plastic Hood/ PF-P	Suppresses evaporation and Reduces power consumption. It cannot be used when Monod kit MD-1218 below installed.
Monode kit/ MD-1218 (*)	Used by replacing it with Monod Shaking platform for L-shaped Test tube × 12 pcs and Spring net Shaking platform of Personal-11.
L-shaped Test tube (incl. 10)	φ18 × 120 × 70 mm

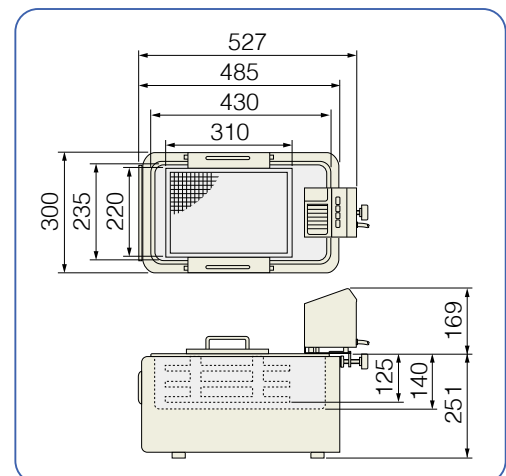
(*)Monode kit can also be ordered as a set as "Personal Monode SDN/EXN Set."

Description/Model	Remarks
Stainless steel-made Top lid	Suppresses evaporation and Reduces power consumption.
Automatic Water supply Unit Level Keeper/ UB-2	Supplies water when the water level in the bath drops below the preset.
Asbestos Timer unit B-type	For automatically turning the Shaking ON and OFF. For Preparation of samples for X-ray analysis of Asbestos.

Personal-11 SDN/EXN Set, MD-1218



Personal-11 SM set



NEW

Constant temperature incubator/shaker
OD Monitor

For cell culture related products

Shaker

Mixer
Rotator
Stirrer

Bead beater
homogenizer
Ultrasonic homogenizer

Aluminum block Bath
Mini-size Bath

Water bath
Shaking Water bath
Immersion cooler

Hybridization
Incubator
Constant temperature Chambers

Centrifugal Concentrators
Cold Trap

Freeze dryers

Substrate Electrophoresis apparatus
Blotting device for hybridization

Constant-temperature water circulating system [Chiller]

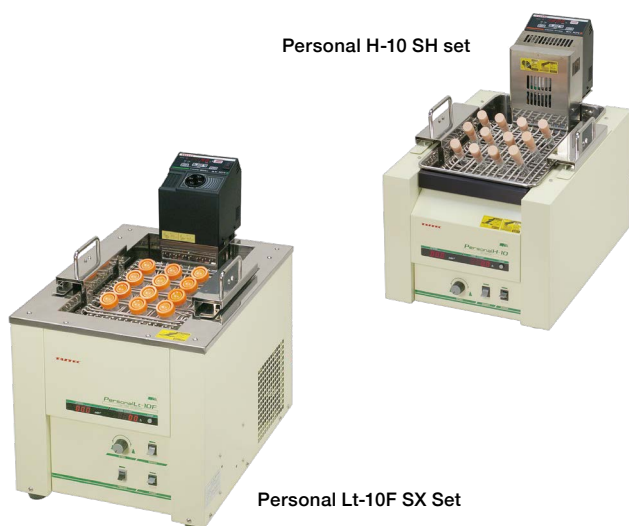
Appendix

NEW

Personal Lt-10F SX Set/Personal H-10 SH Set

Versatile Bench-top Water bath is equipped with Reciprocal shaking. 2 models for Low temp. and for High temp. For Cultivation of Particular Microbe and Preparation of Analysis samples.

•"Thermominder SX-10N/SH-10N" --> P.132



Personal H-10 SH set

Personal Lt-10F SX Set

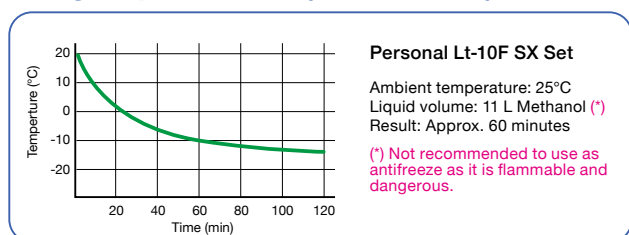
Features

- Benchtop Shaking water bath with -10°C to 180°C
- Reciprocal shaking, Shaking width adjustable
- Silicone oil can be used for High temp. type

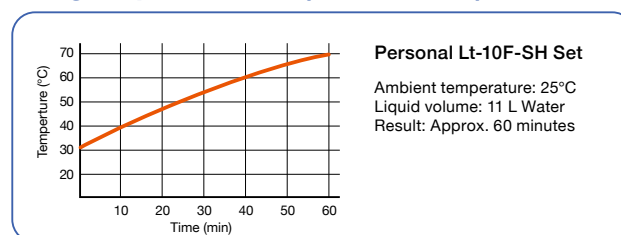
Applications

- Cultivation of Psychrophilic bacteria and Thermophilic bacteria
- Various incubations such as Enzyme reaction
- Preparation of X-ray analysis samples of Asbestos (Optional)

Falling temperature time (20°C --> -10°C)



Rising temperature time (30°C --> 70°C)

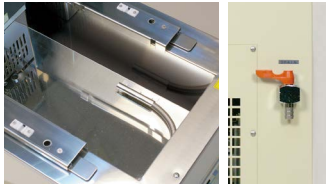


Model	Personal Lt-10F SX Set Personal Lt-10F and Thermominder SDN come as a set	Personal H-10 SH Set Personal H-10 and Thermominder EXN come as a set	
Thermominder	Temperature range (*)	-10°C to $+50^{\circ}\text{C}$	$+5^{\circ}\text{C}$ above RT to $+180^{\circ}\text{C}$
	Settable temp. range (**)	-20°C to $+105^{\circ}\text{C}$ (5°C to 105°C in SX-10N used singly)	-20°C to $+180^{\circ}\text{C}$
	Temp. control accuracy (***)	$\pm 0.1^{\circ}\text{C}$ to ($\pm 0.05^{\circ}\text{C}$ in SX-10N used singly)	$\pm 0.1^{\circ}\text{C}$
	Temperature memory	1	-
	Timer (****)	Buzzer notification for Preset time, Operation OFF, Temperature transition	Buzzer notification for Preset time, Operation OFF/Operation OFF
	Other functions	Buzzer notification when preset temp. is reached, Automatic tuning, Safety device output (Alarm out cable AOC-2 required to output.)	
	Heater	1000 W (Time proportional output variable)	
	Safe devices/protections	Circuit protector, Fuse, Dry-heating protection with float, Heater protection cover, Sensor error, Short circuit, High/Low temp. Sample protection, Water level alarm, Non-volatile memory error, Automatic tuning error, Alarm setting error, Switchable Automatic/Manual recovery	
	Power supply	AC 100 V/10.5 A	AC 100 V/11 A
	Standard accessories	Microtube Floater $\times 1$ pc, Plastic Water bath C-type $\times 1$ pc (****)	
Personal	Shaking method	Reciprocal shaking	
	Shaking speed/width	20 to 160 r/min (Digital display), 10 to 40 mm (Stepless variable, Default 30 mm)	20 to 160 r/min (Digital display), 10 to 30 mm (Stepless variable, Default 30 mm)
	Platform dimensions	220 \times 310 mm	
	Other functions	Elapsed time indicator (0.1 to 999.9 h, with Automatic reset) $\times 1$, Service outlet for Thermominder $\times 1$	
	Compressor	75 W	-
	Bath inside dim. (WxDxH)/volume	235 \times 430 \times 140 mm, Approx. 11 L (80% Water level, Approx. 10 L: Combined with Thermominder or Platform) (****) In the Personal Lt-10F SX, the water bath cannot be detached and equipped with a drain hole (unit rear). In the Personal H-10 SH Set, the water bath can be detached. and W/D drain.	
	Power supply	AC100V/4.5A /15A with SX-10N(Need a step-down transformer)	AC100V/0.5A /11.5A with SH-10N(Need a step-down transformer)
	Standard accessories	Dedicated Spring net Shaking platform $\times 1$ pc	
Dimensions (WxDxH)/weight	381 \times 545 \times 559 mm, Approx. 30 kg	336 \times 575 \times 457 mm, Approx. 22 kg	

(*)Max. temp. may not be reached when the optional Hood is not used or depending on the usage conditions. (**)Use antifreeze when below 7°C and heat medium for high temp. when above 70°C . See the right page for our specified heat medium. (***)The value under the conditions of RT (25°C), AC 100 V/50 Hz, 80% Water level, Preset temp. 37°C , and No heat load. (****)Each setting range is 1 min to 99 h 59 min. (****)This also serves as a packing box whereas it is not used together with the Personal-11 Set. (****)The proper volume is 7 L to 9 L when shaking with the capacity (max. number) such as Centrifuge tubes and max. 500 mL of Erlenmeyer flasks at 120 to 160 r/min.

Optional accessories

Each Detachable part



Personal Lt-10F is equipped with a drain hole as the water bath inside it cannot be removed due to its construction (Water bath inside Personal Lt-10F and Drain cock on the back are shown in left figure). Water bath inside Personal H-10 can be removed.

Capacity of Vessels Example

Spring net shaking platform (Spring pitch 15 mm)	φ11 mm Test tube (vertical)	187
	Centrifuge tube (30° tilted) 50ml	12
	Erlenmeyer flask 100mL	8
	Erlenmeyer flask 200mL	6
	Erlenmeyer flask 250mL	5
	Erlenmeyer flask 300mL	5
	Erlenmeyer flask 500mL	3

Optional accessories

USER'S VOICE

The lid plays an important role for energy saving when operated at High or Low temp!!



Personal Lt-10F SX set
Stainless steel-made Top lid
+ Asbestos Timer unit
Combination Examples

USER'S VOICE

High temp. type is also useful for culturing Hyperthermophiles slants (Slant medium).



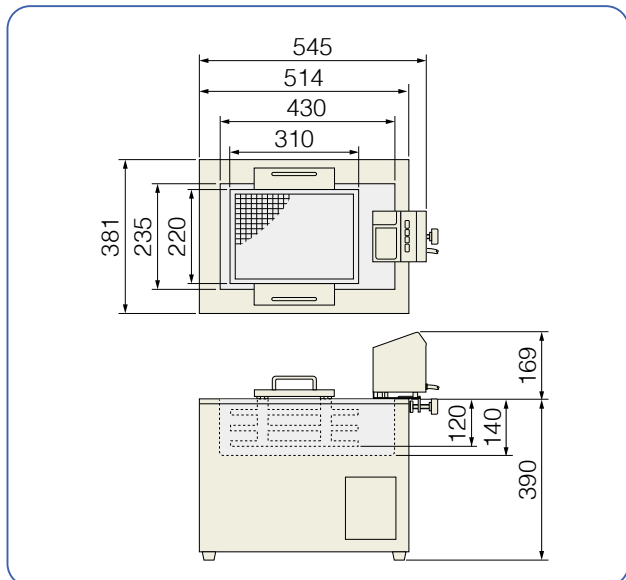
Personal H-10 SH set
Stainless steel-made Top lid
Combination Examples



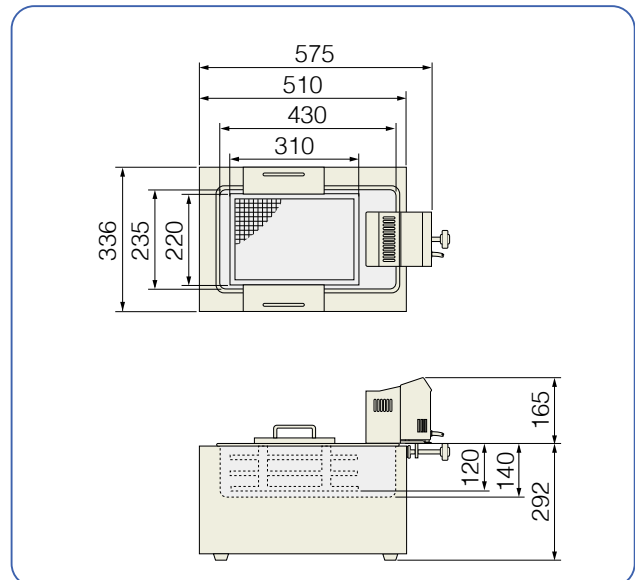
Personal Lt-10F is equipped with a Service outlet on the back lower left and while the Personal H-10 is equipped with one on the back lower right.

Description/Model	Remarks
Stainless steel-made Top lid	Suppresses evaporation and Reduces power consumption.
Automatic water supply unit : Level Keeper/ UB-2	Supplies water when water level in the bath drops below the preset.
Asbestos Timer unit B	For automatically turning the Shaking ON and OFF. For Preparation of samples for X-ray analysis of Asbestos (for Lt-10F SX Set)
Heat medium for Low temp. (Antifreeze)/ Showbrine blue (20 kg)	Use it when below 7°C.
Heat medium for High temp. Silicone oil/ MA-50 (18 kg)	Kinetic viscosity 50 mm ² /s (at 25°C), Focuses Temp. accuracy, Recommended for temp. above 70°C
Heat medium for High temp. Silicone oil/ MA-100 (18 kg)	Kinetic viscosity 100 mm ² /s (at 25°C), Focuses Low evaporation, Recommended for temp. above 70°C

Personal Lt-10F SX set



Personal H-10 SH set



NEW

Constant temperature incubator/shaker
OD Monitor

For cell culture related products

Shaker

Mixer
Rotator
Stirrer

Bead beater
homogenizer
Ultrasonic
homogenizer

Aluminum block Bath
Mini-size Bath

Water bath
Shaking Water bath
Immersion cooler

Hybridization
Incubator
Constant temperature
Chambers

Centrifugal
Concentrators
Cold Trap

Freeze dryers

Submarine
Electrophoresis apparatus
Blotting device for
hybridization

Constant-temperature
water circulating
system [Chillief]

Appendix

Water bath Shaker MM-10/Cool bath Shaker ML-10F

Shaking baths with High temp. accuracy that is used in various testing and research fields. Corresponds to Ames test with Monod shaking and Program operation as an option.

MM-10



Features

- Low-temperature type available, Easy to drain
- Reciprocal shaking, Shaking width adjustment, Monode shaking as an option
- Possible for Program operation as an option

Applications

- Cultivation of Microbe such as E. coli
- Various incubations such as Enzyme reaction
- Ames test [ML-10F with PU-6N, Some Modifications are required]

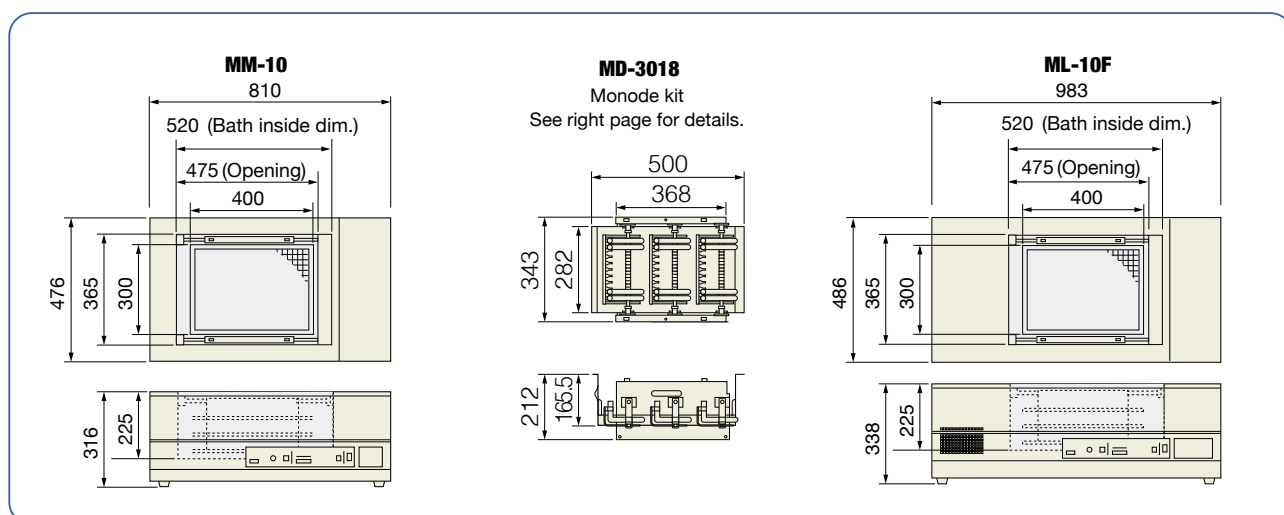


ML-10F

Model	MM-10	ML-10F
Temperature range (*1)	+5°C above RT to +80°C	0°C to +50°C
Temp. control accuracy (*2)	±0.02°C to 0.1°C	±0.05°C to 0.2°C
Shaking method/Speed range/Amplitude	Reciprocal shake, 20 to 160 r/min, 10 to 40 mm (Stepless variable)	
Temperature display	Digital (Changeable Preset/Current value)	
Platform dimensions	400 × 300 mm	
Stirring method in Bath	Jet flow	
Other functions	Temperature checking monitor, Remote temperature setting terminal (0 V to 5 V input, Enables Temp. program control with optional Program unit PU-5, etc.) (*3), Drain hole (right side of the unit)	
Heater/Compressor	Heater: 1300 W	Heater: 800 W, Compressor: 125 W
Safe devices/protections	Earth Leakage Circuit Breaker, Sample protection (High temp.), Water level alarm, Sensor error	
Bath inside dim. (W×D×H)/volume	520 × 365 × 225 mm, Approx. 25 L (60% Water level)	530 × 365 × 225 mm, Approx. 35 L (80% Water level)
Dimensions (W×D×H)/weight	810 × 476 × 316 mm, Approx. 45 kg	983 × 486 × 338 mm, Approx. 62 kg
Power supply	AC100V/15A (Need a step-down transformer)	
Standard accessories	Dedicated Spring net Shaking platform × 1 pc, Drain hole filter × 1 pc	

(*1) Max. temp. may not be reached when the optional Hood is not used or depending on the usage conditions. Use the heat medium for high temp. when above 70°C. See the right page for our specified heat medium.
 (*2) The value under the conditions of RT (2°C), AC 100 V/50 Hz, 60 to 80% Water level, and Preset temp. 37°C. This is an actual measured value (0.01 unit). (*3) Can be corresponded to Program unit PU-6N that enables the program control for temp. and shaking by a modification of this unit. Helps streamline the Ames test.

Dimensions




Optional accessories

Capacity of Vessels included in the Spring net shaking platform

Vessels	Capacity
φ16 mm Test tube (vertical)	204
Erlenmeyer flask 50 mL	24
Erlenmeyer flask 100 mL	20
Erlenmeyer flask 200 mL	12
Erlenmeyer flask 250 mL/300 mL	9
Erlenmeyer flask 500 mL	6
Erlenmeyer flask 1 L	3
Erlenmeyer flask 2 L	2
Sakaguchi flask 500 mL	6

Mountable number of Clamps (Optional)

	Vessels	Model	Number
 Above 300 mL Clamps comes with Spring and Above 500 mL comes with Octagonal rubber sheet.	50 mL	CF-0050	35
	100 mL	CF-0100	18
	200 mL	CF-0200	12
	250 mL	CF-0250	9
	300 mL	CF-0300	9
	500 mL	CF-0500	6
	1 L	CF-1000	4
2 L	CF-2000	2	
Sakaguchi flask	500 mL	SF-0500	6

Other Optional accessories



Monode kit MD-3018



MD-3018 Example for use



Program Unit PU-6N



Program Unit PU-5N

Description/Model	Remarks
Stainless steel-made Top lid for M series	Suppresses evaporation and Reduce power consumption.
Monode kit MD-3018	Monode Shaking platform below of L-shaped Test tube × 30 pcs. Enables to adjust the angle of shaking by replacing it with Spring net Shaking platform.
L-shaped Test tube (Incl. 10)	φ18 × 120 × 70 mm
Program Unit PU-5N	Enables Program control of Temp.
Program Unit PU-6N	Enables Program control of Temp. and Shaking (Some processing required separately for use in combination).
Heat medium for Low temp. (Antifreeze)/ Showbrine blue	Use it when below 7°C (Concentration 80% at around -40°C).
Heat medium for High temp. Silicone oil MA-50	Kinetic viscosity 50 mm ² /s (at 25°C), 18 kg, Focuses Temp. accuracy, Recommended for temp. above 70°C
Heat medium for High temp. Silicone oil MA-100	Kinetic viscosity 100 mm ² /s (at 25°C), 18 kg, Focuses Low evaporation, Recommended for temp. above 70°C

Application examples in the Ames test

MM-10/ML-10F optimum for Preculture of Microbes

Since Temp. control accuracy is ±0.02 to 0.1°C (ML-10F ±0.05 to 0.2°C), it enables Preculture of Microbes that meets the GLP standard (= Keeps the temp. 37°C within ±0.5°C).

Increases efficiency by using with the Program Unit!

Enables Automatic execution of Shaking ON-OFF and Temp. transition from storage temp (4°C) to the culture finished. For example, it can be set before going home so that you can conduct the experiment immediately the next morning.

USER'S VOICE

The combined PU-6N and ML-10F with some processing can be conveniently used for the Ames test.



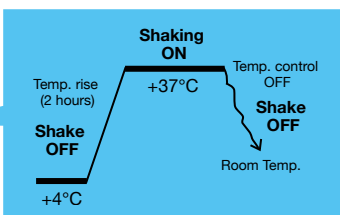
ML-10F



PU-6N

USER'S VOICE

Various other programs can be apparently set up.



Energy-saving Constant temp. Chamber recommended for Main Culture.

Use the "Invitro box iB-130" (page 154) for "Sprinkling it on the Min Glucose Agar plate medium at 37°C after Preincubation of the Specimen liquid and Microbes by mixing" and "Incubation for 48 hours". This unit also contributes to energy saving in laboratory facilities by the Three-position temp. control method.



USER'S VOICE

Since the air volume for air circulation in the chamber can be arbitrarily adjusted, it is recommended to weaken the air volume if drying of agar plate is concerned.



Plus Shaker EP-1

Combined with the Thermomixer, it becomes a Shaking Water bath at low cost. Possible to combine with the Plastic Water bath A/B-type and Stainless steel Heat Thermal insulation Water bath E type.

•"Thermomixer SM-05N/SJ-07N/SX-10N/SH-10N/SP-12N" --> P.132



Model	EP-1
Shaking method	Reciprocal shaking
Shaking speed/width	20 to 160 r/min, 0 to 30 mm (Stepless variable)
Platform dimensions	275 × 315 mm
Applicable Water tank	Plastic Water bath A/B-type Stainless steel Heat Thermal insulation Water bath E type
Dimensions inside Bath (W×D×H)	280 × 385 × 140 mm
Clampable thickness	Below 50 mm
Dimensions (W×D×H)/weight	330 × 575 × 250 mm, Approx. 14 kg
Power supply	AC100V/1A (Need a step-down transformer)

•Use this unit below 80°C (Up to 70°C when used together with the Plastic Water bath A/B-type)

Capacity

Vessel	Size	Spring net Shaking platform	When Clamps (Sold separately) are used
Test tube	φ11 mm	221 pcs (vertical)	-
Erlenmeyer flasks	100 mL	12 pcs	13 pcs
	200 mL	8 pcs	11 pcs
	250 mL	6 pcs	8 pcs
	300 mL	6 pcs	8 pcs
	500 mL	4 pcs	6 pcs

Optional parts: Holding leg, Clamps, Combination Shaking Water bath

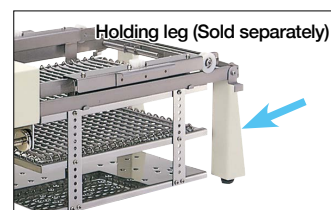
Model	Remarks
Holding leg for Plus Shaker	Used when not attached to the water bath, 1 pc
Clamp CF-0100	For 100 mL Erlenmeyer flasks, 1 pc
Clamp CF-0200	For 200 mL Erlenmeyer flasks, 1 pc
Clamp CF-0250	For 250 mL Erlenmeyer flasks, 1 pc
Clamp CF-0300	For 300 mL Erlenmeyer flasks, 1 pc
Clamp CF-0500	For 500 mL Erlenmeyer flasks, 1 pc
Plastic Water bath A-type	Inner dim. 333 × 533 × 200H mm, Up to 70°C
Plastic Water bath B-type	Inner dim. 295 × 450 × 160H mm, Up to 70°C
Stainless steel Heat Thermal insulation Water bath E type	Inner dim. 300 × 500 × 155H mm

Features

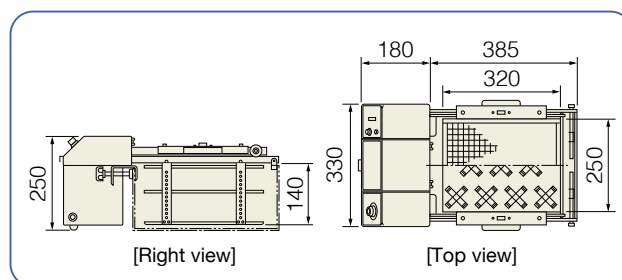
- Combined with Water bath for use
- Can be used with the Optional holding leg
- Comes with Spring net shaking platform
Can be used together with Clamps

Applications

- Cultivation of Microbe such as E. coli
- Various incubations such as Enzyme reaction
- Hybridization



Dimensions



•"Thermomixer SM-05N/SJ-07N/SX-10N/SH-10N" --> P.132

EP-1 + SM-05N + Plastic Water bath A	EP-1 + SJ-07N + Plastic Water bath A
Temperature range: 5°C above RT to 70°C	Temperature range: 5°C above RT to 70°C
EP-1 + SX-10N + Plastic Water bath A	EP-1 + SH-10N + Stainless steel Thermal insulation Water bath E
Temperature range: 5°C above RT to 70°C	Temperature range: 5°C above RT to 80°C

Program Unit PU-5N/PU-6N

Enables Temperature transition and Program operation of Shaking ON/OFF with our Water baths, Incubator shaker, and Chillers for Open circuit in combination.

•"Cool bath Shaker ML-10F" --> P.140 •"Coolnit CL Series" --> P.198

Features

- PU-5N for Temperature Program
- PU-6N for Temperature and Shaking ON/OFF Program

Applications

- Program operation for Shaking water bath ML-10F
- Program operation for Chillers for Open circuit CL-80R, etc.

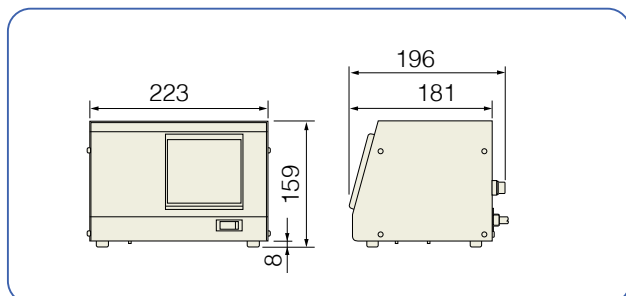
Conforming products for Program Unit

•"Chillers for Open circuit CL-80R" --> P.198



•"Cool bath Shaker ML-10F" --> P.140

Dimensions



PU-5N



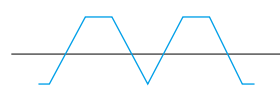
PU-6N

Example of Temperature program pattern

PU-6N enables Automatic operation (*) combining Shaking ON/OFF such as with the Temperature programs below.

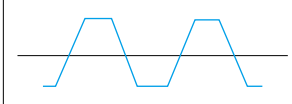
1. Repeats the reaction temperature and storage temperature.

Trapezoidal pattern



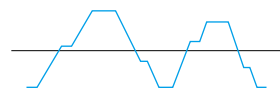
2. Temperature condition as Day and Night assumed.

Trapezoidal pattern



3. Stepwise temperature rise and fall and holding.

Multistage trapezoidal pattern



(*)Some processing is required separately for connection to perform automatic operation of Shaking ON/OFF with PU-6. Ask us for details.

Model	PU-5N	PU-6N	
Temperature program	Number of Storage pattern	16	
	Number of Storage segment	16 segments/patterns	
	Max. Number of segment	256	
	Number of Pattern connection	16	
	Number of Repeat	1 to 999 or Infinite	
	Preset time range	0 to 199 h 59 min	
Time signal	Functions	Temperature program: Weight zone, Holding, Step Pattern link (linkage), Temperature correction (offset)	
	Number of Storage pattern	-	1
	Number of Storage	-	ON-OFF: Four times (4) per each/Pattern
	Preset time range	-	0 to 199 h 59 min
Output	-	AC 100 V/Max. 15 A (Resistance load)	
Dimensions (WxDxH)/weight	223 × 181 × 159 mm, 2.5 kg		
Standard accessories	Pt Temperature Sensor × 1 pc, Connecting cable × 1 pc		
Power supply	AC100V/1A (Need a step-down transformer)	AC100V/15A (Need a step-down transformer)	

NEW

Constant-temperature Incubator/shaker OD Monitor

For cell culture related products

Shaker

Mixer Rotator Stirrer

Bead beater homogenizer Ultrasonic homogenizer

Aluminum block Bath Mini-size Bath

Water bath Shaking Water bath Immersion cooler

Hybridization Incubator Constant temperature Chambers

Centrifugal Concentrators Cold Trap

Freeze dryers

Substrate Electrophoresis apparatus Blotting device for hybridization

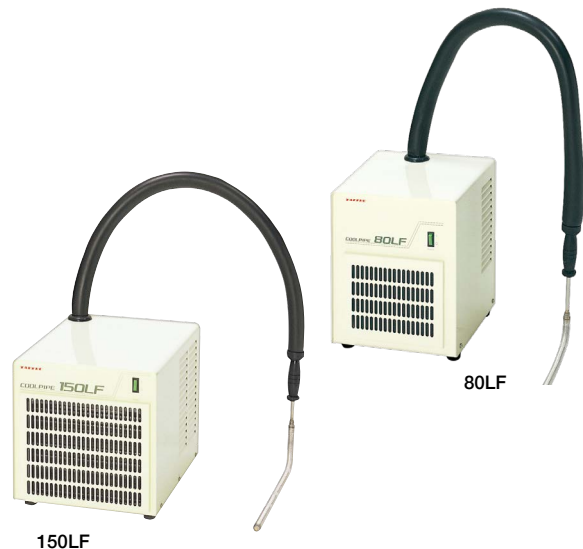
Constant-temperature water circulating system (Chiller)

Appendix

Cool Pipe 80LF/150LF

Easy to insert the tip of the cooling pipe in the object for use. For making the Thermominder, a Low temp. constant bath and Cooling for trapping vessels for Concentrator.

•Unit water bath "Thermominder" in combination --> P.135



Model	80LF	150LF
Temperature range (*1)	-10°C to +30°C	-15°C to +30°C
Cooling capacity (*2)	Approx. 150 W	Approx. 290 W
Condenser (Air-cooled) output	80 W	150 W
Cooling Pipe Structure	Stainless steel Flexible tube	
Pipe Immersing part dim.	φ16 mm × 330 mm	φ16 mm × 500 mm
Pipe Thermal insulation length	1 m	
Unit Dimensions (WxDxH)	270 × 260 × 350 mm	310 × 410 × 320 mm
Weight	Approx. 21 kg	Approx. 28 kg
Power supply	AC100V/2.5A (Need a step-down transformer)	AC100V/4A (Need a step-down transformer)

(*1) Not equipped with a Temperature control function. Use together with Thermominder, etc. if necessary. The Min. temp. may not be reached depending on the ambient temperature.

(*2) The value under the conditions of ambient temp. 25°C and liquid temp. 10°C at 50 Hz.

•When using a temperature controller, the temp controller that controls the heater is recommended to protect the refrigerator.

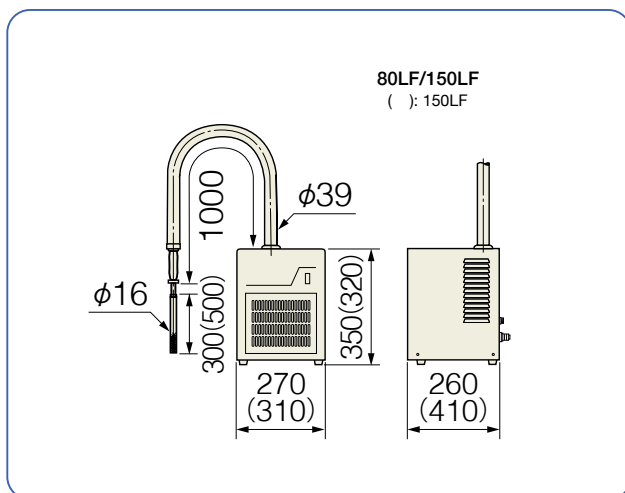
•Use a heater with capacity larger than cooling capacity of this product when using together Thermominder, etc.

•Use an antifreeze that does not corrode Stainless steel, Chemically and Thermally stable and a viscosity of below 30 mm²/s (specific gravity 1.0) in within operational temp. range

•Do not bend the Cooling pipe too much (Min bending radius is 50 mm for fixed bending). It may crack and cause gas leakage if bent forcibly. Do not immerse the heat insulation part of the Cooling pipe (the part where the black insulation material is wound) in liquid.

•Cannot be used with Seawater.

Dimensions



We contribute to the development of research and industry.

TATEC [General Catalog]

Features

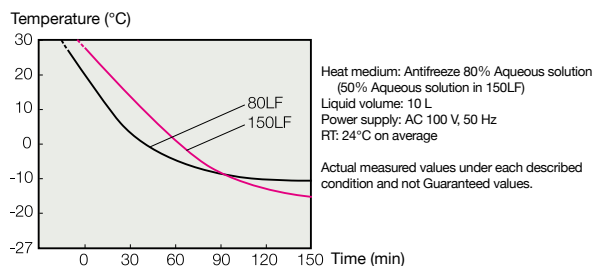
- Easy to insert the tip of the cooling pipe in the object for use
- Cooling pipe made of stainless steel and has movable flexibly
- Cooling function, but without the Temperature control function

Applications

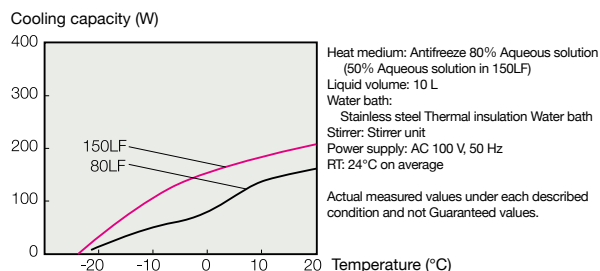
- Combined with Constant temperature Water bath
- Cooling for trapping vessels and Reaction container
- Cooling for Samples

Cooling curve and Cooling capacity curve

Cooling curve



Cooling capacity curve



Heat medium: Antifreeze is "Showbrine Blue". See below for details.

Optional accessories/Related products

Model	Descriptions
Heat medium for Low temp. Showbrine Blue	For below 7°C (Concentration 80% at around -40°C).

Cool Pipe 250DF

Usability is the same as 80LF/150LF, while these can enable Ultra Low temperatures. Coolability for 250DF is to -45°C .

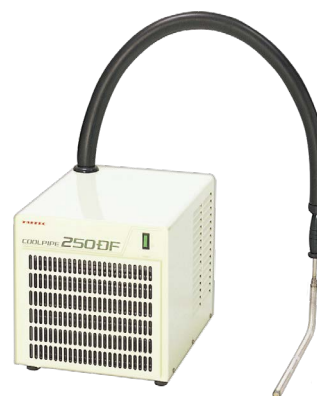
•Unit water bath "Thermominder" in combination --> P.135

Features

- Unitary refrigeration to -45°C
- Other features are same as 80LF/150LF

Applications

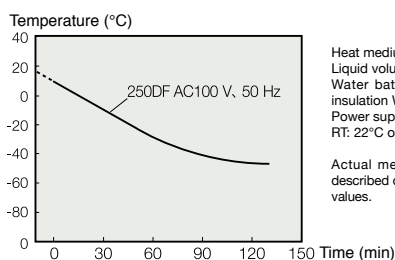
- Combined with the Constant temperature Water bath
- Cooling for trapping vessels and Reaction container
- Cooling for Samples



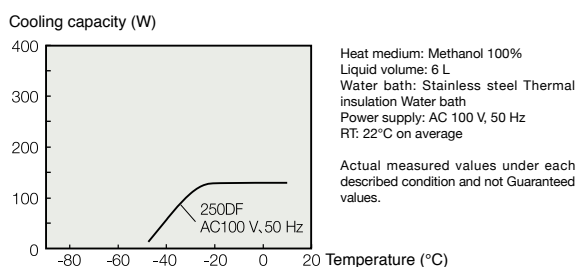
250DF

Cooling curve and Cooling capacity curve

Cooling curve



Cooling capacity curve



Methanol was used for this experiment purpose, but is not recommended for actual use.

Optional accessories/Related products

Model	Description
Heat medium for Low temp. Showbrine Blue	For below 7°C . Note: This cannot be used at Min temp. for 250DF due to its freezing point (Concentration 80% at around -40°C).

Model	250DF
Temperature range (*1)	-45°C to $+30^{\circ}\text{C}$
Cooling capacity	Approx. 130 W (*2)
Condenser (Air-cooled) output	250 W
Cooling Pipe structure	Stainless steel Flexible tube
Pipe Immersing part dim.	$\phi 16 \text{ mm} \times 330 \text{ mm}$
Pipe Thermal insulation length	1 m
Unit Dimensions (WxDxH)/weight	310 x 410 x 320 mm, Approx. 30 kg
Power supply	AC100V/6A (Need a step-down transformer)

(*1) Not equipped with a Temperature control function. Use together with Thermominder, etc. if necessary. The Min. temp. may not be reached depending on the ambient temperature

(*2) The value under the conditions of ambient temp. 25°C and liquid temp. 10°C at 50 Hz.

•When using a temperature controller, the temp controller that controls the heater is recommended to protect the refrigerator.

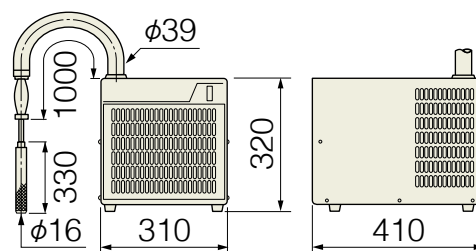
•Use a heater with a capacity larger than the cooling capacity of this product when using together with Thermominder, etc.

•Use an antifreeze that does not corrode Stainless steel, and is Chemically and Thermally stable with a viscosity of below $30 \text{ mm}^2/\text{s}$ (specific gravity 1.0) within operational temp. range. Our antifreeze (Showbrine Blue) cannot be used at Min. temp. for 250DF. Ask us for details.

•Do not bend the Cooling pipe too much (Min bending radius is 50 mm for fixed bending). *It may crack and cause gas leakage if bent forcibly. Do not immerse the heat insulation part of the Cooling pipe (the part where the black insulation material is wound) in liquid.

•Cannot be used with Seawater.

Dimensions



NEW

Constant temperature incubator/shaker
OD Monitor

For cell culture related products

Shaker

Mixer
Rotator
StirrerBead beater
homogenizer
Ultrasonic homogenizerAluminum block Bath
Mini-size BathWater bath
Shaking Water bath
Immersion coolerHybridization incubator
Constant temperature ChambersCentrifugal Concentrators
Cold Trap

Freeze dryers

Submarine Electrophoresis apparatus
Blotting device for hybridization

Constant-temperature water circulating system [Chiller]

Appendix

